COBRA™ Linescan Illuminator

High-brightness frontlight illumination 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

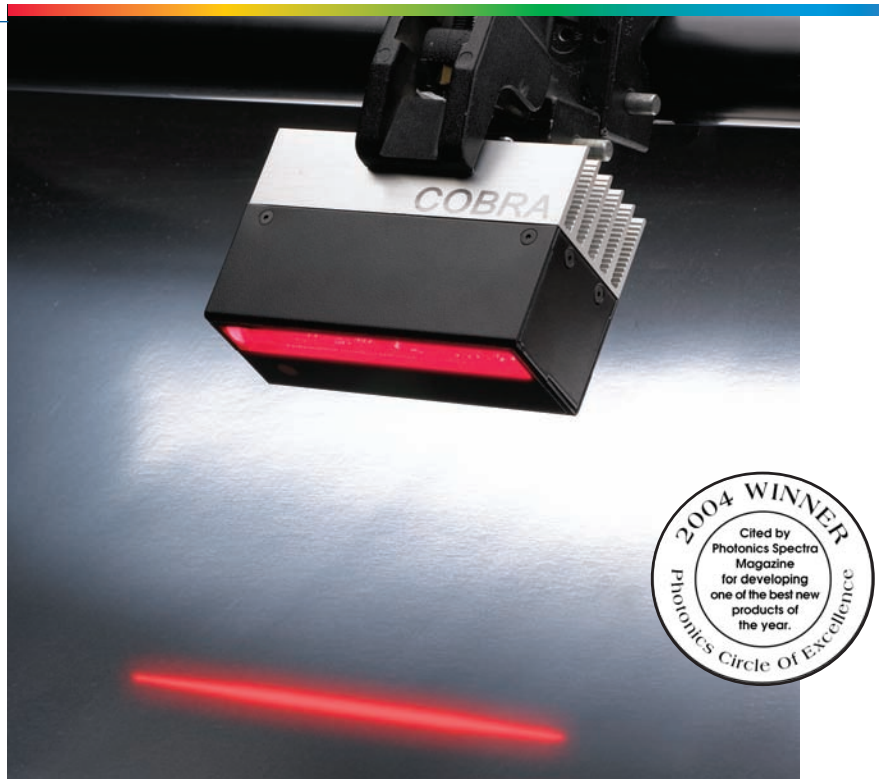
Applications

Web and linescan inspection of:

- Foil
- Paper
- Plastic film
- Non-wovens
- Currency
- Road surfaces
- 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

Focus and Illumination Field*

		UV	Blue	Red	IR	White
Working distance (wd) for maximum illuminance and irradiance	(mm)	40	40	40	40	40
Linewidth FWHM at wd	(mm)	5.3	5.3	5.3	5.3	9.1

Maximum Irradiance and Illuminance**

			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

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

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 linewith 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 StockerYale be used.

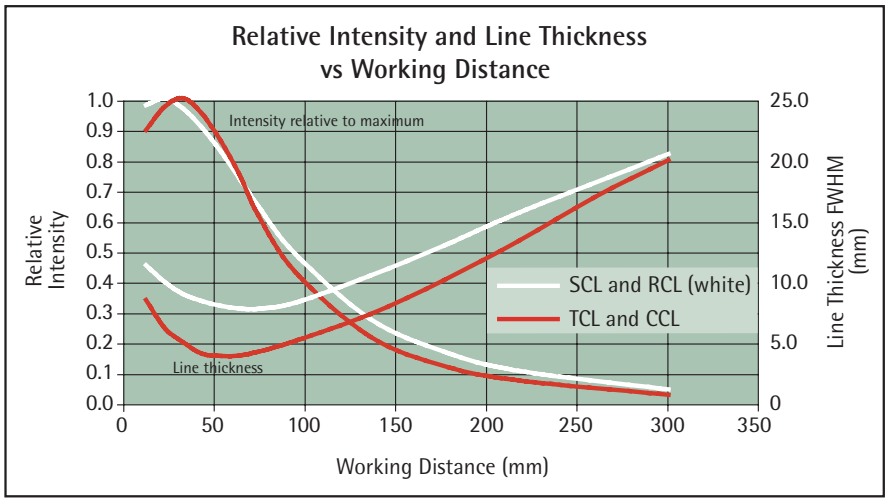


Figure 1

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.

Power Supplies

Current regulation electronics are incorporated inside the COBRA Linescan Illuminator 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)** 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.

External Control Unit

An external control unit (ECU) is available as an accessory for use with the COBRA Linescan Illuminator. 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 TCL	395 470 630 740	125 250 500	F B
RCL SCL	000 (white)	125 250 500	F B

Other wavelengths available. Please call 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.

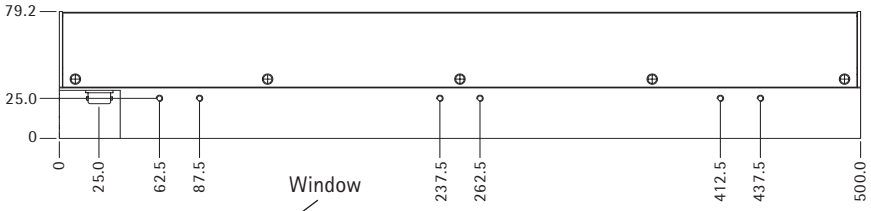
StockerYale Power Supply	Rated Wattage
COBRA-PSU-120	120 W
COBRA-PSU-240	240 W

External Control Unit Part Number

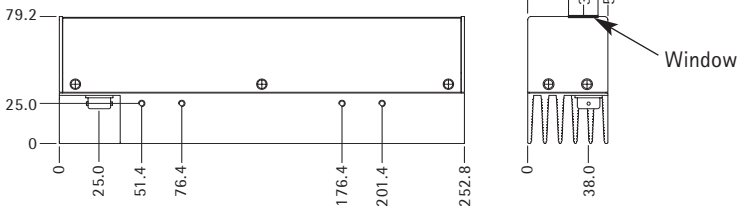
Part number for the external control unit is **COBRA-ECU-G.**

Dimensions and Mounting

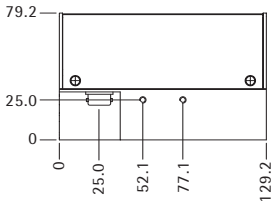
500 mm



250 mm



125 mm



The COBRA Linescan 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™

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