SNR ERD

Catalog of SNR ERD Based Products

Devices for monitoring of process parameters and remote equipment management

2023

About of SNR-ERD

SNR-ERD — devices for monitoring of process parameters and remote control

The SNR-ERD series is represented by multifunctional devices designed for monitoring basic infrastructure parameters and remote control of equipment in telecommunications projects. The series includes devices of compact, versatile and special design.

The devices are designed to manage loads and monitor process parameters, such as temperature and humidity, power supply status at communication centers, smoke control, leaks in equipment cabinets, server rooms, and data centers.

The devices perform polling of digital, analog and discrete sensors and transmit information via SNMP and WEB interface. The following communication and control channels are used: Ethernet, GRPS and SMS.

Devices can automatically perform a number of remote control functions in accordance with set scenarios. Consolidated acquisition of parameters to be scanned can be carried out using monitoring software: Zabbix, PRTG, cacti, Observium, OpenNMS and similar systems that support SNMP.

Main functions:

- Control of environmental parameters (temperature, humidity)
- Control of power network parameters
- Control of smoke on site
- Control of access to equipment
- Control of leakage
- User scenarios (to be set by an operator and pre-set: thermostat, hydrolock, network diagnostics)
- Notifying responsible persons by means of SNMP, Email and SMS
- Polling UPS parameters
- Management by SMS

Typical application diagram of SNR-ERD devices

MADE IN RUSSIA

Temperature Control

Illumination

Ventilation

Equipment power management

Rebooting and remote turning on/off of equipment

Equipment power management

polling UPS parameters

SNR ERD III

Voltage measurement from 0 to 72 V DC

Voltage measurement 220 V AC

220 V AC voltage check

Temperature control

Humidity control

Leak control

Intrusion control

Vibration and shock control

Motion control

Smoke control

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SNR ERD III 2.3

termo-out | DHT22

MADE IN RUSSIA

Key Features:

- Open-frame design (thermal contraction tube)
- Environmental sensor included
- Analog input ADC IN (variable from 0 to 76 V)
- 4 digital inputs (DI)
- 2 digital outputs (DO)
- Automation scenarios: watchdog, thermostat, hydrolock
- Supports: WEB, SNMP v2c

Design options:

- Built-in temperature sensor
- Remote temperature sensor (termo-out)
- Remote temperature and humidity sensor (DHT22)

Application scenarios:

- Monitoring of environmental parameters at one point (temperature, humidity)
- Monitoring of process parameters (dry contact signals) using external sensors and probes:
  - Voltage check
  - Leak detection
  - Tamper sensor (reed switch)
  - Smoke detector
- DC voltage measurement from 0 to 76 V
- Management of payloads on site according to specified scenarios
  - Temperature control
  - Network diagnostics (rebooting frozen network equipment)
  - Hydrolock (thermostat, illumination, ventilation)
- Rebooting and remote turning on/off of equipment

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SNR ERD III 2.3

Application scenarios

MADE IN RUSSIA

220 V AC Voltage Check

Voltage measurement from 0 to 72 V DC

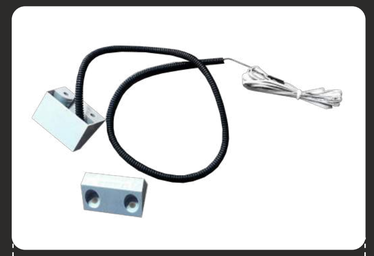
Payload Management

Equipment power management

Temperature control

Humidity control

Leak control



Intrusion control

Vibration and shock control

Motion control

Smoke control

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SNR ERD III 2S

MADE IN RUSSIA

Key features:

- Metal housing with DIN rail mounting, flat surfaces (brackets included)
- Connectable environmental sensor
- Analog input ADC IN (meas. from 0 to 76 V)
- 4 digital inputs (DI)
- 2 digital outputs (DO)
- Universal power supply 9-48 V, Passive PoE 24-48 V (POE injector included)
- Automation scenarios: watchdog, thermostat, hydrolock
- Supports: WEB, SNMP v2c

Application scenarios

- Monitoring of environmental parameters at one point (temperature, humidity)
- Monitoring of process parameters (dry contact signals) using external sensors and probes:
  - Voltage check
  - Leak detection
  - Tamper sensor (reed switch)
  - Smoke detector
  - DC voltage measurement from 0 to 76 V
  - Management of payloads on site according to set scenarios
    - Temperature control
    - Network diagnostics (rebooting frozen network equipment)
    - Hydrolock (thermostat, illumination, ventilation)
- Rebooting and remote turning on/off of equipment

