



## Retroreflective sensor GLV18-55-G/25/102/159



- Efficient Line in a short M18 plastic housing for standard applications
- Two devices in one: choice of either clear object detection or retroreflective operating mode with a large detection range
- 4 LEDs indicator for 360° visibility
- Optimized potentiometer design for a clear control button layout in the application
- DC voltage version

Retroreflective sensor for glass detection, M18 threaded housing design, plastic housing, front optical face, 2.5 m detection range, red light, light on, DC version, NPN output, M12 plug



### Function

The GLV/GLK18 series sensors help improve the efficiency of machines and systems. The design of the M18 plastic housing, the connection technology, and sensor properties are highly standardized. Concentrating on the key sensor requirements has produced a robust and reliable product series for DC and AC/DC voltage systems without any over-engineering. The mounting set included in the scope of delivery and the optimized potentiometer design ensure fast assembly and easy configuration.

### Application

Packaging industry:

- Presence checks, track loading, completeness checks, stack height control

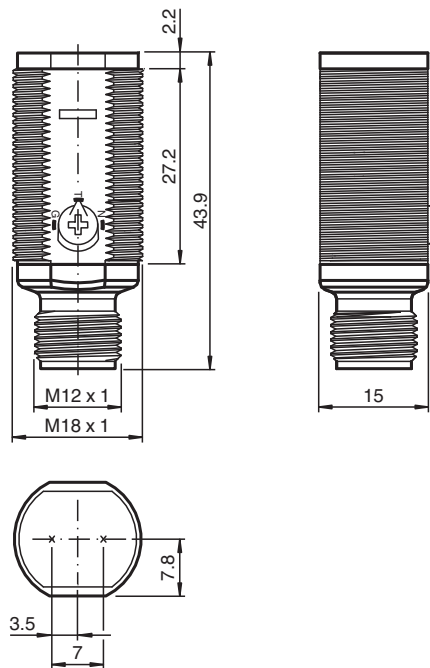
Material handling:

- Presence checks, target sensor, profile checks, trigger sensor

Automatic doors, gates and access systems, elevator:

- Secure detection for automatic door and gate systems
- Monitoring function in turnstiles
- Closing edge monitoring in elevators

