

## Technical data sheet

### Diffuse sensor with background

Part no.: 50138488

HT23/P

#### Contents

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- Electrical connection
- Diagrams
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Figure can vary



## Technical data

### Basic data

Series	23
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 path	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
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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	1 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

Switching element	Transistor, PNP
Switching principle	Dark switching

### Timing

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

### Connection 1

Function	Signal OUT Voltage supply
Type of connection	Cable
Cable length	2,000 mm
Sheathing material	PUR
Cable color	Black
Number of conductors	3 -wire
Wire cross section	0.14 mm <sup>2</sup>

### 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	50 g
Housing color	Black Red
Type of fastening	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

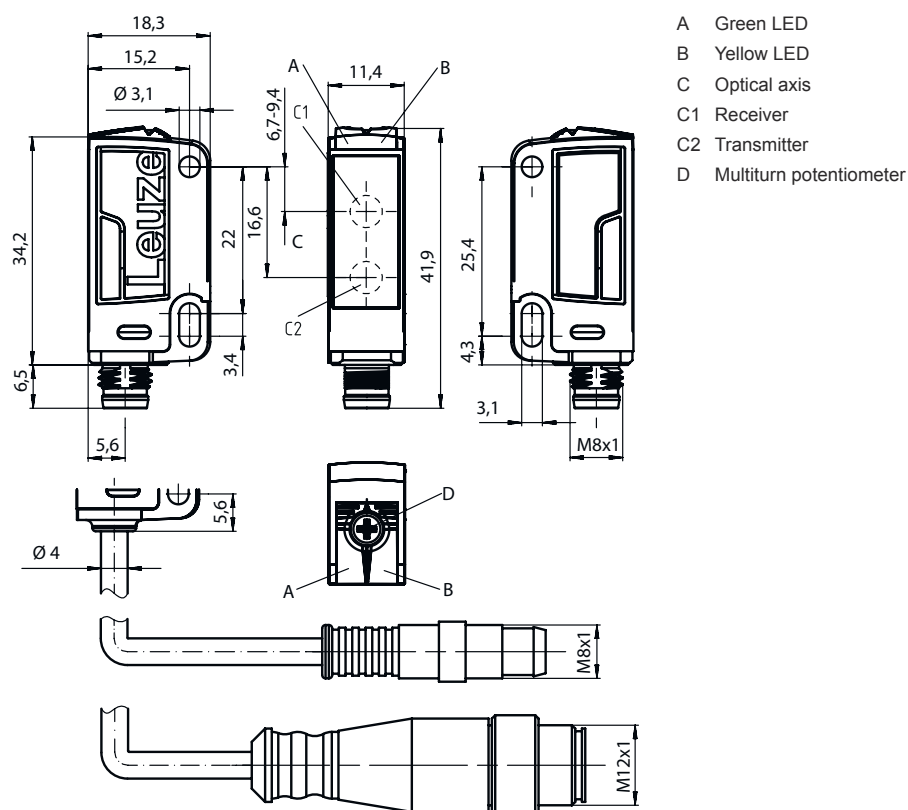
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

### Classification

Customs tariff number	85365019
eCl@ss 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



## Electrical connection

### Connection 1

<b>Function</b>	Signal OUT
	Voltage supply
<b>Type of connection</b>	Cable
<b>Cable length</b>	2,000 mm
<b>Sheathing material</b>	PUR
<b>Cable color</b>	Black
<b>Number of conductors</b>	3 -wire
<b>Wire cross section</b>	0.14 mm <sup>2</sup>

