Technical data sheet

Diffuse sensor with background

Part no.: 50133594

HT3C.B/4P-M8

Figure can vary

Contents

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 • 2020-07-23

1/7

Technical data

Leuze

Basic data

Series	3C
Operating principle	Diffuse reflection principle with background suppression

Optical data

Black-white error	< 10% up to 220 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 0.45 m
Operating range, gray 18%	0.01 ... 0.34 m
Operating range, black 6%	0.015 ... 0.22 m
Operating range limit	Typical operating range
Operating range limit	0.005 ... 0.45 m
Adjustment range	15 ... 450 mm
Beam path	Focused
Light source	LED, Red
LED light wavelength	633 nm
LED group	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed
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	2 Piece(s)

Switching outputs

Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: ≥(U_B-2V)
	Low: ≤2V

Switching output 1

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

Switching output 2

Assignment	Connection 1, pin 2
Switching element	Transistor, PNP
Switching principle	Dark switching

Timing

Switching frequency	1,000 Hz
Response time	0.5 ms
Readiness delay	300 ms
Response jitter	166 µs

Connection 1

Function	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M8
Type	Male
Material	Metal
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, PC-ABS
Lens cover material	Plastic / PMMA
Net weight	10 g
Housing color	Red
Type of fastening	Two M3 threaded sleeves
	Via optional mounting device
Compatibility of materials	ECOLAB

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
	IP 69K
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

Leuze

All dimensions in millimeters

A   Green LED
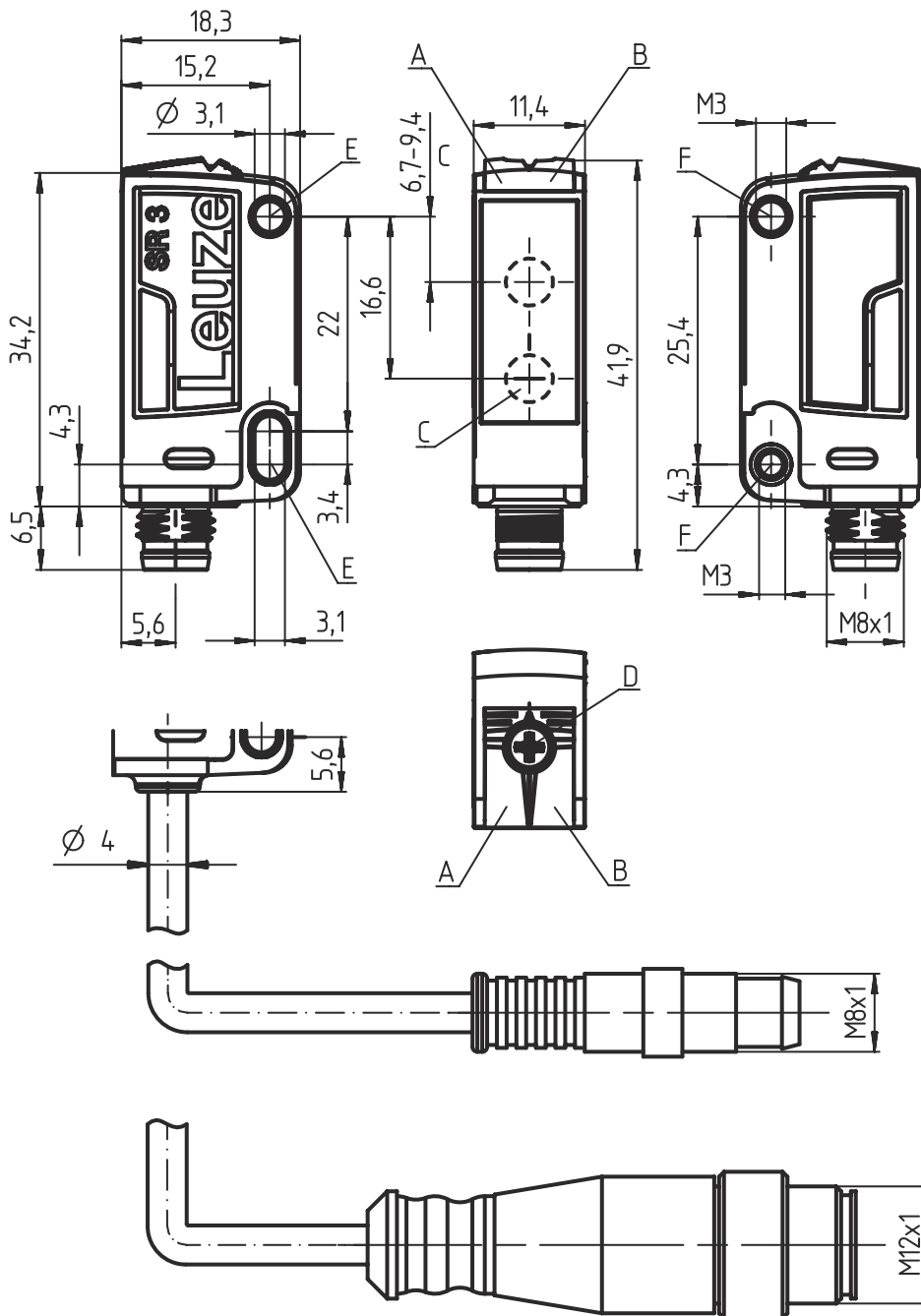
B   Yellow LED

C   Optical axis

D   Multiturn potentiometer

E   Mounting sleeve (standard)

