

# Froggie AEMI 2.0 – Data Sheet

UTS > AEMI > Froggie Weatherstation > 2.0

Doc No.: TD-UTS180916

Date: 02.28.2024

Revision: 2.0.4

Status: release



## อุปกรณ์ตรวจวัดสภาพแวดล้อมอัตโนมัติ Automatic Environmental Measurement Instruments Specification

### Processing Unit

- Fully automatic system
- 4G modem module with AGPS
- HTTP/MQTT protocol support
- Thingsboard integration
- Hourly or always on model

### Rain Gauge

- Operating range: 0 up to 400 mm/h
- Resolution: 0.1 / 0.23 / 0.4

### 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<sup>-2</sup>
- Resolution: 1.22 W m<sup>-2</sup>


### Power supply

- MPPT charger & lithium battery
- Solar cell (2W/30W)



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**Product group:** Universal Telemetry System (UTS)  
**Category:** Automatic Environmental Monitoring Instruments (AEMI)  
**Series:** 2.0  
**Type:** Automatic solar-powered 3G / 4G weather station  
**Model:** Froggie AEMI 2.0.4 (always on)



**Applications:**

- Agro-meteorology and smart farming
- Smart city and urban decision support systems
- Industrial and mining applications
- Automation systems

**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, STMicro, Texas Instruments, AMS, Atmel
- Rugged and field proven design in high-humidity, high-temperature tropical climates
- Open platform design for efficient integration with cloud systems and additional sensors
- Compatible with all major SE-Asian cellular networks

**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<sup>-2</sup>
- Resolution: 1.22 Wm<sup>-2</sup>
- Precision machined aluminium sensor housing



### Rain gauge v2 designed by ALLIT:

- Rugged stainless steel SS304 with debris filter and high or low precipitation model options
- Operating range: 0 to 400 mm/h
- Resolution:  
0.39mm HP version (flood events)  
0.10mm LP version (agricultural model)



### 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 )

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Page 3 of 5



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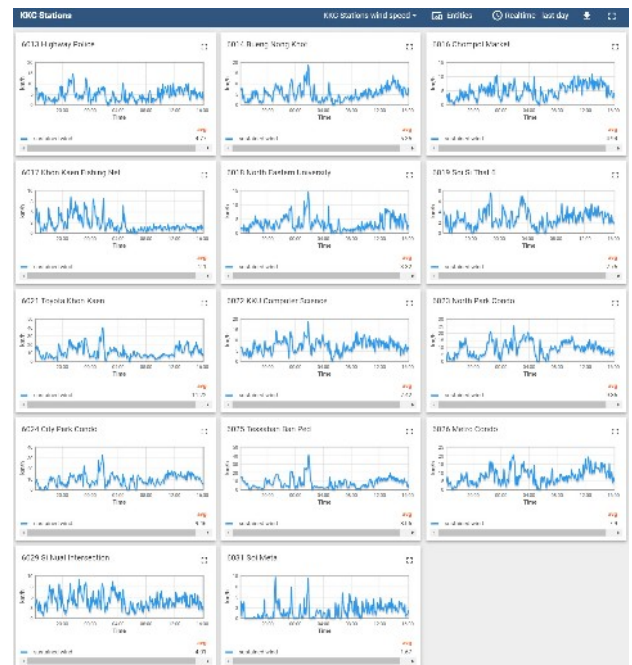
## Data processing unit:

- Modular Microcontroller-based design for easy service and long-term spare part availability
- 2 MB on board flash memory for data backup (not used in always on model)
- optional extended storage via mini-SD card slot
- 4-Channel ADC / 10 bit
- Frequency range: 4 MHz
- low-power consumption
- automatic telemetry transfer every minute
- expander board for up to 60 additional peripherals including analog and digital sensors and relays allowing for optional system customizations
- firmware for automated cellular status detection and reconnect, spam SMS deletion and network time setting



## Data communication:

- 3G/4G LTE module with built-in A-GPS support
- Micro-SIM
- Support for all major cellular networks
- Built-in multi band antenna
- HTTP communication with servers in the cloud
- Support for Thingsboard data-transfer



## Power supply:

### A) Standard model

- Solar panel 2W standard
- Li-Ion battery 2,400 mAh standard
- Built-in MPPT charger, micro-USB power path charger input

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Page 4 of 5

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B) Always on model – A) plus below:



- Solar panel 30W (for always on model)
- LiFePO4 battery 11Ah (4S / 12.8V)
- Battery management system (BMS) with cell balancing
- Solar charger with 5V output

Station operating environment:

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

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Page 5 of 5