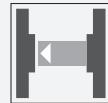




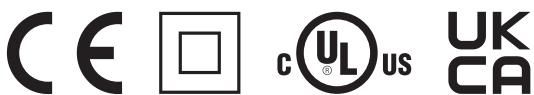
## Thru-beam sensor

### LD28/LV28-F1/49/76a/82b/115

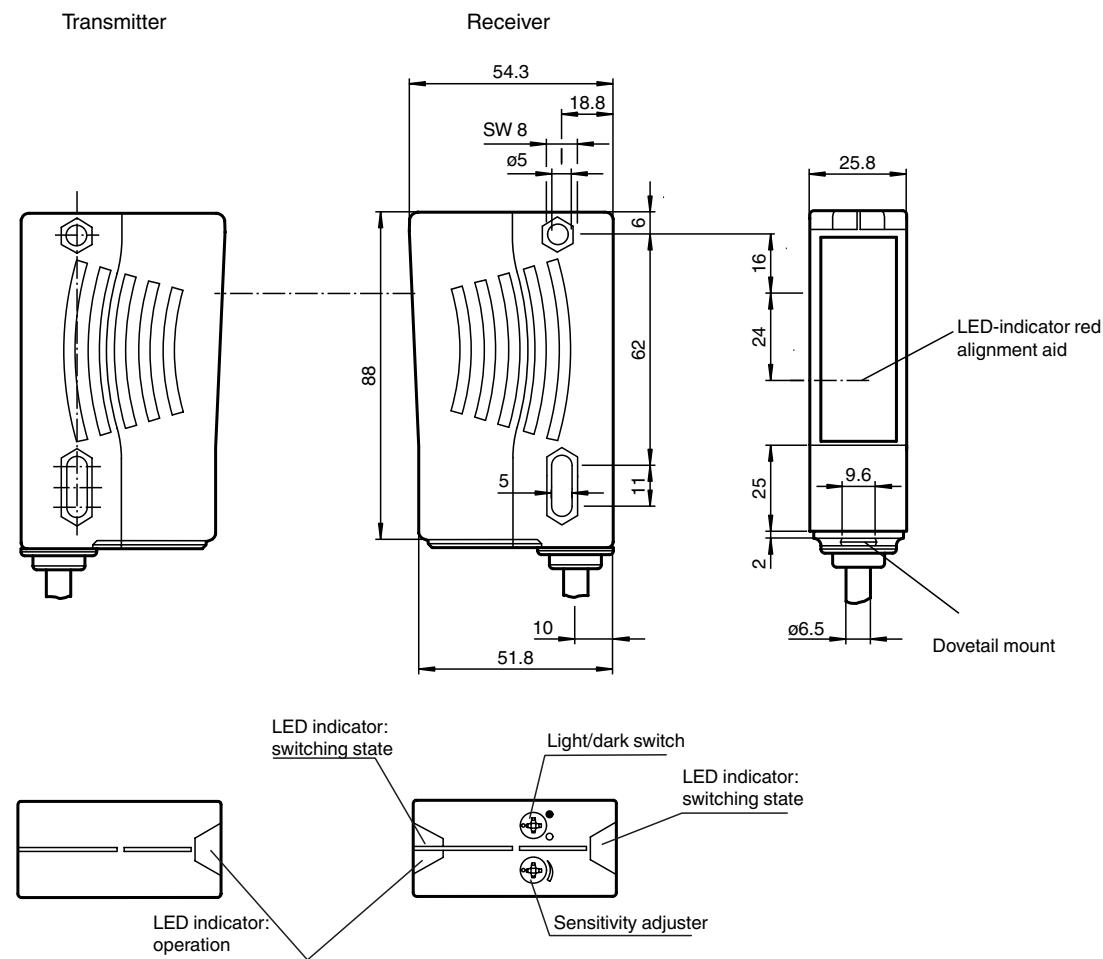


- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Highly visible LED as alignment aid in receiver optics
- Emitter with test input
- Version with red light

