



**Model Number**

**UB4000-30GM-H3-V1**

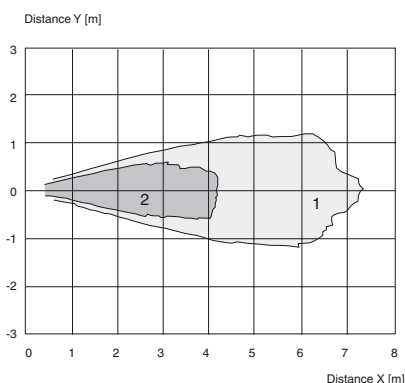
Single head system

**Features**

- **Separate evaluation**
- **Direct detection mode**

**Diagrams**

**Characteristic response curves**



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

**Technical data**

**General specifications**

|                       |                            |
|-----------------------|----------------------------|
| Sensing range         | 200 ... 4000 mm            |
| Adjustment range      | 240 ... 4000 mm            |
| Dead band             | 0 ... 200 mm <sup>1)</sup> |
| Standard target plate | 100 mm x 100 mm            |
| Transducer frequency  | approx. 85 kHz             |

**Electrical specifications**

|                              |   |
|------------------------------|---|
| Operating voltage $U_B$      | 10 ... 30 V DC, ripple 10 % <sub>SS</sub> |
| No-load supply current $I_0$ | ≤ 30 mA                                   |

**Input**

|              |  |
|--------------|--|
| Input type   | 1 pulse input for transmitter pulse (clock)<br>0-level (active): < 5 V ( $U_B > 15$ V)<br>1-level (inactive): > 10 V ... $+U_B$ ( $U_B > 15$ V)<br>0-level (active): < 1/3 $U_B$ (10 V < $U_B < 15$ V)<br>1-level (inactive): > 2/3 $U_B$ ... $+U_B$ (10 V < $U_B < 15$ V) |
| Pulse length | 40 ... 600 μs (typ. 500 μs) <sup>2)</sup>  |
| Pause length | ≥ 50 x pulse length  |
| Impedance    | 10 kOhm internal connected to $+U_B$   |

**Output**

|                               |   |
|-------------------------------|---|
| Output type                   | 1 pulse output for echo run time, short-circuit proof open collector PNP with pulldown resistor = 22 kOhm<br>level 0 (no echo): $-U_B$<br>level 1 (echo detected): ≥ $(+U_B - 2$ V) |
| Rated operating current $I_e$ | 15 mA, short-circuit/overload protected   |
| Temperature influence         | the echo propagation time: 0.17 % / K   |

**Ambient conditions**

|                     |                                |
|---------------------|--------------------------------|
| Ambient temperature | -25 ... 85 °C (-13 ... 185 °F) |
| Storage temperature | -40 ... 85 °C (-40 ... 185 °F) |

**Mechanical specifications**

|                      |  |
|----------------------|--|
| Connection type      | Connector M12 x 1, 4-pin                                   |
| Degree of protection | IP67   |
| Material             |  |
| Housing              | nickel plated brass; plastic components: PBT               |
| Transducer           | epoxy resin/hollow glass sphere mixture; polyurethane foam |
| Mass                 | 180 g  |

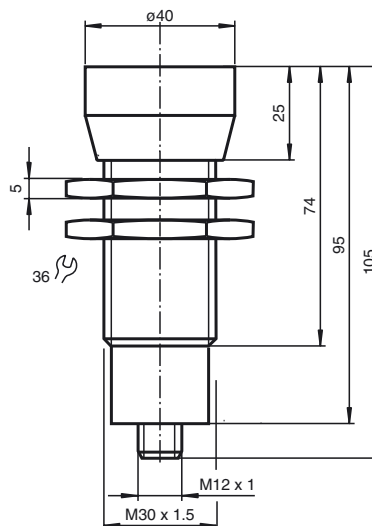
**Compliance with standards and directives**

|                     |   |
|---------------------|---|
| Standard conformity |   |
| Standards           | EN 60947-5-2:2007+A1:2012<br>IEC 60947-5-2:2007 + A1:2012 |

**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 |

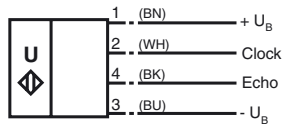
**Dimensions**



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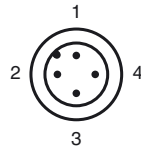
**Electrical Connection**

Standard symbol/Connection:



2 = Emitter pulse input  
 4 = Echo propagation time output  
 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) |

**Accessories**

**BF 30**  
 Mounting flange, 30 mm

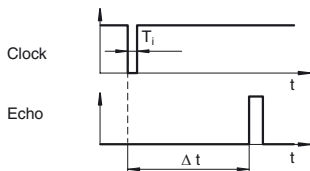
**BF 5-30**  
 Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm

**V1-G-2M-PVC**  
 Female cordset, M12, 4-pin, PVC cable

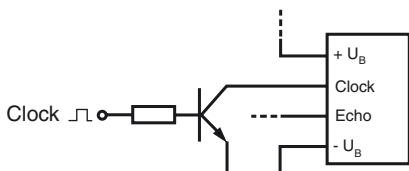
**Function**

The sensing range is determined in the downstream evaluation electronics such as PLC modules or other existing evaluation units.

The object distance in pulse-echo mode is obtained from the echo time  $\Delta t$ . The emission of an ultrasonic pulse starts simultaneously with the falling slope of the clock input signal.



We recommend the usage of a npn-transistor to trigger the sensors clock input. The sensors clock input is connected to the  $+U_B$  potential internally by means of a pull up resistor.



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- 1) The unusable area (blind range) BR depends on the pulse duration  $T_i$  .  
The unusable area reaches a minimum with the shortest pulse duration.
- 2) The sensors detection range depends on the pulse duration  $T_i$ .  
With pulse duration  $<$  typical pulse duration, the sensors detection range may be reduced.