

## Technical data sheet

### Diffuse sensor with background

Part no.: 50143278

HT3CI.X/4P-200-M12



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## Technical data

### Basic data

Series	3C
Operating principle	Diffuse reflection principle with background suppression
Application	Detection of labels on bottles

### Optical data

Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 0.2 m
Operating range, gray 18%	0.01 ... 0.16 m
Operating range, black 6%	0.015 ... 0.13 m
Operating range limit	Typical operating range
Operating range limit	0.005 ... 0.2 m
Adjustment range	15 ... 200 mm
Beam path	Focused
Light source	LED, Infrared
Wavelength	880 nm
LED group	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed
Type of light spot geometry	square
Focus	Fixed
Focal distance	200 mm

### Electrical data

Protective circuit	Polarity reversal protection Short circuit protected
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### Performance data

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

### Outputs

Number of digital switching outputs	2 Piece(s)
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### Switching outputs

Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B - 2V)$ Low: $\leq 2V$

### 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

### Timing

Switching frequency	1,000 Hz
Response time	0.5 ms
Readiness delay	300 ms
Response jitter	166 $\mu$ s

### Connection 1

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

### Mechanical data

Dimension (W x H x L)	11.4 mm x 34.2 mm x 18.3 mm
Housing material	Plastic
Plastic housing	PC-ABS
Lens cover material	Plastic / PMMA
Net weight	20 g
Housing color	Red
Type of fastening	Through-hole mounting Via optional mounting device
Compatibility of materials	ECOLAB

### 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

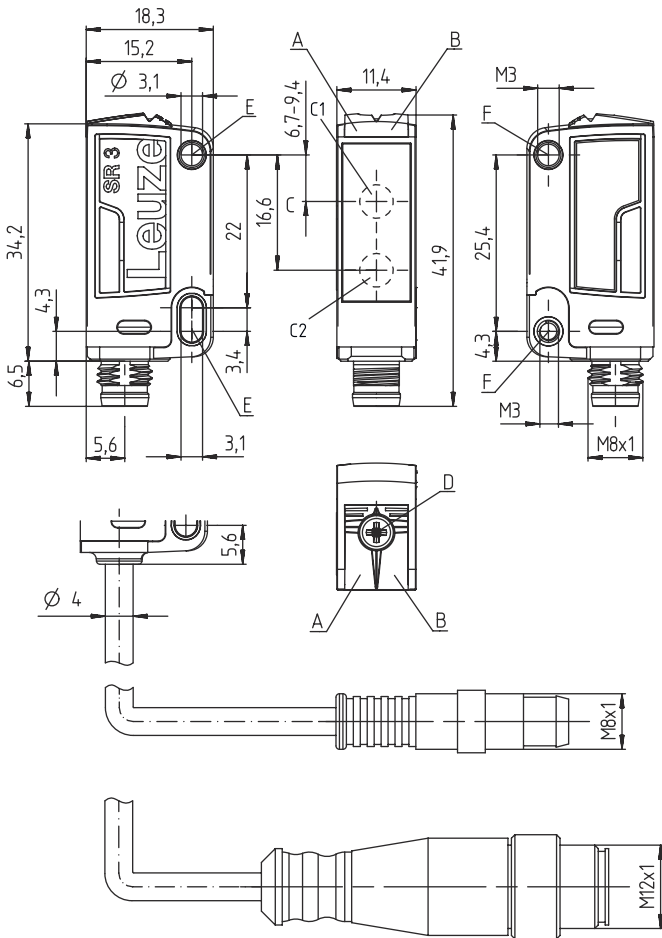
Degree of protection	IP 67 IP 69K
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

### Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27270904
eCl@ss 8.0	27270904
eCl@ss 9.0	27270904
eCl@ss 10.0	27270904
eCl@ss 11.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719

# Dimensioned drawings

All dimensions in millimeters



- A Green LED
- B Yellow LED
- C Optical axis
- C1 Receiver
- C2 Transmitter
- D Multiturn potentiometer
- E Mounting sleeve (standard)
- F Threaded sleeve (3C.B series)

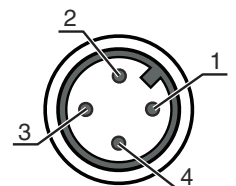
## Electrical connection

### Connection 1

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

### Pin Pin assignment

1	V+
2	OUT 2
3	GND
4	OUT 1



## Operation and display

LED	Display	Meaning
1	Green, continuous light	Ready
2	Yellow, continuous light	Object detected

## Part number code

Part designation: **AAA 3C d EE-f.GG H/i J-K**

<b>AAA3C</b>	<b>Operating principle / construction</b> HT3C: Diffuse reflection sensor with background suppression LS3C: Throughbeam photoelectric sensor transmitter LE3C: Throughbeam photoelectric sensor receiver PRK3C: Retro-reflective photoelectric sensor with polarization filter
<b>d</b>	<b>Light type</b> n/a: red light I: infrared light
<b>EE</b>	<b>Light source</b> n/a: LED L1: laser class 1 L2: laser class 2
<b>f</b>	<b>Preset range (optional)</b> n/a: operating range acc. to data sheet xxxF: Preset range [mm]
<b>GG</b>	<b>Equipment</b> n/a: standard A: Autocollimation principle (single lens) for positioning tasks B: Housing model with two M3 threaded sleeves, brass F: Permanently set range L: Long light spot S: small light spot T: autocollimation principle (single lens) for highly transparent bottles without tracking TT: autocollimation principle (single lens) for highly transparent bottles with tracking V: V-optics XL: Extra long light spot X: extended model HF: Suppression of HF illumination (LED)
<b>H</b>	<b>Operating range adjustment</b> n/a with HT: range adjustable via 8-turn potentiometer n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable 1: 270° potentiometer 3: teach-in via button 6: auto-teach
<b>i</b>	<b>Switching output/function OUT 1/IN: Pin 4 or black conductor</b> 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching 6: push-pull switching output, PNP light switching, NPN dark switching G: Push-pull switching output, PNP dark switching, NPN light switching L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching) 8: activation input (activation with high signal) X: pin not used 1: IO-Link / light switching (NPN) / dark switching (PNP)
<b>J</b>	<b>Switching output / function OUT 2/IN: pin 2 or white conductor</b> 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching 6: push-pull switching output, PNP light switching, NPN dark switching G: Push-pull switching output, PNP dark switching, NPN light switching W: warning output X: pin not used 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) T: teach-in via cable

## Part number code

<b>K</b>	<b>Electrical connection</b> n/a: cable, standard length 2000 mm, 4-wire 5000: cable, standard length 5000 mm, 4-wire M8: M8 connector, 4-pin (plug) M8.3: M8 connector, 3-pin (plug) 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug) 200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug) 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)
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### 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 100,000h at an ambient temperature of 25 °C
- Response time: For short decay times, an ohmic load of approx. 5kOhm is recommended
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C

## Accessories


### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130652	KD U-M12-4A-V1-050	Connection cable	Connection 1: Rundstecker, M12, axial, female, A-kodiert, 4 -pin Connection 2: offenes Ende Shielded: NO Cable length: 5,000 mm Sheathing material: PVC


## Accessories

	Part no.	Designation	Article	Description
	50130690	KD U-M12-4W-V1-050	Connection cable	Connection 1: Rundstecker, M12, gewinkelt, female, A-kodiert, 4 -pin Connection 2: offenes Ende Shielded: NO Cable length: 5,000 mm Sheathing material: PVC

## Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50060511	BT 3	Mounting device	Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal

## Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117255	BTU 200M-D12	Mounting system	Design of mounting device: Montagesystem Fastening, at system: für Rundstange 12 mm, Blechklemmbefestigung Mounting bracket, at device: schraubbar, für M3-Schrauben geeignet Type of mounting device: klemmbar, drehbar 360°, justierbar Material: Metall

### Note



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