

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50153706

SETHHT25CI.SLHF/4P200M12BTX



For illustration purposes only

#### Contents

- Set consists of
- Technical data
- Dimensioned drawings
- Electrical connection
- Diagrams
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- Part number code
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- Accessories



## Set consists of

|                                                                                   | Quantity | Part no. | Designation            | Article                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|----------|----------|------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 1        | 50153706 | HT25CI.SLHF/4P-200-M12 | Diffuse sensor with background suppression | Application: Object detection between the rollers of a roller conveyor<br>Special version: Suppression of HF illumination (LED)<br>Operating range limit: 0 ... 1.3 m<br>Light source: LED, Infrared<br>Supply voltage: DC<br>Digital switching outputs: 2 Piece(s)<br>Switching output 1: Transistor, PNP, Light switching<br>Switching output 2: Transistor, PNP, Dark switching<br>Switching frequency: 250 Hz<br>Connection: Cable with connector, 200 mm, M12, PUR, 4 -wire, 4 -pin<br>Operational controls: Multiturn potentiometer |

## Technical data

## Basic data

|                     |                                                           |
|---------------------|-----------------------------------------------------------|
| Series              | 25C                                                       |
| Operating principle | Diffuse reflection principle with background suppression  |
| Application         | Object detection between the rollers of a roller conveyor |
| Pre-mounted on      | Mounting system                                           |

## Special version

|                 |                                      |
|-----------------|--------------------------------------|
| Special version | Article set                          |
|                 | Suppression of HF illumination (LED) |

## Optical data

|                            |                                      |
|----------------------------|--------------------------------------|
| Black-white error          | < 10% up to 380 mm                   |
| Operating range            | Guaranteed operating range           |
| Operating range, white 90% | 0 ... 0.8 m                          |
| Operating range, gray 18%  | 0.005 ... 0.65 m                     |
| Operating range, black 6%  | 0.005 ... 0.55 m                     |
| Operating range limit      | 0 ... 1.3 m                          |
| Operating range limit      | Typical operating range              |
| Adjustment range           | 50 ... 800 mm                        |
| Light source               | LED, Infrared                        |
| Wavelength                 | 850 nm                               |
| Transmitted-signal shape   | Pulsed                               |
| LED group                  | Exempt group (in acc. with EN 62471) |

## Electrical data

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

## Performance data

|                      |                                        |
|----------------------|----------------------------------------|
| Supply voltage $U_B$ | 10 ... 30 V, DC, Incl. residual ripple |
| Residual ripple      | 0 ... 15 %, From $U_B$                 |
| Open-circuit current | 0 ... 20 mA                            |

## Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 2 Piece(s) |
|-------------------------------------|------------|

## Switching outputs

|                         |                                                |
|-------------------------|------------------------------------------------|
| Type                    | Digital switching output                       |
| Voltage type            | DC                                             |
| Switching current, max. | 100 mA                                         |
| Switching voltage       | high: $\geq (U_B - 2.5V)$<br>low: $\leq 2.5 V$ |

## Switching output 1

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

## Switching output 2

|                     |                     |
|---------------------|---------------------|
| Assignment          | Connection 1, pin 2 |
| Switching element   | Transistor, PNP     |
| Switching principle | Dark 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             | PUR                  |
| No. of pins          | 4 -pin               |
| Encoding             | A-coded              |

## Mechanical data

|                                                |                                      |
|------------------------------------------------|--------------------------------------|
| Dimension (W x H x L)                          | 15 mm x 42.7 mm x 30 mm              |
| Housing material                               | Plastic                              |
| Plastic housing                                | ABS                                  |
| Lens cover material                            | Plastic                              |
| Net weight                                     | 22 g                                 |
| Housing color                                  | Red                                  |
| Type of fastening                              | Through-hole mounting with M4 thread |
|                                                | Via optional mounting device         |
| Recommended tightening torque for M3 fastening | 0.9 N·m                              |
| Recommended tightening torque for M4 fastening | 1.4 N·m                              |
| Compatibility of materials                     | ECOLAB                               |

