

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50147095

HT36I/4X-200-M12

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For illustration purposes only



## Technical data

### Basic data

|                     |                                                          |
|---------------------|----------------------------------------------------------|
| Series              | 36                                                       |
| Operating principle | Diffuse reflection principle with background suppression |

### Optical data

|                             |                                          |
|-----------------------------|------------------------------------------|
| Black-white error           | < 10% up to 800 mm                       |
| Operating range             | Guaranteed operating range               |
| Operating range, white 90%  | 0.01 ... 2.5 m                           |
| Operating range, gray 18%   | 0.05 ... 1.5 m                           |
| Operating range, black 6%   | 0.08 ... 1.1 m                           |
| Operating range limit       | 0.01 ... 2.5 m (typical operating range) |
| Adjustment range            | 150 ... 2,500 mm                         |
| Beam path                   | Focused                                  |
| Light source                | LED, Infrared                            |
| Wavelength                  | 860 nm                                   |
| Transmitted-signal shape    | Pulsed                                   |
| LED group                   | Exempt group (in acc. with EN 62471)     |
| Type of light spot geometry | Rectangular                              |
| Focus                       | Fixed                                    |

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | Short circuit protected      |
|                    | Transient protection         |

### Performance data

|                      |                                        |
|----------------------|----------------------------------------|
| Supply voltage $U_B$ | 10 ... 30 V, DC, Incl. residual ripple |
| Residual ripple      | 0 ... 15 %, From $U_B$                 |
| Open-circuit current | 0 ... 30 mA                            |

### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

### Switching outputs

|                         |                          |
|-------------------------|--------------------------|
| Type                    | Digital switching output |
| Voltage type            | DC                       |
| Switching current, max. | 100 mA                   |
| Switching voltage       | high: $\geq(U_B - 2V)$   |
|                         | low: $\leq 2 V$          |

### Switching output 1

|                     |                     |
|---------------------|---------------------|
| Assignment          | Connection 1, pin 4 |
| Switching element   | Transistor, PNP     |
| Switching principle | Light switching     |

### Time behavior

|                     |        |
|---------------------|--------|
| Switching frequency | 250 Hz |
| Response time       | 2 ms   |
| Readiness delay     | 300 ms |

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

### Connection 1

|                      |                      |
|----------------------|----------------------|
| Function             | Signal OUT           |
|                      | Voltage supply       |
| Type of connection   | Cable with connector |
| Cable length         | 200 mm               |
| Sheathing material   | PUR                  |
| Cable color          | Black                |
| Number of conductors | 4 -wire              |
| Wire cross section   | 0.2 mm <sup>2</sup>  |
| Thread size          | M12                  |
| Type                 | Male                 |
| Material             | Plastic              |
| No. of pins          | 4 -pin               |
| Encoding             | A-coded              |

### Mechanical data

|                                                |                              |
|------------------------------------------------|------------------------------|
| Dimension (W x H x L)                          | 20.5 mm x 76.3 mm x 44 mm    |
| Housing material                               | Plastic                      |
| Plastic housing                                | PC-PBT                       |
| Lens cover material                            | Plastic / PMMA               |
| Net weight                                     | 65 g                         |
| Housing color                                  | Black                        |
| Type of fastening                              | Through-hole mounting        |
|                                                | Via optional mounting device |
| Recommended tightening torque for M3 fastening | 0.9 N·m                      |
| Recommended tightening torque for M4 fastening | 1.4 N·m                      |

### Operation and display

|                                     |                         |
|-------------------------------------|-------------------------|
| Type of display                     | LED                     |
| Number of LEDs                      | 2 Piece(s)              |
| Operational controls                | Multiturn potentiometer |
| Function of the operational control | Range adjustment        |

### Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 60 °C |
| Ambient temperature, storage   | -40 ... 70 °C |

