

# Fork Sensor

## P1HJ101

Part Number



- 2 switching outputs and switching status indicator
- Detect extremely small parts starting at 0.7 mm
- Flexible cable outlet with 4-pin plug, M8 × 1
- Miniature design (20 × 40 mm)
- Sensitivity set via IO-Link 1.1

Fork sensors in a miniature design are photoelectronic sensors. The emitter and the receiver are positioned opposite each other in a housing as a barrier. As soon as the light beam is interrupted, the sensor's output switches. The use of visible red light and the beam marking on the fork legs make it easier to align the fork sensor. This fork sensor can be used to detect small holes, grooves and notches as well as to detect small parts. The minimal construction volume, the flexible connection cable and the integrated mounting holes enable use in confined installation situations, such as shuttles, AGVs or robot grippers.

### Technical Data

Optical Data	
Fork Width	9 mm
Smallest Recognizable Part	0,7 mm
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Repeat Accuracy	0,05 mm

Electrical Data	
Supply Voltage	10...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (U <sub>b</sub> = 24 V)	< 20 mA
Switching Frequency	1900 Hz
Switching frequency (speed mode)	3000 Hz*
Response Time	0,26 ms
Response time (speed mode)	0,16 ms*
Temperature Range	-30...60 °C**
Temperature Drift	< 10 %
Number of Switching Outputs	2
Switching Output Voltage Drop	< 2 V
Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 µA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Protection Class	III

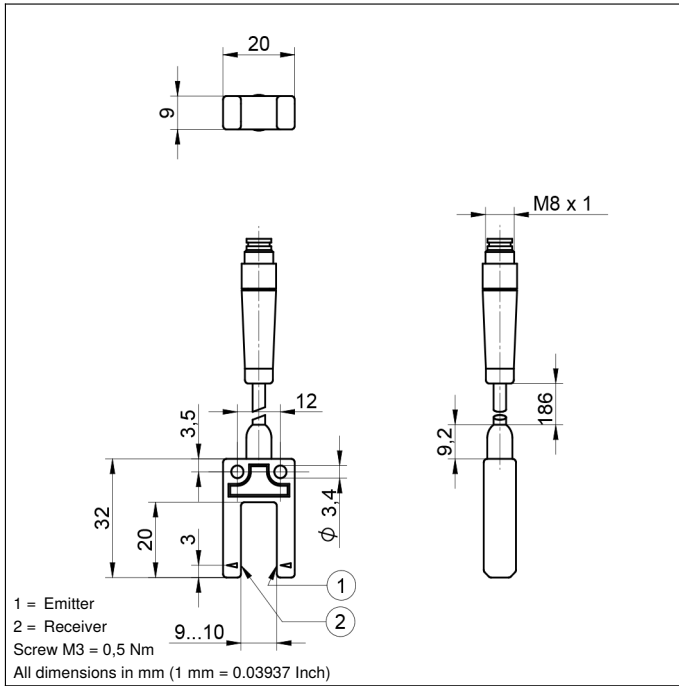
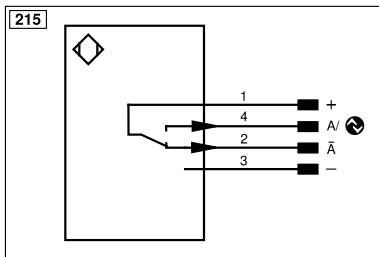
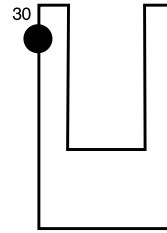
Mechanical Data	
Setting Method	IO-Link
Housing Material	Plastic
Optic Cover	Plastic, PA
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M8 × 1; 4-pin
Cable Length	186 mm

Safety-relevant Data	
MTTFd (EN ISO 13849-1)	4838,37 a
Packaging unit	1 Piece

PNP NC, PNP NO	●
Connection Diagram No.	215
Control Panel No.	OP5
Suitable Connection Equipment No.	7

\* Default

\*\* Temperature range with permanently installed cable; bending radius: > 20 mm


**Ctrl. Panel**  
**OP5**


Legend					
+	Supply Voltage +	nc	Not connected	EN <sub>RS422</sub>	Encoder B/B̄ (TTL)
-	Supply Voltage 0 V	U	Test Input	ENA	Encoder A
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted	EN <sub>B</sub>	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
ȳ	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	Power 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
EN <sub>RS422</sub>	Encoder 0-pulse 0/0̄ (TTL)	EDM	Contactor Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	EN <sub>AR422</sub>	Encoder A/Ā (TTL)		

