Fectorization optications Solution: Solution		1	
 LED red LeD red		Technical data	
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 LED red LeD red		-	30 500 mm
 LED red LeD red	the second se		
 LED red LeD red			0 30 mm
 LED red LeD red			
 LED red LeD red			••
 LED red LeD red			approx. 50 ms
 LED red LeD red			solid vellow: object in the evaluation range
Ped, flashing: program function, object not detected Performance of the second s			
 Electrical specifications Operating voltage Ug 1030 V DC, ripple 10 %gg No-load supply current Ug ≤ 45 mA No-load supply current Ug Spectronization 9 synchronization 9 synchronization options 9 bactivation option 9 bastraneo option 9 bactivation option <l< th=""><th></th><th>LED red</th><th></th></l<>		LED red	
C C approval base and base of the constraints of t		Electrical specifications	red, flashing: program function, object not detected
 C € € € € € € € € € € € € € € € € € € €		-	10 30 V DC , ripple 10 %ss
Synchronization 1 synchronization Wodel Number Synchronization UB500-18 GM75-L-V15 Synchronization frequency Single head system Synchronization frequency Peatures Synchronization frequency • Analog output 4 mA 20 mA Imput synchronization interpulse period • Measuring window adjustable 1 synchronization • Synchronization option 1 analog output 4 mA 20 mA • Measuring window adjustable 1 must synchronization option • Synchronization option 1 analog output 4 mA 20 mA • Negara input 0utput • Synchronization option 1 analog output 4 mA 20 mA • Negara input 0utput • Synchronization option 1 analog output 4 mA 20 mA • Program input 0utput • Synchronization option 1 analog output 4 mA 20 mA • Very small unusable area 0 300 Ohm Diagrams Connection type Characteristic response curve 25 70 °C (+13 159 °F) • Storig testings Connection type • Dagra on or x Storig testings Connection type • Dagre or protenction IP7			
Output 0-device: 1-20 minute model of the characteristic curve period: 22 ms Synchronization frequency 2.95 Hz UB500-18GM75-I-V15 Single head system Features			
C US 1-level: +4 ^V +Ug input impedance: > 12 kΩ synchronization puble: > 100 µs, synchronization interpulse period: > 2 ms UB500-18GM75-I-V15 Single head system Features Common mode operation selectable sound lobe width • Analog output 4 mA 20 mA Input imput impedance: > 4.7 kQ, publes duration: > 1 s • Measuring window adjustable Selectable sound lobe width • Selectable sound lobe width 0 utput • Program input 0 utput 500 • Synchronization options 0.13 mc formax. detection range • Deactivation option 0.13 mc full-scale value • Temperature compensation -25 70 °C (+13 158 °F) Storge temperature -40 450 °C (-40 185 °F) Storge temperature -40 40 40 40 450 °C (-40 185 °F) • Degree of protection IP67 • Mass 60 g • Characteristic response curve IP67 • factory settings • ovaluation limit A1: 50 mm valuation limit A2: 50 cm • Output • ovaluation limit A2: 50 cm • Sorge temperature -40 450 °C (-40 185 °F) • Storge temperature -40 450 °C (-40 185 °F) • Output • ovaluation limit A1: 50 mm valuation limit		Synchronization	
Model Number input imposence: > 12 k2 genetronization interpulse period: > 2 ms UB500-18GM75-I-V15 Synchronization frequency < 95 Hz Single head system Imput imposence: > 4 95 Hz Multiplex operation < 95 Hz Features 1 program input Imput imposence: > 4.7 k02, pulse duration: > 1 s Output 0 utput type 1 analog output 4 20 mA • Analog output 4 mA 20 mA 0 utput type 1 analog output 4 20 mA • Selectable sound lobe width • Program input 0 utput type 1 analog output 4 20 mA • Synchronization options - I consort of the characteristic curve = 1 5 vol ful-scale value • Synchronization option - I may any any any any any any any any any a			
Model Number period: 2 2 ms UB500-18GM75-I-V15 Synchronization frequency 595 Hz Single head system			input impedance: > 12 k Ω
Model Number Synchronization fequency 5.95 Hz UB500-18GM75-I-V15 Imput 1 program input Single head system 1 program input 1 program input Features 1 program input 1 program input • Analog output 4 mA 20 mA imput imput medance: > 4.7 KΩ, pulse duration: ≥ 1 s • Measuring window adjustable 0 utput type 1 analog output 4 20 mA • Selectable sound lobe width Program input 0.13 mm for max. detection range • Synchronization options 0.13 mb for max. detection range 0.13 molecale value • Very small unusable area 0			
UB500-18GM75-I-V15 Single head system Features • Analog output 4 mA 20 mA • Measuring window adjustable • Selectable sound lobe width • Program input • Synchronization options • Deactivation option • Very small unusable area Diagrams Characteristic response curve Image of protection Image of protection <tr< td=""><th>Model Number</th><td>Synchronization frequency</td><td></td></tr<>	Model Number	Synchronization frequency	
Single head system Features Analog output 4 mA 20 mA Measuring window adjustable Selectable sound lobe width Program input Synchronization options Deactivation option Temperature compensation Very small unusable area Diagrams Characteristic response curve Characteristic response curve Mass 6 00 g Factory semifued Material Mate			≤ 95 Hz
Single field system input type 1 program input type system Features input type 1 program input A2: 44 V +Ug input impedance: >4.7 kΩ, pulse duration: ≥1 s Output 0 utput - Analog output 4 mA 20 mA Selectable sound lobe width 0.13 mm for max. detection range Program input 0.13 mm for max. detection range Synchronization options 0300 Ohm Deactivation option ± 1.5 % of full-scale value Temperature compensation - 3.00 °C (-13 158 °F) Very small unusable area Storage temperature Diagrams Connector M12 x 1, 5-pin Diagrams Dearce of protection Characteristic response curve Paterial Diagrams Transducer Couput during brance 100 mm x 100 mm - 40 means y mich Mass 60 g Factory settings - 200 yr resin/hollow glass sphere mixture; foam polyurethane, cover PBT Mass 60 g Factory settings - 200 mm output function: rising ramp Beam width wide Compliance with standards and directives - 200 Y + 5-2:2007 + A1:2012 EIC 60947-5-2:2007 + A1:2012 EIC 60947-5-2:2007 + A1:2012 EIC 60947-5-2:2007 + A1:2012 EIC 60947-5-2:	UB500-18GM/5-I-V15		\leq 95 Hz /n, n = number of sensors
Features input type 1 program input Developeduation limit A1: Ug +1 V, upper evaluation limit A2: 44 V +Ug imput impedance: >4.7 k0, pulse duration:≥ 1 s Output type 1 analog output 4 20 mA Selectable sound lobe width Program input Program input 0.13 mm for max, detection range Deviation of the characteristic curve ± 1 % of full-scale value Load impedance: ± 0.1 % of full-scale value Load impedance: ± 0.5 % of full-scale value Temperature influence ± 1.5 % of full-scale value Ambient temperature -40 85 °C (-40 185 °F) Storage temperature -40 85 °C (-40 185 °F) Mechanical specifications Connector M12 x 1, 5-pin Diagrams Degree of protection Diagrams Factory settings Output exouver fBT Mass 60 g Factory settings Output Output evaluation limit A1: 50 mm Output evaluation limit A1: 50 mm Output dar. 0 mm<	Single head system	•	
Predures Analog output 4 mA 20 mA Analog output 4 mA 20 mA • Measuring window adjustable • Gutput type 1 analog output 4 20 mA • Selectable sound lobe width • Program input 0.13 mm for max. detection range • Synchronization options • Deattivation option • 1 300 Ohm • Very small unusable area 0 300 Ohm Diagrams - Zon - Zon (-13 158 °F) Characteristic response curve - Soncetion type Connector M12 x1, 5-pin Diagrams Degree of protection IP67 Mass 60 g Factory settings Output evaluation limit A1: 50 mm evaluation limit A1: 50 mm • Output evaluation limit A1: 50 mm evaluation limit A2: 500 nm • Output evaluation limit A1: 50 mm evaluation limit A2: 500 nm • Output evaluation limit A1: 50 mm evaluation limit A2: 500 nm • Output evaluation limit A1: 50 mm evaluation limit A2: 500 nm • Output evaluation limit A2: 500 nm evaluation limit A2: 500 nm • Output evaluation limit A2: 500 nm evaluation limit A2: 500 nm • Output evaluation limit A2: 500 nm evaluation lim		Input type	
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Diagrams Housing brass, nickel-plated Characteristic response curve Factory settings 60 g Distance Y [mm] evaluation limit A1: 50 mm evaluation limit A2: 500 mm 0 0 grad width wide 0 0 0 0 0 0 0 0 0 0 0 0 800 9 Beam width wide 0 Compliance with standards and directives 5 Standard conformity Standards EN 60947-5-2:2007 + A1:2012 EN 60947-5-2:2007 + A1:2012 EN 60947-5-2:2007 + A1:2012 EN 60947-5-2:2007 + A1:2012 EN 60947-5-7:2003 IEC 60947-5-7:2003 IEC 60947-5-7:2003 Approvals and certificates UL approval cULus Listed, General Purpose CCC approval CCC approval CCC approval / marking not required for products rated ≤36 V	-	Degree of protection	· · · ·
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200 1000 1000 <td< td=""><th></th><td>Beam width</td><td></td></td<>		Beam width	
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300 round bar, Ø 25 mm IEC 60947-5-7:2003 400 200 400 600 800 1000 Distance X [mm] Distance X [mm] CCC approval CULus Listed, General Purpose CCC approval CCC approval / marking not required for products rated ≤36 V			
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400		Approvals and certificates	
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Y wide sound lobe			•
	+Υ	CCC approval	CCC approval/marking not required for products rated \leq 36 V
narrow cound lobe	X wide sound lobe		

