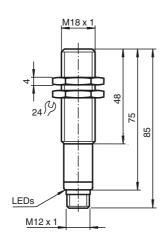
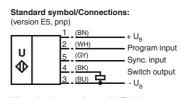
Adjustment range 90 Dead band 0 Standard target plate 0 Standard target plate 0 Model Number Indicators/operating means LED yellow indicators/operating means LED red solid Period Solid Operating voltage Ug 10 Model Number Operating voltage Ug 10 UB1000-18GM75-E5-V15 Single head system Synchronization frequency 40 Input Synchronization frequency 40 Input Input 9 9 Switch output Synchronization frequency 40 Notel Number Synchronization frequency 40 Multiplex operation 40 Input Input 1 Switch output Output type 1 pro • Selectable sound lobe width Program input 1 switching frequency f • Synchronization options Temperature influence 41.3 Ambient conditions Ambient conditions 40 Output type 1 switching frequency f 1 switching frequency f 1 switching frequ	Hz /n, n = number of sensors ogram input, rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % ∴ 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
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LED red solid Synchronization solid Model Number Synchronization frequency UB1000-18GM75-E5-V15 Single head system Features Synchronization frequency Switch output Common mode operation Switch output Input Synchronization options Fated operating current le Synchronization options Repeat accuracy Synchronization options Ambient conditions Synchronization options Ambient temperature Very small unusable area Competion Diagrams Characteristic response curve Mass Gold gold Mass Gold gold Factory settings Factory settings	70 mm mm x 100 mm rox. 255 kHz rox. 125 ms cation of the switching state ining: program function object detected d red: Error flashing: program function, object not detected 30 V DC , ripple 10 % _{SS} 0 mA nchronous connection, bi-directional vel: -U _B +1 V vel: +4 V+U _B ti impedance: > 12 kΩ shronization pulse: ≥ 100 µs, synchronization interpulse od: ≥ 2 ms 0 Hz 0 Hz 0 Hz /n, n = number of sensors ogram input, rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % 5. 3 Hz of the set operating distance 5. % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin 7
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Operating voltage UB 10 No-load supply current Io ≤ 50 Input/Output Synchronization 1 sy Synchronization frequency Common mode operation ≤ 40 Model Number Synchronization frequency Common mode operation ≤ 40 UB1000-18GM75-E5-V15 Single head system Input 40 Features Vitiplex operation ≤ 40 No-load supply current Io ≤ 40 Multiplex operation ≤ 40 Very small unusable width No-load supply current Io • Synchronization options Range hysteresis H 1 % • Temperature compensation Multient conditions 40 • Very small unusable area Connection type Connection type Connection type Diagrams Housing Material Housing Bracey itings <th>$\frac{1}{2} mA$ \frac</th>	$ \frac{1}{2} mA $ $ \frac$
Keine Keine <td< th=""><th>$\frac{1}{2} mA$ \frac</th></td<>	$ \frac{1}{2} mA $ $ \frac$
Imput/Output Imput/Output Synchronization 1 sy Model Number Synchronization frequency UB1000-18GM75-E5-V15 Synchronization frequency Single head system Synchronization frequency Features Output • Switch output Input • Selectable sound lobe width Output type • Program input Synchronization options • Deactivation option 40 • Very small unusable area Connection type Diagrams Characteristic response curve Diagrams Factory settings	nchronous connection, bi-directional vel: -U _B +1 V vel: +4 V+U _B ti mpedance: > 12 kΩ shronization pulse: ≥ 100 µs, synchronization interpulse od: ≥ 2 ms PHz PHz Hz Hz Hz Hz Hz Hz Hz Hz Hz
C E C C Synchronization 1 sy 0-let 1-let 1-l	vel: $-U_B$ $+1$ V vel: $+4$ V $+U_B$ it impedance: > 12 k Ω shronization pulse: $\geq 100 \ \mu$ s, synchronization interpulse od: ≥ 2 ms P Hz P Hz P Hz P Hz Hz /n, n = number of sensors ogram input, rating range 1: $-U_B$ $+1$ V, operating range 2: $+4$ V it impedance: > 4.7 k Ω ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Wodel Number Synchronization frequency UB1000-18GM75-E5-V15 Single head system Features Common mode operation < 40 Nultiplex operation < 40 Switch output Input Input • Switch output 0utput type 1 sw • Selectable sound lobe width Output Output • Synchronization options Output type 1 sw • Synchronization options Program input 1 % • Synchronization options Ambient conditions 1 % • Very small unusable area Connection type Connection type Diagrams Characteristic response curve Mass 60 g Factory settings Factory settings Factory settings	vel: $-U_B$ $+1$ V vel: $+4$ V $+U_B$ it impedance: > 12 k Ω shronization pulse: $\geq 100 \ \mu$ s, synchronization interpulse od: ≥ 2 ms P Hz P Hz P Hz P Hz Hz /n, n = number of sensors ogram input, rating range 1: $-U_B$ $+1$ V, operating range 2: $+4$ V it impedance: > 4.7 k Ω ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Model Number Synchronization frequency UB1000-18GM75-E5-V15 Synchronization mode operation ≤ 40 Single head system Input ≤ 40 Features Input type 1 program • Switch output Output 0utput type 1 program input • Selectable sound lobe width Repeat accuracy ≤ 11 • Program input Switching frequency f max • Synchronization options Temperature compensation ≤ 40 • Very small unusable area Connection type Connection type Diagrams Characteristic response curve Mass 600	ti impedance: > 12 kΩ chronization pulse: > 100 μs, synchronization interpulse od: > 2 ms PHz PHz /n, n = number of sensors ogram input, rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: > 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Model Number Synchronization frequency UB1000-18GM75-E5-V15 Synchronization frequency Single head system Input Features Input type • Switch output 0utput type • S different output functions can be set Output type • Selectable sound lobe width Rated operating current I _e • Program input Switching frequency f • Deactivation option Ambient conditions • Very small unusable area Connection type Diagrams Characteristic response curve Diagrams Factory settings	chronization pulse: $\geq 100 \ \mu$ s, synchronization interpulse od: $\geq 2 \ ms$ PHz PHz PHz /n, n = number of sensors ogram input, rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: $> 4.7 \ k\Omega$; program pulse: $\geq 1 \ s$ witch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % $\therefore 3 \ Hz$ of the set operating distance $5 \ \%$ of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin 7
