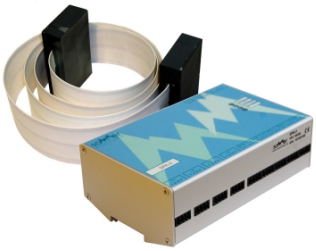

Snow Pack Analyser SPA

Recording all important parameters of the snow pack

The SPA system records automatically and continuously all important parameters of the snow pack and allows, for example, for predictions about the snow melting progress. The **latest product generation, the SPA-2**, now offers a completely new and much more user friendly control interface, connecting analogue sensors has become a lot easier and the new standard for data outputs is realised via a RS 485 or SDI-12 interface.

Features and advantages

- Recording the snow parameters: snow water equivalent (SWE), snow density, liquid water content, ice content and snow depth
- Energy-saving operation through sleep modus, ideal for solar-powered measuring stations
- Individual system configuration: information regarding the complete snow pack or about specific snow profile depths
- Recording the progress of snowmelt and the expected quantities of water from the snow pack

Fields of application

With the valuable information from the SPA about snow density, liquid water content and snow water equivalent it is possible to recognize and analyse the snow melting processes at an early stage. That is why the SPA system is considered to be a very helpful measuring instrument for hydrologists, avalanche warning services or scientists as well as for companies operating hydropower stations, flood protection authorities, businesses in water management, the agricultural sector or mining companies.

Installation and measuring principle

The SPA station can be operated autonomously (using solar power), the mast and the frame are set up in a suitable position on level ground. The weather and UV-resistant sensor band penetrates the snow and measures the volumetric content of ice, water and air in the snow pack using impedance analysis. The snow depth measurements are taken by our reliable ultrasonic snow depth sensor USH-8. Data storage and remote transmission equipment mounted in a weatherproof control cabinet can be provided additionally upon customer's request.

Technical details SPA-2

- **SPA sensor** 1 - 4 sensors (straps) mountable (as a standard we provide one horizontal and one diagonal tape)
- **Weatherproof and UV-resistant** flat strap sensor that includes three wide copper wires. 4 cm depth of penetration of the measurement field

- **Solid aluminium construction** for fixation and tensioning of the SPA sensors
- **Impedance analyser** performing the measurements of the complex impedance along the SPA sensor
- **Multiplexer** controls the switching between multiple sensors and connects the snow depth sensor
- **Control unit** performs the measurements and calculations of the snow parameters
- **Serial interface** RS 485, SDI-12; ASCII format
- **USH-8** ultrasonic snow depth sensor with integrated temperature compensation
- **Optional components** Integration of up to two sensors for temperature (snow, ground, surface), power supply, data logger and telemetry
- **Power supply** 9 ... 15 VDC, reverse voltage protection, overvoltage protection
- **Power consumption** active 65 mA per SPA sensor, inactive: 1 mA
- **Operating temperature** -35 °C ... 60 °C (-31 °F to 140 °F)
- **Dimensions of frame** 6360 mm x 1100 mm x 3700 mm (L x W x H)
- **Dimensions of control unit** 165 mm x 105 mm x 55 mm (L x W x H)