DATASENSOR OPTICS

Brightening your ideas

SMART ILLUMINATORS



Industrial illuminators SIL series



HIGH INTENSITY LED-BASED ILLUMINATORS FOR MACHINE VISION

MAIN FEATURES

- *Sturdy aluminium industrial IP65 housing with M8 connector*
- *Different versions available*
  - *Line*
  - *Area*
  - *Backlight*
  - *Ringlight*
  - *Spotlight*
- *Built-in led driver (350ma) with strobe option or external led driver*
- *Different beam angles and colours available on demand*

APPLICATIONS

- *All possible illumination setups*
  - *Direct and diffused illumination*
  - *Bright and dark field*
  - *Backlight*
- *Vision machine*
- *Smart cameras field of view illumination*
- *Bar code readers*
- *Strobe option for illumination on fast machine movements*

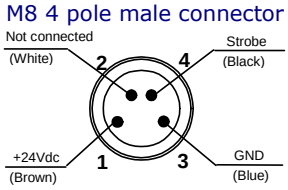
The solid-state illuminator SIL series of Datasensor Optics has been developed to offer a complete range of industrial lighting solutions for machine vision or general harsh environment industrial lighting applications.
The illuminators of the SIL series are fully integrated devices: optics, electronics and LED driver unit are built inside the same housing, thus easing the device installation.
A smaller version of the spotlight model is available with an external LED driver unit, which is required also for backlight and ringlight illuminators.
Easy electrical connections are ensured thanks to standard M8 4 pole male connectors, continuous lighting or logical input easy-selectable strobe operation.

SIL Line

Description	Designed to provide low angle of incidence illumination over a long, wide area, **SIL LINE** delivers very high intensity, non-diffused illumination. Built-in power LED driver (350mA) current regulator.
Applications	Dark-field (creating shadows and reflection) or bright-field lighting for diffused surfaces. Illumination of large areas for robot guiding. Packaging & Package sorting. Strobe option for fast moving objects.
Power Supply	24 Vdc ± 20%
Strobe Signal (required)	5-24 Vdc
Colour	Red (630nm) On demand: blue, green, white, IR
Light Intensity	1000 lux @ 500mm distance
Emission Angle	25° On demand: 6°, 45°, 10x30°
Case Dimensions (mm)	252x46x54
Material	Black anodized aluminium
Connections	M8 4-pole connector
Mechanical Protection	IP65
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

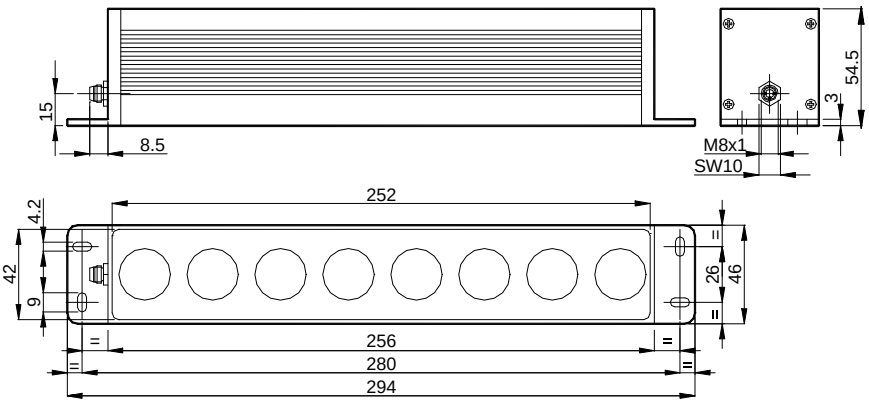
CONNECTIONS

M8 4 pole male connector



1=BROWN= +24 Vdc
2=WHITE=not connected
3=BLUE=GND
4=BLACK=Strobe Signal

DIMENSIONS

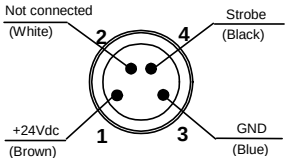


SIL Area

Description	Designed to provide low angle incidence illumination over a wide rectangular area, **SIL AREA** delivers very high intensity, non-diffused illumination. Built-in power LED driver (350mA) current regulator.
Applications	Dark-field (creating shadows and reflection) or bright-field lighting for diffused surfaces. Illumination of large areas for robot guiding. Packaging & Package sorting. Strobe option for fast moving objects.
Power Supply	24 Vdc ± 20%
Strobe Signal (Required)	5-24V
Colour	Red (630nm) On demand: blue, green, white, IR
Light Intensity	500 lux @ 500mm distance
Emission Angle	25° On demand: 6°, 45°, 10x30°
Case Dimensions (mm)	84x84x55
Material	Black anodized aluminium
Connections	M8 4-pole connector
Mechanical Protection	IP65
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

