

ULTRASONIC SNOW LEVEL

Sensor
t023b TNU08-IVS



Sound electronic filtering

Self-correction of the measurement for compensation of the air temperature

Compact and affordable

Description

The TNU sensor measures snow levels up to 8 meters by emitting short pulses of ultrasonic frequency towards the surface of the snow cover and detecting the returning echoes. The TNU guarantees excellent performance from the point of view of accuracy thanks to a measurement self-correction system which, through an integrated temperature sensor, takes into account the variation in the speed of sound as a function of the air density. The on-board electronics calculate the distance based on the time intervals between emission and reception of the reflected pulses. In particular, the TNU is equipped with an electronic amplification and capture system specific for applications on snowpack. Snow, in fact, has a high sound-absorbing property (it reflects the impulse not only from the external surface, but also from the layers beneath the surface). The protective external body contains the transducer, and is partly made up of a self-ventilating solar shield in order to allow the correct measurement of the air temperature as well as to protect the sensitive component from direct exposure to atmospheric agents.

The sensor is supplied complete with power and signal cable (12m).



Main Features

- **Sound electronic filtering**
- **Compact and affordable**
- **Self-correction of the measurement for compensation of the air temperature**
- **Equipped with self-ventilated solar shading**

Technical Specifications*

Measurement performance

Distance [m]

Measurement range	0.8 ÷ 8 m
Accuracy	± 1 cm
Resolution	0.5 cm
Beam width(3dB)	12° ± 2°

Operating conditions

Temperature	-20°C ÷ +65°C
Humidity	0% ÷ 100%

Outputs

RS485-Modbus	Temperature, Snow Level
Tension	0 ÷ 2 V ↔ 0 ÷ 10 m
Current	4 ÷ 20 mA ↔ 0 ÷ 10 m

Power supply and Consumption

Voltage supply	10 ÷ 16 Vdc		
Consumption (mA)	Min	Typical	Max
RS485 Modbus/0 ÷ 2 V	-	1.5	-
4 ÷ 20 mA	7	-	30
Capsule piloting power (peak)	14.4 [W]		

Mechanical Specifications

Protective body	Plastic material ABS, aluminium and stainless steel screws
Weight	2.3 kg
Dimensions	Ø 210 mm; Height 390 mm
Electrical connections	IP67 / 7 male poles

Ordering codes

Range 0÷8 m, Current output, Tension output, RS485-Modbus serial output	PSM-t023b-TNU08-IVS
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*Changes on technical performances can be applied upon request of specific calibration