



# Retroreflective sensor

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

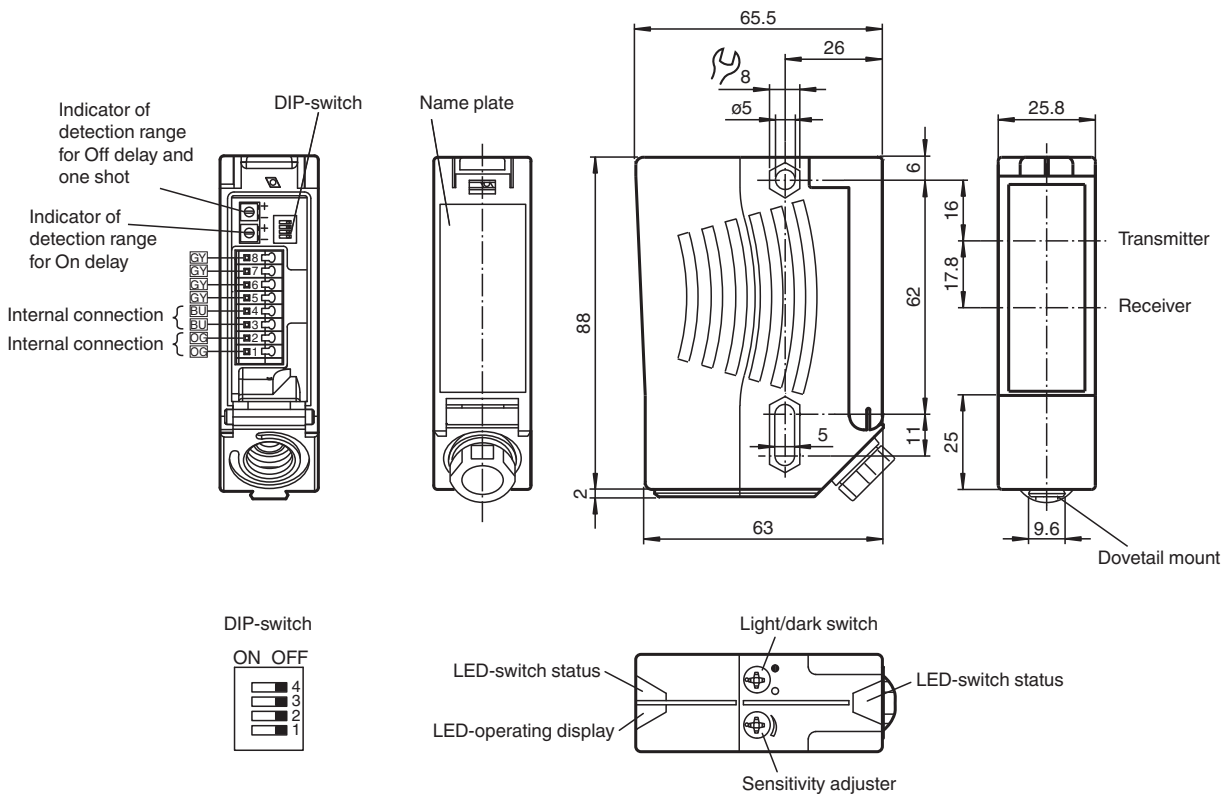


- Ultra bright LEDs for power on, weak signal indication and switching state
- Programmable time function GAN, GAB, IAB and GAN-IAB as double function
- Test input
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Retroreflective sensor with polarization filter



