

Technical data sheet

Diffuse sensor with background suppression

Part no.: 50136985

HT46C/6G-M12



For illustration purposes only

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Technical data

Basic data

Series	46C
Operating principle	Diffuse reflection principle with background suppression

Optical data

Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 3 m
Operating range, gray 18%	0.02 ... 2 m
Operating range, black 6%	0.05 ... 1.5 m
Operating range limit	0.005 ... 3 m (typical operating range)
Beam path	Focused
Light source	LED, Red
Wavelength	630 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)
Type of light spot geometry	Rectangular
Focus	Fixed

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 ... 30 mA

Outputs

Number of digital switching outputs	2 Piece(s)
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Switching outputs

Type	Digital switching output
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B - 2V)$ low: $\leq 2 V$

Switching output 1

Assignment	Connection 1, pin 4
Switching element	Transistor, Push-pull
Switching principle	Light switching (PNP)/dark switching (NPN)

Switching output 2

Assignment	Connection 1, pin 2
Switching element	Transistor, Push-pull
Switching principle	Dark switching (PNP)/light switching (NPN)

Time behavior

Switching frequency	250 Hz
Response time	2 ms
Readiness delay	300 ms

Connection

Number of connections	1 Piece(s)
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Connection 1

Function	Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

Mechanical data

Dimension (W x H x L)	20.5 mm x 76.3 mm x 44 mm
Housing material	Plastic
Plastic housing	PC-PBT
Lens cover material	Plastic / PMMA
Net weight	60 g
Housing color	Red
Type of fastening	Through-hole mounting Via optional mounting device
Recommended tightening torque for M3 fastening	0.9 N·m
Recommended tightening torque for M4 fastening	1.4 N·m
Compatibility of materials	ECOLAB

Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	Multiturn potentiometer

Environmental data

Ambient temperature, operation	-40 ... 60 °C
Ambient temperature, storage	-40 ... 70 °C

Certifications

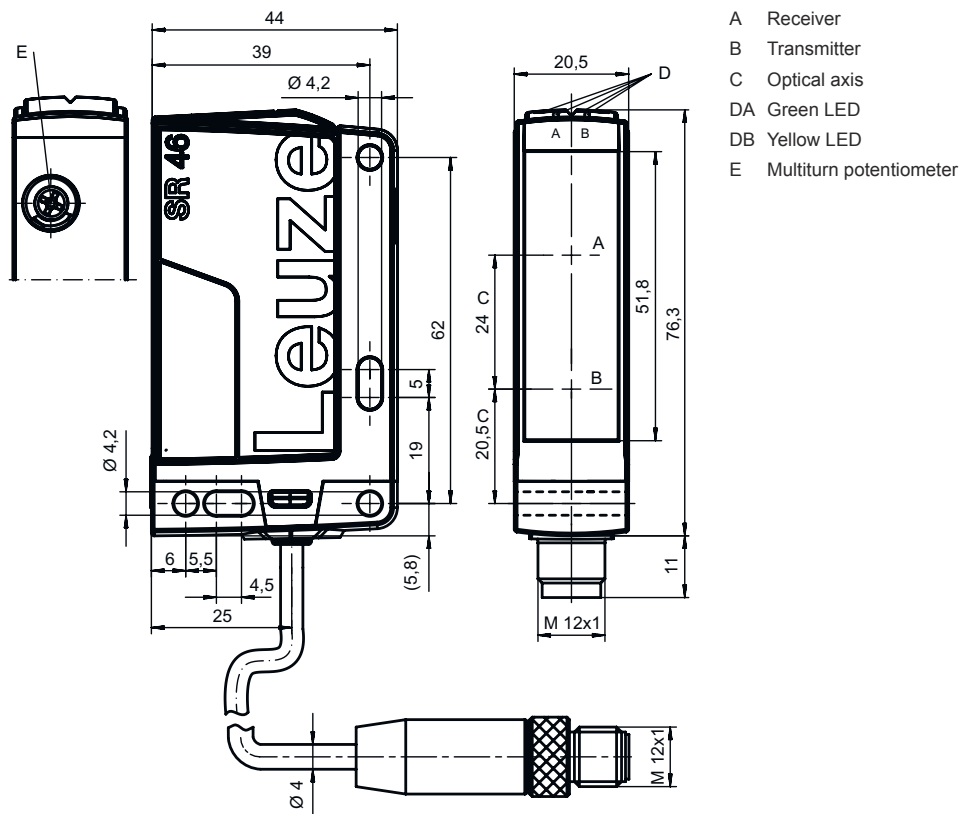
Degree of protection	IP 67 IP 69K
Protection class	III
Approvals	c UL US
Standards applied	IEC 60947-5-2

