Technical data sheet

Energetic diffuse sensor

Part no.: 50141603

FT318B.3/2N-5000

Figure can vary

Contents

The Sensor People

Leuze electronic GmbH + Co. KG
In der Braike 1, 73277 Owen

info@leuze.com • www.leuze.com
Phone: +49 7021 573-0 • Fax: +49 7021 573-199

We reserve the right to make technical changes
eng • 2020-07-10

1/6

Technical data

Leuze

Basic data

Series	318B
Operating principle	Diffuse reflection principle

Special version

Optical data

Operating range	Guaranteed operating range
Operating range, white 90%	0.001 ... 0.215 m
Operating range, gray 50%	0.001 ... 0.19 m
Operating range, gray 18%	0.003 ... 0.15 m
Operating range, black 6%	0.003 ... 0.125 m
Operating range limit	Typical operating range
Operating range limit, white 90%	0.001 ... 0.28 m
Operating range limit, gray 50%	0.001 ... 0.245 m
Operating range limit, gray 18%	0.003 ... 0.19 m
Operating range limit, black 6%	0.001 ... 0.16 m
Light source	LED, Red
LED light wavelength	620 nm
LED group	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed

Electrical data

Protective circuit	Polarity reversal protection
	Short circuit protected

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)

Switching outputs

Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: ≥(U_B-2.5V)
	low: ≤2.5V

Switching output 1

Switching element	Transistor, NPN
Switching principle	Light switching

Switching output 2

Switching element	Transistor, NPN
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	5,000 mm
Sheathing material	PUR
Cable color	Black
Number of conductors	4 -wire
Wire cross section	0.2 mm²

Mechanical data

Thread size	M18 x 1 mm
Dimension (Ø x L)	18 mm x 46 mm
Housing material	Plastic, ABS
Lens cover material	Plastic
Net weight	120 g
Housing color	Black
	Red

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

A   Optical axis
B   Indicator diode
C   Teach button
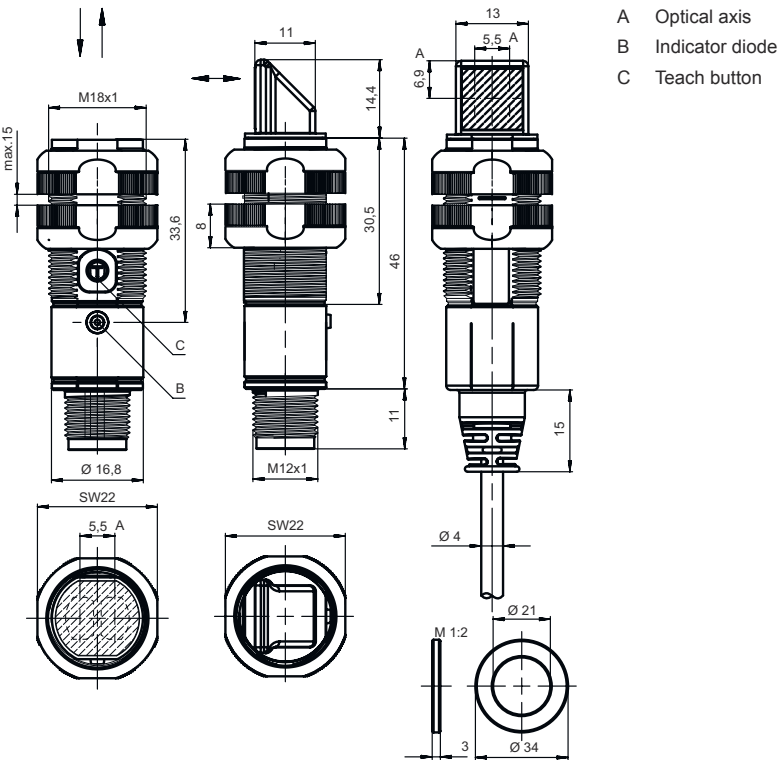
Electrical connection

Connection 1

Function	Signal OUT
	Voltage supply
Type of connection	Cable
Cable length	5,000 mm
Sheathing material	PUR
Cable color	Black
Number of conductors	4 -wire
Wire cross section	0.2 mm²

Conductor color	Conductor assignment
Brown	V+
White	OUT 2
Blue	GND
Black	OUT 1

Diagrams

Typ. black/white behavior
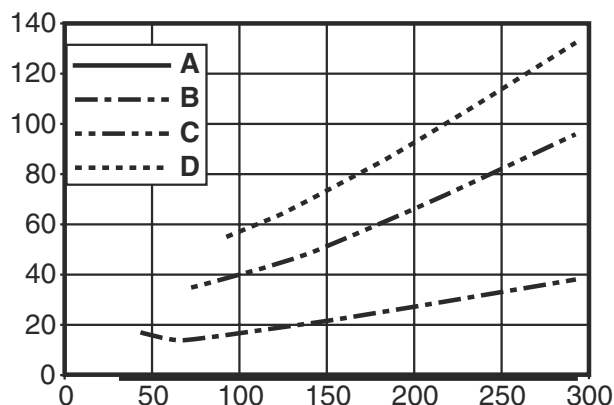
x	Range [mm]
y	Reduction of range [mm]
A	White 90%
B	Gray 50%
C	Gray 18%
D	Black 6%

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: **XXX318BY-AAAF.BB/CC-DDD**

XXX318B	**Operating principle** 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	**Light type** n/a: red light I: infrared light	
AAAF	**Preset range (optional)** n/a: operating range acc. to data sheet xxxF: preset range [mm]	
BB	**Equipment** n/a: axial optics W: 90° angular optics 3: teach-in via button X: reinforced fading	
CC	**Switching output / function (OUT1 = pin 4, OUT2 = pin 2):** 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	**Electrical connection** n/a: cable, standard length 2000 mm, 4-wire M12: M12 connector, 4-pin (plug) 5000: cable, standard length 5000 mm, 4-wire 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.

Notes

Leuze

⚠️ **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.

ℹ️ **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

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

---

The Sensor People

Accessories

Leuze

Mounting technology - Other

	Part no.	Designation	Article	Description
	50117258	BT 318P-LS	Fastening	Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Rigid Material: Plastic
	50121904 **	BT318B-OM	Fastening	Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Swiveling, Adjustable, Turning Material: Plastic

** 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.

The Sensor People   Leuze electronic GmbH + Co. KG   info@leuze.com • www.leuze.com   We reserve the right to make technical changes

In der Braike 1, 73277 Owen   Phone: +49 7021 573-0 • Fax: +49 7021 573-199   eng • 2020-07-10   6/6