



1 Catalogue, Rotary Encoder

Absolute rotary encoder, Data sheets

2 Series CE_58 with maximal 15 bit resolution

Solid shaft 	Data sheets	
	Single turn	Multi turn
Synchronous-Serial (SSI)	CEV58S-SSI-1-GB-1	CEV58M-SSI-1-GB-1
Parallel (P)	CEV58S-P-1-GB-1	–
Asynchronous-Serial (ASI)	–	CEV58M-ASI-1-GB-1
PROFIBUS-DP (PB)	CEV58S-PB-1-GB-1	CEV58M-PB-1-GB-1
CANopen (Co)	CEV58-CO-1-GB-1	CEV58-CO-1-GB-1
DeviceNet (DN)	CEV58S-DN-1-GB-1	CEV58M-DN-1-GB-1
Actuator-Sensor Interface (AS)	CEV58S-AS-1-GB-1	CEV58M-AS-1-GB-1
PROFINET IO (PN), Variant 1	CEV58-PN-1-GB-1	CEV58-PN-1-GB-1
PROFINET IO (PN), Variant 2	CEV58-PN-1-GB-2	CEV58-PN-1-GB-2
EtherCAT (ETC), Variant 1	CEV58-ETC-1-GB-1	CEV58-ETC-1-GB-1
EtherCAT (ETC), Variant 2	CEV58-ETC-1-GB-2	CEV58-ETC-1-GB-2
EtherCAT (ETC), Variant 3	CEV58-ETC-1-GB-3	CEV58-ETC-1-GB-3
EtherNet/IP (EIP)	CEV58-EIP-1-GB-1	CEV58-EIP-1-GB-1
SERCOS III (ES3)	CEV58-ES3-1-GB-1	CEV58-ES3-1-GB-1

Hollow shaft 	Data sheets	
	Single turn	Multi turn
Synchronous-Serial (SSI)	CEH58S-SSI-1-GB-1	CEH58M-SSI-1-GB-1
Parallel (P)	CEH58S-P-1-GB-1	–
PROFIBUS-DP (PB)	CEH58S-PB-1-GB-1	CEH58M-PB-1-GB-1
CANopen (Co)	CEH58-CO-1-GB-1	CEH58-CO-1-GB-1
DeviceNet (DN)	CEH58S-DN-1-GB-1	CEH58M-DN-1-GB-1
Actuator-Sensor Interface (AS)	CEH58S-AS-1-GB-1	CEH58M-AS-1-GB-1
PROFINET IO (PN)	CEH58-PN-1-GB-1	CEH58-PN-1-GB-1
EtherCAT (ETC)	CEH58-ETC-1-GB-2	CEH58-ETC-1-GB-2

Blind shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CE558S-SSI-1-GB-1	CE558M-SSI-1-GB-1
Parallel (P)	.....	CE558S-P-1-GB-1	—
PROFIBUS-DP (PB)	.....	CE558S-PB-1-GB-1	CE558M-PB-1-GB-1
CANopen (Co)	.....	CE558-CO-1-GB-1	CE558-CO-1-GB-1
DeviceNet (DN)	.....	CE558S-DN-1-GB-1	CE558M-DN-1-GB-1
Actuator-Sensor Interface (AS)	.....	CE558S-AS-1-GB-1	CE558M-AS-1-GB-1
PROFINET IO (PN), Variant 1	.....	CE558-PN-1-GB-1	CE558-PN-1-GB-1
PROFINET IO (PN), Variant 2	.....	CE558-PN-1-GB-2	CE558-PN-1-GB-2
EtherCAT (ETC), Variant 1	.....	CE558-ETC-1-GB-1	CE558-ETC-1-GB-1
EtherCAT (ETC), Variant 2	.....	CE558-ETC-1-GB-2	CE558-ETC-1-GB-2
EtherCAT (ETC), Variant 3	.....	CE558-ETC-1-GB-3	CE558-ETC-1-GB-3
EtherNet/IP (EIP)	.....	CE558-EIP-1-GB-1	CE558-EIP-1-GB-1
SERCOS III (ES3)	.....	CE558-ES3-1-GB-1	CE558-ES3-1-GB-1



Coupling		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CEK58S-SSI-1-GB-1	CEK58M-SSI-1-GB-1
Parallel (P)	.....	CEK58S-P-1-GB-1	—
PROFIBUS-DP (PB)	.....	CEK58S-PB-1-GB-1	CEK58M-PB-1-GB-1
CANopen (Co)	.....	CEK58-CO-1-GB-1	CEK58-CO-1-GB-1
DeviceNet (DN)	.....	CEK58S-DN-1-GB-1	CEK58M-DN-1-GB-1
Actuator-Sensor Interface (AS)	.....	CEK58S-AS-1-GB-1	CEK58M-AS-1-GB-1
PROFINET IO (PN), Variant 1	.....	CEK58-PN-1-GB-1	CEK58-PN-1-GB-1
PROFINET IO (PN), Variant 2	.....	CEK58-PN-1-GB-2	CEK58-PN-1-GB-2
EtherCAT (ETC), Variant 2	.....	CEK58-ETC-1-GB-2	CEK58-ETC-1-GB-2
EtherCAT (ETC), Variant 3	.....	CEK58-ETC-1-GB-3	CEK58-ETC-1-GB-3
EtherNet/IP (EIP)	.....	CEK58-EIP-1-GB-1	CEK58-EIP-1-GB-1
SERCOS III (ES3)	.....	CEK58-ES3-1-GB-1	CEK58-ES3-1-GB-1



3 Series CE_65 with maximal 15 bit resolution

Solid shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	–	CEV65M-SSI-1-GB-1
Parallel (P)	.....	CEV65-P-1-GB-1	CEV65-P-1-GB-1
Camshaft Gear (NSW)	.....	CEV65-NSW-1-GB-1	CEV65-NSW-1-GB-1
Asynchronous-Serial (ASI)	.....	CEV65-ASI-1-GB-1	CEV65-ASI-1-GB-1
Analog (A)	.....	–	CEV65M-A-1-GB-1
PROFIBUS-DP (PB)	.....	–	CEV65M-PB-1-GB-1
CANopen (Co)	.....	CEV65-CO-1-GB-1	CEV65-CO-1-GB-1
DeviceNet (DN)	.....	CEV65-DN-1-GB-1	CEV65-DN-1-GB-1
Ethernet-Powerlink (EPL)	.....	CEV65-EPL-1-GB-1	CEV65-EPL-1-GB-1
EtherNet/IP (EIP)	.....	CEV65-EIP-1-GB-1	CEV65-EIP-1-GB-1




Blind shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CES65-SSI-1-GB-1	CES65-SSI-1-GB-1
Analog (A)	.....	–	CES65M-A-1-GB-1
PROFIBUS-DP (PB)	.....	CES65-PB-1-GB-1	CES65-PB-1-GB-1
EtherNet/IP (EIP)	.....	CES65-EIP-1-GB-1	CES65-EIP-1-GB-1





Coupling		Data sheets	
		Single turn	Multi turn
EtherNet/IP (EIP)	.....	CEK65-EIP-1-GB-1	CEK65-EIP-1-GB-1




4 Series CO_58 with maximal 18 bit resolution


Solid shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	COV58-SSI-1-GB-1	COV58-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	COV58-PB-1-GB-1	COV58-PB-1-GB-1
CANopen (Co)	.....	COV58-CO-1-GB-1	COV58-CO-1-GB-1
PROFINET IO (PN)	.....	COV58-PN-1-GB-1	COV58-PN-1-GB-1
EtherCAT (ETC)	.....	COV58-ETC-1-GB-1	COV58-ETC-1-GB-1

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	COH58-SSI-1-GB-1	COH58-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	COH58-PB-1-GB-1	COH58-PB-1-GB-1
CANopen (Co)	.....	COH58-CO-1-GB-1	COH58-CO-1-GB-1
PROFINET IO (PN)	.....	COH58-PN-1-GB-1	COH58-PN-1-GB-1
EtherCAT (ETC)	.....	COH58-ETC-1-GB-1	COH58-ETC-1-GB-1

Blind shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	COS58-SSI-1-GB-1	COS58-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	COS58-PB-1-GB-1	COS58-PB-1-GB-1
CANopen (Co)	.....	COS58-CO-1-GB-1	COS58-CO-1-GB-1
PROFINET IO (PN)	.....	COS58-PN-1-GB-1	COS58-PN-1-GB-1
EtherCAT (ETC)	.....	COS58-ETC-1-GB-1	COS58-ETC-1-GB-1


Coupling		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	COK58-SSI-1-GB-1	COK58-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	COK58-PB-1-GB-1	COK58-PB-1-GB-1
CANopen (Co)	.....	COK58-CO-1-GB-1	COK58-CO-1-GB-1
PROFINET IO (PN)	.....	COK58-PN-1-GB-1	COK58-PN-1-GB-1
EtherCAT (ETC)	.....	COK58-ETC-1-GB-1	COK58-ETC-1-GB-1

5 Series CO_65 with maximal 18 bit resolution


Solid shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	COV65-SSI-1-GB-1	COV65-SSI-1-GB-1
Analog (A)	.....	COV65-A-1-GB-1	COV65-A-1-GB-1
Ethernet-Powerlink (EPL)	.....	COV65-EPL-1-GB-1	COV65-EPL-1-GB-1
EtherNet/IP (EIP)	.....	COV65-EIP-1-GB-1	COV65-EIP-1-GB-1

6 Series CM_58 / CM_65 with maximal 11 bit resolution

6.1 Series CM_58


Solid shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CMV58-SSI-1-GB-1	CMV58-SSI-1-GB-1
Analog (A)	.....	CMV58-A-1-GB-1	CMV58-A-1-GB-1
PROFIBUS-DP (PB)	.....	CMV58-PB-1-GB-1	CMV58-PB-1-GB-1
CANopen (Co)	.....	CMV58-CO-1-GB-1	CMV58-CO-1-GB-1

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CMH58-SSI-1-GB-1	CMH58-SSI-1-GB-1

Blind shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CMS58-SSI-1-GB-1	CMS58-SSI-1-GB-1
Analog (A)	.....	CMS58-A-1-GB-1	CMS58-A-1-GB-1
PROFIBUS-DP (PB)	.....	CMS58-PB-1-GB-1	CMS58-PB-1-GB-1
CANopen (Co)	.....	CMS58-CO-1-GB-1	CMS58-CO-1-GB-1

Coupling		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CMK58-SSI-1-GB-1	CMK58-SSI-1-GB-1
Analog (A)	.....	CMK58-A-1-GB-1	CMK58-A-1-GB-1


6.2 Series CM_65


Solid shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CMV65-SSI-1-GB-1	CMV65-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	CMV65-PB-1-GB-1	CMV65-PB-1-GB-1

7 Series CMV22

Solid shaft 	Data sheets	
	Single turn	Multi turn
Synchronous-Serial (SSI)	CMV22-SSI-1-GB-1	CMV22-SSI-1-GB-1
Asynchronous-Serial (ASI)	CMV22-ASI-1-GB-1	CMV22-ASI-1-GB-1
Analog (A)	CMV22-A-1-GB-1	CMV22-A-1-GB-1

8 Series CM_36


Solid shaft		Data sheets	
		Single turn	Multi turn
Analog (A)		CMV36-A-1-GB-1	–
Synchronous-Serial (SSI)		CMV36S-SSI-1-GB-1	CMV36M-SSI-1-GB-1
DRIVE-CLiQ (DQ)		CMV36-DQ-1-GB-1	CMV36-DQ-1-GB-1


Bearing free		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)		CMF36S-SSI-1-GB-1	–

9 Series CMV69

Solid shaft		Data sheets	
		Single turn	Multi turn
Analog (A)	.....	CMV69-A-1-GB-1	CMV69-A-1-GB-1

10 Series CD_75M SIL3/PLe

Solid shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)		–	CDV75M-1-GB-1
PROFIBUS-DP (PB)		–	CDV75M-PS-1-GB-1
PROFINET IO with PROFI-safe		–	CDV75M-PS-1-GB-2
Safety over EtherCAT		–	CDV75M-ETC-1-GB-1


Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)		–	CDH75M-1-GB-1
PROFIBUS-DP with PROFI-safe		–	CDH75M-PS-1-GB-1
PROFINET IO with PROFI-safe		–	CDH75M-PS-1-GB-2
Safety over EtherCAT		–	CDH75M-ETC-1-GB-1

11 Series C_H80 / C_H110 / C_H160

11.1 Series CEH80 with maximal 15 bit resolution

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CEH80-SSI-1-GB-1	CEH80-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	CEH80-PB-1-GB-1	CEH80-PB-1-GB-1
EtherCAT (ETC)	.....	CEH80-ETC-1-GB-1	CEH80-ETC-1-GB-1


11.2 Series CEH110 with maximal 15 bit resolution

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CEH110-SSI-1-GB-1	CEH110-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	CEH110-PB-1-GB-1	CEH110-PB-1-GB-1
EtherCAT (ETC)	.....	CEH110-ETC-1-GB-1	CEH110-ETC-1-GB-1

11.3 Series CEH160 with maximal 15 bit resolution

Hollow shaft		Data sheets	
		Single turn	Multi turn
EtherCAT (ETC)	.....	CEH160-ETC-1-GB-1	CEH160-ETC-1-GB-1

11.4 Series COH80 with maximal 18 bit resolution

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	COH80-SSI-1-GB-1	COH80-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	COH80-PB-1-GB-1	COH80-PB-1-GB-1
EtherCAT (ETC)	.....	COH80-ETC-1-GB-1	COH80-ETC-1-GB-1

11.5 Series COH110 with maximal 18 bit resolution


Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	COH110-SSI-1-GB-1	COH110-SSI-1-GB-1
PROFIBUS-DP (PB)	.....	COH110-PB-1-GB-1	COH110-PB-1-GB-1
EtherCAT (ETC)	.....	COH110-ETC-1-GB-1	COH110-ETC-1-GB-1

12 Series QEH80 / QEH81

12.1 Series QEH80

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)		QEH80-SSI-1-GB-1	QEH80-SSI-1-GB-1
PROFIBUS-DP (PB)		–	QEH80M-PB-1-GB-1

12.2 Series QEH81


Hollow shaft		Data sheets	
		Single turn	Multi turn
PROFIBUS-DP (PB)		QEH81-PB-1-GB-1	QEH81-PB-1-GB-1

13 Series QDH80 / QDH81

13.1 Series QDH80

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial with Incremental		–	QDH80M-SSI-1-GB-1

13.2 Series QDH81

Hollow shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial with Incremental		–	QDH81M-SSI-1-GB-1

14 Series CD_58 Double rotary encoder with multi interface


14.1 Series CDV58


Solid shaft		Data sheets	
		Single turn	Multi turn
With maximal 15 bit resolution		CDV58-M-1-GB-1	CDV58-M-1-GB-1
With maximal 18 bit resolution		CDV58-M-1-GB-2	CDV58-M-1-GB-2

14.2 Series CDS58

Blind shaft		Data sheets	
		Single turn	Multi turn
With maximal 15 bit resolution		CDS58-M-1-GB-1	CDS58-M-1-GB-1

15 Series CD_36 Double rotary encoder with multi interface

Solid shaft		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CDV36S-SSI-1-GB-1	CDV36M-SSI-1-GB-1

Bearing free		Data sheets	
		Single turn	Multi turn
Synchronous-Serial (SSI)	.....	CDF36S-SSI-1-GB-1	–

Incremental rotary encoder, Data sheets

16 Non-programmable Incremental rotary encoder

Standard	Data sheets
IH-20	TR-VCE-TI-GB-0600
IE-24	TR-VCE-TI-GB-0548
IE-35	TR-VCE-TI-GB-0550
IMV-36	IMV36-INK-1-GB-1
IMF-36	IMF36-INK-1-GB-1
IE-40	TR-VCE-TI-GB-0560
IE-58-A	TR-VCE-TI-GB-0570
IE-58-B	TR-VCE-TI-GB-0571
IE-58-U	TR-VCE-TI-GB-0572
IH-58-A	TR-VCE-TI-GB-0610
IH-58-U	TR-VCE-TI-GB-0611
IS-58-U	TR-VCE-TI-GB-0716
IK-58-U	TR-VCE-TI-GB-0715
IH-76 (Typ 0503)	TR-VCE-TI-GB-0630
IH-76 (Typ 0500)	TR-VCE-TI-GB-0620
IH-120	TR-VCE-TI-GB-0650

High-Resolution	Data sheets
IH-76 (Typ 0503 V)	TR-VCE-TI-GB-0631
IE-92 V	TR-VCE-TI-GB-0581
IH-92 V	TR-VCE-TI-GB-0641
IH-120 V	TR-VCE-TI-GB-0651

17 Programmable Incremental rotary encoder

Standard	Data sheets
IEV-58	IEV58S-INC-1-GB-1
IEH-58	IEH58-INC-1-GB-1
IES-58	IES58-INC-1-GB-1
IPV-58	IPV58-INC-1-GB-1
IEH-110	IEH110-INC-1-GB-1
IDV-58	IDV58-INC-1-GB-1
IDS-58	IDS58-INC-1-GB-1

High-Resolution	Data sheets
IOV-58	IOV58-INC-1-GB-1
IOH-58	IOH58-INC-1-GB-1
IOS-58	IOS58-INC-1-GB-1
IOH-110	IOH110-INC-1-GB-1

sensors
rotativ
linear

motion

systems

controls

TR-Electronic Übersicht Drehgeber



TR-Electronic – Ihr Partner für Automatisierung

TR-Electronic ist ein seit mehr als 25 Jahren erfolgreiches Unternehmen und ist mit einem Exportanteil von über 40 % weltweit vertreten. Das Kerngeschäft umfasst die Entwicklung und Herstellung industrieller Winkel- und Wegmesstechnik sowie Kompaktantriebstechnik mit integrierter Positionsregelung und -messung.

Das Unternehmen ist unterteilt, in drei Business Units (BU) strukturiert und damit für weiteres Wachstum zukunftsorientiert aufgestellt.

Produkte der **Business Unit Drehgeber** mit optischer oder magnetischer Abtastung erfassen präzise die Position bei der Stahlproduktion, in Windkraftanlagen, Kränen und Schiffen als auch explosionsgeschützt in Lackieranlagen. Miniatúrausführungen sorgen in der Medizintechnik für die richtige Lage. SIL3 zugelassene absolute Drehgeber sorgen für die nötige Sicherheit.

In der **Business Unit Lineargeber** positionieren magnetostruktive Wegsensoren z.B. Spritzgussmaschinen oder sind direkt in Hydraulikzylinder eingebaut. Kaskadierbare Wegsensoren positionieren Ablängmaschinen. Wegen der hohen Präzision sorgen Glasmaßstäbe an Werkzeugmaschinen für die genaue Position. Auf Phasendifferenzmessverfahren basierende Lasersensoren positionieren Regalbediengeräte in der Lager- und Fördertechnik.

In der **Business Unit Drives** wird die Winkelsensorik kombiniert mit Kompaktantrieben: Keine externe Elektronik wird benötigt, Lage-, Drehzahl- und Drehmomentregler, Leistungselektronik und absolute Drehgeber sind kompakt im Antrieb integriert und bringen so die Intelligenz über den Feldbus direkt zur Antriebswelle. Kompaktantriebe sind für vielseitige Bereiche in der Druck- und Verpackungsindustrie oder an Palettierern im Einsatz.














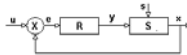
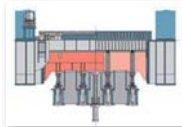


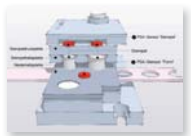
Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör



Relectronic			Rsystems		
Rotary Encoder	Linear Encoder	Drives	Components	Engineering	Unidor
 <p>Inkremental-Drehgeber</p>  <p>Absolutdrehgeber</p>  <p>Seillängengeber</p>	 <p>Magnetostriktion</p>  <p>Glasmaßstab</p>  <p>TOF Laser</p>  <p>Barcodepositionierung</p>	 <p>Stellantrieb</p>  <p>Positionierantrieb</p>  <p>Prozessantrieb</p>	 <p>I/O Module</p>  <p>Controls</p>  <p>Industrial-PC</p>	<p>Automatisierungs-Lösungen</p>  <p>Retrofit</p> 	<p>Stanzen und Umformen Mess- und Steuerungssysteme</p>  <p>Sensoren</p>  <p>Prozessüberwachungstools</p> 

Ergänzt wird das Portfolio durch die Tochter **TRsystems** mit kundenspezifischen Steuerungen, Industrie-PC, Hydraulikregelungen sowie Steuerungen und Sensorik zum Stanzen und Umformen.

Ein wesentlicher Erfolgsfaktor der **TR-Electronic GmbH** sind die inzwischen mehr als **300 Mitarbeitenden** die mit Innovationen aktiv am Produktportfolio mitgestalten und Kundeprojekte zielsicher zum Erfolg führen. Durch Engagement an den regionalen Hochschulen unterstützt TR-Electronic die hervorragende Ausbildung von jungen Mitarbeitenden und gewährleistet dadurch höchste Innovation und Qualität am Standort Trossingen.

Eine hohe Fertigungstiefe erlaubt, sehr schnell auf kundenspezifische Wünsche einzugehen. Durch die immer neuen Anforderungen an die mechanische Ausführung von Sensoren, durch neue Bussysteme, an neue innovative Bedienoberflächen, durch neue Steckverbinder wächst die Vielfalt der Produkte rasant. Mit **TR-Electronic** haben Sie einen Partner, der diesen Anforderungen gerecht wird.

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Produkte nach Bauart

Absolute Drehgeber Vollwelle	22/36 mm-Gehäuse	22	
	58 mm-Gehäuse	20	
	65 mm-Gehäuse	21	
	58/75 mm-Gehäuse	24	
	70/84/115 mm-Gehäuse	23	
Hohlwelle	58 mm-Gehäuse	26	
	80 mm-Gehäuse	27	
	80/81 mm-Gehäuse	28	
	110/160 mm-Gehäuse	29	
Sacklochwelle	58 mm-Gehäuse	30	
	65 mm-Gehäuse	31	
Fremdlagerung	36 mm-Gehäuse	31	
Kupplung	58/65 mm-Gehäuse	32	
Doppeldrehgeber	Vollwelle 58/70/75 mm-Gehäuse	33	
	Hohl-/Sackl. 75/80/58 mm-Gehäuse	34	
Seillängengeber	22/58/65 mm-Gehäuse	35	
Inkremental	Vollwelle	24/36/40 mm-Gehäuse	36
		58/92 mm-Gehäuse	37
		58/20 mm-Gehäuse	38
	Hohlwelle	76/92 mm-Gehäuse	39
		120 mm-Gehäuse	40
	Fremdlagerung	36 mm-Gehäuse	41
	Sacklochwelle	24/58 mm-Gehäuse	41
		58/76 mm-Gehäuse	42
	Handrad	Gehäuseoption	43

Produkte nach Wellenart

Vollwelle	Absolute Drehgeber	20–24
	Doppeldrehgeber	33
	Seillängengeber	35
	Inkrementale Drehgeber	36/37
	Hohlwelle	Absolute Drehgeber	26–29
Hohlwelle	Doppeldrehgeber	34
	Inkrementale Drehgeber	38–40
Sacklochwelle	Absolute Drehgeber	30/31
	Doppeldrehgeber	34
	Inkrementale Drehgeber	41/42
Fremdlagerung	Absolute Drehgeber	31
	Inkrementale Drehgeber	36
Kupplung	Absolute Drehgeber	32
Handrad	Gehäuseoption	43

Schnittstellen (weitere auf Anfrage)

SSI
ISI
Parallel
SIN/COS
LWL



TR-Electronic – Ihr Partner für Automatisierung

Allgemeines / Definitionen



Programmierbare Drehgeber

Der Standard in der Automatisierungstechnik, verfügbar mit allen gängigen Feldbussystemen: PROFIBUS, Interbus, CANopen, DeviceNet und Industrial Ethernet. Natürlich mit der Vielfalt von TR-Electronic in Mechanik, Schnittstellen und Funktion.



Absolute Drehgeber



SIL3/PLe

PROFIsafe

Inkrementale Drehgeber

Inkrementale Drehgeber

Von 24 mm Außendurchmesser bis 55 mm Hohlwelle – immer eine Lösung parat!



Zubehör

Motorfeedback-Systeme

Feedback-Drehgeber für moderne Positionierantriebe. Wahlweise integriert oder durch Hohlwelle direkt an der Antriebswelle platzierbar.



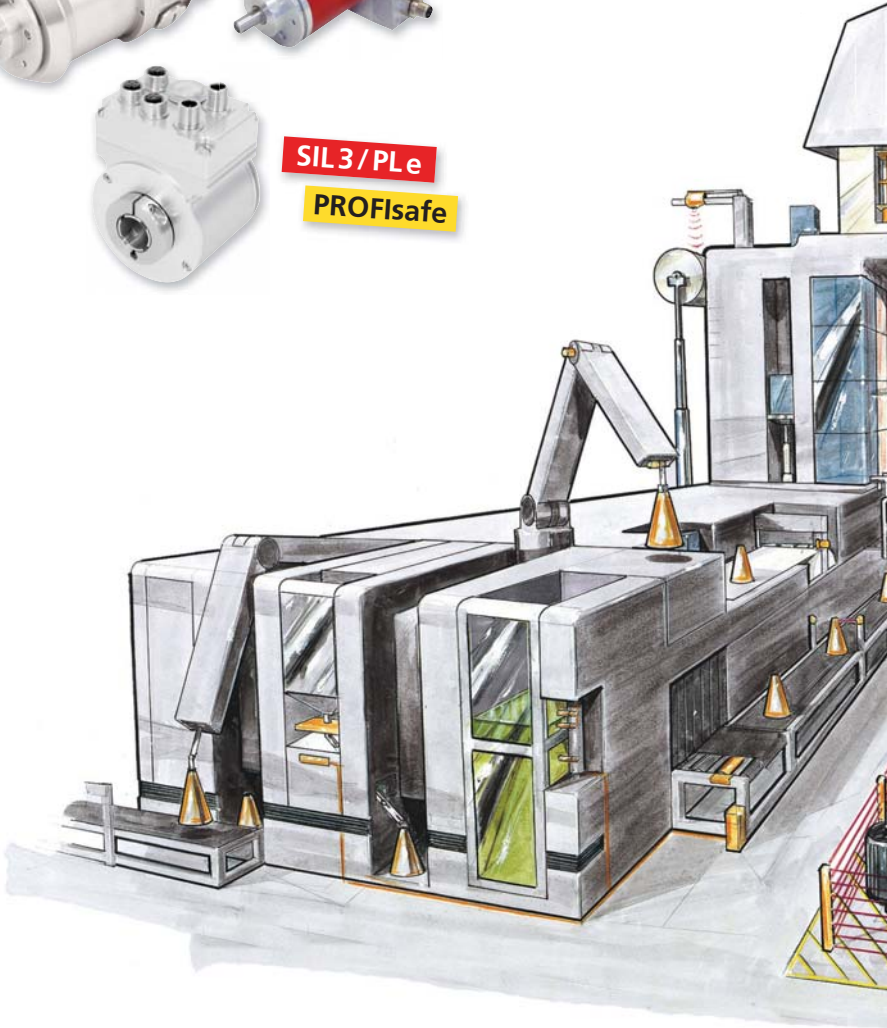
Linear-absolute Wegsensoren

Die kompakte Klasse für linear-absolutes Messen – direkt busfähig, einsetzbar in aggressiven Medien, zum Direkteinbau in Hydraulikzylinder.



Hochauflösende Absolutwegsensoren mit Glasmaßstab

Lineare Messung im μm -Bereich, absolut und ohne Referenzfahrt.



Intelligenter Stellantrieb

Absolut positionieren direkt am Feldbus. Motor, Regler mit Leistungsverstärker, Absolutdrehgeber, SPS-Funktionen und Feldbusschnittstelle integriert.



Der Heavy-Duty-Industrie-PC

Doppelt gelagertes Gehäuse hält Schwingungen von der Elektronik fern, konsequenter frontseitiger Zugang (MIPC) vereinfacht Konfiguration und Inbetriebnahme. Wählen Sie aus unseren vielfältigen Bauformen.



SPC – Die SPS für den PC

Macht aus jedem PC eine leistungsfähige SPS unter S5/S7 oder IEC 1131. Vereint den Komfort einer PC-Steuerung mit der Sicherheit durch einen separaten Prozessor nur für die SPS-Aufgaben.



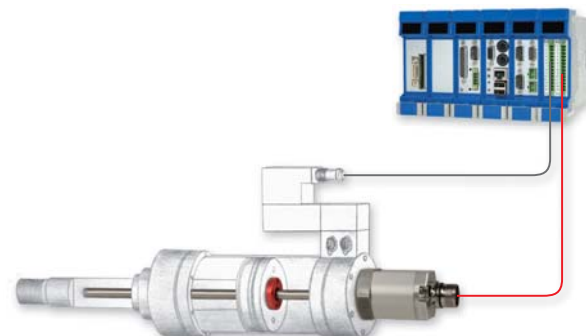
@ctiveIO – Mehr als Feldbusmodule

Modulares, robustes Feldbusknoten-System. E/A-Knoten, Klein-SPS, dezentraler Achsregler, Hochleistungs-nockenschaltwerk, Hutschienen-Industrie-PC, Servoregler für die Hydraulik ... mit den gängigen Feldbussystemen wie PROFIBUS-DP, CANopen, DeviceNet, LightBus ... und optional Ethernet!



Laser-Entfernungsmesssysteme

Entfernungen bis 240 m absolut und verschleißfrei messen, über SSI oder direkt im Feldbus.



Allgemeines/ Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

TR-Electronic – Für alle Branchen die passende Lösung

Lager und Logistik

Gerade im Bereich moderner Lagereinrichtungen wie Regalbediengeräte, Transferstrecken und Krananlagen ist eine leistungsfähige, dezentrale Mess- und Steuerungstechnik für eine einfache Projektierung und eine zügige Inbetriebnahme entscheidend.



Verpackungsindustrie

Nach Kundenwunsch zusammengestellte, flexible Automatisierungslösungen sind die intelligente Basis für erfolgreiche Maschinenkonzepte in der Verpackungsindustrie. Hohe Verarbeitungsgeschwindigkeiten ermöglichen schnelle Durchlaufzeiten und große Stückzahlen.

Absolut-Messsysteme ersparen zeitaufwändige Referenzfahrten, hochintegrierte, intelligente Sensortechnik reduziert das Bauvolumen und entlastet übergeordnete Steuerungen. Ganz besonders im Bereich erhöhter Präzision sind mit uns Lösungen möglich, die bisher nicht umsetzbar waren.



Allgemeines / Definitionen

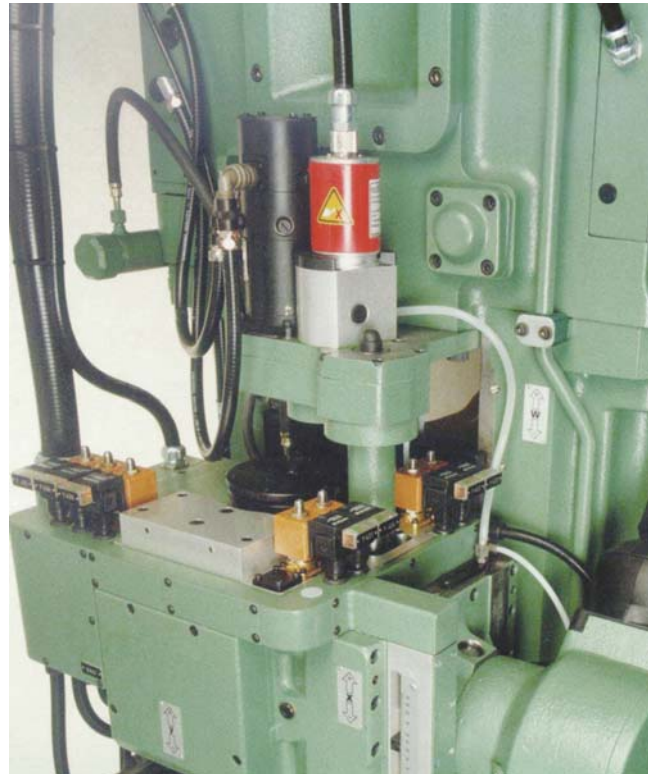
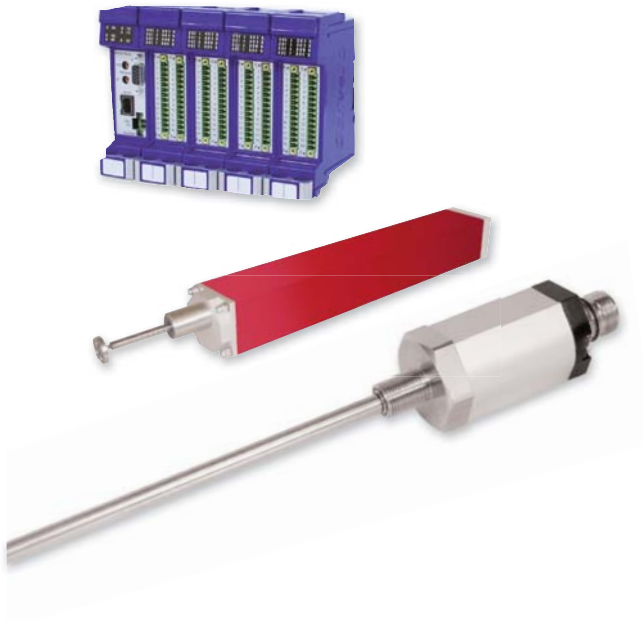
Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Metallbearbeitung

Die Welt der Pressen und Stanzen ist seit Langem das Spezialgebiet von TR-Electronic. Wir entwickeln die Produkte von Anfang an so, dass sie den hohen Belastungen von Schock und Vibration standhalten.



Holzverarbeitung

Intelligente, dezentrale Steuerungskonzepte, leistungsfähige Sensoren mit Vor-Ort-Signalverarbeitung und Komponenten, die trotz starker Temperaturschwankungen und Vibrationen zuverlässig arbeiten sind die Basis für Automatisierungs-Lösungen in der Holzverarbeitenden Industrie. Transfermaschinen, Bearbeitungszentren und Montagezellen intelligent auszustatten und zu vernetzen ist unsere Spezialität, gerade dann, wenn Sie eine Plattform für Ihre ganz besondere Maschinenphilosophie oder Sonderfunktion suchen!



Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

TR-Electronic – Für alle Branchen die passende Lösung

Drucktechnik und Papierverarbeitung

Schnelle Signalverarbeitung für Druckmaschinen ermöglicht hohe Passergenauigkeit und dezentrale Kompaktantriebe automatisieren Einstellvorgänge. Mit Edelstahlgehäusen halten Drehgeber auch aggressive Medien wie Holzschliff in Papiermaschinen aus. Kleine absolute Drehgeber messen Bewegungen auch in engen Bauräumen.



Veranstaltungstechnik

Sicherheit für alle Anforderungsklassen bieten die absoluten Drehgeber von TR-Electronic in der Veranstaltungstechnik. Vom Drehgeber mit zusätzlicher Inkrementalspur bis zum SIL3/PLe zertifizierten Sicherheitsdrehgeber bieten wir die passende Lösung für Ihr maßgeschneidertes Sicherheitskonzept.

SAFETY INSIDE

SIL3/PLe

PROFIsafe



Erneuerbare Energien

Mit intelligenter Nachführung von Photovoltaik-Anlagen wird die Effizienz verbessert und damit die Amortisierung beschleunigt. Hochauflösende Drehgeber ermöglichen die exakte Positionierung. Kompaktantriebe verringern die Anzahl zu vernetzender Bauteile und richten auch nach Jahren Ihre Anlage nach der Sonne aus.



Kunststoffverarbeitung

Vielfältige Messaufgaben in kunststoffverarbeitenden Maschinen und Anlagen erfordern schnelle Signalverarbeitung und hohe Präzision. Lineare Messsysteme zum Einbau in Hydraulikzylinder fügen sich nahtlos in Spritzgussmaschinen ein, Industrie-PC sind eine universelle Plattform für anwenderspezifische Steuerungssysteme für Serienmaschinen und Sonderanlagen.



Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Drehgeber für industrielle Standardanwendungen im 58 mm-Gehäuse

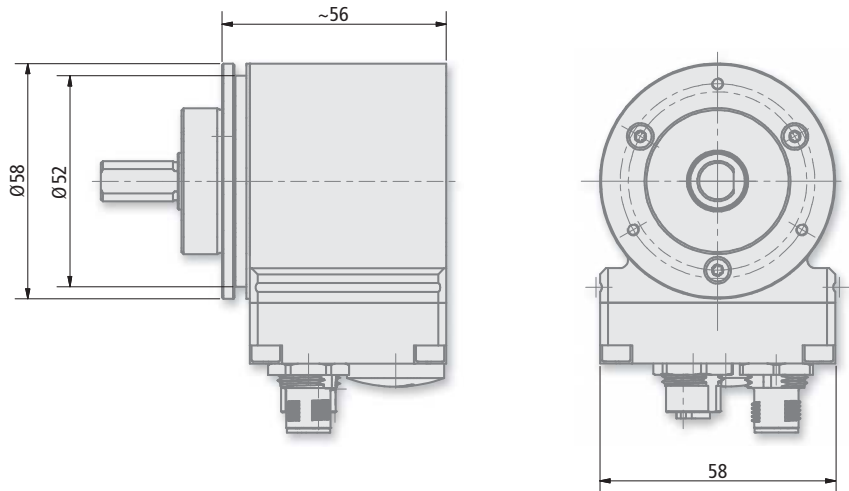
Der Drehgeber mit eingebauter Vielfalt

Mit der Baugröße 58 mm hat sich ein weitverbreiteter Industriestandard für absolute und inkrementale Drehgeber etabliert. Bei TR-Electronic ist Standard, was bei anderen Anbietern besonders ist. Die absoluten Drehgeber der 58 mm-Baureihe sind modular aufgebaut. Damit können die Anforderungen Ihrer Anwendung überdurchschnittlich gut, meist ohne Sonderentwicklung, realisiert werden.

- + Industriestandard Baugröße 58 mm
- + kostenoptimiert durch verschiedene Auflösungsbereiche
- + viele Schnittstellen
- + kompatibel mit einer Vielzahl von Steuerungen
- + Wellen- und Anbauvarianten
- + gleiche Mechanik mit verschiedenen Schnittstellen
- + kompakte Steckertechnik – für Serienmaschinen
- + für Einzelprojekte, da durch Anwender programmierbar
- + für kundenspezifische Anschlusstechnik
- + zum Teil mit UL-Zulassung

Zeichnung

am Beispiel CEV 58 M
CANopen
Anschluss über 2 x M12 Stecker
8.192 Schritte/Umdrehung
4.096 Umdrehungen
Flansch mit Zentrierbund 36 mm
Welle 10 mm mit Fläche
Schutzart IP 65



Schnittstellen

(weitere auf Anfrage)

SSI

ISI

Parallel

SIN / COS



Drei Abtastungen für optimales Kosten-Nutzenverhältnis

O Hochauflösende optische Abtastung

Dank moderner Opto-Asic-Technologie werden innerhalb der Umdrehung bis zu 18 bit (262.144 Schritte) erzeugt. Dazu kommen die bis zu 32.768 absolut abgetasteten Umdrehungen. Die Signalverarbeitung geschieht in FPGA-Geschwindigkeit. Damit wird diese Abtastung immer dann eingesetzt, wenn Positionswerte besonders schnell erfasst werden müssen. Sie erkennen diese Abtastung am Buchstaben „O“ in der Typenbezeichnung.

E Optische Abtastung für industrielle Standardanwendungen

Das Gros der industriellen Anwendungen profitiert von Drehgebern mit einer Auflösung von bis zu 15 bit je Umdrehung und bis zu 4.096/256.000 abgetasteten Umdrehungen. Die Signalverarbeitung im Prozessor erlaubt viele Auswertungsfunktionen und optimale

Anpassung an neue Anforderungen. Zusatzsignale wie Endschalter und Geschwindigkeitsüberwachung können generiert werden. Sie erkennen diese Abtastung am Buchstaben „E“ in der Typenbezeichnung.

M Magnetische Abtastung für preissensible Anwendungen

Genauigkeit, Auflösung und Zeitverhalten sind bei optischen Drehgebern besser als bei magnetischen Drehgebern. Sofern reduzierte Anforderungen ausreichen, erfüllen wir diese preisbewusst mit unseren magnetischen Drehgebern. 11 bit werden je Umdrehung ergänzt und um 4.096 absolut abgetastete Umdrehungen ergänzt. Auf erweiterte Signalverarbeitung wurde verzichtet, die Auflösung ist jedoch auch bei diesem Gerät programmierbar. Sie erkennen diese Abtastung am Buchstaben „M“ in der Typenbezeichnung.

Wellenarten



Vollwelle



Hohlwelle



Sacklochwelle



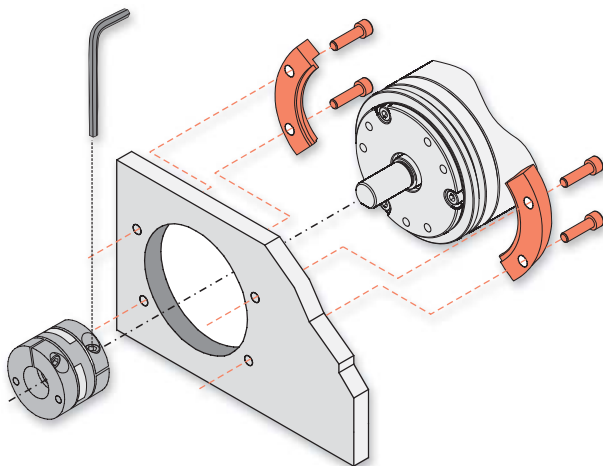
integrierte Kupplung

Durchgehendes Mechanikkonzept

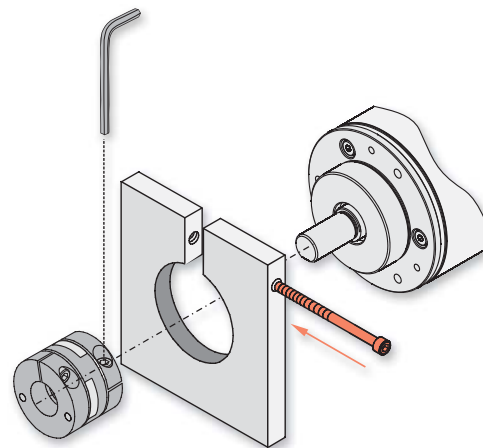
Die kompakte Drehberserie Baugröße 58 mm wurde konsequent für die verschiedenen Anbauvarianten entwickelt. Damit steht Ihnen für die jeweilige Einbausituation ein passendes Gerät zur Verfügung – Funktionen, die Sie für eine Maschine mit Vollwelle benötigen, liefern wir für eine andere Maschine auch ohne Weiteres mit durchgehender Hohlwelle. Für Drehgeber mit Vollwelle liefern wir zur Mechanik Ihrer Anwendung passende Kupplungen.

Die Vielfalt der mechanischen Lösungen erweitert Ihren Raum für innovative Konstruktionen. Sie finden die vielfältigen Anbaumöglichkeiten in der folgenden Übersicht der Montagevarianten. Nicht alle möglichen Kombinationen konnten dargestellt werden. Sicher haben wir auch für Ihre Anbausituation eine Lösung.

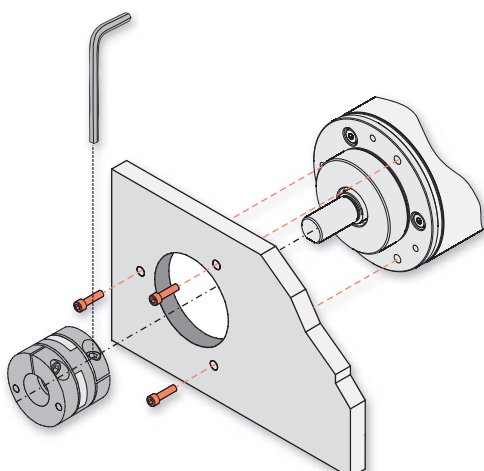
Montagevarianten Vollwelle



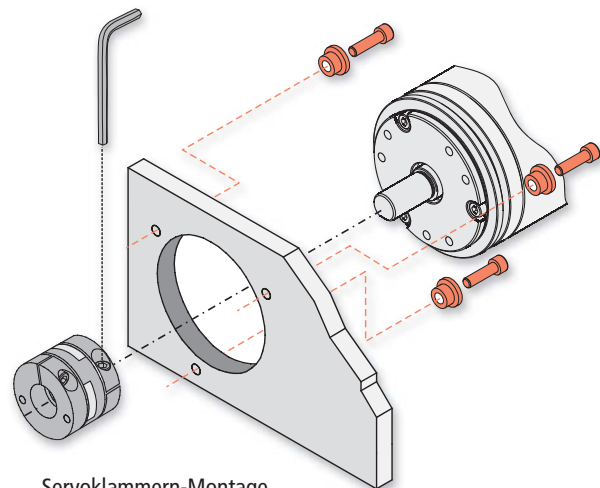
Spannpratzen-Montage



Flansch-Montage



Klemmflansch-Montage



Servoklammern-Montage

Allgemeines/ Definitionen

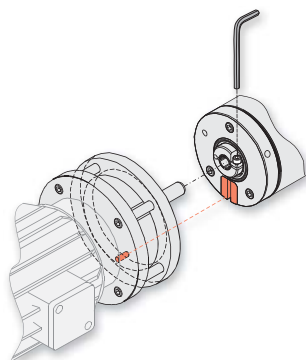
Absolute Drehgeber

Inkrementale Drehgeber

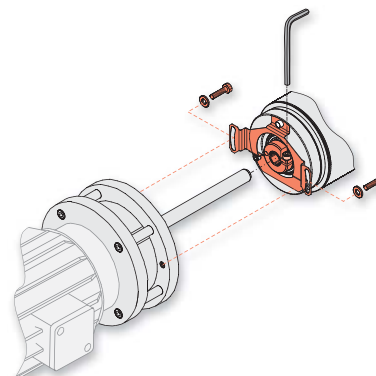
Zubehör

Montagevarianten Hohl- und Sacklochwelle

Verdrehsicherung, Montageposition des Stiftes/Drehmomentstütze

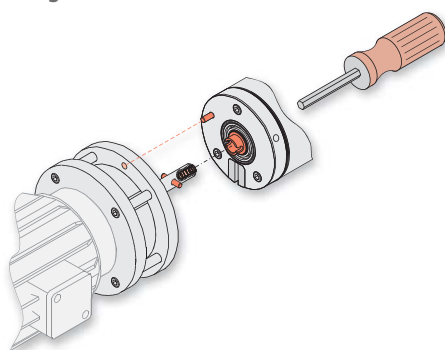


Stiftnut axial, Stift im Flansch der Maschine



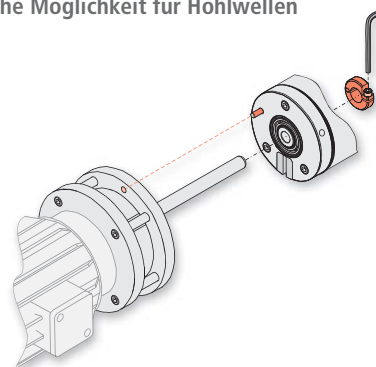
Drehmomentstütze mit Klemmring

Zusätzliche Möglichkeit für Sacklochwellen



Stiftnut axial mit Kerbnut und axialer Schraube

Zusätzliche Möglichkeit für Hohlwellen

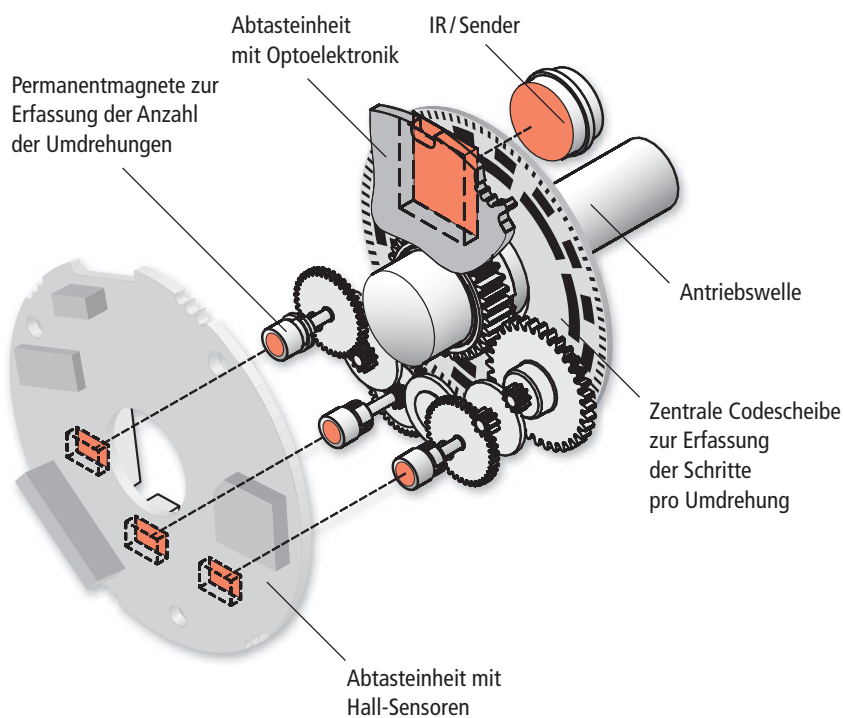


Stiftnut axial mit Klemmring haubenseitig

Funktionsbeschreibung für die optischen Abtastungen

Im Gegensatz zu inkrementalen Messsystemen steht beim Absolut-Messsystem der momentane Positionswert unmittelbar zur Verfügung.

Wird dieses Messsystem im ausgeschalteten Zustand mechanisch verfahren, ist nach Wiedereinschalten der Spannungsversorgung die aktuelle Position unmittelbar und direkt auslesbar.



Raum für mehr Funktionen – im 65 mm-Gehäuse

Sieben Millimeter mehr im Durchmesser ermöglichen eine Vielzahl an Zusatzfunktionen, die in der kleineren Baureihe im 58 mm-Gehäuse nicht zugänglich sind.

Die Ausgabe von Nockensignalen ist eine Besonderheit der Drehgeber mit 65 mm-Gehäuse. Auf bis zu 32 Nockenbahnen können jeweils bis zu 4 Nocken ausgegeben werden. Damit werden auch komplexe Steueraufgaben dezentral direkt vom Drehgeber in einem Maschinenmodul erledigt.

- + komfortabler Anschluss von Feldbusleitungen
- + großer Spannungsbereich der Kabelverschraubungen
- + optimale Anpassung durch größere Auswahl an Steckverbindern
- + Inkrementalsignal für Umrichter und Feldbus für Steuerung aus einem Drehgeber
- + Maschinenteile dezentral steuern per Nockenschaltwerk im Geber
- + seltene Schnittstellen machbar

Großzügiger Anschlussraum bei Feldbussen

Im Anlagen- und Sondermaschinenbau hat sich bewährt, Feldgeräte mit Leitungen „von der Rolle“ anzuschließen. Die Leitungen werden beim Einbau zugeschnitten und angeschlossen. Die Feldbushaube der 65er-Baureihe bietet komfortablen Anschlussraum. Kaum Kabelbiegung und großzügige Klemmenausstattung erleichtern den Anschluss vor Ort erheblich. Durch die größeren Kabelverschraubungen kann eine breitere Vielfalt an verfügbaren Feldbusleitungen verwendet werden.



58 mm-Gehäuse



65 mm-Gehäuse

Mehr Schnittstellenmöglichkeiten

Drehgeber im Baumaß 65 mm von TR-Electronic sind wahre Kommunikationstalente. Sei es die Kombination von Punkt-zu-Punkt-Schnittstellen oder die Verknüpfung von Feldbussen wie PROFIBUS oder CANopen mit einer oder mehreren Punkt-zu-Punkt-Schnittstellen – in den Drehgebern der 65er-Serie ist ausreichend Platz dafür.

Kombinationen von Feldbus- und Punkt-zu-Punkt-Schnittstellen:
 Feldbus + Analog (Geschwindigkeit oder Position),
 Feldbus + SSI,
 Feldbus + Inkrementalsignale (für Rückführung an Servo-Umrichter),
 Feldbus + SSI + Inkrementalsignale

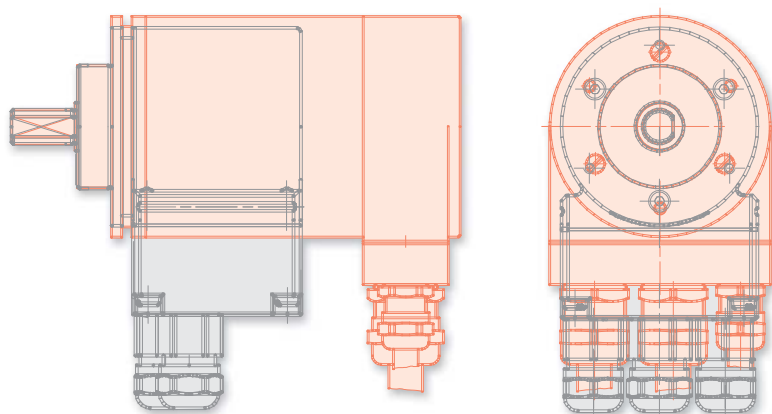
Übliche Kombinationsmöglichkeiten für Punkt-zu-Punkt-Schnittstellen:

- SSI + Analog,
- SSI + Digitale Ausgänge (Endschalter, Stillstandswächter, Geschwindigkeitswächter)
- Parallele Ausgänge (Retrofitting, Ersatzteile ...)
- Nockenschaltwerk
- spezielle Stecker

Schnittstellen mit speziellen Marktnischen
 FiberOptic IIO (LWL)
 Interbus on LWL
 FIPIO
 (weitere auf Anfrage)

Bauraumvergleich

58 mm-Gehäuse
 65 mm-Gehäuse



Individuell angefertigte Drehgeber für Ihren Antrieb

Nach Ihren Anforderungen können wir für Sie Drehgebersysteme realisieren, die erheblich vom üblichen Bauschema abweichen. Der mechanische Aufbau der Drehgeber wird gemeinsam mit Ihnen und speziell nach Ihren Vorstellungen entwickelt. Diese individuelle Entwicklungsleistung bieten wir Ihnen für größere Stückzahlen an. Wir liefern fertigungsgerecht: Sie können die Kit-Encoder in das Motorgehäuse Ihres Antriebs integrieren.

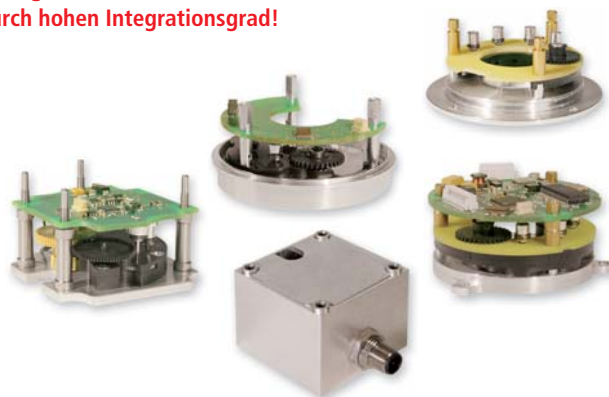
So können Sie diese Geber insbesondere als Motorfeedback-Systeme zum Beispiel in Stellantrieben und Prozessantrieben nutzen. In diesem Fall konstruieren wir die Geber ohne eigene Wellenlagerung. Die Welle Ihres Antriebs taucht dann in den Geber ein und treibt die Drehgebermechanik über Ritzel oder Klauenkupplungen. Die Abtastung ermöglicht, je nach Abtastungsvariante, Auflösungen bis 2.048 Schritte/ Umdrehung oder 8.192 Schritte/ Umdrehung bei bis zu 4.096 Umdrehungen.

Optionen:

- + denkbar ist als Zusatzoption auch eine Heizung oder Wasserkühlung
- + die Anschlusstechnik ist individuell anpassbar
- + die Geberausführung in SSI und Feldbus ist als Doppeldrehgeber machbar

Versorgungsspannung	11 ... 27 V DC oder 5 V DC
Temperaturbereich	-20 ... +100 °C
Programmierbarkeit	TRWinProg, Bus (optional)
Schnittstellen	SSI, ASI, Parallel, Analog, Nockenschaltwerk, CANopen, DeviceNet, PROFIBUS, Lichtwellenleiter, Interbus. Weitere auf Anfrage.

Geringer Bauraumbedarf durch hohen Integrationsgrad!



Ihre Vorteile:

- + die Anzahl der Bauteile bleibt für Ihr Gerät gering
- + Kostenoptimierung Ihres Herstellungsprozesses durch montagegerechte Anlieferung
- + die Drehgeber sind auch bei niederfrequenter Anregung vibrationsfest bis 25 g und stoßfest bis 100 g
- + Gehäuse bis IP 67 oder „öldicht“ sind optional möglich
- + Sie erhalten die Anflanschung und Gehäuse aus Aluminium und auf Wunsch auch aus anderen Materialien, wie zum Beispiel aus korrosionsbeständigem Edelstahl, Spezialkunststoff usw.

Beispiele – denkbar sind zahlreiche Varianten

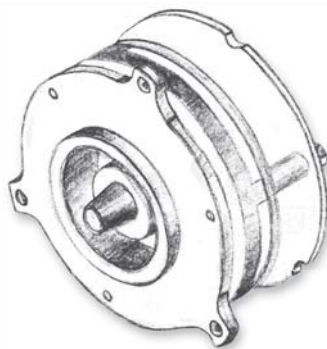
Jeder einzelne Kit-Encoder ist individuell – ein speziell entwickeltes und konstruiertes Unikat. Eine Übersicht aller möglichen Varianten ergäbe einen kiloschweren Katalog. Diese Entwurfsskizzen sollen Sie inspirieren und herauszufordern. Für Ihre Anwendung erarbeiten wir gerne Lösungen zur Optimierung.

Sie können zum Beispiel den Montageflansch nach Ihren Bedürfnissen gestalten. Der Geber wird an den Motor angebaut. Der von uns gefertigte Montageflansch ist gleichzeitig das neue B-Lagerschild des Motors.

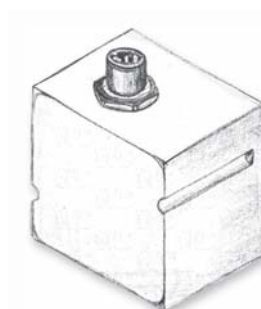
Die Befestigungsbohrungen können außenliegend angebracht werden.



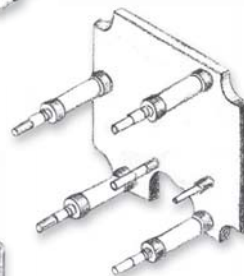
Wie in der Entwurfsskizze kann so die Montage am Gebergehäuse vorbei auch von hinten erfolgen. Auch ein besonders flacher Montageflansch kann so realisiert werden.



Der Magnet der Zentralabtastung kann außermittig bzw. innerhalb der Umdrehung im Ritzel angebracht werden.








Bei diesem Entwurf taucht die Welle des Motors außermittig an der Unterkante des Gehäuses ein. Das Gehäuse ist rechteckig und wird passgenau in Ihren Antrieb integriert.



Der Entwicklungsprozess – partnerschaftlich und fertigungsgerecht

In 10 Schritten zu Ihrem individuellen Drehgeber

<p>① Gemeinsame Abstimmung der Anforderungen Gemeinsam definieren wir die Eigenschaften Ihres KIT-Encoders und stimmen Ihre individuellen Wünsche und Vorstellungen mit der möglichen Konstruktion ab.</p>	<p>② Integration bereits vorhandener Bauteile Wir liefern fertigungsgerecht. Wenn nötig und möglich konstruieren wir Ihren Drehgeber so, dass bereits vorhandene Bauteile Ihres Antriebs mit integriert werden. So gewinnen Sie Raum und Zeit und sparen dabei Kosten.</p>	<p>③ Gehäuseart Das Gehäuse kann so gestaltet werden, dass zum Beispiel der Montageflansch des Gebers gleichzeitig das B-Lagerschild Ihres Motors ist. Selbstverständlich können Sie auch vollständig auf das Gehäuse verzichten.</p>	<p>④ Gehäuseform Bei der Gehäuseform können Sie auf Standardformen zurückgreifen oder eine individuelle Form festlegen, die für Ihre Anwendung passgenau gefertigt wird.</p> 
<p>⑤ Montage Sie können den Montageflansch nach Ihren Bedürfnissen gestalten. Denkbar ist zum Beispiel ein extrem flacher Montageflansch oder vier statt drei Befestigungspunkte.</p> 	<p>⑥ Kupplung Wir übertragen die Drehbewegung mit einer Kupplung oder direkt über ein Zahnrad in den Kit.</p> 	<p>⑦ Sitz der Welle Standardmäßig sitzt die Welle in der Mitte. Sie kann bei Bedarf auch außermittig positioniert werden.</p> 	<p>⑧ Schnittstellen Neben den bereits genannten Schnittstellen sind weitere kundenspezifische Schnittstellen auf Anfrage möglich.</p> 
<p>⑨ Sonstige Optionen Es bieten sich Ihnen viele Optionen. Denkbar ist zum Beispiel eine Heizung bzw. Wasserkühlung oder Gehäuse aus Edelstahl. Ein optionaler Temperatursensor lässt sich zum Beispiel direkt über die Geberschnittstelle auslesen.</p>	<p>⑩ Fertigungsgerechte Lieferung Unsere Logistik passen wir den Losgrößen Ihrer Fertigung an. Auch die Transportverpackungen gestalten wir so, wie es für Ihre Fertigung am günstigsten ist. Durch die montagegerechte Anlieferung können Sie Ihren Herstellungsprozess optimieren. Spezielle Wünsche und Anforderungen setzen wir nach Möglichkeit gerne gemeinsam mit Ihnen um.</p>		

Allgemeines/ Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

„Seal Pack“ – eine Option für hochauflösende Absolutwertgeber im 58 mm-Gehäuse Absolut tropenfest dicht

Das Optionspaket „Seal Pack“ hat einen zusätzlich abgedichteten Gehäusedeckel. Es vereint für Absolut-Drehgeber sinnvoll aufeinander abgestimmte Maßnahmen, um folgende Eigenschaften zu gewährleisten:

- + Dichtigkeit gegen zeitweises Untertauchen (IP 67, Prüfung nach DIN EN 60529);
- + hermetisch dicht gegen das Eindringen von Feuchtigkeit bei Temperaturwechsel in feuchter Umgebung (Prüfung nach DIN EN 60068-2-30)
- + spezielle Dichtigkeit gegen das Eindringen von kriechfähigen Ölen wie Honöl.

Das „Seal Pack“ ist als Option für die Absolut-Drehgeber von TR-Electronic im Industrie-Standardmaß 58 mm für Vollwelle und Sacklochwelle erhältlich.

Das Lager für Sackloch- und Vollwellendrehgeber wird mit einer zusätzlichen Dichtung versehen. Die Steckverbindungen sind nach Montage innen vergossen. Flüssigkeiten, die über unzureichend verschraubte Stecker oder schlecht montierte Leitungen in die Steckverbindung eindringen, können so nicht in den Geber eindringen und ihn beschädigen. Der Gehäusedeckel ist zusätzlich abgedichtet, womit eine höhere Dichtigkeit erreicht wird. Der Prüfstandard von IP 54 bzw. IP 65 erhöht sich dadurch auf IP 67 (sauberes Wasser bei 20 °C).

Das Gehäuse von Drehgebern mit Option „Seal Pack“ ist luftdicht. Das heißt, auch bei Temperatur- und Luftdruckschwankungen wird keine feuchte Luft oder Wasser „angesaugt“. Damit sind diese Systeme uneingeschränkt tropenfest. Die Geräte mit „Seal Pack“ sind nur max. 7 mm länger bei sonst gleich bleibenden Außen- und Montagemaßen.



Drehgeber für spezielle Anwendungen

Redundanter Hohlwellendrehgeber mit SIL 3 Zertifikat

Funktionale Sicherheit. Zuverlässiger Schutz.

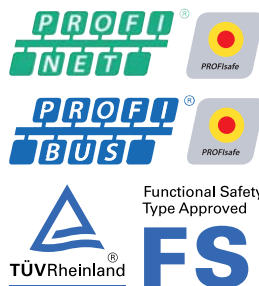
Das Doppeldrehgebersystem mit durchgehender Hohlwelle und Multiturnabtastung erfüllt die Anforderungen der EN 61508 und wurde erstmals 2008 zertifiziert nach SIL 3 und PL e.

Die Benutzung zertifizierter Einzelkomponenten erleichtert für den Systemintegrator die Erfüllung der Sicherheitsziele für die gesamte Anwendung, z.B. im Bereich der Veranstaltungstechnik und der allgemeinen Lager- und Logistiktechnik.

- + zertifiziert nach EN 61508 SIL 3, EN ISO 13849 PL e
- + zwei redundante SSI-Schnittstellen oder PROFIsafe über PROFIBUS/PROFINET
- + Hohlwelle bis 20 mm mit Nut
- + Auflösung SSI: 13 bit × 4.096 Umdrehungen im System 1
13 bit × 4.096 Umdrehungen im System 2
- PROFIsafe: 13 bit × 32.768 Umdrehungen
- + Einsatzbereiche: Antriebstechnik, Fördersysteme, Maschinen- und Anlagenbau, Automatisierungstechnik, Windenergieanlagen, Veranstaltungstechnik uvm.

Auflösung	13 bit / Umdrehung, 4.096 Umdrehungen
Schutzart	IP 54
Schnittstellen	2 × SSI oder PROFIsafe (PROFIBUS / PROFINET)

Weitere Daten finden Sie auf Seite 34



Geeignet für SIL 3 und PL e



Kompakter Singleturn-Drehgeber im 36 mm-Gehäuse

Entwickelt für wachsende Anforderungen

Er besitzt eine vollständig gekapselte Elektronik und es gibt keine drehende Durchführung. Die Positionsinformation wird berührungslos durch eine feststehende Gehäusewand übertragen.

Er ist geschützt gegen Staub und Wasser, ebenso findet er seinen Platz bei Anwendungen mit wechselnder Temperaturen (Betaung) oder zur Geschwindigkeitsüberwachung.

Die maximal erreichbare Dichtigkeit entspricht IP 69 k. Er kann problemlos im Fahrzeugbau, für mobile Maschinen und anderen Outdoor-Anwendungen eingesetzt werden. Die Position wird innerhalb der Umdrehung absolut erfasst.

- + extrem robust und extrem dicht (IP 69 k)
- + kompakte Bauweise, nur 36 mm Durchmesser
- + komplett verschleißfrei bei Fremdlagerung
- + für Bereiche mit wechselnder Temperatur (Betaung)
- + professionelle Lösung für Ihre Outdoor-Applikationen

Auflösung	12 bit / Umdrehung, 1 Umdrehung
Wellenart	Vollwelle oder Ausführung für Fremdlagerung
Schnittstellen	1 × SSI, 2 × SSI an inkremental

Weitere Daten finden Sie auf Seite 22, 31, 36, 41

Gekapselte Elektronik mit IP 69 k



16 bis 27 mm Hohlwelle im 80 mm-Gehäuse

Der COH 80 ist ein kompakter Hohlwellendrehgeber für den Maschinenbau mit großer Hohlwelle. Er liefert, ohne Batterien und Zähler, sofort beim Einschalten einen aktuell gültigen Positionswert. Der Drehgeber wird grundsätzlich von der durchgehenden Welle getragen. Als Verdrehsicherung dient entweder eine kompakte Drehmomentstütze aus Federblech oder ein Passstift für flanschseitige Nut.

- + kompakter und robuster Hohlwellen-Drehgeber mit 27 mm Hohlwelle
- + geringere Wellendurchmesser werden über Einsätze realisiert
- + programmierbar
- + Messbereich bis 36 bit

Auflösung	18 bit/Umdrehung, 4.096 Umdrehungen
Schutzart	IP 54
Schnittstellen	SSI, PROFIBUS, DeviceNet, CANopen

Weitere Daten finden Sie auf Seite 27

Robust und kompakt
bis 27 mm Hohlwelle



Absoluter Multiturn-Drehgeber mit 80 mm Hohlwelle

Für Maschinenbau, Torque-Motoren

Wenn es auf die Größe ankommt ist der CEH 160 mit einem Gehäusedurchmesser von 160 mm und einem Wellendurchmesser von 80 mm die richtige Wahl. Mit dem CEH 160 steht Ihnen ein echter Multiturn-Drehgeber zur Verfügung, der ohne Batterien oder Zähler sofort beim Einschalten einen aktuell gültigen Positionswert liefert.

Mit Einsätzen können Sie den Durchmesser der durchgehenden Hohlwelle reduzieren. Eine Drehmomentstütze mit tangentialer, justierbarer Kugelgelenkstange oder mit Federblech sichert gegen Verdrehung. Die Basisschnittstellen werden über einen klappbaren Rundstecker geführt. Für Industrial Ethernet werden Hauben mit standardisierten M12-Steckern eingesetzt.

- + durchgehende Hohlwelle bis 80 mm
- + programmierbar über TRWinProg oder Bus
- + über SSI werden die absoluten Positionsdaten übertragen. Industrial Ethernet für PC-basierte Regelungs-/Steuerungstechnik mit Echtzeit-Bussystemen

Auflösung	15 bit/Umdrehung, 4.096 Umdrehungen
Schutzart	IP 65
Schnittstellen	SSI + Inkremental + EtherCAT / PROFINET / Powerlink / EtherNet/IP

Weitere Daten finden Sie auf Seite 29

Hohlwelle 80 mm
Gehäuse 160 mm



Drehgeber für spezielle Anwendungen

CO_ 58 – Drehgeber mit hoher Auflösung im 58 mm-Gehäuse

Für den kompakten Bauraum.

Die erfolgreiche Absolut-Drehgeber-Serie im 58 mm-Gehäuse erhalten Sie jetzt auch in mehreren hochauflösenden Varianten. Die mechanische Vielfalt von Vollwelle, Hohlwelle, Sacklochwelle und integrierter Kupplung erhalten Sie nun auch mit Auflösungen von bis zu 262.144 Schritten je Umdrehung (18 bit) bei 4.096 Umdrehungen. Größere Umdrehungsbereiche sind optional möglich. Damit ergibt sich ein Messbereich von 30 bit, der je nach Schnittstelle auf 36 bit vergrößert werden kann.

Sie können die Drehgeber per TRWinProg an die Anforderungen Ihrer Anlage anpassen, so dass z.B. eine Ausgabe der Messwerte direkt in Anlageneinheiten möglich wird.

- + hochauflösende Drehgeber
- + durchgehendes System von 10 bis 18 bit Auflösung/Umdrehung
- + kompaktes 58 mm-Gehäuse (Industriestandard)
- + Vollwelle, durchgehende Hohlwelle, Sacklochwelle oder integrierte Kupplung

Auflösung	18 bit/Umdrehung, 4.096 Umdrehungen
Schutzart	max. IP 65 (Hohlwelle IP 54), optional IP 67
Schnittstellen	SSI, PROFIBUS, CANopen, DeviceNet, EtherCAT, PROFINET, EtherNet/IP (weitere auf Anfrage)

Weitere Daten finden Sie auf Seite 20, 26, 30, 32

Maximale Kapazität 36 bit



CMV 22 M – kleinster Absolut-Multiturn-Drehgeber

Klein. Robust. Kompakt.

Im CMV 22 M haben wir für Sie unsere langjährige Erfahrung und innovativsten Ideen in der Drehbertechnologie auf kleinstem Raum untergebracht. Mit seinen 22 Millimetern ist er der kleinste absolute multiturn Drehgeber seiner Art. Er ist platzsparend und einfach an Maschinen anzubringen. Das **berührungslose** Abtastverfahren gewährleistet die verschleißfreie Messung. Dadurch ist der CMV 22 M ideal geeignet für langfristigen Einsatz in rauer Umgebung.

- + absoluter Drehgeber: In jedem Betriebszustand die richtige Position
- + keine Referenzfahrten
- + die Baugröße ermöglicht den Ersatz von Potentiometern
- + kugelgelagerte Welle – dadurch höhere Drehzahlen, verträgt höhere Wellenbelastungen, lange Lebensdauer
- + programmierbar
- + schock- und vibrationsfest – geeignet für raue Umweltbedingungen
- + 22 mm Durchmesser: Unterbringung auf kleinstem Raum möglich
- + Leistungs- und Dynamikgewinn für Ihre Maschine

- Der Gewinn für Sie:
- + höhere Auflösung
 - + standardisierte Schnittstellen
 - + Endlagenfreiheit
 - + kein Verschleiß

Auflösung	12 bit/Umdrehung, 256 Umdrehungen
Schutzart	IP 64
Schnittstellen	Analog, ASI, SSI

Weitere Daten finden Sie auf Seite 22

22 mm Multiturn als Poti-Ersatz



Programmierbare inkrementale Drehgeber im 58 mm-Gehäuse

Inkrementale Drehgeber sind einfacher aufgebaut und somit kostengünstig. Sie kommen in Maschinen und Anlagen in verschiedenen Auflösungen vor. Bei Beschaffungen ist es deshalb entscheidend, Drehgeber mit der benötigten Auflösung schnell zu bekommen. Wir setzen Ihre Wünsche individuell und schnell um.

Mit dem IOV 58 (Vollwelle) und IOH 58 (Hohlwelle) können Sie jede beliebige Auflösung zwischen 2 und 36.000 Strichen/Umdrehung realisieren. Neben den industrieüblichen Flansch-/Wellenkombinationen bieten wir Ihnen auch eine wachsende Auswahl an speziellen Maßen (zum Beispiel Inch-Maße für den US-Markt).

Die gewünschte Auflösung programmieren Sie direkt über TRWinProg!

- + von 2 bis 36.000 Striche
- + programmierbar über TRWinProg
- + kostengünstig
- + schnelle Lieferung
- + Inch-Maße für den US-Markt

Auflösung	2 ... 36.000 Striche
Schutzart	IP 65
Sonderfunktion	Drehzahlüberwachung

Weitere Daten finden Sie auf Seite 37/38, 41/42

Inkrementale Drehgeber
bis 36.000 Striche / U



Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Power over Ethernet

Mehr Flexibilität. Ausfallsicher.

Profibus & Co sind noch kein Schnee von gestern. Doch die Vernetzung von Industrieanlagen nach dem Vorbild der Büronetzwerke hat begonnen. Das Verfahren „Power over Ethernet“ (PoE) geht einen Schritt weiter und (er)spart Ihnen die Stromversorgungsleitung.

Die Stromversorgung der Geräte erfolgt direkt über die Datenleitung. Die Netzwerkplanung wird dadurch flexibler und unabhängig von Steckdosen und Schaltschränken. Sie können unseren PoE-Drehgeber auch dort installieren, wo viele Kabel stören würden. In schwer zugänglichen Bereichen lassen sich so Installationskosten einsparen. Der Einsatz einer unterbrechungsfreien Stromversorgung (USV) erhöht die Ausfallsicherheit der angeschlossenen Geräte.

- + dank „Power over Ethernet“ verbinden Sie nur noch die Netzwerkleitungen – die Stromversorgungsleitung fällt weg
- + Netzwerkplanung unabhängig von Steckdosen und Schaltschränken
- + Geschwindigkeit von Industrial Ethernet
- + Ausfallsicherheit durch Einsatz einer unterbrechungsfreien Stromversorgung (USV)

Auflösung	18 bit / Umdrehung, 4.096 Umdrehungen
Schutzart	IP 65
Schnittstellen	EtherCAT

Weitere Daten finden Sie auf Seite 20/21

Spart die Strom-
versorgungsleitung



Zubehör

Weg mit den alten Zöpfen!



Absolute Drehgeber mit Vollwelle im 58 mm - Gehäuse

	CEV 58 S/M	COV 58 S/M	CMV 58 S/M
Besonderheiten und Beschreibung	Der kompakte Industriestandard, optimiert für Steckertechnik	Hohe Auflösung und schnelle Signalverarbeitung in kompakter Bauform	Kostenorientierte Lösung für geringe Anforderungen an Genauigkeit und Zeitverhalten
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 30 V DC
Kapazität	Multiturn: ≤ 30 bit Singleturn: ≤ 15 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 23 bit Singleturn: ≤ 11 bit
Schrittzahl pro Umdrehung	≤ 8.192/32.768	≤ 262.144	≤ 2.048 / 4.096
Anzahl der Umdrehungen	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 12.000 min ⁻¹	≤ 12.000 min ⁻¹	≤ 12.000 min ⁻¹
verfügbare Wellendurchmesser	6 ... 12 mm	6 ... 12 mm	6 ... 12 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI Parallel (Singleturn) ASI ISI	SSI Parallel ASI	SSI Analog
	      	      	 
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 65	IP 65 (IP 67 optional)	IP 65
Weitere Optionen und Zubehör	Edelstahlgehäuse: CEV 70 (S. 23) Mit Seillängentrommel (S. 35) Explosionsschutz: AEV 70 (S. 23), „Seal Pack“ (S. 15)	Edelstahlgehäuse: CEV 70 (S. 23) Explosionsschutz: AEV 70 (S. 23) „Seal Pack“ (S. 15)	Mit Seillängentrommel (S. 35) Kapazität: Multiturn: ≤ 24 bit Singleturn: ≤ 12 bit

















Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Vollwelle im 65 mm - Gehäuse

	CEV 65 S/M	COV 65 S/M	CMV 65 S/M
Besonderheiten und Beschreibung	Das Schnittstellentalent mit Platz für „Mehr“	Hohe Auflösung trifft Industrial Ethernet	So günstig kann PNO Class 2 sein!
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 24 bit Singleturn: ≤ 12 bit
Schrittzahl/Umdrehung	≤ 8.192	≤ 262.144	≤ 4.096
Anzahl der Umdrehungen	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 6.000 min ⁻¹	≤ 6.000 min ⁻¹	≤ 6.000 min ⁻¹
verfügbare Wellendurchmesser	6 ... 14 mm	6 ... 14 mm	6 ... 14 mm
Lebensdauer - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI  ISI  Parallel  SIN/COS  LWL  Analog  Nockenschaltwerke 	SSI  Analog    EtherCAT 	
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 65	IP 65	IP 65
Weitere Optionen und Zubehör	Edelstahlgehäuse: CEV 84 (S. 23) Mit Seillängentrommel (S. 35) Mit Schutzgehäuse (S. 23) Erhöhte Dichtigkeit	Edelstahlgehäuse: CEV 84 (S. 23) Mit Seillängentrommel (S. 35) Mit Schutzgehäuse (S. 23) Erhöhte Dichtigkeit	-

Allgemeines/ Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Vollwelle im 22/36 mm-Gehäuse

	CMV 22 S/M	COV 36 S/M	CM_36 S
Besonderheiten und Beschreibung	Kleinster Absolutgeber mit echtem Multiturn-Getriebe bei TR Poti-Ersatz	Motorfeedbacklösung für hohe anforderungen an Auflösung und Zeitverhalten	Extrem kompakter und dichter Absolut-Encoder mit opt. IP69 k
Produktbild			
Versorgungsspannung	7 ... 30 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 20 bit Singleturn: ≤ 12 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Singleturn: ≤ 13 bit
Schrittzahl pro Umdrehung	≤ 4.096/8.192 optional	≤ 262.144	32, 40, 64, 80, 100, 128, 160, 200, 256, 320, 400, 500, 512, 800, 1.000, 1.024, 1.600, 2.000, 2.048, 4.096, 8.192
Anzahl der Umdrehungen	Multiturn: ≤ 256 Singleturn: 1	Multiturn: ≤ 4.096/65.536 Singleturn: 1	1
Mechanisch zulässige Drehzahl	≤ 10.000 min ⁻¹	≤ 12.000 min ⁻¹	≤ 6.000 min ⁻¹
verfügbare Wellendurchmesser	6 und 6,33 mm	6 ... 8 mm	6 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 30 × 10 ⁹ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 25 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ⁹ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	ASI (U _b 7 ... 26 V DC) SSI (U _b 7 ... 26 V DC) Analog (U _b 14 ... 30 V DC)	SSI SIN/COS	SSI
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	0 °C ... +60 °C	0 °C ... +125 °C	-40 °C ... +70 °C
Schutzart, DIN EN 60529	IP 64	IP 65	IP 65
Weitere Optionen und Zubehör	Kundenspezifische Protokolle auf der Asynchron-Seriellen Schnittstelle	-	Dichtigkeit IP69 k optional, Ausführung für Fremdlagerung, kundenspezifische Anpassungen auf Anfrage

Absolute Drehgeber mit Vollwelle im 70/84/115 mm - Gehäuse

	AEV 70 S/M	CEV 70/84 S/M	CEV 115 S/M
Besonderheiten und Beschreibung	Absolut tauglich für explosionsfähige Atmosphären Aluminiumgehäuse	Positionsmessung auch in aggressiven Umgebungen Edelstahlgehäuse	Der Schutz gegen äußere Einflüsse: Mechanisch und klimatisch
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 30 bit Singleturn: ≤ 13 bit	Multiturn: ≤ 25 ... 30 bit Singleturn: ≤ 13 bit	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit
Schrittzahl pro Umdrehung	≤ 8.192 / 32.768	≤ 8.192 / 32.768	≤ 8.192
Anzahl der Umdrehungen	Multiturn: ≤ 4.096 / 256.000 Singleturn: 1	Multiturn: ≤ 4.096 / 256.000 Singleturn: 1	Multiturn: ≤ 4.096 / 256.000 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 12.000 min ⁻¹	≤ 6.000 min ⁻¹	≤ 3.600 min ⁻¹
verfügbare Wellendurchmesser	6 ... 12 mm	6 ... 14 mm	8 ... 14 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 2,8 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI  Parallel 	SSI  Parallel  LWL Analog  ISI 	SSI  ISI  Parallel  Analog    EtherCAT 
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 245 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +40 °C	-40 °C ... +85 °C	-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 65	IP 67	IP 67
Weitere Optionen und Zubehör	⊕ II 2 G/D EEx de IIC T6 ATEX-Seillängentrommel und ATEX-konforme Kupplung möglich Adresse über Busleitung wählbar	Passende Stecker, Kabel und Dichtungen in Abhängigkeit des Mediums	Heizung, Kühlung Staubexplosionsgeschützt: AEV 115 S/M ⊕ II 3D Ex tD A22 IP 65 T95 °C














Allgemeines/ Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Hohlwelle im 58 mm - Gehäuse

	CEH 58 S/M	COH 58 S/M	CMH 58 S/M
Besonderheiten und Beschreibung	Der kompakte Industriestandard, optimiert für Steckertechnik	Hohe Auflösung und schnelle Signalverarbeitung in kompakter Bauform	Kostenorientierte Lösung für geringe Anforderungen an Auflösung und Zeitverhalten
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 33 bit Singleturn: ≤ 15 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 23 bit Singleturn: ≤ 11 bit
Schrittzahl pro Umdrehung	≤ 8.192 / 32768	≤ 262.144	≤ 2.048 / 4.096
Anzahl der Umdrehungen	Multiturn: ≤ 4.096/32.768/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 6.000 min ⁻¹	≤ 6.000 min ⁻¹	≤ 6.000 min ⁻¹
verfügbare Wellendurchmesser	8 ... 12 mm	8 ... 12 mm	8 ... 12 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI  Parallel (Singleturn)    EtherCAT [®] 	SSI     EtherCAT [®] 	SSI
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 54	IP 54	IP 54
Weitere Optionen und Zubehör	-	-	-




Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Hohlwelle im 80 mm - Gehäuse

	CEH 80 S/M	COH 80 S/M	QE_H 80 S/M
Besonderheiten und Beschreibung	Schnittstellenvielfalt mit Hohlwellen über 16 mm	Hohe Auflösung und Präzision mit durchgehender Hohlwelle	Flacher Hohlwellengeber für direkten Motoranbau
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 33 bit Singleturn: ≤ 15 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit
Schrittzahl pro Umdrehung	≤ 32.768	≤ 262.144	≤ 8.192
Anzahl der Umdrehungen	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 3.000 min ⁻¹	≤ 3.000 min ⁻¹	≤ 3.000 min ⁻¹
verfügbare Wellendurchmesser	16 ... 27 mm	16 ... 27 mm	16 ... 25 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI   CANopen EtherCAT 	SSI  EtherCAT 	SSI 
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 54	IP 54	IP 54
Weitere Optionen und Zubehör	Reduzierringe Wellen mit oder ohne Nut	Reduzierringe Wellen mit oder ohne Nut	-

Allgemeines/ Definitionen

Absolute Drehgeber












Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Hohlwelle im 80/81 mm-Gehäuse

	QOH 80 S/M	QEH 81 S/M	QOH 81 S/M
Besonderheiten und Beschreibung	Hohe Auflösung	Hohe Auflösung mit Klemmkasten für individuelle Kabelbelegungen	Hohe Auflösung, Klemmkasten für individuelle Kabelbelegungen
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit
Schrittzahl pro Umdrehung	≤ 262.144	≤ 8.192	≤ 262.144
Anzahl der Umdrehungen	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 3.000 min ⁻¹	≤ 3.000 min ⁻¹	≤ 3.000 min ⁻¹
verfügbare Wellendurchmesser	16 ... 25 mm	bis max. 16 ... 25 mm	bis max. 16 ... 25 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI 	SSI  ISI  Inkremental Kommutierung	SSI 
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 54	IP 54	IP 54
Weitere Optionen und Zubehör		Wellen mit oder ohne Nut	Wellen mit oder ohne Nut

Absolute Drehgeber mit Hohlwelle im 110/160 mm-Gehäuse

	CEH 110 S/M	COH 110 S/M	CEH 160 S/M
Besonderheiten und Beschreibung	Echter Absolutgeber mit durchgehender Hohlwelle	Hohe Auflösung und Präzision mit durchgehender Hohlwelle	Größter Absolut-Drehgeber mit durchgehender Hohlwelle bei TR
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 33 bit Singleturn: ≤ 15 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 27 bit Singleturn: ≤ 15 bit
Schrittzahl pro Umdrehung	≤ 8.192 / 32.768	≤ 262.144	≤ 32.768
Anzahl der Umdrehungen	Multiturn: ≤ 4.096 / 256.000 Singleturn: 1	Multiturn: ≤ 4.096 / 256.000 Singleturn: 1	Multiturn: ≤ 4.096 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 2.000 min ⁻¹	≤ 2.000 min ⁻¹	≤ 3.000 min ⁻¹
verfügbare Wellendurchmesser	25 ... 50 mm	25 ... 50 mm	max. 80 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 2.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 2.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 1.500 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI   	SSI   	 + SSI + Inkremental   
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	0 °C ... +70 °C
Schutzart, DIN EN 60529	IP 54	IP 54	IP 65
Weitere Optionen und Zubehör	Reduzierringe Wellen mit oder ohne Nut	Reduzierringe Wellen mit oder ohne Nut	Reduzierringe



















Allgemeines/ Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Sacklochwelle im 58 mm - Gehäuse

	CES 58 S/M	COS 58 S/M	CMS 58 S/M
Besonderheiten und Beschreibung	Der kompakte Industriestandard, optimiert für Steckertechnik	Hohe Auflösung und schnelle Signalverarbeitung in kompakter Bauform	Kostenorientierte Lösung für geringe Anforderungen an Auflösung und Zeitverhalten
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 33 bit Singleturn: ≤ 13 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 24 bit Singleturn: ≤ 12 bit
Schrittzahl/Umdrehung	≤ 8.192	≤ 262.144	≤ 2.048 / 4.096
Anzahl der Umdrehungen	Multiturn: ≤ 4.096/32.768/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 12.000 min ⁻¹	≤ 12.000 min ⁻¹	≤ 12.000 min ⁻¹
verfügbare Wellendurchmesser	8 ... 12 mm	8 ... 12 mm	6 ... 10 mm
Lebensdauer - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI  Parallel (Singleturn)      EtherCAT [®] 	SSI      EtherCAT [®] 	SSI  Analog 
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	0 °C ... +60 °C
Schutzart, DIN EN 60529	IP 65	IP 65	IP 65
Weitere Optionen und Zubehör	„Seal Pack“ (S. 15)	„Seal Pack“ (S. 15)	-










Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Sacklochwelle/Fremdlagerung im 65/36 mm-Gehäuse

	CES 65 S/M	CMF 36 S
Besonderheiten und Beschreibung	Das Schnittstellentalent mit Platz für „Mehr“	Extrem dichter Geber, verschleißfrei durch Fremdlagerung
Produktbild		
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 30 bit Singleturn: ≤ 13 bit	Singleturn: ≤ 13 bit
Schrittzahl pro Umdrehung	≤ 8.192 / 32.768	32, 40, 64, 80, 100, 128, 160, 200, 256, 320, 400, 500, 512, 800, 1.000, 1.024, 1.600, 2.000, 2.048, 4.096, 8.192
Anzahl der Umdrehungen	Multiturn: ≤ 4.096 / 32.768 / 256.000 Singleturn: 1	1
Mechanisch zulässige Drehzahl	≤ 6.000 min ⁻¹	-
verfügbare Wellendurchmesser	10 ... 14 mm	13 / 15 mm
Lebensdauer bei - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	- - -
Schnittstellen	SSI  ISI  Parallel  LWL  Analog  Nockenschaltwerke  	SSI
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-40 °C ... +70 °C
Schutzart, DIN EN 60529	IP 65	IP 65
Weitere Optionen und Zubehör	SIN/COS	Dichtigkeit IP 69k optional





















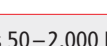
Allgemeines/ Definitionen

Absolute Drehgeber




Inkrementale Drehgeber

Zubehör

Absolute Drehgeber mit Kupplung im 58/65 mm - Gehäuse

	CEK 58 S/M	COK 58 S/M	CEK 65 S/M
Besonderheiten und Beschreibung	Integrierte Kreuzkupplung vereint Präzision der Vollwelle mit den Vorteilen platzsparender Hohlwellenlösungen	Kreuzkupplung für hochauflösende Anwendungen	Mehr Bauraum, mehr Schnittstellen, mehr Möglichkeiten
Produktbild			
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC
Kapazität	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit	Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit
Schrittzahl/Umdrehung	≤ 8.192	≤ 262.144	≤ 8.192
Anzahl der Umdrehungen	Multiturn: ≤ 4.096/32.768/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096 / 256.000 Singleturn: 1
Mechanisch zulässige Drehzahl	≤ 12.000 min ⁻¹	≤ 12.000 min ⁻¹	≤ 6.000 min ⁻¹
verfügbare Wellendurchmesser	-	-	-
Lebensdauer - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	SSI Parallel      	SSI     	SSI ISI Parallel LWL Analog Nockenschaltwerke       
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 65	IP 65	IP 65
Weitere Optionen und Zubehör	Konstruktionshilfe für kundenseitiges Wellenende	Konstruktionshilfe für kundenseitiges Wellenende	Konstruktionshilfe für kundenseitiges Wellenende SIN/COS

Doppeldrehgeber mit Vollwelle im 58/70/75 mm - Gehäuse

	CDV 58 S/M		CDV 70 S/M		CDV 75 M
Besonderheiten und Beschreibung	Zwei unabhängige Gebersysteme auf gemeinsamer Welle in einem kompakten Gehäuse		Doppelgeber mit Kombination von Feldbussen		„Flüstergeber“ für Theateranwendungen, Absolut Multiturn mit SIL 3 Zertifikat
Produktbild					
Versorgungsspannung	11 ... 27 V DC		11 ... 27 V DC		11 ... 28 V DC
Kapazität	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit		Multiturn: ≤ 36 bit Singleturn: ≤ 18 bit		Multiturn: ≤ 28 bit
Schrittzahl / Umdrehung	≤ 8.192		≤ 262.144		8.192
Anzahl der Umdrehungen	Multiturn: ≤ 4.096 / 256.000 Singleturn: 1		Multiturn: ≤ 4.096 / 256.000 Singleturn: 1		Multiturn: ≤ 4.056 / 32.768
Mechanisch zulässige Drehzahl	≤ 6.000 min ⁻¹		≤ 6.000 min ⁻¹		≤ 6.000 min ⁻¹
verfügbare Wellendurchmesser	6 ... 12 mm		6 ... 12 mm		10 mm
Lebensdauer - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C		≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C		≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C
Schnittstellen (weitere auf Anfrage)	Erster Geber:	Zweiter Geber:	Erster Geber:	Zweiter Geber:	2 × SSI 
	SSI ISI ASI LWL Parallel oder 	SSI oder Inkrementell			
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz		< 100 m/s ² , Sinus 50–2.000 Hz		< 100 m/s ² , Sinus 50–2.000 Hz
Schock, DIN EN 60068-2-27	< 1.000 m/s ² , Halbsinus, 11 ms		< 1.000 m/s ² , Halbsinus, 11 ms		< 600 m/s ² , Halbsinus, 5 ms
Arbeitstemperatur max.	-20 °C ... +70 °C		-20 °C ... +70 °C		-20 °C ... +70 °C
Schutzart, DIN EN 60529	IP 65		IP 65		IP 54
Weitere Optionen und Zubehör	-		-		Zusätzliche Inkrementalschnittstelle SIN / COS oder Rechteck (ohne SIL)









Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Doppeldrehgeber mit Hohlwelle und Sacklochwelle im 75/80/58 mm - Gehäuse

	CDH 75 M	QDH 80 S/M	CDS 58 S/M	
Besonderheiten und Beschreibung	„Flüstergeber“ für Theateranwendungen, Absolut Multiturn mit SIL 3 Zertifikat	„Flüstergeber“ für Theateranwendungen, gemeinsame Scheibe, separate Abtastungen	Doppelgeber mit Sacklochwelle	
Produktbild				
Versorgungsspannung	11 ... 27 V DC	11 ... 27 V DC	11 ... 27 V DC	
Kapazität	Multiturn: ≤ 28 bit	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit	Multiturn: ≤ 25 bit Singleturn: ≤ 13 bit	
Schrittzahl/Umdrehung	≤ 8.192	≤ 8.192	≤ 8.192	
Anzahl der Umdrehungen	Multiturn: ≤ 4.096 / 32.768	Multiturn: ≤ 4.096/256.000 Singleturn: 1	Multiturn: ≤ 4.096/256.000 Singleturn: 1	
Mechanisch zulässige Drehzahl	≤ 3.000 min ⁻¹	≤ 3.000 min ⁻¹	≤ 6.000 min ⁻¹	
verfügbare Wellendurchmesser	20 mm Nut	bis 25 mm	8 ... 12 mm	
Lebensdauer - Drehzahl - Betriebstemperatur	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 1.500 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 3.000 min ⁻¹ ≤ 60 °C	≥ 3,9 × 10 ¹⁰ Umdrehungen ≤ 6.000 min ⁻¹ ≤ 60 °C	
Schnittstellen (weitere auf Anfrage)	2 × SSI  Functional Safety Type Approved TÜVRheinland FS	SSI oder  Multiturn Zweite Abtastung: Inkrementell oder SSI Singleturn	Erster Geber: SSI ISI ASI Parallel LWL oder   	Zweiter Geber: SSI oder Inkrementell
Vibration, DIN EN 60068-2-6	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	< 100 m/s ² , Sinus 50–2.000 Hz	
Schock, DIN EN 60068-2-27	< 600 m/s ² , Halbsinus, 5 ms	< 1.000 m/s ² , Halbsinus, 11 ms	< 1.000 m/s ² , Halbsinus, 11 ms	
Arbeitstemperatur max.	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C	
Schutzart, DIN EN 60529	IP 54	IP 54	IP 65	
Weitere Optionen und Zubehör	Zusätzliche Inkrementalschnittstelle SIN / COS oder Rechteck (ohne SIL)	-	-	




Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Seillängengeber im 22/58/65 mm - Gehäuse

	CMW 22 M		CMW 58 M			CEW 65 M		
Besonderheiten und Beschreibung	Miniatur-Seillängengeber mit verschleißfreiem Multiturn-Drehgeber		Der Industriestandard für kurze Messlängen			Langlebiger Dauerläufer mit großen Messlängen		
Produktbild								
Versorgungsspannung	8 ... 30 V DC		11 ... 27 V DC			11 ... 27 V DC		
Messbereich (max.)	0,75 m		5 m			50 m		
Schrittzahl/Umdrehung	4.096		8.192			8.192		
Weg je Umdrehung	50 mm	75 mm	163,84 mm	259,02 mm	315,57 mm	200,00 mm	325,73 mm	490,196 mm
Verstellgeschwindigkeit (max.)	-		4 m/s			2 m/s	4 m/s	4 m/s
verfügbare Messlängen	0,5 m	0,75 m	2 m	3 m	5 m	2/3 m	5/10/ 15/20/ 25/30 m	50 m
Gehäuse	Kunststoff		Aluminium, schwarz eloxiert			Aluminium, natur eloxiert		
Masse in kg (typisch)	0,07		1,8	2,2	3,5	1,8 ... 2,4	3,1 ... 10	27 ... 28
Schnittstellen (weitere auf Anfrage)	ASI (U _b 8 ... 30 V DC) SSI (U _b 8 ... 30 V DC) Analog (U _b 0 ... 10 V DC)		SSI  			SSI ISI Parallel SIN/COS LWL Analog Nockenschaltwerke       		
Seilaustritt	-		mit Faltenbalg und Abstreifer			mit Faltenbalg und Abstreifer		
Seilmaterial	Edelstahl mit PA-Mantel		Edelstahl mit PA-Mantel			Edelstahl		
Seilende	Seilöse, Messing		Seilöse, Messing			Seilöse, Kunststoffummantelt mit Kugelgelenk		
Seildurchmesser	0,36 mm		0,8 mm	0,8 mm	1,0 mm	1,35 mm	0,81 mm	0,81 mm
Montage	Montagenuten		Verschiebbare Nutensteine			Je 2 ... 6 Gewinnbohrungen je Seite		
Weitere Optionen und Zubehör	-		Umlenkrolle			Umlenkrolle, kältefeste Ausführung		

Allgemeines/ Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Elektrisches und mechanisches Zubehör

Allgemeines / Definitionen

Absolute Drehgeber

Inkrementale Drehgeber

Zubehör

Programmieradapter

Verbindet den Geber mit dem PC. Umsetzer USB auf die Geberprogrammierschnittstelle, mit galvanischer Trennung. Wir empfehlen Ihnen den Einsatz mit einem unserer Schaltschrankmodule. Optional auch mit PC-seitiger RS 232-Schnittstelle.



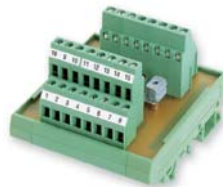
SSI-Parallel-Umsetzer PU10

Setzt absolute Positions- und Nockeninformationen von SSI-Schnittstelle in parallele Ausgangsbit um.



Schaltschrankmodul

Das Hilfsmittel zur übersichtlichen Drehgeberverdrahtung. Korrekte Erdung der Signalleitungen sowie einfacher Anschluss unseres Programmieradapters.



Impulsteiler für inkrementale Drehgeber

Zur Signalaufbereitung für inkrementale Drehgeber (und die Inkrementalspuren unserer absoluten Drehgeber) bieten wir eine breite Palette an Impulsteilern und Signalverteilungen.



Kupplungen, Spannpratzen

CPS-Kupplungen sorgen für den Ausgleich von Wellenbewegungen wie Schlag, Versatz und Vibrationen.



Zusätzliche Optionen

Über die dargestellten Möglichkeiten hinaus können wir die Drehgeber weiter an Ihre Anforderungen anpassen, zum Beispiel:

- _ Schutzgehäuse
- _ Edelstahlgehäuse (auch mit Feldbussen)
- _ Kabellängen bei Kabelabgang vom Standard abweichende Stecker (Contact, Binder, M 12 bei Feldbushaube)
- _ Seillängengeber
- _ Öldichtigkeit



Universelle Anzeige TA-Mini

Anzeige von Istwerten aus SSI-Messsystemen (TR-Electronic und andere Hersteller).

Bestehende SSI-Verbindung zwischen Messsystem und Steuerung kann mitgehört und Position angezeigt werden. Die bestehende Verbindung wird nicht beeinflusst.

Anzeige von Istwerten und weiteren Drehgeber-Parametern (Drehgeber von TR-Electronic mit beliebiger Prozessschnittstelle und Programmierschnittstelle). Die Prozessschnittstelle bleibt frei.



- + Komfortable Anzeigefunktionen
- + Skalierung
- + Nullpunktverschiebung
- + Dezimal, hexadezimal, binär
- + Führende Nullen, Vorzeichen ...

_ Programmiermodul

Die Anzeige selbst kann per USB vom PC programmiert werden (TRWinProg).

Über die Anzeige können Messsysteme (die über die Programmierschnittstelle angeschlossen sind) programmiert werden. Die TA-Mini übernimmt die Funktionen des PC-Adapters.

_ Signalumsetzer

Über Programmierschnittstelle eingelesene Parameter können als SSI-Wert ausgegeben werden.

Damit kann z.B. bei LLB 60 komfortabel zur Analschnittstelle eine SSI-Schnittstelle nachgerüstet oder per Programmierschnittstelle ausgelesene Drehzahlen ... per SSI weiter

übertragen werden.

_ Verkettbare Anzeige

Anzeigewerte können an weitere TA-Mini weitergegeben werden (Anzeige an Maschine, Anzeige in Leitwarte). Die Skalierung kann dabei übernommen oder unabhängig eingestellt werden.

_ Differenzanzeige

Bei zwei verketteten Anzeigen mit jeweils eigenem SSI-Messsystem kann für jede Anzeige ausgewählt werden, ob sie die Position des eigenen oder des anderen Messsystems oder die Differenz daraus anzeigt.

