



Figure can vary

Part no.: 50139639  
HT25CL1/2N-M12  
Diffuse sensor with background  
suppression



## Contents

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

## Technical data

<b>Basic data</b>	
Series	25C
Operating principle	Diffuse reflection principle with background suppression
<b>Optical data</b>	
Black-white error	< 10% up to 250 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 0.6 m
Operating range, gray 18%	0.015 ... 0.45 m
Operating range, black 6%	0.02 ... 0.3 m
Operating range limit	Typical operating range
Operating range limit	0.005 ... 0.6 m
Adjustment range	50 ... 600 mm
Beam path	Collimated
Light source	Laser , Red
Laser light wavelength	650 nm
Laser class	1 , IEC/EN 60825-1:2007
Transmitted-signal shape	Pulsed
Pulse duration	4.5 µs
Light spot size [at sensor distance]	3 mm x 5 mm [1,000 mm]
Type of light spot geometry	elliptic
Shift angle	Typ. ± 1.5°
<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	2 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 , NPN
Switching principle	Light switching
<b>Switching output 2</b>	
Assignment	Connection 1, pin 2
Switching element	Transistor , NPN
Switching principle	Dark switching
<b>Timing</b>	
Switching frequency	2,500 Hz

**Part no.: 50139639 – HT25CL1/2N-M12 – Diffuse sensor with background**

Response time	0.2 ms
Readiness delay	300 ms

**Connection**
**Connection 1**

Function	Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	PUR
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	Red
Type of fastening	Through-hole mounting with M4 thread 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
Function of the operational control	Range adjustment

**Environmental data**

Ambient temperature, operation	-40 ... 60 °C
Ambient temperature, storage	-40 ... 70 °C

**Certifications**

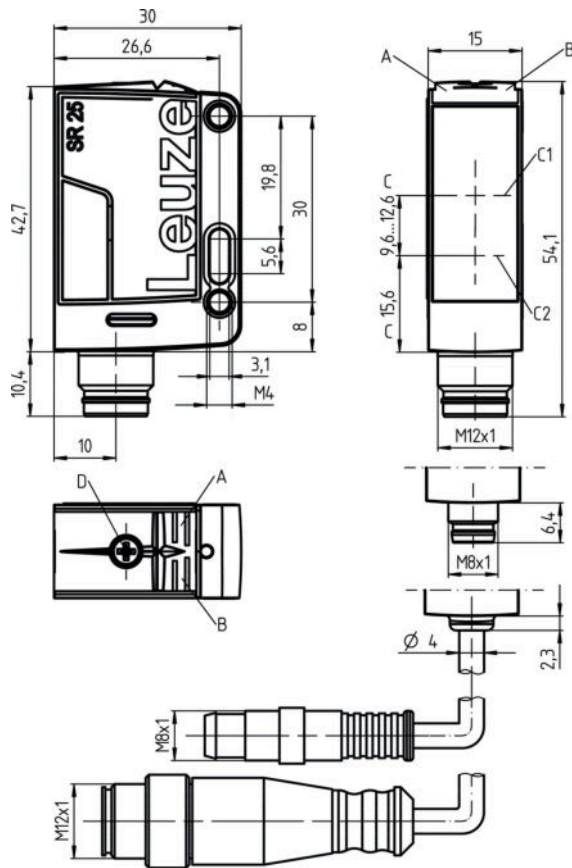
Degree of protection	IP 67 IP 69K
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

**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

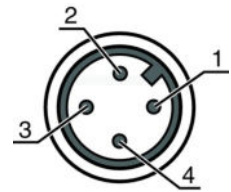


- A Green LED
- B Yellow LED
- C Optical axis
- C1 Receiver
- C2 Transmitter
- D Range adjustment

## Electrical connection

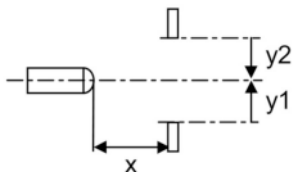
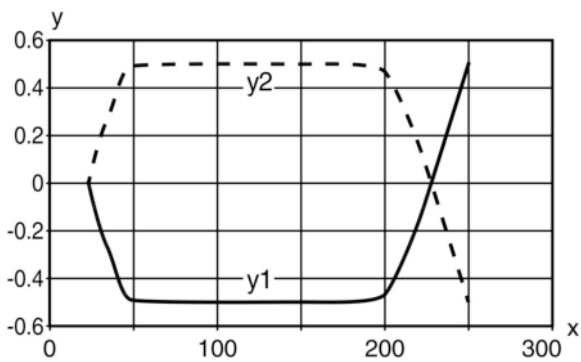
Connection 1	
Function	Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	PUR
No. of pins	4 -pin
Encoding	A-coded