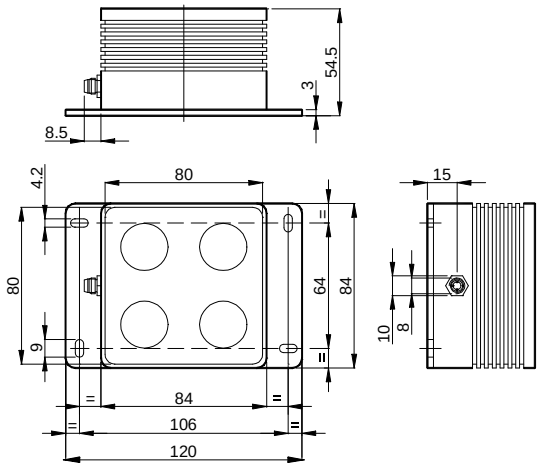
CONNECTIONS

M8 4 pole male connector



1=BROWN= +24 Vdc
2=WHITE= not connected
3=BLUE=GND
4=BLACK=Strobe Signal

DIMENSIONS



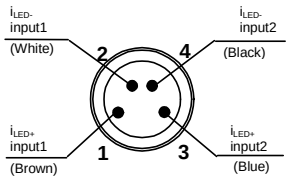
SIL Ring

External LED driver required

Description	Axial light source for general purpose applications.
Applications	Bright-field lighting for non-specular objects. Strobe option for fast moving objects.
Power Supply	External LED driver current regulator 2x350 mA±5%
Colour	Red (630nm) On demand: blue, green, white, IR
Light Intensity	250 lux @ 500mm distance
Dimensions (mm)	Φ 130x25
Material	Black anodized aluminium
Case Connections	M8 4-pole connector
Mechanical Protection	IP65
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

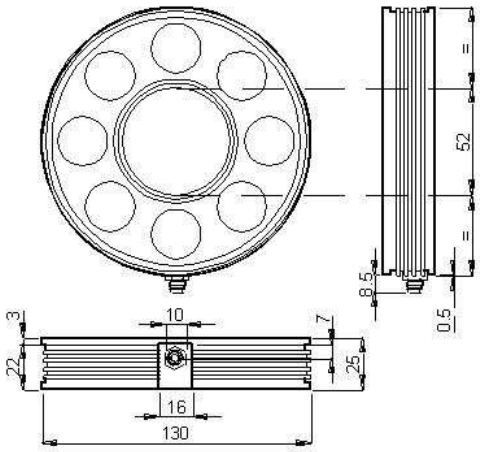
CONNECTIONS

M8 4 pole male connector



1=BROWN= i_{LED+} input1
2=WHITE= i_{LED-} input1
3=BLUE= i_{LED+} input2
4=BLACK= i_{LED-} input2

DIMENSIONS

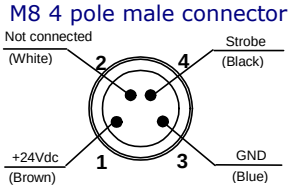


SIL Back

Description	Small and versatile rectangular backlight that provides high output diffused illumination.
Applications	**SIL Back** provides sharp contrast to outline parts shape, hide clear housings, and view openings such as drilled holes. Strobe option for fast moving objects.
Power Supply	24 Vdc ± 20%
Colour	Red (630nm) On demand: blue, green, white, IR
Light Intensity	150 cd/m^2
Dimensions (mm)	150x150x12
Material	Black anodized aluminium
Case Connections	M8 4-pole connector
Mechanical Protection	IP65
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

