

# FT 10-RF

Photoelectric proximity sensor with background suppression, fixed focus



## PRODUCT HIGHLIGHTS

- Sub-miniature sensor with precise fixed background suppression
- Economical multi-purpose sensor
- Reliable switching behaviour even with varying object surfaces and colours
- Tamper-proof sensor design – no misalignment possible
- Simple mounting and adjustment through innovative dovetail clamp mounting

| Optical data                       |                                                                                  | Functions                      |                                            |
|------------------------------------|----------------------------------------------------------------------------------|--------------------------------|--------------------------------------------|
| Scanning distance                  | 2 ... 15 mm <sup>1</sup><br>2 ... 30 mm <sup>1</sup><br>2 ... 50 mm <sup>1</sup> | Indicator LED, green           | Operating voltage indicator                |
| Used light                         | LED, red, 650 nm                                                                 | Indicator LED, yellow          | Switching output indicator                 |
| Light spot size                    | See diagram                                                                      | Adjustment possibilities       | N.O. / N.C. via control input <sup>3</sup> |
| Electrical data                    |                                                                                  | Mechanical data                |                                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>2</sup>                                                      | Dimensions                     | 21,1 × 14,6 × 8 mm <sup>3</sup>            |
| No-load current, I <sub>0</sub>    | ≤ 20 mA                                                                          | Enclosure rating               | IP 67 <sup>4</sup>                         |
| Output current, I <sub>e</sub>     | ≤ 50 mA                                                                          | Material, housing              | PUR                                        |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q)       | Material, front screen         | PMMA                                       |
| Protection class                   | 2                                                                                | Type of connection             | See Selection Table                        |
| Power On Delay                     | < 300 ms                                                                         | Ambient temperature: operation | -20 ... +60 °C                             |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                  | Ambient temperature: storage   | -20 ... +80 °C                             |
| Output function                    | N.O. / N.C.                                                                      | Weight (cable device)          | approx. 22 g                               |
| Switching frequency, f (ti/tp 1:1) | ≤ 1000 Hz                                                                        | Weight (pigtail)               | approx. 10 g                               |
| Response time                      | 500 µs                                                                           |                                |                                            |
| Control input, IN <sup>3</sup>     | +U <sub>B</sub> = N.C.<br>-U <sub>B</sub> / Open = N.O.                          |                                |                                            |

<sup>1</sup> Reference material white, 90 % reflectivity

<sup>2</sup> max. 10 % ripple within U<sub>B</sub>, ~ 50 Hz / 100 Hz

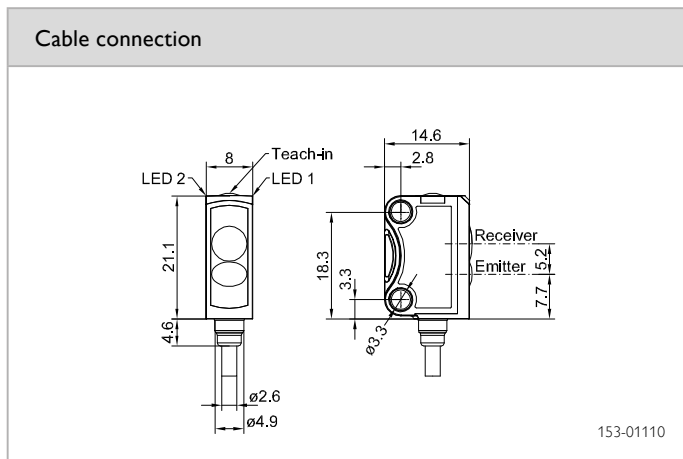
<sup>3</sup> only 4-pin design

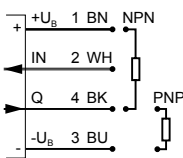
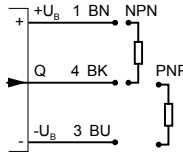
<sup>4</sup> with connected IP 67 plug

