Laser Distance Sensor
Time of Flight

P1PY004 LASER

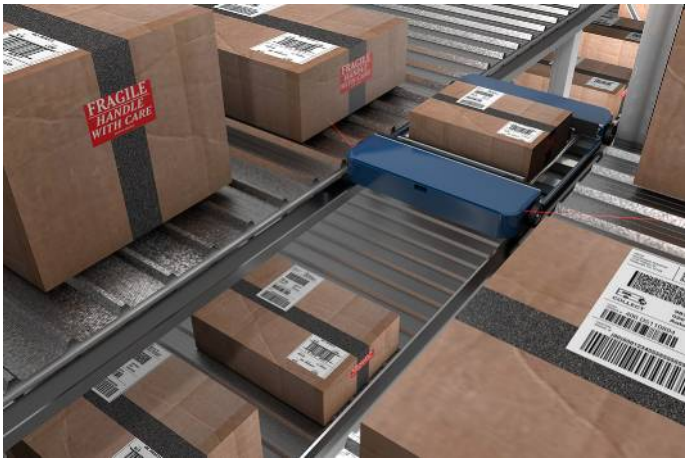
Part Number

PNG smart der wintec.



- **2 mutually independent switching outputs**
- **Interference-free towards gloss in the background with wintec**
- **No mutual interference with wintec**
- **Reliable in case of glossy objects with wintec**
- **Secure detection of black objects also in extremely inclined positions with wintec**

These sensors have scratch-resistant optics and the emitted light can be switched off. They use the transit time measurement principle to measure the distance between the sensor and the object.
wenglor interference-free technology (wintec) has revolutionized sensor technology:
It makes it possible to mount several sensors directly next to, or opposite each other without the sensors influencing each other. The sensors reach a very high switching frequency and use laser class 1, which is safe for the human eye.



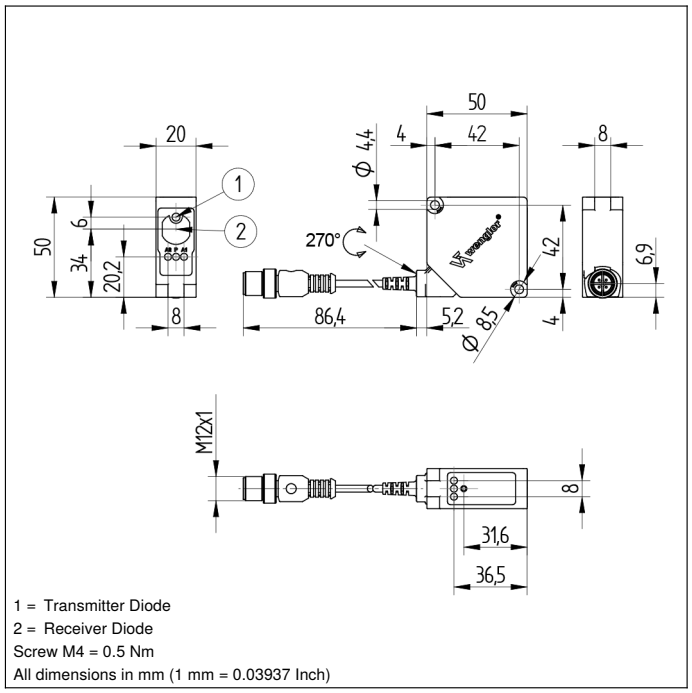
Technical Data

Optical Data	
Working Range	0...3000 mm
Setting Range	200...3000 mm
Switching Hysteresis	< 15 mm
Light Source	Laser (red)
Wavelength	660 nm
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	1
Beam Divergence	< 2 mrad
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1
Electrical Data	
Supply Voltage	10...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Switching Frequency	500 Hz
Response Time	1 ms
Temperature Drift (-10 °C < Tu < 50 °C)	< 1 %
Temperature Drift (Tu < -10 °C, Tu > 50 °C)	< 2,5 %
Temperature Range	-40...60 °C
Number of Switching Outputs	2
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Interface	IO-Link V1.1
Protection Class	III
FDA Accession Number	1910001-000
Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic
Optic Cover	PMMA
Degree of Protection	IP68
Connection	M12 × 1; 4/5-pin
Cable Length	500 mm
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	949,92 a
NPN NC, NPN NO	●
IO-Link	●
Connection Diagram No.	235
Control Panel No.	P15
Suitable Connection Equipment No.	2 35
Suitable Mounting Technology No.	380