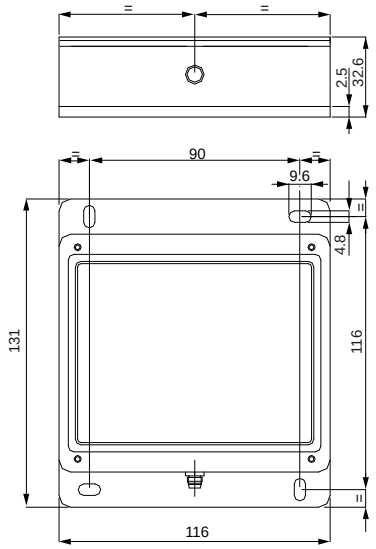
CONNECTIONS

M8 4 pole male connector



1=BROWN= +24 Vdc
2=WHITE= not connected
3=BLUE=GND
4=BLACK=Strobe Signal

DIMENSIONS

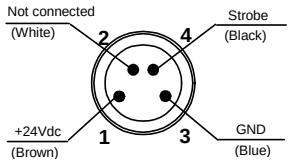


SIL Spot

Description	High intensity focused illumination for detail enhancement.
Applications	Bright field and dark field applications. Non diffused illumination. Strobe option for fast moving objects.
Power Supply	24 Vdc ± 20%
Strobe Signal (required)	5-24 Vdc
Colour	Red (630nm) On demand: blue, green, white, IR
Light Intensity	250 lux
Emission Angle	25° On demand: 6°, 45°, 10x30°
Case Dimensions (mm)	Φ40x89
Material	Black anodized aluminium
Connections	M8 4-pole connector
Mechanical Protection	IP65
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

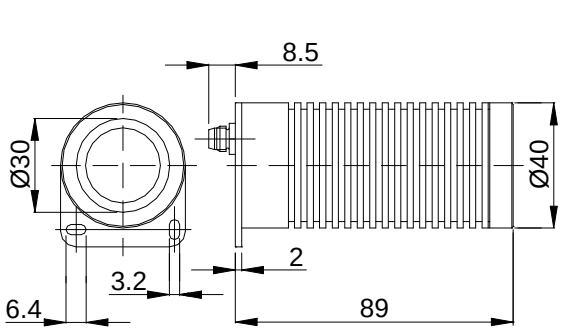
CONNECTIONS

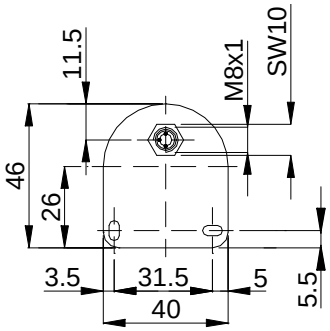
M8 4 pole male connector



1=BROWN= +24 Vdc
2=WHITE= not connected
3=BLUE=GND
4=BLACK=Strobe

DIMENSIONS





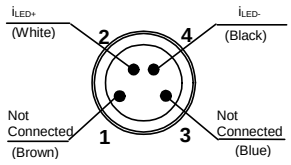
SIL Spot-NA

External LED driver required

Description	High intensity focused illumination for detail enhancement. Smaller spotlight version that requires an external LED driver.
Applications	Bright field and dark field applications. Non diffused illumination. Strobe option for fast moving objects.
Power Supply	External LED driver current regulator 350 mA±5%
Colour	Red (630nm) On demand: blue, green, white, IR
Light Intensity	250 lux
Emission Angle	25° On demand: 6°, 45°, 10x30°
Case Dimensions (mm)	Φ40x49
Material	Black anodized aluminium
Connections	M8 4-pole connector
Mechanical Protection	IP65
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

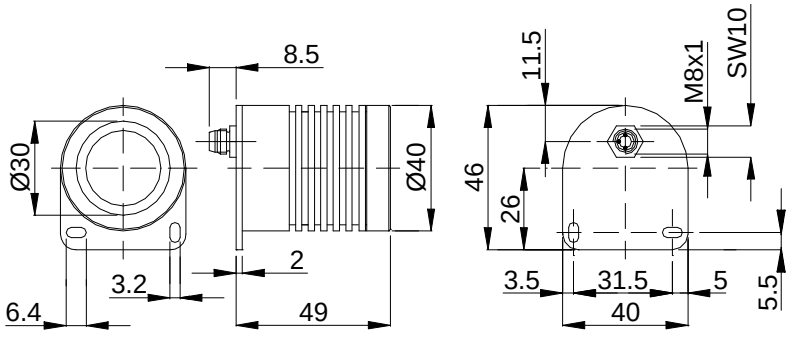
CONNECTIONS

M8 4 pole male connector



1=BROWN= not connected
2=WHITE= i_{LED+}
3=BLUE= not connected
4=BLACK= i_{LED-}

DIMENSIONS

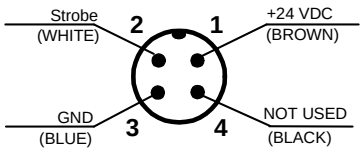


SIL Laserline

Description	Laser line illuminator
Applications	Profiling Metal working Wood working
Power Supply	24±10%
Emission	Red Laser Class 3A
Emission Angle	90°
Case Dimensions (mm)	Φ18 x 81,5
Material	Black anodized aluminium
Connections	M12 4-pole connector
Mechanical Protection	IP65
Operating Temperature	-10 … 55°C
Storage Temperature	-25 … 70°C

