



Model Number

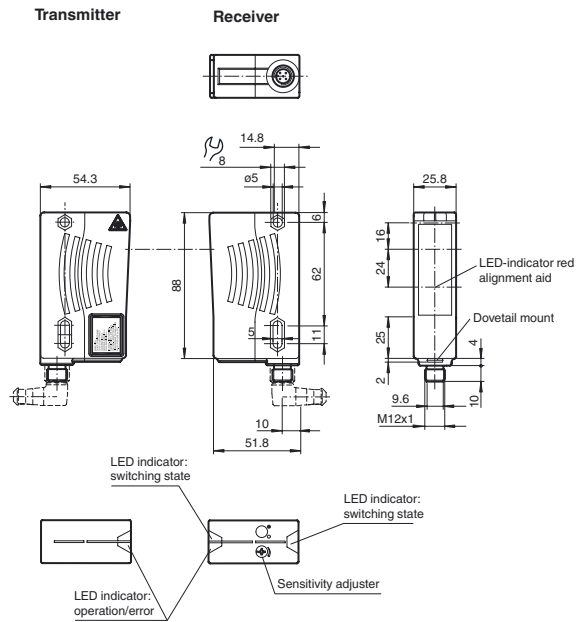
LD28/LV28-LAS-F1-B3B/73c

Thru-beam sensor
with 4-pin, M12 x 1 connector

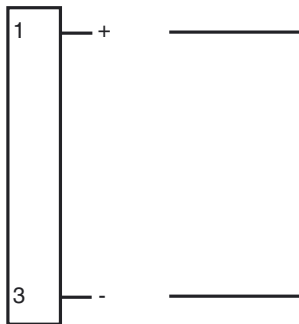
Features

- Sensor with AS interface according to Spec. 2.11
- Ultra bright LEDs for power on, pre fault indication and switching state
- Highly visible LED as alignment aid in receiver optics
- Visible red light, pulsed LASER light
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

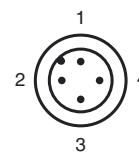
Dimensions



Electrical connection



Pinout



Release date: 2014-04-11 15:28 Date of issue: 2014-04-11 13:252_eng.xml

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 4411
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

Technical data**System components**

Emitter	LD28-LAS-F1-B3B/73c
Receiver	LV28-LAS-F1-B3B/73c

General specifications

Effective detection range	0 ... 300 m
Threshold detection range	400 m
Light source	laser diode
Light type	modulated visible red light

Laser nominal ratings

Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	2
Wave length	650 nm
Beam divergence	< 1.5 mrad
Pulse length	20 µs
Repetition rate	25 kHz
max. pulse energy	18 nJ

Alignment aid
LED red (in receiver lens)
illuminated constantly: beam is interrupted,
flashes: reaching switching point,
off: sufficient stability control

Diameter of the light spot
approx. 1 mm x 4.5 mm at 0.1 m approx. 6 mm at 5 m, approx.
75 x 300 mm at 300 m vertical to housing axis

Angle of divergence
Emitter: 0.06 °
Receiver: 5 °

Ambient light limit
50000 Lux

Functional safety related parameters

MTTF _d	570 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	60 %

Indicators/operating means

Operation indicator	LED green
Function indicator	LED yellow: 1. LED lit constantly: signal > 2 x switching point (function reserve) 2. LED flashes: signal between 1 x switching point and 2 x switching point 3. LED off: signal < switching point
Control elements	sensitivity adjustment (Adjustment to < 25% of the effective operating range)

Electrical specifications

Operating voltage	U _B	26.5 ... 31.6 V via AS-Interface network , min. 18.5 V
No-load supply current	I ₀	Emitter: ≤ 55 mA Receiver: ≤ 45 mA

Input

Test input	Data bit D2: 0: emitter on 1: emitter off
------------	---

Output

Pre-fault indication output	data bit D1: 0: stability control falls for approx. 10 s (LED yellow is flashing) or at once 0 after the 4. light beam interruption during the flashtime 1: sufficient stability control	
Switching type	light/dark on switchable via AS-i bus system	
Signal output	AS-Interface	
Switching frequency	f	1000 Hz
Response time	0.5 ms	
Timer function	Impulsed off-delay IAB, 50 ms, switchable via AS-Interface	

Ambient conditions

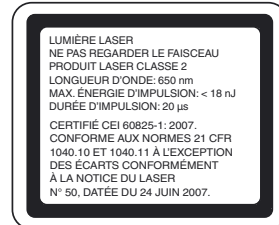
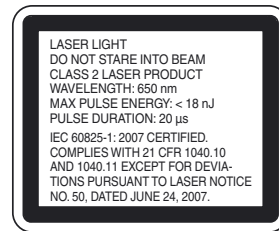
Ambient temperature	-10 ... 50 °C (14 ... 122 °F)
Storage temperature	-20 ... 75 °C (-4 ... 167 °F)

Mechanical specifications

Degree of protection	IP67
Connection	Plastic connector M12 x 1, 4-pin
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	140 g (emitter and receiver)

Compliance with standards and directives

Directive conformity	EMC Directive 2004/108/EC
Standard conformity	
Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007
Laser class	IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