### Certifications

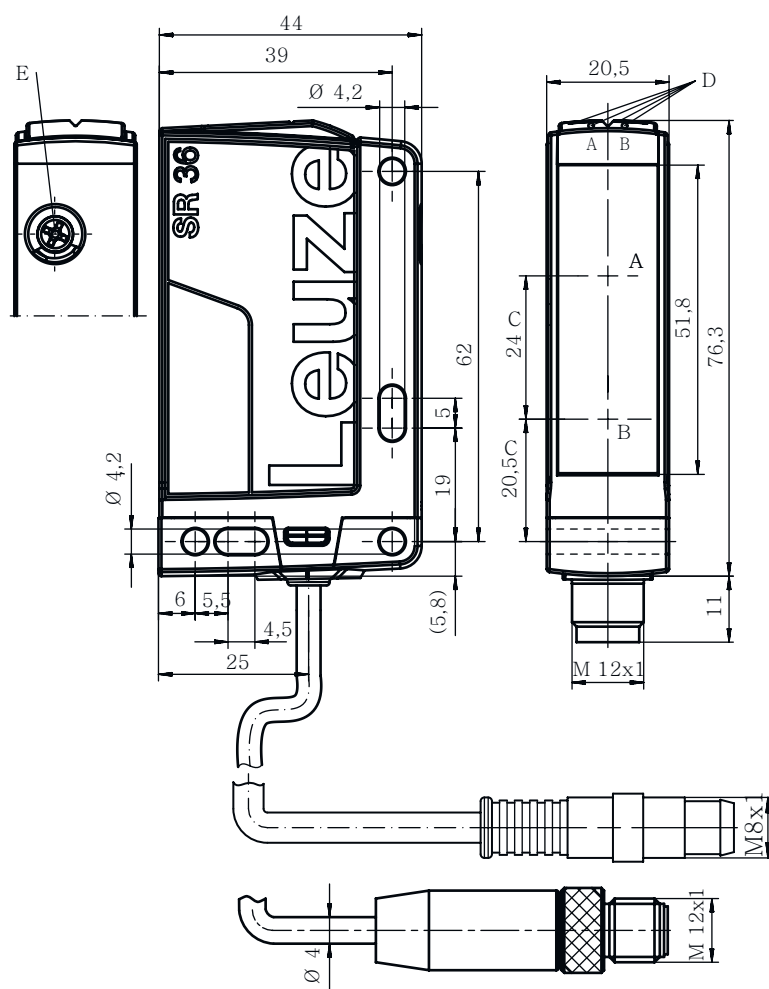
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Approvals            | c UL US       |
| Standards applied    | IEC 60947-5-2 |

## Technical data

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270904 |
| ECLASS 8.0            | 27270904 |
| ECLASS 9.0            | 27270904 |
| ECLASS 10.0           | 27270904 |
| ECLASS 11.0           | 27270904 |
| ECLASS 12.0           | 27270903 |
| ECLASS 13.0           | 27270903 |
| ECLASS 14.0           | 27270903 |
| ECLASS 15.0           | 27270903 |
| ECLASS 16.0           | 27270903 |
| ETIM 5.0              | EC002719 |
| ETIM 6.0              | EC002719 |
| ETIM 7.0              | EC002719 |
| ETIM 8.0              | EC002719 |
| ETIM 9.0              | EC002719 |
| ETIM 10.0             | EC002719 |

## Dimensioned drawings

All dimensions in millimeters



- A Receiver
- B Transmitter
- C Optical axis
- DA Green LED
- DB Yellow LED
- E Multiturn potentiometer

Electrical connection

Connection 1

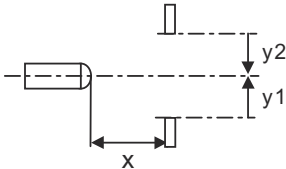
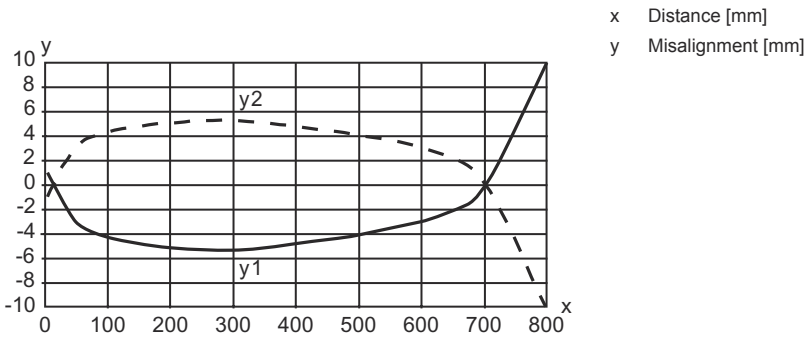
|                      |                      |
|----------------------|----------------------|
| Function             | Signal OUT           |
|                      | Voltage supply       |
| Type of connection   | Cable with connector |
| Cable length         | 200 mm               |
| Sheathing material   | PUR                  |
| Cable color          | Black                |
| Number of conductors | 4 -wire              |
| Wire cross section   | 0.2 mm²              |
| Thread size          | M12                  |
| Type                 | Male                 |
| Material             | Plastic              |
| No. of pins          | 4 -pin               |
| Encoding             | A-coded              |

| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | n.c.           |
| 3   | GND            |
| 4   | OUT 1          |