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SNR ERD III 2S

Application scenarios

MADE IN RUSSIA

220 V AC Voltage Check

Voltage measurement from 0 to 72 V DC

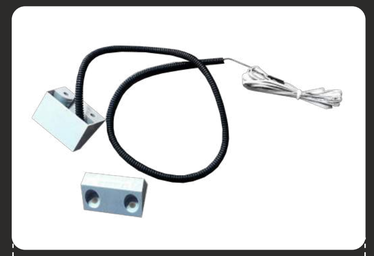
Payload Management

Equipment power management

Temperature control

Humidity control

Leak control



Intrusion control

Vibration and shock control

Motion control

Smoke control

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SNR-ERD-4s

SNR-ERD-4s-GSM

MADE IN RUSSIA

Design options:

- SNR-ERD-4s - device without GSM module
- SNR-ERD-4s-GSM - device with a built-in GSM module

Key Features:

- Metal housing with DIN rail mounting, flat surfaces (brackets included)
- Connectable environmental sensors (up to 10 pcs)
- 5 universal DIOs (discrete input-output)
- Analog input ADC IN: meas. 0 - 76 V / 0 - 20 mA
- Analog output DAC: 0 - 10 V (PID regulator)
- Relay (NO/NC) 220V/10A
- Interfaces: RS-232 and RS-485
- Universal Power: 9-48V, Passive PoE 48V
- Automation scenarios: watchdog, thermostat humidistat, hydrolock, schedule, flexible logic
- Connecting expansion modules:
  - DI expander for 8 or 16 channels
  - 1-wire bus extender
  - UPS polling (MegaTec protocol)
  - Supports: WEB, SNMP v2c, v3, MQTT, L2TP, SMTP

Application scenarios:

- Monitoring environmental parameters up to 10 points per device, +10 with the SNR-RSsensor expansion module, up to 5 expansion modules per device)
- Monitoring process parameters (dry contact signals) from external sensors:
- Voltage check
- Leak detection
- Tamper sensor (reed switch)
- Smoke detector
- DC voltage measurement from 0 to 76 V
- Management of payloads on site according to specified scenarios
- Temperature control
- Network diagnostics (reboot frozen network equipment)
- Hydrolock
- Rebooting and remote turning on/off of equipment
- Polling UPS parameters
- Controlling equipment using a signal from a PID controller
- RS-232 and RS-485 to Ethernet converter
- Custom automation with «flexible logic» function (IF-THEN) up to 6 scenarios
- Control and management via SMS (version with GSM module)
- Creating the main or backup communication channel to the device via GPRS

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Optional equipment

Digital input expander
(8 channels)

Digital input expander
(16 channels)

Extender — branching device
for 1-wire sensors SNR-RSsensor

SNR ERD III 4S

Application scenarios

MADE IN RUSSIA

Equipment power management

Air flow sensor

Intrusion control

Vibration and shock control

Motion control

Smoke control

220 V AC voltage check

polling UPS parameters

Voltage measurement
from 0 to 72 V DC

Temperature control

Humidity control

Leak control

Leak sensing cable

Payload Management

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SNR ERD III 5C

MADE IN RUSSIA

Key Features:

- Open-frame design (thermal contraction tube)
- Polling UPS (MegaTec protocol) as an external SNMP card
- Connectable environmental sensors (up to 5 pcs)
- 6 universal DIOs (discrete input-output)
- 2 analog inputs ADC IN: meas. 0 to 76 V
- Interfaces RS-232 and RS-485
- Built-in voltage sensor 220V AC
- Supports WEB, SNMP v2c, v3

Application scenarios:

- Polling UPS parameters, UPS management
- Monitoring of process parameters (dry contact signals) from external sensors:
  - Voltage check
  - Leak detection
  - Tamper sensor (reed switch)
  - Smoke detector
- Measurement of voltage on a battery, a group of batteries from 0 to 76 V DC
- RS-232 and RS-485 to Ethernet converter
- Load management according to pre-set scenarios:
  - Temperature control
  - Network diagnostics (Watchdog)
- Reboot and remote turn on/off of equipment

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SNR ERD III 5C

Application scenarios

MADE IN RUSSIA

220 V AC Voltage check

Querying UPS parameters

Voltage measurement from 0 to 76 V DC

Equipment power management

Temperature control

Humidity control

Leak control

Intrusion control

Vibration and shock control

Motion control

Smoke control

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SNR-SNMP-CARD-801

Key Features:

- UPS Polling (via MegaTec protocol)
- SNMP card in Intelligent Slot UPS form factor:
  - Element SNR-UPS-ONRT/ONRM 1000/2000/
- 3000/6000/10000 B/INT/INTXL
- Connectable environmental sensors (up to 5 pcs)
- 2 universal DIOs (discrete input-output)
- Supports: WEB, SNMP v2c, v3, L2TP, SMTP

Application scenarios:

- UPS parameters polling, management
- Monitoring of process parameters (dry contact signals) from external sensors and sensors:
  - Presence of voltage
  - Tamper sensor (reed switch)
  - Smoke detector
- Load management according to predefined scenarios:
  - Temperature control
  - Network diagnostics (Watchdog)
  - Rebooting and remote turning on/off of equipment

