FMA110 General description

FMA110 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. It is important to mention that FMA110 has additional inputs and outputs, which let you control and monitor other devices on remote objects. FMA110 also has a USB port for device status log output and entering configurations.

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Contents

Package contents

The FMA110 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

- FMA110 device;
- Input and output power supply cable with 2x5 connection pins;
- Micro USB cable;
- A card containing URL to download FMA110 device drivers and Configurator software.

Basic characteristics

GSM / GPRS features:

- Quad band supported (GSM 850 / 900 / 1800 / 1900 MHz);
- GPRS Multi-Slot Class 12(up to 240 kbps);
- GPRS Mobile Station Class B;
- SMS (text, data).

GNSS features:

- Tracking: 33/ 99 acquisition channels;
- Up to -165 dBm sensitivity;
- Hot start < 1s;
- Warm start < 25s;

- Cold start < 35s;
- NMEA -183 protocol;
- GPS, GLONASS, GALILEO, BEIDOU, SBAS, QZSS, DGPS, AGPS;
- Accuracy < 3m.

Hardware features:

- Cortex®-M3 processor;
- 1 MB internal Flash memory;
- Built-in accelerometer.

Interface features:

- Power supply: 10 ÷ 30V;
- USB port;
- 3 digital inputs;
- 1 analog input;
- 2 open collector digital outputs;
- 1Wire® temperature sensor
- 1Wire® iButton
- LEDs indicating device status.

Special features:

- Any element event triggers (external sensor, input, speed, temperature, etc.);
- Highly configurable data acquisition and sending;
- Multiple Geo-fence areas;
- Sleep mode;
- Deep sleep mode;
- Configurable scenarios available;
- Real-time process monitoring;
- Authorized number list for remote access;
- Firmware update over GPRS or USB port;
- Configuration update over GPRS, SMS or USB port;
- TCP/IP or UDP/IP protocol support;
- 3500 record storing.

Template:FMB1 Supply voltage

Technical features

Part name	Physical specification
Navigation indication	LED
Modem indication	LED
Socket 2x5	Tyco Micro MATE-N-LOK™ 4-794628-0 or similar
USB	Mini USB socket

GNSS	Internal GNSS antenna
GSM	Internal GSM antenna

Technical details	
2 W max. **Current consumption at 12 V**	GPRS: average 120 mA rms Nominal: average 65 mA rms GNSS sleep: average 28 mA Deep Sleep: average 5 mA[2]
Operating temperature	-25°C..+55 °C
Storage temperature	-40°C..+70 °C
Storage relative humidity	5..95% (no condensation)
Internal fuse	3A, 125V

Dimension drawing:

Electrical characteristics

Characteristic description	Value			
	Min.	Typ.	Max.	Unit
Supply Voltage:				
Supply Voltage (Recommended Operating Conditions)	5		30	V
Digital Input:				
Input resistance (DIN1, DIN2, DIN3)	15			kOhm
Input Voltage (Recommended Operating Conditions)	0		Supply voltage	V
Input Voltage threshold (DIN1)		7.5		V
Input Voltage threshold (DIN2, DIN3)		2.5		V
Digital Output (Open Drain grade):				
Drain Current (Digital Output OFF)			120	uA
Drain Current (Digital Output ON, Recommended Operating Conditions)			300	mA
Static Drain-Source Resistance (Digital Output ON)			300	mOhm
Analog Input:				
Input voltage (Recommended Operating Conditions), Range 1	0		10	V
Input resistance, Range 1		120		kOhm
Measurement error		4.43		%
Additional error		±12		mV
Input Voltage (Recommended Operating Conditions) Range2	0		30	V
Input resistance, Range2		146.7		kOhm
Measurement error		1.75		%
Additional error		±36		mV
Output Supply Voltage 1-Wire:[1]				
Supply voltage	3.3		3.6	V

Output inner resistance	7	Ohm
Output current ($U_{out} > 3.0$ V)	30	mA
Short circuit current ($U_{out} = 0$)	130	mA

 Analog Input error margin can increase if temperature varies. If Analog input is not connected FMA110 will still measure certain numbers and it cannot be 0. This measurement is influenced by hardware components.

1-wire Supply voltage PIN is dedicated for 1-wire devices ONLY, do not use it for any other purpose

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} = 2mA)			36	V
Digital Input Voltage (Absolute Maximum Ratings)	-32		32	V
Analog Input Voltage (Absolute Maximum Ratings)	-32		32	V