Three-phase electricity meters DLMS

Three-phase electricity meter AIST A300 WI-FI

AIST A300" meter is used for measuring and metering of active and reactive energy in three-phase AC circuits and transmission of telemetric information about the consumed electricity when used in automated data acquisition systems.

WiFi module - The operating frequency of information transmission from the meters is 2.4...2.4835 GHz.

Main functions

Electric energy meter three-phase electronic "AIST A300" performs the following functions:

- Measurement of current and voltage in each phase.
- Calculation of active and reactive energy.
- Registration of consumed energy.
- Countdown of time and calendar date.
- Exchange of information with the concentrator by means of data transfer units.
- Data storage in the energy memory

Consumer and service data are displayed on the liquid crystal display (LCD) located on the front panel of the meter. The meter can be operated autonomously or in an automated system for collecting data on electricity

consumption. It is possible to configure the meter parameters using a computer. The meter allows to control electricity consumption taking into account the developed tariff structure.

Digital data transmission interfaces

The meters have RS-485 interface and IR port. The IR port is designed for local communication with the meter via a computer with an adapter for IR communication (USB/IRDA converter). This converter provides an infrared communication channel with the meter. The communication speed of transmission via IR port is 1200 bps. RS-485 allows information transfer between the meter and a hub or a computer with an RS-485 adapter. The RS-485 communication speed can be set within the range of 1200~9600 bps. To perform data exchange it is necessary to use specialized software “AIST Meter Configurator”, as well as appropriate adapters for interface connection. For reading by RS-485 interface it is necessary to connect the meter serial interface circuits via RS-485/USB interface converter to the USB port of a personal computer.

Control relay

The meter has a built-in power relay that can be controlled remotely by a command in the meter protocol format. The command to disable/enable the relay is given via the RS-485 interface or via an additional data input/transmission unit installed in the meter. During the switch-on procedure, after the corresponding command has been given to the meter, it is also required to press the control button on the meter panel and hold it for two seconds - this is an additional protection measure against erroneous switch-on of the meter. Thanks to the power relay built into the meter, remote control of consumers is possible.

Technical specifications

Name of characteristic	Value
Accuracy classes: • **for active electrical energy** • **for reactive electrical energy**	 0.5S or 1 1 or 2
Base, Ib, (maximum) current for direct connection, A	5 (60); 10 (100)
Rated, In, (maximum) current for transformer connection, A	5 (10); 5 (7,5)
Rated voltages (Unom), V	direct connection - 3x230/400 transformer connection - 3x230/400; 3x57,7/100
V Starting current (sensitivity threshold): • **accuracy class 0.5S** • **accuracy class 1** • **accuracy class 2**	 0.001·Ib 0.004·Ib 0.005·Ib
Set operating voltage range, V	0.9 to 1.1·Unom
Extended voltage range, V	0.8 to 1.15·Unom
Power consumption, V·A, not more: • **for voltage circuit** • **current circuit**	 5 0,2
Nominal value of mains frequency, Hz	50
Maximum number of tariffs	4
Minimum tariff duration, min	15
RS-485 interface communication speed, bps	1200~9600

Accuracy of the built-in clock when the counter is on and at normal temperature, better, c/day.	± 0,5
Liquid crystal display (LCD): **- number of indicated digits** **- unit price of the lowest digit when displaying energy, kWh (kvarh)**	 8 0,01
Meter constant, imp./(kWh); imp./(kWh): - for UUTM 57.7 V, IUTM 5 A - for UUTM 230 V, IUTM 5 A - for UUTM 230 V, IUTM 10 A - for UUTM 230 V, IUTM 5 A	10000; 10000 1200; 1200 300; 300 2000; 2000
Average MTBF, h not less than	160 000
Service life of the meter clock power supply, years not less than	10
Temperature range, °C	from - 40 to +55
At temperatures from - 20 to - 40 °C partial loss of LCD functionality is allowed	
Overall dimensions (height.width.depth), mm:	292.174.88
Weight of meters, kg not more	2,8
Specific characteristics for a particular type of module:	
WiFi module	Operating frequency - 2.4...2.4835 GHz Support IEEE 802.11 n/g/b standards Wireless channel protection - WPA-PSK/WPA2-PSK, WPA/WPA2-PSK, WPA/WPA2
Common characteristics for all modules:	
Power supply voltage	12 volts
Consumption current	For 1-phase AIST meter - not more than 125mA For 3-phase AIST meter - not more than 400mA
Power supply of the device	is supplied by the AIST electricity meter
Average MTBF	at least 150000 h
Service life	20 years
Overall dimensions	For 1-phase AIST meter - 70 x 50 x 28 mm For 3-phase AIST meter - 95 x 65 x 28 mm