

# Print Mark Reader

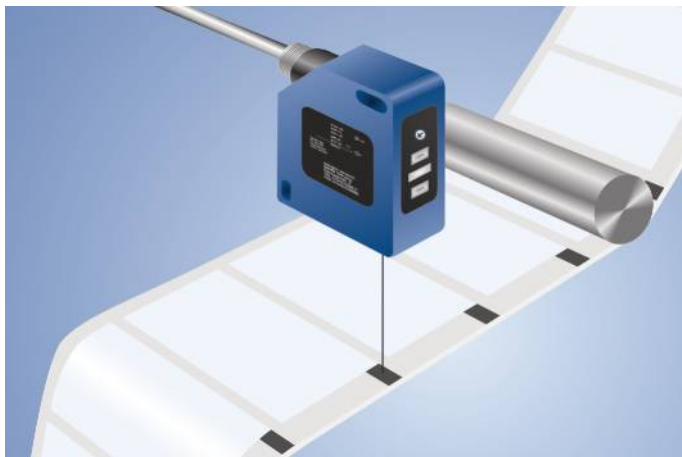
## WP02PAT80

Part Number



- Digital read-out of gray-scale values via the RS-232 interface
- Teach-in, dynamic teach-in, external teach-in, RS-232 interface
- Very high contrast resolution
- Very small light spot: 0,7 × 2 mm

These sensors have been specially designed to recognize print marks. They have a very small spot and use a white light LED with long service life. Only one sensor is required for the recognition of all color combinations, as well as the difference in brightness between print marks and the background.



### Technical Data

Optical Data	
Working Range	12...16 mm
Working Distance	14 mm
Resolution	100 Gray Scale
Switching Hysteresis	< 1 %
Light Source	White Light
Wavelength	400...700 nm
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Light Spot Diameter	0,7 × 2 mm

Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (U <sub>b</sub> = 24 V)	< 50 mA
Switching Frequency	25 kHz
Response Time	20 μs
On-/Off-Delay	0...100 ms
Temperature Drift	< 1 %
Temperature Range	-25...60 °C
Number of Switching Outputs	2
Switching Output Voltage Drop	1,5 V
Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Lockable	yes
Teach Mode	ZT, DT, TP
Interface	RS-232
Baud Rate	38400 Bd
Number of Digital Inputs	2
Protection Class	III

Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic
Degree of Protection	IP67
Connection	M12 × 1; 8-pin

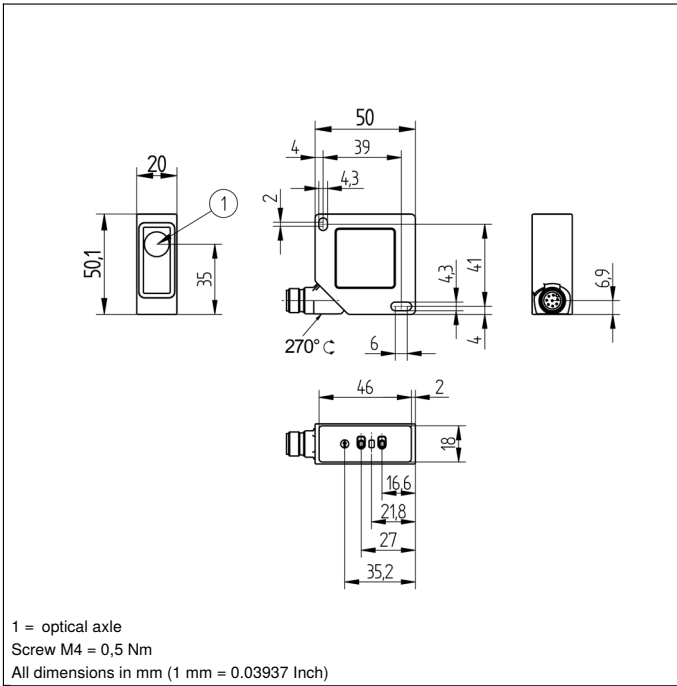
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1094,91 a

