



# Retroreflective sensor

## RL28-55-V-Z/49/76a/82b/116

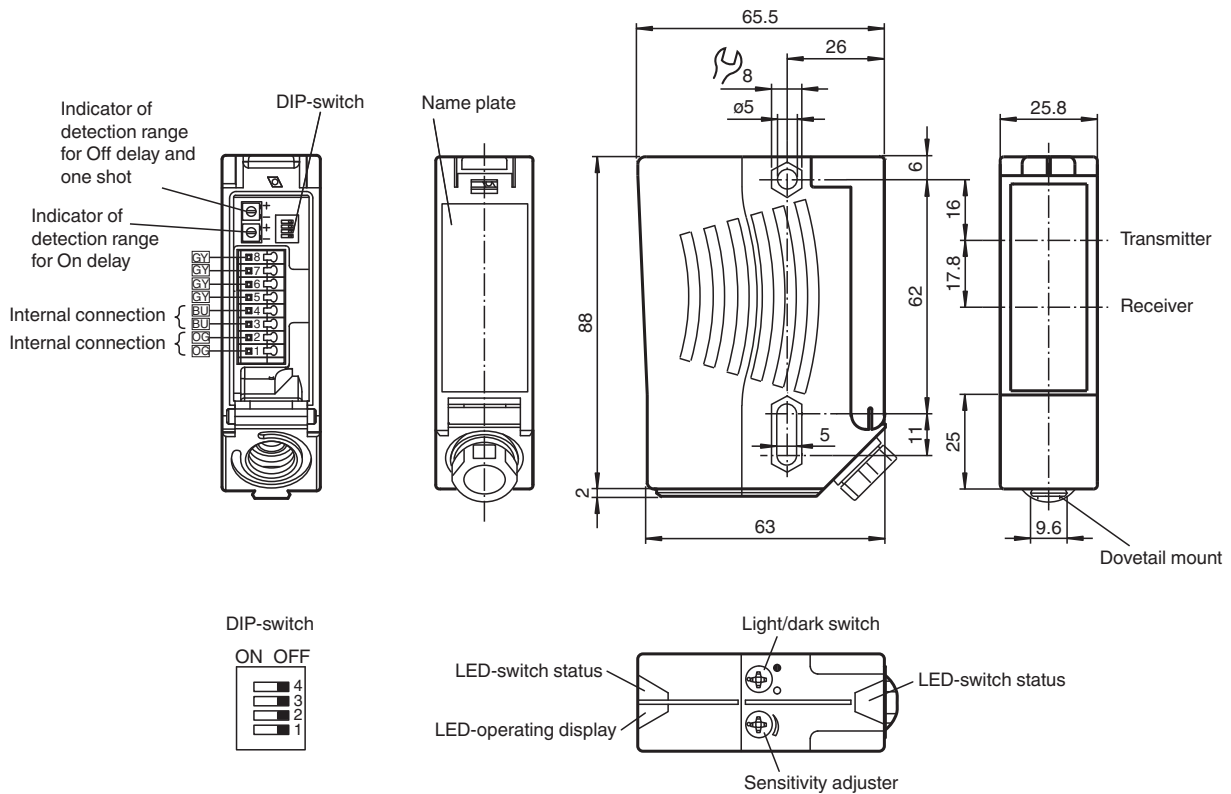


- Foreground suppression, suited to recording of sheet-shrink-wrapped objects
- Ultra bright LEDs for power on, weak signal indication and switching state
- Programmable time function GAN, GAB, IAB and GAN-IAB as double function
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Retroreflective sensor with polarization filter



