

# FMC920 General description

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FMC920 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 FMC920 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- Already implemented FMC920 device into case;
- Top and bottom device cover parts;
- 3.7 V 170 mAh rechargeable Li-ion battery;
- and output power supply cable with a 1x5 connection pins, which is already installed into device.

## Basic characteristics

GSM / GPRS / GNSS features:

- Name QJIB0: Quectel EG915U-EU with Teltonika TM2500, QKIB0: Quectel EG915U-LA with Teltonika TM2500;
- Technology LTE(Cat1)/2G(GSM/GPRS)/GNSS/BLUETOOTH;
- SMS (text, data);
- Integrated GNSS receiver;
- Up to -165 dBm GNSS receiver sensitivity.

CELLULAR:

Technology	Supported bands
2G bands	FMC920-QJIB0: GSM: B2/B3/B5/B8 FMC920-QKIB0: GSM: B2/B3/B5/B8

4G bands FMC920-QJIB0: LTE FDD: B1/B3/B7/B8/B20/B28  
FMC920-QKIB0: LTE FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28/B66  
Data transfer LTE: LTE FDD: Max 10Mbps (DL)/Max 5Mbps (UL)  
GSM: GPRS: Max 85.6Kbps (DL)/Max 85.6Kbps (UL)

#### Hardware features:

- Built-in movement sensor;
- Built-in Bluetooth 4.0;
- Internal High Gain GNSS antenna;
- Internal High Gain GSM antenna;
- 128 MB Flash (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);
- 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;

**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

### Technical details

2 W max.	Nominal: <28 mA
Current consumption at 12 V (Power supply 10...30 V DC)	GNSS sleep: <12 mA Deep Sleep: <3 mA Online Deep Sleep: 8 mA Ultra Deep Sleep: 2 mA
Battery charge current	Average: 140 mA
Operating temperature (with battery)	-20 ... +40 °C
Operating temperature (without battery)	-40 ... +85 °C
Storage temperature (without battery)	-40 ... +85 °C
Storage relative humidity	5 ... 95% (no condensation)
Device + case weight + battery weight	54 g

## 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		
	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
Analog Input:			
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

- ⊗ **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