3G modules for AIST electricity meters

USER MANUAL

Content

1. Purpose

3G modules are integrated into the AIST A100 single-phase electricity meter and the AIST A300 three-phase electricity meter. The modules enable data transfer from the meter to a server/hub via the cellular operator network using 3G technology.

2. Technical solutions using this device

- Automated energy metering system AIST from the company.
- Automated system information-measuring accounting electricity from the company.
- Dispatch and control systems (DCS).

3. Technical specifications

The technical characteristics of the 3G modules built into the meters are presented in Table 1.

Table 1. Technical characteristics of 3G modules

Name of the characteristic	Meaning
Power supply of the device	8-15 VDC (is being carried out from the AIST electricity meter)
Power consumption	no more than 10W
User interface for settings	Web interface
Ethernet interface	1 port
Communication interface with the meter electricity	UART
Built-in modem type	3G/EDGE/GPRS
operating system	Linux
Number of SIM cards	1
SIM card type	Mini SIM
Indication (LEDs)	nutrition, status
Operating temperature range	-40 to + 80°C
Built-in hardware circuit watchdog	+
Ethernet connector types	RJ45
Antenna connector type on the module	SMA (F)
Antenna on a magnetic base. Cable length is 3 meters.	included
Frame	Plastic
Installation	Installed in the meter
Overall dimensions For 3-phase meter AIST For 1- phase meter AIST	107x62x28 mm
Controller weight, no more than	0.3 kg
Mean time between failures	at least 150,000 hours
Service life	20 years

4. Instructions for installation, connection and configuration of the device

4.1 Useful information

1) Factory settings of the device:

- Host (IP address): **192.168.1.111**
- Netmask: **255.255.255.0**
- Gateway: **192.168.1.1**

2) Indication on the front panel of the device.

Table 2 – Indication on the front panel of the device.

Indicator status		**Module status**
indicator "GSM"	It doesn't glow	no modem power
	It doesn't glow	The modem has not yet registered on the network
	It doesn't glow	the modem is rebooting
	Flashes “slowly” (short flashes (1 time per sec)	The SIM card has been registered, but the channel has not yet been established. (ppp not installed)
	Flashes “2 times with pauses” (short flashes)	No SIM card or poor contact in the SIM card holder
	It glows, but does not blink.	Incorrect APN
	Flashes “quickly without interruption” (short flashes 1 time per 0.5 sec)	A communication channel with the operator has been established, that is, the GSM/3G communication channel is available and the PPP channel for data exchange is raised.
indicator "STAT"	On	The module is in the process of loading
	Turned off	The module loading process is complete.

4.2 Getting ready for work

Before starting work, you should disable all Internet connections on your PC, including modems and WiFi, and also disable programs such as Firewall and antivirus software during the firmware update, as the device will not be able to connect.

Configure the PC's Ethernet network interface to the device's factory default settings. To do this, open the computer's network adapter settings:

Control Panel → Network Connections. In recent versions of Windows, network adapter settings are located under Network and Sharing Center → Ethernet Adapter Connection Properties. Select the TCP/IP 4 protocol type in its properties:

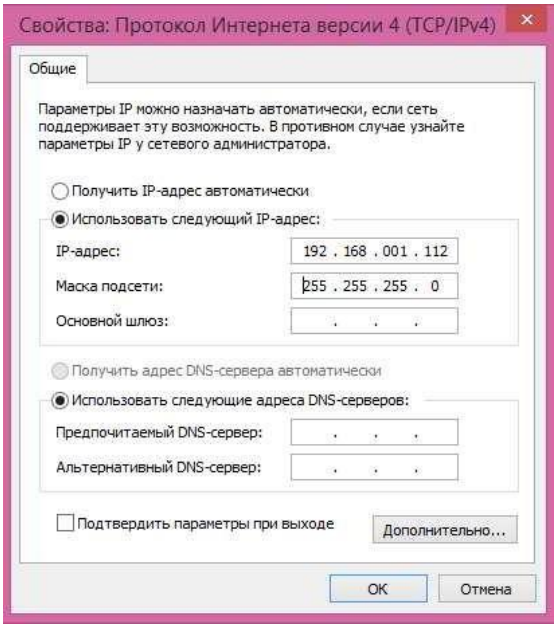

Figure 2. Configuring the PC's ETHERNET network interface

Note:*When setting up the IP address of a PC, you can assign it an address "near" the device's address, for example, 192.168.1.112 and a mask of 255.255.255.0*

5. Maintenance

The built-in module is maintenance-free and designed to operate indefinitely under the following operating conditions: stable power supply within the specified voltage range, proper humidity and temperature, non-aggressive gas environment, and absence of shock and vibration. There are no parts inside the recorder housing that require periodic inspection and/or maintenance.

6. Storage and transportation rules

Climatic conditions for transportation must meet the following conditions:

- ambient air temperature from minus 50°C to plus 50°C;
- relative air humidity up to 98% at 25°C;
- atmospheric pressure from 84.0 to 107.0 kPa (from 630 to 800 mmHg).

The device must be stored only in the manufacturer's packaging in heated rooms at temperatures ranging from +5°C to +40°C and relative humidity no more than 80%. Storage areas must be free of aggressive impurities (acid or alkali vapors) that could cause corrosion.

7. Manufacturer's (supplier's) warranties

The manufacturer guarantees that the device complies with the technical specifications, subject to the conditions of transportation, storage, installation and operation.

The warranty period for the device is set at 1 year, counting from the date the device is

put into operation.

During the warranty period of the device, the manufacturer has the right to supervise its correct operation in order to improve the quality and efficiency of operation.

Device components that fail during the warranty period are subject to replacement or repair by the manufacturer at the manufacturer’s expense.

The user loses the right to free repairs during the warranty period in the event of broken seals, mechanical damage by the user, or if the device was repaired by a person who is not authorized to perform repairs and maintenance.