

1-Wire temperature sensor connection and configuration

Introduction

1-Wire temperature sensor could be used to measure temperature in a vehicle or track cargo temperature in a trailer or fridge. Data collected by the GPS tracking device is then transmitted to the vehicle tracking system.

The sensor operates with $\pm 0,5^{\circ}\text{C}$ accuracy in the temperature range from -40°C to $+120^{\circ}\text{C}$.

1-Wire temperature sensor can be connected to these FM devices:

- FM-Tco4 HCV
- FM-Tco4 LCV
- FM-Pro4
- FM-Eco4
- FM-Eco4 S

You can get the newest firmware and configurator from our documentation web site: doc.ruptela.lt

Legal notice

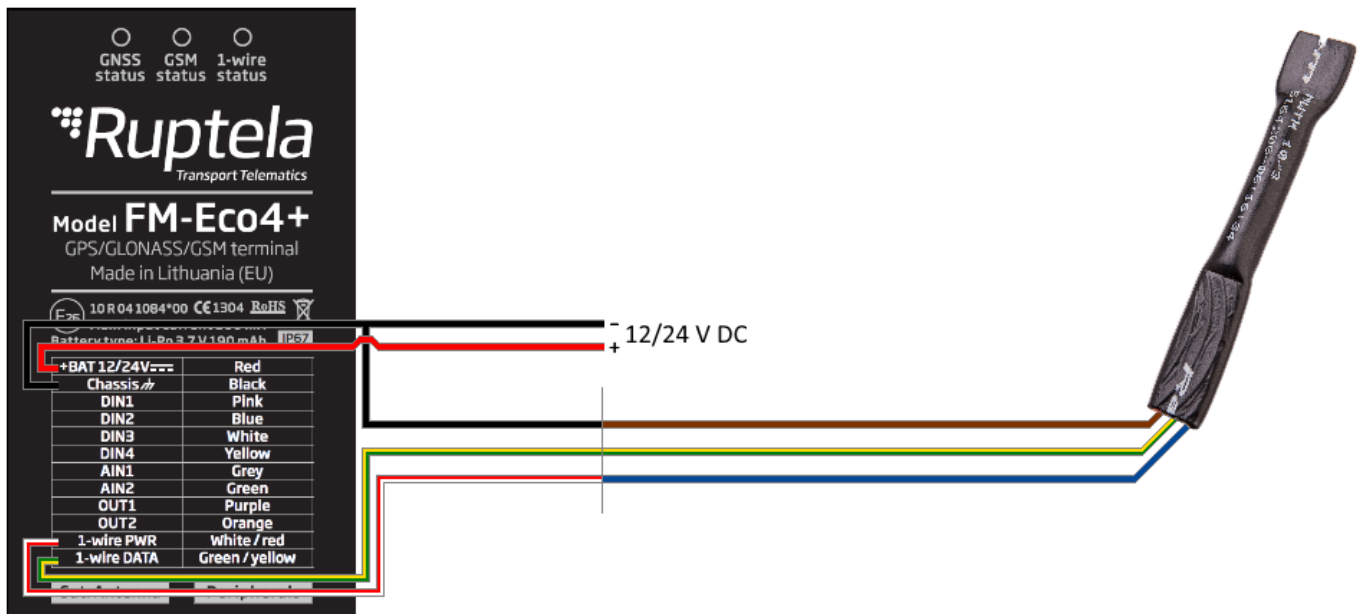
Copyright © 2018 Ruptela. All rights reserved. Reproduction, transfer, distribution or storage of parts or all of the contents in this document in any form without the prior written permission of Ruptela is prohibited. Other products and company names mentioned in this document are trademarks or trade names of their respective owners.

Document change log

Date	Version	Change details
2017-02-20	1.0	Initial draft
2018-11-15	1.1	Compatible device list updated.