## Technical data

### 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

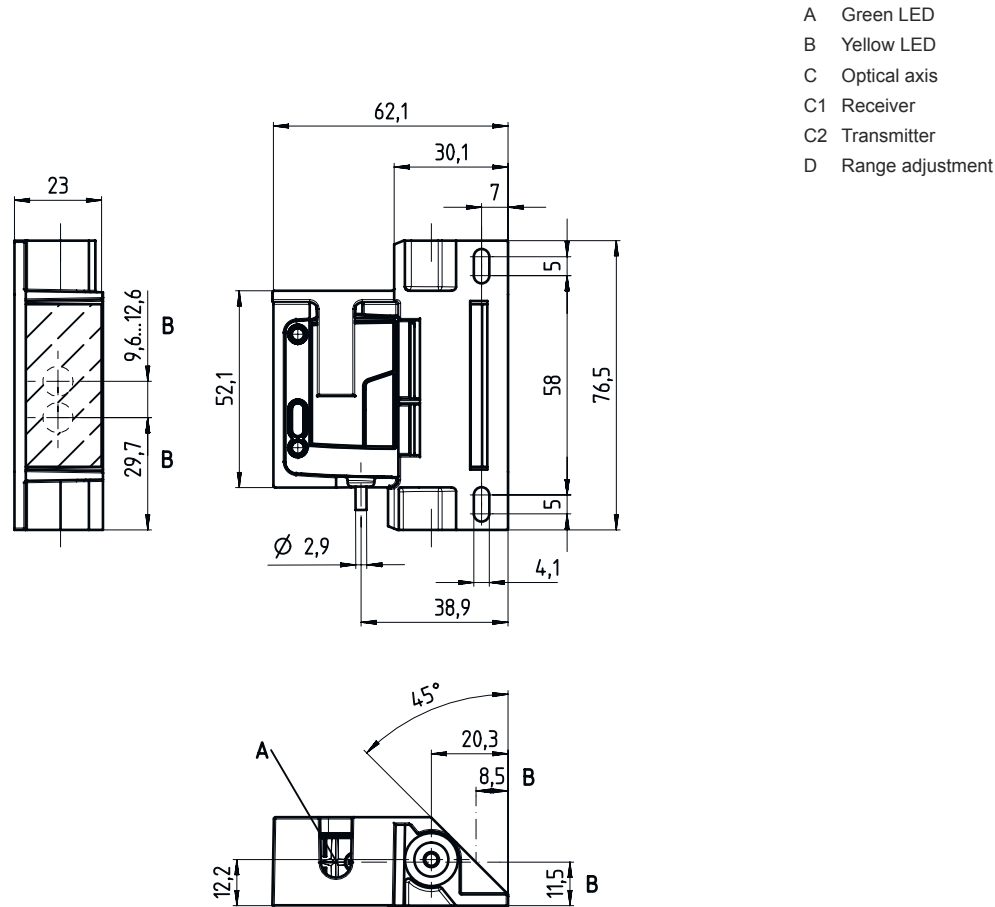
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
|                      | IP 69K        |
| Protection class     | III           |
| Approvals            | c UL US       |
| Standards applied    | IEC 60947-5-2 |

### 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 |
| ECLASS 15.0           | 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



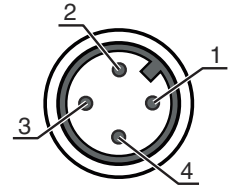
Electrical connection

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             | PUR                  |
| No. of pins          | 4 -pin               |
| Encoding             | A-coded              |

## Electrical connection

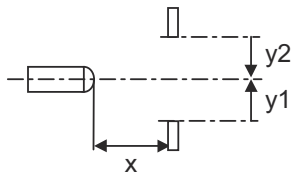
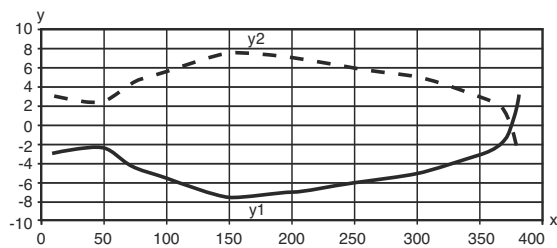
| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | OUT 2          |
| 3   | GND            |
| 4   | OUT 1          |



## Diagrams

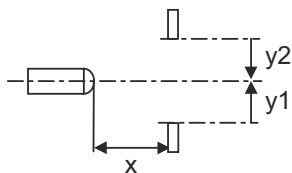
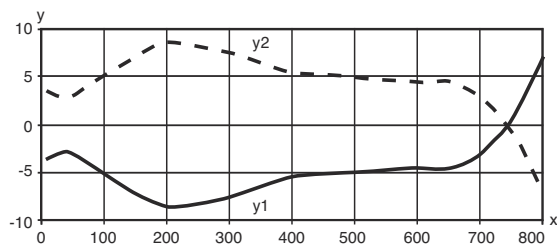
Typ. response behavior (focusing distance 380 mm)

x Range [mm]  
y Misalignment [mm]



Typ. response behavior (focusing distance 800 mm)

