

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50148203

HT55C/LG-200-M12



#### Contents

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



## Technical data

### Basic data

Series	55C
Operating principle	Diffuse reflection principle with background suppression

### Special version

Special version	Wash-Down design
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### Optical data

Black-white error	< 10% up to 220 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0.005 ... 0.45 m
Operating range, gray 18%	0.01 ... 0.34 m
Operating range, black 6%	0.015 ... 0.22 m
Operating range limit	0.005 ... 0.45 m (typical operating range)
Adjustment range	15 ... 450 mm
Beam path	Focused
Light source	LED, Red
Wavelength	645 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)
Type of light spot geometry	square
Focus	Fixed
Focal distance	200 mm

### 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 ... 15 mA

### Outputs

Number of digital switching outputs	2 Piece(s)
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#### Switching outputs

Type	Digital switching output
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B - 2V)$ low: $\leq 2 V$

#### Switching output 1

Assignment	Connection 1, pin 4
Switching element	Transistor, Push-pull
Switching principle	IO-Link / light switching (PNP)/dark switching (NPN)

#### Switching output 2

Assignment	Connection 1, pin 2
Switching element	Transistor, Push-pull
Switching principle	Dark switching (PNP)/light switching (NPN)

### Time behavior

Switching frequency	1,000 Hz
Response time	0.5 ms
Readiness delay	300 ms
Response jitter	166 $\mu$ s

### Interface

Type	IO-Link
<b>IO-Link</b>	
COM mode	COM2
Profile	Smart sensor profile
Min. cycle time	COM2 = 2.3 ms
Frame type	2.5
Specification	V1.1
Device ID	6000
SIO-mode support	Yes

### Connection

Number of connections	1 Piece(s)
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#### Connection 1

Function	Signal IN Signal OUT Voltage supply
Type of connection	Cable with connector
Cable length	200 mm
Sheathing material	PVC
Cable color	Black
Wire cross section	0.2 mm <sup>2</sup>
Thread size	M12
Type	Male
Material	Stainless steel
No. of pins	4 -pin
Encoding	A-coded

### Mechanical data

Dimension (W x H x L)	14 mm x 35.4 mm x 25 mm
Housing material	Stainless steel
Stainless steel housing	AISI 316L, DIN X2CrNiMo17132, W. No1.4404
Material of operational control	Plastic (POM Hostaform C9021, copolyester Tritan TX1001), non-diffusive
Housing roughness	Ra $\leq 0,8$ , Typical value for the stainless steel housing
Lens cover material	Plastic (PMMA+) with scratch-resistant Indium protective coating
Net weight	59 g
Housing color	Silver
Type of fastening	Through-hole mounting Via optional mounting device
Compatibility of materials	CleanProof+ ECOLAB Johnson Diversey

### 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, (70 °C $\leq$ 15min)
Ambient temperature, storage	-40 ... 70 °C

**Technical data****Certifications**

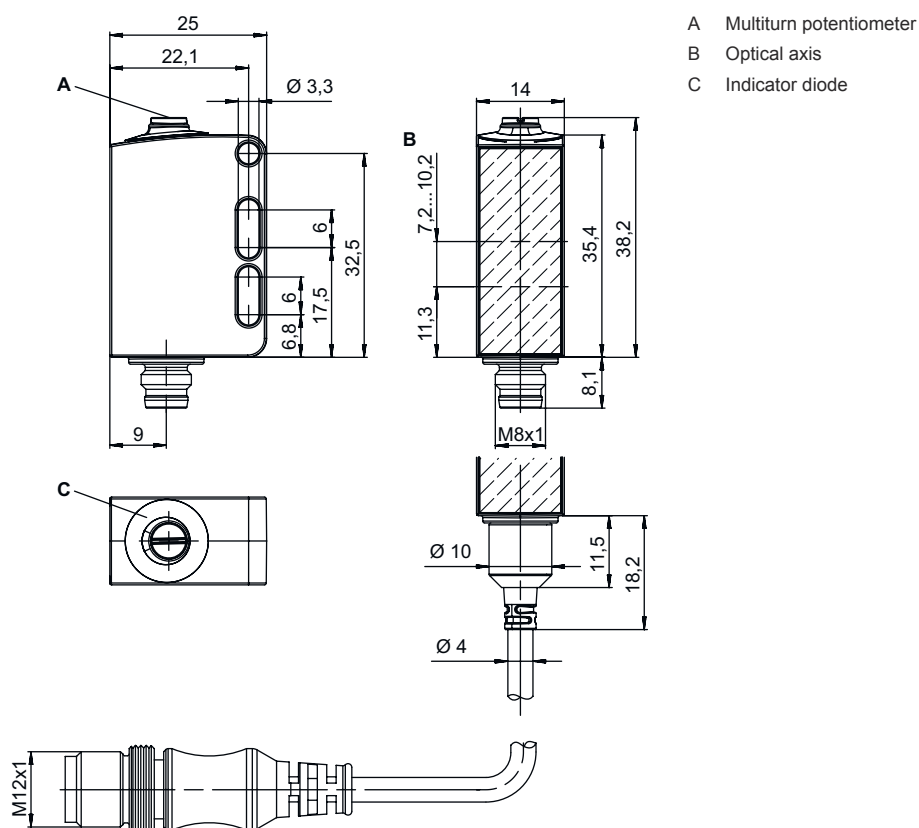
<b>Degree of protection</b>	IP 67
	IP 68
	IP 69K
<b>Protection class</b>	III
<b>Approvals</b>	c UL US
<b>Standards applied</b>	IEC 60947-5-2