Dimensions



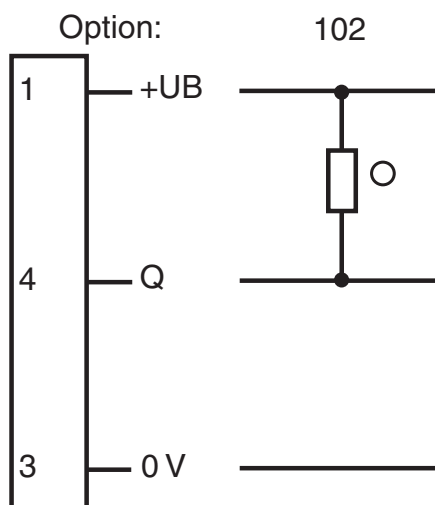
Technical Data

| General specifications               |                                                                                                                                                                                                                                                                                                            |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Effective detection range            | 0 ... 2.5 m in glass mode;<br>0 ... 5 m in normal mode                                                                                                                                                                                                                                                     |
| Reflector distance                   | 0 ... 2.5 m in glass mode;<br>0 ... 5 m in normal mode                                                                                                                                                                                                                                                     |
| Threshold detection range            | 6.5 m                                                                                                                                                                                                                                                                                                      |
| Reference target                     | reflector C110-2                                                                                                                                                                                                                                                                                           |
| Light source                         | LED                                                                                                                                                                                                                                                                                                        |
| Light type                           | modulated visible red light , 640 nm                                                                                                                                                                                                                                                                       |
| Polarization filter                  | yes                                                                                                                                                                                                                                                                                                        |
| Diameter of the light spot           | approx. 370 mm at 6.5 m ; 50 mm at 1 m                                                                                                                                                                                                                                                                     |
| Opening angle                        | approx. 2 °                                                                                                                                                                                                                                                                                                |
| Optical face                         | frontal                                                                                                                                                                                                                                                                                                    |
| Ambient light limit                  | 30000 Lux                                                                                                                                                                                                                                                                                                  |
| Functional safety related parameters |                                                                                                                                                                                                                                                                                                            |
| MTTF <sub>d</sub>                    | 1260 a                                                                                                                                                                                                                                                                                                     |
| Mission Time (T <sub>M</sub> )       | 20 a                                                                                                                                                                                                                                                                                                       |
| Diagnostic Coverage (DC)             | 0 %                                                                                                                                                                                                                                                                                                        |
| Indicators/operating means           |                                                                                                                                                                                                                                                                                                            |
| Operation indicator                  | LED green, statically lit Power on,<br>blinking with 2 Hz or 4 Hz in Teach-In mode                                                                                                                                                                                                                         |
| Function indicator                   | LED yellow: In retro-reflective mode: Lights up when light beam is free; flashing if<br>signal is short of function reserve, off when light beam is interrupted In glass-mode:<br>Lights up when light beam is free; flashing if further compensation is impossible; off<br>when light beam is interrupted |
| Control elements                     | potentiometer for Teach-In and Mode selection                                                                                                                                                                                                                                                              |

## Technical Data

|                                   |       |                                                                                                |
|-----------------------------------|-------|------------------------------------------------------------------------------------------------|
| Contrast detection levels         |       | 18 % - clear glass bottles                                                                     |
| <b>Electrical specifications</b>  |       |                                                                                                |
| Operating voltage                 | $U_B$ | 10 ... 30 V DC                                                                                 |
| No-load supply current            | $I_0$ | < 15 mA                                                                                        |
| <b>Output</b>                     |       |                                                                                                |
| Switching type                    |       | light-on                                                                                       |
| Signal output                     |       | 1 NPN, short-circuit protected open collector                                                  |
| Switching voltage                 |       | max. 30 V DC                                                                                   |
| Switching current                 |       | max. 100 mA                                                                                    |
| Voltage drop                      | $U_d$ | $\leq 1.5$ V DC                                                                                |
| Switching frequency               | $f$   | 1 kHz                                                                                          |
| Response time                     |       | $\leq 0.5$ ms                                                                                  |
| <b>Conformity</b>                 |       |                                                                                                |
| Product standard                  |       | EN 60947-5-2                                                                                   |
| <b>Approvals and certificates</b> |       |                                                                                                |
| EAC conformity                    |       | TR CU 020/2011                                                                                 |
| Protection class                  |       | II, Rated insulation voltage $\leq 50$ V AC with pollution degree 1-2 according to IEC 60664-1 |
| UL approval                       |       | cULus Listed, Class 2 Power Source                                                             |
| CCC approval                      |       | CCC approval / marking not required for products rated $\leq 36$ V                             |
| <b>Ambient conditions</b>         |       |                                                                                                |
| Ambient temperature               |       | -25 ... 60 °C (-13 ... 140 °F)                                                                 |
| Storage temperature               |       | -40 ... 70 °C (-40 ... 158 °F)                                                                 |
| <b>Mechanical specifications</b>  |       |                                                                                                |
| Degree of protection              |       | IP67                                                                                           |
| Connection                        |       | 3-pin, M12 x 1 connector                                                                       |
| <b>Material</b>                   |       |                                                                                                |
| Housing                           |       | PC                                                                                             |
| Optical face                      |       | PMMA                                                                                           |
| Connector                         |       | plastic                                                                                        |
| Mass                              |       | approx. 10 g                                                                                   |

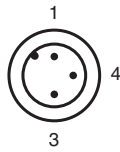
## Connection Assignment



## Connection

Connect the device as set out in the connection diagram.