### Dimensions



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

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**pf** PEPPERL+FUCHS

## Technical Data

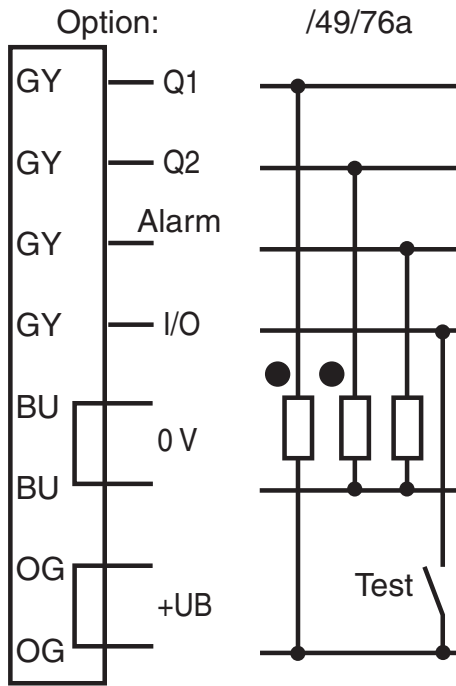
General specifications		
Effective detection range		0 ... 13 m
Reflector distance		0.5 ... 13 m (blind range 0 ... 0.2 m faded out)
Threshold detection range		17 m
Reference target		H85-2 reflector
Light source		LED
Light type		modulated visible red light , 660 nm
Polarization filter		yes
Diameter of the light spot		approx. 220 mm at a distance of 13 m
Angle of divergence		emitter 1.2° receiver 2°
Ambient light limit		80000 Lux
Functional safety related parameters		
MTTF <sub>d</sub>		690 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		90 %
Indicators/operating means		
Operation indicator		LED green
Function indicator		2 LEDs yellow, light up when light beam is free, flash when falling short of the stability control, off when light beam is interrupted
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>	40 mA
Input		
Test input		emitter deactivation with +U <sub>B</sub>
Output		
Pre-fault indication output		1 PNP, inactive when falling short of the stability control for 10;s immediately inactive if 4 light beam interruptions take place
Switching type		light/dark on, switchable (selectable, light/dark switching is only activated if the receiver has 'dark on' selected.)
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
Timer function		ON delay (GAN), OFF delay (GAB), one shot (IAB), ON delay-one shot (GAN-IAB), ON delay-OFF delay (GAN-GAB), programmable adjustment interval 0.02 s ... 1 s
Conformity		
Product standard		EN 60947-5-2
Approvals and certificates		
EAC conformity		TR CU 020/2011
Protection class		II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Caution! The protection class 2 is only valid when the terminal compartment is closed.
UL approval		E87056 , cULus Listed , class 2 power supply , type rating 1
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 75 °C (-40 ... 167 °F)
Mechanical specifications		
Housing width		25.8 mm

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**Technical Data**

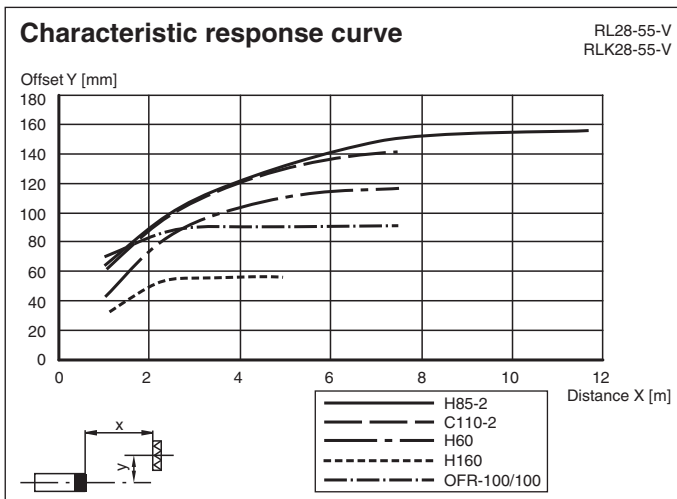
Housing height	88 mm
Housing depth	65.5 mm
Degree of protection	IP67
Connection	terminal compartment with 8 spring-loaded terminals for wire cross section 0.5 ... 1.5 mm <sup>2</sup> , insulation stripping 7.5 ... 8.5 mm, M16 x 1.5 cable gland
Material	
Housing	Plastic ABS
Optical face	plastic
Mass	approx. 112 g

