

HT46CI

Diffuse reflection light scanners with background suppression

en 01-2015/06 50129625



5 ... 3000mm
1,200mm with
black-white error < 10%



- Scanner with adjustable background suppression in infrared version for extremely high detection reliability
- Reliable detection of objects with different surface structures
- Large adjustment range and minimal zero distance for optimum adaptation to the application
- Highly visible status displays
- Exact switching point adjustment through mechanical adjusting spindle
- Extremely high repeatability of the switching point
- Activation input for sensor test
- Various switching output functions for universal connection to existing control environment
- A²LS active ambient light suppression for avoiding mutual interference
- Robust plastic housing in degrees of protection IP67 and IP69K

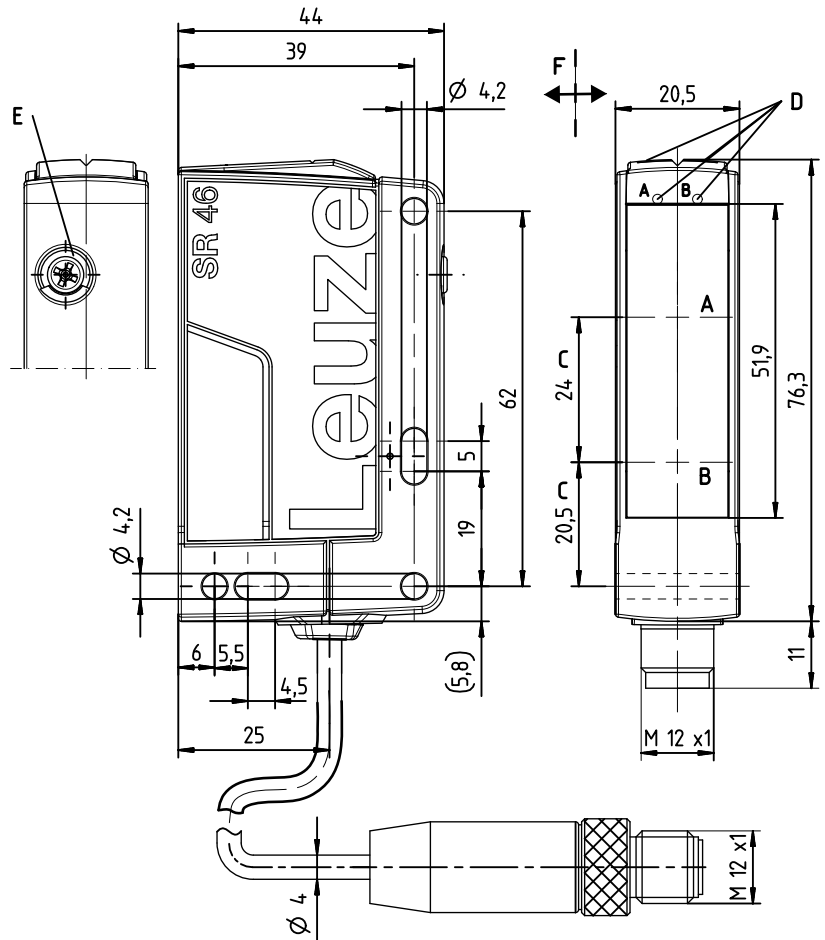


Accessories:

(available separately)

- Mounting systems (BT 46, BTU 300M, BT 300, BTU 346)
- M12 connectors (KD ...)
- Ready-made cables (K-D ...)

Dimensioned drawing



- A** Receiver
- B** Transmitter
- C** Optical axis
- DA** Green indicator diode
- DB** Yellow indicator diode
- E** Scanning range adjustment
- F** Preferred movement for objects

Electrical connection

Connector, 4-pin

UB	1	br/BN
OUT/IN*)	2	ws/WH
GND	3	bl/BU
OUT1	4	sw/BK

Cable

UB	1	br/BN
OUT/IN*)	2	ws/WH
GND	3	bl/BU
OUT1	4	sw/BK

Selection pin 2

*)	OUT	IN
	OUT 2	Active
	Warn	
	NC	

We reserve the right to make changes • DS_HT46CI_en_50129625.fm

Specifications

Optical data

Typ. scanning range limit (white 90%) ¹⁾	5 ... 3000mm
Scanning range ²⁾	see diagrams
Black-white error	<10% up to 1200mm
Scanning range adjustment	mechanical adjusting spindle
Adjustment range	120 ... 3000mm
Light source ³⁾	LED (modulated light)
Wavelength	860nm (infrared light)

