

Froggie AEMI 3.0 – Data Sheet



UTS > AEMI > Froggie Weatherstation > 3.0

Doc No.: TD-UTS260505

Date: 05.05.2026

Revision: 1.0

Status: release

อุปกรณ์ตรวจวัดสภาพแวดล้อมอัตโนมัติ

Automatic Environmental Measurement Instruments

Specification

Processing Unit

- Fully automatic system
- WiFi
- HTTP/MQTT protocol support & Home Assistant
- Thingsboard integration

Rain Gauge

- Operating range: 0 up to 400 mm/h
- Resolution: 0.2 mm.

Anemometer

- Operating range: 0 up to 42 m/s (150 km/h)
- Resolution: 0.75 m/h (1 Hour)

Wind direction

- Contactless magnetic angle sensor 360°
- Extra long service life

Temperature Sensor

- Operating range: -4.0 up to 123.0 °C
- Resolution: 0.01 °C

Humidity Sensor

- Operating range: 0 up to 100 %
- Resolution: 0.013 %

Barometric pressure sensor

- Operating pressure range: 300 to 1250 hPa
- Relative accuracy: typ. 8 Pa, equiv. to 0.50 m (700±... 900 hPa, 25 ± 40 °C)

Solarimeter

- Operating range: -4.0 up to 1250 W m⁻²
- Resolution: 1.22 W m⁻²

UV Sensor

- UV Index

Power supply


- MPPT charger & lithium battery
- Solar cell 50W



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Product group: **Universal Telemetry System (UTS)**
Category: **Automatic Environmental Monitoring Instruments (AEMI)**
Series: **3.0**
Type: **Automatic solar-powered WiFi weather station**
Model: **Froggie AEMI 3.0 (always on)**



Applications

- Agro-meteorology and smart farming
- Smart city and urban decision support systems
- Industrial and mining applications
- Automation systems
- Recreation, events and home automation

Features and Advantages

- Fully automated measurement of standard meteorological parameters with minimal maintenance
- High-grade sensor tooling with elements from major suppliers such as Sensirion, Bosch, STMicro, Texas Instruments, AMS and Analog Devices
- Rugged and field proven design in high-humidity, high-temperature tropical climates
- Open platform design for efficient integration with cloud systems and additional sensors
- Directly compatible with Home Assistant

Specifications

Wind direction

- Contactless magnetic angle sensor 360° from Austria
- Precision machined aluminium shaft and Swedish bearing
- Extra long service life

Wind speed / anemometer

- Operating range: 0 up to 42 m/s (150 km/h)
- Resolution: 0.75 m/h (1 hour)
- Precision machined aluminium shaft and Swedish bearing



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Temperature sensor:

- Swiss sensor element with advanced protective cover
- Operating range: -40 to +123.0°C
- Resolution: 0.01°C



Humidity sensor:

- Swiss sensor element with advanced protective cover
- Operating range: 0 to 100%
- Resolution: 0.013%

Solarimeter:

- Sensor element made in USA
- Operating range: -4.0 up to 1250 Wm⁻²
- Resolution: 1.22 Wm⁻²
- Precision machined aluminium sensor housing



Rain gauge v2 designed by ALLIT:

- Rugged stainless steel SS304 with debris filter
- Operating range: 0 to 400 mm/h
- Resolution: 0.2mm



Digital barometric pressure sensor made in Germany (optional when using Bosch configuration)

- Operating pressure range: 300-1250 hPa
- Absolute accuracy: typ. ± 50 Pa (300 ...1100 hPa, 0 ...+65 °C)
- Relative accuracy: typ. ± 8 Pa, equiv. to ± 0.50 m (700 ... 900 hPa, 25 . . . 40 °C)

UV Index (UVI) Sensor

- 240-370nm spectral range

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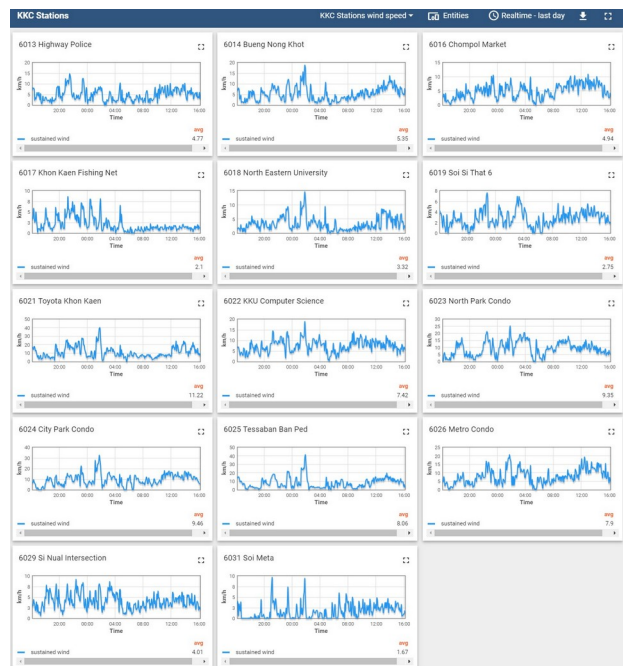
Data processing unit:

