

# FMB202 General description

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FMB202 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.

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## Package contents

The FMB202 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- FMB202 device with case and wires;
- USB cable (optional);
- Integrated Ni-MH battery 7.2V, 400mAh for FMB202 device;

## Basic characteristics

GSM / GPRS / GNSS features:

- Teltonika [TM2500](#) quad band module (GSM 850 / 900 / 1800 / 1900 MHz);
- GPRS Multi-Slot class 12 (Up to 85,6 kbps);
- SMS (text, data);
- Integrated GNSS receiver;
- Up to -165 dBm GNSS receiver sensitivity.

Hardware features:

- 128 MB internal Flash memory (422 400 Records);
- Built-in movement sensor;
- Integrated Ni-MH battery 7.2V, 400mAh for FMB202 device;
- Internal High Gain GSM antenna;
- Internal High Gain GNSS antenna;

The Interface features:

- Power supply: 6 ... 30V;
- USB port;
- 3 digital inputs;
- 1 analog input;
- 2 open collector digital outputs (connecting external relays, LED's, buzzers etc.);
- 1Wire® temperature sensor;
- 1Wire® iButton;
- 2 LED's indicating device status.

#### Special features:

- High Quality track even in high density urban canyon;
- Ready for harsh environment;
- Any element event triggers (external sensor, input, speed, temperature, etc.);
- Highly configurable data acquisition and sending;
- Multiple Geo-fence areas;
- Sleep mode;
- Deep sleep mode;
- Configurable scenarios available;
- Real-time process monitoring;
- Authorized number list for remote access;
- Firmware update over GPRS or USB port;
- Configuration update over GPRS, SMS or USB port;
- TCP/IP or UDP/IP protocol support;
- >500000 record storing;
- Overvoltage protection.

<b>Description</b>	<b>Voltage</b>	<b>Duration</b>
Normal operation	+6 ... +30 V	Unlimited
Protection turns on, device turns off	34 V	Unlimited
Maximum voltage	< 70 V	Unlimited
Maximum voltage impulse	120 V	10 ms

## Technical features

<b>Part name</b>	<b>Physical specification</b>
Navigation indication	LED
Modem indication	LED
USB	Mini USB socket
GNSS	Internal GNSS antenna