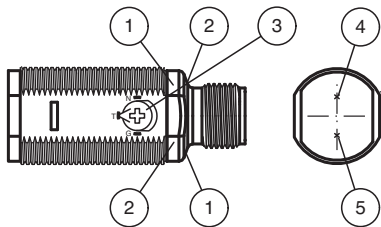
- = Light on
- = Dark on



Wire colors in accordance with EN 60947-5-2

|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

Assembly



|   |                                           |        |
|---|-------------------------------------------|--------|
| 1 | Operating display                         | green  |
| 2 | Signal display                            | yellow |
| 3 | Potentiometer Teach-In and Mode selection |        |
|   | N Normal mode                             |        |
|   | T Teach-In Mode                           |        |
|   | G Glas mode                               |        |
| 4 | Emitter                                   |        |
| 5 | Receiver                                  |        |

Installation

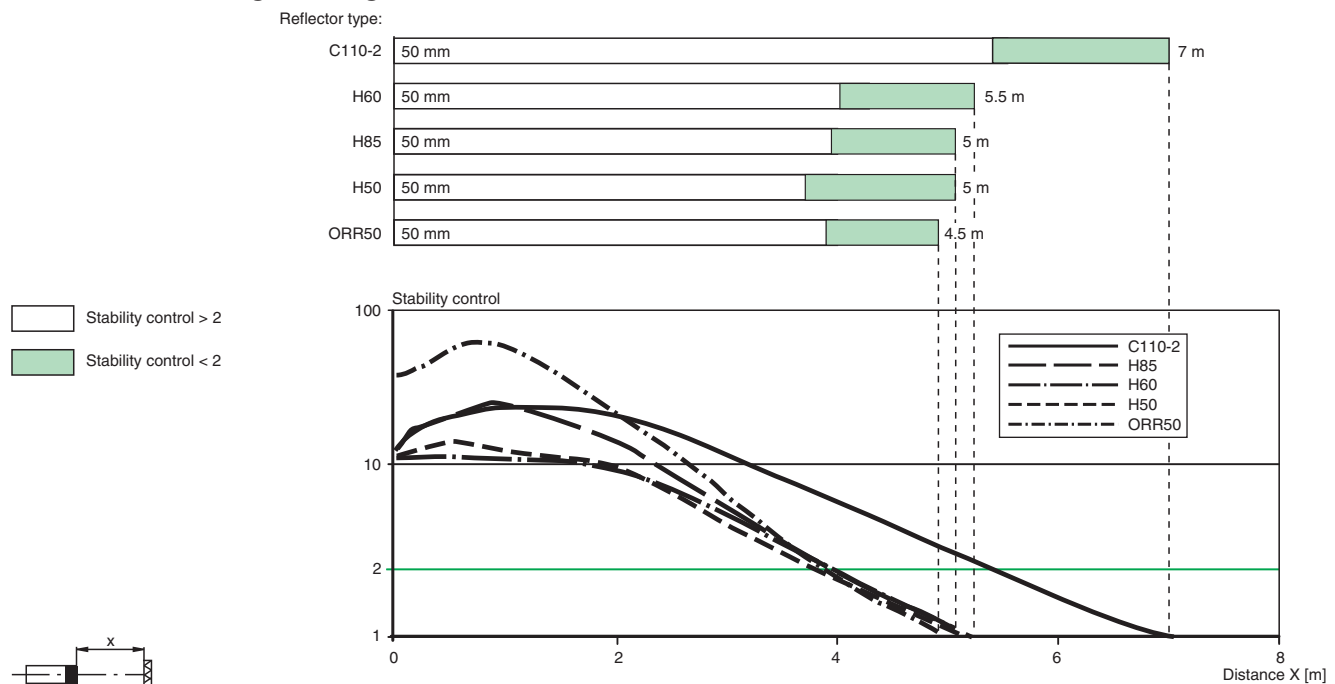
**Mounting**  
**Sensor:** The sensors have an M18 x 1 threaded housing design and nuts or a mounting ring. The sensors can be mounted directly through a simple Ø 18 mm hole, or using a mounting bracket. Mounting brackets are available as accessories. Pay careful attention to the position and visibility of the programming interface or signal indicators during mounting.

**Aligning the sensor:** Apply the operating voltage to the sensor. The operating indicator lights up green. The sensor is automatically set to maximum sensitivity (default setting), or to the last teach-in setting. Mount a suitable reflector opposite the light barrier.

