

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50141950

HT15/4X-2500-M12



For illustration purposes only

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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
Wavelength	640 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)

### 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: $\leq 2.5 V$

### Switching output 1

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

### Time behavior

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

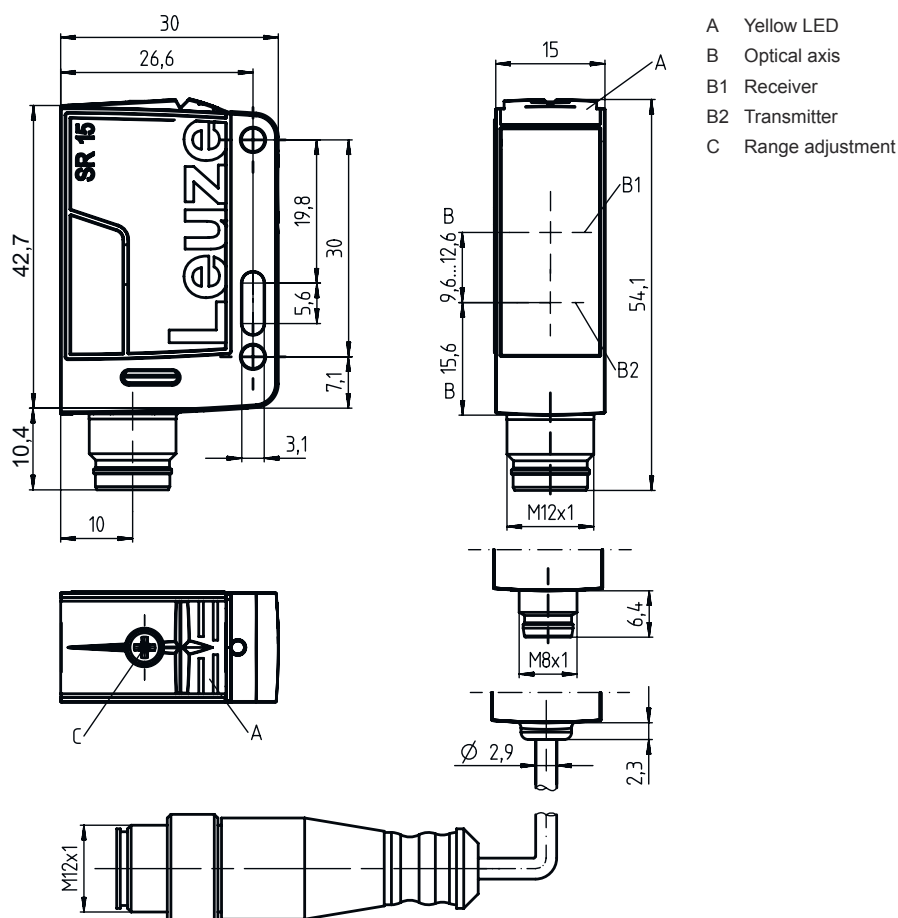
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

### Classification

Customs tariff number	85365019
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
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719

## Dimensioned drawings

All dimensions in millimeters



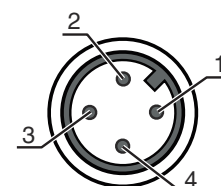
## Electrical connection

### 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

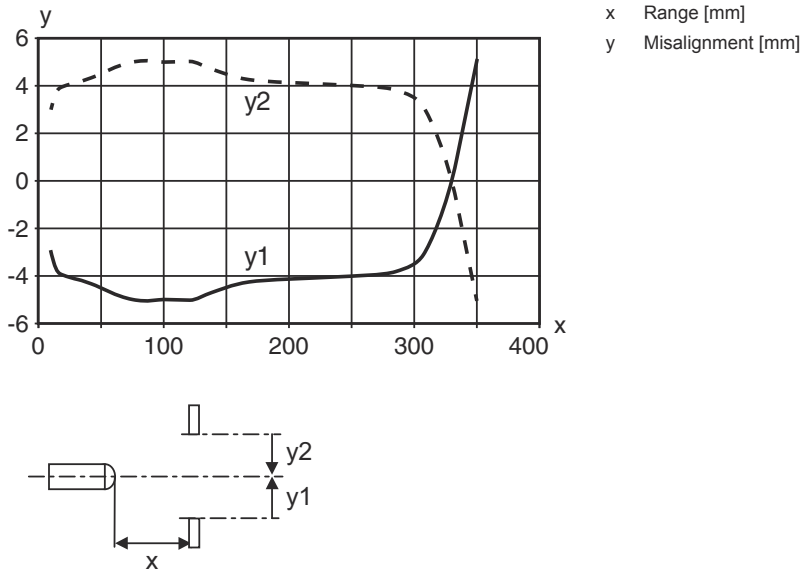
### Pin Pin assignment

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

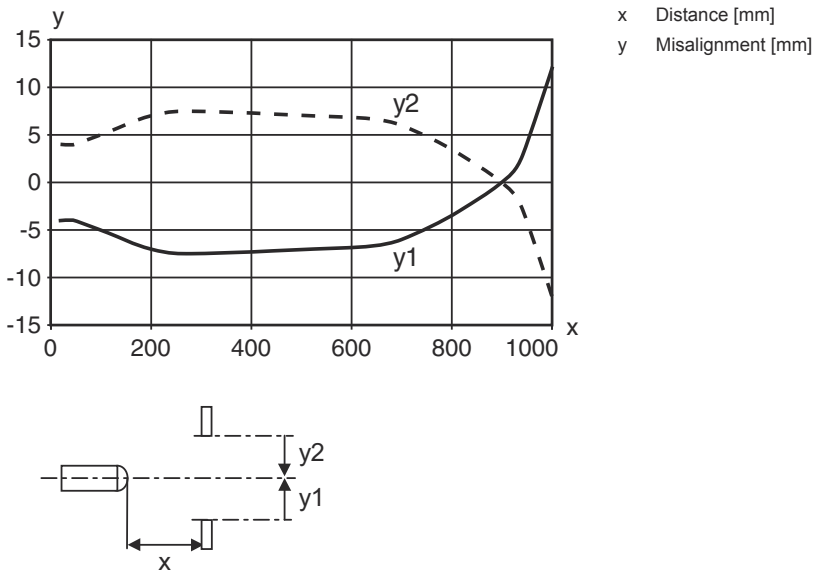


# Diagrams

Typ. response behavior (focusing distance 350 mm)

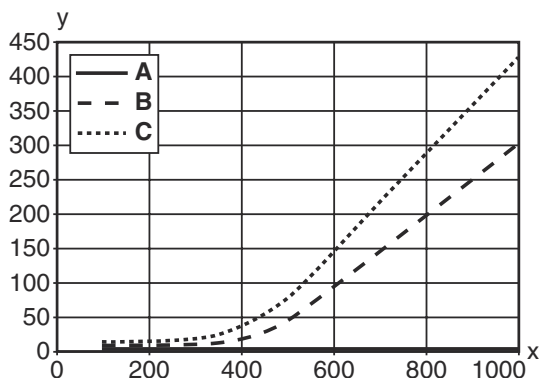


Typ. response behavior (focusing distance 1000 mm)



# 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</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, 3-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.

## 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 Connector, LED: No 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 Connector, LED: No 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

### 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

**Accessories**

	<b>Part no.</b>	<b>Designation</b>	<b>Article</b>	<b>Description</b>
	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.