Thru-beam sensor

ML29-P/25/102/143

- Single-beam monitoring with extremely narrow sensor
- Integrated circuit
- Test
- Simple installation - Plug & Play
- Ideal for installation in door profiles or frames
- Light on version

Single-beam miniature sensor, ideal for installing in frames or door profiles

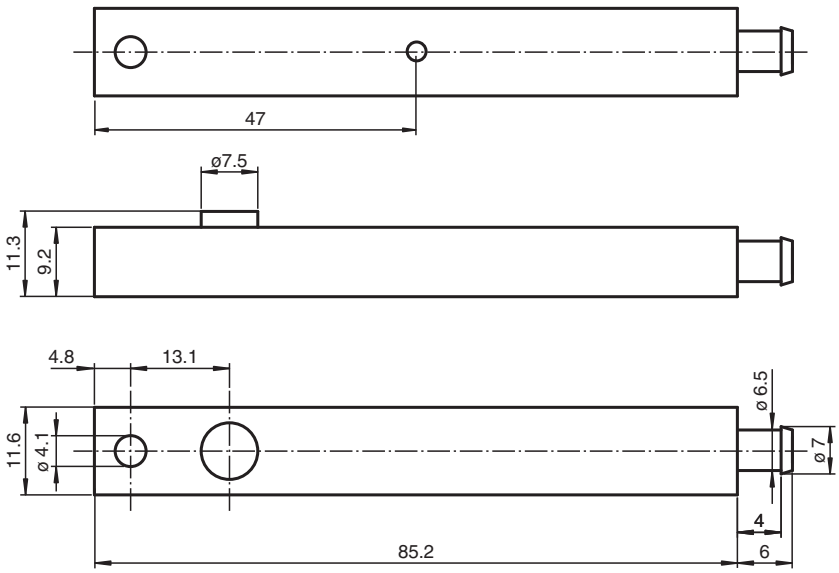
Function

The narrow miniature thru-beam sensors are a small and cost-effective solution, fitting in virtually any door frame. The ML29 and ML30 series offer fast, reliable detection at a distance of up to 8.5 m. The sensors are easy to mount on the profile, either using adhesive strips or a screw. A large opening angle ensures problem-free alignment. Several sensors can be mounted in a cross formation to offer multi-beam protection.

Application

- Person detection for automatic doors and gates
- Closing edge protection on sliding and revolving doors
- Threshold monitoring for elevator doors
- Step monitoring for doors on public transport vehicles
- Trigger function for restarting escalators

Dimensions



Release date: 2023-11-08 Date of issue: 2023-11-08 Filename: 129310_eng.pdf

Technical Data

System components		
Emitter		ML29-T/143
Receiver		ML29-R/25/102/143
General specifications		
Effective detection range		0 ... 6 m
Threshold detection range		8.5 m
Light source		IRED
Light type		modulated infrared light
Opening angle		+/- 8 °
Optical face		lateral
Ambient light limit		40000 Lux
Functional safety related parameters		
$MTTF_d$		880 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Function indicator		LED red in receiver : lights up when receiving the light beam
Electrical specifications		
Operating voltage	U_B	11 ... 30 V DC
No-load supply current	I_0	Emitter: ≤ 25 mA Receiver: ≤ 10 mA
Input		
Test input		Test: Transmitter switches off at +UB ≤ 5 V DC
Output		
Switching type		light-on
Signal output		1 NPN output, short-circuit protected, reverse polarity protected, open collector
Switching voltage		max. 30 V DC
Switching current		max. 0.1 A
Switching frequency	f	100 Hz
Response time		5 ms
Conformity		
Product standard		EN 60947-5-2
Compliance with standards and directives		
Standard conformity		
Standards		EN 61000-6-2, EN 61000-6-3
Approvals and certificates		
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-20 ... 75 °C (-4 ... 167 °F)
Relative humidity		90 % , noncondensing
Mechanical specifications		
Degree of protection		IP65
Connection		4-pin plastic connector, 6.5 mm diameter
Material		
Housing		PMMA , black
Optical face		Plastic pane
Mass		per device 120 g

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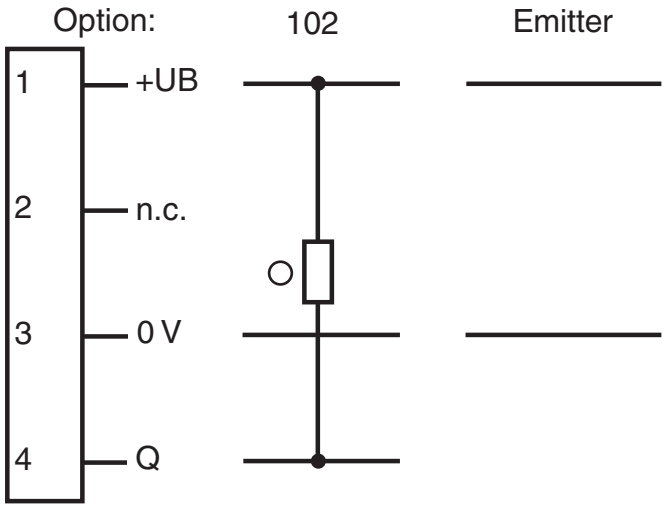
Connection Assignment



