# COBRA™ Linescan Backlight

## High-brightness backlight for linescan and web inspection

### Features

- Patented COBRA technology enables breakthrough in optical intensity
- Current-regulation electronics integrated into COBRA unit
- Intensity can be adjusted using 0 to 5 V analog voltage control
- Meets NEMA 12 requirements
- High level of uniformity due to chip-on-board LED fabrication
- 125 mm, 250 mm and 500 mm
- Available in red, IR, blue, UV and white
- Backlight and frontlight configurations

### Applications

Web and linescan inspection of:

- Foil
- Paper
- Plastic film
- Non-wovens
- Currency
- PCBs
- Semiconductors
- Glass
- Metal sheets
- Flat panel displays

### Accessories

- Power Supplies
- External Control Unit


COBRA Linescan Illumination has been designed "from the chip up" for the extreme requirements of high-speed linescan and web inspection. The LED-based COBRA lines are comparable to, or outperform, halogen and fluorescent line illumination, while offering all of the many advantages of LEDs — long lifetime, controllability, and increased reliability.

Intense optical output is achieved by means of StockerYale's patented chip-on-board reflective array (COBRA) technology, a unique innovation in thermal and optical efficiency for LED arrays. The chip-on-board approach to LED module fabrication yields an essentially unbroken line of semiconductor light source, resulting in an extremely high level of uniformity. The combination of high intensity and superior uniformity results in crystal clear linescan images.

Available in **backlight** and **frontlight** configurations.

StockerYale

## Spectral Characteristics

| Color | | UV | Blue | Red | IR | White |
|---|---|---|---|---|---|---|
| Peak wavelength | (nm) | 395 ± 5 | 470 ± 5 | 630 ± 10 | 740 ± 10 | NA |
| Spectral width FWHM | (nm) | 30 | 30 | 30 | 30 | NA |
| Color temperature | (°K) | NA | NA | NA | NA | 5500 |

## Optical Power Density at Diffuser Surface

| | | UV | Blue | Red | IR | White |
|---|---|---|---|---|---|---|
| TCL and SCL | $W/m^2$ | 120 | 450 | 660 | 660 | NA |
| | $lumens/m^2$ | NA | 30 000 | 132 000 | NA | 105 000 |
| CCL and RCL | $W/m^2$ | 34 | 130 | 190 | 190 | NA |
| | $lumens/m^2$ | NA | 8 600 | 38 000 | NA | 30 000 |

## DC Electrical Power Requirements***

| | | | UV | Blue | Red | IR | White |
|---|---|---|---|---|---|---|---|
| TCL and SCL | 125 mm | (W) | 20 | 25 | 34 | 34 | 29 |
| | 250 mm | (W) | 40 | 50 | 69 | 69 | 58 |
| | 500 mm | (W) | 80 | 100 | 138 | 138 | 116 |
| CCL and RCL | 125 mm | (W) | 5.7 | 7.1 | 9.7 | 9.7 | 8.3 |
| | 250 mm | (W) | 11 | 14 | 19 | 19 | 17 |
| | 500 mm | (W) | 23 | 29 | 39 | 39 | 33 |

*** It is recommended that the 48 V power supplies provided by StockerYale be used.

## Power Supplies

Current regulation electronics are incorporated inside the COBRA Linescan Backlight units. A convenient, cost-effective means of powering the devices is to use StockerYale's standard 48 V COBRA power supplies. These supplies are mountable on DIN rail TS35/7.5 or 15.

## Controlling the COBRAs

All COBRA units having the same part number are factory set to the identical maximum optical output power level. The output can be adjusted downward from this maximum factory-set value using an analog voltage control signal (0 to 5.0 V) applied to pin #6 on the 6-pin COBRA connector.

## COBRA Connector Pin Out

| | |
|---|---|
| 1 | **DC Supply (+)** |
| 2 | **GND** |
| 3 | **On/Off (TTL)** |
| 4 | **Error signal (TTL)**<br>High = Unit functioning properly<br>Low = Thermal shutdown, or no power to unit. |
| 5 | **Master Brightness Control GND** |
| 6 | **Master Brightness Control**<br>0 to 5 V analog. |

## External Control Unit

An external control unit (ECU) is available as an accessory for use with the COBRA Linescan Backlight. StockerYale's ECU offers the following convenient features:

- brightness control dial
- on/off switch
- LED indicators (power, connection status and thermal shutdown)
- 125 mm (h) x 70 mm (w) x 100 mm (d)
- mountable on DIN rail TS35/7.5 or 15

COBRA users can also engineer their own control unit should they not desire to use StockerYale's ECU accessory.

