HARDWARIO

PRODUCT MANUAL

CHESTER

Modular IoT device for industrial telemetry over LTE-M, NB-IoT and LoRaWAN

DOCUMENTATION

docs.hardwario.com/chester/first-steps

Configuration, firmware updates and integration, step by step.

Intended use

CHESTER is a modular, battery-powered IoT device for industrial telemetry. It collects data from wired and wireless sensors and sends them over LTE-M, NB-IoT or LoRaWAN networks; Bluetooth Low Energy serves for local configuration and diagnostics. The variant (catalog application) and its extension modules determine which sensors and signals the device serves.

ACCESSORIES AND SOFTWARE

The device is configured with the HARDWARIO Manager app (Android, iOS). It sends its data over the cellular network to HARDWARIO Cloud, or over LoRaWAN to your LoRaWAN network server. Cellular operation needs a nano-SIM card or the built-in SIM chip, depending on the variant.

Safety

- Read this manual before installing the device and keep it for later reference.
- Use the device only for its intended use and within the operating conditions given in this manual.
- Do not modify the device beyond what the documentation describes. Do not use a visibly damaged device.
- The device is not designed for potentially explosive atmospheres.
- Keep a distance of at least 20 cm between the device and people while it operates.
- Open the enclosure only in a clean, dry place. The electronics are sensitive to electrostatic discharge: touch a grounded object before handling them.
- Disconnect external power before you open the enclosure or replace the battery.

First start

1. Create an account at hardwario.cloud and add the device: scan the QR code on its label, or enter its serial number and claim token. Add it before you power it up; otherwise the first connection can take several hours.
2. Undo the six screws on the back and remove the cover. Insert the battery with the correct polarity, or connect the external power supply. The LED lights red while the application starts.
3. Close the enclosure: check that the seal is clean and seated in its groove, then tighten the screws evenly. Only a closed enclosure with tightened cable glands is IP67.
4. A green flash every 5 seconds means the device is connected to HARDWARIO Cloud. A yellow flash means no network mode is selected yet.
5. Configure the device with the HARDWARIO Manager app (Android, iOS) over Bluetooth: scan the QR code on the label to pair.

Technical data

Power supply	Primary lithium battery 3.6 V, rechargeable battery, solar panel or external DC supply, depending on the variant
Operating temperature	−20 to +60 °C
Storage temperature	−30 to +70 °C
Ingress protection	IP67 with the enclosure closed
Dimensions	130 × 175 × 45 mm (standard enclosure)
Antennas	Internal; external via SMA on some variants

Radio equipment

The device operates in the following frequency bands:

INTERFACE	FREQUENCY BAND	MAXIMUM POWER
LTE-M, NB-IoT	LTE bands 1, 3, 8, 20 and 28	27.5 dBm e.i.r.p.
LoRaWAN	863–870 MHz	12.2 dBm e.i.r.p.
Bluetooth LE	2402–2480 MHz	10 dBm e.i.r.p.
GNSS	1559–1610 MHz	*receive only*
Wireless M-Bus	868.95 MHz	*receive only*

The radios fitted depend on the variant: GNSS on variants with the G option, the Wireless M-Bus receiver on CHESTER wM-Bus only.

Batteries

Depending on the variant (see the ordering code on the product label), the device contains one or more of these batteries:

One size C cell (battery holder option B)
Lithium-thionyl chloride (Li-$SOCl_2$), primary · 3.6 V · 7 700 mAh
Saft LS 26500

Two size AA cells (battery holder option A)
Lithium-thionyl chloride (Li-$SOCl_2$), primary · 3.6 V · 2 × 2 600 mAh
Saft LS 14500

Size D cells (CHESTER-B1 carrier board)
Lithium-thionyl chloride (Li-$SOCl_2$), primary · 3.6 V · 17 000 mAh each
Saft LS 33600

Backup cell 18650 (CHESTER-Z1 module)
Lithium-ion, rechargeable · 3.7 V · 2 150 mAh
Samsung ICR18650-22P