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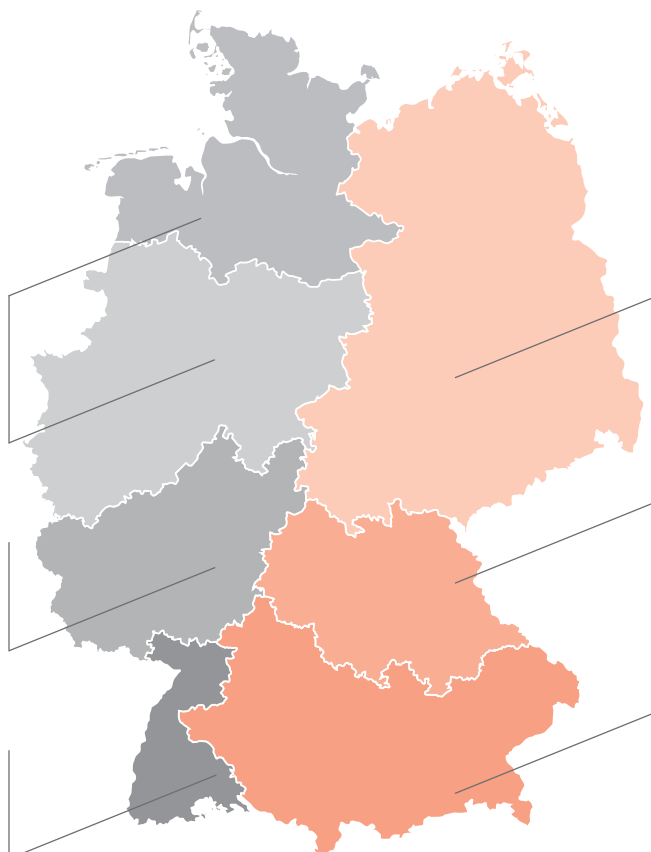
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- + SSI interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

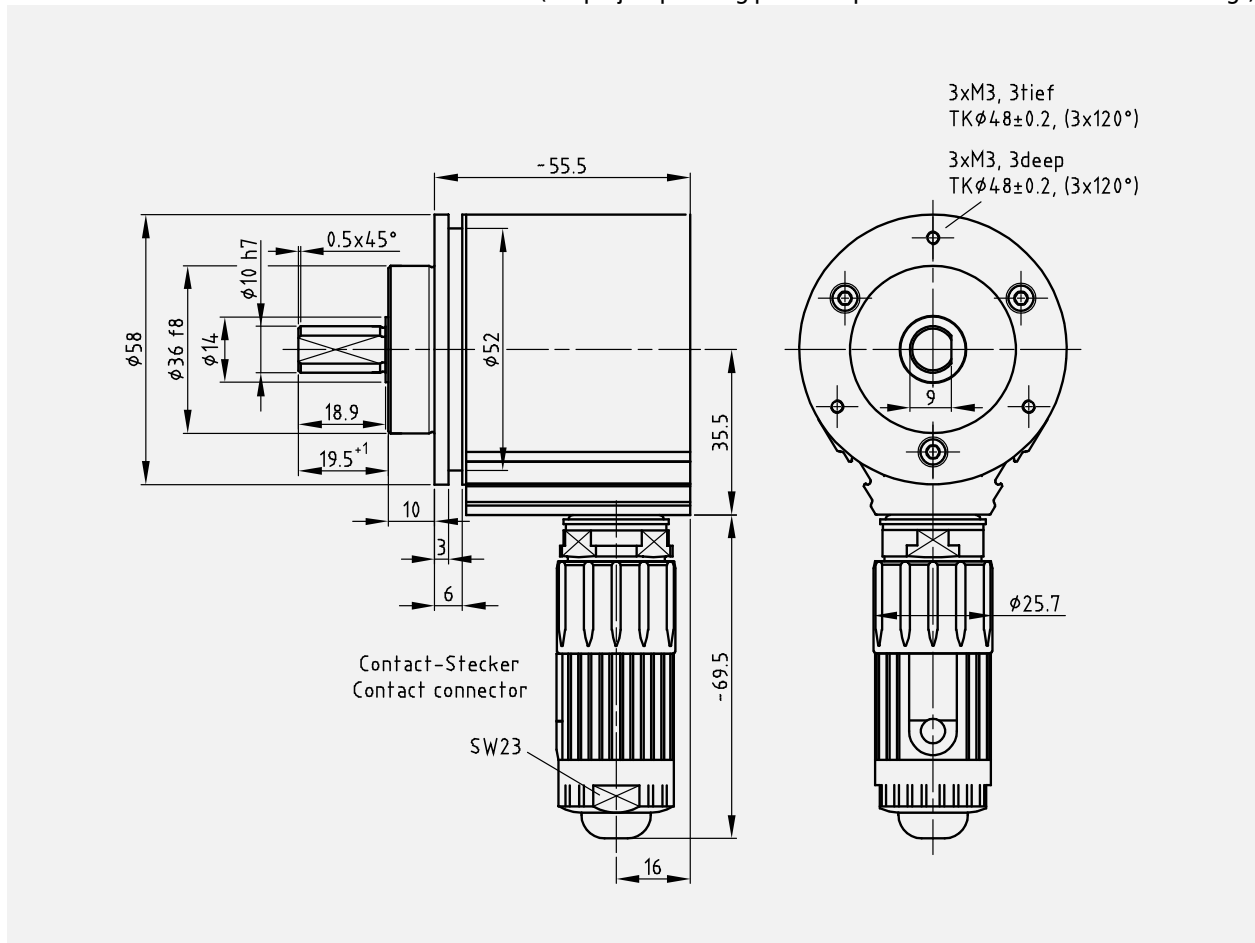
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 M - SSI

CEV58M-SSI-1-GB-1
11/11 Revision 04
010102-00580201-0201



- + SSI interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t_M	16 μ s ≤ t_M ≤ 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end	≤ 10 N axial, ≤ 20 N radial
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

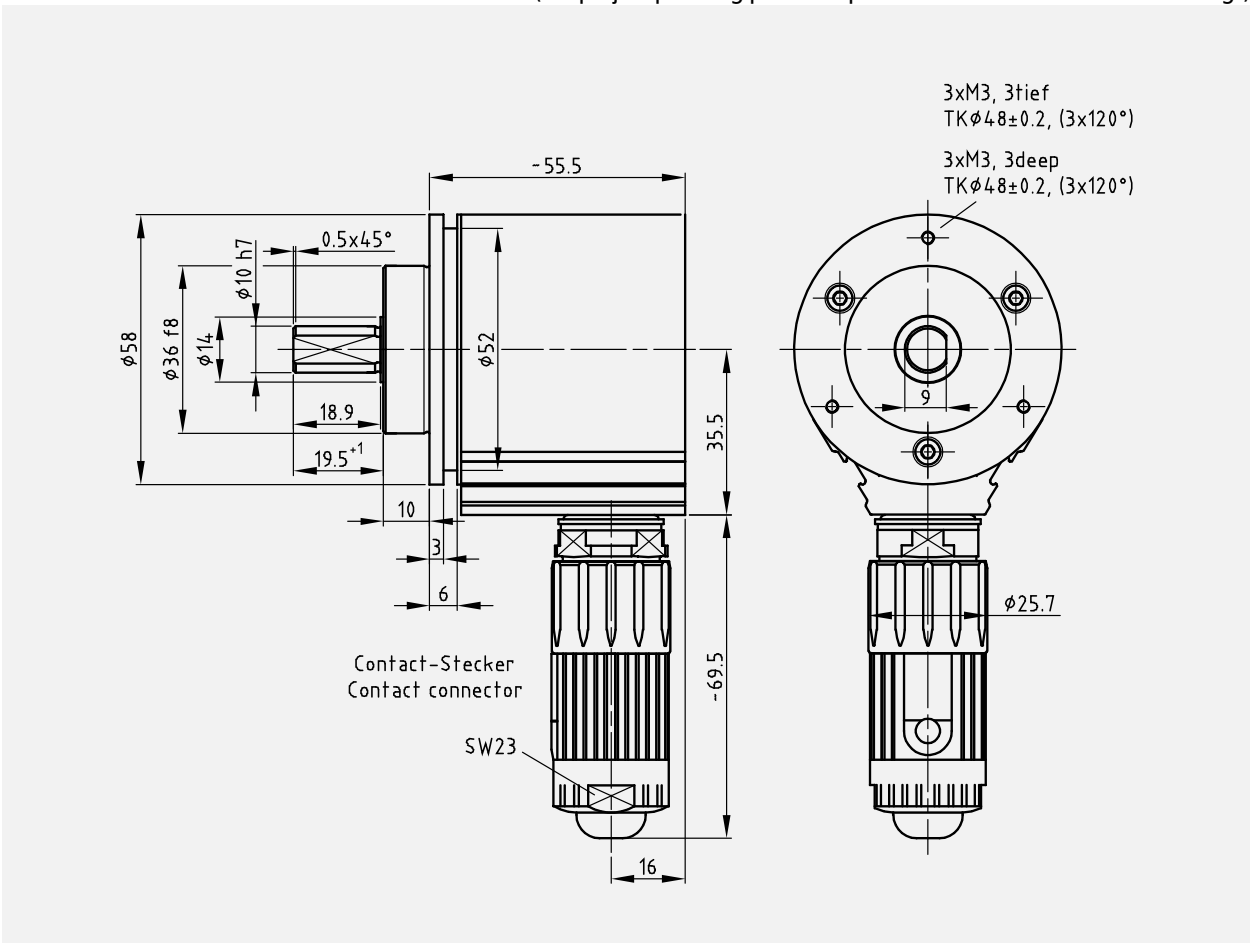
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S - P

CEV58S-P-1-GB-1
11/11 Revision 01
010102-00580201-0101



- + Parallel interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
P.....	Parallel interface
Output driver.....	Push-Pull
Output code ¹⁾	Binary, Gray, BCD
F/R.....	Count direction
Preset.....	electronic adjustment
Latch	Intermediate storage of the output data
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

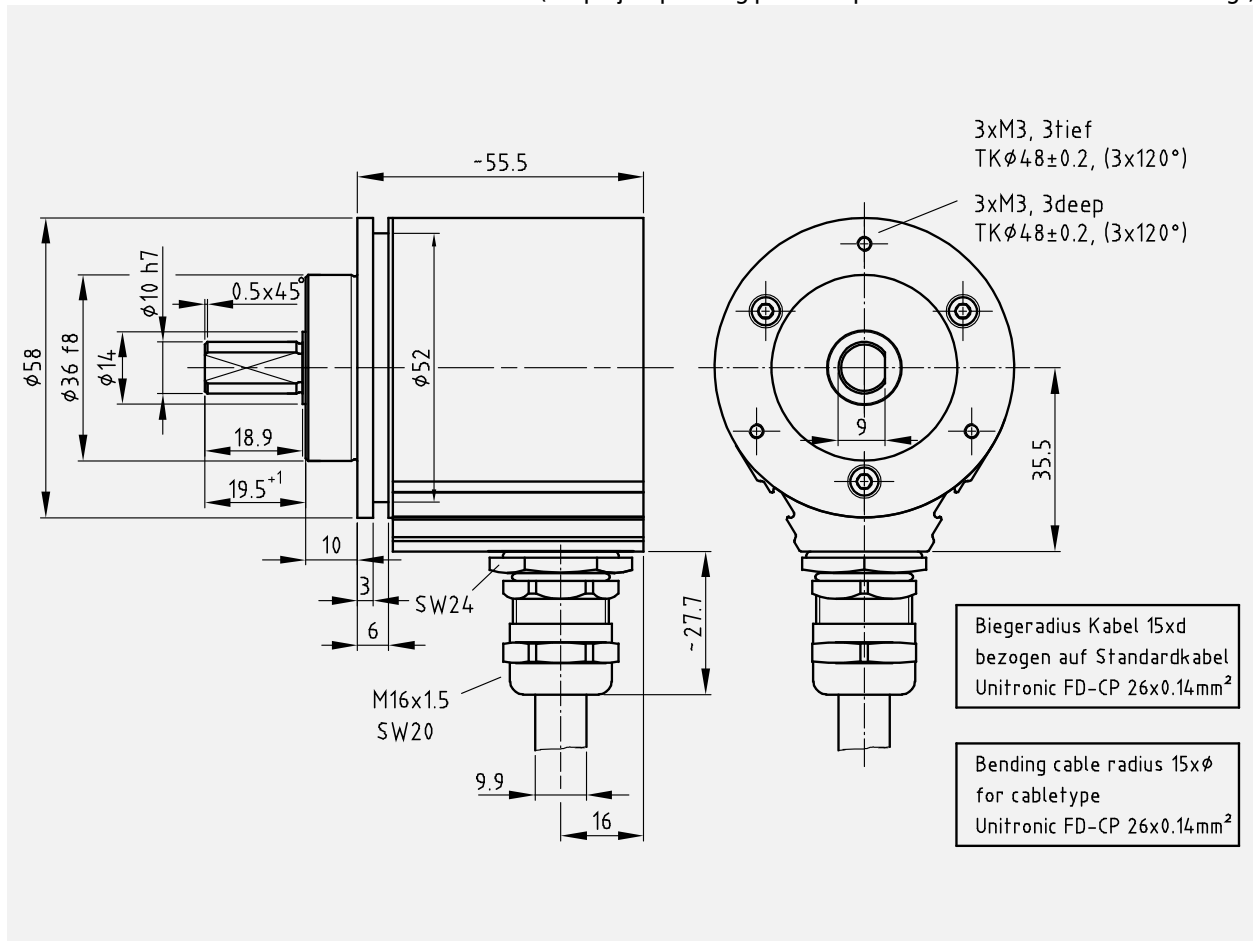
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + ASI interface
- + Type with solid shaft
- + Modular product line
- + Parameter setting possibilities only at the factory
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	≤ 4.096
Output capacity.....	24 Bit
ASI.....	Asynchronous-Serial-Interface
Data transmission	RS-422, 2-wire
Sign format.....	1 Start bit, 7 Data bits, 1 Parity bit (even), 2 Stop bits
Data format.....	ASCII
Standard telegram format.....	other, upon request
- 7 signs.....	6 Position signs + CR (0x0D)
- 8 signs.....	6 Position signs + CRC + CR (0x0D)
Idle time.....	> 1 sign
Baud rate	4800
Output code ¹⁾	Binary, BCD
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter, only at the factory

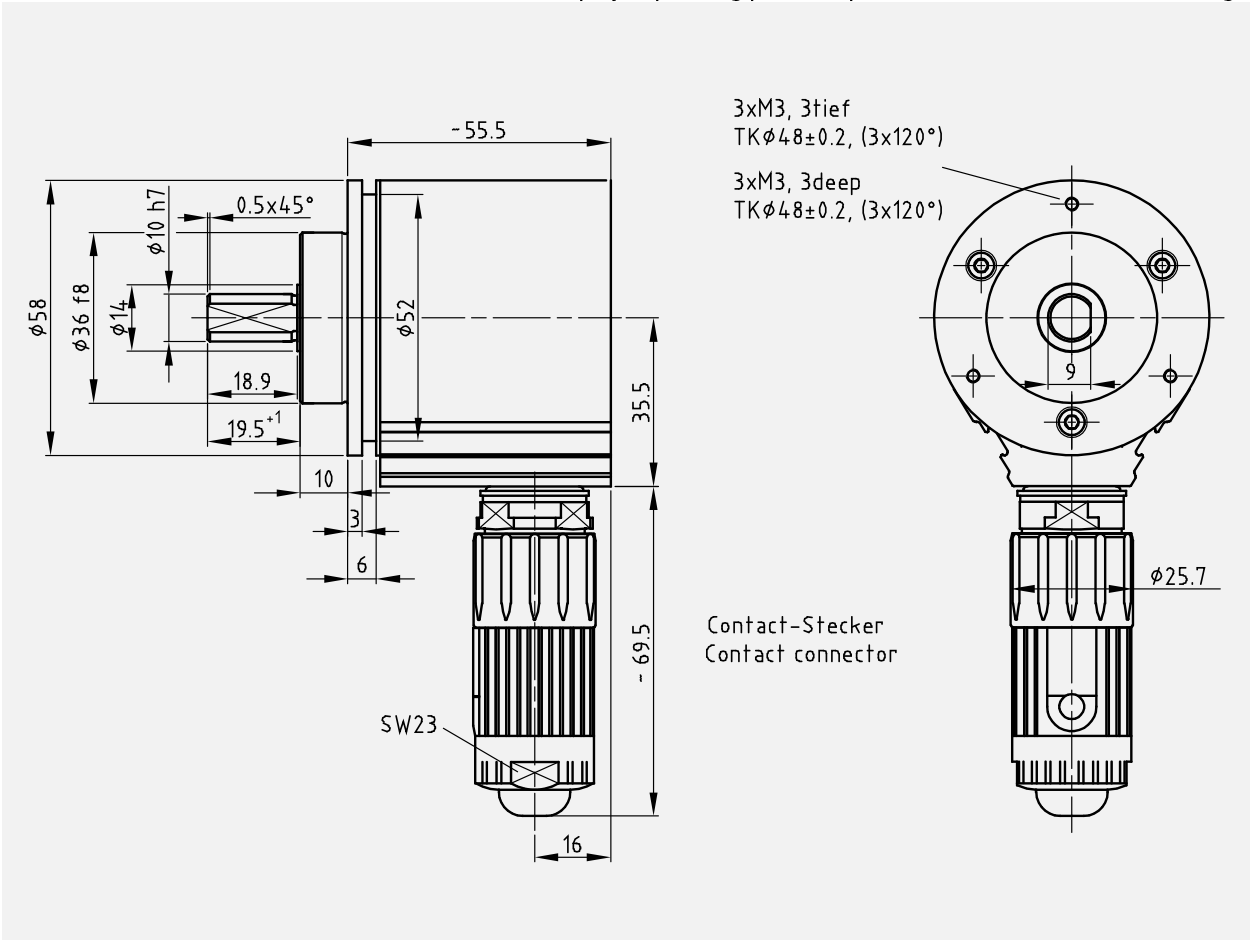
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

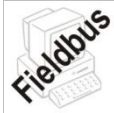
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFIBUS-DP interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 15 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions	1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 25 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

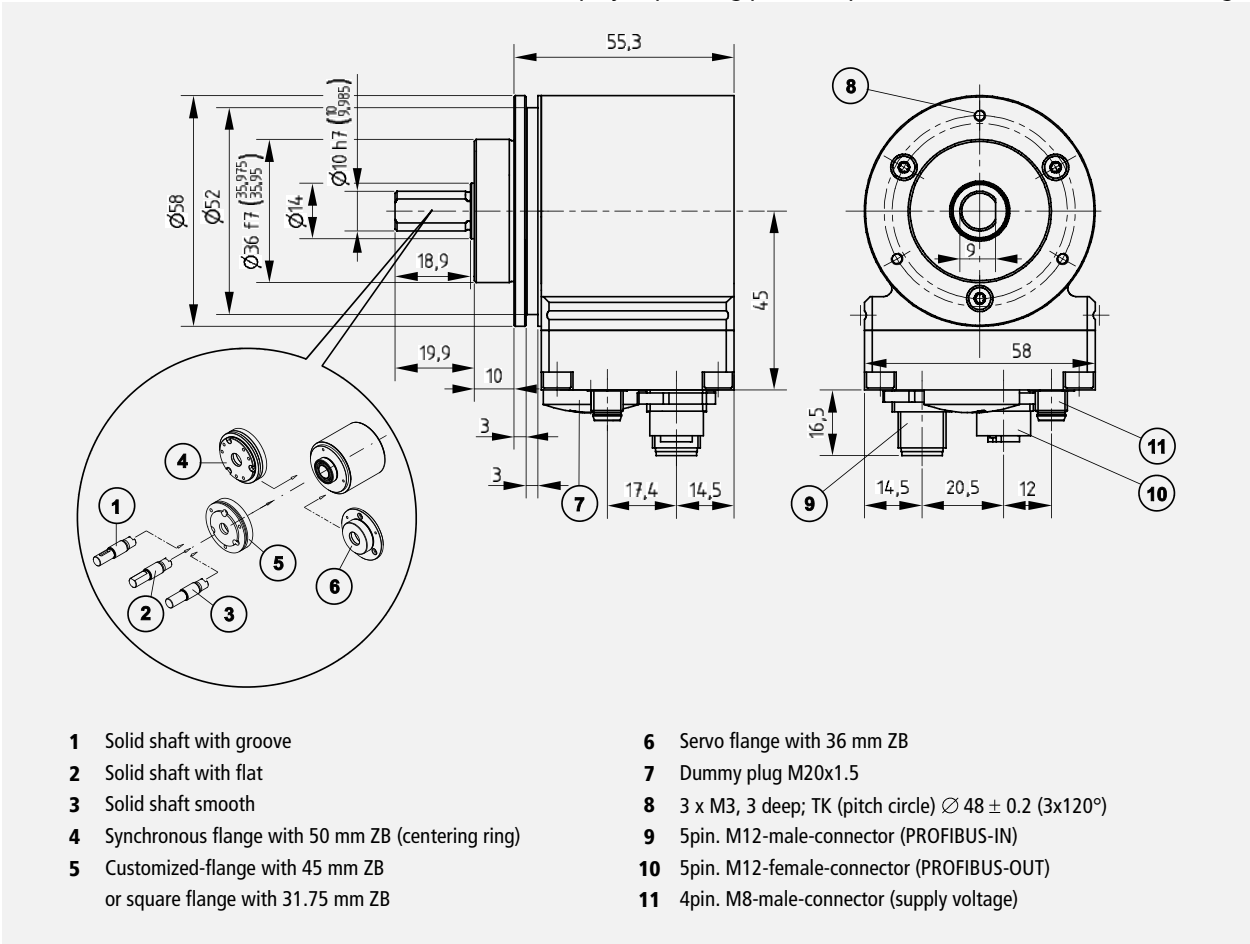
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

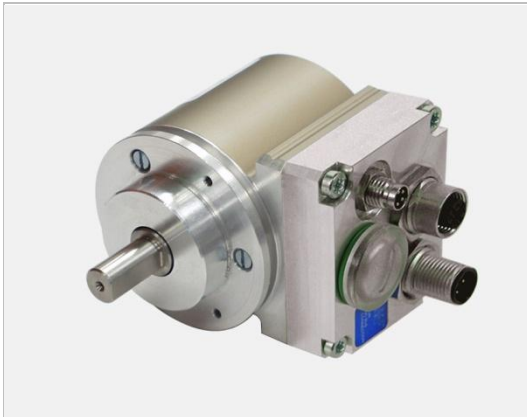
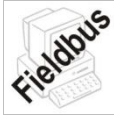
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFIBUS-DP interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 33 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions, standard / extended ¹⁾	≤ 4.096 / ≤ 256.000
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 25 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

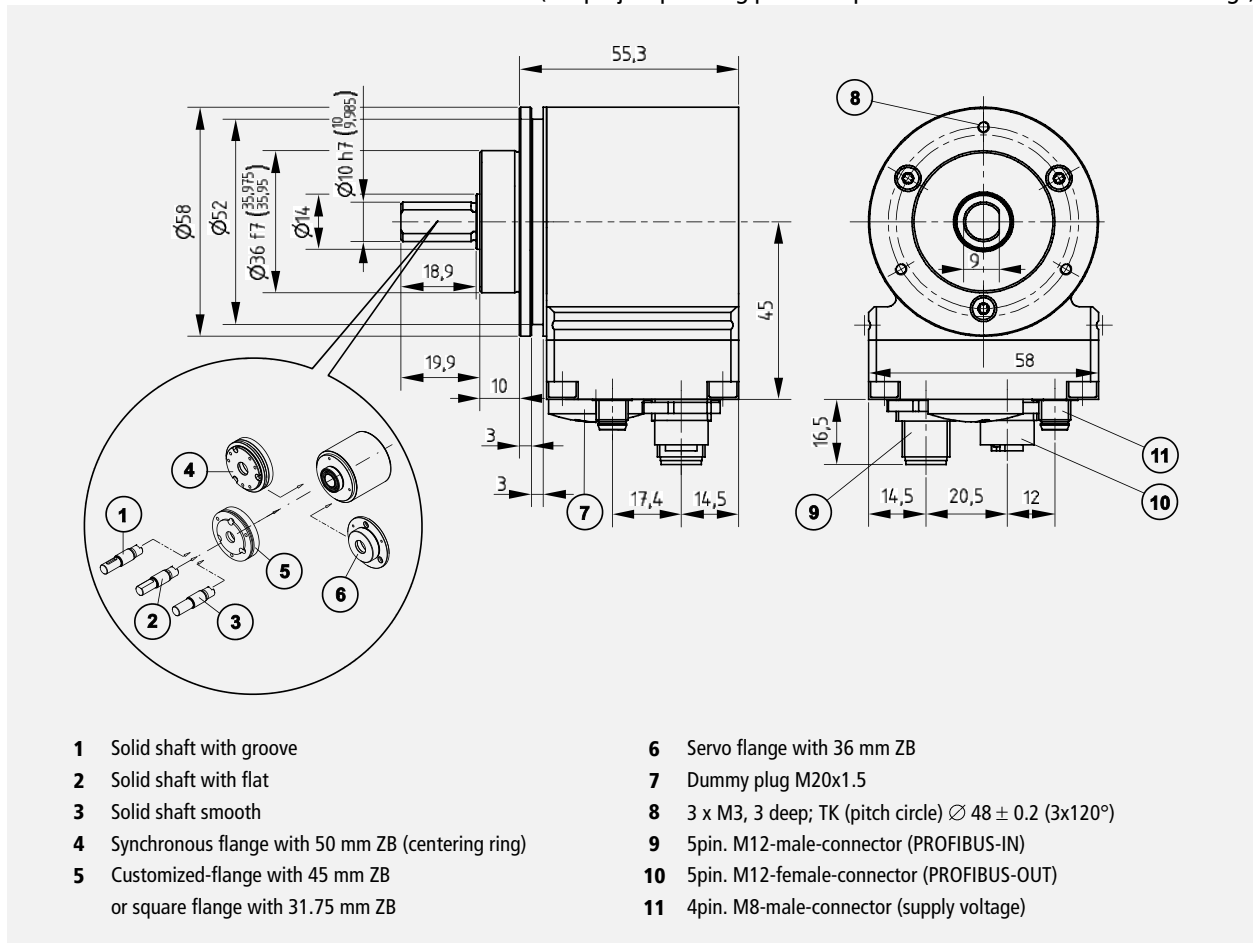
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S/M - CO

CEV58-CO-1-GB-1
01/12 Revision 01
010102-00580302-0001



- + CANopen interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 as from V2.2.5
- Node-ID ¹⁾	Adjustable via DIP switch or LSS services
- Baud rate ¹⁾	Adjustable via DIP switch or LSS services
Firmware update via CAN.....	CiA DS 302-3 as from V4.1.0
Download EDS file.....	CiA DS 301 as from V4.2.0
Output code.....	Binary
Data size for actual value on the bus.....	≤ 32 bit
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
Cams.....	8 x Cam tracks with high limit, low limit and hysteresis
Incremental signals.....	32...8192 pulses/revolution. in power of 2 streps
- Version with push pull.....	11...27 VDC; ≤ 30 mA
- Version with line driver.....	5 VDC RS422; ≤ 50 mA

¹⁾ programmable parameter

Subject to change

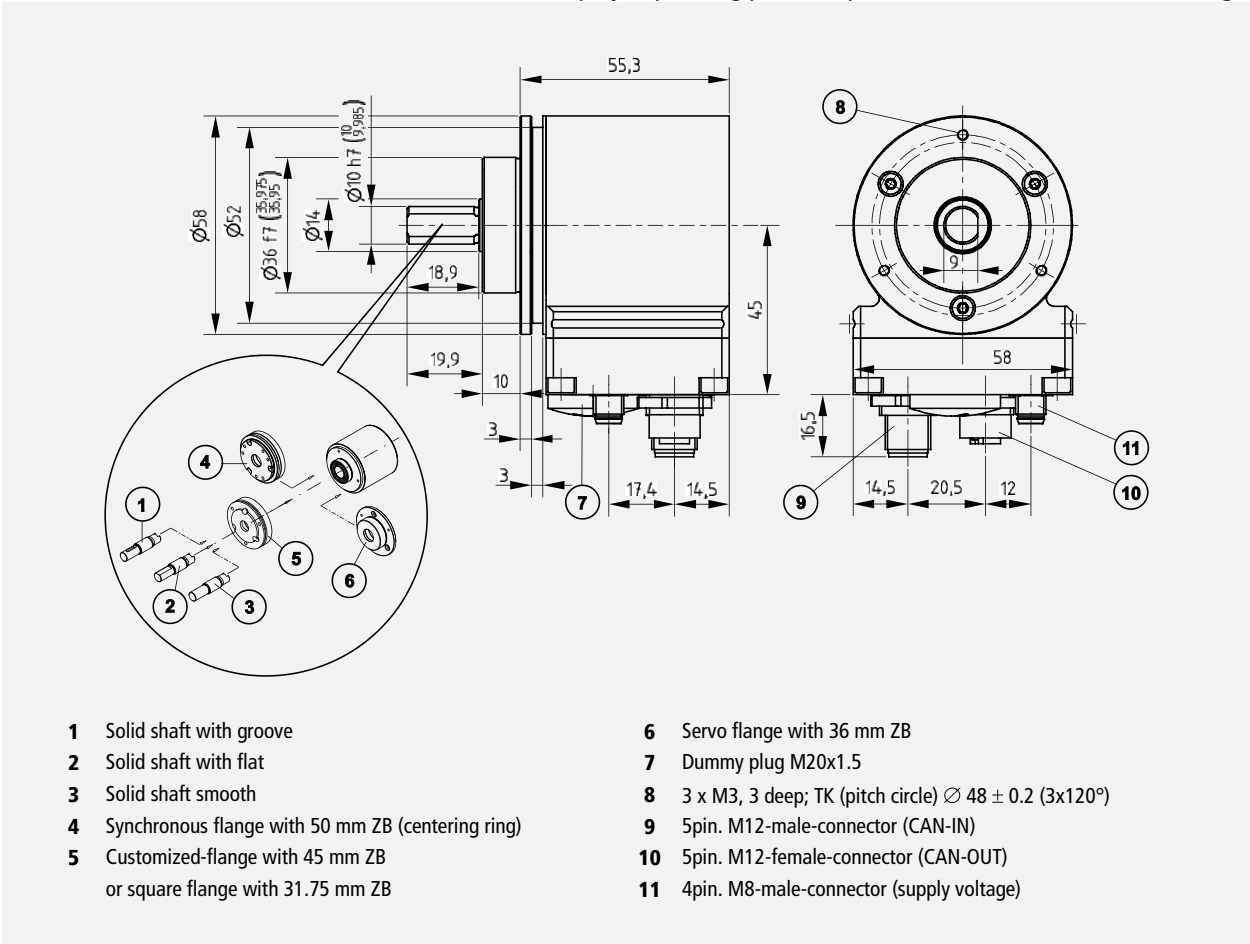
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

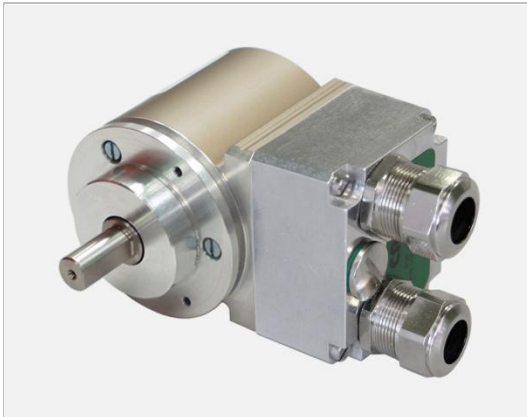
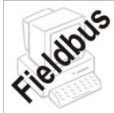
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S - DN

CEV58S-DN-1-GB-1
11/11 Revision 04
010102-00580202-0101



- + CAN DeviceNet interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

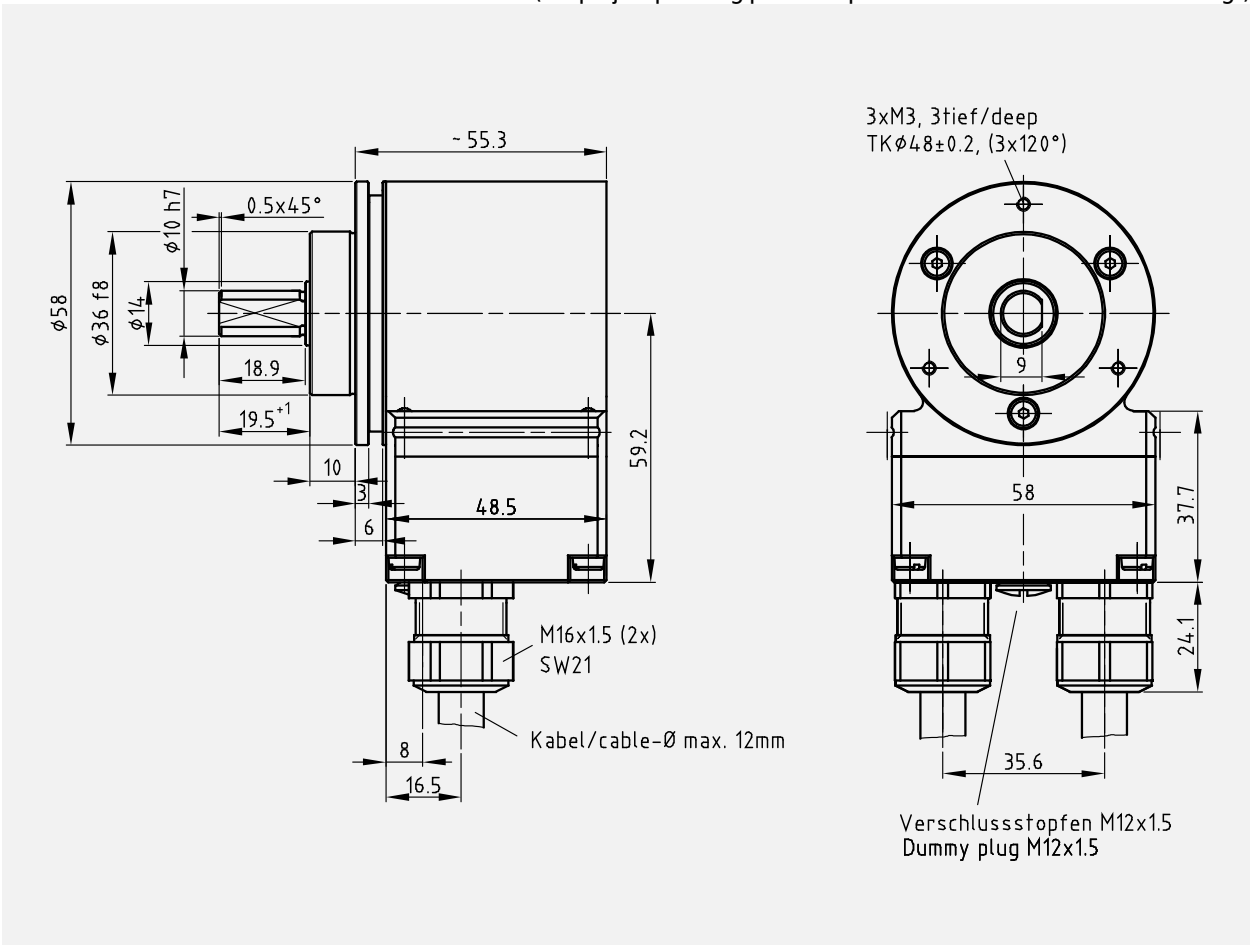
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

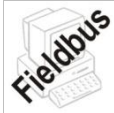
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 M - DN

CEV58M-DN-1-GB-1
11/11 Revision 04
010102-00580202-0201



- + CAN DeviceNet interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

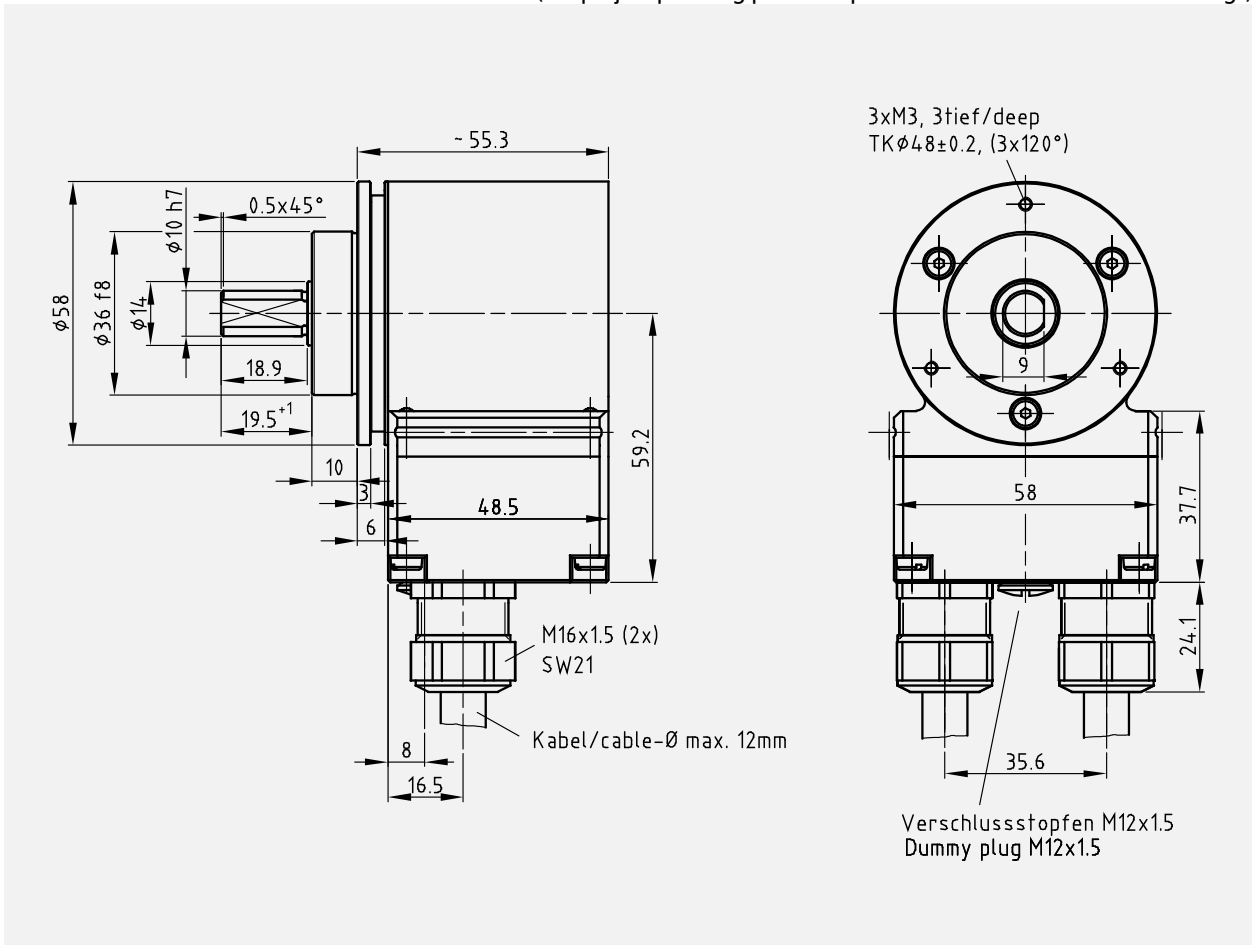
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

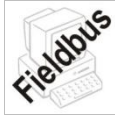
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + Actuator Sensor Interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions	1
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to ¼ of the resolution	delivery specified max. value (steps/revolution) * ¼
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end	≤ 10 N axial, ≤ 20 N radial
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end	≤ 5 N axial, ≤ 10 N radial
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

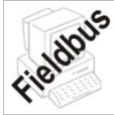
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

1	Solid shaft with groove	6	Customized-flange with 45 mm ZB
2	Synchronous flange with 50 mm ZB (centering ring)		or square flange with 31.75 mm ZB
3	3 x M3...3deep; TK (pitch circle) $\varnothing 48 \pm 0,2$ (3x120°)	7	Solid shaft smooth
4	4 pin M12 connector CONTACT radial/axial	8	Solid shaft with flat
5	Servo flange with 36 mm ZB		

Subject to change



- + Actuator Sensor Interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 28 Bit, therefrom ≤ 16 bit output data
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions ¹⁾	≤ 32.768, delivery setting of the maximal value
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to 1/4 of the resolution	delivery specified max. value (steps/revolution) * 1/4
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end	≤ 10 N axial, ≤ 20 N radial
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end	≤ 5 N axial, ≤ 10 N radial
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

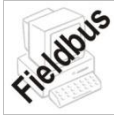
(For project planning please request customized dimensional drawing!)

The drawing shows a side view of the encoder with dimensions: total length ~62,5; mounting flange diameter 58; shaft diameter 10 h7; mounting hole diameter 14; mounting hole offset 0,5 x 45°; mounting hole distance 19,5⁺¹; mounting hole diameter 18,9; mounting hole offset 10; mounting hole diameter 10; mounting hole offset 3; mounting hole diameter 6; mounting hole offset 10; mounting hole diameter 29; mounting hole offset 16; mounting hole diameter 31,5; mounting hole offset 16. The exploded view shows components 1 through 8.

1	Solid shaft with groove	6	Customized-flange with 45 mm ZB
2	Synchronous flange with 50 mm ZB (centering ring)		or square flange with 31.75 mm ZB
3	3 x M3...3deep; TK (pitch circle) Ø 48 ± 0,2 (3x120°)	7	Solid shaft smooth
4	4 pin M12 connector CONTACT radial/axial	8	Solid shaft with flat
5	Servo flange with 36 mm ZB		

Absolute-Encoder CEV 58 S/M - PN

CEV58-PN-1-GB-1
11/11 Revision 01
010102-00580203-0001



- + PROFINET IO interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

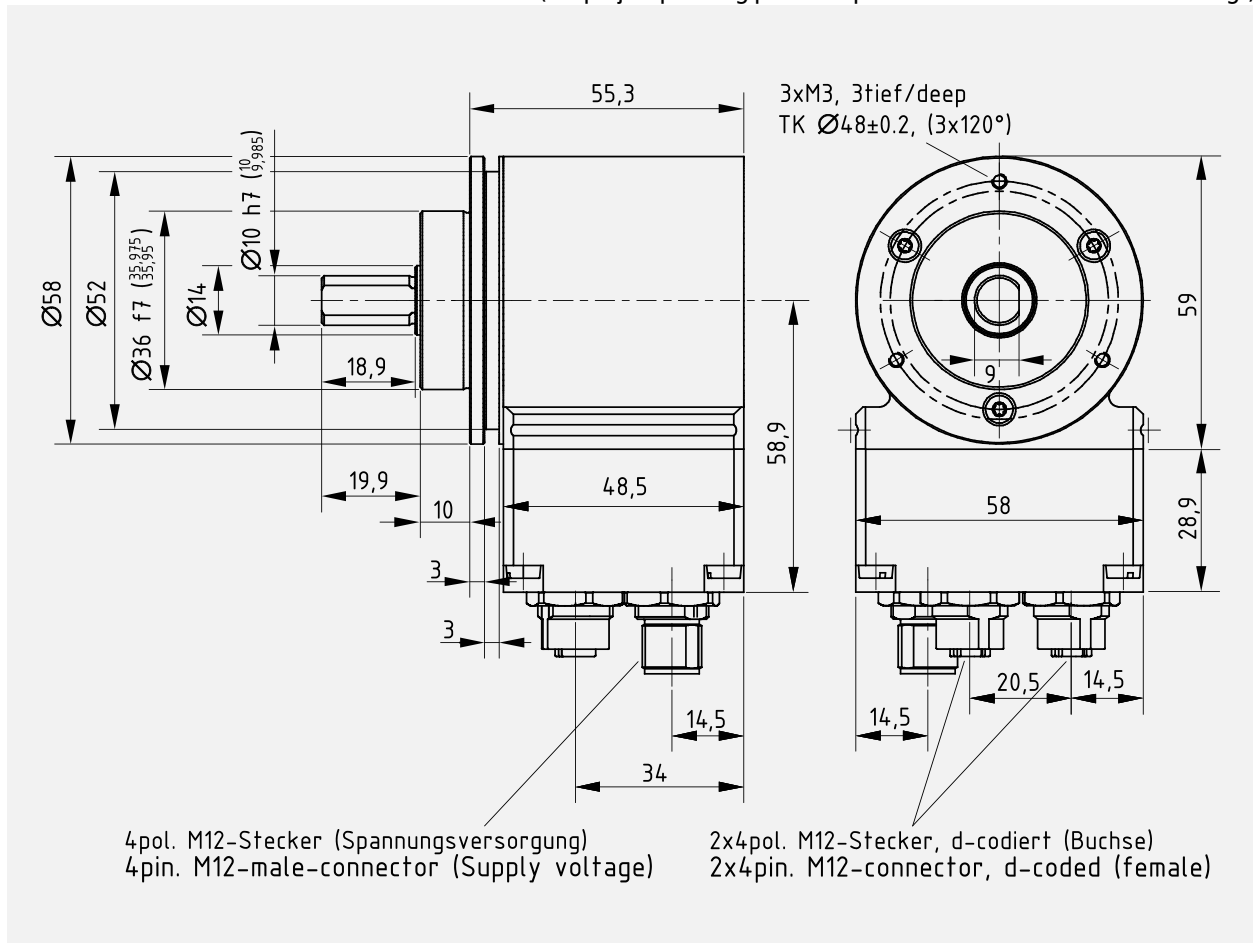
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

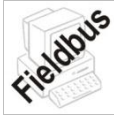
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S/M - PN

CEV58-PN-1-GB-2
10/12 Revision 01
010102-00580203-0001



- + PROFINET IO interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

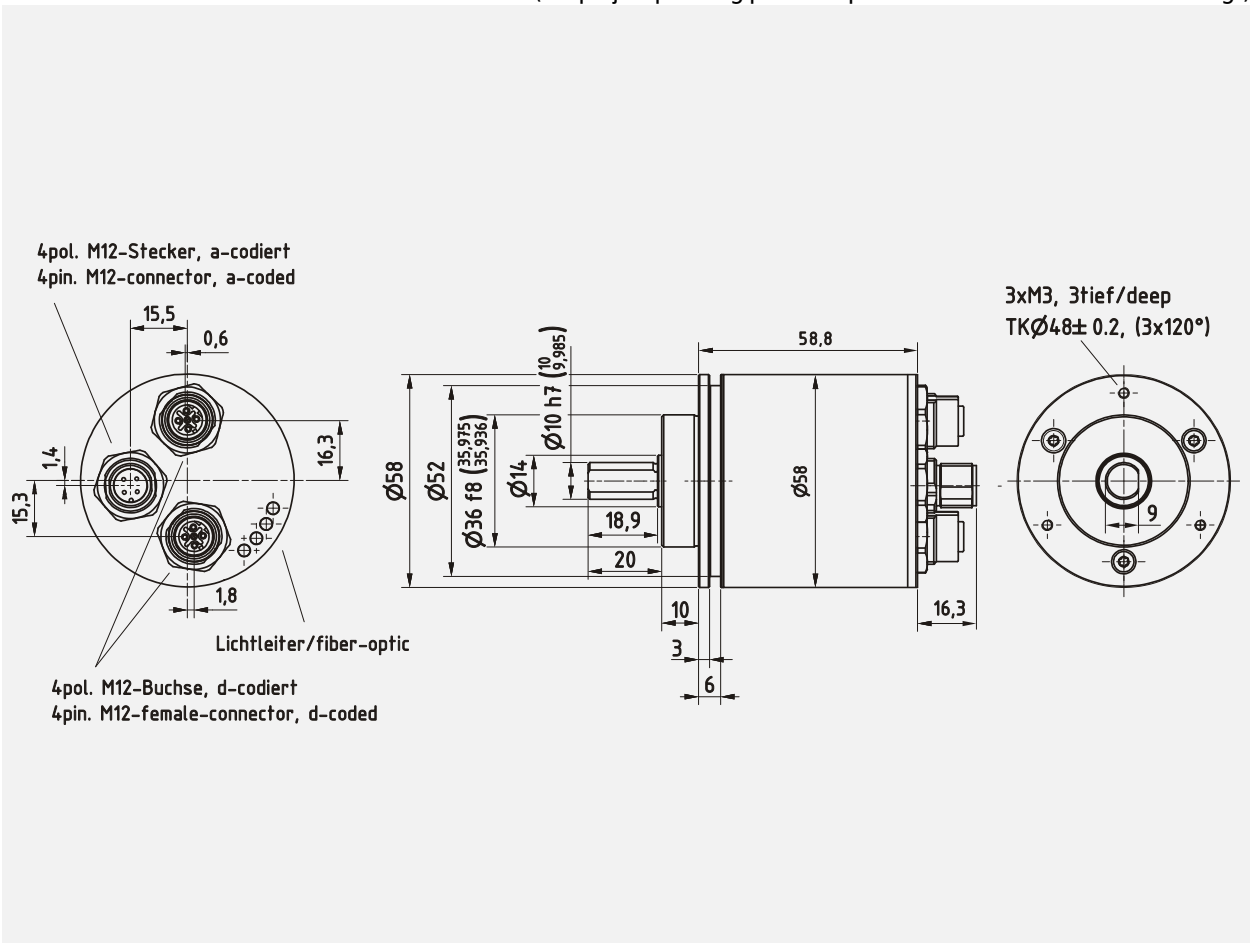
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S/M - ETC

CEV58-ETC-1-GB-1
12/12 Revision 02
010102-00580203-0001



- + EtherCAT interface
- + Type with solid shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 30 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 32.768, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle times.....	62.5 μs...32 ms
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Programming, alternative.....	WINDOWS® compatible, TRWinProg

¹⁾ programmable parameter

Subject to change

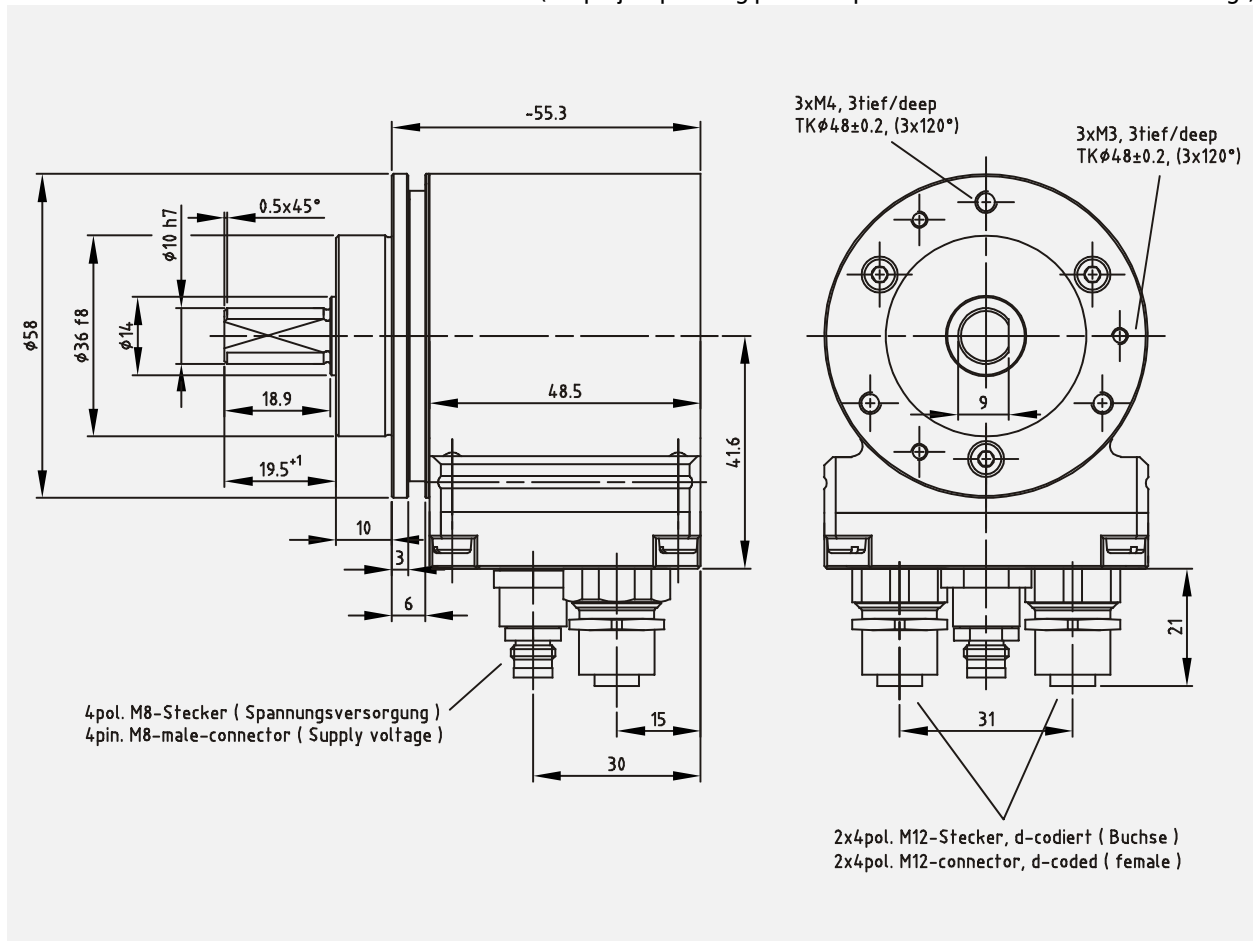
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

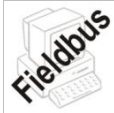
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S/M - ETC

CEV58-ETC-1-GB-2
10/11 Revision 01
010102-00580203-0001



- + EtherCAT interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

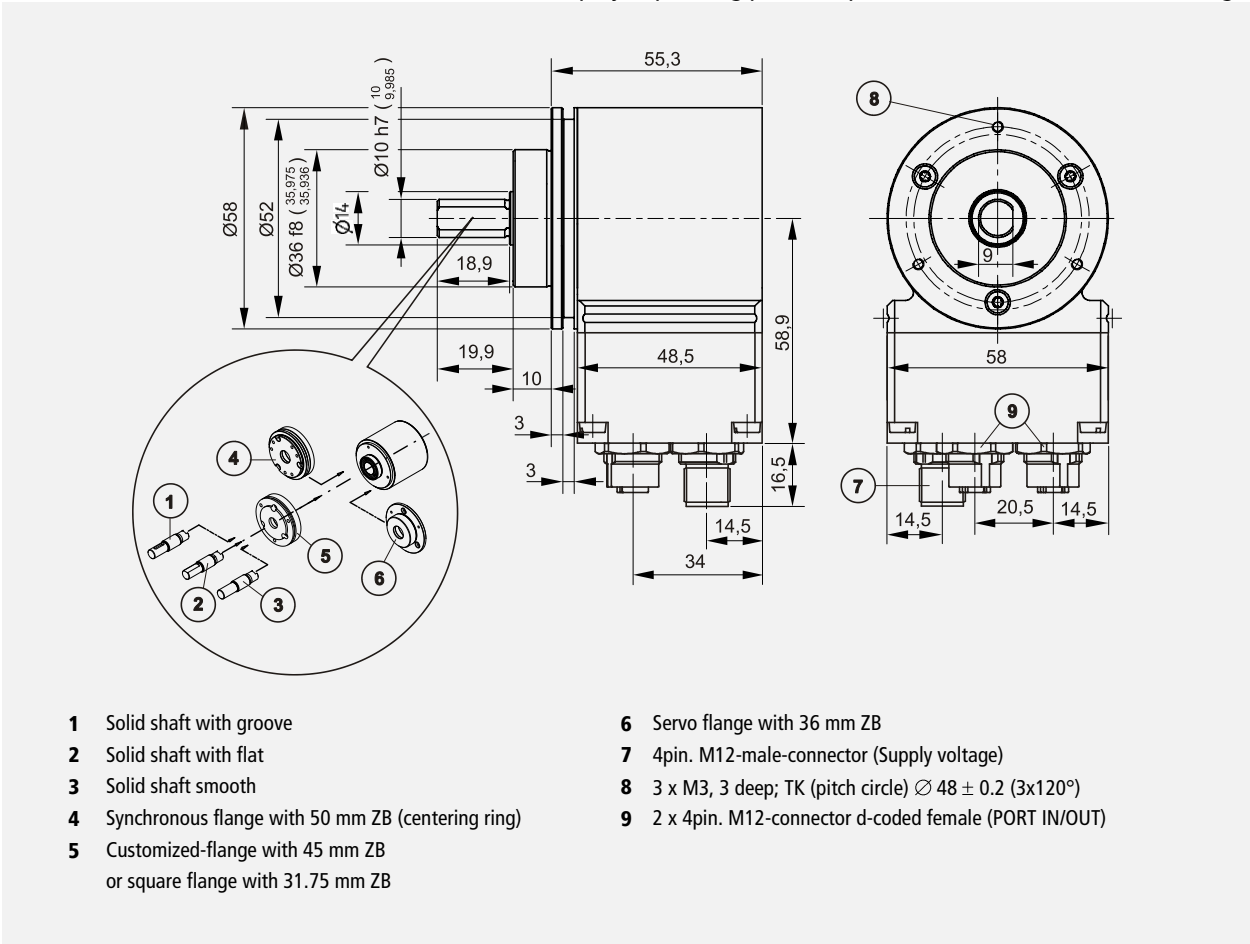
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

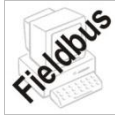
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S/M - ETC

CEV58-ETC-1-GB-3
10/12 Revision 00
010102-00580203-0001



- + EtherCAT interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

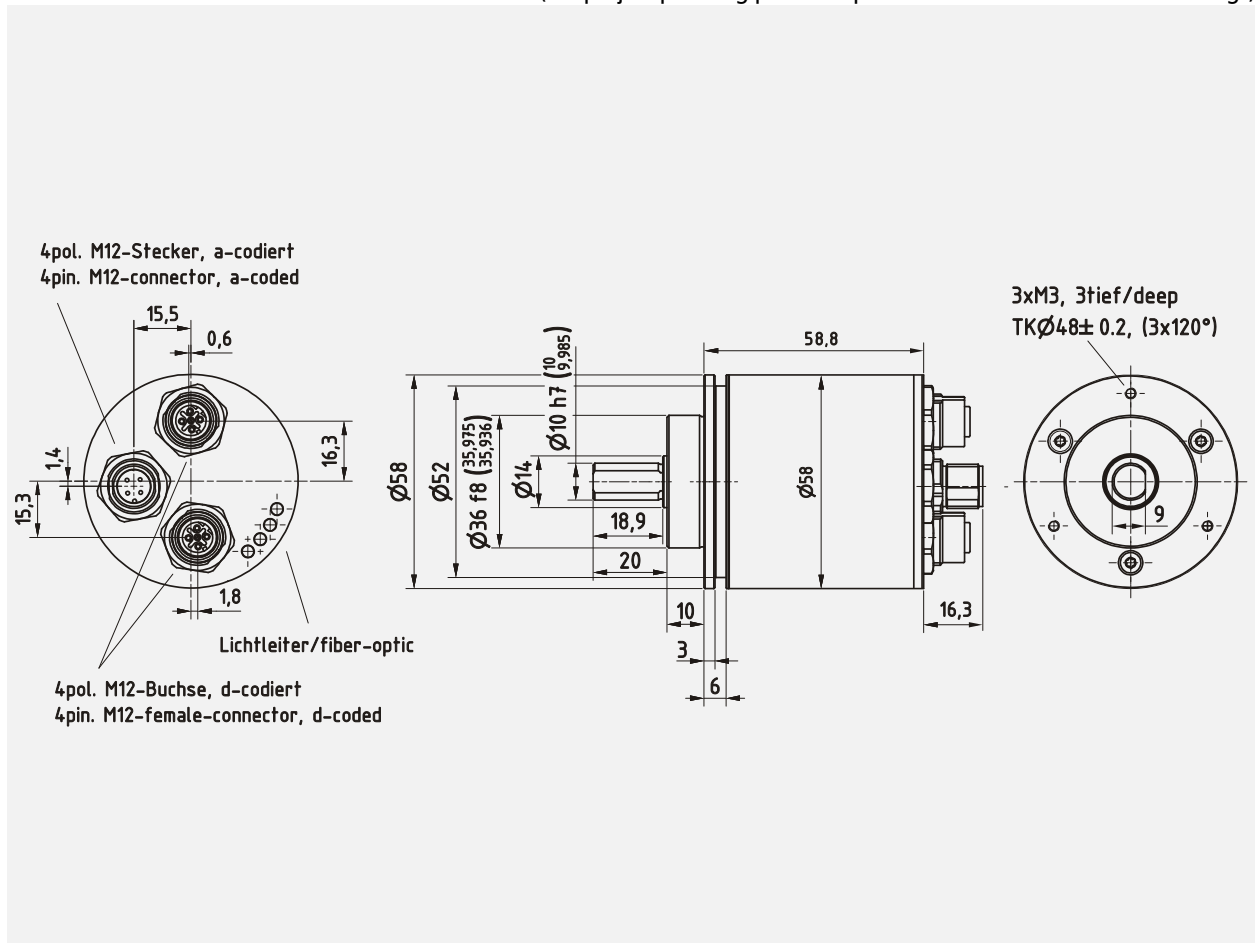
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 58 S/M - EIP

Preliminary

CEV58-EIP-1-GB-1
10/12 Revision 01
010102-00580203-0001



- + EtherNet/IP interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherNet/IP.....	IEC 61784-1:2003 CP 2/2 Type 2, IEC 61158:2003 Type 2
- Physical Layer.....	EtherNet/IP 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	Encoder Device Profile 0x22, ODVA specification
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

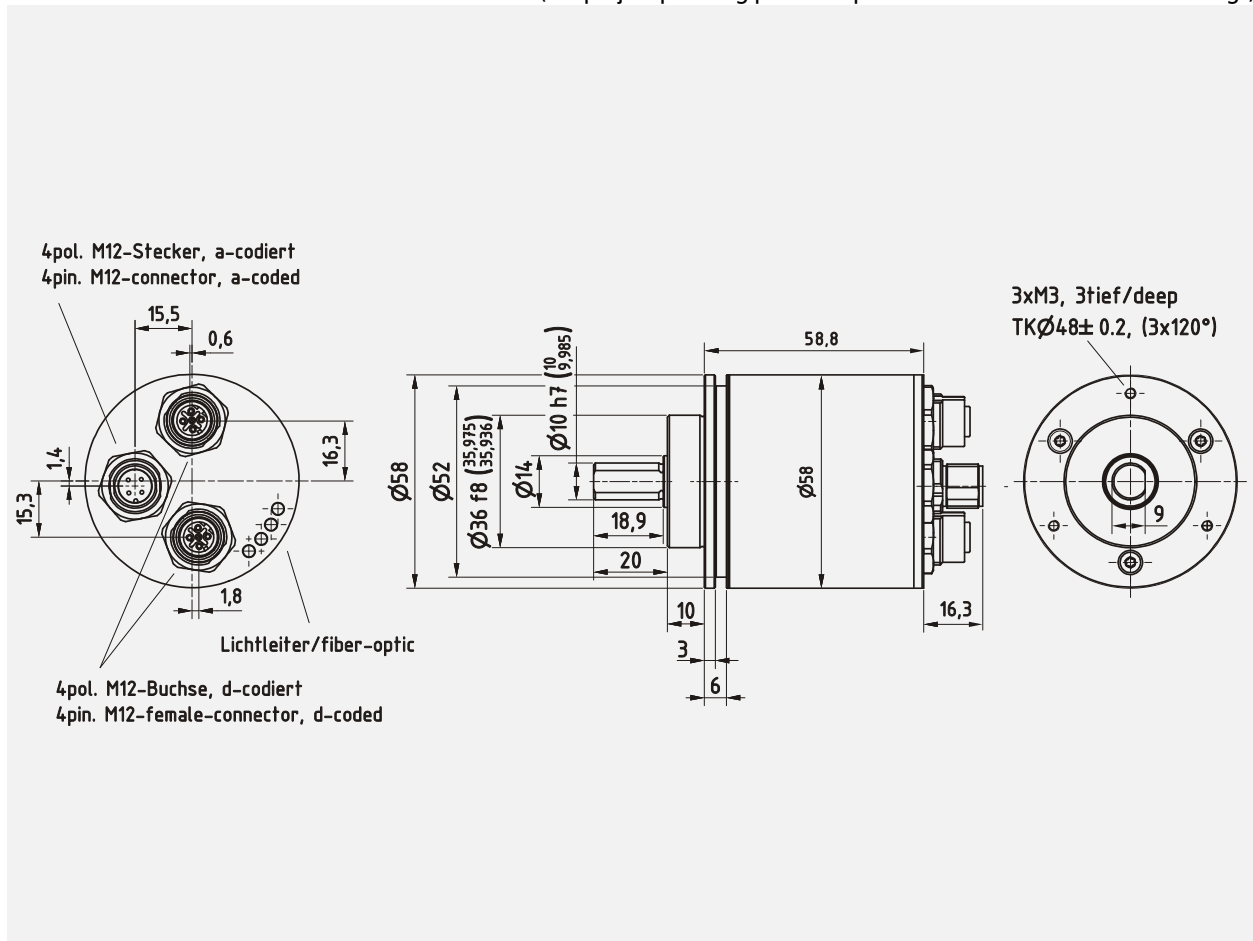
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

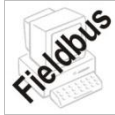


Subject to change

Absolute-Encoder CEV 58 S/M - ES3

Preliminary

CEV58-ES3-1-GB-1
10/12 Revision 00
010102-00580203-0001



- + SERCOS III interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SERCOS III.....	IEC 61784-2 CPF16, IEC 61158 CP16/3 Type 19
- Physical Layer.....	SERCOS III 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code.....	Binary
- Device profile.....	Encoder Profile
- Transmission rate.....	100 MBit/s
- Transmission.....	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

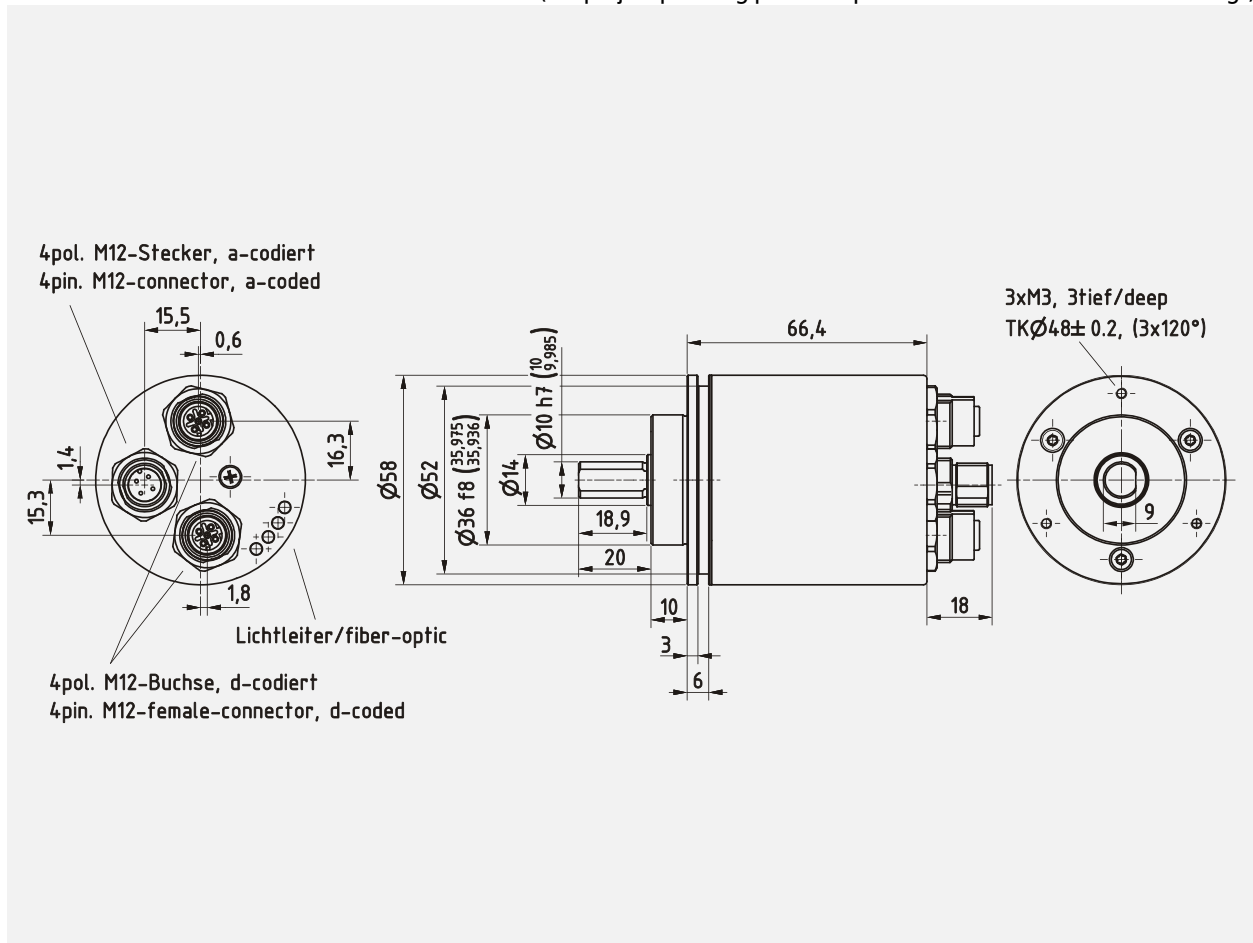
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 S - SSI

CEH58S-SSI-1-GB-1
11/11 Revision 04
010102-00580201-0102



- + SSI interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

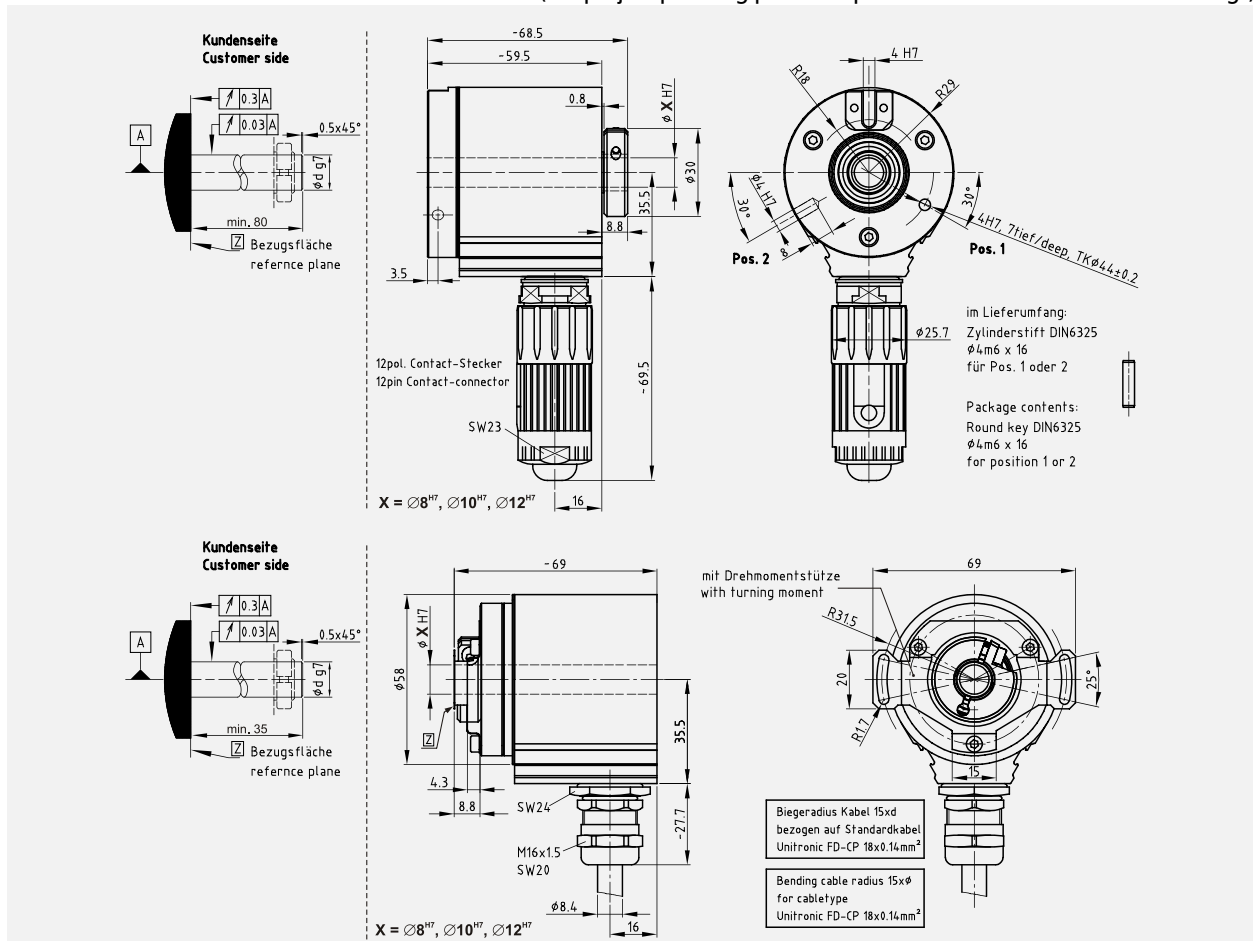
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 M - SSI

CEH58M-SSI-1-GB-1
11/11 Revision 04
010102-00580201-0202



- + SSI interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t_M	16 μ s ≤ t_M ≤ 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

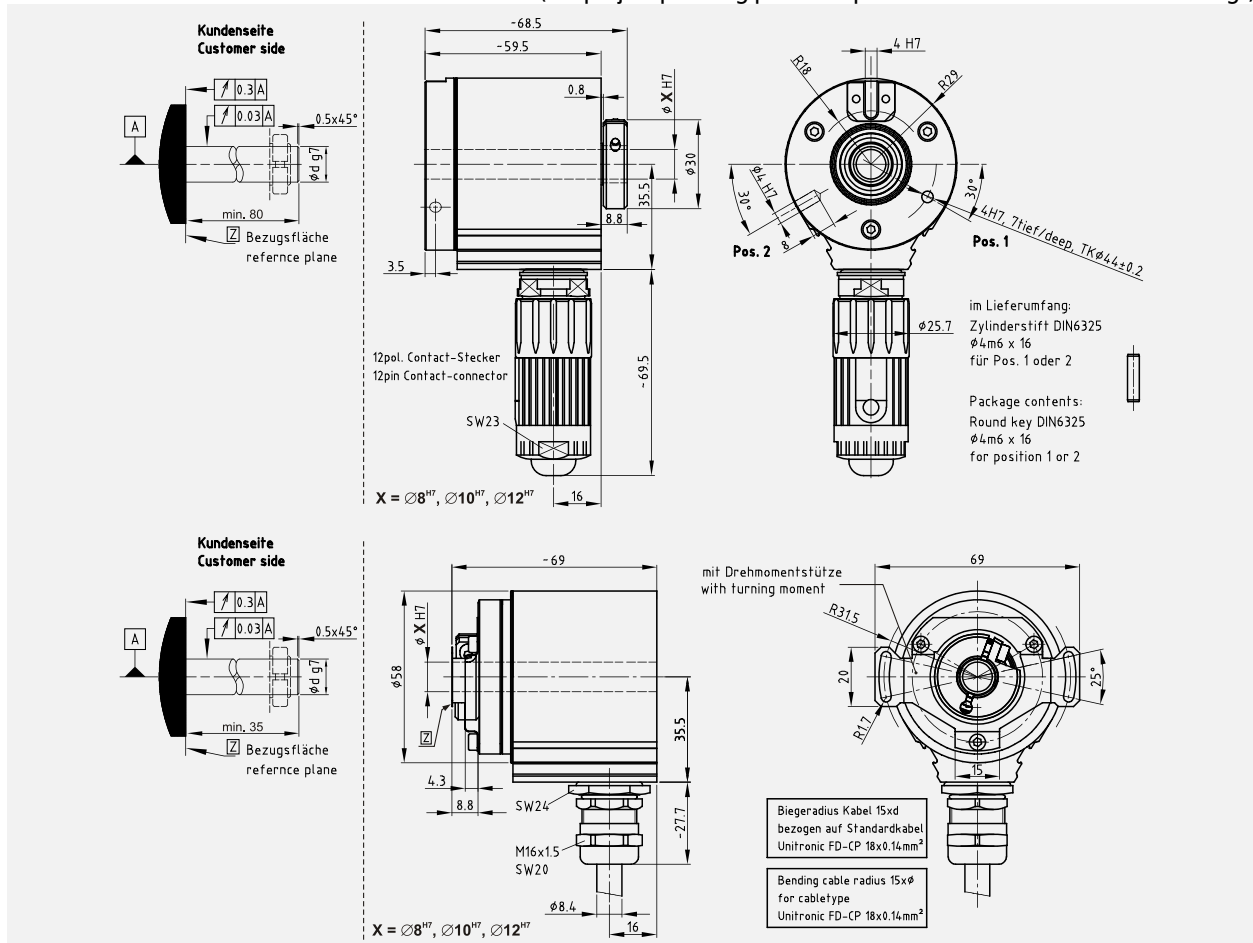
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Transient emissions, DIN EN 61000-6-3: 2007
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾..... IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 S - P

CEH58S-P-1-GB-1
11/11 Revision 02
010102-00580201-0102



- + Parallel interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
P.....	Parallel interface
Output driver.....	Push-Pull
Output code ¹⁾	Binary, Gray, BCD
F/R.....	Count direction
Preset.....	electronic adjustment
Latch	Intermediate storage of the output data
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

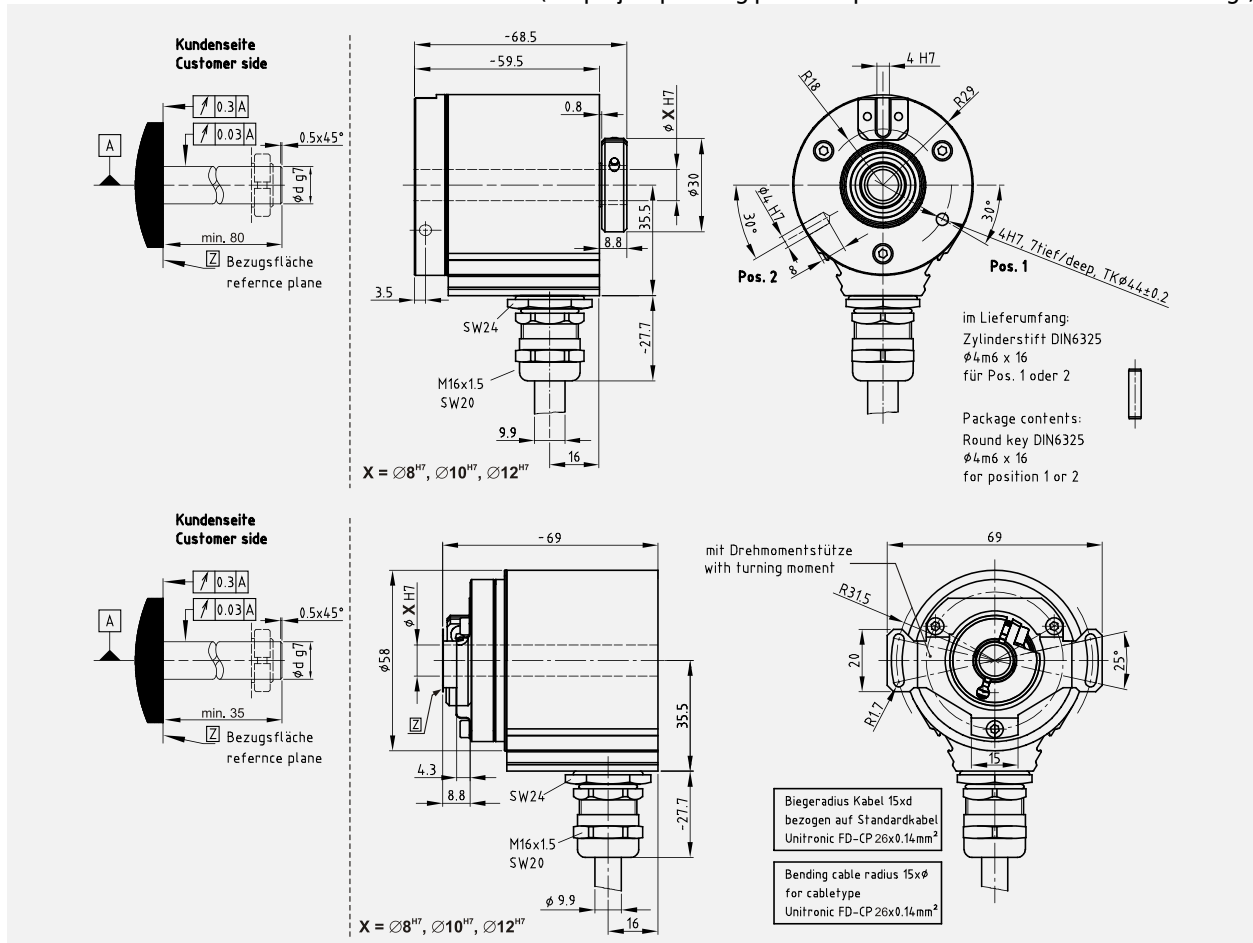
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Transient emissions, DIN EN 61000-6-3: 2007
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

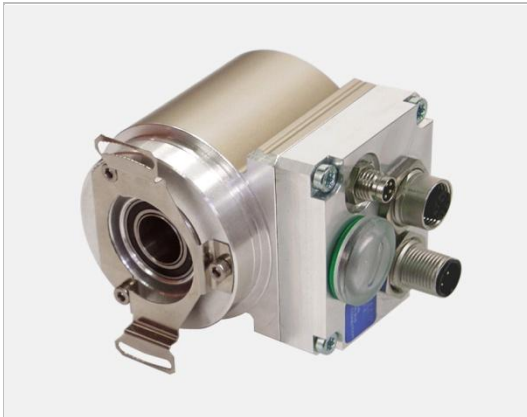
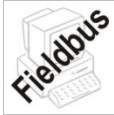
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 S - PB

CEH58S-PB-1-GB-1
11/11 Revision 04
010102-00580202-0102



- + PROFIBUS-DP interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 15 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions	1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 25 Bit
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

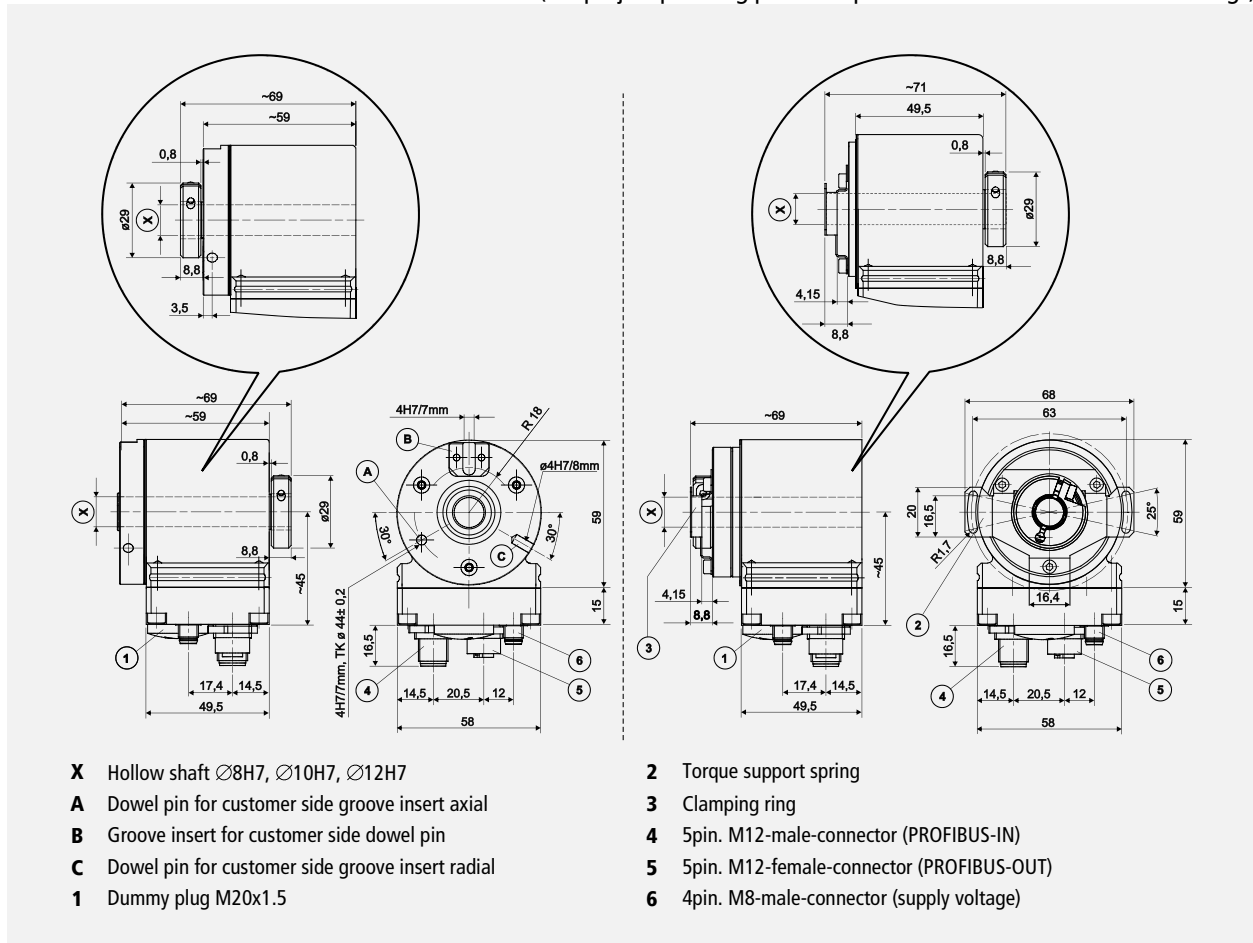
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

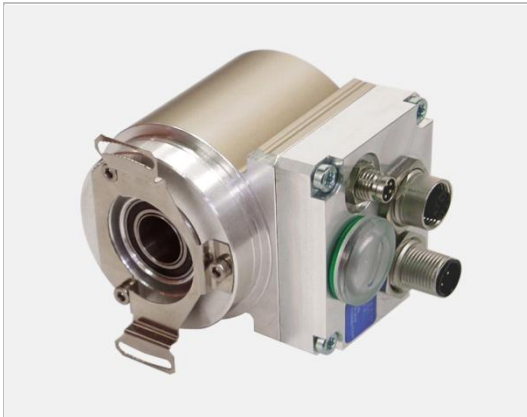
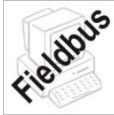
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFIBUS-DP interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 33 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions, standard / extended ¹⁾	≤ 4.096 / ≤ 256.000
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 25 Bit
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

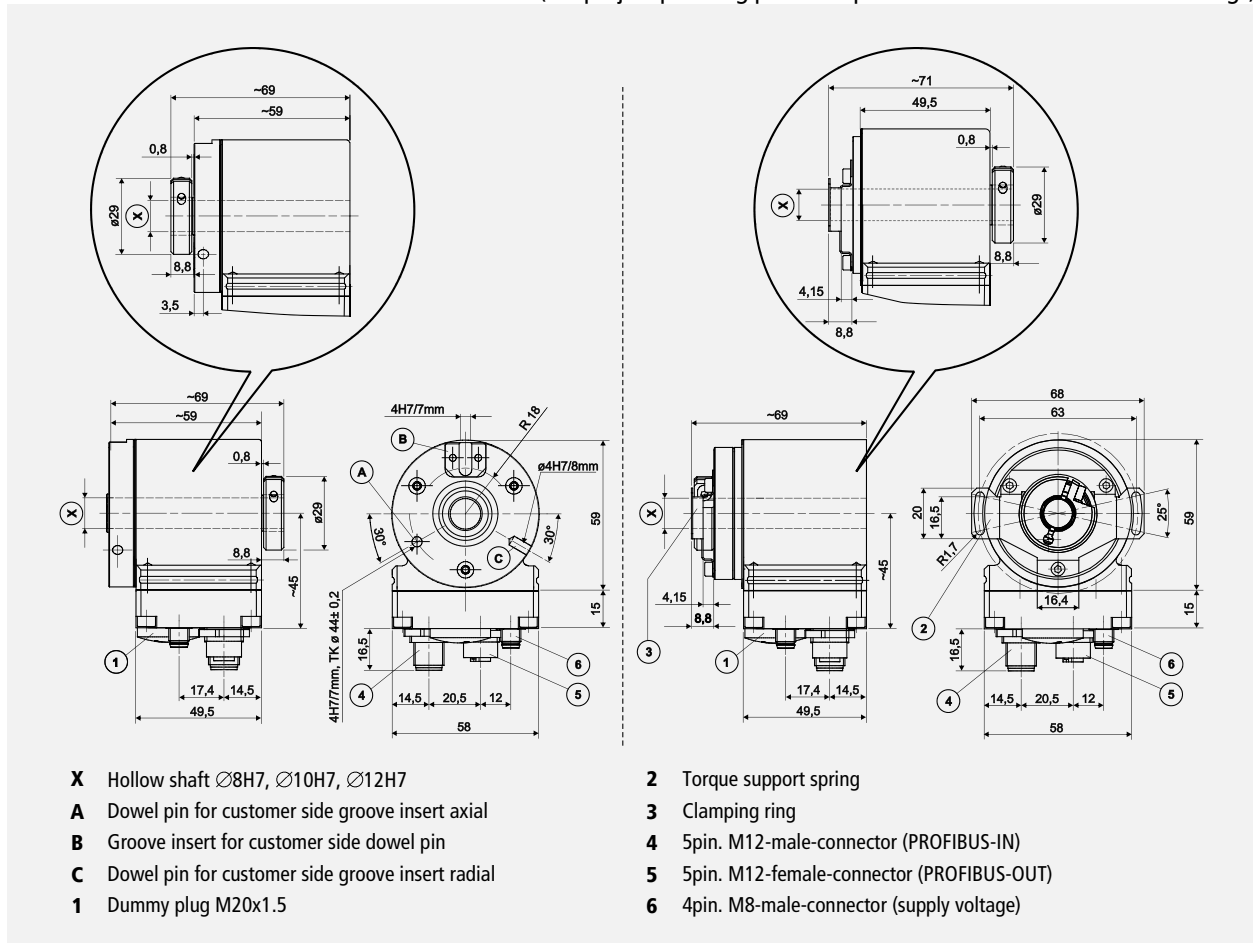
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

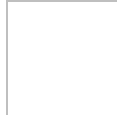
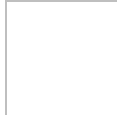
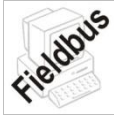
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 S/M - CO

CEH58-CO-1-GB-1
01/12 Revision 01
010102-00580302-0002



- + CANopen interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 as from V2.2.5
- Node-ID ¹⁾	Adjustable via DIP switch or LSS services
- Baud rate ¹⁾	Adjustable via DIP switch or LSS services
Firmware update via CAN.....	CiA DS 302-3 as from V4.1.0
Download EDS file.....	CiA DS 301 as from V4.2.0
Output code.....	Binary
Data size for actual value on the bus.....	≤ 32 bit
Mechanically permissible speed.....	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
Cams.....	8 x Cam tracks with high limit, low limit and hysteresis
Incremental signals.....	32...8192 pulses/revolution. in power of 2 steps
- Version with push pull.....	11...27 VDC; ≤ 30 mA
- Version with line driver.....	5 VDC RS422; ≤ 50 mA

¹⁾ programmable parameter

Subject to change

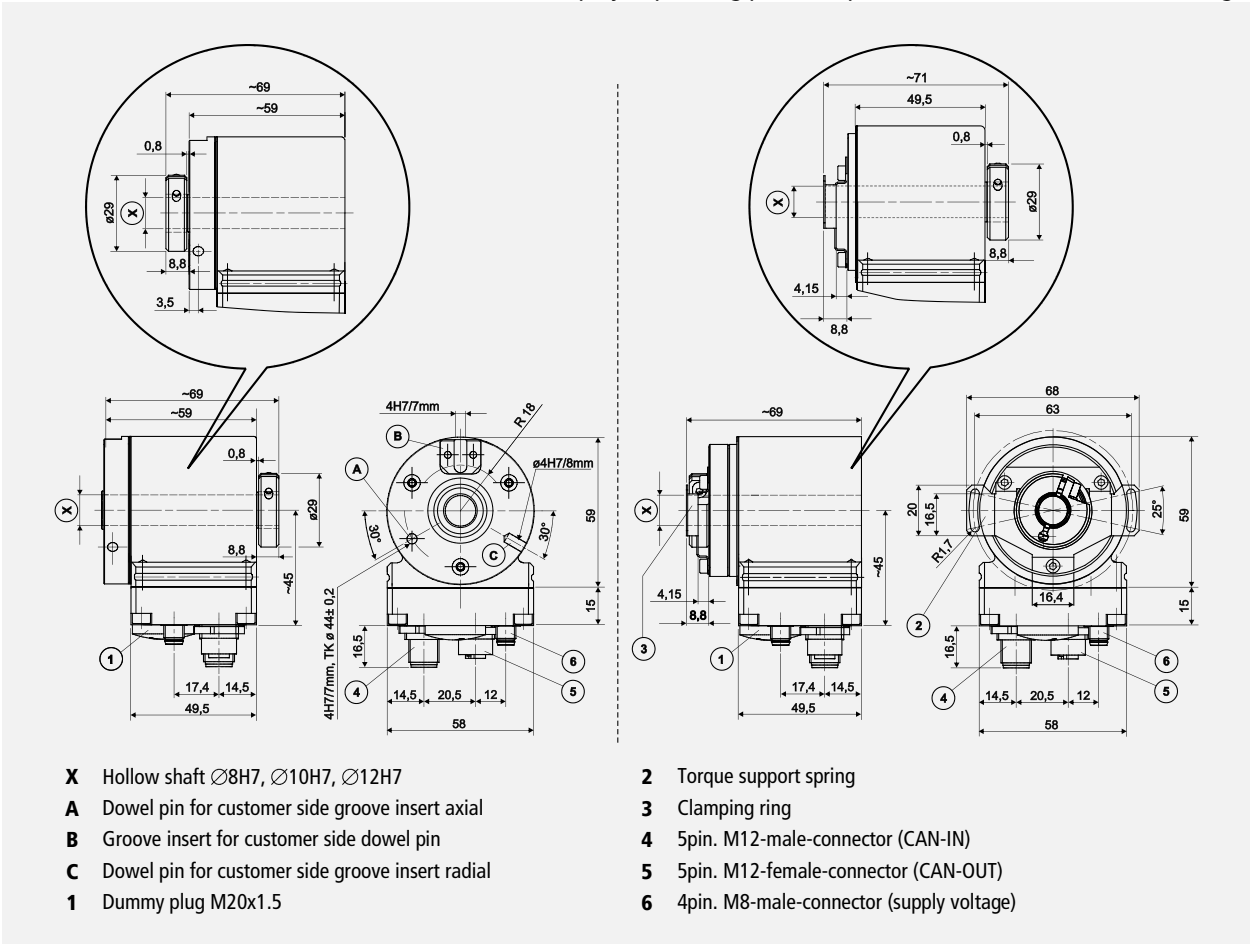
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

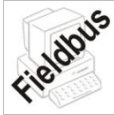
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 S - DN

CEH58S-DN-1-GB-1
11/11 Revision 04
010102-00580202-0102



- + CAN DeviceNet interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

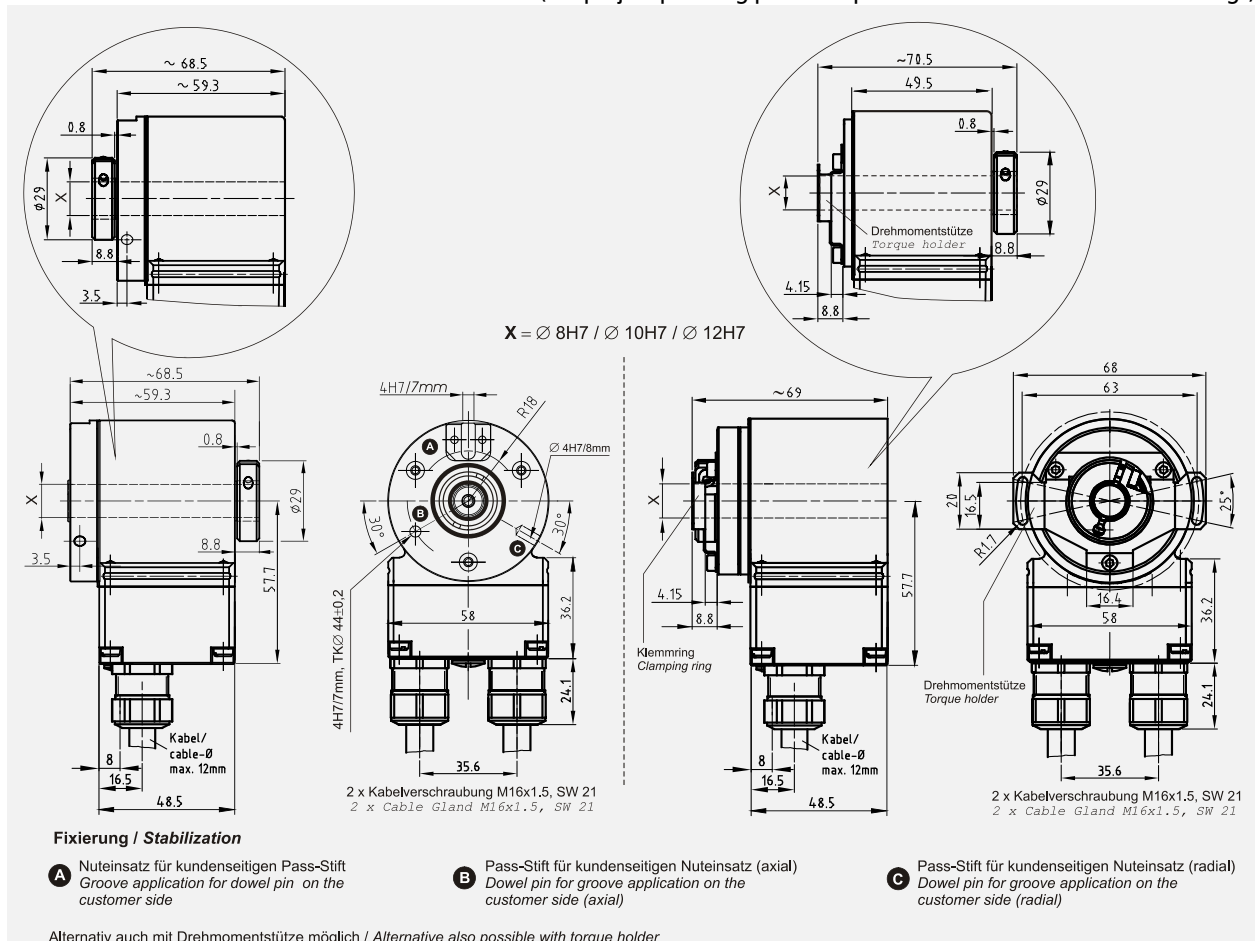
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

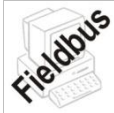
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + CAN DeviceNet interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

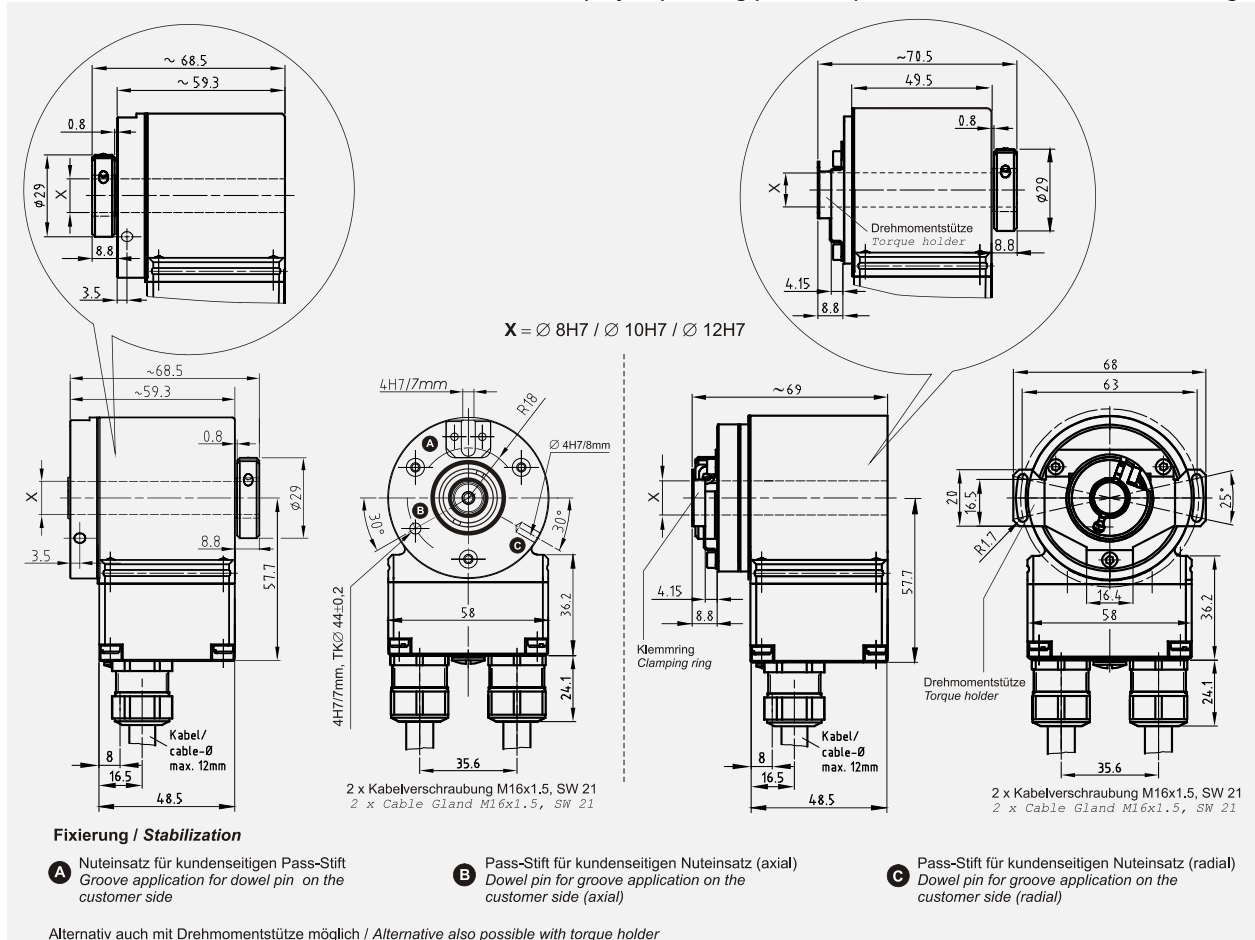
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

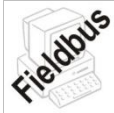
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + Actuator Sensor Interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions	1
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to 1/4 of the resolution	delivery specified max. value (steps/revolution) * 1/4
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm	8H7, 10H7, 12H7
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 3.7 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

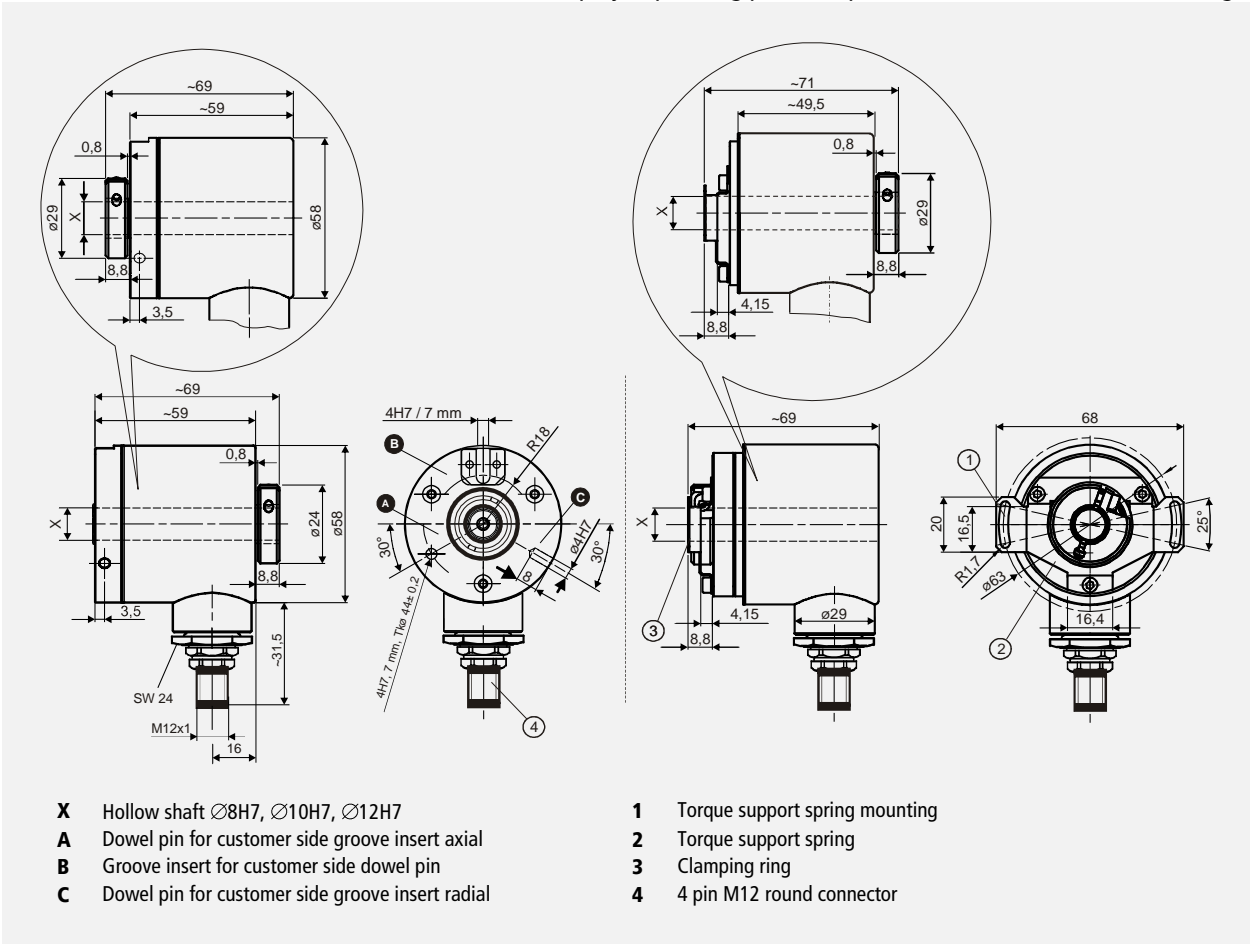
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

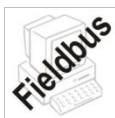
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + Actuator Sensor Interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 28 Bit, therefrom ≤ 16 bit output data
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions ¹⁾	≤ 32.768, delivery setting of the maximal value
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to 1/4 of the resolution	delivery specified max. value (steps/revolution) * 1/4
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm	8H7, 10H7, 12H7
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 3.7 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

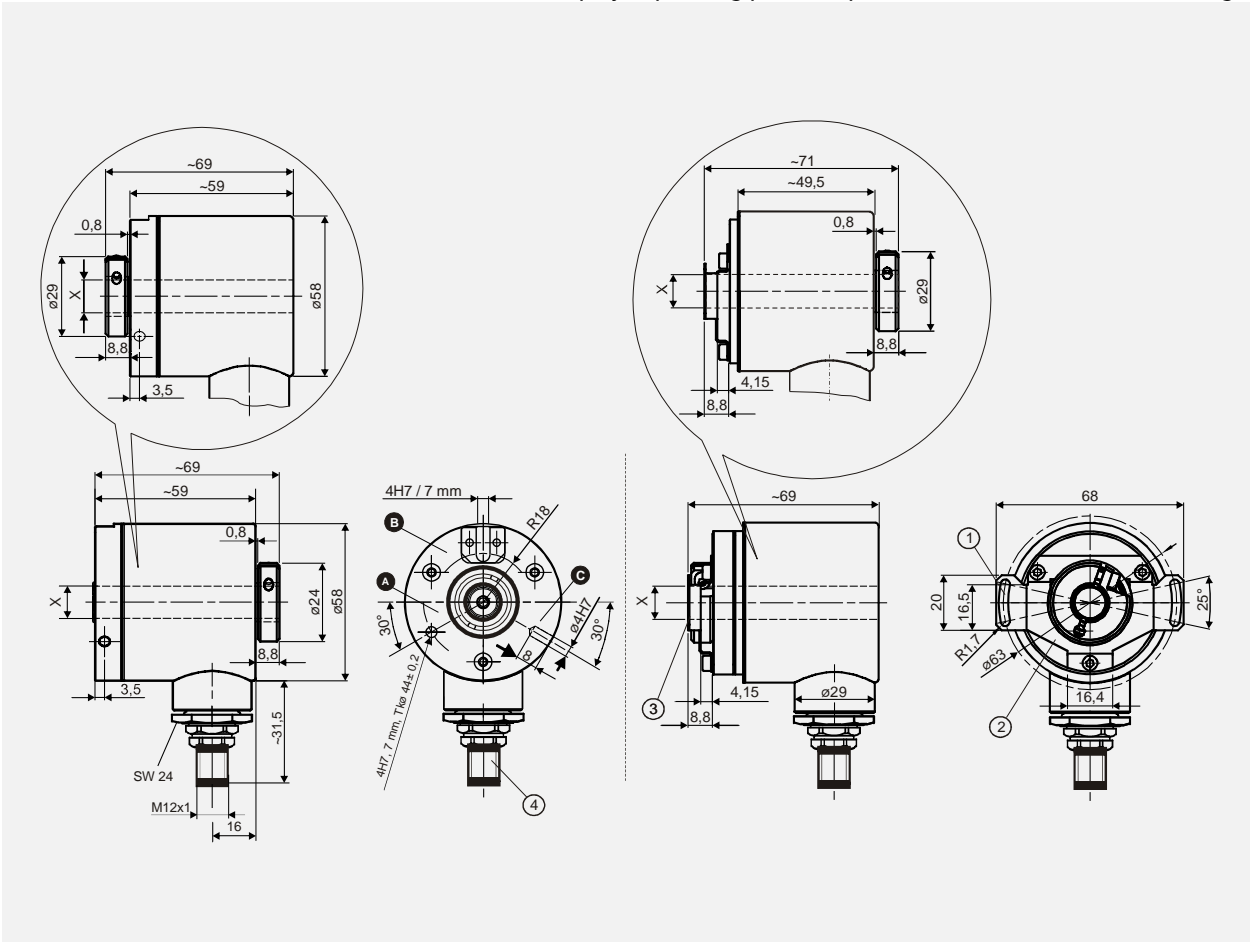
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

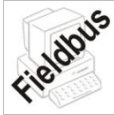
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 S/M - PN

CEH58-PN-1-GB-1
11/11 Revision 01
010102-00580103-0002



- + PROFINET IO interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

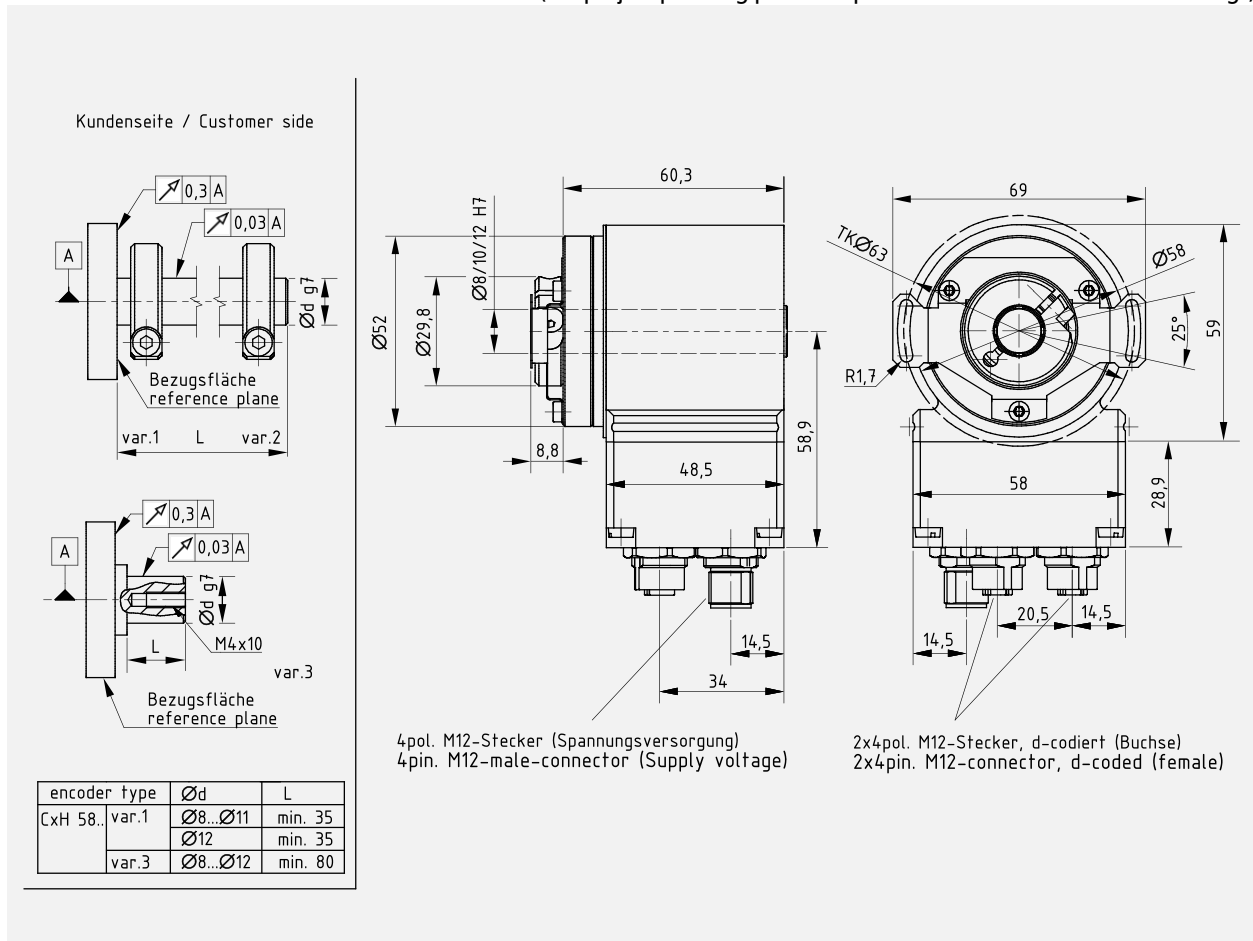
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

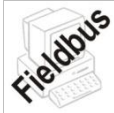
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 58 S/M - ETC

CEH58-ETC-1-GB-2
10/11 Revision 01
010102-00580203-0002



- + EtherCAT interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

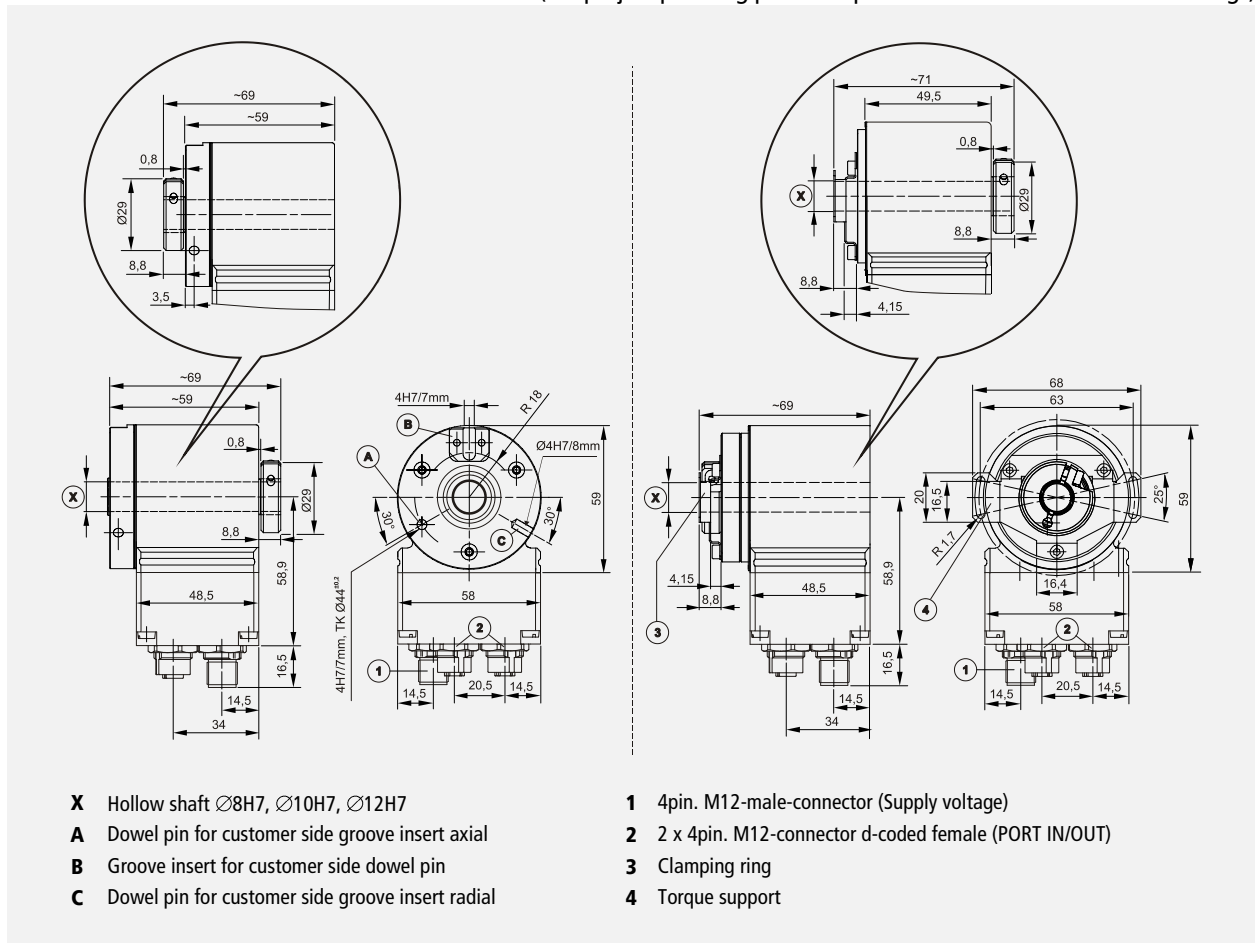
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 58 S - SSI

CES58S-SSI-1-GB-1
11/11 Revision 03
010102-00580201-0103



- + SSI interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

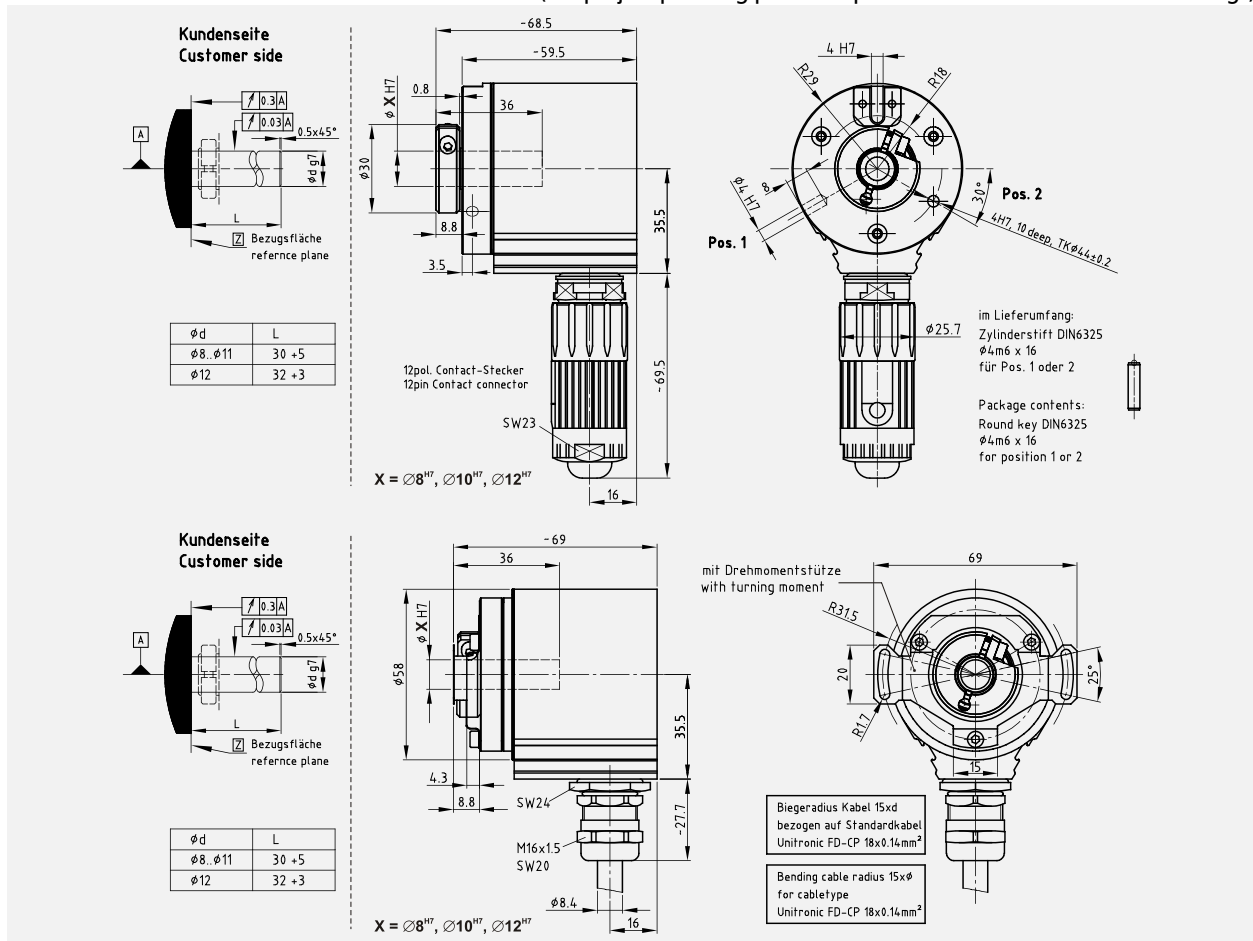
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Transient emissions, DIN EN 61000-6-3: 2007
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 58 M - SSI

CES58M-SSI-1-GB-1
11/11 Revision 02
010102-00580201-0203



- + SSI interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

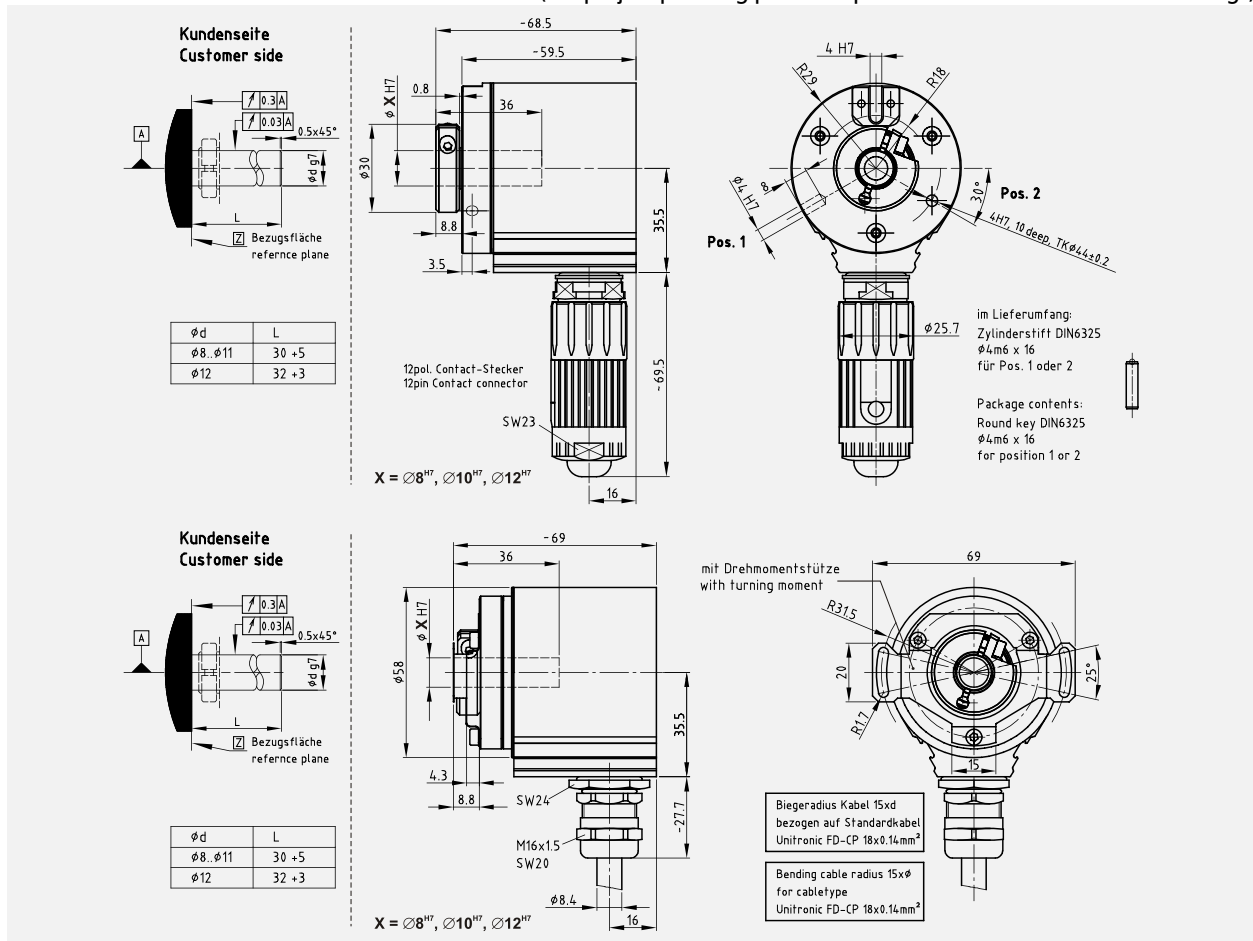
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Transient emissions, DIN EN 61000-6-3: 2007
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾..... IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 58 S - P

CES58S-P-1-GB-1
11/11 Revision 01
010102-00580201-0103



- + Parallel interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
P.....	Parallel interface
Output driver.....	Push-Pull
Output code ¹⁾	Binary, Gray, BCD
F/R.....	Count direction
Preset.....	electronic adjustment
Latch	Intermediate storage of the output data
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

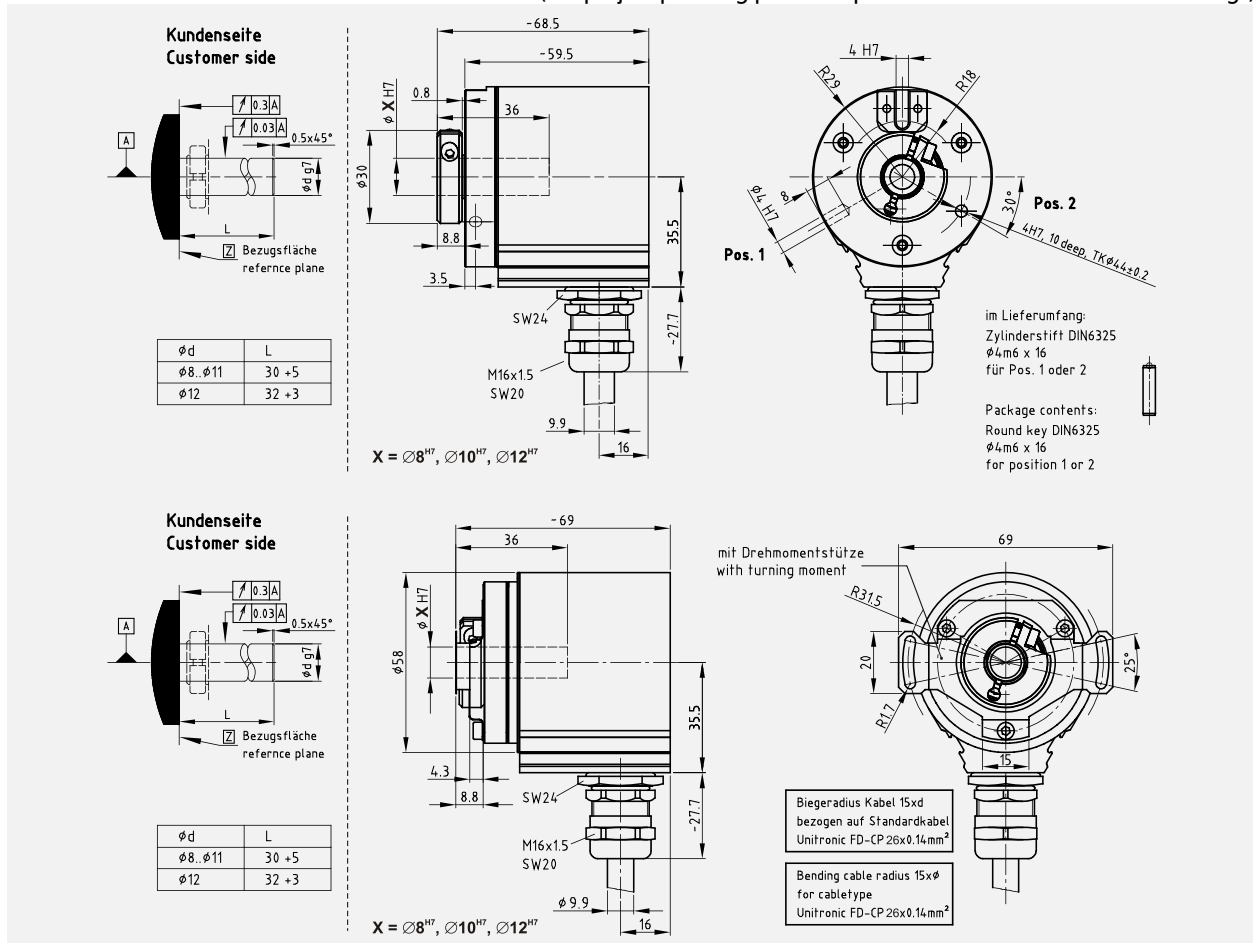
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

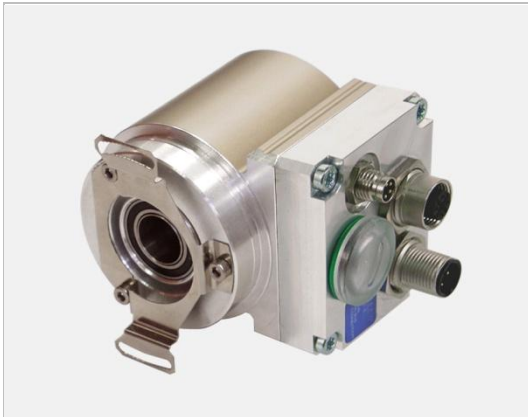
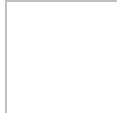
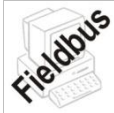
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFIBUS-DP interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 350 mA
Total resolution ¹⁾	≤ 15 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions	1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus.....	≤ 25 Bit
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

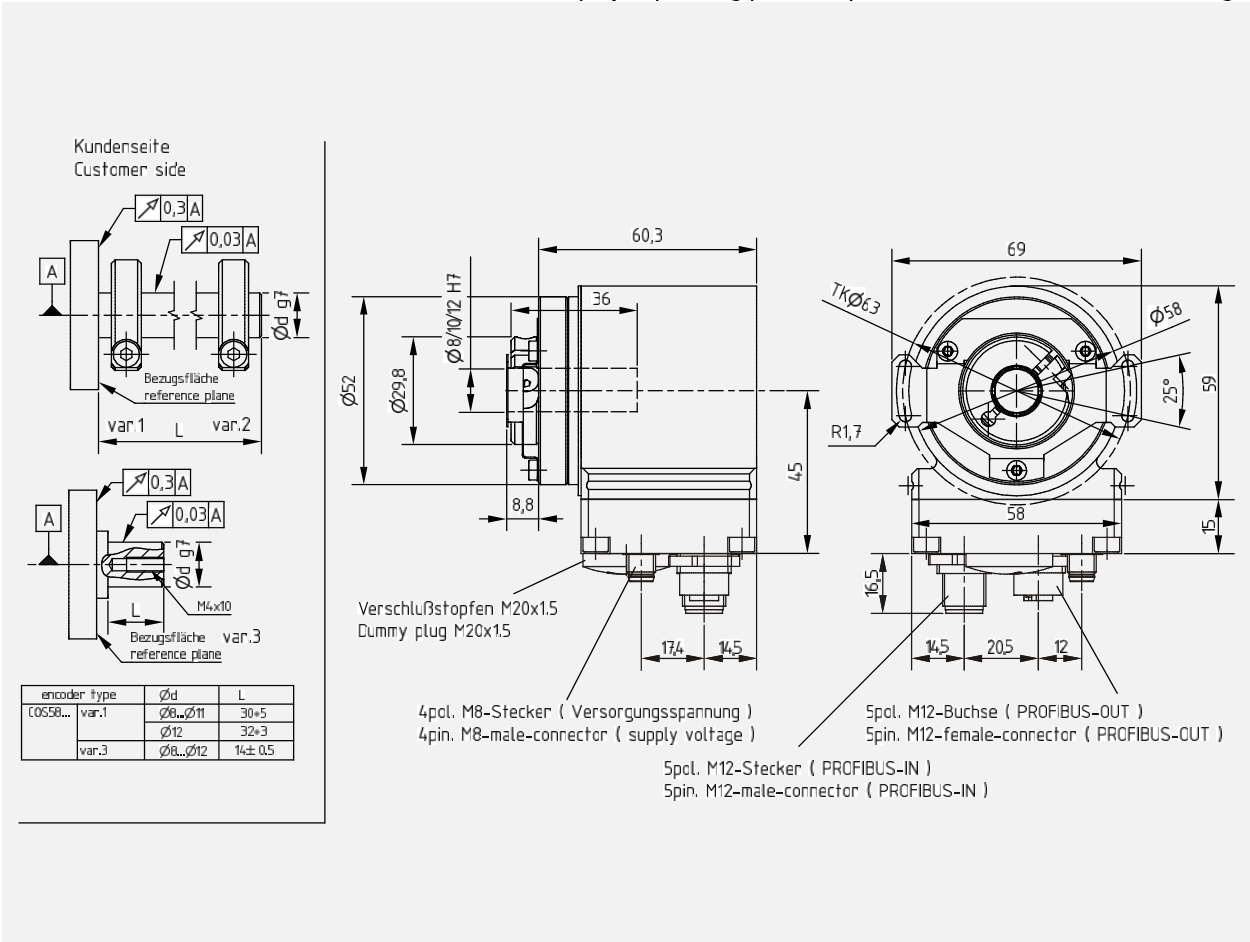
Environmental conditions

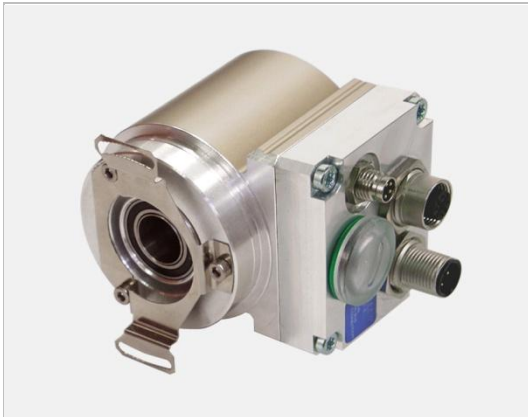
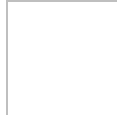
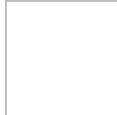
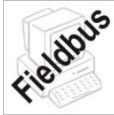
Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)





- + PROFIBUS-DP interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 350 mA
Total resolution ¹⁾	≤ 33 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions, standard / extended ¹⁾	≤ 4.096 / ≤ 256.000
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus.....	≤ 25 Bit
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

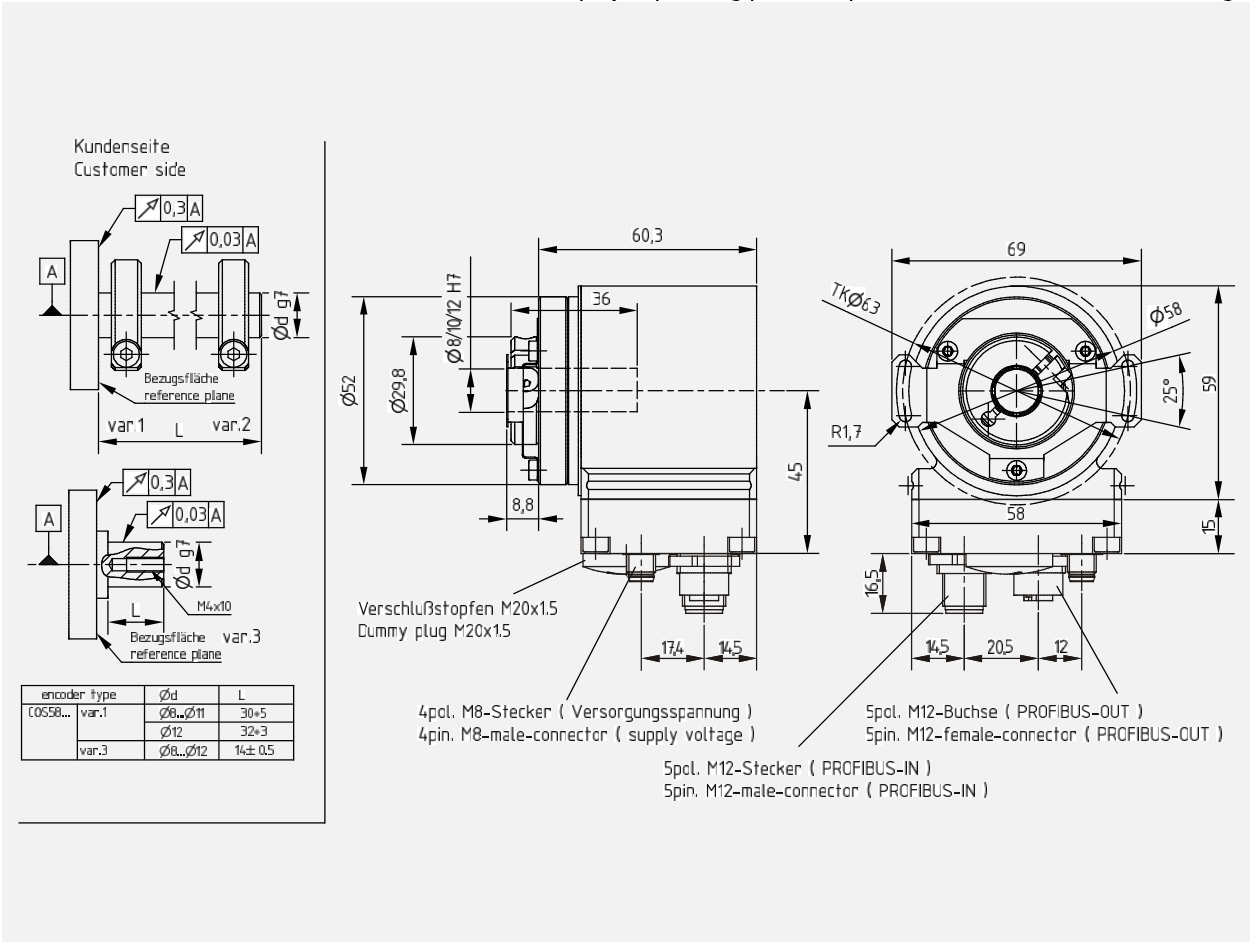
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

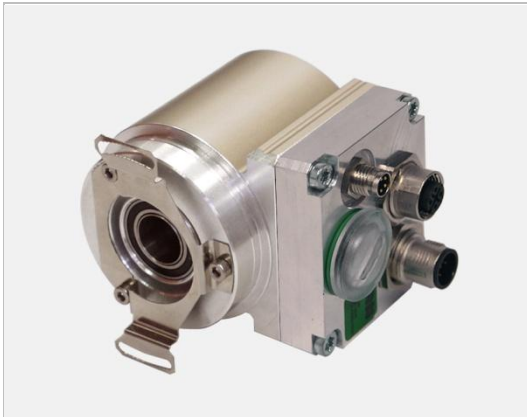
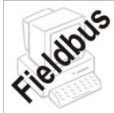
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CES 58 S/M - CO

CES58-CO-1-GB-1
01/12 Revision 01
010102-00580302-0003



- + CANopen interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 as from V2.2.5
- Node-ID ¹⁾	Adjustable via DIP switch or LSS services
- Baud rate ¹⁾	Adjustable via DIP switch or LSS services
Firmware update via CAN.....	CiA DS 302-3 as from V4.1.0
Download EDS file.....	CiA DS 301 as from V4.2.0
Output code.....	Binary
Data size for actual value on the bus.....	≤ 32 bit
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
Cams.....	8 x Cam tracks with high limit, low limit and hysteresis
Incremental signals.....	32...8192 pulses/revolution. in power of 2 streps
- Version with push pull.....	11...27 VDC; ≤ 30 mA
- Version with line driver.....	5 VDC RS422; ≤ 50 mA

¹⁾ programmable parameter

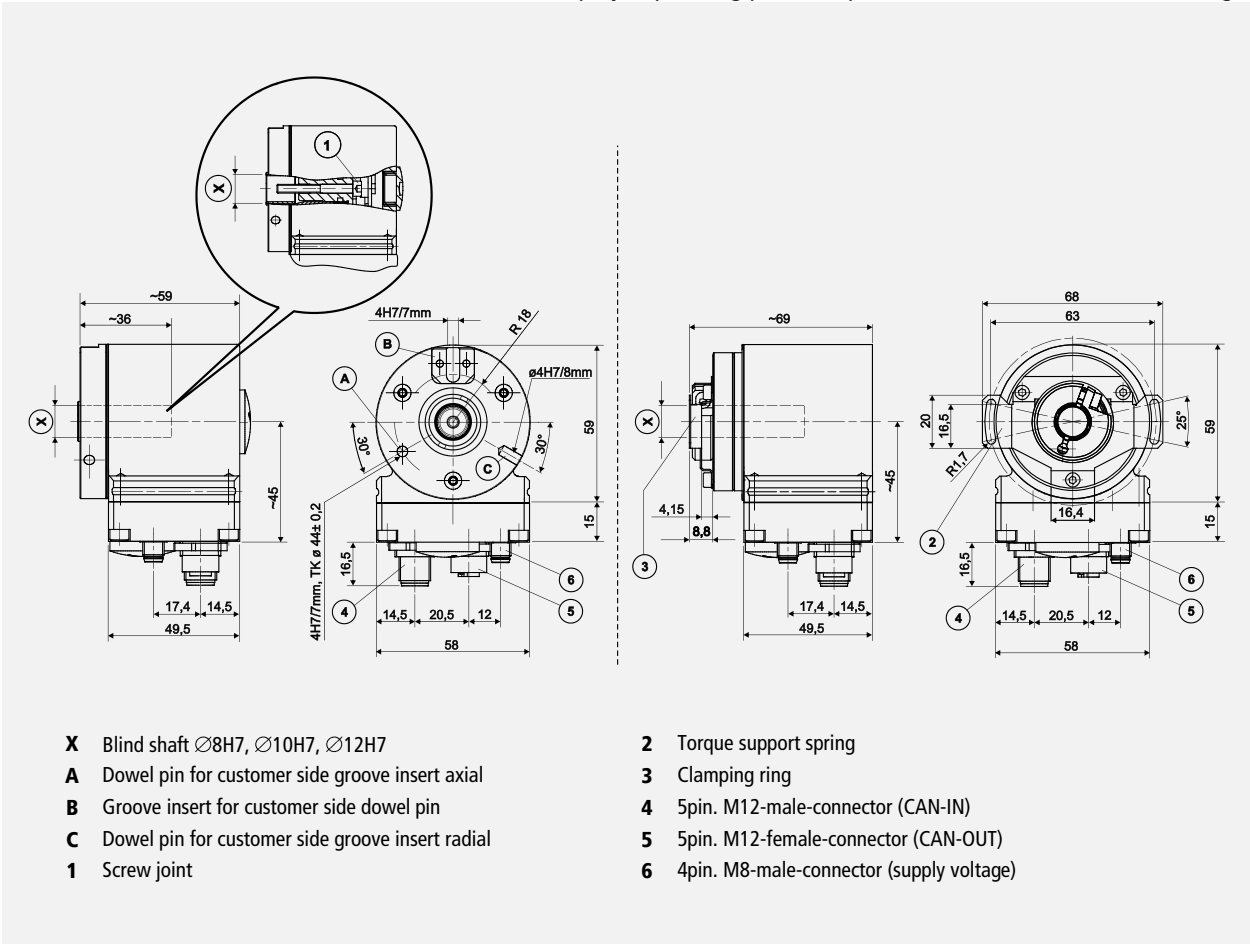
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

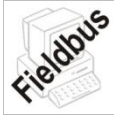
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 58 S - DN

CES58S-DN-1-GB-1
11/11 Revision 04
010102-00580202-0103



- + CAN DeviceNet interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

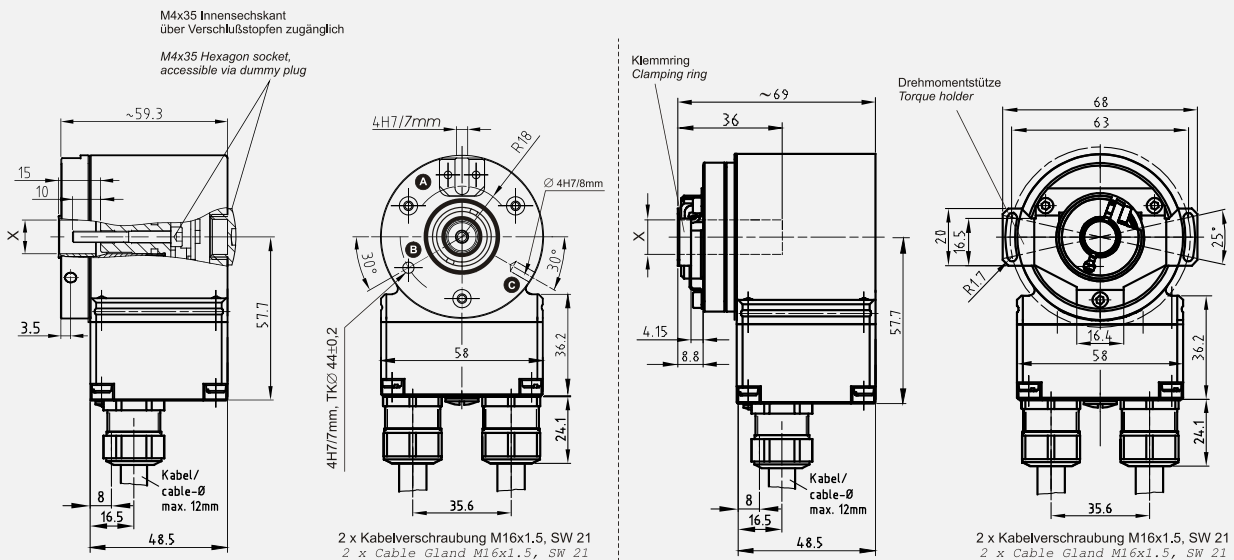
Dimension drawing

(For project planning please request customized dimensional drawing!)