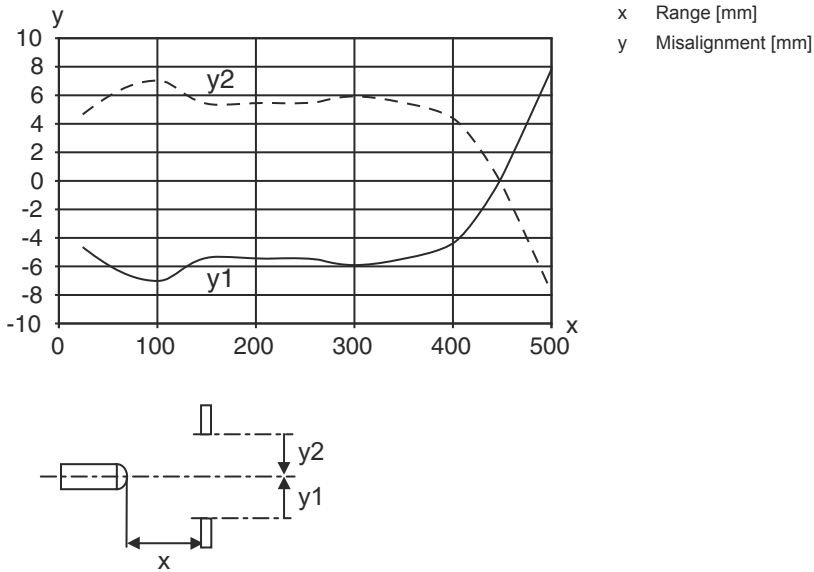
### Conductor color

### Conductor assignment

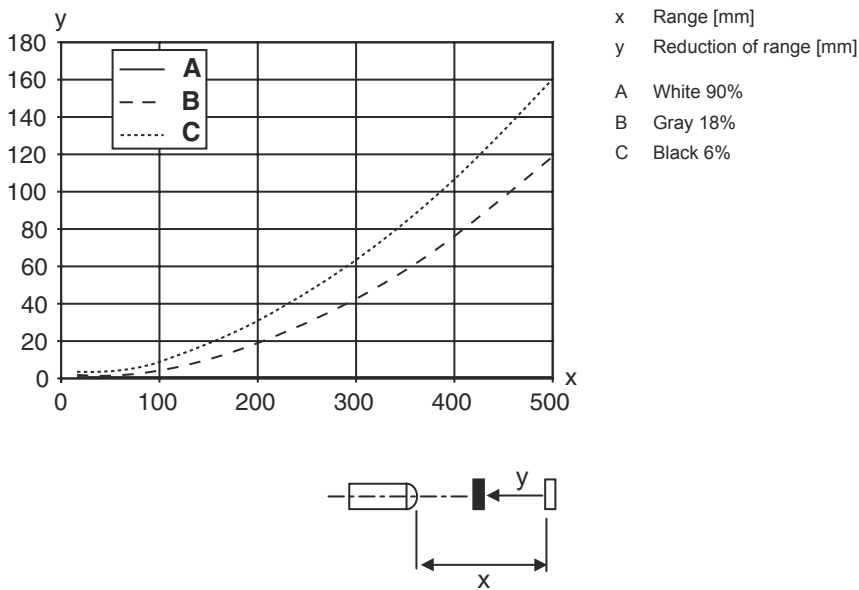
<b>Brown</b>	V+
<b>Blue</b>	GND
<b>Black</b>	OUT 1

## Diagrams

### Typ. response behavior (white 90 %)



### Typ. black/white behavior



## 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

<b>AAA23</b>	<b>Operating principle / construction</b> HT23: diffuse reflection sensor with background suppression PRK23: retro-reflective photoelectric sensor with polarization filter LS23: throughbeam photoelectric sensor transmitter LE23: throughbeam photoelectric sensor receiver ET23: energetic diffuse reflection sensor FT23: diffuse reflection sensor with fading
<b>G</b>	<b>Equipment</b> T: autocollimation principle (single lens) for highly transparent bottles without tracking
<b>J</b>	<b>Operating range adjustment</b> 3: teach-in via button
<b>ff</b>	<b>Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2)</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 X: pin not used
<b>HH</b>	<b>Electrical connection</b> n/a: cable, standard length 2000 mm, 3-wire M8: M8 connector, 4-pin (plug) 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M12: M12 connector, 4-pin (plug) 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)


### Note

	<p>↪ A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a>.</p>
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## Notes

 <b>Observe intended use!</b>	
	<p>↪ This product is not a safety sensor and is not intended as personnel protection.</p> <p>↪ The product may only be put into operation by competent persons.</p> <p>↪ Only use the product in accordance with its intended use.</p>

### For UL applications:




	<p>↪ Only for use in "class 2" circuits</p> <p>↪ 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)</p>
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## Further information



- 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

## 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
	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	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.