Model Number Synchronization frequency UB1000-18GM75-E5-V15 Common mode operation ≤ 40 Single head system Multiplex operation ≤ 40 Features Input Input type 1 prooperation • Switch output 0 utput 0 utput 0 utput • S different output functions can be set Output 0 utput 1 sw • Selectable sound lobe width Program input Switching frequency f max • Synchronization options Ambient temperature -25 • Temperature compensation Very small unusable area Connection type Con Diagrams Material Housing Transducer epoc Mass 60 g Factory settings 60 g	od: $\geq 2 \text{ ms}$) Hz) Hz) Hz /n, n = number of sensors ogram input, rating range 1: $-U_B$ +1 V, operating range 2: +4 V it impedance: $> 4.7 \text{ k}\Omega$; program pulse: $\geq 1 \text{ s}$ vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % a: 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Model Number Synchronization frequency UB1000-18GM75-E5-V15 Common mode operation ≤ 40 Single head system Input Features Input • Switch output Input • Switch output Output type • S different output functions can be set Output type • Selectable sound lobe width Repeat accuracy • Program input Switching frequency f • Synchronization options Temperature influence • Very small unusable area Comon mode operation Diagrams Material Characteristic response curve Mass Output Factory settings	P Hz P Hz /n, n = number of sensors ogram input, rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % : 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
UB1000-18GM75-E5-V15 Multiplex operation ≤ 40 Single head system Input Input Features Input type 1 properation • Switch output 0utput 1 properation • Switch output 0utput 0utput • Selectable sound lobe width Output type 1 sw • Program input Switching frequency f max • Synchronization options Temperature influence ± 1.3 • Temperature compensation Ambient conditions 40 • Very small unusable area Connection type Con Diagrams Material Housing brass Characteristic response curve Mass 60 g Preserve Yuml Factory settings Factory settings	Hz /n, n = number of sensors ogram input, rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: ≥ 1 s witch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % ∴ 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Single head system Input Input Features Input type 1 propertion • Switch output Output type 1 sw • 5 different output functions can be set Output Output • Selectable sound lobe width Program input Switching frequency f max • Synchronization options Ambient conditions 2 store • Temperature compensation Very small unusable area Connection type Con Diagrams Diagrams Mass 6 og Disapre Y fund Factory settings Factory settings	ogram input, rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Solingie nead system Input type 1 prooped Features Input type 1 prooped • Switch output Output 0utput • 5 different output functions can be set Output type 1 sw • Selectable sound lobe width Repeat accuracy ≤ 1 • Program input Switching frequency f max • Synchronization options Ambient conditions 1 % • Temperature compensation Ambient temperature -25 • Very small unusable area Connection type Connection type Diagrams Material Housing brase Characteristic response curve Mass 60 g Presence Y Impl Factory settings Factory settings	rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % ∴ 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Features 1 protocols • Switch output 0utput • Switch output 0utput • Sdifferent output functions can be set Output type • Selectable sound lobe width Program input • Synchronization options Switching frequency f • Deactivation option Temperature influence • Temperature compensation Ambient conditions • Very small unusable area Connection type Diagrams Connection type Characteristic response curve Mass Postore Vinnt Factory settings	rating range 1: -U _B +1 V, operating range 2: +4 V it impedance: > 4.7 kΩ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % ∴ 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Features +UB +UB input • Switch output Output Output 0utput • 5 different output functions can be set Output type 1 sw • Selectable sound lobe width Repeat accuracy ≤ 1 • Program input Switching frequency f max • Synchronization options Temperature influence ± 1.4 • Deactivation option Ambient conditions - 25 • Temperature compensation Storage temperature -40 • Very small unusable area Connection type Con Diagrams Material Housing brass Characteristic response curve Mass 60 g Preserve Yimpl Factory settings - 200	t impedance: > 4.7 k Ω ; program pulse: > 1 s witch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % a. 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
