

COBRA™

Linescan Illuminator



High-brightness illumination for linescan and web inspection.

The COBRA Linescan Illuminator has been designed “from the chip up” for the extreme requirements of high-speed linescan and web inspection. Producing an illuminance of up to 220,000 lux, 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 ProPhotonix specially designed high density chip-on-board LED array, 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.



Key Features

- High level of uniformity due to chip-on-board LED fabrication
- Intensity adjustment and On/Off control
- 125mm, 250mm and 500mm
- Available in red, IR, blue, UV, white and other wavelengths
- Backlight and frontlight configurations available

Key Applications

Web and linescan inspection of:

- Foil
- Paper
- Plastic film
- Currency
- PCBs
- Glass
- Semiconductors
- Flat panel displays

Accessories

- Power Supplies
- External Control Unit

Spectral Characteristics

Colour		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
Colour temperature	(°K)	NA	NA	NA	NA	5500

Maximum Irradiance and Illuminance** - COBRA Line

			UV	Blue	Red	IR	White
TCL and SCL	Max. Irradiance	(W/m ²)	200	750	1,100	1,100	NA
	Max. Illuminance	(lux)	NA	50,000	220,000	NA	175,000
CCL and RCL	Max. Irradiance	(W/m ²)	57	214	314	314	NA
	Max. Illuminance	(lux)	NA	14,300	62,900	NA	50,000

Relative Intensity and Line Thickness vs. Working Distance

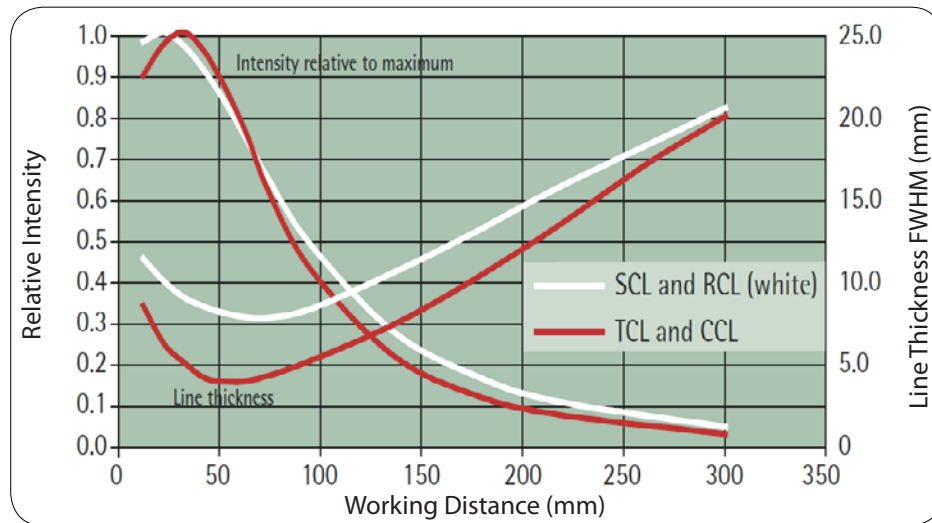


Figure 1 - These graphs show illumination line thickness and intensity in the field of illumination, as a function of a working distance. The maximum intensities for each COBRA color are given in the data tables. Intensity measurements were taken using a detector with a 4 mm diameter aperture.

The information presented above is for COBRAs in the frontlight configuration

- * All illuminance and irradiance values are shown for the 125 mm units. The optical outputs of the longer units are several percent greater. See Figure 1 for graphs of intensity and linewidth versus working distance.
- ** Illuminance and irradiance measurements were taken at a working distance of 40 mm, using a detector with a 4 mm diameter aperture.
- *** It is recommended that the 48 V power supplies provided by ProPhotonix be used.

COBRA Linescan Backlight Configuration

Optical Power Density at Diffuser Surface

			UV	Blue	Red	IR	White
TCL and SCL	W/m ²	(W)	120	450	660	660	NA
	lumens/m ²	(W)	NA	30,000	132,000	NA	105,000
CCL and RCL	W/m ²	(W)	34	130	190	190	NA
	lumens/m ²	(W)	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
	500mm	(W)	80	100	138	138	116
CCL and RCL	125mm	(W)	5.7	7.1	9.7	9.7	8.3
	250mm	(W)	11	14	19	19	17
	500mm	(W)	23	29	39	39	33

Power Supplies

Current regulation electronics are incorporated inside the COBRA Linescan units. A convenient, cost-effective means of powering the devices is to use ProPhotonix standard 24 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 Part Numbers

Power Level	Wavelength	Length (mm)	Configuration
CCL TCL (Turbo)	395	125	F01 (Focusing lens position)
	470	250	F02 (Collimating lens position)
	630		D01 (One-axis diffusion; F01 lens position)
	740		D02 (One-axis diffusion; F02 lens position)
RCL SCL (Turbo)	000 (white)	500	B02 (Backlight)

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

External Control Unit

An external control unit (ECU) is available as an accessory for use with the COBRA Linescan Illuminators. ProPhotonix 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 ProPhotonix ECU accessory.

