



CHESTER METEO



- Product Name:** CHESTER Meteo
- Power Type:** Battery or DC adapter
- Manufacturer:** HARDWARIO
- Product Type:** IoT Gateway

SERIES OVERVIEW

Launched by HARDWARIO, CHESTER Meteo is configurable battery-operated NB-IoT/LTE-M/LoRa WAN weather station that monitors temperature, humidity, rainfall, wind direction, wind speed, altitude and atmospheric pressure with configurable measurement, sampling, and reporting intervals.

CHESTER Meteo has 4 built-in sensors. Thermometer used to measure internal temperature, Barometer to measure atmospheric pressure, Accelerometer to measure device orientation and ADC used to measure battery.

CHESTER Meteo typical use case:

- Dynamically track changing weather to ensure the proper working conditions on construction sites
- Monitor the climate impact on forest and provide the means for early detection of fire
- Forecast the time of incoming rainfalls

MAIN COMPONENTS

CHESTER-M-CGLS

- CHESTER mainboard
- Connects sensors, actuators, PLC controllers
- Controls outputs and relays
- Instant messages by NB-IoT/LTE-M or LoRaWAN
- Low-power design
- Open- source Zephyr-based SDK
- Easy setup with HARDWARIO Manager
- Simple integration through HARDWARIO Cloud service

CHESTER-X0B

- Input module (4 channels)

CHESTER-S2

- External hygrometer and thermometer

Barometer tag

- Internal barometer and altitude measurement

Weather Station SEN-15901

- Rainfall detection, wind direction and speed

KEY FEATURES

Low Power Consumption

CHESTER Meteo operates on minimal power, extending battery life up to 5 years and reducing operational costs.

Wireless Connectivity

The device supports wireless communication using LTE-M / NB-IoT or LoRaWAN connectivity, ensuring reliable data transmission over long distances.

For local setup the CHESTER Platform includes bluetooth communication, where the user can update the firmware and change the parameters like sampling, aggregation, report, backlight button and many others in HARDWARIO Manager.

Easy Integration

CHESTER Meteo seamlessly integrates with various IoT platforms and data processing systems.

Using HARDWARIO Cloud the user has access to the management of IoT devices and provides access to the transmit device data via REST APIs or Callbacks, also can be used with any Dashboard where the user can see and visualize all the data.

Measurement and Behavior

All sensors are sampled with a configurable period. Samples are then aggregated in the configurable interval.

Wind speed is measured continuously between samples. Every wind speed sample is an average wind speed between two samples. On every aggregation these samples are aggregated, and minimum, maximum, average, and median are computed from buffered samples.

Minimum, maximum, average, and median are computed from buffered samples for each sensor.

Each aggregated value has its timestamps and are sent in a batch in a report interval period.

Open-source SDK

Ability to create your own applications or update the existing one by your self.

VARIANTS

CHESTER Meteo

CHESTER Meteo is capable of temperature, humidity, wind speed, wind direction, pressure and rainfall measurement.

The hardware of this application consists of the following ordering codes:

- CHESTER-M-BCGLS - Standard mainboard with C battery holder
- CHESTER-X0B - Input module (4 channels)
- CHESTER-S2 - External hygrometer
- Internal barometer
- CHESTER-E10-LP - Enclosure with SMA pigtail and light pipe
- Battery SAFT LS26500

CHESTER Meteo Z

CHESTER Meteo Z is capable of temperature, humidity, wind speed, wind direction, pressure and rainfall measurement.

CHESTER Meteo Z is powered from external power supply from 6 to 28 VDC and includes backup Battery Lithium-ion battery Charger to be used in the case of failure of external power supply. Also can be powered from solar panels.

The hardware of this application consists of the following ordering codes:

- CHESTER-M-CGLS - Standard mainboard
- CHESTER-X0B - Input module (4 channels)
- CHESTER-Z - Backup module
- CHESTER-S2 - External hygrometer
- Internal barometer
- CHESTER-E10-LP - Enclosure with SMA pigtail
- Power supply 24 V / 0.5 A with Weipu connector

TECHNICAL SPECIFICATION

Structure	
Enclosure material	ASA
Dimension	130×175×45 mm
Power	
Nominal battery voltage	3.6 V
Nominal battery capacity	7700 mAh
Idle power consumption	< 180 μ A
Peak power consumption	> 250 mA

Environment

Operating Temperature	-20 to 60+ °C
Storage Temperature	-20 to 60+ °C
Enclosure Protection	IP 67

CHESTER-S2

Thermometer

Measurement range	-20 to +80 °C
Measurement accuracy	$\pm 0,2$ % (0 to 65 °C)

Hygrometer

Measurement range	0 to 100 %
Measurement accuracy	± 2 % (from 10 to 90 %)

WEATHER STATION SEN-15901

Wind speed

Wind speed resolution	0,33 m/s
-----------------------	----------

Wind direction

Measurement range	0 to 360°
-------------------	-----------

Rainfall

Rainfall resolution	0,28 mm
---------------------	---------

Barometer Tag

Pressure range	20 kPa to 110 kPa
Measurement accuracy	$\pm 0,4$ kPa
Altitude range	-698 to 11,775 m