Fixierung / Stabilization

- A** Nuteinsatz für kundenseitigen Pass-Stift
Groove application for dowel pin on the customer side
- B** Pass-Stift für kundenseitigen Nuteinsatz (axial)
Dowel pin for groove application on the customer side (axial)
- C** Pass-Stift für kundenseitigen Nuteinsatz (radial)
Dowel pin for groove application on the customer side (radial)

Alternativ auch mit Drehmomentstütze möglich
Alternative also possible with torque holder

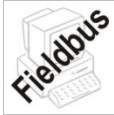


X = Ø 8H7 / Ø 10H7 / Ø 12H7

Subject to change

Absolute-Encoder CES 58 M - DN

CES58M-DN-1-GB-1
11/11 Revision 04
010102-00580202-0203



- + CAN DeviceNet interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

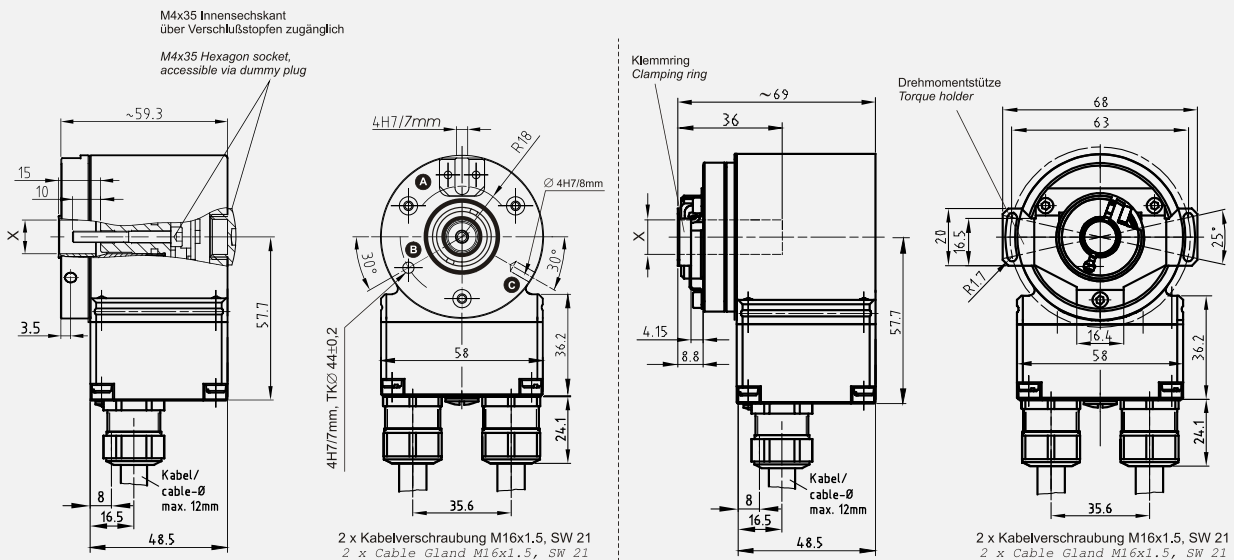
Dimension drawing

(For project planning please request customized dimensional drawing!)

Fixierung / Stabilization

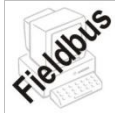
- A** Nuteinsatz für kundenseitigen Pass-Stift
 Groove application for dowel pin on the customer side
- B** Pass-Stift für kundenseitigen Nuteinsatz (axial)
 Dowel pin for groove application on the customer side (axial)
- C** Pass-Stift für kundenseitigen Nuteinsatz (radial)
 Dowel pin for groove application on the customer side (radial)

Alternativ auch mit Drehmomentstütze möglich
 Alternative also possible with torque holder



X = Ø 8H7 / Ø 10H7 / Ø 12H7

Subject to change



- + Actuator Sensor Interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions	1
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to 1/4 of the resolution	delivery specified max. value (steps/revolution) * 1/4
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm	8H7, 10H7, 12H7
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

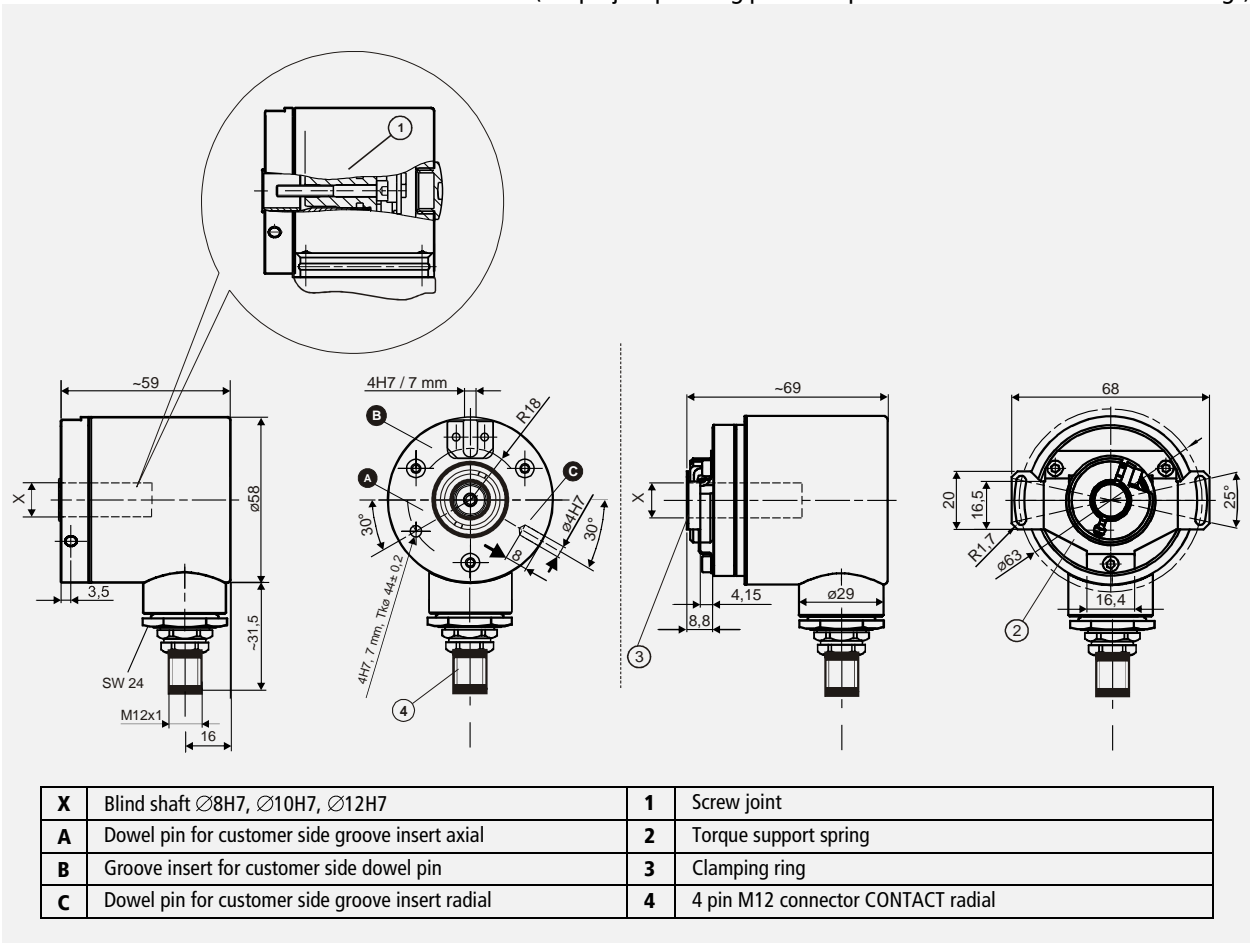
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

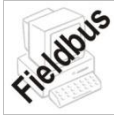
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + Actuator Sensor Interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 28 Bit, therefrom ≤ 16 bit output data
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions ¹⁾	≤ 32.768, delivery setting of the maximal value
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to 1/4 of the resolution	delivery specified max. value (steps/revolution) * 1/4
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm	8H7, 10H7, 12H7
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

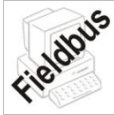
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

X	Blind shaft Ø8H7, Ø10H7, Ø12H7	1	Screw joint
A	Dowel pin for customer side groove insert axial	2	Torque support spring
B	Groove insert for customer side dowel pin	3	Clamping ring
C	Dowel pin for customer side groove insert radial	4	4 pin M12 connector CONTACT radial

Subject to change



- + PROFINET IO interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

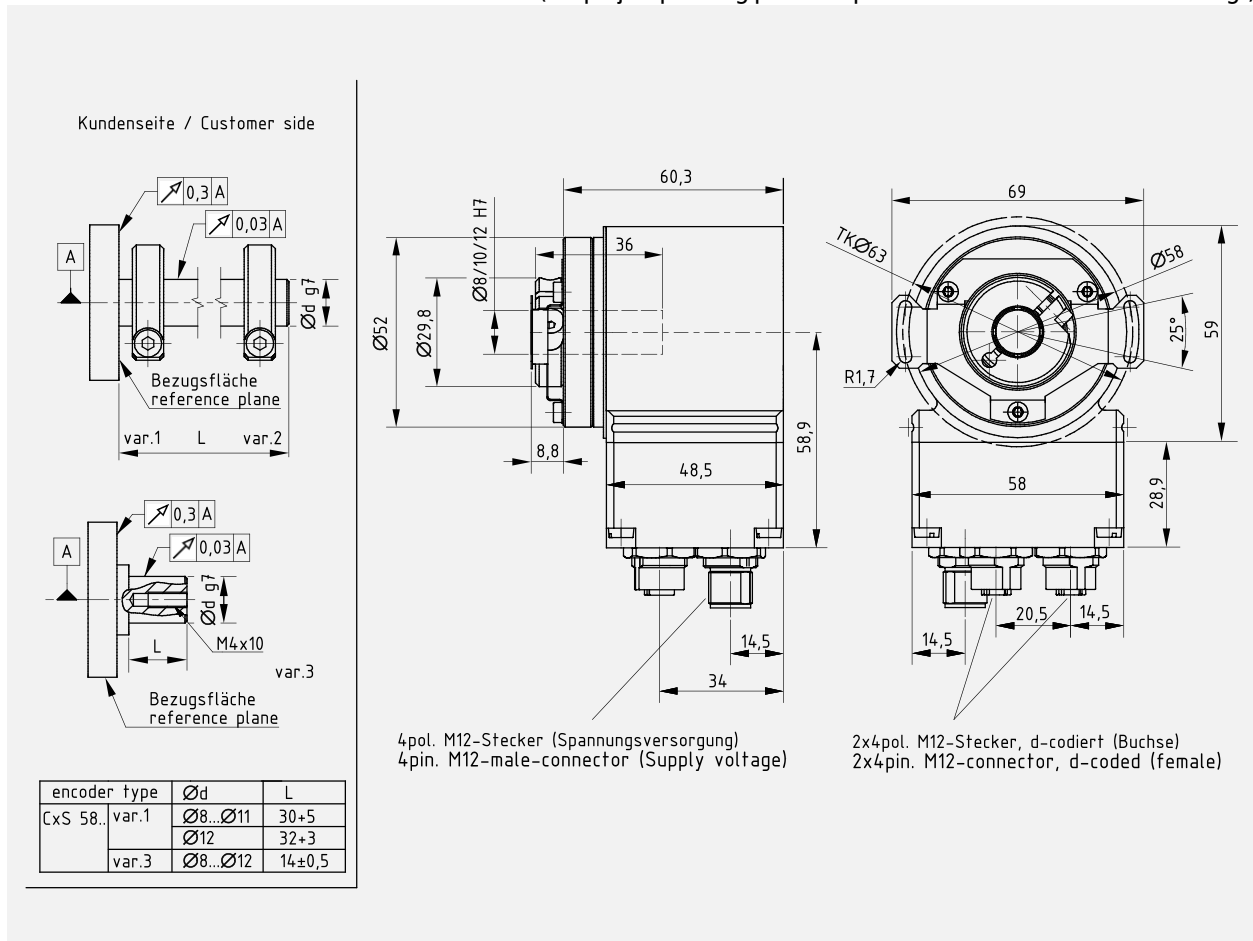
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

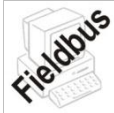
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 58 S/M - PN

CES58-PN-1-GB-2
10/12 Revision 01
010102-00580203-0003



- + PROFINET IO interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

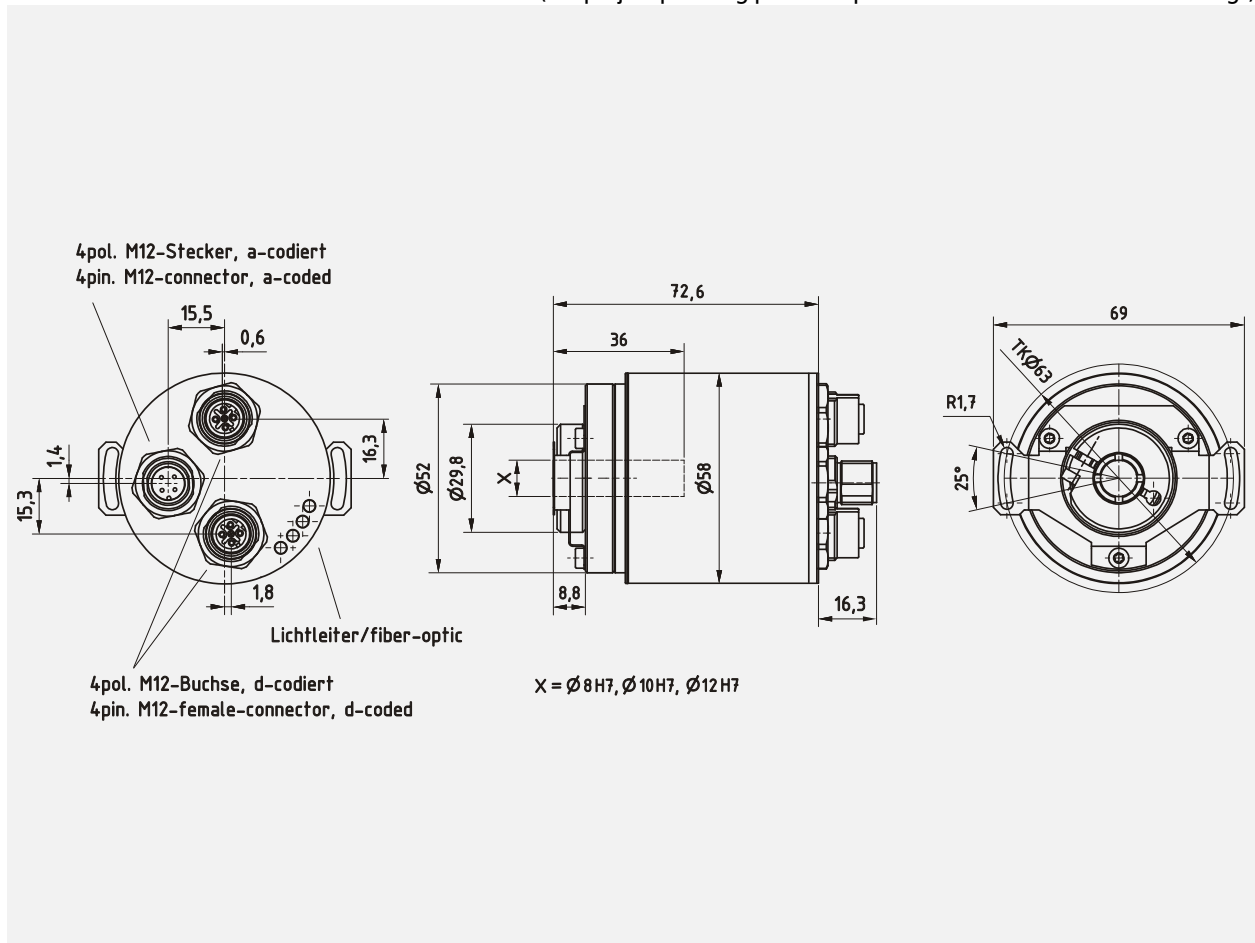
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 58 S/M - ETC

CES58-ETC-1-GB-1
12/12 Revision 02
010102-00580203-0003



- + EtherCAT interface
- + Type with blind shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 30 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 32.768, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle times.....	62.5 μs...32 ms
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Programming, alternative.....	WINDOWS® compatible, TRWinProg

¹⁾ programmable parameter

Subject to change

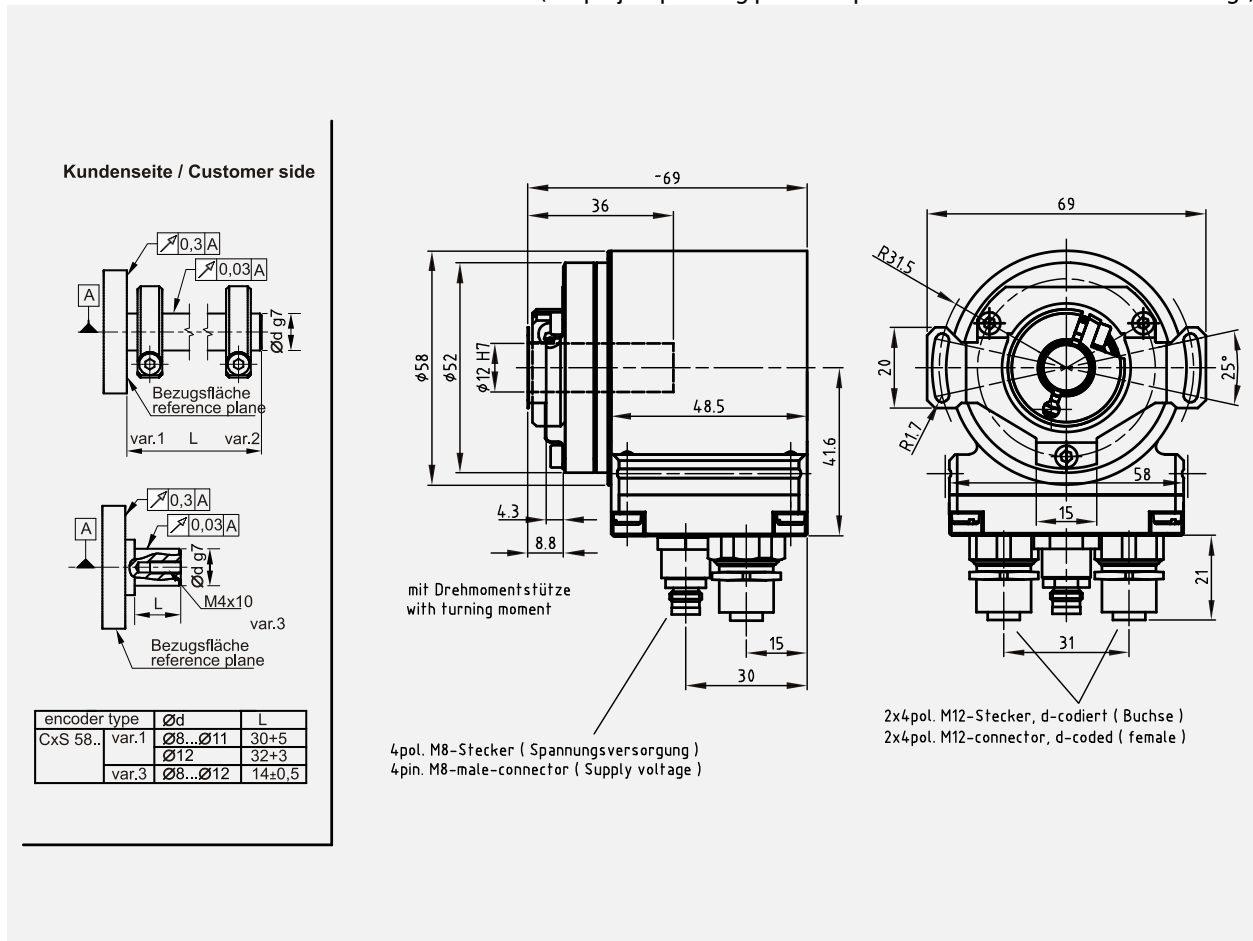
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

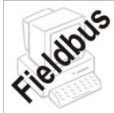
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + EtherCAT interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

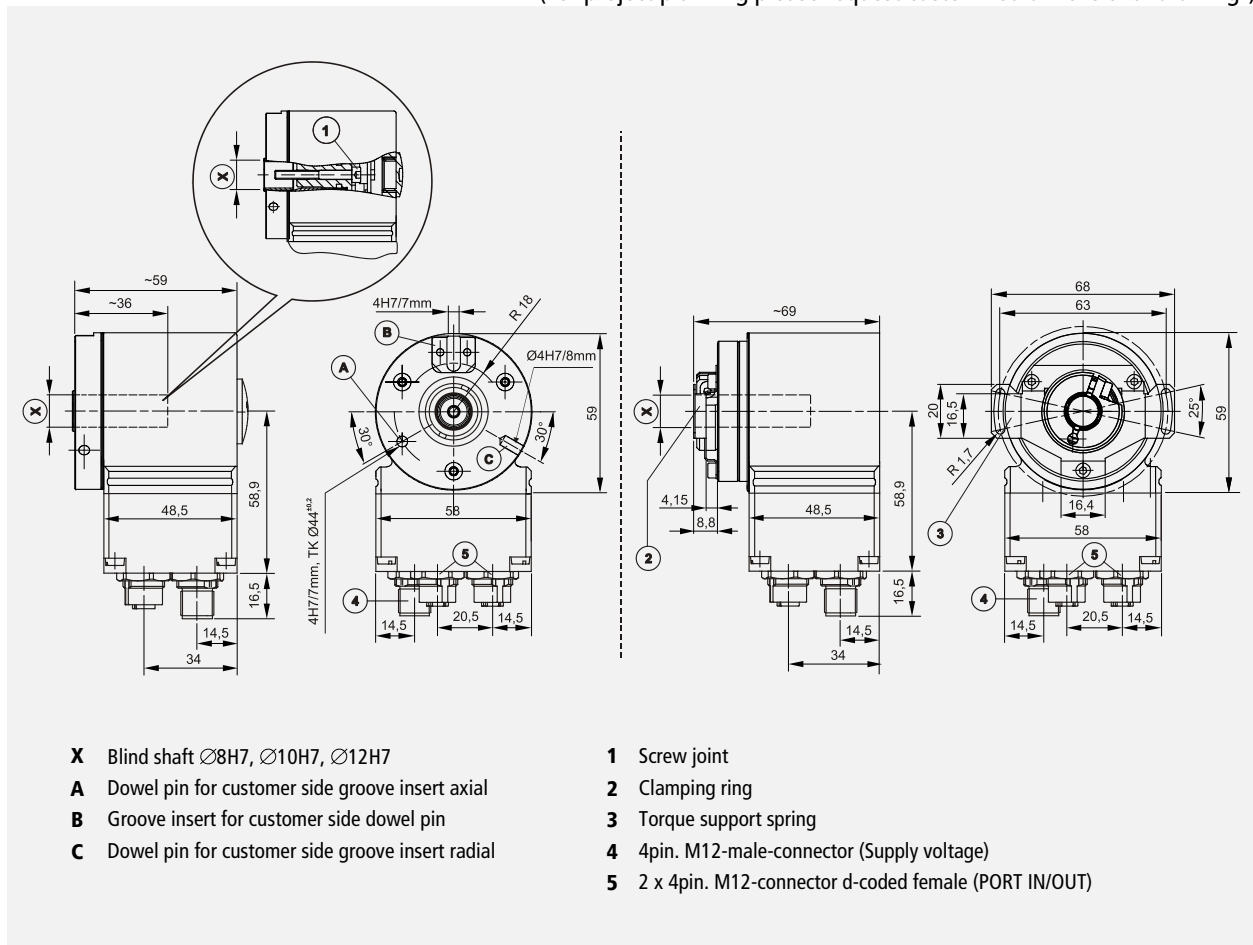
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

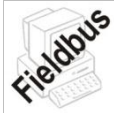
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 58 S/M - ETC

CES58-ETC-1-GB-3
10/12 Revision 00
010102-00580203-0003



- + EtherCAT interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

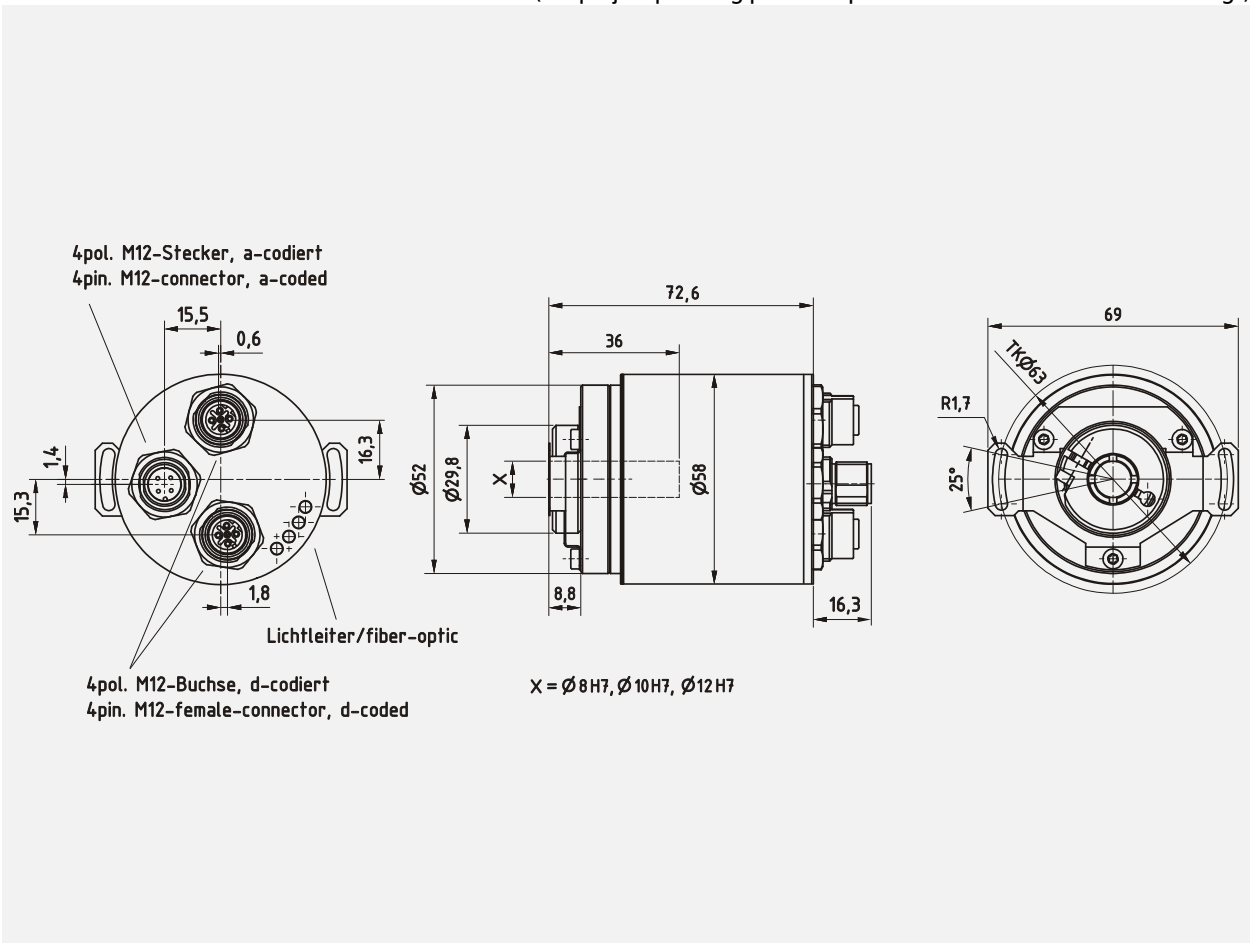
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

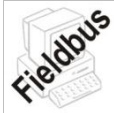


Subject to change

Absolute-Encoder CES 58 S/M - EIP

Preliminary

CES58-EIP-1-GB-1
10/12 Revision 01
010102-00580203-0003



- + EtherNet/IP interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherNet/IP.....	IEC 61784-1:2003 CP 2/2 Type 2, IEC 61158:2003 Type 2
- Physical Layer.....	EtherNet/IP 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	Encoder Device Profile 0x22, ODVA specification
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

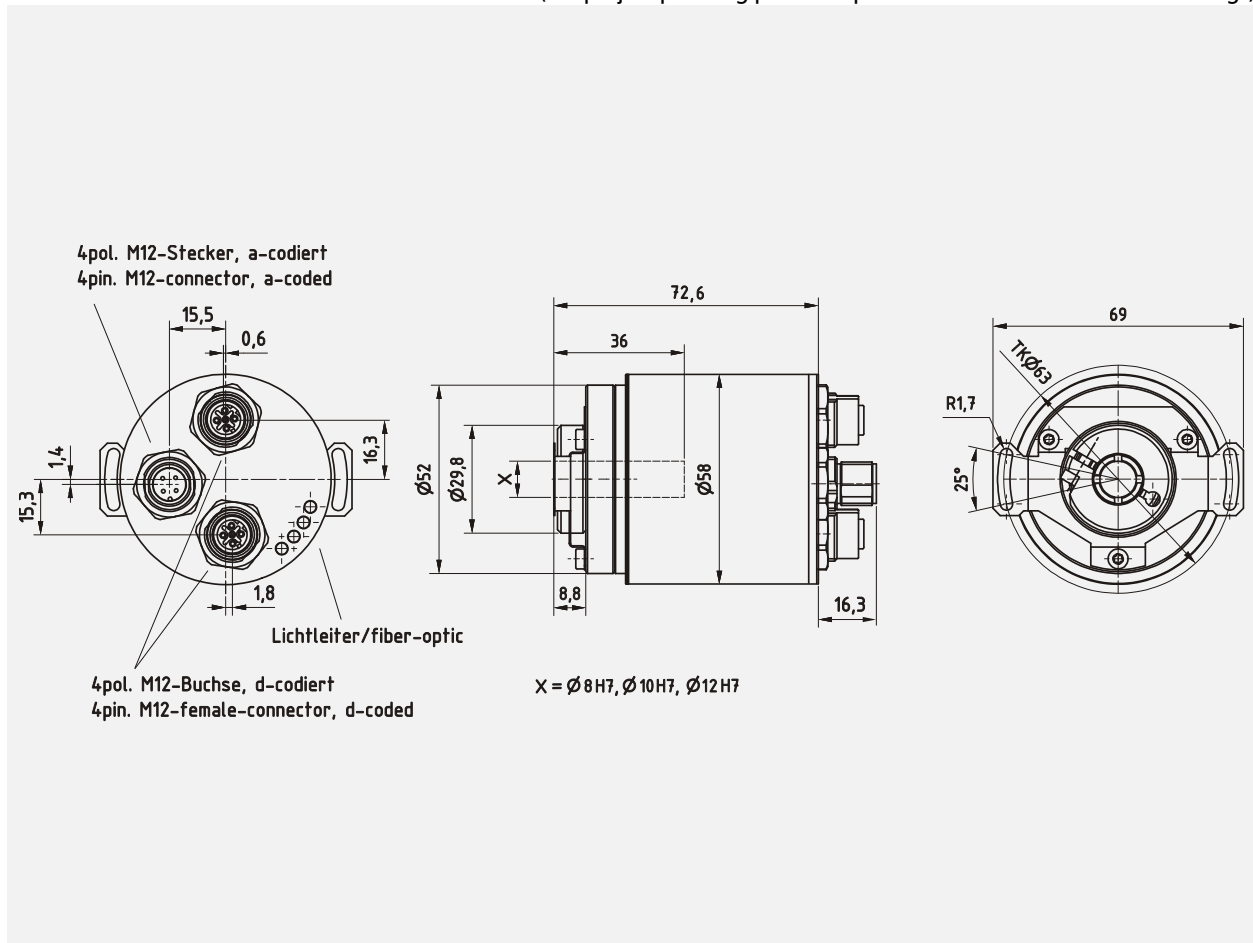
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

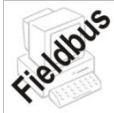


Subject to change

Absolute-Encoder CES 58 S/M - ES3

Preliminary

CES58-ES3-1-GB-1
10/12 Revision 00
010102-00580203-0003



- + SERCOS III interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SERCOS III.....	IEC 61784-2 CPF16, IEC 61158 CP16/3 Type 19
- Physical Layer.....	SERCOS III 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code.....	Binary
- Device profile.....	Encoder Profile
- Transmission rate.....	100 MBit/s
- Transmission.....	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

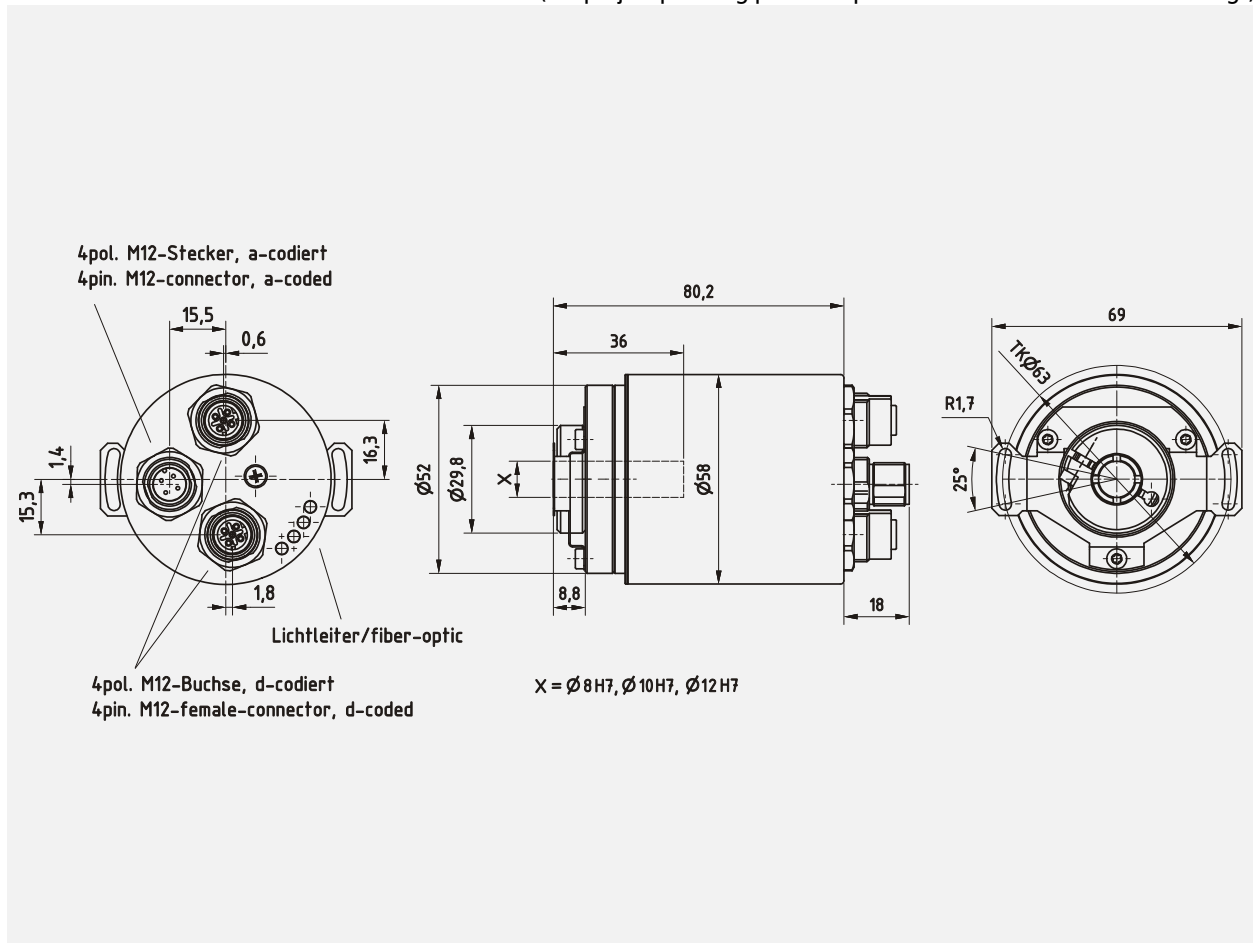
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S - SSI

CEK58S-SSI-1-GB-1
11/11 Revision 03
010102-00580201-0104



- + SSI interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

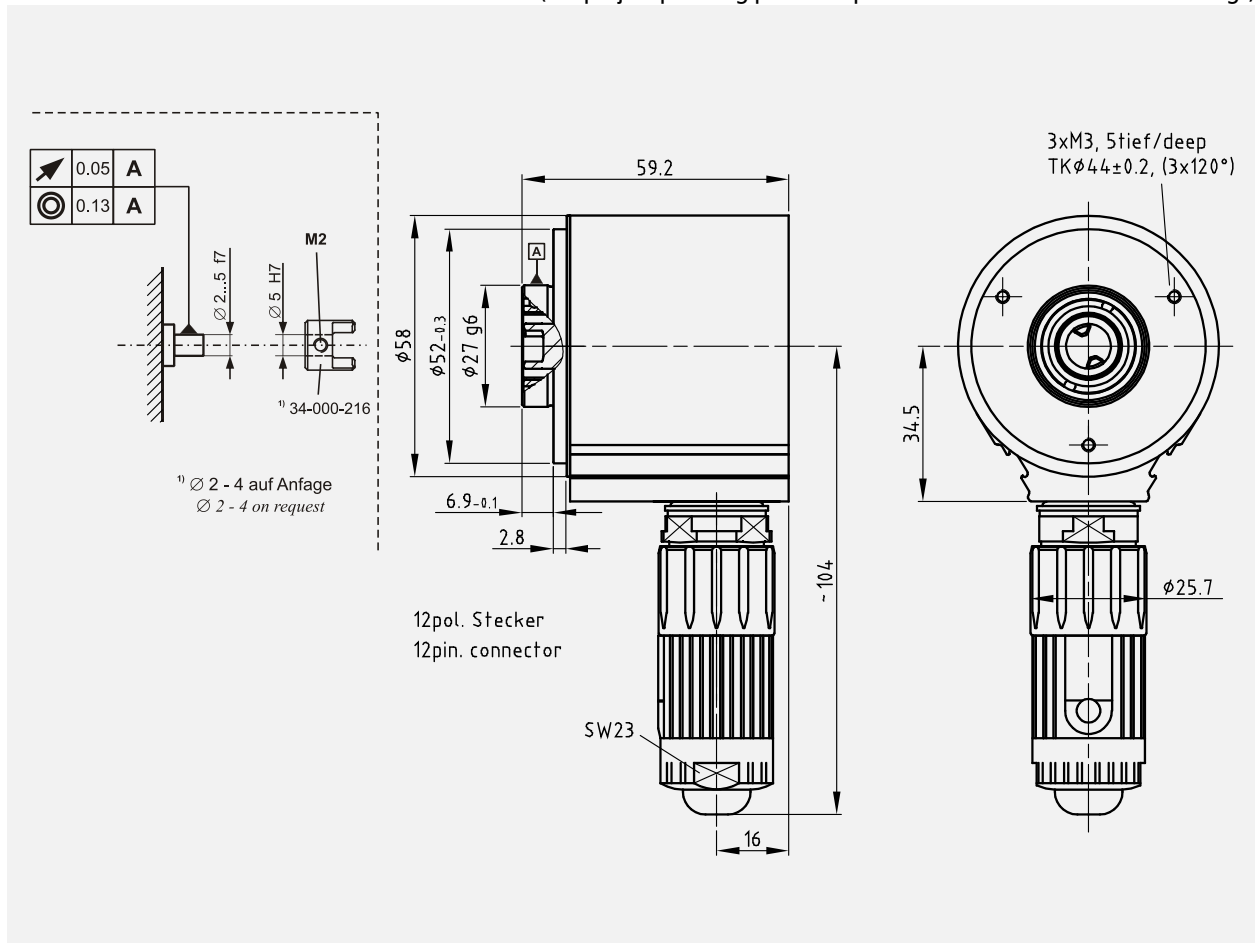
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 M - SSI

CEK58M-SSI-1-GB-1
11/11 Revision 03
010102-00580201-0204



- + SSI interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

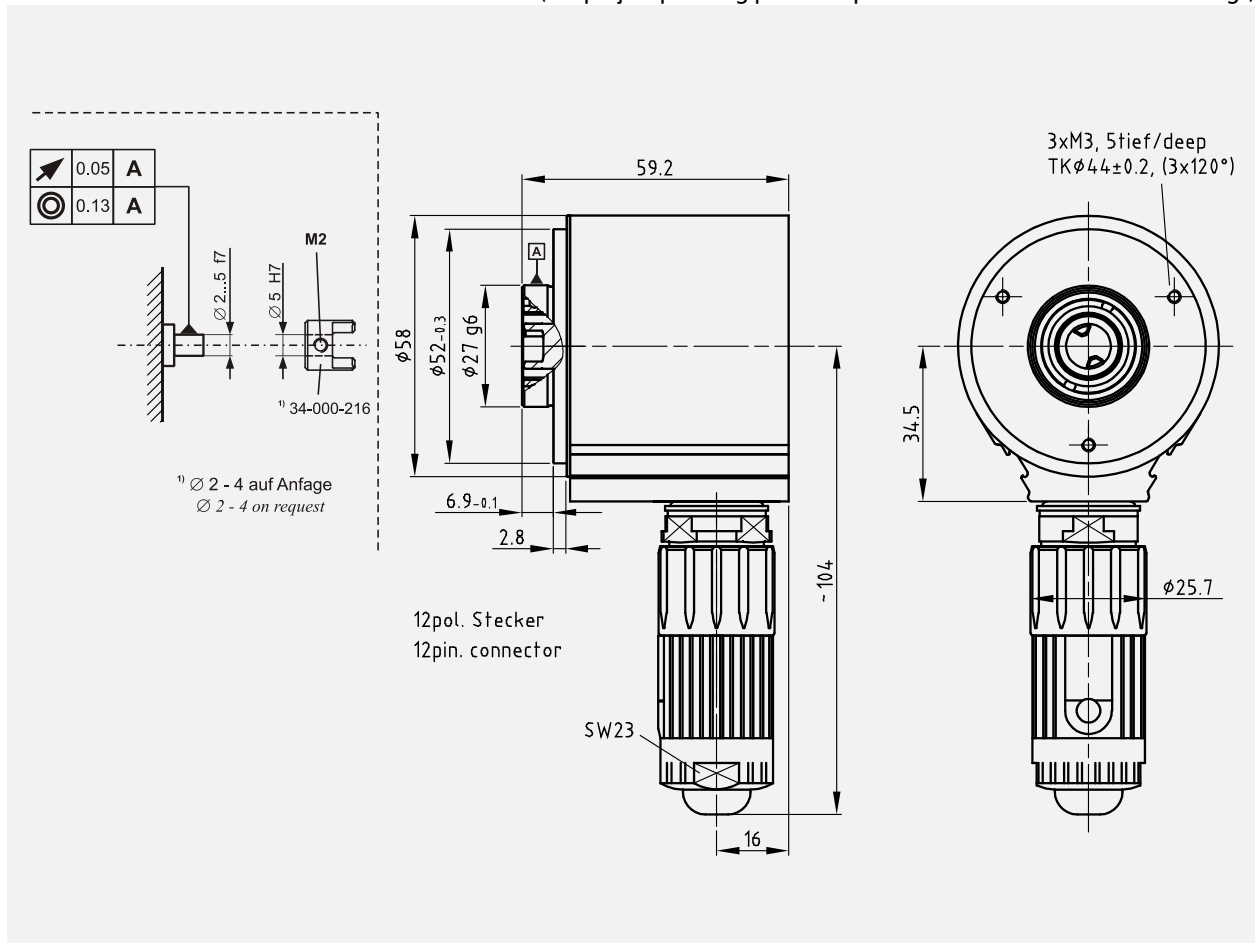
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S - P

CEK58S-P-1-GB-1
11/11 Revision 01
010102-00580201-0104



- + Parallel interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
P.....	Parallel interface
Output driver.....	Push-Pull
Output code ¹⁾	Binary, Gray, BCD
F/R.....	Count direction
Preset.....	electronic adjustment
Latch	Intermediate storage of the output data
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

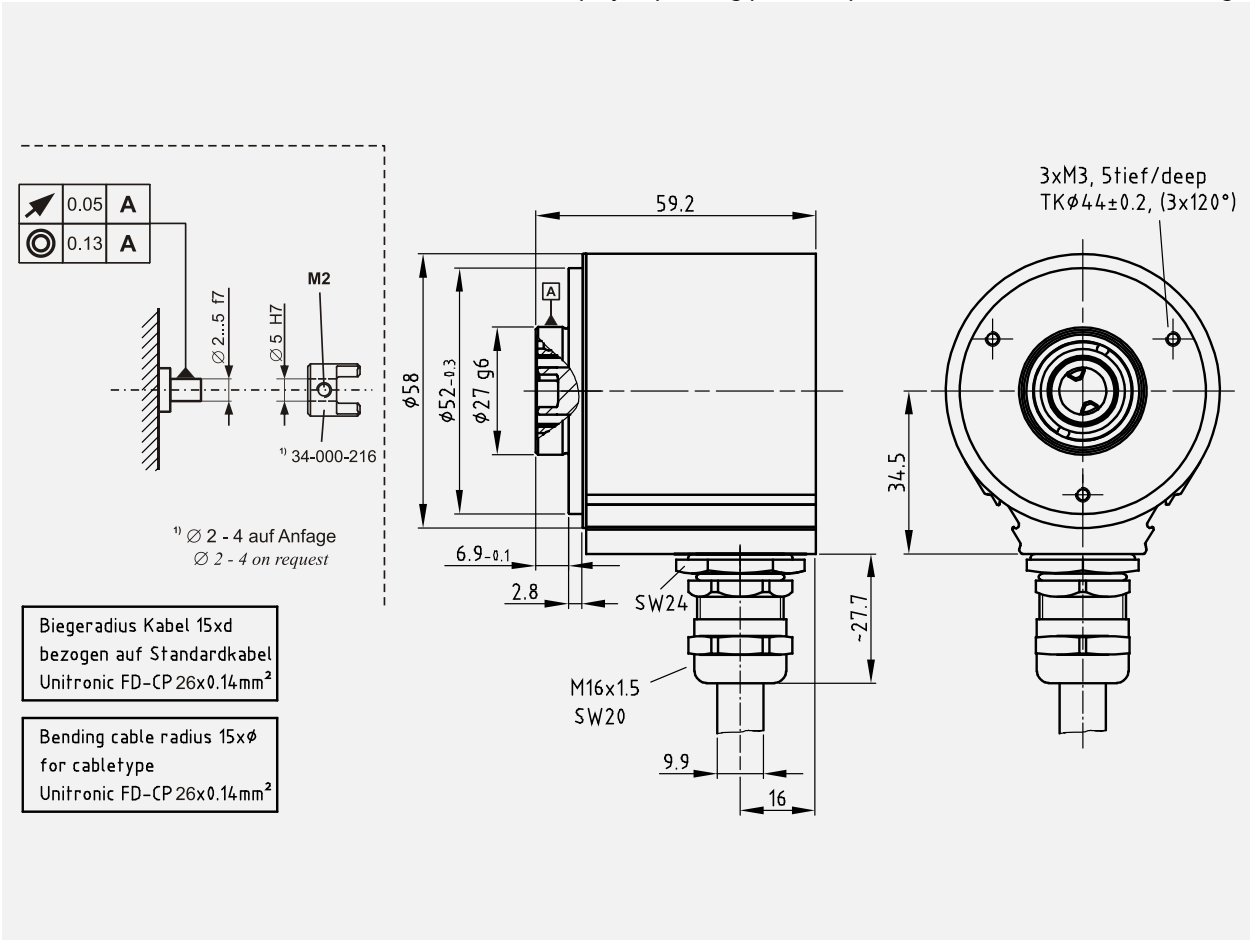
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

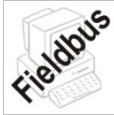
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S - PB

CEK58S-PB-1-GB-1
11/11 Revision 05
010102-00580202-0104



- + PROFIBUS-DP interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 15 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions	1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 25 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

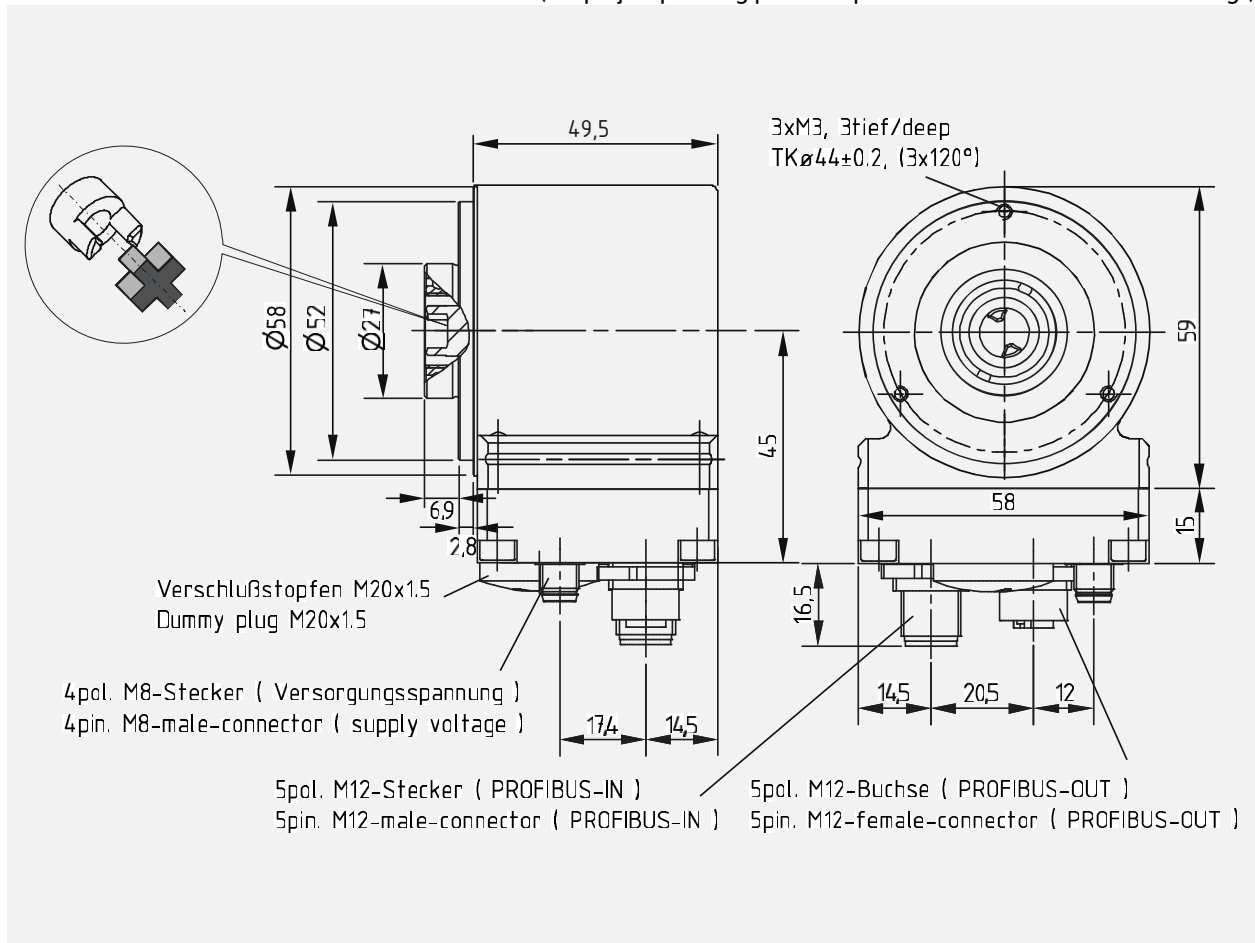
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

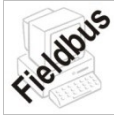
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 M - PB

CEK58M-PB-1-GB-1
11/11 Revision 05
010102-00580202-0204



- + PROFIBUS-DP interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 33 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions, standard / extended ¹⁾	≤ 4.096 / ≤ 256.000
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 25 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

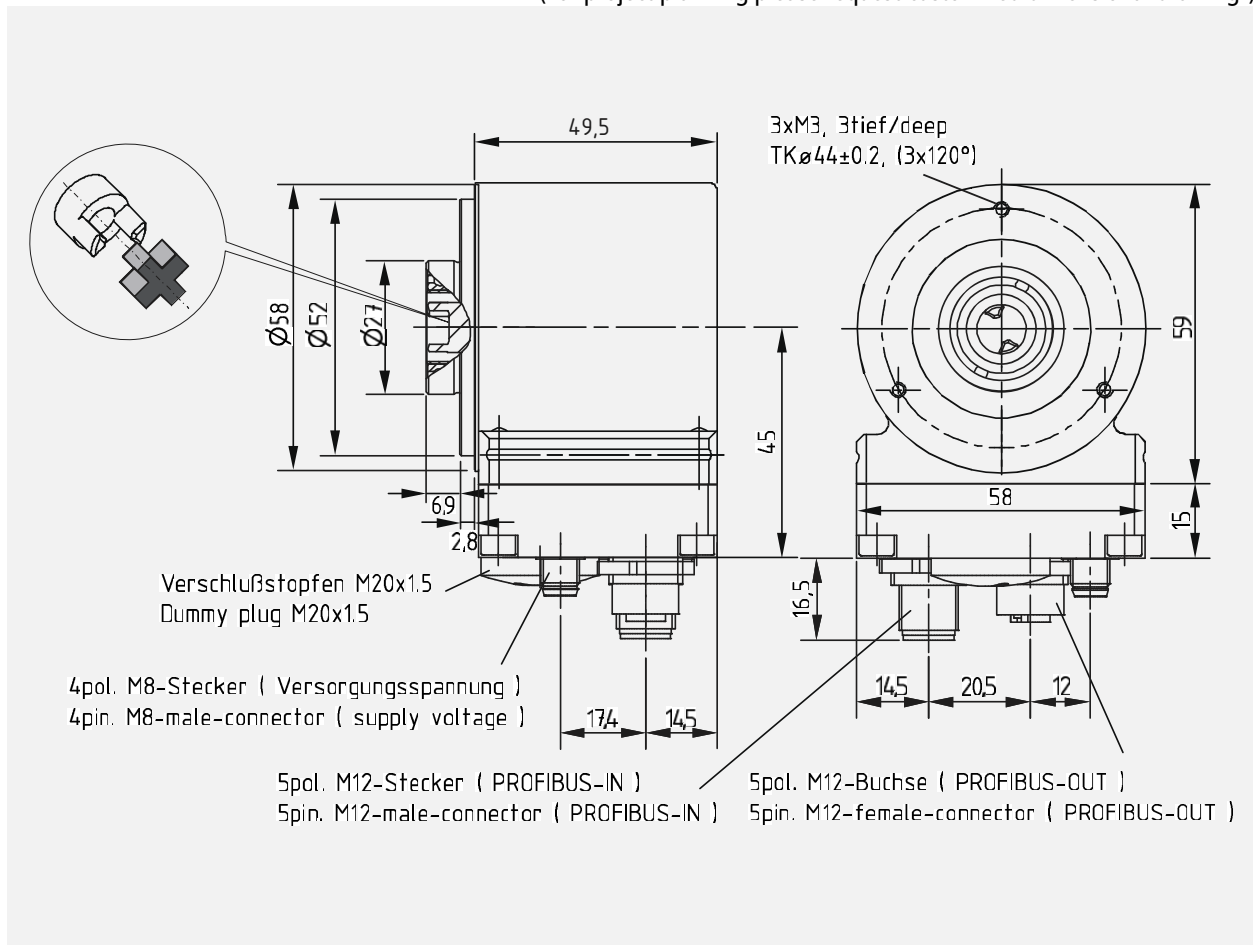
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
- On request	-40 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

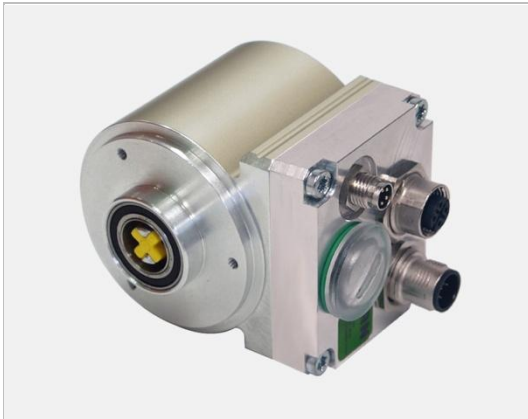
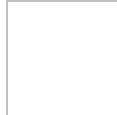
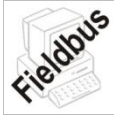
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S/M - CO

CEK58-CO-1-GB-1
01/12 Revision 01
010102-00580302-0004



- + CANopen interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 as from V2.2.5
- Node-ID ¹⁾	Adjustable via DIP switch or LSS services
- Baud rate ¹⁾	Adjustable via DIP switch or LSS services
Firmware update via CAN.....	CiA DS 302-3 as from V4.1.0
Download EDS file.....	CiA DS 301 as from V4.2.0
Output code.....	Binary
Data size for actual value on the bus.....	≤ 32 bit
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
Cams.....	8 x Cam tracks with high limit, low limit and hysteresis
Incremental signals.....	32...8192 pulses/revolution. in power of 2 streps
- Version with push pull.....	11...27 VDC; ≤ 30 mA
- Version with line driver.....	5 VDC RS422; ≤ 50 mA

¹⁾ programmable parameter

Subject to change

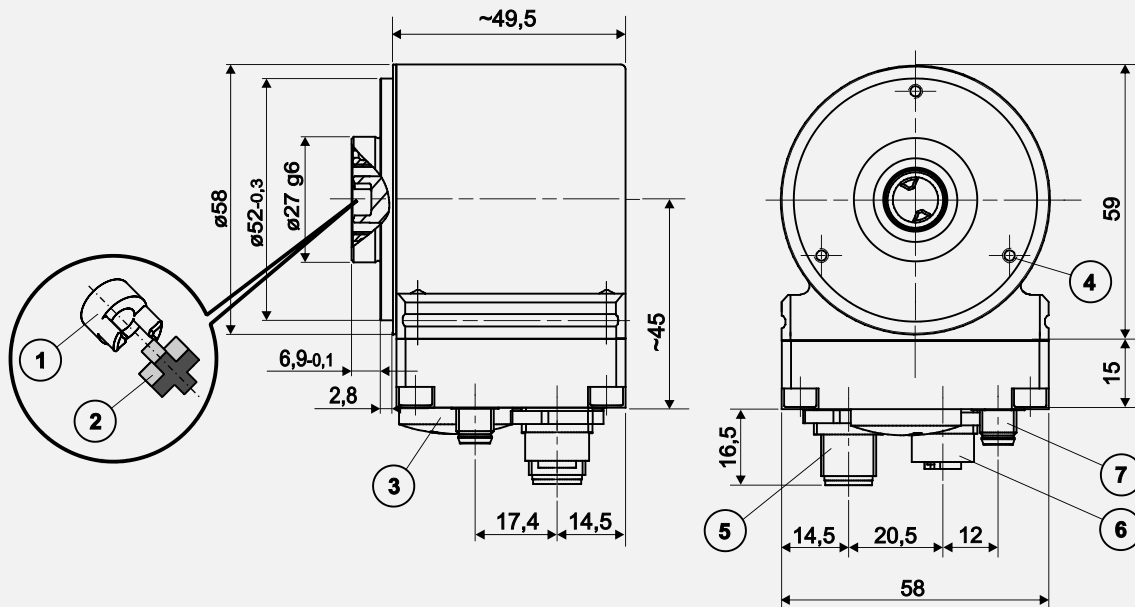
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11 ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

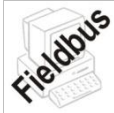


- | | |
|---|--|
| 1 Coupling element | 5 5pin. M12-male-connector (CAN-IN) |
| 2 Coupling gross as plastic PU | 6 5pin. M12-female-connector (CAN-OUT) |
| 3 Dummy plug M20x1.5 | 7 4pin. M8-male-connector (supply voltage) |
| 4 3 x M3, 3 deep; TK (pitch circle) $\varnothing 44 \pm 0,2$ (3x120°) | |

Subject to change

Absolute-Encoder CEK 58 S - DN

CEK58S-DN-1-GB-1
11/11 Revision 04
010102-00580202-0104



- + CAN DeviceNet interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions	1
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

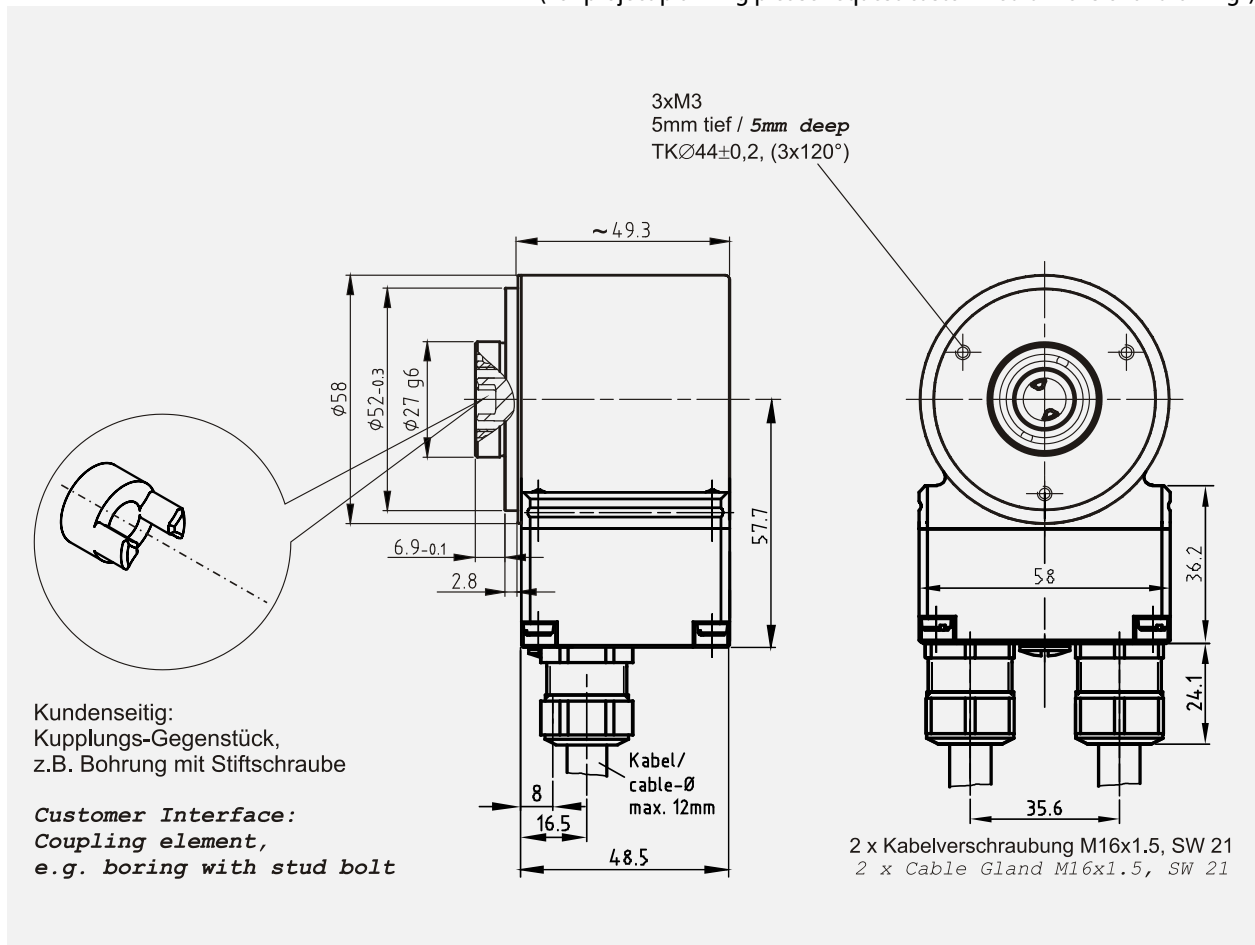
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

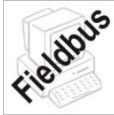
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 M - DN

CEK58M-DN-1-GB-1
11/11 Revision 04
010102-00580202-0204



- + CAN DeviceNet interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

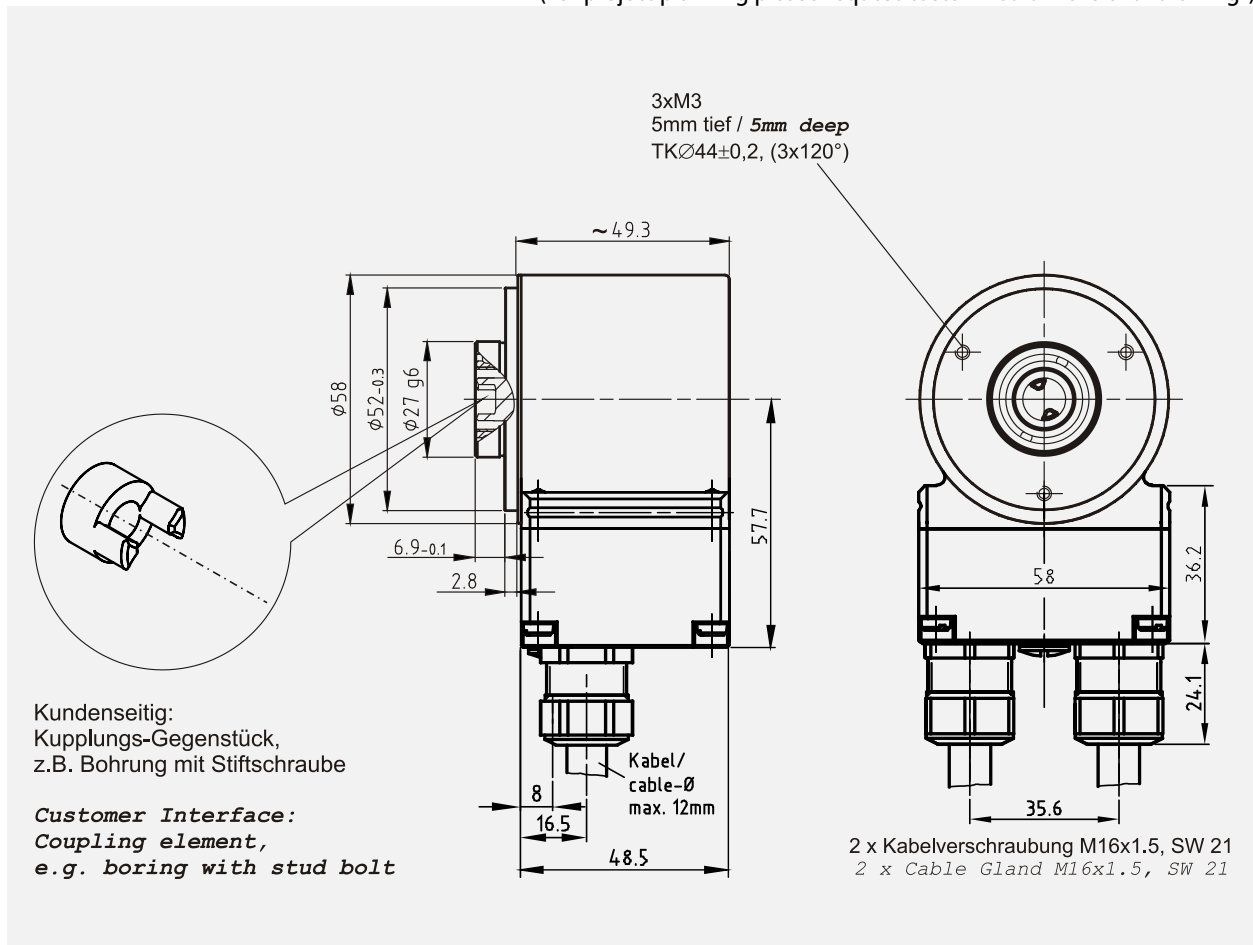
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

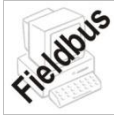
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S - AS-i

CEK58S-AS-1-GB-1
11/11 Revision 02
010102-00580202-0104



- + Actuator Sensor Interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions	1
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to ¼ of the resolution	delivery specified max. value (steps/revolution) * ¼
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load	radial coupling forces
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

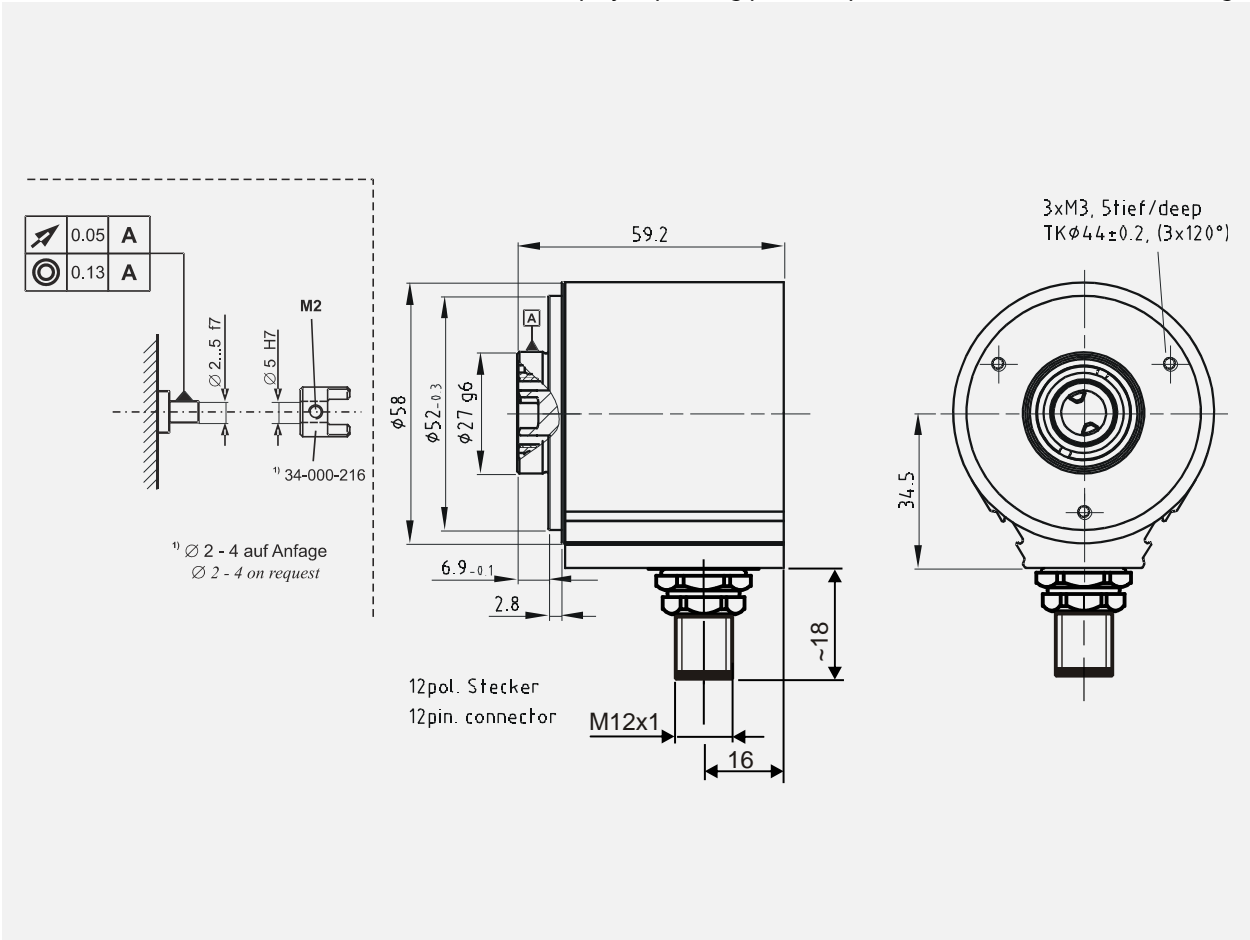
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

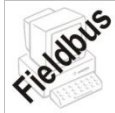
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 M - AS-i

CEK58M-AS-1-GB-1
11/11 Revision 02
010102-00580202-0204



- + Actuator Sensor Interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage with data transmission.....	29.5...31.6 VDC, ensured by the AS-i Controller
Current consumption without load	< 125 mA
Total resolution ¹⁾	≤ 28 Bit, therefrom ≤ 16 bit output data
Number of steps/revolution ¹⁾	≤ 8.192, delivery setting of the maximal value
Number of revolutions ¹⁾	≤ 32.768, delivery setting of the maximal value
AS-i, Actuator-Sensor-Interface	EN 50 295, IEC62026-2
Output code ¹⁾	Binary, Gray
Count direction ¹⁾	increasing, decreasing
Bus topology	Line- and tree-structure
Transmission rate	Gross: 167 kbps, Net: 53.3 kbps
Number of slaves	31 slaves, each with 4 slaves/encoder, ≤ 7 encoder possible
Cable length in the bus	≤ 100 m, without repeater
Medium	unscreened two-wire line
Cycle time	≤ 5 ms, with 31 slaves
Bus access method	Master-Slave, bi-directional
Further functions	
- Intermediate storage of the position value	with/without acknowledgment to save the data consistency
- Zero adjustment	Set encoder value to "0"
- Set encoder to ¼ of the resolution	delivery specified max. value (steps/revolution) * ¼
Address pre-allocation at delivery	Slave A-D = 1-4, carrying out new addressing after scheme n, n+1, n+2 etc.
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load	radial coupling forces
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

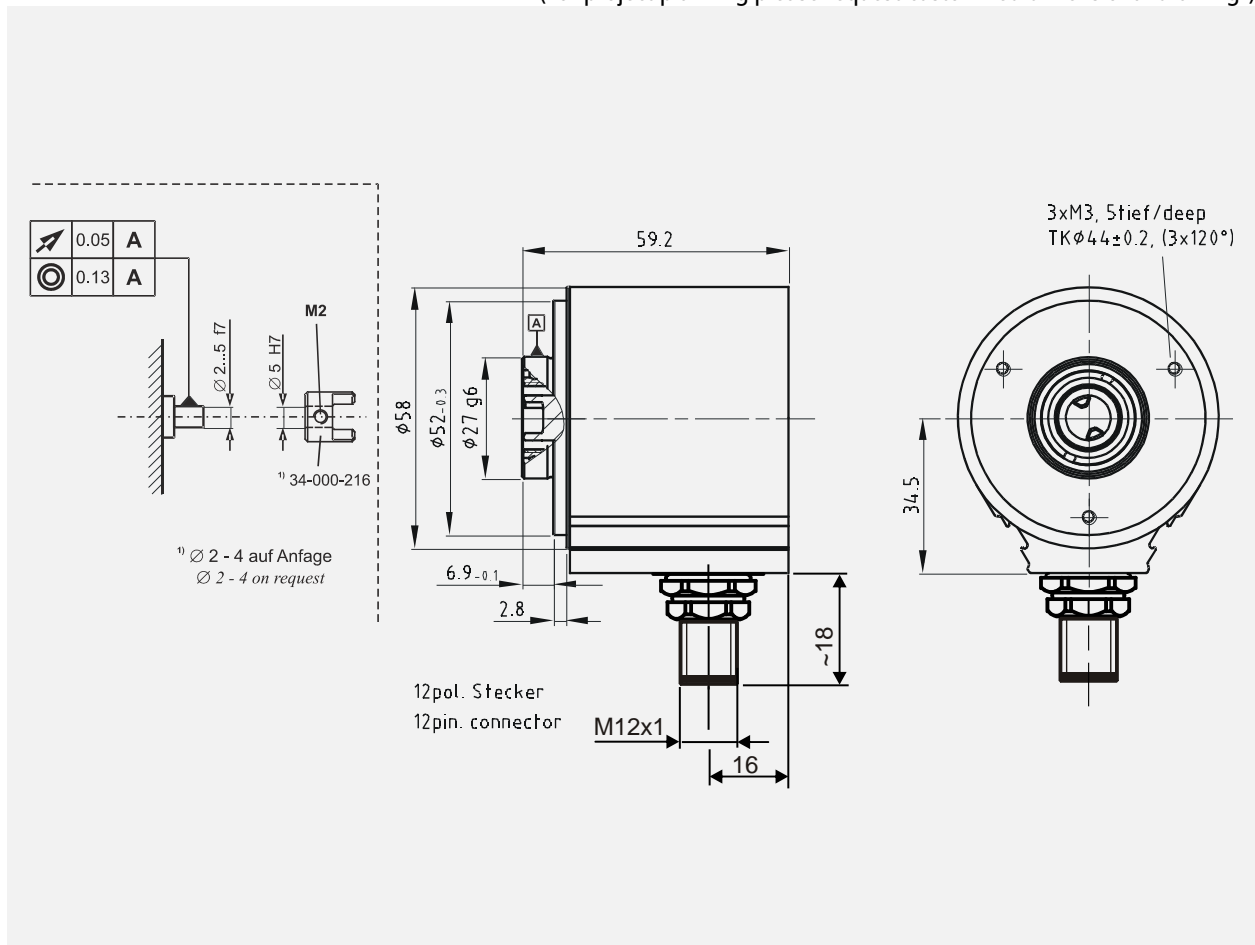
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

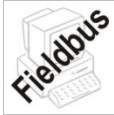
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S/M - PN

CEK58-PN-1-GB-1
11/11 Revision 01
010102-00580203-0004



- + PROFINET IO interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

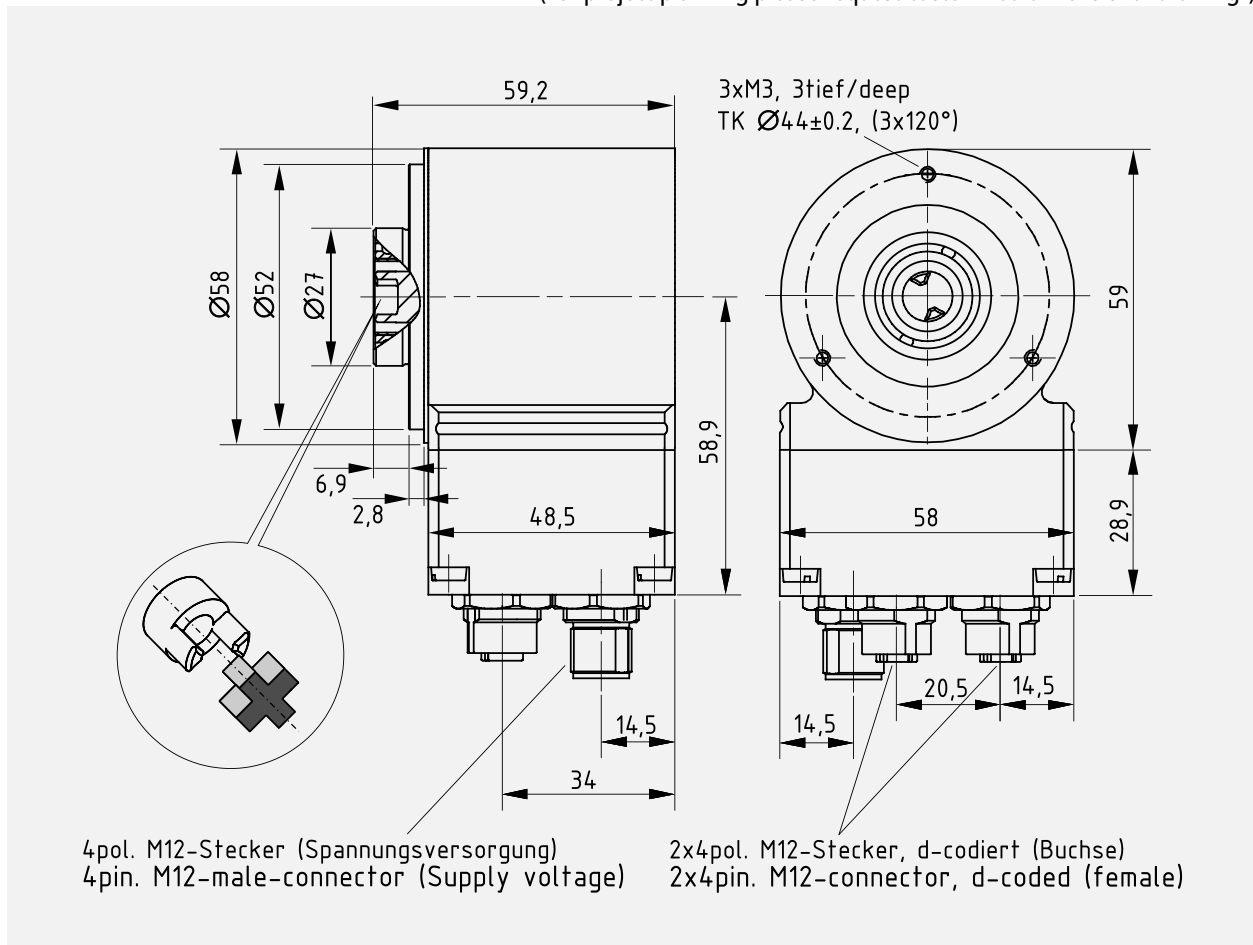
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

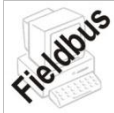
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S/M - PN

CEK58-PN-1-GB-2
10/12 Revision 01
010102-00580203-0004



- + PROFINET IO interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

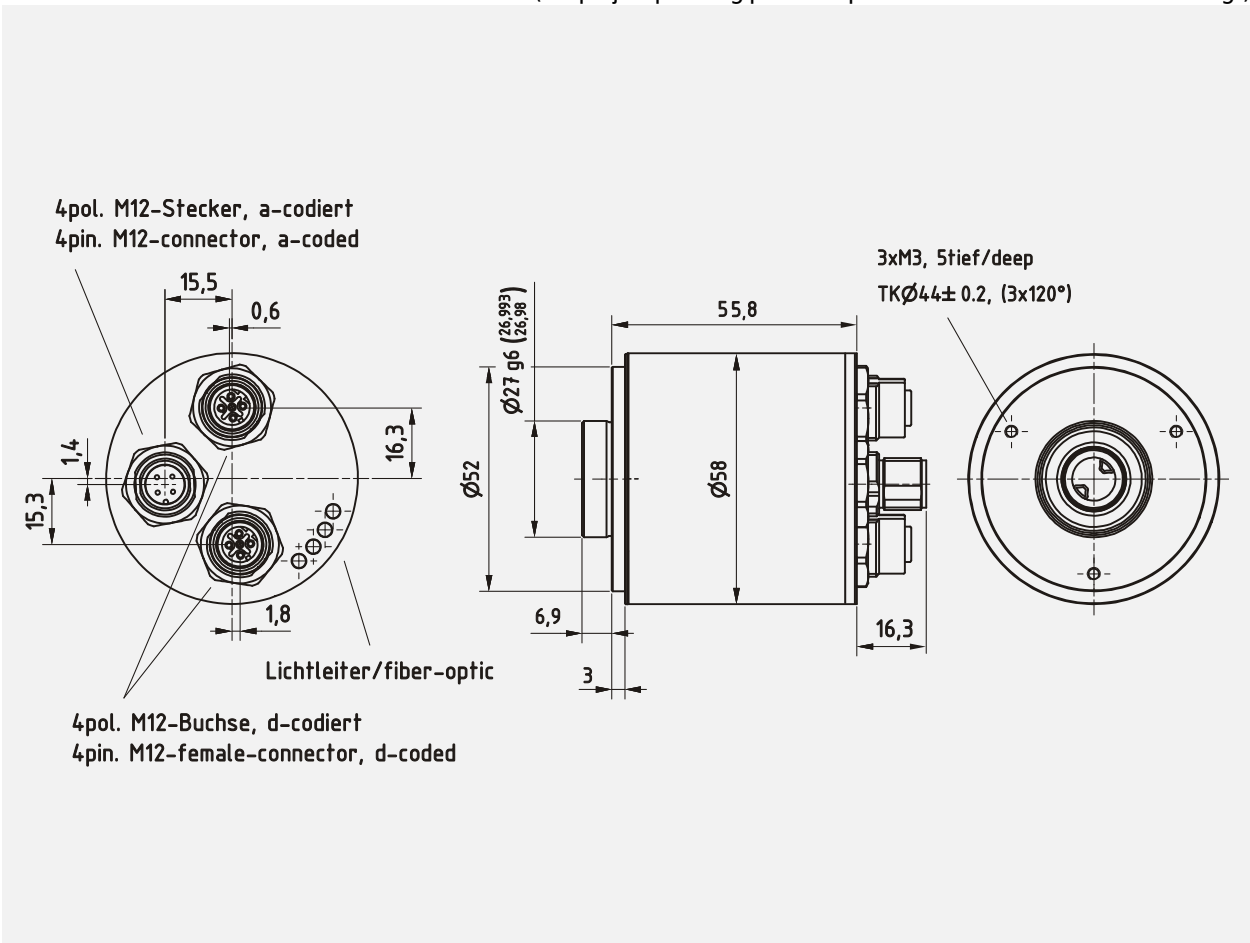
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

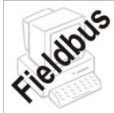
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + EtherCAT interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

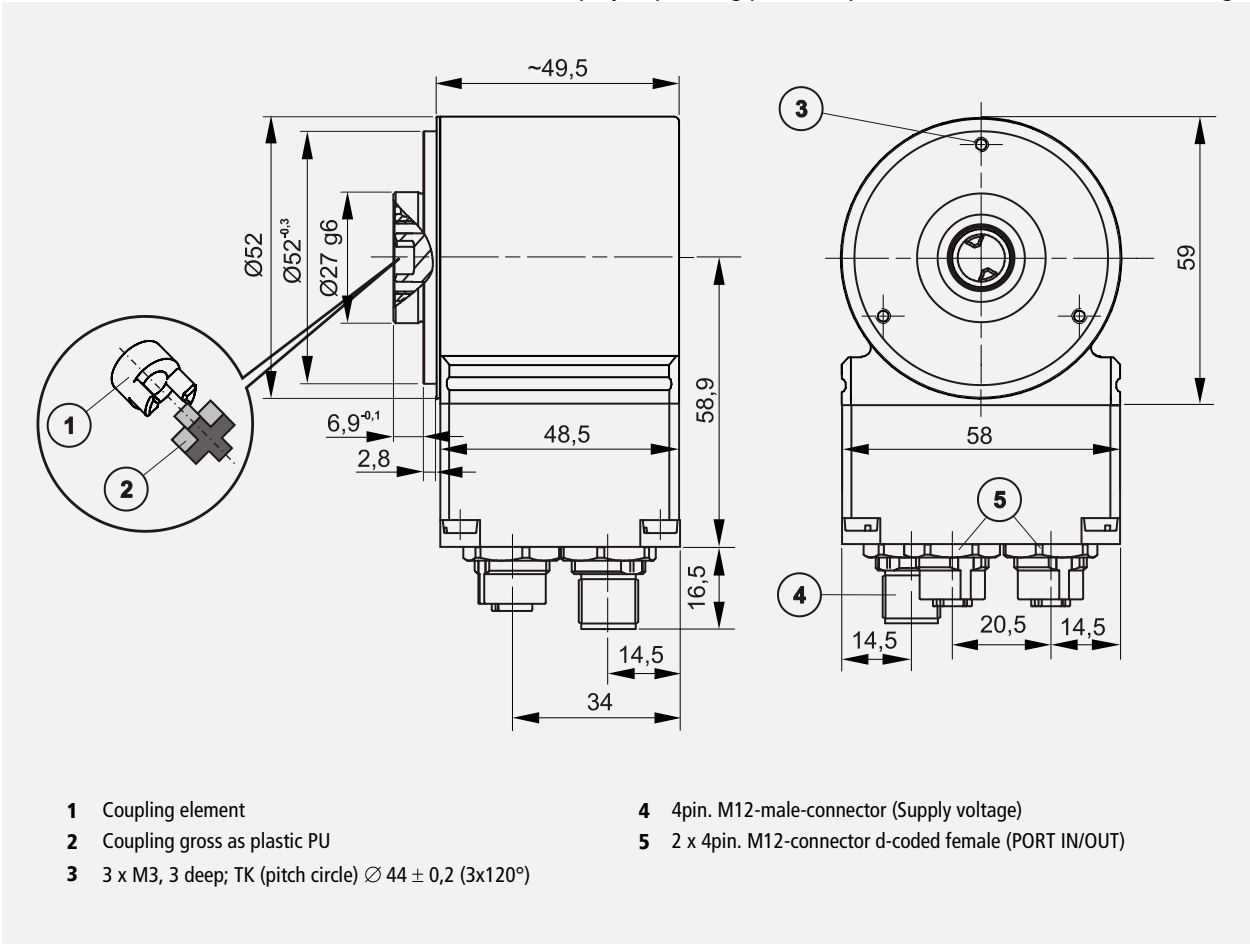
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

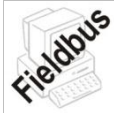
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CEK 58 S/M - ETC

CEK58-ETC-1-GB-3
10/12 Revision 00
010102-00580203-0004



- + EtherCAT interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

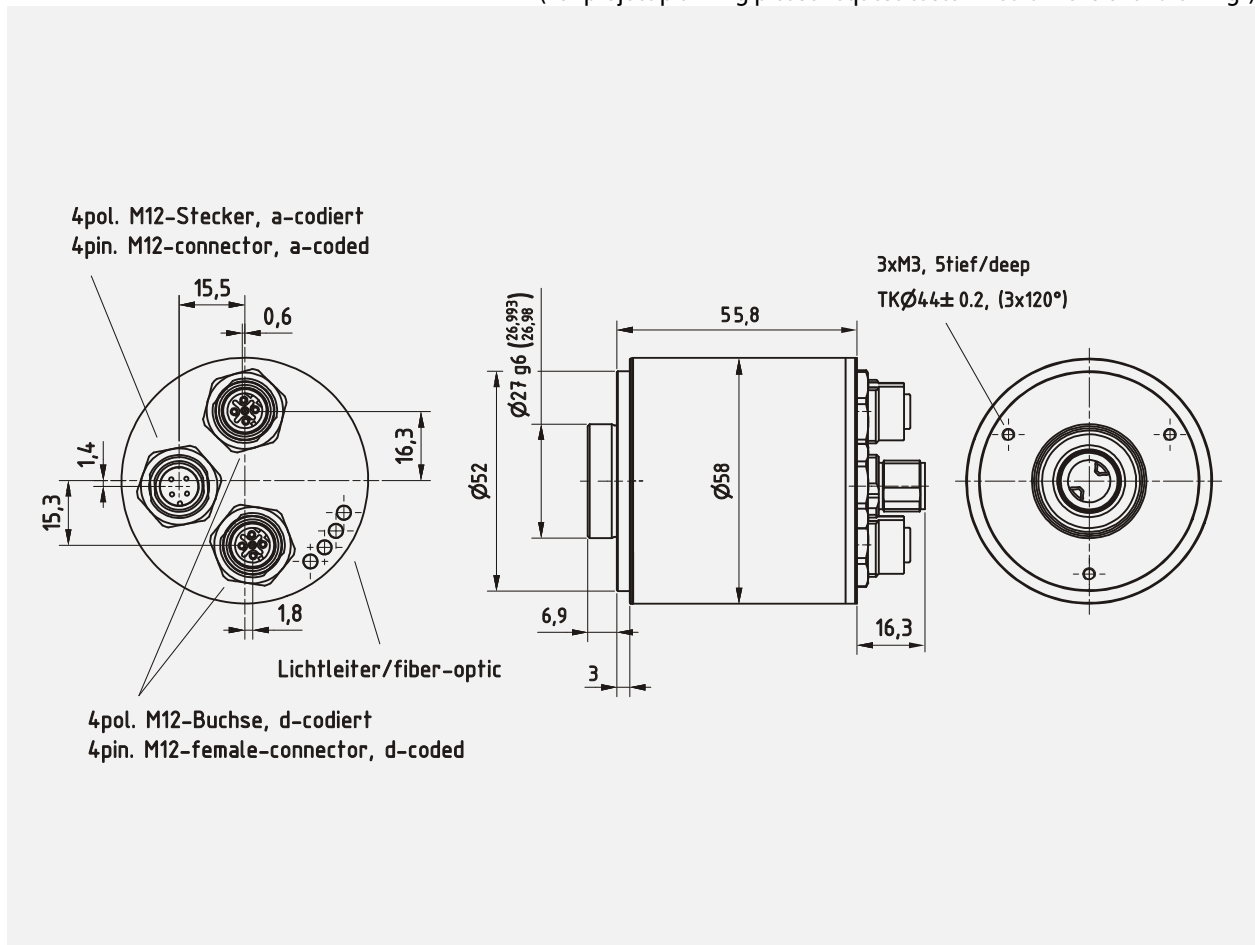
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

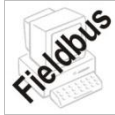


Subject to change

Absolute-Encoder CEK 58 S/M - EIP

Preliminary

CEK58-EIP-1-GB-1
10/12 Revision 01
010102-00580203-0004



- + EtherNet/IP interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherNet/IP.....	IEC 61784-1:2003 CP 2/2 Type 2, IEC 61158:2003 Type 2
- Physical Layer.....	EtherNet/IP 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	Encoder Device Profile 0x22, ODVA specification
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

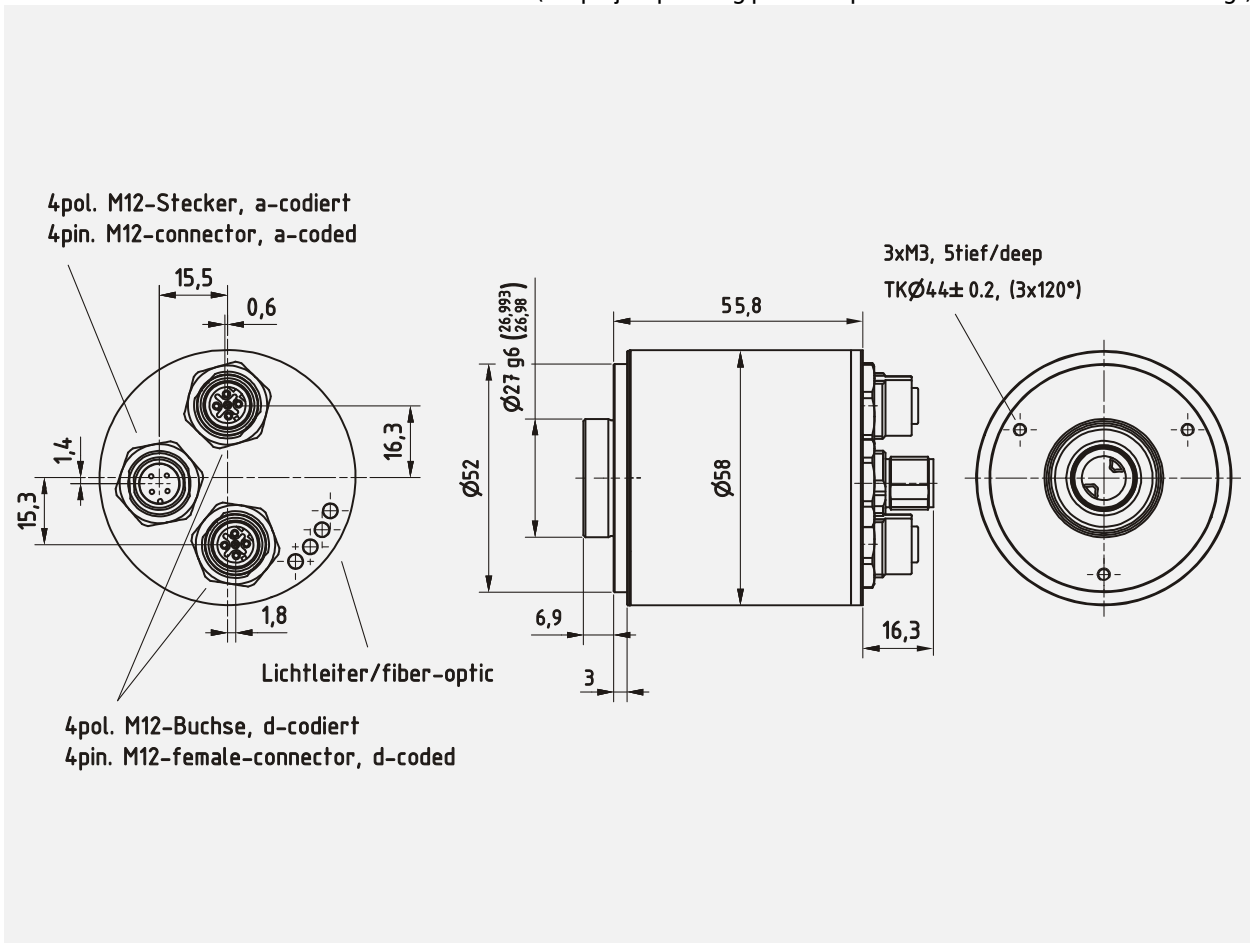
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 58 S/M - ES3

Preliminary

CEK58-ES3-1-GB-1
10/12 Revision 00
010102-00580203-0004



- + SERCOS III interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SERCOS III.....	IEC 61784-2 CPF16, IEC 61158 CP16/3 Type 19
- Physical Layer.....	SERCOS III 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code.....	Binary
- Device profile.....	Encoder Profile
- Transmission rate.....	100 MBit/s
- Transmission.....	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

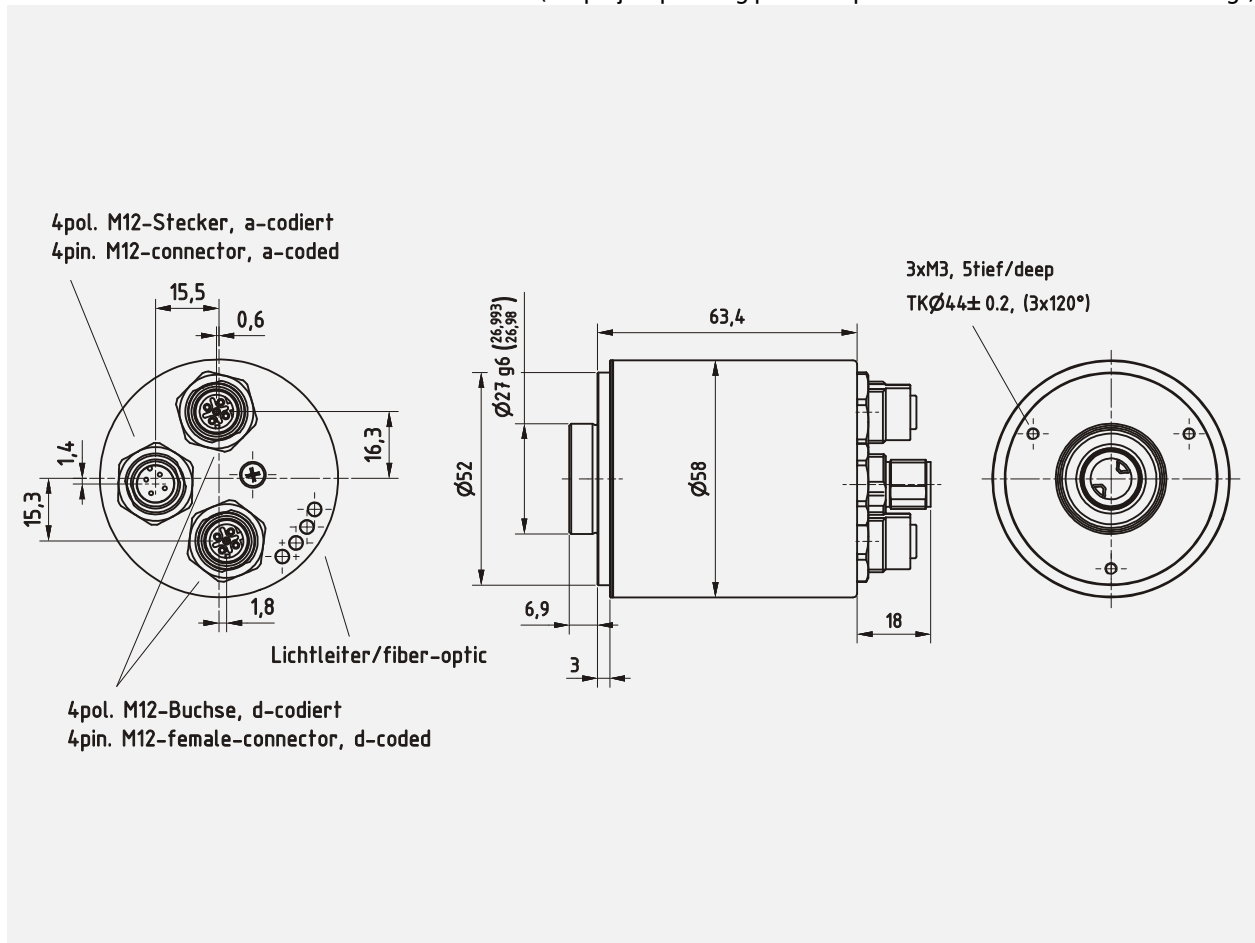
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 65 M - SSI

