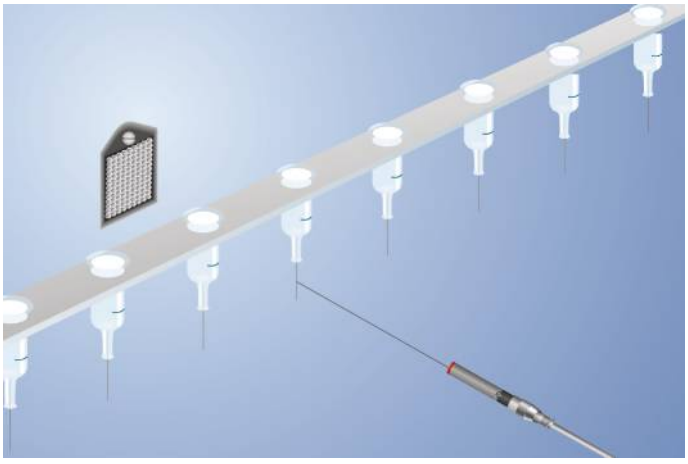
Retro-Reflex Sensor

XO89PA3 LASER

Part Number

- **Smallest recognizable part: 0,1 mm**
- **Spot diameter: 1 mm**
- **Switching frequency: 3 kHz**

A reflector must be used in combination with these sensors. They can be installed in all kinds of industrial environments thanks to ample functional reserve. Even reflective objects can be reliably recognized through the use of polarized light.

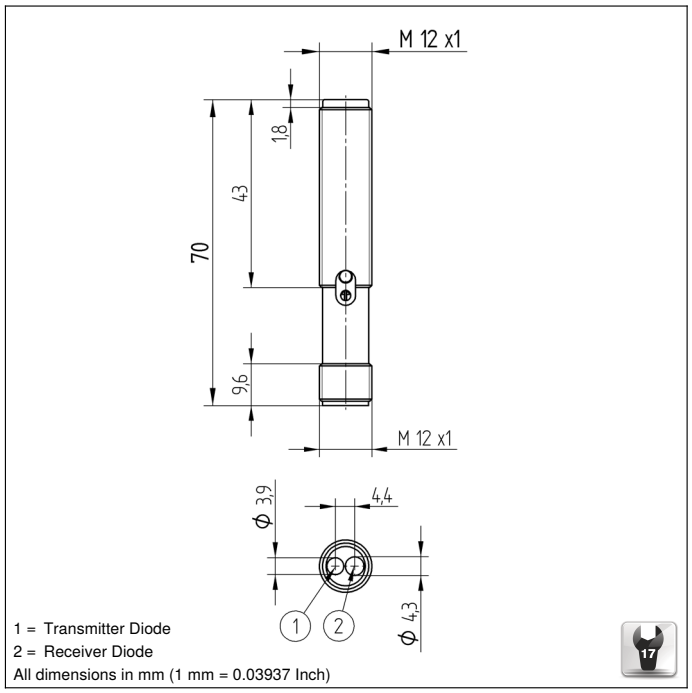


Technical Data

Optical Data	
Range	6000 mm
Reference Reflector/Reflector Foil	RQ100BA
Smallest Recognizable Part	100 µm
Switching Hysteresis	< 15 %
Light Source	Laser (red)
Wavelength	655 nm
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	2
Max. Ambient Light	10000 Lux
Beam Divergence	< 20 mrad
Light Spot Diameter	1 mm
Two-Lens Optic	yes
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 20 mA
Switching Frequency	3 kHz
Response Time	167 µs
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Protection Class	III
FDA Accession Number	0820585-000
Mechanical Data	
Setting Method	Potentiometer
Housing Material	CuZn, nickel-plated
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M12 × 1; 4-pin
PNP NO/NC antivalent	●
Connection Diagram No.	101
Control Panel No.	O3
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	170

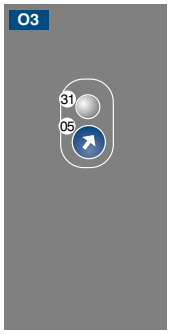
Complementary Products

PNP-NPN Converter BG2V1P-N-2M
Reflector, Reflector Foil

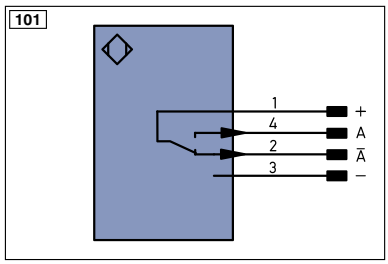


1 = Transmitter Diode
2 = Receiver Diode
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel



05 = Switching Distance Adjuster
31 = Switching Status/Contamination-/Short Circuit Warning



Legend

+	Supply Voltage +	PT	Platinum measuring resistor	$EN_{A\,RS422}$	Encoder A/Ā (TTL)
–	Supply Voltage 0 V	nc	not connected	$EN_{B\,RS422}$	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	EN_A	Encoder A
A	Switching Output (NO)	Ū	Test Input inverted	EN_B	Encoder B
Ā	Switching Output (NC)	W	Trigger Input	A_{MIN}	Digital output MIN
V	Contamination/Error Output (NO)	W–	Ground for the Trigger Input	A_{MAX}	Digital output MAX
V̄	Contamination/Error Output (NC)	O	Analog Output	A_{OK}	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)	A_{MV}	Valve Output	O_{LT}	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
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation	WH	White
$EN_{0\,RS422}$	Encoder 0-pulse 0-0̄ (TTL)	RES	Input confirmation	PK	Pink
		EDM	Contactor Monitoring	GNYE	Green/Yellow

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0,15...6 m	**RR25_M**	0,05...2,6 m
RE18040BA	0,1...2,9 m	**RR25KP**	0,05...1,5 m
RQ84BA	0,25...5,4 m	**RR21_M**	0,05...2,5 m
RR84BA	0,05...4,9 m	**ZRAE02B01**	0,4...2,5 m
RE9538BA	0,05...2 m	**ZRME01B01**	0,4...1 m
RE6151BM	0,05...5,2 m	**ZRME03B01**	0,4...2,5 m
RR50_A	0,03...4,3 m	**ZRMR02K01**	0,4...1,1 m
RE6040BA	0,05...5,2 m	**ZRMS02_01**	0,4...1,4 m
RE8222BA	0,03...2,9 m	**RF505**	0,05...1,4 m
RR34_M	0,05...3 m	**RF508**	0,05...1,3 m
RE3220BM	0,05...2,5 m	**RF258**	0,05...1,3 m
RE6210BM	0,05...2 m	**ZRDF__K01**	0,2...3,8 m