PNP NO/NC antivalent	●
RS-232 Interface	●

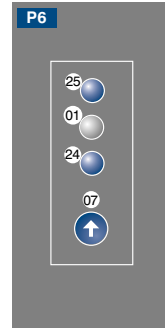
Connection Diagram No.	157
Control Panel No.	P6
Suitable Connection Equipment No.	80
Suitable Mounting Technology No.	380

### Complementary Products

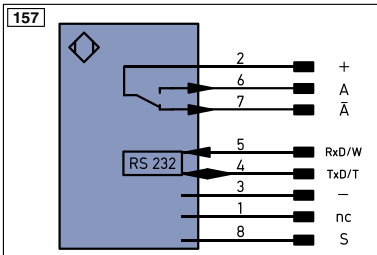
Fieldbus Gateway ZAGxxxN01, EPGG001
Interface Cable S232W3
Protective Housing ZSV-0x-01
Set Protective Housing ZSP-NN-02
Software



### Ctrl. Panel

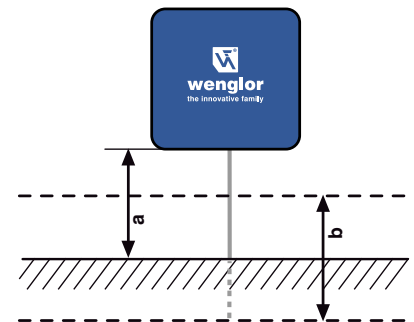


- 01 = Switching Status Indicator
- 07 = Selector Switch
- 24 = Plus Button
- 25 = Minus Button



Legend			
+	Supply Voltage +	PT	Platinum measuring resistor
-	Supply Voltage 0 V	nc	not connected
~	Supply Voltage (AC Voltage)	U	Test Input
A	Switching Output (NO)	U	Test Input inverted
Ā	Switching Output (NC)	W	Trigger Input
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input
V̄	Contamination/Error Output (NC)	O	Analog Output
E	Input (analog or digital)	O-	Ground for the Analog Output
T	Teach Input	BZ	Block Discharge
Z	Time Delay (activation)	AMV	Valve Output
S	Shielding	a	Valve Control Output +
RxD	Interface Receive Path	b	Valve Control Output 0 V
TxD	Interface Send Path	SY	Synchronization
RDY	Ready	SY-	Ground for the Synchronization
GND	Ground	E+	Receiver-Line
CL	Clock	S+	Emitter-Line
E/A	Output/Input programmable	±	Grounding
	IO-Link	SnR	Switching Distance Reduction
PoE	Power over Ethernet	Rx+/-	Ethernet Receive Path
IN	Safety Input	Tx+/-	Ethernet Send Path
OSSD	Safety Output	Bus	Interfaces-Bus A(+)/B(-)
Signal	Signal Output	La	Emitted Light disengageable
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation
EN0_RS422	Encoder 0-pulse 0-0 (TTL)	RES	Input confirmation
		EDM	Contactur Monitoring
		EN1_RS422	Encoder A/Ā (TTL)
		EN2_RS422	Encoder B/B̄ (TTL)
		ENa	Encoder A
		ENb	Encoder B
		AMIN	Digital output MIN
		AMAX	Digital output MAX
		AOk	Digital output OK
		SY_in	Synchronization In
		SY_OUT	Synchronization OUT
		OLt	Brightness output
		M	Maintenance
		rsv	reserved
		Wire Colors according to DIN IEC 757	
		BK	Black
		BN	Brown
		RD	Red
		OG	Orange
		YE	Yellow
		GN	Green
		BU	Blue
		VT	Violet
		GY	Grey
		WH	White
		PK	Pink
		GNYE	Green/Yellow

### Ideal Working Distance



a = Working Distance  
 b = Working Range

