

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50151478

HT3C.HFVXL/6G-M8



For illustration purposes only

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## Technical data

### Basic data

Series	3C
Operating principle	Diffuse reflection principle with background suppression
Application	Detection of highly transparent bottles Detection of objects with openings Detection of transparent films

### Special version

Special version	Extra long light spot (XL) Suppression of HF illumination (LED) V-optics
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### Optical data

Black-white error	< 20% up to 80 mm
Operating range	Guaranteed operating range
Operating range, white 90%	0.01 ... 0.08 m
Operating range, gray 18%	0.012 ... 0.07 m
Operating range, black 6%	0.012 ... 0.06 m
Operating range limit, white 90%	0.01 ... 0.09 m
Operating range limit, gray 18%	0.012 ... 0.075 m
Operating range limit, black 6%	0.012 ... 0.065 m
Operating range limit	Typical operating range
Adjustment range	20 ... 90 mm
Beam path	Divergent
Light source	LED, Red
Wavelength	633 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)
Light spot size [at sensor distance]	5 mm x 40 mm [70 mm]
Type of light spot geometry	Rectangular

### 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	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	250 Hz
Response time	2 ms
Readiness delay	300 ms
Response jitter	166 $\mu$ s

### Connection

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

Function	Signal OUT Voltage supply
Type of connection	Connector
Thread size	M8
Type	Male
Material	Metal
No. of pins	4 -pin

### Mechanical data

Dimension (W x H x L)	11.4 mm x 34.2 mm x 18.3 mm
Housing material	Plastic
Plastic housing	PC-ABS
Lens cover material	Plastic / PMMA
Net weight	10 g
Housing color	Red
Type of fastening	Through-hole mounting Via optional mounting device
Recommended tightening torque for M3 fastening	0.9 N·m
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
Approvals	c UL US
Standards applied	IEC 60947-5-2

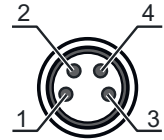


## Electrical connection

### Connection 1

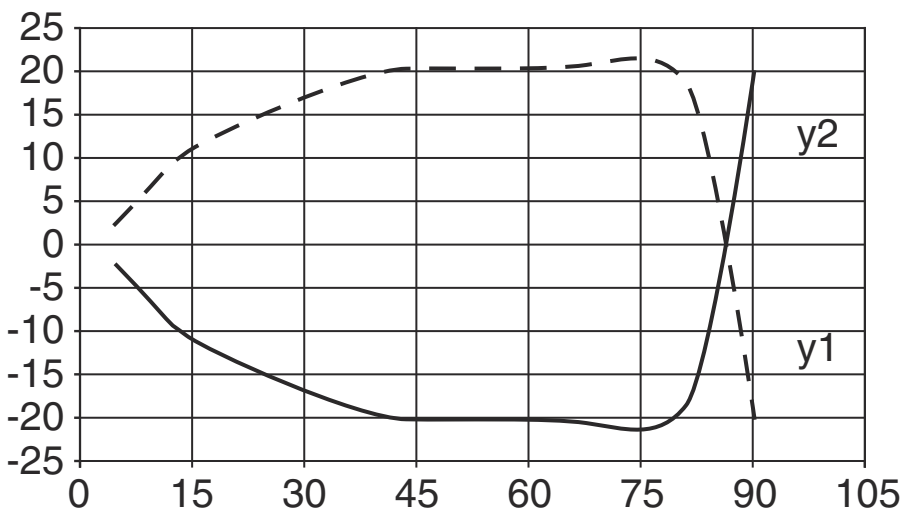
Function	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M8
Type	Male
Material	Metal
No. of pins	4 -pin

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

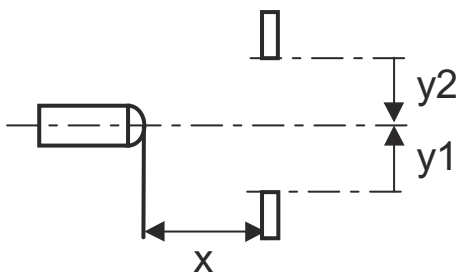


## Diagrams

Typ. response behavior (white 90 %)

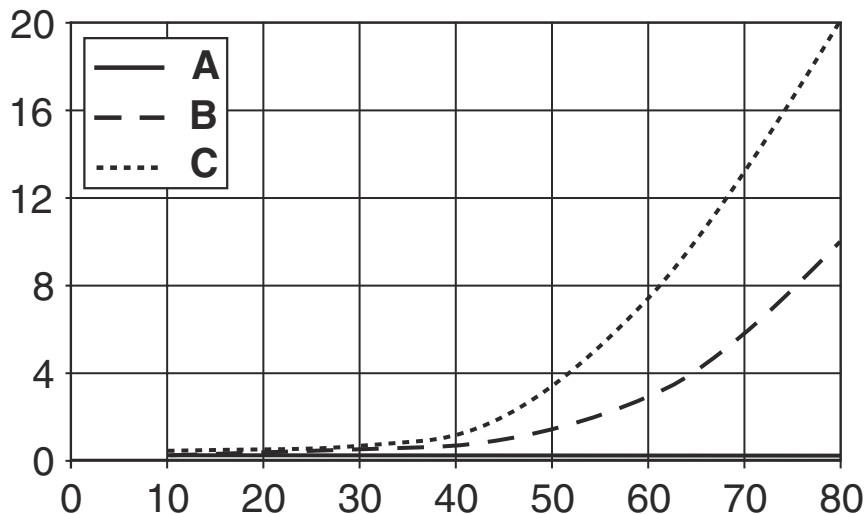


x Distance [mm]  
y Misalignment [mm]

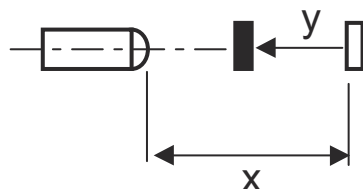


# Diagrams

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	Green, continuous light	Operational readiness
2	Yellow, continuous light	Object detected

## Part number code

Part designation: AAA 3C d EE-f.GG H/i J-K

<b>AAA3C</b>	<b>Operating principle / construction</b> HT3C: Diffuse reflection sensor with background suppression LS3C: Throughbeam photoelectric sensor transmitter LE3C: Throughbeam photoelectric sensor receiver PRK3C: Retro-reflective photoelectric sensor with polarization filter ODT3C: 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 PP: Power PinPoint® LED
<b>f</b>	<b>Preset range (optional)</b> n/a: operating range acc. to data sheet xxxF: Preset range [mm] 2M: operating range of 2 meters

## Part number code

<b>GG</b>	<b>Equipment</b> n/a: standard A: Autocollimation principle (single lens) for positioning tasks B: Housing model with two M3 threaded sleeves, brass F: Permanently set range L: Long light spot 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 X: extended model HF: Suppression of HF illumination (LED)
<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 6: auto-teach
<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)
<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 W: warning output X: pin not used 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) T: teach-in via cable
<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-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug) 200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (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.

## Notes

### 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
- The push-pull switching outputs must not be connected in parallel.

## Accessories

### Connection technology - Connection cables


	Part no.	Designation	Article	Description
	50130850	KD U-M8-4A-V1-050	Connection cable	Application: Chemical resistant Connection 1: Connector, M8, Axial, Female, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
	50130871	KD U-M8-4W-V1-050	Connection cable	Application: Chemical resistant Connection 1: Connector, M8, Angled, Female, 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
	50060511	BT 3	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
	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

#### Note



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