

- CE cULus

Technical drawing of the M8 x 1 sensor cable connector, showing three views: front view, side view, and top view.

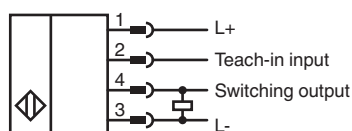
- Front View:** Shows the main body with a total height of 31 mm. The distance from the bottom flange to the center of the circular feature is 18 mm. The width of the main body is 12 mm. The bottom flange has a thickness of 9 mm and is labeled "M8 x 1".
- Side View:** Shows the profile of the connector. The total height is 25 mm. The distance from the bottom flange to the top edge is 22 mm. The bottom flange has a thickness of 3 mm. The central hole has a diameter of $\varnothing 3.2$. The top edge has a radius of 3.2 mm. The bottom flange has a width of 17 mm, with a central section of 14 mm.
- Top View:** Shows the circular feature with concentric circles and crosshairs indicating the center.

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Technical Data

Response delay		≤ 75 ms
Limit data		
Permissible cable length		max. 300 m
Indicators/operating means		
LED yellow		switching state and flashing: Teach-In
Electrical specifications		
Rated operating voltage	U _e	24 V DC
Operating voltage	U _B	20 ... 30 V DC , ripple 10 % _{SS} ; 12 ... 20 V DC sensitivity reduced to 90 %
No-load supply current	I ₀	≤ 20 mA
Time delay before availability	t _v	≤ 150 ms
Input		
Input type		1 program input
Level		low level : 0 ... 0.7 V (Teach-In active) high level : U _B or open input (Teach-In inactive)
Input impedance		16 kΩ
Pulse length		≥ 3 s
Output		
Output type		1 switch output PNP, NO
Rated operating current	I _e	200 mA , short-circuit/overload protected
Voltage drop	U _d	≤ 2 V
Switching frequency	f	5 Hz
Off-state current	I _r	≤ 0.01 mA
Temperature influence		0.17 %/K
Compliance with standards and directives		
Standard conformity		
Standards		EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012
Approvals and certificates		
UL approval		cULus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Shock resistance		30 g , 11 ms period
Vibration resistance		10 ... 55 Hz , Amplitude ± 1 mm
Mechanical specifications		
Connection type		M8 x 1 connector , 4-pin
Degree of protection		IP67
Material		
Housing		Polycarbonate
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Installation position		any position
Mass		10 g
Tightening torque, fastening screws		max. 0.2 Nm
Factory settings		
Output		reflector distance 400 mm

Connection



Connection Assignment

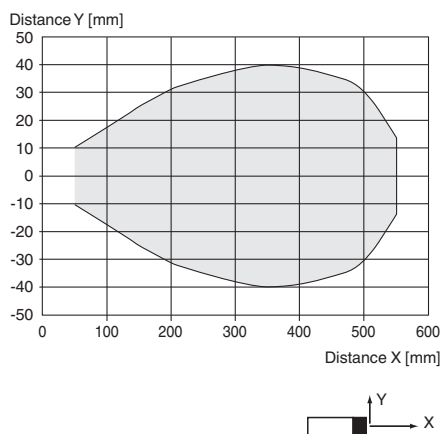


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Characteristic Curve

Characteristic response curve



Commissioning

Adjustment Possibilities

The sensor is equipped with a switching output and operates exclusively in retro-reflective mode. A fixed machine part (plate, conveyor belt....), a wall or the floor is used as a reference object (reflector) and taught-in via the teach-in input of the sensor.

The output of the sensor switches when the sensor either no longer receives the echo from its reflector or no longer receives it as the first echo:

- The first case occurs when there is a sufficiently large, angled or highly sound-absorbing object between the sensor and the reflector.
- The second case occurs when there is an object between the sensor and the reflector that reflects an echo to the sensor. In this case, the object may also be smaller than the reflector.

When teaching-in the reflector distance, the sensor automatically generates a switching window in the range of the taught-in reflector distance $\pm 5\%$. The distance of the reference object (reflector) must not change during operation. Any modifications to the reference object distance require a new teach-in.

Further Documentation

For information on programming via teach-in input you may refer to the commissioning instruction.

Accessories

	UB-PROG4-V31	Programming unit for ultrasonic sensors with Teach-in input at pin 2
	OMH-ML7-01	Mounting aid for ML7 and ML8 series, Mounting bracket
	V31-GM-2M-PVC	Female cordset single-ended M8 straight A-coded, 4-pin, PVC cable grey
	V31-WM-2M-PVC	Female cordset single-ended M8 angled A-coded, 4-pin, PVC cable grey