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Figure can vary

Part no.: 50129375
HT3C/4P-M8
Diffuse sensor with background suppression

Contents

Leuze electronic GmbH + Co. KG, In der Braike 1, D-73277 Owen
Phone: +49 7021 573-0, Fax +49 7021 573-199
info@leuze.com • www.leuze.com

Part no.: 50129375 – HT3C/4P-M8 – Diffuse sensor with background

Technical data

Basic data	
Series	3C
Operating principle	Scanning principle with background suppression

Optical data	
Black-white error	< 10% up to 220 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 0.45 m
Operating range, gray 18%	0.01 ... 0.34 m
Operating range, black 6%	0.015 ... 0.22 m
Operating range limit	Typical operating range
Operating range limit	0.005 ... 0.45 m
Adjustment range	15 ... 450 mm
Beam profile	Focused
Light source	LED, Red
LED light wavelength	633 nm
LED protection class	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed
Type of light-spot geometry	Round
Focus	Fixed
Focal distance	200 mm

Electrical data	
Protective circuit	Polarity reversal protection Short circuit protected
Performance data	
Supply voltage	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)
Switching outputs	
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	High: ≥(U_B-2V) Low: ≤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 µs

Connection	
Connection 1	
Type of connection	Connector
Function	Signal OUT Voltage supply
Thread size	M8
Type	Male
Material	Metal
No. of pins	4 -pin

Mechanical data	
Design	Cubic
Dimension (W x H x L)	11.4 mm x 34.2 mm x 18.3 mm
Housing material	Plastic, PC-ABS
Lens cover material	Plastic / PMMA
Net weight	10 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	Scanning range adjustment

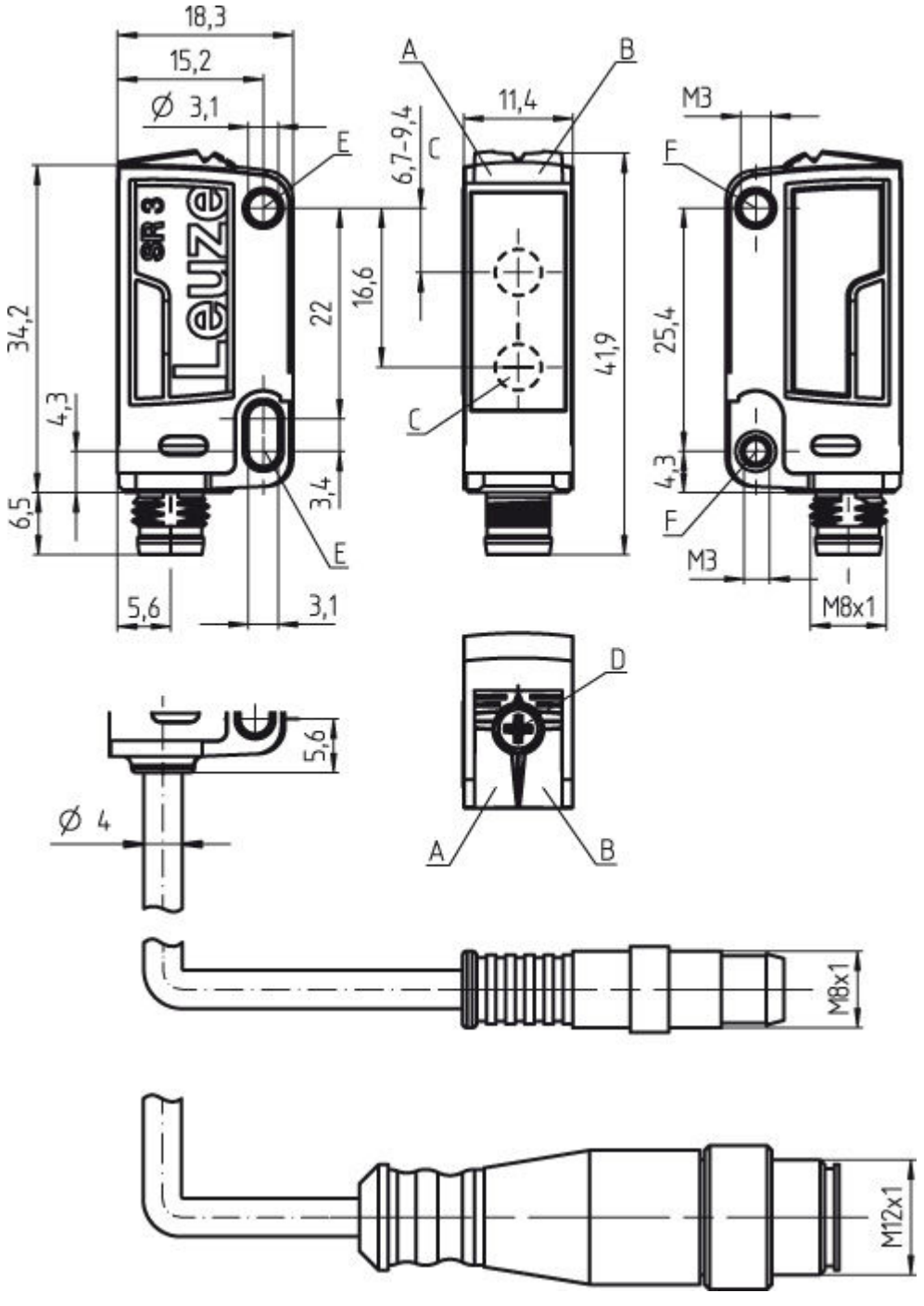
Environmental data	
Ambient temperature, operation	-40 ... 60 °C
Ambient temperature, storage	-40 ... 70 °C

