



**Model Number**

**UB500-F54-H3-V1**

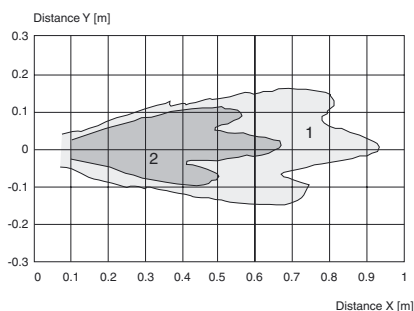
Single head system

**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**

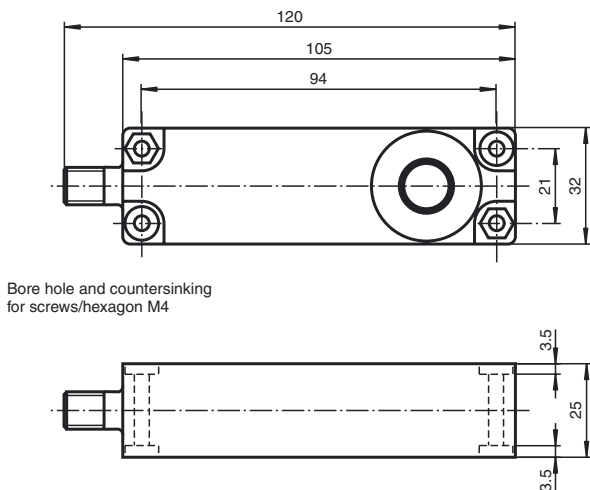
|   |  |
|---|--|
| <b>General specifications</b>                   |  |
| Sensing range                                   | 30 ... 500 mm  |
| Adjustment range                                | 50 ... 500 mm  |
| Unusable area                                   | 0 ... 30 mm <sup>1)</sup>  |
| Standard target plate                           | 100 mm x 100 mm  |
| Transducer frequency                            | approx. 380 kHz  |
| <b>Electrical specifications</b>                |  |
| Operating voltage $U_B$                         | 10 ... 30 V DC, ripple 10 % <sub>SS</sub>  |
| No-load supply current $I_0$                    | ≤ 30 mA  |
| <b>Input</b>                                    |  |
| 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                                    | 5 ... 100 $\mu$ s (typ. 50 $\mu$ s) <sup>2)</sup>  |
| Pause length                                    | ≥ 50 x pulse length  |
| Impedance                                       | 10 kOhm internal connected to + $U_B$  |
| <b>Output</b>                                   |  |
| Output type                                     | 1 pulse output for echo run time, short-circuit proof<br>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  |
| <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   | ABS  |
| Transducer                                      | epoxy resin/hollow glass sphere mixture; polyurethane foam   |
| Mass  | 110 g  |
| <b>Compliance with standards and directives</b> |  |
| <b>Standard conformity</b>                      |  |
| Standards                                       | EN 60947-5-2:2007<br>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 |

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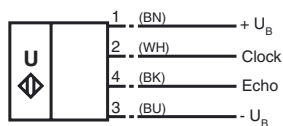
**Dimensions**



Bore hole and countersinking for screws/hexagon M4

**Electrical Connection**

Standard symbol/Connection:



2 = Emitter pulse input  
4 = Echo propagation time output  
Core colours in accordance with EN 60947-5-2.

**Pinout**

**Connector V1**



**Accessories**

UH3-KHD2-4E5

UH3-KHD2-4I

UH3-T1-KT

V1-G-2M-PVC

Female cordset, M12, 4-pin, PVC cable

V1-W-2M-PVC

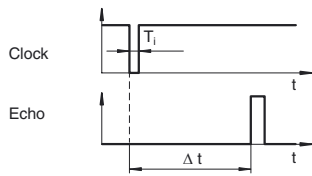
Female cordset, M12, 4-pin, PVC cable

**Function**

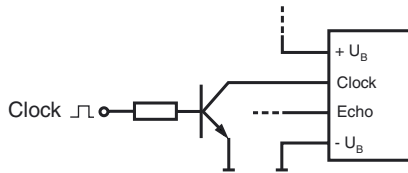
The sensing range is determined in the downstream evaluation electronics such as PLC modules or other existing evaluation units.

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.

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We recommend the usage of a npn-transistor to trigger the sensors clock input. The sensors clock input is connected to the +U<sub>B</sub> 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.