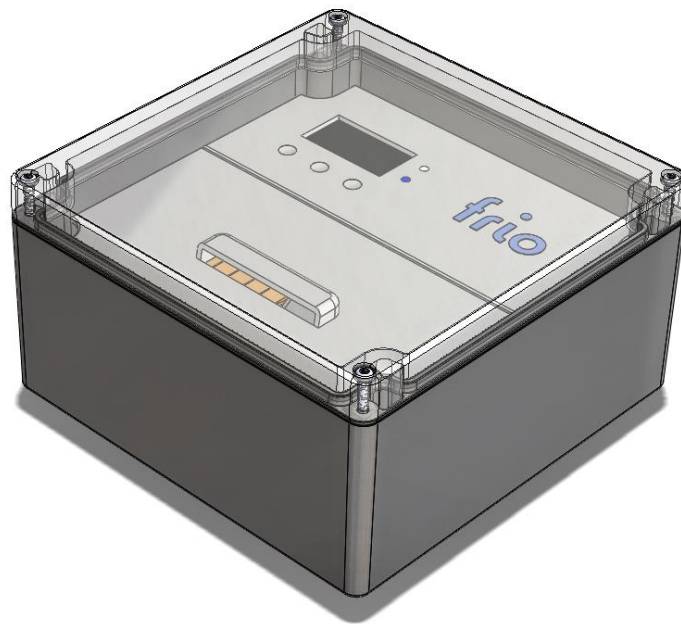




S1 – IoT, “Smart” Heat Trace Controller

The first IoT heat trace controller designed for snowmelt, freeze protection, and temperature maintenance applications



The S1 is a single-circuit IoT heat trace controller for use in snow melting, freeze protection and temperature maintenance applications. The device can drive up to a 30A resistive load to control electric heat trace systems operating between 100 VAC and 277 VAC. The S1 comes in an outdoor rated enclosure tested to IP67 standards.

WiFi, Ethernet, and Cellular (available on the S1-C) capability allow the S1 to connect to the Frio cloud platform via the internet, enabling smart, cloud-based control. When connected to the cloud, the S1 will upload system status and receive operational commands. The Frio cloud platform integrates weather data, system feedback, and proprietary control algorithms to automatically maximize system effectiveness and efficiency. Multiple S1 devices can be joined together in the Frio cloud platform, allowing centralized control of multiple heat tracing systems.

The cloud connection enables advanced monitoring and notification of your heating system. Data on key performance

characteristics are monitored over time and anomalies or excursions are flagged and reported. The Frio cloud platform offers customizable SMS and email notifications so that the user can be alerted immediately if there are any issues with the system. Users can connect to their S1 device remotely via the Frio cloud platform to check status, activate the system or run a diagnostic test, eliminating the need to physically check the heater control system.

If a connection to the internet is not available, the S1 can operate in a stand-alone configuration. As a stand-alone device, the S1 can be configured to use a temperature sensor, or operate in a smart temperature control mode, allowing for automatic snow melt, freeze protection, or temperature maintenance control.

To install the S1 device, simply download the Frio app and follow the step by step instructions. The app allows you to choose the system configuration and set control and notification preferences that can be changed anytime via the Frio cloud.

Control Modes

- Smart Snow Melting: - Uses weather data to activate the heating system, includes optional preheating, the ability to ignore light storms, and dynamic heating after the storm, all to improve overall system performance and reduce energy use and operating cost (For use on snow melting and gutter systems)
- Smart Temperature Control – Monitors heater load and uses feedback to calculate temperature allowing for “sensor-less” temperature control.
- Temperature Sensor – Connects to a thermistor or RTD to maintain system temperature (For use on freeze protection and process temperature maintenance systems)
- Ambient Temperature: Uses an ambient temperature signal (local sensor or cloud-based temperature) to activate the device (For freeze protection systems)

Installation

- Download the Frio App for installation instructions

Wiring Diagram

Power Ratings

- Supply Voltage – 100 to 277 VAC 50/60 Hz.
- Load – Maximum 30 A, 100 to 277 VAC resistive

GFEP

- Programable from 5 mA to 300 mA (default 30 mA)
- Manual and automatic test

Sensor Inputs

- Temperature: Thermistor (2 wire)
- Temperature: RTD (2 or 3 wire)

Low Voltage Outputs

- Dry Contact Alarm (configurable)

Connectivity

- WIFI 802.11 Dual Band 2.4GHz & 5GHz
- Ethernet (RJ45, Cat 5 or 6)
- Cellular (S1-C)
- RS485 (Modbus, BacNet)

Enclosure/Environment

- Outdoor rated (tested to IP67 standards)
- Operating Temperature -30C to 70C

