



Diffuse reflective sensor,  $S_n=225\text{mm}$ , 4L, 10-30VDC, NPN, PNP, M18, insulated material, M12

**Part no.** 13103RQD07  
**Catalog No.** 135601  
**Alternate Catalog No.** 13103RQD07

## Delivery program

|                           |       |    |   |
|---------------------------|-------|----|---|
| Basic function            |       |    | Optical sensors   |
| Product range             |       |    | Comet Series  |
| For connection of:        |       |    | Plug-in connection M12 x 1                                    |
| Design (outer dimensions) |       | mm | M18 x 1   |
| Rated operational voltage | $U_e$ |    | 10 - 30 V DC  |
| Rated switching distance  | $S_n$ | mm | 225   |
| Description               |       |    | Beam: right-angled with background suppression (Perfect Prox) |
| Connection                |       |    | 4-wire  |
| Function                  |       |    | Reflected-light beam  |
| Type of light             |       |    | Infra-red   |
| Material                  |       |    | Insulated material  |
| Switching type            |       |    | NPN<br>PNP  |
| Switching principle       |       |    | Adjustable bright/dark switching                              |

### Information relevant for export to North America

Product Standards UL 508; CSA-C22.2 No. 14; IEC60947-5-2; CE marking

UL File No. E117028

UL Category Control No. NRKH, NRKH7

CSA File No. 50513

CSA Class No. 3211-07

North America Certification UL listed, CSA certified

Max. Voltage Rating 30 V DC

Degree of Protection IEC: IP68, IP69K; UL/CSA Type: 1, 4, 6

## Technical data

### General

|                             |  |   |                            |
|-----------------------------|--|---|----------------------------|
| Standards                   |  |   | IEC/EN 60947-5-2           |
| Ambient temperature         |  |   | -40 - +70                  |
| Mechanical shock resistance |  | g | 100<br>Shock duration 3 ms |
| Degree of Protection        |  |   | IP67                       |

### Characteristics

|  |       |     |   |
|--|-------|-----|---|
| Rated switching distance                           |       |     |   |
| Rated switching distance                           | $S_n$ | mm  | 225   |
| Range  |       | mm  | 0.23  |
| Rated operational voltage                          | $U_e$ |     | 10 - 30 V DC  |
| Operating current in the switched state at 24 V DC | $I_b$ | mA  | 30  |
| Maximum load current                               | $I_e$ | mA  | < PNP: 100<br>NPN: 250 (120 > 55 °C)                                    |
| Response time                                      |       | ms  | 1   |
| Switching state display                            |       | LED | Red   |
| Protective functions                               |       |     | Short-circuit protective device<br>Protection against polarity reversal |
| Connection   |       |     | 4-wire  |
| Style  |       |     |   |
| Design (outer dimensions)                          |       | mm  | M18 x 1   |

|                    |  |                            |
|--------------------|--|----------------------------|
| For connection of: |  | Plug-in connection M12 x 1 |
| Material           |  | Insulated material         |

## Design verification as per IEC/EN 61439

|  |    |     |
|--|----|-----|
| Technical data for design verification |    |     |
| Operating ambient temperature min.     | °C | -40 |
| Operating ambient temperature max.     | °C | 70  |

