



Figure can vary

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



 IO-Link

## Contents

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

## Technical data

<b>Basic data</b>	
Series	46C
Operating principle	Diffuse reflection principle with background suppression
<b>Optical data</b>	
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	5 ... 3,000 mm
Beam profile	Divergent
Light source	LED , Infrared
LED light wavelength	860 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)
Light-spot size [at sensor distance]	x □
Type of light-spot geometry	Rectangular
<b>Electrical data</b>	
Protective circuit	Polarity reversal protection Short circuit protected Transient protection
<b>Performance data</b>	
Supply voltage $U_B$	10 ... 30 V , DC , Incl. residual ripple
Residual ripple	0 ... 15 % , From $U_B$
Open-circuit current	0 ... 30 mA
<b>Outputs</b>	
Number of digital switching outputs	2 Piece(s)
<b>Switching outputs</b>	
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	High: $\geq(U_B-2V)$ Low: $\leq 2V$
<b>Switching output 1</b>	
Assignment	Connection 1, pin 4
Switching element	Transistor , PNP
Switching principle	IO-Link / light switching (PNP)
<b>Switching output 2</b>	
Assignment	Connection 1, pin 2
Switching element	Transistor , PNP
Switching principle	Dark switching
<b>Timing</b>	
Switching frequency	250 Hz
Response time	2 ms
Readiness delay	300 ms

**Part no.: 50141258 – HT46CI/LP-M12 – Diffuse sensor with background**
**Interface**

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

**Connection**
**Connection 1**

Type of connection	Connector
Function	Signal OUT Voltage supply
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