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

Classification	
eCl@ss 8.0	27270904
eCl@ss 9.0	27270904
ETIM 5.0	EC002719

Dimensioned drawings

All dimensions in millimeters



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

Electrical connection

Connection 1	
Type of connection	Connector

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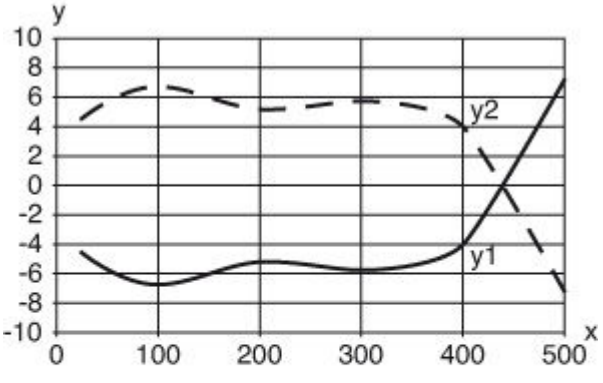
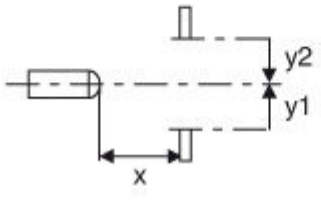
Connection 1	
Function	Signal OUT Voltage supply
Thread size	M8
Type	Male
Material	Metal
No. of pins	4 -pin
Encoding	

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

Diagrams

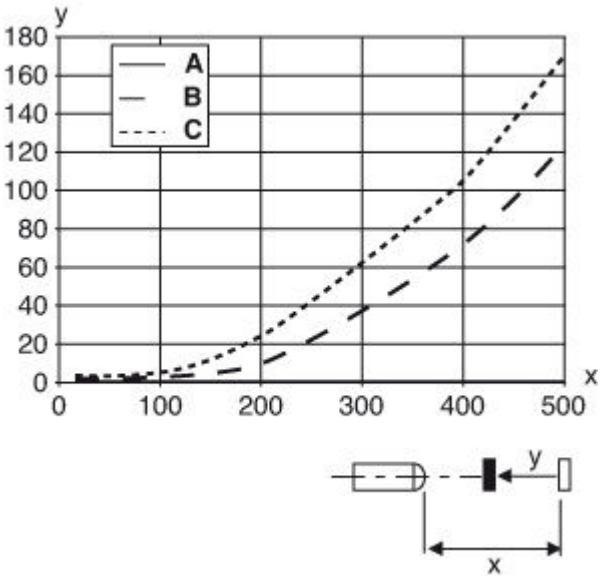
Typ. response behavior (white 90 %)





x Distance [mm]
y Misalignment [mm]

