

# FM6300 General description

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FM6300 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

Usually the FM6300 device sample is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- FM6300 device;
- 4 screws for assembling device
- GPS/GLONASS antenna
- GSM antenna
- USB cable
- Port 1/2 cable
- Port 3 cable
- Ni-MH Rechargeable battery, 8.4V, 550 mA.
- Input and output power supply cable with 2x10 connection pins.

## Basic characteristics

GSM/GPRS/3G features:

- Quectel UC20-G 5-band module (GSM 800 / 850 / 900 / 1900 / 2100 MHz);
- GPRS class 12;
- SMS (text, data).

GNSS TG3300 Module features:

- Navigation Systems; GPS/GLONASS;
- Protocol NMEA-0183: GGA, GGL, GSA, GSV, RMC, VTG;
- Up to -162 dBm sensitivity.

## Hardware features:

- STM32 processor;
- 1MB internal Flash memory;
- External memory card slot;
- Built-in accelerometer;
- Internal backup battery included;

## Interface:

- Power supply: 10 ÷ 30V;
- USB port;
- 4 digital inputs;
- 3 analog inputs;
- 4 open collector digital outputs;
- 1Wire® interface;
- LEDs indicating device status;
- K-Line interface for online Tachograph Vehicle Data transfer;
- 2xRS232 port;
- RS485 port;
- J1708 interface;
- CAN messages 2.0 A, B Active support. Speed up to 1 Mbit/s;
- Roaming enabling/disabling;
- Offline working mode;
- Records importing using USB/microSD card;
- Remote logs reading via SMS/GPRS;

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	Mini USB socket

GNSS	External GNSS antenna
GSM	External GSM antenna

### Technical details

2 W max. Current consumption at 12 V	GPRS: average 120 mA rms Nominal: average 65 rms GNSS sleep: average 28 mA Deep Sleep: average 7 mA Online Deep Sleep: average 12 mA
2 W max. Current consumption at 24 V	GPRS: average 35 mA Nominal: average 20 mA GNSS sleep: average 12,5 mA Deep Sleep: average 3,8 mA Online Deep Sleep: average 1,3 mA
Battery charge current	Average 55 mA
Operating temperature (without battery)	-40..+85
Storage temperature (without battery)	-40..+85
Storage relative humidity	5..95% (no condensation)
Device + case + battery weight	197 g

Dimension drawing:




## Technical information about internal battery

Internal back-up battery	Battery voltage (V)	Nominal Capacity (mAh)	Charging temperature (°C)
Ni-MH rechargeable battery	8.4□10.0	550	0 - 45

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)			0.5	A
Static Drain-Source resistance (Digital Output ON)		400	300	mΩ
Digital Input:				
Input resistance (DIN1)	15			kΩ
Input resistance (DIN2)	15			kΩ
Input resistance (DIN3)	15			kΩ
Input voltage (Recommended Operating Conditions)	0		Supply voltage	V
Input Voltage threshold (DIN1)		7.5		V
Input Voltage threshold (DIN2, DIN3, DIN4)		2.5		V
Analog Input:				
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		147		kΩ
Output Supply Voltage 1-Wire:				
Supply voltage	+4.5		+4.7	V
Output inner resistance		7		Ω
Output current (U <sub>out</sub> > 3.0 V)		30		mA
Short circuit current (U <sub>out</sub> = 0)		75		mA
CAN Interface:				
Internal terminal resistors CAN bus		120		Ω
Differential input resistance	19	30	52	kΩ
Recessive output voltage	2	2.5	3	V
Differential input resistance	0.5	0.7	0.9	V
Common mode input voltage	-30		30	V
Power supply current (Hardware version with internal battery):				
Deep Sleep, average, I <sub>cc.ds</sub>		2.5	4	mA

Sleep, average, Icc.ds, Vcc=10V	45	mA
Sleep, average, Icc.ds, Vcc=30V	25	mA
Ucc=12.6V, all modules fully working, internal battery is charging, Icc1	350	mA
Ucc=12.6V, all modules fully working, internal battery is charging, Icc2	300	mA
Ucc=25.2V, all modules fully working, internal battery is charging, Icc3	195	mA
Ucc=25.2V, all modules fully working, internal battery is charging, Icc4	140	mA
RS232/RS485 Input Voltage:		
RS485 input voltage range on A or B pin (common-mode voltage)	-7	+12 V
RS232 input voltage range (common-mode voltage)	-15	+15 V

 **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), ( $I_{\text{drain}} = 2 \text{ mA}$ )		+36	V
Digital Input Voltage (Absolute Maximum Ratings)	-32	+32	V
Analog Input Voltage (Absolute Maximum Ratings)	-32	+32	V
RS232 Input Voltage (Absolute Maximum Ratings)	-25	+25	V