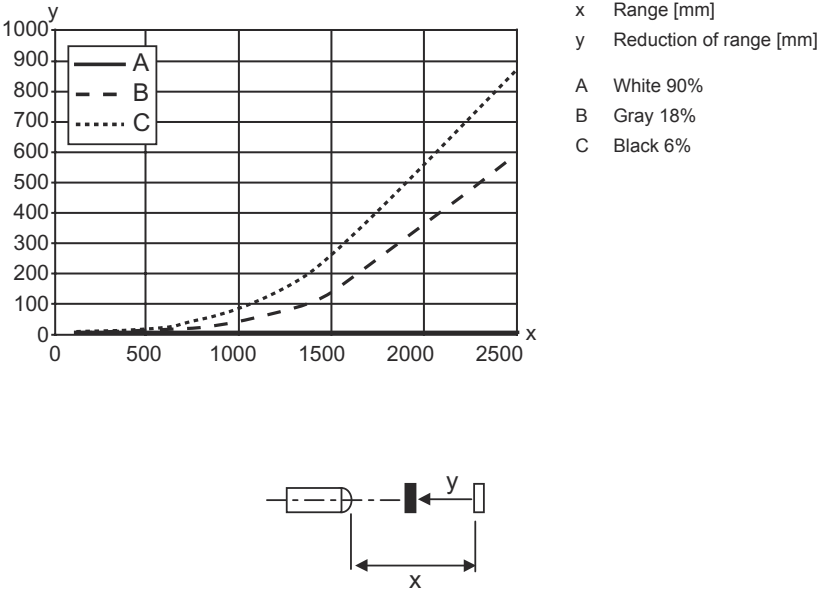
Diagrams

Typ. response behavior (focusing distance 800 mm)



Diagrams

Typ. black/white behavior



Operation and display

| LED | Display                  | Meaning               |
|-----|--------------------------|-----------------------|
| 1   | Green, continuous light  | Operational readiness |
| 2   | Yellow, continuous light | Reflection            |

Part number code

Part designation: AAA36 D.E/FG-K

|       |                                                                                                                                                                                                                                                                                            |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AAA36 | <b>Operating principle / construction</b><br>HT36: Diffuse reflection sensor with background suppression<br>LS36: Throughbeam photoelectric sensor transmitter<br>LE36: Throughbeam photoelectric sensor receiver<br>PRK36: Retro-reflective photoelectric sensor with polarization filter |
| D     | <b>Light type</b><br>n/a: red light<br>I: infrared light                                                                                                                                                                                                                                   |
| E     | <b>Equipment</b><br>n/a: standard<br>1: 270° potentiometer<br>D: Depolarizing media                                                                                                                                                                                                        |
| FG    | <b>Switching output / Function</b><br>2: NPN transistor output, light switching<br>N: NPN transistor output, dark switching<br>4: PNP transistor output, light switching<br>P: PNP transistor output, dark switching<br>X: pin not used                                                    |

## Part number code

K

### Electrical connection

n/a: cable, standard length 2000 mm, 3-wire  
 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)  
 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)  
 M12: M12 connector, 4-pin (plug)

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Notes



### Observe intended use!



- ⚠ This product is not a safety sensor and is not intended as personnel protection.
- ⚠ The product may only be put into operation by competent persons.
- ⚠ Only use the product in accordance with its intended use.

### For UL applications:



- ⚠ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- ⚠ These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/ CYJV7 or PVVA/PVVA7)

## Further information

- Light source: Average life expectancy 100,000 h at an ambient temperature of 25 °C
- Response time: For short decay times, an ohmic load of approx. 5 kOhm is recommended

## Accessories

### Connection technology - Connection cables

|                                                                                     | Part no. | Designation        | Article          | Description                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------|----------|--------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130652 | KD U-M12-4A-V1-050 | Connection cable | Application: Chemical resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC |

## Accessories

|                                                                                  | Part no. | Designation        | Article          | Description                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------|----------|--------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130690 | KD U-M12-4W-V1-050 | Connection cable | Application: Chemical resistant<br>Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC |

### Note



🔗 A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.