

SNOW DEPTH SENSOR

SHM 30

A compact laser sensor for determining snow depths



Compact, reliable and cost-efficient

The SHM 30 snow depth sensor reliably determines snow depths up to 10 meter within seconds and with millimeter precision.

Based on an opto-electronic distance sensor emitting visible eye-safe laser light, the SHM 30 allows probing distances up to 30 meter to detect the surface level. Unlike snow depth sensors using ultrasonic methods, the laser distance measuring technique is independent of temperature changes.

Even if the measuring process is impaired by precipitation, the SHM 30 reliably finds the snow surface due to its mode of operation.

Further evaluation of the transmitted signal strength allows discrimination between snow and grass.

Benefits

- Determination of snow depth over long distances using opto-electronic measuring technique
- Reliable and cost-effective operation
- Very compact and weatherproof housing
- Efficient background light suppression
- Allows discrimination between snow and grass

Applications

- Weather service
- Traffic and aviation safety, road surveillance
- Winter sport areas
- Water & energy related applications

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Specifications

Measuring parameter

Snow depth	0 ... 10 m
Distance to hard targets ^(1,2)	0 ... 30 m
Precision / reproducibility ⁽²⁾	≤ 0.5 mm
Measuring accuracy ^(2,3,4)	± 1 mm
Measuring accuracy snow ⁽⁴⁾	± 5 mm
Programmable measuring interval	1 s ... 600 s
Time to measure	≤ 10 s

Interfaces

Data interfaces	RS232, analog output
Interface modes	RS232 2.4 ... 38.4 kBaud, 8N1 format analog 3 mA and 4 ... 20 mA
Operating modes	Polling, automatic telegram
Client software	Any terminal program

(1) without far field stray light protection (3) offset corrected sensor
(2) on natural diffuse reflecting surfaces (4) 95% statistical spread

Exemplary Data telegram for snow depth measurement

Example: >+00.8945 000.912 +28.17 <C	Structure: >eee.eeee sss.sss TTT.EE.C<
Snow depth: 0.8945 m	e: snow depth
Signal: 0.912	s: signal strength
Temperature: 28 °C	T: internal temperature
Error: E17	EE: error code
Check byte: C	C: check byte

Specifications status: November 2011, Firmware Version 9.06

Electrical parameters

Power consumption	without heating:	0.5 W (avg.)	1 W (max.)
	with heating:	12 W (avg.) ⁽⁵⁾	24 W (max.)
Power supply	without heating:	10 ... 30 VDC	
	with heating:	15 ... 24 VDC	

(5) heating cycle 0 ... -30 °C, at 24 VDC

Safety parameters

Laser classification	Laser Class 2 (IEC825-1/EN 60825)
Environmental conditions	ISO 10109-11
Protection class	IP 65
EMC	EN 61326-1

Operating parameters

Temperature range	-40 °C ... +50 °C
Relative humidity	0 % ... 100 %
Heating activity	< 0 °C (programmable)

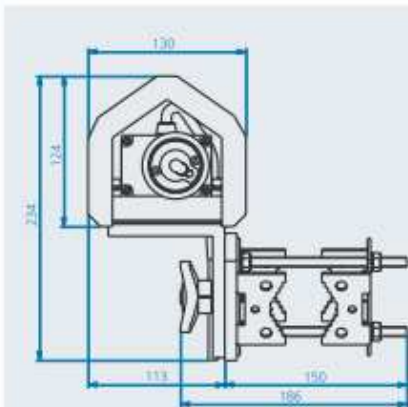
Dimensions and weight (housing & mounting parts, without cable)

Dimensions (L x W x H)	302 mm x 130 mm x 234 mm
Weight	approx. 3.3 kg

Options

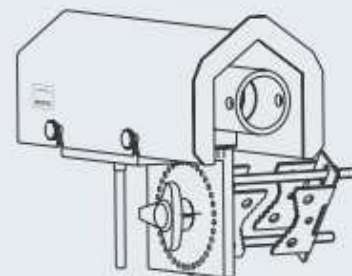
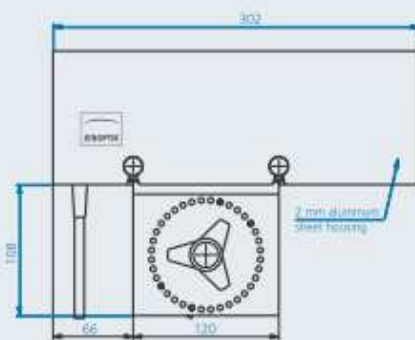
Optional accessories	Cable extensions, mounting clamp, mounting steel bands
Optional signal interface	RS422
Optional signal input	Heater off

Dimensions SHM 30 with mounting clamp for up to 72 mm mast diameter, order no. 012840-610-11



Alternative mounting options (not shown):

- Steel band for 80 mm mast diameter, order no. 12840-608-11
- Steel band for up to 300 mm mast diameters, order no. 12840-609-11



It is our policy to constantly improve the design and specifications. Accordingly, the details represented herein cannot be regarded as final and binding.

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