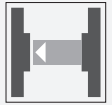




Thru-beam sensor

M12/MV12-F1/76b/82b/115/128

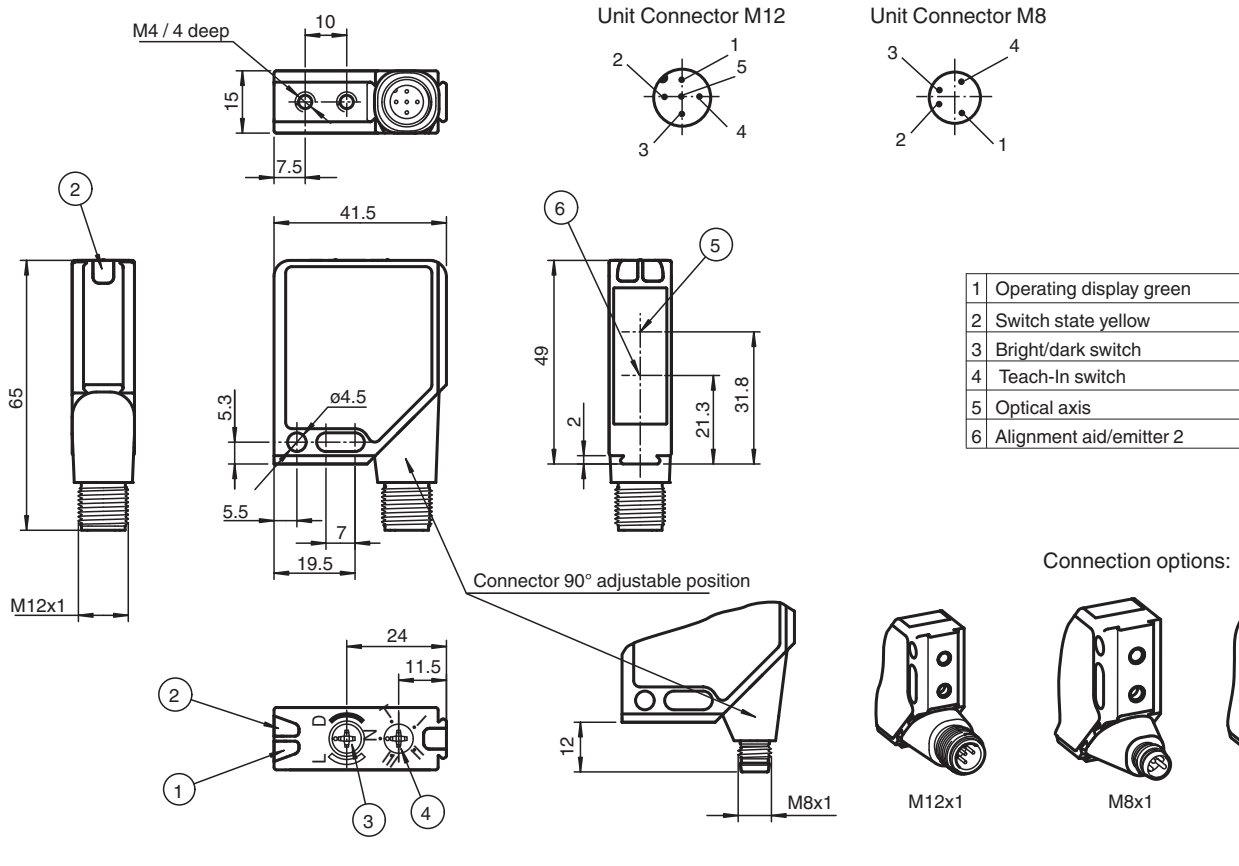


- Series of sensors in a widely used standard housing
- TEACH-IN switch for setting the contrast detection levels
- Automatic adjustment in case of soiling in contrast detection mode
- High level of stability thanks to the metal housing frame
- Resistant against noise: reliable operation under all conditions

Robust thru-beam sensor for standard applications, small design, 25 m detection range, red light, emission frequency F1, light/dark on, push-pull output, weak signal output, test input, external Teach-In, fixed cable



