



**Part no.: 50134357**  
**HT15I/4X-200-M12**  
**Diffuse sensor with background suppression**



Figure can vary

## Contents

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## Technical data

<b>Basic data</b>	
Series	15
Operating principle	Diffuse reflection principle with background suppression
<b>Optical data</b>	
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 , Infrared
LED light wavelength	850 nm
LED group	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed
<b>Electrical data</b>	
Protective circuit	Polarity reversal protection Short circuit protected
<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 ... 20 mA
<b>Outputs</b>	
Number of digital switching outputs	1 Piece(s)
<b>Switching outputs</b>	
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B-2.5V)$ low: $\leq 2.5V$
<b>Switching output 1</b>	
Assignment	Connection 1, pin 4
Switching element	Transistor , PNP
Switching principle	Light switching
<b>Timing</b>	
Switching frequency	500 Hz
Response time	1 ms
Readiness delay	300 ms
<b>Connection</b>	

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**Connection 1**

Type of connection	Cable with connector
Function	Signal OUT Voltage supply
Cable length	200 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 , ABS
Lens cover material	Plastic
Net weight	22 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**

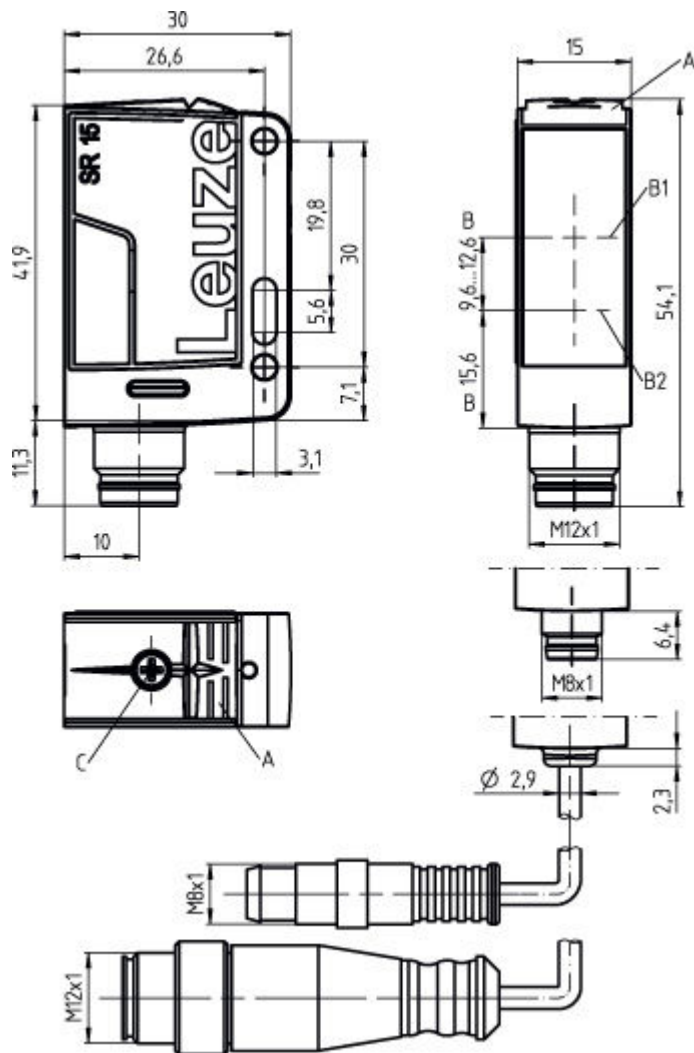
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

**Classification**

Customs tariff number	85365019
eCl@ss 8.0	27270904
eCl@ss 9.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719

## Dimensioned drawings

All dimensions in millimeters



- A Yellow LED
- B Optical axis
- B1 Receiver
- B2 Transmitter
- C Range adjustment

