

WiFi Data Logger

DATA ACQUISITION | INTERNET OF THINGS

General Description

The ML-IoT/W **data logger** turns a TB7 tipping bucket rain gauge into an IoT precipitation monitor. The **low-cost and low-power** device including its antenna fits easily inside the TB7 enclosure. The ML-IoT/W collects the pulses from the rain gauge, accumulates them over a user-defined interval and sends periodic rain reports via WiFi connection. With its temperature sensor the ML-IoT/W provides a fair estimate of ambient temperature useful to determine trends, diurnal cycles, etc.

The use of **WiFi data transmission** keeps operational costs under control: no SIM card needed, no recurrent fees, no data volume-related fees. Whenever and wherever a WiFi hotspot is available within a 100 m reach (direct line of sight), the ML-IoT/W is a **cost effective** option to transmit data. Data communication settings, router credentials, receiver IP/FTP address and other configuration can be entered via a browser on a mobile device (no app needs to be downloaded). In order to inform the user of its performance, the ML-IoT/W can send a summary email through an SMTP server to two recipients every day.

Deployment of a TB7 equipped with an ML-IoT/W is easy. The rain gauge is simply installed on a solid, levelled basis (e.g. a concrete pad) or mounted on a 2" thread-

ed pole. Due to the black colour of the TB7 and no visible electronics or antennas, the rain gauges are unobtrusive and do not attract the attention of vandals.

Applications

Application examples for ML-IoT/W:

- **Citizen Science:** Volunteer precipitation observers contributing data to met offices can automate the entire data collection and reporting process, thereby providing data of higher quality, with higher consistency and continuously recorded even when the volunteer observer is not at home to do a reading. The combination of TB7 and ML-IoT/W automates all steps of reading, recording and forwarding the data.
- **Smart City:** With the ubiquity of free WiFi hotspots and city-operated WiFi routers, rain data can be easily collected on all public and/or city owned properties, transmitted to a central server in the city's IT department and made available to internal experts (environment, traffic management, technical advisers, drainage engineers, ...). Citizens can be invited to participate in collecting data operating a TB7 rain gauge on their premise and using their own WiFi router for data transmission. Precipitation data can be shared with the general public.



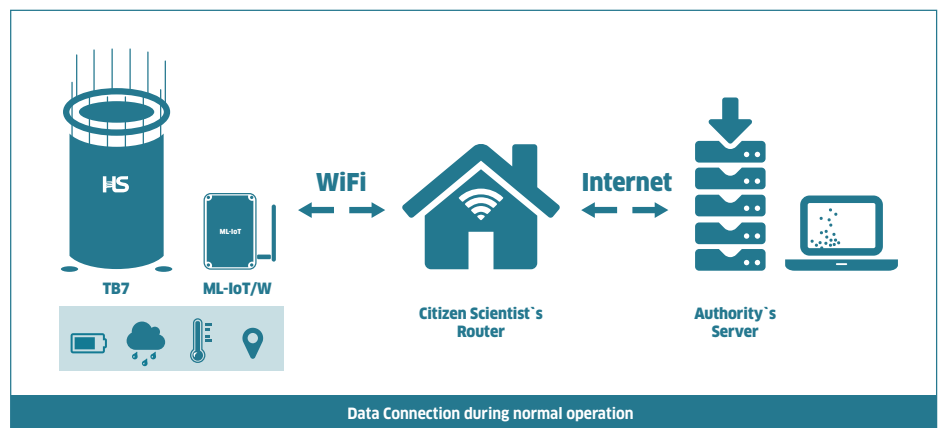
Technical Specifications

Construction	<ul style="list-style-type: none"> ■ Mounts totally inside the rain gauge, mounting bracket for TB7 rain gauges ■ Equipped with SMA antenna connector and small-scale helical antenna ■ Plug-in / screw termination to connect signal cable ■ Magnet swipe or pushbutton to turn on the internal WiFi hotspot for local configuration ■ LED status information on front panel ■ Sounder to give audible indication (useful when mounted inside the TB7 rain gauge)
WiFi Range	Up to 100 m (direct line of sight)
Power Supply and Consumption	<ul style="list-style-type: none"> ■ Standard: 3 x AA alkaline batteries ■ Consumption: 1 year (transmitting 1-2 times daily)
Data Memory and Backup	<ul style="list-style-type: none"> ■ On board memory for 2 years of hourly records ■ Optional SD-Card data backup of csv file
Time Synchronization	Automatic time synch to NTP server
Inputs	<ul style="list-style-type: none"> ■ Digital (rainfall or water meter) ■ Internal Battery Voltage ■ Temperature (electronics temperature on the board) ■ GPS coordinates ■ RF signal (WiFi Radio Frequency Field Strength)
Protocol	<ul style="list-style-type: none"> ■ CSV file FTP transfer to user defined address/path ■ Summary email sent directly from ML-IoT/W through SMTP server to 2 recipients
Configuration	<ul style="list-style-type: none"> ■ Via a browser on any platform phone/tablet/PC (iOS, Android, Windows); does not require an app ■ Remote configuration changes made by placing a file on FTP Server ■ OTA (Over The Air) firmware upgrade performed by placing a file on the FTP Server
Operating Temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Dimensions H x W x D	120 mm x 80 mm x 55 mm



Related Product: Tipping Bucket Rain Gauge TB7

TB7 is a new generation high-quality tipping bucket rain gauge for measuring rainfall and precipitation in remote and unattended locations when used in conjunction with ML-IoT/W. TB7 is a reliable 'low cost' device with a very good accuracy across a broad range of rainfall intensities. Please ask for details.



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