

# Retro-Reflex Sensor for Transparent Objects

## OPT1012

Part Number

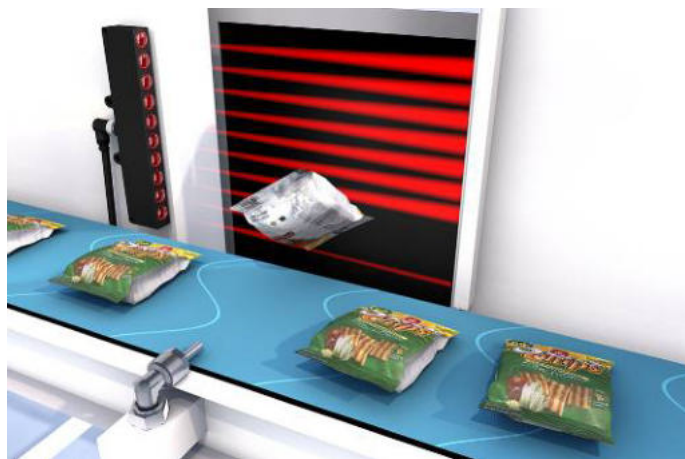


- External teach-in
- Recognition of clear glass
- Red light
- Single-lens optic
- Stainless steel plug (V2A)

### Technical Data

| Optical Data                                |                  |
|---------------------------------------------|------------------|
| Range                                       | 4000 mm          |
| Reference Reflector/Reflector Foil          | 3 × RQ100BA      |
| Clear Glass Recognition                     | yes              |
| Switching Hysteresis                        | < 15 %           |
| Light Source                                | Red Light        |
| Polarization Filter                         | yes              |
| Service Life (T = +25 °C)                   | 100000 h         |
| Max. Ambient Light                          | 10000 Lux        |
| Single-Lens Optic                           | yes              |
| Electrical Data                             |                  |
| Supply Voltage                              | 10...30 V DC     |
| Current Consumption (U <sub>b</sub> = 24 V) | < 70 mA          |
| Switching Frequency                         | 400 Hz           |
| Response Time                               | 1,25 ms          |
| Temperature Drift                           | < 10 %           |
| Temperature Range                           | -25...60 °C      |
| Switching Output Voltage Drop               | < 2,5 V          |
| NPN 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                              | Input            |
| Housing Material                            | Plastic          |
| Full Encapsulation                          | yes              |
| Degree of Protection                        | IP67             |
| Connection                                  | M12 × 1; 4/5-pin |
| NPN NO                                      | ●                |
| Connection Diagram No.                      | 350              |
| Control Panel No.                           | A37              |
| Suitable Connection Equipment No.           | 2                |

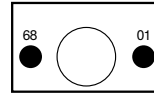
A reflector is required for the operation of retro-reflex sensors. Ten sensors are accommodated in a single housing and are OR-linked to each other. The output is switched as soon as any of the light beams is interrupted, making it possible to monitor a broader field. Even crystal-clear objects, films and sheet products are reliably detected.



