TB3H-LP

Low-Power Heater for Tipping Bucket Rain Gauges

Meteorology | Precipitation | Rainfall

General Description

KISTERS' tipping bucket heater TB3H-LP is a **low-power heating element**, that raises the temperature of the interior of the rain gauge, funnel and catch to **avoid the freezing of the gauge** in cold climates with subsequent loss of precipitation records. The TB3H-LP saves energy by means of switching on power for a limited time only when snow is detected in the funnel.

TB3H-LP has been designed for use with the TB3 tipping bucket rain gauge (has to be ordered separately). TB3H-LP is integrated with the TB3 device at the factory and **delivered fully installed, ready to use, no settings required**.

Heater control: automatic or external
Automatic control: TBH-LP is supplied set to automatic control, i.e. it **monitors ambient temperature and snowfall, and operates the heater automatically**. The automatic control logic: Snow sensor on when ambient temperature drops below +4 °C (+40 °F); heater on when snow detected. Heater off when no snow remaining in the catch for 18 minutes. No heating below -20 °C (-4 °F) and above +5 °C (+41 °F) to conserve power.

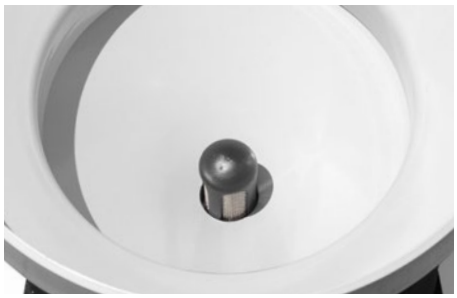
External control: If an external system like a full weather station monitors ambient temperature and snowfall, and is allowed to control the tipping bucket heaters directly, the TB3H-LP has an external control mode whereby the controlling system can actually turn the heating elements on and off.

Applications

- Rainfall monitoring in low temperature zones
- Measurement of the water equivalent of the snow piled up in the funnel

Features

- Fully automated operation
- Operates only when snow is detected
- Controlled thermostatically and by a snow-sensor
- Additional external temperature sensor
- Neoprene sheath for enclosure minimizes heat dissipation
- Funnel heated to melt snow
- Base heated to avoid freezing of tipping bucket mechanics
- SDI-12 interface for configuration, monitoring and control



Alternative Heater: TB3H
The TB3H is the basic heater kit for TB3 Tipping Bucket Rain Gauges. It is entirely temperature controlled: Whenever the temperature drops below a set trigger value, heating begins. Therefore, the TB3H is a good choice for sites where availability of supply power is not an issue.

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Technical Specifications

Temperature Ranges	– Ambient: -40 to +70 °C (-40 to +158 °F) – Snow sensor and heater operating parameters between -20 to +5 °C (-4 to 41 °F)
Data & Control Interface	SDI-12 interface: optically isolated, 1200 baud, 7 bits, even parity
Average Power Generated	35 watts (150 watts during initial minute warm up)
Supply Voltage	– Main power: 10-30 VDC or 12-28 VAC – SDI-12 power: 9.6-16 VDC (SDI-12 standard)
Power Consumption	– Average power: 3.7 A @ 12 V = 45 W (approx. 65 % duty cycle) – Heating power: 5.8 A @ 12 V = 70 W (when heater on) – Peak power during initial minute warm up: approx. twice the heating power

KISTERS' Tipping Bucket Rain Gauges and Assorted Accessories

Tipping Bucket Rain Gauge TB3: KISTERS' tipping bucket rain gauge TB3 is recognized as the world standard for measuring rainfall and precipitation in urban and rural locations. With its 200 mm diameter catch and its integrated syphon mechanism TB3 delivers high levels of accuracy across a broad range of rainfall intensities. TB3 is robust, built for harsh environmental conditions and requires hardly any maintenance. It is used worldwide in meteorology, climatology, hydrological and air quality monitoring stations, environmental monitoring, water treatment plants, dams, reservoirs, etc.

iRIS dataloggers and data modems:
- Robust housing
- IP over one or two channels of your choice: xG / GPRS, satellite, IoT
- I/O: analog, digital, SDI-12, Modbus
- iLink software
- Telemetry or cloud app

HydroTel™ Telemetry System: HydroTel™ is a leading-edge, high performance hydrological and environmental telemetry monitoring and database system that has proven itself in many demanding applications worldwide. It has been designed for data acquisition, data processing and comprehensive alarm management, and above that as a powerful and reliable remote telemetry system to control barrage gate and/or flood pump stations.
Features:
- Comprehensive range of output options for data export, presentation in the web or reporting
- Seamless interfacing with external modelling systems

Custom Solutions: You are looking for a tailor-made solution, ready to deploy? KISTERS' engineering and fabrication workshop and experienced engineering staff have the ability to provide customized solutions for any of your monitoring requirements.

Please ask for details.

Reseller

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