

## Application

Environmental Monitoring – Measuring Rainfall with a Tipping Bucket Rain Gauge

Tipping bucket rain gauges are commonly used in weather stations throughout the world to measure and monitor rain fall totals. Getting an accurate reading of rain fall has many applications including climatology, meteorology, industry, research and safety.

Tipping bucket rain gauges are very common and use a magnetic reed switch that produces a contact closure each time the tipping bucket tips. Each tip corresponds to a unit of measure, commonly 0.01 inches, 1 millimeter, or 0.25 millimeters.

A monitoring device must count the outputted pulses and convert them to a rainfall accumulation.

## Solution

With a WiSI wireless network, rainfall from a tipping bucket rain gauge can easily and unobtrusively be monitored and converted to a rainfall measurement as well as a rainfall rate, usually measured per hour. The rainfall measurement can be transmitted to and effectively monitored at a central location. Similarly, a network of WiSIs and rain gauges may be set up to measure rainfall to collect data to determine an areal precipitation estimate.

Since the rain gauge requires no power the use of a WiSI-SP node, which has an integrated solar panel and energy storage, to monitor the contact closures is an effective solution. No external power needs to be provided so installing rain gauges at remote or difficult locations is simplified.

With one WiSI, wind speed, wind direction, and rainfall data can be collected with inputs to spare, providing a total weather monitoring solution.

### RELATED APPLICATION NOTES:

- Measuring Wind Speed with an Anemometer
- Measuring Wind Direction with a Weathervane



### APPLICATION USES FOR RAIN FALL COLLECTION:

- Weather Station/Forecasts
- Agriculture
- Flood Warning
- Climate Tracking
- Soil Erosion
- Storm Water Runoff

### WiSI SIGNALS USED:

- Digital Input