Classification

Customs tariff number	85365019
ECLASS 5.1.4	27270904
ECLASS 8.0	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ECLASS 13.0	27270903
ECLASS 14.0	27270903
ECLASS 15.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
ETIM 9.0	EC002719
ETIM 10.0	EC002719

Dimensioned drawings

All dimensions in millimeters



- A Receiver
- B Transmitter
- C Optical axis
- DA Green LED
- DB Yellow LED
- E Multiturn potentiometer

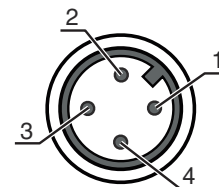
Electrical connection

Connection 1

Function	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

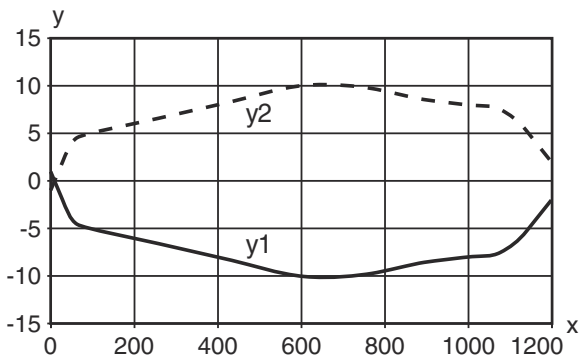
Pin Pin assignment

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

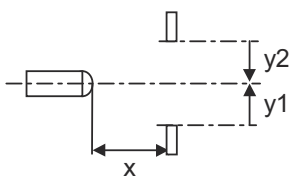


Diagrams

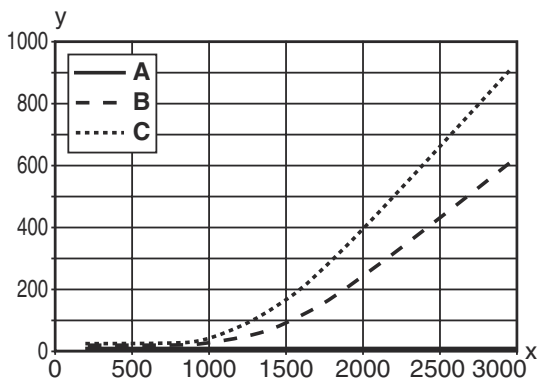
Typ. response behavior (white 90 %)



x Range [mm]
y Reduction of range [mm]

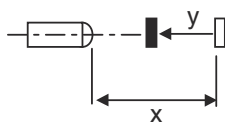


Typ. black/white behavior



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	Operational readiness
2	Yellow, continuous light	Reflection

Part number code

Part designation: AAA46C d EE-f.GG H/i J-K

AAA46C	Operating principle / construction HT46C: Diffuse reflection sensor with background suppression LS46C: Throughbeam photoelectric sensor transmitter LE46C: Throughbeam photoelectric sensor receiver PRK46C: Retro-reflective photoelectric sensor with polarization filter RK46C: Retro-reflective photoelectric sensor
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 1: 270° potentiometer 8: activation input (activation with high signal) 01: diffuse reflection sensor with background suppression (HT): HG tape (HighGain tape) is not detected from a distance of 900 mm with a set operating range of ≤ 450 mm (diffuse reflection: 6%, black) D: Depolarizing media E: Diffuse reflection sensor with background suppression (HT): optimized for dusty environments SL: Diffuse reflection sensor with background suppression (HT): slit diaphragm 25 mm x 3 mm P: throughbeam photoelectric sensor receiver (LE): edge filter for parallel operation L: Light-band XL: Extra long light spot
H	Operating range adjustment & version n/a with diffuse reflection sensor with background suppression (HT): range adjustment via mechanical adjusting spindle n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable 1: retro-reflective photoelectric sensors (PRK/RK): sensitivity adjustment via potentiometer 3: teach-in via button P2: resolution 2 mm
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 L: IO-Link
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 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) W: warning output X: pin not used
K	Electrical connection n/a: cable, standard length 2000 mm, 4-wire 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M12: M12 connector, 4-pin (plug) 500-M12: cable, length 500 mm with M12 connector, 4-pin, axial (plug) 1000-M12: cable, length 1000 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:



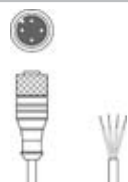
- ℹ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- ℹ These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/ CYJV7 or PVVA/PVVA7)

Further information


- Light source: Average life expectancy 100,000 h at an ambient temperature of 25 °C

Accessories

Connection technology - Connection cables


	Part no.	Designation	Article	Description
	50130648	KD U-M12-4A-V1-020	Connection cable	Application: Chemical resistant Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC

Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50105315	BT 46	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

Accessories

Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50122797	BTU 346M-D12	Mounting system	Contains: 2x M4 x 25 screw, 2x position washers Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Turning, 360°, Adjustable, Clampable 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.