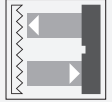




Retroreflective sensor

RL28-55-Z/47/76a/82b/116

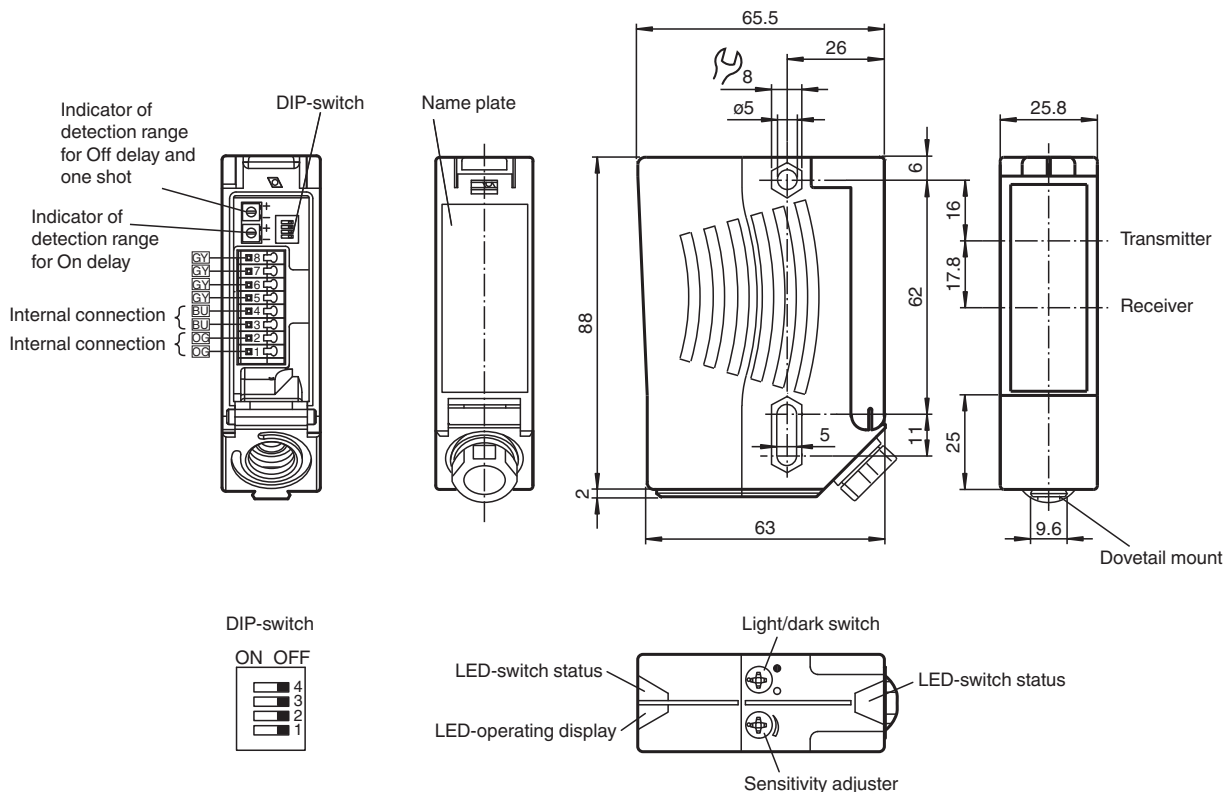


- Ultra bright LEDs for power on, weak signal indication and switching state
- Programmable time function GAN, GAB, IAB and GAN-IAB as double function
- Test input
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Retroreflective sensor with polarization filter



Dimensions



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 _d	690 a
Mission Time (T _M)	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 _B	10 ... 30 V DC
Ripple		10 %
No-load supply current	I ₀	≤ 40 mA

Input

Test input	emitter deactivation at +U _B
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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	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
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
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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

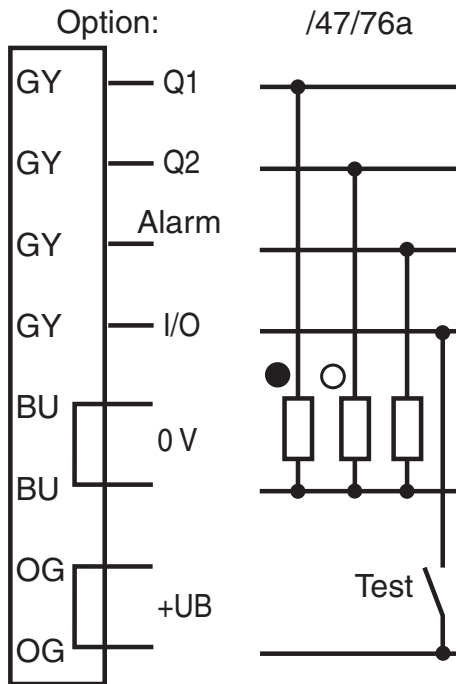
Housing width	25.8 mm
Housing height	88 mm

Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 421142_eng.pdf

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 ² , insulation stripping 7.5 ... 8.5 mm, M16 x 1.5 cable gland
Material	
Housing	Plastic ABS
Optical face	plastic
Mass	approx. 112 g

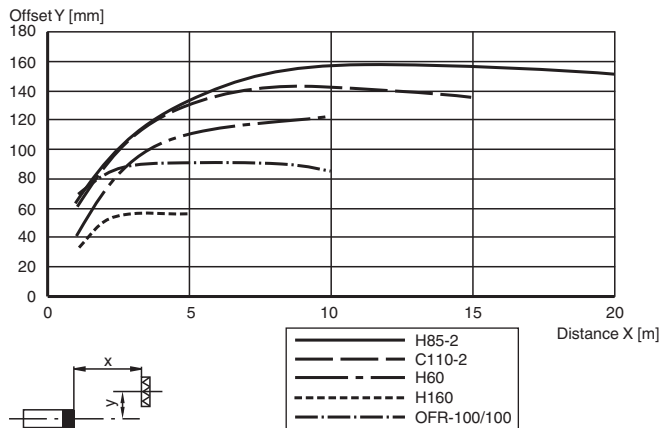
Connection Assignment



- = Light on
- = Dark on

Characteristic Curve

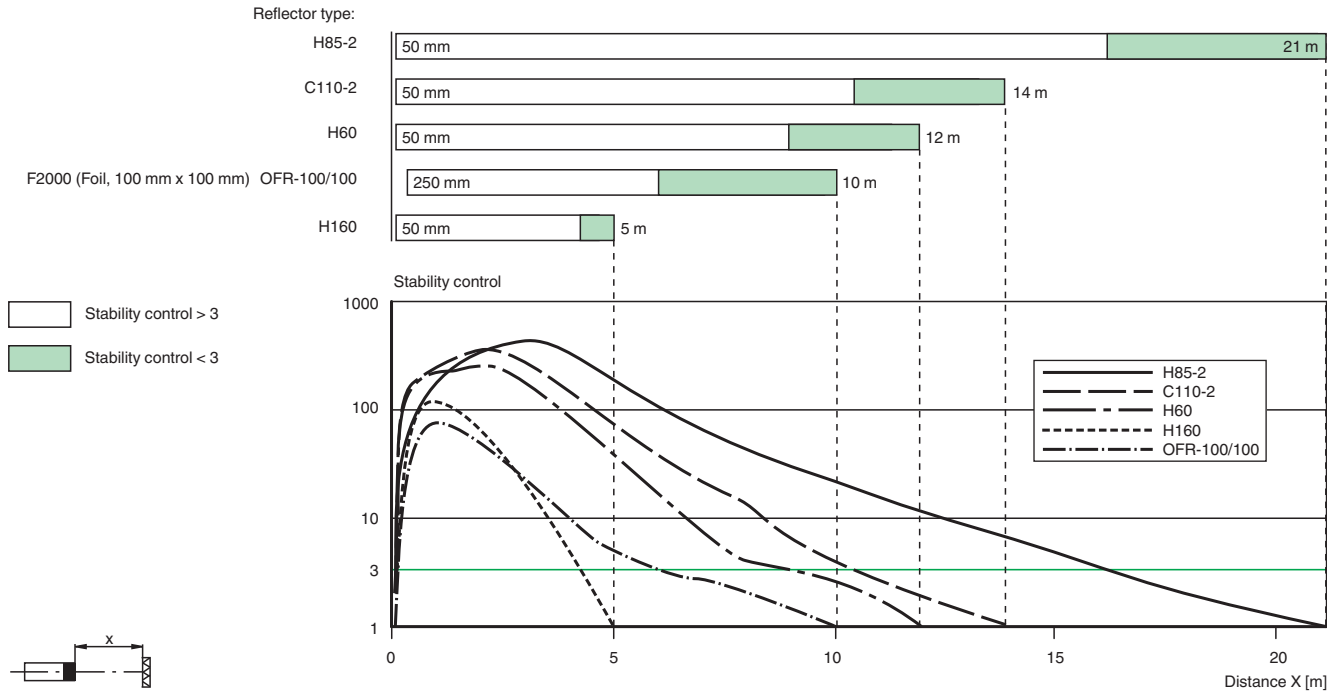
Characteristic response curve



Release date: 2022-10-25 Date of issue: 2022-10-25 Filename: 421142_eng.pdf

Characteristic Curve

Relative received light strength



Application



Mounting

Zeitfunktionen Fonctions de temporisation Funzioni di temporizzazione

Timer functions Funciones de tiempo

Zeitfunktion	Schaltungsart	Empfänger belichtet Empfänger dunkel
ON 1 2 3 4 Ohne	Hell	EIN
	Dunkel	AUS
ON 1 2 3 4 GAN	Hell	EIN
	Dunkel	AUS
ON 1 2 3 4 GAB	Hell	EIN
	Dunkel	AUS
ON 1 2 3 4 IAB	Hell	EIN
	Dunkel	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 1 2 3 4 Without	Light	ON
	Dark	OFF
ON 1 2 3 4 ON delay	Light	ON
