

PTQ80470

Laser sensors • Diffuse reflection sensors with background suppression

Laser Sensor, Diffuse Reflection Sensor, 25x16x8mm, Sn: 20–120, 10–30 V DC, 1x PNP exclusive-OR, 4-pin M8 connector, 0.2 m PVC cable, IP67, ASA+PMMA plastic, 1 kHz, laser diode, red light, spot, teach-in

- / small light spot
- / plastic housing
- / Negative pressure of mutual interference
- / M8 plug connection



background suppression Laser class 1

The **PTQ80470** uses a laser diode that emits a pulsed point-shaped red light with a wavelength of 680 nm. The sensor's sensing range is 3 to 132 mm, and the adjustment range is 20 to 120 mm. At the focal point, at a distance of 40 mm, the diameter of the light spot is only 0.3 mm; at the maximum adjustable sensing range of 120 mm, it is 4 mm. The sensor has short-circuit and reverse polarity protection, making it particularly robust and safe in operation. With a switching frequency of up to 1 kHz and a response time of 0.5 ms, the sensor features background suppression (electronic), the sensor is extremely fast and precise.

Advantages

- Laser diode spot, pulsed red light
- Laser safety class 1
- Teach-in function on the sensor
- Suppression of mutual interference

Retro-reflective sensor with background suppression

Reflective sensors with background suppression perform recognition to determine whether an object is within the set switching distance. Objects located outside this range are suppressed as background and do not trigger a switching signal. Unlike active retro-reflective sensors, the switching point for retro-reflective sensors with background suppression is largely independent of the object's reflectivity. The product portfolio includes reflective sensors with background suppression that operate either according to the triangulation principle (mechanical/electronic) or the time-of-flight principle.

Triangulation (electronic)

In triangulation sensors with electronic switching point adjustment, the light reflected by the object is projected onto a receiving element within the sensor, such as a PSD (Position Sensitive Device). The position of the light spot on the receiving element is electronically evaluated and used to determine the object distance. Depending on the sensor model, the switching point can be set either via a teach-in button or via IO-Link.

Teach-In

The convenient and wear-free teach-in procedure enables flexible and precise setting of the sensors. To teach the sensors, simply touch the teach-in surface on the back of the sensors with any ferromagnetic tool. A blue LED visually indicates whether the teach-in was successful. Five minutes after the operating voltage is applied or after the last teach-in process, the teach-in locking mechanism is automatically activated.

Electrical features

Response/decay time	0.5 ms
Number of switching outputs	1
Display	Operating mode display: LED green Switching state display: yellow LED
Type of switching function	Exclusive-OR
Type of electrical connection	Cable connector M8
Type of switching output	PNP
Rated switching current	50 mA
Setting procedure	Teach-In
Operating principle	background suppression
No-load current	20 mA
Number of pins	4
Switching distance	20 - 120 mm
Switching frequency	1000 Hz
Voltage drop	2 V
Scanning function	Light-/dark-on mode
Measurement principle	Triangulation (electronic)
Operating voltage (DC)	10 - 30 V
Dead zone	0 - 3 mm
Electrical connection	M8 4-pin cable connector, 0.2 m
Operating voltage	10–30 VDC
protection functions	short circuit protection reverse polarity protection

Mechanical features

Conductor cross-section	0.08 mm ²
Design	Cuboid
Width	8 mm
Height	25.1 mm
Cable length	0.2 m
Length	15.8 mm
Degree of protection (IP)	IP67
Active area material of sensor	Plastic (PMMA)
Housing material	plastic ASA
material of cable sheath	plastic (PVC)
Working distance range	3 - 132 mm
Ambient temperature	-25 - 50 °C
dimensions	15.8 x 8 x 25.1 mm
Optical axis alignment	1.5 °

Optical features

Laser class	Class 1
Light source	Laser diode, red light
Light beam form	Point
Wavelength of the sensor	680 nm
Light spot diameter at focal point	0.3 mm
Focus distance	40 mm
Light spot diameter at the start of the measuring range	2 mm
Light spot diameter at the end of the measuring range	4 mm

Other features

Range of functions	interference suppression
Reference medium / object	Material with 90% reflectivity