Typ. black/white behavior



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

Operation and display

LEDs

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-L**

AAA3C	**Operating principle / construction:** 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
d	**Light type:** n/a: red light I: infrared light
EE	**Light source:** n/a: LED L1: laser class 1 L2: laser class 2
f	**Pre-set scanning range (optional):** n/a: operating range acc. to data sheet XXXX: pre-set scanning range [mm]

GG	**Equipment:** n/a: standard A: autocollimation principle (single lens) for positioning tasks B: housing model with two M3 threaded sleeves, brass F: permanently set scanning 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
H	**Operating range adjustment:** n/a with HT: scanning range adjustable via 8-turn potentiometer 1: 270° potentiometer 3: teach-in via button 6: auto-teach
i	**Switching output/function OUT 1/IN: Pin 4 or black conductor:** 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 8: activation input (activation with high signal) X: not connected (n. c.)
J	**Switching output / function OUT 2/IN: pin 2 or white conductor:** 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: not connected (n. c.) 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) T: teach-in via cable
K	**Electrical connection:** n/a: cable, PVC, standard length 2000 mm, 4-wire 5000: cable, PVC, standard length 5000 mm, 4-wire M8: M8 connector, 4-pin (plug) M8.3: M8 connector, 3-pin (plug) 200-M8: cable, PVC, length 200 mm with M8 connector, 4-pin, axial (plug) 200-M8.3: cable, PVC, length 200 mm with M8 connector, 3-pin, axial (plug) 200-M12: cable, PVC, length 200 mm with M12 connector, 4-pin, axial (plug)

Accessories

Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50106152	K-D M8A-4P-2m-FAB	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: FAB
	50106153	K-D M8A-4P-5m-FAB	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: FAB
	50106154	K-D M8W-4P-2m-FAB	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: FAB

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	Part no.	Designation	Article	Description
	50106155	K-D M8W-4P-5m-FAB	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: FAB
	50130854	KD U-M8-4A-P1-020	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
	50130856	KD U-M8-4A-P1-050	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR
	50130857	KD U-M8-4A-P1-100	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR
	50130848	KD U-M8-4A-V1-020	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC
	50130850	KD U-M8-4A-V1-050	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
	50130851	KD U-M8-4A-V1-100	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC
	50130873	KD U-M8-4W-P1-020	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
	50130875	KD U-M8-4W-P1-050	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR
	50130876	KD U-M8-4W-P1-100	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR

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	Part no.	Designation	Article	Description
	50130869	KD U-M8-4W-V1-020	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC
	50130871	KD U-M8-4W-V1-050	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
	50130872	KD U-M8-4W-V1-100	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC

Connection technology - Interconnection cables

	Part no.	Designation	Article	Description
	50130916	KDS U-M8-4A-M8-4A-P1-020	Interconnection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Connector, M8, Axial, Male, 4 -pin Shielded: No Cable length: 2,000 mm Sheathing material: PUR

Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50118542	BT 200M.5	Mounting bracket	Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Adjustable Material: Stainless steel
	50124651	BT 205M	Mounting device set	Contains: 10x Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal
	50060511	BT 3	Mounting device	Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal
	50105585	BT 3.1	Mounting strap set	Contains: 10x Design of mounting device: Retaining clip Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal

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	Part no.	Designation	Article	Description
	50105546	BT 3B	Mounting device	Design of mounting device: Angle, L-shape Mounting bracket, 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
	50117256	BTU 200M-D10	Mounting system	Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 10 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal
	50117255	BTU 200M-D12	Mounting system	Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal
	50117254	BTU 200M-D14	Mounting system	Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 14 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal
	50120426	BTU 200M.5-D12	Mounting system	Contains: 2x M3 x 18 screw, 2x M3 mounting nut, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 12 mm rod Mounting bracket, at device: Screw type Type of mounting device: Turning, 360°, Clampable, Adjustable Material: Stainless steel

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)

- 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
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C