### Dimensions



Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 421144\_eng.pdf

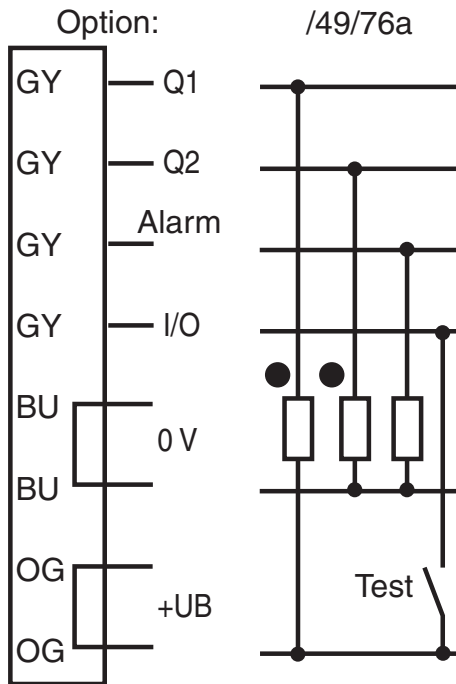
## Technical Data

General specifications		
Effective detection range		0 ... 17 m
Reflector distance		0.05 ... 17 m
Threshold detection range		21 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. 290 mm at a distance of 17 m
Opening angle		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 at +U <sub>B</sub>
Output		
Stability alarm 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 ... 60 °C (-40 ... 140 °F)
Mechanical specifications		
Housing width		25.8 mm
Housing height		88 mm