CEV65M-SSI-1-GB-1
11/11 Revision 02
010102-00650201-0201



- + SSI interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end	≤ 40 N axial, ≤ 60 N radial
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

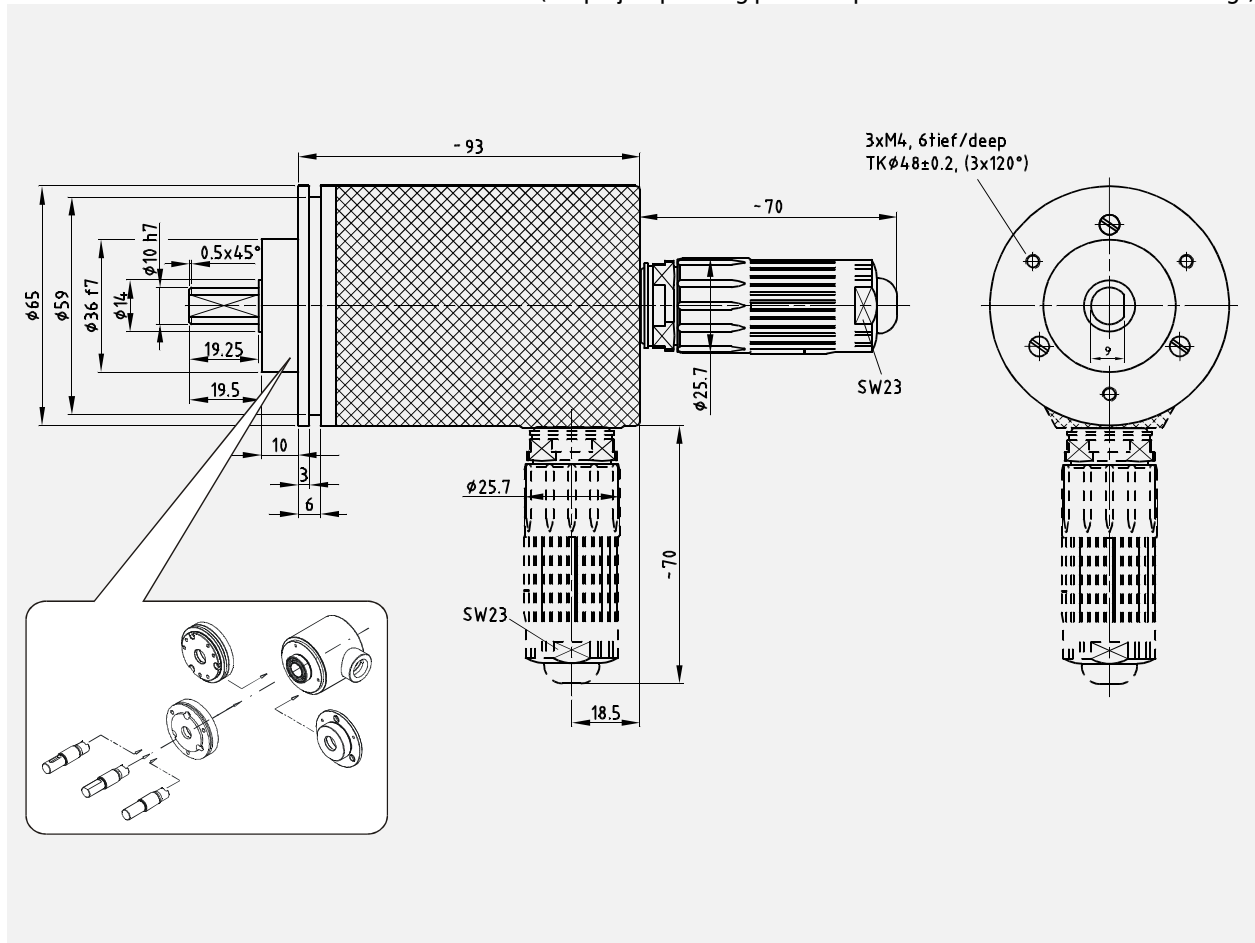
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

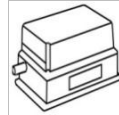
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 65 S/M - P

CEV65-P-1-GB-1
11/11 Revision 01
010102-00650201-0001



- + Parallel interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 28 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 32.768, Single-Turn: 1
P.....	Parallel interface
Output driver.....	Push-Pull
Output current.....	≤ 100 mA, short-circuit proof
Output code ¹⁾	Binary, Gray, BCD
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Latch ¹⁾	Intermediate storage of the output data
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

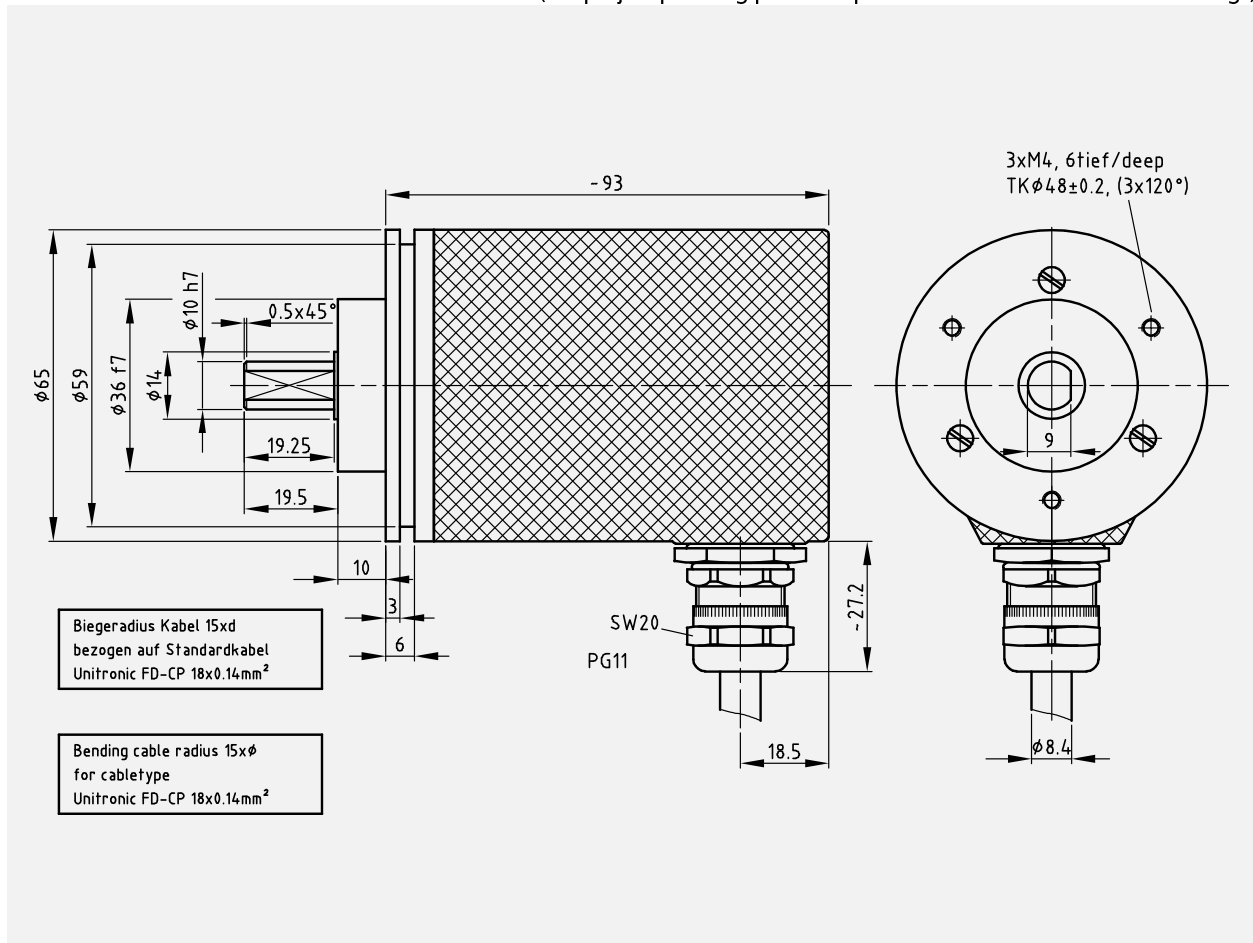
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

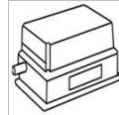
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 65 S/M - NSW

CEV65-NSW-1-GB-1
09/11 Revision 00
010102-00650201-0001



- + Discrete CAM Outputs
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 28 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 32.768, Single-Turn: 1
CAM.....	Discrete CAM outputs, dynamic anticipation
Output driver.....	Push-Pull
Output current.....	≤ 100 mA, short-circuit proof
Number of discrete outputs ¹⁾	≤ 32
Number of CAMS per discrete output ¹⁾	≤ 4
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Latch ¹⁾	Intermediate storage of the output data
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

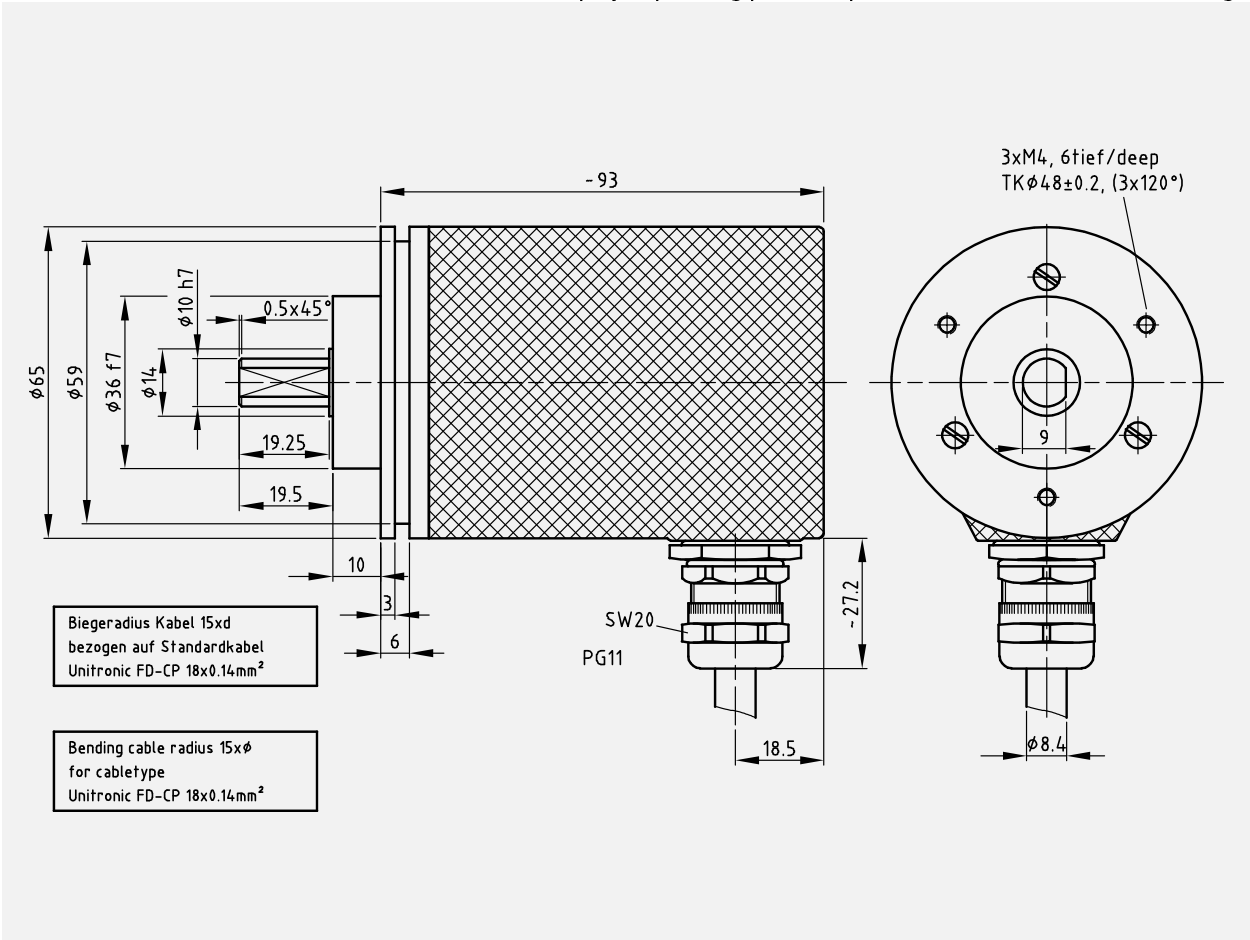
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

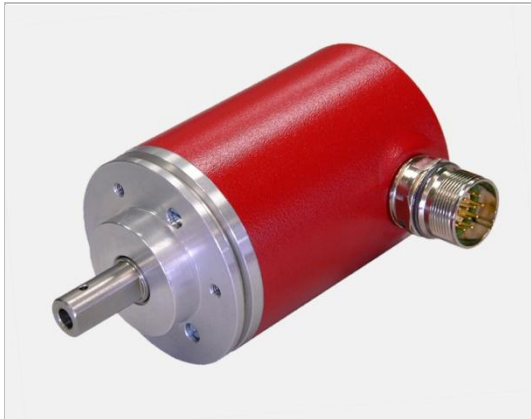
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 65 S/M - ASI

CEV65-ASI-1-GB-1
11/11 Revision 01
010102-00580201-0201



- + ASI interface
- + Type with solid shaft
- + Modular product line
- + Parameter setting possibilities only at the factory
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Output capacity.....	24 Bit
ASI.....	Asynchronous-Serial-Interface
Data transmission	RS-422, 2-wire
Sign format	1 Start bit, 7 Data bits, 1 Parity bit (even), 2 Stop bits
Data format.....	ASCII
Standard telegram format	other, upon request
- 7 signs.....	6 Position signs + CR (0x0D)
- 8 signs.....	6 Position signs + CRC + CR (0x0D)
Idle time.....	> 1 sign
Baud rate	4800
Output code ¹⁾	Binary, BCD
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter, only at the factory

Subject to change

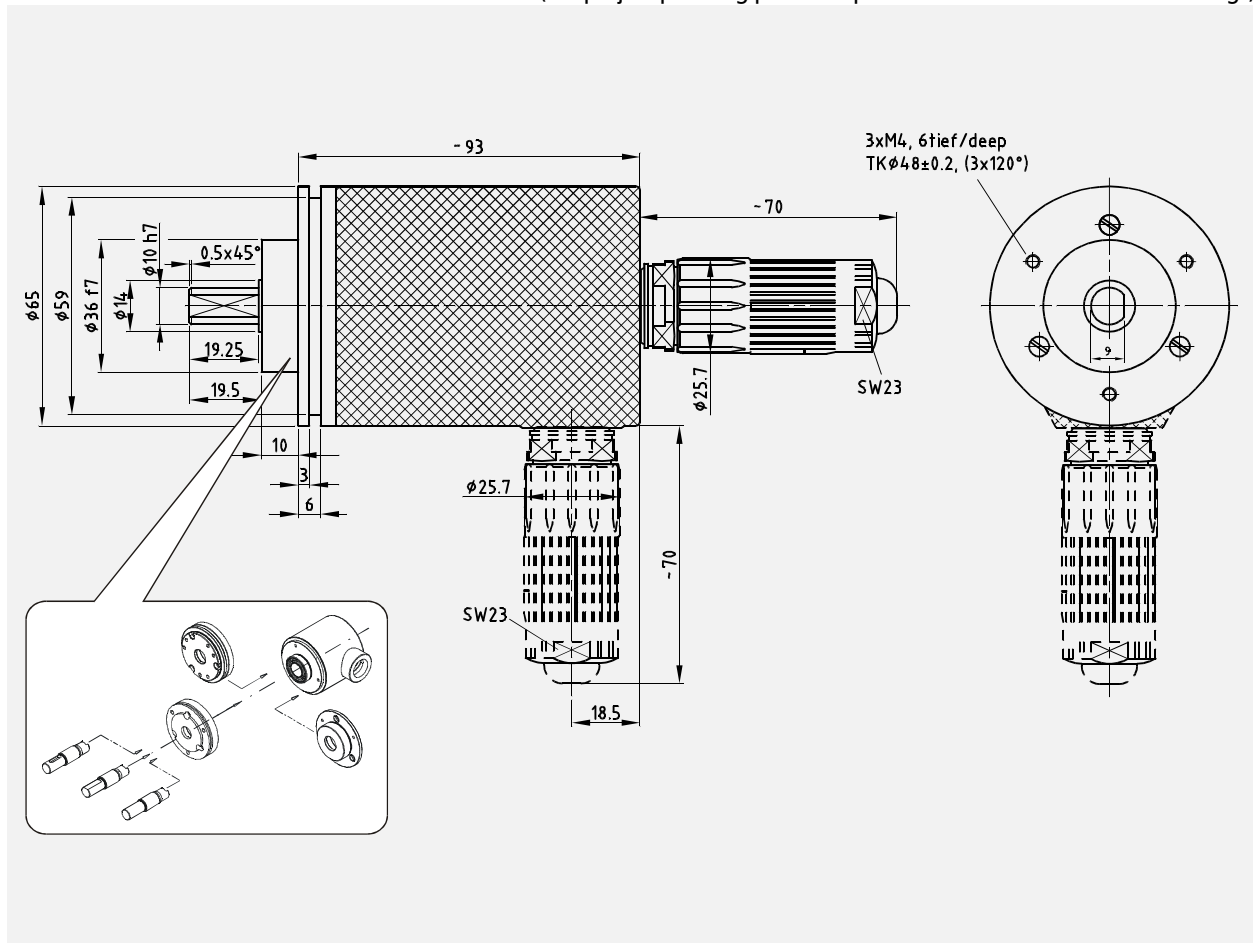
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

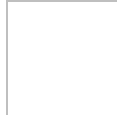
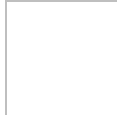
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 65 M - A

CEV65M-A-1-GB-1
11/11 Revision 05
010102-00650201-0201



- + Analog / SSI - interface
- + Type with solid shaft
- + Alternative with current- or voltage output, delivery setting
- + Analog value can be adjusted as speed- or position value
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	18...27 VDC
Current consumption without load.....	< 180 mA
Total resolution ¹⁾	≤ 30 Bit
Number of steps/revolution ¹⁾	standard: 8.192; extended: ≤ 32.768
Number of revolutions ¹⁾	standard: 4.096; extended: ≤ 256.000
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_{M}	16 μ s ≤ t_{M} ≤ 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format.....	Tree format
A.....	Analog interface
Analog voltage / Analog current.....	defined by factory setting
Resolution.....	16 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance.....	≥ 500 Ω
Current output ¹⁾	0...20 mA
- Load resistance.....	≤ 500 Ω
Preset 1 and 2.....	electronic adjustment
Latch.....	Intermediate storage of the analog data
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

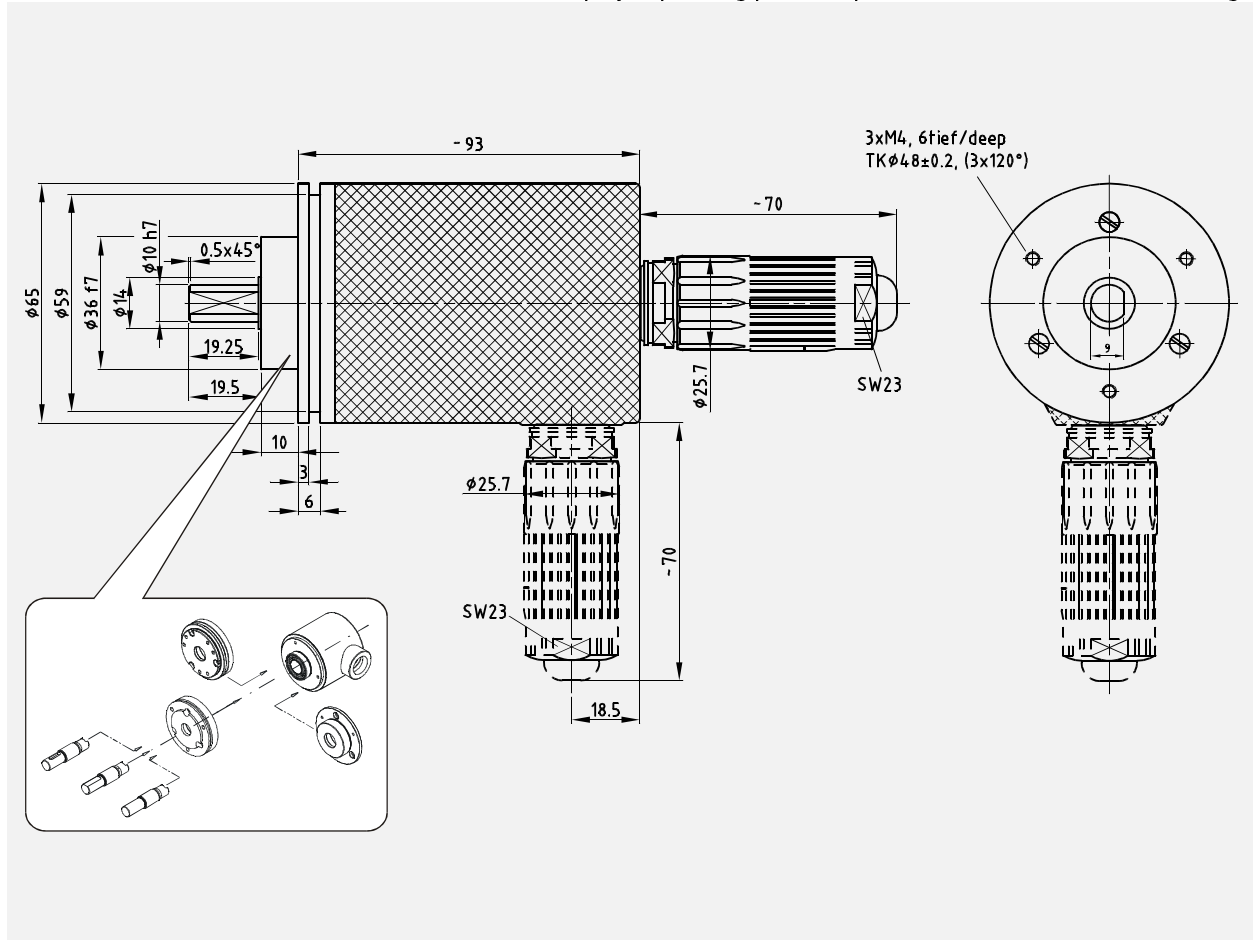
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

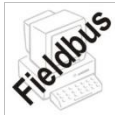
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFIBUS-DP interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output, limit switches, SSI configuration, external Preset inputs
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

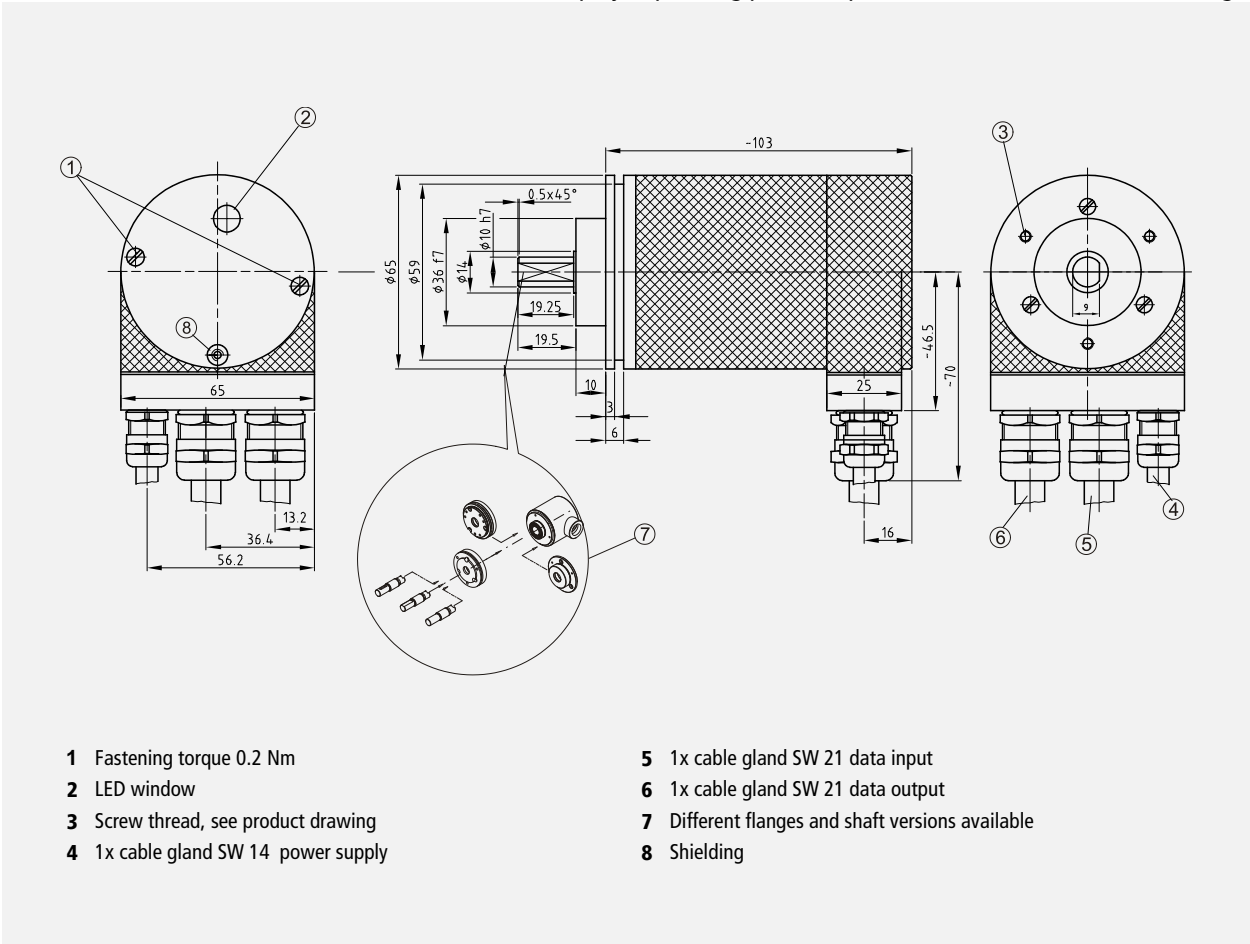
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

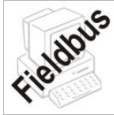
(For project planning please request customized dimensional drawing!)



- 1 Fastening torque 0.2 Nm
- 2 LED window
- 3 Screw thread, see product drawing
- 4 1x cable gland SW 14 power supply

- 5 1x cable gland SW 21 data input
- 6 1x cable gland SW 21 data output
- 7 Different flanges and shaft versions available
- 8 Shielding

Subject to change



- + CANopen interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code	Binary
Node-ID.....	1...64, adjustable about DIP-switches
Baud rate	20 kbit/s, 125 kbit/s, 500 kbit/s, 1 Mbit/s; adjustable about DIP-switches
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

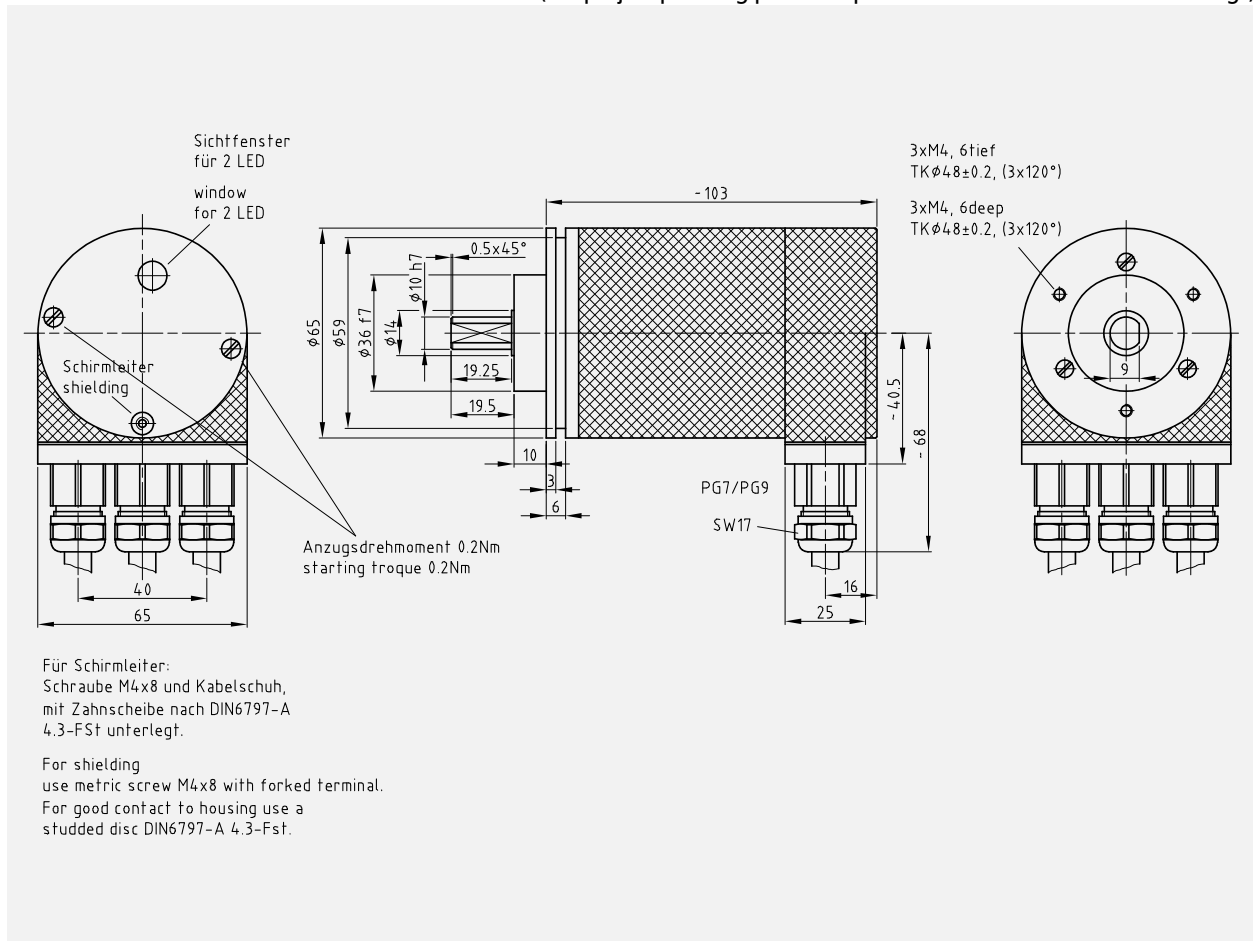
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

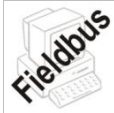
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CEV 65 S/M - DN

CEH65-DN-1-GB-1
11/11 Revision 02
010102-00650202-0001



- + CAN DeviceNet interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 200 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
CAN DeviceNet.....	EN 50325-2
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A	11-bit identifier
Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Output code ¹⁾	Binary, Gray
Node-ID.....	0...63, adjustable about DIP-switches
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s; adjustable about DIP-switches
TR-specific functions ¹⁾	Special outputs for error, operating range, safety range
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

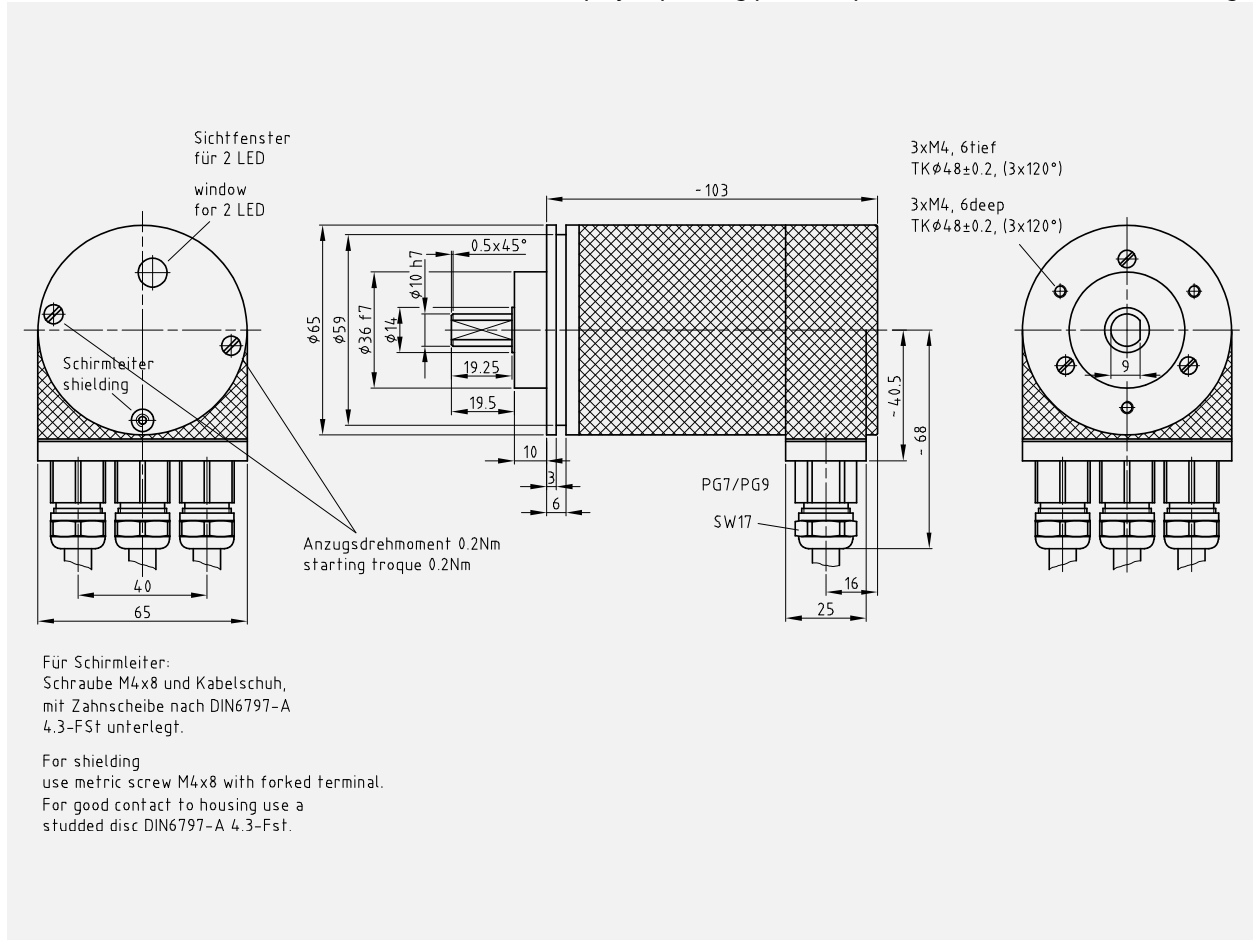
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

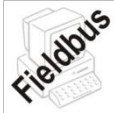
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CEV 65 S/M - EPL

CEV65-EPL-1-GB-1
11/11 Revision 02
010102-00650203-0001



- + Ethernet - Powerlink interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
POWERLINK	IEC 61784-2, IEC 61158 and the following
- Physical Layer.....	POWERLINK 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over Ethernet, CiA DS-406
- Transmission rate.....	100 MBit/s
- Bus cycle times.....	≥ 400 μs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

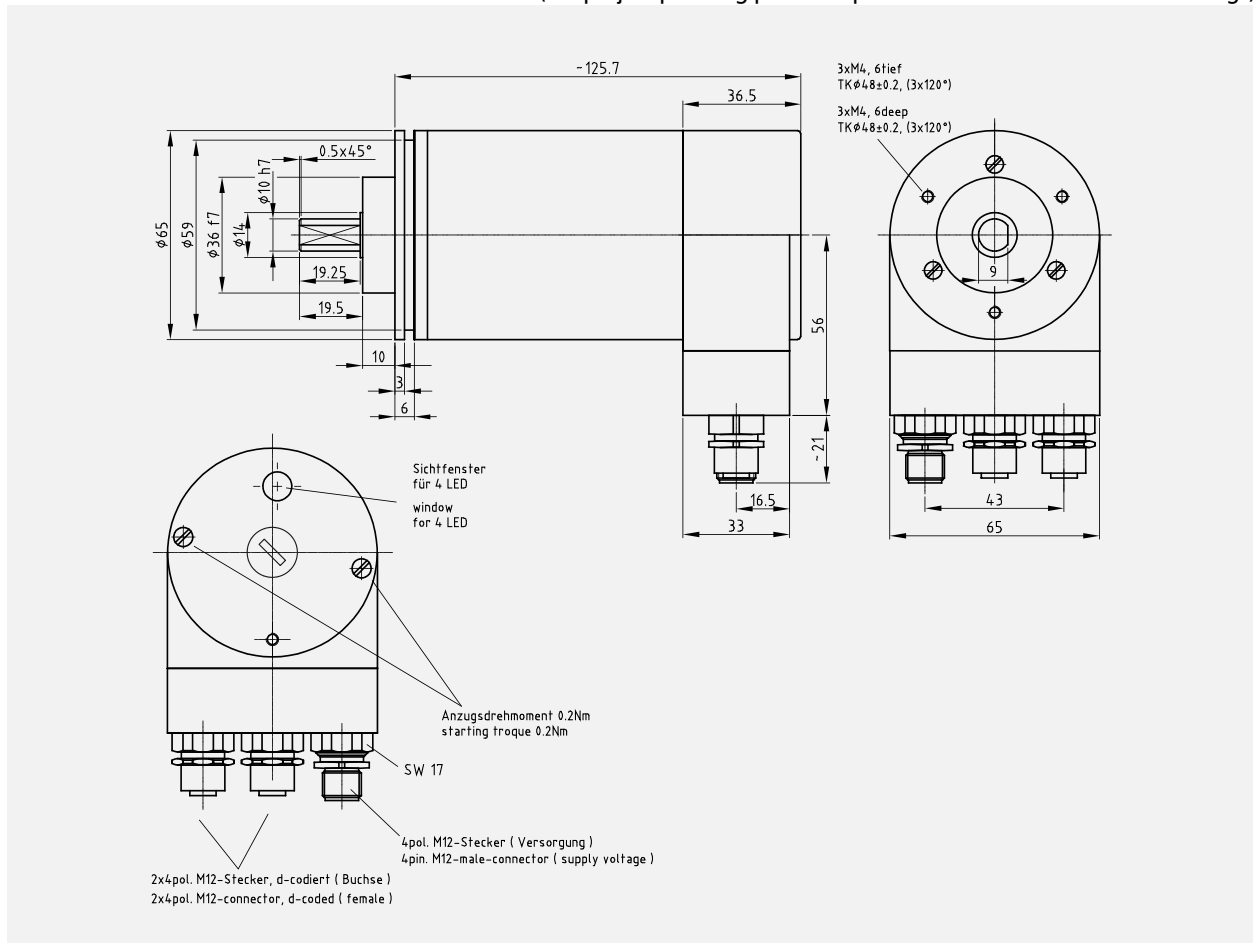
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

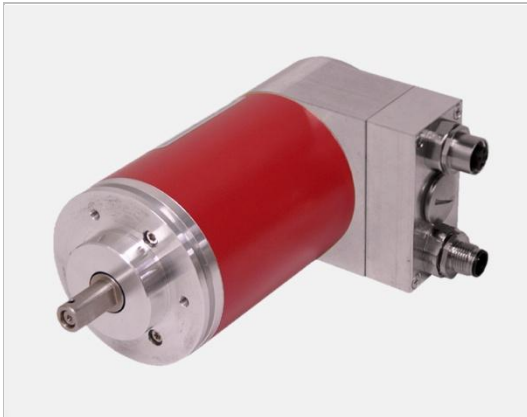
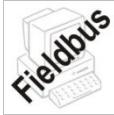
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEV 65 S/M - EIP

CEV65-EIP-1-GB-1
11/11 Revision 01
010102-00650203-0001



- + EtherNet/IP interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherNet/IP.....	IEC 61784-1:2003 CP 2/2 Type 2, IEC 61158:2003 Type 2
- Physical Layer.....	EtherNet/IP 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	Encoder Device Profile 0x22, ODVA specification
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

Absolute-Encoder CES 65 S/M - SSI

CES65-SSI-1-GB-1
11/11 Revision 01
010102-00650201-0003



- + SSI interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7, 14H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

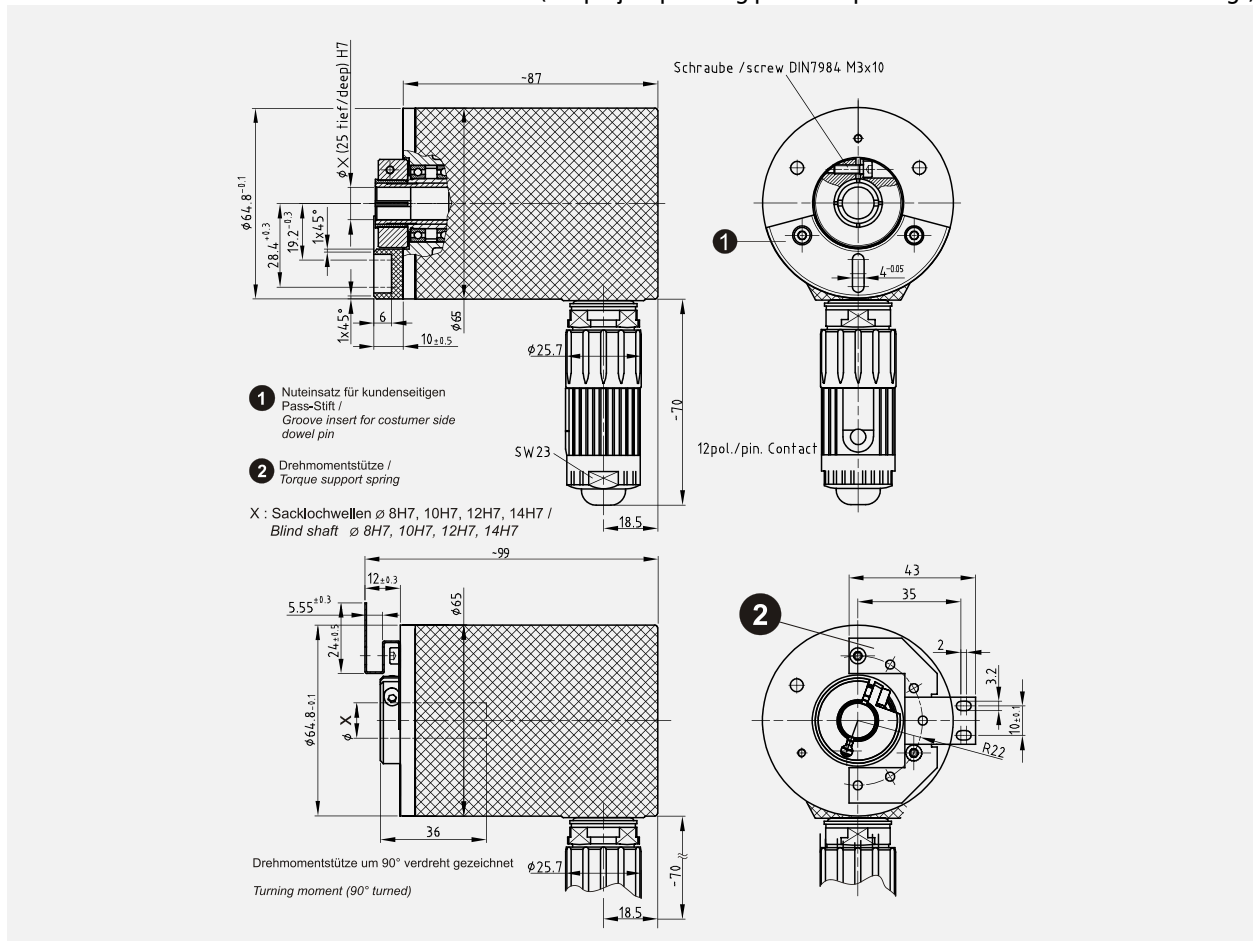
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 65 M - A

CES65M-A-1-GB-1
11/11 Revision 03
010102-00650201-0203



- + Analog / SSI - interface
- + Type with blind shaft
- + Alternative with current- or voltage output, delivery setting
- + Analog value can be adjusted as speed- or position value
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Modular construction for mechanical customizations

Characteristics

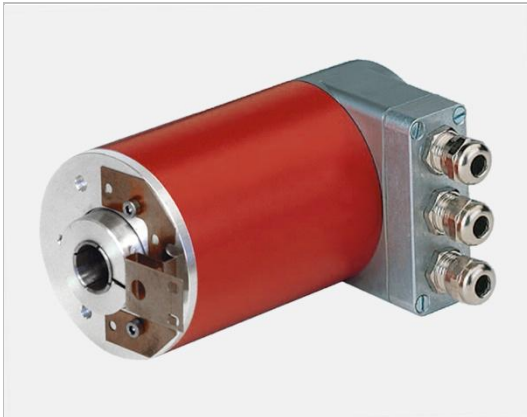
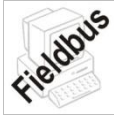
Supply voltage.....	18...27 VDC
Current consumption without load	< 180 mA
Total resolution ¹⁾	≤ 30 Bit
Number of steps/revolution ¹⁾	standard: 8.192; extended: ≤ 32.768
Number of revolutions ¹⁾	standard: 4.096; extended: ≤ 256.000
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μ s ≤ t_M ≤ 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format	Tree format
A	Analog interface
Analog voltage / Analog current	defined by factory setting
Resolution	16 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance	≥ 500 Ω
Current output ¹⁾	0...20 mA
- Load resistance	≤ 500 Ω
Preset 1 and 2	electronic adjustment
Latch	Intermediate storage of the analog data
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7, 14H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

Absolute-Encoder CES 65 S/M - PB

CES65-PB-1-GB-1
11/11 Revision 01
010102-00650202-0003



- + PROFIBUS-DP / SSI - interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output, limit switches, SSI configuration, external Preset inputs
SSI (optional).....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	18 μs
Output code ¹⁾	Binary, Gray, shifted Gray
Number of data bits ¹⁾	≤ 32
Preset 1 and 2	electronic adjustment
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7, 14H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

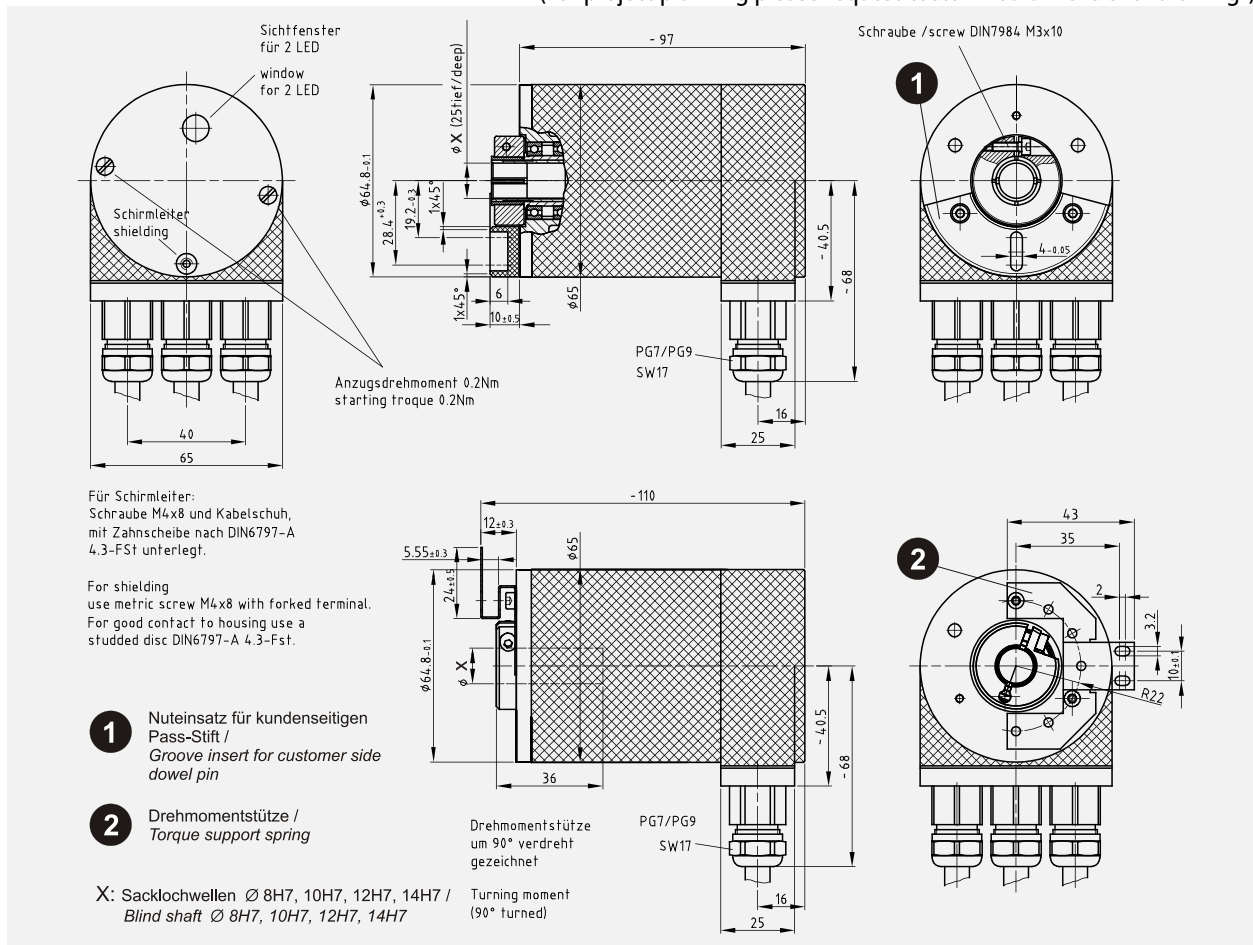
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

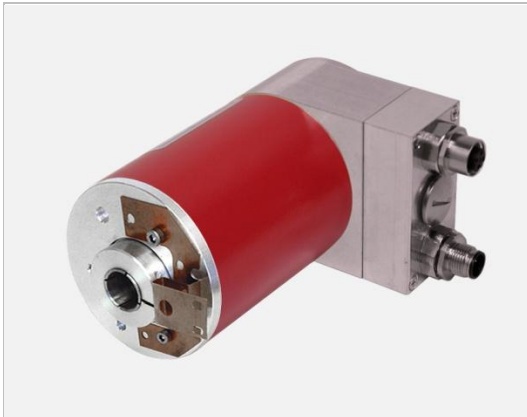
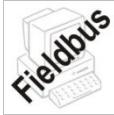
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CES 65 S/M - EIP

CES65-EIP-1-GB-1
02/12 Revision 00
010102-00650203-0003



- + EtherNet/IP interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherNet/IP.....	IEC 61784-1:2003 CP 2/2 Type 2, IEC 61158:2003 Type 2
- Physical Layer.....	EtherNet/IP 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	Encoder Device Profile 0x22, ODVA specification
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7, 14H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

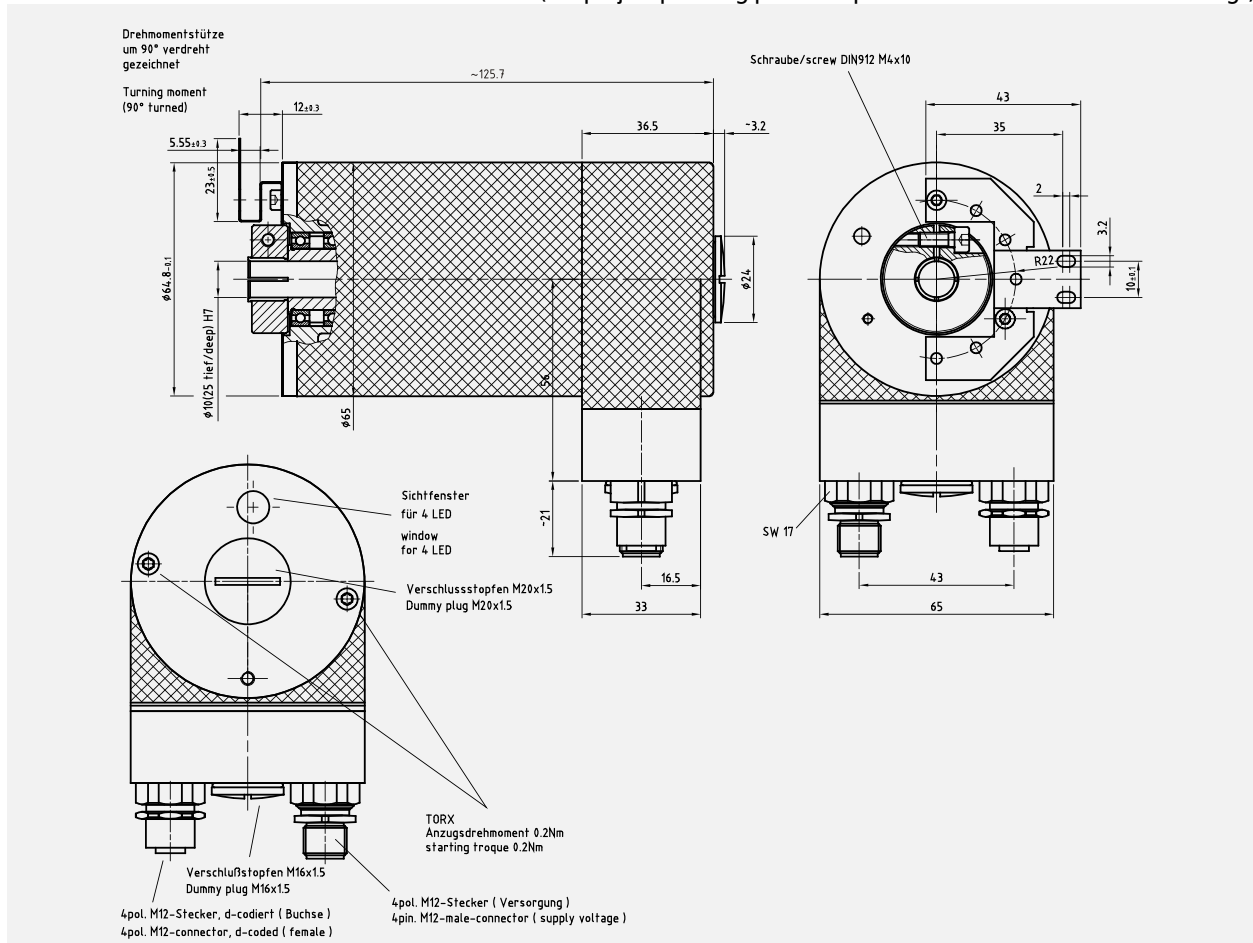
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

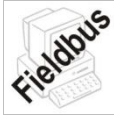
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEK 65 S/M - EIP

CEK65-EIP-1-GB-1
02/12 Revision 00
010102-00650203-0004



- + EtherNet/IP interface
- + Type with integrated claw coupling
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherNet/IP.....	IEC 61784-1:2003 CP 2/2 Type 2, IEC 61158:2003 Type 2
- Physical Layer.....	EtherNet/IP 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	Encoder Device Profile 0x22, ODVA specification
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

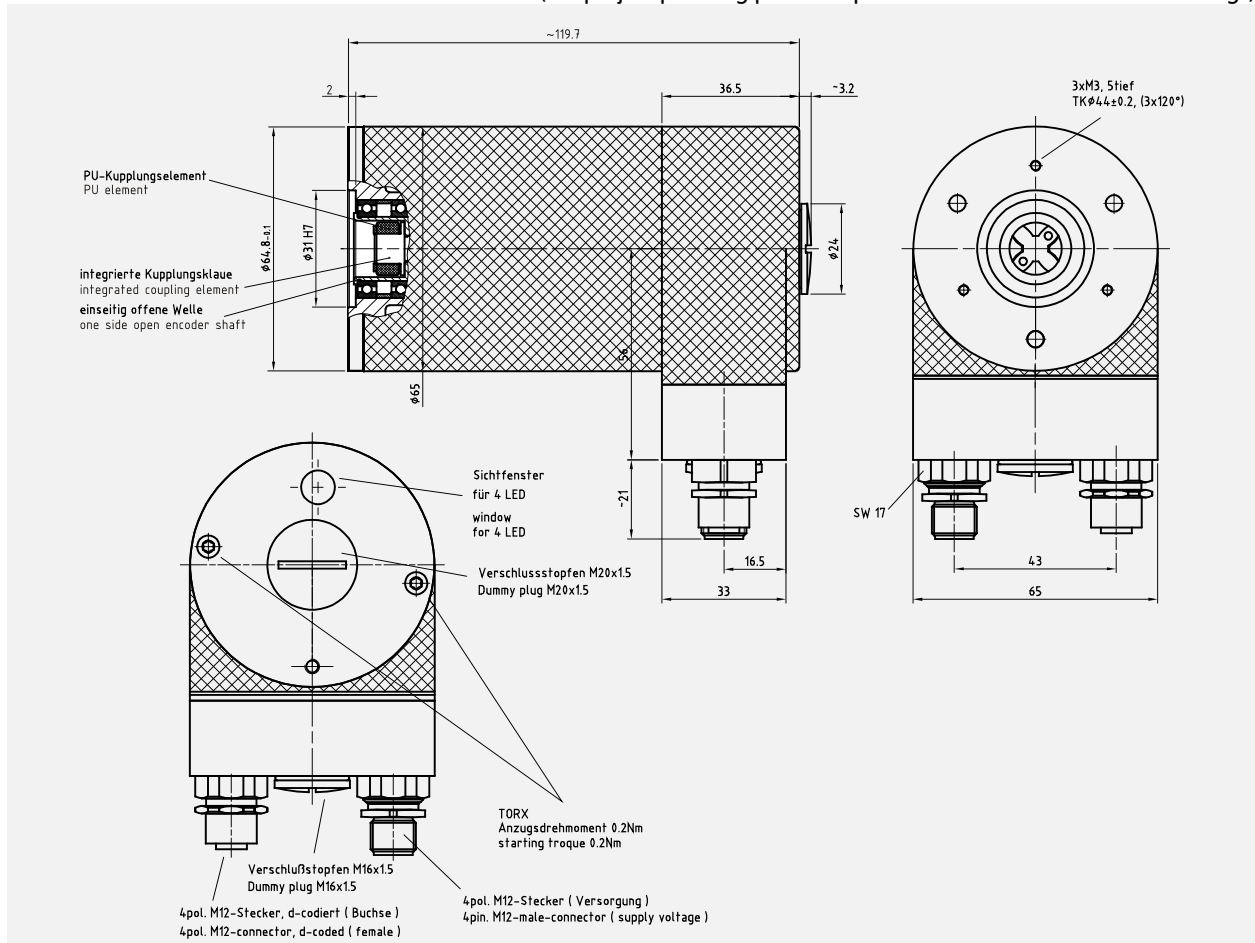
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + SSI interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M ¹⁾	15 µs, 20 µs, 50 µs, 500 µs
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC, with repeat, variable number of data bits
SSI-special bits ¹⁾	Parity, Toggel-Bit
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

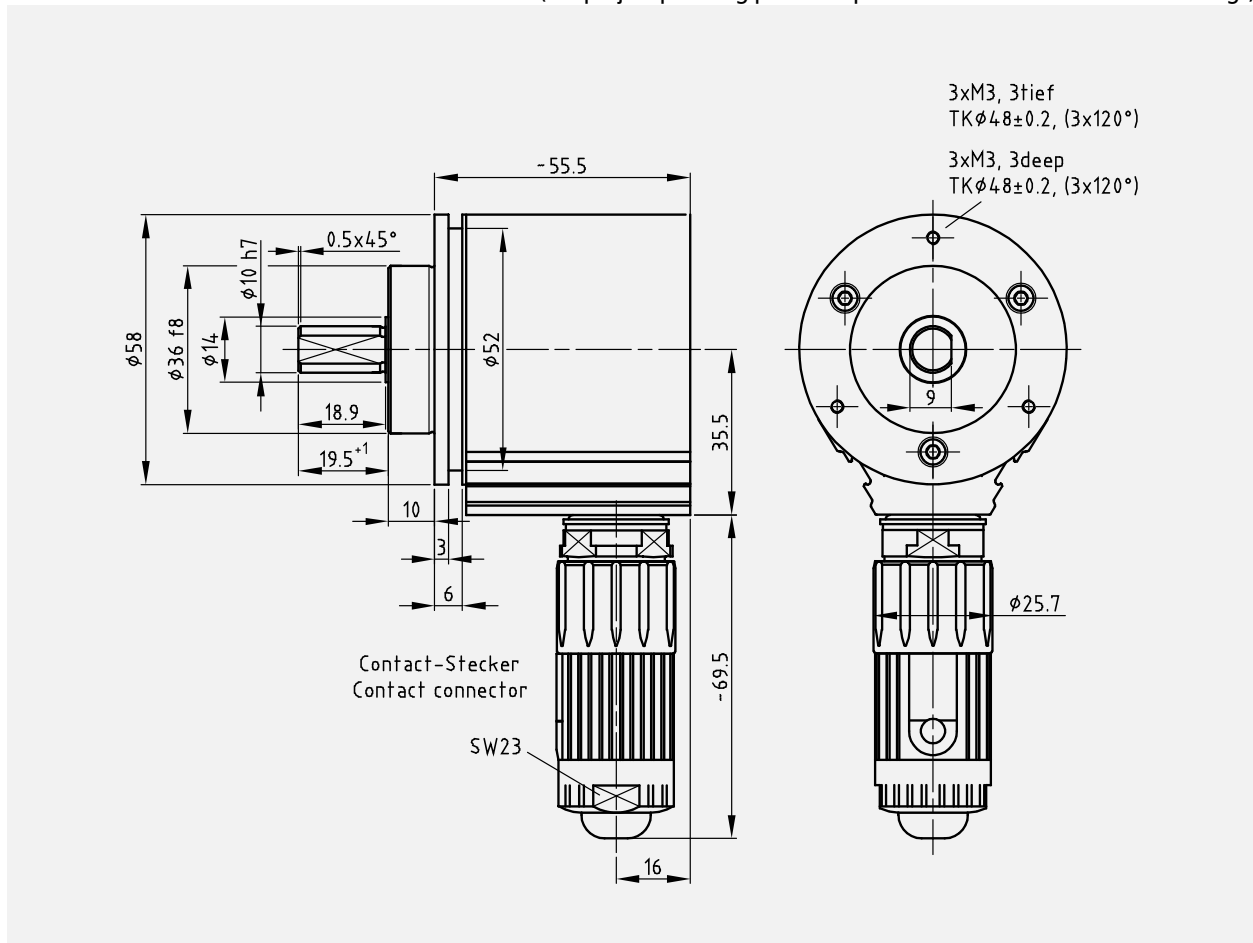
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

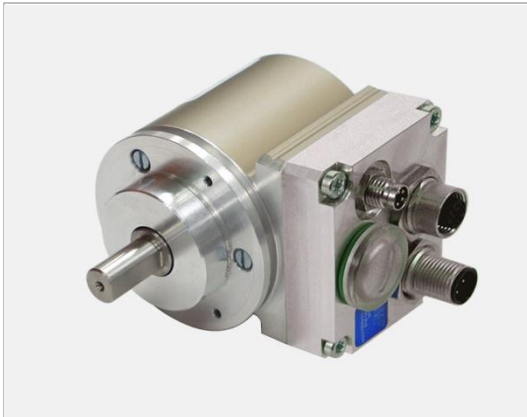
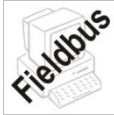
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFIBUS-DP interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 262.144, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code	Binary
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 29 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

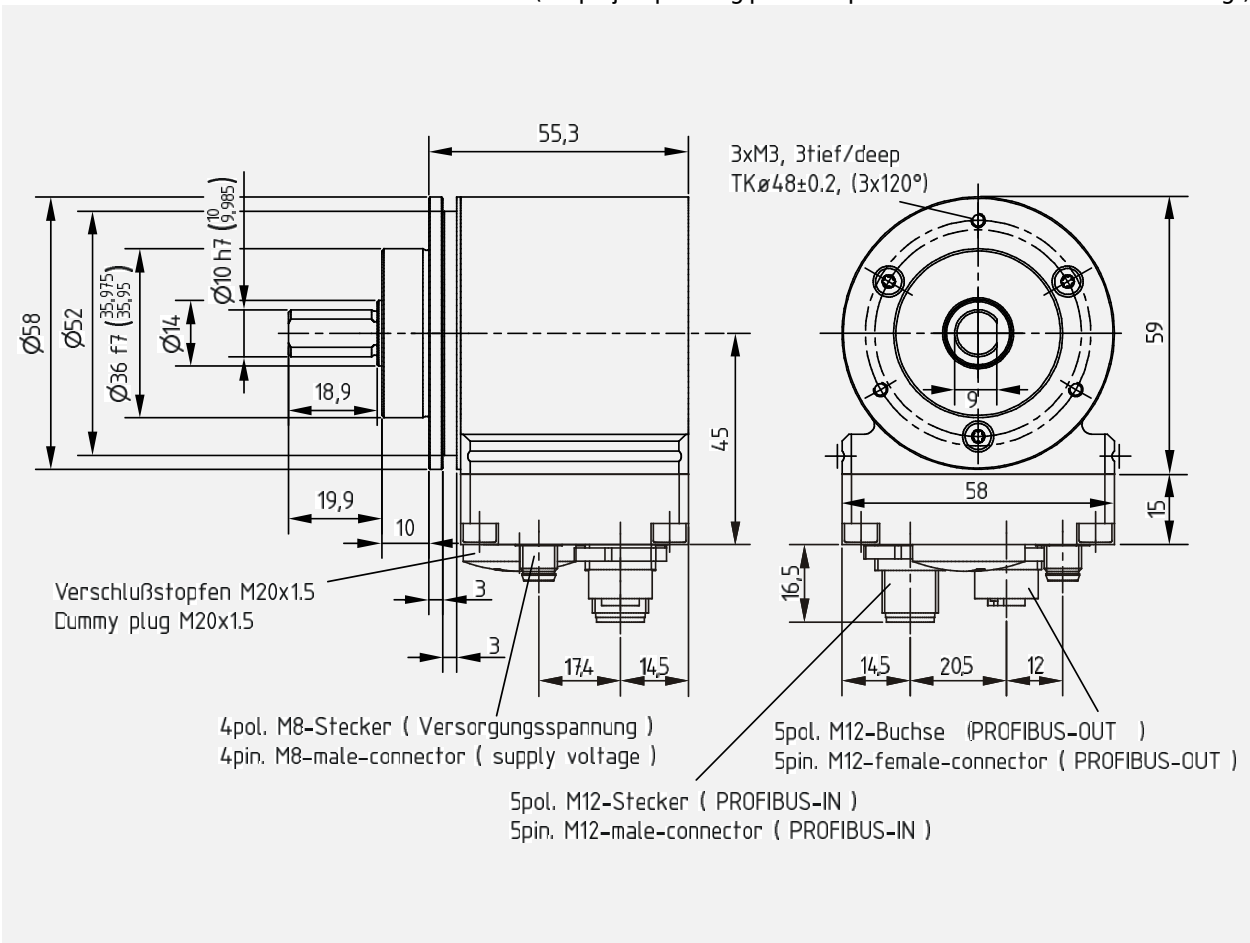
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

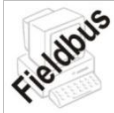
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + CANopen interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 as from V2.2.5
- Node-ID ¹⁾	Adjustable via DIP switch or LSS services
- Baud rate ¹⁾	Adjustable via DIP switch or LSS services
Firmware update via CAN.....	CiA DS 302-3 as from V4.1.0
Download EDS file.....	CiA DS 301 as from V4.2.0
Output code.....	Binary
Data size for actual value on the bus.....	≤ 32 bit
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Cams.....	8 x Cam tracks with high limit, low limit and hysteresis

¹⁾ programmable parameter

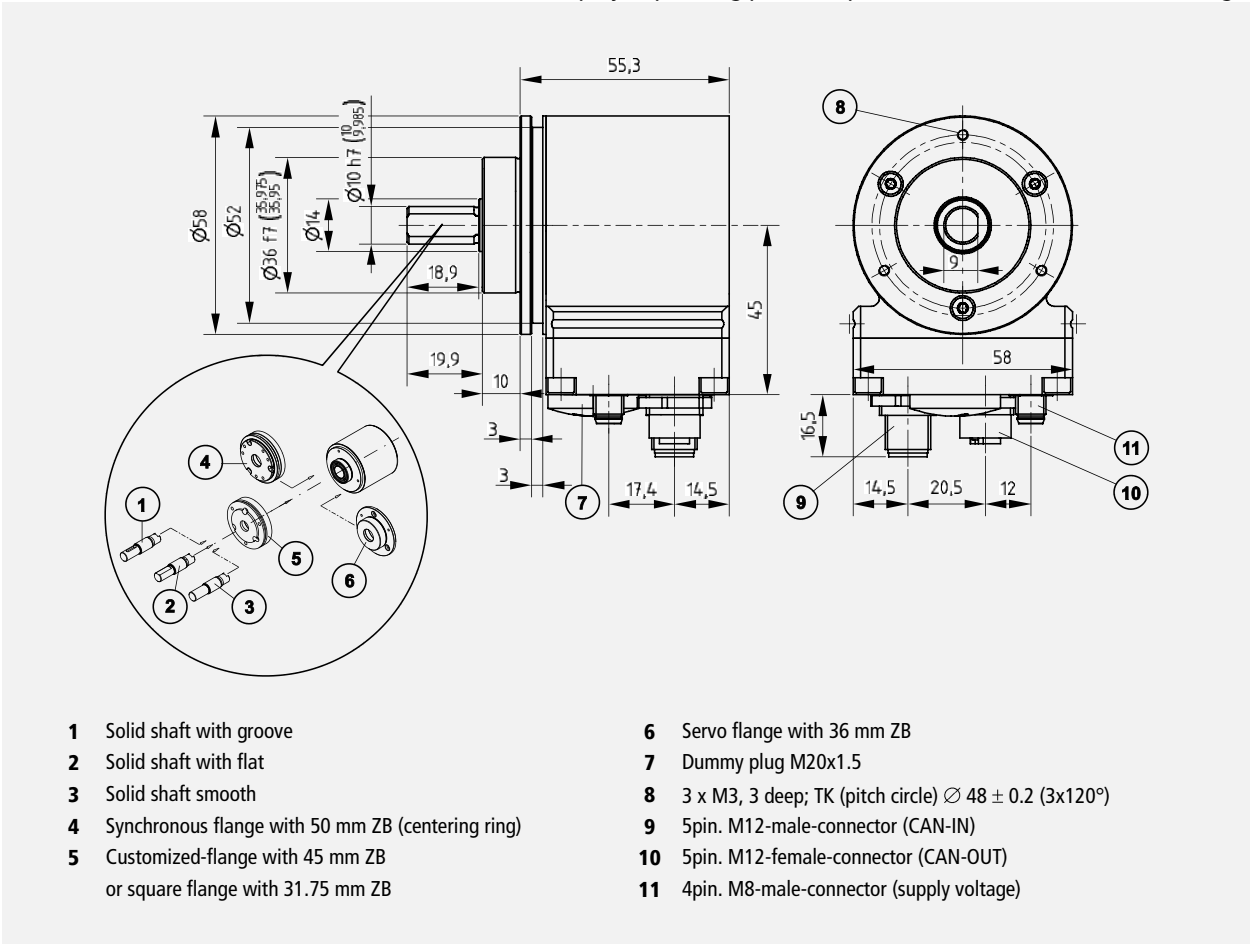
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

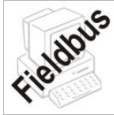
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFINET IO interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

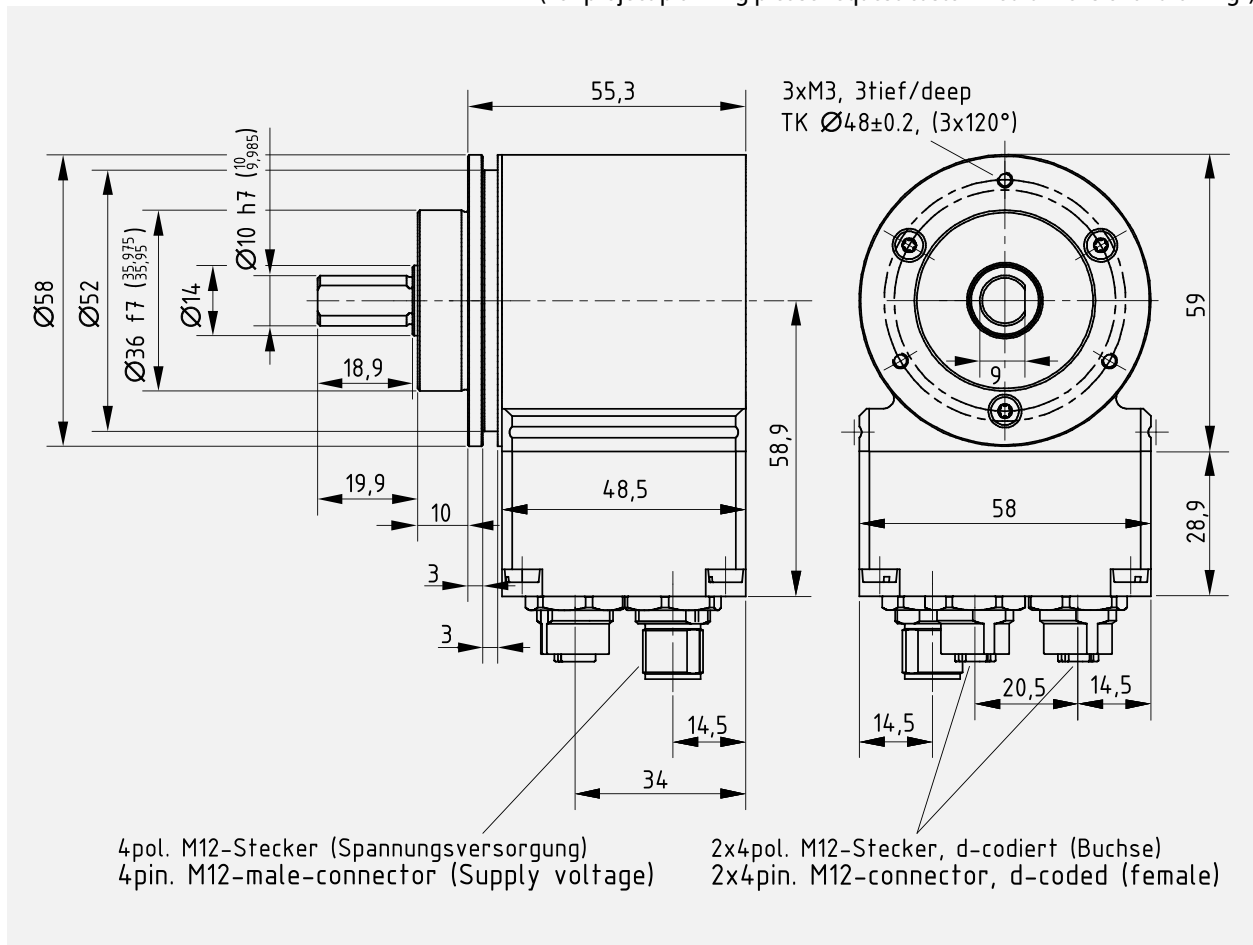
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

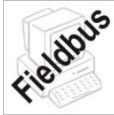
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COV 58 S/M - ETC

COV58-ETC-1-GB-1
10/11 Revision 01
010102-00580303-0001



- + EtherCAT interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

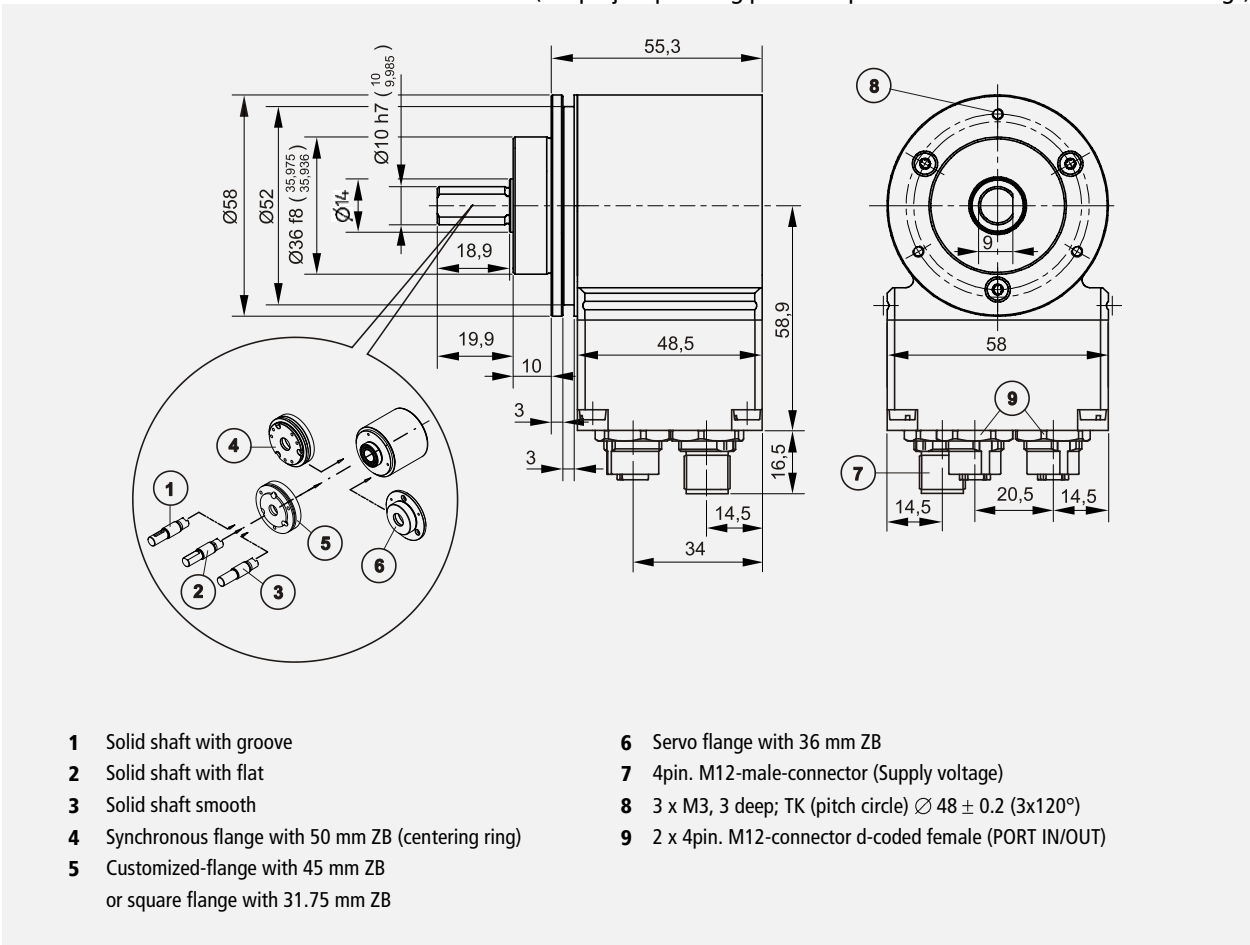
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COH 58 S/M - SSI

COH58-SSI-1-GB-1
11/11 Revision 02
010102-00580301-0002



- + SSI interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t _M ¹⁾	15 µs, 20 µs, 50 µs, 500 µs
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC, with repeat, variable number of data bits
SSI-special bits ¹⁾	Parity, Toggel-Bit
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

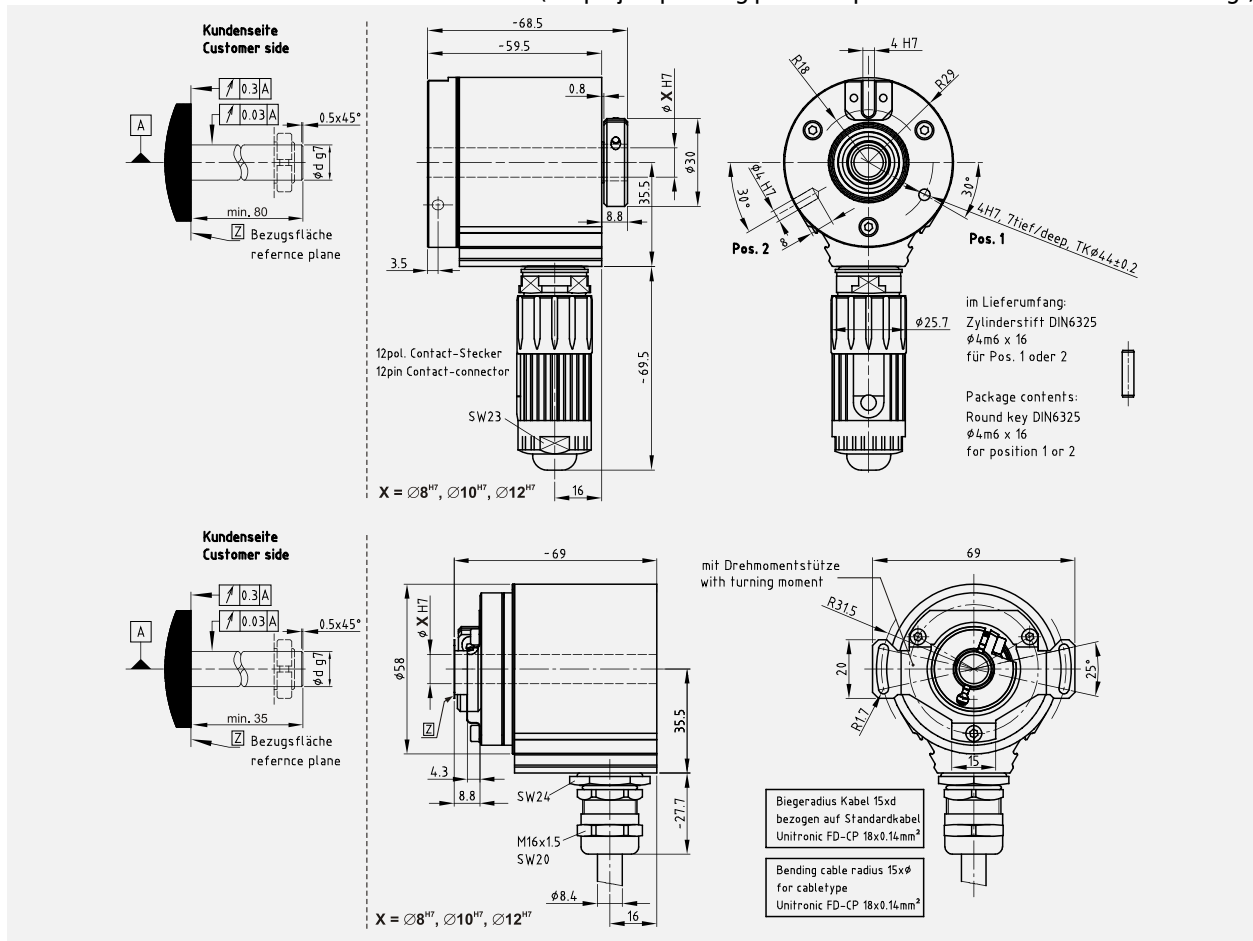
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾..... IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

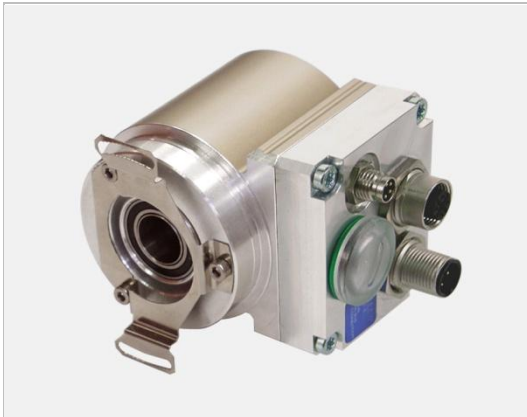
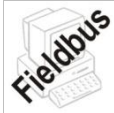
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COH 58 S/M - PB

COH58-PB-1-GB-1
11/11 Revision 01
010102-00580302-0002



- + PROFIBUS-DP interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 262.144, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code	Binary
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 29 Bit
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

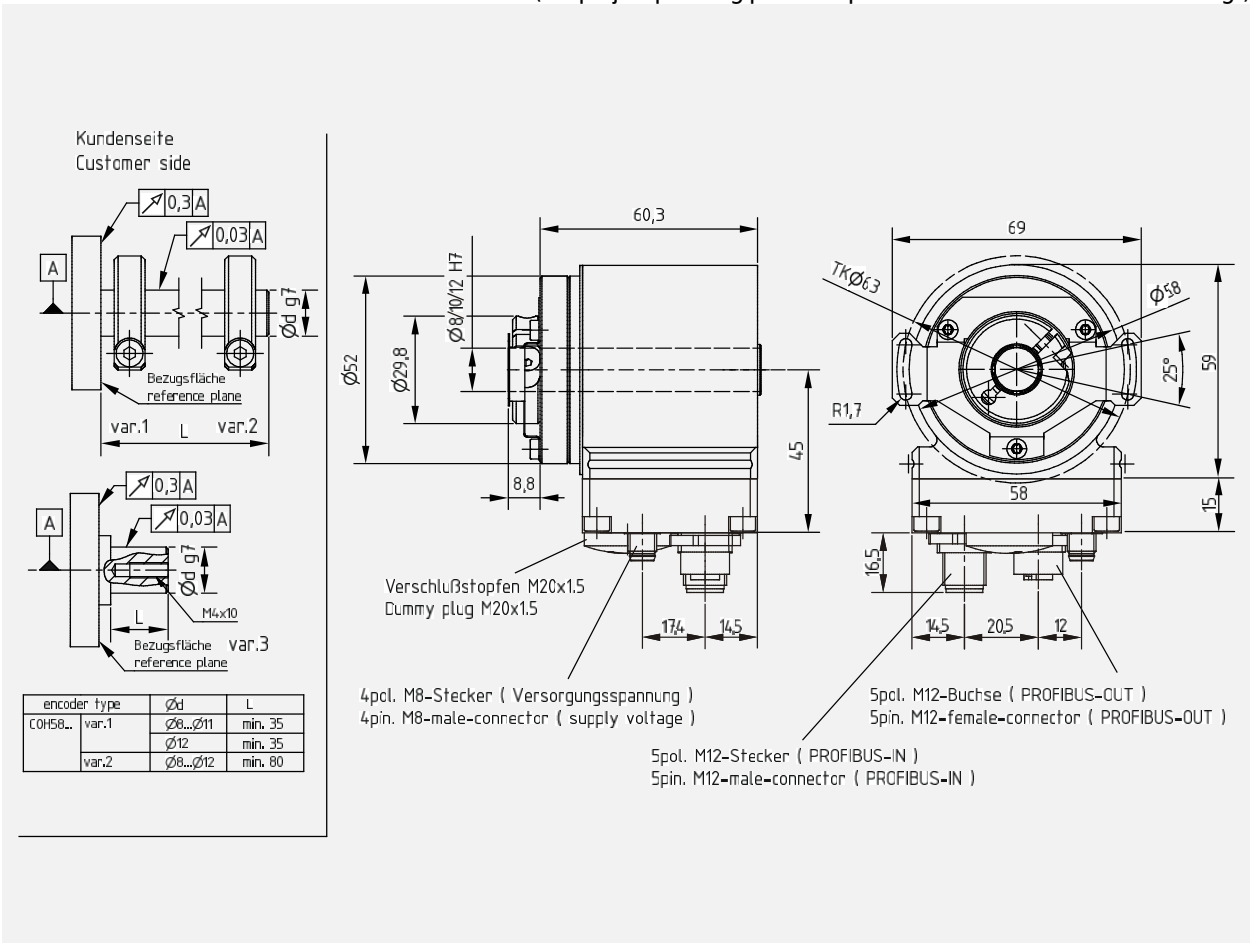
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

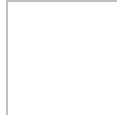
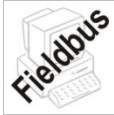
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + CANopen interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 as from V2.2.5
- Node-ID ¹⁾	Adjustable via DIP switch or LSS services
- Baud rate ¹⁾	Adjustable via DIP switch or LSS services
Firmware update via CAN.....	CiA DS 302-3 as from V4.1.0
Download EDS file.....	CiA DS 301 as from V4.2.0
Output code.....	Binary
Data size for actual value on the bus.....	≤ 32 bit
Mechanically permissible speed.....	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Cams.....	8 x Cam tracks with high limit, low limit and hysteresis

¹⁾ programmable parameter

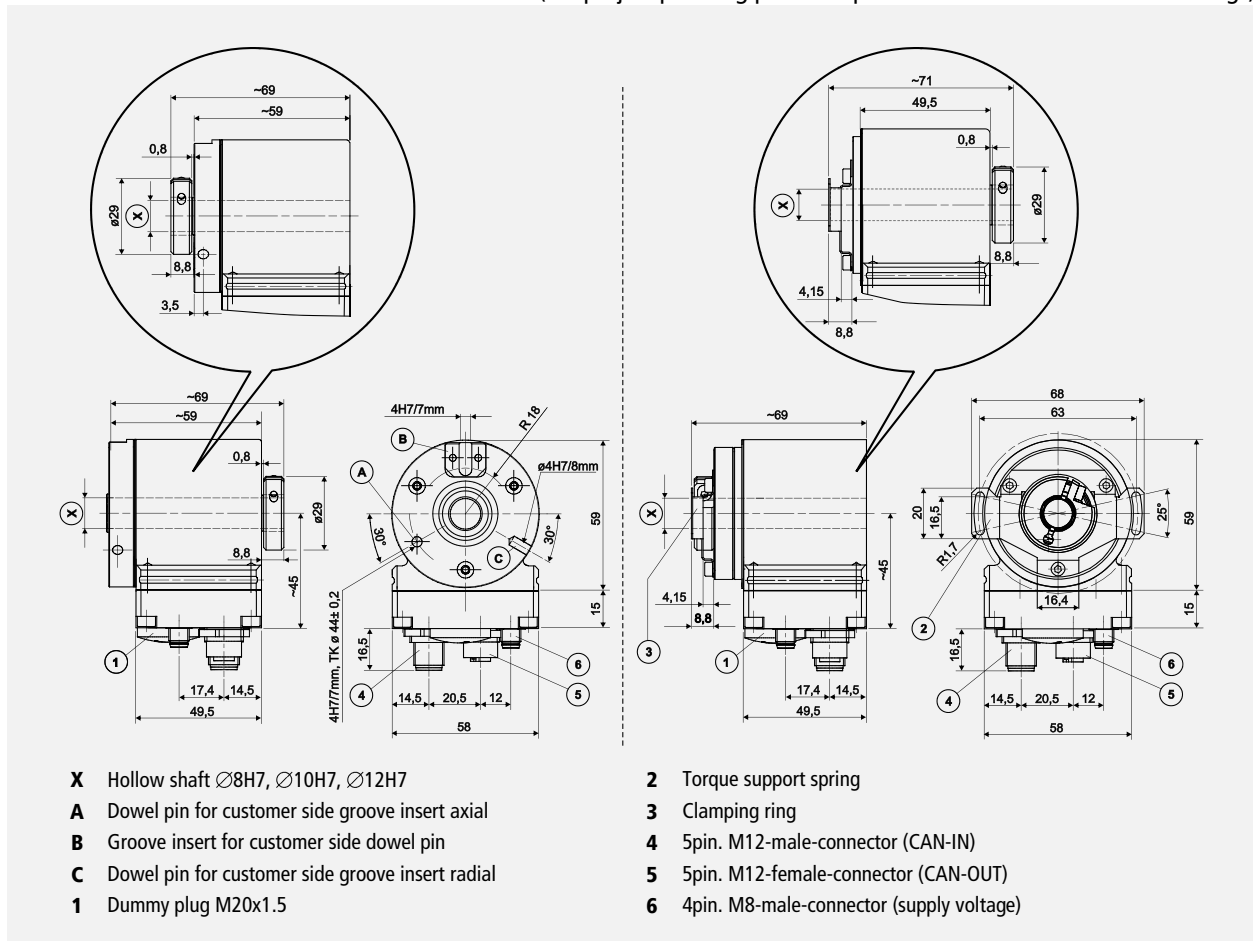
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11 ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

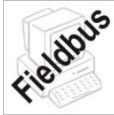
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFINET IO interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

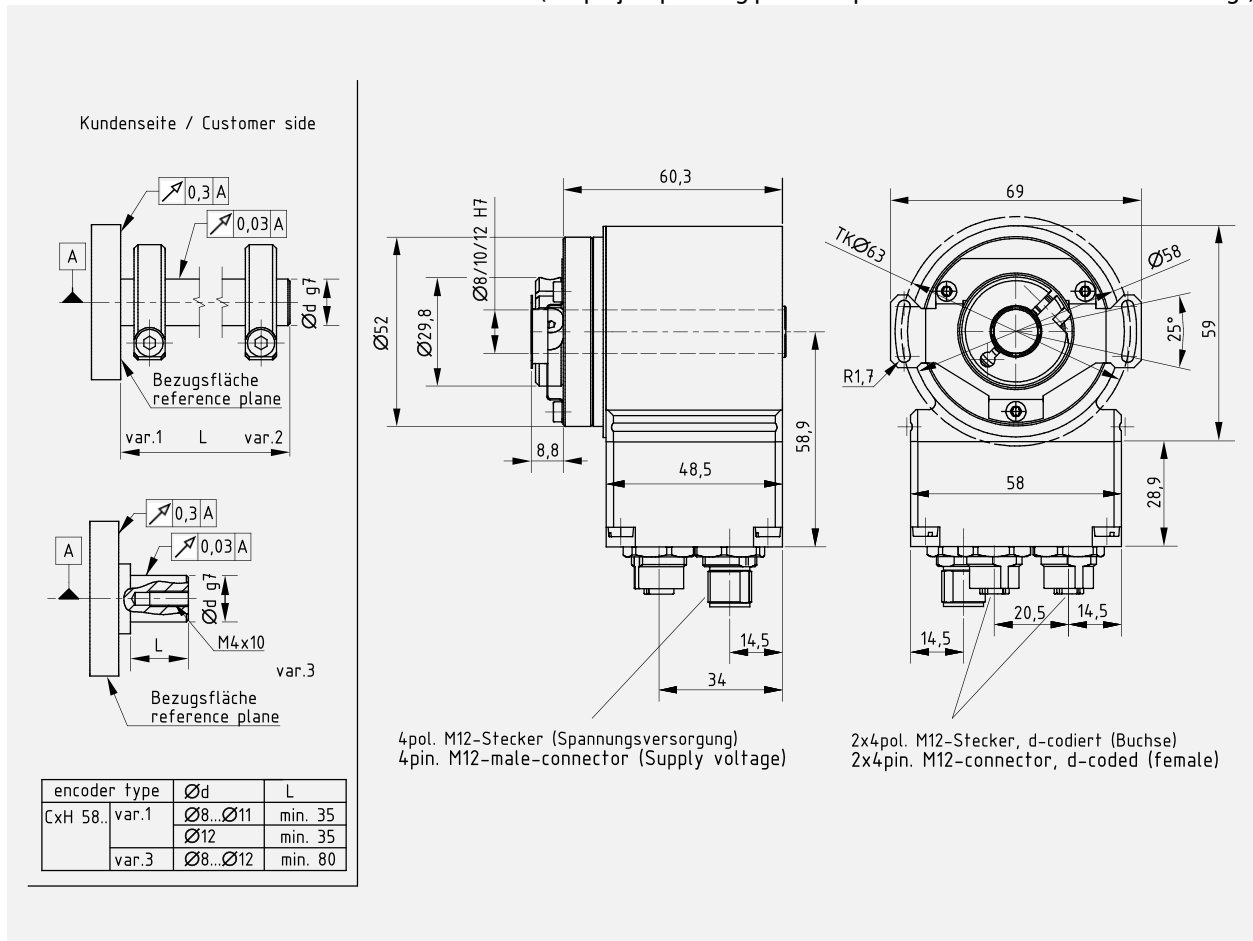
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

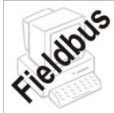
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COH 58 S/M - ETC

COH58-ETC-1-GB-1
10/11 Revision 01
010102-00580303-0002



- + EtherCAT interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

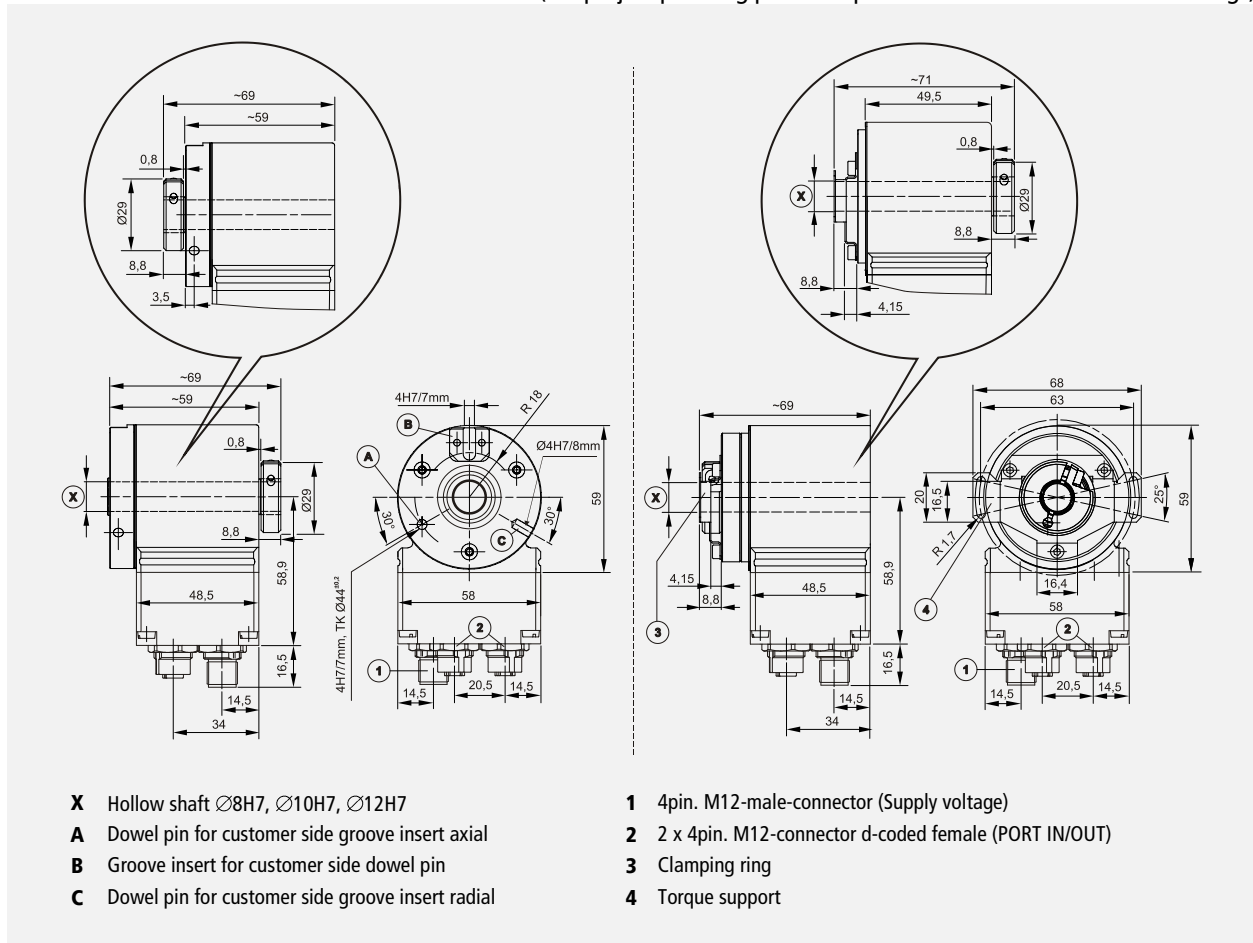
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COS 58 S/M - SSI

COS58-SSI-1-GB-1
11/11 Revision 01
010102-00580301-0003



- + SSI interface
- + Type with blind shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t _M ¹⁾	15 µs, 20 µs, 50 µs, 500 µs
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC, with repeat, variable number of data bits
SSI-special bits ¹⁾	Parity, Toggel-Bit
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

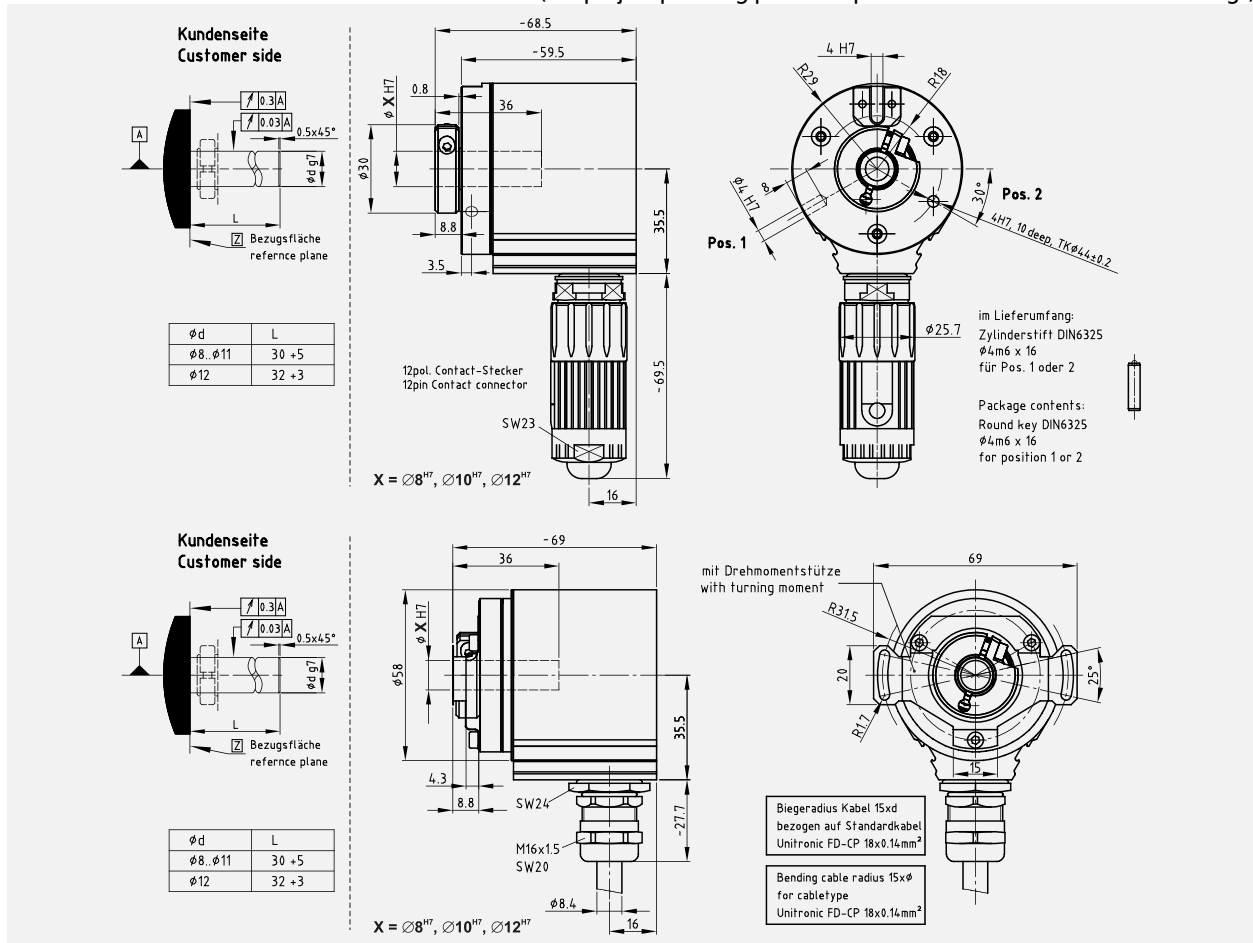
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

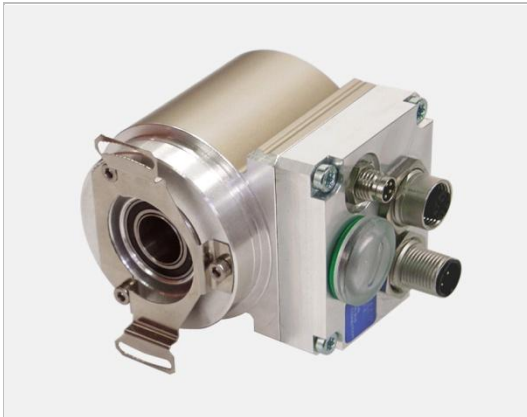
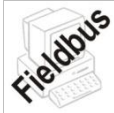
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COS 58 S/M - PB

COS58-PB-1-GB-1
11/11 Revision 01
010102-00580302-0003



- + PROFIBUS-DP interface
- + Type with blind shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 262.144, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code	Binary
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 29 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

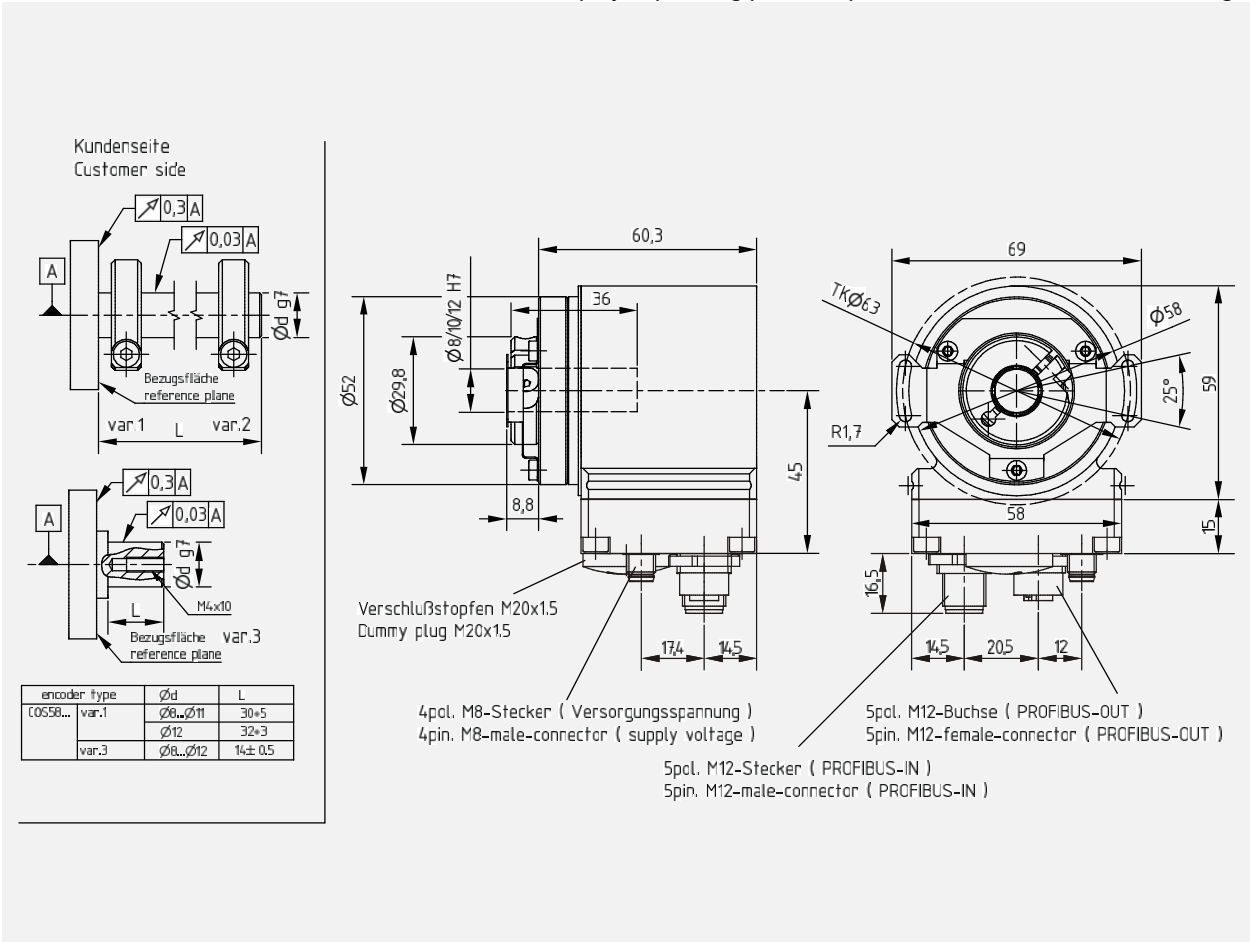
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

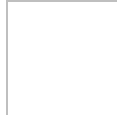
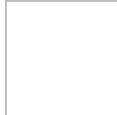
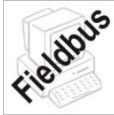
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COS 58 S/M - CO

COS58-CO-1-GB-1
01/12 Revision 02
010102-00580302-0003



- + CANopen interface
- + Type with blind shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 as from V2.2.5
- Node-ID ¹⁾	Adjustable via DIP switch or LSS services
- Baud rate ¹⁾	Adjustable via DIP switch or LSS services
Firmware update via CAN.....	CiA DS 302-3 as from V4.1.0
Download EDS file.....	CiA DS 301 as from V4.2.0
Output code.....	Binary
Data size for actual value on the bus.....	≤ 32 bit
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Cams.....	8 x Cam tracks with high limit, low limit and hysteresis

¹⁾ programmable parameter

Subject to change

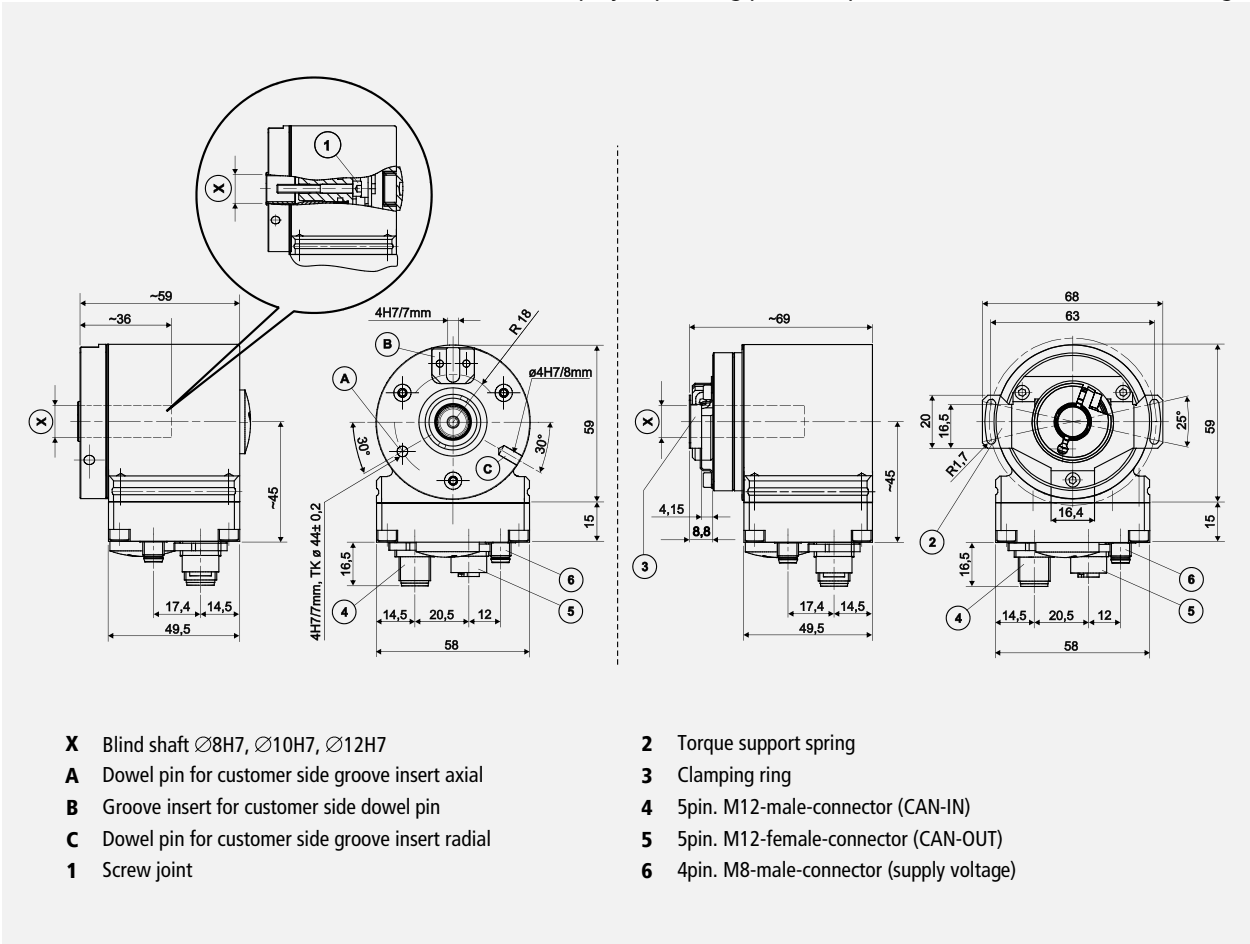
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

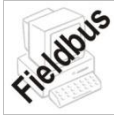
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFINET IO interface
- + Type with blind shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

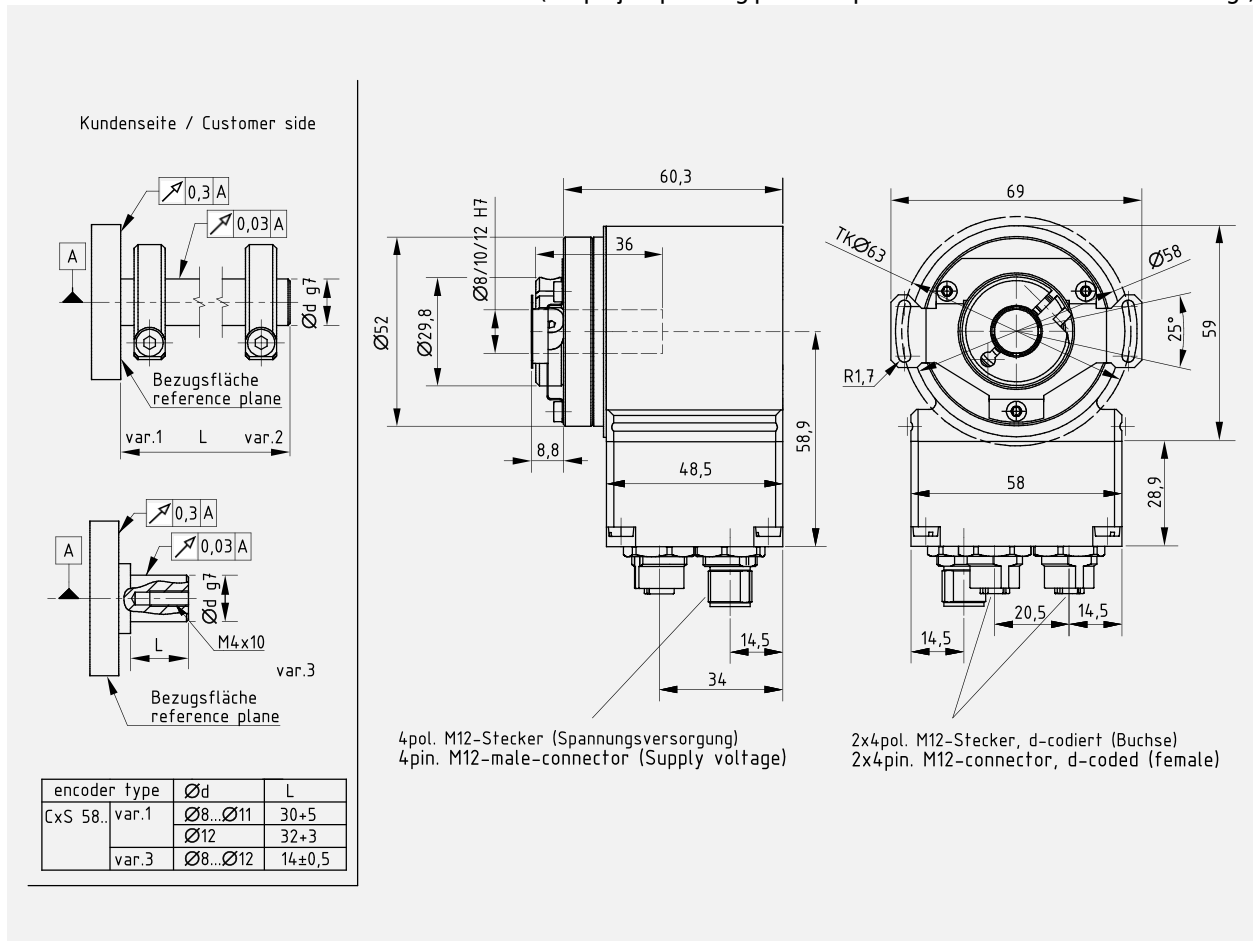
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

