

Technical data sheet

Energetic diffuse sensor

Part no.: 50138502
FT23/4X-M8

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Figure can vary



Technical data

Basic data

Series	23
Operating principle	Diffuse reflection principle

Optical data

Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 0.18 m
Operating range, black 6%	0.02 ... 0.08 m
Operating range limit	Typical operating range
Operating range limit, white 90%	0.001 ... 0.2 m
Operating range limit, black 6%	0.015 ... 0.1 m
Adjustment range	30 ... 180 mm
Light source	LED, Red
LED light wavelength	645 nm
LED group	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed

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	1 Piece(s)
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Switching outputs

Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B - 2.5V)$ low: $\leq 2.5V$

Switching output 1

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

Timing

Switching frequency	500 Hz
Response time	1 ms
Readiness delay	300 ms

Connection

Connection 1

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

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	10 g
Housing color	Black
	Red

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

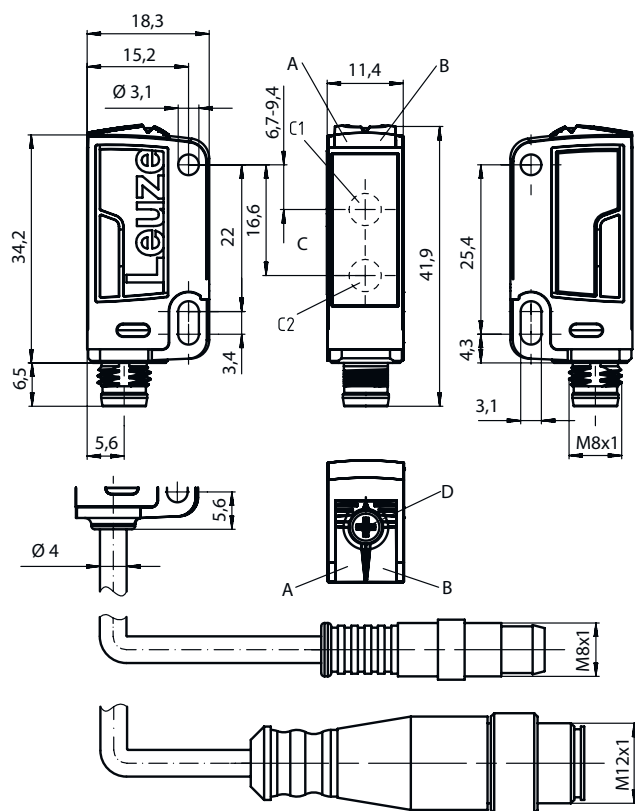
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27270903
eCl@ss 8.0	27270903
eCl@ss 9.0	27270903
eCl@ss 10.0	27270903
eCl@ss 11.0	27270903
ETIM 5.0	EC001821
ETIM 6.0	EC001821
ETIM 7.0	EC001821

Dimensioned drawings

All dimensions in millimeters



- A Green LED
- B Yellow LED
- C Optical axis
- C1 Receiver
- C2 Transmitter
- D Multiturn potentiometer

Electrical connection

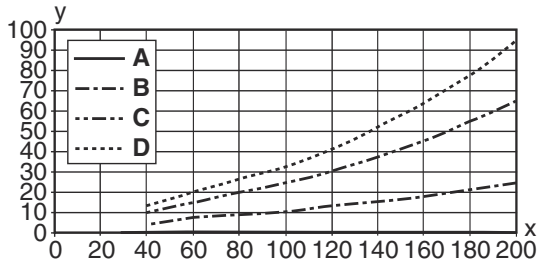
Connection 1

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

Pin	Pin assignment	Conductor color
1	V+	Brown
2	n.c.	Black
3	GND	Blue
4	OUT 1	Black

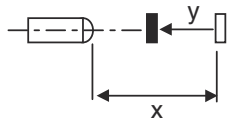


Diagrams



- A White 90%
- B Gray 50%
- C Gray 18%
- D Black 6%

Fading: black/white error < 50 % The black/white error is calculated from the operating range against white and the reduction of the operating range against black: **black/white error = reduction of the operating range against black / operating range against white x 100%**



Operation and display

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

Part number code

Part designation: **AAA23.GJ/ ff-HH**

AAA23	<p>Operating principle / construction</p> <p>HT23: diffuse reflection sensor with background suppression</p> <p>PRK23: retro-reflective photoelectric sensor with polarization filter</p> <p>LS23: throughbeam photoelectric sensor transmitter</p> <p>LE23: throughbeam photoelectric sensor receiver</p> <p>ET23: energetic diffuse reflection sensor</p> <p>FT23: diffuse reflection sensor with fading</p>
G	<p>Equipment</p> <p>T: autocollimation principle (single lens) for highly transparent bottles without tracking</p>
J	<p>Operating range adjustment</p> <p>3: teach-in via button</p>
ff	<p>Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2)</p> <p>2: NPN transistor output, light switching</p> <p>N: NPN transistor output, dark switching</p> <p>4: PNP transistor output, light switching</p> <p>P: PNP transistor output, dark switching</p> <p>X: pin not used</p>

Part number code

HH	<p>Electrical connection</p> <p>n/a: cable, standard length 2000 mm, 3-wire</p> <p>M8: M8 connector, 4-pin (plug)</p> <p>200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)</p> <p>M12: M12 connector, 4-pin (plug)</p> <p>200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)</p>
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Note	
	<p>A list with all available device types can be found on the Leuze website at www.leuze.com.</p>

Notes

Observe intended use!	
	<ul style="list-style-type: none"> ⌘ 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:	
	<ul style="list-style-type: none"> ⌘ 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)



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

Accessories

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	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	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

Note



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