

Ultrasonic sensor UB500+U9+H3

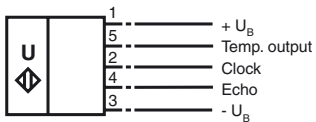


Features

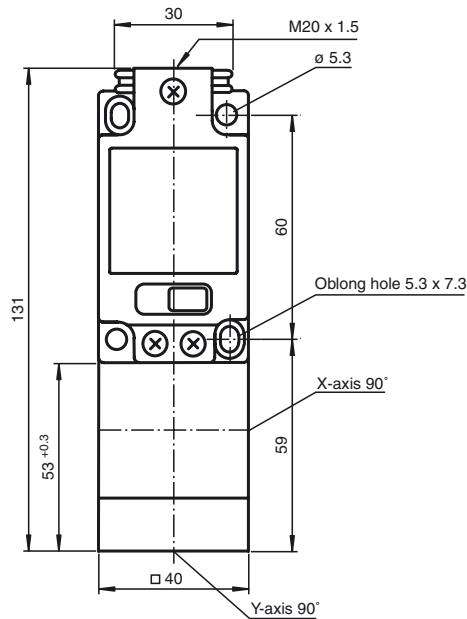
- Separate evaluation
- With temperature sensor
- Direct detection mode

Electrical connection

Standard symbol/Connection:



Dimensions



Technical data



General specifications

Sensing range	60 ... 500 mm
Unusable area	0 ... 60 mm ¹⁾
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 380 kHz

Electrical specifications

Operating voltage	20 ... 30 V DC, ripple 10 % _{SS}
No-load supply current I ₀	≤ 30 mA

Input

Input type	1 pulse input for transmitter pulse, activation through open collector npn < 1 V: emitter active, > 4 V: emitter inactive
Pulse length	10 ... 100 µs (typ. 50 µs) ²⁾
Pause length	≥ 50 x pulse length

Output

Output type	1 pulse output for temperature 1-level: > 4 V (100 µA), 0-level: < 0.5 V (100 µA) 1 pulse output for echo propagation time 1-level: ≥ U _B - 3 V (< 10 mA), 0-level: ≤ 1 V (100 µA) 10 µs/K + timer pulse, synchronisation with the timer pulse the echo propagation time: 0.17 % / K
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Pulse length

Temperature influence

Standard conformity

Standards

EN 60947-5-2

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP65
Connection	terminal compartment, ≤ 2.5 mm ² conductor csa
Material	PBT
Housing	epoxy resin/hollow glass sphere mixture; polyurethane foam
Transducer	
Mass	180 g

Notes

Description of the sensor functions

The sensing range is determined in the downstream evaluation electronics (e. g. the units UH3-KHD2-4E5, or UH3-KHD2-4I).

The sensing range is determined on the basis of the echo time of a transmitted pulse in pulse-echo mode.

Temperature compensation

A temperature pulse is available at the temperature output for external temperature compensation. It is synchronous to the externally applied clock pulse and has the length T_{Temp} , calculated as follows:

$$T_{Temp}[\mu s] = T_{akt}[\mu s] + T[K] \times 10 \mu s / K$$

Put into the formula the temperature in Kelvin and the clock time in the unit μs .

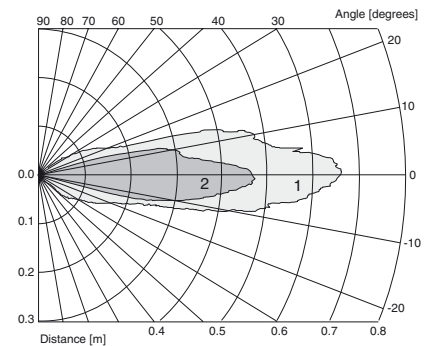
- 1) The unusable area (blind range) BR depends on the pulse duration.
The unusable area reaches a minimum with the shortest pulse duration.
- 2) The sensors detection range depends on the pulse duration.
With pulse duration < typical pulse duration, the sensors detection range may be reduced.

Model number

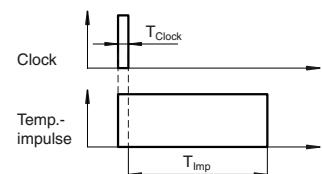
UB500+U9+H3

Characteristic curves/additional information

Characteristic response curves



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



$$T_{Imp} = T[K] \times 10 \mu s / K$$
$$T_{Temp} = T_{Clock} + T_{Imp}$$

Accessories

Mounting aid

MH 04-2681F

Evaluation units

UH3-KHD2-4E5

UH3-KHD2-4I

UH3-T1-KT