Power Supply Part Numbers

To determine appropriate power supply part number, refer to the table of DC Electrical Power Requirements. Choose COBRA-PSU-75 or COBRA-PSU-240, so that the rated power supply wattage is greater than the COBRA device requirement.

ProPhotonix Power Supply	Rated Wattage
COBRA - PSU - 75	75W
COBRA - PSU - 240	240W

External Control Unit Part Number

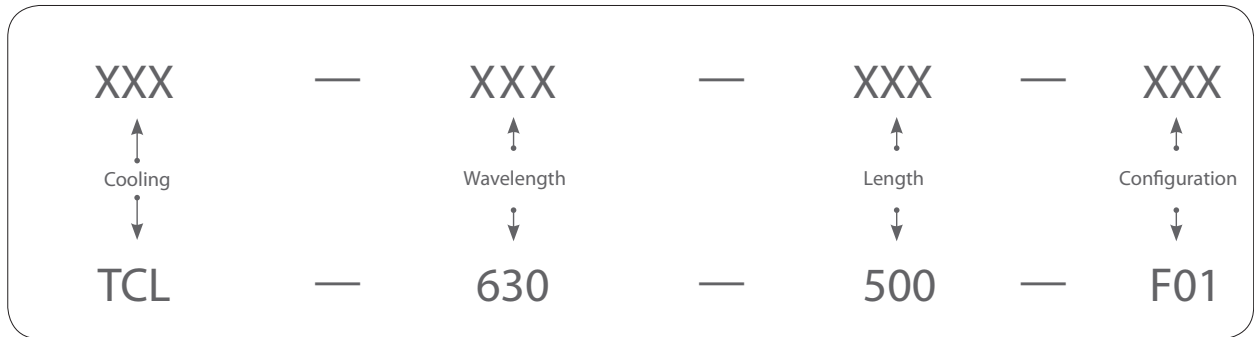
Part number for the external control unit is COBRA-ECU-G.

COBRA Connector Pin Out

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

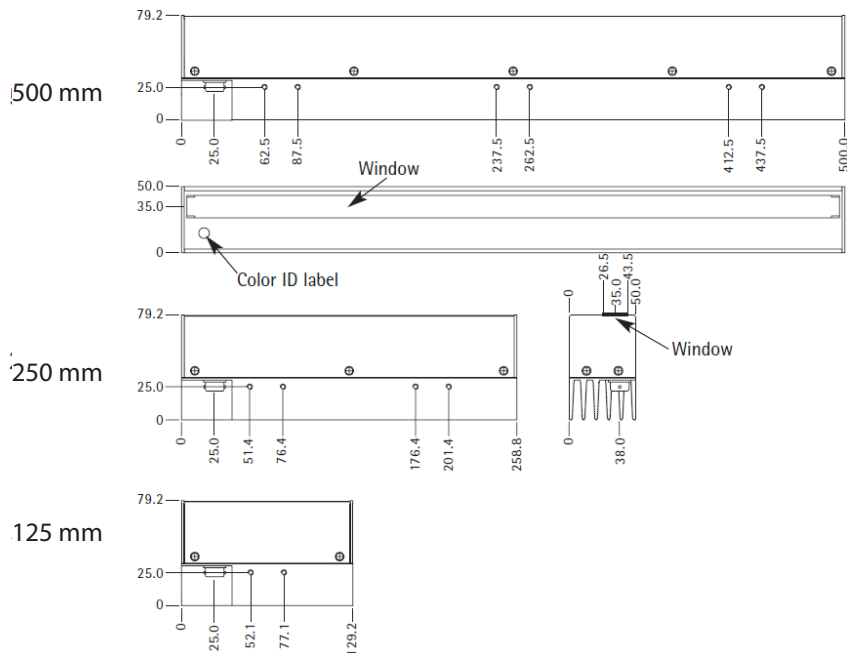
Part Numbers

To order your COBRA Linescan Illuminator – Select Power Level (XXX) – Select Wavelength (XXX) - Select Length (in mm)(XXX) - Select Configuration (XXX)



e.g TCL-630-500-F01

Dimensions and Mounting



The COBRA Linescan Illuminators 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.

Corporate

32 Hampshire Road
Salem, NH 03079
sales@prophotonix.com
Tel: +1 603-893-8778
Fax: +1 603-898-8851

LED Solutions

3020 Euro Business Park, Little Island
Cork, Ireland
ledsales@prophotonix.com
Tel: +353-21-5001313
Fax: +353-21-4297749

Laser Solutions

Sparrow Lane, Hatfield Broad Oak
Hertfordshire, CM22 7BA, UK
lasersales@prophotonix.com
Tel: +44-1279-717170
Fax: +44-1279-717171

ProPhotonix and the ProPhotonix logo are trademarks of ProPhotonix, Inc. All other brand and product names are trademarks or registered trademarks of their respective holders. Copyright © May 2010 ProPhotonix, Inc. Printed in the USA. All rights reserved.