• Switch output input • 5 different output functions can be set Output type 1 sw. • Selectable sound lobe width Program input Output gearce 200 • Program input Switching frequency f max 1 sw. • Synchronization options Temperature influence ± 1.3 • Deactivation option Ambient conditions 1 sw. • Temperature compensation Very small unusable area Connection type Connection type • Diagrams Diagrams Transducer epoil Output Mass 60 g • Dearcteristic response curve Mass 60 g	ti timpedance: > 4.7 kΩ; program pulse: ≥ 1 s vitch output PNP Normally open/closed , programmable mA , short-circuit/overload protected V % ∴ 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin 7
• 5 different output functions can be set Output type 1 sw • Selectable sound lobe width Repeat accuracy ≤ 1 • Program input Switching frequency f max • Synchronization options Temperature influence ± 1.4 • Deactivation option Ambient conditions - 25 • Temperature compensation Storage temperature -40 • Very small unusable area Connection type Con Diagrams Deagree of protection IP67 Characteristic response curve Mass 60 g Preserve Yimpl Factory settings - 25	mA , short-circuit/overload protected V % A 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 158 °F) nector M12 x 1 , 5-pin
set Rated operating current I _e 200 • Selectable sound lobe width Voltage drop U _d ≤ 3 ¹ • Program input Repeat accuracy ≤ 1 • Synchronization options Range hysteresis H 1 % • Deactivation option Temperature influence ± 1. • Temperature compensation Ambient conditions - • Very small unusable area Connection type Con Diagrams Material Housing brass Characteristic response curve Mass 60 g Pustance Y Impl Factory settings Factory settings	mA , short-circuit/overload protected V % A 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 158 °F) nector M12 x 1 , 5-pin
• Selectable sound lobe width • Program input • Synchronization options • Deactivation option • Temperature influence • Temperature compensation • Very small unusable area Diagrams Characteristic response curve Deservice Vinnt	V % 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
• Selectable sound lobe width Repeat accuracy ≤ 1 • Program input Switching frequency f max • Synchronization options Range hysteresis H 1 % • Deactivation option Temperature influence ± 1.3 • Deactivation option Ambient conditions -25 • Temperature compensation Storage temperature -40 • Very small unusable area Connection type Con Diagrams Material Housing brase Characteristic response curve Mass 60 g Performed virmed Factory settings 51	% x. 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin 7
Program input Switching frequency f max Range hysteresis H 1 % Synchronization options Deactivation option Temperature compensation Very small unusable area Connection type Connecti	.: 3 Hz of the set operating distance 5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
• Program input Range hysteresis H 1 % • Synchronization options Temperature influence ± 1.4 • Deactivation option Ambient conditions -25 • Temperature compensation Storage temperature -40 • Very small unusable area Connection type Con Diagrams Housing bras Characteristic response curve Mass 60 g Disagre Y Impl Factory settings Factory settings	5 % of full-scale value 70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin
Ambient conditions Ambient conditions Ambient conditions Ambient temperature25 Storage temperature40 Mechanical specifications Very small unusable area Connection type	70 °C (-13 158 °F) 85 °C (-40 185 °F) nector M12 x 1 , 5-pin 7
Deactivation option Ambient temperature -25 Storage temperature -40 Mechanical specifications Very small unusable area Connection type Con Degree of protection Housing Housing Transducer cove Mass 60 g Factory settings	85 °C (-40 185 °F) nector M12 x 1 , 5-pin 7
Temperature compensation Very small unusable area Storage temperature Mechanical specifications Connection type Con Degree of protection Degree of protection Material Housing Transducer cove Mass 60 g Factory settings	85 °C (-40 185 °F) nector M12 x 1 , 5-pin 7
Temperature compensation Mechanical specifications Connection type Con Degree of protection Diagrams Characteristic response curve Distance Y (mm) Material Housing Transducer Cove Mass 60 g Factory settings	nector M12 x 1 , 5-pin
Very small unusable area Connection type Con Degree of protection IP67 Material Housing Transducer cove Mass 60 g Factory settings	7
Diagrams Degree of protection IP67 Diagrams Material Housing brass Characteristic response curve Transducer cove Disapre of protection Mass 60 g Factory settings Factory settings	
Diagrams Housing brass Characteristic response curve Mass 60 g Distance Y (mm) Factory settings	
Characteristic response curve	
Characteristic response curve Mass 60 g Distance Y (mm) Factory settings	ss, nickel-plated xy resin/hollow glass sphere mixture; foam polyurethane
Distance Y (mm) Mass 60 g	er PBT
Distance Y [mm]	
Output	
250	tch point A1: 90 mm
	tch point A2: 1000 mm but function: Window mode
	but behavior: NO contact
100 Beam width wide	9
5 Compliance with standards and	
directives	
-50 Standard conformity 100 Standards EN	80047-5-2·2007 · A1·2012
	60947-5-2:2007 + A1:2012 60947-5-2:2007 + A1:2012
-150 - Found bar, Ø 25 mm - Fo	
-250 UI approval CUI	us Listed, General Purpose
0 200 400 600 800 1000 1200 1400 1600 CSA approval CCS	Aus Listed, General Purpose
Distance X [mm] CCC approval CCC	C approval / marking not required for products rated \leq 36
wide sound lobe	
narrow sound lobe	
to "General Notes Relating to Pepperl+Fuchs Product Information".	
erl+Fuchs Group USA: +1 330 486 0001 Germany: +49 621 776 4411 Singapore: +65 6779 9 pepperl-fuchs.com fa-info@us.pepperl-fuchs.com fa-info@de.pepperl-fuchs.com fa-info@sg.pepperl-fuchs.	