**Technical Data**

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

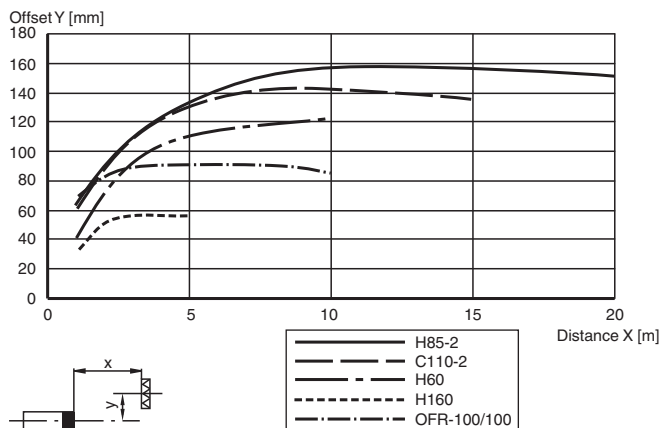
**Connection Assignment**



- = Light on
- = Dark on

**Characteristic Curve**

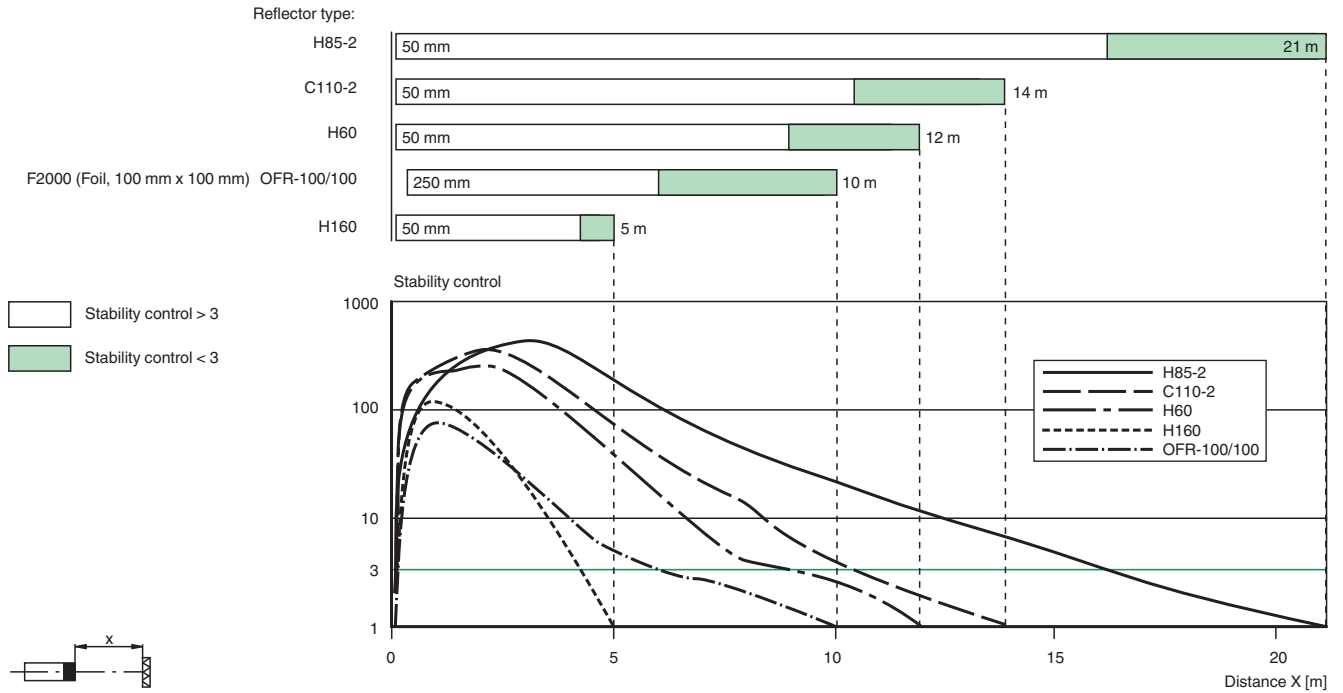
Characteristic response curve



Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 421144\_eng.pdf

# Characteristic Curve

## Relative received light strength



# Application



Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 421144\_eng.pdf

Mounting

Zeitfunktionen / Fonctions de temporisation / Funzioni di temporizzazione / Timer functions / Funciones de tiempo

Zeitfunktion	Schaltungsart	Empfänger belichtet / Empfänger dunkel
ON  Ohne	Hell Dunkel	EIN AUS
ON  GAN	Hell Dunkel	EIN AUS
ON  GAB	Hell Dunkel	EIN AUS
ON  IAB	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  Without	Light Dark	ON OFF
ON  ON delay	Light Dark	ON OFF
ON  OFF delay	Light Dark	ON OFF
ON  one shot	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  sans	clair foncé	activé désactivé
ON  GAN	clair foncé	activé désactivé
ON  GAB	clair foncé	activé désactivé
ON  IAB	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  Sin	Claro Oscuro	ON OFF
ON  GAN	Claro Oscuro	ON OFF
ON  GAB	Claro Oscuro	ON OFF
ON  IAB	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  Senza	Chiaro Scuro	Un Disattivo
ON  GAN	Chiaro Scuro	Un Disattivo
ON  GAB	Chiaro Scuro	Un Disattivo
ON  IAB	Chiaro Scuro	Un Disattivo

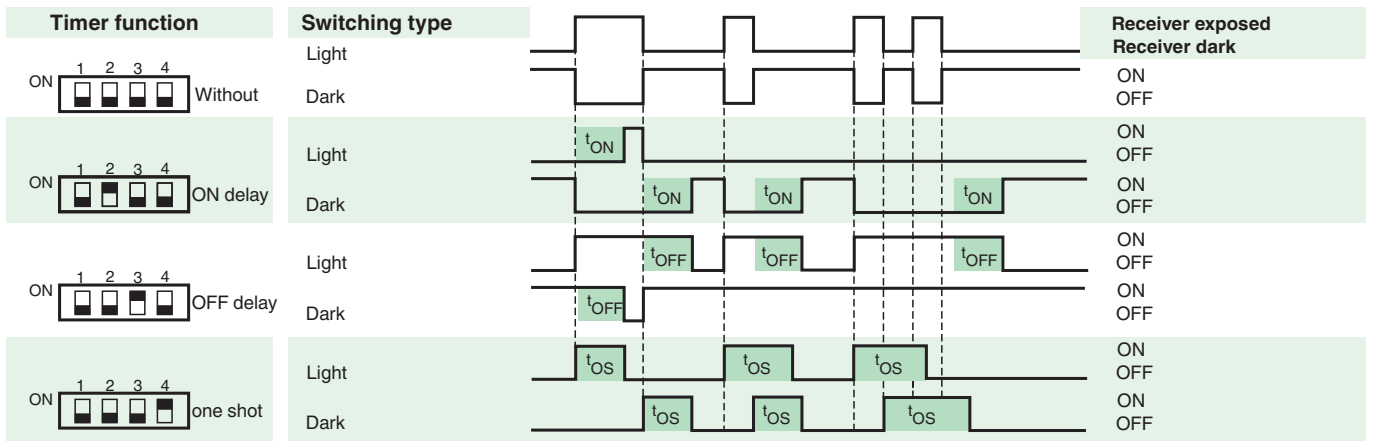
i tempi  $t_{AN}$ ,  $t_{AB}$  e  $t_{IAB}$  sono regolabili tra 0,02 s e 1 s.  
L'interruttore chiaro/scuro (interruttore sul lato esterno sinistro) è rappresentato in posizione di azionamento in scuro.

Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 421144\_eng.pdf

## Accessories

	<b>OMH-05</b>	Mounting aid for round steel $\varnothing$ 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	

Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 421144\_eng.pdf