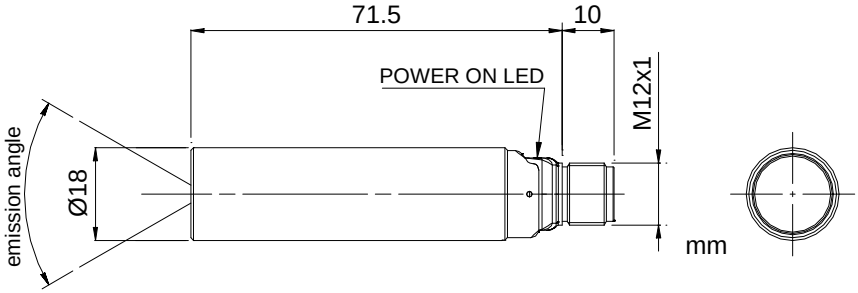
CONNECTIONS

M12 4 pole male connector



1=BROWN= 24 Vdc
2=WHITE= Strobe
3=BLUE= GND
4=BLACK= Not connected

DIMENSIONS



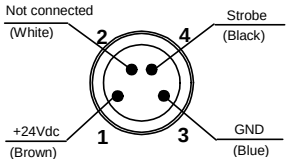
LED driver

LD1 one channel

Description	External LED driver suitable for SIL SPOT-NA models (4 power LEDs)
Input Power Supply Voltage	24 Vdc ± 20%
Output Power Supply Current	350 mA ± 5% constant current
Strobe Signal (required)	5-24 Vdc
Case Dimensions (mm)	100x81x28
Connections	2 M8 4-pole connectors
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

INPUT CONNECTIONS

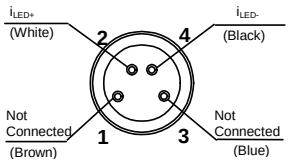
INPUT
M8 4 pole male connector



1=BROWN= +24 Vdc
2=WHITE= not connected
3=BLUE= GND
4=BLACK= Strobe

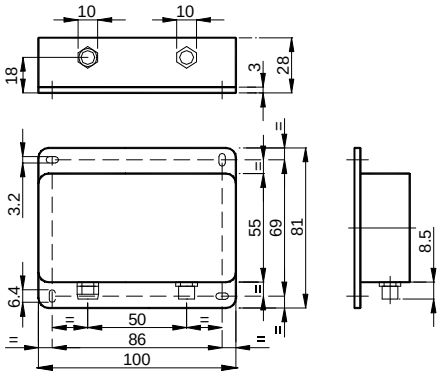
OUTPUT CONNECTIONS

OUTPUT
M8 4 pole female connector



1=BROWN= not connected
2=WHITE= i_{LED+}
3=BLUE= not connected
4=BLACK= i_{LED-}

DIMENSIONS



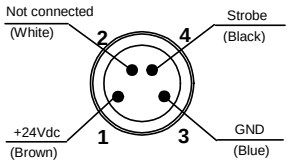
LED driver

LD2 two channels

Description	External LED driver suitable for SIL-RING (8 power LEDs)
Input Power Supply Voltage	24 Vdc ± 20%
Output Power Supply Current	2x350 mA ± 5% constant current
Strobe Signal (required)	5-24 Vdc
Case Dimensions (mm)	100x81x28
Connections	2 M8 4-pole connectors
Operating Temperature	-10°…+40°
Storage Temperature	-25°…+70°