UB1000-18GM75-E5-V15

Dimensions



Electrical Connection



Wire colors in accordance with EN 60947-5-2.

Pinout

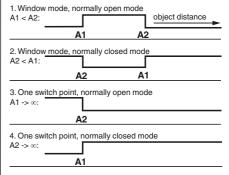


Wire colors in accordance with EN 60947-5-2

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

Additional Information

Programmable output modes



 A1 -> ∞, A2 -> ∞: Object presence detection mode Object detected: Switch output closed No object detected: Switch output open

 Perfer to "General Notes Relating to Pepperl+Fuchs Product Information".

 Pepperl+Fuchs Group
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 G

 www.pepperl-fuchs.com
 fa-info@us.pepperl-fuchs.com
 fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 4411 fa-info@de.pepperl-fuchs.com

Accessories

UB-PROG2 Programming unit

OMH-04

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

BF 18

Mounting flange, 18 mm

BF 18-F

Mounting flange with dead stop, 18 mm

BF 5-30

Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm

UVW90-K18 Ultrasonic -deflector

V15-G-2M-PVC Female cordset, M12, 5-pin, PVC cable

M18K-VE

Description of Sensor Functions

Programming procedure

The sensor features a programmable switch output with two programmable switch points. Programming the switch points and the operating mode is done 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 recognized the target during the programming procedure.

Note:

Switching points may only be specified directly after Power on. A time lock secures the adjusted switching points against unintended modification 5 minutes after Power on. To modify the switching points later, the user may specify the desired values only after a new Power On.