Connection examples

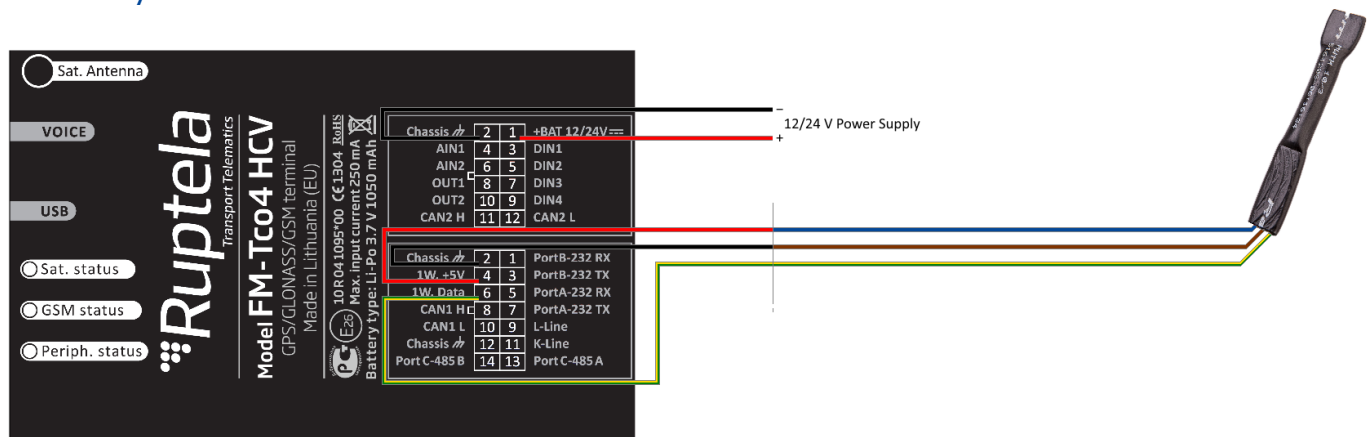
Eco family devices



FM Device side	1-Wire Temperature sensor side
Red-White - 1-Wire power +5 V	Blue
Green-Yellow - 1-Wire data	Green-Yellow
Black - Chassis (GND)	Brown

1-Wire temperature sensor wire colours might be different. Alternative colour code: **Red** - 1-Wire power +5 V; **Blue** - 1-Wire data; **Black** - Chassis (GND).

Pro family devices

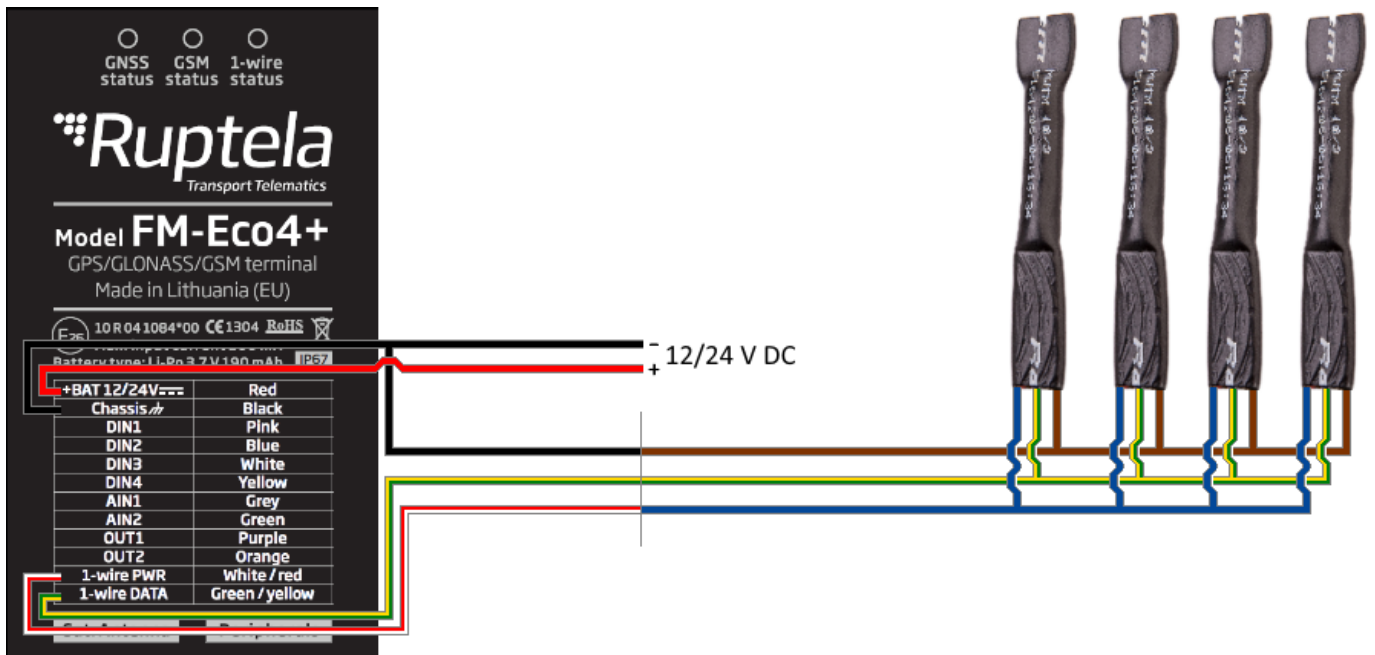


FM Device side	1-Wire Temperature sensor side
Red - 1-Wire power +5 V	Blue
Green-Yellow - 1-Wire data	Green-Yellow
Black - Chassis (GND)	Brown

1-Wire temperature sensor wire colours might be different. Alternative colour code: **Red** - 1-Wire power +5 V; **Blue** - 1-Wire data; **Black** - Chassis (GND).

