



Micro Detectors

Italian Sensors Technology



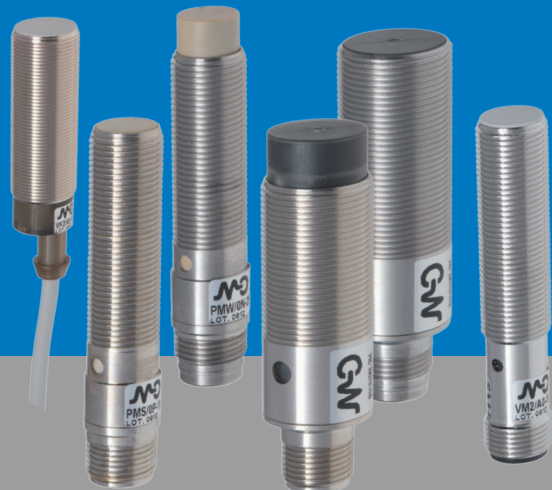
Application book
Material Handling:
forklifts

Inductive Sensors

Proximity Sensor
Catalogue

Cod. CAT3E001265901

Application book - Inductive Sensors - English - Ed.01/2012





application book

inductive
cylindrical

Series Miniaturized, Standard, DECOUT[®], IP68, Cubic

inductive
cylindrical



www.microdetectors.com



applications

- detection of presence of the operator on the seat
- detection of the limit positions of the forks
- detection of the speed of the forklift and of the working time
- detection of operator holding the tiller
- detection of clamps opening
- detection of the presence of the operator on the platform



features

7 different special models designed to meet different Customer requirements

Supply voltage up to 10...50 Vdc to be used with battery supplied vehicles

Special cables suitable to be used at low temperature (down to -40° C for cold storages)

Different mechanical housings to fit with the Customer needs

Special logic output: NPN+PNP / NO-NC selectable

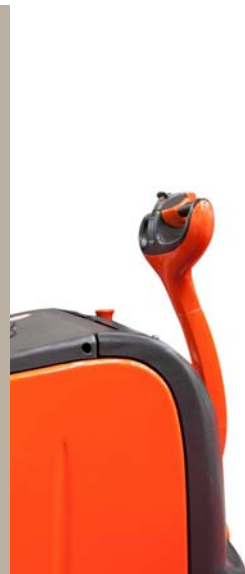
High volume manufacturing capability

approvals



protection degree

IP67, IP68





application book

inductive
cylindrical

Miniaturized

PA

PB

PC

PD

PP

PH

PE

Standard

AH

AE

AM

AK

AT

DECOUT®

PM3

PK3

IP68

PMS

PMW

PKS

PKW

Cubic

IL

detection of presence of operator on seat

Only when the operator is in the right position, the forklift is allowed to move. This function is required to make safe the working operations.

applied solution

When the operator is seated, the seat is pushed down. The inductive sensor detects the position of the seat and enable the internal logic to work.



detection of the limit positions of the forks

Before starting to move at full speed, the load have to be in a safe position.

applied solution

Two inductive sensors detect the minimum and maximum height of the forks from the ground



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detection of the speed of the forklift and of the working time

Forklifts generally don't have a speedometer or an odometer.

applied solution

With an inductive sensor on the driving wheels it is possible to measure the speed of the vehicle by a fonic wheel. The control system detects also the working time to program the maintenance services.



detection of the operator holding the tiller

Only when the operator is holding the tiller, the forklift is allowed to move.

applied solution

An inductive sensor detects if the tiller is vertical (stop position) or not. Only in the second case the forklift is enabled to move.



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detection of the clamps opening

In container logistic it is necessary to operate only in safe conditions

applied solution

Inductive sensors detect if the clamps are opened or closed.



detection of presence of the operator on the platform

Only when the operator is in the right position, the forklift is allowed to move. This function is required to make safe the working operations.

applied solution

When the operator is present, the platform is pushed down. The inductive sensor detects the position of the platform and enable the internal logic to work.



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application book




inductive
cylindrical

Inductive Sensors

Miniaturized

		PA	PB	PC	PD
					
dimensions		ø 3 mm	M4	ø 4 mm	M5
standard shielded		0.6 mm	0.6 mm	0.8 mm	0.8 mm
standard unshielded		—	—	—	—
long distance shielded		1 mm	1 mm	1.5 mm	1.5 mm
long distance unshielded		—	—	—	—
standard housing		—	—	—	—
short housing		—	—	—	—
miniaturized housing		•	•	•	•
power supply	Vdc	•	•	•	•
	Vac	—	—	—	—
output type	NPN - NO	•	•	•	•
	NPN - NC	•	•	•	•
	PNP - NO	•	•	•	•
	PNP - NC	•	•	•	•
	PNP - NO - NC	—	—	—	—
	NPN - NO + NC	—	—	—	—
	DECOUT®	—	—	—	—
	SCR	—	—	—	—
	0...10 V	—	—	—	—
	4...20 mA	—	—	—	—
temperature range		-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree		IP67	IP67	IP67	IP67
housing material		stainless steel	stainless steel	stainless steel	stainless steel
active head material		PBT	PBT	PBT	PBT
output	cable	•	•	•	•
	M8 plug	—	—	•	•
	M12 plug	—	—	—	—
ATEX		—	—	—	—
other certifications		CE	CE	CE	CE