Note:

If a programming adapter UB-PROG2 is used for the programming procedure, button A1 is assigned to -U_B and button A2 is assigned to +U_B.

Programming of the switch output

Window Modes

Normally open (NO) output

- 1. Place the target at the near end of the desired switch window
- 2. Program the window boundary by applying -U_B to the Teach-In input (yellow LED flashes)
- 3. Disconnect the Teach-In input from -U_B to save the switch point
- 4. Place the target at the far end of the desired switch window
- 5. Program the window boundary by applying +U_B to the Teach-In input (yellow LED flashes)
- 6. Disconnect the Teach-In input from $+U_B$ to save the switch point

Normally closed (NC) output

- 1. Place the target at the near end of the desired switch window
- 2. Program the window boundary by applying $+U_B$ to the Teach-In input (yellow LED flashes)
- 3. Disconnect the Teach-In input from $+U_B$ to save the switch point
- 4. Place the target at the far end of the desired switch window
- 5. Program the window boundary by applying -U_B to the Teach-In input (yellow LED flashes)
- 6. Disconnect the Teach-In input from $-U_B$ to save the switch point

Switch Point Modes

Normally open (NO) output

- 1. Place the target at the desired switch point position
- 2. Program the switch point by applying $+U_B$ to the Teach-In input (yellow LED flashes)
- 3. Disconnect the Teach-In input from $+U_B$ to save the switch point
- 4. Cover the sensor face with hand or remove all objects from sensing range
- 5. Apply $-U_B$ to the Teach-In input (red LED flashes)
- 6. Disconnect the Teach-In input from -U_B to save the setting

Normally closed (NC) output

- 1. Place the target at the desired switch point position
- 2. Program the switch point by applying -U_B to the Teach-In input (yellow LED flashes)
- 3. Disconnect the Teach-In input from $\mbox{-}U_{\rm B}$ to save the switch point
- 4. Cover the sensor face with hand or remove all objects from sensing range
- 5. Apply +U_B to the Teach-In input (red LED flashes)
- 6. Disconnect the Teach-In input from $+U_B$ to save the setting

Object Detection Mode

- 1. Cover the sensor face with hand or remove all objects from sensing range
- 2. Apply $-U_B$ to the Teach-In input (red LED flashes)
- 3. Disconnect the Teach-In input from $-U_B$ to save the setting
- 4. Apply $+U_B$ to the Teach-In input (red LED flashes)
- 5. Disconnect the Teach-In input from $\mbox{-}U_{B}$ to save the setting

Adjusting the sound cone characteristics:

The ultrasonic sensor enables two different shapes of the sound cone, a wide angle sound cone and a small angle sound cone.

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1. Small angle sound cone

- switch off the power supply
- connect the Teach-In input wire to -U_B
- switch on the power supply
- · the red LED flashes once with a pause before the next.
- yellow LED: permanently on: indicates the presence of an object or disturbing object within the sens-
- disconnect the Teach-In input wire from -U_B and the changing is saved

2. Wide angle sound cone

- switch off the power supply
- connect the Teach-In input wire with +UB
- switch on the power supply
- the red LED double-flashes with a long pause before the next.
- yellow LED: permanently on: indicates an object or disturbing object within the sensing range
- disconnect the Teach-In input wire from +U_B and the changing is saved

Factory settings

See technical data.

Display

The sensor provides LEDs to indicate various conditions.

	Red LED	Yellow LED
During Normal operation		
Proper operation	Off	Switching state
Interference (e.g. compressed air)	On	remains in previous state
During sensor programming		
Object detected	Off	Flashes
No object detected	Flashes	Off
Object uncertain (programming invalid)	On	Off

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 \geq 100 µs. Each falling edge of the synchronization pulse triggers transmission of a single ultrasonic pulse. If the synchronization signal remains low for \geq 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. 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) or the sensor must be operated via a V1 cordset (4-pin).

The synchronization function cannot be activated during programming mode and vice versa.

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:

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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.

Installation conditions

If the sensor is installed at places, where the environment temperature can fall below 0 °C, for the sensors fixation, one of the mounting flanges BF18, BF18-F or BF 5-30 must be used.

In case of direct mounting of the sensor in a through hole using the steel nuts, it has to be fixed at the middle of the housing thread. If a fixation at the front end of the threaded housing is required, plastic nuts with centering ring (accessories) must be used.

