Through-Beam Sensor

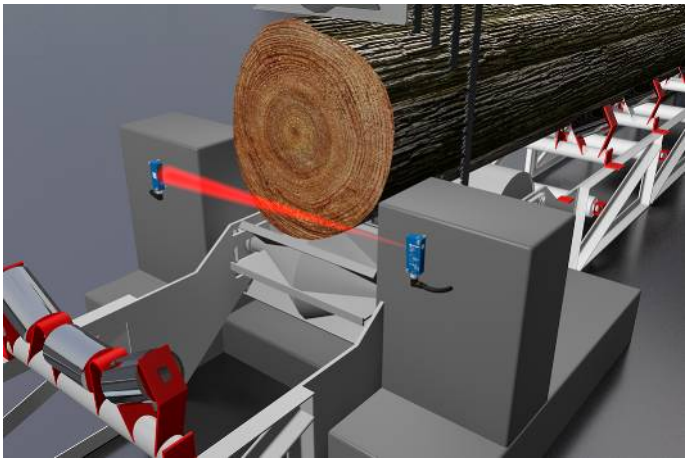
P1NE102

Part Number

PNG smart

- **Condition monitoring**
- **High light intensity with large switching reserve**
- **IO-Link 1.1**
- **Test input for high operational reliability**

The through-beam sensor works with red light as well as a transmitter and a receiver. Thanks to their high light intensity, the sensor provides a high degree of operational reliability even with interferences like steam, fog or dust. The transmitter can be deactivated using test input in order to test the functionality of the through-beam sensor. The IO-Link interface can be used to configure the sensor (PNP/NPN, NC/NO, switching distance), as well as for reading out switching statuses and signal values.



Technical Data

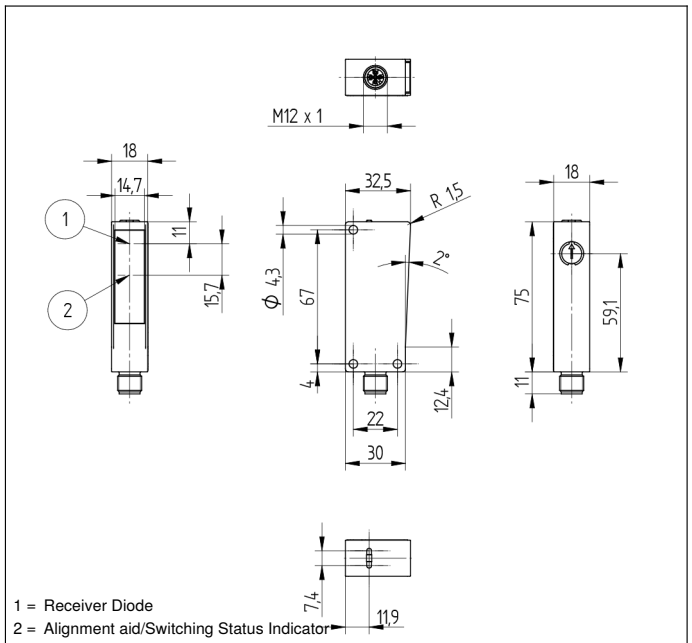
Optical Data	
Range	20000 mm
Smallest Recognizable Part	see Table 1
Switching Hysteresis	10 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Electrical Data	
Sensor Type	Receiver
Supply Voltage	10...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (Ub = 24 V)	< 30 mA
Switching Frequency	1000 Hz
Switching Frequency (interference-free mode)	500 Hz
Response Time	0,5 ms
Response time (interference-free mode)	1 ms
Temperature Drift	< 10 %
Temperature Range	-40...60 °C
Switching Output Voltage Drop	< 2 V
Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 µA
Short Circuit and Overload Protection	yes
Reverse Polarity Protection	yes
Interface	IO-Link V1.1
Protection Class	III
Mechanical Data	
Setting Method	Potentiometer
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M12 × 1; 4-pin
Optic Cover	PMMA
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1688,43 a
NPN NO/NC antivalent	●
IO-Link	●
Connection Diagram No.	213
Control Panel No.	A28
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	350

Suitable Emitter

P1NS101

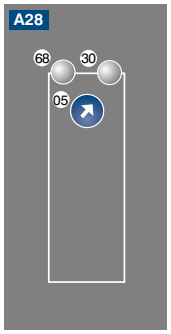
Complementary Products

Dust Extraction Tube STAUBTUBUS-03
IO-Link Master
Set Protective Housing Z1NS001
Software

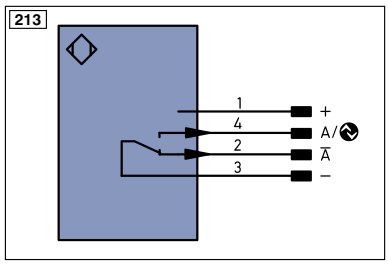


1 = Receiver Diode
2 = Alignment aid/Switching Status Indicator
Screw M4 = 0,5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel



05 = Switching Distance Adjuster
30 = Switching Status/Contamination Warning
68 = Supply Voltage Indicator



Legend

+	Supply Voltage +		PT	Platinum measuring resistor		ENA RS422	Encoder A/Ā (TTL)
–	Supply Voltage 0 V		nc	not connected		ENB RS422	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)		U	Test Input		ENA	Encoder A
A	Switching Output	(NO)	Ū	Test Input inverted		ENB	Encoder B
Ā	Switching Output	(NC)	W	Trigger Input		AMIN	Digital output MIN
V	Contamination/Error Output	(NO)	W–	Ground for the Trigger Input		AMAX	Digital output MAX
V̄	Contamination/Error Output	(NC)	O	Analog Output		AOK	Digital output OK
E	Input (analog or digital)		O–	Ground for the Analog Output		SY In	Synchronization In
T	Teach Input		BZ	Block Discharge		SY OUT	Synchronization OUT
Z	Time Delay (activation)		AW	Valve Output		OLT	Brightness output
S	Shielding		a	Valve Control Output +		M	Maintenance
RxD	Interface Receive Path		b	Valve Control Output 0 V		rsv	reserved
TxD	Interface Send Path		SY	Synchronization		Wire Colors according to DIN IEC 757	
RDY	Ready		SY–	Ground for the Synchronization		BK	Black
GND	Ground		E+	Receiver-Line		BN	Brown
CL	Clock		S+	Emitter-Line		RD	Red
E/A	Output/Input programmable		⏚	Grounding		OG	Orange
	IO-Link		SnR	Switching Distance Reduction		YE	Yellow
PoE	Power over Ethernet		Rx+/–	Ethernet Receive Path		GN	Green
IN	Safety Input		Tx+/–	Ethernet Send Path		BU	Blue
OSSD	Safety Output		Bus	Interfaces-Bus A(+)/B(–)		VT	Violet
Signal	Signal Output		La	Emitted Light disengageable		GY	Grey
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)		Mag	Magnet activation		WH	White
EN0 RS422	Encoder 0-pulse 0-0̄ (TTL)		RES	Input confirmation		PK	Pink
			EDM	Contactor Monitoring		GNYE	Green/Yellow

Table 1

Distance transmitter/receiver	4 m	10 m	20 m
Smallest Recognizable Part	6 mm	2 mm	2,5 mm