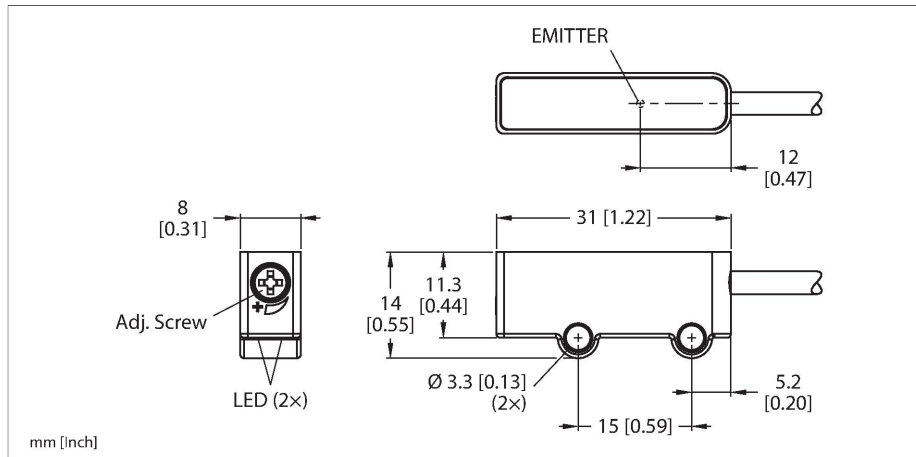


# Q2XKLAF2IR-Q

## Photoelectric Sensor – Diffuse-Mode Sensor With Switching Output and IO-Link



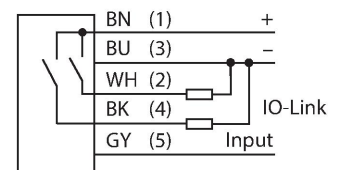
### Technical data

|                                  |                                    |
|----------------------------------|------------------------------------|
| Type                             | Q2XKLAF2IR-Q                       |
| ID                               | 3812837                            |
| Optical data                     |                                    |
| Function                         | Proximity switch                   |
| Operating mode                   | Background suppression, adjustable |
| Light type                       | IR                                 |
| Wavelength                       | 940 nm                             |
| Range                            | 20...2000 mm                       |
| Electrical data                  |                                    |
| Operating voltage $U_B$          | 10...30 VDC                        |
| Residual ripple                  | < 10 % $U_{ss}$                    |
| DC rated operating current $I_o$ | ≤ 16 mA                            |
| Reverse polarity protection      | yes                                |
| Communication protocol           | IO-Link                            |
| Output function                  | NO/NC, PNP                         |
| Readiness delay                  | ≤ 120 ms                           |
| Response time typical            | < 0.85 ms                          |
| Setting option                   | Potentiometer                      |
| IO-Link                          |                                    |
| IO-Link specification            | V 1.1                              |
| IO-Link port type                | Class A                            |
| Communication mode               | COM 2 (38.4 kBaud)                 |
| Process data width               | 16 bit                             |
| Frame type                       | Type_2_2                           |
| Minimum cycle time               | 2 ms                               |
| Function pin 4                   | IO-Link                            |

### Features

- Miniature sensor with slim housing for confined spaces
- Protection class IP67
- Connection via 150-mm PVC cable with M8 × 1 male connector, 4-pin
- Range: 2000 mm
- Crosstalk protection
- Operating voltage: 12...30 VDC
- Output 1: PNP switching output with IO-Link communication
- Output 2: PNP switching output, alarm output or Pulse Frequency Modulation (PFM)
- Transmission of process value and parametrization via IO-link

### Wiring diagram



### Functional principle

Diffuse-mode sensors with background suppression operate with a single emitter and several receiver elements. The position of the object to be detected and the optical structure of the sensor dictate which receiver element gets the most light. The sensor electronics

Technical data

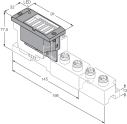
|                            |                                   |
|----------------------------|-----------------------------------|
| Function Pin 2             | DI                                |
| Maximum cable length       | 20 m                              |
| Profile support            | Smart Sensor Profile              |
| Included in the SIDI GSDML | Yes                               |
| Mechanical data            |                                   |
| Design                     | Rectangular, Q2X                  |
| Dimensions                 | 14 x 31 mm                        |
| Housing material           | Plastic, PC<br>ABS                |
| Lens                       | acrylic, Acrylic                  |
| Electrical connection      | Cable with connector, M8 × 1, PVC |
| Number of cores            | 4                                 |
| Ambient temperature        | -25...+50 °C                      |
| Relative humidity          | 0...95 %                          |
| Protection class           | IP67                              |
| Special features           | Miniature<br>Crosstalk protection |
| Power-on indication        | LED, Green                        |
| Switching state            | LED, Yellow                       |
| Excess gain indication     | LED, yellow, flashing             |
| Tests/approvals            |                                   |
| Approvals                  | CE, cURus                         |

determine whether the reflecting object is within or outside the detection range. The sensors are available with an adjustable or a fixed cut-off point.

Accessories

|                                                                               |         |                                                                                                 |         |
|-------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------|---------|
| SMBQ2XB                                                                       | 3812494 | SMBQ2XA                                                                                         | 3812493 |
| Mounting bracket, stainless steel, for Q2X design, L-shaped for wall mounting |         | Mounting bracket, stainless steel, for Q2X design, L-shaped for mounting on horizontal surfaces |         |

Accessories

| Dimension drawing                                                                   | Type           | ID      |                                                                                                                                   |
|-------------------------------------------------------------------------------------|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------|
|  | BL67-4IOL      | 6827386 | 4-channel IO-Link Master module for the modular BL67 I/O-system                                                                   |
|  | BL20-E-4IOL    | 6827385 | IO-Link master module for the modular BL20 I/O system, 4-channel                                                                  |
|  | USB-2-IOL-0002 | 6825482 | IO-Link Master with integrated USB port                                                                                           |
|  | TBIL-M1-16DXP  | 6814102 | 16-channel I/O-hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel) |

| Dimension drawing                                                                 | Type         | ID      |                                                                                                        |
|-----------------------------------------------------------------------------------|--------------|---------|--------------------------------------------------------------------------------------------------------|
|  | TBEN-S2-4IOL | 6814024 | Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A |