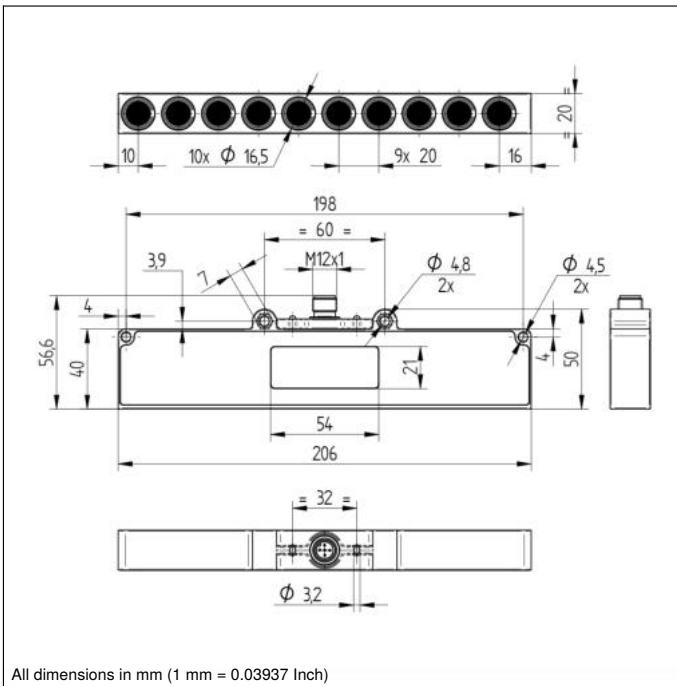
### Complementary Products

Reflector, Reflector Foil

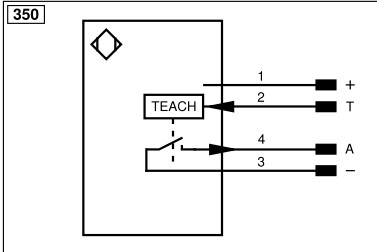
## Ctrl. Panel



01 = Switching Status Indicator  
68 = supply voltage indicator



All dimensions in mm (1 mm = 0.03937 Inch)



| Legend    |                                            |                                        |                                |
|-----------|--------------------------------------------|----------------------------------------|--------------------------------|
| +         | Supply Voltage +                           | nc                                     | Not connected                  |
| -         | Supply Voltage 0 V                         | U                                      | Test Input                     |
| ~         | Supply Voltage (AC Voltage)                | Ů                                      | Test Input inverted            |
| A         | Switching Output (NO)                      | W                                      | Trigger Input                  |
| Ā         | Switching Output (NC)                      | W-                                     | Ground for the Trigger Input   |
| V         | Contamination/Error Output (NO)            | O                                      | Analog Output                  |
| Ȳ         | Contamination/Error Output (NC)            | O-                                     | Ground for the Analog Output   |
| E         | Input (analog or digital)                  | BZ                                     | Block Discharge                |
| T         | Teach Input                                | Amv                                    | Valve Output                   |
| Z         | Time Delay (activation)                    | a                                      | Valve Control Output +         |
| S         | Shielding                                  | b                                      | Valve Control Output 0 V       |
| RxD       | Interface Receive Path                     | SY                                     | Synchronization                |
| TxD       | Interface Send Path                        | SY-                                    | Ground for the Synchronization |
| RDY       | Ready                                      | E+                                     | Receiver-Line                  |
| GND       | Ground                                     | S+                                     | Emitter-Line                   |
| CL        | Clock                                      | ±                                      | Grounding                      |
| E/A       | Output/Input programmable                  | SnR                                    | Switching Distance Reduction   |
| IO-Link   |                                            | Rx+/-                                  | Ethernet Receive Path          |
| PoE       | Power over Ethernet                        | Tx+/-                                  | Ethernet Send Path             |
| IN        | Safety Input                               | Bus                                    | Interfaces-Bus A(+)/B(-)       |
| OSSD      | Safety Output                              | La                                     | Emitted Light disengageable    |
| Signal    | Signal Output                              | Mag                                    | Magnet activation              |
| BL_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES                                    | Input confirmation             |
| ENo RS422 | Encoder 0-pulse 0/0 (TTL)                  | EDM                                    | Contact Monitoring             |
| PT        | Platinum measuring resistor                | ENARs422                               | Encoder A/Ā (TTL)              |
|           |                                            | ENBRs422                               | Encoder B/Ĥ (TTL)              |
|           |                                            | ENA                                    | Encoder A                      |
|           |                                            | ENb                                    | Encoder B                      |
|           |                                            | AMIN                                   | Digital output MIN             |
|           |                                            | AMAX                                   | Digital output MAX             |
|           |                                            | ACK                                    | Digital output OK              |
|           |                                            | SY In                                  | Synchronization In             |
|           |                                            | SY OUT                                 | Synchronization OUT            |
|           |                                            | OLT                                    | Brightness output              |
|           |                                            | M                                      | Maintenance                    |
|           |                                            | rsv                                    | Reserved                       |
|           |                                            | Wire Colors according to DIN IEC 60757 |                                |
|           |                                            | 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                   |

## Feasible reflector distance

Reflector type, mounting distance

|                  |           |                  |           |
|------------------|-----------|------------------|-----------|
| <b>RQ100BA</b>   | 0...4 m   | <b>ZRME03B01</b> | 0...1 m   |
| <b>RE6151BM</b>  | 0...3 m   | <b>RF505</b>     | 0...0,8 m |
| <b>RE6040BA</b>  | 0...3,7 m | <b>ZRAF08K01</b> | 0...0,8 m |
| <b>Z90R006</b>   | 0...1,4 m | <b>ZRDF10K01</b> | 0...1,5 m |
| <b>ZRAE02B01</b> | 0...0,5 m |                  |           |

