SMART **SENSOR** BUSINESS

Leuze electronic
the *sensor* people

Part no.: 50129401
HT5.1/4X-M8
Diffuse sensor with background suppression

CE

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IP 67

Figure can vary

Contents

Technical data

Basic data	
Series	5
Operating principle	Diffuse reflection principle with background suppression

Optical data	
Black-white error	< 15% up to 200 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 0.4 m
Operating range, gray 18%	0.01 ... 0.3 m
Operating range, black 6%	0.015 ... 0.2 m
Operating range limit	Typical operating range
Operating range limit	0.005 ... 0.4 m
Adjustment range	15 ... 400 mm
Beam profile	Focused
Light source	LED , Red
LED light wavelength	645 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)
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 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	1 Piece(s)

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

Timing	
Switching frequency	1,000 Hz
Response time	0.5 ms
Readiness delay	300 ms

Connection	

Leuze electronic GmbH + Co. KG, In der Braike 1, 73277 Owen
Phone: +49 7021 573-0, Fax: +49 7021 573-199

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Part no.: 50129401 – HT5.1/4X-M8 – Diffuse sensor with background

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

Mechanical data	
Dimension (W x H x L)	11.4 mm x 32.1 mm x 17.8 mm
Housing material	Plastic , PC-ABS
Lens cover material	Plastic / PMMA
Net weight	10 g
Housing color	Black Red
Type of fastening	Two M3 threaded sleeves 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
eCl@ss 8.0	27270904
eCl@ss 9.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719

Dimensioned drawings

All dimensions in millimeters

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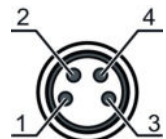Part no.: 50129401 – HT5.1/4X-M8 – Diffuse sensor with background
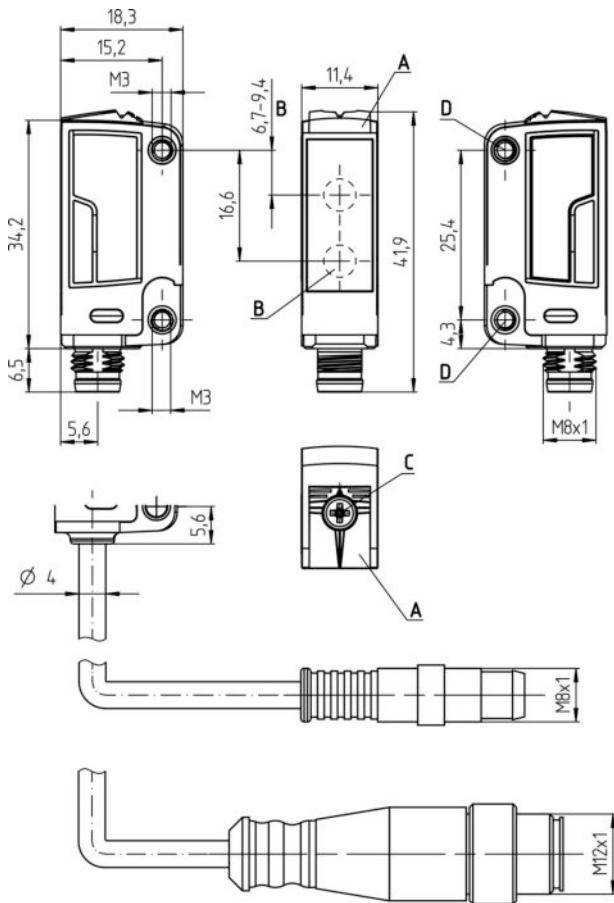
A Indicator diode
B Optical axis
C Range adjustment
D Threaded sleeve

Electrical connection

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

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

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Diagrams

Typ. response behavior (white 90 %)
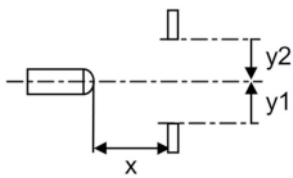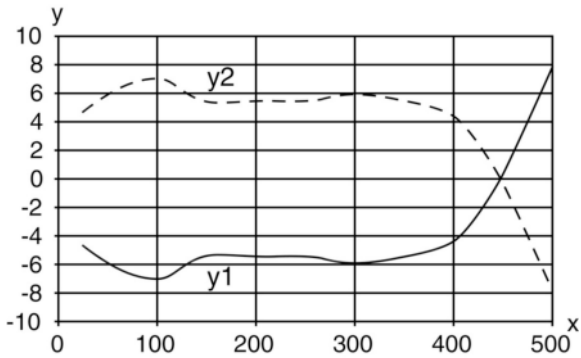
x   Range [mm]
y   Misalignment [mm]

Typ. black/white behavior
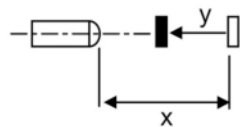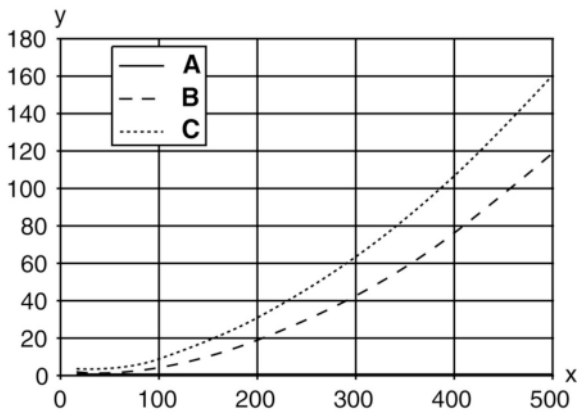
x   Range [mm]
y   Reduction of range [mm]
A   White 90%
B   Gray 18%
C   Black 6%

Operation and display

LEDs

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

Part number code

Part designation: **AAA5d.EE/ ff-GG-hh-I**

AAA5	**Operating principle / construction:** HT5: diffuse reflection sensor with background suppression LS5: throughbeam photoelectric sensor transmitter LE5: throughbeam photoelectric sensor receiver ET5: energetic diffuse reflection sensor FT5: diffuse reflection sensor with fading PRK5: retro-reflective photoelectric sensor with polarization filter
d	**Light type:** n/a: red light I: infrared light
EE	**Equipment:** 1: adjustable range M: for semi-transparent objects H: for the detection of transparent films X: reinforced fading 3: teach-in via button R: combination product for reflector DTKS 30x50
ff	**Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2):** 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching X: pin not used 9: deactivation input (deactivation with high signal) D: deactivation input (deactivation with low signal)
GG	**Design:** P1: narrow light beam
hh	**Electrical connection:** n/a: cable, standard length 2000 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) M8.1: Snap-in, M8 connector, 4-pin (plug)
I	**Configuration:** P1: configuration for label detection

Note
A list with all available device types can be found on the Leuze electronic website at 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:
•   Only for use in "class 2" circuits
•   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)

- Typ. operating range limit/adjustment range: max. achievable operating range/adjustment range for light objects (white 90%)

- Operating range: recommended operating range for objects with different diffuse reflection

- 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
	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
	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

Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50118542	BT 200M.5	Mounting bracket	Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Adjustable Material: Stainless steel
	50124651	BT 205M-10SET	Mounting device set	Contains: 10x 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
	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
	50117829	BTP 200M-D12	Mounting system	Design of mounting device: Protection hood Fastening, at system: For 12 mm rod 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 16 screw, 2 M3 x 20 screws, 2x position washers Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

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