



SNOW PILLOW SENSORS MODELS SPS-1500 & 3000

FOR THE MEASUREMENT OF THE WATER CONTENT IN SNOW

DESCRIPTION

Snow pillows are used to measure the water content in snow. These sensors are working connected to our Automatic Weather Station Models METEODATA-2000/3000C, combined with the simultaneous measurement of the snow level by one of our snow sensors installed just on top of the snow pillow. This remote snow station stores all the information and transmits data via GPRS, Radio Link or Satellite, to a Central Station so the water managers will have the possibility to know the condition of the snowpack in near real-time.

Additional meteorological sensors can be also connected to the remote station for measuring precipitation, air temperature, relative humidity, solar radiation and the wind speed and direction, in order to offer a complete information about the environmental conditions of the site.

Two models of snow pillows are available: Model SPS-1500 of a size of 1500x1500mm and Model SPS-3000 having a size of 3000x3000mm.

The working principle of the snow pillow is based on the measurement of the hydrostatic pressure caused by the layer of snow. The snow on top of the pillow is detected by a pressure transmitter delivering an analog output signal proportional to the water-content equivalent to the snow covering. This signal along with all those coming from the additional sensors, are connected to the METEODATA station for data storage and data transmission to the Central Station.

INSTALLATION GUIDE

The following requirements must be observed in order to ensure that the snow pillow produces accurate readings. The measuring area must be horizontal, flat and protected from the wind in order to provide a representative section of snow. Do not select as a measuring field an area in the immediate vicinity of steep slopes, sudden drops in terrain or large boulders, as snow movements in these areas can have an effect on measurement readings.

The snow pillow is made of fabric-reinforced, weather-resistant PVC foil. The snow pillow should be provided with a secure cover in order to prevent damage by wild animals during the summer months.

SETUP

The ground must be prepared for the setting up of the sensor. The ground should be regular, level and free of sharp or pointed objects. We recommend placing the snow pillow on a 10 cm thick bed of sand. The sand should be smoothed down to make it absolutely horizontal.

The pressure sensor is installed together with the reduction and screwed cable gland and have to be located in the water/glycol mixture. Ensure that water can escape freely from the measuring area when the snow melts. Install side protection (in the form of wooden planks, for example), in order to shield the unit from the lateral pressure caused by the weight of the soil. When filling the snow pillow, ensure that no air bubbles remain inside it.

We recommend another examination of the pillow after a few days to check for signs of airlocks. The sensor can be mounted underside (standard) or upside (alternative installation) of the snow pillow.

CONNECTION

2-wire cable with pressure compensation capillaries. If the cable is mounted into a hermetically sealed distributor make sure the distributor can equate to atmospheric pressure.

Colour	Function	Comment
White	Supply+	Supply voltage 12 to 36 VDC
Yellow	Supply-	Analog output 4..20mA

MAINTENANCE

To guarantee the operativeness of the snow pillow following maintenance jobs should be done before winter season.

- Impermeability snow pillow generally, screw-in connector and filling/ventilation valves
- Damage caused by animals or other mechanical damage
- Calibration zero point
- After several years of use of the snow pillow check the anti-freeze protection concerning freezing point. Change the glycol if necessary.

ITEMS SUPPLIED

- 1) Snow pillow (1,5 x 1,5 m or 3x3m) with screw-in connector and filling/ventilation valves
- 2) Pressure transmitter and connection lead (with pressure-compensation capillary); cable length 10m (special length per request), reduction, ventilation adapter, fill-in adapter, gland, protective casing
- 3) Optional: 100 litres of glycol for filling (the customer should provide 100 litres of water)

