

## Technical data sheet

### Diffuse sensor with background

Part no.: 50141950

HT15/4X-2500-M12



Figure can vary

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## Technical data

### Basic data

Series	15
Operating principle	Diffuse reflection principle with background suppression

### Optical data

Black-white error	< 15% up to 350 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0.012 ... 1 m
Operating range, gray 18%	0.012 ... 0.7 m
Operating range, black 6%	0.012 ... 0.5 m
Operating range limit	Typical operating range
Operating range limit	0.012 ... 1 m
Adjustment range	50 ... 1,000 mm
Light source	LED, Red
LED light wavelength	640 nm
LED group	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed

### 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 ... 20 mA

### Outputs

Number of digital switching outputs	1 Piece(s)
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### Switching outputs

Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B-2.5V)$ low: $\leq 2.5V$

### Switching output 1

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

### Timing

Switching frequency	500 Hz
Response time	1 ms
Readiness delay	300 ms

### Connection 1

Function	Signal OUT Voltage supply
Type of connection	Cable with connector
Cable length	2,500 mm
Sheathing material	PUR
Cable color	Black
Wire cross section	0.14 mm <sup>2</sup>
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

### Mechanical data

Dimension (W x H x L)	15 mm x 42.7 mm x 30 mm
Housing material	Plastic
Plastic housing	ABS
Lens cover material	Plastic
Net weight	55 g
Housing color	Black
Type of fastening	Through-hole mounting Via optional mounting device

### Operation and display

Type of display	LED
Number of LEDs	1 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

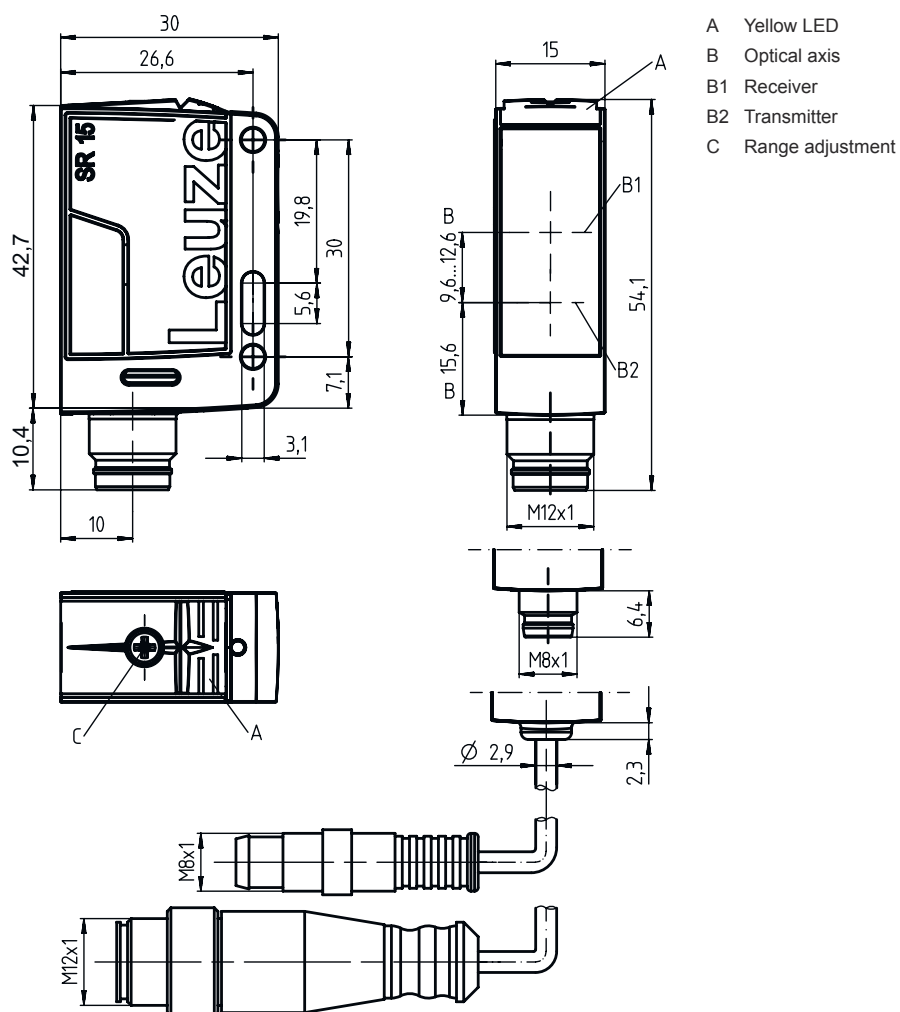
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

### Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27270904
eCl@ss 8.0	27270904
eCl@ss 9.0	27270904
eCl@ss 10.0	27270904
eCl@ss 11.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719

