CHESTER CURRENT

Product Name: CHESTER Current

Power Type: Battery or DC adapter

Manufacturer: HARDWARIO

Product Type: IoT Gateway

SERIES OVERVIEW

Launched by HARDWARIO, CHESTER Current configurable NB-IoT/LTE-M/LoRa WAN device. The application primarily targets non-invasive current measuring using the so-called DC Current "Transformer" (DCCT). It can measure up to 4 channels of both AC and DC currents. The current probes are clips around the measured line, which convert the magnetic flux (proportional to the electrical current) to a differential output voltage.

Apart from the current measurements, the device can be configured (on demand) to measure up to 4 voltage channels (in single-ended mode). It can combine both current and voltage measurements (the total number of channels never exceeds number 4).

CHESTER Current has 3 built-in sensors. Thermometer used to measure internal temperature, Accelerometer to measure device orientation and ADC used to measure battery

Typical use case:

- Seamlessly integrated into renewable energy platforms to send reports of equipment failure from afar
- Provide the means for the monitoring of manufacturing machines efficiency
- Obtain the Overall Equipment Efficiency (OEE) of your production line and see machine utilization

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-K1

- 4x Differencial Input with 5 V Boost

CHESTER-Z

- Extension board with rechargeable Li-Ion battery and AC/DC power supply that can charge the backup battery

Current sensors

- 10 A, 50 A, 100 A, 300 A, 500 A and 1000 A

KEY FEATURES

Low Power Consumption

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

CHESTER Current Z is powered from external power supply from 6 to 28 VDC and includes backup Battery Li-ion battery Charger to be used in the case of failure of external power supply.

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 Current 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.

Open-source SDK

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

Measurement and Behavior

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

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.

VARIANTS

CHESTER Current

CHESTER Current is capable of current measurement.

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

- CHESTER-M-BCGLS - Standard mainboard with C battery holder
- CHESTER-K1 - 4x Differencial Input + 5 V Boost
- CHESTER-E2-LP - Enclosure with four small glands, SMA antenna pigtail and light pipe
- Battery SAFT LS26500

CHESTER Current Z

CHESTER Current Z is capable of current measurement.

CHESTER Current 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.

The catalog CHESTER Current Z hardware consists of the following ordering codes:

- CHESTER-M-CGLS - Standard mainboard
- CHESTER-K1 - Module with 4x Differencial Input + 5 V Boost
- CHESTER-Z - Power source module with backup battery
- CHESTER-E3-LP - Enclosure with 4 small glands, power supply connector Weipu, SMA antenna pigtail and light pipe
- Power supply 24 V / 0.5 A with Weipu connector

CHESTER Current 1W

CHESTER Current 1W is capable of current measurement and supports multiple external DS18B20 1-Wire temperature sensors.

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

- CHESTER-M-CGLS - Standard mainboard with C battery holder
- CHESTER-K1 - 4x Differencial Input + 5 V Boost
- CHESTER-E8-LP - Enclosure with 8 small glands, SMA antenna pigtail and light pipe

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 µA
Peak power consumption	> 250 mA

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

Sensors	
Current sensors	
Measurement range	10A, 50A, 100A, 300A, 1000A
DS18B20	
Measurement range	-40 to +105 °C
Measurement accuracy	±0,5 % (-10 to 85 °C)