**Connection Assignment**



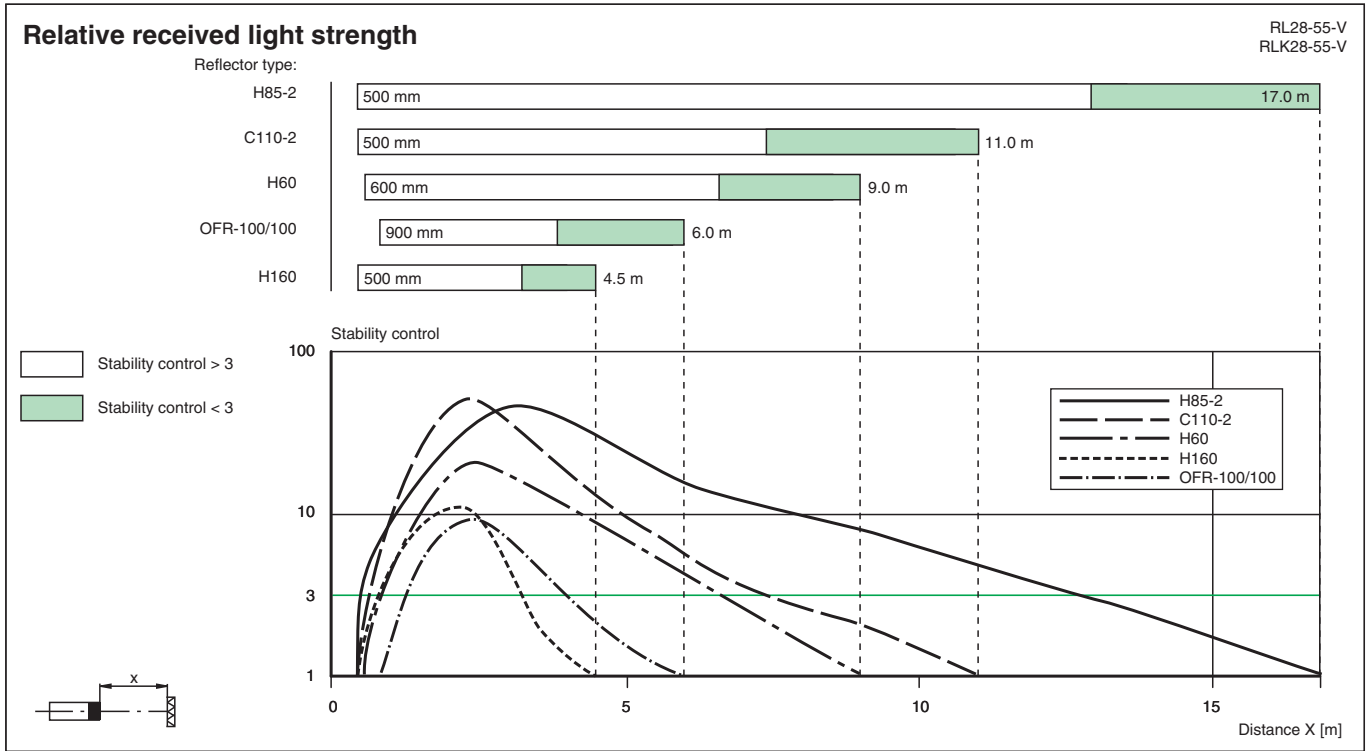
- = Light on
- = Dark on

**Characteristic Curve**



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## Application



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Mounting

Zeitfunktionen  
Fonctions de temporisation  
Funzioni di temporizzazione

Timer functions  
Funciones de tiempo

Zeitfunktion	Schaltungsart	Empfänger belichtet Empfänger dunkel
ON	Hell Dunkel	EIN AUS
ON	Hell Dunkel	EIN AUS
ON	Hell Dunkel	EIN AUS
ON	Hell Dunkel	EIN AUS

Die Zeit  $t_{AN}$ ,  $t_{AB}$  und  $t_{IAB}$  sind von 0,02 - 1 Sekunde einstellbar.  
Der H/D-Schalter (Schalter links außen) ist in Stellung Dunkelschaltung dargestellt.

Timer function	Switching type	Receiver exposed Receiver dark
ON	Light Dark	ON OFF
ON	Light Dark	ON OFF
ON	Light Dark	ON OFF
ON	Light Dark	ON OFF

Time  $t_{ON}$ ,  $t_{OFF}$  and  $t_{OS}$  are adjustable from 0.02 to 1 seconds.  
The Light/Dark-Switch (Left, outer switch) is shown in the "Dark ON" position.

