



Model Number

UB2000-F42S-I-V15

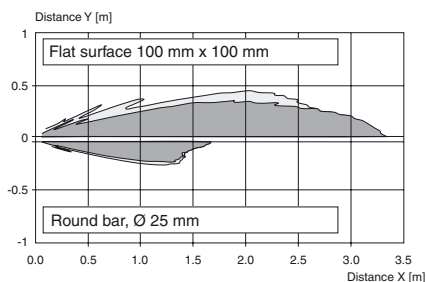
Single head system

Features

- Analog output 4 mA ... 20 mA
- Extremely small unusable area
- TEACH-IN
- Interference suppression (adjustable divergence of sound cone in close range)
- Temperature compensation
- Synchronization options
- Mode of operation adjustable

Diagrams

Characteristic response curve



Technical data

General specifications

Sensing range	60 ... 2000 mm
Adjustment range	90 ... 2000 mm
Unusable area	0 ... 60 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 175 kHz
Response delay	approx. 150 ms

Indicators/operating means

LED green	solid green: Power on
LED yellow	solid: object in evaluation range flashing: program function
LED red	normal operation: "fault" program function: no object detected

Electrical specifications

Operating voltage U_B	10 ... 30 V DC , ripple 10 % _{SS}
No-load supply current I_0	≤ 50 mA

Input/Output

Synchronization	bi-directional 0 level: $-U_B \dots +1$ V 1 level: $+4$ V $\dots +U_B$ input impedance: > 12 KOhm synchronization pulse: ≥ 100 μs, synchronization interpulse period: ≥ 2 ms
Synchronization frequency	≤ 30 Hz
Common mode operation	≤ 30 Hz
Multiplex operation	≤ 30/n Hz, n = number of sensors

Output

Output type	1 analog output 4 ... 20 mA
Default setting	evaluation limit A1: 90 mm , evaluation limit A2: 2000 mm , wide sound lobe
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

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 , 5-pin
Protection degree	IP54
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	140 g

Compliance with standards and directives

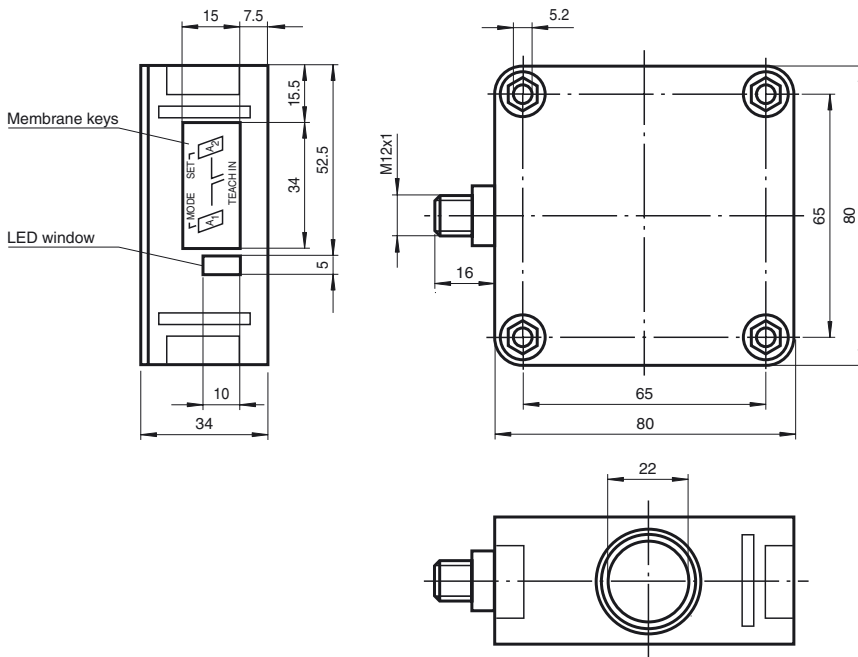
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007 EN 60947-5-7:2003 IEC 60947-5-7:2003

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

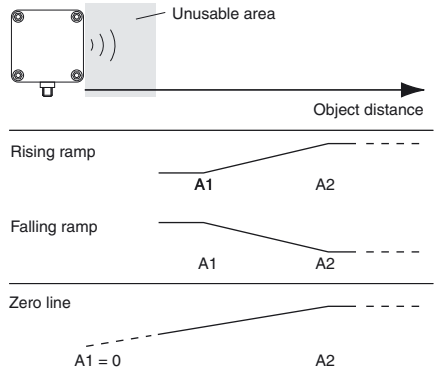
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Dimensions



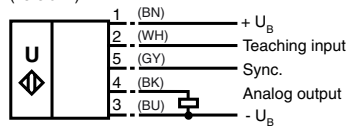
Additional Information

Analogue output programming



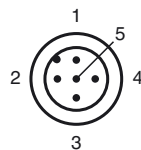
Electrical Connection

Standard symbol/Connections:
(version I)



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

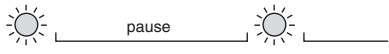

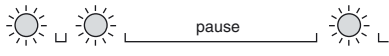

Pinout



Wire colors in accordance with EN 60947-5-2

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

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Beam width	Flash sequence of the red LED	A2 key
Small beam		
Medium beam		
Large beam		

Hold down the A1 key for 2 seconds to save the selected beam shape, terminate the parameterisation and ensure that the sensor returns to normal mode. Briefly press the A1 key to return to Step 1 (parameterisation of the output function).

If the parameterisation mode is not terminated within 5 minutes (hold down the A1 key for 2 seconds), the sensor aborts this mode without modifying the settings.

Synchronisation

The sensor provides a synchronisation port to suppress mutual influencing. If this port has not been connected, the sensor works at an internally generated cycle rate. Several sensors may be synchronised via the following options.

External synchronisation:

The sensor may be synchronised via the external application of a square wave voltage. A synchronisation pulse on the synchronisation input initiates a measuring cycle. The pulse width must be greater than 100 µs. The measuring cycle is started with the falling edge. A low level > 1 s or an open synchronisation input initiate the transition to normal sensor mode. A high level on the synchronisation input deactivates the sensor.

Two modes are possible:

- Several sensors are controlled via the same synchronisation signal. The sensors work in common mode.
- The synchronisation pulses are forwarded at cyclic intervals to respectively one single sensor. The sensors work in multiplex mode.

Self-synchronisation:

The synchronisation ports of up to 5 sensors suitable for self-synchronisation are connected to each other. These sensors work in multiplex mode after Power on. The On delay increases depending on the number of sensors to be synchronised. While the learn mode is active, no synchronisation is possible (and vice-versa). To specify the switching points, the sensors must be operated in non-synchronised mode.

Note:

If the synchronisation option is not used, the synchronisation input must be connected to ground (0V) or the sensor must be operated with a (4-pole) V1 connecting cable.

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