



Operating Instructions wms ultrasonic sensor

wms-25/RT/HV/M18
wms-35
wms-130/RT

wms-340/RT
wms-600/RT

Product description

The wms sensors require a connection to the customer's own control and signal evaluation equipment.

Important instructions for assembly and application

All employee and plant safety-relevant measures must be taken prior to assembly, start-up, or maintenance work (see opera-

tion manual for the entire plant and the operator instruction of the plant).

The sensors are not considered as safety equipment and may not be used to ensure human or machine safety!

The wms sensors indicate a **blind zone**, in which the distance cannot be measured. The **operating range** indicates the distance of the sensor that can be applied with normal reflectors with sufficient function reserve. When using good reflectors, such as a calm water surface, the sensor can also be used up to its **maximum range**. Objects that strongly absorb (e.g. plastic foam) or diffusely reflect sound (e.g. pebble stones) can also reduce the defined operating range.

Assembly instructions

- Assemble the sensor at the installation location.
- Plug in the connector cable to the M 12 connector.
- Connect the sensor to your own control and signal evaluation equipment according to Fig.2.

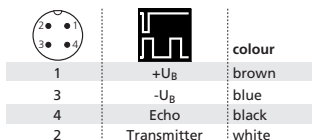


Fig.2: Pin assignment with view onto the sensor plug and colour code of the connection cable

Signal input »Transmitter«

A signal on the input makes the wms sensor emitting a sound pulse. For this a open collector output has to earth the »transmitter« signal input for the time given in the technical data table below.

Signal output »Echo«

The signal output »Echo« subsequently transmits all echo signals received depending on the duration as 1-bit values (echo yes/no).



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Technical data	wms-25...	wms-35...	wms-130...	wms-340...	wms-600...
Blind zone Operating range Maximum range Transducer frequency Resolution, sampling range Angle of beam spread Reproducibility Accuracy Detection zones for different objects: The dark grey areas are determined with a thin round bar (10 or 27 mm dia.) and indicate the typical operating range of a sensor. In order to obtain the light grey areas, a plate (500 x 500 mm) is introduced into the beam spread from the side. In doing so, the optimum angle between plate and sensor is always employed. This therefore indicates the maximum detection zone of the sensor. It is not possible to evaluate ultrasonic reflections outside this area.	30 mm 250 mm 350 mm 320 kHz 0,35 mm Please see detection zones ± 0,15 % Temperature drift 0,17%/K	65 mm 350 mm 600 mm 400 kHz 0,18 mm Please see detection zones ± 0,15 % Temperature drift 0,17%/K	200 mm 1.300 mm 2.000 mm 200 kHz 0,18 mm Please see detection zones ± 0,15 % Temperature drift 0,17%/K	350 mm 3.400 mm 5.000 mm 120 kHz 0,18 mm Please see detection zones ± 0,15 % Temperature drift 0,17%/K	800 mm 6.000 mm 8.000 mm 80 kHz 0,18 mm Please see detection zones ± 0,15 % Temperature drift 0,17%/K
Operating voltage U_B / Voltage ripple No-load current Housing Class of protection to EN 6052 Type of connection Operating temperature Storage temperature Weight Signal input (Transmitter) Recommended transmitted pulse length Recommended measuring cycle time Signal output (Echo) Order No.	10 V bis 30 V DC, reverse polarity protection / ± 10 % 30 mA Brass sleeve, nickel-plated, plastic parts: PBT; Ultrasonic transducer: polyurethane foam, epoxy resin with glass content IP67 5-pin initiator plug, brass, nickel-plated -20°C to +70°C -40°C to +70°C 80 g Controlled by open collector (npn); I _C ≥ 3 mA, U _{CE} ≥ 30 V 25 µs 8 ms Positive-switched (pnp), I _{max} = 10 mA, short-circuit-proof and reverse polarity protection wms-25/RT/HV/M18	30 mA -20°C to +70°C -40°C to +70°C 200 g 80 µs 12 ms wms-35/RT	30 mA -20°C to +70°C -40°C to +70°C 200 g 150 µs 20 ms wms-130/RT	30 mA -20°C to +70°C -40°C to +70°C 260 g 300 µs 40 ms wms-340/RT	30 mA -20°C to +70°C -40°C to +70°C 320 g 350 µs 65 ms wms-600/RT