

iQFreeze

Introduction

iQFreeze devices are used for easy trailer refrigerator management and data reading. iQFreeze devices can be used with the following refrigerators:

- Thermoking
- Carrier
- Zanotti
- ThermalMaster
- Mitsubishi

iQFreeze devices can be connected with Ruptela FM devices via an RS232 interface to transfer refrigerator data to a server, allowing the user to easily monitor the trailer.



Compatibility

iQFreeze devices are compatible with the following Ruptela FM devices with the latest firmware version:

- FM-Pro4

You can get the latest firmware and configurator from our documentation website: doc.ruptela.lt

More information about iQFreeze devices and exact supported refrigerator models can be found on the manufacturer's [website](#) (in Russian).

Legal notice

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Document change log

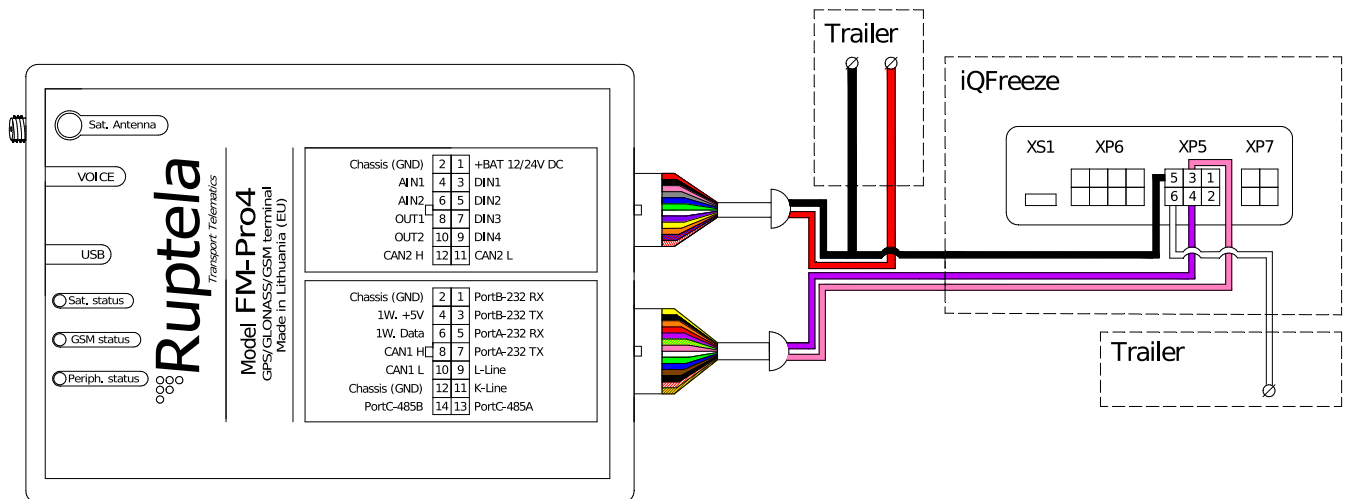
| Date | Version | Change details |
|------------|---------|--|
| 2018-12-17 | 1.0 | Initial draft. |
| 2019-03-15 | 1.1 | Note regarding iQFreeze configuration added. |

iQFreeze connection to FM device

Note

The iQFreeze device must be configured before the installation! Configuration instructions are available on the manufacturer's [website](#) (in Russian).

Locate the **XP5** connector on the back of the iQFreeze device. Connect the iQFreeze device to your FM device as follows (in this schematic PortA is used):



| FM device (PortA) | iQFreeze |
|-----------------------|----------------|
| Black – Ground | Pin 5 – Ground |
| Purple – PortA-232 RX | Pin 4 – RX |
| Pink – PortA-232 TX | Pin 3 – TX |

Alternatively, you can connect the iQFreeze device to PortB:

| FM device (PortB) | iQFreeze |
|-----------------------|----------------|
| Black – Ground | Pin 5 – Ground |
| Yellow – PortB-232 RX | Pin 4 – RX |
| Orange – PortB-232 TX | Pin 3 – TX |

The power supply for the iQFreeze device is connected separately:

| Trailer | iQFreeze |
|--------------|----------------------|
| Power supply | Pin 6 – Power supply |

Configuration

In order for the iQFreeze device to work with the FM device, follow these steps:

1. Open the FM device configurator and select *Pro4* in the drop-down list.
2. Click on the **Options** button in the **IO events** section. The **IO settings** window will open.
3. Tick the **Send I/O data with v1.1 protocol** checkbox in **Protocol Selection**.
4. In the **Interfaces** section, select the port to which you connected the iQFreeze device (**PortA** or **PortB**).
5. A drop-down list will appear next to the selected port. Select *iQ Freeze* in the drop-down list.
6. Click the **Enable IO** button and click **Save** to enable iQFreeze IO parameters. You can also configure the parameters manually.

Close the **IO settings** window and send the configuration to the device.

The screenshot shows the 'IO settings' window with the following configuration steps highlighted:

1. Selecting the device 'Pro4' in the dropdown list.
2. Clicking the 'Options' button in the 'IO events' section.
3. Checking the 'Send I/O data with v1.1 protocol' checkbox in the 'Protocol selection' section.
4. Selecting 'PortA' in the 'Interfaces' section.
5. Selecting 'iQ Freeze' in the dropdown menu next to 'PortA'.
6. Clicking the 'Enable IO' button.

The 'Configured IO' dialog box shows the following selected IOs:

- iQFreeze Compartment 1 temperature
- iQFreeze Compartment 1 setpoint
- iQFreeze Ambient air temperature
- iQFreeze Engine coolant temperature
- iQFreeze RPM
- iQFreeze Compartment 1 cycle mode
- iQFreeze Compartment 1 operating mode
- iQFreeze Compartment 1 door state
- iQFreeze Battery voltage
- iQFreeze Total electric hours
- iQFreeze Total engine hours
- iQFreeze Total vehicle hours
- iQFreeze Errors quantity

SMS commands

iqfinfo

You can receive the values of various iQFreeze parameters with the *iqfinfo* SMS command, using the following structure:

password iqfinfo

After sending the SMS command, the FM device will send a response with the following parameters:

- Refrigerator serial number
- Trailer serial number
- Device serial number
- Device FW version
- Device BT name
- Current time and date (UTC)
- Vehicle registration number

If an error occurred, the FM device will send the following response: *Communication error*

iqfset

You can manage refrigerator set-point temperature values and configuration with the *iqfset* SMS command, using the following structure:

password iqfset <setpoint>, <cycle mode>

<setpoint> value range: from -99.9 to 99.9. A dot must be used as the delimiter symbol.

<cycle mode> can have the following values:

- 1 – the refrigerator is in continuous mode;
- 2 – the refrigerator is in start/stop mode.

If an incorrect symbol or value is included in the command, or no values are included, the FM device will send the following response: *Syntax error*

Any of the parameters can be omitted, only the provided parameters will be changed.

Examples:

password iqfset ,2 – only the cycle mode will be changed;

password iqfset 10.5, – only the set-point will be changed.