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



#### Dimensions



## Technical Data

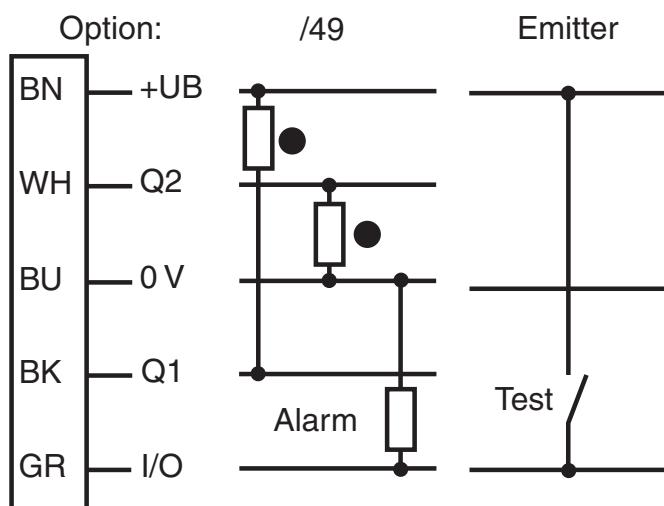
System components		
Emitter	LD28-F1/76a/115	
Receiver	LV28-F1/49/82b/115	
General specifications		
Effective detection range	0 ... 30 m	
Threshold detection range	40 m	
Light source	LED	
Light type	modulated visible red light , 660 nm	
Alignment aid	LED red (in receiver lens) illuminated constantly: 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) , Light-on/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 <sub>B</sub> (I <sub>max.</sub> < 3 mA at 30 V DC)	
Output		
Stability alarm output	1 PNP transistor, short-circuit protected, protected from reverse polarity, open collector, U <sub>max</sub> = 30 V DC, I <sub>max</sub> = 0.2 A The output becomes inactive if the signal level has fallen below the function reserve for 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	1 NPN, 1 PNP synchronized-switching, 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		
Protection class	II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1	
UL approval	cULus Listed , Class 2 power source	
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 ... 75 °C (-40 ... 167 °F)	

## Technical Data

### Mechanical specifications

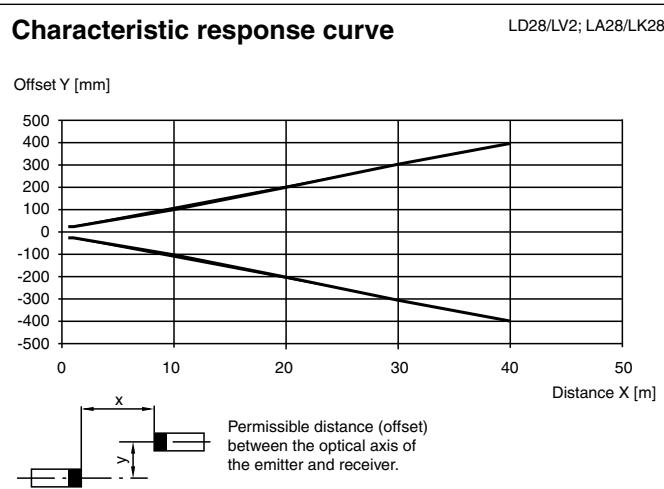
Housing width	25.8 mm
Housing height	88 mm
Housing depth	54.3 mm
Degree of protection	IP67
Connection	2.5 m, 5-wire, fixed cable, Euronorm
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	500 g (emitter and receiver)

## Connection Assignment



○ = Light on  
 ● = Dark on

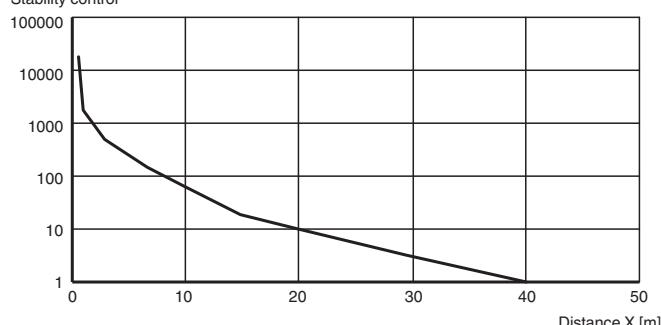
## Characteristic Curve



## Characteristic Curve

### Relative received light strength

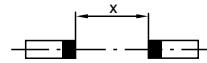
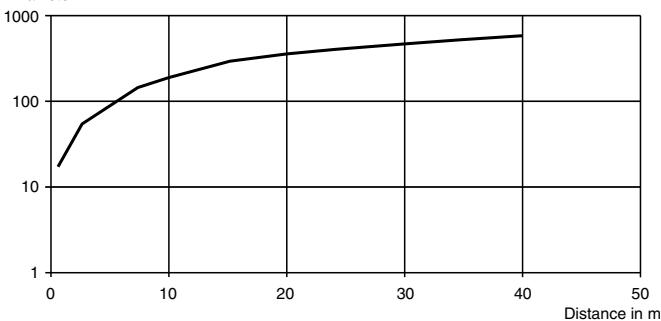
Stability control



### Light spot diameter = f (Distance)

LD28/LV28;  
LA28/LK28

Diameter in mm



## Accessories

	<b>OMH-05</b>	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
	<b>OMH-21</b>	Mounting bracket: mounting aid for sensors in the RL* series
	<b>OMH-22</b>	Mounting aid for RL* series
	<b>OMH-RLK29-HW</b>	Mounting bracket for rear wall mounting
	<b>OMH-RL28-C</b>	Weld slag cover model