

OF510140

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
For damp environments	Yes
For glossy/reflecting surfaces	Yes
Housing coating	Anodised
Housing design	Cuboid
Housing material	Aluminium
Sensor height	27 mm
Sensor length	50 mm
Sensor width	50 mm
Storage temperature	85 °C
Storage temperature	-20 °C
With fiber optics connection	No

ELECTRICAL DATA

Control of self-luminous objects	Yes
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
No-load current	160 mA
Number of digital inputs	1
Number of pins	8
Number of pins of the communication interface	4

ELECTRICAL DATA

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 U_s at DC (MAX)	26.4 V
Rated control supply voltage U_s at DC (MIN)	21.6 V
Relative repeat accuracy	0.02 %
Reverse polarity protection	Yes
Selectable amplifier stages	8
Sensing range (MAX)	50 mm
Sensing range (MIN)	5 mm
Setting procedure	Parameterization
Short-circuit-proof	Yes
Standard for interfaces	RS-232
Switching frequency	35000 Hz
Temperature drift	$\Delta X/\Delta T$; $\Delta Y/\Delta T$ typ. 0.2 digits/°C (< 0.01% / °C)
Type of communication interface	Connector M5
Type of electrical connection	Connector M12
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 time function	Yes

OPTICAL DATA

Alternating light operation	Yes
Color distance	$\Delta E \geq 0.5$
Color spaces	X Y INT siM (Lab)
Constant light operation	Yes
Diffuse	Yes
Light source	White light
Max. ambient light	5000 lx
Measuring method for color detection	Active tristimulus method
True color	Yes