	Dark	OFF
ON 1 2 3 4 OFF delay	Light	ON
	Dark	OFF
ON 1 2 3 4 one shot	Light	ON
	Dark	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 1 2 3 4 sans	clair	activé
	foncé	désactivé
ON 1 2 3 4 GAN	clair	activé
	foncé	désactivé
ON 1 2 3 4 GAB	clair	activé
	foncé	désactivé
ON 1 2 3 4 IAB	clair	activé
	foncé	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 1 2 3 4 Sin	Claro	ON
	Oscuro	OFF
ON 1 2 3 4 GAN	Claro	ON
	Oscuro	OFF
ON 1 2 3 4 GAB	Claro	ON
	Oscuro	OFF
ON 1 2 3 4 IAB	Claro	ON
	Oscuro	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 1 2 3 4 Senza	Chiaro	Un
	Scuro	Disattivo
ON 1 2 3 4 GAN	Chiaro	Un
	Scuro	Disattivo
ON 1 2 3 4 GAB	Chiaro	Un
	Scuro	Disattivo
ON 1 2 3 4 IAB	Chiaro	Un
	Scuro	Disattivo

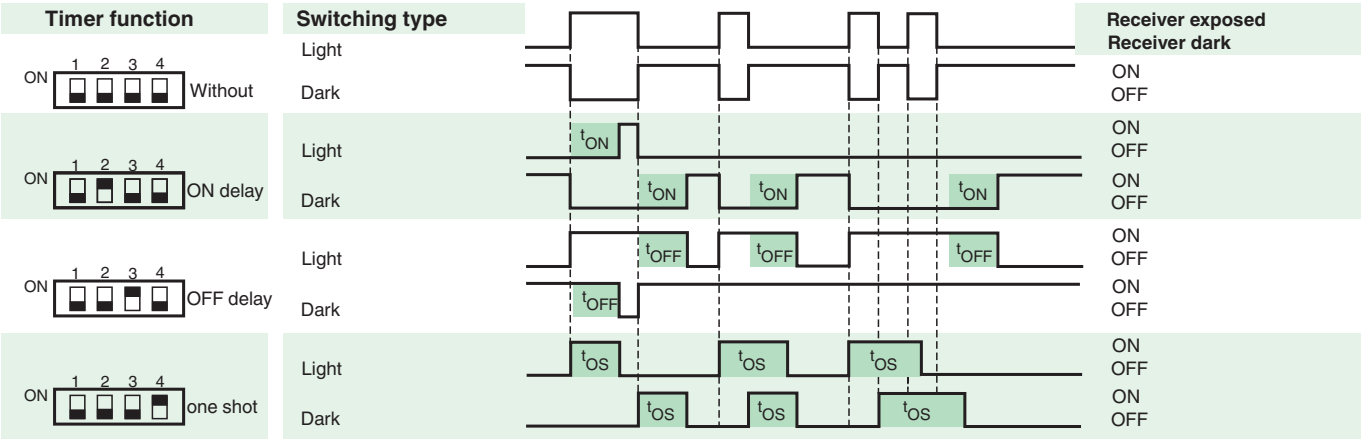
I tempi t_{AN} , t_{AB} e t_{IAB} sono regolabili tra 0,02 s e 1 s.

L'interruttore chiaro/scuro (interruttore sul lato esterno sinistro) è rappresentato in posizione di azionamento in scuro.

Accessories

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