

# Thru-beam sensor LD28/LV28-F1-3974/47/82b/112

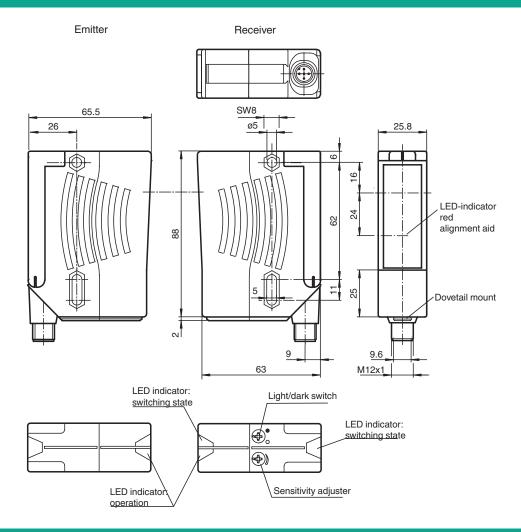


- Ultra bright LEDs for power on, weak signal indication and switching state
- Highly visible LED as alignment aid in receiver optics
- Emitter deactivation
- Not sensitive to ambient light, even with switched energy saving lamps
- Extra vibration proof version
- Waterproof, degree of protection IP67

Universal thru-beam sensor, large housing design, 30 m detection range, red light, 25 kHz transmission frequency, light/dark on, DC version, 2 PNP outputs, test input, pre-fault output, M12 plug



#### **Dimensions**



#### **Technical Data**

System components

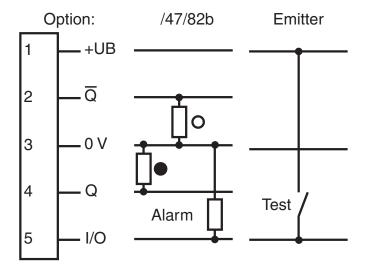


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Emitter		LD28-F1-3974/76a/112
Receiver		LV28-F1-3974/47/82b/112
General specifications		
Effective detection range		0 30 m
Threshold detection range		40 m
Light source		LED
Light type		modulated visible red light , 660 nm
Alignment aid		LED red (in receiver lens) illuminated constantly: beam is interrupted, flashes: reaching switching point, off: sufficient stability control
Transmitter frequency		F1 = 25 kHz
Diameter of the light spot		approx. 0.6 m at 30 m
Opening angle		Emitter 1.2°, Receiver 5°
Ambient light limit		50000 Lux
Functional safety related parameters		
MTTF <sub>d</sub>		620 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		90 %
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) , Lighton/dark-on changeover switch
Electrical specifications		
Operating voltage	U <sub>B</sub>	10 30 V DC
Ripple		10 %
No-load supply current	I <sub>0</sub>	Emitter: ≤ 50 mA Receiver: ≤ 35 mA
Input		
Test input		emitter deactivation at $+U_B$ ( $I_{max.} < 3$ mA at 30 V DC)
Output		
Stability alarm output		1 PNP transistor, short-circuit protected, protected from reverse polarity, open collector, Umax = 30 V DC, Imax = 0.2 A The output becomes inactive if the signal level has fallen below the function reserve f approx. 10 s (yellow and red LEDs flash). If the light beam is interrupted four times during this period, the output immediately becomes inactive.
Switching type		light/dark on switchable
Signal output		2 PNP, complementary, short-circuit protected, reverse polarity protected , open collectors
Switching voltage		max. 30 V DC
Switching current		max. 200 mA
Switching frequency	f	1000 Hz
Response time		0.5 ms
Conformity		
Product standard		EN 60947-5-2
Approvals and certificates		
UL approval		cULus
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-40 60 °C (-40 140 °F)
Storage temperature		-40 /5 °C (-40 16/ °F)
Storage temperature  Mechanical specifications		-40 75 °C (-40 167 °F)

#### **Technical Data**

Connection	Metal connector, M12, 5-pin, 90° rotatable
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	140 g (emitter and receiver)
Dimensions	
Height	88 mm
Width	25.8 mm
Depth	65.5 mm
Width	25.8 mm

## **Connection Assignment**



- O = Light on
- = Dark on

### **Connection Assignment**



Permissible distance (offset) between the optical axis of the emitter and receiver.