F   Threaded sleeve (3C.B series)

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 • 2020-07-23

3/7

Electrical connection

Leuze

Connection 1

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

Pin	Pin assignment
1	V+
2	OUT 2
3	GND
4	OUT 1
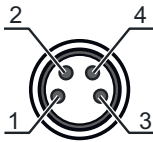
Diagrams

Typ. response behavior (white 90 %)

x   Distance [mm]

y   Misalignment [mm]

We reserve the right to make technical changes
eng • 2020-07-23
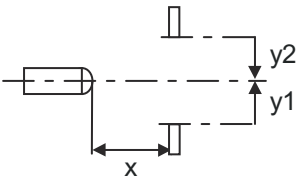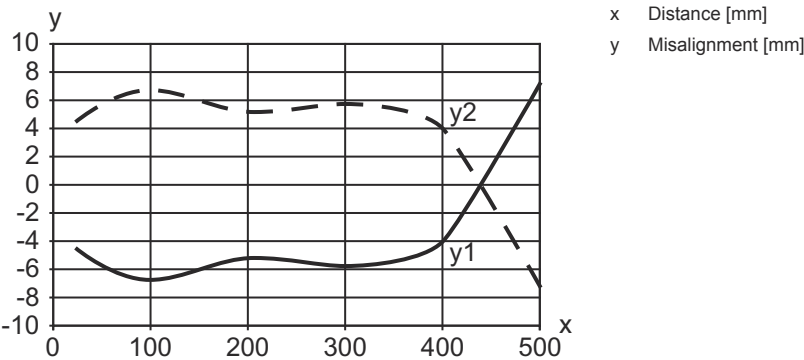
Diagrams

Typ. black/white behavior

x Range [mm]

y Reduction of range [mm]

A White 90%

B Gray 18%

C Black 6%
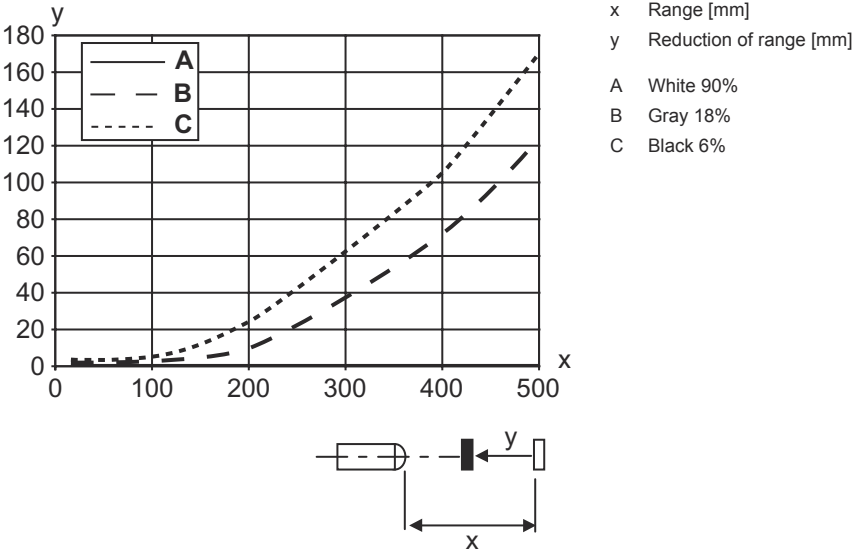
Operation and display

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

Part number code

Part designation: **AAA 3C d EE-f.GG H/i J-K**

AAA3C	**Operating principle / construction**
	HT3C: diffuse reflection sensor with background suppression
	LS3C: throughbeam photoelectric sensor transmitter
	LE3C: throughbeam photoelectric sensor receiver
	PRK3C: retro-reflective photoelectric sensor with polarization filter
d	**Light type**
	n/a: red light
	I: infrared light
EE	**Light source**
	n/a: LED
	L1: laser class 1
	L2: laser class 2
f	**Preset range (optional)**
	n/a: operating range acc. to data sheet
	xxxF: preset range [mm]
GG	**Equipment**
	n/a: standard
	A: autocollimation principle (single lens) for positioning tasks
	B: housing model with two M3 threaded sleeves, brass
	F: permanently set range
	L: long light spot
	S: small light spot
	T: autocollimation principle (single lens) for highly transparent bottles without tracking
	TT: autocollimation principle (single lens) for highly transparent bottles with tracking
	V: V-optics
	XL: extra long light spot
	X: extended model

Part number code

H		**Operating range adjustment** n/a with HT: range adjustable via 8-turn potentiometer n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable 1: 270° potentiometer 3: teach-in via button 6: auto-teach
i		**Switching output/function OUT 1/IN: Pin 4 or black conductor** 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching 6: push-pull switching output, PNP light switching, NPN dark switching G: push-pull switching output, PNP dark switching, NPN light switching L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching) 8: activation input (activation with high signal) X: pin not used 1: IO-Link / light switching (NPN) / dark switching (PNP)
J		**Switching output / function OUT 2/IN: pin 2 or white conductor** 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching 6: push-pull switching output, PNP light switching, NPN dark switching G: push-pull switching output, PNP dark switching, NPN light switching W: warning output X: pin not used 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) T: teach-in via cable
K		**Electrical connection** n/a: cable, standard length 2000 mm, 4-wire 5000: cable, standard length 5000 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)

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:
✎ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code). ✎ 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

Leuze

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

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
	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
	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.