



Figure can vary

Part no.: 50141258
HT46CI/LP-M12
Diffuse sensor with background suppression



 IO-Link

Contents

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Technical data

Basic data	
Series	46C
Operating principle	Diffuse reflection principle with background suppression
Optical data	
Black-white error	< 10% up to 1200 mm
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	Typical operating range
Operating range limit	0.005 ... 3 m
Adjustment range	120 ... 3,000 mm
Beam path	Divergent
Light source	LED , Infrared
LED light wavelength	860 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)
Type of light spot geometry	Rectangular
Electrical data	
Protective circuit	Polarity reversal protection Short circuit protected Transient protection
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)
Switching outputs	
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	High: $\geq(U_B-2V)$ Low: $\leq 2V$
Switching output 1	
Assignment	Connection 1, pin 4
Switching element	Transistor , PNP
Switching principle	IO-Link / light switching (PNP)
Switching output 2	
Assignment	Connection 1, pin 2
Switching element	Transistor , PNP
Switching principle	Dark switching
Timing	
Switching frequency	250 Hz
Response time	2 ms
Readiness delay	300 ms

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Interface

Type	IO-Link
IO-Link	
COM mode	COM2
Frame type	2.5
Specification	V1.1
SIO-mode support	Yes
Min. cycle time	COM2 = 2.3 ms

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

Mechanical data

Dimension (W x H x L)	20.5 mm x 76.3 mm x 44 mm
Housing material	Plastic , PC-PBT
Lens cover material	Plastic / PMMA
Net weight	60 g
Housing color	Red
Type of fastening	Through-hole mounting 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	II , Rating voltage 50 V
Certifications	c UL US
Standards applied	IEC 60947-5-2

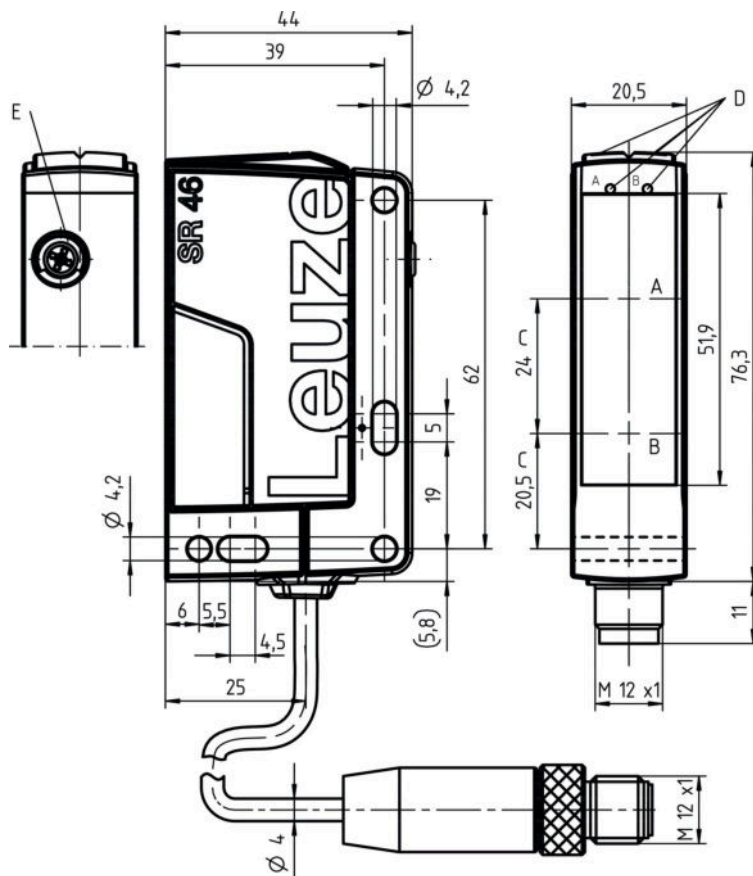
Classification

Customs tariff number	85365019
eCl@ss 8.0	27270904

eCl@ss 9.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719

Dimensioned drawings

All dimensions in millimeters



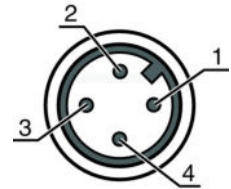
- A Receiver
- B Transmitter
- C Optical axis
- DA Green LED
- DB Yellow LED
- E Multiturn potentiometer

Electrical connection

Connection 1	
Function	Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic

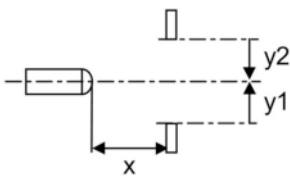
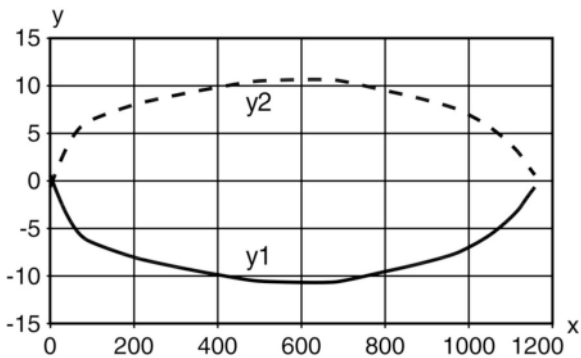
Connection 1	
No. of pins	4 -pin
Encoding	A-coded

Pin	Pin assignment
1	V+
2	OUT 2
3	GND
4	IO-Link / OUT 1



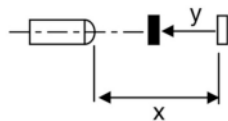
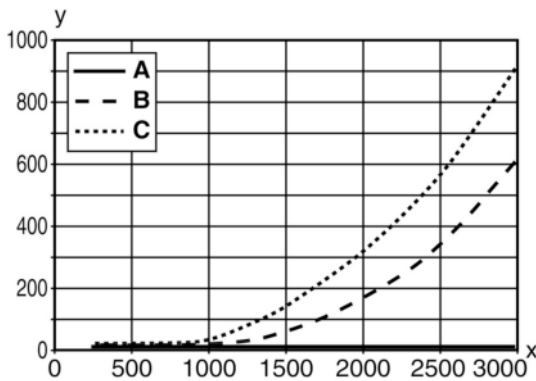
Diagrams

Typ. response behavior (white 90 %)



x Distance [mm]
y Misalignment [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

LEDs

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

Part number code

Part designation: **AAA46CdEE.GGH/iJ-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

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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 XL: extra long light spot L: Light-band
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 interface (SIO mode: PNP light switching, NPN dark switching)
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

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)

NOTE



- Permissible operating temperature range during IO-Link operation: -10 °C to +40 °C

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


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Accessories


Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130652	KD U-M12-4A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
	50130690	KD U-M12-4W-V1-050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 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
	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

Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117252	BTU 300M-D12	Mounting system	Contains: 2x M4 x 25 screw, 2x M4 x 20 screw, 4x position washers 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 electronic website in the Download tab of the article detailed page.