**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

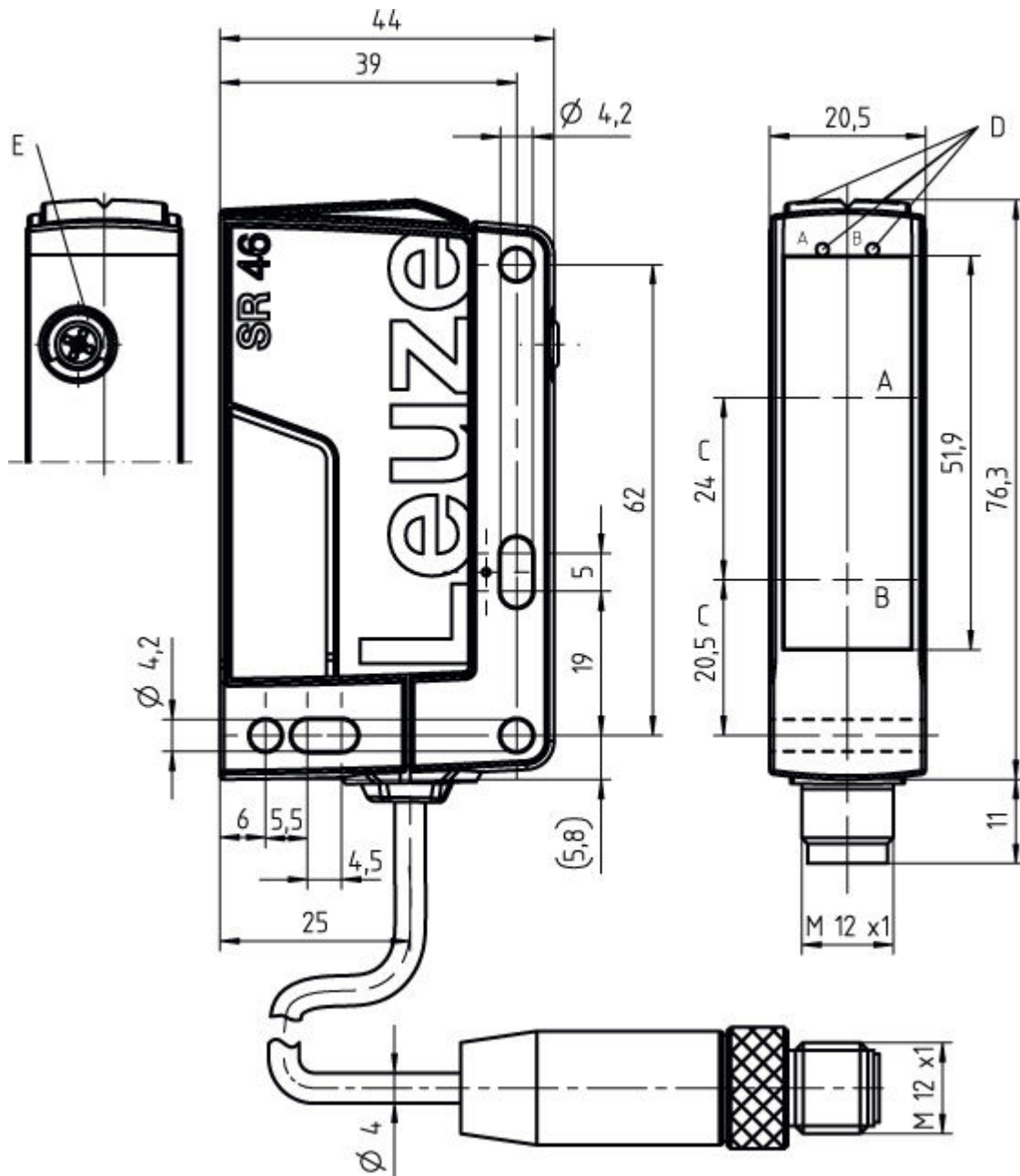
EC002719

ETIM 6.0

EC002719

## Dimensioned drawings

All dimensions in millimeters

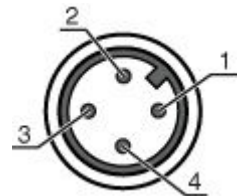


- A Receiver
- B Transmitter
- C Optical axis
- DA Green LED
- DB Yellow LED
- E Range adjustment

## Electrical connection

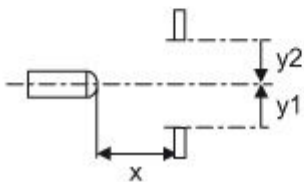
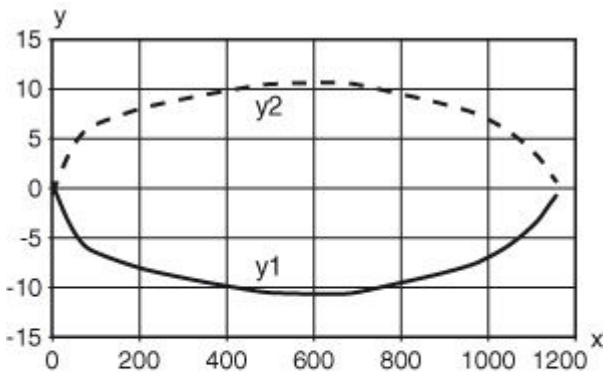
Connection 1	
Type of connection	Connector
Function	Signal OUT Voltage supply
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

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



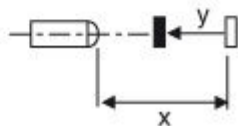
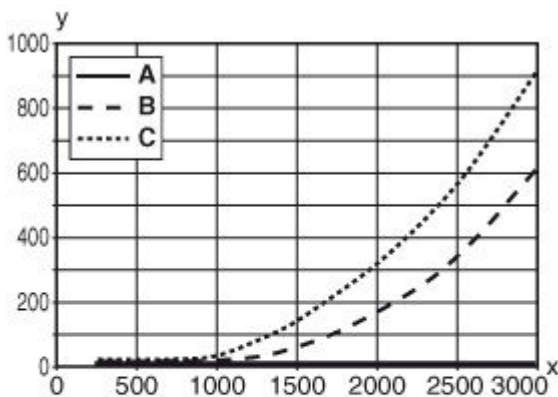
## Diagrams

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	<b>Operating principle / construction:</b> 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	<b>Light type:</b> n/a: red light l: infrared light
EE	<b>Light source:</b> n/a: LED L1: laser class 1 L2: laser class 2

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

GG	<b>Equipment:</b> n/a: standard 1: 270° potentiometer 8: activation input (activation with high signal) 01: diffuse reflection sensor with background suppression (HT): HG film (HighGain film) is not detected from a distance of 900 mm with a set operating range of $\leq 450$ 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
H	<b>Operating range adjustment &amp; version:</b> 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	<b>Switching output/function OUT 1/IN: Pin 4 or black conductor:</b> 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	<b>Switching output / function OUT 2/IN: pin 2 or white conductor:</b> 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 electronic website at [www.leuze.com](http://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


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

## 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 Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal