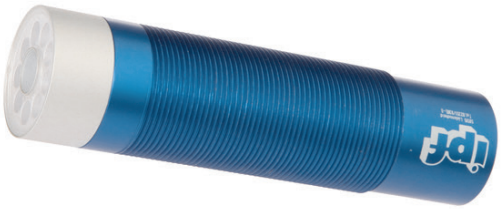
OF349142

OPTICAL SENSORS • COLOR SENSORS



The functioning of the color sensors is based on the evaluation of the red, green and blue components of the light reflected by the objects to be measured, or from the emitted radiation of the 'self-luminous' object (for example, LEDs, automobile tail lights, halogen lamps, fluorescent lamps, etc.). For this purpose, a so-called 3-fold receiver is integrated in the unit next to an on / off switchable white light or UV-light. This receiver works according to the True Color principle. This means that the evaluation of the light hitting the receiver is similar to the color perception of the human eye. This is a prerequisite for the reliable differentiation of objects or luminous objects by their color and brightness. For testing fluorescent materials the use of sensors with UV-light source is recommended. The use under adverse environmental conditions is possible through the use of additional fiber optics. The interaction between a precise detection and a high switching frequency distinguishes the devices. Thus,they are an ideal tool for process and quality control.

MECHANICAL DATA

Ambient temperature (MAX)	55 °C
Ambient temperature (MIN)	-20 °C
Degree of protection (IP)	IP64
Degree of protection (IP) of evaluation electronics	IP64
Degree of protection (IP), front side	IP67
For damp environments	Yes
Housing coating	Anodised
Housing design	Cylinder, screw-thread
Housing material	Aluminium
Material of optical surface	Glass
Sensor diameter	34 mm
Sensor length	130 mm
Storage temperature	85 °C
Storage temperature	-20 °C
Thread pitch	1.5 mm
Thread size, metric	34

ELECTRICAL DATA

EMC test in acc. with	DIN EN 60947-5-2
Equipment protection class	Protection class 3
Max. number of measurements for averaging	32768
Max. output current	100 mA
Measurement frequency in alternating light operation	20000 Hz
Measurement frequency in constant light operation	35000 Hz
Measurement frequency in flash mode	5000 Hz
No-load current	220 mA
Number of digital inputs	1

ELECTRICAL DATA

Number of LEDs	5
Number of pins	8
Number of pins of the communication interface	4
Number of switching outputs	5
Operating voltage (MAX)	26.4 V
Operating voltage (MIN)	21.6 V
Overload protection	Yes
Pulse stretching	100 ms
Rated control supply voltage Us at DC (MAX)	26.4 V
Rated control supply voltage Us at DC (MIN)	21.6 V
Reverse polarity protection	Yes
Selectable amplifier stages	8
Sensing range (MAX)	150 mm
Sensing range (MIN)	10 mm
Setting procedure	Parameterization
Standard for interfaces	RS-232
Switching frequency	60000 Hz
Temperature drift	ΔX/ΔT; ΔY/ΔT typ. 0.2 digits/°C (< 0.01% / °C)
Type of communication interface	Connector M5
Type of electrical connection	Connector M9
Type of plug-in contact, communication interface	Female (socket)
Type of switching function	Push-pull
Type of switching output	PNP/NPN
Voltage type	DC
With communication interface, RS-232	Yes
With external teach	Yes
With external trigger	Yes
With LED display	Yes
With time function	Yes

OPTICAL DATA

Alternating light operation	Yes
Color distance	ΔE >= 0.5
Color spaces	X Y INT siM (Lab)
Constant light operation	Yes
Flash mode	Yes
Focused	Yes
Light focus distance	50
Light source	White light
Light spot	113.1 mm²
Light spot diameter	12 mm
Max. ambient light	5000 lx
Measuring method for color detection	Active tristimulus method
Nominal sensing range	50 mm
True color	Yes

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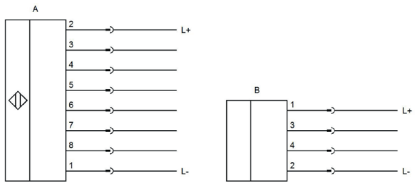
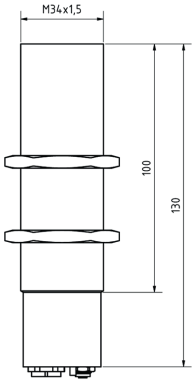
CONNECTION



Colors: A: M9: 1 = WH (white), 2 = BN (brown), 3 = GN (green), 4 = YE (yellow), 5 = GY (gray), 6 = PK (pink), 7 = BU (blue), 8 = RD (red)
Functions: A: M9: 1 = L-, 2 = L+, 3 = In 0, 4 = OUT 0, 5 = OUT 1, 6 = OUT 2, 7 = OUT 3, 8 = OUT 4
B: M5: 1 = L+, 2 = L-, 3 = RxD, 4 = TxD

DIMENSIONAL DRAWING



INSTALLATION

Mounting / Installation may only be carried out by a qualified electrician!

DISPOSAL

SAFETY WARNINGS

Before initial operation, please make sure to follow all safety instructions that may be provided in the product information!

Never use these devices in applications where the safety of a person depends on their functionality.