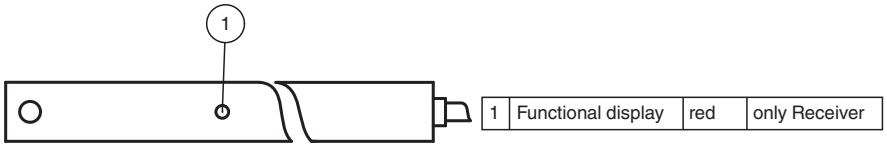
○ = Light on
● = Dark on

Connection Assignment

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Assembly



1	Functional display	red	only Receiver

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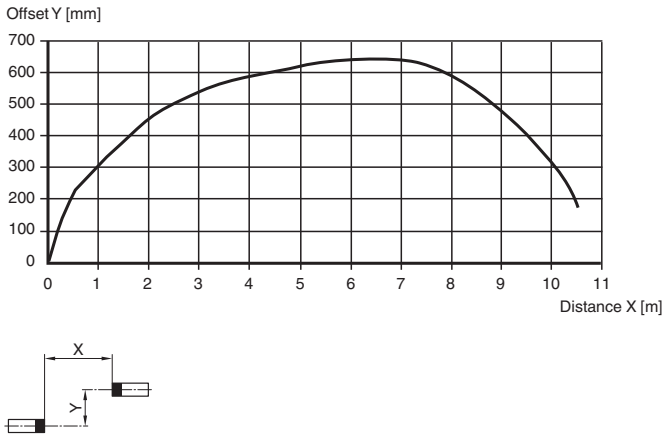
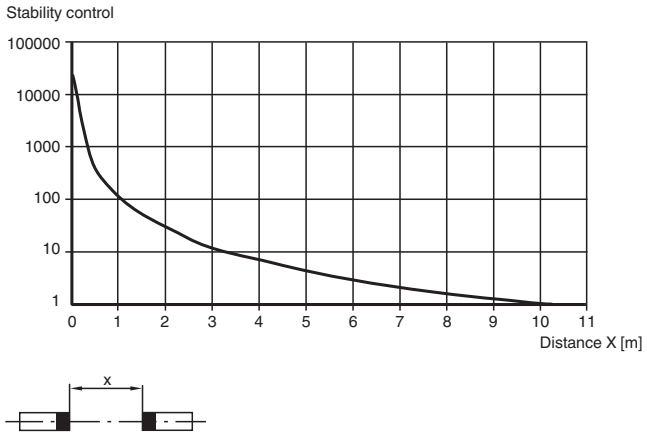
Characteristic Curve

Characteristic response curve



Relative received light strength



Function Principle

The thru-beam sensor requires a pair of devices for operation, comprising a light transmitter and a light receiver. The emitter and receiver must be arranged in optical alignment with each other. The infrared light from the emitter is detected by the receiver and evaluated.

Release date: 2023-11-08 Date of issue: 2023-11-08 Filename: 129310_eng.pdf

Additional Information

Static detection:

The thru-beam sensor detects persons and objects independently of movement and surface structure for as long as the object breaks the detection beam.

		Electronic output
Light detection /25	Person in the beam	Inactive
	No person in the beam	Active
Dark detection /59	Person in the beam	Active
	No person in the beam	Inactive

Optics:

The relatively wide opening angles enable the light beam switches to be installed quickly, without alignment problems. Even if there is a light distortion of the installation profiles the function is retained.

Testing:

Testing is used to check the function of the light beam switch.

With supply voltage $+U_B < 5$ V the emitter device is switched off. This simulates a light beam interruption. By means of this, the function of the light barrier can be tested easily without using a separate test input.

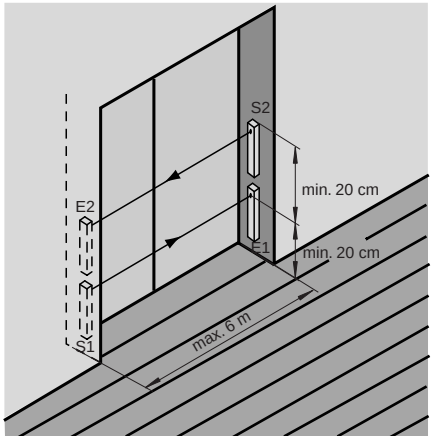
Installation:

Thanks to its small dimensions, the light beam can be fitted in a U-profile or behind a face panel.The hole diameter for both the emitter and the receiver is 8 mm.

Even fixing by means of the adhesive tape contained in the delivery package can be considered.

Installation of twin-beam arrangement:

A twin-beam version requires 2 emitters and receivers. Care should be taken that the beam separation is not less than 20 cm. The transmitters and receivers must be arranged in the form of a cross.



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