## Dimensioned drawings

All dimensions in millimeters



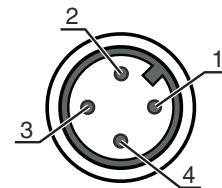
## Electrical connection

### Connection 1

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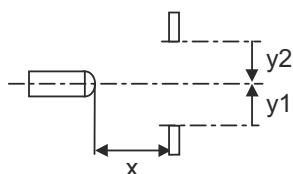
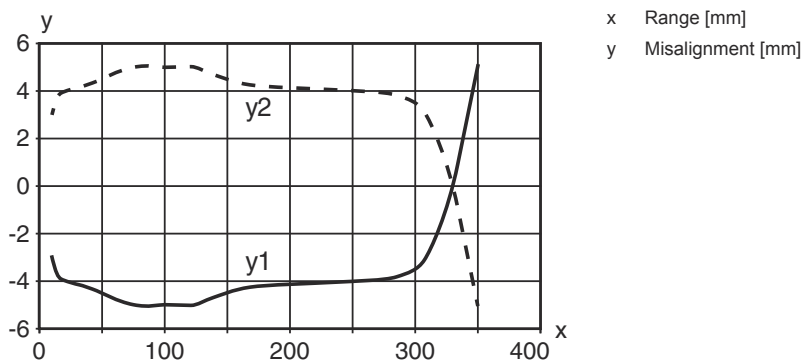
# Electrical connection

Pin	Pin assignment
1	V+
2	n.c.
3	GND
4	OUT 1

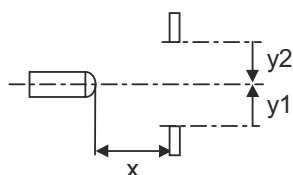
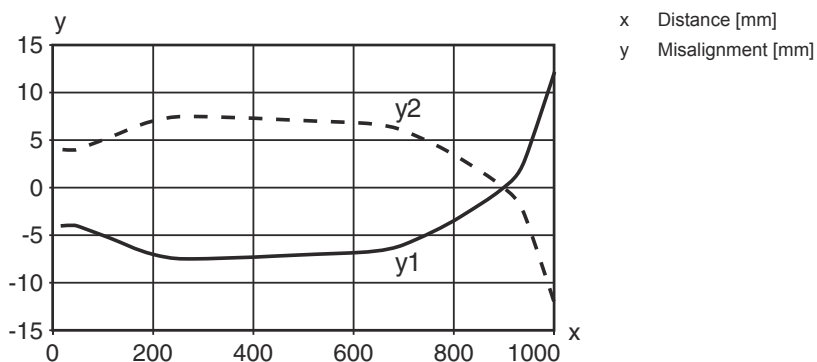


## Diagrams

Typ. response behavior (focusing distance 350 mm)

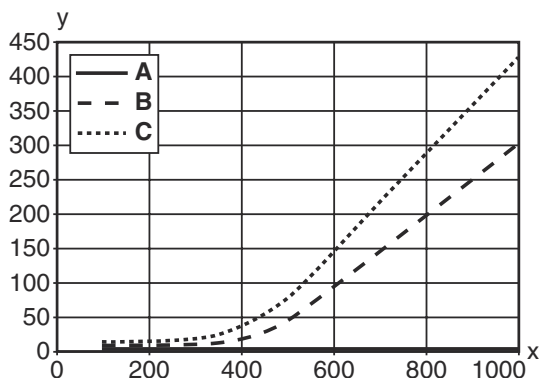


Typ. response behavior (focusing distance 1000 mm)



# 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	Yellow, continuous light	Object detected

## Part number code

Part designation: AAA15d.EE/ ff-HH

<b>AAA15</b>	<b>Operating principle / construction</b> HT15: diffuse reflection sensor with background suppression PRK15: retro-reflective photoelectric sensor with polarization filter LS15: throughbeam photoelectric sensor transmitter LE15: throughbeam photoelectric sensor receiver
<b>d</b>	<b>Light type</b> n/a: red light l: infrared light
<b>EE</b>	<b>Equipment</b> 1: adjustable range D: detection of stretch-wrapped objects
<b>ff</b>	<b>Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2)</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 X: pin not used
<b>HH</b>	<b>Electrical connection</b> n/a: cable, standard length 2000 mm, 4-wire M8: M8 connector, 4-pin (plug) 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M12: M12 connector, 4-pin (plug)

**Note**

A list with all available device types can be found on the Leuze 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:



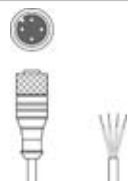

- ⌘ Only for use in "class 2" circuits
- ⌘ These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/ CYJV7 or PVVA/PVVA7)

## 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
	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
	50040269	BT 25	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
	50117829	BTP 200M-D12	Mounting system	Design of mounting device: Protection hood Fastening, at system: For 12 mm rod Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal
	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.