Technical data sheet

Energetic diffuse sensor

Part no.: 50127903

FT5I.3/2N

Figure can vary

Contents

The Sensor People

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We reserve the right to make technical changes
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Technical data

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Basic data

Series	5
Operating principle	Diffuse reflection principle

Special version

Optical data

Operating range	Guaranteed operating range
Operating range, white 90%	0.001 ... 0.215 m
Operating range, gray 50%	0.001 ... 0.19 m
Operating range, gray 18%	0.003 ... 0.15 m
Operating range, black 6%	0.005 ... 0.125 m
Operating range limit	Typical operating range
Operating range limit, white 90%	0.001 ... 0.28 m
Operating range limit, gray 50%	0.001 ... 0.245 m
Operating range limit, gray 18%	0.003 ... 0.19 m
Operating range limit, black 6%	0.005 ... 0.16 m
Light source	LED, Infrared
LED light wavelength	850 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	2 Piece(s)

Switching outputs

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

Switching output 1

Switching element	Transistor, NPN
Switching principle	Light switching

Switching output 2

Switching element	Transistor, NPN
Switching principle	Dark switching

Timing

Switching frequency	500 Hz
Response time	1 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	4 -wire
Wire cross section	0.2 mm²

Mechanical data

Dimension (W x H x L)	14 mm x 32.5 mm x 20.2 mm
Housing material	Plastic
Plastic housing	ABS
Lens cover material	Plastic
Net weight	70 g
Housing color	Black
	Red

Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	Teach button

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

All dimensions in millimeters
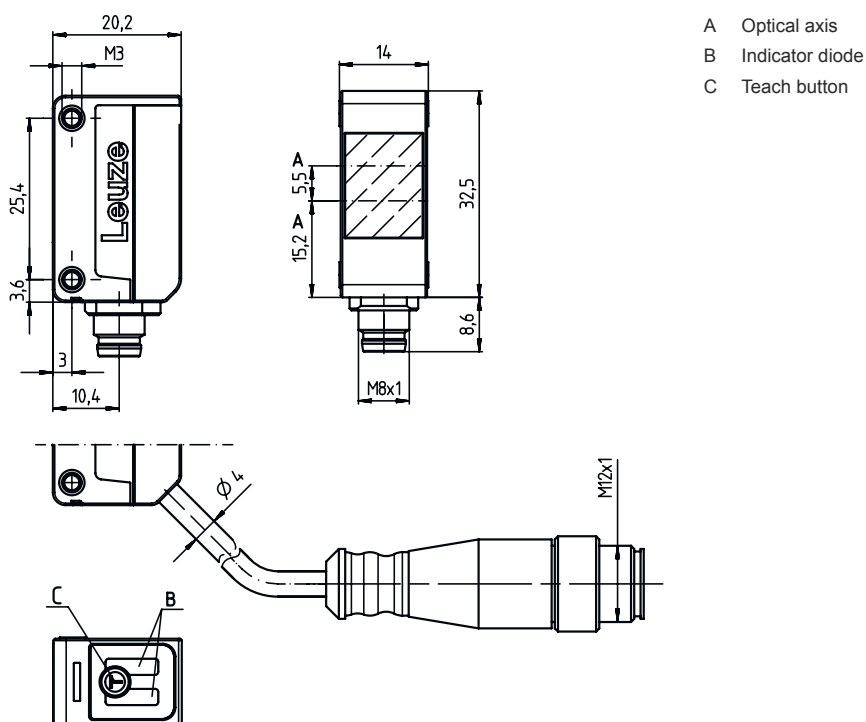
A   Optical axis
B   Indicator diode
C   Teach button

Electrical connection

Function	Signal OUT
	Voltage supply
Type of connection	Cable
Cable length	2,000 mm
Sheathing material	PUR
Cable color	Black
Number of conductors	4 -wire
Wire cross section	0.2 mm²

Conductor color	Conductor assignment
Brown	V+
White	OUT 2
Blue	GND
Black	OUT 1

Diagrams

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Typ. black/white behavior
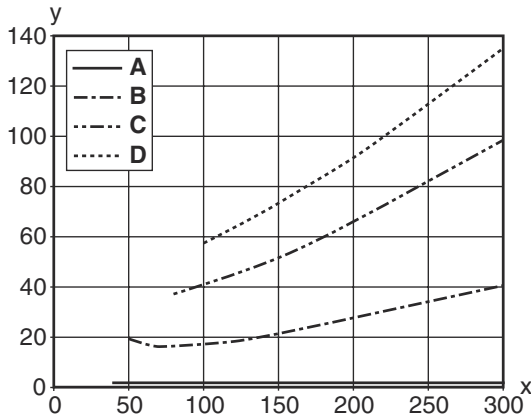
x   Range [mm]

y   Reduction of range [mm]

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%**
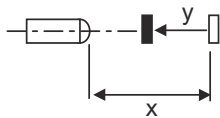
Operation and display

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

Part number code

Part designation: **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	**Version** P1: narrow light beam	

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Part number code

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: different configuration

	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

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

- 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
	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

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Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117826	BTP 300M-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
	50117252	BTU 300M-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 M4 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.