## COBRA Part Numbers

The SCL and TCL COBRAs are designed to push the envelope of what is possible with LED line illumination. They provide the optical power required in the most demanding linescan and web inspection applications.

The CCL and RCL COBRAs produce less optical power. Their cost/performance point has been chosen for lower speed applications.

For the monochromatic COBRAs (395, 470, 630 and 740 nm), StockerYale makes use of its unique patented chip-on-board reflective array (COBRA) technology. For white sources, however, we use an alternative technology – surface mount LEDs.

| | Chip-on-board reflective array (for monochromatic COBRAs) | white |
|---|---|---|
| High-speed linescan | TCL | SCL |
| Low-speed linescan | CCL | RCL |

## COBRA Part Numbers

| Power Level | Wavelength (nm) | Length (mm) | Configuration Frontlight/ Backlight |
|---|---|---|---|
| CCL<br>TCL | 395<br>470<br>630<br>740 | 125<br>250<br>500 | F<br>B |
| RCL<br>SCL | 000 (white) | 125<br>250<br>500 | F<br>B |

*Other wavelengths available. Please contact us for details.*

Examples: **TCL-630-125-B; RCL-000-500-F**

## Power Supply Part Numbers

To determine appropriate power supply part number, refer to the table of DC Electrical Power Requirements. Choose COBRA-PSU-120 or COBRA-PSU-240, so that the rated power supply wattage is greater than the COBRA device requirement.

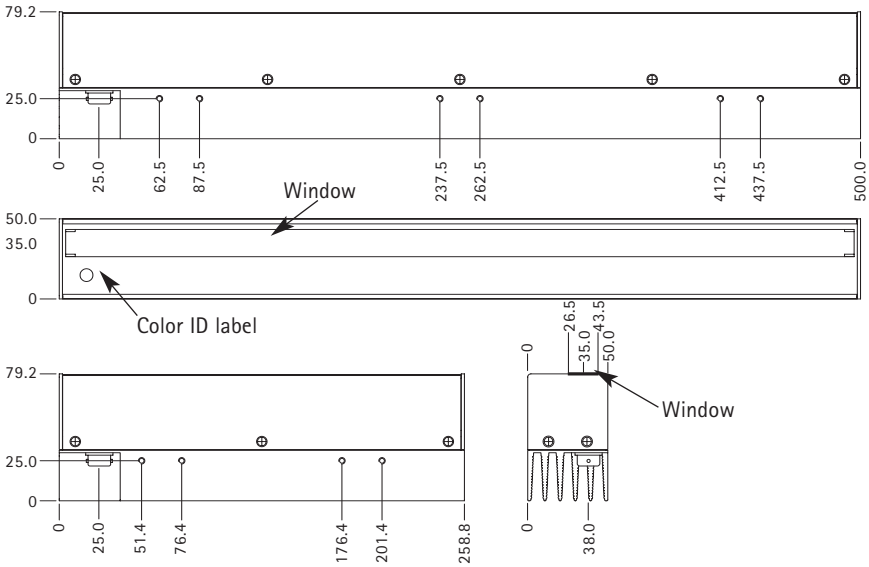
| StockerYale Power Supply | Rated Wattage |
|---|---|
| COBRA-PSU-120 | 120 W |
| COBRA-PSU-240 | 240 W |

## External Control Unit Part Number

Part number for the external control unit is **COBRA-ECU-G.**

## Dimensions and Mounting

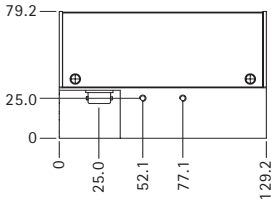
500 mm




250 mm




125 mm




COBRA Linescan Illumination devices can be mounted using M4x0.7 metric threaded holes present on the heat-dissipating fins. The positions of these holes are shown in the drawings. There are holes on both sides of the units. All dimensions are given in millimeters.

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StockerYale
*Simply brilliant ideas™*

Corporate Headquarters
32 Hampshire Road
Salem, New Hampshire 03079 USA
Tel.: 603-893-8778 Fax: 603-893-5604
**www.stockeryale.com/cobra**
**cobra@stockeryale.com**

275 Kesmark
Montreal, Quebec
Canada H9B 3J1
Tel.: (514) 685-1005 or 1-800-814-9552
Fax: (514) 685-3307

4500 Airport Business Park
Kinsale Road
Cork, Ireland
Tel.: +353-21-4320750
Fax: +353-21-4327451