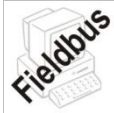
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COS 58 S/M - ETC

COS58-ETC-1-GB-1
10/11 Revision 01
010102-00580303-0003



- + EtherCAT interface
- + Type with blind shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

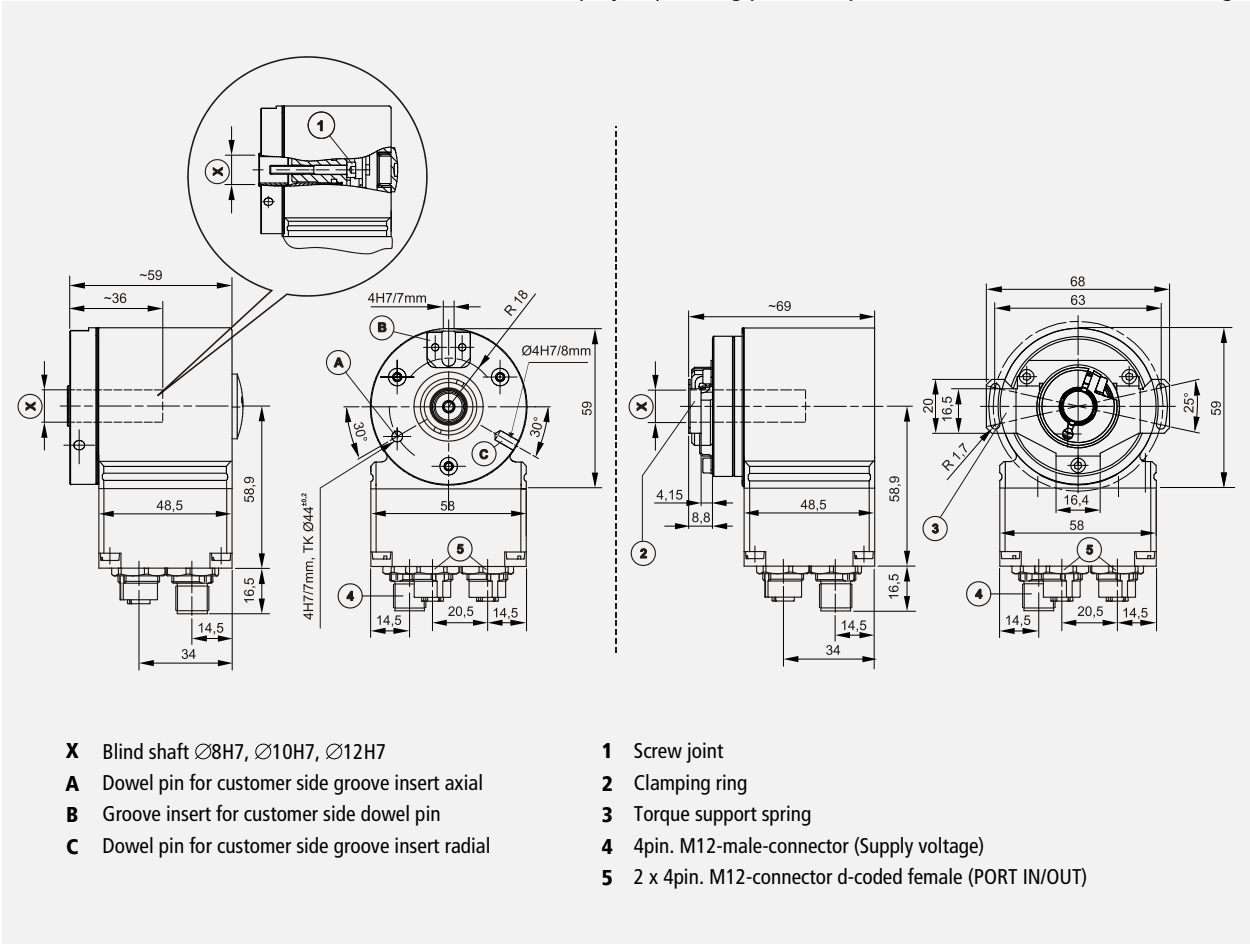
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COK 58 S/M - SSI

COK58-SSI-1-GB-1
11/11 Revision 01
010102-00580301-0004



- + SSI interface
- + Type with integrated claw coupling
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M ¹⁾	15 µs, 20 µs, 50 µs, 500 µs
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC, with repeat, variable number of data bits
SSI-special bits ¹⁾	Parity, Toggel-Bit
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg
Optional	
- Incremental signals, RS422 level.....	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

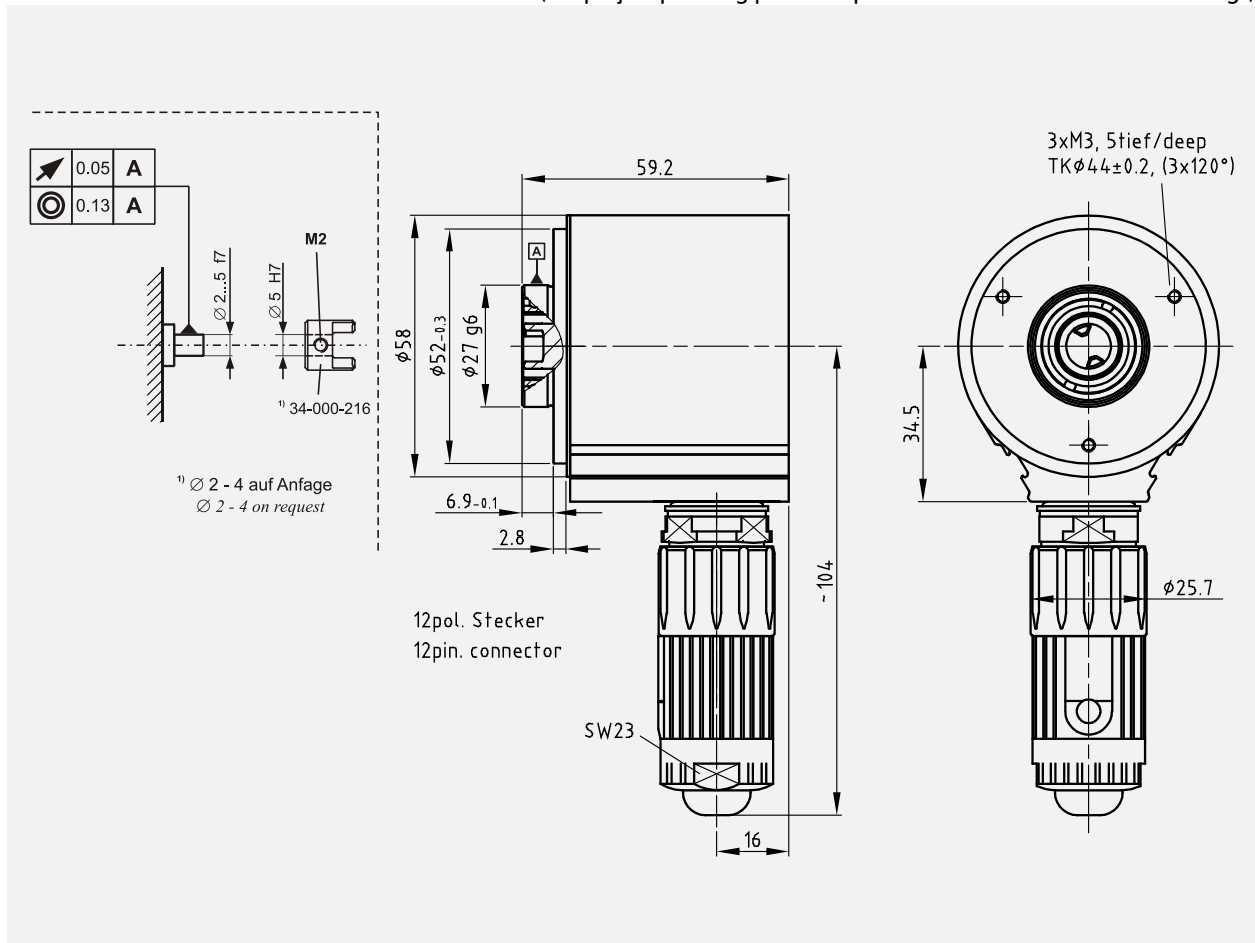
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

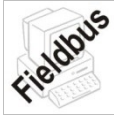
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COK 58 S/M - PB

COK58-PB-1-GB-1
11/11 Revision 01
010102-00580302-0004



- + PROFIBUS-DP interface
- + Type with integrated claw coupling
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 262.144, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code	Binary
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 29 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

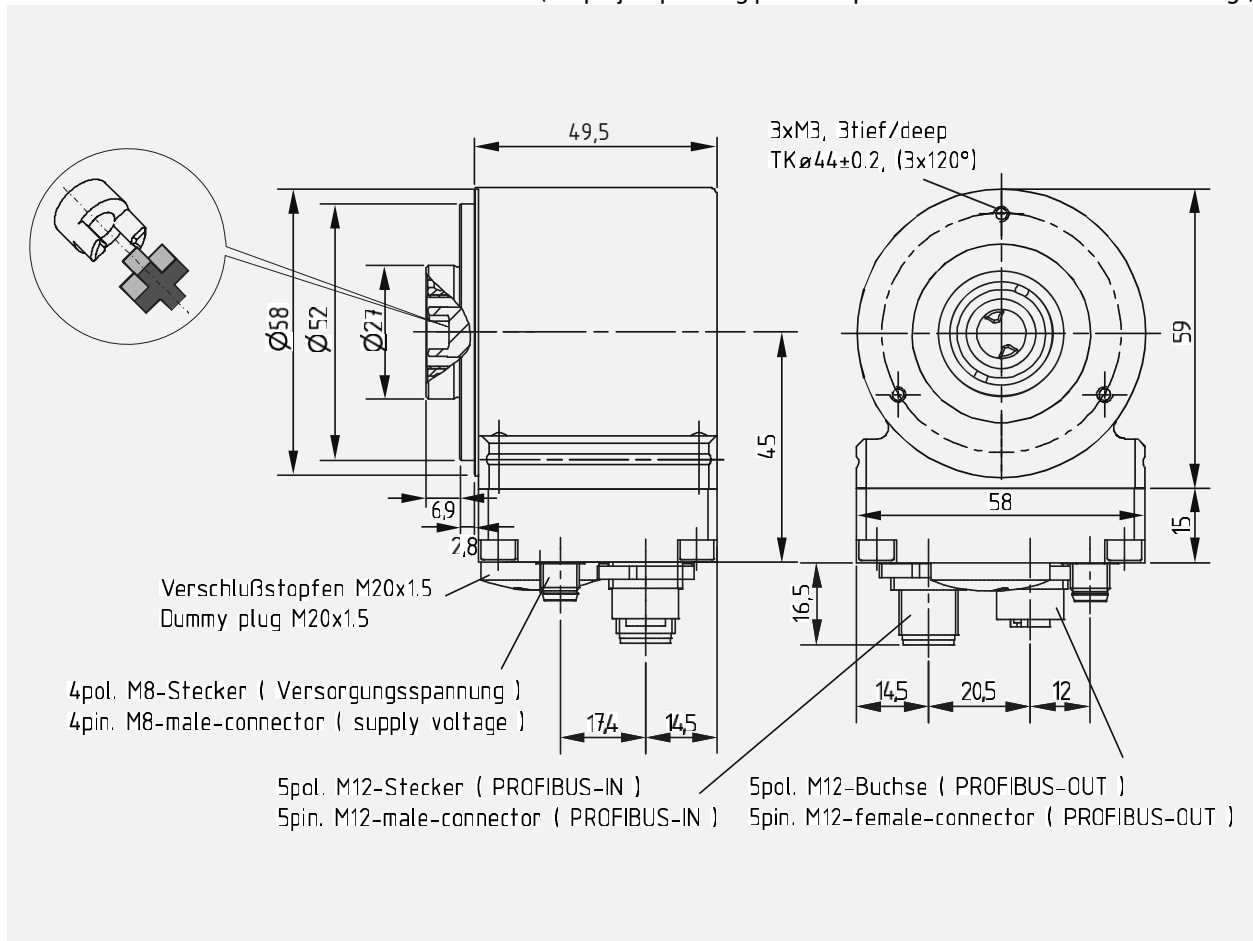
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

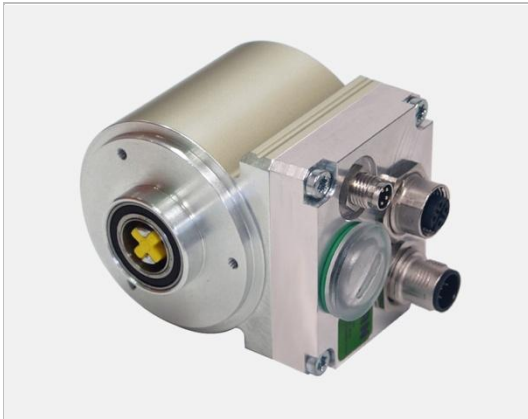
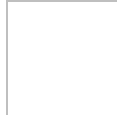
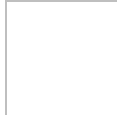
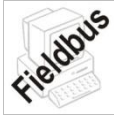
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COK 58 S/M - CO

COK58-CO-1-GB-1
01/12 Revision 02
010102-00580302-0004



- + CANopen Schnittstelle
- + Ausführung mit Klauenkupplung
- + Hochauflösendes Mess-System, bis max. 18 Bit
- + Breites modulares Produktspektrum
- + Umfangreiche Parametrierungsmöglichkeiten
- + Sonderparameter auf Anfrage
- + Kurze Lieferzeiten
- + Weitere Schnittstellen lieferbar
- + Modularer Aufbau für mechanische Anpassungen

Characteristics

Versorgungsspannung.....	11...27 VDC
Stromaufnahme ohne Last	< 150 mA
Gesamtauflösung ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Schrittzahl/Umdrehung ¹⁾	≤ 262.144
Anzahl Umdrehungen, Standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Anzahl Umdrehungen, erweitert ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
CANopen.....	EN 50325-4
Busankopplung	ISO 11898-1, ISO 11898-2
CAN Spezifikation 2.0 A.....	11-Bit Identifier
Geräte-Profil für Encoder.....	CiA DS 406
- Parameter ¹⁾	Zählrichtungsumschaltung, Skalierungsfunktion, Presetjustage
Layer Setting Services, LSS	CiA DS 305 ab V2.2.5
- Node-ID ¹⁾	über DIP-Schalter oder LSS Dienste einstellbar
- Baudrate ¹⁾	über DIP-Schalter oder LSS Dienste einstellbar
Firmwareupdate über CAN.....	CiA DS 302-3 ab V4.1.0
Download der EDS-Datei.....	CiA DS 301 ab V4.2.0
Ausgabecode.....	Binär
Datenbreite für Istposition auf dem Bus.....	≤ 32 Bit
Mechanisch zulässige Drehzahl.....	≤ 12.000 min ⁻¹
Wellenbelastung	radiale Kupplungskräfte
Lagerlebensdauer.....	≥ 3,9 * 10 ¹⁰ Umdrehungen bei
- Drehzahl.....	≤ 6.000 min ⁻¹
- Betriebstemperatur	≤ 60 °C
Zulässige Winkelbeschleunigung.....	≤ 10 ⁴ rad/s ²
Trägheitsmoment	typisch 2,5 * 10 ⁻⁶ kg m ²
Anlaufdrehmoment bei 20 °C.....	typisch 2 Ncm
Masse	0,3 kg...0,5 kg
Optional	
- Nocken.....	8 x Nockenbahnen mit High Limit, Low Limit und Hysterese

¹⁾ programmierbarer Parameter

Subject to change

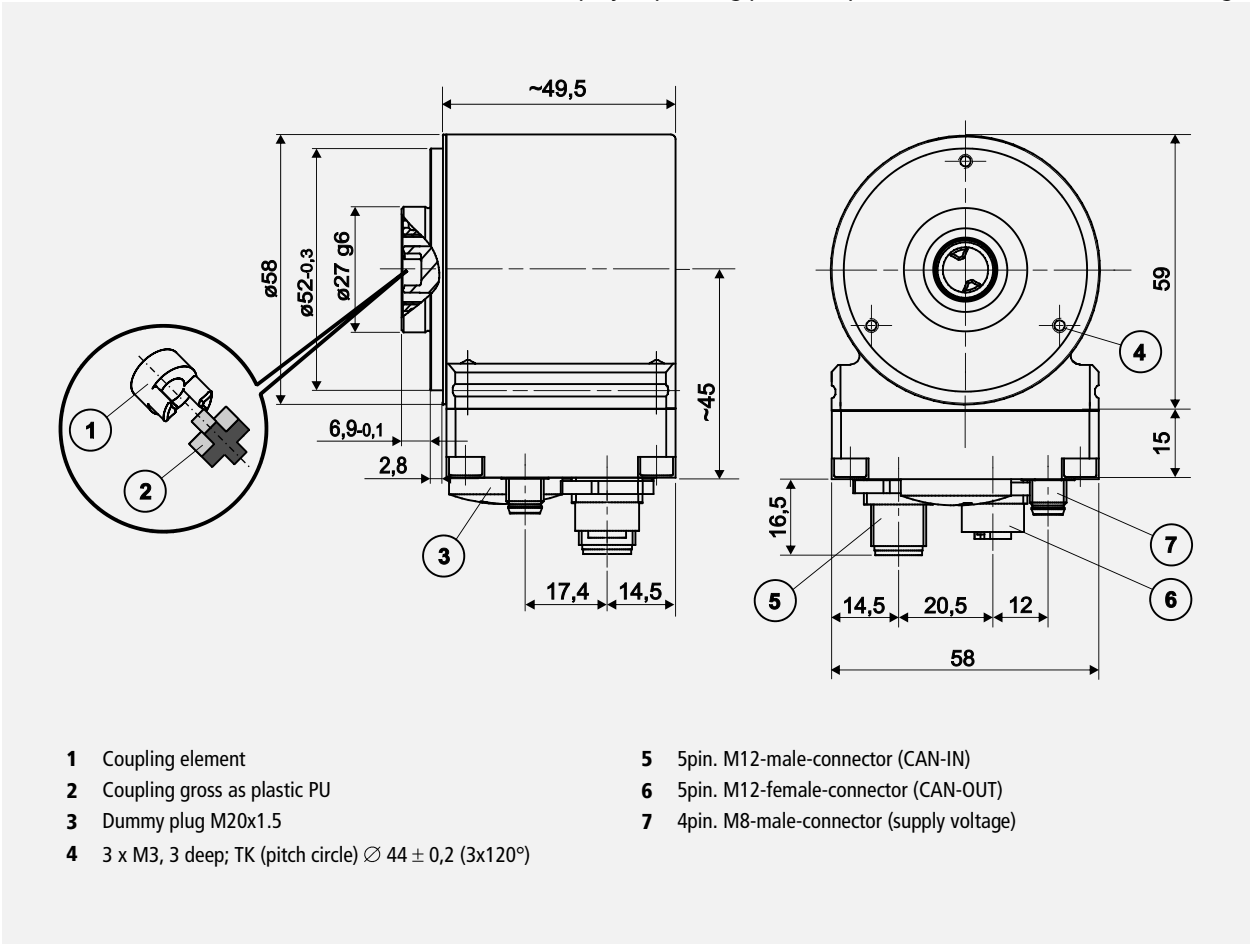
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , Sinus 50-2000 Hz
Schock, DIN EN 60068-2-27: 1995	≤ 1000 m/s ² , Halbsinus 11 ms
EMV	
- Störfestigkeit, DIN EN 61000-6-2: 2006	
- Störaussendung, DIN EN 61000-6-3: 2007	
Arbeitstemperatur	0 °C...+60 °C, optional -20 °C...+70 °C
Lagertemperatur	-30 °C...+80 °C, trocken
Relative Luftfeuchte, DIN EN 60068-3-4: 2002	98 %, keine Betauung
Schutzart, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ gültig mit aufgeschraubtem Gegenstecker und/oder verschraubter Kabelverschraubung

Dimension drawing

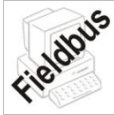
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COK 58 S/M - PN

COK58-PN-1-GB-1
11/11 Revision 01
010102-00580303-0004



- + PROFINET IO interface
- + Type with integrated claw coupling
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profinet IO – Device	IEC 61158, IEC 61784-1
- PROFINET specification	V2.2
- Conformance class	Conformance Class B, C
- Physical Layer.....	PROFINET 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Cycle time	≥ 1 ms (IRT / RT)
- Transmission rate.....	100 Mbit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Addressing ¹⁾	Per Name (name allocation about engineering tool). Assignment Name --> MAC during system boot
- Real-Time-Classes	RT Class 1, 2 Frames (RT), RT Class 3 Frames (IRT)
- Parameter ¹⁾	Switch-over count direction, Scaling function, Preset adjustment
Data size for actual value on the bus	≤ 30 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

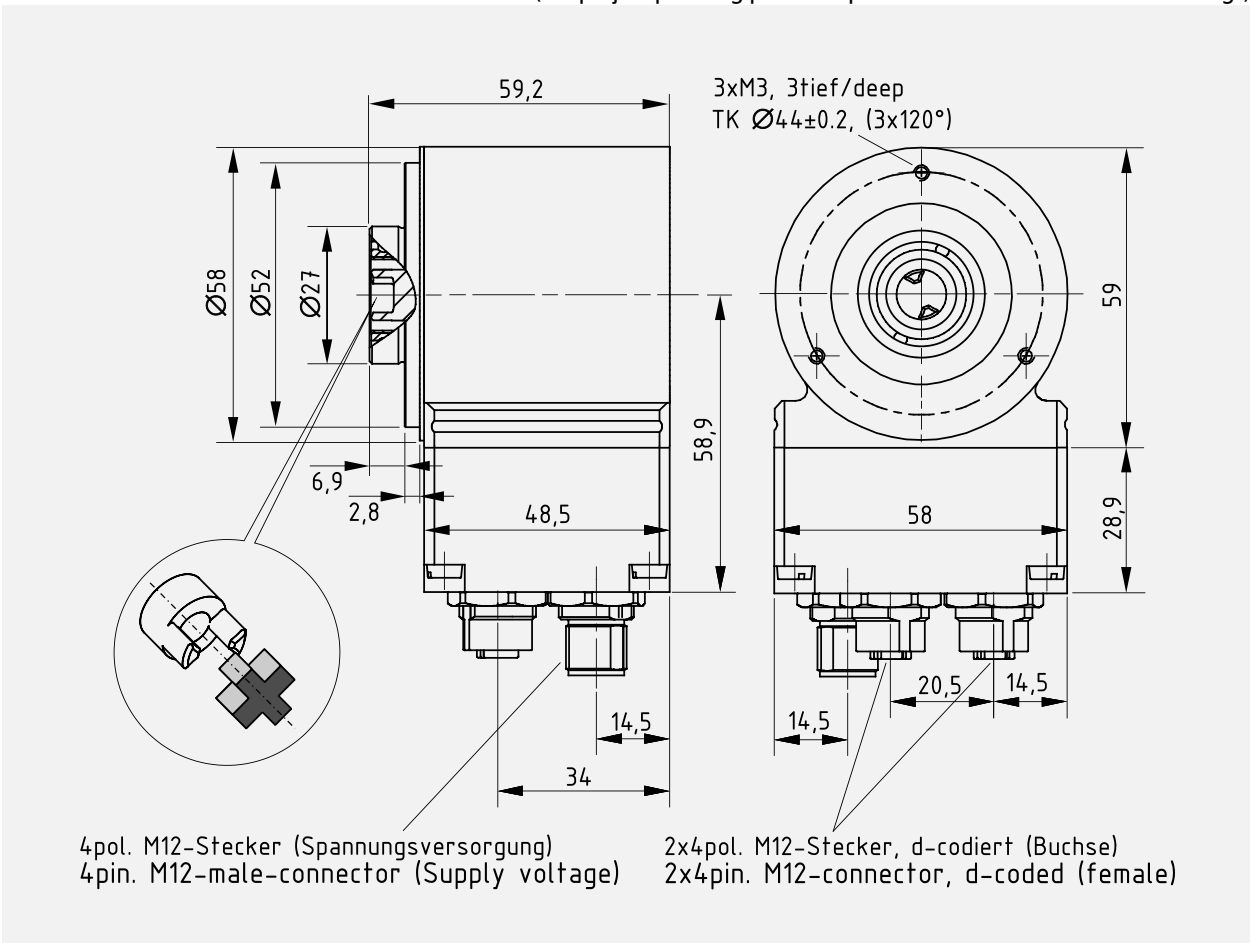
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

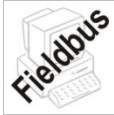
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COK 58 S/M - ETC

COK58-ETC-1-GB-1
10/11 Revision 01
010102-00580303-0004



- + EtherCAT interface
- + Type with integrated claw coupling
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 μs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

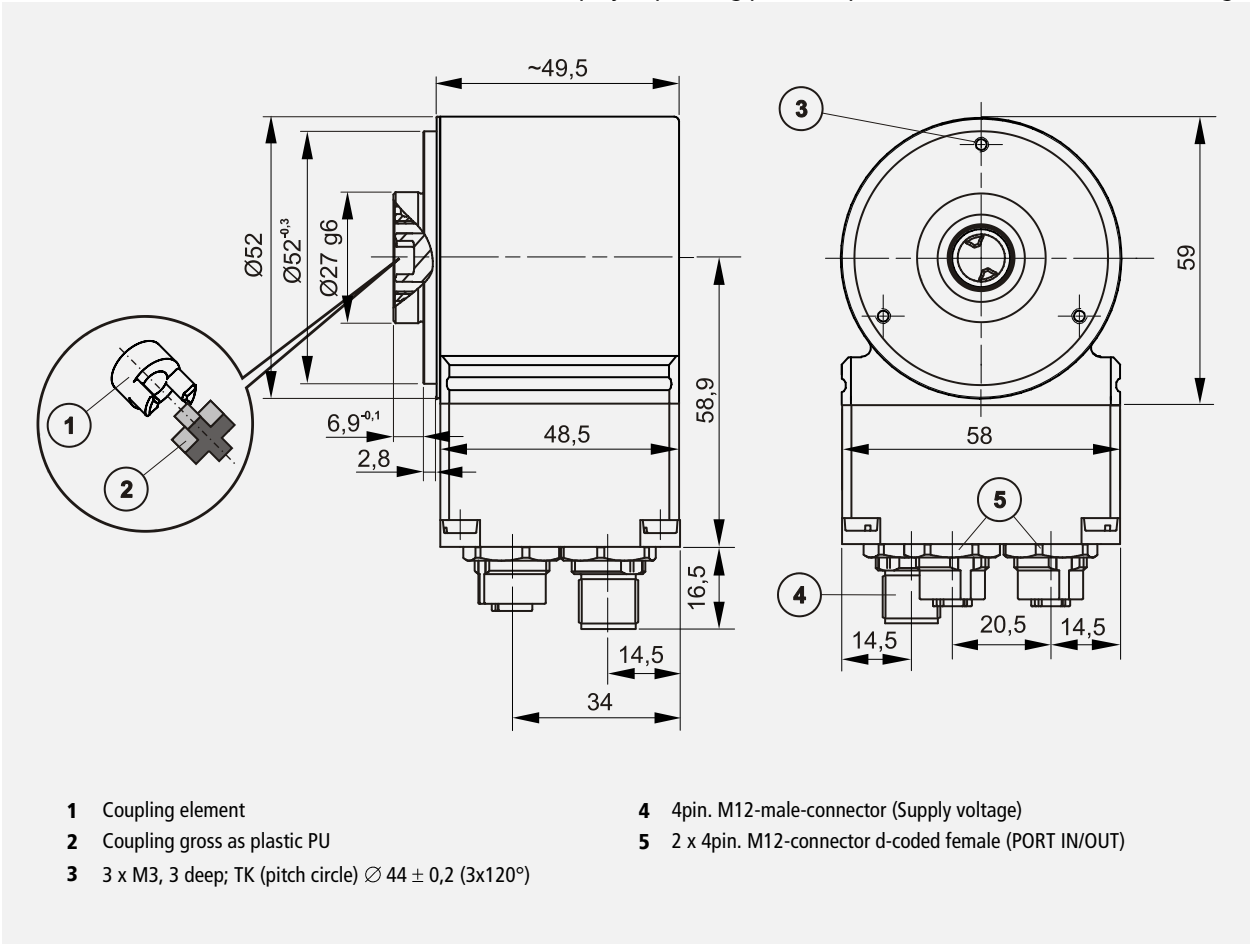
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



- | | |
|---|--|
| 1 Coupling element | 4 4pin. M12-male-connector (Supply voltage) |
| 2 Coupling gross as plastic PU | 5 2 x 4pin. M12-connector d-coded female (PORT IN/OUT) |
| 3 3 x M3, 3 deep; TK (pitch circle) Ø 44 ± 0,2 (3x120°) | |

Subject to change

Absolute-Encoder COV 65 S/M - SSI

COV65-SSI-1-GB-1
11/11 Revision 01
010102-00650301-0201



- + SSI interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input	Optocoupler
Data output	RS-422, 2-wire
Clock frequency	80 kHz – 1 MHz
Mono time t_M ¹⁾	15 µs, 20 µs, 50 µs, 500 µs
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC, with repeat, variable number of data bits
SSI-special bits ¹⁾	Parity, Toggel-Bit
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end	≤ 40 N axial, ≤ 60 N radial
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	typically 0.7 kg
Optional	
- Incremental signals, RS422 level	K1+, K1-, K2+, K2- with 1024 or 2048 pulses

¹⁾ programmable parameter

Subject to change

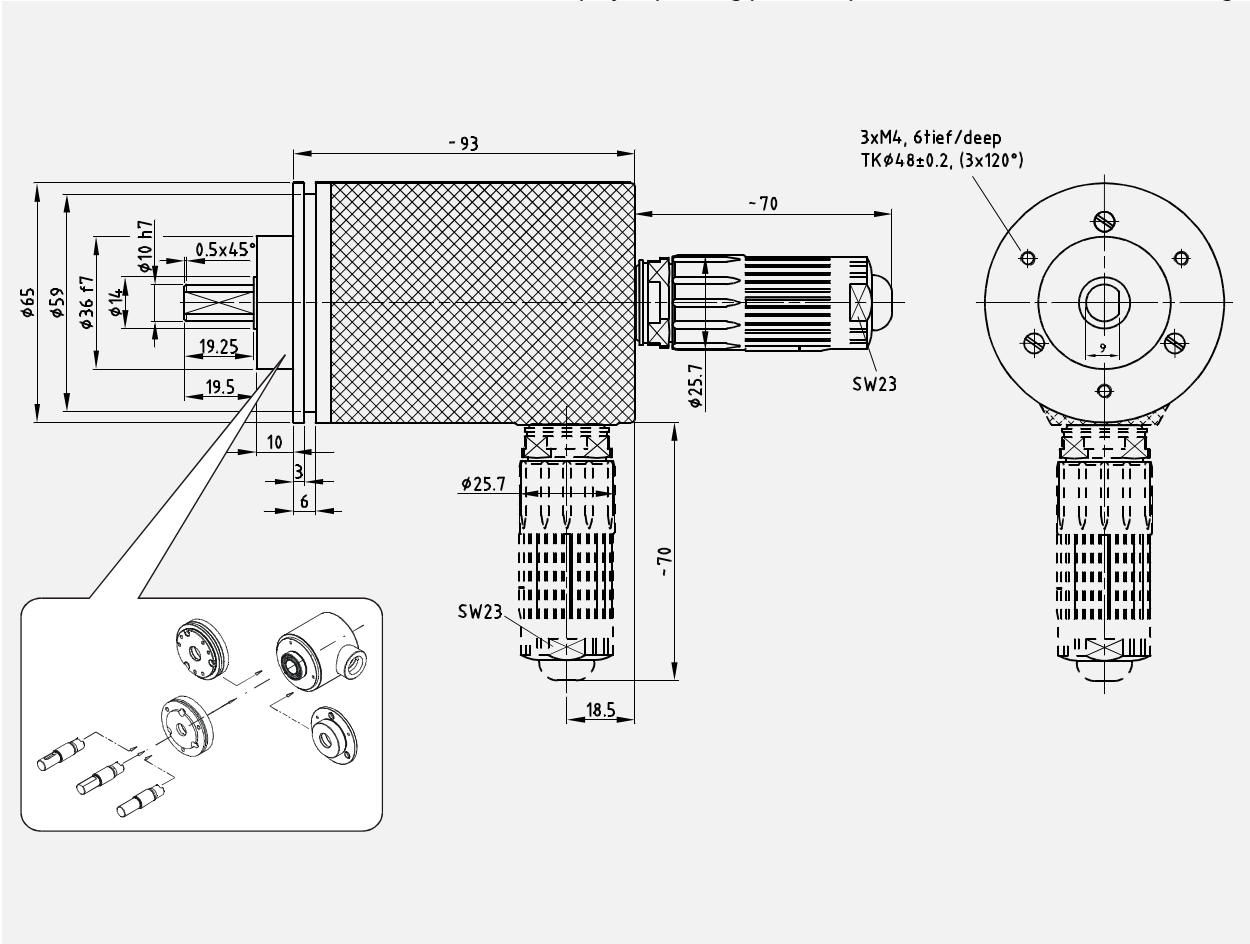
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolut-Encoder COV 65 S/M - A

COV65-A-1-GB-1
11/11 Revision 03
010102-00650301-0001



- + Analog / SSI - interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Alternative with current- or voltage output, delivery setting
- + Analog value can be adjusted as speed- or position value
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	18...27 VDC
Current consumption without load	< 180 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions ¹⁾ standard / extended	Multi-Turn: ≤ 4.096 / ≤ 256.000; Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μ s ≤ t_M ≤ 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format	Tree format
A	Analog interface
Analog voltage / Analog current	defined by factory setting
Resolution	16 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance	≥ 500 Ω
Current output ¹⁾	0...20 mA
- Load resistance	≤ 500 Ω
Preset 1 and 2	electronic adjustment
Latch	Intermediate storage of the analog data
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

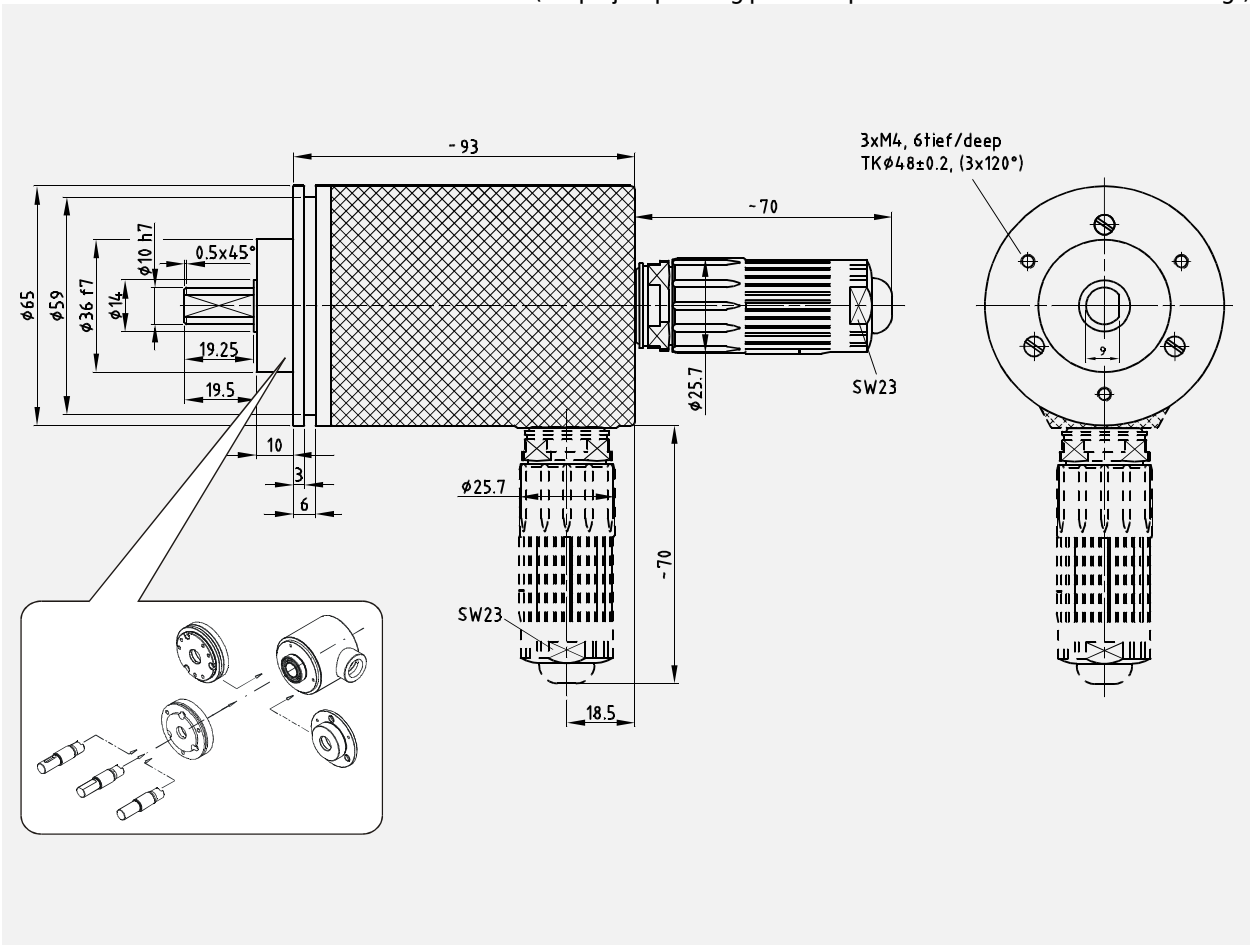
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

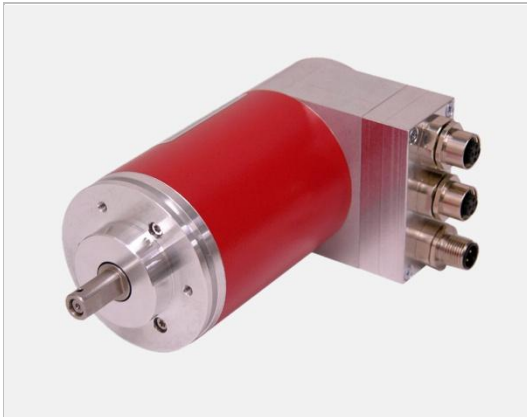
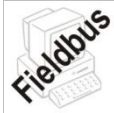
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + Ethernet - Powerlink interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11 ... 27 VDC
Current consumption without load	< 450 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
POWERLINK	IEC 61784-2, IEC 61158 and the following
- Physical Layer.....	POWERLINK 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over Ethernet, CiA DS-406
- Transmission rate.....	100 MBit/s
- Bus cycle times.....	≥ 400 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

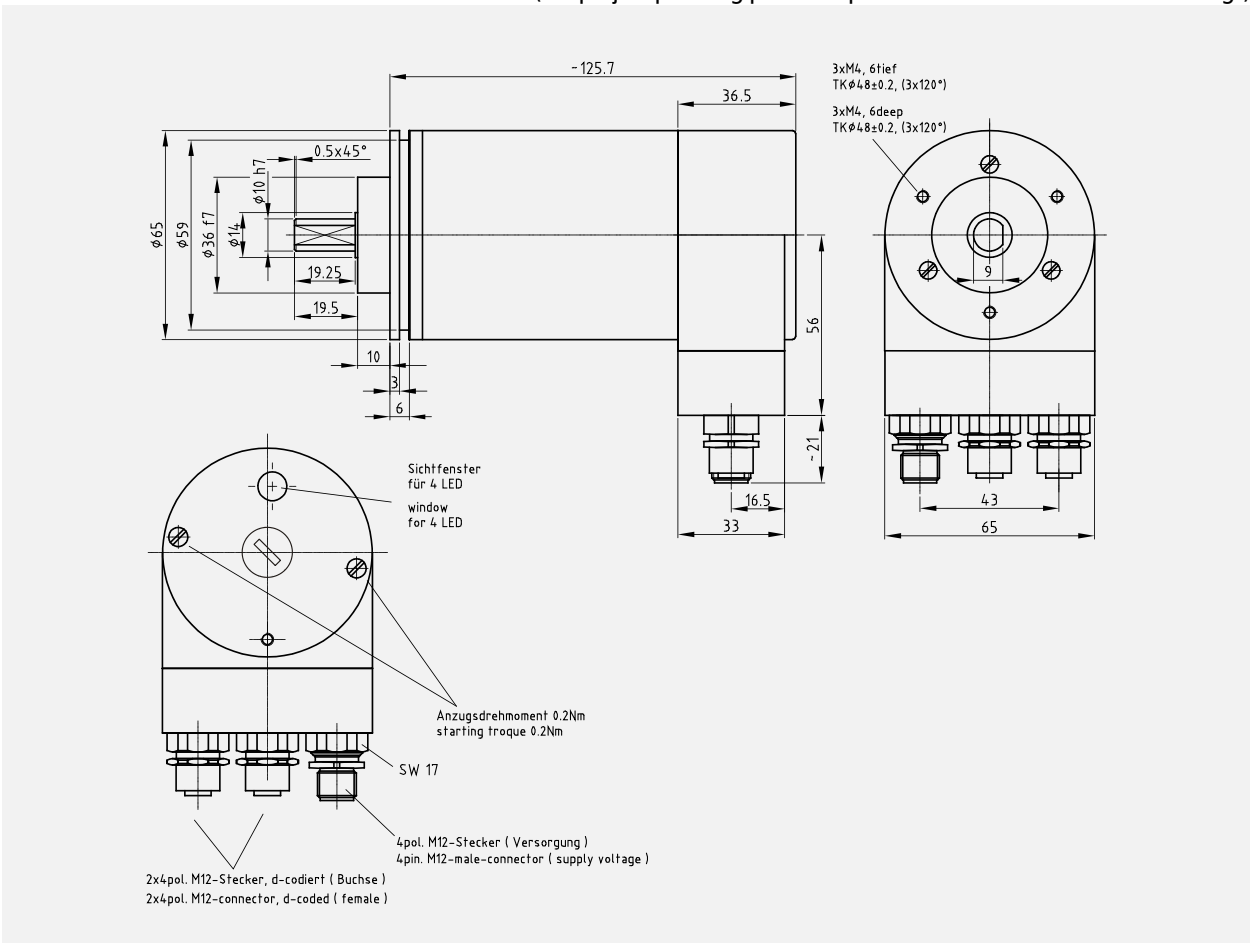
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

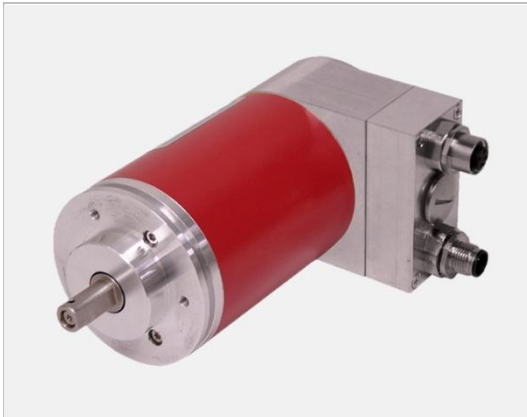
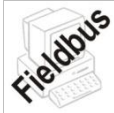
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COV 65 S/M - EIP

COV65-EIP-1-GB-1
11/11 Revision 01
010102-00650303-0001



- + EtherNet/IP interface
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherNet/IP.....	IEC 61784-1:2003 CP 2/2 Type 2, IEC 61158:2003 Type 2
- Physical Layer.....	EtherNet/IP 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	Encoder Device Profile 0x22, ODVA specification
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5e cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

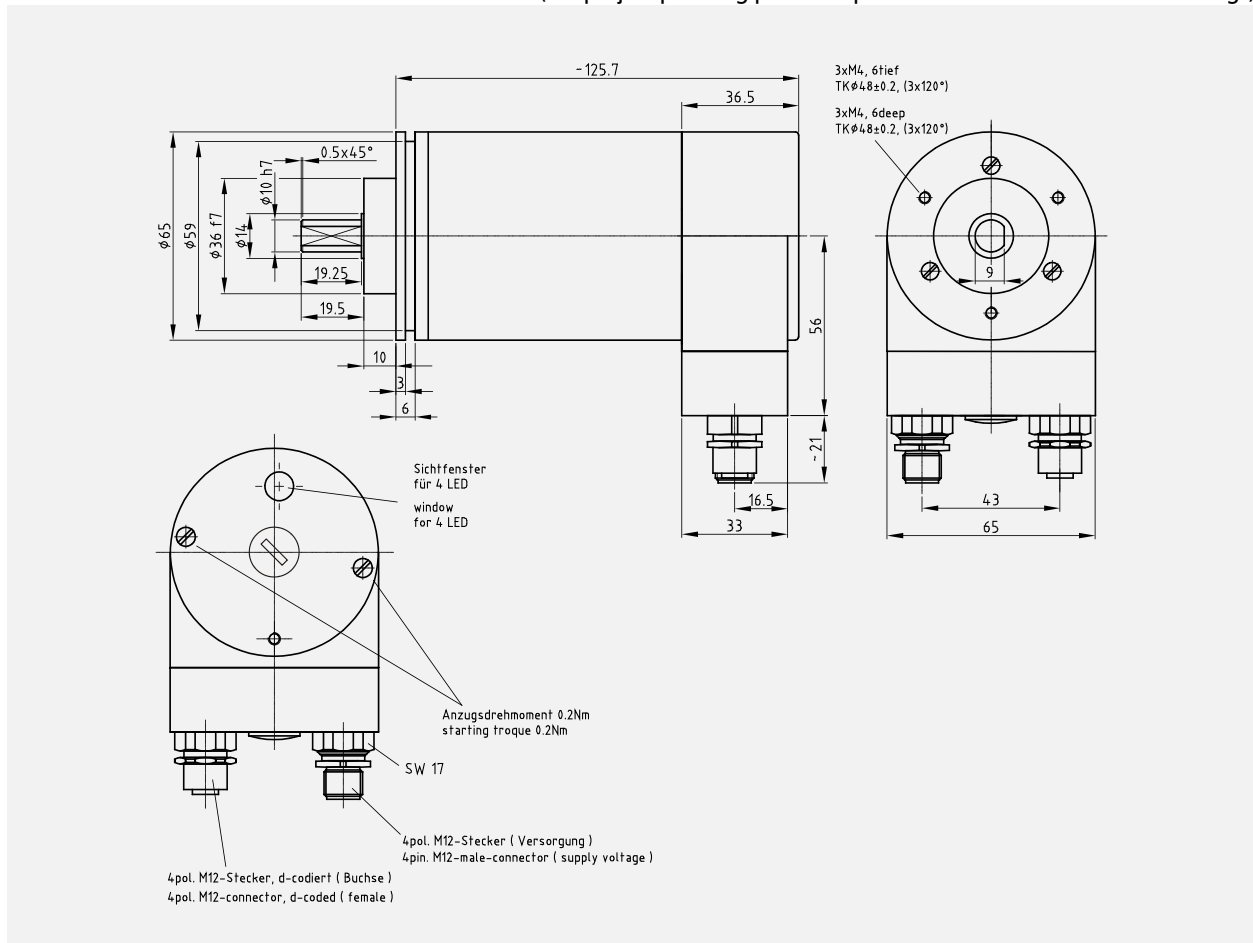
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

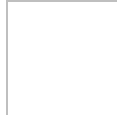
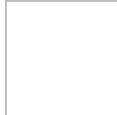
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 58 S/M - SSI

CMV58-SSI-1-GB-1
07/12 Revision 05
010102-00580101-0001



- + SSI interface
- + Type with solid shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μs ≤ t_M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format.....	Tree format
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

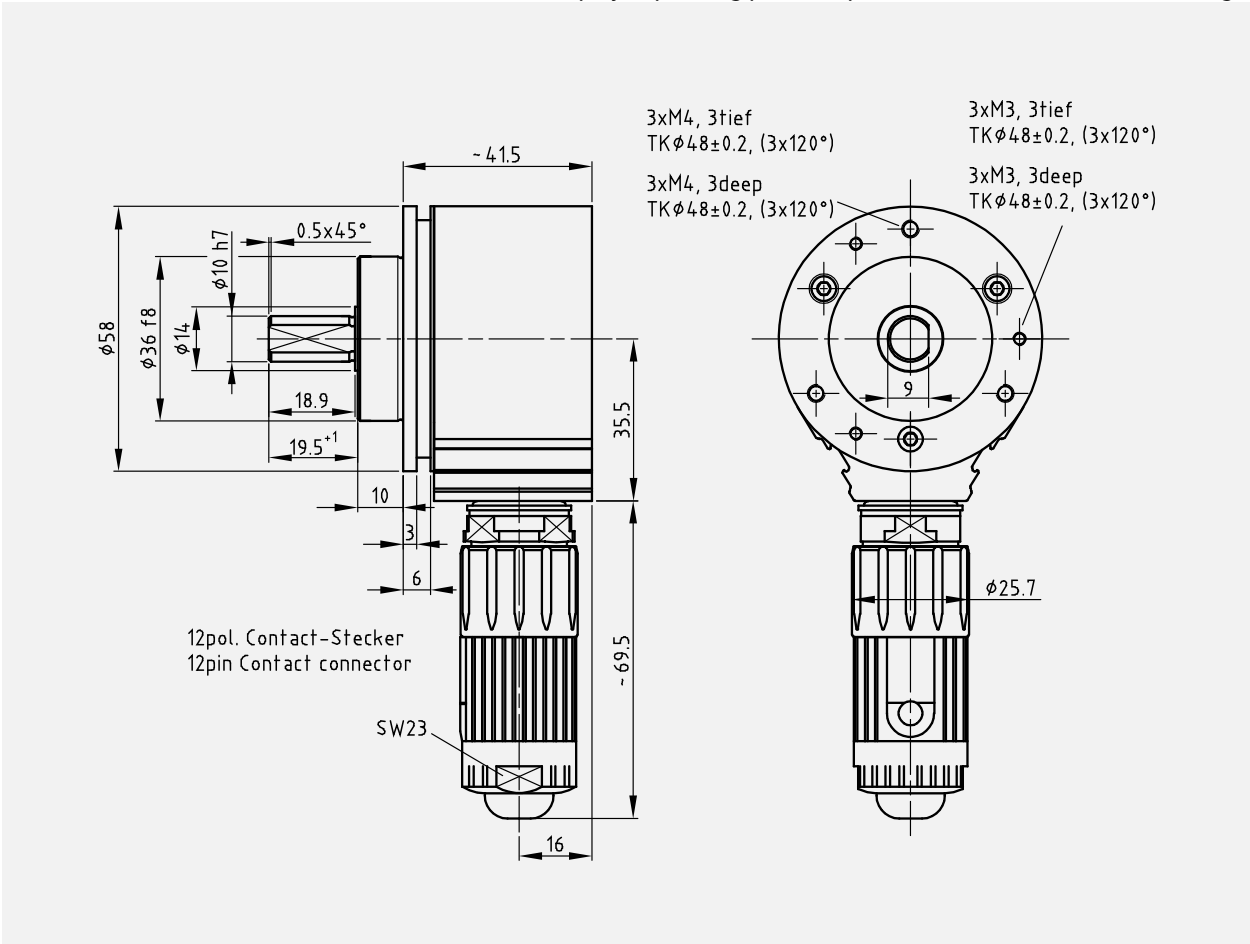
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 58 S/M - A

CMV58-A-1-GB-1
07/12 Revision 01
010102-00580101-0001



- + Analog interface
- + Type with solid shaft
- + Current- or voltage output, programmable by means of TRWinProg
- + Very compact and small construction
- + Rugged standard solution
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	12...30 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 24 Bit, Single-Turn: ≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.096
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
A.....	Analog interface, position output
Analog voltage / Analog current, selectable ¹⁾	Levels freely programmable within the limits
Resolution.....	12 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance.....	≥ 1 kΩ
Current output ¹⁾	0...24 mA
- Load resistance.....	≤ 500 Ω
Cycle time.....	500 μs
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 0.5°

¹⁾ programmable parameter

Subject to change

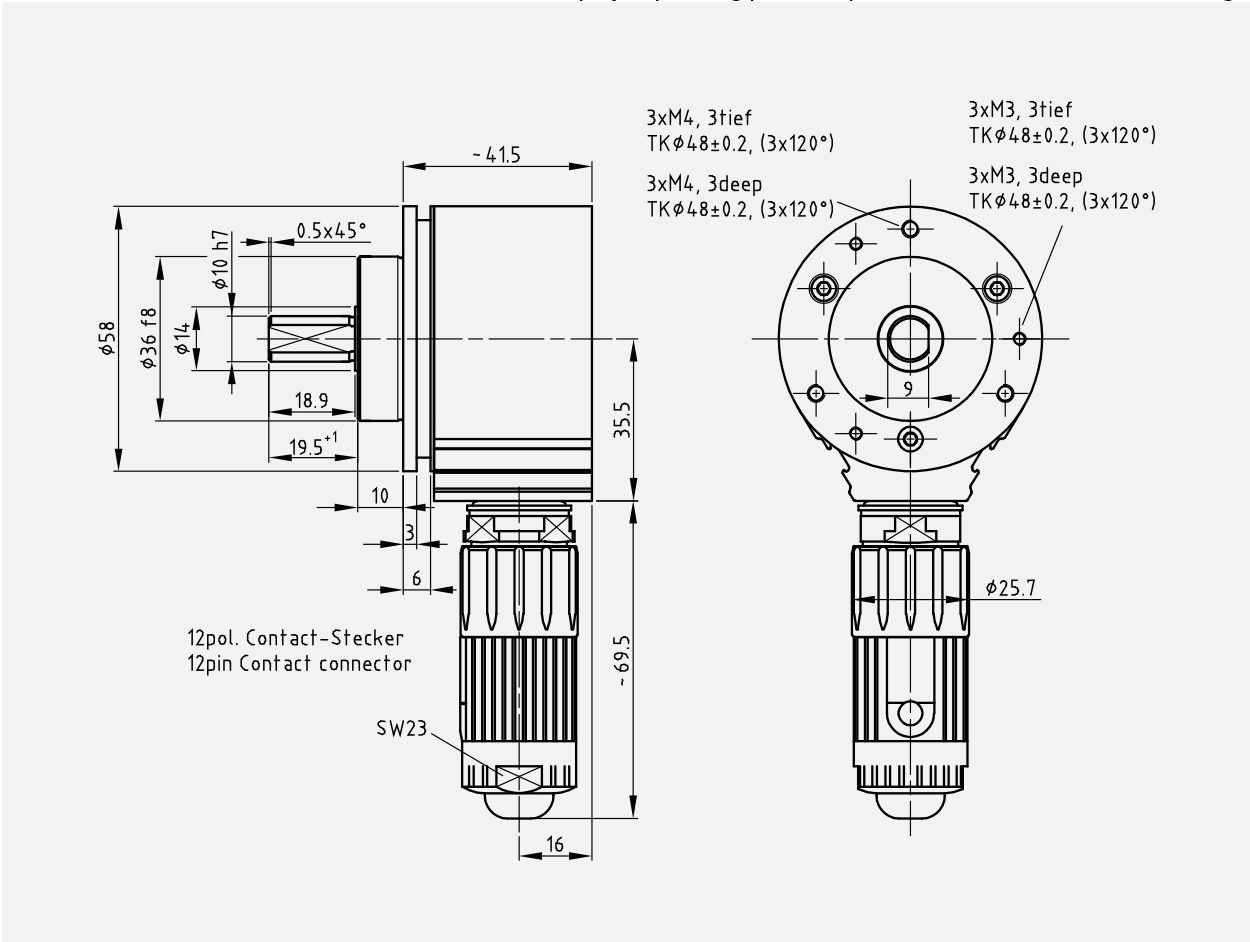
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

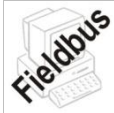
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 58 S/M - PB

CMV58-PB-1-GB-1
07/12 Revision 06
010102-00580102-0001



- + PROFIBUS-DP interface
- + Type with solid shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Profibus-DP V0.....	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray
Addressing.....	3...99, adjustable by means of rotary switches
Baud rate.....	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Velocity output, soft limit switches
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

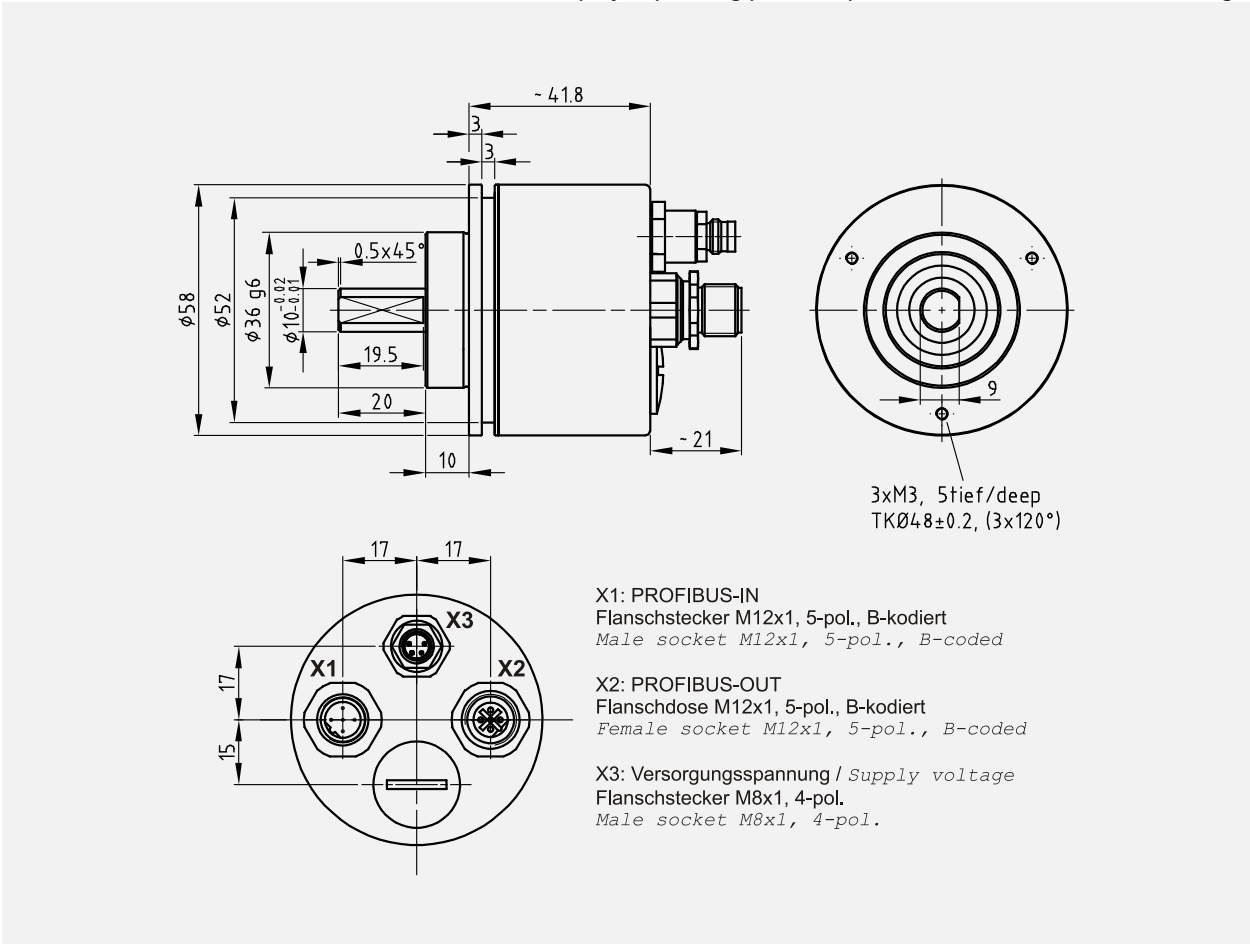
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

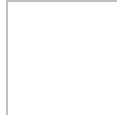
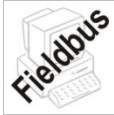
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 58 S/M - CO

CMV58-CO-1-GB-1
07/12 Revision 04
010102-00580102-0001



- + CANopen interface
- + Type with solid shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 V2.0
- Node-ID ¹⁾	1...64
- Baud rate ¹⁾	20 kbit/s, 125 kbit/s, 500 kbit/s, 1 Mbit/s
- Alternative.....	Node-ID and Baud rate adjustable by means of DIP-switches
Output code.....	Binary
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

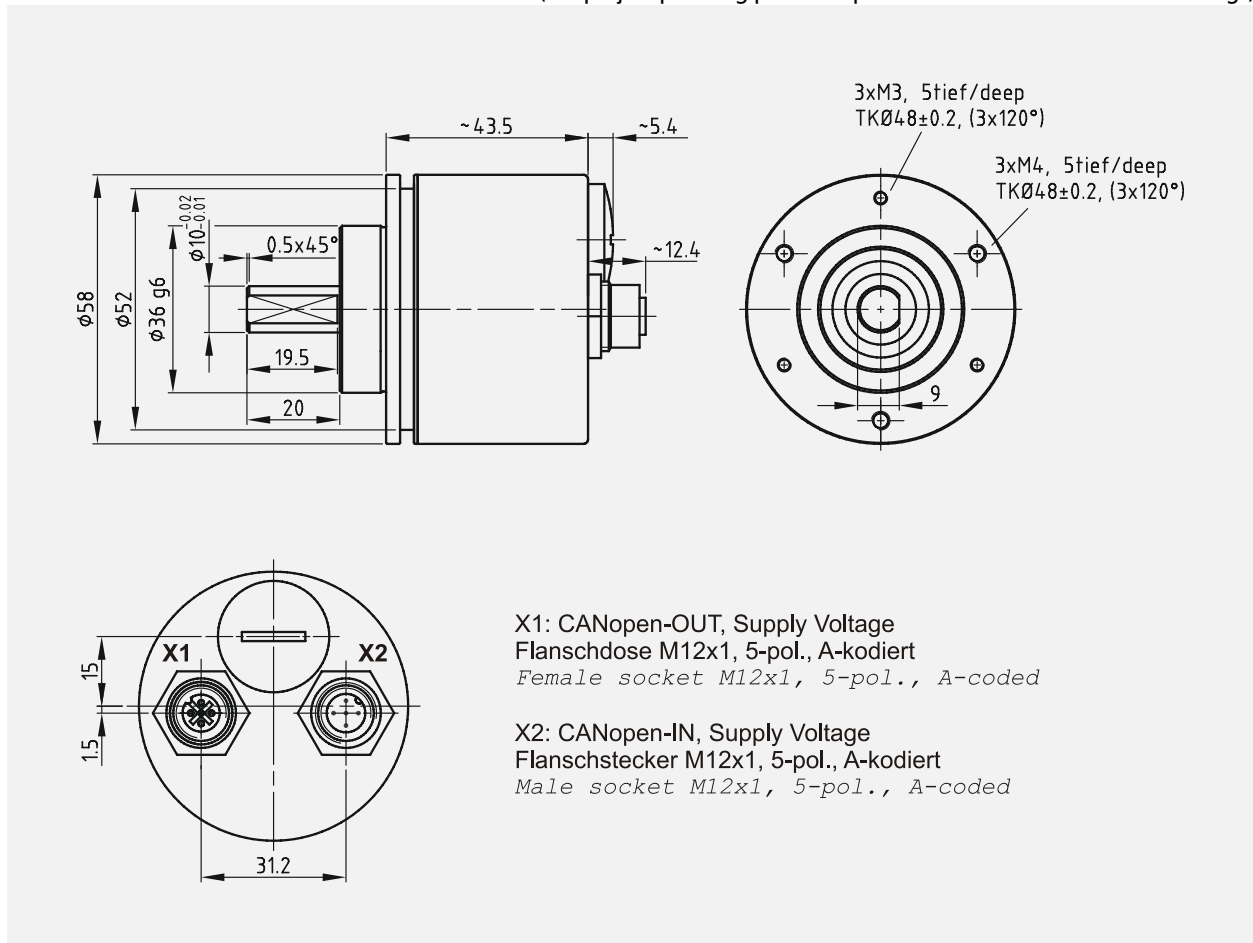
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

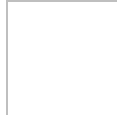
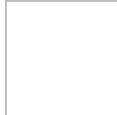
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMH 58 S/M - SSI

CMH58-SSI-1-GB-1
07/12 Revision 05
010102-00580101-0002



- + SSI interface
- + Type with hollow through shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μs ≤ t_M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format.....	Tree format
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

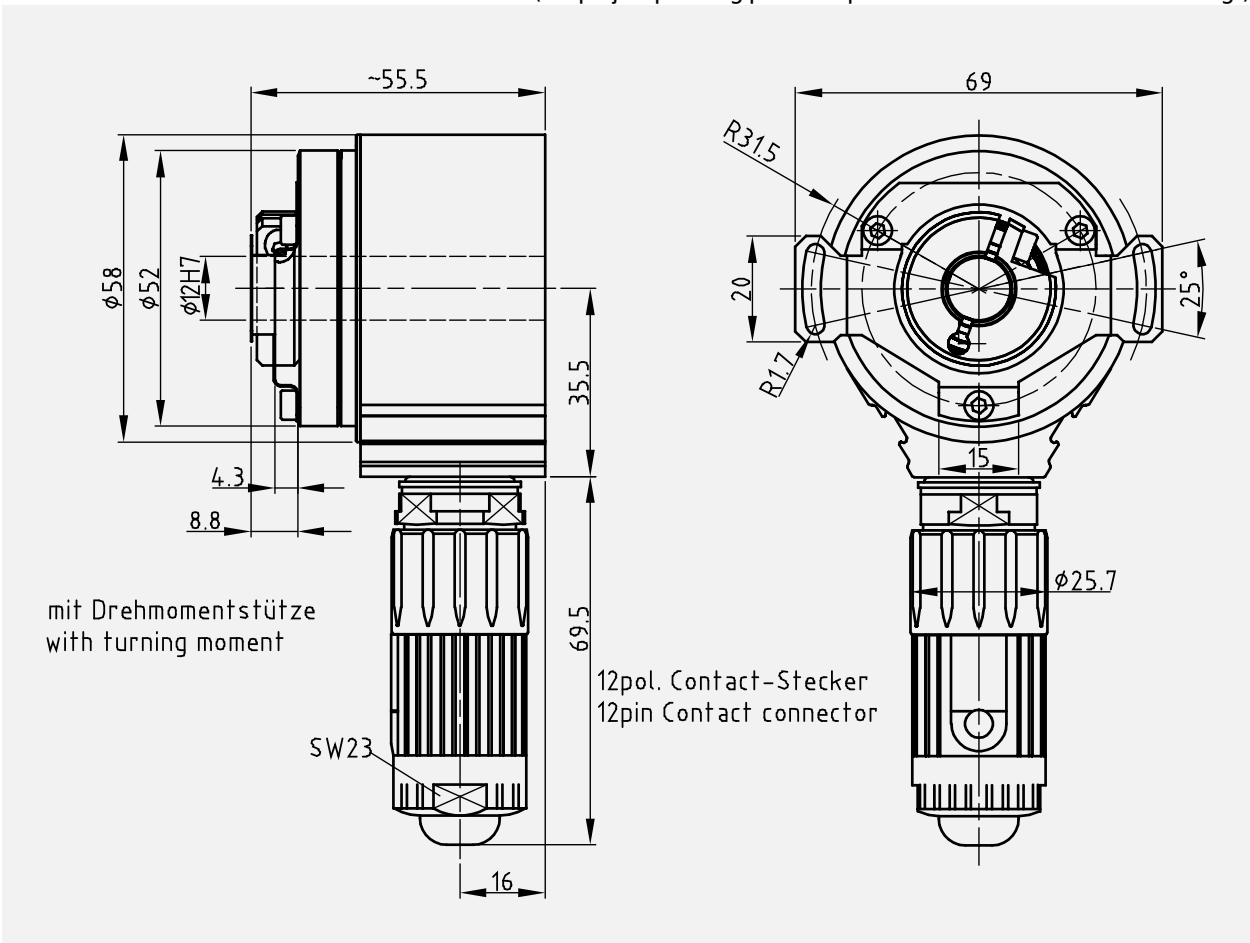
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

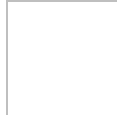
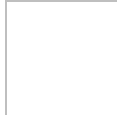
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMS 58 S/M - SSI

CMS58-SSI-1-GB-1
07/12 Revision 05
010102-00580101-0003



- + SSI interface
- + Type with blind shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μs ≤ t_M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format.....	Tree format
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

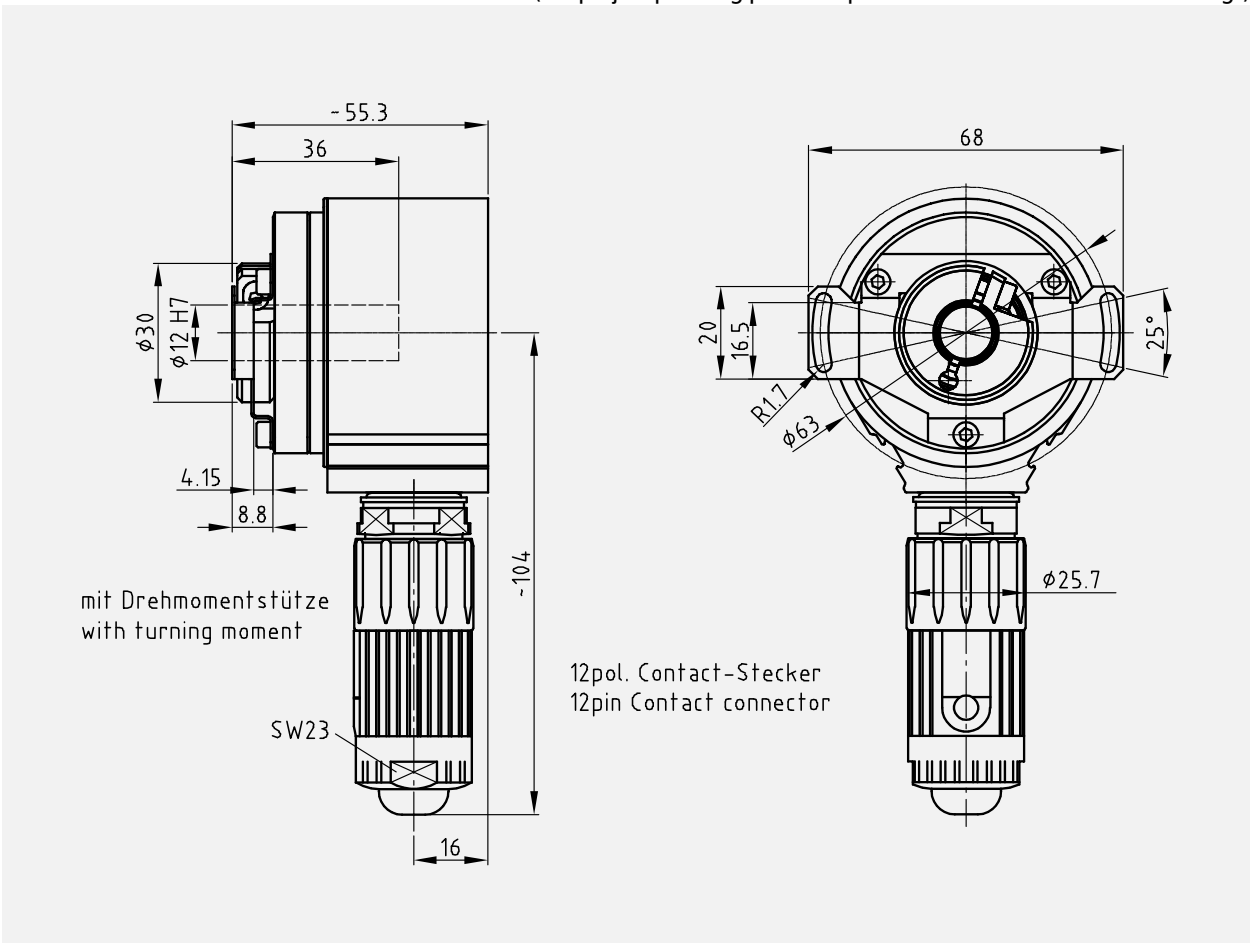
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

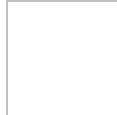
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMS 58 S/M - A

CMS58-A-1-GB-1
07/12 Revision 01
010102-00580101-0003



- + Analog interface
- + Type with blind shaft
- + Current- or voltage output, programmable by means of TRWinProg
- + Very compact and small construction
- + Rugged standard solution
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	12...30 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 24 Bit, Single-Turn: ≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.096
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
A.....	Analog interface, position output
Analog voltage / Analog current, selectable ¹⁾	Levels freely programmable within the limits
Resolution.....	12 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance.....	≥ 1 kΩ
Current output ¹⁾	0...24 mA
- Load resistance.....	≤ 500 Ω
Cycle time.....	500 μs
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 0.5°

¹⁾ programmable parameter

Subject to change

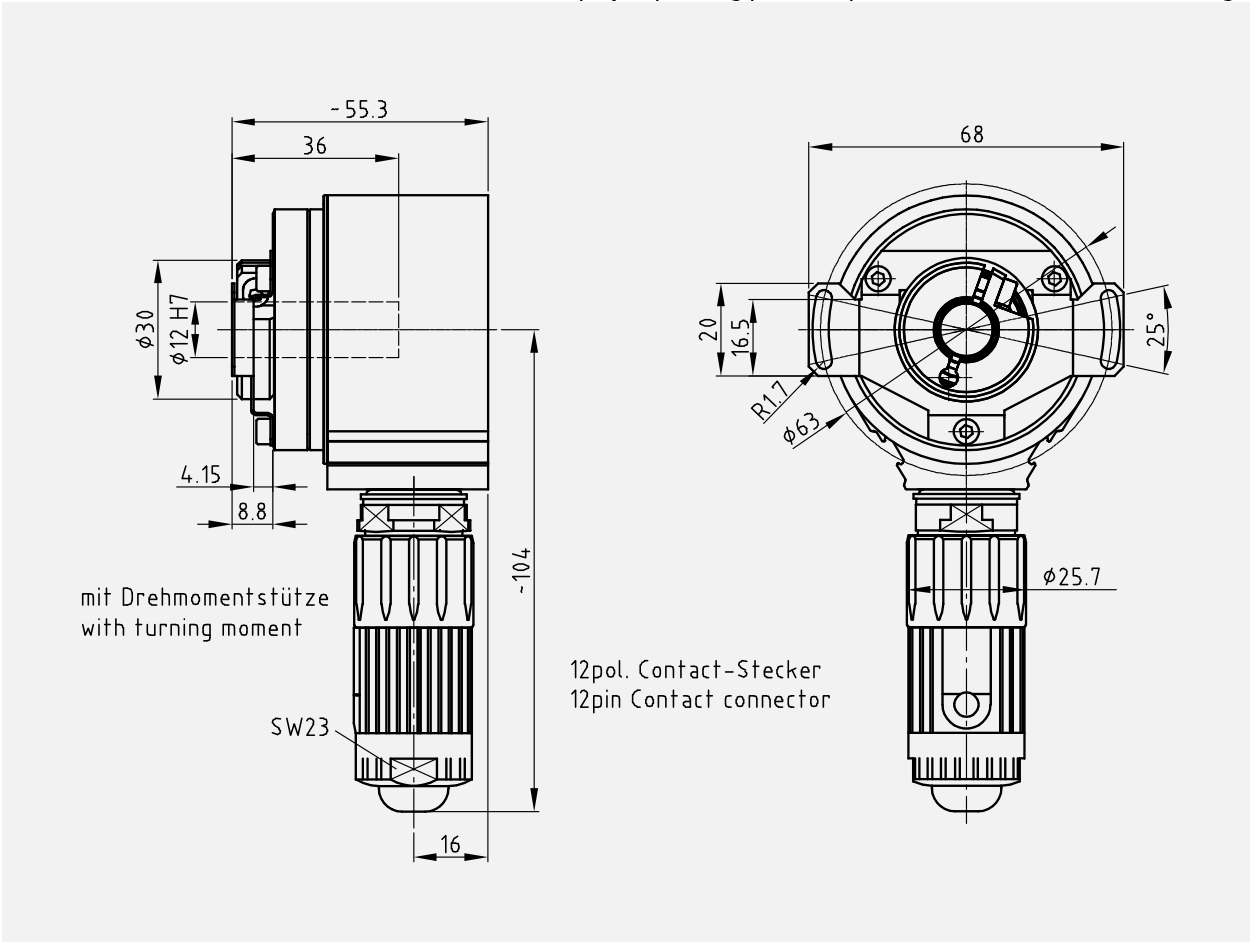
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

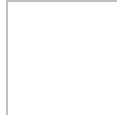
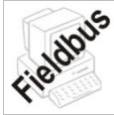
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMS 58 S/M - PB

CMS58-PB-1-GB-1
07/12 Revision 05
010102-00580102-0003



- + PROFIBUS-DP interface
- + Type with blind shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Profibus-DP V0.....	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray
Addressing.....	3...99, adjustable by means of rotary switches
Baud rate.....	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Velocity output, soft limit switches
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

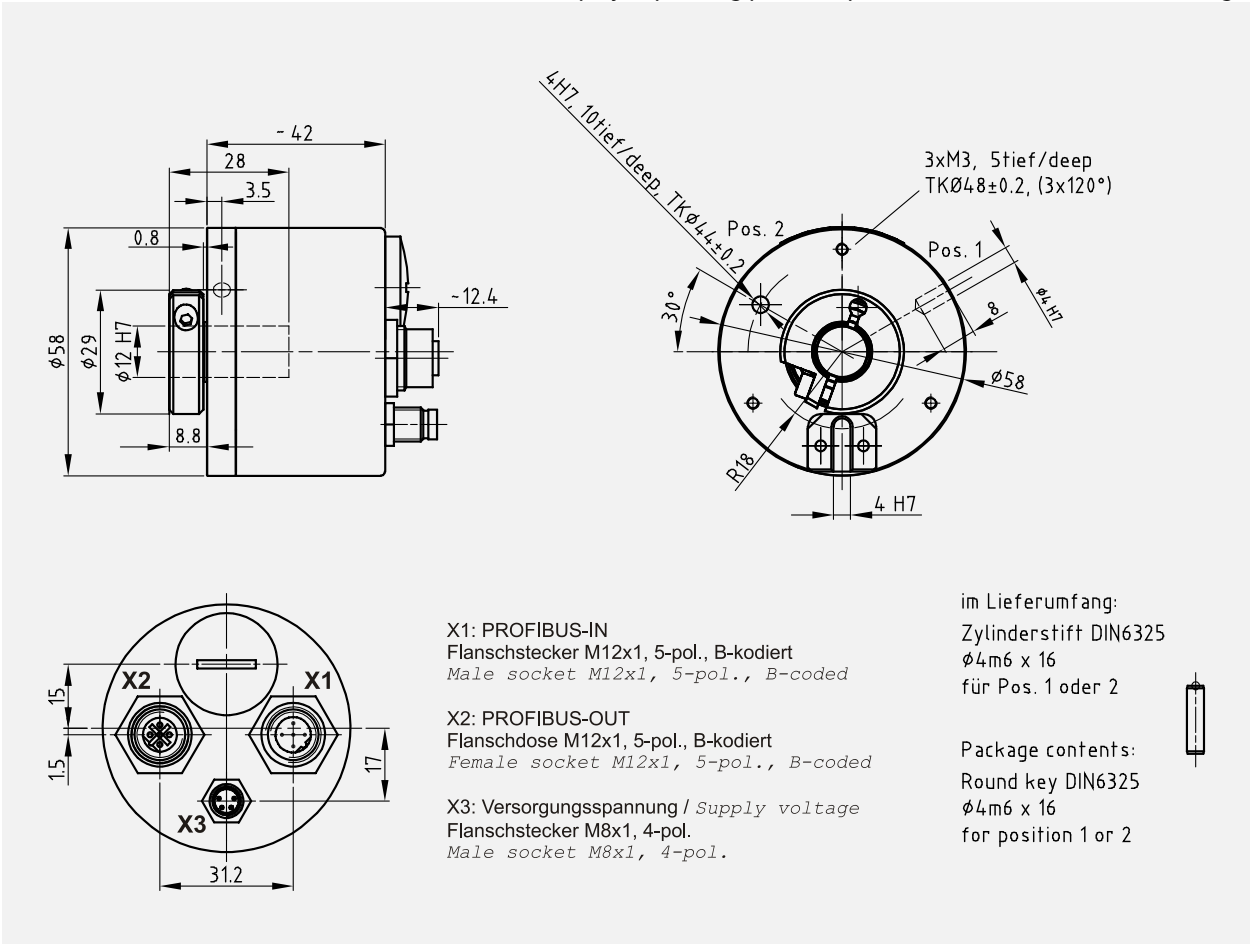
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

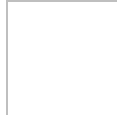
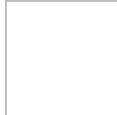
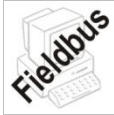
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CMS 58 S/M - CO

CMS58-CO-1-GB-1
07/12 Revision 01
010102-00580102-0003



- + CANopen interface
- + Type with blind shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
CANopen.....	EN 50325-4
Bus connection.....	ISO 11898-1, ISO 11898-2
CAN Specification 2.0 A.....	11-bit identifier
Device profile for encoders.....	CiA DS 406
- Parameter ¹⁾	Switch-over count direction, scaling function, preset adjustment
Layer Setting Services, LSS.....	CiA DS 305 V2.0
- Node-ID ¹⁾	1...64
- Baud rate ¹⁾	20 kbit/s, 125 kbit/s, 500 kbit/s, 1 Mbit/s
- Alternative.....	Node-ID and Baud rate adjustable by means of DIP-switches
Output code.....	Binary
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

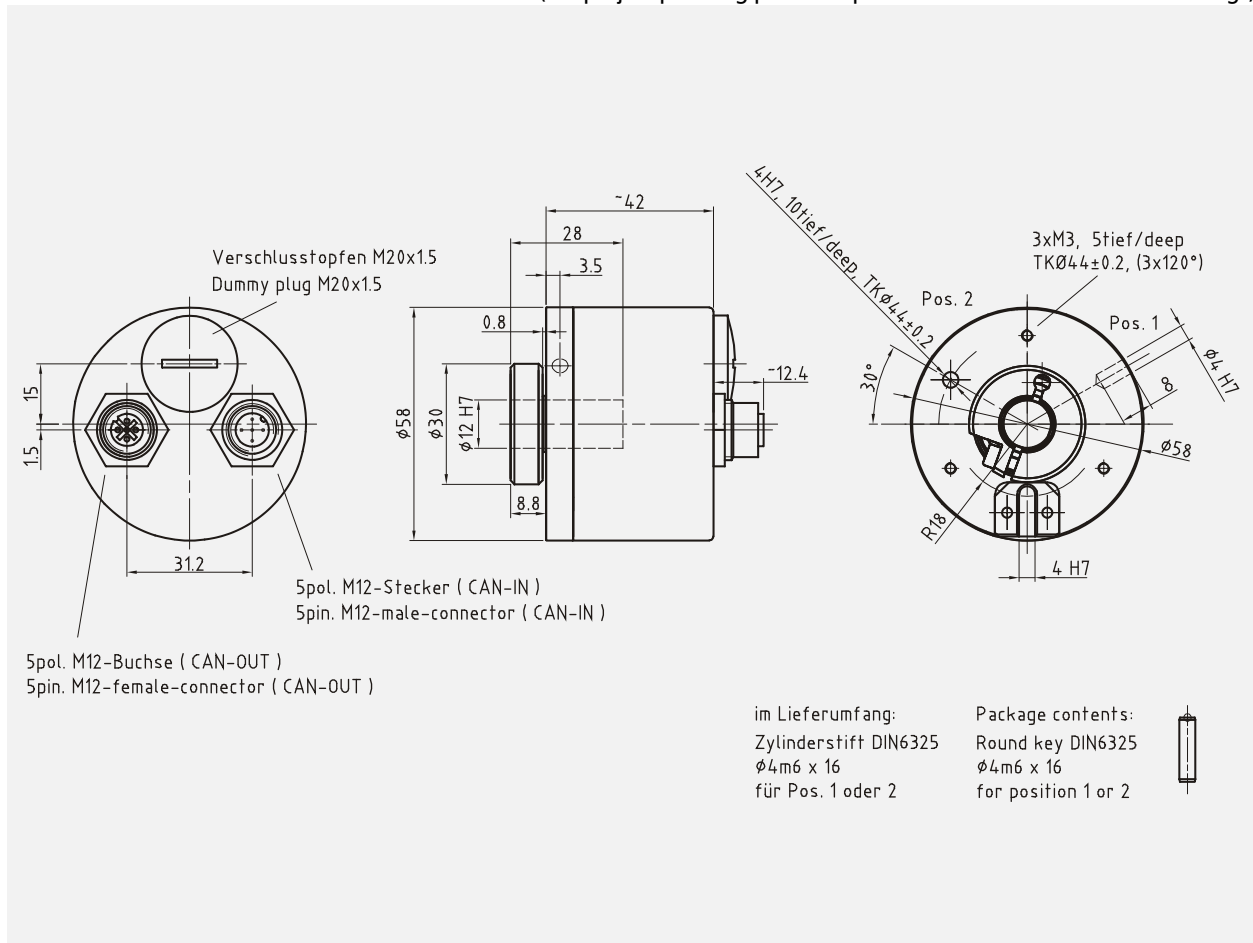
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

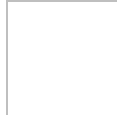
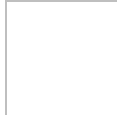
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CMK 58 S/M - SSI

CMK58-SSI-1-GB-1
07/12 Revision 01
010102-00580101-0004



- + SSI interface
- + Type with integrated claw coupling
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μs ≤ t_M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format.....	Tree format
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 6.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

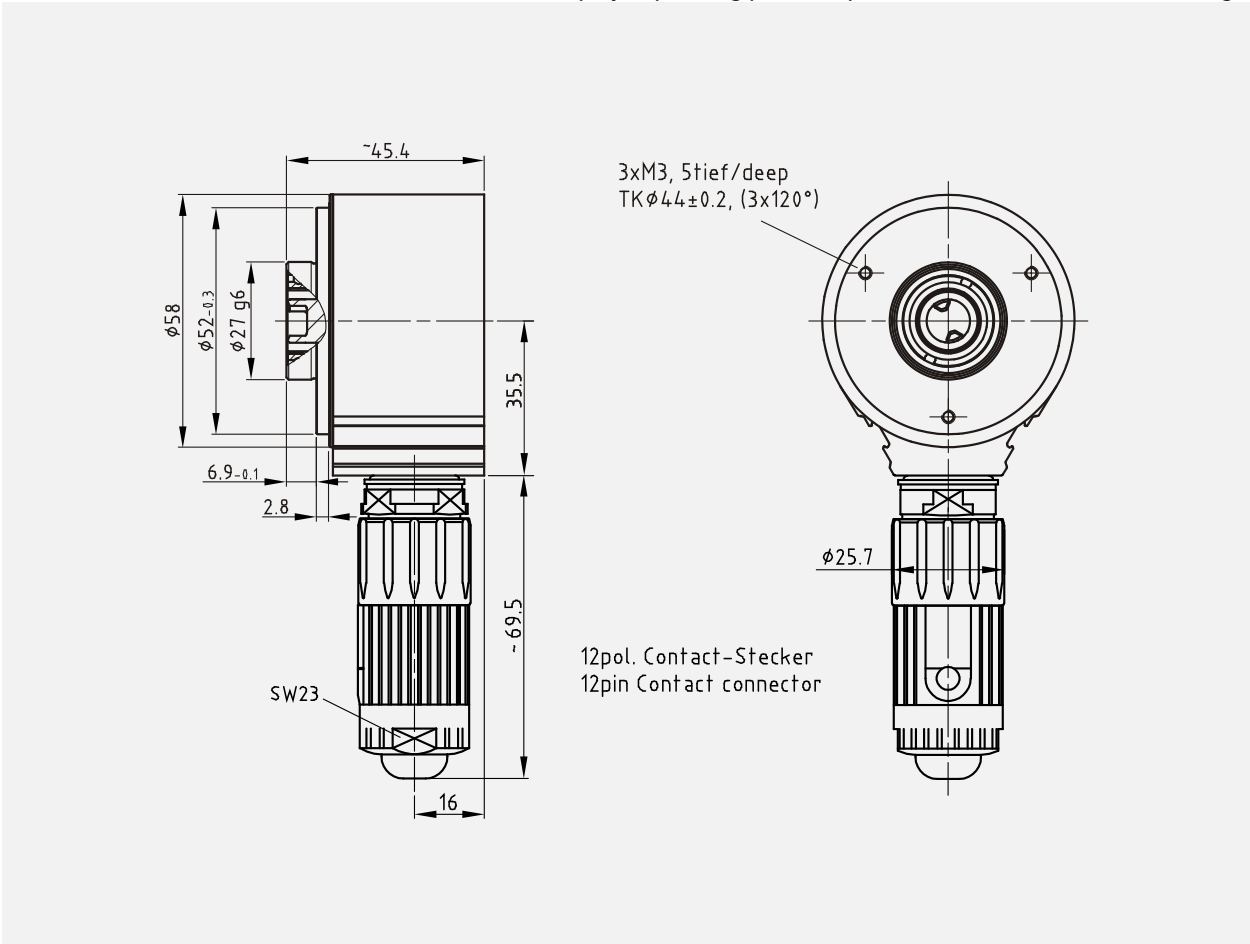
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

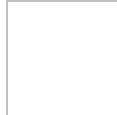
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMK 58 S/M - A

CMK58-A-1-GB-1
07/12 Revision 01
010102-00580101-0004



- + Analog interface
- + Type with integrated claw coupling
- + Current- or voltage output, programmable by means of TRWinProg
- + Very compact and small construction
- + Rugged standard solution
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	12...30 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 24 Bit, Single-Turn: ≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.096
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
A	Analog interface, position output
Analog voltage / Analog current, selectable ¹⁾	Levels freely programmable within the limits
Resolution	12 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance	≥ 1 kΩ
Current output ¹⁾	0...24 mA
- Load resistance	≤ 500 Ω
Cycle time	500 μs
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 12.000 min ⁻¹
Shaft load.....	radial coupling forces
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass.....	typically 0.3 kg
Accuracy.....	± 0.5°

¹⁾ programmable parameter

Subject to change

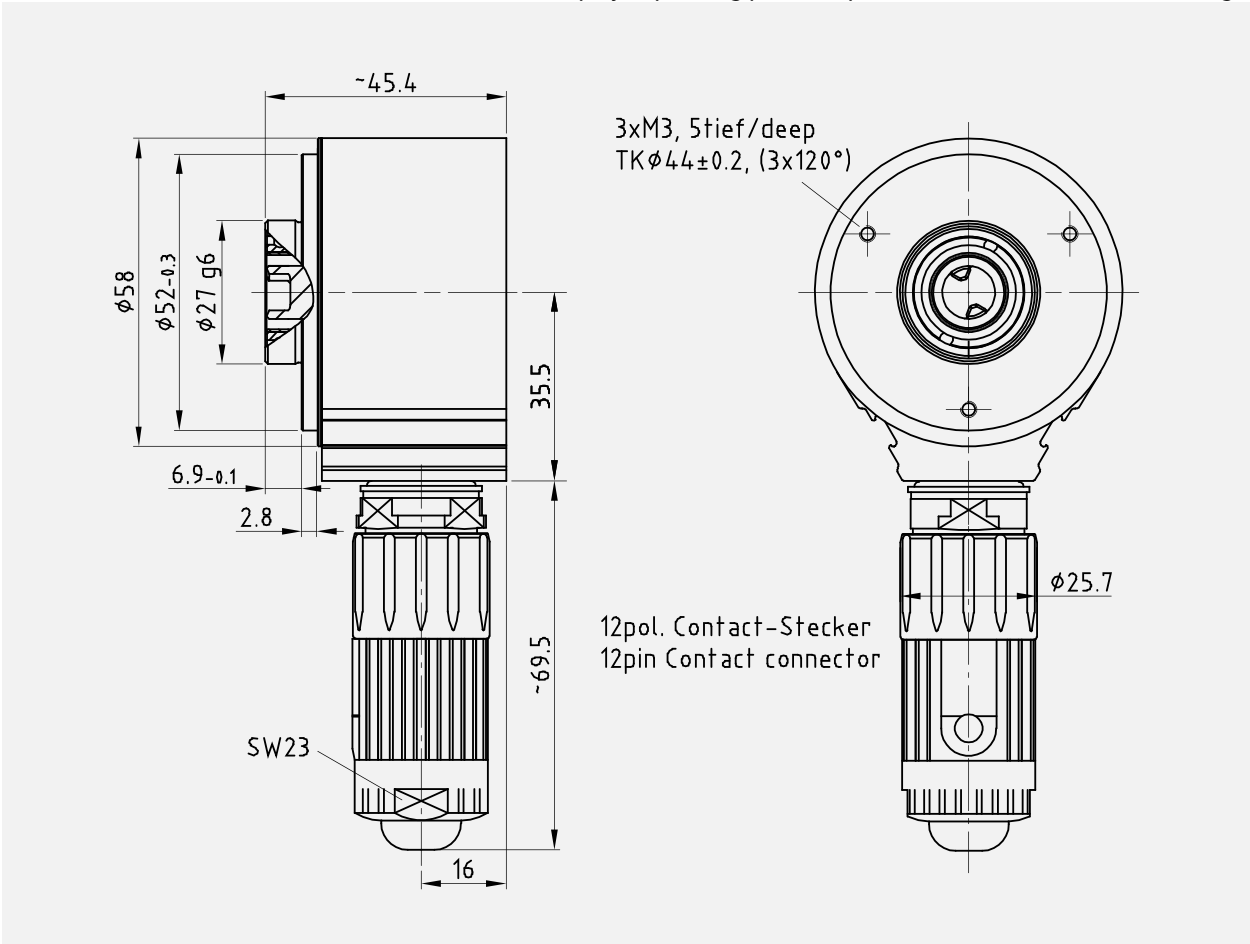
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

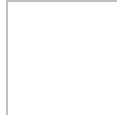
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 65 S/M - SSI

CMV65-SSI-1-GB-1
07/12 Revision 02
010102-00650101-0001



- + SSI interface
- + Type with solid shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 23 Bit, Single-Turn: ≤ 11 Bit
Number of steps/revolution ¹⁾	≤ 2.048
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μ s ≤ t_M ≤ 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
Number of data bits ¹⁾	8...32
Output format.....	Tree format
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

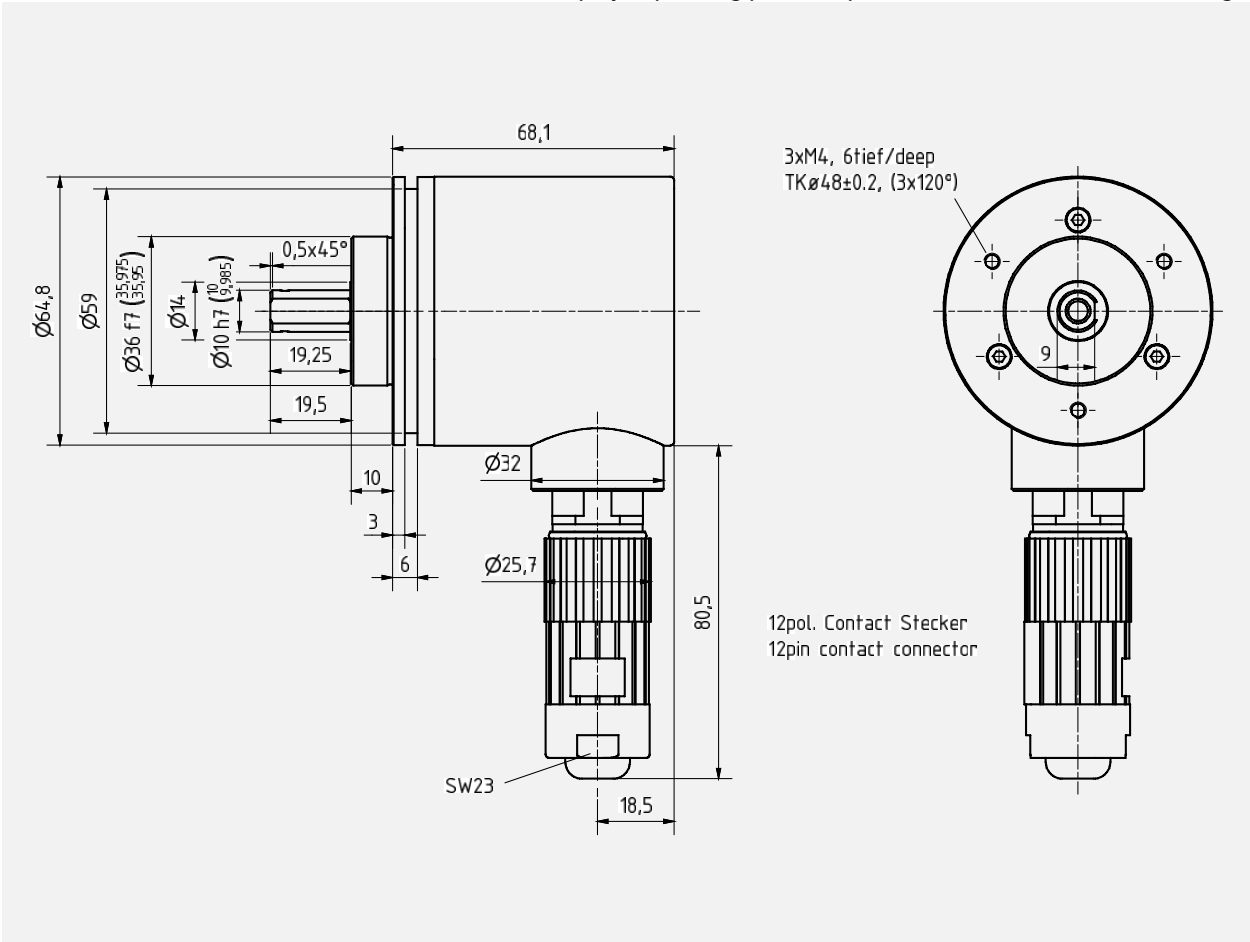
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

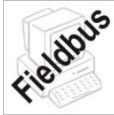
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 65 S/M - PB

CMV65-PB-1-GB-1
11/11 Revision 01
010102-00650102-0001



- + PROFIBUS-DP interface
- + Type with solid shaft
- + Very compact and small construction
- + Rugged standard solution
- + Economical alternative to the CE series
- + Short lead times
- + Further interfaces available

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 170 mA
Total resolution ¹⁾	Multi-Turn: ≤ 24 Bit, Single-Turn: ≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.096
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Limit switches, external Preset inputs
Preset 1 and 2	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 N axial, ≤ 30 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.7 kg
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

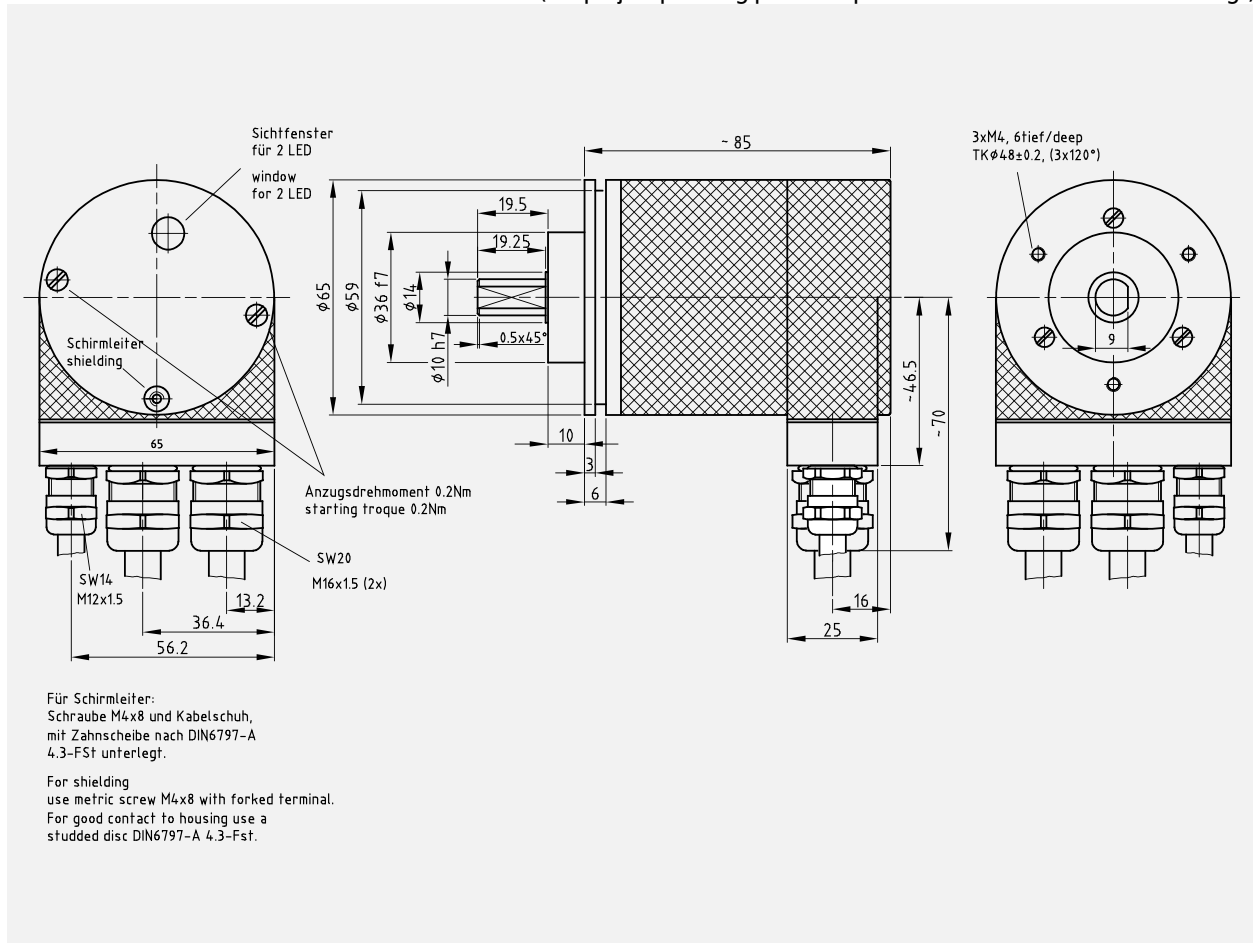
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CMV 22 S/M - SSI

CMV22-SSI-1-GB-1
12/11 Revision 02
010102-00220101-0001



- + SSI interface
- + Type with solid shaft
- + Very small construction, \varnothing 22 mm
- + Due to the physical size potentiometers can be replaced
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	7...26 VDC
Current consumption without load	< 50 mA
Total resolution ¹⁾	Multi-Turn: \leq 20 Bit, Single-Turn: \leq 12 Bit
Number of steps/revolution ¹⁾	\leq 4.096
Number of revolutions ¹⁾	Multi-Turn: \leq 256, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μ s \leq t_M \leq 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
SSI output ¹⁾	Position, Speed
Cycle time	500 μ s
F/R.....	Count direction
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	\leq 10.000 min ⁻¹
Shaft load, at the shaft end.....	\leq 10 N axial, \leq 5 N radial
Bearing life time.....	\geq 30 * 10 ⁹ revolutions at
- Speed.....	\leq 3.000 min ⁻¹
- Operating temperature	\leq 25 °C
- Shaft load, at the shaft end.....	\leq 5 N axial, \leq 2.5 N radial
Accuracy.....	\pm 1°

¹⁾ programmable parameter

Subject to change

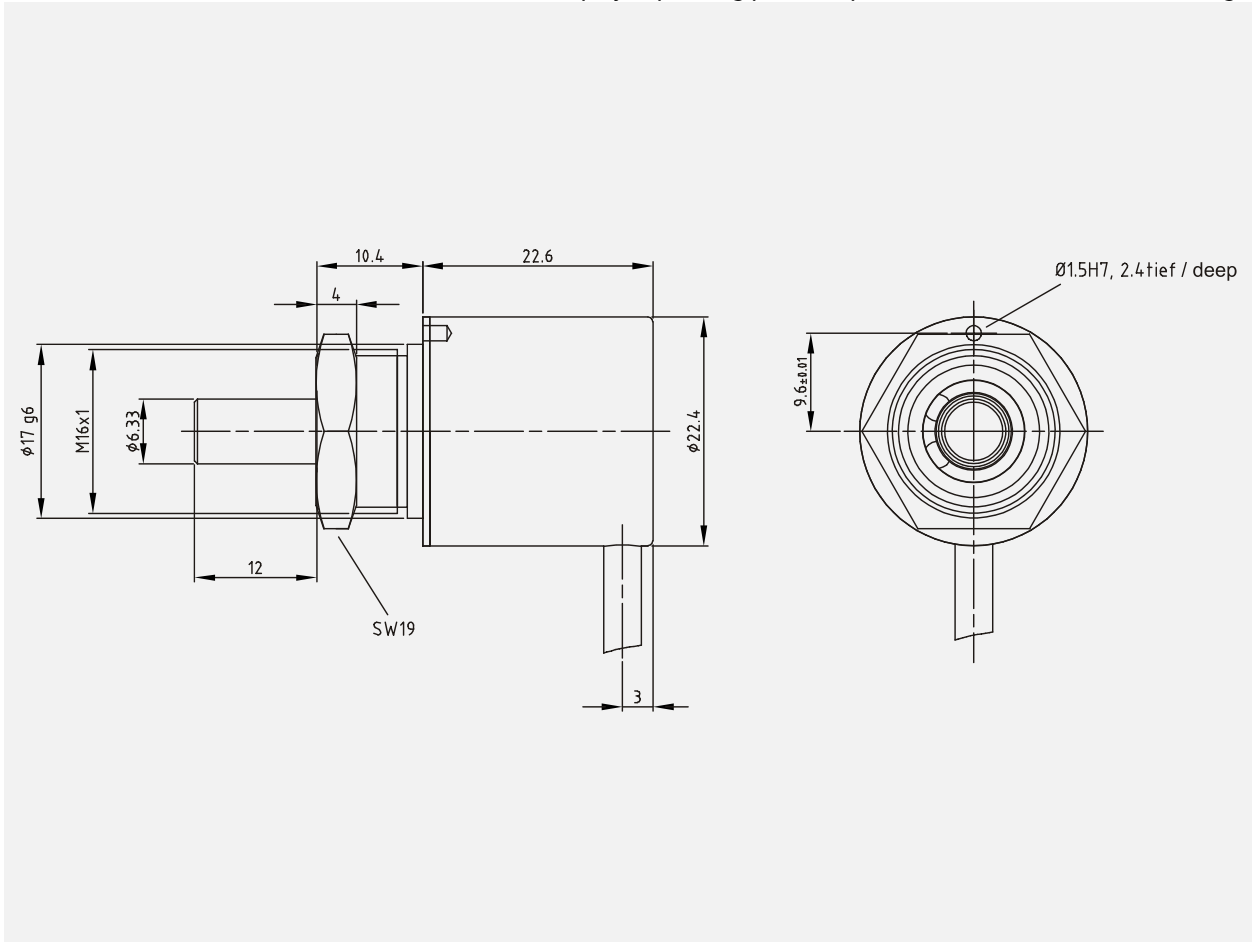
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C
Storage temperature	0 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	95 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 64

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 22 S/M - ASI

CMV22-ASI-1-GB-1
12/11 Revision 02
010102-00220101-0001



- + ASI interface
- + Type with solid shaft
- + Very small construction, Ø 22 mm
- + Due to the physical size potentiometers can be replaced
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	7...26 VDC
Current consumption without load	< 50 mA
Total resolution ¹⁾	Multi-Turn: ≤ 20 Bit, Single-Turn: ≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.096
Number of revolutions ¹⁾	Multi-Turn: ≤ 256, Single-Turn: 1
ASI.....	Asynchronous-Serial-Interface
- Protocol.....	on request
Cycle time	500 µs
F/R.....	Count direction
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 10.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 5 N radial
Bearing life time.....	≥ 30 * 10 ⁹ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 25 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 2.5 N radial
Accuracy.....	± 1°

¹⁾ programmable parameter

Subject to change

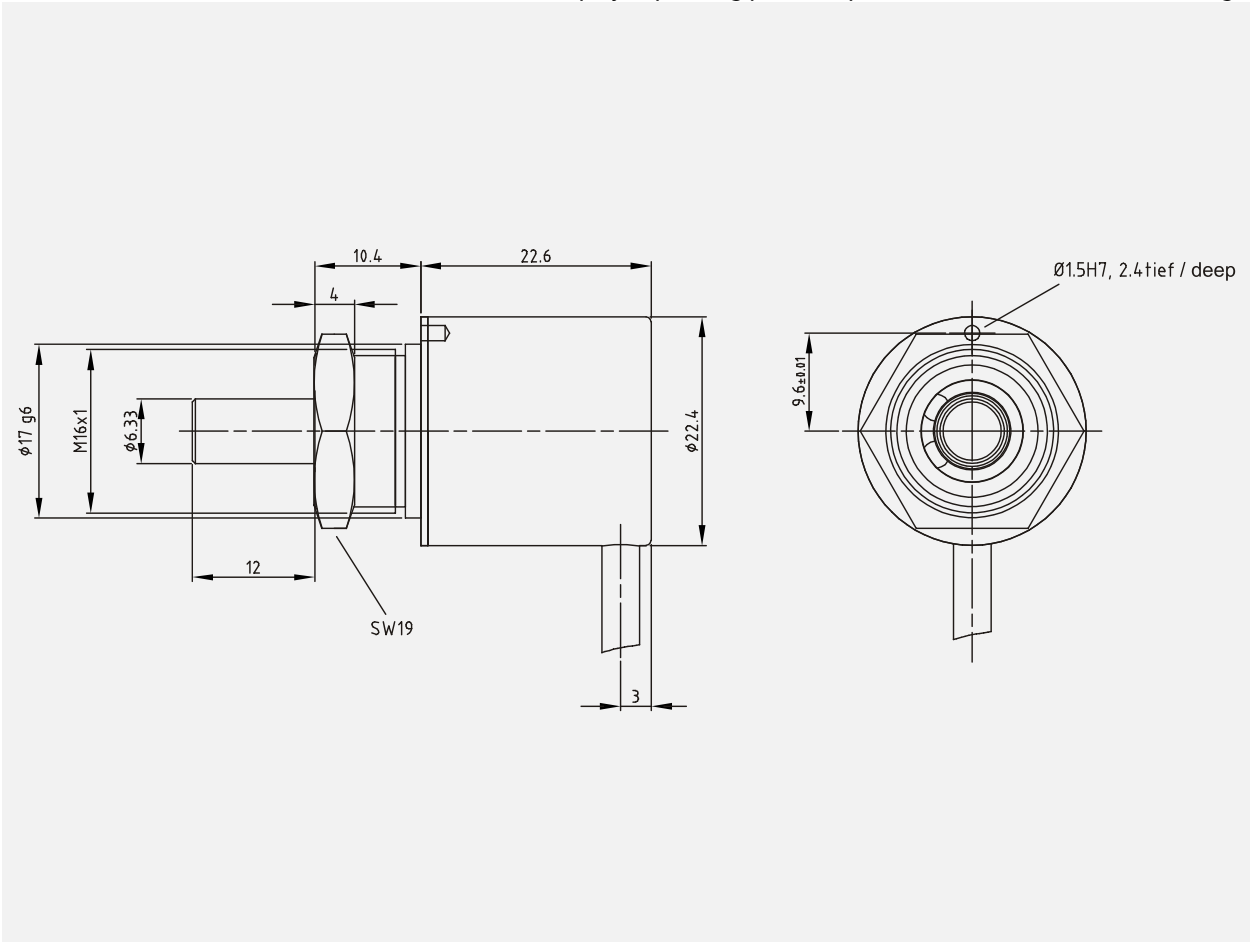
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C
Storage temperature	0 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	95 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 64

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 22 S/M - A

CMV22-A-1-GB-1
12/11 Revision 04
010102-00220101-0001



- + Analog interface
- + Type with solid shaft
- + Very small construction, \varnothing 22 mm
- + Due to the physical size potentiometers can be replaced
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	14...30 VDC
Current consumption without load	< 50 mA
Total resolution ¹⁾	Multi-Turn: \leq 20 Bit, Single-Turn: \leq 12 Bit
Number of steps/revolution ¹⁾	\leq 4.096
Number of revolutions ¹⁾	Multi-Turn: \leq 256, Single-Turn: 1
A	15 Bit - Analog interface
Voltage output	0 V...+10 V
- Load resistance	\geq 15 k Ω
Current output	0 mA...24 mA
- Load resistance	< 500 Ω
Cable length, dependent on electric shielding	
- Voltage output.....	\leq 10 m
Cycle time	500 μ s
External input ¹⁾	Count direction or Preset
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	\leq 10.000 min ⁻¹
Shaft load, at the shaft end.....	\leq 10 N axial, \leq 5 N radial
Bearing life time.....	\geq 30 * 10 ⁹ revolutions at
- Speed	\leq 3.000 min ⁻¹
- Operating temperature	\leq 25 °C
- Shaft load, at the shaft end.....	\leq 5 N axial, \leq 2.5 N radial
Accuracy.....	\pm 1°

¹⁾ programmable parameter

Subject to change

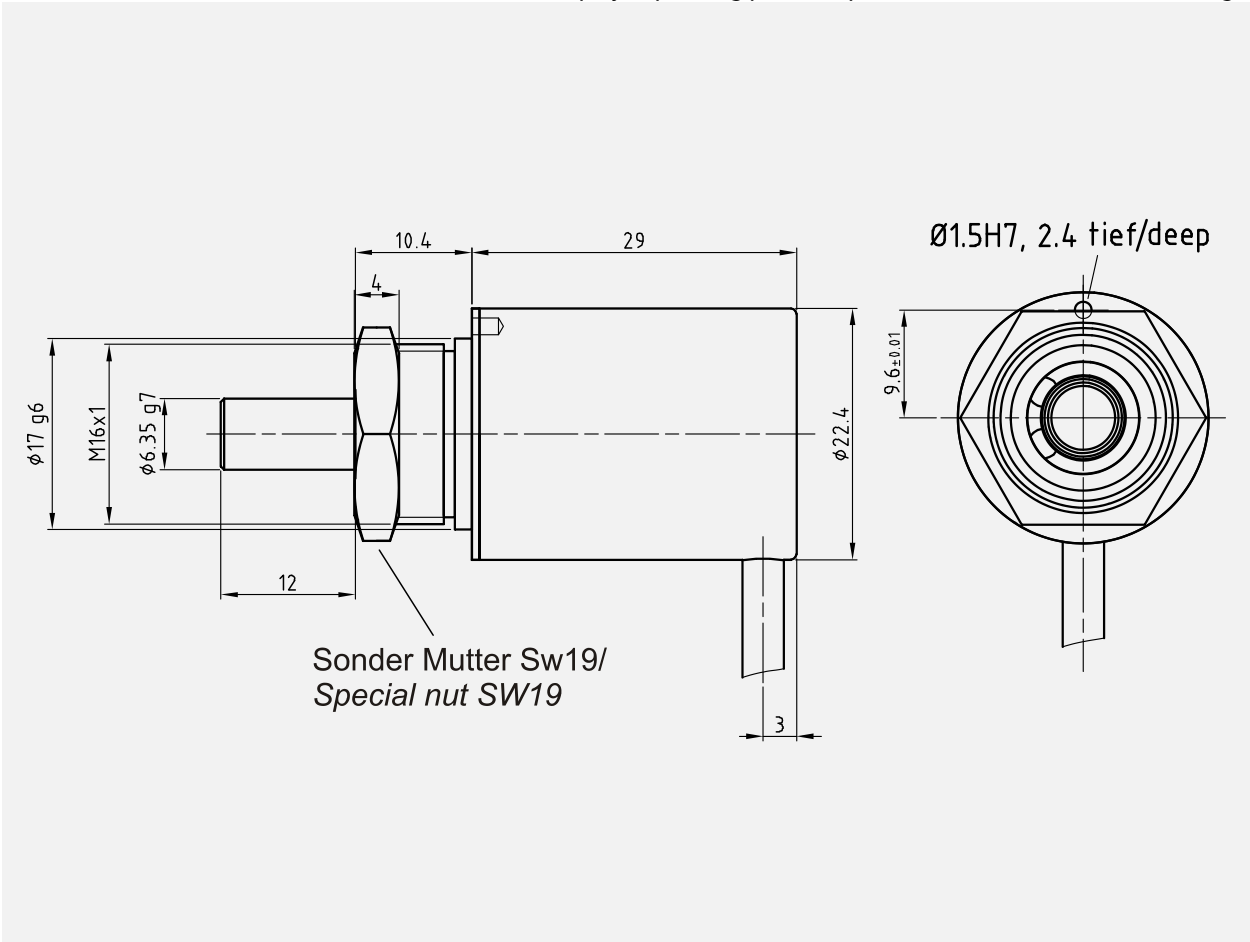
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C
Storage temperature	0 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	95 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 64

