

# FMB965 General description

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FMB965 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 FMB965 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- Already implemented FMB965 device into case;
- Top and bottom device cover parts;
- 3.7 V 1200 mAh rechargeable Li-ion battery;
- and output power supply cable with a 1x5 connection pins, which can be disconnected from the device.

## Basic characteristics

GSM / GPRS / GNSS features:

- Teltonika [TM2500](#) quad band module (GSM 850 / 900 / 1800 / 1900 MHz);
- GPRS 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;
- Internal High Gain GNSS antenna;
- Internal High Gain GSM antenna;
- 128 MB Flash memory (422 400 Records);

- 1200 mAh Li-ion rechargeable 3.7 V battery.
- Nano-SIM card

Interface features:

- Power supply: +10... +30 V;
- 1 digital input;
- 2 digital outputs;
- 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;
- Color ribbon non-detachable cable;
- 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
Socket	Soldered inner socket
USB	Micro USB socket

### Technical details

	Collection and sending every 1s. 2G: average 54.46 mA
	Collection and sending every 30s. 2G: average 24.96 mA
2 W max.	Nominal: average 22.82 mA
Current consumption at 12 V (Power supply 10...30 V DC)	GNSS sleep: average 6.10 mA
	Deep Sleep: average 2.40 mA
	Online Deep Sleep: average 2.64 mA
	Power Off sleep: average 1.00 mA
Battery charge current	Average: 200 mA
Operating temperature (without battery)	-40 ... +85 °C
Storage temperature (without battery)	-40 ... +85 °C
Storage relative humidity	5 ... 95% (no condensation)
Ingress Protection Rating	IPX7
Battery charge temperature	0 °C to +45 °C
Battery discharge temperature	-20 °C to +60 °C
Device + case weight + battery weight	74 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	1200	4.68	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
Digital Input:		300	mΩ
Digital Output (Open Drain grade):			
Input resistance (DIN1)	47		kΩ
Input voltage (Recommended Operating Conditions)	0	Supply voltage	V
Input Voltage threshold (DIN1)	4		V
Input voltage (Recommended Operating Conditions)	0	30	V
Input resistance	150		kΩ
Measurement error on 12 V	3		%
Additional error on 12 V	360		mV
Measurement error on 30 V	3		%
Additional error on 30 V	900		mV

## 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), ( $I_{\text{drain}} = 2 \text{ mA}$ )			+36 V
Digital Input Voltage (Absolute Maximum Ratings)	-32		+32 V
Analog Input Voltage (Absolute Maximum Ratings)	-32		+32 V