Ultrasonic sensor
UB800-18GM40A-E5-V1

Dimensions

24.5
39.2
LED
10
67.7

M18 x 1
M12 x 1

24 ⏥ 4

Features

- Short design, 40 mm
- Function indicators visible from all directions
- Switch output
- 5 different output functions can be set
- TEACH-IN input
- Temperature compensation

Technical data

$C\epsilon$

General specifications

Sensing range	50 ... 800 mm
Adjustment range	70 ... 800 mm
Unusable area	0 ... 50 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 205 kHz
Response delay	approx. 100 ms

Indicators/operating means

LED yellow	indication of the switching state flashing: TEACH-IN function object detected
LED red	permanently red: Error red, flashing: TEACH-IN function, object not detected

Electrical specifications

Operating voltage	10 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current I_0	$\leq$ 20 mA

Input

Input type	1 TEACH_IN input operating distance 1: $-U_B$ ... +1 V, operating distance 2: +6 V ... $+U_B$ input impedance: > 4,7 kΩ TEACH-IN pulse: $\geq$ 1 s

Output

Output type	1 switch output E5, pnp NO/NC, parameterisable
Default setting	Switch point A1: 70 mm Switch point A2: 800 mm
Repeat accuracy	$\leq$ 1 %
Rated operational current I_e	200 mA , short-circuit/overload protected
Voltage drop U_d	$\leq$ 3 V
Switching frequency f	$\leq$ 4 Hz
Range hysteresis H	1 % of the set operating distance
Temperature influence	$\pm$ 1.5 % of full-scale value

Standard conformity

Standards	EN 60947-5-2

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP65
Connection	V1 connector (M12 x 1), 4-pin
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	25 g

Electrical connection

Standard symbol/Connections:
(version E5, pnp)

1 (BN)		+ U_B
2 (WH)		Teach input
4 (BK)		Switch output
3 (BU)		- U_B
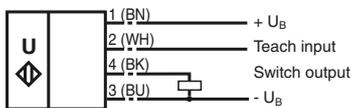
Core colours in accordance with EN 60947-5-2.

Connector V1

133039_ENG.xml

2005-07-20

Notes

Adjusting the switching points

The ultrasonic sensor features a switch output with two teachable switching points. These are set by applying the supply voltage $-U_B$ or $+U_B$ to the TEACH-IN input. The supply voltage must be applied to the TEACH-IN input for at least 1 s. LEDs indicate whether the sensor has recognised the target during the TEACH-IN procedure. Switching point A1 is taught with $-U_B$, A2 with $+U_B$.

Five different output functions can be set
1. Window mode, normally-open function
2. Window mode, normally-closed function
3. one switching point, normally-open function
4. one switching point, normally-closed function
5. Detection of object presence

TEACH-IN window mode, normally-open function
- Set target to near switching point
- TEACH-IN switching point A1 with $-U_B$
- Set target to far switching point
- TEACH-IN switching point A2 with $+U_B$

TEACH-IN window mode, normally-closed function
- Set target to near switching point
- TEACH-IN switching point A2 with $+U_B$
- Set target to far switching point
- TEACH-IN switching point A1 with $-U_B$

TEACH-IN switching point, normally-open function
- Set target to near switching point
- TEACH-IN switching point A2 with $+U_B$
- Cover sensor with hand or remove all objects from sensing range
- TEACH-IN switching point A1 with $-U_B$

TEACH-IN switching point, normally-closed function
- Set target to near switching point
- TEACH-IN switching point A1 with $-U_B$
- Cover sensor with hand or remove all objects from sensing range
- TEACH-IN switching point A2 with $+U_B$

TEACH-IN detection of objects presence
- Cover sensor with hand or remove all objects from sensing range
- TEACH-IN switching point A1 with $-U_B$
- TEACH-IN switching point A2 with $+U_B$

Default setting of switching points

A1 = blind range, A2 = nominal distance

LED Displays

Displays in dependence on operating mode	Red LED	Yellow LED
TEACH-IN switching point:		
Object detected	off	flashes
No object detected	flashes	off
Object uncertain (TEACH-IN invalid)	On	off
Normal operation	off	Switching state
Fault	on	Previous state

Model number

UB800-18GM40A-E5-V1

Characteristic curves/additional information

Characteristic response curve
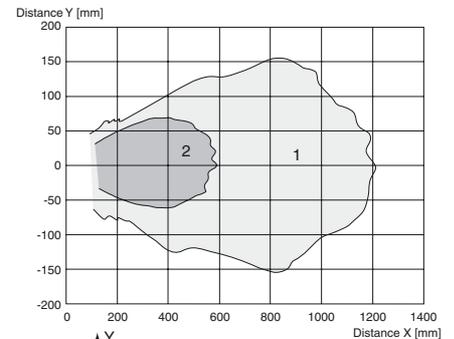
Curve 1: flat surface 100 mm x 100 mm
Curve 2: round bar, Ø 25 mm

Programmed switching output function

1. Window mode, normally open function
A1 < A2:   A1   A2   object range
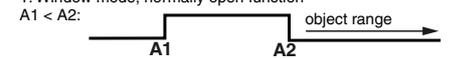
2. Window mode, normally closed function
A2 < A1:   A2   A1
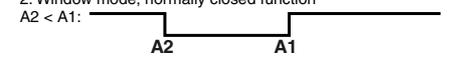
3. One switch point, normally open function
A1 -> ∞:   A2
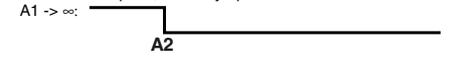
4. One switch point, normally closed function
A2 -> ∞:   A1

5. A1 -> ∞, A2 -> ∞: Detection of object presence
Object detected: Switch output closed
No object detected: Switch output open

Accessories

Programming device
UB-PROG2

Mounting aids/fixing flanges
OMH-04
BF 18
BF 18F
BF 5-30

Sound deflector
UVW90-K18

Cable sockets[*]
V1-G-2M-PVC
V1-W-2M-PUR

[*] For additional cable sockets see section „Accessories".

Subject to reasonable modifications due to technical advances.   Printed in Germany

Sensotronik AB   •   Tel.: +46 44 200 800   •   Fax +46 44 200 899   •   E-mail info@sensotronik.se   •   Internet http://www.sensotronik.se   **2**