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 36 S - A

CMV36-A-1-GB-1
11/11 Revision 01
010102-00360101-0101



- + Analog interface
- + Type with solid shaft, \varnothing 6 mm
- + Very compact and small construction
- + Further interfaces available

Characteristics

Supply voltage.....	12...30 VDC
Current consumption without load	< 150 mA
Total resolution ¹⁾	≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.096
Number of revolutions	1
A	Analog interface, position output
Analog voltage / Analog current, selectable ¹⁾	Levels freely programmable within the limits
Resolution	12 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance	≥ 1 k Ω
Current output ¹⁾	0 mA...24 mA
- Load resistance	≤ 500 Ω
Cycle time	500 μ s
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < +2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 axial, ≤ 10N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	typically 0.15 kg
Accuracy.....	± 0,5°

¹⁾ programmable parameter

Subject to change

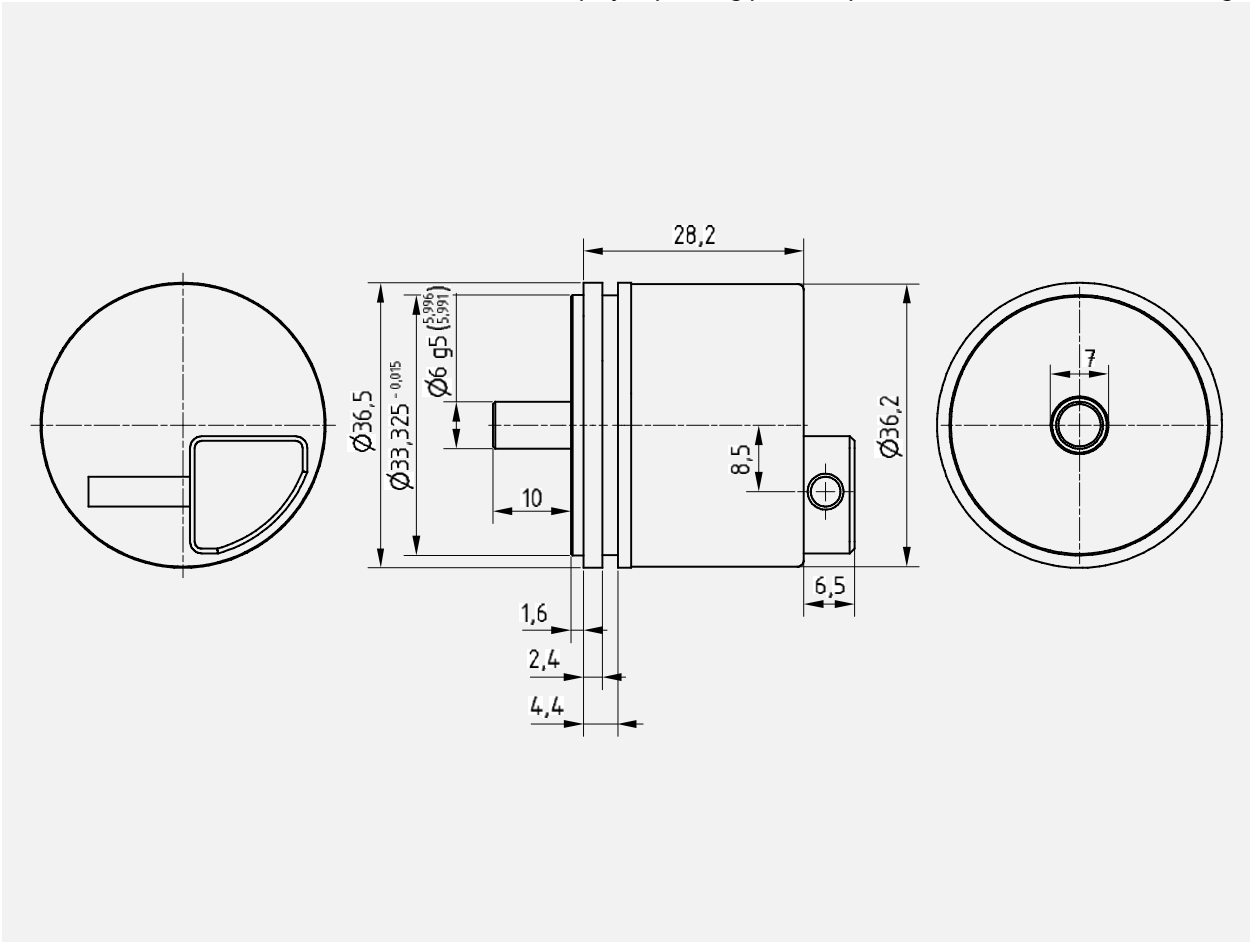
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 36 S - SSI

CMV36S-SSI-1-GB-1
04/12 Revision 00
010102-00360101-0101



- + SSI interface
- + Type with solid shaft
- + Encapsulated electronics
- + Protection class up to IP 69K
- + Small construction, Ø 36 mm
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC, optional 5 VDC \pm 10 %
Current consumption without load.....	< 40 mA
Total resolution ¹⁾	up to \leq 13 bit
Possible number of steps/revolution ¹⁾	\leq 4.092
- Binary.....	32, 64, 128, 256, 512, 1.024, 2.048, 4.096, 8.192
- Decimal.....	40, 80, 100, 160, 200, 320, 400, 500, 800, 1.000, 1.600, 2.000
Number of revolutions	1
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-485, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	Typically 20 μ s
Number of data bits ¹⁾	12...31 bit
Output code ¹⁾	Binary, Gray
SSI output ¹⁾	Position, Speed
Cycle time	1 ms
Mechanically permissible speed.....	\leq 6.000 min ⁻¹
Shaft load, at the shaft end.....	\leq 5 N axial, \leq 10 N radial
Bearing life time.....	\geq 3.9 * 10 ⁹ revolutions at
- Speed.....	\leq 3.000 min ⁻¹
- Operating temperature	\leq 60 °C
- Shaft load, at the shaft end.....	\leq 5 N axial, \leq 10 N radial
Permissible angular acceleration.....	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.15 kg
Accuracy.....	\pm 1.4°

¹⁾ factory settings

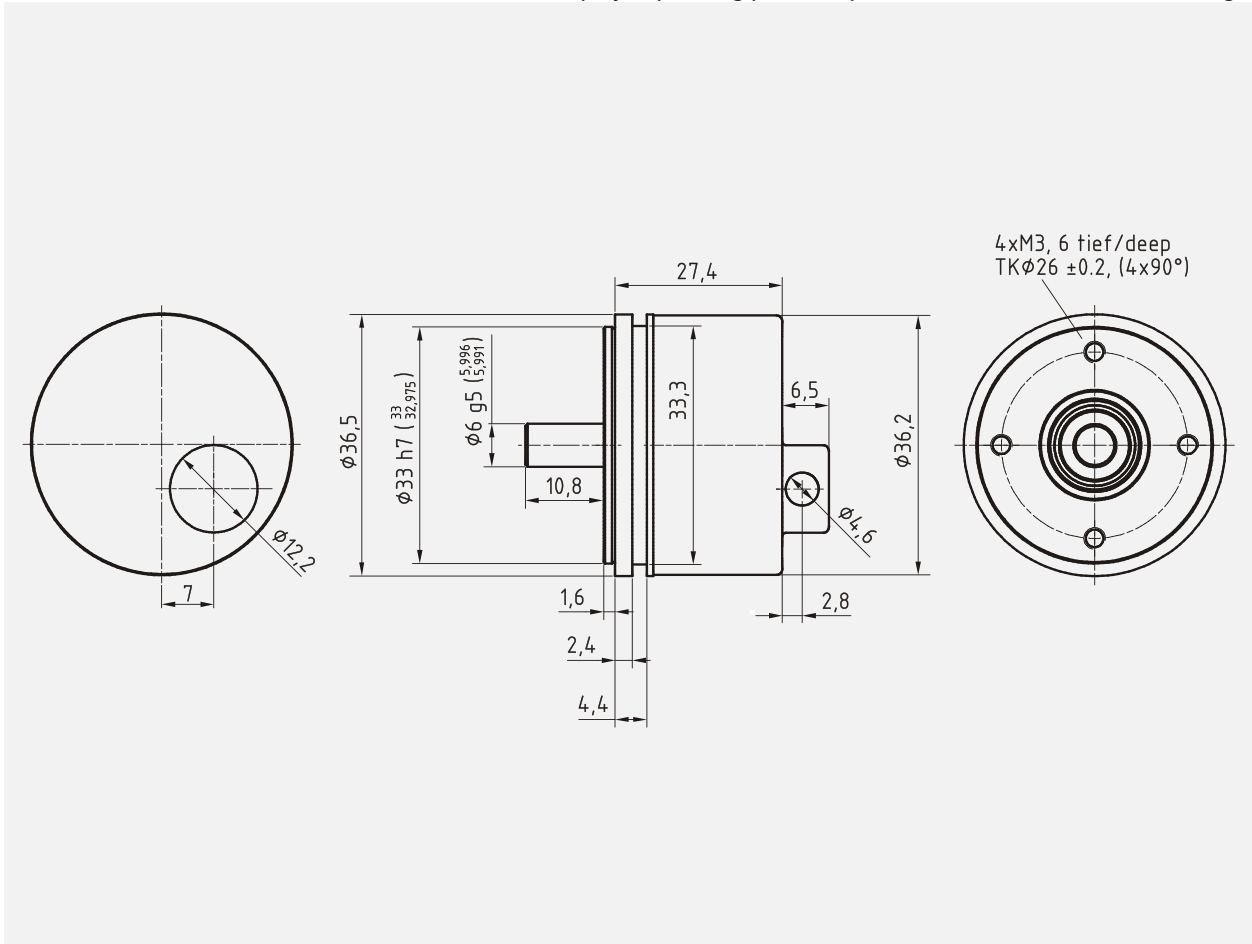
Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	-40 °C...+70 °C
Storage temperature	-40 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %
Protection class, DIN EN 60529: 1991	IP 65
- Option DIN 40050-9: 1993-05	IP 69K

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 36 M - SSI

Preliminary

CMV36M-SSI-1-GB-1
11/12 Revision 00
010102-00360101-0201



- + SSI interface
- + Type with solid shaft
- + Small construction, Ø 36 mm
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC, optional 5 VDC ±10 %
Current consumption without load	< 40 mA
Total resolution ¹⁾	Multi-Turn: up to ≤ 21 Bit, Single-Turn: up to ≤ 13 Bit
Possible number of steps/revolution ¹⁾	≤ 4.092
- Binary.....	32, 64, 128, 256, 512, 1.024, 2.048, 4.096, 8.192
- Decimal.....	40, 80, 100, 160, 200, 320, 400, 500, 800, 1.000, 1.600, 2.000
Number of revolutions	Multi-Turn: ≤ 256, Single-Turn: 1
SSI.....	Synchronous-Serial-Interface
- Clock input.....	Optocoupler
- Data output.....	RS-485, 2-wire
- Clock frequency.....	80 kHz – 1 MHz
- Mono time t _M	Typically 20 µs
- Number of data bits ¹⁾	12...31 bit
- Output code ¹⁾	Binary, Gray
- SSI output ¹⁾	Position, Speed
- Cycle time	1 ms
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Bearing life time.....	≥ 3.9 * 10 ⁹ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.15 kg
Accuracy.....	± 1.4°

¹⁾ factory settings

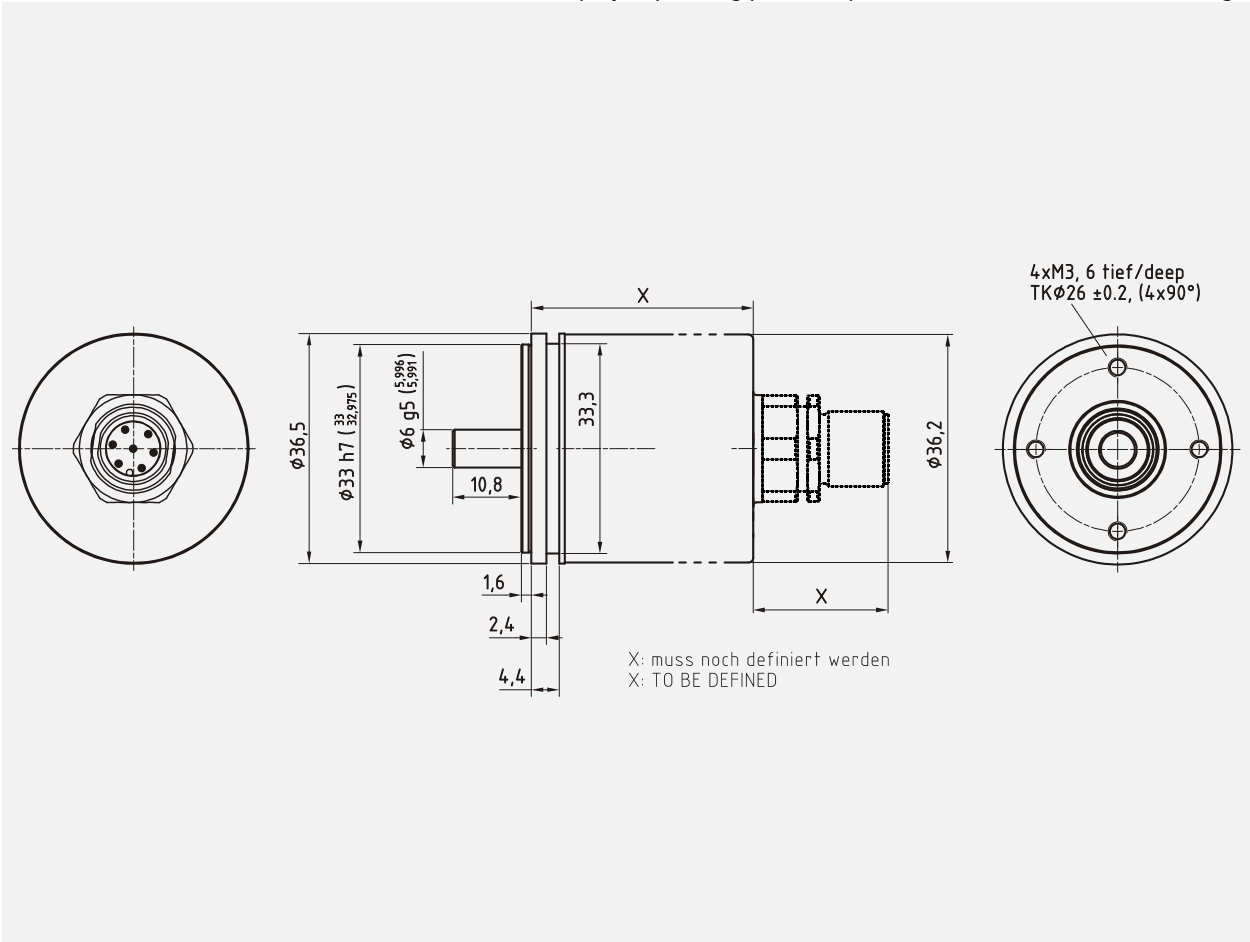
Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2	
- Transient emissions, DIN EN 61000-6-3	
Working temperature	-40 °C...+70 °C
Storage temperature	-40 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %
Protection class, DIN EN 60529	IP 65

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMF 36 S - SSI

CMF36S-SSI-1-GB-1
10/12 Revision 02
010102-00360101-0105



- + SSI interface
- + Bearing free
- + Encapsulated electronics
- + Protection class up to IP 69K
- + Small construction, Ø 36 mm
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC, optional 5 VDC \pm 10 %
Current consumption without load	< 40 mA
Total resolution ¹⁾	up to \leq 13 bit
Possible number of steps/revolution ¹⁾	\leq 4.092
- Binary.....	32, 64, 128, 256, 512, 1.024, 2.048, 4.096, 8.192
- Decimal.....	40, 80, 100, 160, 200, 320, 400, 500, 800, 1.000, 1.600, 2.000
Number of revolutions	1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-485, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	typically 20 μ s
Number of data bits ¹⁾	12...31 bit
Output code ¹⁾	Binary, Gray
SSI output.....	Position
Cycle time	1 ms
Concentricity tolerance ²⁾	0.2 mm
Permissible axial backlash ²⁾	\pm 0.15 mm
Accuracy.....	\pm 1.4°
Mass.....	0.15 kg

¹⁾ factory settings

²⁾ see reference lines in the dimension drawing

Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	-40 °C...+70 °C
Storage temperature	-40 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %
Protection class, DIN EN 60529: 1991.....	IP 65
- Option DIN 40050-9: 1993-05	IP 69K

Dimension drawing

(For project planning please request customized dimensional drawing!)

Beispiel für Magnethalter!
Dargestellter Magnethalter für stirnseitige Bohrung 6h7, 7 mm tief, Bestellnummer 49150092.
Nicht im Lieferumfang enthalten, bitte separat bestellen.
Magnethalter in anderen Dimensionen werden nach Kundenspezifikation konstruiert und geliefert.

Sample execution for magnet holder!
This magnet holder fits a bore 6h7, 7 mm deep in the front side of the shaft. Order-# 49150092.
Magnet holder to be ordered separately.
Holders for different bores will be designed according your specifications and manufactured incl. fitting magnet by us.

Subject to change

Absolute-Encoder CMV 36 S/M - DQ

Preliminary

CMV36-DQ-1-GB-1
11/12 Revision 00
010102-00360102-0001



- + DRIVE-CLiQ interface
- + Type with solid shaft
- + Small construction, \varnothing 36 mm
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 40 mA
Total resolution ¹⁾	Multi-Turn: \leq 20 Bit, Single-Turn: \leq 12 Bit
Number of steps/revolution ¹⁾	\leq 4.096
Number of revolutions	Multi-Turn: \leq 256, Single-Turn: 1
DQ.....	DRIVE CLiQ interface
- Physical Layer.....	Ethernet
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5 cable, ISO/IEC 11801
- Parameter ¹⁾	Scaling parameter, Counting direction, Preset value
Mechanically permissible speed	\leq 6.000 min ⁻¹
Shaft load, at the shaft end.....	\leq 5 N axial, \leq 10 N radial
Bearing life time.....	\geq 3.9 * 10 ⁹ revolutions at
- Speed	\leq 3.000 min ⁻¹
- Operating temperature	\leq 60 °C
- Shaft load, at the shaft end.....	\leq 5 N axial, \leq 10 N radial
Permissible angular acceleration.....	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.15 kg
Accuracy.....	\pm 1.4°

¹⁾ programmable parameter

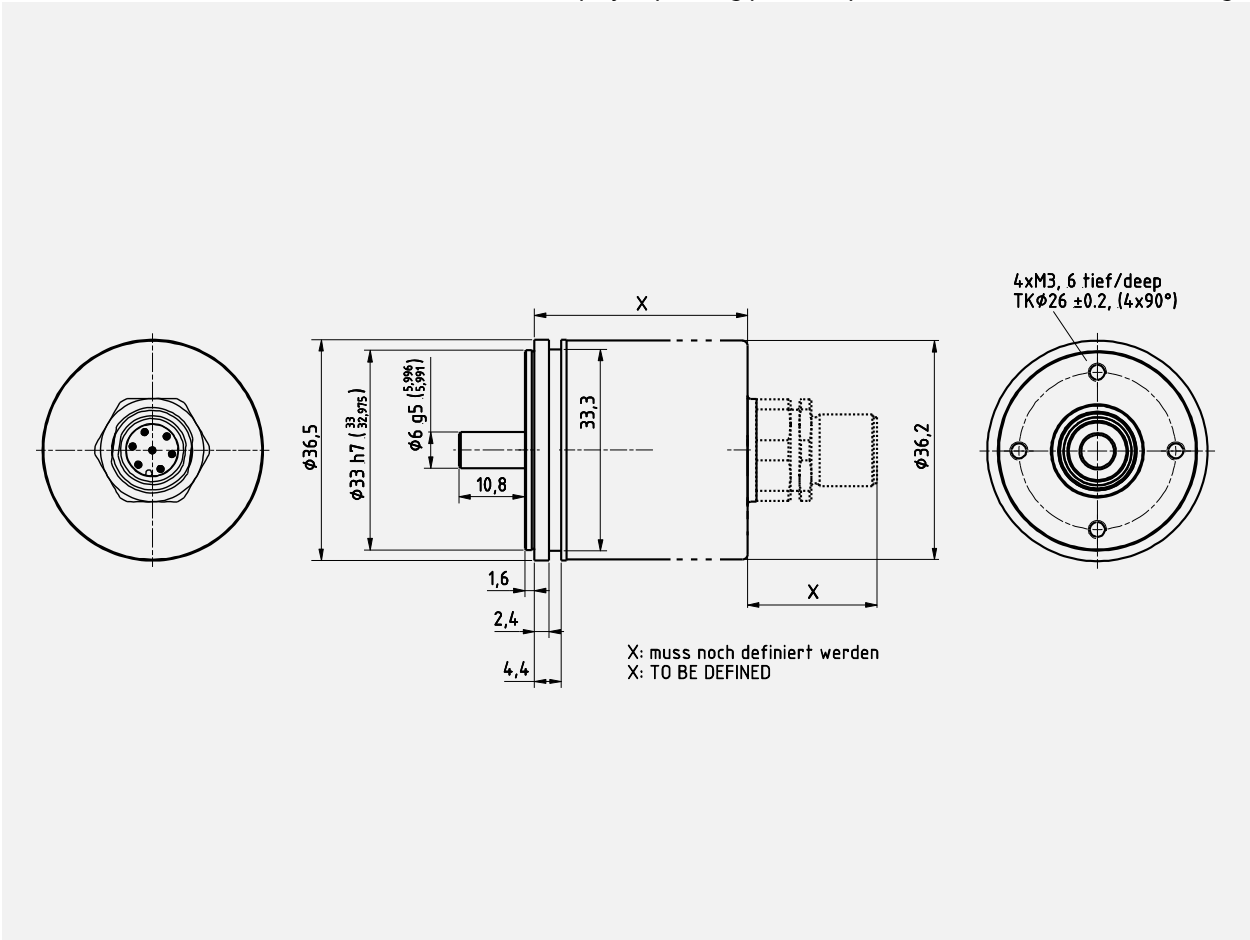
Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2	
- Transient emissions, DIN EN 61000-6-3	
Working temperature	-40 °C...+70 °C
Storage temperature	-40 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %
Protection class, DIN EN 60529	IP 65

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CMV 69 S/M - A

CMV69-A-1-GB-1
11/11 Revision 01
010102-00690101-0001



- + Analog interface
- + Type with solid shaft
- + Current- or voltage output, programmable by means of TRWinProg
- + Rugged standard solution for mobile-, construction- and farm machinery
- + Against corrosion protected anodized aluminium housing, protection class up to IP 67
- + Customized adaptations upon request

Characteristics

Supply voltage.....	12...30 VDC
Current consumption without load	< 150 mA
Total resolution ¹⁾	Multi-Turn: ≤ 24 Bit, Single-Turn: ≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.096
Number of revolutions ¹⁾	Multi-Turn: ≤ 4096, Single-Turn: 1
A	Analog interface, position output
Analog voltage / Analog current, selectable ¹⁾	Levels freely programmable within the limits
Resolution	12 bit D/A converter
Voltage output ¹⁾	-10 VDC...+10 VDC
- Load resistance	≥ 1 kΩ
Current output ¹⁾	0 mA...24 mA
- Load resistance	≤ 500 Ω
Cycle time	500 μs
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment by means of a button
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 40 N axial, ≤ 60 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 20 axial, ≤ 30N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 1.3 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 8 Ncm
Mass.....	typically 0.5 kg
Accuracy.....	± 0.5°

¹⁾ programmable parameter

Subject to change

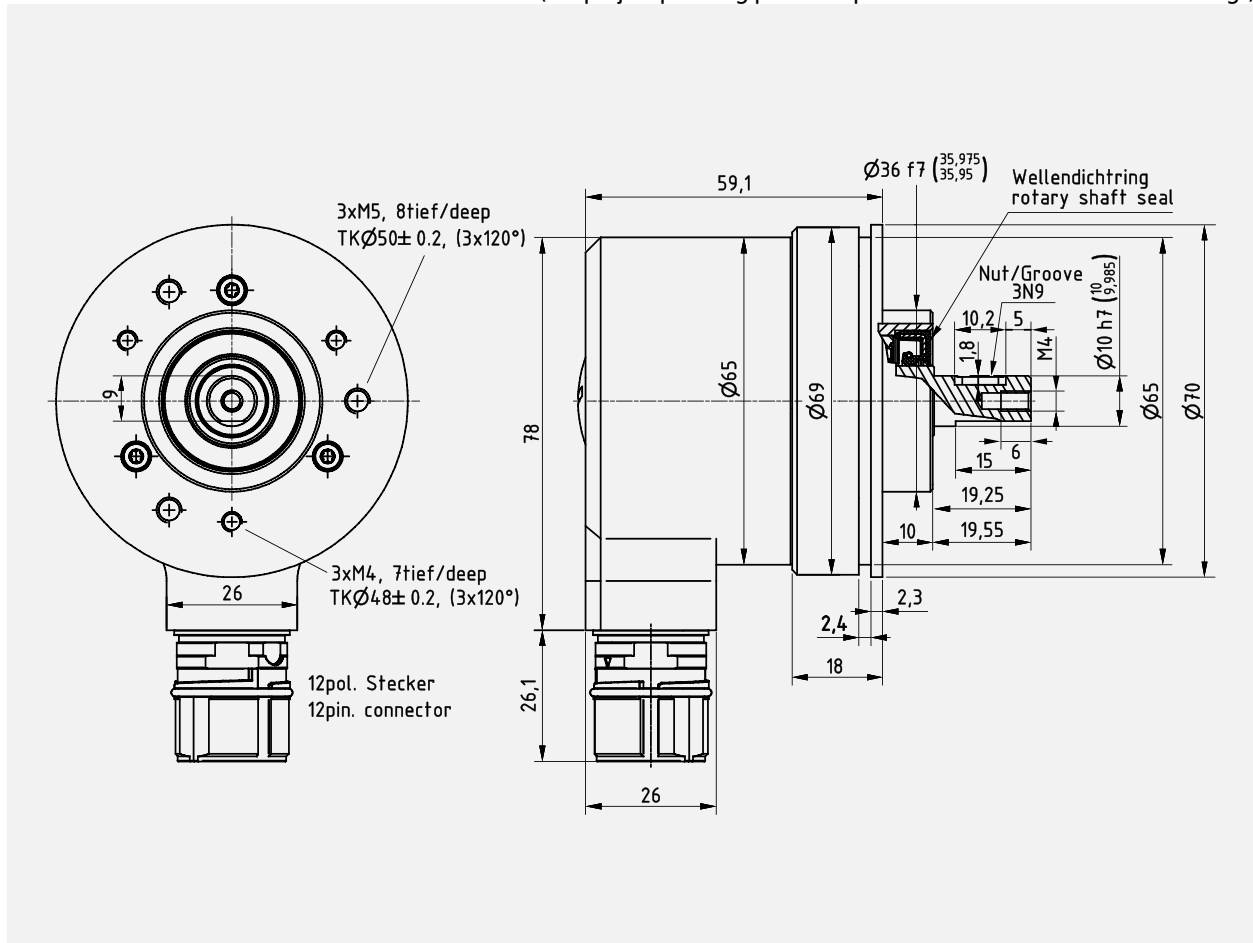
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 250 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 67

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDV 75 M - SSI

CDV75M-1-GB-1
12/12 Revision 08
010102-00750501-0201



- + Two redundant SSI interfaces
- + Type with solid shaft
- + Certified for the operational in connection with SIL 3 safety functions
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + Master system: 13 bit resolution, 4096 revolutions; SIN-/COS signals or incremental signals for position feedback
- + Safety system: 13 bit resolution, 4096 revolutions

Characteristics

Supply voltage.....	11...28 VDC, SELV/PELV
Current consumption without load	< 150 mA, at 24 V DC
Master System	
- Total resolution	≤ 25 Bit
- Number of steps/revolution.....	≤ 8.192
- Number of revolutions	≤ 4.096
- Accuracy	13 Bit single turn
- SSI interface, Hamming distance 3.....	TR specific protocol with functional information's and CRC
- SIN-/COS-output	4096 periods
Optional: Incremental output without zero impulse	
Number of pulses, factory setting	4096, 8192, 12288, 16384, 20480
- Cycle time	≥ 500 µs
Safety System	
- Total resolution	≤ 25 Bit
- Number of steps/revolution.....	≤ 8.192
- Number of revolutions	≤ 4.096
- Accuracy	8 Bit single turn
- SSI interface, Hamming distance 3.....	TR specific protocol with functional information's and CRC
- Cycle time	≥ 500 µs
Safety	is guaranteed in connection with a control which is certified in accordance with SIL 3 and the monitoring conditions defined by TR
- Functional Safety	Safety Integrity Level (SIL): 3, acc. to DIN EN 61508; VDE 0803 Performance Level (PL): e, acc. to DIN EN ISO 13849
- PFH, complete system	< 10 * 10 ⁻⁹ 1/h
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 50 N axial, ≤ 90 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 50 N axial, ≤ 90 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Start-up torque at 20 °C.....	typically 0,6 Ncm
Mass.....	1 kg

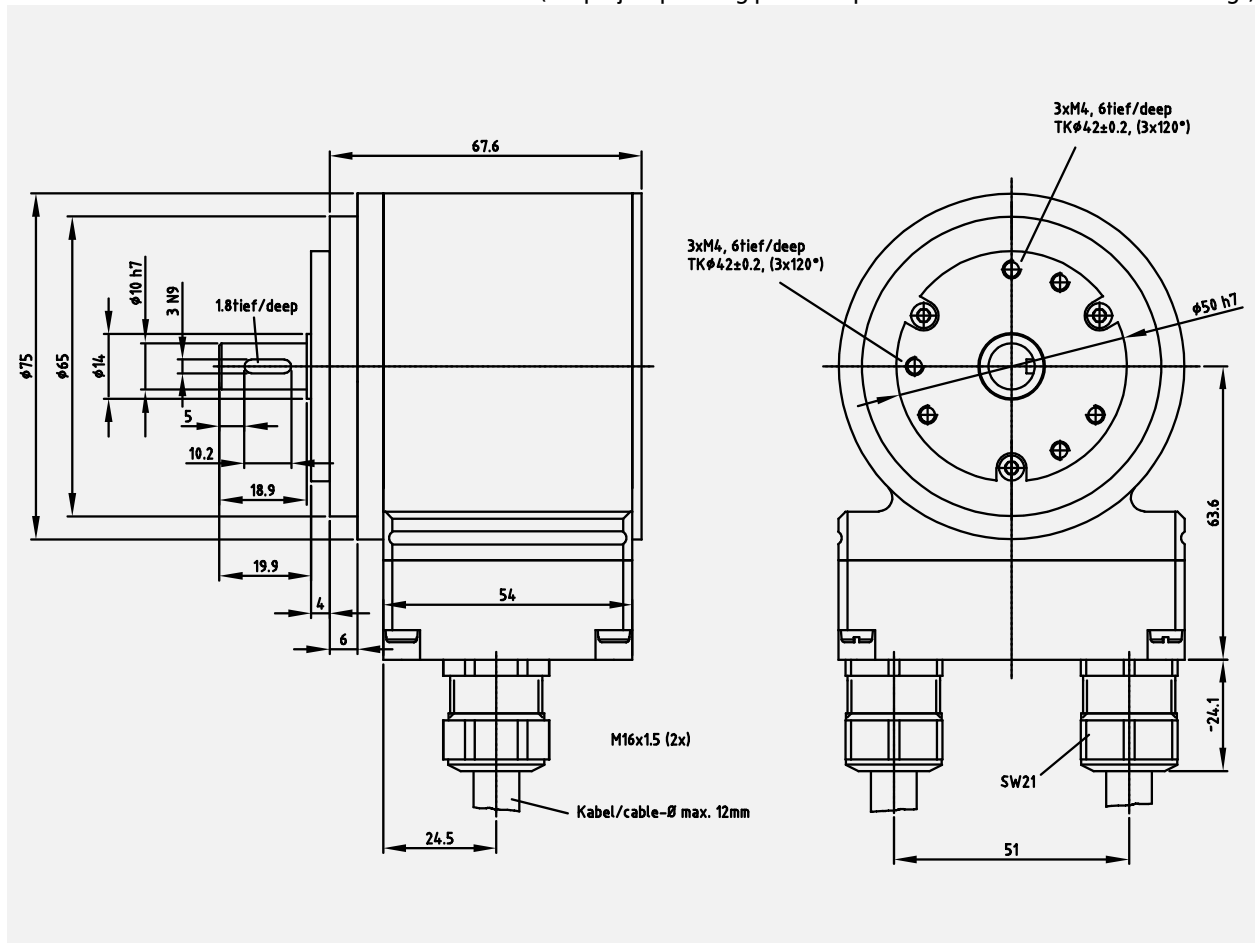
Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27	≤ 600 m/s ² , half-sine 6 ms
EMC	
- Immunity to disturbance	EN 61000-6-2
- Transient emissions	EN 61000-6-3
Working temperature	0 °C...+60 °C
- Optional	-10 °C...+70 °C with restricted functionality
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %, non condensing
Protection class, DIN EN 60529 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

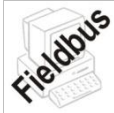
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDV 75 M - PROFIBUS/PROFIsafe

CDV75M-PS-1-GB-1
07/12 Revision 09
010102-00750502-0201



- + PROFIBUS-DP interface with PROFIsafe protocol
- + Type with solid shaft
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + 13 Bit resolution, 32768 revolutions
- + Incremental signals or SIN-/COS signals for position feedback

Characteristics

Supply voltage.....	11...27 VDC, SELV/PELV
Current consumption without load.....	< 150 mA, at 24 V DC
Total resolution	28 Bit
Number of steps/revolution	8.192
Number of revolutions	32.768
Safety principle.....	2 redundant scanning systems with internal cross comparison
Incremental output without zero impulse	factory setting on 4096, 8192, 12288, 16384, 20480 pulses
- Optional: SIN-/COS output	4096 periods

Optional system versions

- No internal safety channel, for this an external SSI-encoder is connected

PROFIBUS-DP V0..... IEC 61158, IEC 61784; PROFIsafe profile: No. 3.192b

Additional features..... Preset

Parameter ¹⁾

- Integration time, safe / unsafe 50 ms...500 ms / 5 ms...500 ms
- Size of monitoring window 50...4000 increments
- Standstill tolerance Preset..... 1...5 increments/integration time, safe
- Direction of counting Forward, Backward

Output code Binary

Addressing 1...99, adjustable by means of rotary switches

Baud rate 9.6 kbit/s...12 Mbit/s

TR specific functions ¹⁾..... velocity output in increments/integration time, safe

Safety of the total system..... Service life 20 years

- PFH, "High demand" operating mode $7.88 * 10^{-10}$ 1/h
- PFD_{av} (T = 20 a)..... $6.71 * 10^{-5}$
- MTTF_d high..... 98 a
- DC_{avg} high..... 98 %

Mechanically permissible speed $\leq 6.000 \text{ min}^{-1}$

Shaft load, at the shaft end..... $\leq 50 \text{ N}$ axial, $\leq 90 \text{ N}$ radial

Bearing life time..... $\geq 3.9 * 10^{10}$ revolutions at

at Speed..... $\leq 3.000 \text{ min}^{-1}$

at Operating temperature..... $\leq 60 \text{ }^\circ\text{C}$

at Shaft load, at the shaft end..... $\leq 50 \text{ N}$ axial, $\leq 90 \text{ N}$ radial

Permissible angular acceleration..... $\leq 10^4 \text{ rad/s}^2$

Start-up torque at 20 °C..... typically 0,6 Ncm

Mass..... typically 1 kg

¹⁾ secured programmable parameter

Subject to change

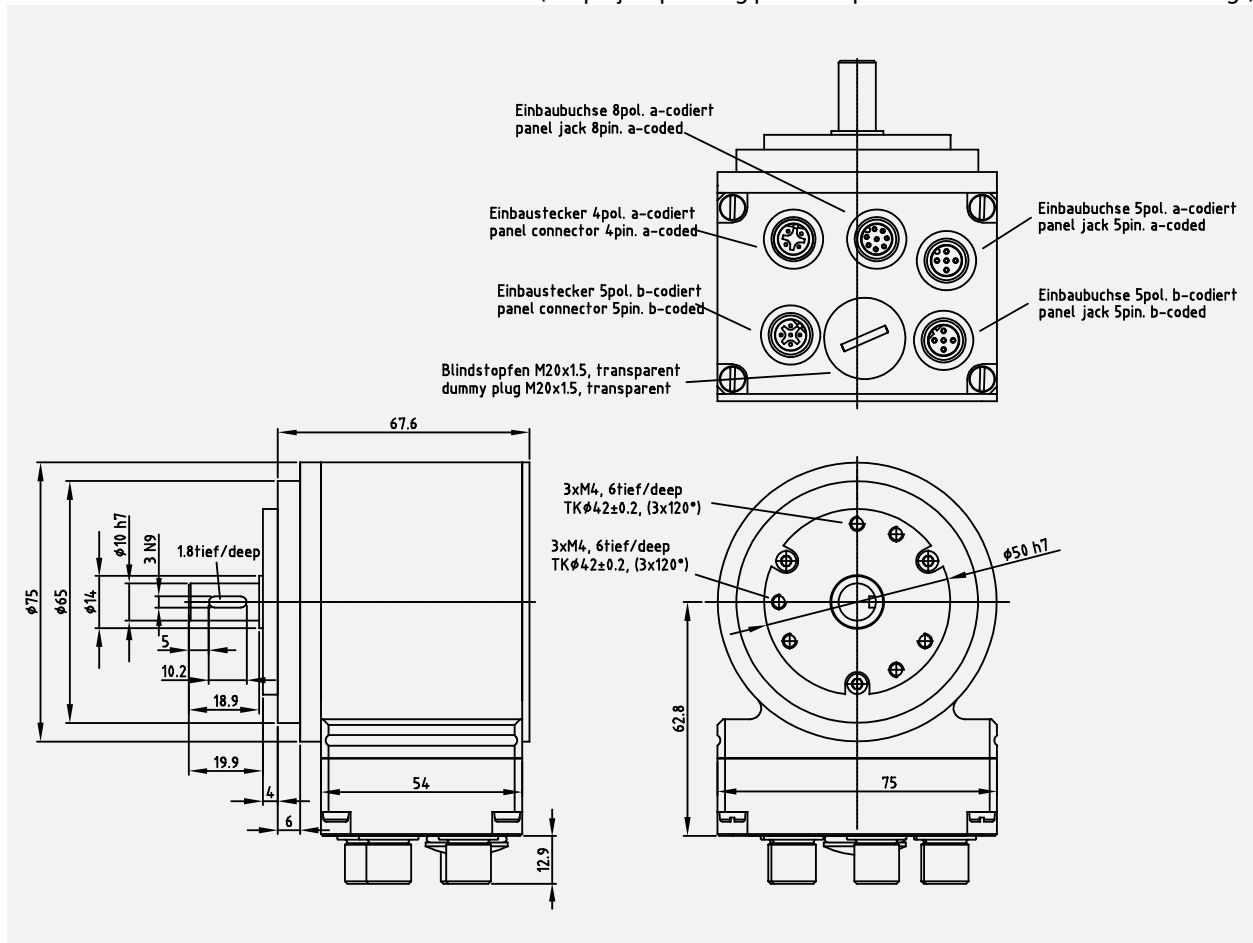
Environmental conditions

Vibration, DIN EN 60068-2-6:2008	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27:2010.....	≤ 600 m/s ² , half-sine 5 ms
EMC	
- Immunity to disturbance	EN 61000-6-2:2005
- Transient emissions.....	EN 61000-6-3:2007
Working temperature	0 °C...+60 °C
- Optional	-20 °C...+70 °C with restricted functionality
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 2000 ²⁾	IP 54

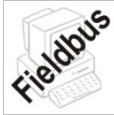
²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + PROFINET IO interface with PROFIsafe protocol
- + Type with solid shaft
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + 13 Bit resolution, 32768 revolutions
- + Incremental signals or SIN-/COS signals for position feedback

Characteristics

Supply voltage.....	13...27 VDC, SELV/PELV
Current consumption without load	< 180 mA, at 24 V DC
Total resolution	28 Bit
Number of steps/revolution.....	8.192
Number of revolutions	32.768
Safety principle.....	2 redundant scanning systems with internal cross comparison
Incremental output without zero impulse	factory setting on 4096, 8192, 12288, 16384, 20480 pulses
- Optional: SIN-/COS output	4096 periods
PROFINET IO – Device.....	IEC 61158, IEC 61784-1; PROFIsafe profile: No. 3.192b
Additional features.....	Preset
Parameter ¹⁾	
- Integration time, safe / unsafe	50 ms...500 ms / 5 ms...500 ms
- Size of monitoring window	50...4000 increments
- Standstill tolerance Preset.....	1...5 increments/integration time, safe
- Direction of counting	Forward, Backward
Output code	Binary
Cycle time	≥ 1 ms (IRT / RT)
Transmission rate.....	100 Mbit/s
TR specific functions ¹⁾	velocity output in increments/integration time, safe
Safety of the total system	Service life 20 years
- PFH, "High demand" operating mode	$1,46 * 10^{-9}$ 1/h
- PFD_{av} (T = 20 a).....	$1,27 * 10^{-4}$
- $MTTF_d$ high.....	421 a
- DC_{avg} high.....	95 %
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 50 N axial, ≤ 90 N radial
Bearing life time.....	≥ 3,9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 50 N axial, ≤ 90 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Start-up torque at 20 °C.....	typically 0.6 Ncm
Mass.....	typically 1 kg

¹⁾ secured programmable parameter

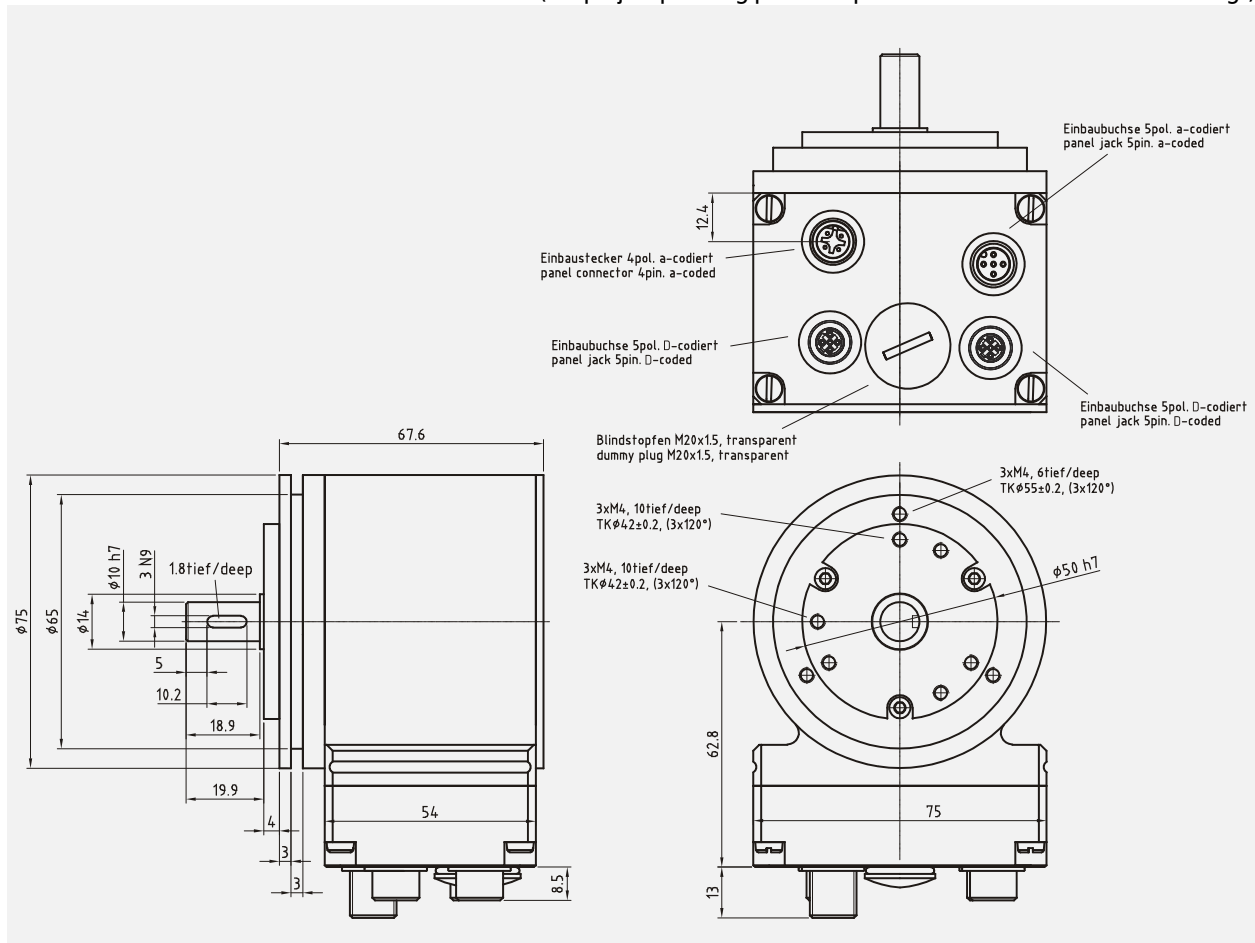
Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27	≤ 600 m/s ² , half-sine 5 ms
EMC	
- Immunity to disturbance	EN 61000-6-2
- Transient emissions	EN 61000-6-3
Working temperature	0 °C...+60 °C
- Optional	-20 °C...+70 °C with restricted functionality
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %, non condensing
Protection class, DIN EN 60529 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

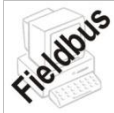


Subject to change

Absolute-Encoder CDV 75 M - Safety over EtherCAT

Preliminary

CDV75M-ETC-1-GB-1
12/11 Revision 00
010102-00750503-0201



- + EtherCAT interface with safety protocol
- + Type with solid shaft
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + 13 Bit resolution, 32768 revolutions
- + SIN-/COS signals or incremental signals for position feedback

Characteristics

Supply voltage.....	11...27 VDC, SELV/PELV
Current consumption without load.....	< 150 mA, at 24 V DC
Total resolution	28 Bit
Number of steps/revolution.....	8.192
Number of revolutions	32.768
Safety principle.....	2 redundant scanning systems with internal cross comparison
SIN-/COS output.....	4096 periods
- Optional: Incremental output without zero impulse	
- Number of pulses, factory setting	4096, 8192, 12288, 16384, 20480
Safety over EtherCAT.....	IEC 61784-3
Additional features.....	Preset
Parameter ¹⁾	
- Integration time	
- Size of monitoring window	
- Standstill tolerance Preset	
- Direction of counting	
Output code	Binary
Transmission rate	100 Mbit/s
TR specific functions ¹⁾	velocity output
Mechanically permissible speed	$\leq 6.000 \text{ min}^{-1}$
Shaft load, at the shaft end.....	$\leq 50 \text{ N axial}, \leq 90 \text{ N radial}$
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	$\leq 3.000 \text{ min}^{-1}$
- Operating temperature	$\leq 60 \text{ }^\circ\text{C}$
- Shaft load, at the shaft end.....	$\leq 50 \text{ N axial}, \leq 90 \text{ N radial}$
Permissible angular acceleration.....	$\leq 10^4 \text{ rad/s}^2$
Start-up torque at 20 °C.....	typically 0.6 Ncm
Mass.....	typically 1 kg

¹⁾ secured programmable parameter

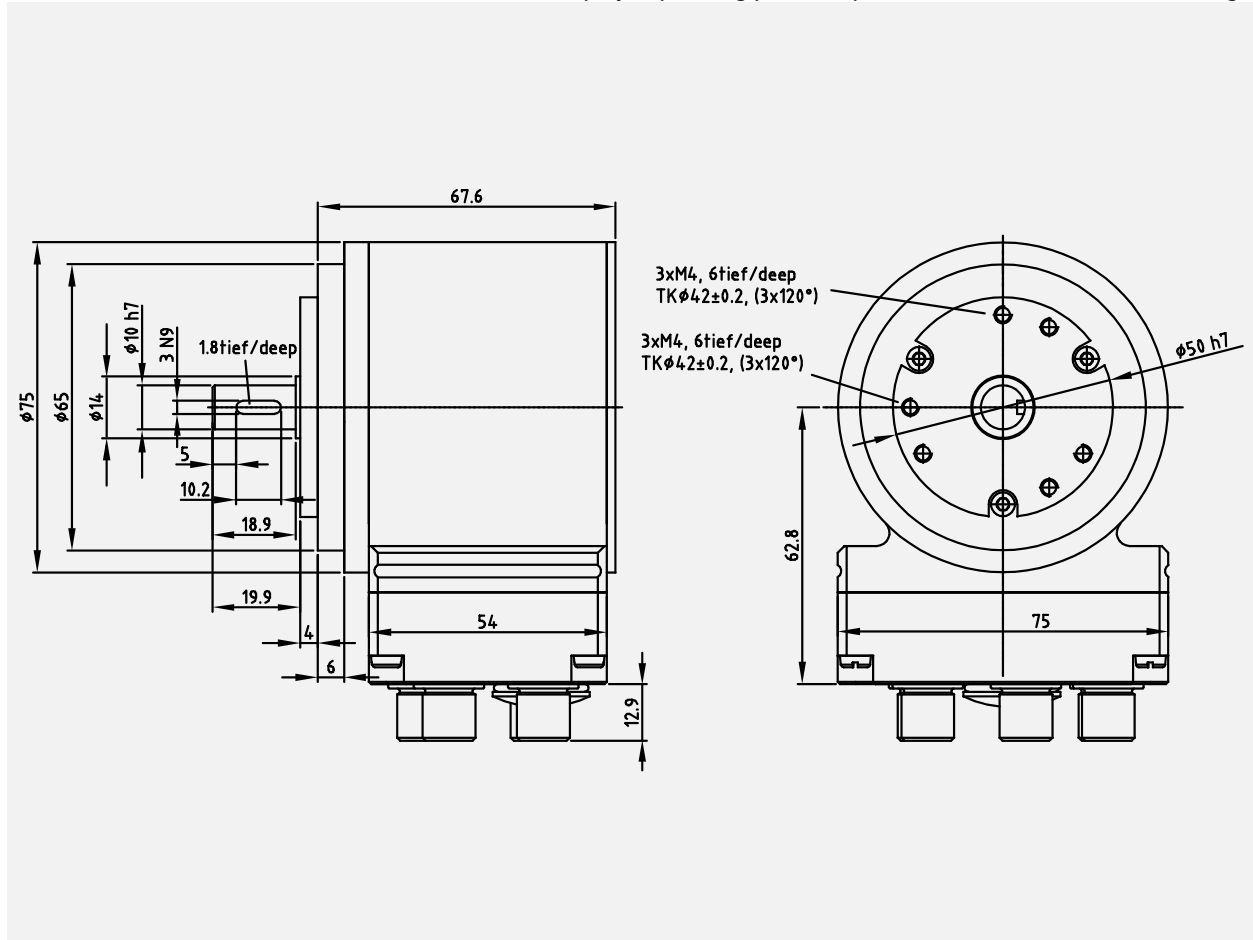
Subject to change

Environmental conditions

Vibration	
- DIN EN 60068-2-6:2008	Vibration, Sinusoidal
- DIN EN 60068-2-64:2009	Broadband random, Digital controlled
Shock	
- DIN EN 60068-2-27:2010	Single shock
EMC	
- Immunity to disturbance	EN 61000-6-2:2005
- Transient emissions.....	EN 61000-6-3:2007
Working temperature..... 0 °C...+60 °C	
- Optional	-20 °C...+70 °C with restricted functionality
Storage temperature -30 °C...+80 °C, dry	
Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing	
Protection class, DIN EN 60529: 2000 ²⁾ IP 54	
 ²⁾ valid with screwed on mating connector and / or screwed together cable gland	

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDH 75 M - SSI

CDH75M-1-GB-1
12/12 Revision 09
010102-00750501-0202



- + Two redundant SSI interfaces
- + Type with hollow through shaft, up to 20 mm
- + Certified for the operational in connection with SIL 3 safety functions
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + Master system: 13 bit resolution, 4096 revolutions; SIN-/COS signals or incremental signals for position feedback
- + Safety system: 13 bit resolution, 4096 revolutions

Characteristics

Supply voltage.....	11...28 VDC, SELV/PELV
Current consumption without load	< 150 mA, at 24 V DC
Master System	
- Total resolution	≤ 25 Bit
- Number of steps/revolution.....	≤ 8.192
- Number of revolutions	≤ 4.096
- Accuracy	13 Bit single turn
- SSI interface, Hamming distance 3.....	TR specific protocol with functional information's and CRC
- SIN-/COS-output	4096 periods
Optional: Incremental output without zero impulse	
Number of pulses, factory setting	4096, 8192, 12288, 16384, 20480
- Cycle time	≥ 500 µs
Safety System	
- Total resolution	≤ 25 Bit
- Number of steps/revolution.....	≤ 8.192
- Number of revolutions	≤ 4.096
- Accuracy	8 Bit single turn
- SSI interface, Hamming distance 3.....	TR specific protocol with functional information's and CRC
- Cycle time	≥ 500 µs
Safety	is guaranteed in connection with a control which is certified in accordance with SIL 3 and the monitoring conditions defined by TR
- Functional Safety	Safety Integrity Level (SIL): 3, acc. to DIN EN 61508; VDE 0803 Performance Level (PL): e, acc. to DIN EN ISO 13849
- PFH, complete system	< 10 * 10 ⁻⁹ 1/h
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 1.500 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Start-up torque at 20 °C.....	typically 6 Ncm
Mass.....	1 kg

Subject to change

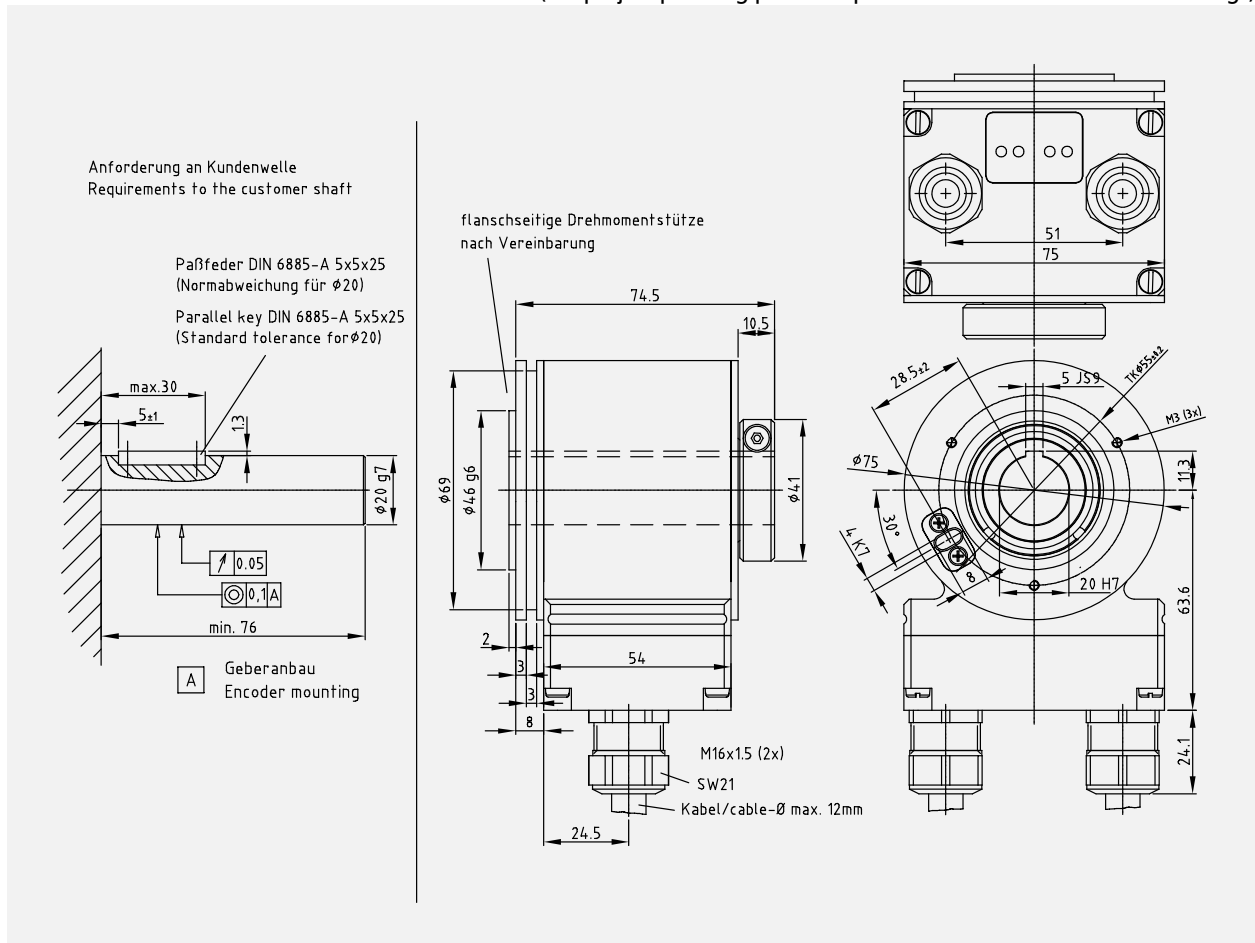
Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27	≤ 600 m/s ² , half-sine 6 ms
EMC	
- Immunity to disturbance	EN 61000-6-2
- Transient emissions	EN 61000-6-3
Working temperature	0 °C...+60 °C
- Optional	-10 °C...+70 °C with restricted functionality
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %, non condensing
Protection class, DIN EN 60529 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

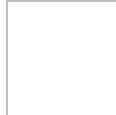
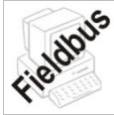
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDH 75 M - PROFIBUS/PROFIsafe

CDH75M-PS-1-GB-1
07/12 Revision 10
010102-00750502-0202



- + PROFIBUS-DP interface with PROFIsafe protocol
- + Type with hollow through shaft, 20mm
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + 13 Bit resolution, 32768 revolutions
- + Incremental signals or SIN-/COS signals for position feedback

Characteristics

Supply voltage.....	11...27 VDC, SELV/PELV
Current consumption without load.....	< 150 mA, at 24 V DC
Total resolution	28 Bit
Number of steps/revolution.....	8.192
Number of revolutions	32.768
Safety principle.....	2 redundant scanning systems with internal cross comparison
Incremental output without zero impulse	factory setting on 4096, 8192, 12288, 16384, 20480 pulses
- Optional: SIN-/COS-output.....	4096 periods

Optional system versions

- No internal safety channel, for this an external SSI-encoder is connected

PROFIBUS-DP V0.....	IEC 61158, IEC 61784
PROFIsafe profile.....	No. 3.192b
Additional features.....	Preset
Parameter ¹⁾	
- Integration time, safe / unsafe	50 ms...500 ms / 5 ms...500 ms
- Size of monitoring window	50...4000 increments
- Standstill tolerance Preset.....	1...5 increments/integration time, safe
- Direction of counting	Forward, Backward
Output code	Binary
Addressing	1...99, adjustable by means of rotary switches
Baud rate	9,6 kbit/s...12 Mbit/s
TR specific functions ¹⁾	velocity output in increments/integration time safe
Safety of the total system.....	Service life 20 years
- PFH, "High demand" operating mode	$7,88 * 10^{-10}$ 1/h
- PFD_{av} (T = 20 a).....	$6,71 * 10^{-5}$
- $MTTF_d$ high.....	98 a
- DC_{avg} high.....	98 %
Mechanically permissible speed	$\leq 3.000 \text{ min}^{-1}$
Shaft load.....	Own mass
Bearing life time.....	$\geq 3,9 * 10^{10}$ revolutions at
at Speed	$\leq 1.500 \text{ min}^{-1}$
at Operating temperature.....	$\leq 60 \text{ }^\circ\text{C}$
Permissible angular acceleration.....	$\leq 10^4 \text{ rad/s}^2$
Start-up torque at 20 °C.....	typically 6 Ncm
Mass.....	typically 1 kg

¹⁾ secured programmable parameter

Subject to change

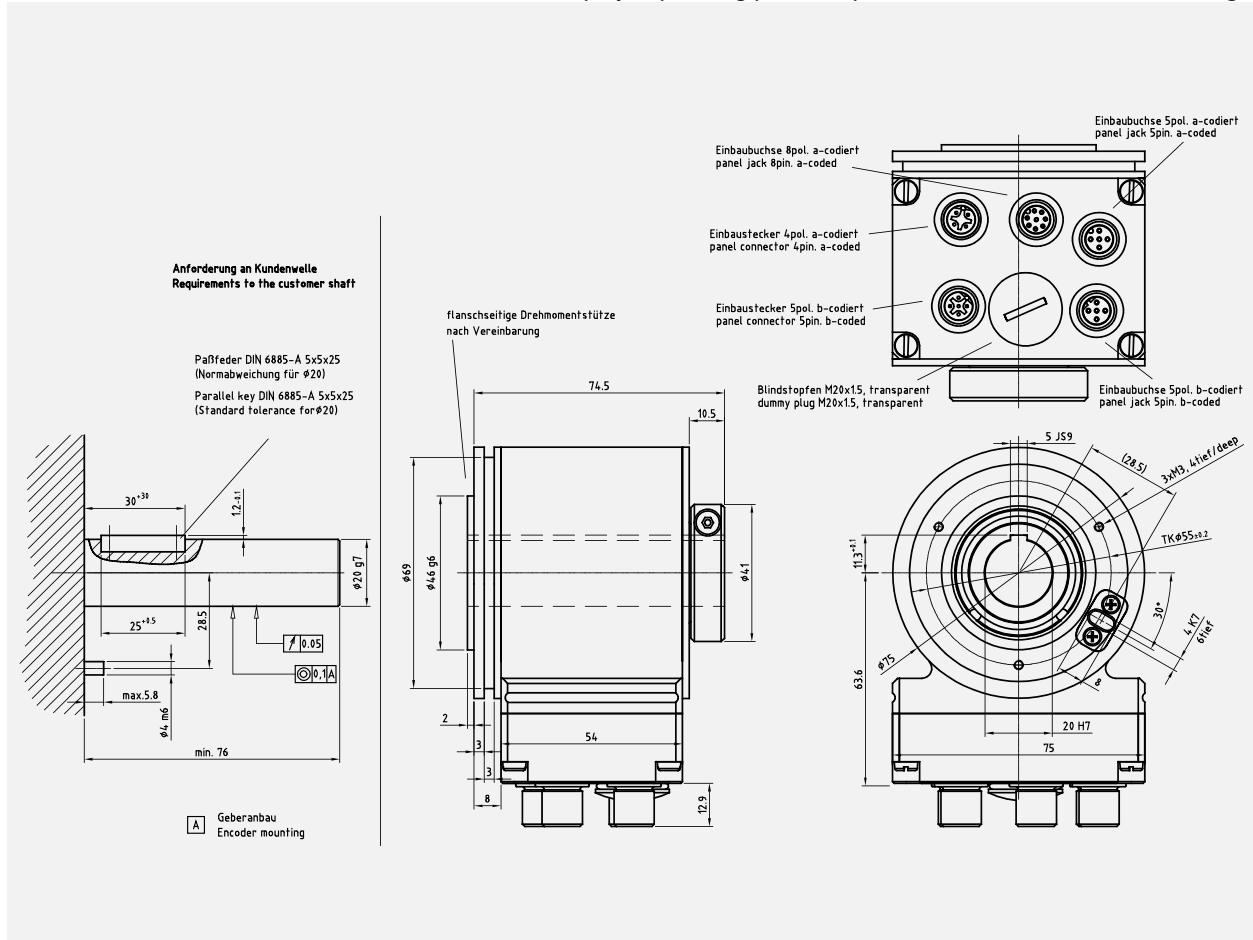
Environmental conditions

Vibration, DIN EN 60068-2-6:2008	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27:2010.....	≤ 600 m/s ² , half-sine 5 ms
EMC	
- Immunity to disturbance	EN 61000-6-2:2005
- Transient emissions.....	EN 61000-6-3:2007
Working temperature	0 °C...+60 °C
- Optional	-20 °C...+70 °C with restricted functionality, permissible speed ≤ 300 min ⁻¹
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 2000 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

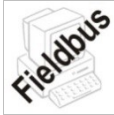
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDH 75 M - PROFINET IO / PROFIsafe

CDH75M-PS-1-GB-2
11/12 Revision 05
010102-00750503-0202



- + PROFINET IO interface with PROFIsafe protocol
- + Type with hollow through shaft, 20mm
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + 13 Bit resolution, 32768 revolutions
- + Incremental signals or SIN-/COS signals for position feedback

Characteristics

Supply voltage.....	13...27 VDC, SELV/PELV
Current consumption without load	< 180 mA, at 24 V DC
Total resolution	28 Bit
Number of steps/revolution.....	8.192
Number of revolutions	32.768
Safety principle.....	2 redundant scanning systems with internal cross comparison
Incremental output without zero impulse	factory setting on 4096, 8192, 12288, 16384, 20480 pulses
- Optional SIN-/COS output	4096 periods
PROFINET IO – Device.....	IEC 61158, IEC 61784-1; PROFIsafe profile: No. 3.192b
Additional features.....	Preset
Parameter ¹⁾	
- Integration time, safe / unsafe	50 ms...500 ms / 5 ms...500 ms
- Size of monitoring window	50...4000 increments
- Standstill tolerance Preset.....	1...5 increments/integration time, safe
- Direction of counting	Forward, Backward
Output code	Binary
Cycle time	≥ 1 ms (IRT / RT)
Transmission rate.....	100 Mbit/s
TR specific functions ¹⁾	velocity output in increments/integration time safe
Safety of the total system	Service life 20 years
- PFH, "High demand" operating mode	1,46 * 10 ⁻⁹ 1/h
- PFD _{av} (T = 20 a).....	1,27 * 10 ⁻⁴
- MTTF _d high.....	421 a
- DC _{avg} high.....	95 %
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3,9 * 10 ¹⁰ revolutions at
- Speed	≤ 1.500 min ⁻¹
- Operating temperature	≤ 60 °C
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Start-up torque at 20 °C.....	typically 6 Ncm
Mass.....	typically 1 kg

¹⁾ secured programmable parameter

Subject to change

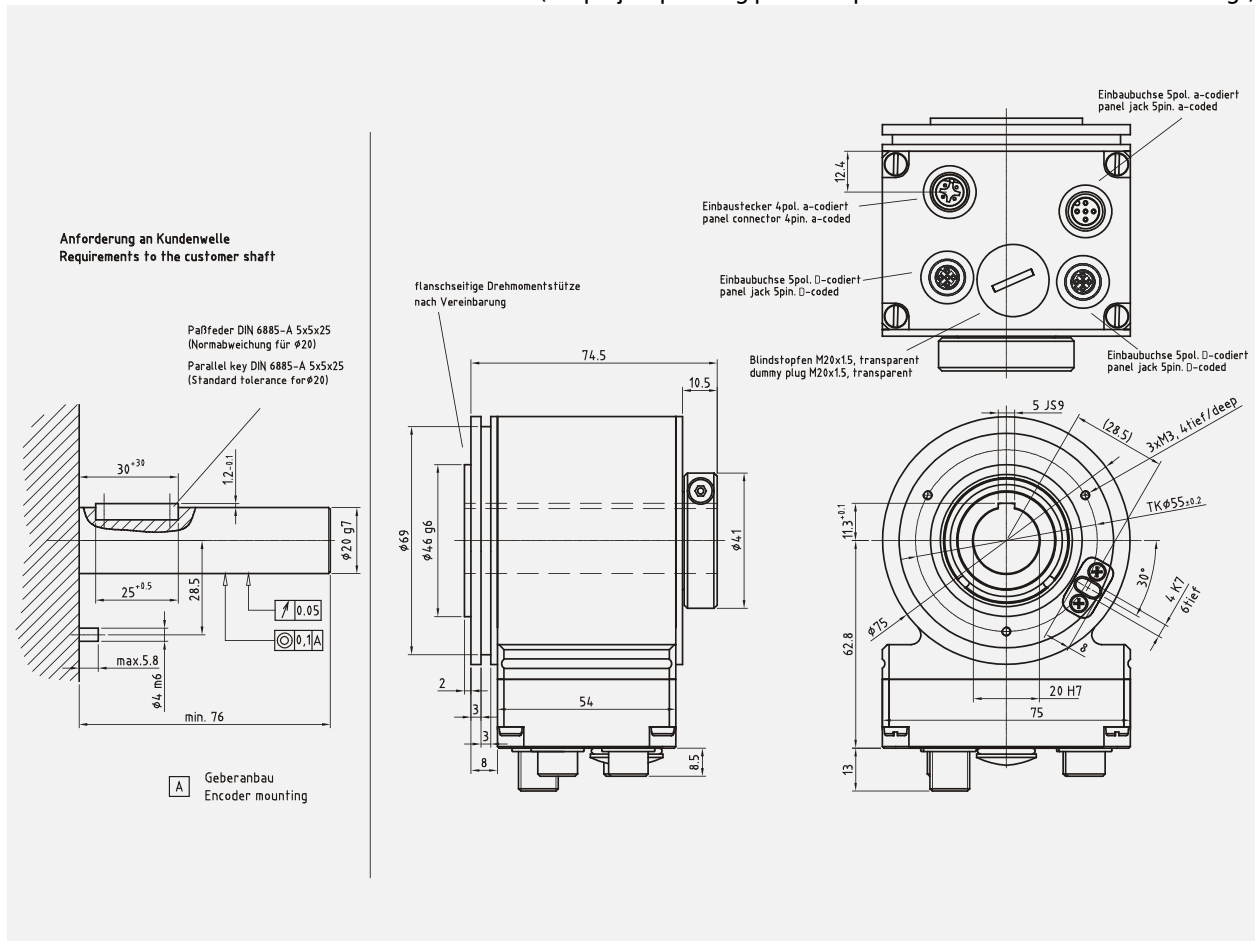
Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27	≤ 600 m/s ² , half-sine 5 ms
EMC	
- Immunity to disturbance	EN 61000-6-2
- Transient emissions	EN 61000-6-3
Working temperature	0 °C...+60 °C
- Optional	-20 °C...+70 °C with restricted functionality
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %, non condensing
Protection class, DIN EN 60529 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)

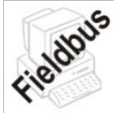


Subject to change

Absolute-Encoder CDH 75 M - Safety over EtherCAT

Preliminary

CDH75M-ETC-1-GB-1
12/11 Revision 00
010102-00750503-0202



- + EtherCAT interface with safety protocol
- + Type with hollow through shaft, 20mm
- + Functional Safety according to
 - DIN EN 61508; VDE 0803: SIL 3
 - DIN EN ISO 13849: PL e
- + 13 Bit resolution, 32768 revolutions
- + SIN-/COS signals or incremental signals for position feedback

Characteristics

Supply voltage.....	11...27 VDC, SELV/PELV
Current consumption without load.....	< 150 mA, at 24 V DC
Total resolution	28 Bit
Number of steps/revolution.....	8.192
Number of revolutions	32.768
Safety principle.....	2 redundant scanning systems with internal cross comparison
SIN-/COS output.....	4096 periods
- Optional: Incremental output without zero impulse	
- Number of pulses, factory setting	4096, 8192, 12288, 16384, 20480
Safety over EtherCAT.....	IEC 61784-3
Additional features.....	Preset
Parameter ¹⁾	
- Integration time	
- Size of monitoring window	
- Standstill tolerance Preset	
- Direction of counting	
Output code	Binary
Transmission rate	100 Mbit/s
TR specific functions ¹⁾	velocity output
Mechanically permissible speed	$\leq 3.000 \text{ min}^{-1}$
Shaft load.....	Own mass
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	$\leq 1.500 \text{ min}^{-1}$
- Operating temperature	$\leq 60 \text{ }^{\circ}\text{C}$
Permissible angular acceleration.....	$\leq 10^4 \text{ rad/s}^2$
Start-up torque at 20 °C.....	typically 6 Ncm
Mass.....	typically 1 kg

¹⁾ secured programmable parameter

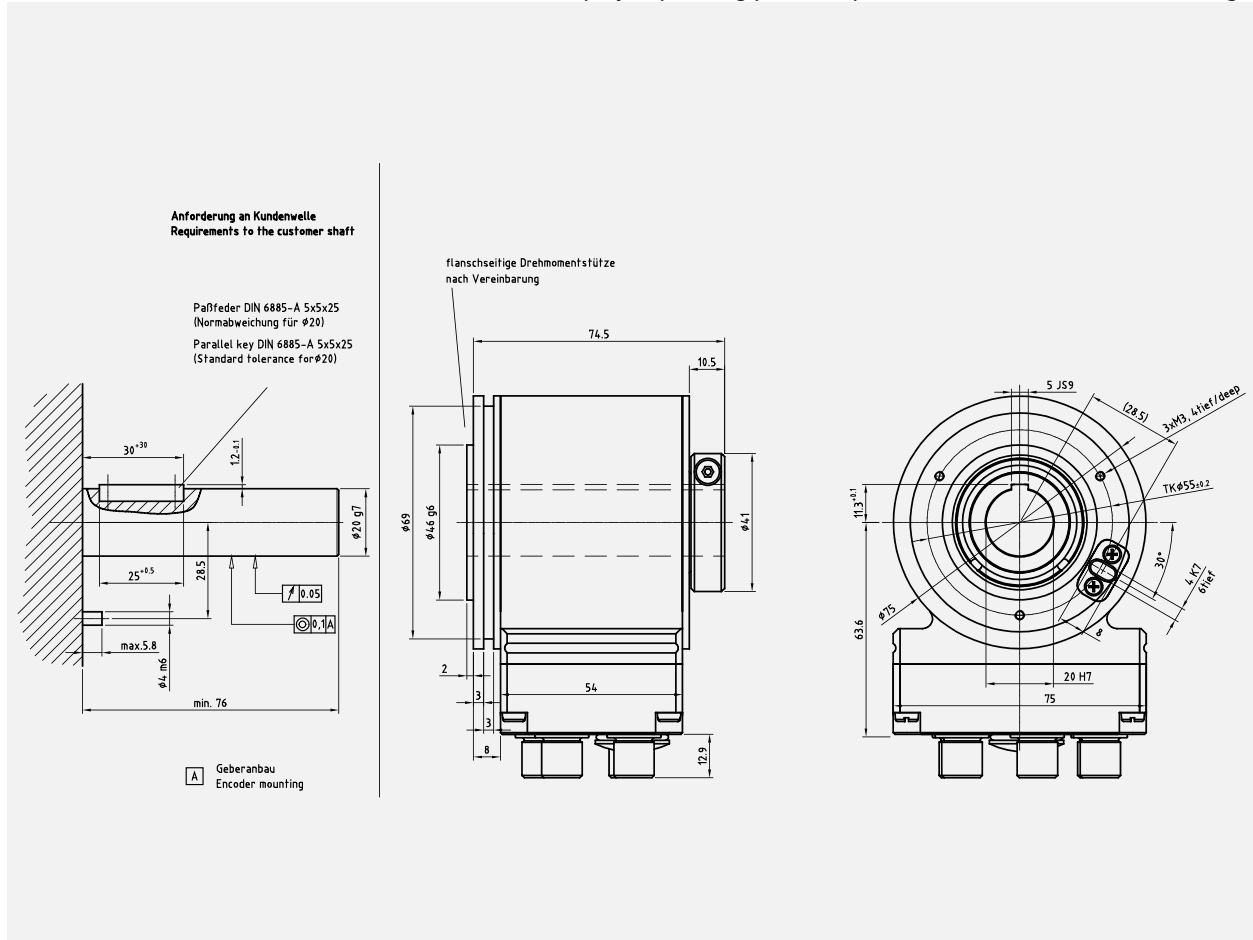
Subject to change

Environmental conditions

Vibration	
- DIN EN 60068-2-6:2008	Vibration, Sinusoidal
- DIN EN 60068-2-64:2009	Broadband random, Digital controlled
Shock	
- DIN EN 60068-2-27:2010	Single shock
EMC	
- Immunity to disturbance	EN 61000-6-2:2005
- Transient emissions	EN 61000-6-3:2007
Working temperature 0 °C...+60 °C	
- Optional	-20 °C...+70 °C with restricted functionality
Storage temperature -30 °C...+80 °C, dry	
Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing	
Protection class, DIN EN 60529: 2000 ²⁾ IP 54	
 ²⁾ valid with screwed on mating connector and / or screwed together cable gland	

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 80 S/M - SSI

CEH80-SSI-1-GB-1
11/11 Revision 03
010102-00800201-0002



- + SSI interface
- + Type with hollow through shaft
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 100 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC
SSI-special bits ¹⁾	Toggel-Bit, further on request
Cycle time, internal	250 ns
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7...27H7 without keyway; 16H7...24H7 with keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 67 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 0.7 kg
Optional	
- Incremental signals ¹⁾ , RS422 level/Push-Pull	K1+, K1-, K2+, K2- ≤ 4096 pulses; K0+, K0- 1x per revolution
- SIN/COS signals, alternative to incremental signals	4096 periods/revolution

¹⁾ programmable parameter

Subject to change

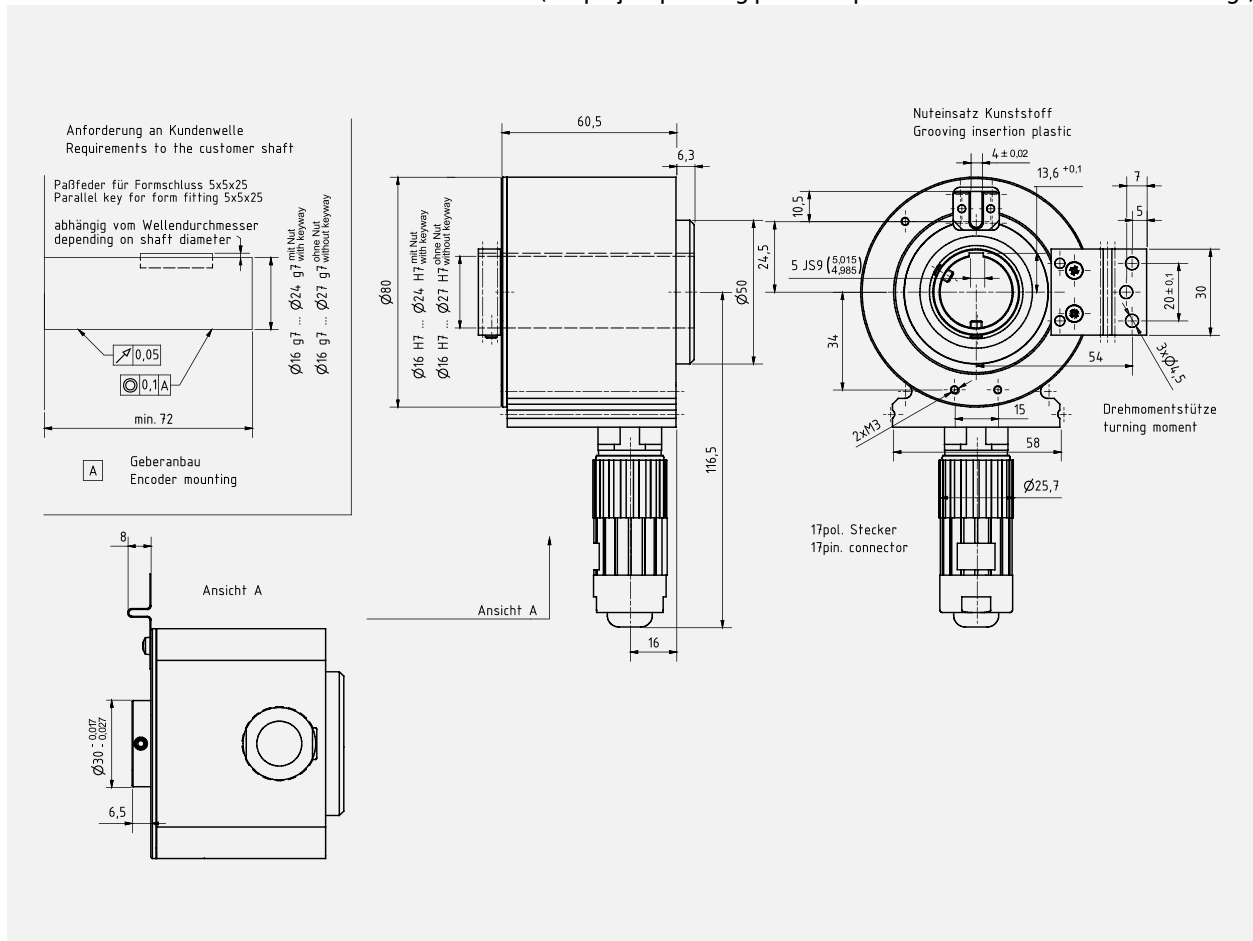
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Transient emissions, DIN EN 61000-6-3: 2007
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-20 \text{ }^\circ\text{C} \dots +85 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

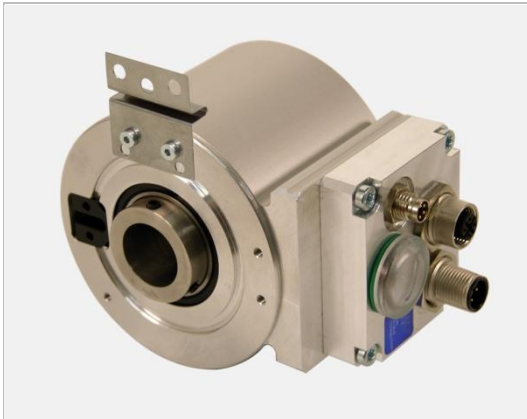
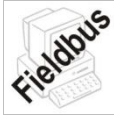
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 80 S/M - PB

CEH80-PB-1-GB-1
11/11 Revision 03
010102-00800202-0002



- + PROFIBUS-DP interface
- + Type with hollow through shaft
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 180 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 25 Bit
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7...27H7 without keyway; 16H7...24H7 with keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 67 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

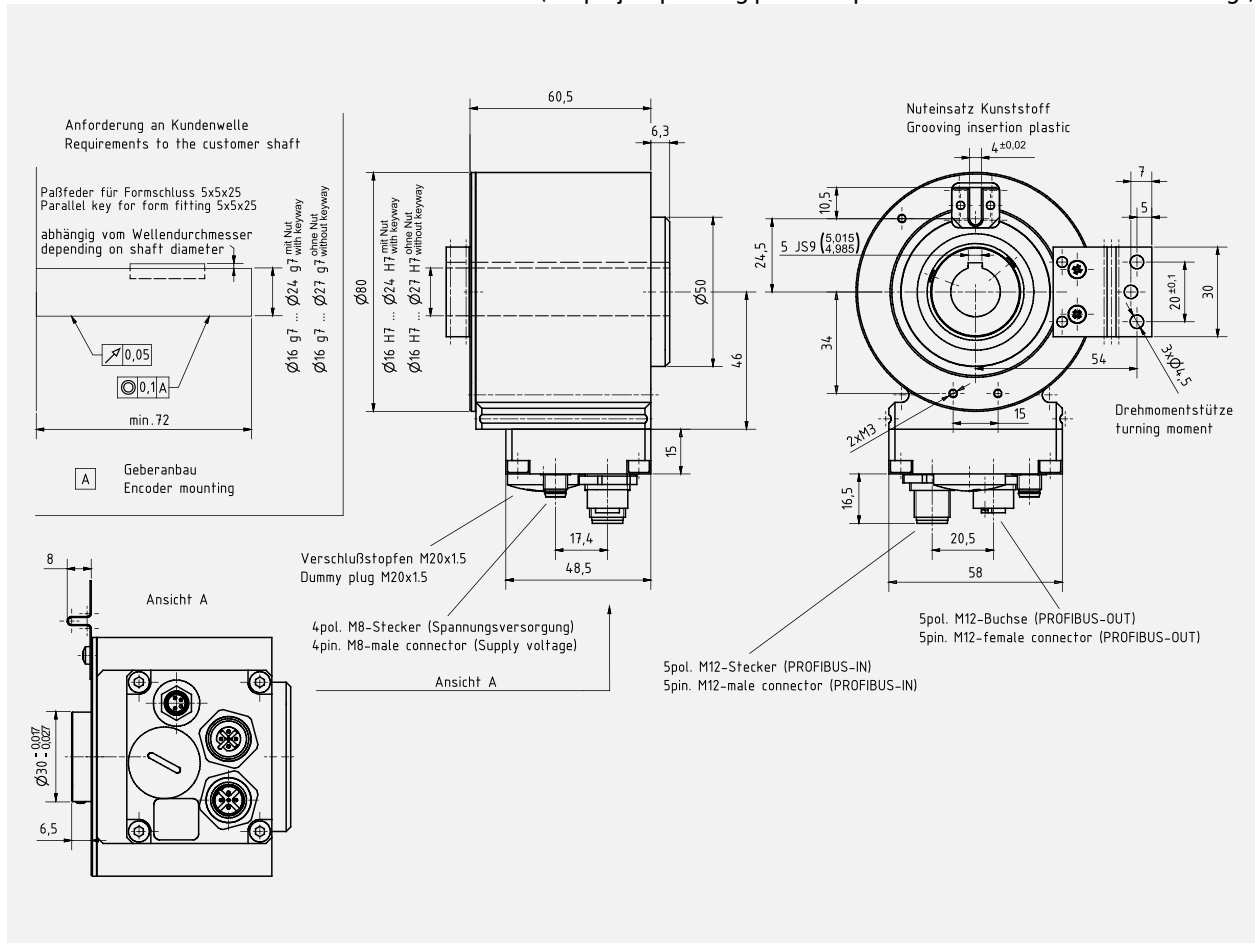
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-20 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

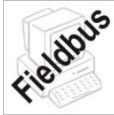
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CEH 80 S/M - ETC

CEH80-ETC-1-GB-1
10/11 Revision 01
010102-00800203-0002



- + EtherCAT interface
- + Type with hollow through shaft
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 33 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution, standard ¹⁾	≤ 8.192
Number of steps/revolution, extended ¹⁾	≤ 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7...27H7 without keyway; 16H7...24H7 with keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 67 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

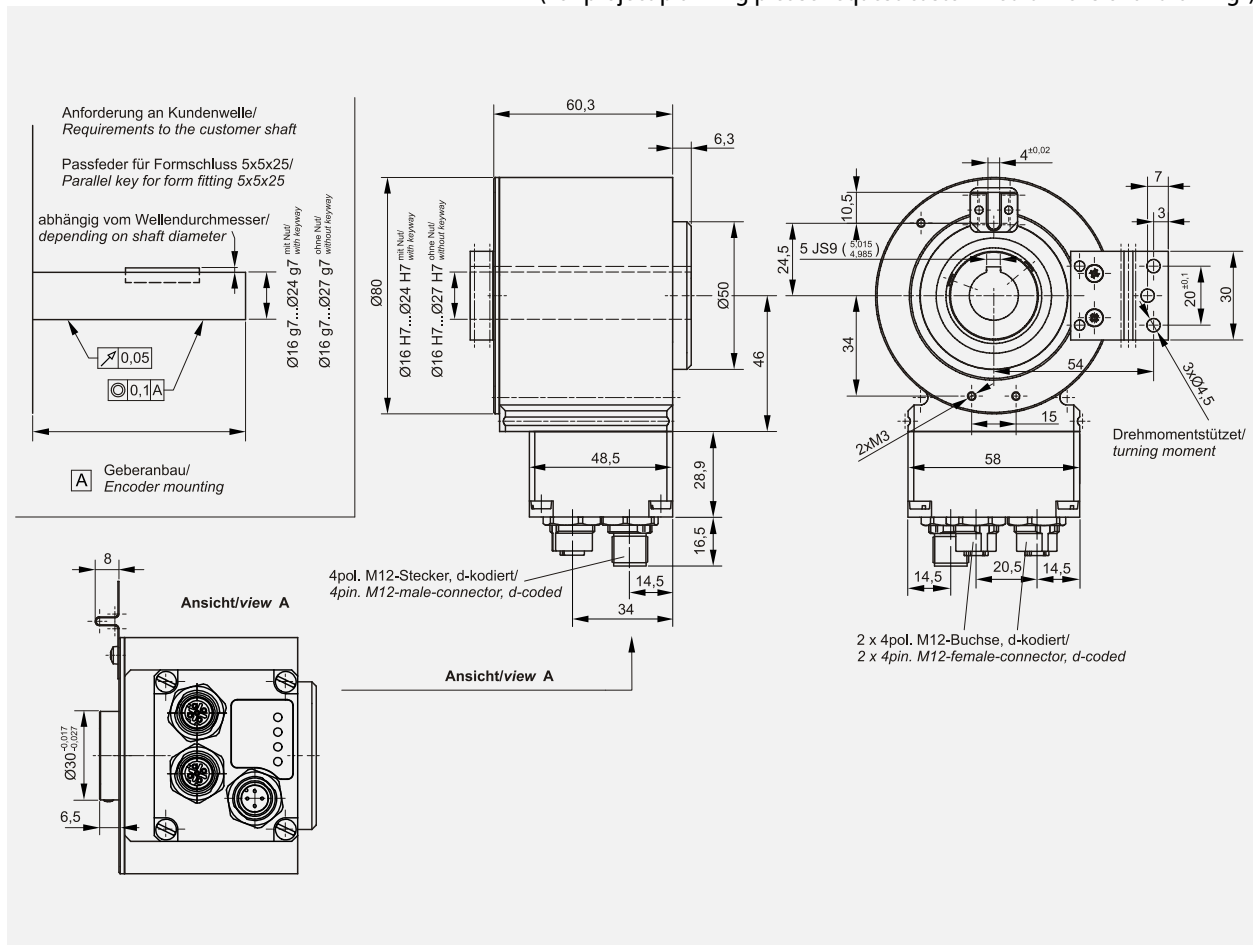
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-20 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

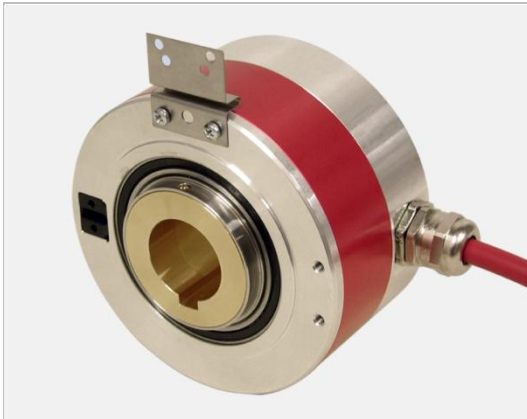
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CEH 110 S/M - SSI

CEH110-SSI-1-GB-1
11/11 Revision 02
010102-01100201-0002



- + SSI interface
- + Type with hollow through shaft, \varnothing 25...50 mm
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

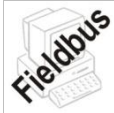
Supply voltage.....	11...27 VDC, optional 5 VDC \pm 5%
Current consumption without load	< 110 mA, < 150 mA at 5 VDC
Total resolution ¹⁾	Multi-Turn: \leq 33 Bit, Single-Turn: \leq 15 Bit
Number of steps/revolution, standard ¹⁾	\leq 8.192
Number of steps/revolution, extended ¹⁾	\leq 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: \leq 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: \leq 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μ s \leq t_M \leq 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC
SSI-special bits ¹⁾	Toggel-Bit, further on request
Cycle time, internal	250 ns
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	\leq 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	\geq 3.9 * 10 ¹⁰ revolutions at
- Speed	\leq 2.000 min ⁻¹
- Operating temperature	\leq 60 °C
Shaft diameter in mm.....	50H7 without keyway; 25H7...40H7 with keyway
Permissible angular acceleration.....	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 525 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 1.75 kg
Optional	
- Incremental signals, RS422 level/Push-Pull	K1+, K1-, K2+, K2-, K0+, K0- with 4096 pulses

¹⁾ programmable parameter

Subject to change

Absolute Encoder CEH110 S/M - PB

CEH110-PB-1-GB-1
08/12 Revision 00
010102-01100202-0002



- + PROFIBUS-DP interface
- + Type with hollow through shaft, \varnothing 25...50 mm
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 180 mA
Total resolution ¹⁾	Multi-Turn: \leq 33 Bit, Single-Turn: \leq 15 Bit
Number of steps/revolution, standard ¹⁾	\leq 8.192
Number of steps/revolution, extended ¹⁾	\leq 32.768
Number of revolutions, standard ¹⁾	Multi-Turn: \leq 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: \leq 256.000, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	\leq 25 Bit
Mechanically permissible ^{speed}	\leq 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	\geq 3.9 * 10 ¹⁰ revolutions at
- Speed	\leq 2.000 min ⁻¹
- Operating temperature	\leq 60 °C
Shaft diameter.....	in mm
- without shaft insert.....	50H7 (only without keyway)
- with shaft insert.....	25H7...40H7 (with and without keyway)
Permissible angular acceleration.....	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 525 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C	typically 8 Ncm
Mass.....	typically 1.2 kg (without shaft insert)

¹⁾ programmable parameter

Subject to change

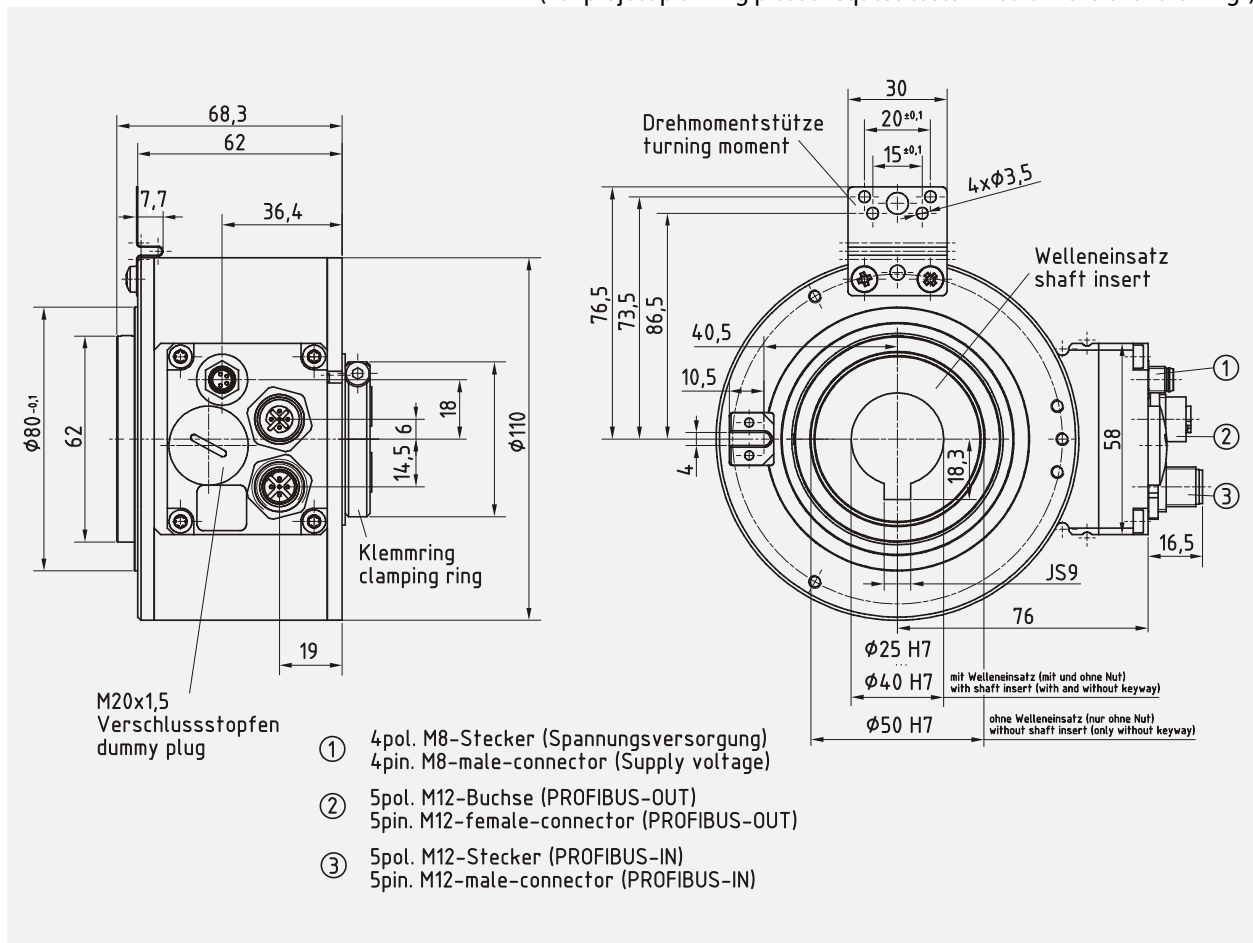
Environmental conditions

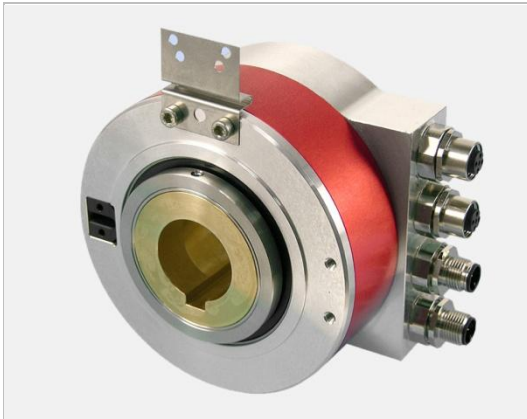
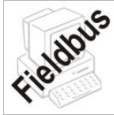
Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11 ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)





- + EtherCAT interface
- + Type with hollow through shaft, \varnothing 25...50 mm
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 200 mA
Total resolution ¹⁾	≤ 33 Bit
Number of steps/revolution, standard / extended ¹⁾	≤ 8.192 / ≤ 32.768
Number of revolutions, standard / extended ¹⁾	≤ 4.096 / ≤ 256.000
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 32 Bit
Mechanically permissible speed	≤ 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 2.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	50H7 without keyway; 25H7...40H7 with keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 525 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 1.75 kg
Optional	
- Incremental signals, RS422 level/Push-Pull	K1+, K1-, K2+, K2-, K0+, K0- with 4096 pulses

¹⁾ programmable parameter

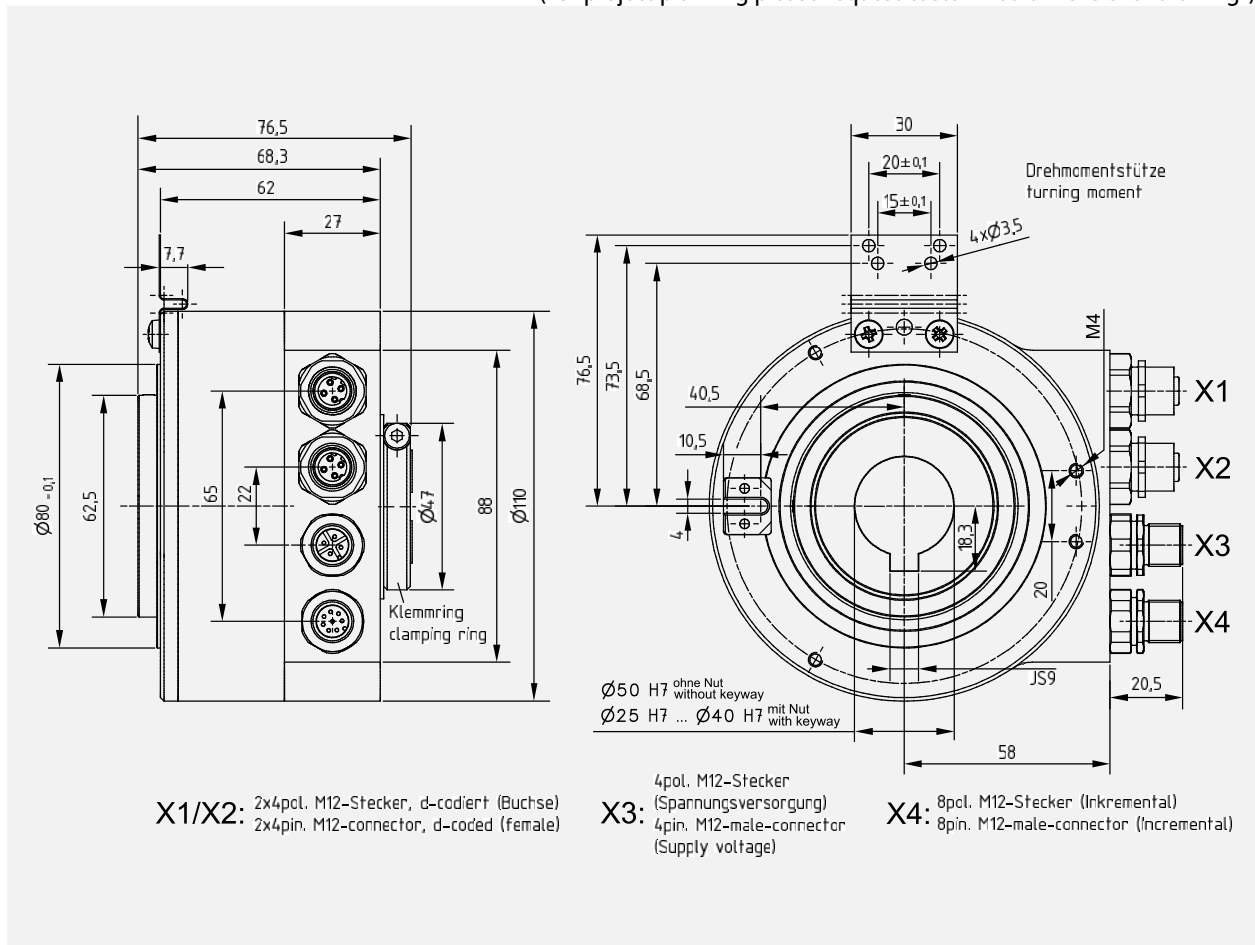
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change



- + EtherCAT / SSI - interface
- + Type with hollow through shaft
- + Hollow shaft Ø up to max. 80 mm
- + Measuring system with Multi-Interface-Technique for different closed-loop control concepts
- + SIN/COS signals for motor commutation and speed control
- + SSI absolute position data for position control
- + Industrial Ethernet for PC based closed-loop and system control
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11 ... 27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 27 Bit, Single-Turn: ≤ 15 Bit
Number of steps/revolution ¹⁾	≤ 32.768
Number of revolutions ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Transmission rate.....	100 MBit/s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 µs ≤ t _M ≤ 25 µs, typically 20 µs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 1.500 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	80H7, optional with reducing bush
Optional	
- SIN/COS signals.....	SIN+, COS+ with 1 V _{ss} ; Ref_SIN, Ref_COS with 2.5 reference voltage or SIN+, COS+, SIN-, COS-
- Alternative with incremental signals.....	K1+, K1-, K2+, K2- with 4096 periods/revolution

¹⁾ programmable parameter

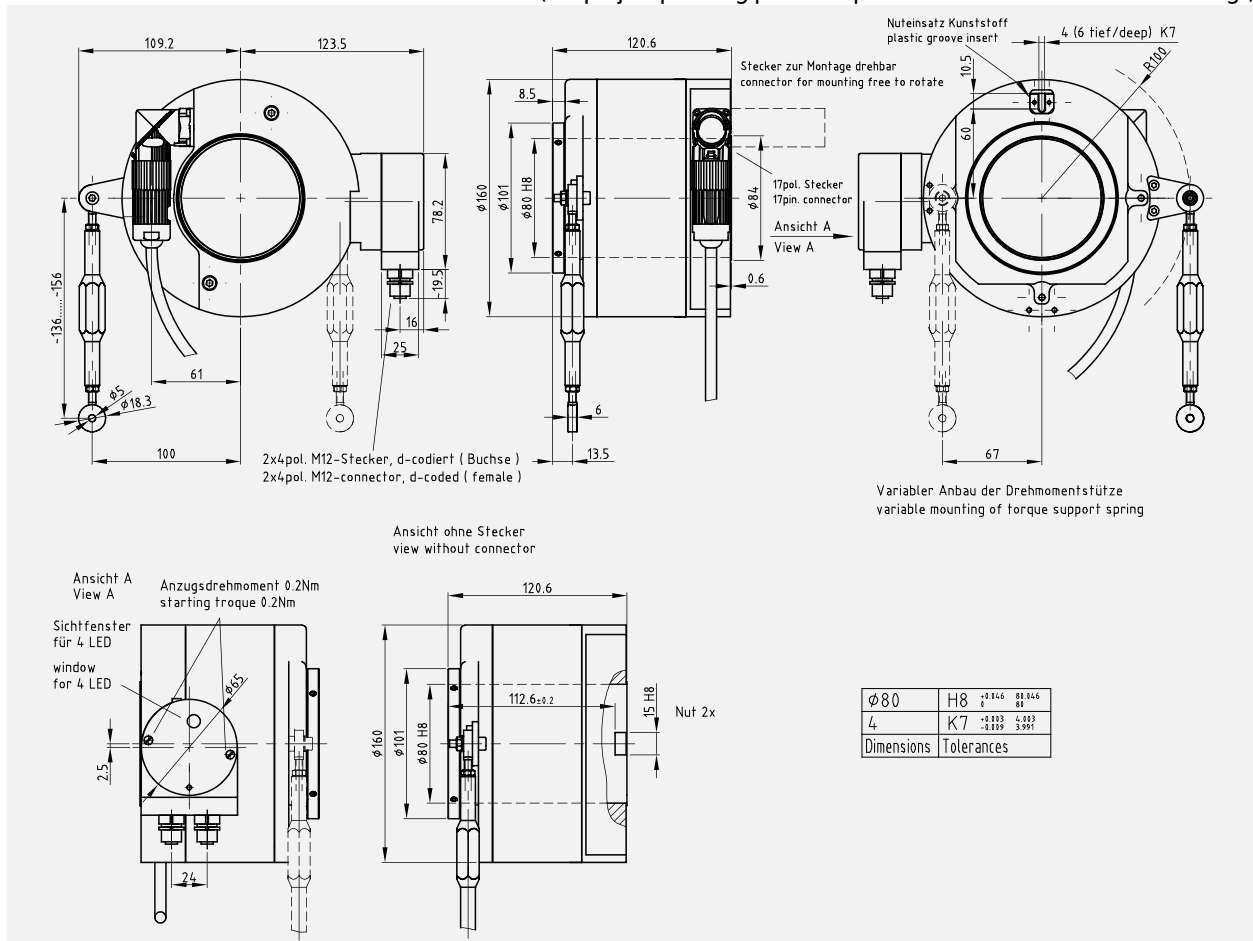
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65, without adjusting opening

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

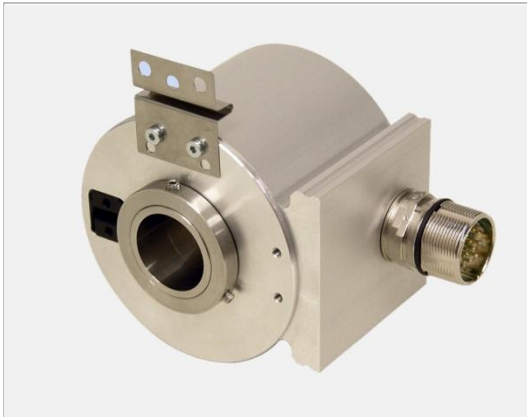
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COH 80 S/M - SSI

COH80-SSI-1-GB-1
11/11 Revision 03
010102-00800301-0002



- + SSI interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 100 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μ s ≤ t_M ≤ 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC
SSI-special bits ¹⁾	Toggel-Bit, further on request
Cycle time, internal	250 ns
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7...27H7 without keyway; 16H7...24H7 with keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 67 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 0.7 kg
Optional	
- Incremental signals ¹⁾ , RS422 level/Push-Pull	K1+, K1-, K2+, K2- ≤ 4096 pulses; K0+, K0- 1x per revolution
- SIN/COS signals, alternative to incremental signals	4096 periods/revolution

¹⁾ programmable parameter

Subject to change

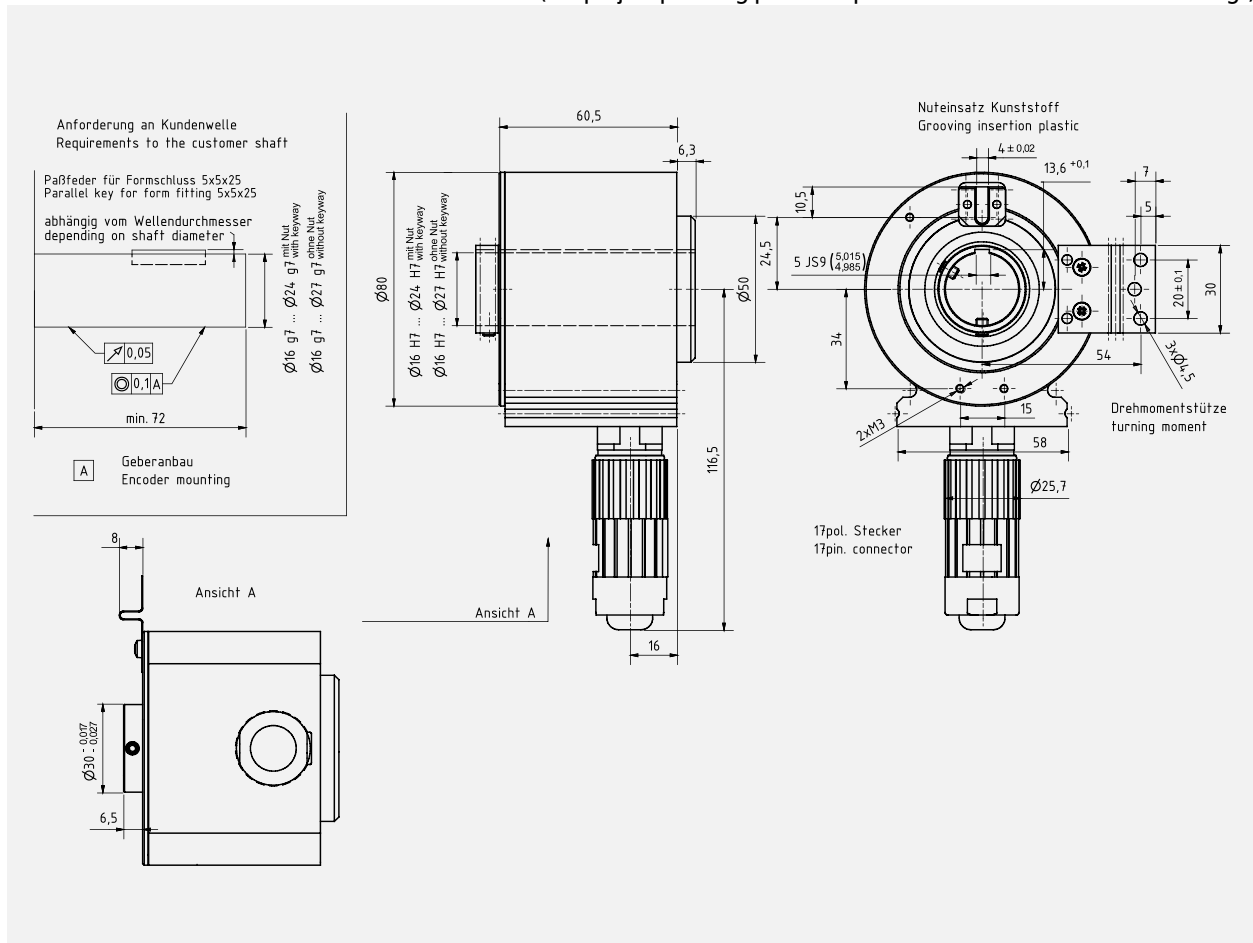
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Transient emissions, DIN EN 61000-6-3: 2007
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 Working temperature..... 0 °C...+60 °C, optional -20 °C...+70 °C
 Storage temperature -20 °C...+85 °C, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

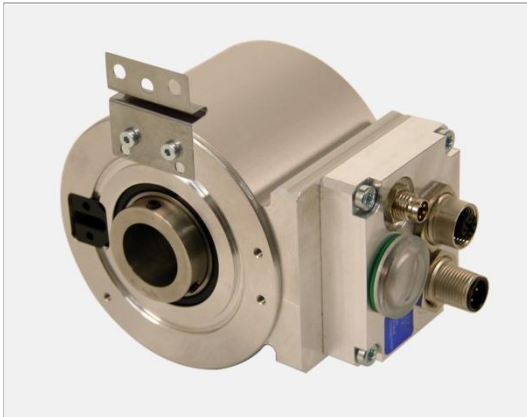
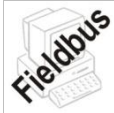
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder COH 80 S/M - PB

COH80-PB-1-GB-1
11/11 Revision 03
010102-00800302-0002



- + PROFIBUS-DP interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 180 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 262.144, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code	Binary
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	≤ 29 Bit
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7...27H7 without keyway; 16H7...24H7 with keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 67 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

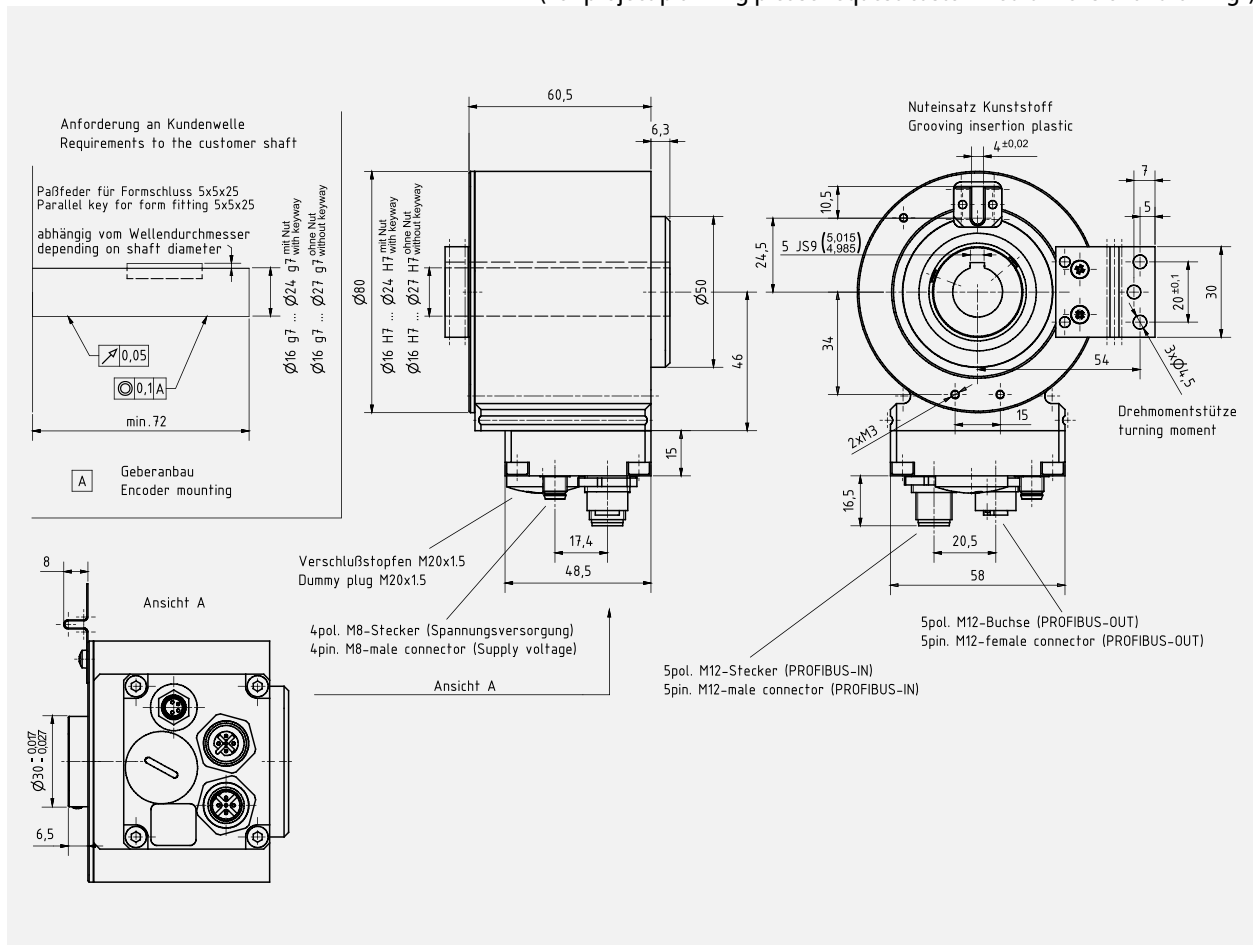
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-20 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

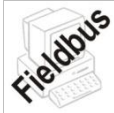
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder COH 80 S/M - ETC

COH80-ETC-1-GB-1
10/11 Revision 02
010102-00800303-0002



- + EtherCAT interface
- + Type with hollow through shaft
- + High resolution measuring system, up to 18 bit
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 300 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 µs
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	≤ 31 Bit
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7...27H7 without keyway; 16H7...24H7 with keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 67 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 0.7 kg

¹⁾ programmable parameter

Subject to change

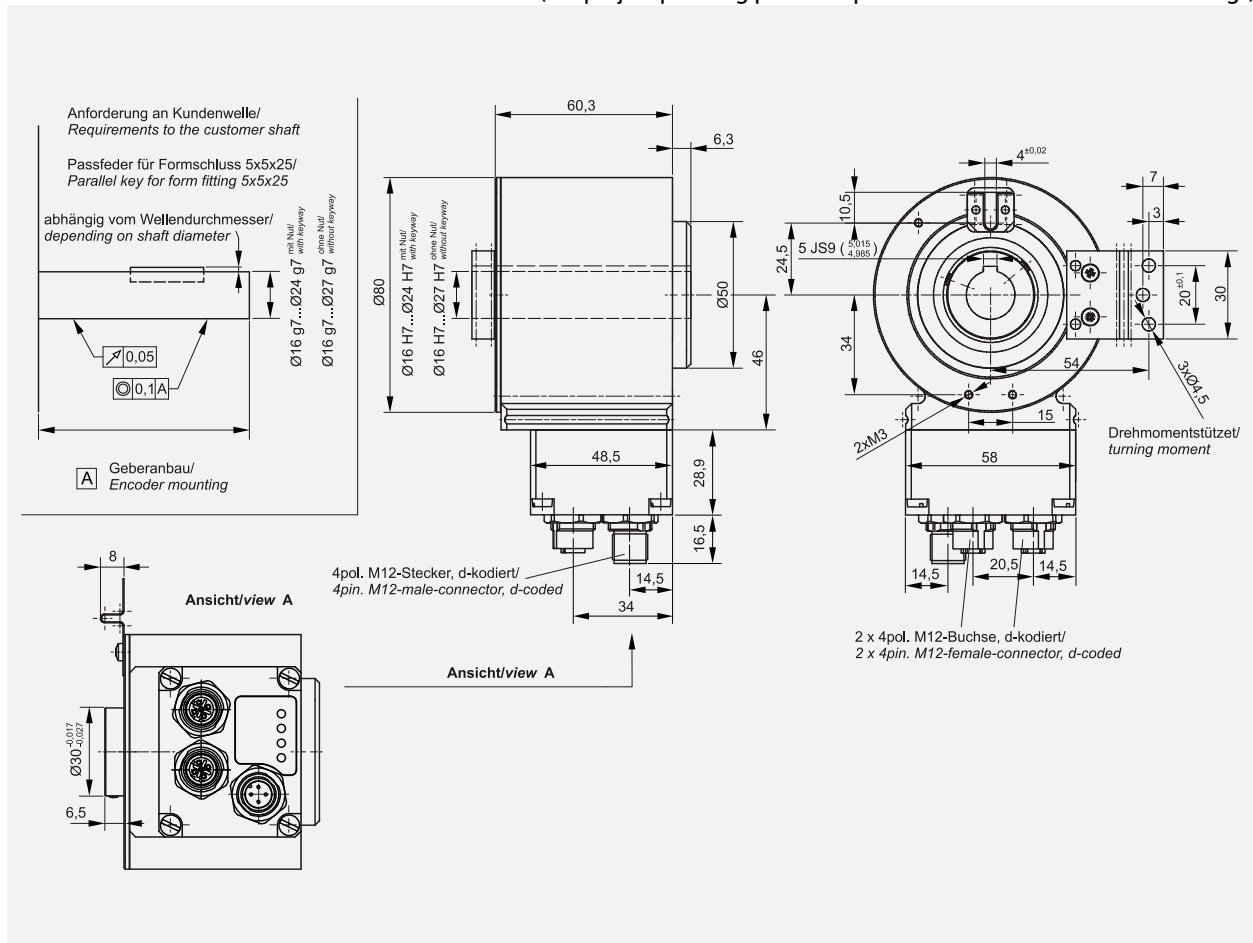
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-20 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

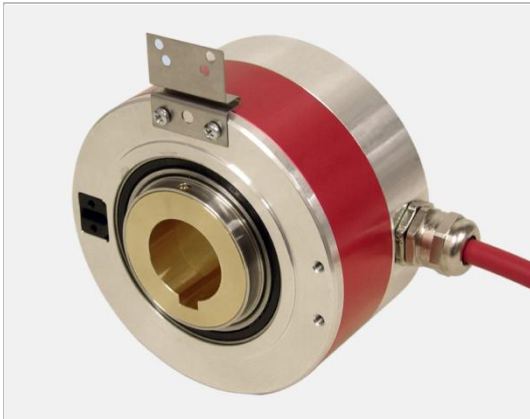
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder COH 110 S/M - SSI

COH110-SSI-1-GB-1
11/11 Revision 02
010102-01100302-0002



- + SSI interface
- + Type with hollow through shaft, \varnothing 25...50 mm
- + High resolution measuring system, up to 18 bit
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC, optional 5 VDC \pm 5%
Current consumption without load	< 110 mA, < 150 mA at 5 VDC
Total resolution ¹⁾	Multi-Turn: \leq 36 Bit, Single-Turn: \leq 18 Bit
Number of steps/revolution ¹⁾	\leq 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: \leq 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: \leq 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t_M	16 μ s \leq t_M \leq 25 μ s, typically 20 μ s
Output code ¹⁾	Binary, Gray
Output format ¹⁾	Standard, SSI+CRC
SSI-special bits ¹⁾	Toggel-Bit, further on request
Cycle time, internal	250 ns
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	\leq 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	\geq 3.9 * 10 ¹⁰ revolutions at
- Speed	\leq 2.000 min ⁻¹
- Operating temperature	\leq 60 °C
Shaft diameter in mm.....	50H7 without keyway; 25H7...40H7 with keyway
Permissible angular acceleration.....	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 525 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 1.75 kg
Optional	
- Incremental signals, RS422 level/Push-Pull	K1+, K1-, K2+, K2-, K0+, K0- with 4096 pulses

¹⁾ programmable parameter

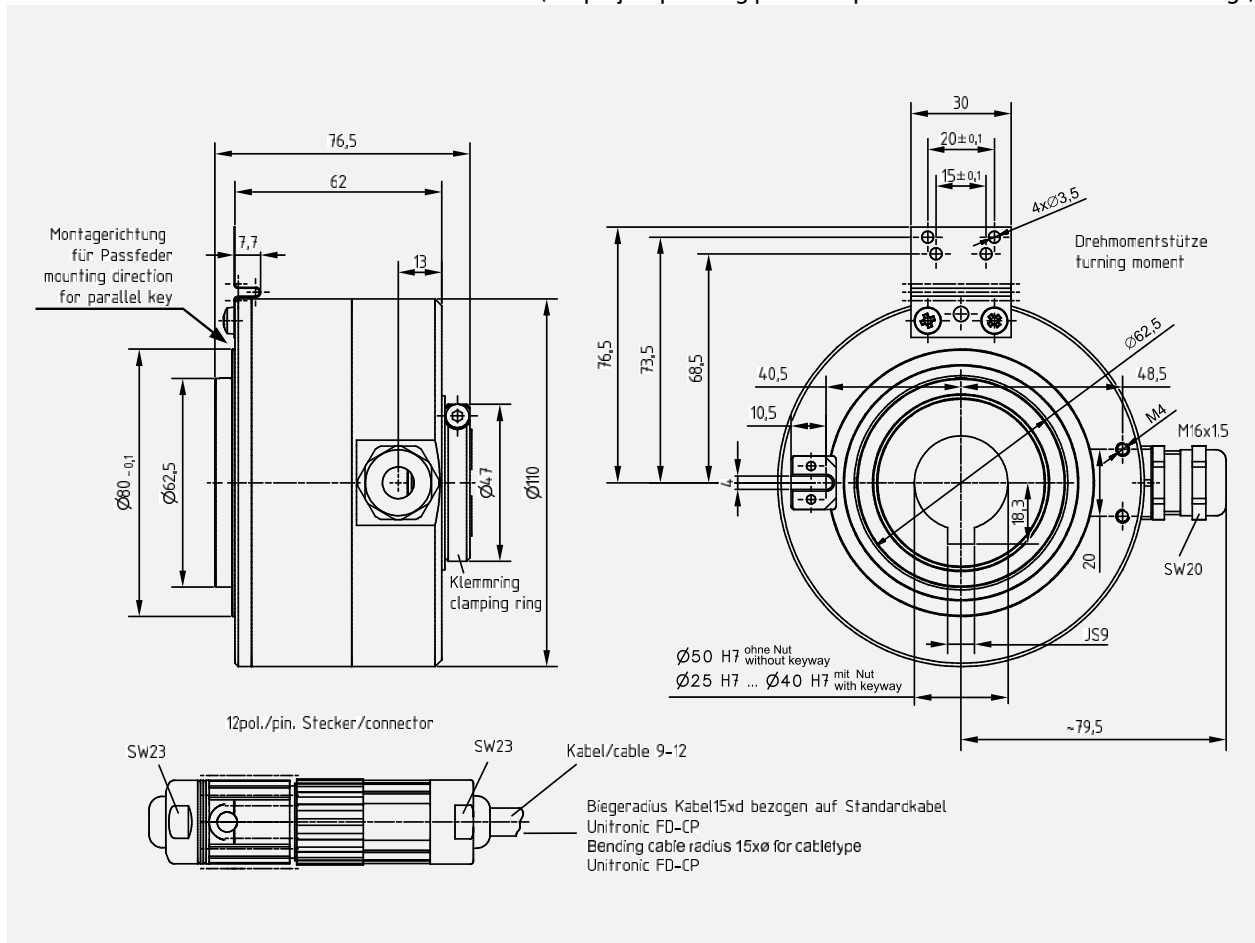
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

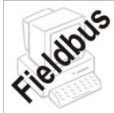
(For project planning please request customized dimensional drawing!)