Single cell (CHESTER-X10 module)
Lithium-polymer, rechargeable · 3.7 V

- Use only the battery types listed here and insert them with the correct polarity (+ and –).
- Never recharge a primary (non-rechargeable) cell.
- A rechargeable battery is charged by the device itself; do not charge it in another charger.
- Replace all cells of a set at the same time; do not mix old and new cells or cells of different types.
- Do not short-circuit, open, crush or heat a battery and do not throw it into fire.
- Keep batteries out of the reach of children.
- A damaged or leaking battery can overheat or catch fire: take it out of service and do not touch leaking electrolyte.
- Lithium batteries are dangerous goods in transport. When shipping the device, follow the carrier's rules for lithium batteries.

Replacing the battery

Disconnect any external power and open the enclosure (first start, step 2). Lever the old cell out of its holder and insert a new cell of the same type, observing the polarity marked on the board. Close the enclosure as in step 3. The rechargeable cells of the CHESTER-Z1 and CHESTER-X10 modules are described in the documentation.

Disposal and take-back

The crossed-out wheeled bin on the product, on its batteries or on the packaging means that at the end of their life they must not be disposed of with unsorted municipal waste: they must be collected separately.

The symbols Cd or Pb beneath the bin on a battery would mean cadmium or lead above the legal limit.

THE DEVICE

Hand the device in free of charge at a take-back point for electrical equipment, or return it to HARDWARIO.

BATTERIES

Take the batteries out first, where this is possible without damaging them, and hand them in free of charge at a battery collection point or to a battery retailer. Cover the terminals of lithium batteries with tape; do not open, puncture or burn them, and keep damaged batteries away from flammable materials.

WHY IT MATTERS

By handing them in you enable re-use, recycling and other recovery of their materials. Electrical equipment and batteries contain substances (metals, lithium compounds, flammable or corrosive electrolytes, flame retardants) that harm the environment and human health when littered or put into unsorted waste. Discarded lithium batteries can start fires in waste bins, collection vehicles and sorting plants.

LESS WASTE

You help prevent waste by using the device for its full service life. Operating it within the stated temperature range and with a reporting interval no shorter than needed extends the battery life; replace the battery, not the device.

TAKE-BACK POINTS

Take-back of electrical equipment and batteries
hardwario.com/legal/take-back

Declaration of conformity

RADIO EQUIPMENT TYPES

CHESTER-M	**CHESTER Boiler**	**CHESTER Clime**
CHESTER Clime IAQ	**CHESTER Control**	**CHESTER Current**
CHESTER Display	**CHESTER Energy**	**CHESTER Meteo**
CHESTER Motion	**CHESTER Push**	**CHESTER Radon**
CHESTER Range	**CHESTER Scale**	**CHESTER wM-Bus**

EUROPEAN UNION

Hereby, HARDWARIO a.s. declares that the radio equipment types listed above are in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:

Declarations of conformity
`hardwario.com/resources/declarations`

The device also complies with Directive 2011/65/EU on the restriction of hazardous substances (RoHS).

GREAT BRITAIN

UK CA

Hereby, HARDWARIO a.s. declares that the radio equipment types listed above are in compliance with the relevant statutory requirements. The full text of the declaration of conformity is available at the following internet address:

`hardwario.com/resources/declarations`

UK IMPORTER

HARDWARIO LTD
10 John Street, London WC1N 2EB, United Kingdom

Installation record

SERIAL NUMBER

VARIANT / ORDERING CODE

INSTALLED ON

LOCATION

INSTALLED BY

NETWORK / SERVER

NOTES

Notes

HARDWARIO

MANUFACTURER

HARDWARIO a.s.

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460 01 Liberec
Czech Republic

www.hardwario.com
ask@hardwario.com

The type designation and the serial number are given on the product label.

For products placed on the market from December 11, 2027, HARDWARIO provides free security updates for at least five years from placing on the market (Regulation (EU) 2024/2847).