Timing

Switching frequency	250Hz
Response time	2ms
Delay before start-up	≤ 300ms

Electrical data

Operating voltage U_B ⁴⁾	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of U_B
Open-circuit current	≤ 30mA
Switching outputs/functions ⁵⁾	/4P /4X /4W /48 /PX /2N 2 PNP switching outputs, antivalent 1 PNP switching output, light switching 1 PNP switching output, light switching, 1 PNP warning output 1 PNP switching output, light switching, 1 activation input 1 PNP switching output, dark switching 2 NPN switching outputs, antivalent
Signal voltage high/low	≥ (U_B - 2V) / ≤ 2V
Output current	max. 100mA

Indicators

Green LED	ready
Yellow LED	reflection
Yellow LED, flashing	reflection, no function reserve

Mechanical data

Housing	plastic
Optics cover	plastic
Weight	with M12 connector: approx. 60g with 200mm cable and M12 connector: approx. 65g with 2000mm cable: approx. 100g
Connection type	M12 connector, 4-pin cable 200mm with M12 connector, 4-pin cable 2000mm, 4 x 0.21 mm²

Environmental data

Ambient temp. (operation/storage)	-40°C ... +60°C / -40°C ... +70°C
Protective circuit ⁶⁾	2, 3
VDE safety class ⁷⁾	II, all-insulated
Degree of protection	IP 67, IP 69K
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, CSA C22.2 No.14-13 ⁴⁾ ⁸⁾

Options

Warning output	PNP transistor, counting principle
Signal voltage high/low	≥ (U_B - 2V) / ≤ 2V
Output current	max. 100mA
Activation input	
Transmitter active/not active	≥ 8V / ≤ 2V
Activation/disable delay	≤ 1ms / ≤ 2ms
Input resistance	10KΩ ± 10%

- 1) Typ. scan. range limit: max. achievable scanning range for light objects (white 90%)
- 2) Scanning range: recommended scanning range for objects with different diffuse reflection
- 3) Average life expectancy 100,000 h at an ambient temperature of 25°C
- 4) For UL applications: for use in class 2 circuits only
- 5) See part number code
- 6) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 7) Rating voltage 50V
- 8) 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)

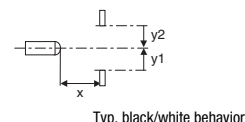
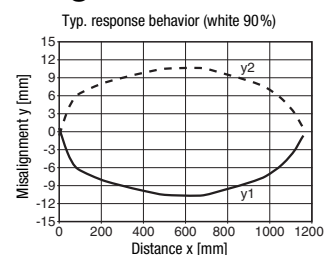
Tables

1	5	3000
2	20	2000
3	50	1500

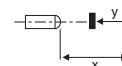
1	white 90%
2	gray 18%
3	black 6%

☐ Scanning range [mm]

Diagrams



- A white 90%
- B gray 18%
- C black 6%



Remarks

Operate in accordance with 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 the intended use.

HT46CI Diffuse reflection light scanners with background suppression

Part number code

H	T	4	6	C	I		/	4	P	-	2	0	0	-	M	1	2
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Operating principle

HT Diffuse reflection light scanners with background suppression

Series

46C 46C series

Light type

Free Red light

I Infrared light

Setting

Free Scanning range adjustment via mechanical adjusting spindle

Pin assignment of OUT1 (connector pin 4 / black cable wire)

2 NPN, light switching

N NPN, dark switching

4 PNP, light switching

P PNP, dark switching

Pin assignment of OUT/IN (connector pin 2 / white cable wire)

X Not assigned

2 NPN, light switching

N NPN, dark switching

4 PNP, light switching

P PNP, dark switching

8 Activation input (active high)

W Warning output, PNP light switching

Connection technology

M12 M12 connector, 4-pin

200-M12 Cable 200 mm with M12 connector, 4-pin

Free Cable 2000 mm

Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

Red-light diffuse reflection light scanner with background suppression	Designation	Part no.
With M12 connector, 4-pin		
OUT1: PNP light switching; OUT2: PNP dark switching	HT46CI/4P-M12	50127061
OUT1: PNP light switching; OUT2: no contact ¹⁾	HT46CI/4X-M12	50127063
OUT1: PNP light switching; IN: activation input active high	HT46CI/48-M12	50127066
OUT1: PNP light switching; OUT2: warning output PNP active high	HT46CI/4W-M12	50127067
OUT1: PNP dark switching; OUT2: no contact ¹⁾	HT46CI/PX-M12	50127064
OUT1: NPN light switching; OUT2: NPN dark switching	HT46CI/2N-M12	50129671
Cable 0.2m with M12 connector, 4-pin		
OUT1: PNP light switching; OUT2: PNP dark switching	HT46CI/4P-200-M12	50129751
OUT1: PNP dark switching; OUT2: no contact ¹⁾	HT46CI/PX-200-M12	50127065
Cable 2m		
OUT1: PNP light switching; OUT2: PNP dark switching	HT46CI/4P	50127062

¹⁾ Direct connection to AS-i coupling modules possible