FMB225 General description

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FMB225 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

Package contents

The FMB225 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- FMB225 device;
- Input and output power supply cable with 2x6 connection pins;
- Micro USB cable;
- 3.7 V 170 mAh rechargeable Li-ion battery;
- GNSS antenna.

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 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;
- 1 digital input;
- 1 analog input;
- 1 open collector digital output (connecting external relays, LED, buzzers etc);
- 1-Wire temperature sensor;
- 1-Wire iButton;
- LVCAN RX (INPUT 5);
- LVCAN TX (INPUT 6);
- 1 RS-232 interface;
- 1 RS-485 interface;
- 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 64.59 mA rms Nominal: average 37.77 rms GNSS sleep: average 11.1 mA Deep Sleep: average 6.2 mA Online Deep Sleep: average 6.5 mA
Battery charge current	Average 140 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	52 g
Ingress Protection Rating	IP67

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			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 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