

# Reflex Sensor

## TF88PA3

Part Number



- Adjustable detection range
- Large detection range
- No optical crosstalk with separating web

The transmitter and receiver in these sensors are located in a single housing. The sensor evaluates transmitted light reflected back from the object. The output is switched as soon as an object passes the selected range. Bright objects reflect more light than dark objects, and can thus be recognized from greater distances.

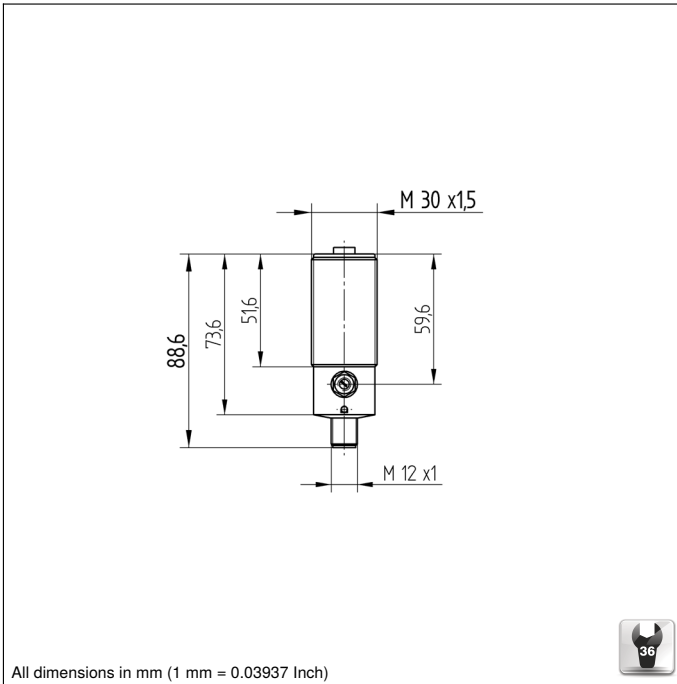


### Technical Data

Optical Data	
Range	2000 mm
Switching Hysteresis	< 15 %
Light Source	Infrared Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Opening Angle	12 °
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (U <sub>b</sub> = 24 V)	< 40 mA
Switching Frequency	150 Hz
Response Time	3300 μs
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 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	Potentiometer
Housing Material	CuZn, nickel-plated
Full Encapsulation	yes
Degree of Protection	IP65
Connection	M12 × 1; 4-pin
PNP NO/NC antivalent	●
Connection Diagram No.	<b>101</b>
Control Panel No.	<b>F2</b>
Suitable Connection Equipment No.	<b>2</b>
Suitable Mounting Technology No.	<b>130</b>

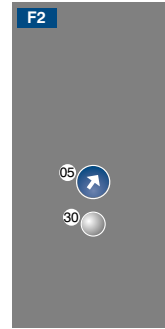
### Complementary Products

PNP-NPN Converter BG2V1P-N-2M

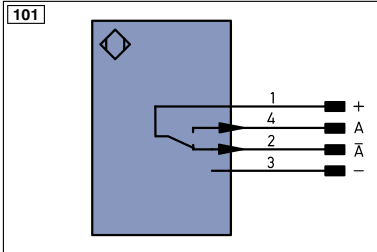


All dimensions in mm (1 mm = 0.03937 Inch)

### Ctrl. Panel



05 = Switching Distance Adjuster  
 30 = Switching Status/Contamination Warning



#### Legend

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