Dimensions



Technical Data

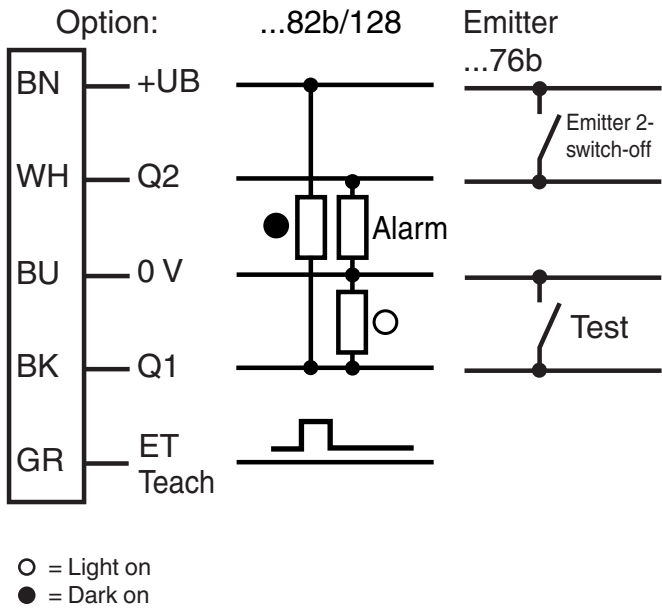
System components			
Emitter		M12-F1/76b/115	
Receiver			MV12-F1/82b/115/128
General specifications			
Effective detection range			0 ... 16 m
Threshold detection range		25 m	
Light source			2 LED
Light type		modulated visible red light , 660 nm	
Target size			min. 12 mm
Alignment aid		LED red in receiver	
Diameter of the light spot			approx. 420 mm at a distance of 16 m
Opening angle		1.5 °	
Ambient light limit			
Continuous light		40000 Lux	
Modulated light		5000 Lux	
Functional safety related parameters			
MTTF _d			570 a
Mission Time (T _M)		20 a	
Diagnostic Coverage (DC)			90 %
Indicators/operating means			
Operation indicator			LED green, flashes in case of short-circuit
Function indicator		2 LEDs yellow for switching state, stability control, TEACH-IN and contrast detection mode	
Control elements			rotary switch for light/dark, 5-step switch for contrast recognition adjustment
Contrast detection levels		15 % - clear glass bottles 25 % - plastic foils 40 % - colored glass or opaque materials adjustable by Teach-In key or external wire	
Electrical specifications			
Operating voltage		U _B	10 ... 30 V DC
Ripple			max. 10 %
No-load supply current		I ₀	Emitter: ≤ 35 mA Receiver: ≤ 45 mA
Input			
Test input		emitter deactivation at 0 V	
Function input			Ext. Teach-In input (ET)
Output			
Stability alarm output			1 PNP, inactive when level falls below function reserve after approx. 5 s. Immediately inactive if the beam is interrupted 4 times during the flashtime.
Switching type		light/dark on, switchable	
Signal output			1 push-pull (4 in 1) output, short-circuit protected, reverse polarity protected
Switching voltage		max. 30 V DC	
Switching current			max. 0.2 A
Voltage drop		U _d	≤ 2.5 V DC
Switching frequency		f	1000 Hz
Response time		0.5 ms	
Conformity			
Product standard		EN 60947-5-2	
Compliance with standards and directives			
Standard conformity			
Shock and impact resistance			IEC / EN 60068. half-sine, 40 g in each X, Y and Z directions
Vibration resistance		IEC / EN 60068-2-6. Sinus. 10 -150 Hz, 5 g in each X, Y and Z directions	
Approvals and certificates			
Protection class		II, rated voltage ≤ 300 V AC with pollution degree 1-2 according to IEC 60664-1	
UL approval			cULus

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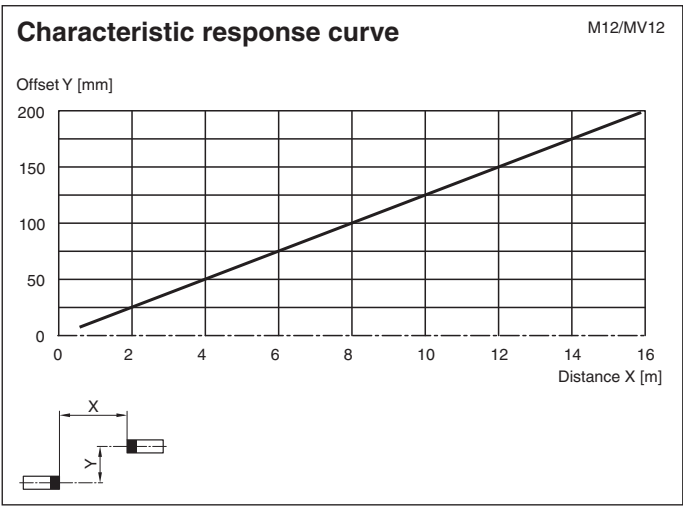
Technical Data