INPUT CONNECTIONS

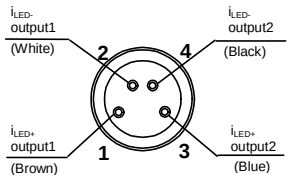
INPUT
M8 4 pole male connector



1=BROWN= +24 Vdc
2=WHITE= not connected
3=BLUE= GND
4=BLACK= Strobe

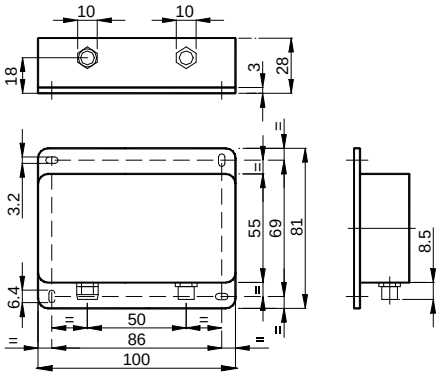
OUTPUT CONNECTIONS

OUTPUT
M8 4 pole female connector



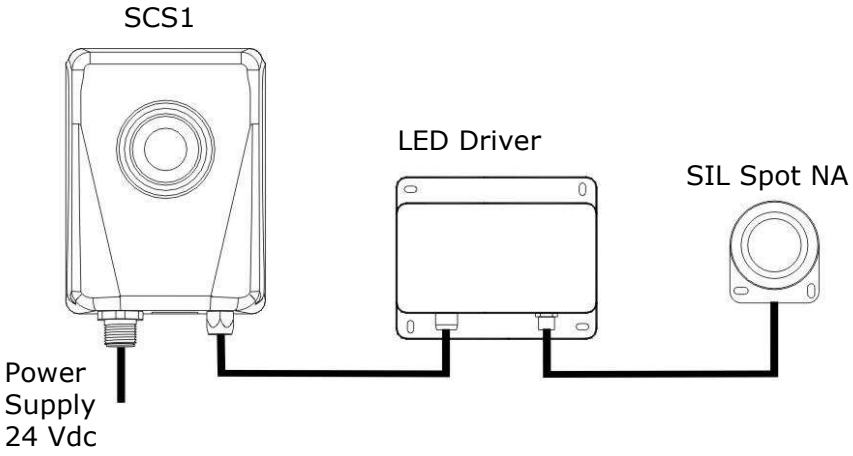
1=BROWN= i_{LED+} output1
2=WHITE= i_{LED-} output1
3=BLUE= i_{LED+} output2
4=BLACK= i_{LED-} output2

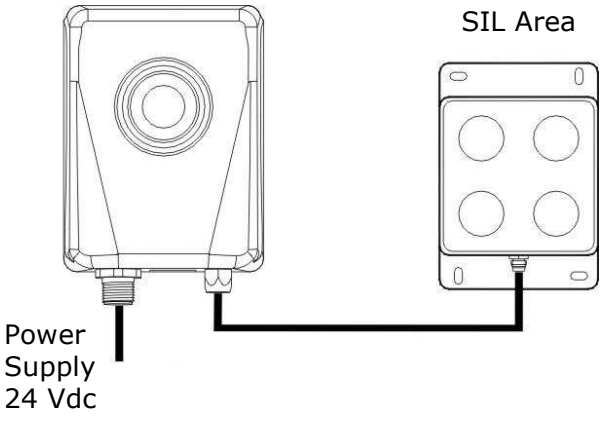
DIMENSIONS



Application note

A few examples of possible configurations of SIL illuminators connected to Datasensor's SCS1 Smart Camera are given below:





For different Smart Cameras or lighting solutions please refer to the connection scheme of each specific SIL illuminator.



Models

Description (standard versions)	Colour	Emission angle	Order number
SIL-LINE-RED-FLOOD	red	25° (Flood Power Optics)	95A901180
SIL-AREA-RED-FLOOD	red	25° (Flood Power Optics)	95A901190
SIL-RING-RED-FLOOD	red	25° (Flood Power Optics)	95A901200
SIL-BACK-RED-CONT	red	-	95A901210
SIL-SPOT-RED-FLOOD	red	25° (Flood Power Optics)	95A901220
SIL-SPOT-NA-RED-FLOOD	red	25° (Flood Power Optics)	95A901230
SIL-LINE-WHITE-FLOOD	white	25° (Flood Power Optics)	95A901260
SIL-AREA-WHITE-FLOOD	white	25° (Flood Power Optics)	95A901270
SIL-RING-WHITE-FLOOD	white	25° (Flood Power Optics)	95A901280
SIL-BACK-WHITE-CONT	white	-	95A901290
SIL-SPOT-WHITE-FLOOD	white	25° (Flood Power Optics)	95A901300
SIL-SPOT-NA-WHITE-FLOOD	white	25° (Flood Power Optics)	95A901310
SIL-Laserline	red (laser)	90°	95A901160
LED Drivers			
LD1 (for SIL SPOT-NA)			95A901240
LD2 (for SIL SPOT-RING)			95A901250

On request

Each illuminator can be manufactured on custom request within the following options

Emission Colour (OSRAM Dragon Power LEDs)	Blue
	Green
	White
	IR
Emission Angle (Datasensor Power Optics)	Spot 6°
	Diffuse 45°
	Line 10x30°

Contact out sales support for complete definition of your custom illumination solution.

www.datasensoroptics.it

Accessories

Description		Order number
Cable with 4-pole M8 straight female connectors	L = 3m	95A251420
	L = 5m	95A251430
Cable with two 4-pole M8 straight male/female connectors	L = 1m	95A901070
M8/M12 cabke for SIL Laserline	L = 1m	95A901130