

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50147097

HT36I/2X-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       | Typical operating range              |
| Operating range limit       | 0.01 ... 2.5 m                       |
| 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

|                         |                        |
|-------------------------|------------------------|
| 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, NPN     |
| Switching principle | Light switching     |

### Time behavior

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

### 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 |

### 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

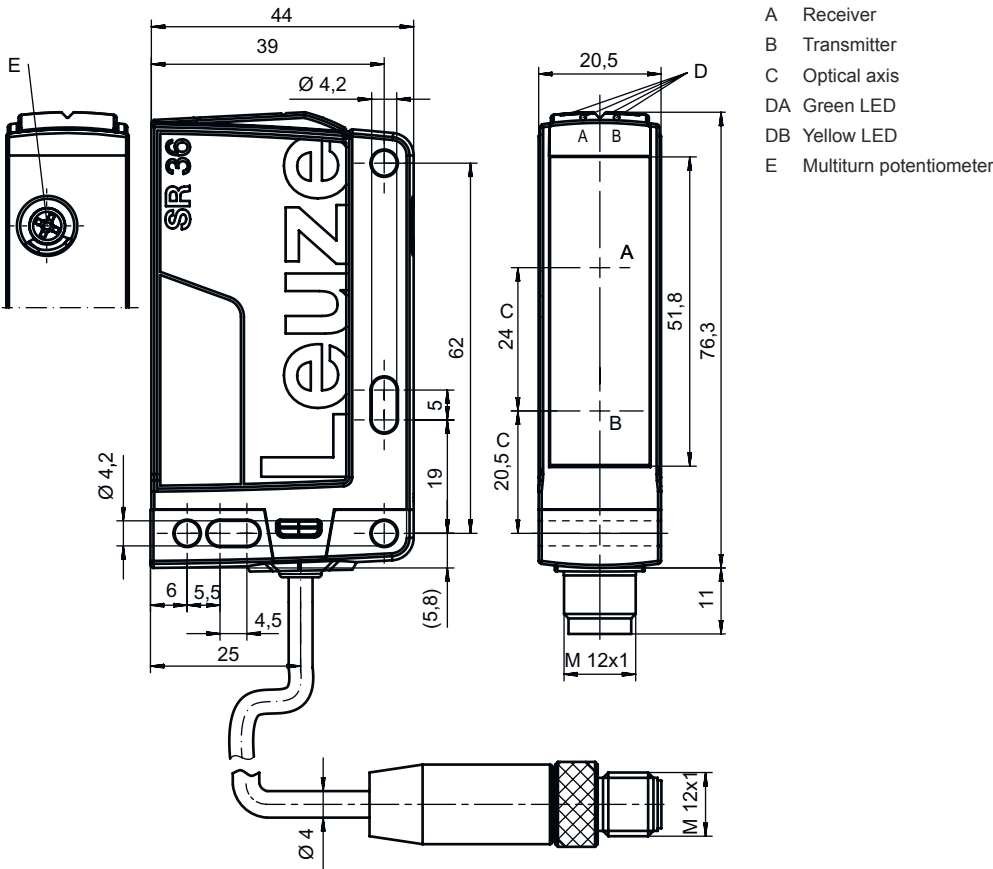
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Certifications       | c UL US       |
| Standards applied    | IEC 60947-5-2 |

### Classification

|                       |          |
|-----------------------|----------|
| 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 |
| ETIM 5.0              | EC002719 |
| ETIM 6.0              | EC002719 |
| ETIM 7.0              | EC002719 |
| ETIM 8.0              | EC002719 |
| ETIM 9.0              | EC002719 |