Subject to change

Absolute Encoder COH110 S/M - PB

COH110-PB-1-GB-1
08/12 Revision 00
010102-01100302-0002



- + PROFIBUS-DP interface
- + Type with hollow through shaft, \varnothing 25...50 mm
- + High resolution measuring system, up to 18 bit
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 180 mA
Total resolution ¹⁾	Multi-Turn: \leq 36 Bit, Single-Turn: \leq 18 Bit
Number of steps/revolution ¹⁾	\leq 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: \leq 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: \leq 262.144, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code	Binary
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output
Data size for actual value on the bus	\leq 29 Bit
Mechanically permissible speed	\leq 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time	\geq 3.9 * 10 ¹⁰ revolutions at
- Speed	\leq 2.000 min ⁻¹
- Operating temperature	\leq 60 °C
Shaft diameter.....	in mm
- without shaft insert.....	50H7 (only without keyway)
- with shaft insert.....	25H7...40H7 (with and without keyway)
Permissible angular acceleration	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 525 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 1.2 kg (without shaft insert)

¹⁾ programmable parameter

Subject to change

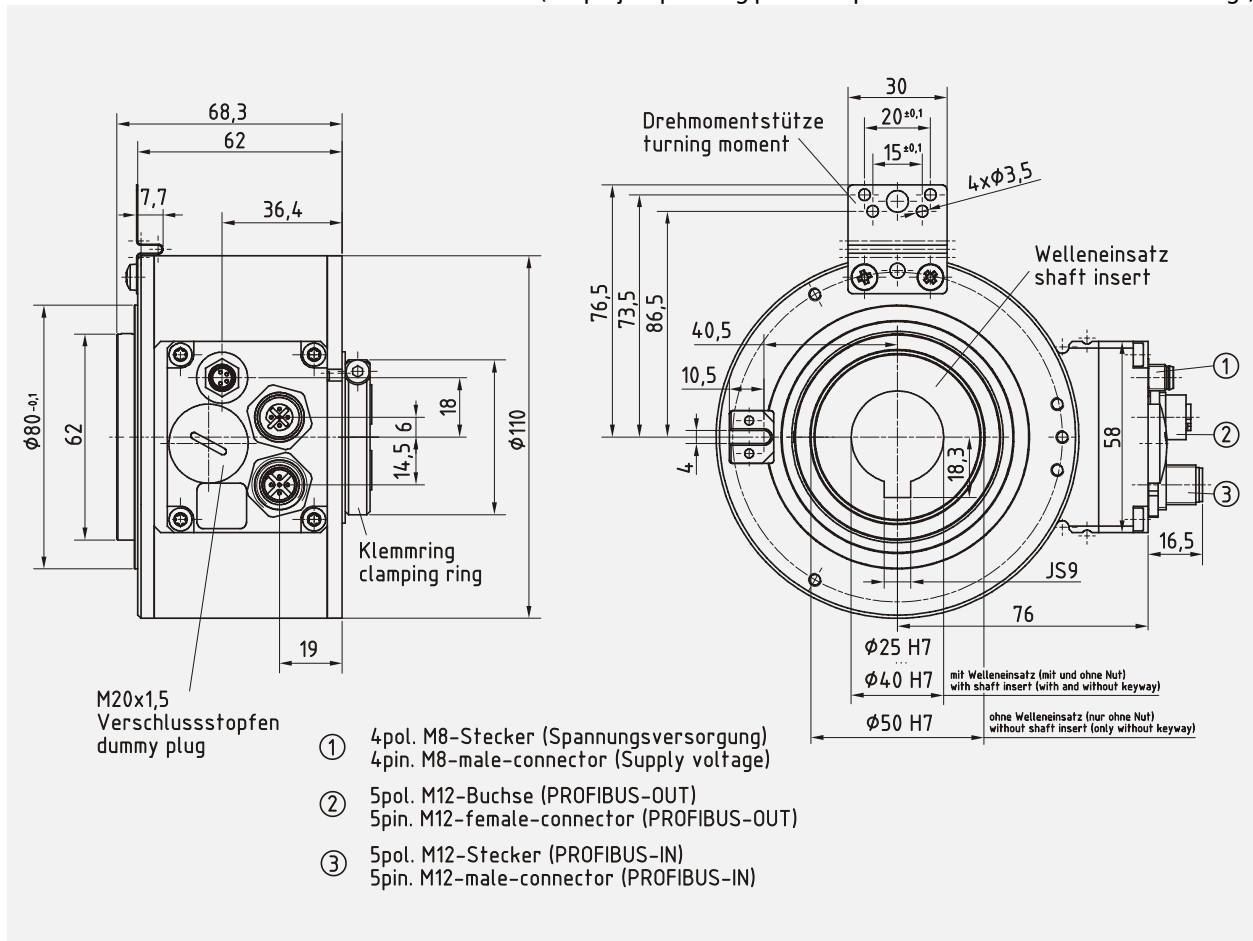
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

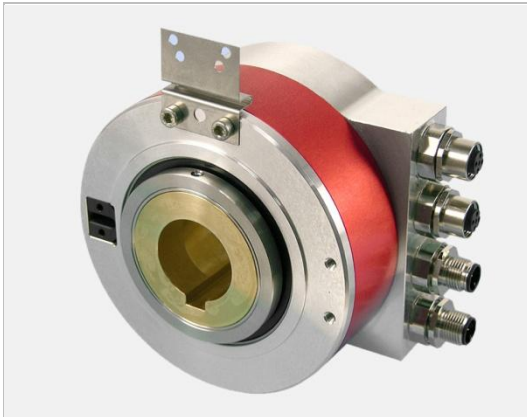
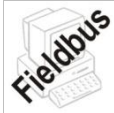
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder COH 110 S/M - ETC

COH110-ETC-1-GB-1
11/11 Revision 02
010102-01100303-0002



- + EtherCAT interface
- + Type with hollow through shaft, \varnothing 25...50 mm
- + High resolution measuring system, up to 18 bit
- + Extensive parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 200 mA
Total resolution ¹⁾	Multi-Turn: \leq 36 Bit, Single-Turn: \leq 18 Bit
Number of steps/revolution ¹⁾	\leq 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: \leq 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: \leq 256.000, Single-Turn: 1
EtherCAT	IEC 61158-1 – 6, IEC 61784-2
- Physical Layer.....	EtherCAT 100Base-TX, Fast Ethernet, ISO/IEC 8802-3
- Output code	Binary
- Device profile	CANopen over EtherCAT (CoE), CiA DS-406
- Distributed clocks.....	according to IEEE 1588
- Transmission rate.....	100 MBit/s
- Cycle time	100 μ s
- Transmission	CAT-5 cable, shielded (STP), ISO/IEC 11801
- Parameter ¹⁾	Scaling parameters, Count direction, Preset value
- Data size for actual value on the bus	\leq 32 Bit
Mechanically permissible speed	\leq 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	\geq 3.9 * 10 ¹⁰ revolutions at
- Speed	\leq 2.000 min ⁻¹
- Operating temperature	\leq 60 °C
Shaft diameter in mm.....	50H7 without keyway; 25H7...40H7 with keyway
Permissible angular acceleration.....	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 525 * 10 ⁻⁶ kg m ²
Start-up torque at 20 °C.....	typically 8 Ncm
Mass.....	typically 1.75 kg
Optional	
- Incremental signals, RS422 level/Push-Pull	K1+, K1-, K2+, K2-, K0+, K0- with 4096 pulses

¹⁾ programmable parameter

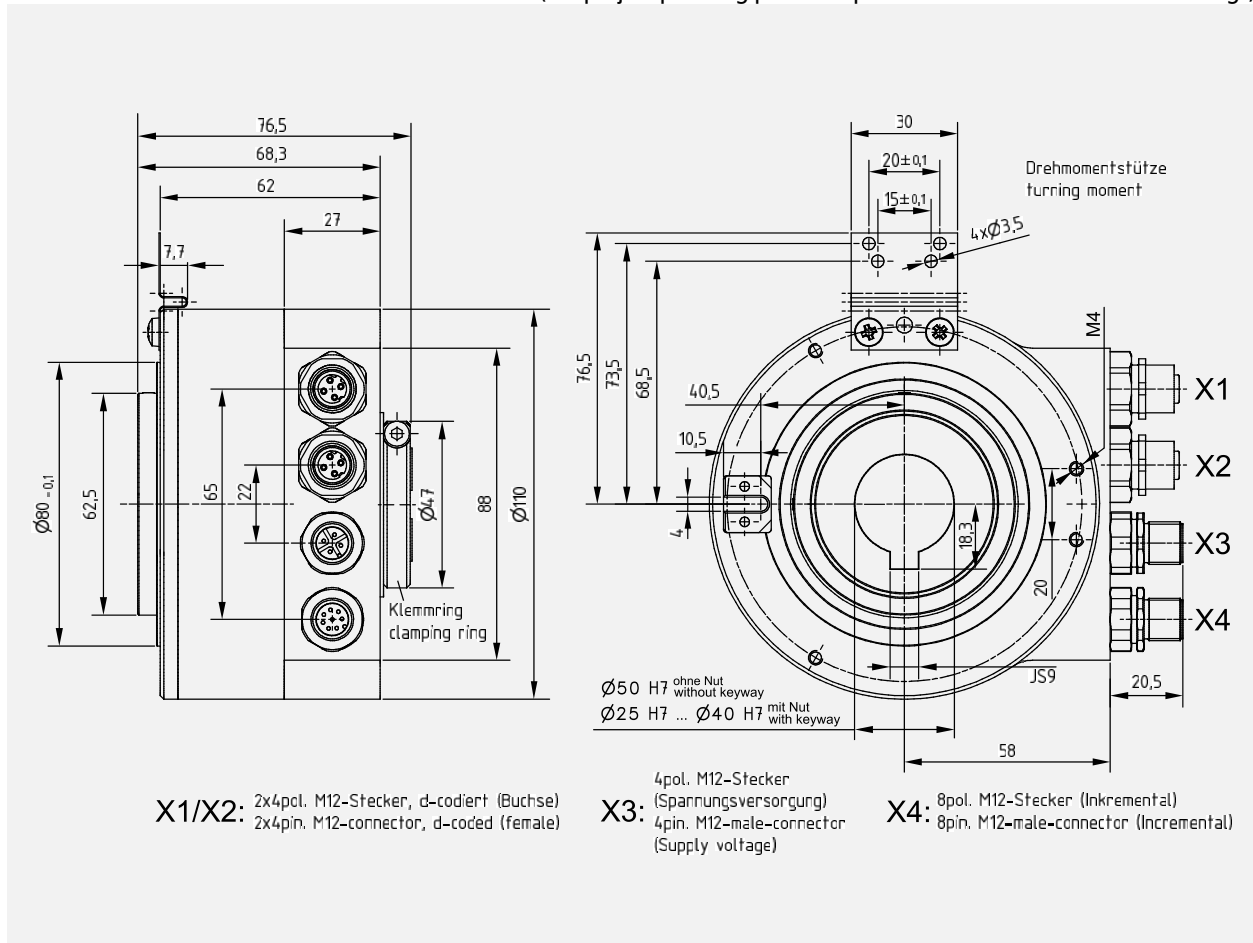
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder QE80 S/M - SSI

QE80-SSI-1-GB-1
11/11 Revision 01
010102-00800201-0002



- + SSI interface
- + Type with hollow through shaft
- + Modular product line
- + Rugged construction
- + Extensive parameter setting possibilities
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 200 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat, variable number of data bits
Negative values ¹⁾	Sign + Value, Two's complement
SSI- or parallel special bits ¹⁾	Cams, Overspeed, Direction, Moving, Error, Parity
Parallel outputs.....	Push-Pull, max. 8
- Output current	50 mA per output, short-circuit proof
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7, 20H7 with/without keyway, 24H7, 25H7 without keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 57.2 * 10 ⁻⁶ kg m ²
Mass.....	typically 1.3 kg

¹⁾ programmable parameter

Subject to change

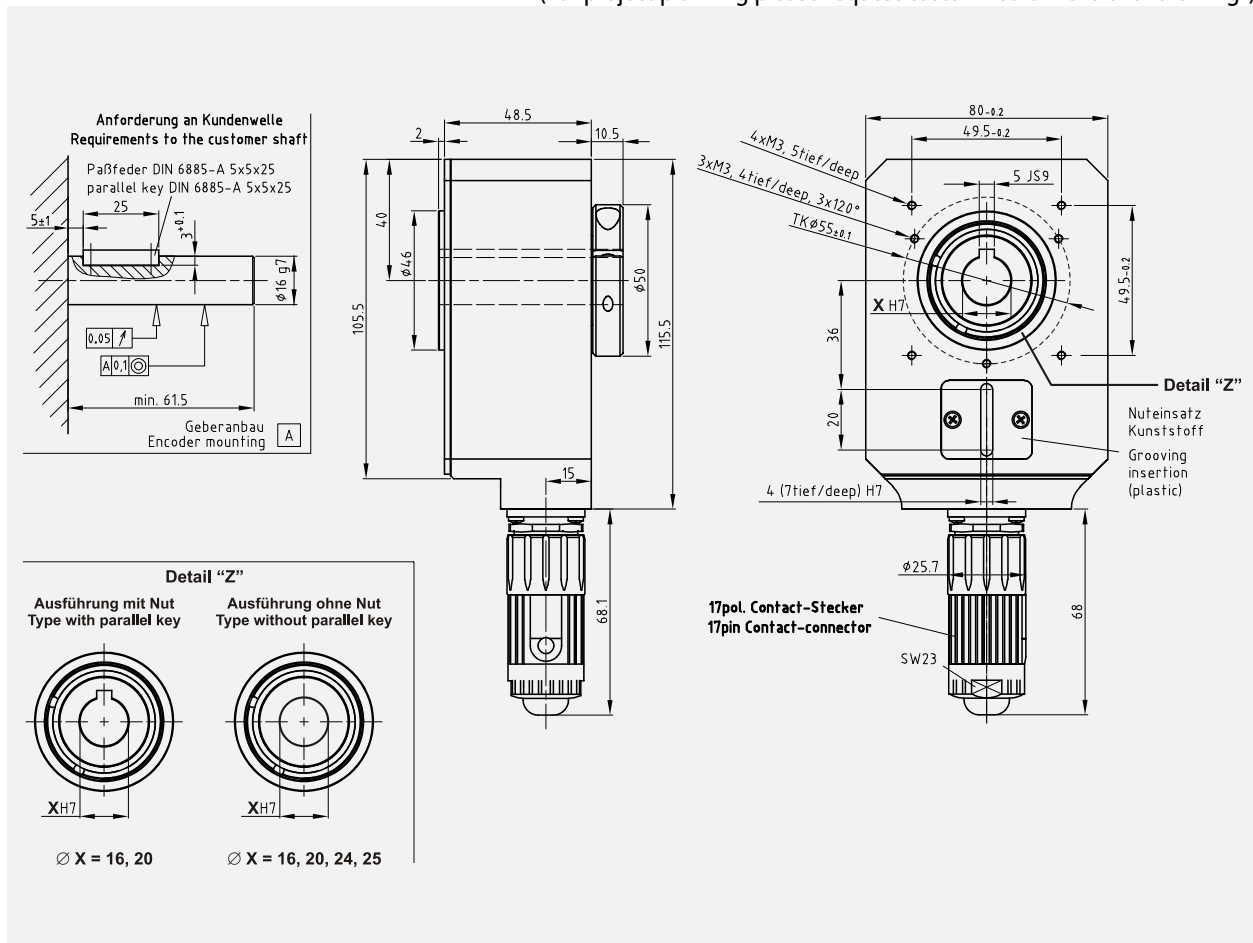
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+120 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

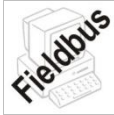
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder QEH 80 M - PB

QEH80M-PB-1-GB-1
11/11 Revision 02
010102-00800202-0202



- + PROFIBUS-DP interface
- + Type with hollow through shaft
- + Modular product line
- + Rugged construction
- + Extensive parameter setting possibilities
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable by means of rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output, limit switches, SSI configuration, external Preset inputs
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7, 20H7 with/without keyway, 24H7, 25H7 without keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 57.2 * 10 ⁻⁶ kg m ²
Mass.....	typically 1.3 kg

¹⁾ programmable parameter

Subject to change

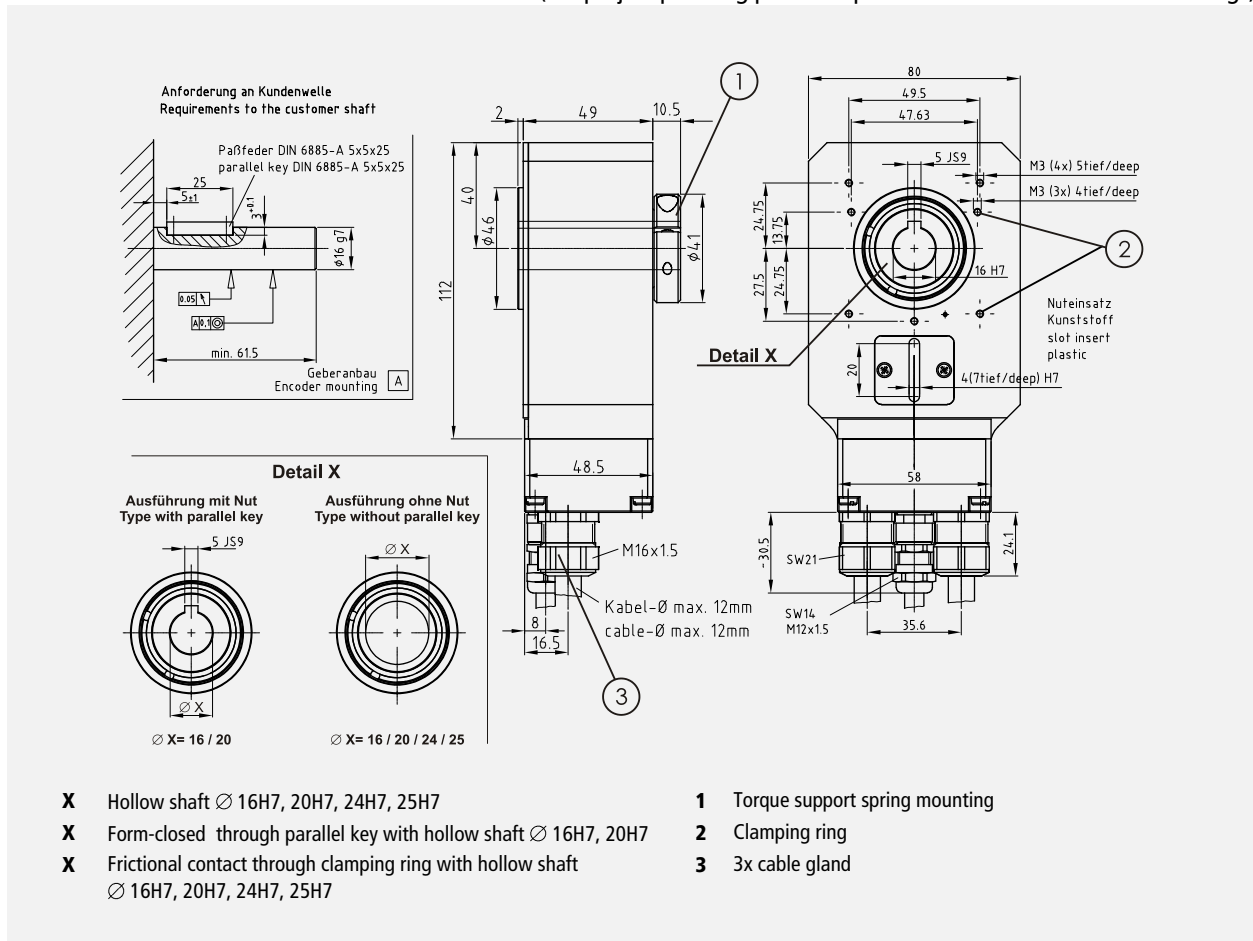
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+120 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

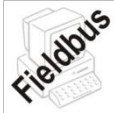
Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder QE81 S/M - PB

QE81-PB-1-GB-1
11/11 Revision 01
010102-00810202-0002



- + PROFIBUS-DP / SSI - interface
- + Type with hollow through shaft
- + Modular product line
- + Rugged construction
- + Extensive parameter setting possibilities
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 350 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Profibus-DP V0	IEC 61158, IEC 61784
PNO Encoder-Profile.....	Class 1 and 2
- Parameter ¹⁾	Switch-over count direction, scaling function etc.
Output code ¹⁾	Binary, Gray, shifted Gray
Addressing	3...99, adjustable about rotary switches
Baud rate	9.6 kbit/s...12 Mbit/s
TR-specific functions ¹⁾	Gearbox, velocity output, limit switches, SSI configuration, external Preset inputs
SSI (optional).....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	18 μs
Output code ¹⁾	Binary, Gray, shifted Gray
Number of data bits ¹⁾	≤ 32
Output format	MSB left-justified
Preset 1 and 2	electronic adjustment
Mechanically permissible speed	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	16H7, 20H7 with/without keyway, 24H7, 25H7 without keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 57.2 * 10 ⁻⁶ kg m ²
Mass.....	typically 1.3 kg

¹⁾ programmable parameter

Subject to change

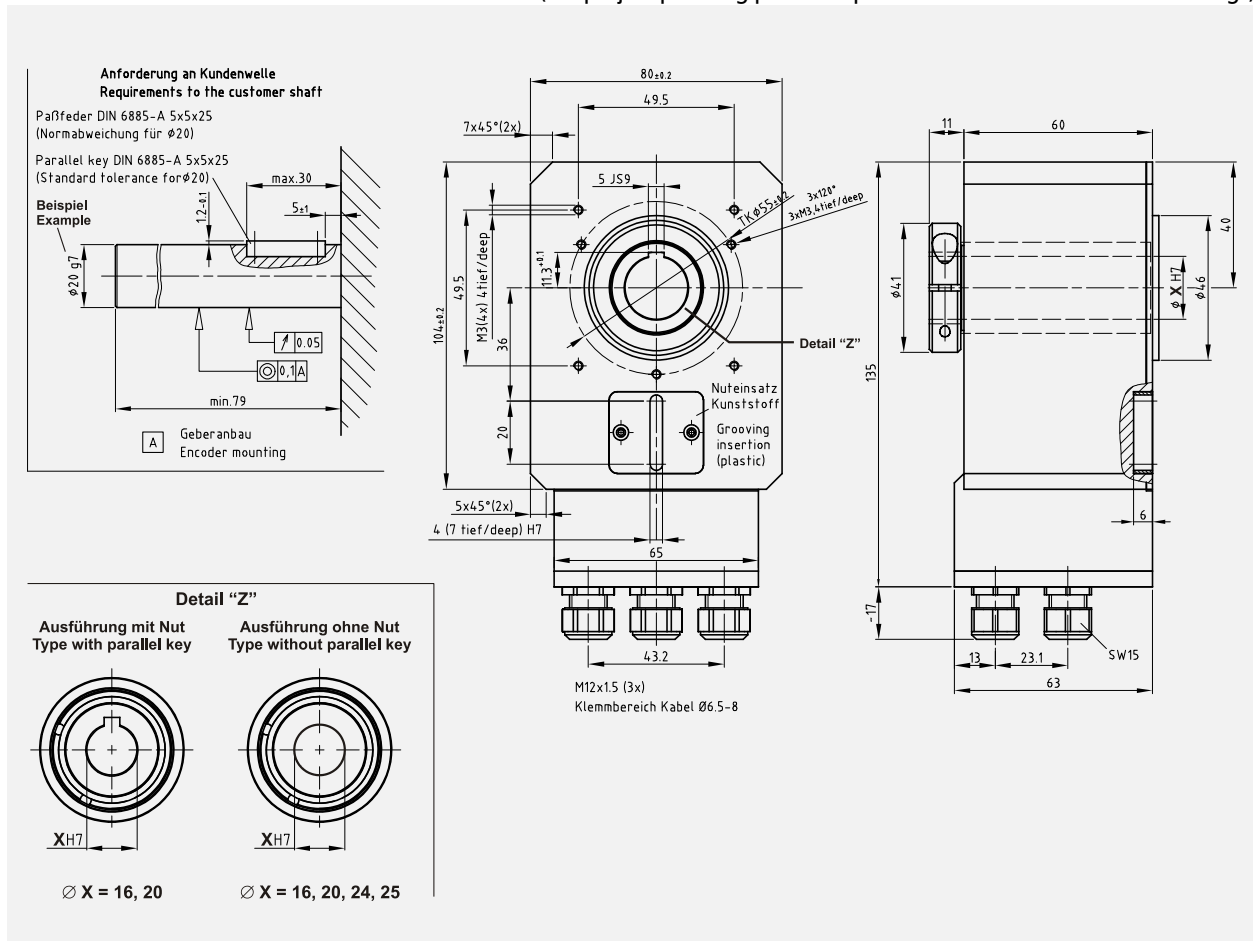
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+120 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder QDH 80 M - SSI

QDH80M-SSI-1-GB-1
12/11 Revision 00
010102-00800401-0202



- + SSI / Incremental - interface
- + Type with hollow through shaft
- + Modular product line
- + Redundant scanning system
- + Rugged construction
- + Extensive parameter setting possibilities
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 200 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Number of data bits ¹⁾	≤ 32, without SSI special bits
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat
Negative values ¹⁾	Sign + Value, Two's complement
Incremental interface.....	Signals twisted in pairs and shielded
Pulses / revolution.....	4096
K1+, K1-, K2+, K2-, K0+, K0-.....	RS422 level (2-wire)
SIN/COS output, alternative.....	Signals twisted in pairs and shielded
- Number of periods.....	4096 / revolution; 1 V _{SS} at 100Ω, differential
Parallel outputs.....	Push-Pull, max. 8
- Output current.....	50 mA per output, short-circuit proof
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	16H7, 20H7 with/without keyway, 24H7, 25H7 without keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 57.2 * 10 ⁻⁶ kg m ²
Mass.....	typically 1.3 kg

¹⁾ programmable parameter

Subject to change

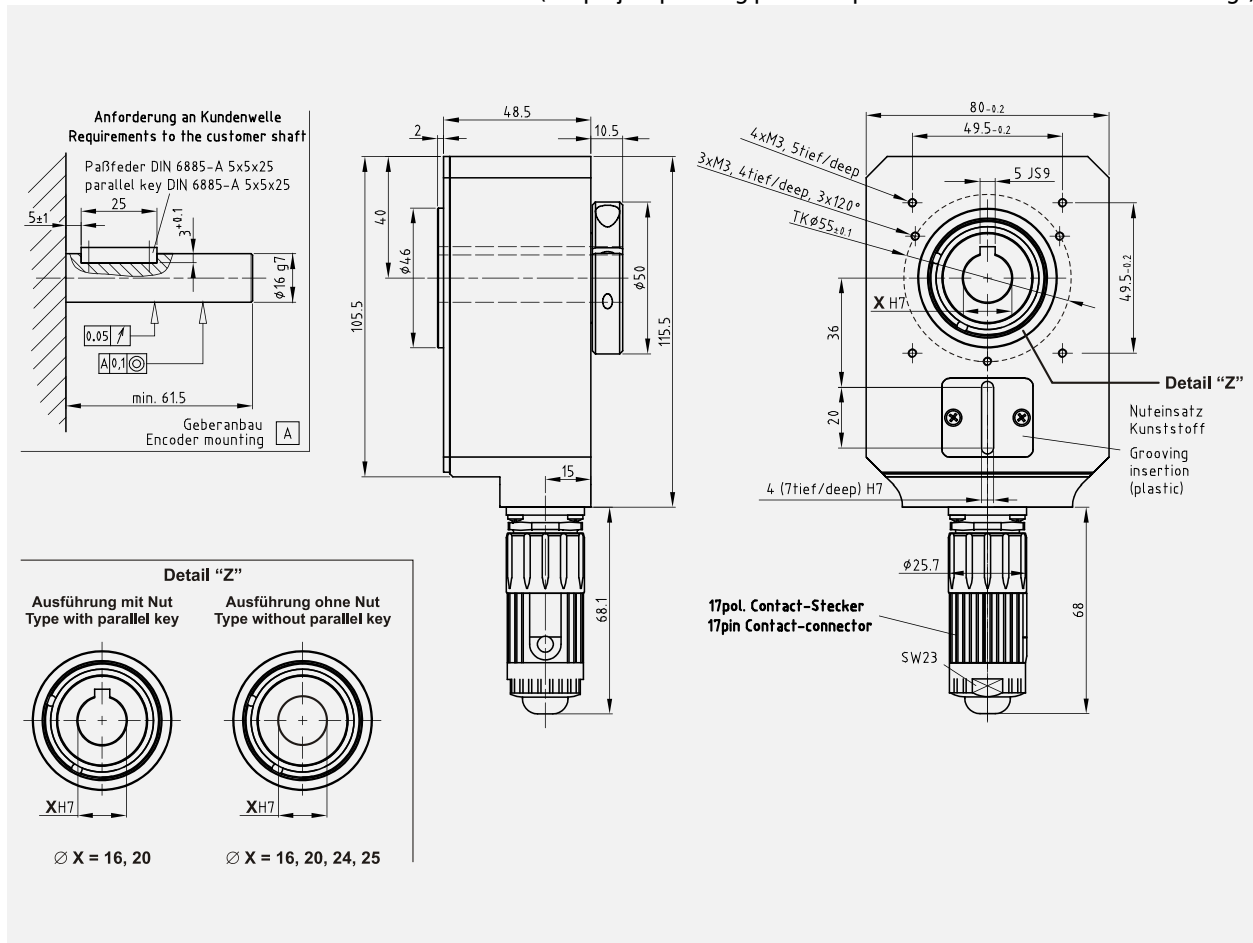
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C
Storage temperature	-30 °C...+120 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)





- + SSI / Incremental - interface
- + Type with hollow through shaft
- + Modular product line
- + Redundant scanning system
- + Rugged construction
- + Extensive parameter setting possibilities
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 200 mA
Total resolution ¹⁾	≤ 25 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	≤ 4.096
Number of revolutions, extended ¹⁾	≤ 256.000
SSI.....	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-422, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	16 μs ≤ t _M ≤ 25 μs, typically 20 μs
Number of data bits ¹⁾	≤ 32, without SSI special bits
Output code ¹⁾	Binary, Gray, BCD
Output format ¹⁾	Standard, Tree format, SSI+CRC, 26-bit repeat
Negative values ¹⁾	Sign + Value, Two's complement
Incremental interface.....	Signals twisted in pairs and shielded
Pulses / revolution.....	4096
K1+, K1-, K2+, K2-, K0+, K0-.....	RS422 level (2-wire)
SIN/COS output, alternative.....	Signals twisted in pairs and shielded
- Number of periods.....	4096 / revolution; 1 V _{SS} at 100Ω, differential
Parallel outputs.....	Push-Pull, max. 8
- Output current.....	50 mA per output, short-circuit proof
F/R ¹⁾	Count direction
Preset ¹⁾	electronic adjustment
Logic level.....	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed.....	≤ 3.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed.....	≤ 3.000 min ⁻¹
- Operating temperature.....	≤ 60 °C
Shaft diameter in mm.....	16H7, 20H7 with/without keyway, 24H7, 25H7 without keyway
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia.....	typically 57.2 * 10 ⁻⁶ kg m ²
Mass.....	typically 1.3 kg

¹⁾ programmable parameter

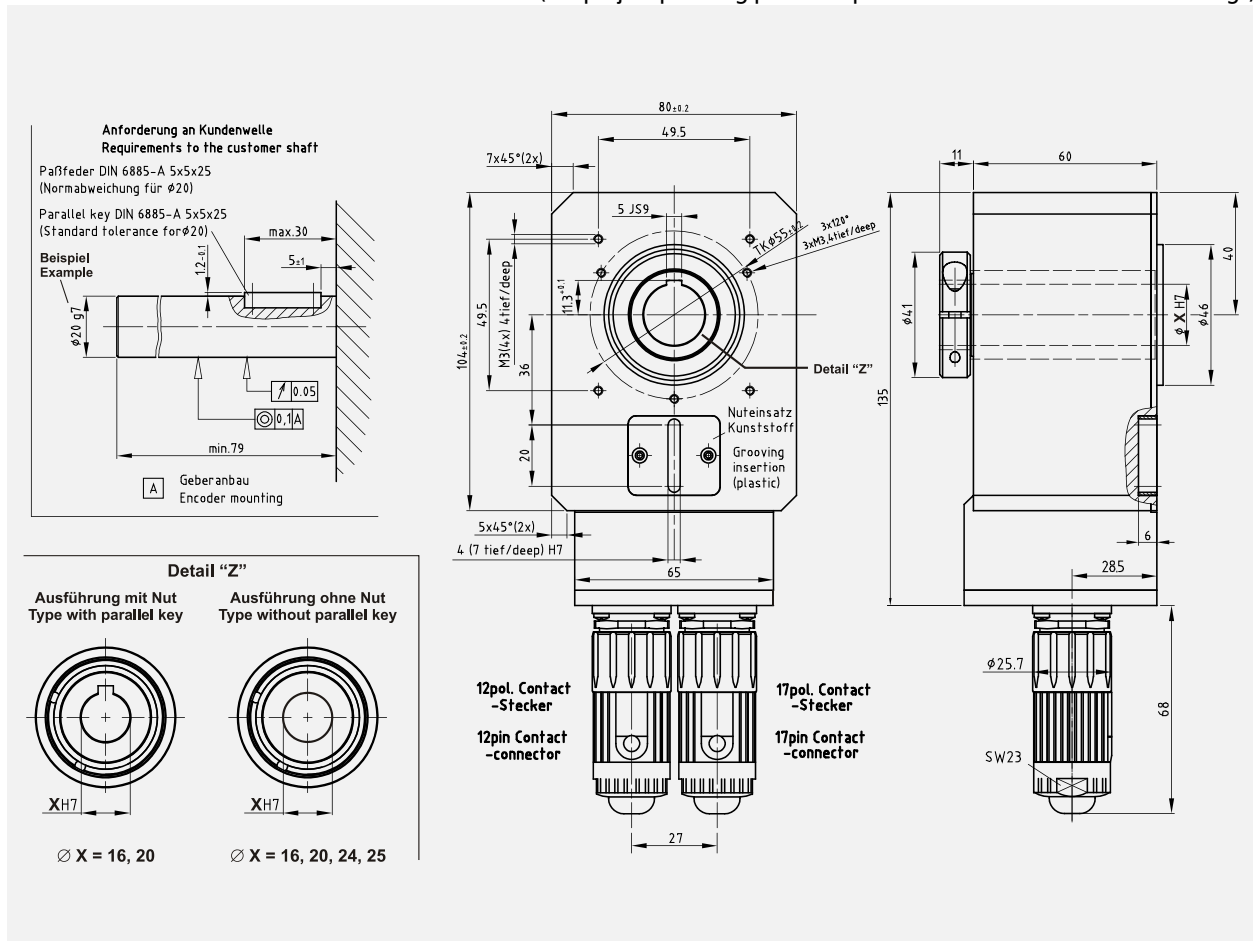
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	$\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	$\leq 1000 \text{ m/s}^2$, half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C
Storage temperature	-30 °C...+120 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDV 58 S/M

CDV58-M-1-GB-1
11/11 Revision 04
010102-00580400-0001



- + Interface variants
- + Type with solid shaft
- + Modular product line
- + Redundant scanning system
- + Further interface variants upon request
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	2 * 11...27 VDC
Current consumption without load	< 700 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Interface variants	
Measuring system 1	Measuring system 2, possible variants
- SSI	SSI, Incremental + programmable
- Incremental	Incremental + programmable
- Incremental, programmable	Incremental, programmable
- Deviation of the actual value, system 1 to system 2	max. ± 1°
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end	≤ 10 N axial, ≤ 20 N radial
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 4 Ncm
Mass	0.6 kg...1 kg

¹⁾ programmable parameter

Subject to change

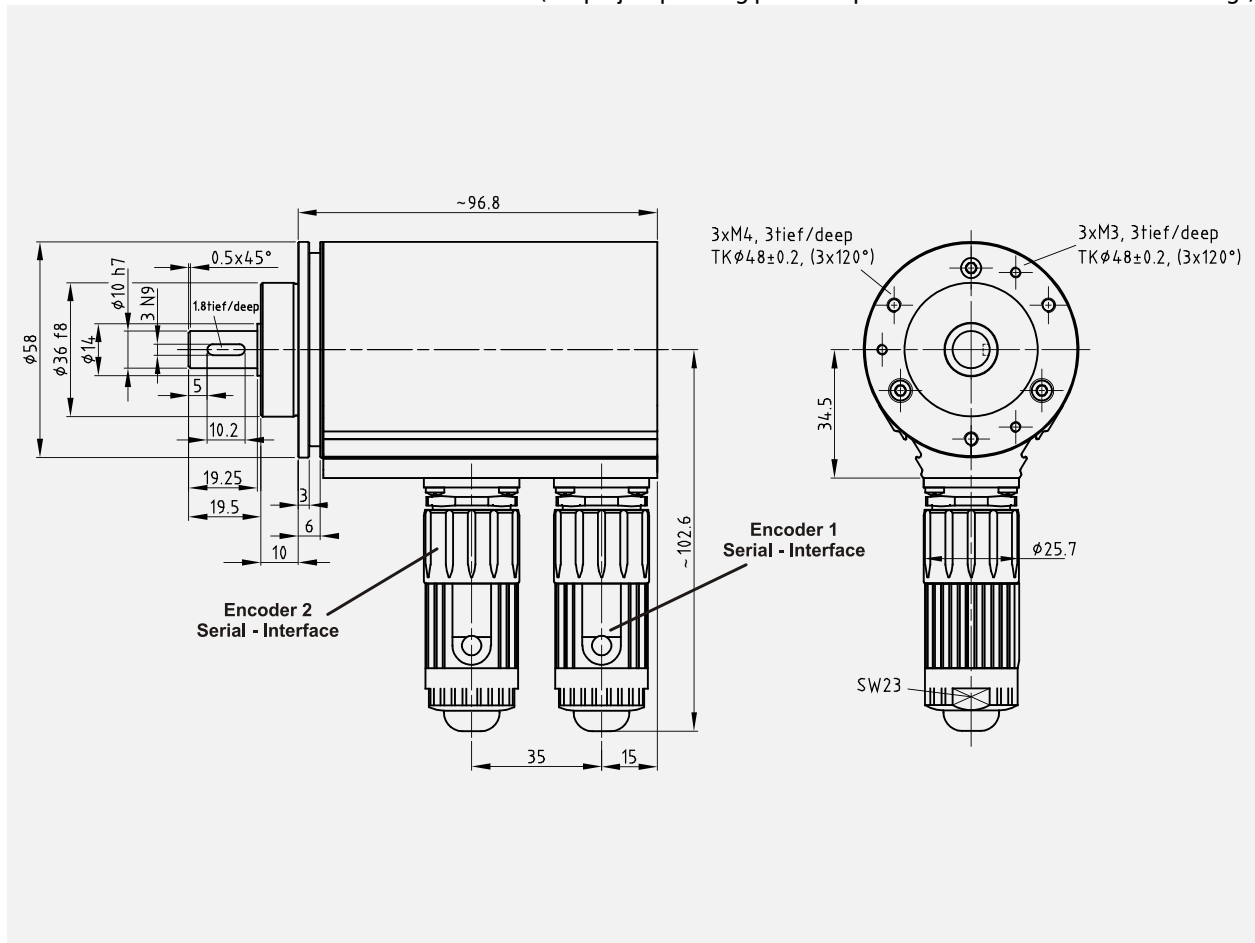
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDV 58 S/M, High Resolution

CDV58-M-1-GB-2
11/11 Revision 02
010102-00580400-0001



- + Interface variants
- + Type with solid shaft
- + High resolution measuring system, up to 18 bit
- + Modular product line
- + Redundant scanning system
- + Further interface variants upon request
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	2 * 11...27 VDC
Current consumption without load	< 700 mA
Total resolution ¹⁾	Multi-Turn: ≤ 36 Bit, Single-Turn: ≤ 18 Bit
Number of steps/revolution ¹⁾	≤ 262.144
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Interface variants	
Measuring system 1	Measuring system 2, possible variants
- SSI	SSI, Incremental + programmable
- Incremental	Incremental + programmable
- Incremental, programmable	Incremental, programmable
- Deviation of the actual value, system 1 to system 2	max. ± 1°
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end	≤ 10 N axial, ≤ 20 N radial
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 4 Ncm
Mass	0.6 kg...1 kg

¹⁾ programmable parameter

Subject to change

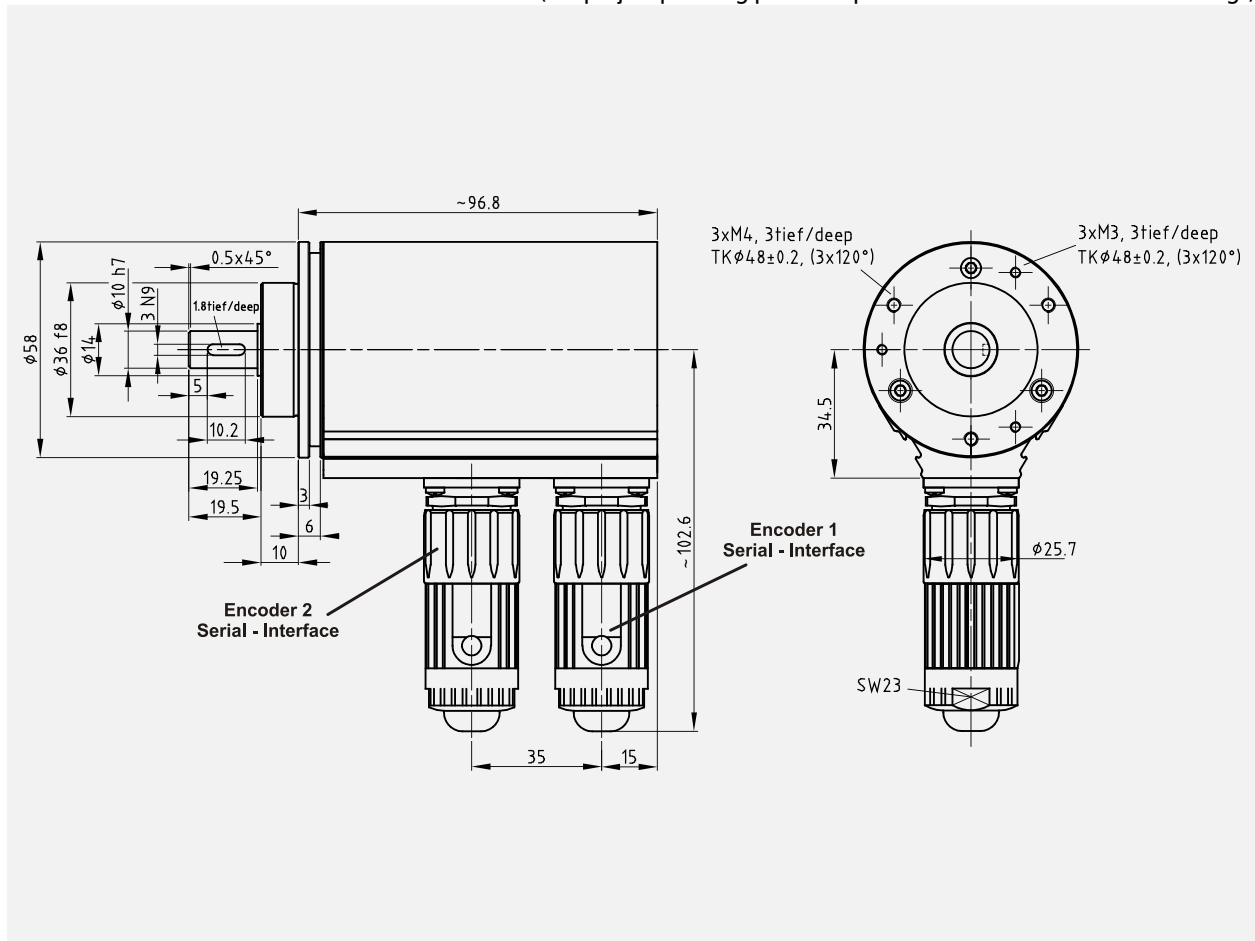
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Transient emissions, DIN EN 61000-6-3: 2007
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 Working temperature..... $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Absolute-Encoder CDS 58 S/M

CDS58-M-1-GB-1
11/11 Revision 04
010102-00580400-0003



- + Interface variants
- + Type with blind shaft
- + Modular product line
- + Redundant scanning system
- + Further interface variants upon request
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	2 * 11...27 VDC
Current consumption without load	< 700 mA
Total resolution ¹⁾	Multi-Turn: ≤ 25 Bit, Single-Turn: ≤ 13 Bit
Number of steps/revolution ¹⁾	≤ 8.192
Number of revolutions, standard ¹⁾	Multi-Turn: ≤ 4.096, Single-Turn: 1
Number of revolutions, extended ¹⁾	Multi-Turn: ≤ 256.000, Single-Turn: 1
Interface variants	
Measuring system 1	Measuring system 2, possible variants
- SSI	SSI, Incremental + programmable
- Incremental	Incremental + programmable
- Incremental, programmable	Incremental, programmable
- Deviation of the actual value, system 1 to system 2	max. ± 1°
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load	Own mass
Bearing life time	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm	10H7, 12H7
Permissible angular acceleration	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C	typically 4 Ncm
Mass	0.6 kg...1 kg

¹⁾ programmable parameter

Subject to change

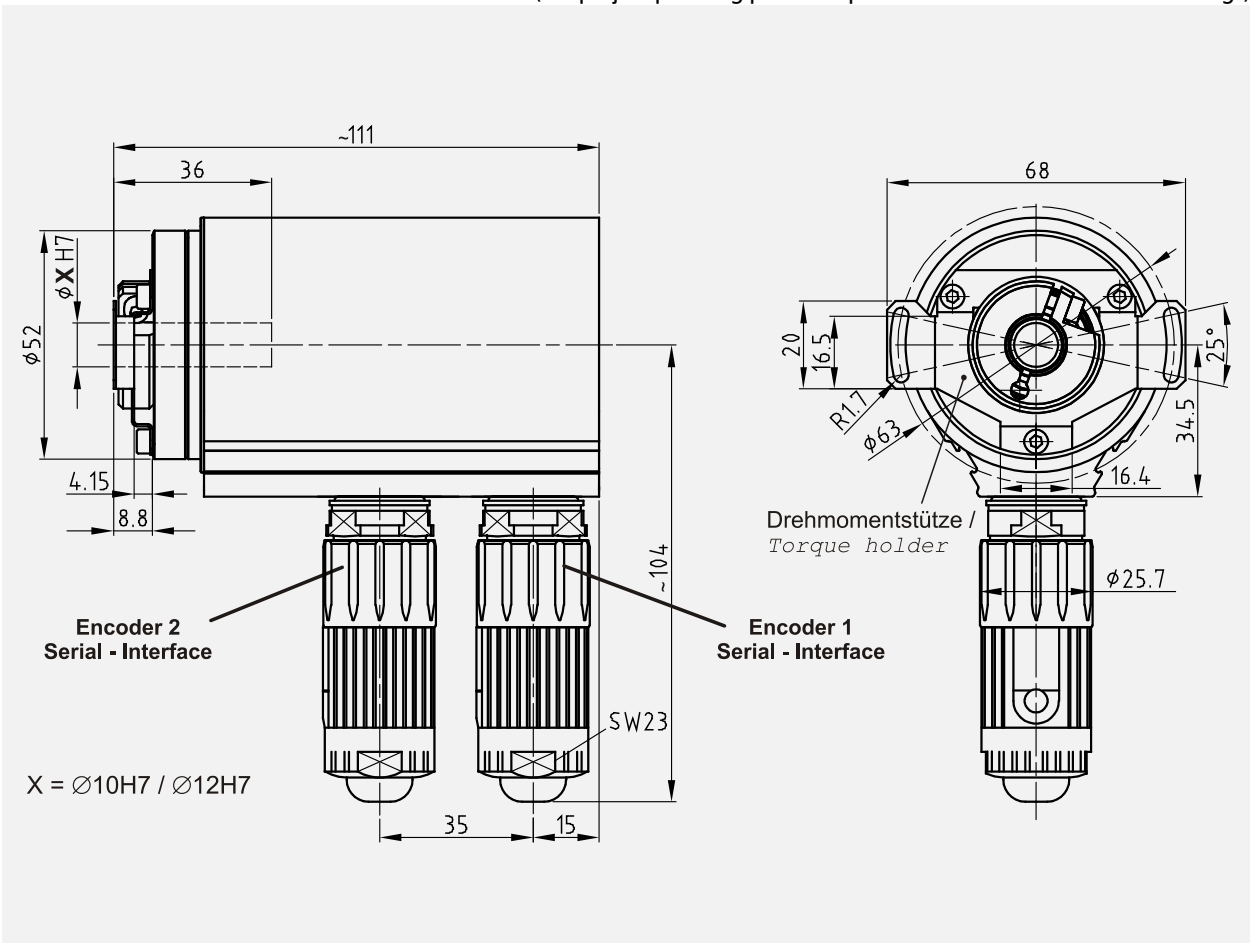
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDV 36 S - SSI

CDV36S-SSI-1-GB-1
04/12 Revision 00
010102-00360401-0101



- + SSI interface
- + Type with solid shaft
- + Redundant scanning system
- + Encapsulated electronics
- + Protection class up to IP 69K
- + Small construction, Ø 36 mm
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load.....	< 40 mA
Total resolution ¹⁾	≤ 12 bit
Number of steps/revolution ¹⁾	≤ 4.092
Number of revolutions	1
2 x SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-485, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	20 µs...50 µs, typically 20 µs
Number of data bits ¹⁾	12...31 bit
Output code ¹⁾	Binary, Gray
SSI output ¹⁾	Position, Speed
Cycle time	1 ms
F/R.....	Count direction
Preset.....	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Bearing life time.....	≥ 3.9 * 10 ⁹ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.15 kg
Accuracy.....	± 1.4°

¹⁾ factory settings

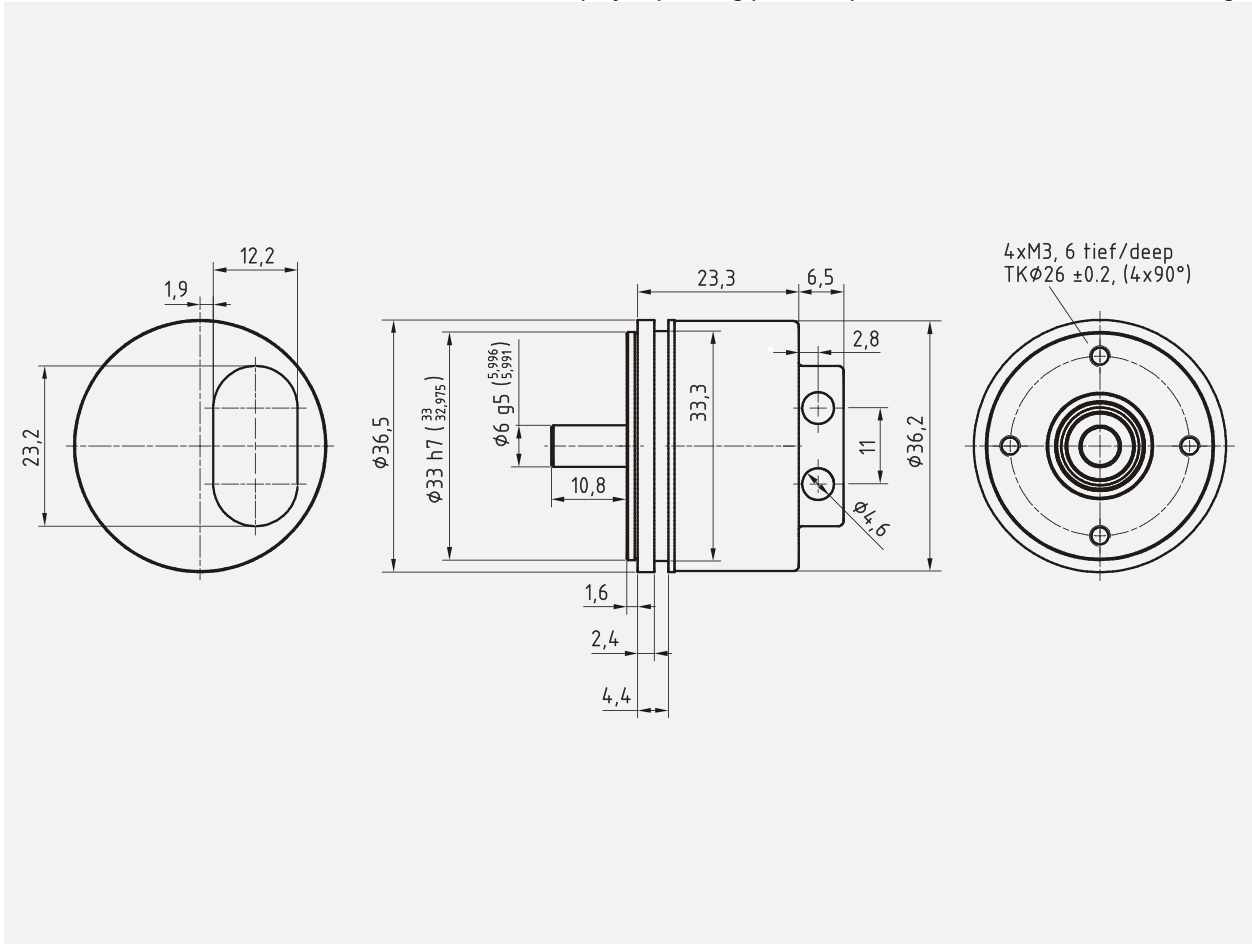
Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	-40 °C...+70 °C
Storage temperature	-40 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %
Protection class, DIN EN 60529: 1991	IP 65
- Option DIN 40050-9: 1993-05	IP 69K

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDV 36 M - SSI

Preliminary

CDV36M-SSI-1-GB-1
11/12 Revision 00
010102-00360401-0201



- + SSI interface
- + Type with solid shaft
- + Redundant scanning system
- + Small construction, Ø 36 mm
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 40 mA
Total resolution ¹⁾	Multi-Turn: ≤ 20 Bit, Single-Turn: ≤ 12 Bit
Number of steps/revolution ¹⁾	≤ 4.092
Number of revolutions	Multi-Turn: ≤ 256, Single-Turn: 1
2 x SSI	Synchronous-Serial-Interface
- Clock input.....	Optocoupler
- Data output.....	RS-485, 2-wire
- Clock frequency.....	80 kHz – 1 MHz
- Mono time t _M	20 µs...50 µs, typically 20 µs
- Number of data bits ¹⁾	12...31 bit
- Output code ¹⁾	Binary, Gray
- SSI output ¹⁾	Position, Speed
- Cycle time	1 ms
F/R.....	Count direction
Preset.....	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Bearing life time.....	≥ 3.9 * 10 ⁹ revolutions at
- Speed	≤ 3.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.15 kg
Accuracy.....	± 1.4°

¹⁾ factory settings

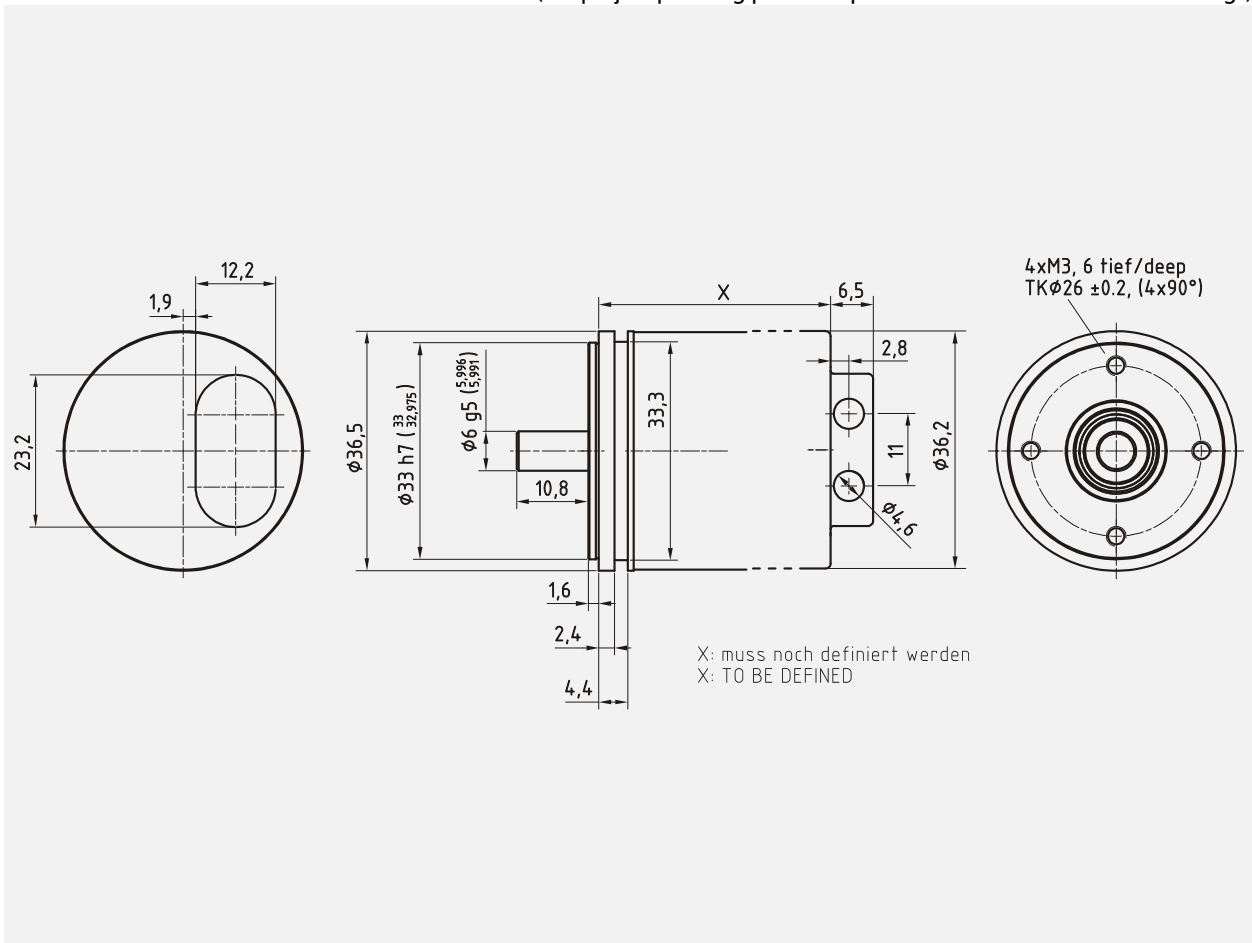
Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2	
- Transient emissions, DIN EN 61000-6-3	
Working temperature	-40 °C...+70 °C
Storage temperature	-40 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %
Protection class, DIN EN 60529	IP 65

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Absolute-Encoder CDF 36 S - SSI

CDF36S-SSI-1-GB-1
10/12 Revision 02
010102-00360401-0105



- + SSI interface
- + Bearing free
- + Redundant scanning system
- + Encapsulated electronics
- + Protection class up to IP 69K
- + Small construction, Ø 36 mm
- + Further interfaces available
- + Customized adaptations upon request

Characteristics

Supply voltage.....	11...27 VDC
Current consumption without load	< 40 mA
Total resolution ¹⁾	≤ 12 bit
Number of steps/revolution ¹⁾	≤ 4.092
Number of revolutions	1
2 x SSI	Synchronous-Serial-Interface
Clock input.....	Optocoupler
Data output.....	RS-485, 2-wire
Clock frequency.....	80 kHz – 1 MHz
Mono time t _M	20 µs...50 µs, typically 20 µs
Number of data bits ¹⁾	12...31 bit
Output code ¹⁾	Binary, Gray
SSI output ¹⁾	Position, Speed
Cycle time	1 ms
F/R.....	Count direction
Preset.....	electronic adjustment
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Concentricity tolerance ²⁾	0.2 mm
Permissible axial backlash ²⁾	± 0.15 mm
Accuracy.....	± 1.4°
Mass.....	0.15 kg

¹⁾ factory settings

²⁾ see reference lines in the dimension drawing

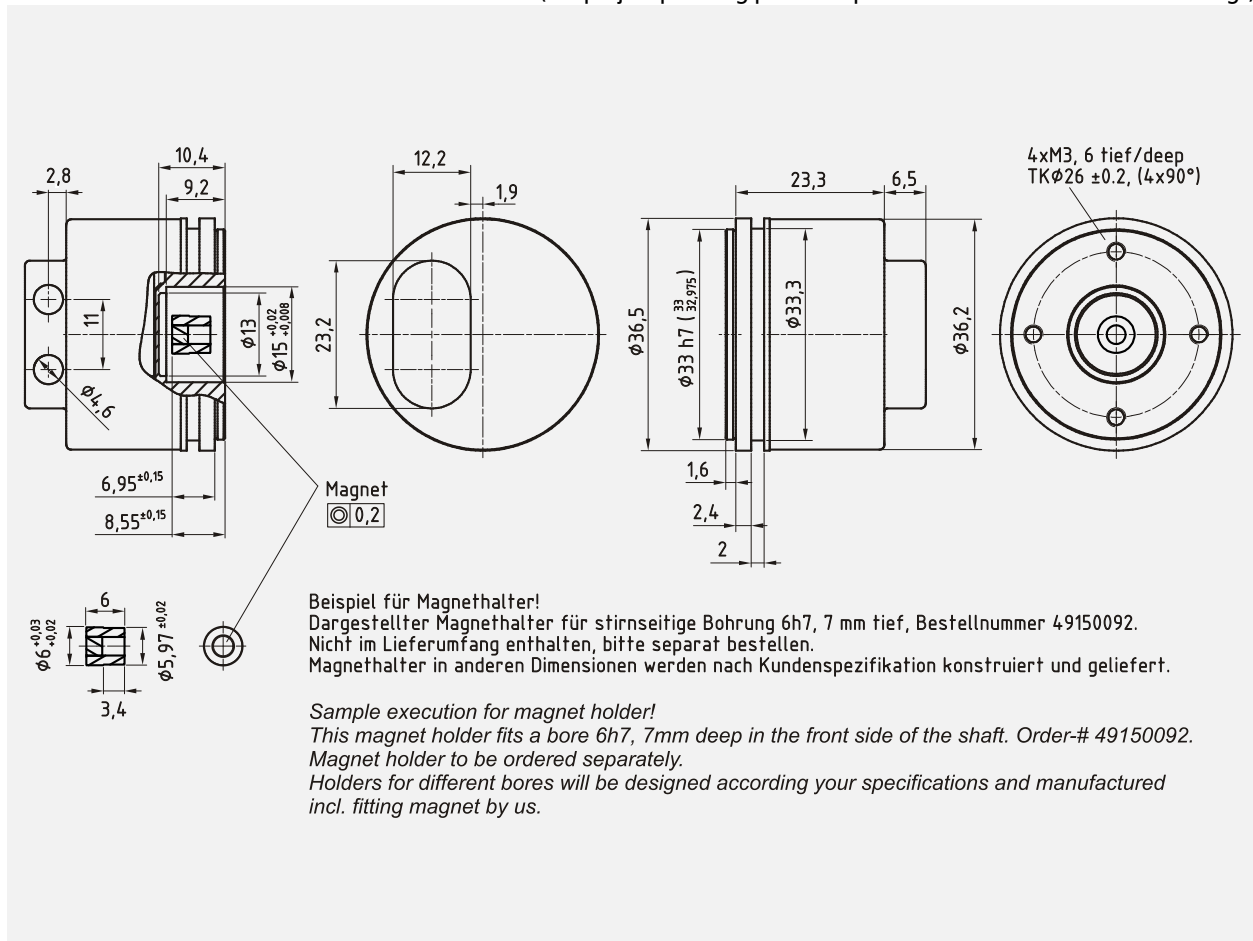
Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	-40 °C...+70 °C
Storage temperature	-40 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %
Protection class, DIN EN 60529: 1991.....	IP 65
- Option DIN 40050-9: 1993-05	IP 69K

Dimension drawing

(For project planning please request customized dimensional drawing!)



Incremental-Encoder IH 20

TR-VCE-TI-GB-0600
04/12 Revision 02
010101-00209999-9999



- + Incremental interface
- + Hollow shaft encoder for direct coupling to any drive shaft (Ø 20 mm)
- + Number of pulses per revolution up to 1.024

Characteristics

Supply Voltage	11 - 27 V DC
5 VDC	Upon request
Power Dissipation (No Load)	< 3 Watt
Output (11-27 V)	Push-Pull
- Maximum Current	max. 30 mA
- Incremental Signal	A, A neg., B, B neg. Channel A leads channel B when rotating in a clockwise direction.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Output Frequency	30 kHz
- Rise Time of Edge	< 500 ns
Output (5 V)	Line Driver
- Maximum Current	max. 50 mA
- Incremental Signal	A, A neg., B; B neg. Channel A leads channel B when rotating in a clockwise direction.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Output Frequency	100 kHz
- Rise Time of Edge	< 100 ns
Maximum Revolutions per Minute (RPM)	(Output Frequency [Hz] / PPR) x 60 seconds
Number of Pulses per Revolution (Standard)	1, 15, 25, 30, 60, 100, 200, 218, 360, 500, 600, 720, 800, 900, 1000, 1024
Other Resolutions	Upon request
Maximum Rotational Speed	6000 RPM
Maximum Load on Shaft	40 N Axial, 60 N Radial
Lifetime on Bearings	3.9 x 10 ¹⁰ Revolutions at:
- Operational Speed	3000 RPM
- Load on Shaft	20 N Axial, 30 N Radial (at end of shaft)
- Operating Temperature	60°C (140°F)
Maximum Angular Acceleration	≤ 10 ⁴ rad/s ²
Momentum of Inertia	2.5 x 10 ⁻⁶ kg m ²
Startup Momentum at 20°C (68°F)	2 Ncm
Weight	0.5 kg (1.1 lb.)

Subject to change

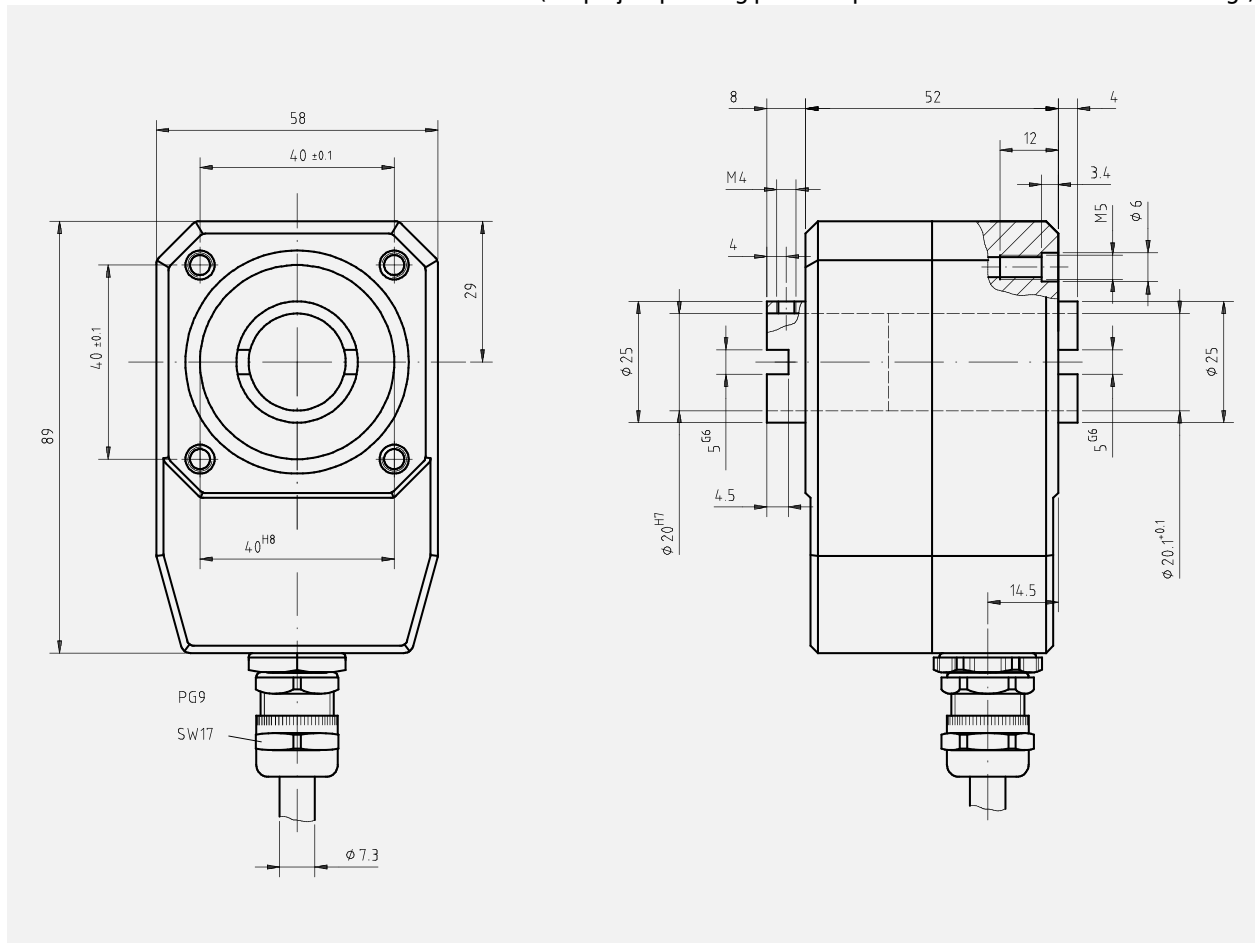
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	0° to 60°C (32°F to 140°F) (Option -20° to 70°C / -4°F to 158°F)
Extended Temperature (Optional)	-30° to +80°C (-22° to 176°F)
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 54

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IE 24

TR-VCE-TI-GB-0548
04/12 Revision 01
010101-00249999-9999



- + Incremental interface
- + Type with solid shaft $\varnothing 3 \dots 6$ mm
- + Number of pulses per revolution 1...2.500
- + Small compact design

Characteristics

Supply voltage.....	11...27 VDC
5 VDC, ± 5 %	on request
Current consumption without load.....	≤ 100 mA
Signal outputs	Square wave
Outputs (11-27 V level)	Push-Pull, short-circuit-proof
- Output current	≤ 20 mA
- Incremental signal, optional with inverting.....	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 300 kHz
Outputs (5 V level)	Line driver
- Output current	≤ 20 mA
- Incremental signals, optional with inverting	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 300 kHz
Mechanically permissible speed	≤ 10.000 min ⁻¹
Shaft load, at shaft end.....	axial 10 N, radial 20 N
Connection.....	Cable outlet axial or radial, cable length on request
Mass.....	approx. 0.04 kg

Subject to change

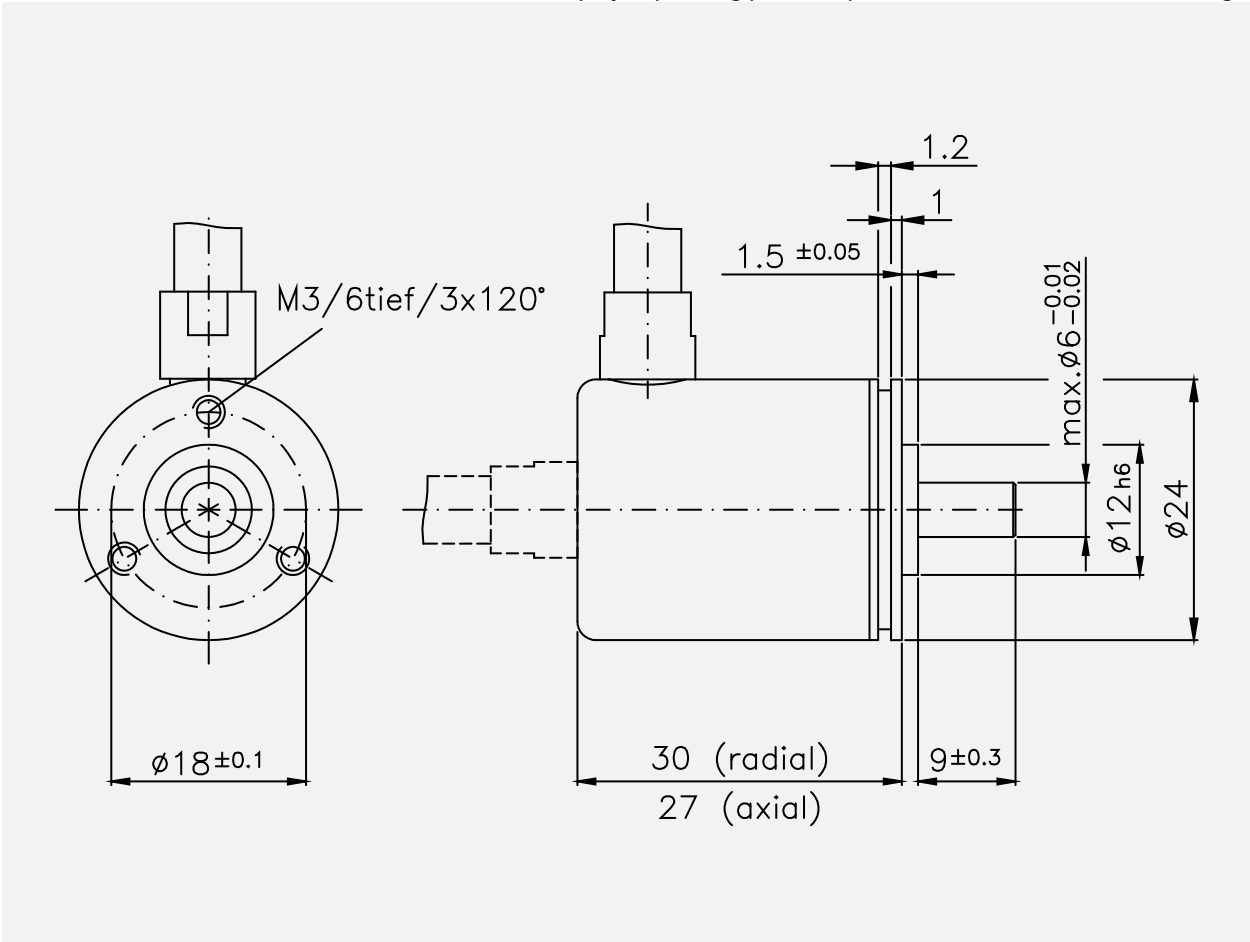
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+80 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 64 on shaft

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IE 35

TR-VCE-TI-GB-0550
04/12 Revision 02
010101-00359999-9999



- + Incremental interface
- + Small compact design (35 mm)
- + Universal applications
- + Number of pulses per revolution 1 to 3.600

Characteristics

Supply Voltage	11 - 27 V DC
5 VDC	Upon request
Power Dissipation (No Load)	< 2.5 Watt
Output (11-27 V)	Push-Pull
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B, B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
	Maximum Output Frequency 160 kHz
Output (5 V)	Line Driver
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B; B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
	Maximum Output Frequency 300 kHz
Tolerance (at 100 kHz)	
- Phase Shift	± 30°
- Pulse Width	± 30°
Number of Pulses Per Revolution	1 to 3.600
Maximum Rotational Speed	max. 12.000 RPM
Maximum Load on Shaft	10 N axial, 20 N radial (at end of shaft)
Maximum Angular Acceleration	≤ 10 ⁵ rad/s ²
Momentum of Inertia	0.2 x 10 ⁻⁶ kg m ²
Startup Momentum 20°C (68° F)	0.01 Ncm
Connector	PG axial cable (pigtail), Different Cable Lengths on Request
Weight	0.2 kg (0.4 lb.)

Subject to change

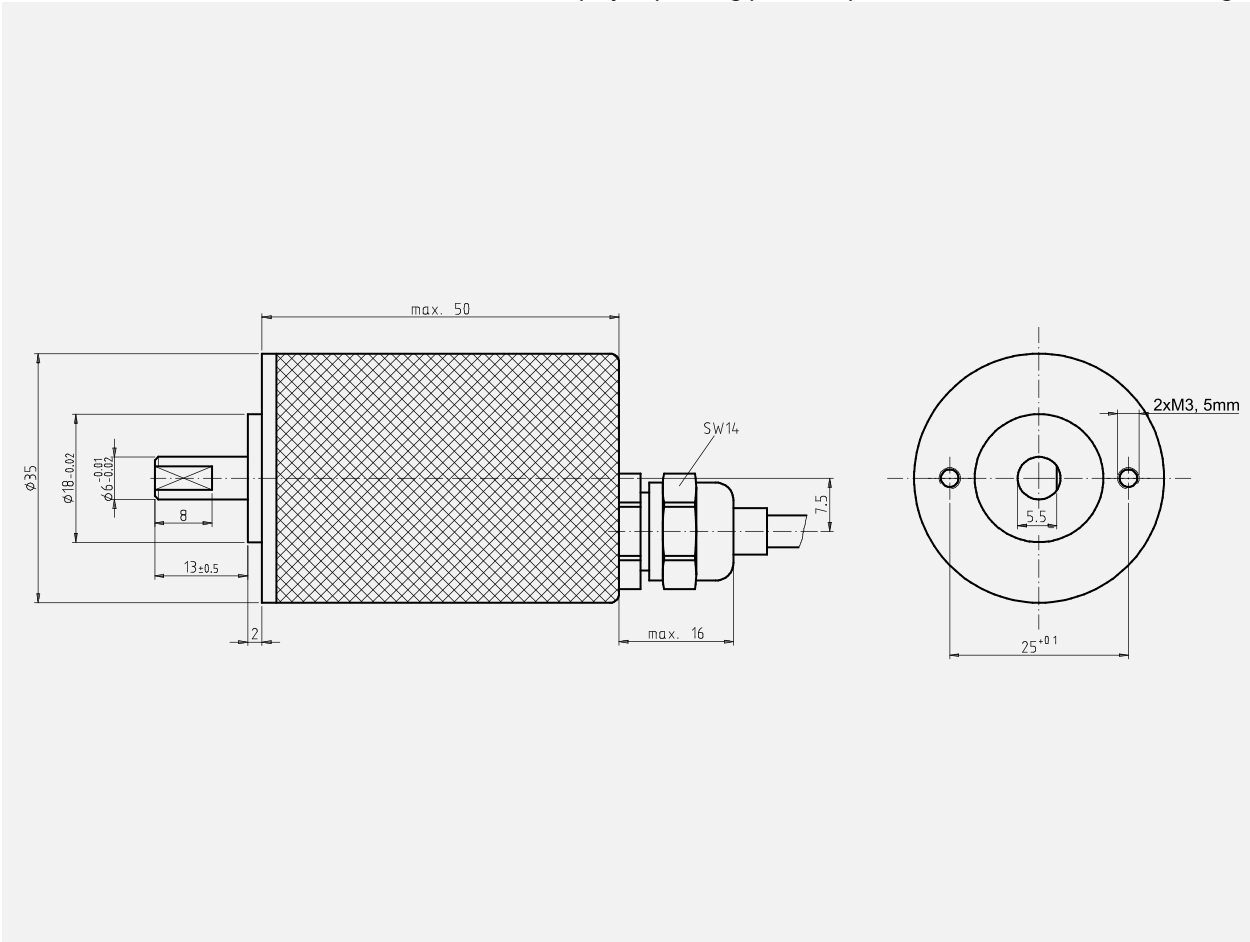
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	0° to +80°C (32° to 176°F)
Extended Temperature (Optional)	-30° to +80°C (-22° to 176°F)
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 65

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IMV 36

IMV36-INK-1-GB-1
08/13 Revision 01
010102-00369999-9999



- + Incremental interface
- + Type with solid shaft
- + Number of pulses per revolution up to 2.048
- + Encapsulated electronics
- + Protection class up to IP 69K
- + Magnetic scanning technology

Characteristics

Supply voltage.....	11 ... 27 VDC, 5 VDC \pm 5 %
Current consumption without load	< 40 mA
Possible number of pulses/revolution:	
- Binary.....	8, 16, 32, 64, 128, 256, 512, 1.024, 2.048
- Decimal.....	10, 20, 25, 40, 50, 80, 100, 125, 200, 250, 400, 500
Outputs, 11 ... 27 VDC	
- Incremental signals.....	K1, K1 neg, K2, K2 neg
- Zero pulse	K0, K0 neg, 1 pulse per revolution
- Output frequency	\leq 150 kHz
- Supply voltage	11 ... 27 VDC
Outputs, 5 VDC	
- Incremental signals.....	K1, K1 neg, K2, K2 neg
- Zero pulse	K0, K0 neg, 1 pulse per revolution
- Output frequency	\leq 150 kHz
- Supply voltage	11 ... 27 VDC, 5 VDC
Mechanically permissible speed	\leq 6.000 min ⁻¹
Shaft load, at the shaft end.....	\leq 5 N axial, \leq 10 N radial
Bearing life time.....	\geq 3.9 * 10 ⁹ revolutions at
- Speed	\leq 3.000 min ⁻¹
- Operating temperature	\leq 60 °C
- Shaft load, at the shaft end.....	\leq 5 N axial, \leq 10 N radial
Permissible angular acceleration.....	\leq 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Connection.....	axial cable outlet
Mass.....	0.15 kg

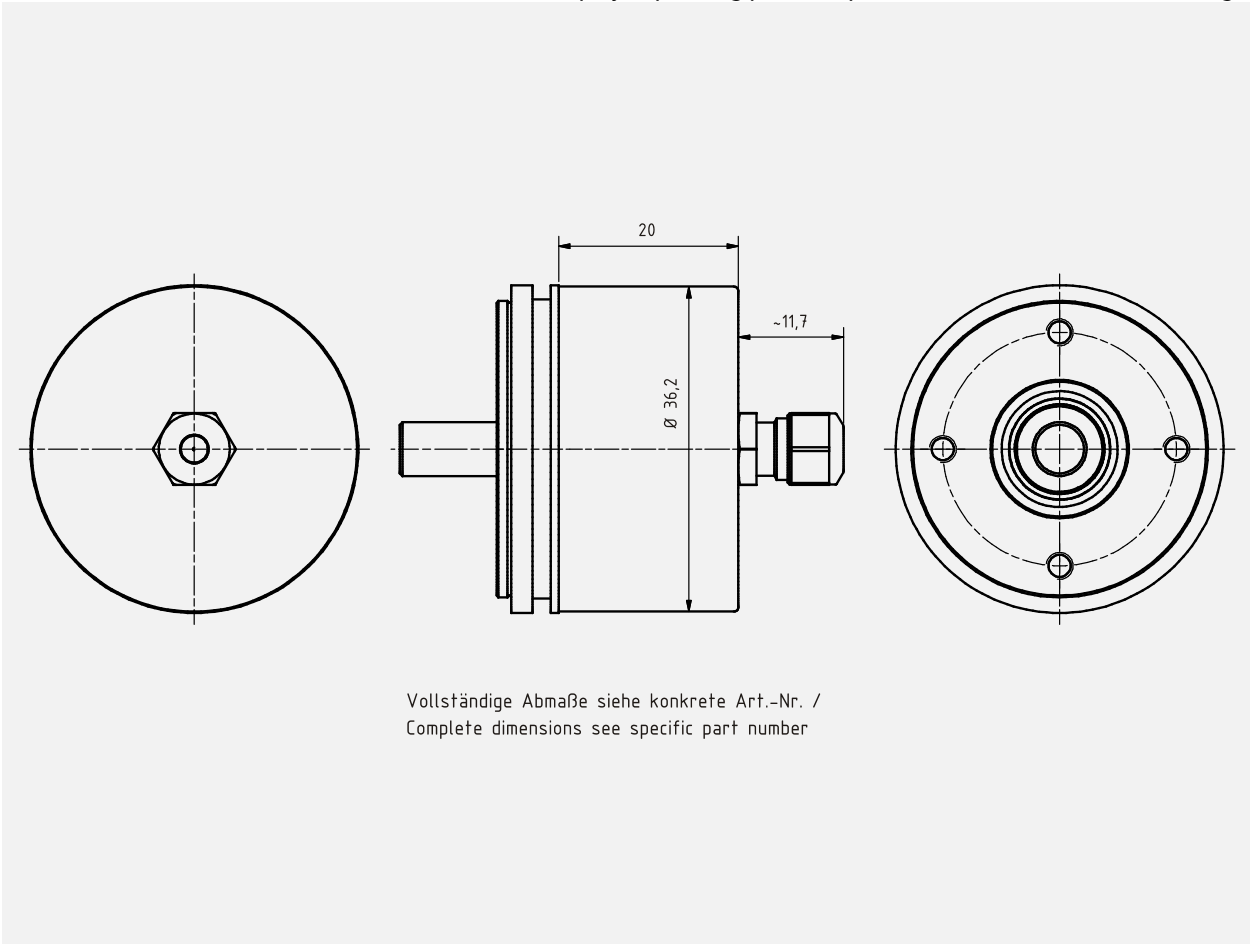
Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2	
- Transient emissions, DIN EN 61000-6-3	
Working temperature.....	-25 °C...+70 °C
Storage temperature	-20 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %
Protection class, DIN EN 60529.....	IP 65
- Option DIN 40050-9.....	IP 69K

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IMF 36

IMF36-INK-1-GB-1
08/13 Revision 03
010102-00369999-9999



- + Incremental interface
- + Bearing free
- + Number of pulses per revolution up to 2.048
- + Encapsulated electronics
- + Protection class up to IP 69K
- + Magnetic scanning technology

Characteristics

Supply voltage.....	11 ... 27 VDC, 5 VDC \pm 5 %
Current consumption without load	< 40 mA
Possible number of pulses/revolution:	
- Binary.....	8, 16, 32, 64, 128, 256, 512, 1.024, 2.048
- Decimal.....	10, 20, 25, 40, 50, 80, 100, 125, 200, 250, 400, 500
Outputs, 11 ... 27 VDC	
- Incremental signals.....	K1, K1 neg, K2, K2 neg
- Zero pulse	K0, K0 neg, 1 pulse per revolution
- Output frequency	\leq 150 kHz
- Supply voltage	11 ... 27 VDC
Outputs, 5 VDC	
- Incremental signals.....	K1, K1 neg, K2, K2 neg
- Zero pulse	K0, K0 neg, 1 pulse per revolution
- Output frequency	\leq 150 kHz
- Supply voltage	11 ... 27 VDC, 5 VDC
Concentricity tolerance ¹⁾	0.2 mm
Permissible axial backlash ¹⁾	\pm 0.15 mm
Connection.....	axial cable outlet
Mass.....	0.15 kg

¹⁾ see reference lines in the dimension drawing

Subject to change

Environmental conditions

Vibration, DIN EN 60068-2-6	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2	
- Transient emissions, DIN EN 61000-6-3	
Working temperature.....	-25 °C...+70 °C
Storage temperature	-20 °C...+85 °C, dry
Relative humidity, DIN EN 60068-3-4	98 %
Protection class, DIN EN 60529.....	IP 65
- Option DIN 40050-9.....	IP 69K

Dimension drawing

(For project planning please request customized dimensional drawing!)

Vollständige Abmaße siehe konkrete Art.-Nr. /
Complete dimensions see specific part number

A

Beispiel für Magnethalter!
Dargestellter Magnethalter für stirnseitige Bohrung 6h7, 7mm tief, Best.-Nr.: 49-150-092
Nicht im Lieferumfang enthalten, bitte separat bestellen.
Magnethalter in anderen Dimensionen werden nach Kundenspezifikation konstruiert und geliefert. /

Magnet holder, example!
This magnet holder is fitting for a bore 6h7, 7mm deep in the front side of the shaft. Order no.: 49-150-092
Magnet holder must be ordered separately.
Magnet holders in other dimensions are designed and supplied customized.

Subject to change

Incremental-Encoder IE 40

TR-VCE-TI-GB-0560
04/12 Revision 02
010101-00409999-9999



- + Incremental interface
- + Type with solid shaft \varnothing 4...6 mm
- + Number of pulses per revolution 1...3.600
- + Small compact design
- + Universal applications

Characteristics

Supply voltage.....	11...27 VDC
5 VDC, $\pm 5\%$	on request
Current consumption without load.....	≤ 100 mA
Signal outputs	Square wave
Outputs (11-27 V level)	Push-Pull, short-circuit-proof
- Output current	≤ 20 mA
- Incremental signal, optional with inverting.....	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 160 kHz
Outputs (5 V level)	Line driver
- Output current	≤ 20 mA
- Incremental signals, optional with inverting	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 300 kHz
Mechanically permissible speed	≤ 10.000 min ⁻¹
Shaft load, at shaft end.....	axial 10 N, radial 20 N
Connection.....	Cable outlet radial, cable length on request
Mass.....	approx. 0.2 kg

Subject to change

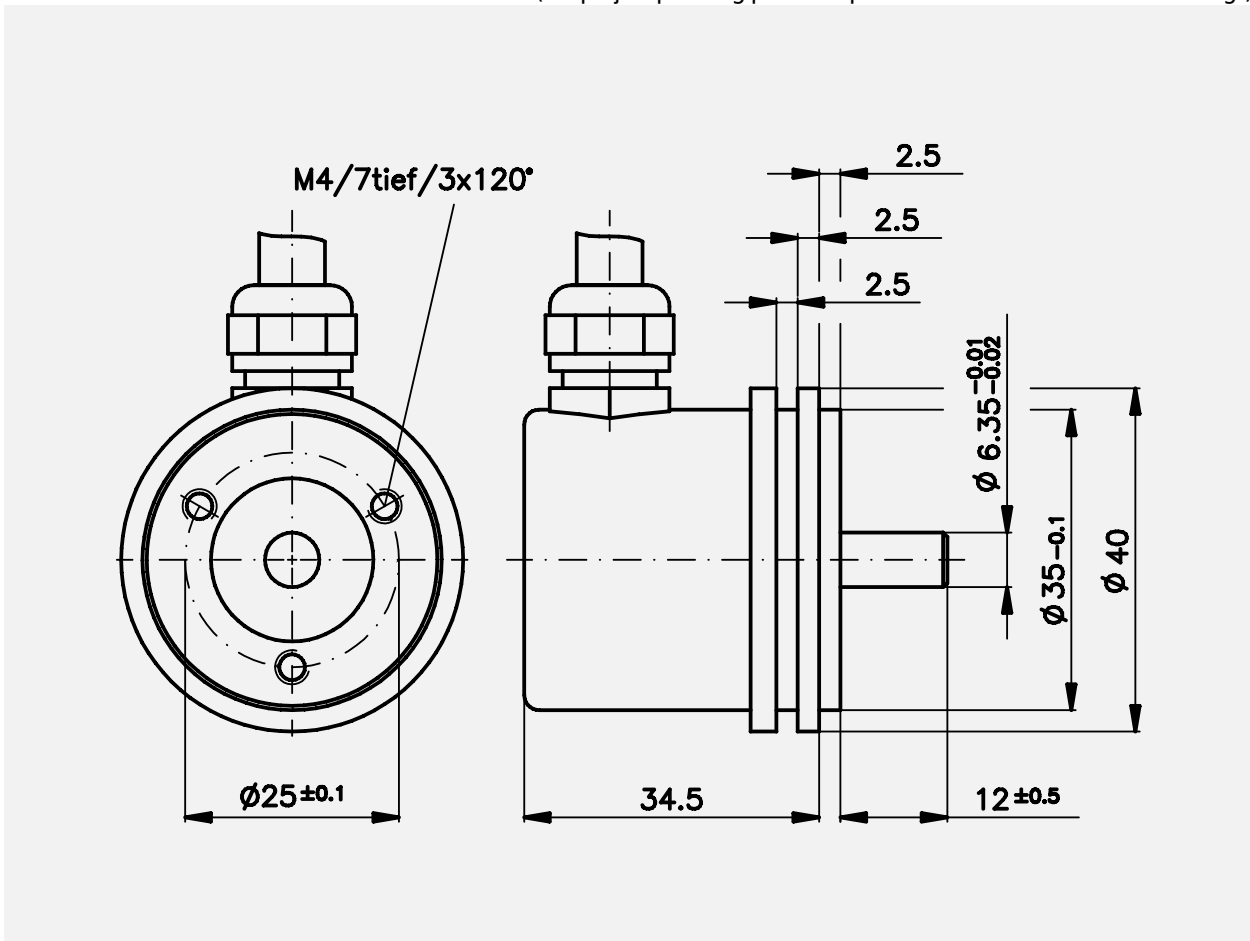
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 20-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature $0 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 *) IP 65

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IE 58 A

TR-VCE-TI-GB-0570
04/12 Revision 03
010101-00589999-9999



- + Incremental interface
- + Small compact design
- + Universal applications
- + Number of pulses per revolution 1 to 10 000

Characteristics

Supply Voltage	11-27 V DC or 5 VDC
Power Dissipation (No Load).....	< 4 Watt
Output (11-27 V).....	Push-Pull
- Maximum Current	max. 30 mA
- Incremental Signal	A, A neg., B, B neg. Channel A leads channel B when rotating in a clockwise direction.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Output Frequency.....	< 1000 PPR = 30 kHz, > 1000 PPR = 160 kHz
- Rise Time of Edge.....	< 500 ns
Output (5 V)	Line Driver
- Maximum Current	max. 50 mA
- Incremental Signal	A, A neg., B; B neg. Channel A leads channel B when rotating in a clockwise direction.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Output Frequency.....	< 1000 PPR = 100 kHz, > 1000 PPR = 300 kHz
- Rise Time of Edge.....	< 100 ns
Maximum Revolutions per Minute (RPM)	(Output Frequency [Hz] / PPR) x 60 seconds
Number of Pulses Per Revolution	1 – 10 000
Maximum Rotational Speed	6000 RPM
Maximum Load on Shaft	10 N axial, 20 N radial (at end of shaft)
Lifetime on Bearings.....	3.9 x 10 ¹⁰ Revolutions at:
- Operational Speed	3000 RPM
- Operating Temperature.....	60 °C
Maximum Angular Acceleration.....	≤ 10 ⁴ rad/s ²
Momentum of Inertia	2.5 x 10 ⁻⁶ kg m ²
Startup Momentum 20°C (68° F)	2 Ncm
Standard Connector	PG 9 axial cable (pigtail), Different Cable Lengths on Request
Further Types of Connections / Connector Types.....	Upon Request
Weight	0.3 kg (0.7 lb.)

Subject to change

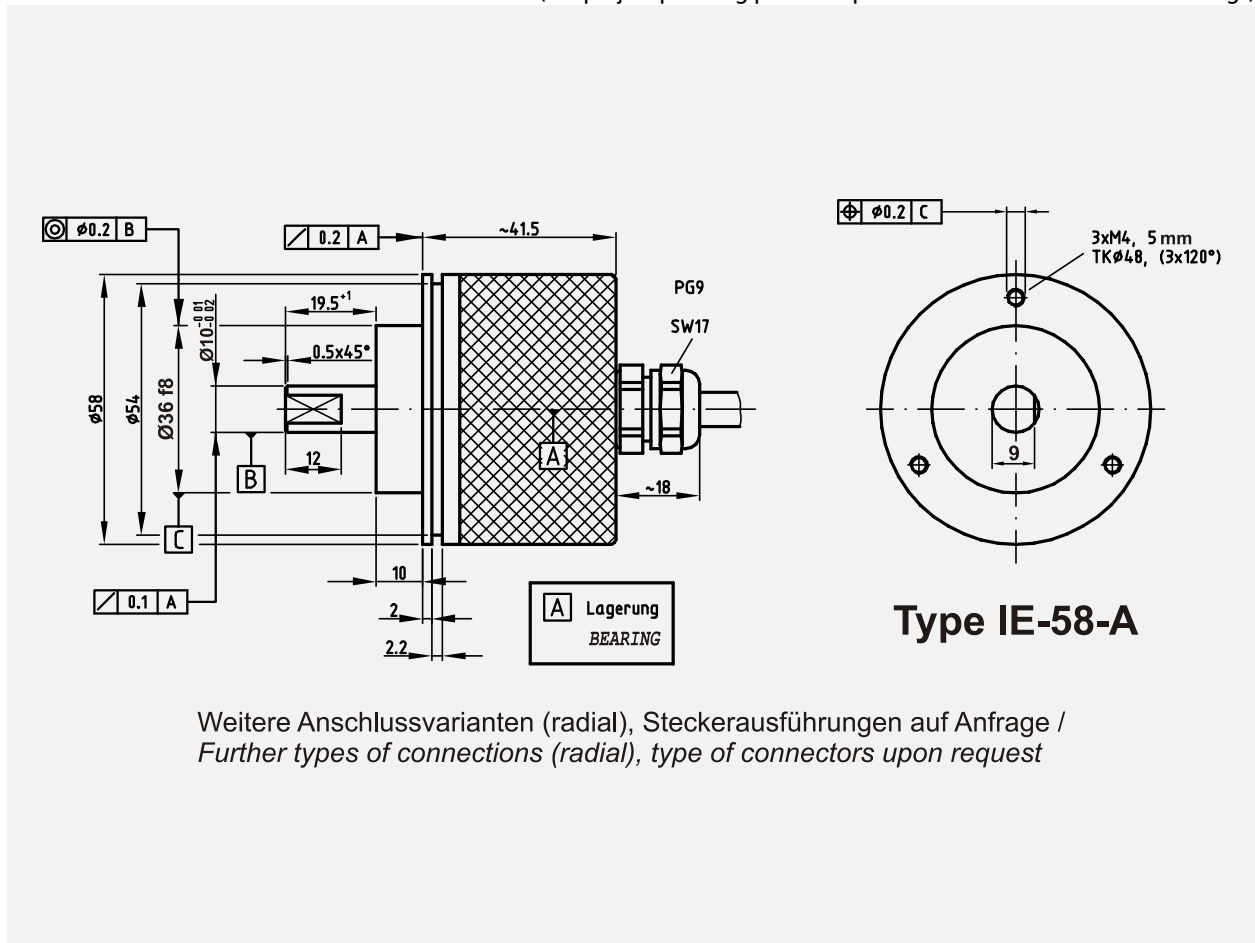
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	0° to 70°C (32°F to 158°F) (Option -20° to +70°C) (-4°F to 158°F)
Extended Temperature (Optional)	-30° to +80°C (-22° to 176°F)
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 65

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IE 58 B

TR-VCE-TI-GB-0571
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with solid shaft
- + Small compact design
- + Universal applications
- + Number of pulses per revolution up to 5.000, others upon request

Characteristics

Supply Voltage	11 - 27 V DC or 5V DC
Power Dissipation (No Load).....	< 0,8 Watt
Output (11-27 V).....	Push-Pull
- Maximum Current.....	30 mA
- Incremental Signal	A, A neg., B, B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency.....	160 kHz
- Rise Time of Edge.....	< 500 ns
Output (5 V)	Line Driver
- Maximum Current.....	50 mA
- Incremental Signal	A, A neg., B; B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency.....	> 300 kHz
- Rise Time of Edge.....	< 100 ns
Maximum Revolutions per Minute (RPM)	$(\text{Cut-Off Frequency [Hz]} / \text{PPR}) \times 60 \text{ min}^{-1}$
Number of Pulses Per Revolution	7, 10, 18, 20, 32, 40, 50, 60, 64, 100, 125, 128, 180, 200, 250, 300, 360, 360, 400, 440, 500, 512, 700, 900, 1000, 1024, 1250, 1500, 1885, 2000, 2048, 2500, 2600, 3600, 4000, 4096, 5000 further on request
Maximum Rotational Speed	12.000 min ⁻¹
Maximum Load on Shaft.....	10 N axial, 20 N radial (at end of shaft)
Lifetime on Bearings.....	min. $3,9 \times 10^{10}$ revolutions at:
- Operational Speed	6.000 min ⁻¹
- Operating Temperature.....	60°C
Maximum Angular Acceleration.....	$\leq 10^4 \text{ rad/s}^2$
Momentum of Inertia	approx. $2,5 \times 10^{-6} \text{ kg m}^2$
Startup Momentum at 20°C (68°F)	approx. 2 Ncm
Standard Connection.....	12 pin Contact-Bullet-Connector, radial
Further Types of Connections / Connector Types.....	Upon Request
Weight	approx. 0,3 kg

Subject to change

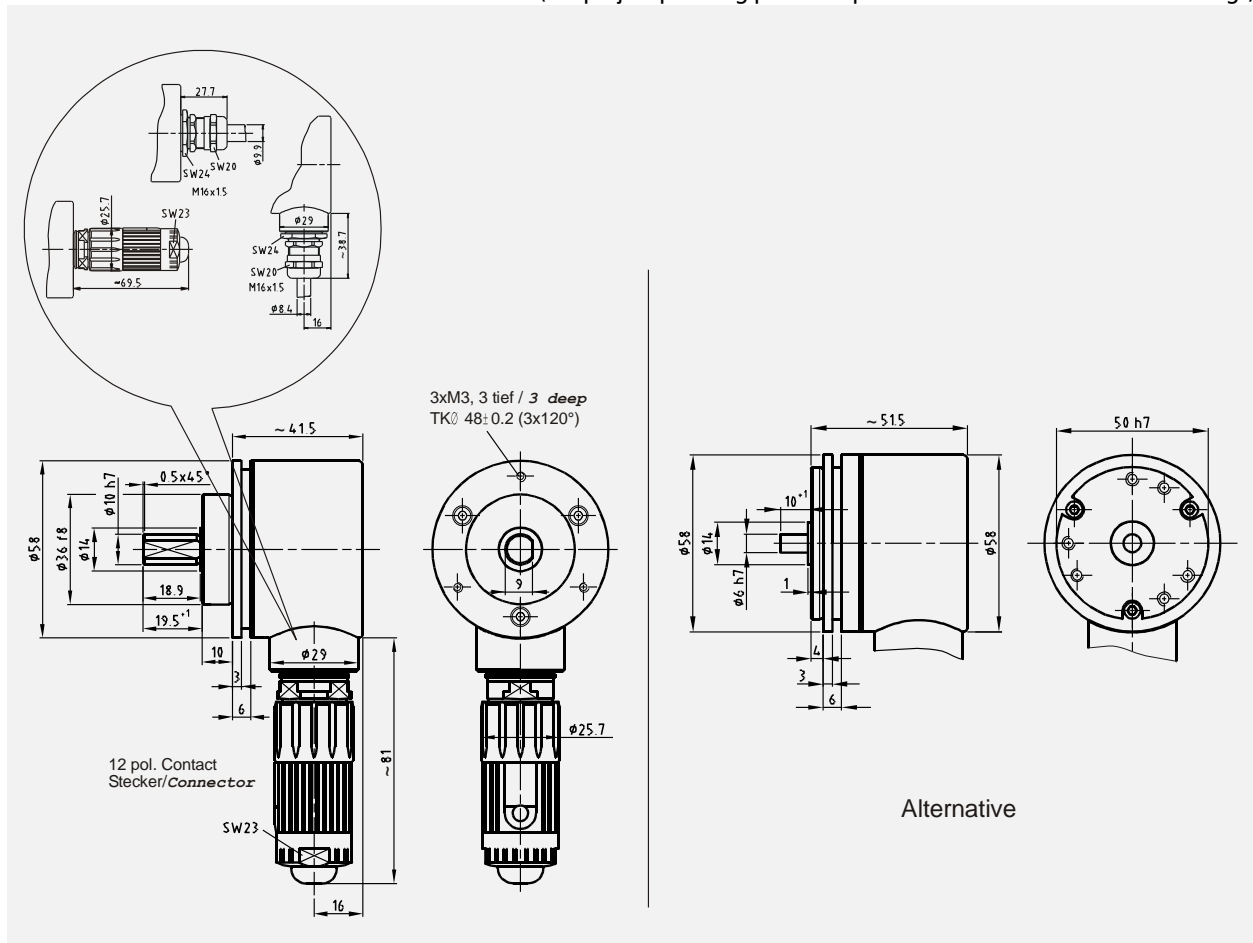
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 59-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11 ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Operating Temperature..... - 20 to + 85°C
 Storage Temperature..... - 30 to + 80°C
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 *)..... IP 67

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IE 58 U

TR-VCE-TI-GB-0572
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with solid shaft
- + Small compact design
- + Universal applications
- + Number of pulses per revolution up to 4.096, others upon request

Characteristics

Supply Voltage	11-27 V DC or 5V DC
Power Dissipation (No Load).....	< 0,8 Watt
Output (11-27 V).....	Push-Pull
- Maximum Current	30 mA
- Incremental Signal	A, A neg., B, B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency.....	160 kHz
- Rise Time of Edge.....	< 500 ns
Output (5 V)	Line Driver
- Maximum Current	50 mA
- Incremental Signal	A, A neg., B; B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency.....	> 300 kHz
- Rise Time of Edge.....	< 100 ns
Maximum Revolutions per Minute (RPM)	$(\text{Cut-Off Frequency [Hz]} / \text{PPR}) \times 60 \text{ min}^{-1}$
Number of Pulses Per Revolution	7, 10, 18, 20, 32, 40, 50, 60, 64, 100, 125, 128, 180, 200, 250, 300, 360, 360, 400, 440, 500, 512, 700, 900, 1000, 1024, 1250, 1500, 1885, 2000, 2048, 2500, 2600, 3600, 4000, 4096 further on request
Maximum Rotational Speed	12.000 min^{-1}
Maximum Load on Shaft.....	10 N axial, 20 N radial (at end of shaft)
Lifetime on Bearings.....	min. $3,9 \times 10^{10}$ revolutions at:
- Operational Speed	6.000 min^{-1}
- Operating Temperature.....	60°C
Maximum Angular Acceleration.....	$\leq 10^4 \text{ rad/s}^2$
Momentum of Inertia	approx. $2,5 \times 10^{-6} \text{ kg m}^2$
Startup Momentum at 20°C (68°F)	approx. 2 Ncm
Standard Connection.....	12 pin Contact-Bullet-Connector, radial
Further Types of Connections / Connector Types.....	Upon Request
Weight	approx. 0,3 kg

Subject to change

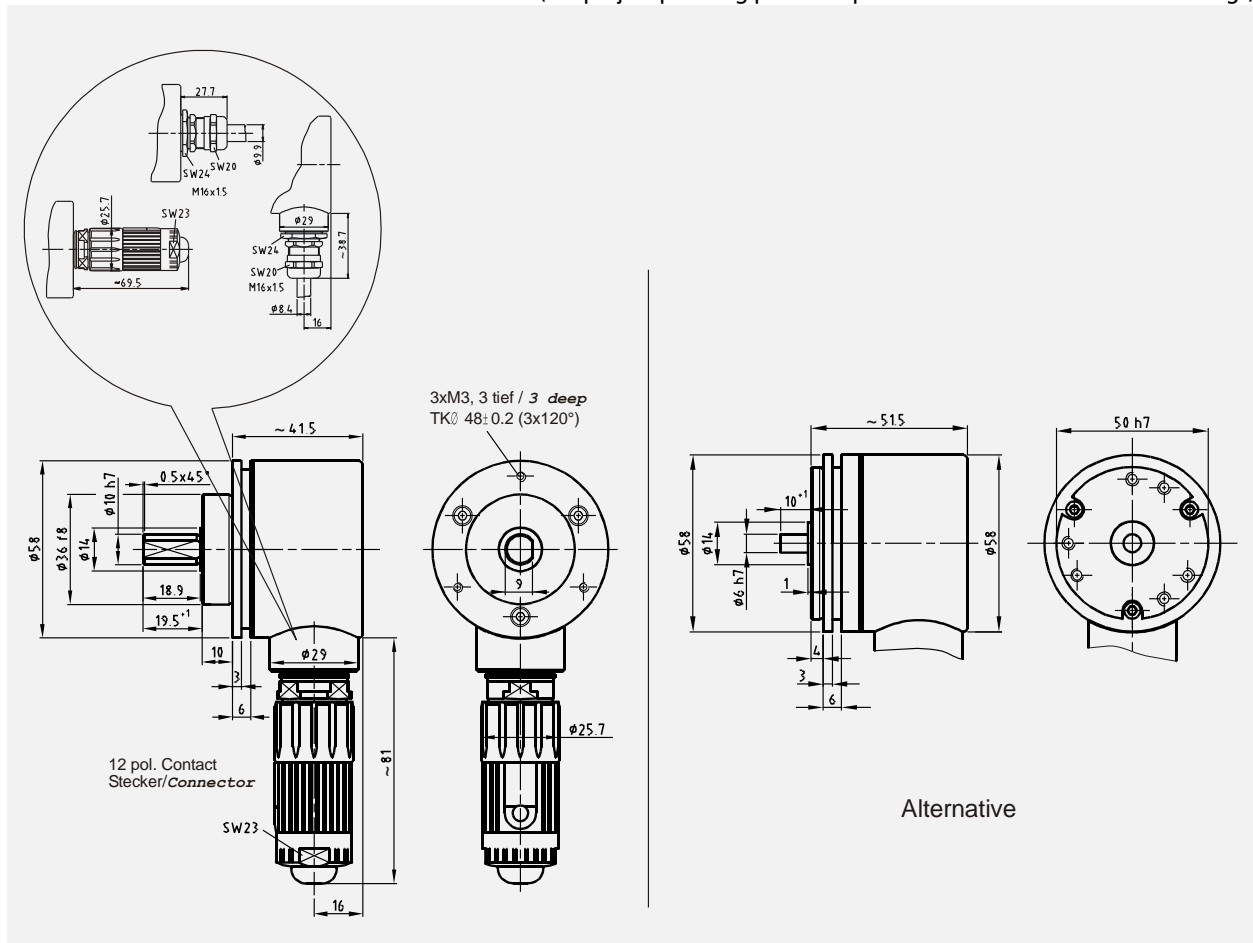
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 59-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11 ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Operating Temperature..... - 20 to + 85°C
 Storage Temperature..... - 30 to + 80°C
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 *)..... IP 67

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 58 A

TR-VCE-TI-GB-0610
04/12 Revision 03
010101-00589999-9999



- + Incremental interface
- + Hollow shaft encoder for direct coupling to any drive shaft (\varnothing 4 ... 12 mm)
- + Number of pulses per revolution up to 10.000

Characteristics

Supply Voltage	11 - 27 V DC or 5 V DC
Output (11-27 V)	Push-Pull
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B, B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	160 kHz
Output (5 V)	Line Driver
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B; B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	300 kHz
Tolerance (at 20 kHz)	
- Phase Shift	$\pm 10^\circ$
- Pulse Width	$\pm 10^\circ$
Tolerance (at 100 kHz)	
- Phase Shift	$\pm 30^\circ$
- Pulse Width	$\pm 30^\circ$
Pulses per Revolution	1 to 10 000
Option	Sinusoidal Signal, 160 kHz (-3dB), voltage or current source 5 or 10 times the base PPR is possible. (i.e. 50000 or 100000 PPR)
Maximum Rotational Speed	10.000 RPM
Maximum Angular Acceleration	$\leq 10^5 \text{ rad/s}^2$
Momentum of Inertia	$1.5 \times 10^{-6} \text{ kg m}^2$
Startup Momentum 20°C (68° F)	approx. 0.02 Nm
Weight	0.3 kg (.7 lb.)