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)
Mechanical specifications		
Housing width		41.5 mm
Housing height		49 mm
Housing depth		15 mm
Degree of protection		IP67
Connection		2500 mm fixed cable , PUR
Material		
Housing		Frame: nickel plated, die cast zinc, Laterals: glass-fiber reinforced plastic PC
Optical face		Plastic pane
Mass		120 g (emitter and receiver)

Connection Assignment

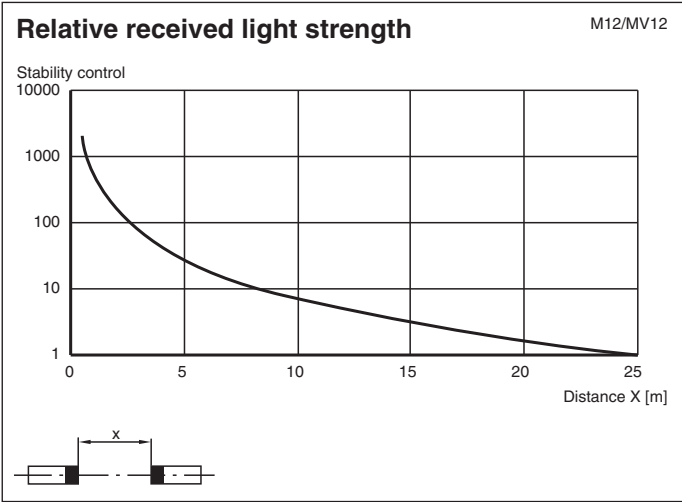


Characteristic Curve



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Characteristic Curve



Mounting

Montage und Justage
Montage et Alignement
Montaggio e Aggiustaggio

In Schalterstellung "N" Sender und Empfänger ausrichten bis:
Gelbe LED leuchtet konstant,
rote LED ist aus.

In switching position "N" emitter and receiver align to:
Yellow LED lights up constantly,
red LED is off.

Dans le "N les" expéditeurs et destinataires de position de
commutation alignez :
Jaunissez la DEL s'allume constamment,
DEL rouge est dehors.

En los recipientes "N" de la posición de conmutación los
remitentes y alinean:
El LED amarillo se enciende para arriba constantemente,
LED rojo está hacia fuera.

Nel del "N" di posizione di commutazione i trasmettitori ed i
destinatari si allineano:
Il LED giallo si illumina costantemente in su,
LED rosso è fuori.

Mounting and Alignment
Montaje y Ajuste

Sender
Emitter
Émetteur
Emisor
Trasmittente

ausrichten
align
aligne
alineaa
direzione

LED

Empfänger
receiver
récepteur
receptor
ricevitore

T

Accessories

	OMH-MLV12-HWG	Mounting bracket for series MLV12 sensors
	OMH-MLV12-HWK	Mounting bracket for series MLV12 sensors
	OMH-K01	dove tail mounting clamp
	OMH-K02	dove tail mounting clamp

Accessories

	OMH-K03	dove tail mounting clamp
	OMH-06	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

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Notes

Alignment

In switching position "N" senders and recipients align to:
Yellow LED lights up constantly, red LED is off.

TEACH-IN

Switch position "N" (standard operation):

LEDs are lit when the light beam is unobstructed, they flash when the value falls short of the function reserve and switch off when the beam is interrupted.

Switch position "T" (Teach-in mode):

After 1 s, the LED flashes slowly (approx. 1.5 Hz). The sensor is now ready to be set for a specific contrast detection value either via the mechanical switch (pos. I, II or III) or an external signal.

Switch positions "I", "II" and "III" (contrast detection mode)

Contrast recognition values: I for 15 %, II for 25 %, III for 40 %

1. LED permanently lit: light path unobstructed
2. LED off: element to be sensed detected
3. LED flashes rapidly: detection failure, excessive soiling, function reserve too low.

Ext. TEACH-IN input

The desired contrast recognition capability can be adjusted by applying of a logic „high“ pulse with a certain pulse length when the switch is in position T.

I: 50 ms (30 ms ... 100 ms)

II: 150 ms (100 ms ... 200 ms)

III: > 200 ms

Mode selector in position T.

