

FMB110 General description

[Main Page](#) > [Advanced Trackers](#) > [FMB110](#) > [FMB110 Manual](#) > **FMB110 General description**

FMB110 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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Contents

- [1 Package contents](#)
- [2 Basic characteristics](#)
- [3 Technical features](#)
- [4 Electrical characteristics](#)
- [5 Absolute maximum ratings](#)

Package contents

The FMB110 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- FMB110 device;
- Input and output power supply cable with 2x6 connection pins;
- Micro USB cable;

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:

- 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);

Interface features:

- Power supply: +10...+30 V;
- 2 digital inputs;
- 1 analog input;
- 1 configurable input DIN3 or AIN2;
- 2 open collector 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 (Outdoor areas);
- 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;
- Jamming detection;
- 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)	GPRS: average 69.15 mA Nominal: average 35.23 mA GNSS sleep: average 19.72 mA Deep Sleep: average 7.35 mA Online Deep Sleep: average 10.96 mA Ultra Deep Sleep: average 5.69 mA
Operating temperature	-40..+85 °C
Storage temperature	-40..+70 °C
Storage relative humidity	5..95% (no condensation)
Device + case + battery weight	50 g

Dimension drawing:



Electrical characteristics

Characteristic description	Value			Unit
	Min.	Typ.	Max.	
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 resistance (DIN2)	51.7		kΩ
Input resistance (DIN3)	47		kΩ
Input voltage (Recommended Operating Conditions)	0	Supply voltage	V
Input Voltage threshold (DIN1)	7.5		V
Input Voltage threshold (DIN2)	2.5		V
Input Voltage threshold (DIN3)	2.5		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