Subject to change

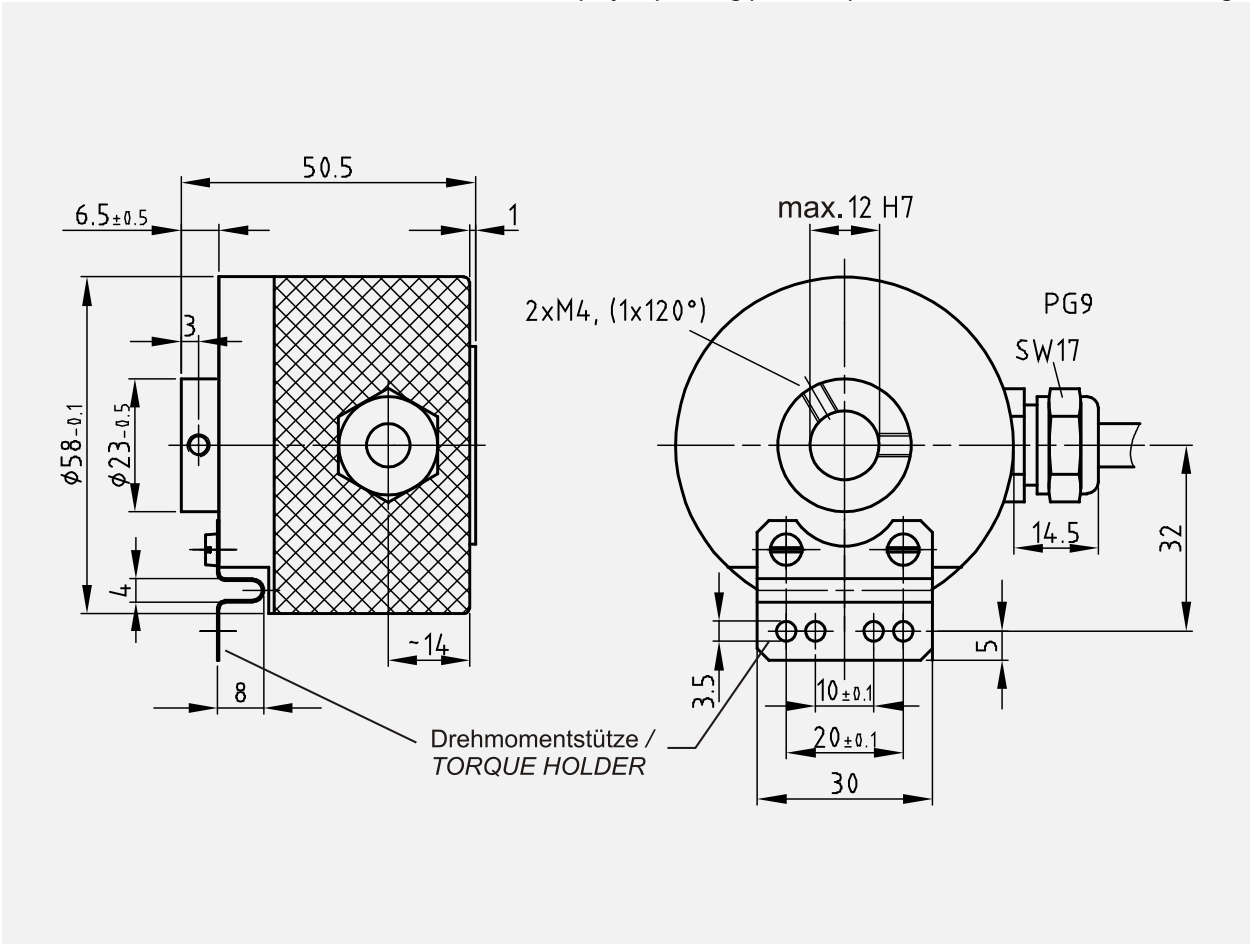
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	0° to 80°C (32° F to 176° F)
Extended Temperature (Optional)	-30° to +80°C (-22° to 176°F)
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	max. IP 64, dependent on the connector or the connection technique

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

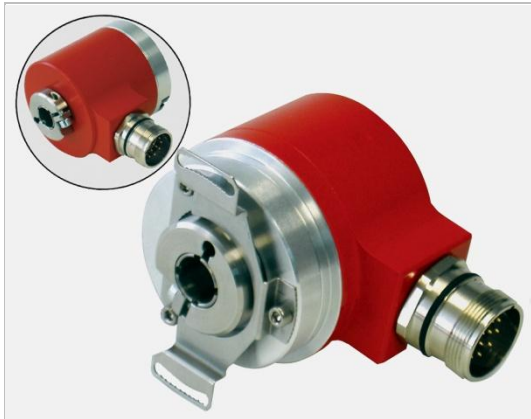
(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 58 U

TR-VCE-TI-GB-0611
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with hollow through shaft \varnothing 8, 10 or 12 mm
- + Small compact design
- + Universal applications
- + Number of pulses per revolution up to 4.096, others upon request

Characteristics

Supply Voltage	11 - 27 V DC or 5 V DC
Power Dissipation (No Load)	< 0,8 Watt
Output (11-27 V)	Push-Pull
- Maximum Current	30 mA
- Incremental Signal	A, A neg., B, B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency	160 kHz
- Rise Time of Edge	< 500 ns
Output (5 V)	Line Driver
- Maximum Current	50 mA
- Incremental Signal	A, A neg., B; B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency	> 300 kHz
- Rise Time of Edge	< 100 ns
Maximum Revolutions per Minute (RPM)	$(\text{Cut-Off Frequency [Hz]} / \text{PPR}) \times 60 \text{ min}^{-1}$
Number of Pulses Per Revolution	7, 10, 18, 20, 32, 40, 50, 60, 64, 100, 125, 128, 180, 200, 250, 300, 360, 360, 400, 440, 500, 512, 700, 900, 1000, 1024, 1250, 1500, 1885, 2000, 2048, 2500, 2600, 3600, 4000, 4096 further on request
Maximum Rotational Speed	6.000 min^{-1}
Maximum Load on Shaft	Own Mass
Lifetime on Bearings	min. $3,9 \times 10^{10}$ revolutions at: 6.000 min^{-1} and 60°C
Maximum Angular Acceleration	$\leq 10^4 \text{ rad/s}^2$
Momentum of Inertia	approx. $2,5 \times 10^{-6} \text{ kg m}^2$
Startup Momentum at 20°C (68°F)	approx. 3,7 Ncm
Weight	approx. 0,3 kg

Subject to change

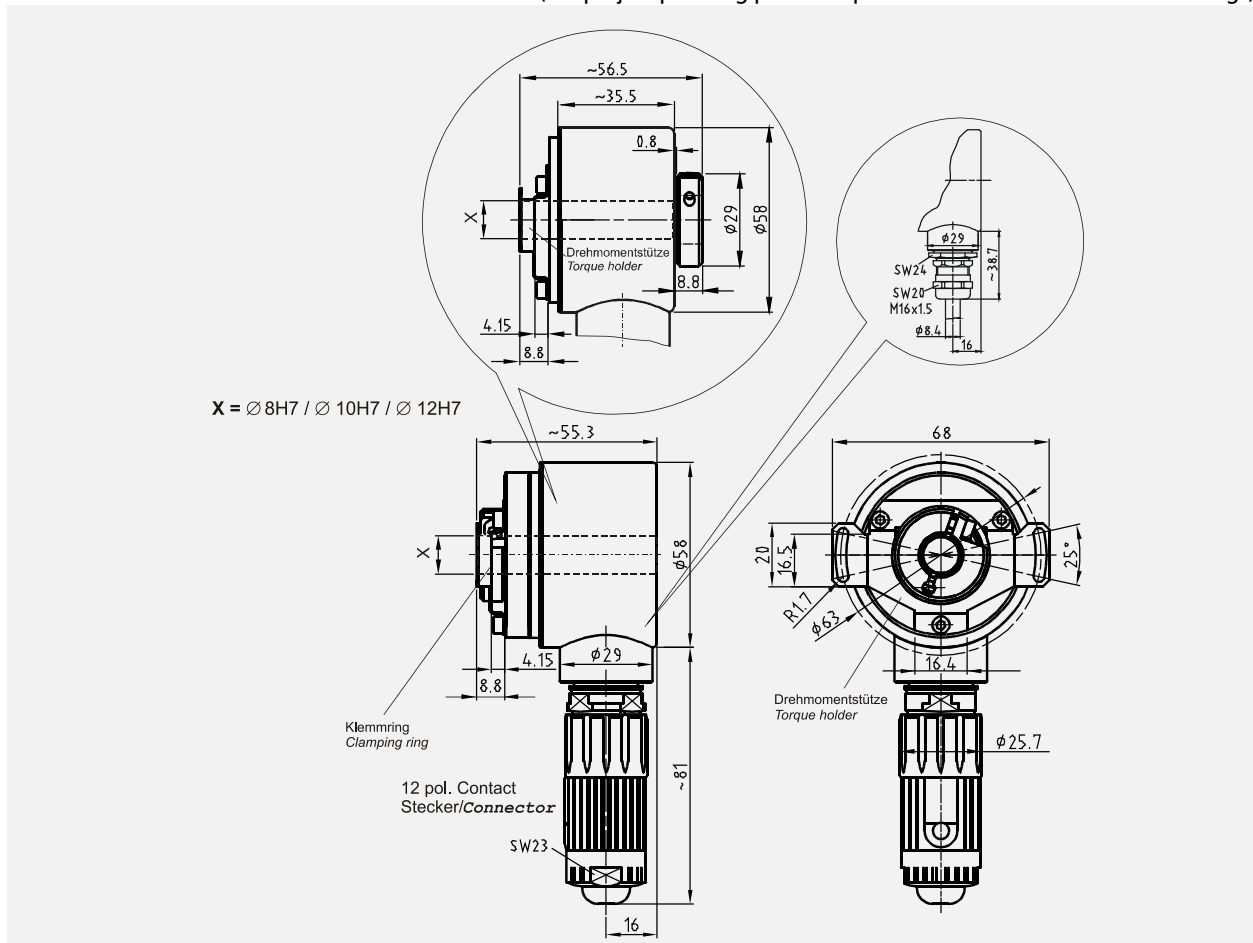
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 59-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11 ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Operating Temperature..... -20 to +85°C
 Storage Temperature..... -30 to +80°C
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 *) IP 64

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IS 58 U

TR-VCE-TI-GB-0716
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with stub-shaft-mounting \varnothing 8, 10 or 12 mm
- + Small compact design
- + Universal applications
- + Number of pulses per revolution up to 4.096, others upon request

Characteristics

Supply Voltage	11 - 27 V DC or 5 V DC
Power Dissipation (No Load).....	< 0,8 Watt
Output (11-27 V).....	Push-Pull
- Maximum Current.....	30 mA
- Incremental Signal	A, A neg., B, B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency.....	160 kHz
- Rise Time of Edge.....	< 500 ns
Output (5 V)	Line Driver
- Maximum Current.....	50 mA
- Incremental Signal	A, A neg., B; B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency.....	> 300 kHz
- Rise Time of Edge.....	< 100 ns
Maximum Revolutions per Minute (RPM)	$(\text{Cut-Off Frequency [Hz]} / \text{PPR}) \times 60 \text{ min}^{-1}$
Number of Pulses Per Revolution	7, 10, 18, 20, 32, 40, 50, 60, 64, 100, 125, 128, 180, 200, 250, 300, 360, 360, 400, 440, 500, 512, 700, 900, 1000, 1024, 1250, 1500, 1885, 2000, 2048, 2500, 2600, 3600, 4000, 4096 further on request
Maximum Rotational Speed	12.000 min^{-1}
Maximum Load on Shaft.....	Own Mass
Lifetime on Bearings.....	min. $3,9 \times 10^{10}$ revolutions at:
- Operational Speed	6.000 min^{-1}
- Operating Temperature.....	60°C
Maximum Angular Acceleration.....	$\leq 10^4 \text{ rad/s}^2$
Momentum of Inertia	approx. $2,5 \times 10^{-6} \text{ kg m}^2$
Startup Momentum at 20°C (68°F)	approx. 2 Ncm
Standard Connection.....	12 pin Contact-Bullet-Connector, radial
Further Types of Connections / Connector Types.....	Upon Request
Weight	approx. 0,3 kg

Subject to change

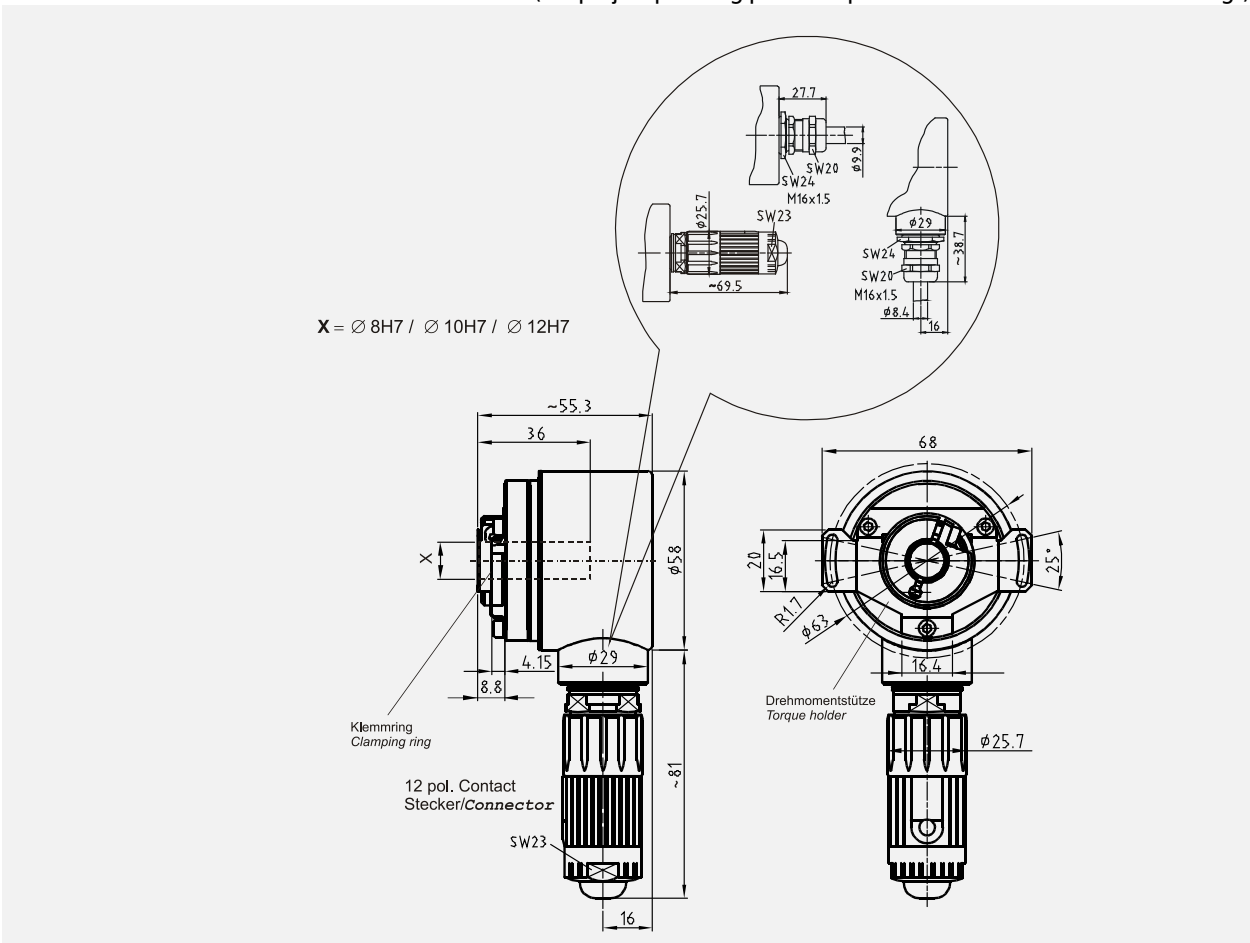
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 59-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	-20 to +85°C
Storage Temperature.....	-30 to +80°C
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 67

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IK 58 U

TR-VCE-TI-GB-0715
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with integrated coupling
- + Small compact design
- + Universal applications
- + Number of pulses per revolution up to 4.096, others upon request

Characteristics

Supply Voltage	11 - 27 V DC or 5 V DC
Power Dissipation (No Load)	< 0,8 Watt
Output (11-27 V)	Push-Pull
Maximum Current	30 mA
- Incremental Signal	A, A neg., B, B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency	160 kHz
- Rise Time of Edge	< 500 ns
Output (5 V)	Line Driver
- Maximum Current	50 mA
- Incremental Signal	A, A neg., B; B neg. Channel A leads channel B when rotating in a clockwise direction
- Marker Pulse (option)	Z, Z neg., 1 pulse per revolution
- Cut-Off Frequency	> 300 kHz
- Rise Time of Edge	< 100 ns
Maximum Revolutions per Minute (RPM)	(Cut-Off Frequency [Hz] / PPR) x 60 min ⁻¹
Number of Pulses Per Revolution	7, 10, 18, 20, 32, 40, 50, 60, 64, 100, 125, 128, 180, 200, 250, 300, 360, 360, 400, 440, 500, 512, 700, 900, 1000, 1024, 1250, 1500, 1885, 2000, 2048, 2500, 2600, 3600, 4000, 4096 further on request
Maximum Rotational Speed	12.000 min ⁻¹
Maximum Load on Shaft	Radial Coupling Forces
Lifetime on Bearings	min. 3,9 x 10 ¹⁰ revolutions at:
- Operational Speed	6.000 min ⁻¹
- Operating Temperature	60°C
Maximum Angular Acceleration	≤ 10 ⁴ rad/s ²
Momentum of Inertia	approx. 2,5 x 10 ⁻⁶ kg m ²
Startup Momentum at 20°C (68°F)	approx. 2 Ncm
Standard Connection	12 pin Contact-Bullet-Connector, radial
Further Types of Connections / Connector Types	Upon Request
Weight	approx. 0,3 kg

Subject to change

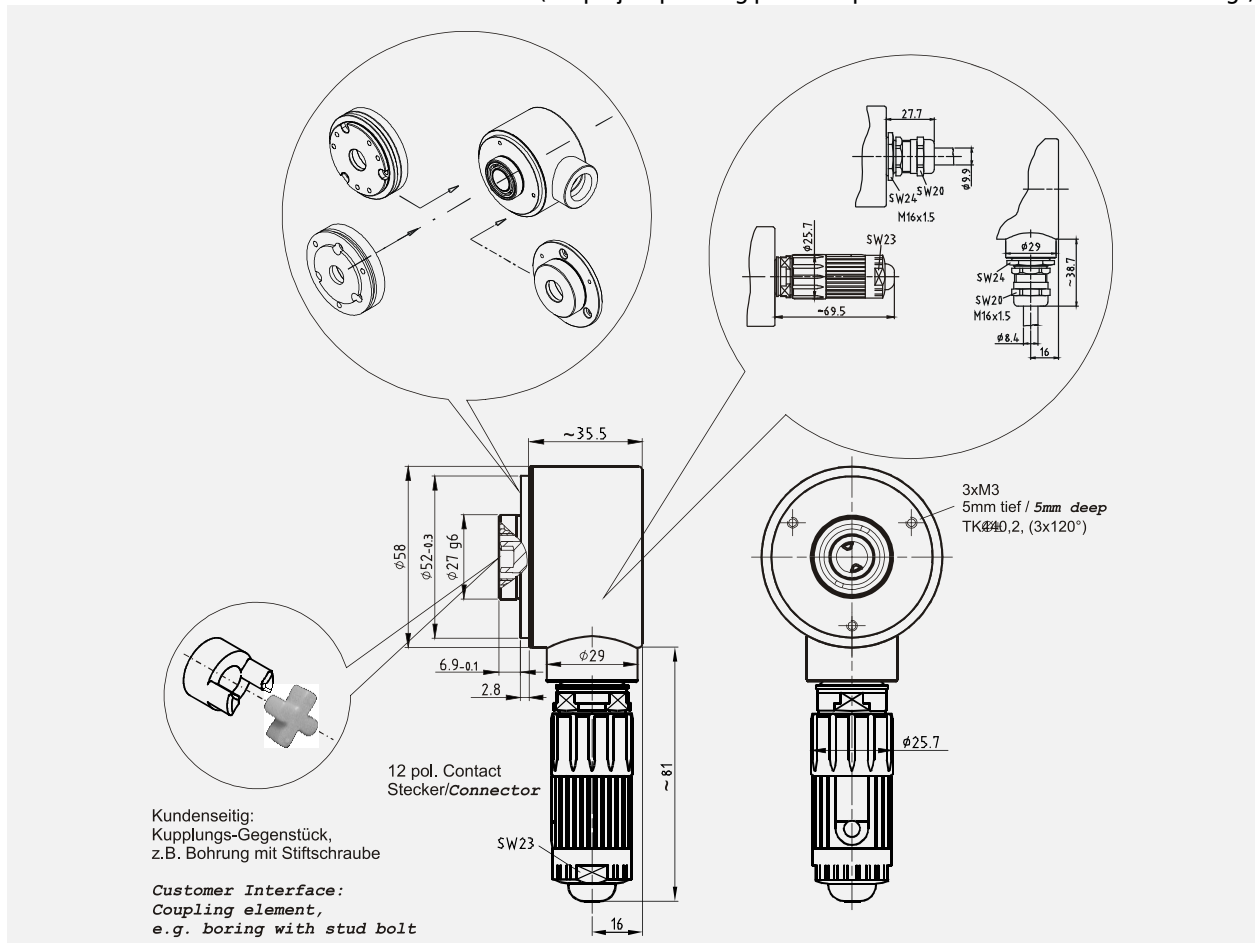
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 59-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	-20 to +85°C
Storage Temperature.....	-30 to +80°C
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 67

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

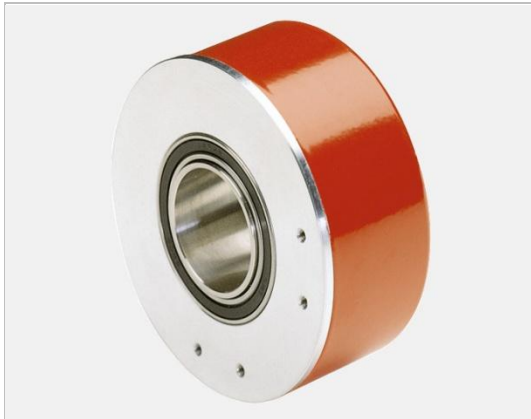
(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 76 (Type 0503)

TR-VCE-TI-GB-0630
04/12 Revision 03
010101-00769999-9999



- + Incremental interface
- + Type with hollow through shaft for direct coupling to any drive shaft (\varnothing 16 ... 28 mm)
- + Number of pulses per revolution up to 10 000

Characteristics

Supply Voltage	11 - 27 V DC
5 V DC	Upon Request
Output (11-27 V)	Push-Pull
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B, B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	160 kHz
Output (5 V)	Line Driver
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B; B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	300 kHz
Tolerance (at 20 kHz)	
- Phase Shift	$\pm 10^\circ$
- Pulse Width	$\pm 10^\circ$
Tolerance (at 100 kHz)	
- Phase Shift	$\pm 30^\circ$
- Pulse Width	$\pm 30^\circ$
Pulses per Revolution	1 to 10 000
Option	Sinusoidal Signal, 160 kHz (-3dB), voltage or current source 5 or 10 times the base PPR is possible. (i.e. 50000 or 100000 PPR)
Maximum Rotational Speed	6000 RPM
Maximum Angular Acceleration	$\leq 105 \text{ rad/s}^2$
Momentum of Inertia	$60 \times 10^{-6} \text{ kg m}^2$
Startup Momentum 20°C (68° F)	approx. 0.08 Nm
Standard Connector	radial cable (pigtail), different cable lengths on request
Weight	0.4 kg (0.9 lb.)

Subject to change

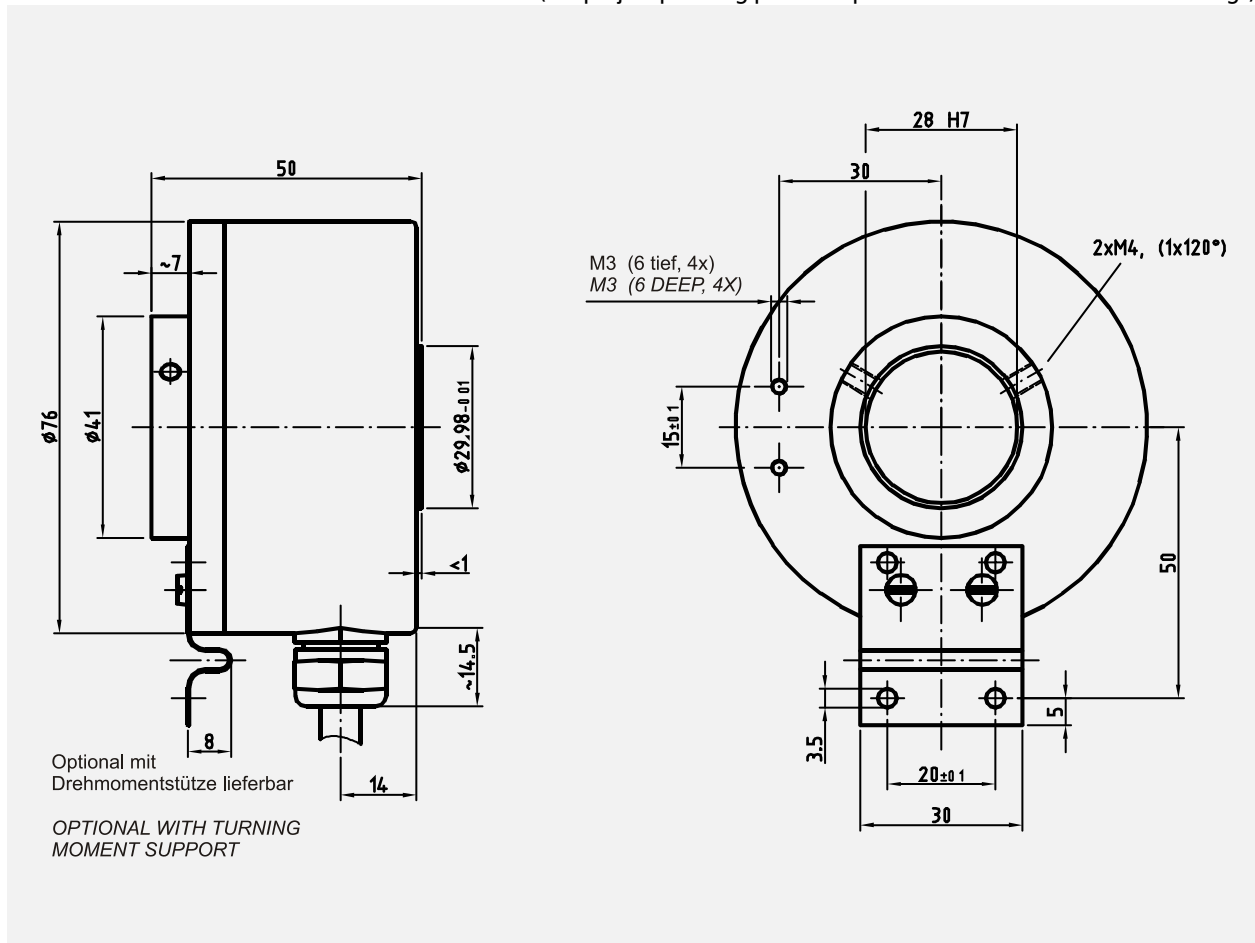
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	0° to 80°C (32° F to 176° F)
Extended Temperature (Optional)	-30° to +80°C (-22° to 176°F)
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 64

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 76 (Type 0500)

TR-VCE-TI-GB-0620
04/12 Revision 02
010101-00769999-9999



- + Incremental interface
- + Type with blind shaft (Ø 6 ... 16 mm)
- + Number of pulses per revolution up to 10 000

Characteristics

Supply Voltage	11 - 27 V DC
5 V DC	Upon Request
Output (11-27 V)	Push-Pull
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B, B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	160 kHz
Output (5 V)	Line Driver
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B; B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	300 kHz
Tolerance (at 20 kHz)	
- Phase Shift	± 10°
- Pulse Width	± 10°
Tolerance (at 100 kHz)	
- Phase Shift	± 30°
- Pulse Width	± 30°
Pulses per Revolution	1 to 10 000
Option	Sinusoidal Signal, 160 kHz (-3dB), voltage or current source
	5 or 10 times the base PPR is possible. (i.e. 50000 or 100000 PPR)
Maximum Rotational Speed	6000 RPM
Maximum Angular Acceleration	≤ 10 ⁵ rad/s ²
Momentum of Inertia	60 x 10 ⁻⁶ kg m ²
Start up Momentum 20°C (68° F)	approx. 0.08 Nm
Standard Connector	PG 9 radial cable (pigtail), different cable lengths on request
Weight	0.5 kg (1.1 lb.)

Subject to change

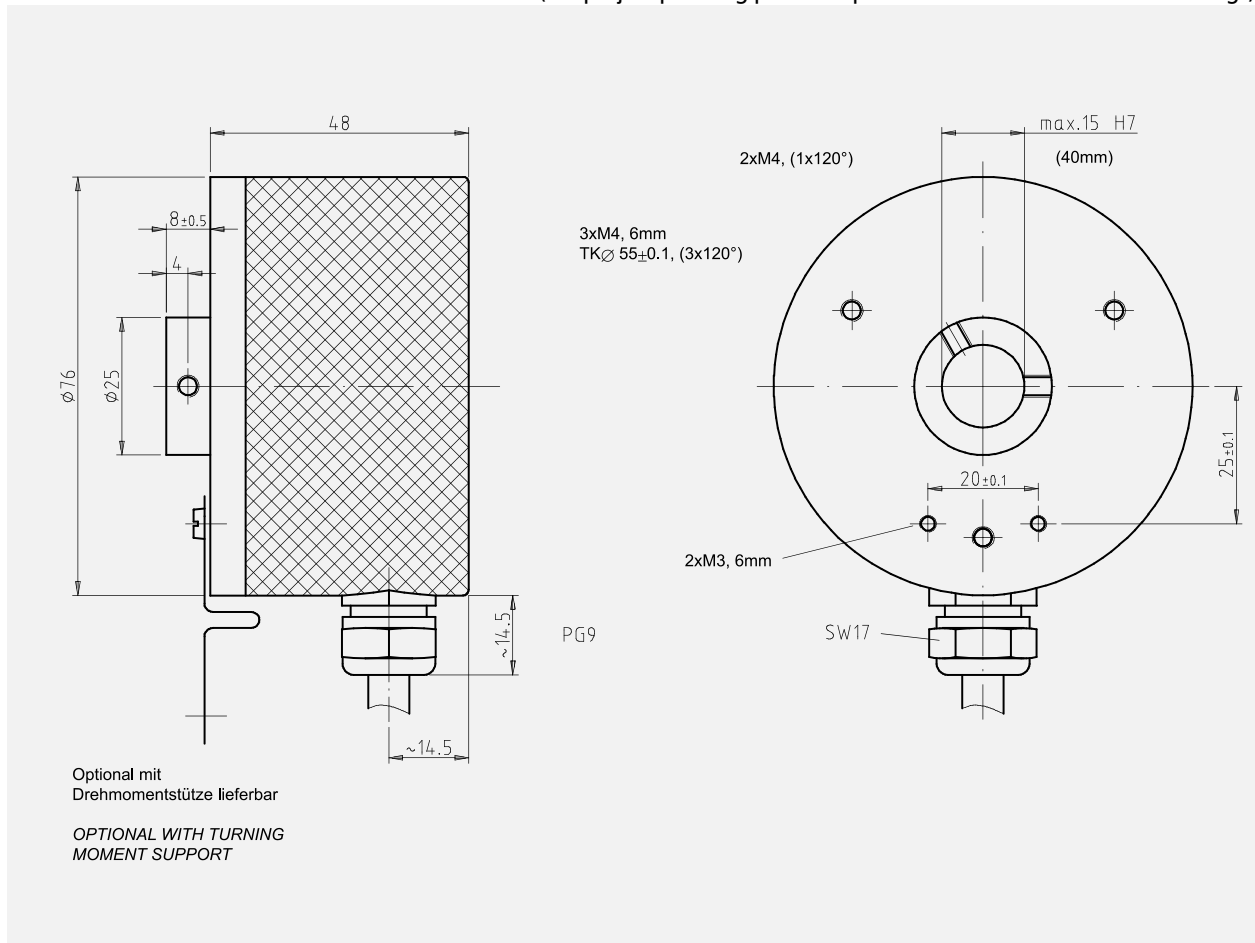
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	0° to 80°C (32° F to 176° F)
Extended Temperature (Optional)	-30° to +80°C (-22° to 176°F)
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 64

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 120

TR-VCE-TI-GB-0650
04/12 Revision 03
010101-01209999-9999



- + Incremental interface
- + Type with hollow through shaft for direct coupling to any drive shaft (\varnothing 27 ... 55 mm)
- + Number of pulses per revolution up to 10 000

Characteristics

Supply Voltage	11 - 27 V DC
5 V DC	Upon Request
Output (11-27 V)	Push-Pull
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B, B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	160 kHz
Output (5 V)	Line Driver
- Maximum Current	max. 20 mA
- Incremental Signal	A, A neg., B, B neg.
- Marker Pulse	Z, Z neg., 1 pulse per revolution
- Maximum Output Frequency	300 kHz
Tolerance (at 20 kHz)	
- Phase Shift	$\pm 10^\circ$
- Pulse Width	$\pm 10^\circ$
Tolerance (at 100 kHz)	
- Phase Shift	$\pm 30^\circ$
- Pulse Width	$\pm 30^\circ$
Pulses per Revolution (standard)	1024, 2500, 3600 and 10 000, other pulse numbers upon request
Option	Sinusoidal Signal, 160 kHz (-3dB), voltage or current source
Maximum Rotational Speed	4000 RPM
Maximum Angular Acceleration	$\leq 10^4 \text{ rad/s}^2$
Momentum of Inertia	$400 \times 10^{-6} \text{ kg m}^2$
Startup Momentum 20°C (68° F)	approx. 0,10 Nm
Standard Connector	radial cable (pigtail), different cable lengths on request
Weight	1.2 kg (2.6 lb.)

Subject to change

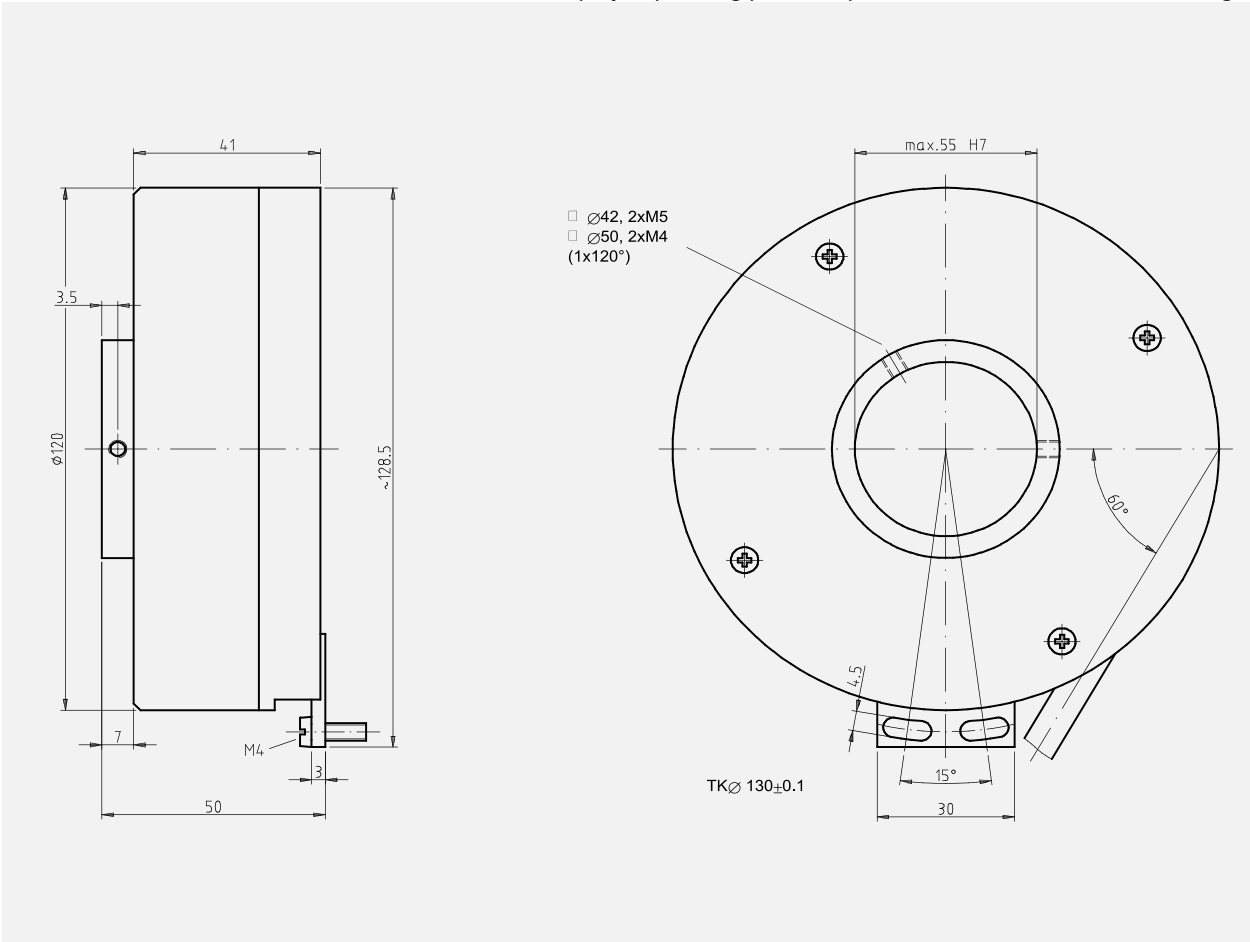
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Operating Temperature.....	0° to 80°C (32° F to 176° F)
Extended Temperature (Optional)	-30° to +80°C (-22° to 176°F)
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 64

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 76 (Type 0503 V)

TR-VCE-TI-GB-0631
04/12 Revision 01
010101-00769999-9999



- + Incremental interface
- + Type with hollow through shaft $\varnothing 16 \dots 28$ mm
- + Number of pulses per revolution:
 - Version with 9.000 ppr
 - Version with 10.000 ppr
 - Version with 18.000 ppr
- + High accuracy, thus it is applicable as a measuring encoder

Characteristics

Supply voltage.....	11...27 VDC
5 VDC, ± 5 %	on request
Current consumption without load.....	≤ 100 mA
Accuracy	
- Version with 9.000 ppr.....	$\pm 7''$
- Version with 10.000 ppr.....	$\pm 6''$
- Version with 18.000 ppr.....	$\pm 5''$
Interpolation, optional	internal 5/10/25/50 times interpolation
Signal outputs	Square wave
Outputs (11-27 V level)	Push-Pull, short-circuit-proof
- Output current	≤ 20 mA
- Incremental signal, optional with inverting.....	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 300 kHz
Outputs (5 V level)	Line driver
- Output current	≤ 20 mA
- Incremental signals, optional with inverting	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 1 MHz
Mechanically permissible speed	≤ 4.000 min ⁻¹
Shaft load.....	Own mass
Connection	
- Version with cable outlet	radial, cable length on request
- Version with connector	radial
Mass.....	approx. 0.5 kg

Subject to change

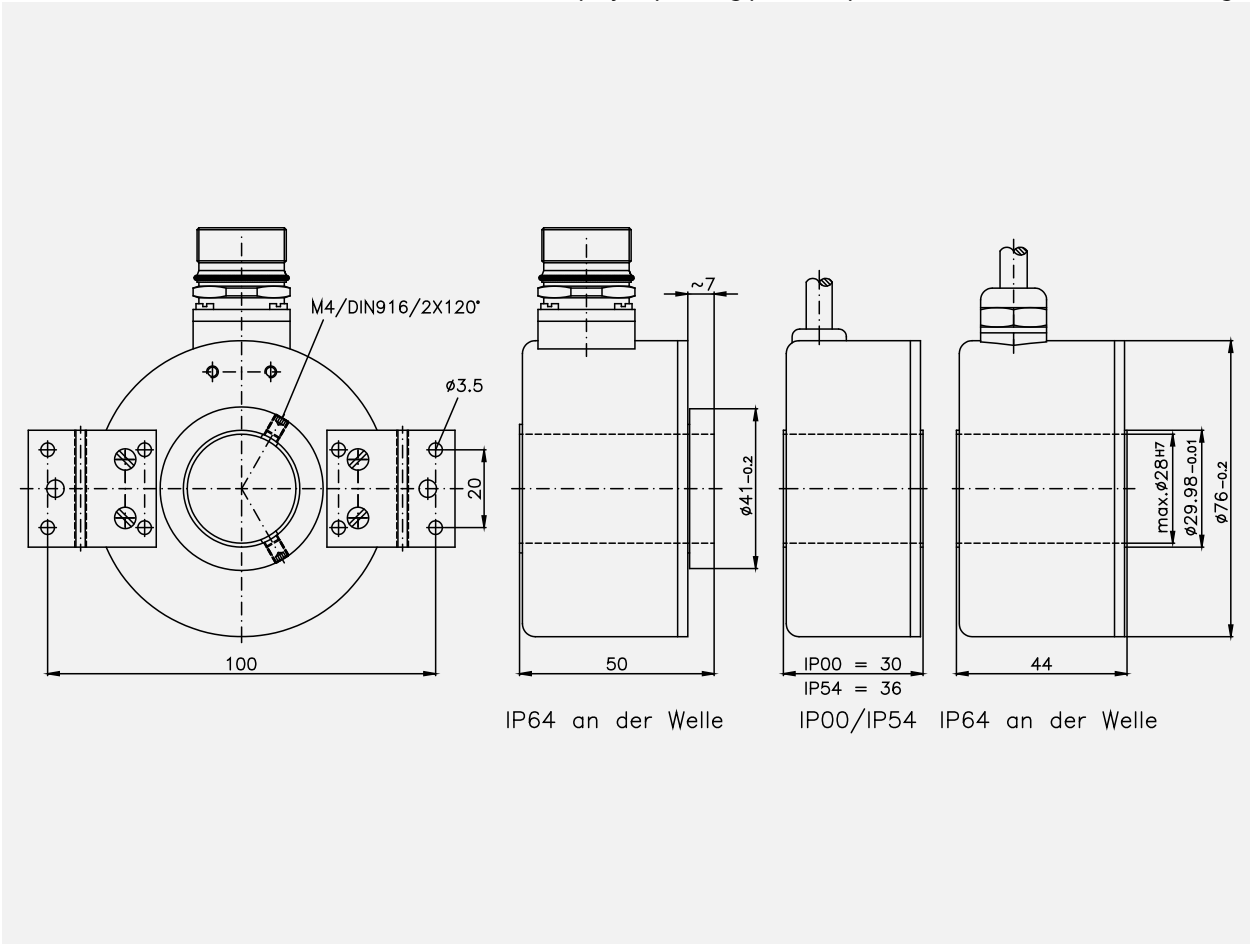
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature	0 °C...+ 80 °C
Storage temperature	- 30 °C...+ 80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *)	max. IP 64, dependent on the connector or the connection technique

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IE 92 V

TR-VCE-TI-GB-0581
04/12 Revision 01
010101-00929999-9999



- + Incremental interface
- + Type with solid shaft \varnothing 10 mm
- + Number of pulses per revolution:
 - Version with 9.000 ppr
 - Version with 10.000 ppr
 - Version with 18.000 ppr
- + High accuracy, thus it is applicable as a measuring encoder

Characteristics

Supply voltage.....	11...27 VDC
5 VDC, $\pm 5\%$	on request
Current consumption without load.....	≤ 100 mA
Accuracy	
- Version with 9.000 ppr.....	$\pm 7''$
- Version with 10.000 ppr.....	$\pm 6''$
- Version with 18.000 ppr.....	$\pm 5''$
Interpolation, optional	internal 5/10/25/50 times interpolation
Signal outputs	Square wave
Outputs (11-27 V level)	Push-Pull, short-circuit-proof
- Output current	≤ 20 mA
- Incremental signal, optional with inverting.....	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 300 kHz
Outputs (5 V level)	Line driver
- Output current	≤ 20 mA
- Incremental signals, optional with inverting	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 1 MHz
Mechanically permissible speed	≤ 4.000 min ⁻¹
Shaft load, at shaft end.....	axial 10 N, radial 20 N
Connection.....	Cable outlet radial, cable length on request
Mass.....	approx. 0.8 kg

Subject to change

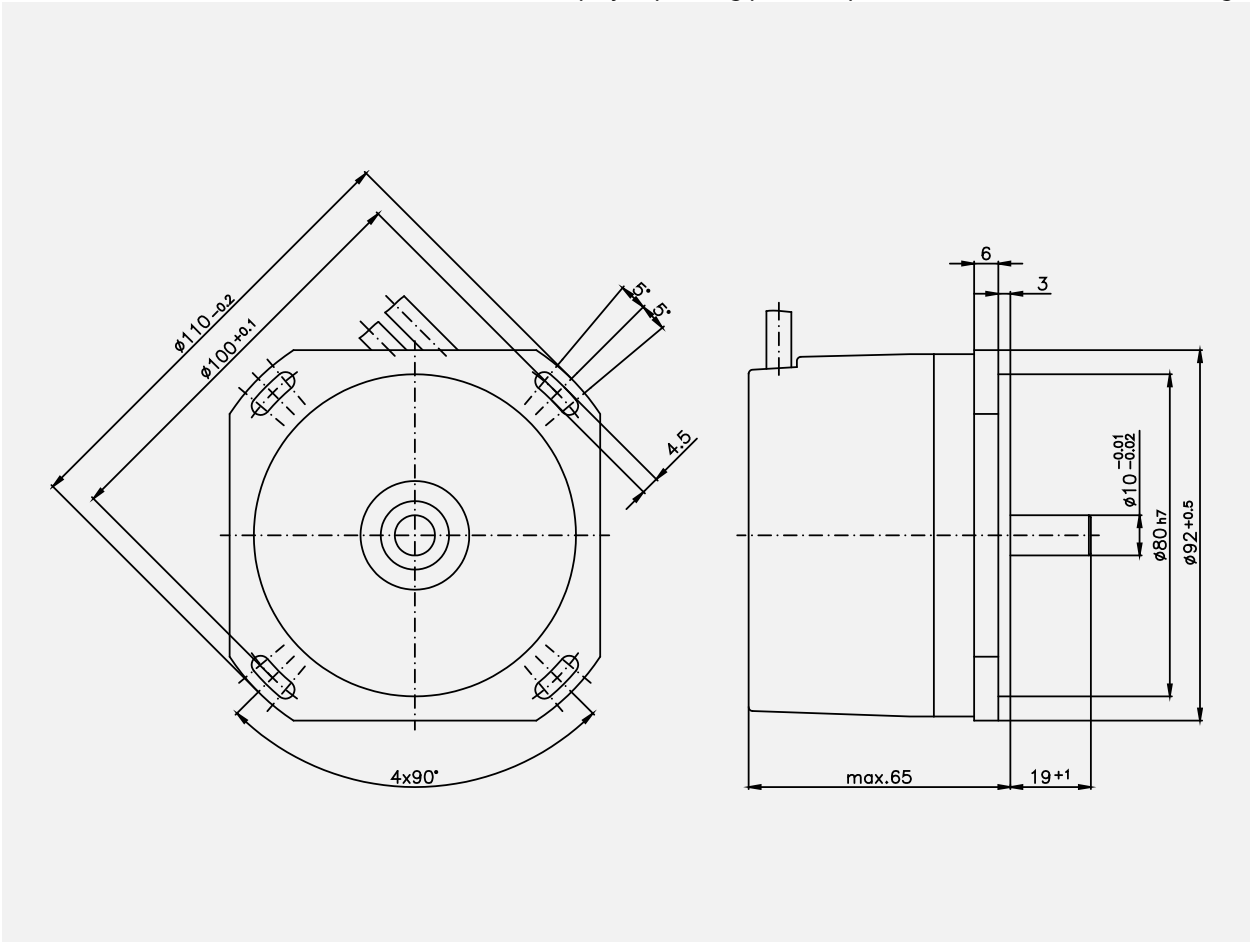
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+80 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 64

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 92 V

TR-VCE-TI-GB-0641
04/12 Revision 01
010101-00929999-9999



- + Incremental interface
- + Type with hollow through shaft \varnothing 20 or 22 mm
- + Number of pulses per revolution:
 - Version with 9.000 ppr
 - Version with 10.000 ppr
 - Version with 18.000 ppr
- + High accuracy, thus it is applicable as a measuring encoder

Characteristics

Supply voltage.....	11...27 VDC
5 VDC, $\pm 5\%$	on request
Current consumption without load.....	≤ 100 mA
Accuracy	
- Version with 9.000 ppr.....	$\pm 7''$
- Version with 10.000 ppr.....	$\pm 6''$
- Version with 18.000 ppr.....	$\pm 5''$
Interpolation, optional	internal 5/10/25/50 times interpolation
Signal outputs	Square wave
Outputs (11-27 V level)	Push-Pull, short-circuit-proof
- Output current	≤ 20 mA
- Incremental signal, optional with inverting.....	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 300 kHz
Outputs (5 V level)	Line driver
- Output current	≤ 20 mA
- Incremental signals, optional with inverting	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 1 MHz
Mechanically permissible speed	≤ 4.000 min ⁻¹
Shaft load.....	Own mass
Connection.....	Cable outlet radial, cable length on request
Mass.....	approx. 1.2 kg

Subject to change

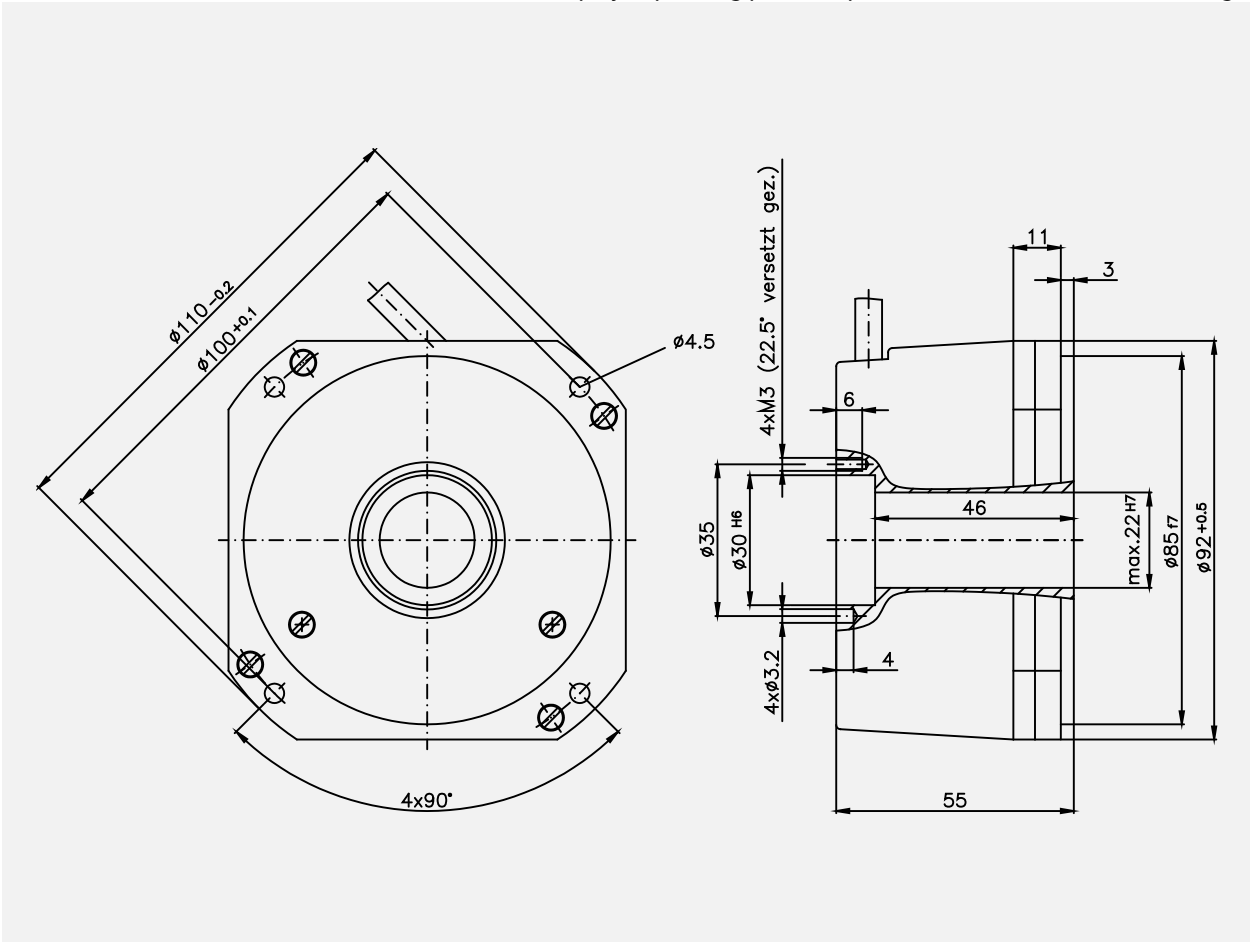
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+80 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 64

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IH 120 V

TR-VCE-TI-GB-0651
04/12 Revision 01
010101-01209999-9999



- + Incremental interface
- + Type with hollow through shaft $\varnothing 27 \dots 55$ mm
- + Number of pulses per revolution:
 - Version with 9.000 ppr
 - Version with 10.000 ppr
 - Version with 18.000 ppr
- + High accuracy, thus it is applicable as a measuring encoder

Characteristics

Supply voltage.....	11...27 VDC
5 VDC, ± 5 %	on request
Current consumption without load.....	≤ 100 mA
Accuracy	
- Version with 9.000 ppr.....	$\pm 7''$
- Version with 10.000 ppr.....	$\pm 6''$
- Version with 18.000 ppr.....	$\pm 5''$
Interpolation, optional	internal 5/10/25/50 times interpolation
Signal outputs	Square wave
Outputs (11-27 V level)	Push-Pull, short-circuit-proof
- Output current	≤ 20 mA
- Incremental signal, optional with inverting.....	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 300 kHz
Outputs (5 V level)	Line driver
- Output current	≤ 20 mA
- Incremental signals, optional with inverting	K1, K2 phase-shifted 90° electrically
- Zero-pulse, optional with inverting	K0, 1x per revolution, length 90° , 180° , 360° electrically
- Output frequency	≤ 1 MHz
Mechanically permissible speed	≤ 4.000 min ⁻¹
Shaft load.....	Own mass
Connection	
- Version with cable outlet	radial, cable length on request
- Version with connector	radial
Mass.....	approx. 1 kg

Subject to change

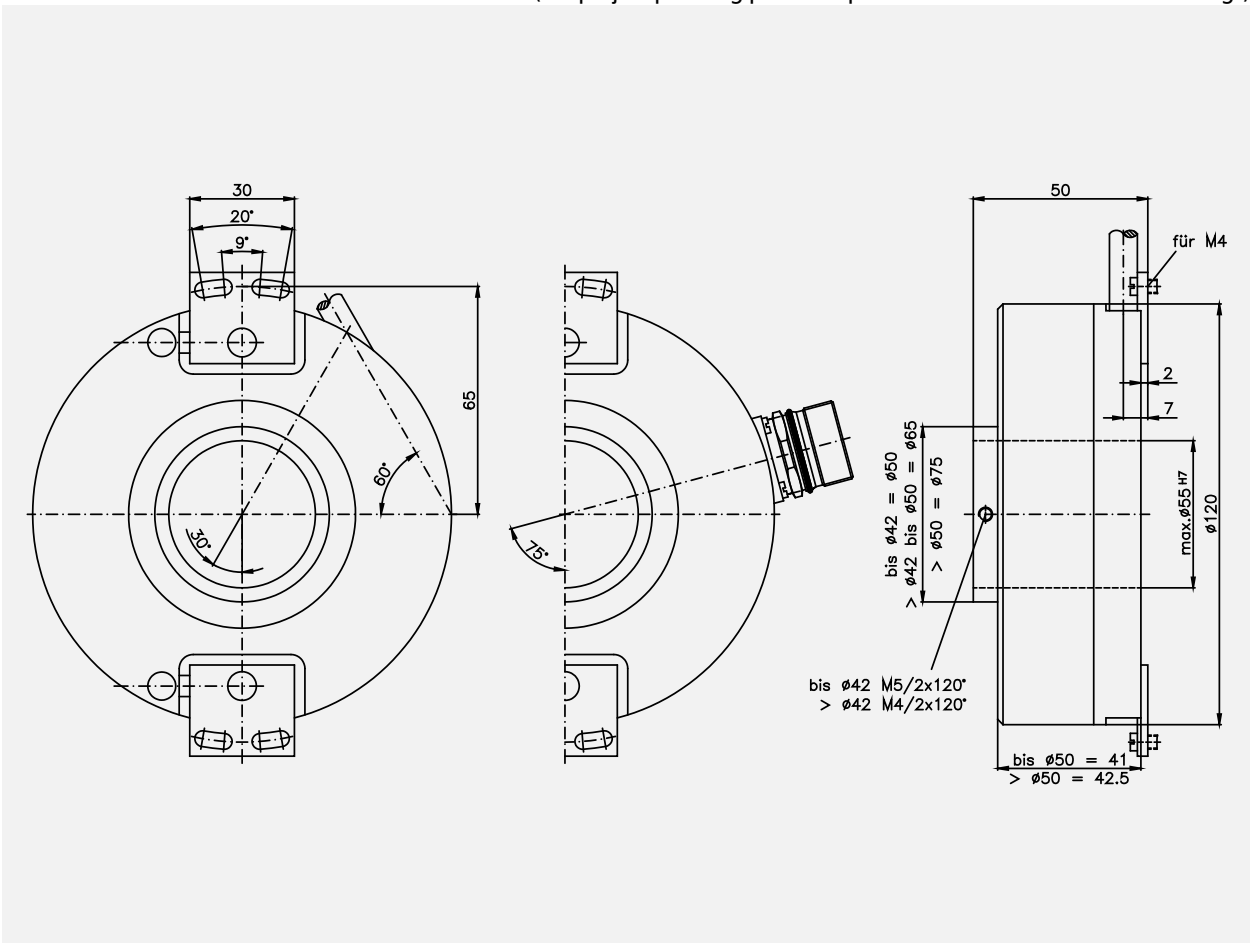
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 20-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11 ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+80 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 *).....	IP 64

*) valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

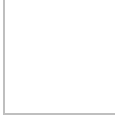
(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IEV 58

IEV58-INC-1-GB-1
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...28 VDC, optional 5 VDC ±5%
Current consumption without load.....	< 65 mA, < 80 mA at 5 VDC
Number of pulses/revolution ¹⁾	≥2... ≤ 1.024, >1.024: 2.048, 4.096, 8.192
Version with push-pull	
- Output level	11...28 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, ±15°
- Supply voltage	11...28 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, ±15°
- Supply voltage	11...28 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Programmable parameters	
- Number of pulses	
- Phase position: A / B, Zero pulse(s)	
- Zero pulse: Pulse length, Number of pulses	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset.....	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

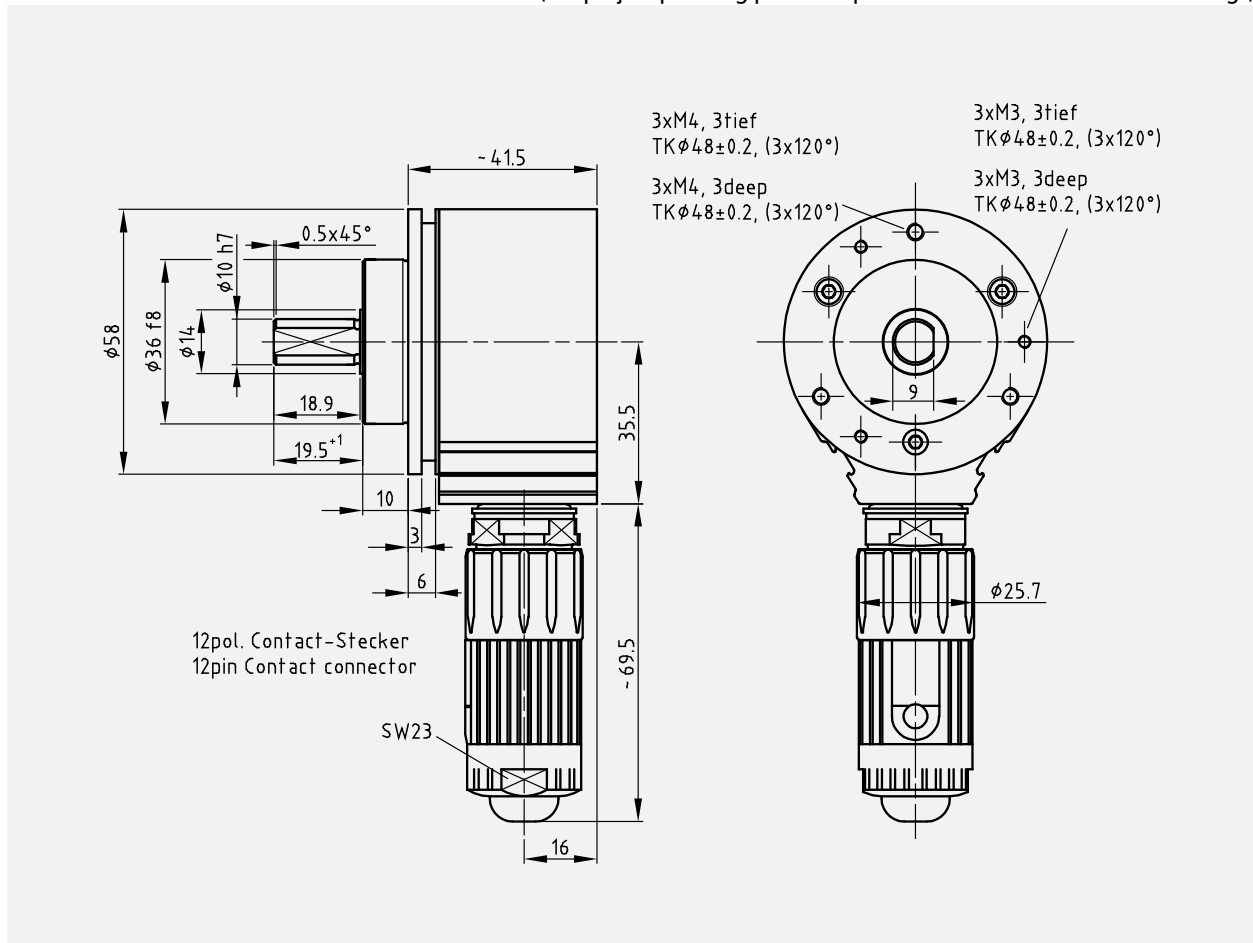
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IEH 58

IEH58-INC-1-GB-1
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...28 VDC, optional 5 VDC $\pm 5\%$
Current consumption without load.....	< 65 mA, < 80 mA at 5 VDC
Number of pulses/revolution ¹⁾	$\geq 2 \dots \leq 1.024$, >1.024: 2.048, 4.096, 8.192
Version with push-pull	
- Output level	11...28 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Programmable parameters	
- Number of pulses	
- Phase position: A / B, Zero pulse(s)	
- Zero pulse: Pulse length, Number of pulses	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset.....	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	$\leq 10^4$ rad/s ²
Moment of inertia	typically $2.5 * 10^{-6}$ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

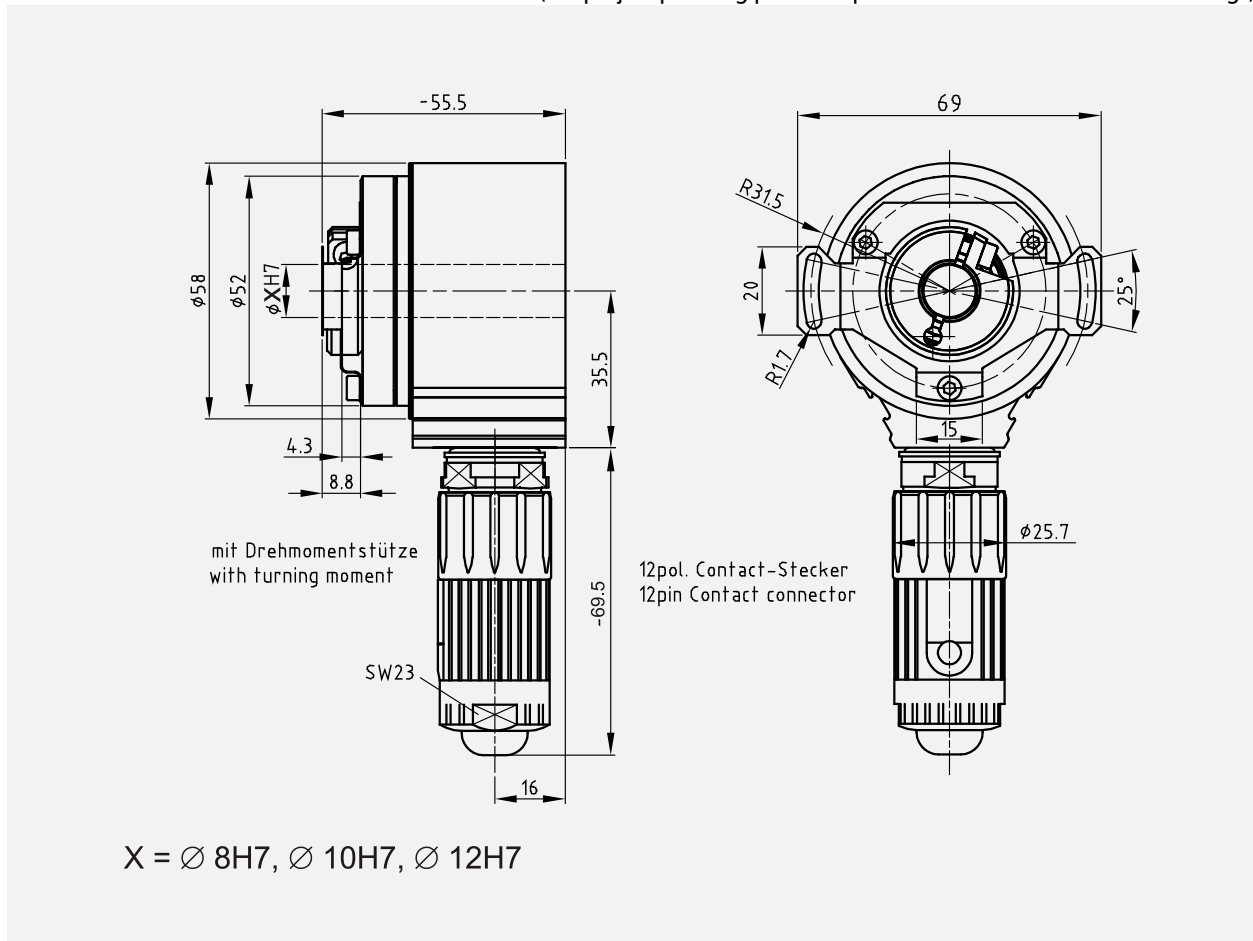
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

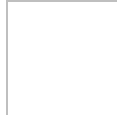
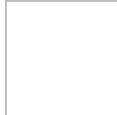
(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IES 58

IES58-INC-1-GB-1
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Short lead times
- + Further interfaces available
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...28 VDC, optional 5 VDC $\pm 5\%$
Current consumption without load.....	< 65 mA, < 80 mA at 5 VDC
Number of pulses/revolution ¹⁾	$\geq 2 \dots \leq 1.024$, >1.024: 2.048, 4.096, 8.192
Version with push-pull	
- Output level	11...28 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Programmable parameters	
- Number of pulses	
- Phase position: A / B, Zero pulse(s)	
- Zero pulse: Pulse length, Number of pulses	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset.....	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	$\leq 10^4$ rad/s ²
Moment of inertia	typically $2.5 * 10^{-6}$ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

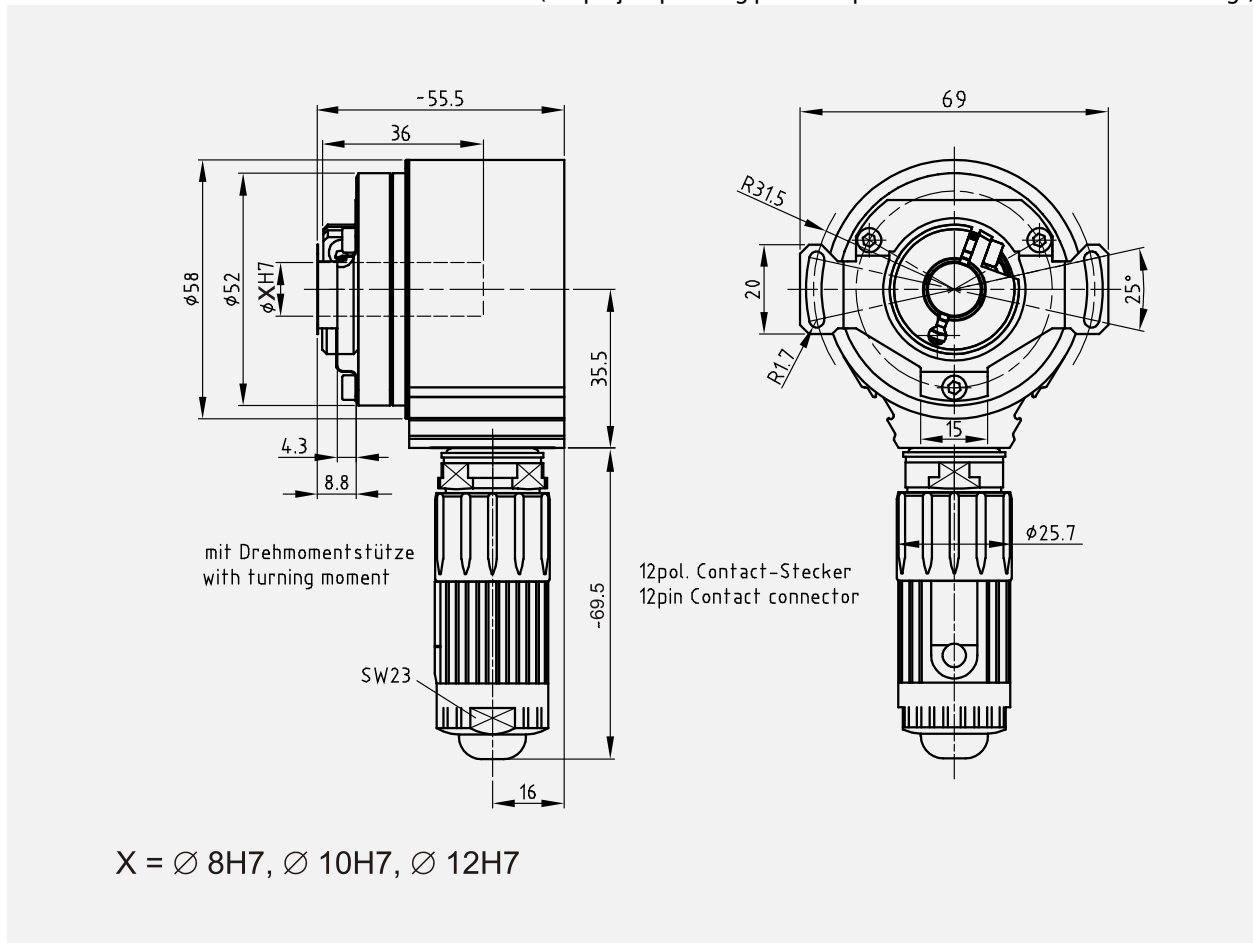
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

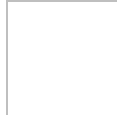
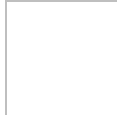
(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IPV 58

IPV58-INC-1-GB-1
04/12 Revision 01
010101-00589999-9999



- + Incremental interface
- + Type with solid shaft
- + Pole ring scanning unit
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Number of pulses up to 16.384
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	7.2...30 VDC
Current consumption without load.....	< 65 mA
Number of pulses/revolution ¹⁾	≤ 16.384
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Output frequency	50 kHz
Programmable parameters	
- Number of pulses	
- Phase position: A / B, Zero pulse(s)	
- Zero pulse: Pulse length, Number of pulses	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

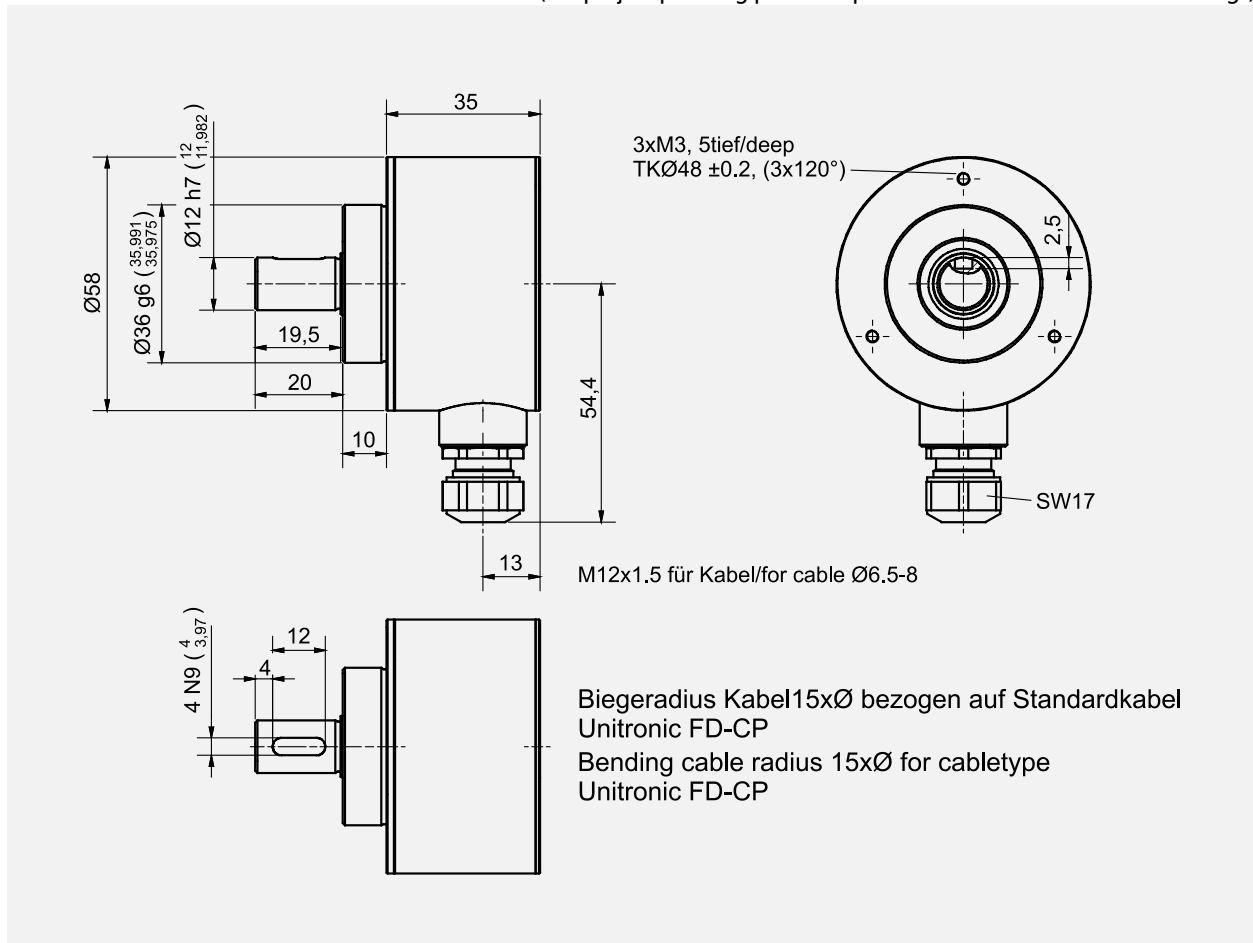
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+85 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 67

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

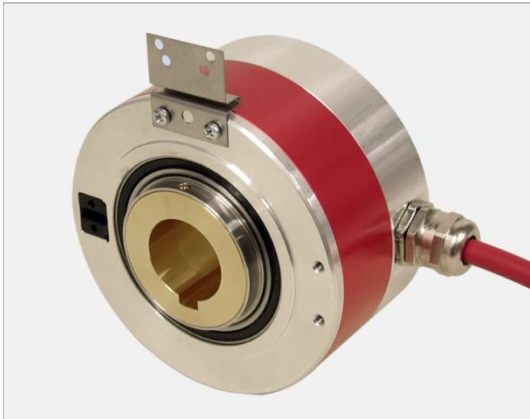
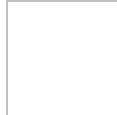
(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IEH 110

IEH110-INC-1-GB-1
04/12 Revision 01
010101-01109999-9999



- + Incremental interface
- + Type with hollow through shaft
- + Shaft diameter 30...50 mm
- + Parameter setting possibilities
- + Special parameters upon request

Characteristics

Supply voltage.....	11...27 VDC, optional 5 VDC $\pm 5\%$
Current consumption without load.....	< 110 mA, < 150 mA at 5 VDC
Number of pulses/revolution ¹⁾	$\geq 2 \dots \leq 8.192$
Version with push-pull	
- Output level	11...27 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, $\pm 15^\circ$
- Supply voltage	11...27 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, $\pm 15^\circ$
- Supply voltage	11...27 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Mechanically permissible speed	≤ 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	≤ 2.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	30H7 with groove...50H7 without groove
Permissible angular acceleration.....	$\leq 10^4$ rad/s ²
Moment of inertia	typically $525 * 10^{-6}$ kg m ²
Start-up torque at 20°C.....	typically 8 Ncm
Mass.....	typically 1.75 kg

¹⁾ programmable parameter

Subject to change

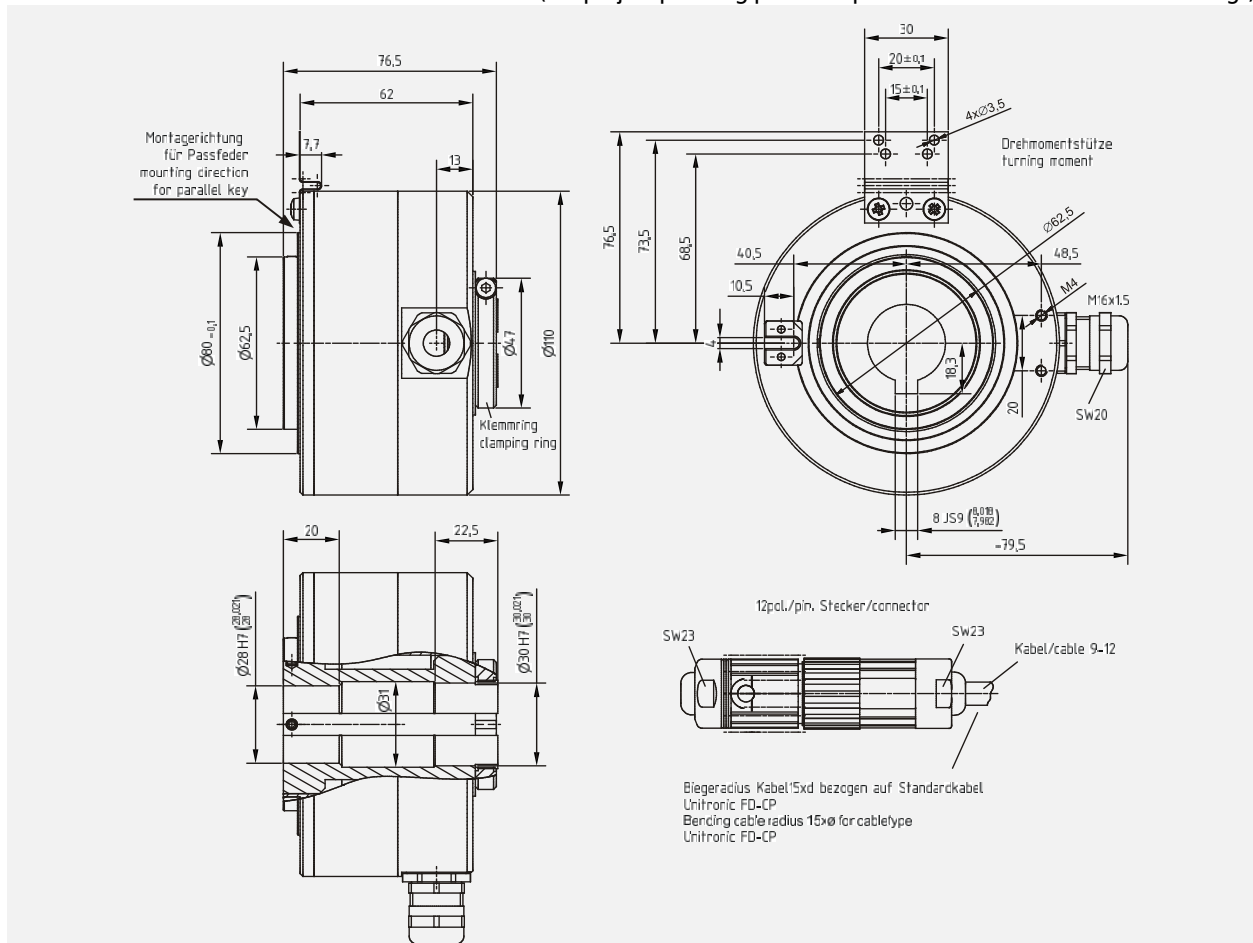
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Inkremental-Encoder IDV 58

IDV58-INC-1-D-1
08/13 Revision 03
010101-00589999-9999



- + 2-fach Inkremental Schnittstelle
- + Ausführung mit Vollwelle
- + Breites modulares Produktspektrum
- + Redundantes Abtastungs-System
- + Umfangreiche Parametrierungsmöglichkeiten
- + Sonderparameter auf Anfrage
- + Weitere Schnittstellen - Kombinationen auf Anfrage
- + Modularer Aufbau für mechanische Anpassungen

Kenndaten

Versorgungsspannung.....	2 * 11...28 VDC, optional 2 * 5 VDC \pm 5 %, oder kombiniert
Stromaufnahme ohne Last.....	< 130 mA, < 160 mA bei 5VDC, < 145 mA
Impulszahl/Umdrehung ¹⁾	$\geq 2 \dots \leq 1.024$, > 1.024 : 2.048, 4.096, 8.192
Version mit Gegentakt	
- Ausgangspegel.....	11...28 VDC, Versorgungsspannung
- Ausgangsstrom.....	≤ 30 mA
- Ausgangsfrequenz.....	150 kHz, $\pm 15^\circ$
- Versorgungsspannung.....	11...28 V DC
Version mit Kabelsender	
- Ausgangspegel.....	5 VDC, RS422
- Ausgangsstrom.....	≤ 50 mA
- Ausgangsfrequenz.....	300 kHz, $\pm 15^\circ$
- Versorgungsspannung.....	11...28 V DC, optional 5 VDC
Inkrementalsignale.....	A+, A-, B+, B-
Nullimpuls.....	Ref+, Ref-
Programmierbare Parameter	
- Anzahl Impulse	
- Phasenlage: A / B, Nullimpuls(e)	
- Nullimpuls: Impuls-Länge, Anzahl Impulse	
- Freigabe/Sperrung für Preset-Funktion, Set Ref+, Ref-	
Preset.....	elektronische Justage der Referenzsignale Ref+, Ref-
Logischer Zustand.....	„0“ < + 2 VDC, „1“ = Versorgungsspannung
Mechanisch zulässige Drehzahl.....	≤ 6.000 min ⁻¹
Wellenbelastung, am Wellenende.....	≤ 10 N axial, ≤ 20 N radial
Lagerlebensdauer.....	$\geq 3,9 * 10^{10}$ Umdrehungen bei
- Drehzahl.....	≤ 6.000 min ⁻¹
- Betriebstemperatur.....	≤ 60 °C
- Wellenbelastung, am Wellenende.....	≤ 5 N axial, ≤ 10 N radial
Zulässige Winkelbeschleunigung.....	$\leq 10^4$ rad/s ²
Trägheitsmoment.....	typisch $5 * 10^{-6}$ kg m ²
Anlaufdrehmoment bei 20 °C.....	typisch 2 Ncm
Masse.....	0,6 kg...1 kg

¹⁾ programmierbarer Parameter

Änderungen vorbehalten

Incremental-Encoder IDS 58

IDS58-INC-1-GB-1
08/13 Revision 03
010101-00589999-9999



- + Double Incremental interface
- + Type with blind shaft
- + Modular product line
- + Redundant scanning system
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Further interface variants upon request
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	2 * 11...28 VDC, optional 2 * 5 VDC $\pm 5\%$, or combined
Current consumption without load	< 130 mA, < 160 mA at 5VDC, < 145 mA
Number of pulses/revolution ¹⁾	$\geq 2 \dots \leq 1.024$, >1.024: 2.048, 4.096, 8.192
Version with push-pull	
- Output level	11...28 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Programmable parameters	
- Number of pulses	
- Phase position: A / B, Zero pulse(s)	
- Zero pulse: Pulse length, Number of pulses	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load	Own mass
Bearing life time	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm	10H7, 12H7
Permissible angular acceleration	$\leq 10^4$ rad/s ²
Moment of inertia	typically $5 * 10^{-6}$ kg m ²
Start-up torque at 20°C	typically 2 Ncm
Mass	0.6 kg...1 kg

¹⁾ programmable parameter

Subject to change

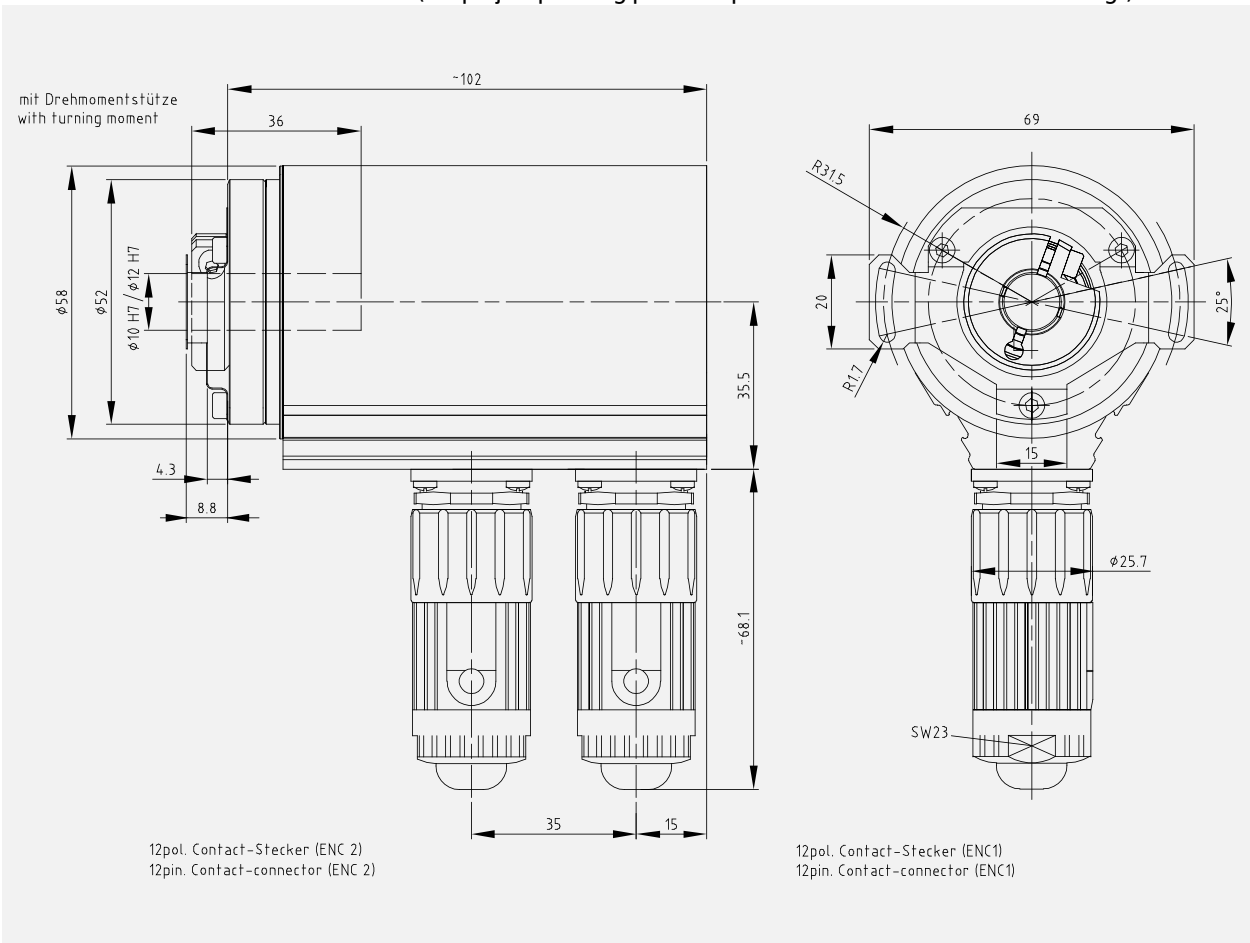
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IOV 58

IOV58-INC-1-GB-1
0412J Revision 04
010101-00589999-9999



- + Incremental interface
- + Type with solid shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Number of pulses up to 36.000
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...28 VDC, optional 5 VDC $\pm 5\%$
Current consumption without load.....	< 65 mA, < 80 mA at 5 VDC
Number of pulses/revolution ¹⁾	≤ 36.000
Version with push-pull	
- Output level	11...28 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Programmable parameters	
- Number of pulses	
- Overspeed	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset.....	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load, at the shaft end.....	≤ 10 N axial, ≤ 20 N radial
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
- Shaft load, at the shaft end.....	≤ 5 N axial, ≤ 10 N radial
Permissible angular acceleration.....	$\leq 10^4$ rad/s ²
Moment of inertia	typically $2.5 * 10^{-6}$ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

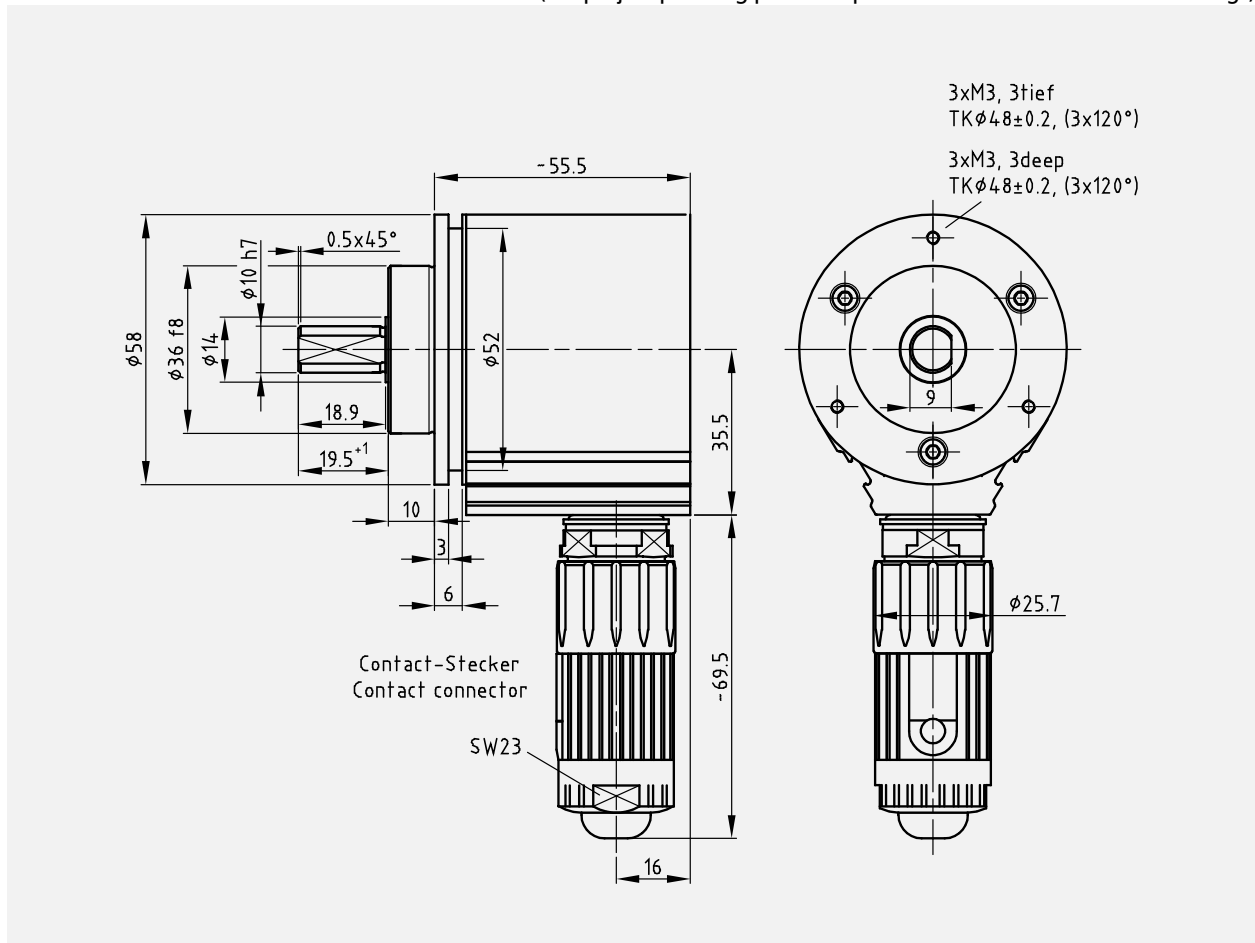
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

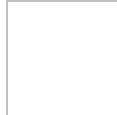
(For project planning please request customized dimensional drawing!)



Subject to change

Incremental-Encoder IOH 58

IOH58-INC-1-GB-1
04/12 Revision 04
010101-00589999-9999



- + Incremental interface
- + Type with hollow through shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Number of pulses up to 36.000
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...28 VDC, optional 5 VDC $\pm 5\%$
Current consumption without load.....	< 65 mA, < 80 mA at 5 VDC
Number of pulses/revolution ¹⁾	≤ 36.000
Version with push-pull	
- Output level	11...28 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, $\pm 15^\circ$
- Supply voltage	11...28 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Programmable parameters	
- Number of pulses	
- Overspeed	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset.....	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 6.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	$\leq 10^4$ rad/s ²
Moment of inertia	typically $2.5 * 10^{-6}$ kg m ²
Start-up torque at 20°C.....	typically 3.7 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

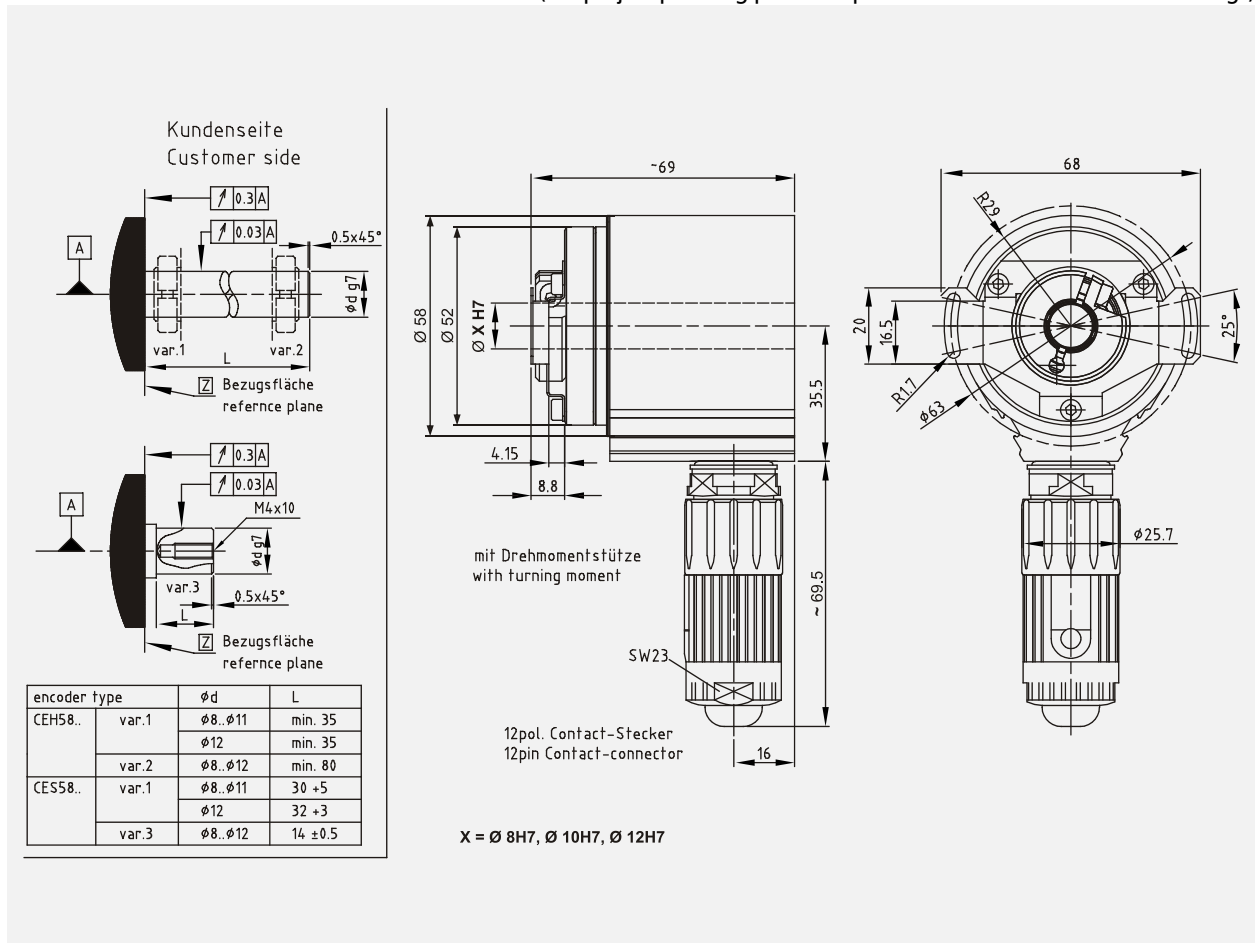
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
- Transient emissions, DIN EN 61000-6-3: 2007	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Incremental-Encoder IOS 58

IOS58-INC-1-GB-1
04/12 Revision 02
010101-00589999-9999



- + Incremental interface
- + Type with blind shaft
- + Modular product line
- + Extensive parameter setting possibilities
- + Special parameters upon request
- + Number of pulses up to 36.000
- + Modular construction for mechanical customizations

Characteristics

Supply voltage.....	11...28 VDC, optional 5 VDC ±5%
Current consumption without load.....	< 65 mA, < 80 mA at 5 VDC
Number of pulses/revolution ¹⁾	≤ 36.000
Version with push-pull	
- Output level	11...28 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, ±15°
- Supply voltage	11...28 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, ±15°
- Supply voltage	11...28 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Programmable parameters	
- Number of pulses	
- Overspeed	
- Enable/Disable Preset function, Set Ref+, Ref-	
Preset.....	electronic adjustment of the reference signals Ref+, Ref-
Logic level	"0" < + 2 VDC, "1" = Supply voltage
Mechanically permissible speed	≤ 12.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	≥ 3.9 * 10 ¹⁰ revolutions at
- Speed	≤ 6.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	8H7, 10H7, 12H7
Permissible angular acceleration.....	≤ 10 ⁴ rad/s ²
Moment of inertia	typically 2.5 * 10 ⁻⁶ kg m ²
Start-up torque at 20°C.....	typically 2 Ncm
Mass.....	0.3 kg...0.5 kg

¹⁾ programmable parameter

Subject to change

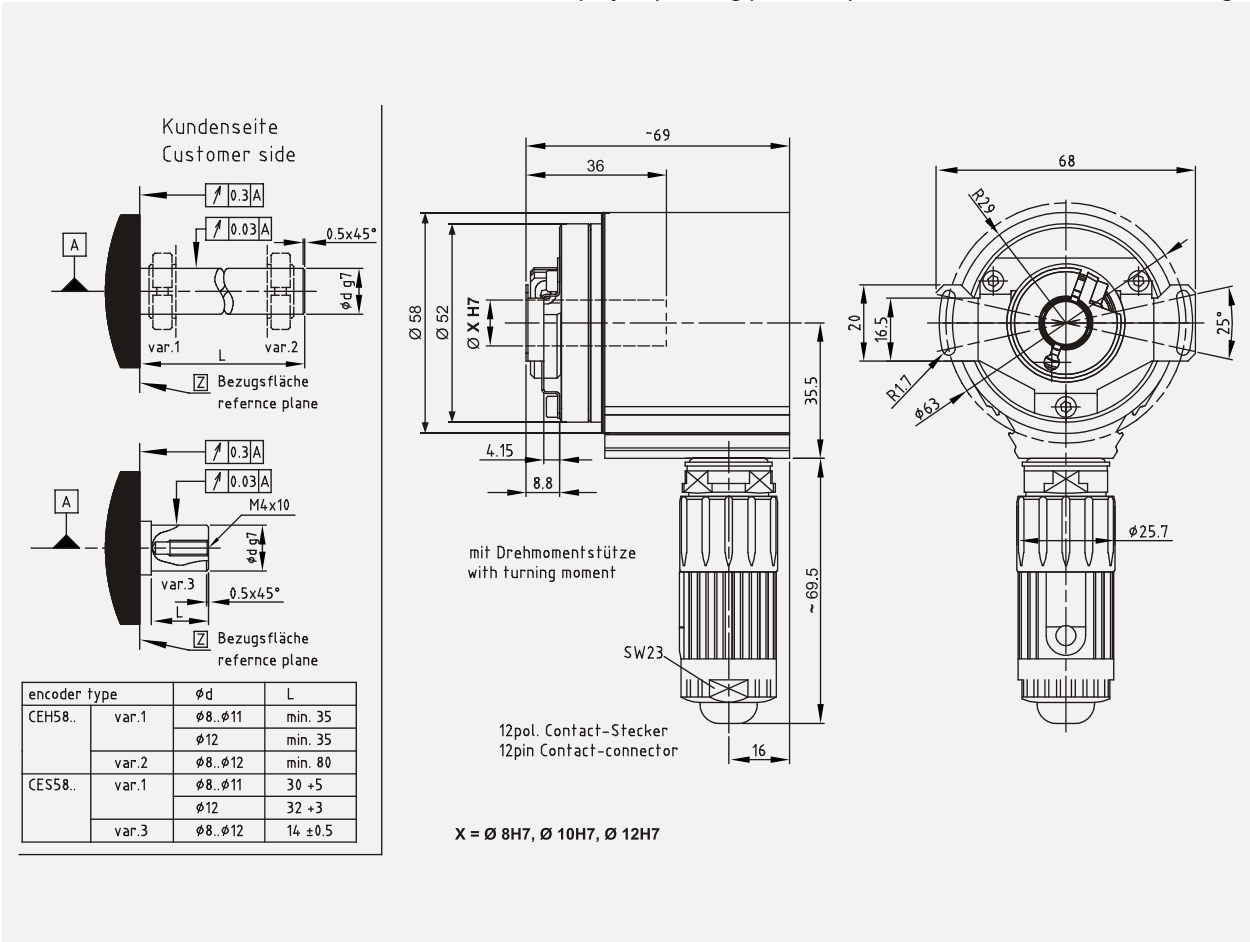
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996 $\leq 100 \text{ m/s}^2$, sine 50-2000 Hz
 Shock, DIN EN 60068-2-27: 1995..... $\leq 1000 \text{ m/s}^2$, half-sine 11ms
 EMC
 - Immunity to disturbance, DIN EN 61000-6-2: 2006
 - Transient emissions, DIN EN 61000-6-3: 2007
 Working temperature $0 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$, optional $-20 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
 Storage temperature $-30 \text{ }^\circ\text{C} \dots +80 \text{ }^\circ\text{C}$, dry
 Relative humidity, DIN EN 60068-3-4: 2002 98 %, non condensing
 Protection class, DIN EN 60529: 1991 ²⁾ IP 65

²⁾ valid with screwed on mating connector and / or screwed together cable gland

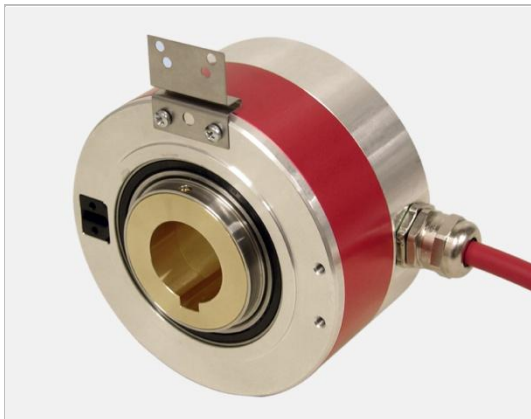
Dimension drawing

(For project planning please request customized dimensional drawing!)



Incremental-Encoder IOH 110

IOH110-INC-1-GB-1
04/12 Revision 01
010101-01109999-9999



- + Incremental interface
- + Type with hollow through shaft
- + Shaft diameter 30...50 mm
- + Parameter setting possibilities
- + Special parameters upon request
- + Number of pulses up to 36.000

Characteristics

Supply voltage.....	11...27 VDC, optional 5 VDC $\pm 5\%$
Current consumption without load.....	< 110 mA, < 150 mA at 5 VDC
Number of pulses/revolution ¹⁾	$\geq 2 \dots \leq 36.000$
Version with push-pull	
- Output level	11...27 VDC, supply voltage
- Output current	≤ 30 mA
- Output frequency	150 kHz, $\pm 15^\circ$
- Supply voltage	11...27 V DC
Version with line driver	
- Output level	5 VDC, RS422
- Output current	≤ 50 mA
- Output frequency	300 kHz, $\pm 15^\circ$
- Supply voltage	11...27 V DC, optional 5 VDC
Incremental signals	A+, A-, B+, B-
Zero pulse	Ref+, Ref-
Mechanically permissible speed	≤ 2.000 min ⁻¹
Shaft load.....	Own mass
Bearing life time.....	$\geq 3.9 * 10^{10}$ revolutions at
- Speed	≤ 2.000 min ⁻¹
- Operating temperature	≤ 60 °C
Shaft diameter in mm.....	30H7 with groove...50H7 without groove
Permissible angular acceleration.....	$\leq 10^4$ rad/s ²
Moment of inertia	typically $525 * 10^{-6}$ kg m ²
Start-up torque at 20°C.....	typically 8 Ncm
Mass.....	typically 1.75 kg

¹⁾ programmable parameter

Subject to change

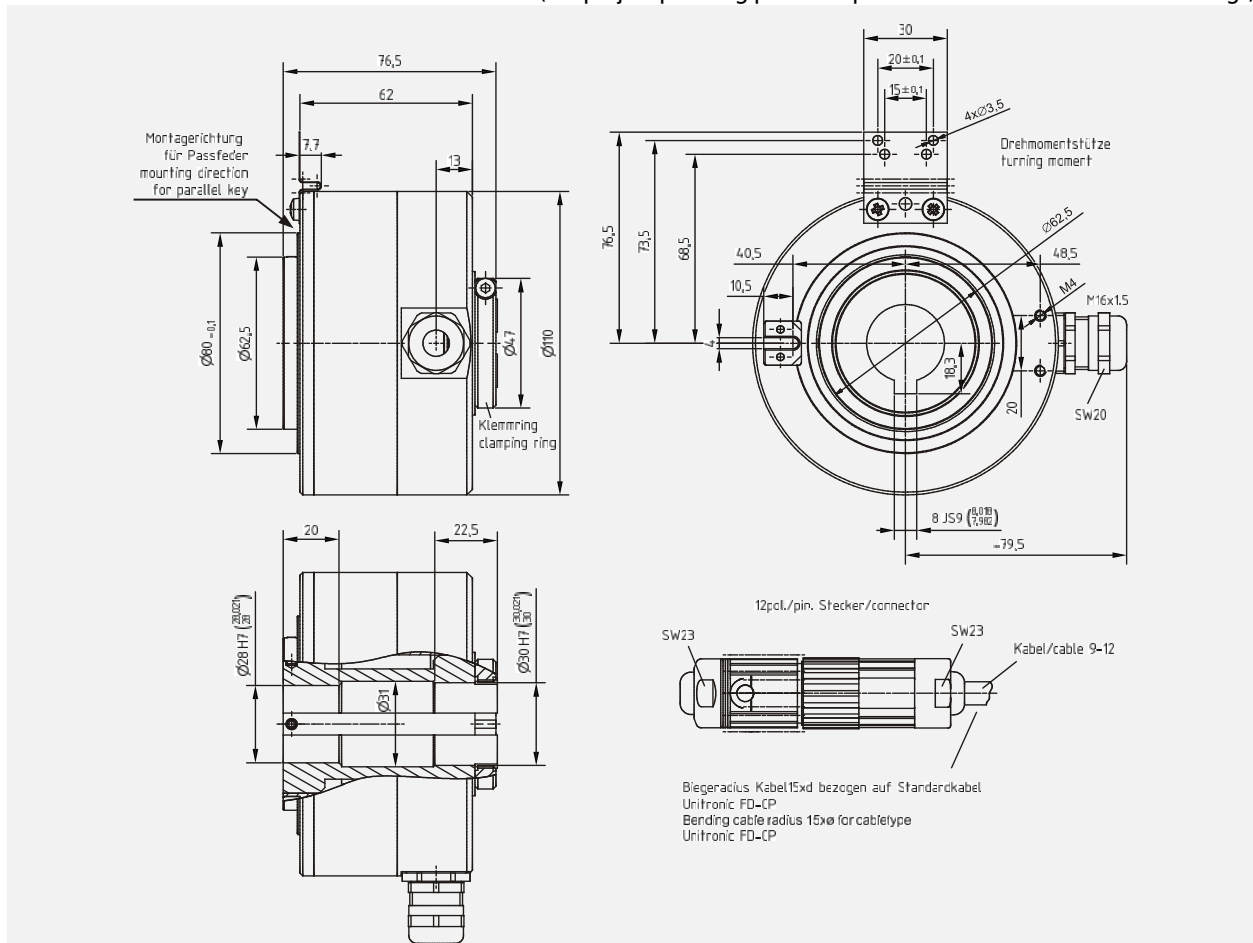
Environmental conditions

Vibration, DIN EN 60068-2-6: 1996	≤ 100 m/s ² , sine 50-2000 Hz
Shock, DIN EN 60068-2-27: 1995.....	≤ 1000 m/s ² , half-sine 11ms
EMC	
- Transient emissions, DIN EN 61000-6-3: 2007	
- Immunity to disturbance, DIN EN 61000-6-2: 2006	
Working temperature.....	0 °C...+60 °C, optional -20 °C...+70 °C
Storage temperature	-30 °C...+80 °C, dry
Relative humidity, DIN EN 60068-3-4: 2002	98 %, non condensing
Protection class, DIN EN 60529: 1991 ²⁾	IP 54

²⁾ valid with screwed on mating connector and / or screwed together cable gland

Dimension drawing

(For project planning please request customized dimensional drawing!)



Subject to change