



# LPWAN KAMSTRUP Calorimeter

LPWAN KAMSTRUP Calorimeter board has been designed as add on board for KAMSTRUP MULTICAL device and it's capable to interoperate with MULTICAL electronic to get all available registry content, wrap into LPWAN payload and send to application server.

LPWAN KAMSTRUP Calorimeter board takes power from built in MULTICAL device battery. Total battery lifetime is then influenced by number of data transmissions per day. We strictly follow low power approach and typical sleep current is max. 5uA. Desired registers can be selected by user and can be also reconfigured remotely over the downlink. The board is capable to work in 2 modes – so called Expert mode – then full register is wrapped to the payload or Optimal mode – then the payload contribution from selected register is shrunk to 7 bytes only to optimize payload length.

Due to strict payload length limitations, Sigfox version is not available.

Message sending can be invoked by magnetic contact.



## Usage

- Heating energy measurement
- Invoicing for heating energy consumption
- Critical heating energy consumption monitoring

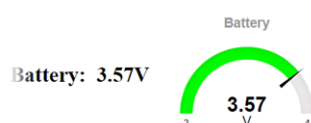
| LPWAN KAMSTRUP Calorimeter board | Parameter  |
|----------------------------------|--|
| Protection                       | Transparent paint  |
| Operating temperature            | -40 to +85°C   |
| Power supply                     | 3.6V lithium battery, typically powered from MULTICAL device   |
| Power consumption                | <5uA in deep sleep/80mA transmission (Sigfox, LoRa) / 500mA (NBLoT)  |
| Battery lifetime                 | Aprox. 30 000 transmissions  |
| Supported LPWAN standards        | LoRaWAN, NBLoT, GSM  |
| Dimensions                       | 90x44mm  |
| Weight                           | 20g  |
| Protocol                         | KAMSTRUP MULTICAL  |
| Accuracy                         | Defined by the calorimeter   |
| Antenna/typical range            | U-FL Connector – internal flexible antenna on a pigtail, 2dBi or pigtail with external SMA a external antenna from 3 to 5dBi |



## LPWAN KAMSTRUP Calorimeter in details



LoRaWAN Kamstrup Calorimeter



**History:**

| Date       | Time     | Batt  | T1      | T2      | E1      | E8        | vol1     | Time   |
|------------|----------|-------|---------|---------|---------|-----------|----------|--------|
| 2021-03-11 | 08:39:46 | 3.57V | 24.06°C | 24.12°C | 291.6GJ | 83175m3°C | 144478m3 | 40151h |
| 2021-03-11 | 08:09:46 | 3.57V | 23.48°C | 23.55°C | 291.6GJ | 83175m3°C | 144478m3 | 40150h |
| 2021-03-11 | 07:39:46 | 3.57V | 23.04°C | 23.19°C | 291.6GJ | 83175m3°C | 144478m3 | 40150h |
| 2021-03-11 | 07:21:24 | 3.57V | 22.53°C | 22.66°C | 291.6GJ | 83175m3°C | 144478m3 | 40149h |
| 2021-03-11 | 07:09:46 | 3.57V | 22.45°C | 22.57°C | 291.6GJ | 83175m3°C | 144478m3 | 40149h |
| 2021-03-11 | 06:39:46 | 3.57V | 22.26°C | 22.37°C | 291.6GJ | 83175m3°C | 144478m3 | 40149h |
| 2021-03-11 | 06:09:47 | 3.57V | 22.11°C | 22.23°C | 291.6GJ | 83175m3°C | 144478m3 | 40148h |
| 2021-03-11 | 05:39:47 | 3.57V | 21.92°C | 22.01°C | 291.6GJ | 83175m3°C | 144478m3 | 40148h |
| 2021-03-11 | 05:09:47 | 3.57V | 20.75°C | 21.82°C | 291.6GJ | 83175m3°C | 144478m3 | 40147h |
| 2021-03-11 | 04:39:47 | 3.57V | 21.64°C | 21.67°C | 291.6GJ | 83175m3°C | 144478m3 | 40147h |

### Android application for B2C solution coming soon (2Q/2021)...

- Quick device adding to list over QR code
- Edit/Delete device
- Up to 250 devices in list
- Important parameters quick view
- Push/email notifications
- Device battery and signal status view
- History data view

