

**Model Number**

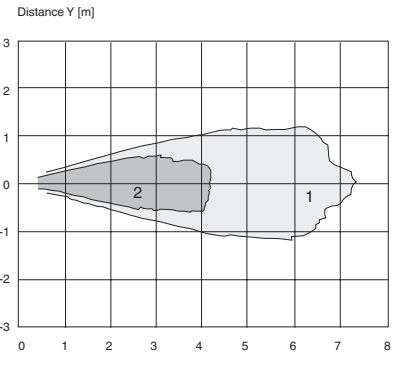
**UB4000-30GM-H3-V1**  
Single head system

**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**

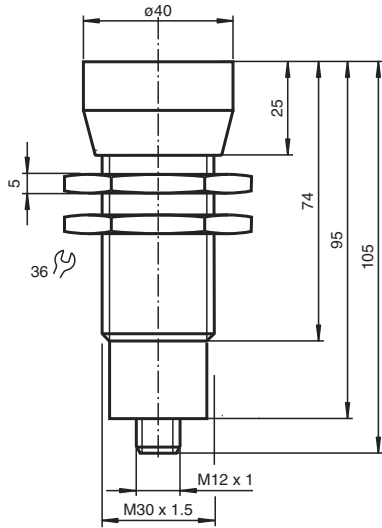
<b>General specifications</b>	
Sensing range	200 ... 4000 mm
Adjustment range	240 ... 4000 mm
Unusable area	0 ... 200 mm <sup>1)</sup>
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 85 kHz
<b>Electrical specifications</b>	
Operating voltage U <sub>B</sub>	10 ... 30 V DC , ripple 10 % <sub>SS</sub>
No-load supply current I <sub>0</sub>	≤ 30 mA
<b>Input</b>	
Input type	1 pulse input for transmitter pulse (clock) 0-level (active): < 5 V (U <sub>B</sub> > 15 V) 1-level (inactive): > 10 V ... +U <sub>B</sub> (U <sub>B</sub> > 15 V) 0-level (active): < 1/3 U <sub>B</sub> (10 V < U <sub>B</sub> < 15 V) 1-level (inactive): > 2/3 U <sub>B</sub> ... +U <sub>B</sub> (10 V < U <sub>B</sub> < 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 <sub>B</sub>
<b>Output</b>	
Output type	1 pulse output for echo run time, short-circuit proof open collector PNP with pulldown resistor = 22 kOhm level 0 (no echo): -U <sub>B</sub> level 1 (echo detected): ≥ (+U <sub>B</sub> -2 V)
Rated operating current I <sub>e</sub>	15 mA , short-circuit/overload protected
Temperature influence	the echo propagation time: 0.17 % / K
<b>Ambient conditions</b>	
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>	
Connection type	Connector M12 x 1 , 4-pin
Protection degree	IP67
<b>Material</b>	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Mass	180 g
<b>Compliance with standards and directives</b>	
<b>Standard conformity</b>	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

**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

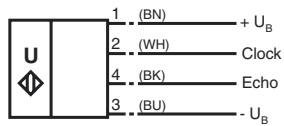
Release date: 2011-08-16 12:12 Date of issue: 2013-10-25 130476\_eng.xml

**Dimensions**



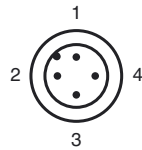
**Electrical Connection**

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

**UH3-KHD2-4E5**

**UH3-KHD2-4I**

**UH3-T1-KT**

**V1-G-2M-PVC**

Female cordset, M12, 4-pin, PVC cable

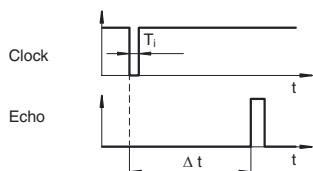
**V1-W-2M-PVC**

Female cordset, M12, 4-pin, PVC cable

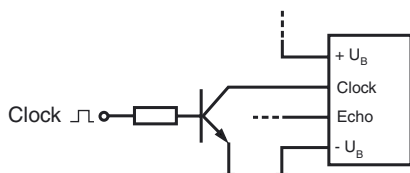
**Function**

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.



- 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.