

# FM-Plug4 / 4+

Data Sheet v1.12

2017-10-11



- Small size L62,3 x W52 x H28 mm
- Low power consumption
- Internal power supply available for FM-Plug4+
- Real time process monitoring
- OBD2 fault code reading

## Physical properties

Dimensions	62,3L x 52W x 28H (mm)
Weight	66g ± 10g
Connector	OBD2
Indication	1 LEDs
Housing	Plastic

## Product family

- FM-Basic
- **FM-Plug4/4+**
- FM-Eco4/4+
- FM-Eco4 light/light+
- FM-Eco4 light 3G/light+ 3G
- FM-Pro4
- FM-Pro4 3G
- FM-Tco4 LCV / LCV 3G / LCV BT
- FM-Tco4 HCV / HCV 3G / HCV BT

## Contacts

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## Electrical specification

Power supply		
12/24 V DC (Range: 10 - 36 V DC Supplied from SELV Limited power supply source)		

Power consumption		
	FM-Plug4	FM-Plug4+
Max. input current, mA	250	350
Internal power supply		
	*	LiPo 3,7 V 190 mAh

Storage	
Internal storage	4 MB (min. 30000 records)

Protections	
Short circuit protection	
Reverse polarity protection	
Electrostatic discharge protection on USB	
Electrostatic discharge protection on sim card slot	
<sup>1</sup> Charging protection (on FM-Plug4+)	

## I/O Characteristics

OBD2 Connection	
<sup>2</sup> CANbus	
<sup>2</sup> K-line	
<sup>2</sup> OBD standards	
ISO 9141-2 / ISO 14230-4	
ISO 15765-4	
USB	
Micro USB	

## Peripherals

Available on USB	
<sup>3</sup> 1 x panic button	

## Environmental data, reliability, certification

Temperature range for device (without battery)		
	FM-Plug4	FM-Plug4+
Storage temperature, °C	-40 ~ +65	-40 ~ +65
Operating temperature, °C	-35 ~ +60	-35 ~ +60
<sup>4</sup> Temperature range for battery		
<sup>2</sup> Charging, °C	*	0 ~ +45
<sup>2</sup> Discharging (operating), °C	*	-20 ~ +60
<sup>2</sup> Storage, °C	*	-20 ~ +70
Humidity range		
All cases	0 % ~ 95% Non-condensing	

Certification		
E mark	✓	✓
RoHS	✓	✓

## Telecommunication, Positioning

GPS\GLONASS module	
Ublox EVA-M8M	
Internal	
72 channel	
Sensitivity	-163 dBm (GPS) -164 dBm (GLONASS&GPS)
Cold start	30 s
Aided start	3 s
GPS\GLONASS antenna	
Internal	
GPS Frequency	1575,42 ± 3 MHz
GLONASS Frequency	1592-1608 MHz
GSM modem	
Quectel M95	
GSM antenna	
Internal	
GSM850\GSM900\DCS1800\PCS1900	
Accelerometer	
3-axis; Up to 4g	

<sup>1</sup> If temp is >45C, charging is disabled, if >60C battery is disconnected from the system at all.

<sup>2</sup> FM-Plug4+ only.

<sup>3</sup> This feature is under development.

# FM-Plug4 / 4+

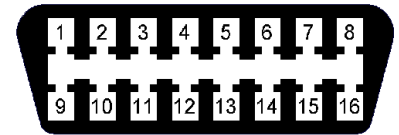
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## OBD2 socket

An example of vehicle's OBD2 socket pin numbering pattern is shown on the right. Pin designations provided in the table below.



### OBD2 Pin out - Vehicle's side

PIN	Description	PIN	Description
1	<sup>5</sup> Vendor Option	9	<sup>5</sup> Vendor Option
2	J1850 Bus High	10	J1850 Bus Low
3	<sup>5</sup> Vendor Option	11	<sup>5</sup> Vendor Option
4	Chassis Ground	12	<sup>5</sup> Vendor Option
5	Signal Ground	13	<sup>5</sup> Vendor Option
6	CAN (J-2234) High	14	CAN (J-2234) Low
7	ISO 9141-2 K-Line	15	ISO 9141-2 L-Line
8	<sup>5</sup> Vendor Option	16	Battery Power

<sup>5</sup> Pin function depends on vehicle manufacturer.

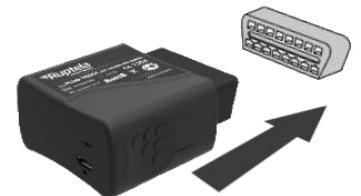
## Explanations

Deep sleep mode - Power saving mode when GNSS and GSM modules and all internal interfaces to car BUSes are disabled. The device will wake up from the Deep sleep mode when these conditions are met:

- Movement sensor detects movement.
- Voltage level is higher than 13 V.

## Installation

Locate OBD2 socket in your vehicle. Insert FM-Plug4 / FM-Plug4+ device into OBD2 socket as showed in the picture below. There is only one way to plug the device, be careful not to damage the pins.



## Warning!

All internal components including battery must be replaced only by manufacturer! Any self-willed attempt to open device case will void any warranty.



Caution! Devices are shipped to the users with partially charged batteries. After the first power up, the device must not be left to operate from the battery. It must be connected to an external power source, until the battery is fully charged. Once charging is complete, the device can begin its normal operation.



Caution! There is a risk of explosion if the battery is replaced by an incorrect type. Dispose used batteries according to the environmental requirements.



This crossed-out wheeled bin symbol means that waste equipment should not be disposed of with your other household waste. The product must be taken to separate collection points at the product's end-of life.

## Document application

Given parameter values and various characteristics contained within this document applies only to the most recent device hardware version.

## Legal information

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