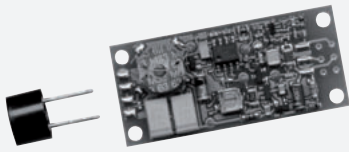


Ultrasonic sensor, transmitter

UBE15M-H1

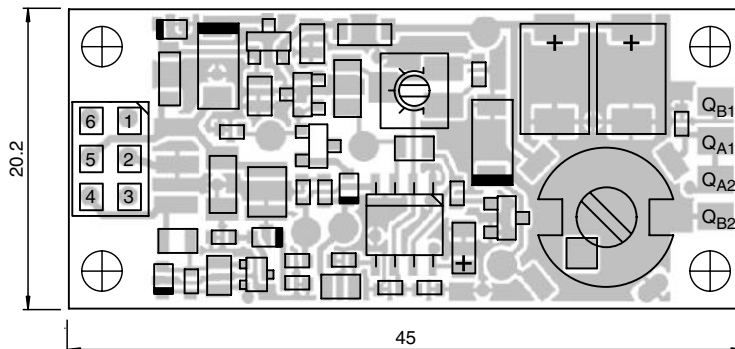


- Large sensing range
- Large possible lateral distance between emitter and receiver
- One or two transducers connectable
- Separate evaluation

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 % _{SS} 8 V DC with reduced transmitting power
No-load supply current	I_0	≤ 10 mA (typ. 6 mA at $U_B = 24$ V DC)

Input

Release date: 2020-03-20 Date of issue: 2021-02-05 Filename: 109085_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111
fa-info@de.pepperl-fuchs.com

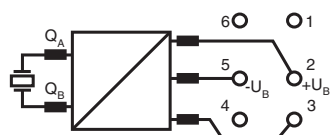
Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

 **PEPPERL+FUCHS**

Technical Data

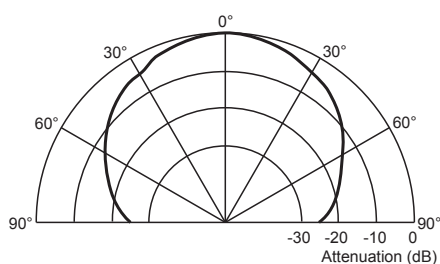
Input type	1 pulse input for transmitter pulse, activation through open collector npn < 1.5 V: emitter active, > 3.5 V: emitter inactive
Pulse length	100 µs ... 10 ms
Pause length	≥ 50 x pulse length
Approvals and certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤36 V
Ambient conditions	
Ambient temperature	0 ... 50 °C (32 ... 122 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications	
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) overall height: 10 mm

Connection

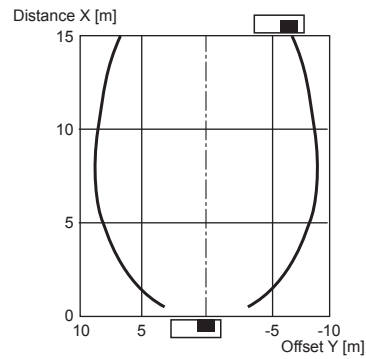


Characteristic Curve

Direction characteristics

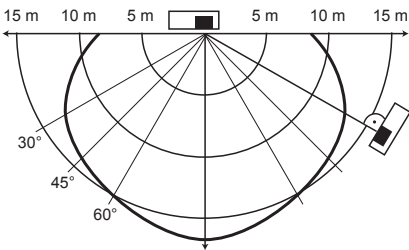


Characteristic response curve



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 not 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!