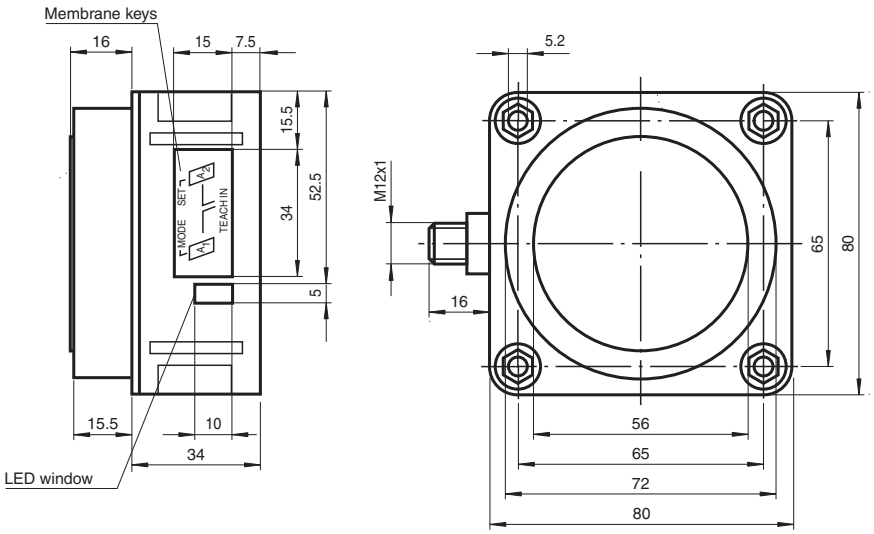
Ultrasonic sensor

UB6000-F42-I-V1-Y220443

- Analog output 4 mA ... 20 mA
- Extremely small unusable area
- Temperature compensation
- Synchronization options

Single head system

Dimensions



Technical Data

General specifications		
Measurement range		400 ... 6000 mm
Sensing range		350 ... 6000 mm
Dead band		0 ... 350 mm
Standard target plate		100 mm x 100 mm
Transducer frequency		approx. 65 kHz
Response delay		approx. 650 ms
Indicators/operating means		
LED green		Power on
LED yellow		object in evaluation range

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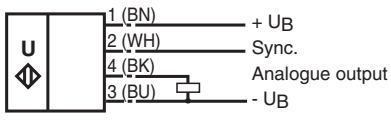
Technical Data

LED red		error
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current	I_0	≤ 60 mA
Input/Output		
Synchronization		bi-directional 0 level -U_B...+1 V 1 level: +4 V...+U_B input impedance: > 12 KOhm synchronization pulse: ≥ 100 µs, synchronization interpulse period: ≥ 2 ms
Synchronization frequency		
Common mode operation		max. 7 Hz
Multiplex operation		≤ 7/n Hz, n = number of sensors
Output		
Output type		1 analog output 4 ... 20 mA
Resolution		0.7 mm
Deviation of the characteristic curve		± 1 % of full-scale value
Repeat accuracy		± 0.1 % of full-scale value
Load impedance		0 ... 300 Ohm
Temperature influence		± 1 % of full-scale value
Compliance with standards and directives		
Standard conformity		
Standards		EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012 EN 60947-5-7:2003 IEC 60947-5-7:2003
Approvals and certificates		
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus 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)
Mechanical specifications		
Connection type		Connector M12 x 1 , 4-pin
Degree of protection		IP67
Connection		4-pin, M12 x 1 connector
Material		
Housing		ABS
Transducer		epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass		330 g
Factory settings		
Output		evaluation limit A1: 400 mm evaluation limit A2: 6000 mm rising ramp
Beam width		wide sound lobe

Connection

Standard symbol/Connections:



Core colours in accordance with EN 60947-5-2.

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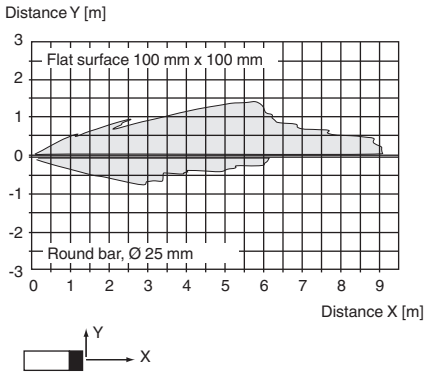
Connection Assignment

Connector V1

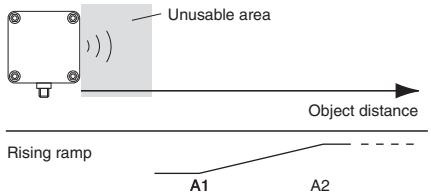
Characteristic Curve

Characteristic response curve



Programming

Analogue output programmation



Accessories

	**MH 04-3505**	Mounting aid for FP and F42 sensors
	**MHW 11**	Mounting brackets for sensors
	**V1-G-2M-PVC**	Female cordset single-ended M12 straight A-coded, 4-pin, PVC cable grey
	**V1-W-2M-PUR**	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey

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Commissioning

Synchronization

This sensor features a synchronization input for suppressing ultrasonic mutual interference ("cross talk"). If this input is not connected, the sensor will operate using internally generated clock pulses. It can be synchronized by applying an external square wave. The pulse duration must be ≥ 100 µs. Each falling edge of the synchronization pulse triggers transmission of a single ultrasonic pulse. If the synchronization signal remains low for ≥ 1 second, the sensor will revert to normal operating mode. Normal operating mode can also be activated by opening the signal connection to the synchronization input.(See note below)
If the synchronization input goes to a high level for > 1 second, the sensor will switch to standby mode, indicated by the green LED. In this mode, the outputs will remain in the last valid output state.

Note:
If the option for synchronization is not used, the synchronization input has to be connected to ground (0 V).

The following synchronization modes are possible:

1. Several sensors (max. number see technical data) can be synchronized together by interconnecting their respective synchronization inputs. In this case, each sensor alternately transmits ultrasonic pulses in a self multiplexing mode. No two sensors will transmit pulses at the same time. (See note below)
2. Multiple sensors can be controlled by the same external synchronization signal. In this mode the sensors are triggered in parallel and are synchronized by a common external synchronization pulse.
3. A separate synchronization pulse can be sent to each individual sensor. In this mode the sensors operate in external multiplex mode. (See note below)
4. A high level (+U_B) on the synchronization input switches the sensor to standby mode.

Note:
Sensor response times will increase proportionally to the number of sensors that are in the synchronization string. This is a result of the multiplexing of the ultrasonic transmit and receive signal and the resulting increase in the measurement cycle time.

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