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PEPPERL+FUCHS SENSING YOUR NEEDS

UB500-18GM75-I-V15

UB500-18GM75-I-V15

object range

Additional Information

A1

A2

Rising ramp A1 < A2:

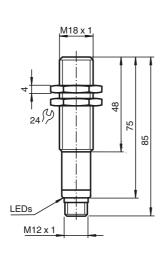
Falling ramp A2 < A1:

Programming the analog output mode

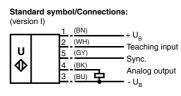
A2

A1

Dimensions



Electrical Connection



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)

PEPPERL+FUCHS

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 analog output with two programmable evaluation boundaries. Programming the evaluation boundaries 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:

Evaluation boundaries 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 evaluation boundaries 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 the analog output

Rising ramp

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

Falling ramp

- 1. Place the target at the far end of the desired evaluation range
- 2. Program the evaluation 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 evaluation boundary
- 4. Place the target at the near end of the desired evaluation range
- 5. Program the evaluation 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 evaluation boundary

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.

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 sensing range
- 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 $+U_B$
- 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

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date: :

Release

The sensor provides LEDs to indicate various conditions.



, ÷Ö:- ,

pause

-Ò- -Ò- pause -Ò-

	Red LED	Yellow LED
During Normal operation		
Proper operation		
Object in evaluation range	Off	On
No object in evaluation range	Off	Off
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:

- 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.

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.

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