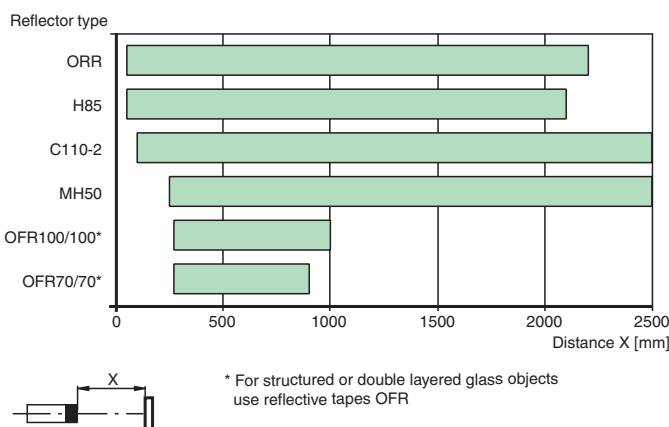
**Switch position "N":** Align the sensor with the reflector so that the yellow signal indicator lights up continuously.

## Characteristic Curve

### Relative received light strength in normal mode



### Relative received light strength in glass mode



## System Description

### System Description

A retroreflective sensor contains emitters and receivers integrated in a single housing. The emitted light is reflected back to the receiver by a reflector. When the light beam is interrupted by an object, the switching function is triggered.

This sensor has two operating modes:

- **Normal "N"**: In "N" mode, the retroreflective sensor has a long detection range.
- **Glass detection "G"**: Operating mode "G" is used specifically for glass detection. The switching threshold is automatically adjusted in the event of contamination.

## Commissioning

### Switch Position "N" (Normal Operation)

The switch is in "N" position. The yellow signal indicator lights up continuously when the light beam is clear.

Position the object in the beam path of the sensor.

When the object is detected, the yellow signal indicator goes out. After the object has been removed, the yellow signal indicator lights up again continuously.

### Switch Position "T" (Teach-In Mode)

The yellow signal indicator lights up continuously when the light beam is clear.

Set the switch to the "T" position when the light beam is free and wait approx. 2 seconds until the yellow and green signal indicators flash (2.5 Hz).

For clear glass detection mode, turn the switch to switch position "G".

**Teach-in successful:** The green and yellow signal indicators light up. Contrast detection is activated. The device is ready for operation. Place the object to be detected into the beam. When the object is detected, the yellow signal indicator goes out.

**Teach-in unsuccessful:** The green and yellow signal indicators flash quickly in alternation (approx. 8 Hz) for approx. 5 seconds. The sensor is then set to maximum sensitivity. Repeat the teach-in process.

## Maintenance

### Maintenance

**Cleaning:** If the transmission reception deteriorates, e.g., due to dirt, the yellow signal indicator flashes quickly (4 Hz). Clean the optical interfaces of the sensor (e.g., lenses) at regular intervals. The sensor adjusts itself automatically after cleaning. This may take up to 4 seconds in clear glass detection mode.

**Maintenance:** Check the mounting fittings and electrical connections regularly.

## Accessories

|                                                                                     |                     |                                                                                   |
|-------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------|
|    | <b>CPZ18B03</b>     | Mounting Bracket with swivel nut                                                  |
|    | <b>BF 18</b>        | Mounting flange, 18 mm                                                            |
|    | <b>BF 18-F</b>      | Plastic mounting adapter, 18 mm                                                   |
|    | <b>BF 5-30</b>      | Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm |
|    | <b>REF-C110-2</b>   | Reflector, round ø 84 mm, central mounting hole                                   |
|    | <b>REF-H60</b>      | Reflector, rectangular 40.3 mm x 59.9 mm, mounting holes                          |
|   | <b>REF-H50</b>      | Reflector, rectangular 51 mm x 61 mm, mounting holes, fixing strap                |
|  | <b>V11-G-2M-PUR</b> | Female cordset single-ended M12 straight A-coded, 3-pin, PUR cable grey           |