Connecting multiple temperature sensors

You are allowed to connect up to four 1-Wire temperature sensors to one FM device.



1-Wire temperature sensor wire colours might be different. Alternative colour code: **Red** - 1-Wire power +5 V; **Blue** - 1-Wire data; **Black** - Chassis (GND).

The FM device will assign a number to each connected sensor. This ensures that data from multiple sources do not get mixed. However, number assignation is random and will be lost after FM device reset. With subsequent power up new numbers will be assigned. Such operation logic might be suitable, if you are interested in temperature values and do not need to know, which sensor provided this data.

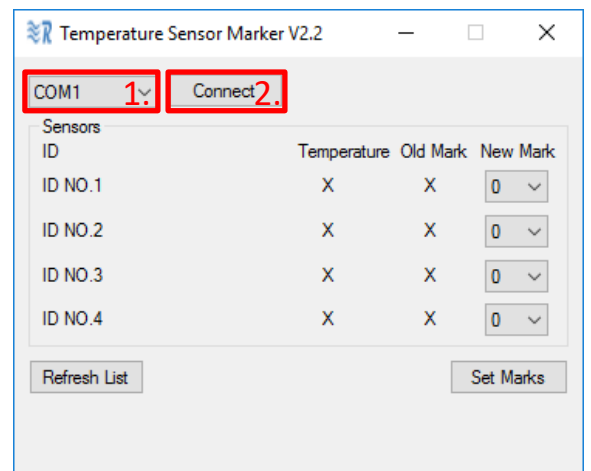
When you need to track temperature readings for each individual sensor, another method should be used. It is called "marking". With marker tool you can permanently assign numbers to each sensor.

Temperature sensor marker "TSM v2.2" can be downloaded from [here](#).

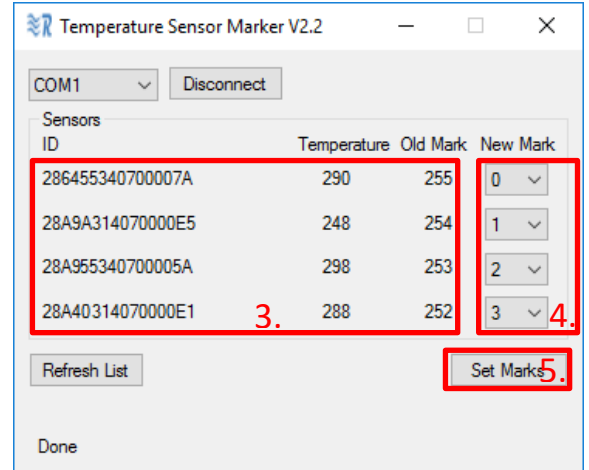
Marking temperature sensors

Make sure that all temperature sensors are properly connected to the FM device. Connect device to the PC using USB cable. Launch temperature sensor marker tool.

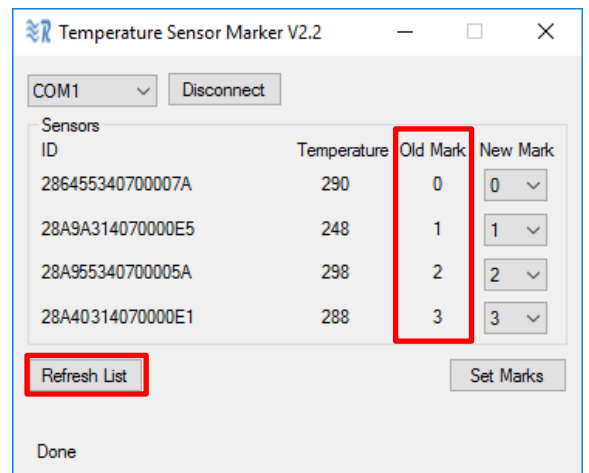
1. Select appropriate COM port
2. Click the "Connect" button.



3. All connected sensors with their ID's, current temperature and set mark will be listed below.
4. Choose new marks for each sensor.
5. Click "Set Marks" button to complete assignation process.



You can check the assignation. Click "Refresh List" button. Assigned marks should be displayed in the **Old Mark** column.



