

- Small size: 64.5L x 61W x 22H (mm)
- Low power consumption
- 1-wire interface
- Internal antennas

### PHYSICAL PROPERTIES

Dimensions	64.5L x 61W x 22H (mm)
Connector	12 pin
Indication	3 LEDs
Housing	Plastic

### PRODUCT FAMILY

- ◆ **FM-Eco4 light**
- ◆ FM-Eco4/FM-Eco4+
- ◆ FM-Pro4
- ◆ FM-Tco4

### CONTACTS

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### Electrical specification

#### Power supply

12/24 V DC (range: 10 - 32 V DC)  
Max. current 150 mA @ 12 V DC\*\*

#### Power consumption

Deep sleep mode @ 12 V	6 mA*
Normal mode @ 12 V	Max. 90 mA (avg. 40 mA)
Normal mode @ 24 V	Max. 60 mA (avg. 30 mA)

#### Storage

Internal storage 4 MB (min. 30000 records)

#### Protections

Short circuit protection  
Reverse polarity protection  
Unit provides internal protection F2 (1 A slow-blow 63 V fuse)

\*Firmware dependent; does not apply when Eco-Drive panel is connected.

\*\*Supplied from SELV power supply source

### I/O Characteristics

#### Connections:

4 x DIN	Digital inputs Threshold: 4V
2 x AIN	Analog inputs Range: 0 - 30 V; resolution: 12 bit
2 x DOUT	Digital outputs Max. load: Open collector 32 V, 1 A
1 - Wire data	1-Wire peripherals
1 - Wire power output	80 mA @ 4,1 V
1 - Wire max. cable capacity	4 nF (~35 m)
Mini USB	Configuration interface

### Environmental data, reliability, certification

Storage temperature	-40 - +65 °C
Operating temperature	-10* (-30) - +60 °C

\*-pilot version.

#### Certification

E mark  
CE

### Telecommunication, Positioning

<b>GPS\GLONASS module</b>	Ublox EVA-M8M*
Internal	
72 channel	
Sensitivity	-163 dBm (GPS) -164 dBm (GLONASS&GPS)
Cold start	30 s
Aided start	3 s
<b>GPS antenna</b>	Internal
Frequency	1575.0 ± 3 MHz
<b>GSM modem</b>	Quectel M95
Internal	
GSM850\GSM900\DCS1800\PCS1900	
<b>GSM antenna</b>	Internal
GSM850\GSM900\DCS1800\PCS1900	
<b>Accelerometer</b>	3-axis; 2g/4g/8g/16g

\* Hardware dependent:

HW version FMEL4-4-1 - Ublox EVA-7M

HW version FMEL4-4-2 - Ublox EVA-M8M

### Peripherals

#### Available on 1 - Wire

4 x Temperature sensors DS18B20/DS18S20  
1 x iButton DS1990 with passive socket

#### Available on digital outputs

1 x Buzzer\LED  
1 x Eco-Drive panel

### Pin out (view from cable wires):

<b>1</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>9</b>	<b>11</b>
<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10</b>	<b>12</b>

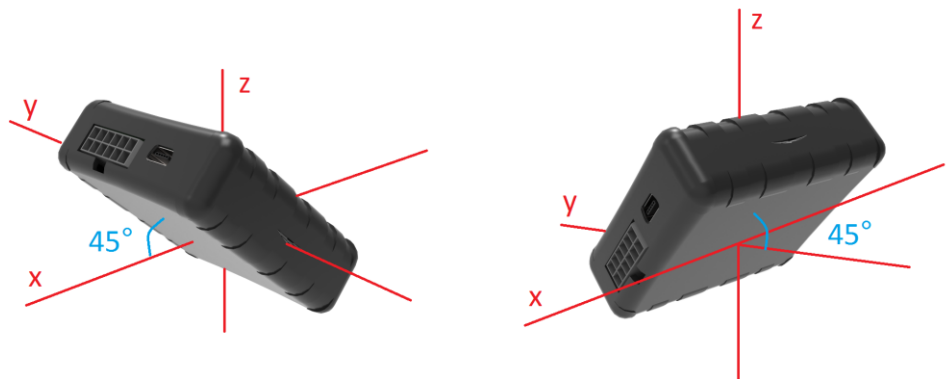
1	Black	GND
2	Red	Power supply 12/24 V, range: 10-32 V
3	Green/yellow	1-wire data
4	Brown	1-wire power
5	Orange	DOUT2
6	Purple	DOUT1
7	Green	AIN2
8	Gray	AIN1
9	Yellow	DIN4
10	White	DIN3
11	Blue	DIN2
12	Pink	DIN1

### Explanations

SIM card can only be inserted after opening the case.

Deep sleep mode - Power saving mode when GNSS and GSM modules and all peripheral devices are disabled, except DINs, AINs and DOUTs. Device wake up on state change of any Digital Input (DIN), Analog Input (AIN) or movement sensor.

Device can be installed within 45° angle in any axis but top surface facing up. Device should be installed tightly, does not move or shake.



### Warning!

All internal components must be replaced only by manufacturer! Any self-willed attempt to repair or change any components will void any warranty.

Device must be installed in service access area (e.g. under dashboard, behind fuse box).

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