Laserlabel**Accessories****VBP-HH1**

Handheld programming device

OMH-05

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-07

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-21

Mounting bracket

OMH-22

Mounting bracket

OMH-MLV11-K

dove tail mounting clamp

OMH-RLK29-HW

Mounting bracket for rear wall mounting

OMH-RL28-C

Weld slag cover model

V1-G-2M-PUR

Female cordset, M12, 4-pin, PUR cable

V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

Other suitable accessories can be found at www.pepperl-fuchs.com

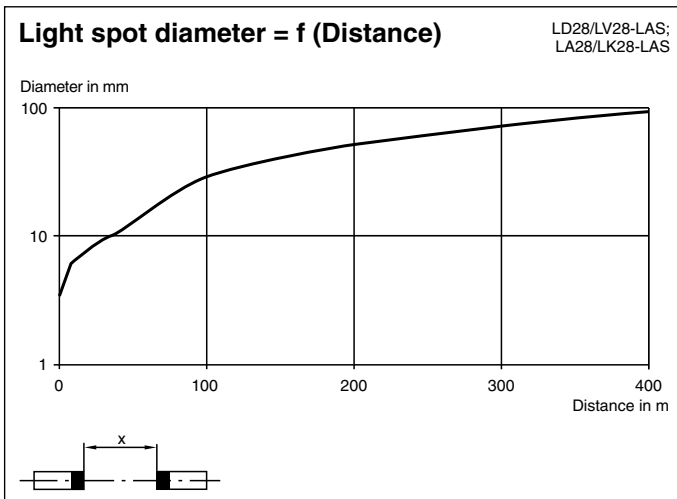
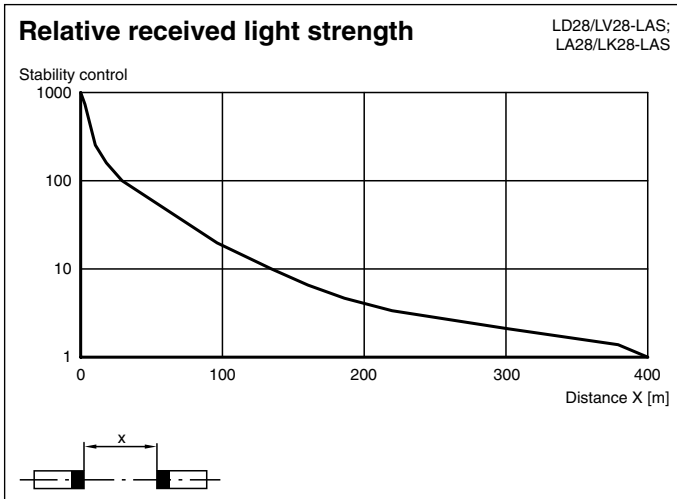
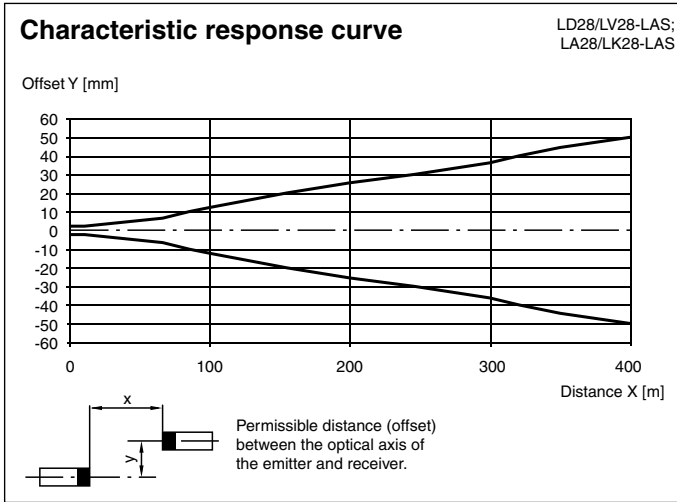
Standards	EN 50295:1999 AS-i Complete Spec 2.11
-----------	--

Approvals and certificates

Protection class	II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit basis insulation of input circuit according to EN 50178, rated insulation voltage 250 V AC
------------------	---

CCC approval	CCC approval / marking not required for products rated ≤ 36 V
--------------	--

Curves/Diagrams



AS-Interface programming

<F id="261">Address preset to 00, can be changed via Busmaster or programming devices
 IO-Code 3
 ID-Code A

Release date: 2014-04-11 15:28 Date of issue: 2014-04-11 13:252_eng.xml

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

ID2 1

Receiver:

• **Data bit**

<F id="263">Bitfunction

D0 Switch output (0=light beam free, 1=light beam interrupted) applies to P1=0
D1 Pre-fault output (0=alarm, 1=no alarm)
D2 not used
D3 not used

• **Parameter bit**

<F id="263">Bitfunction

P0 not used
P1 Light/dark-changeover switch (0=DS, 1=HS)
P2 Time function IAB, 50 ms (0=time ON, 1=time OFF)
P3 not used

Emitter

• **Data bit**

<F id="263">Bitfunction

D0 not used
D1 not used
D2 Test function (0=emitter ON, 1=emitter OFF)
D3 not used

• **Parameter bit**

<F id="263">Bitfunction

P0 not used
P1 not used
P2 not used
P3 not used

Laser notice laser class 2

- The irradiation can lead to irritation especially in a dark environment. Do not point at people!
- Caution: Do not look into the beam!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.