FM device configuration

Follow these steps to configure your FM Device:

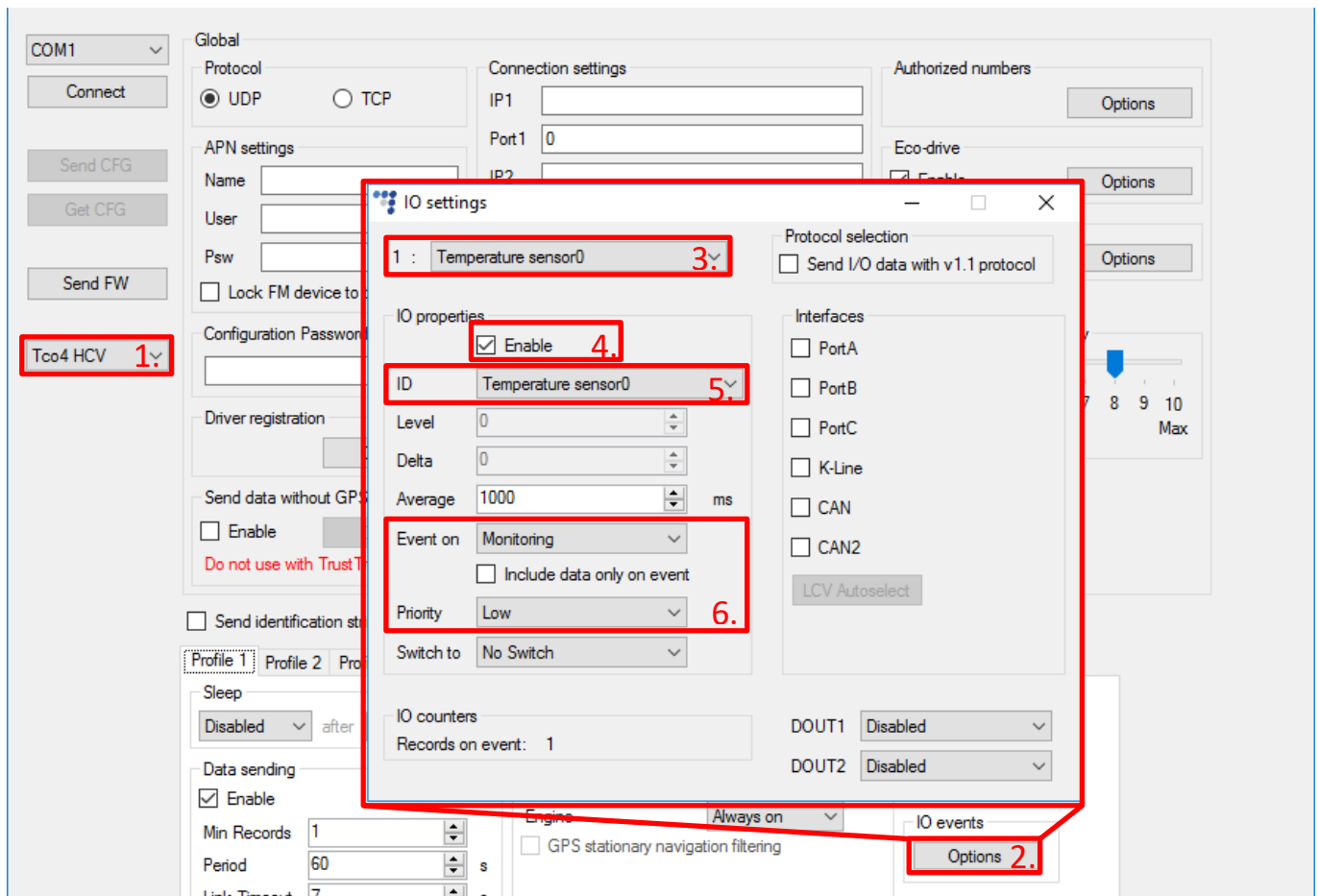
1. In the main configurator window select your device.
2. The **IO events Options** button opens up a new **IO settings** window, here you can enable or disable IO parameters.
3. Choose an empty slot for your parameter.
4. In the **IO properties** section tick the **Enable** checkbox, otherwise the slot will remain empty.
5. **ID** contains the parameter list. Choose a parameter you want to enable for the selected slot. Temperature sensor requires "Temperature sensorN" and "Temperature sensorN ID" IO parameters to be enabled. N – is a number from 0 to 3.

Note

If you have connected more than one sensor to the FM device, make sure to configure the same number of IO parameters. Configuring the wrong number of IO parameters will result in an error.

More details about these parameters available in "Temperature sensor IO parameters" table below.

6. Choose **Event on** and **Priority** field values for each parameter. Recommended configuration would be so set record generation with event on *Monitoring* and priority *Low*.



1-Wire temperature sensor IO parameters

IO ID	Parameter name	Min. value	Max. value	IO factor
74	Temperature sensor3	-550	1250	0,1 °C/bit
78	Temperature sensor0	-550	1250	0,1 °C/bit
79	Temperature sensor1	-550	1250	0,1 °C/bit
80	Temperature sensor2	-550	1250	0,1 °C/bit

Parameters can be set to generate records with events on change, hysteresis and monitoring. More information about these parameters available in FMIOData+size + description.ods document, which can be found [here](#).

Error codes

Error code	Description
850	Power supply too low
2000	No sensors found
2001	Short circuited data line (with GND or 5 V)
2002	CRC error (noise on data line)
2003	No sensors found
2004	Temperature out of range