**Classification**

<b>Customs tariff number</b>	85365019
<b>ECLASS 5.1.4</b>	27270904
<b>ECLASS 8.0</b>	27270904
<b>ECLASS 9.0</b>	27270904
<b>ECLASS 10.0</b>	27270904
<b>ECLASS 11.0</b>	27270904
<b>ECLASS 12.0</b>	27270903
<b>ECLASS 13.0</b>	27270903
<b>ECLASS 14.0</b>	27270903
<b>ECLASS 15.0</b>	27270903
<b>ECLASS 16.0</b>	27270903
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>ETIM 8.0</b>	EC001821
<b>ETIM 9.0</b>	EC001821
<b>ETIM 10.0</b>	EC001821
<b>UNSPSC 26.08</b>	39121528

# Dimensioned drawings

All dimensions in millimeters



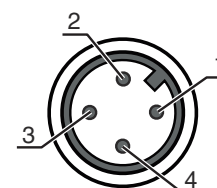
## Electrical connection

### Connection 1

Function	Signal IN Signal OUT Voltage supply
Type of connection	Cable with connector
Cable length	200 mm
Sheathing material	PVC
Cable color	Black
Wire cross section	0.2 mm <sup>2</sup>
Thread size	M12
Type	Male
Material	Stainless steel
No. of pins	4 -pin
Encoding	A-coded