## Electrical connection

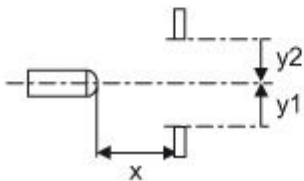
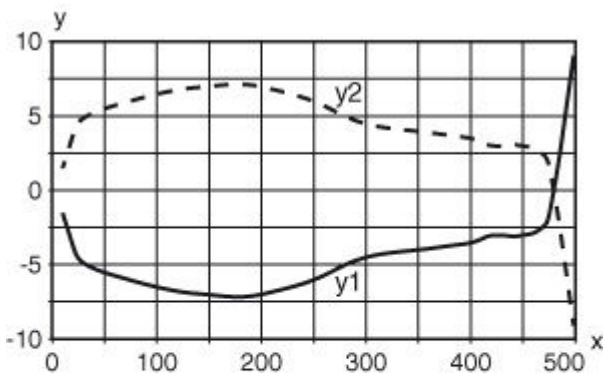
Connection 1	
Type of connection	Cable with connector
Function	Signal OUT Voltage supply
Cable length	200 mm
Sheathing material	PUR
Cable color	Black
Wire cross section	0.14 mm <sup>2</sup>
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

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



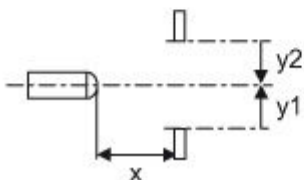
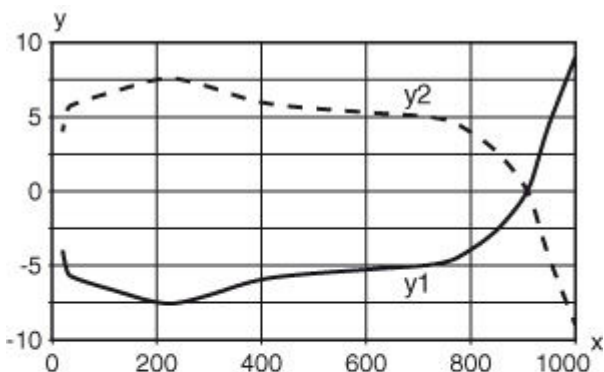
## Diagrams

Typ. response behavior (focusing distance 500 mm)



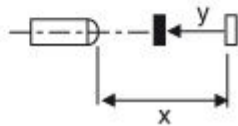
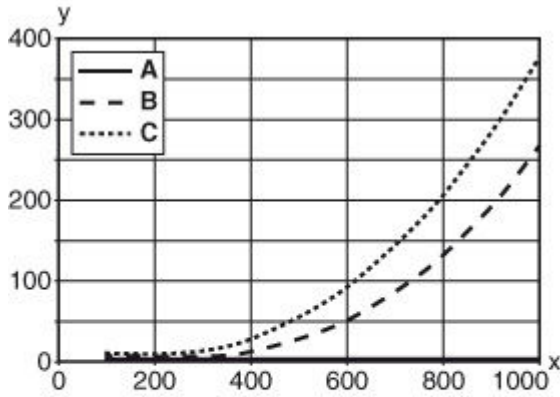
x Range [mm]  
y Misalignment [mm]

Typ. response behavior (focusing distance 1000 mm)



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	Yellow, continuous light	Object detected

**Part number code**

Part designation: **AAA15d.EE/ ff-HH**

AAA15	<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
d	<b>Light type:</b> n/a: red light I: infrared light
EE	<b>Equipment:</b> 1: adjustable range D: detection of stretch-wrapped objects

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ff	<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
HH	<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)

<b>Note</b>
A list with all available device types can be found on the Leuze electronic website at <a href="http://www.leuze.com">www.leuze.com</a> .

## Notes



<b>Observe intended use!</b>
<ul style="list-style-type: none"> <li>This product is not a safety sensor and is not intended as personnel protection.</li> <li>The product may only be put into operation by competent persons.</li> <li>Only use the product in accordance with its intended use.</li> </ul>

<b>For UL applications:</b>
<ul style="list-style-type: none"> <li>Only for use in "class 2" circuits</li> <li>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)</li> </ul>

- 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

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## 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
	50117255	BTU 200M-D12	Mounting system	Contains: 2x M3 x 16 screw, 2x M3 x 20 screw, 2x 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