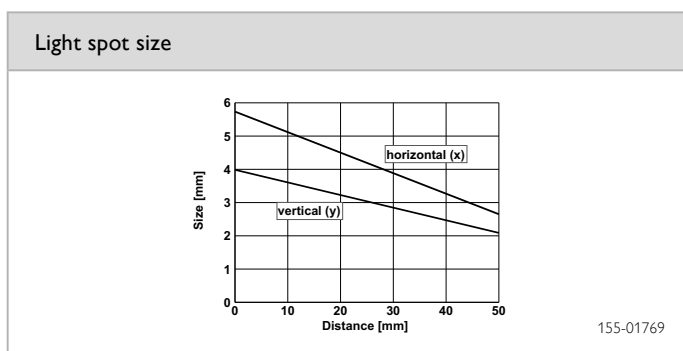
| Scanning distance        | Switching output | Type of connection                  | Part number      | Article number |
|--------------------------|------------------|-------------------------------------|------------------|----------------|
| 2 ... 15 mm <sup>1</sup> | PNP              | Cable, 2 m, 4-wire                  | FT 10-RF1-PS-K4  | 600-11008      |
| 2 ... 15 mm <sup>1</sup> | NPN              | Cable, 2 m, 4-wire                  | FT 10-RF1-NS-K4  | 600-11011      |
| 2 ... 30 mm <sup>1</sup> | PNP              | Cable, 2 m, 4-wire                  | FT 10-RF2-PS-K4  | 600-11014      |
| 2 ... 30 mm <sup>1</sup> | NPN              | Cable, 2 m, 4-wire                  | FT 10-RF2-NS-K4  | 600-11017      |
| 2 ... 50 mm <sup>1</sup> | PNP              | Cable, 2 m, 4-wire                  | FT 10-RF3-PS-K4  | 600-11020      |
| 2 ... 50 mm <sup>1</sup> | NPN              | Cable, 2 m, 4-wire                  | FT 10-RF3-NS-K4  | 600-11023      |
| 2 ... 15 mm <sup>1</sup> | PNP              | Pigtail, 200 mm with M8 plug, 4-pin | FT 10-RF1-PS-KM4 | 600-11009      |
| 2 ... 15 mm <sup>1</sup> | NPN              | Pigtail, 200 mm with M8 plug, 4-pin | FT 10-RF1-NS-KM4 | 600-11012      |
| 2 ... 30 mm <sup>1</sup> | PNP              | Pigtail, 200 mm with M8 plug, 4-pin | FT 10-RF2-PS-KM4 | 600-11015      |
| 2 ... 30 mm <sup>1</sup> | NPN              | Pigtail, 200 mm with M8 plug, 4-pin | FT 10-RF2-NS-KM4 | 600-11018      |
| 2 ... 50 mm <sup>1</sup> | PNP              | Pigtail, 200 mm with M8 plug, 4-pin | FT 10-RF3-PS-KM4 | 600-11021      |
| 2 ... 50 mm <sup>1</sup> | NPN              | Pigtail, 200 mm with M8 plug, 4-pin | FT 10-RF3-NS-KM4 | 600-11024      |
| 2 ... 15 mm <sup>1</sup> | PNP              | Pigtail, 200 mm with M8 plug, 3-pin | FT 10-RF1-PS-KM3 | 600-11010      |
| 2 ... 15 mm <sup>1</sup> | NPN              | Pigtail, 200 mm with M8 plug, 3-pin | FT 10-RF1-NS-KM3 | 600-11013      |

| Scanning distance        | Switching output | Type of connection                  | Part number      | Article number |
|--------------------------|------------------|-------------------------------------|------------------|----------------|
| 2 ... 30 mm <sup>1</sup> | PNP              | Pigtail, 200 mm with M8 plug, 3-pin | FT 10-RF2-PS-KM3 | 600-11016      |
| 2 ... 30 mm <sup>1</sup> | NPN              | Pigtail, 200 mm with M8 plug, 3-pin | FT 10-RF2-NS-KM3 | 600-11019      |
| 2 ... 50 mm <sup>1</sup> | PNP              | Pigtail, 200 mm with M8 plug, 3-pin | FT 10-RF3-PS-KM3 | 600-11022      |
| 2 ... 50 mm <sup>1</sup> | NPN              | Pigtail, 200 mm with M8 plug, 3-pin | FT 10-RF3-NS-KM3 | 600-11025      |

Including dovetail clamp mounting MBD F 10 for all types



| Connection, 4-pin                                                                                    | Connection, 3-pin                                                                                      |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|  <p>154-00312</p> |  <p>154-00311</p> |



| Reference material | Detection range |             |             | Accessories       |              |
|--------------------|-----------------|-------------|-------------|-------------------|--------------|
|                    | FT 10-RF1       | FT 10-RF2   | FT 10-RF3   | Connection cables | From page 30 |
| white (90 %)       | 2 ... 15 mm     | 2 ... 30 mm | 2 ... 50 mm | Brackets          |              |
| grey (18 %)        | 3 ... 15 mm     | 4 ... 30 mm | 5 ... 50 mm |                   |              |
| black (6 %)        | 4 ... 15 mm     | 5 ... 30 mm | 7 ... 50 mm |                   |              |