Pin	Pin assignment
1	V+
2	OUT 2
3	GND
4	OUT 1



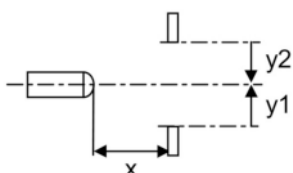
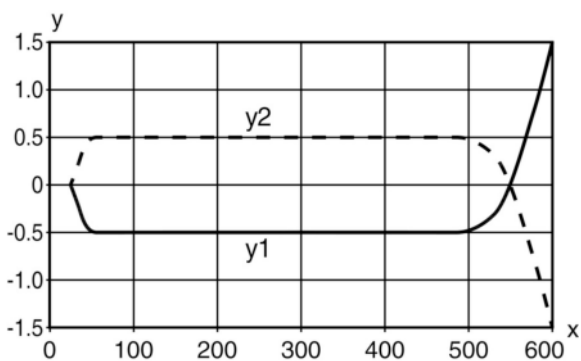
**Diagrams**

Typ. response behavior (focusing distance 250 mm)



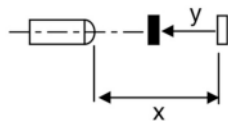
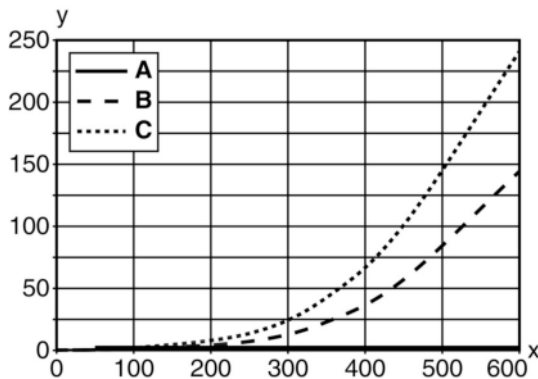
x Distance [mm]  
y Misalignment [mm]

Typ. response behavior (focusing distance 600 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	Green, continuous light	Operational readiness
2	Yellow, continuous light	Object detected

## Part number code

Part designation: AAA25C d EE-f.GGH/IJ-K

AAA25C	<b>Operating principle / construction:</b> HT25C: diffuse reflection sensor with background suppression PRK25C: retro-reflective photoelectric sensor with polarization filter LS25C: throughbeam photoelectric sensor transmitter LE25C: throughbeam photoelectric sensor receiver DRT25C: Dynamic reference diffuse sensor
d	<b>Light type:</b> n/a: red light I: infrared light
EE	<b>Light source:</b> n/a: LED L1: laser class 1 L2: laser class 2

**Part no.: 50139639 – HT25CL1/2N-M12 – Diffuse sensor with background**

f	<b>Preset range (optional):</b> n/a: operating range acc. to data sheet xxxF: preset range [mm]
GG	<b>Equipment:</b> A: autocollimation principle (single lens) S: small light spot D: detection of stretch-wrapped objects X: extended model HF: suppression of HF illumination (LED) XL: extra long light spot T: autocollimation principle (single lens) for highly transparent bottles without tracking TT: autocollimation principle (single lens) for highly transparent bottles with tracking
H	<b>Operating range adjustment:</b> 1: 270° potentiometer 2: multiturn potentiometer 3: teach-in via button
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 X: pin not used 8: activation input (activation with high signal) L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching)
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 W: warning output X: pin not used 6: push-pull switching output, PNP light switching, NPN dark switching T: teach-in via cable
K	<b>Electrical connection:</b> n/a: cable, standard length 2000 mm, 4-wire 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M8: M8 connector, 4-pin (plug) M12: M12 connector, 4-pin (plug) 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (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)

## Part no.: 50139639 – HT25CL1/2N-M12 – Diffuse sensor with background

### WARNING! LASER RADIATION – CLASS 1 LASER PRODUCT



The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of **laser class 1** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.

- Observe the applicable statutory and local laser protection regulations.
- The device must not be tampered with and must not be changed in any way.  
There are no user-serviceable parts inside the device.  
Repairs must only be performed by Leuze electronic GmbH + Co. KG.


- Light source: Average life expectancy 50,000 h at an ambient temperature of 25 °C
- Sum of the output currents for both outputs 100 mA

## 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
	50118543	BT 300M.5	Mounting bracket	Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Adjustable Material: Stainless steel

### 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



Part no.: 50139639 – HT25CL1/2N-M12 – Diffuse sensor with background

	Part no.	Designation	Article	Description
	50117252	BTU 300M-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 M4 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

**Note**

A list with all available accessories can be found on the Leuze electronic website in the Download tab of the article detailed page.