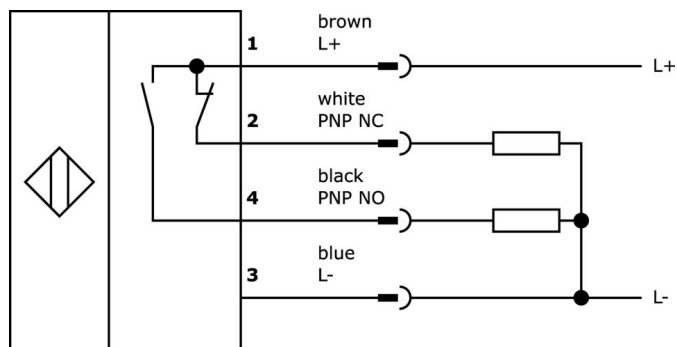
Classification

ETIM 8

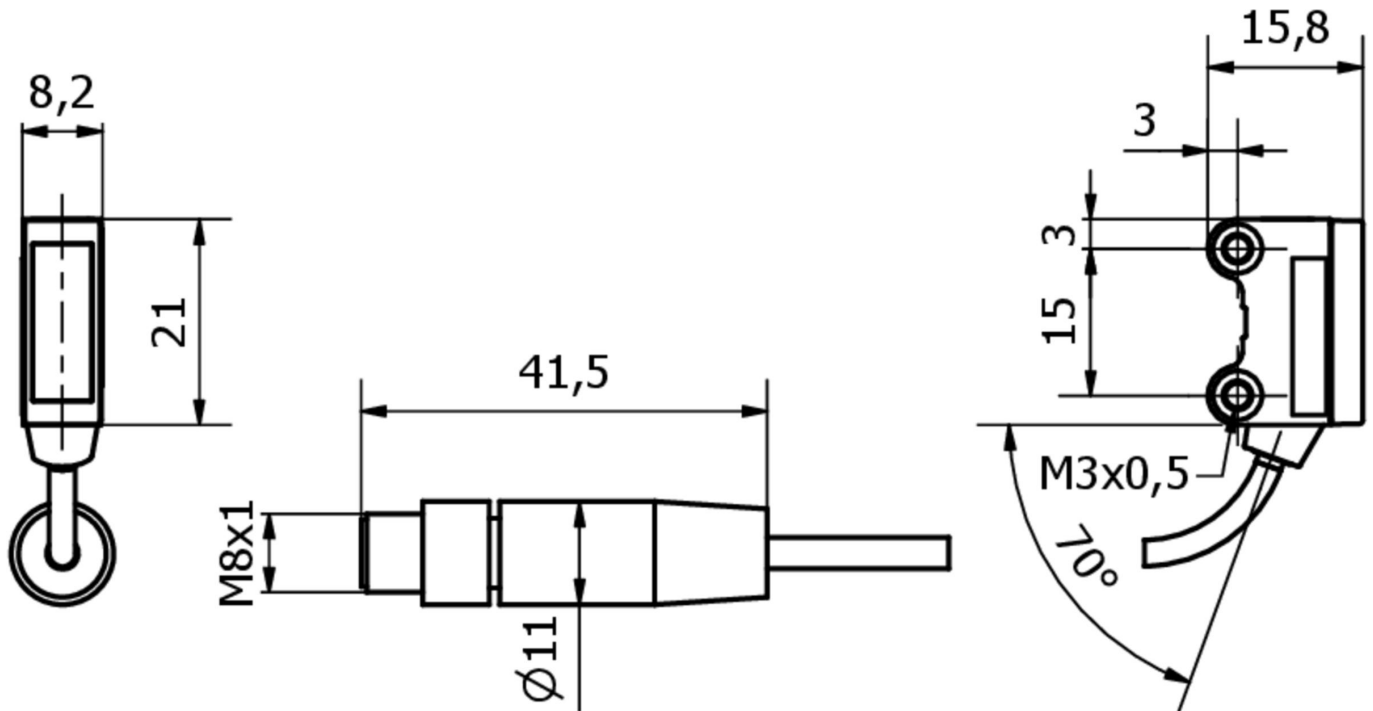
More

IPF Product Group	160 laser sensor
packaging dimensions	123 x 77 x 25 mm
gross weight	34 g
customs tariff number	85365019
WEEE number	40951076
Reach-compliant	Yes
RoHS-compliant	Yes

Connection



Dimensional drawing



Extract accessories program

VK003071



Cable socket, Angular, Suitable for self-assembly, Soldering connection, Ø3.5-5mm, 4A, 30V, -40-85°C, M8 Female (socket) 4pin, IP67, Brass

VK003075



Cable socket, Straight, Suitable for self-assembly, Soldering connection, Ø3.5-5mm, 4A, 30V, -40-85°C, M8 Female (socket) 4pin, IP67, Brass

AO000075



accessories optical, Mounting angle bracket, M3x0.5 12long, Mounting material for sensor, brackets, Steel

AO000076



accessories optical, Mounting angle bracket, M3x0.5 13long, Mounting material for sensor, brackets, Steel

AY000141



Plastic sheath, Ø17mm, Inner diameter 10mm, -40-250°C, Glass fiber with silicone rubber, Short-term resistance to weld spatter 1200°C, Tensile strength 400N, Flexible, Flame retardant, yard good

VK200371



Connection cable, 2m, M8 socket 4-pin angular, free cable end, 4x0.34mm², PUR (polyurethane), Ø4.7mm, 30V, -30-90°C, IP67, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free

VK200375



Connection cable, 2m, M8 socket 4-pin straight, free cable end, 4x0.34mm², PUR (polyurethane), Ø4.7mm, 30V, -30-90°C, IP67, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free

You can find further accessories on our homepage

**Installation**

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

**Disposal**

WEEE number according to § 6 para. 3
ElektroG: 40951076

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.