

## Technical data sheet

### Energetic diffuse sensor

Part no.: 50122714  
FT328.W3/4P



Figure can vary

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## Technical data

### Basic data

Series	328
Operating principle	Diffuse reflection principle

### Special design

Special design	90° - angular optics
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### Optical data

Operating range	Guaranteed operating range
Operating range, white 90%	0.002 ... 0.1 m
Operating range, gray 50%	0.005 ... 0.092 m
Operating range, gray 18%	0.007 ... 0.076 m
Operating range, black 6%	0.008 ... 0.065 m
Operating range limit	Typical operating range
Operating range limit, white 90%	0.002 ... 0.12 m
Operating range limit, gray 50%	0.005 ... 0.11 m
Operating range limit, gray 18%	0.007 ... 0.092 m
Operating range limit, black 6%	0.008 ... 0.08 m
Light source	LED, Red
LED light wavelength	620 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	2 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: $\leq 2.5V$

### Switching output 1

Switching element	Transistor, PNP
Switching principle	Light switching

### Switching output 2

Switching element	Transistor, PNP
Switching principle	Dark switching

### Timing

Switching frequency	500 Hz
Response time	1 ms
Readiness delay	300 ms

### Connection 1

Function	Signal OUT Voltage supply
Type of connection	Cable
Cable length	2,000 mm
Sheathing material	PUR
Cable color	Black
Number of conductors	4 -wire
Wire cross section	0.2 mm <sup>2</sup>

### Mechanical data

Thread size	M18 x 1 mm
Dimension (Ø x L)	18 mm x 61 mm
Housing material	Plastic Stainless steel, V2A, ABS
Lens cover material	Plastic
Net weight	40 g
Housing color	Black Silver

### Operation and display

Type of display	LED
Number of LEDs	1 Piece(s)
Operational controls	Teach button

### Environmental data

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

### Certifications

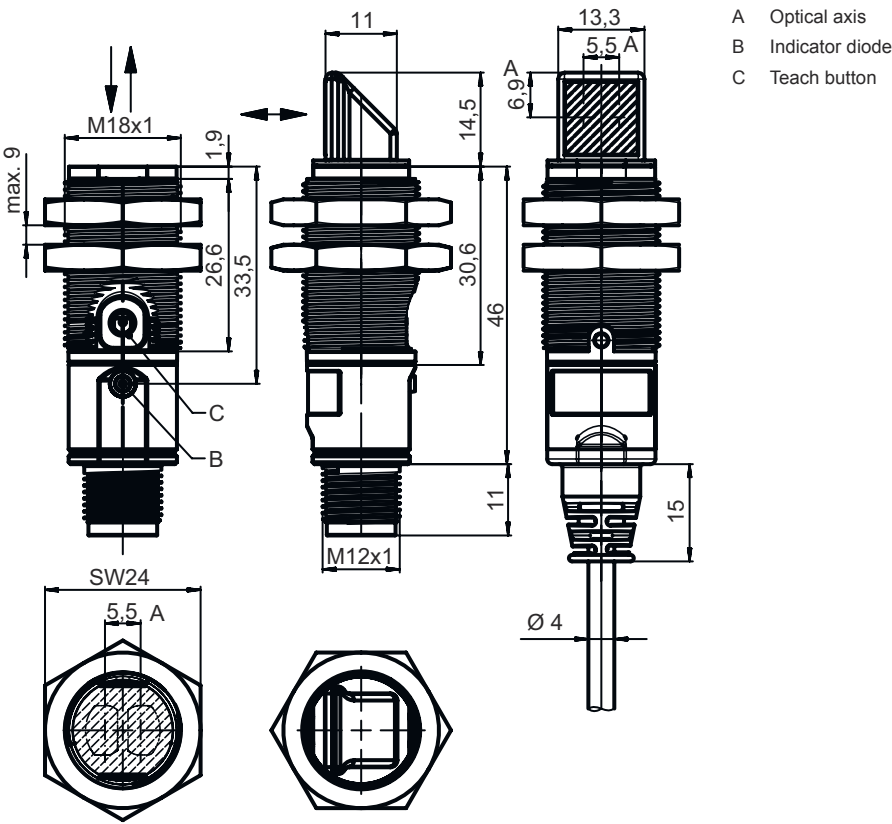
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

