



Photoelectric sensors  
Photoelectric retro-reflective sensor, Product  
group W160

WL160-F330



**Model Name** > [WL160-F330](#)  
**Part No.** > [6022771](#)



- Horizontal models
- Polarization filter, consequently reliable detection of objects with shiny surfaces
- Red light as alignment aid
- Sensitivity adjustable
- LED indicator: operating reserve



#### Product features

|                             |                                    |
|-----------------------------|------------------------------------|
| Sensing range min ... max:: | 0.01 m ... 4.5 m, 0.01 m ... 6.5 m |
| Light source::              | LED                                |
| Type of light:              | Red light                          |
| Light spot diameter:        | Approx. 300 mm at 3 m distance     |
| Laser:                      | Red light                          |
| Sensing range max.:         | 0.01 m ... 4.5 m, 0.01 m ... 6.5 m |
| Relating to:                | Reflector PL80A                    |
| Sensitivity adjustment:     | Potentiometer, 2 rotations         |
| Wave length:                | 680 nm                             |

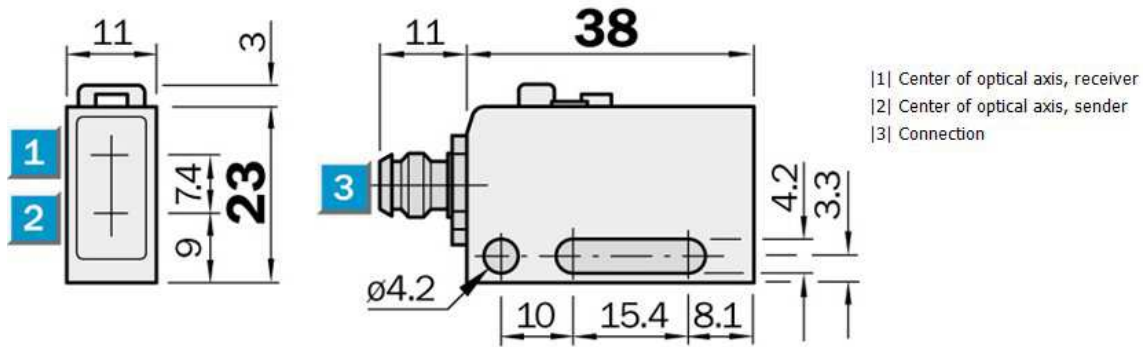
#### Technical data

|                                              |                                                                                                                                                       |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Design::                                     | Rectangular                                                                                                                                           |
| Dimensions (W x H x D):                      | 11 mm x 23 mm x 38 mm                                                                                                                                 |
| Supply voltage min ... max::                 | DC 10 ... 30 V <sup>1)</sup>                                                                                                                          |
| Ripple:                                      | ± 10 %                                                                                                                                                |
| Power consumption:                           | ≤ 25 mA                                                                                                                                               |
| Output type:                                 | PNP: open collector: Q                                                                                                                                |
| Switching mode:                              | Light/dark switching via rotary switch                                                                                                                |
| Output current max.:                         | 100 mA                                                                                                                                                |
| Response time::                              | ≤ 0.5 ms                                                                                                                                              |
| Switching frequency:                         | 1,000 Hz                                                                                                                                              |
| Connection type:                             | Connector, M8, 3-pin                                                                                                                                  |
| Circuit protection:                          | V connections reverse-polarity protected/In-/outputs short-circuit protected/Interference suppression/Outputs overcurrent and short-circuit protected |
| Enclosure rating::                           | IP 67: EN 60529, IP 69K: EN 40050                                                                                                                     |
| Ambient operation temperature, min ... max:: | -25 °C ... +55 °C                                                                                                                                     |
| Ambient storage temperature, min ... max:    | -40 °C ... +70 °C                                                                                                                                     |
| Weight:                                      | Ca. 20 g                                                                                                                                              |
| Housing material:                            | PBT                                                                                                                                                   |

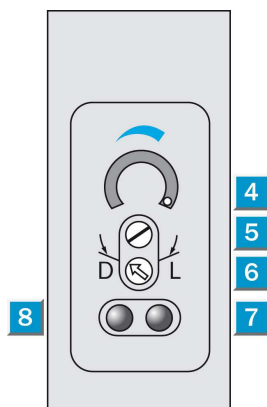
|                              |                          |
|------------------------------|--------------------------|
| Signal voltage PNP HIGH/LOW: | Vs - 1.8 V / approx. 0 V |
| Angle of dispersion:         | Ca. 5.8 °                |
| Series:                      | W160                     |
| Optics material:             | PMMA                     |
| Housing design:              | Horizontal               |

1) Limit values, reverse-polarity protected operation in short-circuit protected network max. 8 A

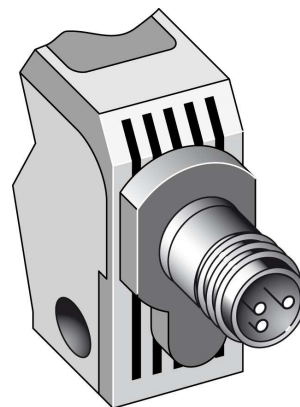
## Dimensional drawing



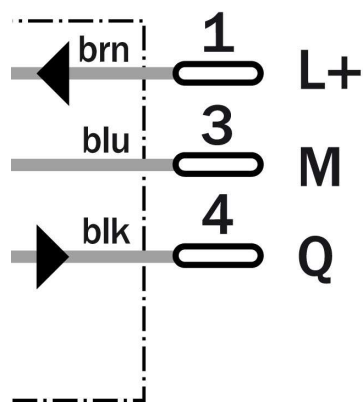
## Adjustment possible



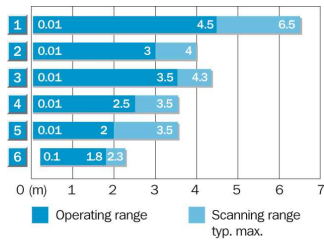
## Connection type



Connection diagram

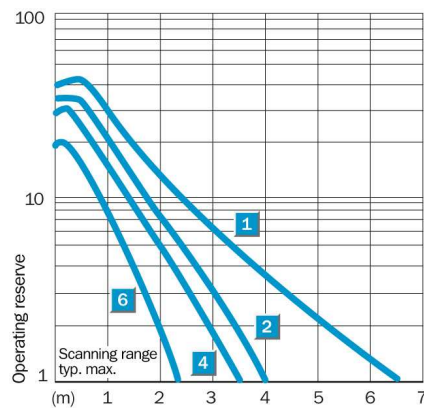


Sensing range diagram



| Reflector type                  | Operating range               |
|---------------------------------|-------------------------------|
| 1 PL80A                         | 0.01 ... 4.5 m                |
| 2 P250                          | 0.01 ... 3 m                  |
| 3 PL50A/PL40A                   | 0.01 ... 3.5 m                |
| 4 PL30A/PL31A                   | 0.01 ... 2.5 m                |
| 5 PL20A                         | 0.01 ... 2 m                  |
| 6 Reflective tape Diamond Grade | 0.1 ... 1.8 m (100 x 100 mm²) |

Characteristic curve



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