USER GUIDE
GSM modem
iRZ MC52i-422GI

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1. Introduction

1.1. Document description

This manual is intended for experienced PC users. It describes the device and the operation of the GSM modem iRZ MC52i-422GI.

1.2. Service data

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1.3. Safety rules

Restrictions on the use of the device near other electronic devices:

- Turn the modem off in hospitals or when located near medical equipment such as pacemakers, hearing aids and so on. Interference for medical equipment may occur
- Turn the terminal off when on an airplane. Take measures to avoid accidental turning on
- Turn the modem off in the vicinity of gas stations, chemical plants, and places where demolition work is conducted. Interference for technical devices may occur
- At a close range, the modem can produce interference for television sets and radio transmitters

Maintenance requirements:

- Protect the modem against external hazards (high temperatures, caustic chemicals, dust, water and so on)
- Keep the modem safe from blows, falls, and strong vibrations
- Do not attempt to take apart or modify the modem on your own. Such actions will void your warranty

> **Note:** Make sure you follow the operation manual for this device. Improper use of the device will disqualify your warranty.

2. General Information

2.1. Purpose

iRZ MC52i-422GI modem is an industrial GSM modem for receiving and transmitting data, text messages and faxes. It is perfectly suited both for providing mobile access to the Internet and for industrial applications including telemetry, wireless data collection from sensors, remote monitoring, control, and signaling.

The modem is controlled by standard AT-commands. The device is equipped with LEDs to monitor connection status and signal for emergency.

This modem is mainly used for remote queries on CSD channel; and it is configured accordingly when manufactured.

2.2. Set

The set of the iRZ MC52i-422GI GSM modem includes:

- iRZ MC52i-422GI modem;
- Mounting bracket for attaching to a DIN-rail;
- Factory package

2.3. Features

Key features:

- Frequency bands: GSM 900/1800MHz ;
- Output power:
    - 2W (class 4 for EGSM900);
    - 1W (class 1 for GSM1800);
- GPRS class 10;
- TCP/IP stack accessed via AT-commands;
- MS class B;
- CSD up to 14.4 kbps;
- USSD;
- SMS;
- Fax group 3, class 1

Power:

- Power supply from 9 to 30V;
- Consumption current not exceeding:
    - with the supply voltage of +12V — 200mA;
    - with the supply voltage of +24V — 100mA

Physical characteristics:

- Dimensions not exceeding 76x85x30mm;
- Weight not exceeding 130g;
- Operating temperatures from -40°C to +65°C;
- Storage temperatures from -50°C to +75°C

Interfaces:

- TJ6-6P6C for RJ12 power connector;
- Terminal connector for connecting the communication cable with RS422 interface;
- SMA Jack (female) for connecting the GSM antenna

2.4. Appearance

MC52i-422GI modem is a compact device in an aluminum case. Its appearance is displayed on Fig. 2.4.1 and Fig. 2.4.2.
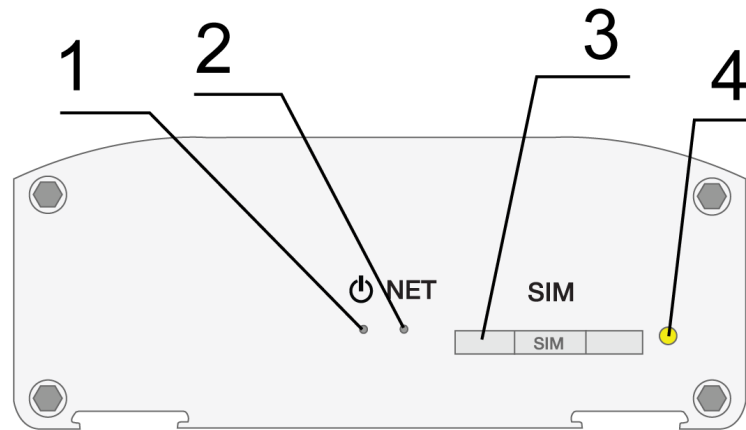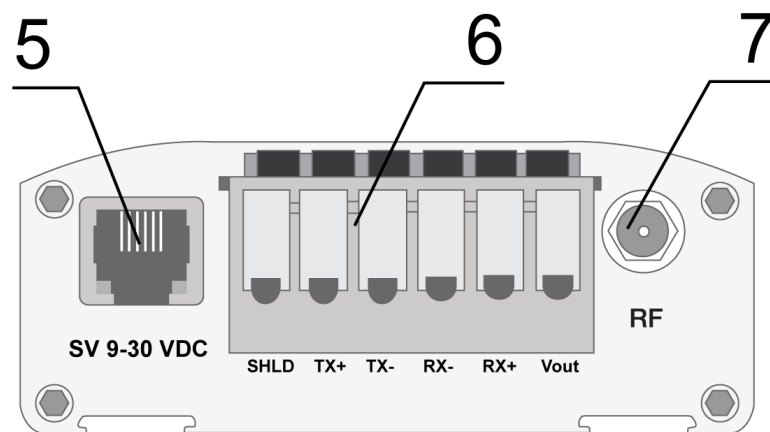

Fig. 2.4.1. Front view

Fig. 2.4.2. Back view

The numbers on Fig. 2.4.1 and Fig. 2.4.2 stand for:

1. Power LED
2. Network LED
3. SIM card holder
4. SIM card holder ejector button
5. Power connector TJ6-6P6C
6. Terminal connector
7. SMA Jack (female) for connecting the GSM antenna

2.5. Interfaces

2.5.1. Terminal connector

This connector is used for communication with a controlling device, interface RS422. The AT-commands are used to control the modem operation (see the module description).