## Technical data ETIM 7.0

|   |    |                           |
|---|----|---------------------------|
| Sensors (EG000026) / Light scanner with background masking (EC002719)   |    |                           |
| Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Optoelectronic sensor / Light scanner w. background masking (ec1@ss10.0.1-27-27-09-04 [AKP253013]) |    |                           |
| Adjustment range  | mm | 0 - 0                     |
| Operating distance  | mm | 0 - 0                     |
| Triangulation   |    | Background fade-out       |
| Pre failure notice  |    | No                        |
| With time function  |    | No                        |
| Rated switching distance  | mm | 225                       |
| Max. switching distance   | mm | 225                       |
| Max. output current   | mA | 250                       |
| Reflector included  |    | No                        |
| Analogue output 0 V ... 10 V  |    | No                        |
| Analogue output 0 mA ... 20 mA  |    | No                        |
| Analogue output 4 mA ... 20 mA  |    | No                        |
| Analogue output -10 V ... +10 V   |    | No                        |
| With other analogue output  |    | No                        |
| Setting procedure   |    | Other                     |
| With communication interface analogue   |    | No                        |
| With communication interface AS-Interface   |    | No                        |
| With communication interface CANopen  |    | No                        |
| With communication interface DeviceNet  |    | No                        |
| With communication interface Ethernet   |    | No                        |
| With communication interface INTERBUS   |    | No                        |
| With communication interface PROFIBUS   |    | No                        |
| With communication interface RS-232   |    | No                        |
| With communication interface RS-422   |    | No                        |
| With communication interface RS-485   |    | No                        |
| With communication interface SSD  |    | No                        |
| With communication interface SSI  |    | No                        |
| Number of semiconductor outputs with signalling function  |    | 2                         |
| Number of contact energized outputs with signalling function  |    | 0                         |
| Number of protected semiconductor outputs   |    | 0                         |
| Number of protected contact energized outputs   |    | 0                         |
| Type of interface for safety communication  |    | Other                     |
| Type of electric connection   |    | Connector M12             |
| Type of switching output  |    | PNP/NPN                   |
| Type of switch function   |    | Programmable/configurable |
| Operation agent-safety class  |    | Safety class 2            |
| Explosion safety category for gas   |    | None                      |
| Explosion safety category for dust  |    | None                      |
| Construction type housing   |    | Cylinder, screw-thread    |
| Width sensor  | mm | 0                         |
| Diameter sensor   | mm | 18                        |
| Height of sensor  | mm | 0                         |
| Length of sensor  | mm | 66                        |
| Sensing mode  |    | Light-/dark switching     |

|   |                 |                |
|---|-----------------|----------------|
| Material of optical surface                           |                 | Plastic        |
| Material housing                                      |                 | Plastic        |
| Max. output current at protected output               | mA              | 0              |
| Min. reflector distance                               | mm              | 0              |
| Ambient temperature                                   | °C              | -40 - 70       |
| Time of reaction                                      | ms              | 1              |
| Transmission range of the safety field                | m               | 0              |
| Switching frequency                                   | Hz              | 500            |
| Type of safety acc. IEC 61496-1                       |                 |                |
| "Switching voltage of OSSD at state ""high""          | V               | 30             |
| Rated control supply voltage Us at AC 50HZ            | V               | 0 - 0          |
| Rated control supply voltage Us at AC 60HZ            | V               | 0 - 0          |
| Rated control supply voltage Us at DC                 | V               | 10 - 30        |
| Voltage type  |                 | DC             |
| With monitoring function downstream switching devices |                 | No             |
| Laser protection class                                |                 | None           |
| Wavelength of the sensor                              | nm              | 0              |
| Type of light   |                 | Infrared light |
| Light dot   | mm <sup>2</sup> | 0              |
| AWG-number  |                 | 22             |
| Material of cable sheath                              |                 | Other          |
| With restart blockage                                 |                 | No             |
| Suitable for safety functions                         |                 | No             |
| Degree of protection (IP)                             |                 | IP67           |

## Approvals

|                             |  |  |
|-----------------------------|--|--|
| Product Standards           |  | UL 508; CSA-C22.2 No. 14; IEC60947-5-2; CE marking |
| UL File No.                 |  | E117028  |
| UL Category Control No.     |  | NRKH, NRKH7  |
| CSA File No.                |  | 50513  |
| CSA Class No.               |  | 3211-07  |
| North America Certification |  | UL listed, CSA certified                           |
| Max. Voltage Rating         |  | 30 V DC  |
| Degree of Protection        |  | IEC: IP68, IP69K; UL/CSA Type: 1, 4, 6             |

## Assets (links)

### Declaration of CE Conformity

00002430

### Instruction Leaflets

IL05305002Z2018\_05

## Additional product information (links)

|   |   |
|---|---|
| <b>IL05305002Z Comet Series Optical Sensors</b> |   |
| IL05305002Z Comet Series Optical Sensors        | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL05305002Z2018_05.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL05305002Z2018_05.pdf</a> |