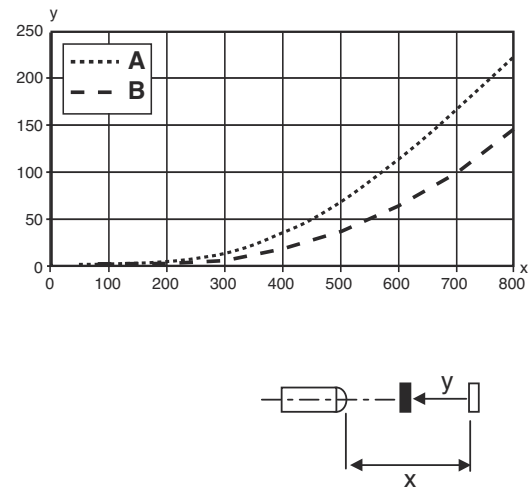
x Distance [mm]  
y Misalignment [mm]



Diagrams

Typ. black/white behavior

- x Range [mm]
- y Reduction of range [mm]
- A White 90%
- B Gray 18%
- C Black 6%



Operation and display

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

Part number code

Part designation: AAA25C d EE-f.GGH/iJ-K

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AAA25C | <b>Operating principle / construction</b><br>HT25C: Diffuse reflection sensor with background suppression<br>PRK25C: Retro-reflective photoelectric sensor with polarization filter<br>LS25C: Throughbeam photoelectric sensor transmitter<br>LE25C: Throughbeam photoelectric sensor receiver<br>DRT25C: Dynamic reference diffuse sensor                                                                                                                                                                |
| d      | <b>Light type</b><br>n/a: red light<br>I: infrared light                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| EE     | <b>Light source</b><br>n/a: LED<br>PP: Power PinPoint® LED<br>L1: laser class 1<br>L2: laser class 2                                                                                                                                                                                                                                                                                                                                                                                                      |
| f      | <b>Preset range (optional)</b><br>n/a: operating range acc. to data sheet<br>xxxF: Preset range [mm]                                                                                                                                                                                                                                                                                                                                                                                                      |
| GG     | <b>Equipment</b><br>A: Autocollimation principle (single lens)<br>S: small light spot<br>D: Detection of stretch-wrapped objects<br>X: extended model<br>HF: Suppression of HF illumination (LED)<br>XL: Extra long light spot<br>T: autocollimation principle (single lens) for highly transparent bottles without tracking<br>TT: autocollimation principle (single lens) for highly transparent bottles with tracking<br>F: Foreground suppression<br>R: greater operating range<br>SL: Slit diaphragm |

## Part number code

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>H</b> | <b>Operating range adjustment</b><br>1: 270° potentiometer<br>2: multiturn potentiometer<br>3: teach-in via button<br>R: greater operating range                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>i</b> | <b>Switching output/function OUT 1/IN: Pin 4 or black conductor</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<br>8: activation input (activation with high signal)<br>L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching)<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching |
| <b>J</b> | <b>Switching output / function OUT 2/IN: pin 2 or white conductor</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>W: warning output<br>X: pin not used<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>T: teach-in via cable<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>8: activation input (activation with high signal)                             |
| <b>K</b> | <b>Electrical connection</b><br>n/a: cable, standard length 2000 mm, 4-wire<br>200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)<br>M8: M8 connector, 4-pin (plug)<br>M12: M12 connector, 4-pin (plug)<br>200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)<br>M8.1: Snap-in, M8 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.

## Further information

- Light source: Average life expectancy 100,000 h at an ambient temperature of 25 °C
- Sum of the output currents for both outputs 100 mA

## Accessories

### Connection technology - Connection cables

|                                                                                   | Part no. | Designation        | Article          | Description                                                                                                                                                                        |
|-----------------------------------------------------------------------------------|----------|--------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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  |
|                                                                                   | 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 |

### Mounting technology - Mounting brackets

|                                                                                    | Part no. | Designation | Article          | Description                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------|----------|-------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50118543 | BT 300M.5   | Mounting bracket | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type, Suited for M4 screws<br>Type of mounting device: Adjustable<br>Material: Stainless steel |

### Mounting technology - Rod mounts

|                                                                                     | Part no. | Designation  | Article         | Description                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|----------|--------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50117829 | BTP 200M-D12 | Mounting system | Design of mounting device: Protection hood<br>Fastening, at system: For 12 mm rod<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal                                             |
|  | 50117252 | BTU 300M-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, Sheet-metal mounting<br>Mounting bracket, at device: Screw type, Suited for M4 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |

#### Note



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