Teltonika FMM130 Advanced 4G LTE Cat M1 Tracker For Global Coverage User Guide

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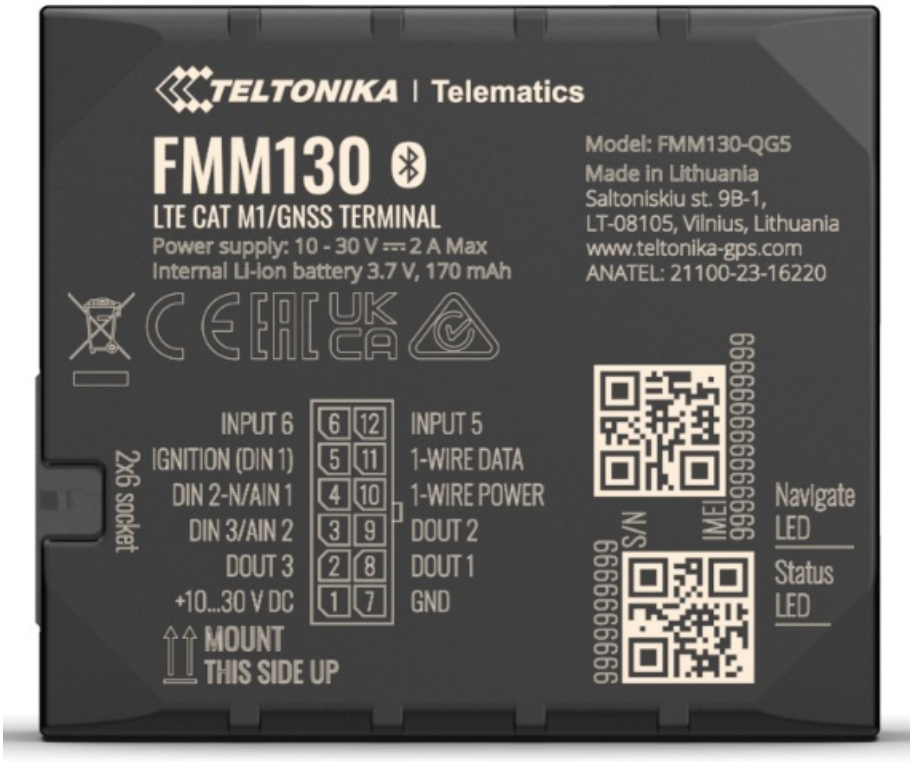

https://wiki.teltonika-gps.com/view/FMM130_General_description

FMM130 General description

Main Page > Advanced Trackers > FMM130 > FMM130 Manual > FMM130 General description FMM130 is a tracking terminal with GNSS and GSM connectivity, which is able to collect device coordinates and transfer them via GSM network to a server. This device is perfectly suitable for applications, which require the location acquirement of remote objects.

Package contents

The FMM130 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation.

The package contains:

- FMM130 device;
- Input and output power supply cable with 2×6 connection pins; Micro USB cable;
- 3.7 V 170 mAh rechargeable Li-ion battery;

Basic characteristics

GSM / GPRS / GNSS features:

- Quectel BG96, Quectel BG95-M3, TM2500
- SMS (text, data);
- Technology LTE CAT M1/NB-IoT/GSM/GPRS/GNSS/BLUETOOTH; Integrated GNSS receiver;
- Up to -165 dBm GNSS receiver sensitivity.

CELLULAR:

Technology Supported bands

- **2G bands**
  - FMM130-BG95: B2/B3/B5/B8
  - FMM130-BG96: B2/B3/B5/B8
  - FMM130-BG95: LTE-FDD: (CAT M1)
  - B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B27/B28/B66/B85
  - FMM130-BG95: LTE-FDD: (CAT NB2)
  - B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 GSM: 850/900/1800/1900
- **4G bands**
  - FMM130-BG96: LTE FDD:
  - B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28
  - FMM130-BG96 LTE-TDD
  - B39 (for CAT M1 only)
  - BG95: LTE: Max. 588Kbps (DL)/Max.1119Kbps (UL)
- **Data transfer**
  - GPRS: Max. 107Kbps (DL)/Max. 85.6Kbps (UL)
- **(Quectel)**
  - **BG96:**
    - LTE: Max. 375Kbps (DL)/Max.375Kbps (UL)
    - GPRS: Max. 107Kbps (DL)/Max. 85.6Kbps (UL)
- **Transmit power:**
  - Class 4 for GSM850/900: 23±2dBm
  - Class 1 for GSM1800/1900: 20±2dBm
  - Class 3 for LTE-TDD: 23±2.7dBm
  - Class 3 for LTE-FDD: 23±2.7dBm

Hardware features:

- Built-in movement sensor;
- Built-in Bluetooth 4.0 LE;
- Internal High Gain GNSS antenna;
- Internal High Gain GSM antenna;
- Internal flash memory 128MB (422 400 Records);
- 170 mAh Li-ion rechargeable 3.7 V battery.