Fonction de temporisation	Mode de commutation	Récepteur éclairé Récepteur non éclairé
ON	clair foncé	activé désactivé
ON	clair foncé	activé désactivé
ON	clair foncé	activé désactivé
ON	clair foncé	activé désactivé

Les temps  $t_{AN}$ ,  $t_{AB}$  et  $t_{IAB}$  sont réglables de 0,02 ... 1 s.  
Le commutateur H/D (commutateur à l'extrême gauche) est représenté en position commutation obscur.

Función de tiempo	Modo de conmutación	Receptor recibiendo luz Receptor oscuro
ON	Claro Oscuro	ON OFF
ON	Claro Oscuro	ON OFF
ON	Claro Oscuro	ON OFF
ON	Claro Oscuro	ON OFF







El tiempo  $t_{AN}$ ,  $t_{AB}$  y  $t_{IAB}$  es ajustable entre 0,02 y 1 segundos.  
El conmutador H/D (conmutador exterior izquierdo) está representado en posición de reducción de la luz.

Funzione tempo	Modo di commutazione	Ricevitore illuminato Ricevitore scuro
ON	Chiaro Scuro	Un Disattivo
ON	Chiaro Scuro	Un Disattivo
ON	Chiaro Scuro	Un Disattivo
ON	Chiaro Scuro	Un Disattivo

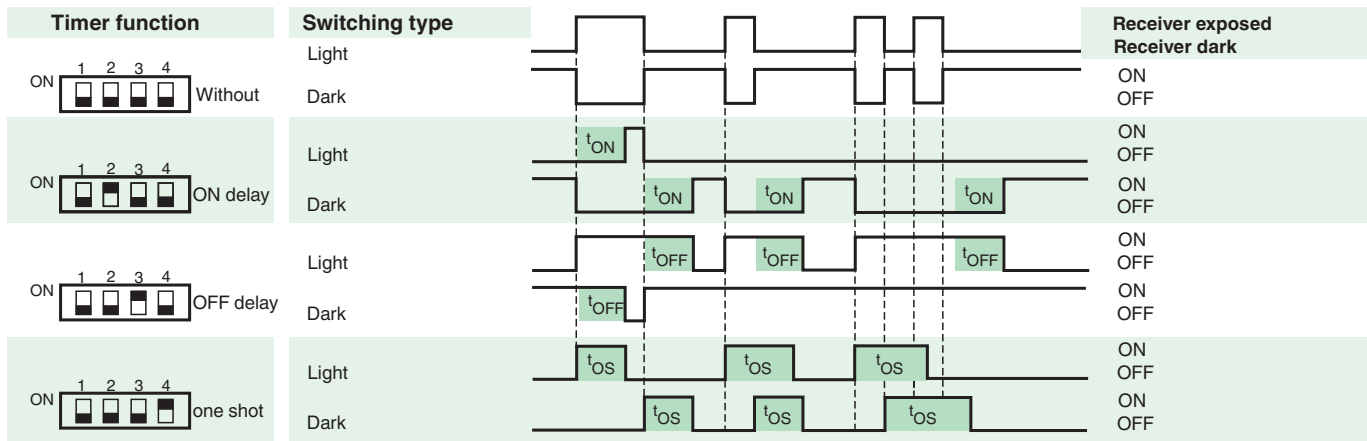
i tempi  $t_{AN}$ ,  $t_{AB}$  e  $t_{IAB}$  sono regolabili tra 0,02 s e 1 s.  
L'interruttore chiaro/scuro (interruttore sul lato esterno sinistro) è rappresentato in posizione di azionamento in scuro.

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## 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</b>	Mounting bracket
	<b>OMH-RLK29-HW</b>	Mounting bracket for rear wall mounting
	<b>OMH-RL28-C</b>	Weld slag cover model

## Timer functions



Time  $t_{ON}$ ,  $t_{OFF}$  and  $t_{OS}$  are adjustable from 0.02 to 1 seconds.  
 The Light-/Dark-Switch (Left, outer switch) is shown in the "Dark ON" position.

Type	Description	Notes
-Z	OFF delay timer	Adjustable time interval (0.02 s - 1 s)
	one shot timer	
	ON delay timer	
	ON delay timer / OFF delay timer	
	ON delay timer / one shot timer	