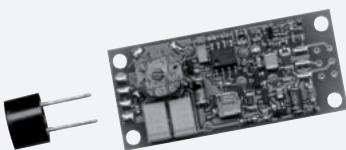


# Ultrasonic sensor, transmitter

## UBE15M-H1

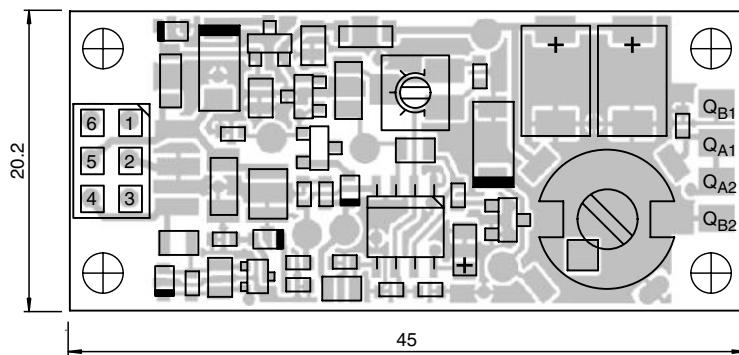


- Large sensing range
- Large possible lateral distance between emitter and receiver
- One or two transducers connectable
- Separate evaluation

Multi-head system



### Dimensions



### Technical Data

#### General specifications

|   |  |  |
|---|--|--|
| Sensing range                               | 0 ... 15000 mm , emitter - receiver synchronised |  |
| Transducer frequency                        | approx. 40 kHz                                   |  |
| Angle of divergence                         | $\pm 45^\circ$ at -6 dB                          |  |
| Temperature drift of echo propagation delay | 0.2 %/K  |  |

#### Electrical specifications

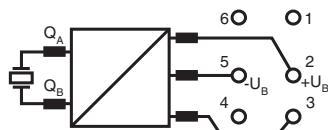
|                        |       |  |
|------------------------|-------|--|
| Operating voltage      | $U_B$ | 16 ... 30 V DC , ripple 10 % <sub>SS</sub><br>8 V DC with reduced transmitting power |
| No-load supply current | $I_0$ | $\leq 10$ mA (typ. 6 mA at $U_B = 24$ V DC)  |

#### Input

## Technical Data

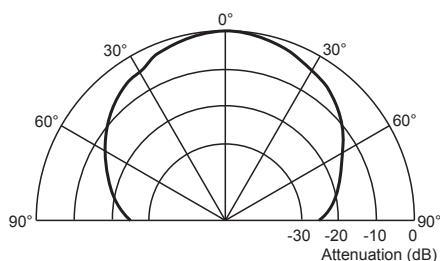
|                                   |  |
|-----------------------------------|--|
| Input type                        | 1 pulse input for transmitter pulse, activation through open collector npn<br>< 1.5 V: emitter active, > 3.5 V: emitter inactive |
| Pulse length                      | 100 $\mu$ s ... 10 ms  |
| Pause length                      | $\geq 50 \times$ pulse length  |
| <b>Approvals and certificates</b> |  |
| UL approval                       | cULus Listed, General Purpose  |
| CSA approval                      | cCSAus Listed, General Purpose   |
| CCC approval                      | CCC approval / marking not required for products rated $\leq 36$ V   |
| <b>Ambient conditions</b>         |  |
| Ambient temperature               | 0 ... 50 °C (32 ... 122 °F)  |
| Storage temperature               | -40 ... 85 °C (-40 ... 185 °F)   |
| <b>Mechanical specifications</b>  |  |
| Degree of protection              | IP00   |
| Connection                        | Contact plugs and soldering surfaces   |
| Mass                              | 20 g   |
| Dimensions                        | Printed circuit board: 45 mm x 20.2 mm (5 mm separable: 40 mm x 20.2 mm)<br>overall height: 10 mm                                |

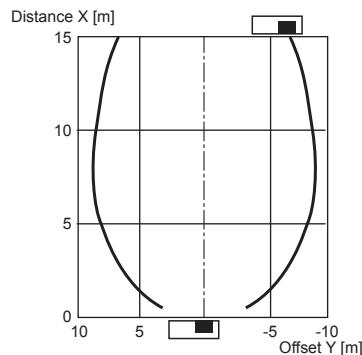
## Connection



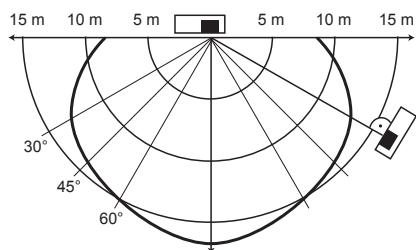
## Characteristic Curve

### Direction characteristics



**Characteristic response curve**

Permissible distance (offset) between the optical axis of the emitter and receiver.

**Characteristic response curve**

## Function

### Function

The emitter is part of a complete system consisting of emitter, receiver and controller

Receiver: UBE15M-F54-H2-V1

Controller: UH3-16E4A-K15-R3

By means of using 2 ultrasonic transducers, aligned to different directions (practically 90° angular difference), the detection range and the angular tolerance can be increased anymore.

Caution:

When aligning both ultrasonic transducers in a parallel way, mutual interference effects can occur. This can cause local amplification respective attenuation of the ultrasonic sound strength.



Example of a customized solution with 2 ultrasonic transducers

In real operation, the transmitter and receiver will not be aligned to each other. This will reduce the detection range.

The characteristic response curve to the side illustrates examples of the detection range of the system under the following operating conditions.

- The transmitter and receiver are arranged so they lie parallel opposite each other. The graph shows the detection range as a function of lateral offset.
- The receiver is arranged vertically downwards, while the emitter is arranged in the direction of the receiver. The graph shows the detection range as a function of the angle of incidence.

This makes it possible to evaluate the detection range of the system as a function of the positioning of the transmitter and receiver for conditions that will occur in practical usage.

***Cable sockets with built-in indicator LEDs must not be used to connect this device!***

