

FM6320 General description

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FM6320 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 FM6320 device sample is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- FM6320 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:

- Telit HE910-GL 5-band module (GSM 850 / 900 / 1700 / 1900 / 2100 MHz);
- EGPRS class 33;
- 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.

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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.	GPRS: average 120 mA rms
Current consumption at 12 V	Nominal: average 65 rms
	GNSS sleep: average 28 mA
	Deep Sleep: average less than 7 mA
Battery charge current	Average 100 mA
Operating temperature	-25..+55 °C
Storage temperature	-40..+70 °C
Storage relative humidity	5..95% (no condensation)

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 ($U_{out} > 3.0\text{ V}$)	30		mA
Short circuit current ($U_{out} = 0$)	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, $I_{cc.ds}$	2.5	4	mA
Sleep, average, $I_{cc.ds}$, $V_{cc}=10\text{V}$	45		mA
Sleep, average, $I_{cc.ds}$, $V_{cc}=30\text{V}$	25		mA
$U_{cc}=12.6\text{V}$, all modules fully working, internal battery is charging, I_{cc1}		350	mA
$U_{cc}=12.6\text{V}$, all modules fully working, internal battery is charging, I_{cc2}		300	mA
$U_{cc}=25.2\text{V}$, all modules fully working, internal battery is charging, I_{cc3}		195	mA
$U_{cc}=25.2\text{V}$, all modules fully working, internal battery is charging, I_{cc4}		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