

# FMM880 General description

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FMM880 is a tracking terminal with GNSS,GSM and LTE CAT M1 connectivity, which is able to collect device coordinates and transfer them via GSM/LTE CAT 1 network to the server. This device is perfectly suitable for applications, which need location acquirement of remote objects.

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## Package contents

The FMM880 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- FMM880 device;
- Top and bottom device cover parts;

## Basic characteristics

GSM / GPRS / GNSS features:

- FMM880-Q3AB0: Quectel BG95-M3 with AG3335;
- Technology LTE CAT M1/GSM/GPRS/GNSS/BLUETOOTH;
- SMS (text, data);
- Integrated GNSS receiver;
- Up to -165 dBm GNSS receiver sensitivity.

CELLULAR:

| Technology | Supported bands  |
|------------|--|
| 2G bands   | GSM: B2/B3/B5/B8 850/900/1800/1900   |
| 4G bands   | LTE FDD (CAT M1):<br>B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85 |
|            | LTE TDD (CAT NB2):<br>B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85    |

Data transfer (Quectel) LTE FDD (CAT M1): Max. 588 Kbps (DL) / Max. 1119 Kbps (UL) LTE TDD (CAT NB2): Max. 127 Kbps (DL) / Max. 158.5 Kbps (UL) GSM (GPRS): Max 107 Kbps (DL)/Max 85.6Kbps (UL)

#### Hardware features:

- Built-in movement sensor;
- Built-in Bluetooth 4.0;
- Internal High Gain GNSS antenna;
- Internal High Gain GSM antenna;
- 128MB internal flash memory;
- 170 mAh Li-ion rechargeable 3.7 V battery.

#### Interface features:

- Power supply: 10 ÷ 30 V;
- USB port;
- 2 LEDs indicating device status.

#### Special features:

- Fast position fix;
- High Quality track even in high density urban canyon;
- Small case;
- High gain internal GNSS and GSM antennas;
- 2 LED status indication;
- Real-time tracking;
- Smart data acquisition based on:
  - Time;
  - Angle;
  - Distance;
  - Ignition or any other I/O event.
- Sending acquired data via GPRS;
- GPRS and SMS I/O events;
- Virtual odometer;
- Jamming detection;
- Configurable using Secured SMS Commands;
- Spy call;
- Overvoltage protection.

| <b>Description</b>                    | <b>Voltage</b> | <b>Duration</b> |
|---------------------------------------|----------------|-----------------|
| Normal operation                      | +10 ... +30 V  | Unlimited       |
| Protection turns on, device turns off | 34 V           | Unlimited       |
| Maximum voltage                       | <70 V          | Unlimited       |
| Maximum voltage impulse               | 90 V           | 5 ms            |

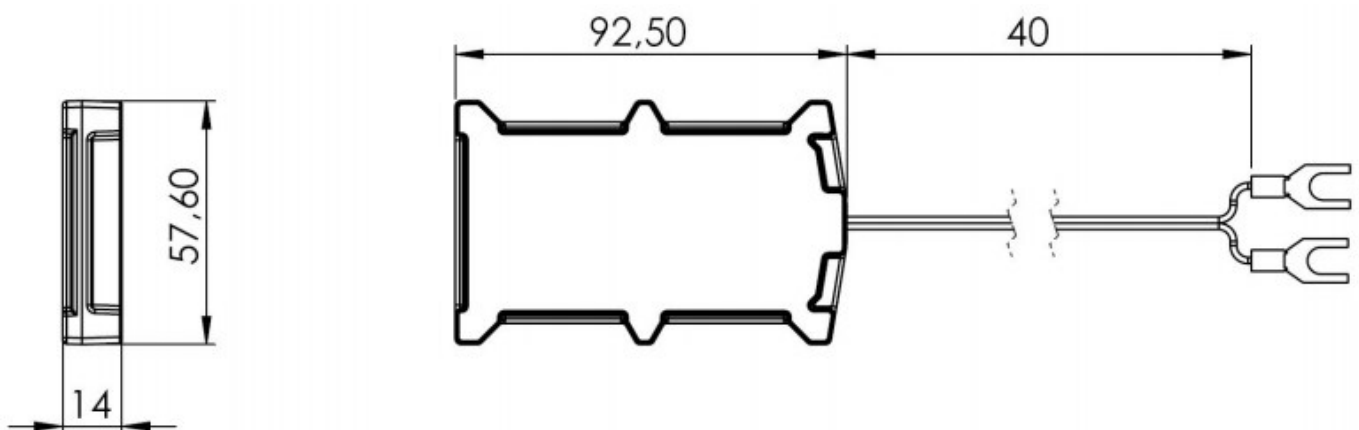
# Technical features

| Part name             | Physical specification |
|-----------------------|------------------------|
| Navigation indication | LED                    |
| Modem indication      | LED                    |
| USB                   | Micro USB socket       |
| GNSS                  | Internal GNSS antenna  |
| GSM                   | Internal GSM antenna   |

## Technical details

|   |  |
|---|--|
| 2 W max.<br>Current consumption at 12 V (Power supply 10...30 V DC) | GPRS: average 48 mA<br>Nominal: average 24.41 mA<br>GNSS sleep: average 14.5 mA<br>Deep Sleep: average 5.5 mA<br>Online Deep Sleep: average 12.96 mA<br>Ultra Deep Sleep: average 2.6 mA |
| Battery charge current  | Average 120 mA   |
| Rated current   | 250 mA   |
| Operating temperature (without battery)                             | -40..+85 °C  |
| Storage temperature (without battery)                               | -40..+85 °C  |
| Storage relative humidity   | 5..95% (no condensation)   |
| Internal fuse   | 3A, 125V   |
| Power Cable + Device + case + battery weight                        | 80 g   |

Dimension drawing (tolerance  $\pm 2\text{mm}$ ):



## Technical information about internal battery

| Internal back-up battery    | Battery voltage (V) | Nominal capacity (mAh) | Power (Wh)  | Charge temperature (°C) | Discharge temperature (°C) | Storage temperature (°C)                          |
|-----------------------------|---------------------|------------------------|-------------|-------------------------|----------------------------|---|
| Li-ion rechargeable battery | 3.75□3.90           | 170                    | 0.64 - 0.66 | 0 to +45                | -20 to +60                 | -20 to +45 for 1 month<br>-20 to +35 for 6 months |

Batteries are covered by 6 month [warranty](#) support.

- ✘ CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Battery should not be disposed of into general household waste.

- ✘ Bring damaged or worn-out batteries to your local recycling center or dispose them into a battery recycle bin commonly found in supermarkets.

## Electrical characteristics

| Characteristic description                        | Value |      |                | Unit |
|---|-------|------|----------------|------|
|   | Min.  | Typ. | Max.           |      |
| Supply Voltage:                                   |       |      |                |      |
| Supply Voltage (Recommended Operating Conditions) | +10   |      | +30            | V    |
| Input voltage (Recommended Operating Conditions)  | 0     |      | Supply voltage | V    |

## Absolute maximum ratings

| Characteristic description                | Value |      |      | Unit |
|---|-------|------|------|------|
|   | Min.  | Typ. | Max. |      |
| Supply Voltage (Absolute Maximum Ratings) | -32   |      | +32  | V    |