Interface features:

- Power supply: +10…+30 V;
- 3 digital inputs;
- 1 negative inputs (DIN2);
- 2 impulse inputs (DIN1, DIN2);

- 2 analog input;
- 3 digital outputs (connecting external relays, LED, buzzers etc);
- 1-Wire temperature sensor;
- 1-Wire iButton;
- LVCAN RX (INPUT 5);
- LVCAN TX (INPUT 6);
- 2 LEDs indicating device status.

Special features:

- Fast position fix;
- High Quality track even in high density urban canyon;
- Ultra small case;
- Ready for harsh environment;
- Easy to mount in limited access areas;
- Firmly fasten;
- 2 LED status indication;
- Real time tracking;
- Smart data acquisition based on:
  - Time;
  - Speed;
  - Angle;
  - Distance;
- Ignition or any other I/O event;
- Sending acquired data via GPRS;
- GPRS and SMS I/O events;
- Virtual odometer;
- Configurable using Secured SMS Commands;
- 1x micro SIM card; 1x eSIM;
- Overvoltage protection;

Description Voltage Duration

- 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

- Socket Soldered inner socket
- USB Micro USB socket
- GNSS Internal GNSS antenna
- GSM Internal GSM antenna

Technical details

- **2 W max. Current consumption at 12 V (Power supply 6…30 V DC)**
  - At 12V < 3 mA (Ultra Deep Sleep)
  - At 12V < 5 mA (Deep Sleep)
  - At 12V < 11 mA (Online Deep Sleep)
  - At 12V < 18 mA (GPS Sleep)
  - At 12V < 34 mA (nominal with no load)
  - At 12V < 2A Max. (with full Load / Peak)
- Battery charge current Average 140 mA
- Operating temperature (without battery) -20..+85 °C
- Storage temperature (without battery) -20..+85 °C
- Operating temperature (with battery) -20..+40 °C
- Storage temperature (with battery) 0..+45 °C
- Operating humidity 5..95% (no condensation)
- Ingress Protection Rating IP41
- Battery charge temperature 0..+45 °C
- Battery discharge temperature -20..+60 °C
- Internal fuse 3 A, 125 V
- Device + case + battery weight 55 g

Dimension drawing:

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 -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			
	Min.	Typ.	Max.	Unit
Supply Voltage:				
Supply Voltage (Recommended Operating Conditions)	+10		+30	V
Digital Output (Open Drain grade):				
Drain current (Digital Output OFF)			120	µA
Drain current (Digital Output ON, Recommended Operating Conditions)	0.1		0.5	A
Static Drain-Source resistance (Digital Output ON)		400	600	mΩ
Digital Input:				
Input resistance (DIN1)	47			kΩ
Input voltage (Recommended Operating Conditions)	0		Supply voltage	V
Input Voltage threshold (DIN1)		7.5		V
Analog Input:				
Input voltage (Recommended Operating Conditions), Range 1	0		+10	V
Input resistance, Range 1		150		kΩ
Measurement error on 12V, Range 1		3		%
Additional error on 12 V, Range 1		360		mV
Measurement error on 30 V, Range 1		3		%
Additional error on 30 V, Range 1		900		mV

Input Voltage (Recommended Operating Conditions), Range 2	0		+30	V
Input resistance, Range 2		150		kΩ
Measurement error on 12V, Range 2		3		%
Additional error on 12 V, Range 2		360		mV
Measurement error on 30 V, Range 2		3		%
Additional error on 30 V, Range 2		900		mV
Output Supply Voltage 1-Wire:				
Supply voltage	+4.5		+4.7	V
Output inner resistance		7		Ω
Output current (U_{out} > 3.0 V)		30		mA
Short circuit current (U_{out} = 0)		75		mA

Analog Input error margin can increase if temperature varies.

Absolute maximum ratings

Characteristic description	Value			
	Min.	Typ.	Max.	Unit
Supply Voltage (Absolute Maximum Ratings)	-32		+32	V
Drain-Source clamp threshold voltage (Absolute Maximum Ratings), (I_{drain} = 2 mA)			+36	V
Digital Input Voltage (Absolute Maximum Ratings)	-32		+32	V
Analog Input Voltage (Absolute Maximum Ratings)	-32		+32	V

Documents / Resources

	Teltonika FMM130 Advanced 4G LTE Cat M1 Tracker For Global Coverage [pdf] User Guide FMM130 Advanced 4G LTE Cat M1 Tracker For Global Coverage, FMM130, Advanced 4G LTE Cat M1 Tracker For Global Coverage, 4G LTE Cat M1 Tracker For Global Coverage, M1 Tracker For Global Coverage, For Global Coverage, Global Coverage, Coverage

References

- User Manual