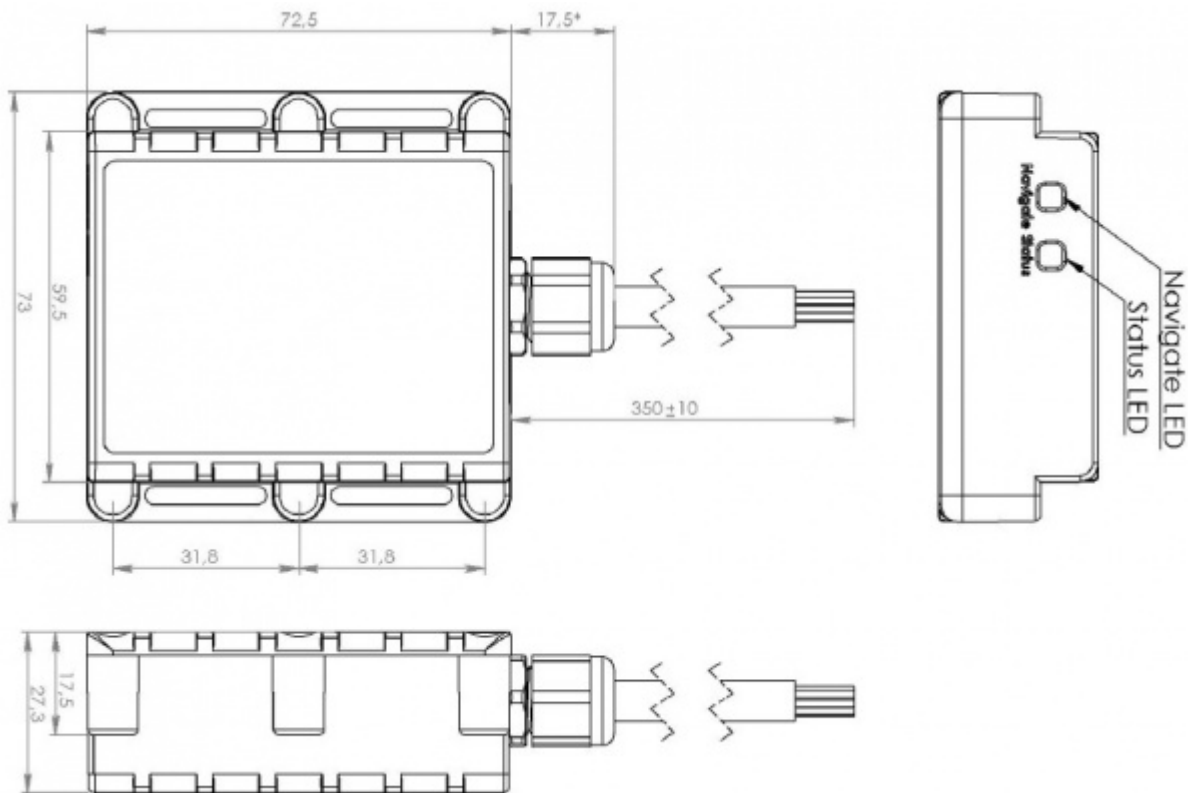
GSM

Internal GSM  
antenna

### Technical details

	GPRS: average 33.5 mA r.m.s;
	Nominal: average 28.3 mA;
	GPS Sleep: average 11.6 mA;
Power supply 6 ... 30V DC	Online Sleep: average 4.0 mA;
1.5 W max. device consumption	Deep Sleep: average 3.7 mA;
Energy consumption at 12 V:	Ultra Sleep: average 1.9 mA
FMB202 Battery charge current	max. 80 mA
Operating temperature (without battery)	-40..+85 °C
Storage temperature (without battery)	-40..+85 °C
Storage relative humidity	5..95% (no condensation)
Device + case + battery weight	With 400 mAh bat. - 170 g With 1800 mAh bat. - 210 g

Dimension drawing:



### Technical information about internal battery

<b>Internal back-up battery</b>	<b>Battery voltage (V)</b>	<b>Nominal capacity (mAh)</b>	<b>Power (Wh)</b>	<b>Charging temperature (°C)</b>
Ni-MH Prismatic Battery pack	7.2 □ 7.5	400	2.95 - 3.07	0 - 50

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

<b>Characteristic description</b>	<b>Value</b>			<b>Unit</b>
	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	
<b>Supply Voltage:</b>				
Supply Voltage (Recommended Operating Conditions)	6		30	V
<b>Digital Output (Open Drain grade):</b>				
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)			120	mΩ
<b>Digital Input:</b>				
Input resistance (DIN1)		59.9		kΩ
Input resistance (DIN2, DIN3)		67.5		kΩ
Input voltage (Recommended Operating Conditions)	0		60	V
Input Voltage threshold (DIN1)	4	4	8	V
Input Voltage threshold (DIN2, DIN3)	2.5	2.7	3	V
<b>Analog Input:</b>				
Input voltage (Recommended Operating Conditions), Range 1	0		10	V
Input resistance, Range 1		120		kΩ
Input voltage (Recommended Operating Conditions), Range 2	0		30	V
Input resistance, Range 2		146.7		kΩ
<b>Output Supply Voltage 1-Wire:</b>				
Supply voltage		3.8		V
Output inner resistance	450		600	mΩ
Output current ( $U_{out} > 3.0$ V)			75	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), ( $I_{drain} = 2 \text{ mA}$ )			+36 V
Digital Input Voltage (Absolute Maximum Ratings)	-32		+32 V
Analog Input Voltage (Absolute Maximum Ratings)	-32		+32 V