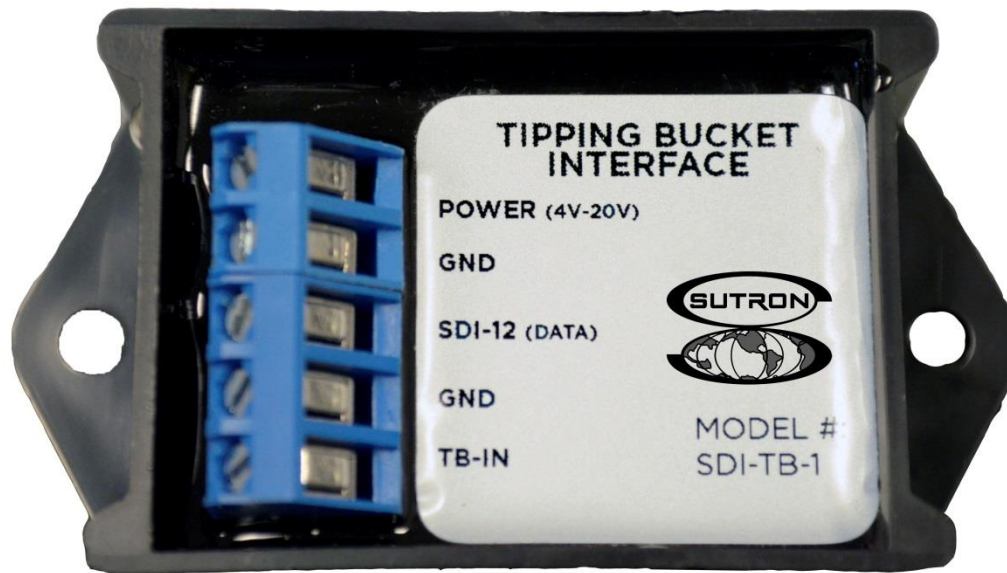


SDI-12 Tipping Bucket Interface



1/10/2023

Introduction



The SDI-TB is an ultra low power, compact and rugged SDI-12 rain gauge sensor. It can be configured to work with most tipping bucket sizes and configurations and supports a correction polynomial for high rainfall rate compensation.

The SDI-TB also has numerous built in features like programmable daily rainfall reset time, programmable yearly reset. The SDI-TB sensor has a backup power source that permits un-interrupted operation for up to 10 hours in case SDI-12 power is lost.





- A simple and compact SDI-12 Interface to convert any Tipping bucket into a 'smart SDI-12 sensor' that can compute daily & annual accumulation. The SDI-TB has an internal backup power source and can be programmed to compensate for heavy rainfall.
- Improved Reliability
- The SDI-TB is compact and can be easily mounted inside most tipping buckets. This eliminates the need for long wires (from the tipping bucket to the SDI logger) susceptible to noise,
- Programmable Daily and annual resets
- The SDI-TB has an internal RTC that can be used to automatically compute yearly and daily accumulations.





- Rechargeable Backup Power
- The SDI-TB can run off its internal rechargeable backup power in case SDI power is lost. All crucial functions of the SDI-TB, like measuring rainfall and the internal RTC can run for upto 10 hours without SDI-12 power.
- Smart Sensor Compensation
- The SDI-TB can be programmed to compensate for rainfall lost due to heavy rainfall rates especially when using a tipping bucket without a siphon.
- Low Power
- The SDI-TB draws about 100 μ A and has been optimized to run on a shoe-string power budget.
- Compact Rugged, Water Resistant
- The SDI-TB is compact and encapsulated in a water-resistant epoxy compound for installations in humid environments.



SDI-12 Tipping Bucket Interface

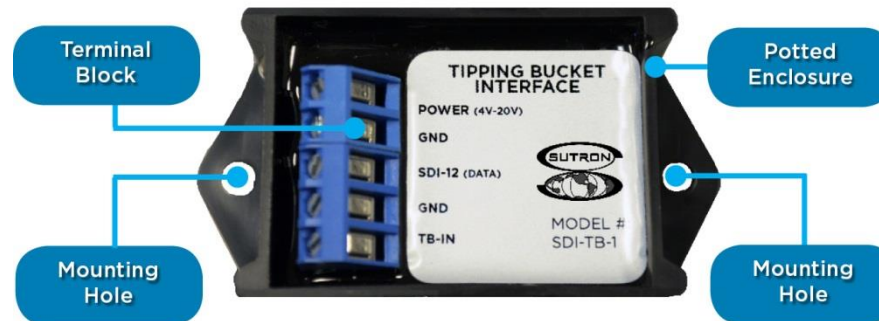
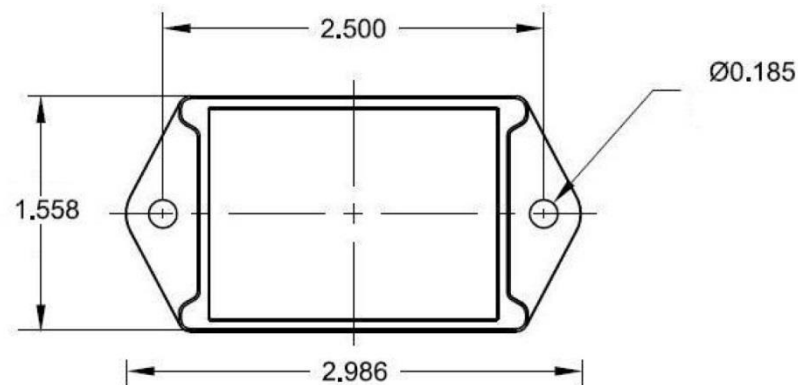


Figure 1 - SDI-TB





- The SDI-TB sensor is very simple to connect and get working. The unit has a 5 position push header for interfacing with an SDI logger and a standard 2-wire Tipping bucket.

Pin Label	Description
TB-IN	Connect to the reed switch terminal of the tipping bucket.
GND	Ground connection for the Tipping bucket
SDI-12 Data	Bidirectional SDI data bus
GND	SDI-12 interface Ground connection
Power (4v-20v)	SDI-12 power from the logger/SDI-12 master



Specifications



MECHANICAL / ENVIRONMENTAL

- Enclosure Potted enclosure for humid environments
- Dimensions 3 x 1.5 x 1.5 inches
- Weight ~60gms
- Temperature -40C to +60C
- Connector 5 pin screw less connector

POWER

- Input Voltage DC 4v - 20v
- Internal backup power run time 10 hours
- Internal backup power charge time ~18 hours
- Internal backup power charging current 25mA (fully discharged) to 100 μ A (fully charged)
- Quiescent Current 100 μ A @12v (once fully charged)

COMMUNICATION

- Protocol SDI-12 v1.3 (SDI communication will be disabled when running)





- SDI-TB-1 SDI-12 Tipping Bucket Interface with Internal Backup Power

