Technical data sheet

Energetic diffuse sensor

Part no.: 50138448

FT23/4

Contents

- - Technical data
- - Dimensioned drawings
- - Electrical connection
- - Diagrams
- - Operation and display
- - Part number code
- - Notes
- - Further information
- - Accessories

Figure can vary

The Sensor People

Leuze electronic GmbH + Co. KG
In der Braike 1, 73277 Owen

info@leuze.com • www.leuze.com
Phone: +49 7021 573-0 • Fax: +49 7021 573-199

We reserve the right to make technical changes
eng • 2023-02-06

1/6

Technical data

Leuze

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
Wavelength	645 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)

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)

Switching outputs	
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: ≥(U_B-2.5V)
	low: ≤ 2.5 V

Switching output 1	
Switching element	Transistor, PNP
Switching principle	Light switching

Time behavior

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

Connection

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 mm²

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

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
ECLASS 5.1.4	27270903
ECLASS 8.0	27270903
ECLASS 9.0	27270903
ECLASS 10.0	27270903
ECLASS 11.0	27270903
ECLASS 12.0	27270903
ECLASS 13.0	27270903
ETIM 5.0	EC001821
ETIM 6.0	EC001821
ETIM 7.0	EC001821
ETIM 8.0	EC001821

The Sensor People

Leuze electronic GmbH + Co. KG
In der Braike 1, 73277 Owen

info@leuze.com • www.leuze.com
Phone: +49 7021 573-0 • Fax: +49 7021 573-199

We reserve the right to make technical changes
eng • 2023-02-06

2/6

Dimensioned drawings

All dimensions in millimeters
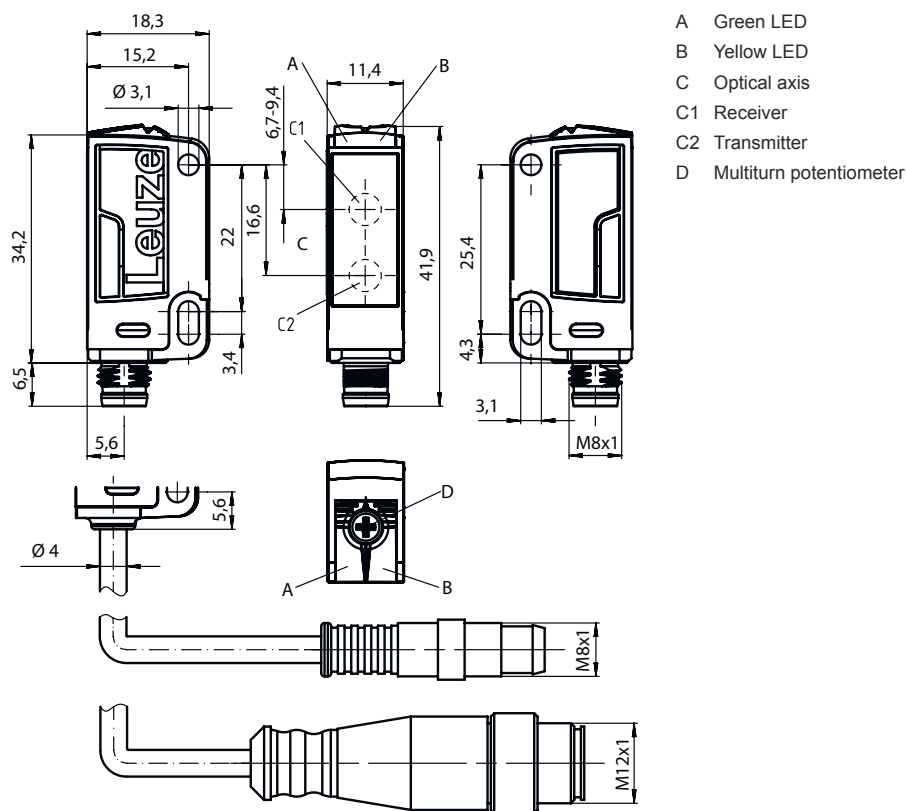
A   Green LED
B   Yellow LED
C   Optical axis
C1   Receiver
C2   Transmitter
D   Multiturn potentiometer

Electrical connection

Connection 1

Function	Signal OUT
	Voltage supply
Type of connection	Cable
Cable length	2,000 mm
Sheathing material	PUR
Cable color	Black
Number of conductors	3 -wire
Wire cross section	0.14 mm²

Conductor color	Conductor assignment
Brown	V+
Black	OUT 1
Blue	GND

The Sensor People

Leuze electronic GmbH + Co. KG
In der Braike 1, 73277 Owen

info@leuze.com • www.leuze.com
Phone: +49 7021 573-0 • Fax: +49 7021 573-199

We reserve the right to make technical changes
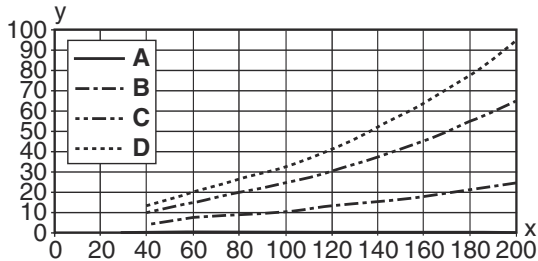eng • 2023-02-06

3/6

Diagrams

Leuze

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%
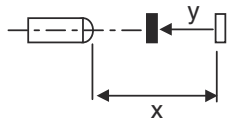
Operation and display

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	**Operating principle / construction** 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
G	**Equipment** T: autocollimation principle (single lens) for highly transparent bottles without tracking
J	**Operating range adjustment** 3: teach-in via button
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

Part number code

HH	**Electrical connection**
	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
↻ A list with all available device types can be found on the Leuze 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)

Further information

- With the set scanning range, a tolerance of the operating range is possible depending on the reflection properties of the material surface.

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

Accessories

Leuze

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.