



CLA-200

Local automation controller

USER MANUAL

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1. Purpose

The CLA-200 local automation converter is designed for use in monitoring, dispatching, status control, and mode control systems for equipment at a remote facility.

The device is housed in a durable plastic case. Inside the case is a circuit board with a microcontroller, a memory device, an RS-485, RS-232, Ethernet interface unit, and a modem. On the outside of the case are connectors for interface cables, LED indicators for power and the current device status.

Configuration and control of the device's operation are possible both locally and remotely via the WEB interface over Ethernet.

The following communication interfaces can be used to connect external equipment to the device and communicate with it remotely: RS-485, RS-232, Ethernet.

The design of the device allows it to be placed in electrical cabinets with the possibility of mounting on a DIN rail.

Table 1 – Main technical characteristics

Name of the characteristic	Meaning of the characteristic
Power supply of the device	12..60 VDC
Power consumption	no more than 10W
Voltage for powering external devices	12VDC, 8VDC, 5VDC
operating system	Linux
User interface for customization	Web interface
Ethernet interface	2 ports
Interface data transfer rate 10\100 Base T	up to 100 Mbit/s
Number of RS485 interfaces with galvanic denouement	1 piece
Number of RS232 interfaces with galvanic denouement	1 piece
Galvanic isolation voltage for RS485, RS232 interfaces	1000 VDC
Data transfer rate via interfaces (RS485, RS232)	1200-115200 bps
Temperature sensor support with 1-wire digital interface	+
Indication (LEDs)	nutrition, statuses
Operating temperature range	-40 to + 55 °C
Built-in hardware watchdog circuit	+
Type of power supply connectors, interfaces, sensors	Screw terminal connectors
Ethernet connector types	RJ45
Frame	Plastic
Installation	on a 35 mm DIN rail
Overall dimensions	105x51x65
Weight of the device, no more than	0.8 kg
Mean time between failures	at least 150,000 hours
Service life	20 years

2. Main functions of the CLA-200

The device performs the following functions:

1. Converter functions RS-232, RS-485/UDP, TCP/IP.
2. SNMP gateway functions for managing devices connected to the URV-08 (relay output device / ICBCOM). The URV-08 has a Modbus-RTU protocol.

Using it as an SNMP gateway allows you to:

- polling of output status (support for SNMP requests/responses);
 - control (on/off relay URV-08) via SMNP;
 - SNMP TRAP support.
3. Automatic control functions for the operation of the URV-08 relay according to pre-set temperature settings.

Additional functionality

- Setting up and sending TRAP to multiple IP addresses.
- displaying parameters of connected devices in the WEB interface.

3. The mechanism for generating TRAPs and GET responses

All registers (including alarms) can be queried forcibly (GET).

To avoid delays when polling devices via SNMP, the operating mechanism is as follows:

- The CLA-200 device continuously polls the connected device, so current data is always ready to be sent via SNMP (this is buffering).
- If there is no data, the CLA-200 will respond to your request with dashes. You will need to repeat the request.

The mechanism for generating TRAP is as follows: Every 10 seconds,

- all alarm registers of the connected device (if the device has alarm registers),
- Registers containing information about the state of dry contacts. Afterwards, whenever the state of any of these registers changes, a TRAP with a description is generated. Each TRAP includes the register, its value, a brief text description, and the severity level of the event.

Each TRAP can be assigned a severity level:

- 1 - critical
- 2 - major
- 3 - minor
- 4 - warning

4. Appearance of the device

Figure 1 shows the appearance of the devices.



Figure 1 – appearance of the device

5. Indicator lights

The device body contains the following indicator lights that display the status and operating modes:

- Power – always on after power is applied. Indicates that the device is powered.
- Status – turns on after the device begins booting. The indicator turns off after the device completes booting. It also displays an indication that the watchdog timer has been activated.

Note:

The device is designed to operate at low temperatures.

To ensure normal environmental conditions for the processor, the device has a built-in heating system. When the device heats up, no functions are available. Once the required temperature is reached, the processor inside the device turns on, turning off the heating, and all functions become available.

6. Connection diagrams

Typical connection diagrams to the device are given in Appendix 1.

7. Preparation for use, connecting external devices

a. Preparing the device for installation on site

Before installing the device, perform a visual inspection to detect any mechanical damage to the housing. If the device has been exposed to conditions other than its intended operating conditions, allow it to remain in these conditions for 2 hours before connecting power.

When selecting an installation location, the following criteria should be followed: the device should not be installed in places where dust or aggressive gases may be present, located near powerful sources of electromagnetic and thermal radiation, or in places subject to shaking, vibration, or exposure to water.

The mounting points on the rear of the device allow it to be mounted on a 35mm DIN rail.

b. Getting ready for work

According to the design, interface cables are connected to connectors located on the side of the device's housing when the device is powered off. The device is turned on after power is applied through the power connector.

After power is supplied, the “Power” indicator should turn on – the device is powered. After turning on the power, the settings are loaded and the device is prepared for operation.