	PP	PH	PE
			
	5x5x25 mm	ø 6.5 mm	M8
	0.8 mm	1.5 mm	1.5 mm
	—	—	—
	1.5 mm	—	—
	—	—	—
	—	—	—
	—	—	—
	•	•	•
	•	•	•
	—	—	—
	•	•	•
	•	•	•
	•	•	•
	•	•	•
	—	—	—
	—	—	—
	—	—	—
	—	—	—
	—	—	—
	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
	IP67	IP67	IP67
	stainless steel	stainless steel	stainless steel
	PBT	PBT	PBT
	•	•	•
	•	•	•
	—	—	—
	—	—	—
	CE	CE	CE











application book

inductive
cylindrical

Inductive Sensors

Standard

		AH	AE	AM	AK
					
dimensions		ø 6.5 mm	M8	M12	M18
standard shielded		1.5 mm	1.5 mm	2 mm	5 mm
standard unshielded		2.5 mm	2.5 mm	4 mm	8 mm
long distance shielded		2 mm	2 mm	4 mm	8 mm
long distance unshielded		4 mm	4 mm	8 mm	12 mm
standard housing		•	•	•	•
short housing		•	•	•	—
miniaturized housing		—	—	—	—
power supply	Vdc	•	•	•	•
	Vac	—	—	—	—
output type	NPN - NO	•	•	•	•
	NPN - NC	•	•	•	•
	PNP - NO	•	•	•	•
	PNP - NC	•	•	•	•
	PNP - NO / NC	—	—	—	—
	NPN - NO + NC	—	—	—	—
	DECOU [®]	—	—	—	—
	SCR	—	—	—	—
	0...10 V	—	—	—	—
	4...20 mA	—	—	—	—
temperature range		-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree		IP67	IP67	IP67	IP67
housing material		stainless steel	nickel plated brass	nickel plated brass	nickel plated brass
active head material		PBT	PBT	PBT	PBT
output	cable	•	•	•	•
	M8 plug	•	•	•	—
	M12 plug	•	•	•	•
ATEX		II3GD	II3GD	II3GD	II3GD
other certifications					



DECOUT® NPN/PNP - NO/NC

AT



PM3



PK3



M30

10 mm

15 mm

15 mm

20 mm

•

—

—

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—

-25°C...+70°C

IP67

nickel plated brass

PBT

•

—

•

II3GD



M12

2 mm

4 mm

—

—

•

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—

•

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-25°C...+70°C

IP67

nickel plated brass

PBT

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•

•

II3GD



M18

5 mm

8 mm

—

—

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—

-25°C...+70°C

IP67

nickel plated brass

PBT

•

—

•

II3GD





application book

inductive
cylindrical

Inductive Sensors

IP68

PMS



PMW



PKS



PKW



dimensions		M12	M12	M18	M18
standard shielded		2 mm	2 mm	5 mm	5 mm
standard unshielded		4 mm	4 mm	8 mm	8 mm
long distance shielded		—	—	—	—
long distance unshielded		—	—	—	—
standard housing		•	•	•	•
short housing		—	—	—	—
miniaturized housing		—	—	—	—
power supply	Vdc	•	•	•	•
	Vac	—	—	—	—
output type	NPN - NO	—	—	—	—
	NPN - NC	—	—	—	—
	PNP - NO	—	—	—	—
	PNP - NC	—	—	—	—
	PNP - NO - NC	•	—	•	•
	NPN - NO + NC	•	—	•	•
	DECOUT®	—	—	—	—
	SCR	—	—	—	—
	0...10 V	—	—	—	—
	4...20 mA	—	—	—	—
temperature range		-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree		IP67/IP68	IP67/IP68	IP67/IP68	IP67/IP68
housing material		nickel plated brass	stainless steel	nickel plated brass	stainless steel
active head material		PPS	PPS	PSU	PSU
output	cable	—	—	—	—
	M8 plug	—	—	—	—
	M12 plug	•	•	•	•
ATEX		II3GD	II3GD	II3GD	II3GD
other certifications		CE	CE	CE	CE



Cubic

IL



dimensions		10x16x28 mm
standard shielded		—
standard unshielded		—
long distance shielded		3 mm
long distance unshielded		6 mm
standard housing		●
short housing		—
miniaturized housing		—
power supply	Vdc	●
	Vac	—
output type	NPN - NO	●
	NPN - NC	●
	PNP - NO	●
	PNP - NC	●
	PNP - NO - NC	—
	NPN - NO + NC	—
	DECOU [®]	—
	SCR	—
	0...10 V	—
	4...20 mA	—
temperature range		-25°C...+70°C
protection degree		IP67
housing material		PA
active head material		PA
output	cable	●
	M8 plug	●
	M12 plug	—
ATEX		—
other certifications		CE



Proximity Sensors
Catalogue



CAT3E001265901 DATASHEET INDUCTIVE SENSORS ENGLISH ED.01/2012

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