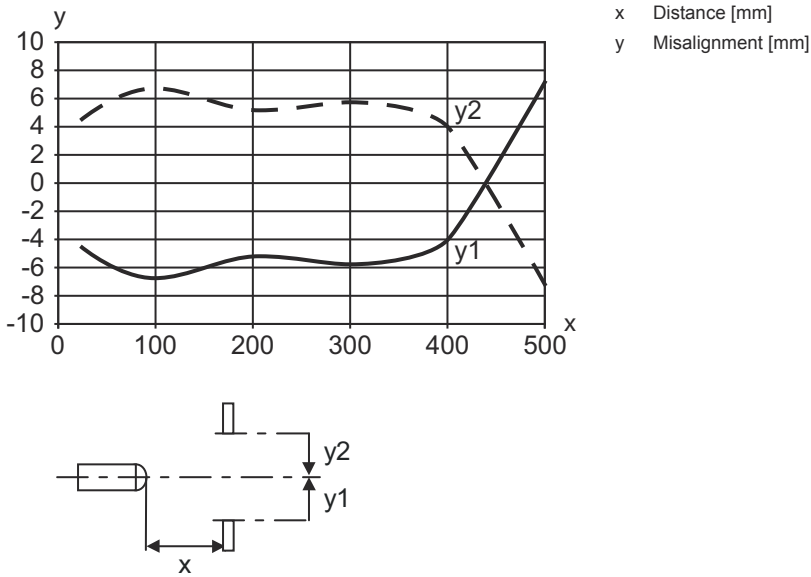
### Pin Pin assignment

Pin	Pin assignment
1	V+
2	OUT 2
3	GND
4	IO-Link / OUT 1

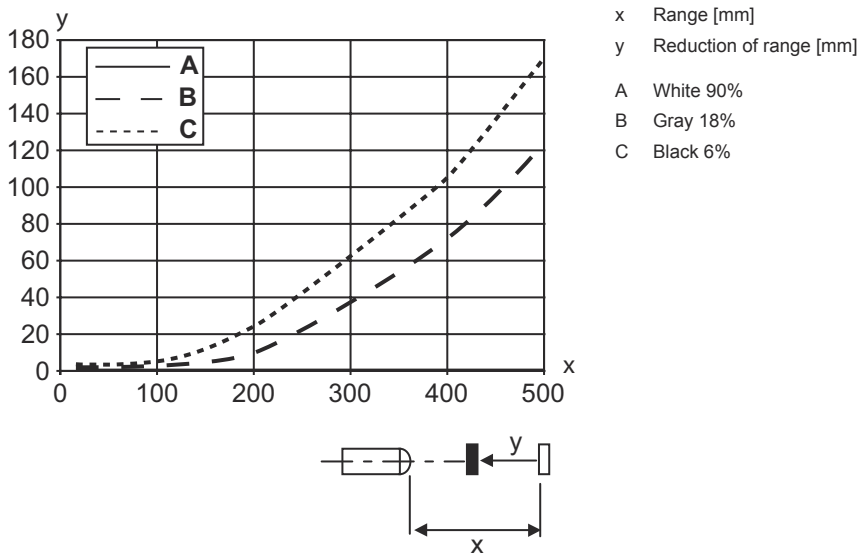


## Diagrams

### Typ. response behavior (white 90 %)



### Typ. black/white behavior



## Operation and display

LED	Display	Meaning
1	Green, continuous light	Operational readiness
2	Yellow, continuous light	Object detected

## Part number code

Part designation: AAA55C d EE-f.GGGG H/i J-K

<b>AAA55C</b>	<b>Operating principle / construction</b> HT55C: Diffuse reflection sensor with background suppression LS55C: Throughbeam photoelectric sensor transmitter LE55C: Throughbeam photoelectric sensor receiver PRK55C: Retro-reflective photoelectric sensor with polarization filter ODT55C: Distance diffuse sensor with background suppression
<b>d</b>	<b>Light type</b> n/a: red light I: infrared light
<b>EE</b>	<b>Light source</b> n/a: LED L1: laser class 1 L2: laser class 2
<b>f</b>	<b>Preset range (optional)</b> n/a: operating range acc. to data sheet xxxF: Preset range [mm]
<b>GGGG</b>	<b>Equipment</b> n/a: standard A: Autocollimation principle (single lens) for positioning tasks F: Permanently set range H2O: Detection of aqueous liquids Fill-level monitoring S: small light spot T: autocollimation principle (single lens) for highly transparent bottles without tracking TT: autocollimation principle (single lens) for highly transparent bottles with tracking V: V-optics XL: Extra long light spot
<b>H</b>	<b>Operating range adjustment</b> n/a with HT: range adjustable via 8-turn potentiometer n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable 1: 270° potentiometer 3: teach-in via button
<b>i</b>	<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 6: push-pull switching output, PNP light switching, NPN dark switching G: Push-pull switching output, PNP dark switching, NPN light switching L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching) 8: activation input (activation with high signal) X: pin not used 1: IO-Link / light switching (NPN) / dark switching (PNP) 7: Input for sensitivity adjustment
<b>J</b>	<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 6: push-pull switching output, PNP light switching, NPN dark switching G: Push-pull switching output, PNP dark switching, NPN light switching T: teach-in via cable X: pin not used 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) 7: Input for sensitivity adjustment
<b>K</b>	<b>Electrical connection</b> n/a: cable, standard length 2000 mm, 4-wire 5000: cable, standard length 5000 mm, 4-wire M8: M8 connector, 4-pin (plug) M8.3: M8 connector, 3-pin (plug) 200-M12: cable, length 200 mm with M12 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:




- ⌘ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- ⌘ 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
- Response time: For short decay times, an ohmic load of approx. 5kOhm is recommended
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C
- Permissible operating temperature range during IO-Link operation: -10 °C to +60 °C
- IP 69K only in combination with connector
- Ambient temperature, operation: +70 °C permissible only briefly (≤ 15min)
- Operating ambient temperature: +65 °C (continuous) up to max. 27 V DC supply voltage

## Accessories

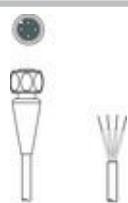
### Connection technology - Connection unit

	Part no.	Designation	Article	Description
	50144900	MD 798i-11-82/L5-2222	IO-Link master	Current consumption, max.: 11,000 mA Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET Connections: 12 Piece(s) Sensor connections: 8 Piece(s) Degree of protection: IP 67, IP 65, IP 69K



### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130657	KD U-M12-4A-P1-050	Connection cable	Application: Oil and lubricant resistant 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: PUR



## Accessories

	Part no.	Designation	Article	Description
	50148350	KD U-M12-4A-T0-050 F+B	Connection cable	Application: Chemical resistant, Hygienic and wet areas 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: TPE

## Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50118542	BT 200M.5	Mounting bracket	Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Adjustable Material: Stainless steel
	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
	50117255	BTU 200M-D12	Mounting system	Contains: 2x M3 x 16 screw, 2 M3 x 20 screws, 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, Suited for M3 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal
	50120426	BTU 200M.5-D12	Mounting system	Contains: 2x M3 x 18 screw, 2x M3 mounting nut, 2x position washers Design of mounting device: Mounting system Fastening, at system: For 12 mm rod Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Turning, 360°, Adjustable, Clampable Material: Stainless steel

### Note



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