8. SNMP gateway mode for URV-08 (ICBCOM)

SNMP gateway mode for managing devices connected to the URV-08 (ICBCOM)

Table 3 – for manual control

ModBus parameters (URV-08/ICBCOM)				SNMP functions		
Parameter	Values	Type	ModBus Address	TRAP*	GET	SET
ID - device type	10	Int16 (Reading)	0000		+	
ModBus-Device Address	1..255	Int16 (Read/Write)	0001		+	
Firmware	1000..65535	Int16 (Reading)	0002		+	
DO0	0..1	Int16 (Read/Write)	0100	+	+	+
DO1	0..1	Int16 (Read/Write)	0101	+	+	+
DO2	0..1	Int16 (Read/Write)	0102	+	+	+
DO3	0..1	Int16 (Read/Write)	0103	+	+	+
DO4	0..1	Int16 (Read/Write)	0104	+	+	+
DO5	0..1	Int16 (Read/Write)	0105	+	+	+
DO6	0..1	Int16 (Read/Write)	0106	+	+	+
DO7	0..1	Int16 (Read/Write)	0107	+	+	+
DO0 Inversion Timer	0..8640 [10 s]	Int16 (Read/Write)	0110		+	+
Inversion timer DO1	0..8640 [10 s]	Int16 (Read/Write)	0111		+	+
DO2 Inversion Timer	0..8640 [10 s]	Int16 (Read/Write)	0112		+	+
DO3 Inversion Timer	0..8640 [10 s]	Int16 (Read/Write)	0113		+	+
DO4 Inversion Timer	0..8640 [10 s]	Int16 (Read/Write)	0114		+	+
DO5 Inversion Timer	0..8640 [10 s]	Int16 (Read/Write)	0115		+	+
DO6 Inversion Timer	0..8640 [10 s]	Int16 (Read/Write)	0116		+	+
DO7 Inversion Timer	0..8640 [10 s]	Int16 (Read/Write)	0117		+	+

*When the relay is triggered, a TRAP is generated.

*Each TRAP can be assigned a severity level.

1 – critical

2 – major

3 – minor

4 – warning

9. Automatic control

Table 4 – Parameters for monitoring in automatic control mode

ModBus parameters (URV-08/ICBCOM)			SNMP functions		
Parameter	Type	ModBus Address	TRAP*	GET	SET
Current temperature from the sensor	Int16 (Reading)	9000		+	
Temperature setting to turn on relay 1	Int16 (Reading)	9001		+	+
Temperature setting to turn off relay 1	Int16 (Reading)	9002		+	+
Temperature hysteresis for relay switching off1	Int16 (Reading)	9003		+	+
Temperature setting to turn on relay 2	Int16 (Reading)	9004		+	+
Temperature setting to turn off relay 2	Int16 (Reading)	9005		+	+
Temperature hysteresis for switching off relay2	Int16 (Reading)	9006		+	+
Temperature setting to activate relay 3	Int16 (Reading)	9007		+	+
Temperature setting to turn off relay 3	Int16 (Reading)	9008		+	+
Temperature hysteresis for relay3 switching off	Int16 (Reading)	9009		+	+
Temperature setting to activate relay 4	Int16 (Reading)	9010		+	+
Temperature setting to turn off relay 4	Int16 (Reading)	9011		+	+
Temperature hysteresis for relay switching off4	Int16 (Reading)	9012		+	+
Temperature setting to activate relay 5	Int16 (Reading)	9013		+	+
Temperature setting to turn off relay 5	Int16 (Reading)	9014		+	+
Temperature hysteresis for relay 5 switching off	Int16 (Reading)	9015		+	+
Temperature setting to activate relay 6	Int16 (Reading)	9016		+	+
Temperature setting to turn off relay 6	Int16 (Reading)	9017		+	+
Temperature hysteresis for relay switching off6	Int16 (Reading)	9018		+	+
Temperature setting to activate relay 7	Int16 (Reading)	9019		+	+
Temperature setting to turn off relay 7	Int16 (Reading)	9020		+	+
Temperature hysteresis for relay switching off7	Int16 (Reading)	9021		+	+
Temperature setting to activate relay 8	Int16 (Reading)	9022		+	+
Temperature setting to turn off relay8	Int16 (Reading)	9023		+	+
Temperature hysteresis for relay switching off8	Int16 (Reading)	9024		+	+
DO0 – relay 1 state	Int16 (Read/Write)	0100	+	+	+
DO1 – relay 2 state	Int16 (Read/Write)	0101	+	+	+
DO2 – relay 3 state	Int16 (Read/Write)	0102	+	+	+
DO3 – relay 4 state	Int16 (Read/Write)	0103	+	+	+
DO4 – relay 5 state	Int16 (Read/Write)	0104	+	+	+

DO5 – relay 6 state	Int16 (Read/Write)	0105	+	+	+
DO6 – relay 7 state	Int16 (Read/Write)	0106	+	+	+
DO7 – relay 8 state	Int16 (Read/Write)	0107	+	+	+

*When the relay is triggered, a TRAP is generated.

*Each TRAP can be assigned a severity level.

1 – critical

2 – major

3 – minor

4 – warning

10. Completeness

Table 6 - Completeness

Name	Quantity
Device "CLA-200" Local automation controller	1 pc.
User manual	1 piece/lot.
Label	1 pc.
Package	1 piece/lot.

Note: The batch size is determined by the company.

11. Warranty obligations

The warranty period for the device is 12 months from the date of delivery to the customer. During the warranty period, the manufacturer will provide free repairs to the device. The warranty does not cover defects resulting from improper handling, maintenance, storage, or transportation.

Appendix 1. Connection diagrams to CLA-200 URV-08 (ICBCOM) and temperature sensor