### Classification

Customs tariff number	85365019
eCl@ss 8.0	27270903
eCl@ss 9.0	27270903
ETIM 5.0	EC001821
ETIM 6.0	EC001821

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

Function	Signal OUT
	Voltage supply
Type of connection	Cable
Cable length	2,000 mm
Sheathing material	PUR
Cable color	Black
Number of conductors	4 -wire
Wire cross section	0.2 mm²

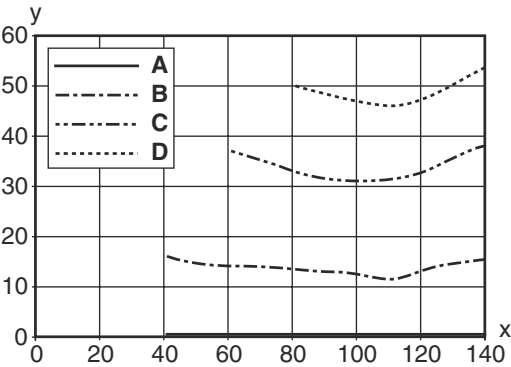
Conductor color

Brown	V+
White	OUT 2
Blue	GND
Black	OUT 1

Conductor assignment

Diagrams

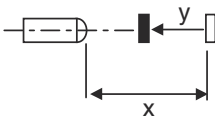
Typ. black/white behavior



x Range [mm]  
y Reduction of range [mm]

- A White 90%
- B Gray 50%
- C Gray 18%
- D Black 6%

**Fading: black/white error < 50 %** The black/white error is calculated from the operating range against white and the reduction of the operating range against



Operation and display

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

Part number code

Part designation: **XXX328BY-AAAF.BB/CC-DDD**

XXX328	<b>Operating principle</b> PRK: retro-reflective photoelectric sensor with polarization filter ET: energetic diffuse reflection sensor FT: diffuse reflection sensor with fading LE: throughbeam photoelectric sensor receiver LS: throughbeam photoelectric sensor transmitter
Y	<b>Light type</b> n/a: red light I: infrared light
AAAF	<b>Preset range (optional)</b> n/a: operating range acc. to data sheet xxxF: preset range [mm]
BB	<b>Equipment</b> n/a: axial optics W: 90° angular optics 3: teach-in via button

## Part number code

CC	<b>Switching output / function (OUT1 = pin 4, OUT2 = pin 2):</b> 4: PNP transistor output, light switching P: PNP transistor output, dark switching 2: NPN transistor output, light switching N: NPN transistor output, dark switching 9: input for transmitter deactivation (deactivation with HIGH signal) D: input for transmitter deactivation (deactivation with LOW signal) X: pin not used
DDD	<b>Electrical connection</b> n/a: cable, standard length 2000 mm, 4-wire 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.

## 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

- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C
- With the set scanning range, a tolerance of the operating range is possible depending on the reflection properties of the material surface.


## Accessories

## Mounting technology - Mounting brackets



	Part no.	Designation	Article	Description
	50113548	BT D18M.5	Mounting bracket	Diameter, inner: 18 mm 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: Stainless steel

## Accessories

### Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117490	BTU D18M-D12	Mounting system	Design of mounting device: Mounting system Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

### Mounting technology - Other

	Part no.	Designation	Article	Description
	50083189	BT 318-ARH	Adjustment fastening part	Design of mounting device: Mounting plate Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Swiveling, Adjustable Material: Metal
	50126631 **	BT 328M	Fastening	Design of mounting device: Mounting clamp Fastening, at system: For 18 mm rod, Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Turning, 360° Material: Stainless steel

\*\* Included in delivery contents

#### Note



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