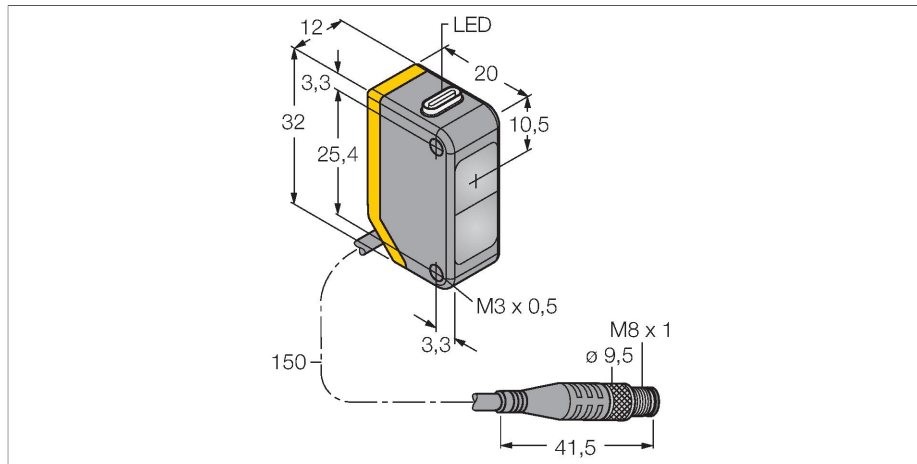


# Q20PFF150Q

## Photoelectric Sensor – Diffuse Mode Sensor with Fixed-Field Background Suppression



### Technical data

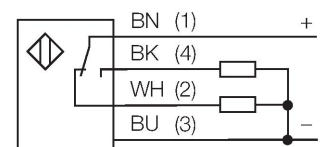
|                              |                                           |
|------------------------------|-------------------------------------------|
| Type                         | Q20PFF150Q                                |
| ID                           | 3078221                                   |
| <b>Optical data</b>          |                                           |
| Function                     | Proximity switch                          |
| Operating mode               | Background suppression, non-adjustable    |
| Light type                   | Red                                       |
| Wavelength                   | 655 nm                                    |
| Range                        | 0...150 mm                                |
| <b>Electrical data</b>       |                                           |
| Operating voltage            | 10...30 VDC                               |
| Residual ripple              | < 10 % U <sub>ss</sub>                    |
| DC rated operational current | ≤ 100 mA                                  |
| No-load current              | ≤ 18 mA                                   |
| Reverse polarity protection  | yes                                       |
| Output function              | Complementary contact, PNP                |
| Switching frequency          | ≤ 600 Hz                                  |
| Readiness delay              | ≤ 100 ms                                  |
| Response time typical        | < 0.8 ms                                  |
| <b>Mechanical data</b>       |                                           |
| Design                       | Rectangular, Q20                          |
| Dimensions                   | 20 x 12 x 32 mm                           |
| Housing material             | Plastic, Thermoplastic material           |
| Lens                         | plastic, Acrylic                          |
| Electrical connection        | Cable with connector, M8 x 1, 0.15 m, PVC |
| Number of cores              | 4                                         |



### Features

- Cable with male end, PVC, M8 x 1, 4-pin, 150 mm
- Protection class IP67
- LED all-round visible
- Operating voltage: 10...30 VDC
- PNP switching output, changeover

### Wiring diagram



### Functional principle

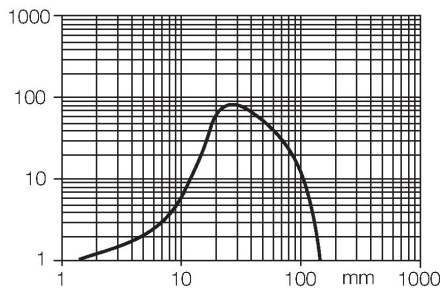
Diffuse mode sensors with background suppression operate with a single emitter and several receiver elements. The target position and the photoelectric structure of the sensor determine which receiver element gets the most light. The sensor electronics determine whether the reflecting object is within or outside the measuring range. These sensors come with a fixed cut-off point.

Excess gain curve  
Excess gain in relation to the distance

Technical data

|                        |                       |
|------------------------|-----------------------|
| Ambient temperature    | -20...+60 °C          |
| Protection class       | IP67                  |
| Power-on indication    | LED, Green            |
| Switching state        | LED, Yellow           |
| Error indication       | LED, green, Flashing  |
| Excess gain indication | LED, yellow, flashing |
| Tests/approvals        |                       |
| Approvals              | CE                    |

Excess Gain Curve



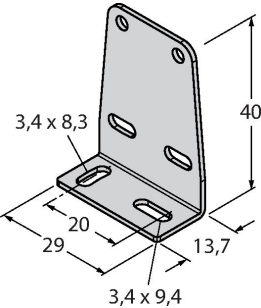
Accessories

SMBQ20H 3079041



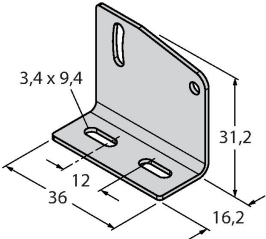
Mounting bracket, stainless steel, horizontally mounted, for Q20

SMBQ20L 3079040



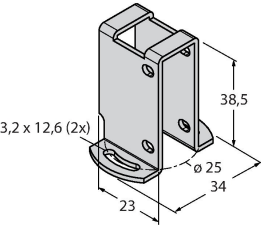
Mounting bracket, stainless steel, rectangular, for Q20

SMBQ20LV 3079042



Mounting bracket, stainless steel, rectangular, for Q20

SMBQ20U 3079043



Protective housing, stainless steel, for Q20

Accessories

| Dimension drawing                                                                                                                                                                                                                                                                                         | Type        | ID      |                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Dimension drawing of the PKW4M-2/TEL connection cable. It is a female M8, angled, 4-pin cable. Dimensions: 16.5 x 23.5 x 50 mm. Cable length: 2 m. Sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see <a href="http://www.turck.com">www.turck.com</a>.</p> | PKW4M-2/TEL | 6625067 | Connection cable, female M8, angled, 4-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see <a href="http://www.turck.com">www.turck.com</a>   |
| <p>Dimension drawing of the PKG4M-2/TEL connection cable. It is a female M8, straight, 4-pin cable. Dimensions: 33.5 x 50 mm. Cable length: 2 m. Sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see <a href="http://www.turck.com">www.turck.com</a>.</p>      | PKG4M-2/TEL | 6625061 | Connection cable, female M8, straight, 4-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see <a href="http://www.turck.com">www.turck.com</a> |