

# Reflex Sensor

Energetic

## TF88PA3S201

Part Number

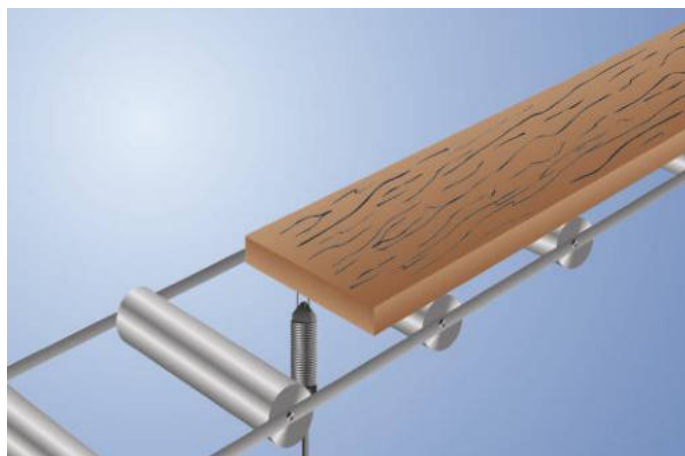


- For applications in dusty and moist environments
- No optical crosstalk

### 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.                      | 101                 |
| Control Panel No.                           | F2                  |
| Suitable Connection Equipment No.           | 2                   |
| Suitable Mounting Technology No.            | 130                 |

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.

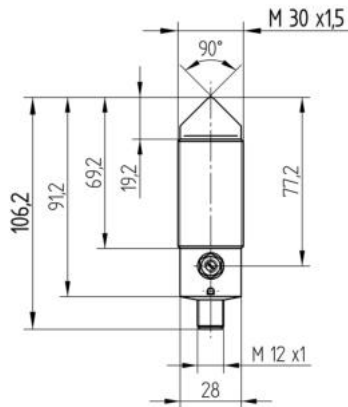


### Complementary Products

PNP-NPN Converter BG2V1P-N-2M

## Ctrl. Panel

F2

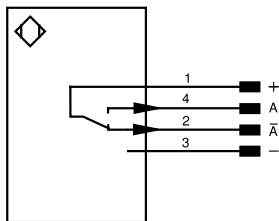


All dimensions in mm (1 mm = 0.03937 Inch)



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

101



| Legend    |                                            |          |                                |                                        |                     |
|-----------|--------------------------------------------|----------|--------------------------------|----------------------------------------|---------------------|
| +         | Supply Voltage +                           | nc       | Not connected                  | ENBRS422                               | Encoder B/B (TTL)   |
| -         | Supply Voltage 0 V                         | U        | Test Input                     | ENA                                    | Encoder A           |
| ~         | Supply Voltage (AC Voltage)                | Ü        | Test Input inverted            | ENB                                    | Encoder B           |
| A         | Switching Output (NO)                      | W        | Trigger Input                  | AMIN                                   | Digital output MIN  |
| Ä         | Switching Output (NC)                      | W-       | Ground for the Trigger Input   | AMAX                                   | Digital output MAX  |
| V         | Contamination/Error Output (NO)            | O        | Analog Output                  | ACK                                    | Digital output OK   |
| V         | 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   | 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               |
| BL_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES      | Input confirmation             | PK                                     | Pink                |
| ENo RS422 | Encoder 0-pulse 0/Ü (TTL)                  | EDM      | Contact Monitoring             | GNYE                                   | Green/Yellow        |
| PT        | Platinum measuring resistor                | ENARS422 | Encoder A/A (TTL)              |                                        |                     |