Dimensioned drawings

All dimensions in millimeters

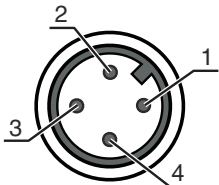


Electrical connection

Connection 1

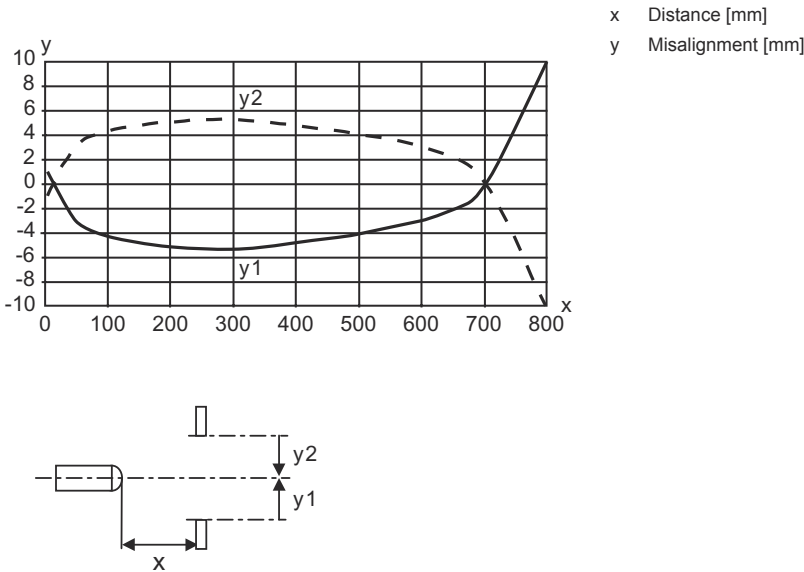
|                      |                      |
|----------------------|----------------------|
| Function             | Signal OUT           |
|                      | Voltage supply       |
| Type of connection   | Cable with connector |
| Cable length         | 200 mm               |
| Sheathing material   | 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          |

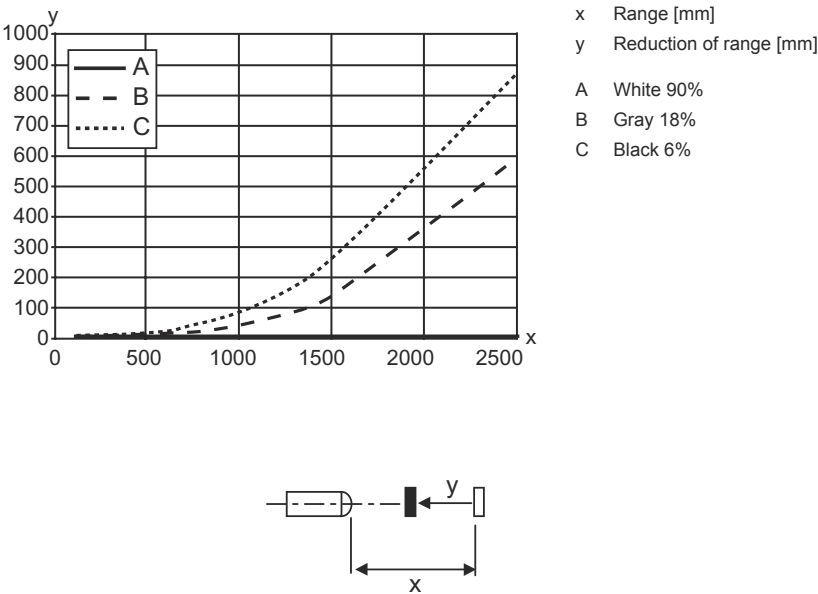


Diagrams

Typ. response behavior (focusing distance 800 mm)



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                                                    |
| K     | n/a: cable, standard length 2000 mm, 3-wire<br>200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)<br>M12: M12 connector, 4-pin (plug)                                                                                                                                   |

| Note                                                                             |                                                                                                                                |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|  | A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a> . |

Notes

|  Observe intended use! |                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | <ul style="list-style-type: none"><li>This product is not a safety sensor and is not intended as personnel protection.</li><li>The product may only be put into operation by competent persons.</li><li>Only use the product in accordance with its intended use.</li></ul> |

| For UL applications:                                                               |                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).</li><li>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)</li></ul> |

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. 5kOhm is recommended

Accessories

Connection technology - Connection cables

|                                                                                                                                                                                                                                                             | Part no. | Designation        | Article          | Description                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><br> | 50130652 | KD U-M12-4A-V1-050 | Connection cable | 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  |
| <br><br>  | 50130690 | KD U-M12-4W-V1-050 | Connection cable | 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.