* Temperature range with permanently installed cable, bending radius: > 40 mm

Complementary Products

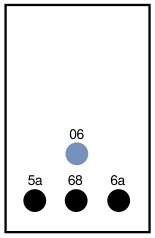
IO-Link Master
Protective Housing ZSV-0x-01
Set Protective Housing ZSP-NN-02
Software



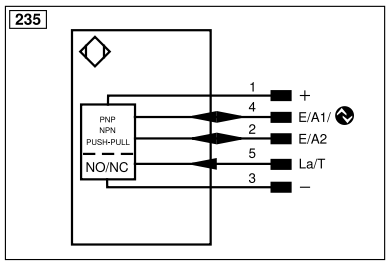
1 = Transmitter Diode
2 = Receiver Diode
Screw M4 = 0.5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

P15



06 = Teach Button
5a = Switching Status Display, O1
68 = supply voltage indicator
6a = Switching Status Display, O2



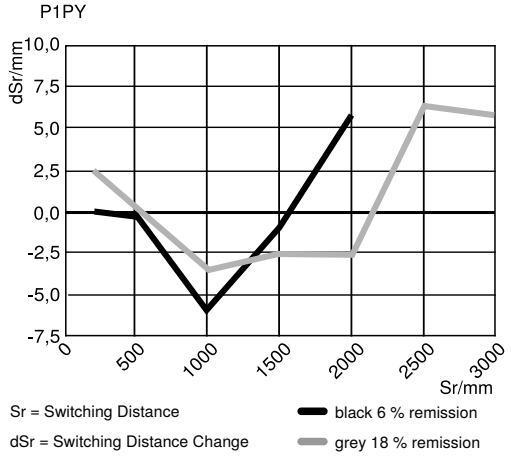
Legend					
+	Supply Voltage +	nc	Not connected	ENBRS422	Encoder B/B̄ (TTL)
–	Supply Voltage 0 V	U	Test Input	ENA	Encoder A
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted	ENB	Encoder B
A	Switching Output (NO)	W	Trigger Input	AMIN	Digital output MIN
Ā	Switching Output (NC)	W–	Ground for the Trigger Input	AMAX	Digital output MAX
V	Contamination/Error Output (NO)	O	Analog Output	AOK	Digital output OK
V̄	Contamination/Error Output (NC)	O–	Ground for the Analog Output	SY In	Synchronization In
E	Input (analog or digital)	BZ	Block Discharge	SY OUT	Synchronization OUT
T	Teach Input	AMV	Valve Output	OLT	Brightness output
Z	Time Delay (activation)	a	Valve Control Output +	M	Maintenance
S	Shielding	b	Valve Control Output 0 V	rsv	Reserved
RxD	Interface Receive Path	SY	Synchronization	Wire Colors according to DIN IEC 60757	
TxD	Interface Send Path	SY–	Ground for the Synchronization	BK	Black
RDY	Ready	E+	Receiver-Line	BN	Brown
GND	Ground	S+	Emitter-Line	RD	Red
CL	Clock	⏚	Grounding	OG	Orange
E/A	Output/Input programmable	SnR	Switching Distance Reduction	YE	Yellow
	IO-Link	Rx+/–	Ethernet Receive Path	GN	Green
PoE	ower over Ethernet	Tx+/–	Ethernet Send Path	BU	Blue
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(–)	VT	Violet
OSSD	Safety Output	La	Emitted Light disengageable	GY	Grey
Signal	Signal Output	Mag	Magnet activation	WH	White
BI_D+/–	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation	PK	Pink
EN0 RS422	Encoder 0-pulse 0/0̄ (TTL)	EDM	Contactor Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	ENARS422	Encoder A/Ā (TTL)		

Table 1

Working Distance	0 m	3 m
Light Spot Diameter	5 mm	9 mm

Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission



Sr = Switching Distance
dSr = Switching Distance Change
black 6 % remission
grey 18 % remission

Specifications are subject to change without notice V0-27.03.2023