- Modular Microcontroller-based design for easy service and long-term spare part availability
- Built-in SD card slot for offline data backup (ships with 8GB card for approx. 5 years of data storage)
- Built-in real time clock (RTC) and mini-NTP server for time backup in case of loss of network connection
- Board and system temperature sensors
- Battery voltage sensor
- Advanced power protection and noise filters
- Instrument grade precision voltage reference for analog sensors
- 4-Channel ADC / 12 bit and 4-Channel ADC / 15bit
- automatic telemetry transfer every minute
- SPI, I2C, UART expansion ports for custom sensors
- Open-source firmware with OTA FW updates
- 8 programmable digital I/O ports
- low-power consumption



Data communication:

- 2.4GHz 802.11n WiFi
- HTTP and MQTT communication with servers in the cloud
- Support for Home Assistant, Thingsboard & Grafana data-transfer
- Optional WiFi HaLow and 4G/5G backhaul models available
- Optional wired Ethernet (LAN) connectivity



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Cloud & data services:

The following free services are included with the purchase of a Froggie AEMI 3.0 weatherstation:

- Free access to ALLIT cloud servers for storing station data incl. basic dashboards for displaying weather data, data retention for the entire life time of the product, data export via Grafana

Note:

(1) Inactive devices which have not sent data for more then 6 months will be automatically retired and data of devices that have not been active for more than 12 months will be deleted from the active servers unless the user informs ALLIT about a planned downtime or the device is in service with ALLIT.

(2) Data from decommissioned or retired stations will be stored in backup archives for a period of 3 years from the date of decommissioning. Data from these stations is also stored on the flash card inside each weatherstation.

While we take data backups seriously and have 5 layers of backups, ALLIT takes no liability for storing or processing sensor data with any free service. The services are provided as is. If you require a specific service level agreement (SLA) please contact our customer support.

(3) Data processing services beyond basic free services

The user is free to display the data using dashboard views as provided or export and process data on his/her premises / local cloud. ALLIT is not responsible for any integration with the customer’s services as part of the free package provided. Customization of the cloud services are available as paid service depending on required specifications.

(4) Open data platform

All free cloud platform services are provided under a open climate science program which allows the use of meteorological data for the purpose of academic and non-commercial purposes free of charge. The data contained in this program only covers raw weather sensor data without any user data beyond the scope of meteorological data (i.e. no automations or traceable user data). The idea is to improve weather forecasts and station features for everyone and create a weather community.

If you would like to opt out of the program you can so for a cloud service fee of THB 3,600 per year / unit.

(5) System security

Since the Froggie AEMI 3 transmits data via the customer’s WiFi network, ALLIT reserves the right to block access to compromised devices and/or networks in case of security incidents such as hacking, DDOS or injection of false data.

(6) Fair use

The following limits to usage are part of the free package:

Data backup export: 1GB per month (approx. the size of 25 years worth of weather data)

Cloud dashboard updates: 2,880 per day (= 2 updates per dashboard / min) and no more than 5/min/sensor

(7) Customers can also order a pre-configured HomeLab server for their own local cloud from ALLIT’s partner Metronet Asia

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Power supply:



- Solar panel 50W
- LiFePO4 battery 25Ah or 30Ah (4S / 12.8V)
- Battery management system (BMS) with cell balancing
- Solar charger with 5V and 12V outputs

Station operating environment:

- Operating temperature: -40° to +60°C
- Relative humidity: 0 to 100%

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Expansion options:

The following sensor options are available as add-ons for Froggie AEMI 3 weatherstations:

- PM2.5 particulate sensor (PM1.0, PM2.5, PM10)
- CO2 sensor (featuring Swiss sensor element)
- VOC sensor (for volatile organic compounds)
- CO (carbon monoxide sensor for industrial alarms)
- CH4 (methane sensor)
- O3 ozone sensor for air quality index (AQI) measurements
- NOx (nitrous oxide sensor for AQI)
- Ground-motion detection incl. vibrations, tilt and seismic events
- pH, TDS, EC, turbidity, O2, salinity and color sensors for water quality
- Water flow meters
- Water level sensors
- Lux meter sensors
- Sound pressure level (SPL) sensor

Froggie AEMI 3 series is compatible with the Karrot Sensor Line of products incl.

- IoT smart farming equipment (valves, pump control, fertigation mixing and dosing machines, soil and water quality sensors, signaling, alarms, tank level sensors etc.)
- Factory automation units incl. RFID readers and access control, power monitoring, Modbus integration, industrial heaters incl. PID thermostat integration etc.

Preconfigured HomeLab server:

A completely open-source virtual environment based on Proxmox and Home Assistant that comes preconfigured with your weatherstation dashboard and sensor views.

Third party sensors:

Our weather station solution is compatible with hundreds of third party devices and sensors supported by Home Assistant, Tasmota and espHome.

Note: Integration with 3rd party hard-, soft- or firmware is at the customers own discretion and ALLIT will not provide any warranty on any of its devices which have been modified in any way by the user.

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