



## Snow Depth Sensor USH-9

### Precise snow depth measurement by means of ultrasonic technology

The USH-9 is an ultrasonic sensor for the precise, continuous and non-contact recording of snow depths. The robust design, a special ultrasonic head as well as an extremely low energy consumption makes the USH-9 a very suitable system for extreme weather conditions and so for alpine and high alpine terrain.

#### Features and advantages

- Continuous and non-contact measurement
- Reliable sensor for extreme environmental conditions and high alpine employment
- Robust, sealed and therefore maintenance free ceramic membrane with protective shield against ice and snow
- High level of accuracy thanks to the integrated temperature compensation and filtering of snow and rainfall using intelligent spectrum analysis
- Energy-saving operation through sleep modus, ideal for solar-powered measuring stations

#### Fields of application

The USH-9 is especially suitable for extreme weather conditions and so for alpine and high alpine terrain. Its high operational safety enables a permanent and reliable recording of measurement values, for which reason it is commonly used by meteorologists, avalanche warning services, ski regions, research stations and the energy sector.

#### Implementation

The snow depth is an important parameter for evaluating the snow pack. It must be measured regularly as the development of the snow pack is subject to strong regional and temporal fluctuations and significantly influenced by actual weather (Ultrasonic Measurement of Snow Depth conditions (snow or rainfall, air temperature, wind etc.)). The USH-9 is a non-contact device and therefore does not compromise the snow pack. It can measure depths of up to ten metres continuously and with convenient remote data transmission if needed.

## Technical details

- **Range** 0 to 10 m (0 to 32.8 ft)
- **Resolution** 1 mm
- **Accuracy** 0.1 % (FS)
- **Measurement principle** ultrasonic sensor (frequency 50 kHz; opening angle 12°)
- **Temperature** measurement range -40°C to +60°C (-40°F to +140°F), resolution 0.1 °C
- **2x Analog interface** signal 4 to 20 mA , resolution 12 Bit
- **Digital RS-485 and SDI-12 interface** various ASCII formats
- **Power supply** 10.5 ...15 VDC
- **Power consumption** max. 40 mA (during measurement, ~3 s), <0,4mA (stand by)
- **Total energy consumption** 0.5 Ah/d (1 min intervall)
- **Ambient temperature** -40 °C to +60 °C (-40°F to +140°F)
- **Protection class** IP 64
- **Bracket** for 61 mm (2 inch) mast diameter