Factory settings: speed – 9600 bit/s, data bit – 8, parity – none, stop bit – 1.

This modem is mainly used for remote queries on CSD channel; and it is configured accordingly when manufactured:

ats0=1 (automatic answer)

at&c1 (set DCD line mode)

at&d0 (ignore status of the DTR line)

at+cbst=71,0,1 (select bearer service type)

ate0 (echo mode off)

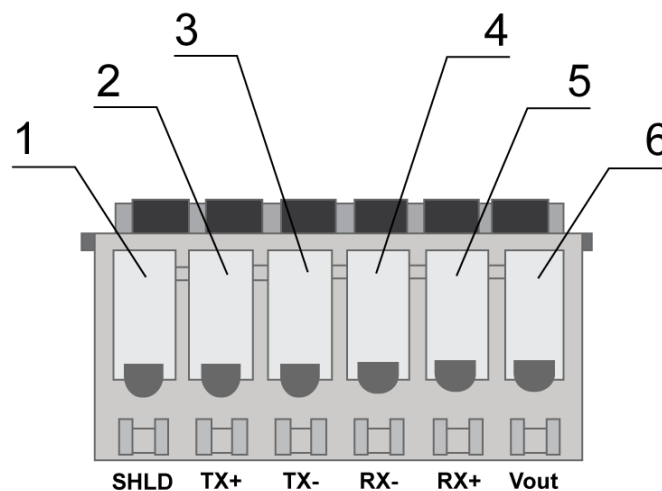Please see the external look of the connector on Figure 2.5.1:

Fig. 2.5.1. Terminal connector

Table 2.5.1: Terminal connector clamps

Clamps	Signal	Direction	Purpose
1	SHLD		RS422 "Screen"
2	TX+ / Y	Modem-PC	RS422 data output +
3	TX– / Z	Modem-PC	RS422 data output –
4	RX– / B	PC-Modem	RS422 data input +
5	RX+ / A	PC-Modem	RS422 data input –
6	+Vout	Modem-PC	RS422 optional low-voltage power output

2.5.2. Power connector

TJ6-6P6C for RJ12 power connector is used to power the device.
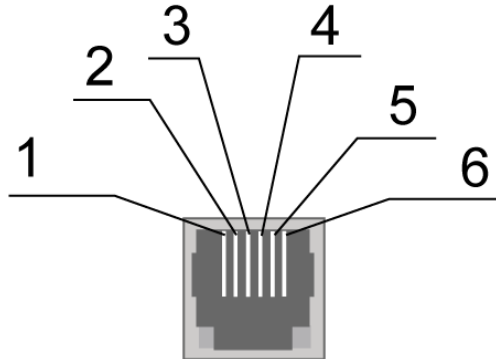
Fig. 2.5.2. Power connector

Table 2.5.2: Using connector power pins

Pin	Signal	Purpose
1	+ 12V	The positive pole of DC supply voltage. Fused circuit and overvoltage protection (when input voltage of over 30V is applied) and reverse polarity.
2	Not used	
3	Not used	
4	Not used	
5	Not used	
6	GND	Ground

2.6. Modem status display

LED is used to indicate the connection status. This function can be disconnected by a corresponding AT-command.

Table 2.6.1: Connection status LED (green)

LED mode	Conditional indication display	Operation mode
Turned off	○	Modem is turned off or emergency situation, power saving mode, ALARM mode
600ms on / 600ms off	●●●●●●○○○○○○	Modem is not logged to the network
75ms on / 3s off	●○○○○○○○○○…○	Modem is logged to the network
75ms on / 75ms off / 75ms on / 3s off	●○●○○○○○○○…○	GPRS connection is activated
500ms on / 50ms off	●●●●●○	Data transfer in progress
Permanently turned on	●	Voice call, CSD

Table 2.6.2: Power LED (red)

LED mode	Conditional indication display	Power status
Turned off	○	Input power has not been sent to the modem
Permanently turned on	●○	Input power has been sent to the modem

3. Connecting and configuring

3.1. Connecting

Only individuals with specialized technical training and those who have studied the product specifications are permitted to assemble (install) the modem.

Before connecting the device insert the SIM card into the modem (the SIM card must be unlocked). The SIM card must be connected and removed when the power is turned off. In order to install the SIM card do the following:

- Eject the SIM holder by pressing the SIM card holder ejector button (Fig. 2.4.1)
- Place the SIM card into the SIM card holder
- Insert the SIM card holder with the SIM card into the modem

Be careful when installing the SIM card.

Connect the GSM antenna and the RS422 commuting cable. Power the modem through the power connector (Fig. 2.4.2). The frequent blinking of the green LED indicates that the modem is turned on (Table 2.6.1). Remove the PIN code of the SIM card to complete automatic online registration. After the registration is complete the modem goes into the working mode and green LED blinks less frequently.

> **Note:** GSM antenna, the commuting cables and the power supply are not included in the set.

3.2. Control, rebooting, and connecting

The modem is controlled using standard and expanded AT-commands. For more detail see AT-commands description for the GSM module. You can find additional information and support at www.irz.net.

The modem can be rebooted using one of the following ways:
- By using AT-command "AT+CFUN=1,1"
- Temporary power shutdown

The modem can be shut down using one of the following ways:
- By using AT-command "AT^SMSO"
- Temporary power shutdown

Switch-over of modem into power saving mode by using AT-command "AT+CFUN". Management of ALARM mode by using AT-command "AT+CALA". For more detail see AT-commands description for the GSM module.

4. Support

New document versions and software are available using:

Company website:	www.irz.net
Telephone:	+86 755 8832 9100
E-mail:	support@irz.net

Our support team is ready to assist you with any questions you might have when installing, configuring or solving issues with our equipment.