

PTQ8 Series

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, teach-in

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



background suppression Laser class 1

Intensity differentiation pushbuttons / Energy-Sensing

Reflective sensors use the light intensity reflected by an object to detect it. The switching threshold is set to a defined signal value. However, the switching point depends not only on the distance between the sensor and the object, but also on the object's reflectance properties. Material, color, surface finish, gloss level, and texture influence the intensity of the reflected light and thus the signal received by the sensor.

Reflective sensors 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 reflectance properties. 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 (mechanical)

In triangulation sensors with mechanical switching point adjustment, the desired switching distance is determined by the position of the receiving element or the receiving lens. The setting is performed manually via a potentiometer, which allows the switching point to be adapted to the specific application.

Triangulation (electronic)

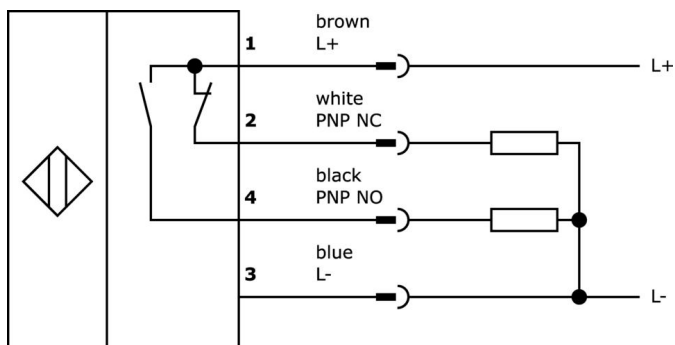
In triangulation sensors with electronic switching point adjustment, the light reflected by the object is projected onto a receiving element in the sensor, such as a PSD (Position Sensitive Device). The position of the light spot on the receiving element is electronically evaluated and used to determine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

Time-of-Flight Measurement

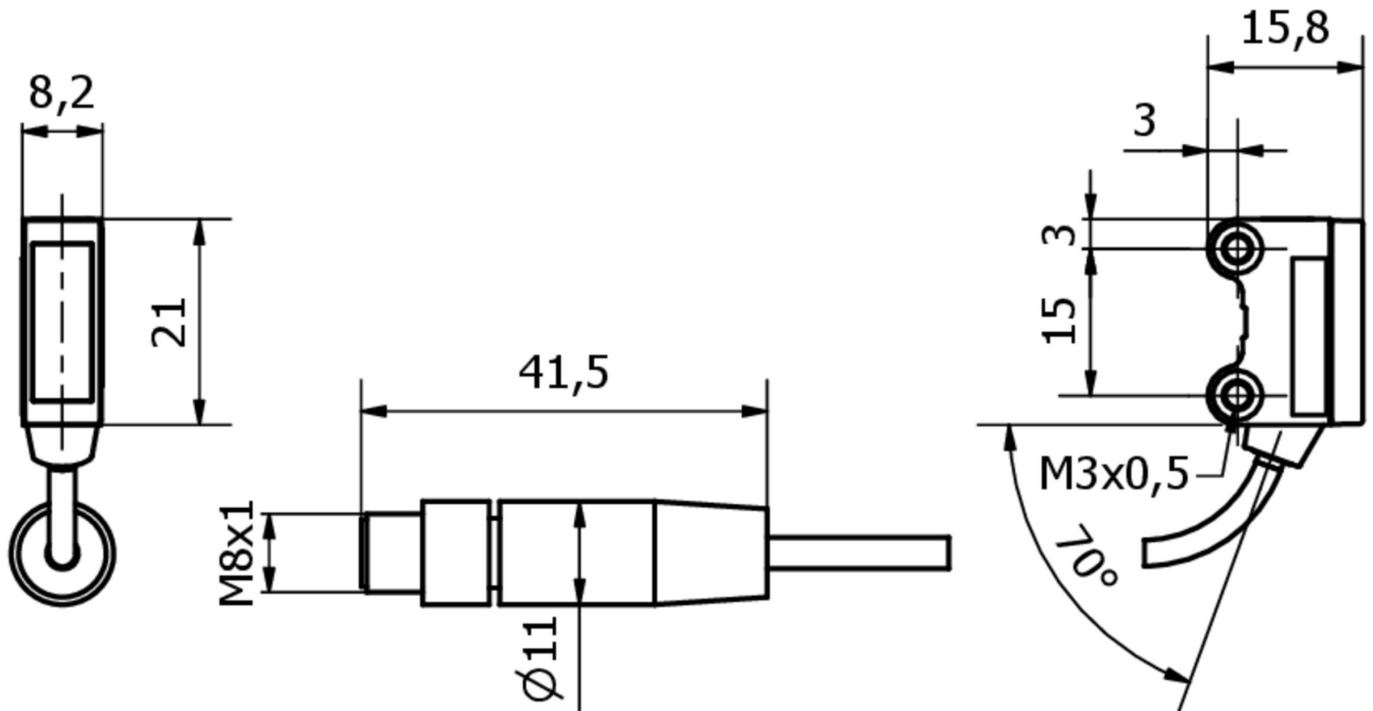
In reflective sensors with background suppression and Time-of-Flight (ToF) technology, the constant propagation velocity of light is used to measure distance. To do this, the sensor emits modulated light and detects the signal reflected by the object. The distance to the object is calculated based on the phase shift between the transmitted and received light. The system then checks whether the object is within the set switching distance. Depending on the sensor model, the switching point can be adjusted using a potentiometer or via IO-Link.

Article No.	PTQ80470	PTQ80475
		
dimensions	15.8 x 8 x 25.1 mm	
Operating voltage	10–30 VDC	
Operating principle	Hintergrundausbldung	
Measurement principle	Triangulation (elektronisch)	
Working distance range	3 - 132 mm	
Switching distance	20 - 120 mm	
Dead zone	0 - 3 mm	
Focus distance	40 mm	60 mm
Reference medium / object	Material with 90% reflectivity	
Light source	Laser diode, red light	
Wavelength of the sensor	680 nm	
Light beam form	Point	Line
Laser class	Class 1	
Response/decay time	0.5 ms	2 ms
Display	Operating mode display: LED green Switching state display: yellow LED	
Electrical connection	M8 4-pin cable connector, 0.2 m	
Number of switching outputs	1	
Type of switching output	PNP	
Type of switching function	Exclusive-OR	
Rated switching current	50 mA	
Switching frequency	1000 Hz	250 Hz
ardTEEL_Schutzfunktionen	Short circuit protection Reverse polarity protection	
Scanning function	Light-/dark-on mode	
Setting procedure	Teach-In	
Range of functions	Störunterdrückung	
Housing material	Plastic ASA	
Active area material of sensor	Plastic (PMMA)	
Material of cable sheath	Plastic (PVC)	
Ambient temperature	-25 - 50 °C	
Degree of protection (IP)	IP67	

Connection



Dimensional drawing



Extract accessories program

VK003171



Cable socket, Angular, Suitable for self-assembly, Screw connection, Ø5mm, 4A, 60V, -40-85°C, M8 Female (socket) 4pin, IP67, Polyamide PA

VK003175



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

VK003S75



Cable socket, Straight, Suitable for self-assembly, Quick connection, Ø4-5.1mm, 4A, 32V, -25-85°C, M8 Female (socket) 4pin, IP67

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

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

AY000116



accessories sensor, Fixture kit, Metal, ball joint

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.