Application scenarios

220VACVoltage Check

Querying UPS parameters

Payload Management

Equipment power management

Temperature control

Humidity control

Leak control

Intrusion control

Vibration and shock control

Motion control

Smoke control

Sensors

MADE IN RUSSIA

Digital temperature sensor (1-wire)

Protected from moisture and dust Measuring range from -55°C to +125°C

Used with ERD-2/4/5/CARD

Digital temperature and humidity sensor (1-wire)

Relative humidity measurement range: 0% to 100% Ambient temperature measurement range: -40°C to +85°C

Used with ERD-4/5/CARD

Digital temperature and humidity sensor (DHT22)

Relative humidity measurement range: 0% to 100% Ambient temperature measurement range: -40°C to +80°C

Used with ERD-2/4/5/CARD

Water leakage sensor

The water leakage sensor is designed to detect an emergency situation when moisture gets on its contacts.

Used with ERD-2/4/5/CARD

Magnetic contact security alarm

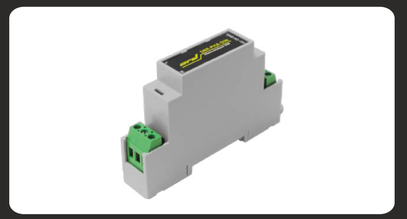
Opening/closing sensor, designed for installation on a metal door or window. Contains reed contacts ("dry contact")

Used with ERD-2/4/5/CARD

Fire alarm device

Designed to detect fires in premises by an increase in the optical density of the environment when it is smoke-filled, by the value of the ambient temperature or by the rate of its increase

Used with ERD-2/4/5/CARD



DIN rail voltage sensor with analog output

Designed to convert direct or alternating voltage in the range from 40 to 250V into a proportional reduced voltage.

Used with ERD-4

DIN rail voltage sensor with discrete output

Used as a sensor for the presence of 220V network voltage

Used with ERD-2/4/5/CARD

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Optional equipment

MADE IN RUSSIA

Digital input expander with pulse counting function (8 channels)

Designed to expand the number of discrete inputs (DI) ERD-4 by 8 channels. Can be used in SCADA independently of ERD via RS-485 (Modbus) connection

Used with ERD-4

Digital input expander with pulse counting function (16 channels)

Designed to expand the number of discrete inputs (DI) ERD-4 by 16 channels. Can be used in SCADA independently of ERD via RS-485 (Modbus) connection

Used with ERD-4

Extension cable for 1-wire sensors SNR-RSsensor

Designed to increase the number of connected sensors in the system Number of connected sensors: 10 pcs Can be used in SCADA independently of ERD via RS-485 (Modbus) connection

Used with ERD-4

Managed socket SNR-SMART

Designed to manage power for one device

Used with ERD-2/4/5/CARD

Managed relay assembly SNR SMART

Relay module for 6 channels, with the ability to switch power electrical equipment with a supply voltage of 230V and a current of up to 16A

Used with ERD-2/4/5/CARD

Managed socket assembly SNR-SMART

Designed to manage power for a group of devices Number of controlled sockets - 4 out of 9 pcs. (4 controlled sockets are turned off and on simultaneously)

Used with ERD-2/4/5/CARD

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Comparison Chart

Hardware functionality

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	ERD-2.3 Thermo-out DHT22	ERD-2s	ERD-4s ERD-4s-GSM	ERD-5c
Housing type	Thermal contraction tube	Metal housing with DIN rail mounting	Metal housing with DIN rail mounting	Thermal contraction tube
Power supply	DC 5 V	DC 9-48 V	DC 9-48 V	DC 9-36 V
Ethernet port	10BASE-T (10Mb/s half duplex)	10BASE-T (10Mb/s half-duplex)	10/100BASE-TX (100 Mb/s full duplex)	10/100BASE-TX (100 Mb/s full duplex)
PoE support	No	802.3at/af; Passive PoE 48 V	802.3at/af; Passive PoE 48 V	No
DIO	2 DO (max*300 mA) and 4 DI	5 DIO (Imax*200 mA)	5 DIO (Imax*200 mA)	5 DIO (Imax*10 mA) 1 DO (Imax*200 mA)
Phase detector	Ext DC 5 V (jack 5.5 x 2.5 mm)	Ext DC 5V (jack 5.5 x 2.5 mm)	Ext DC 5V (jack 5.5 x 2.5 mm)	AC 220 V
Serial interface RS485/232	No	No	Yes	Yes
Port for powering external devices	5 V/200 mA 3 V3/100 mA	5 V/200 mA 3 V3/100 mA	5 V/ up to 2500 mA 12 V/100 mA	5 V/ up to 3000 mA -36V (backs up the power suply)
Analog output (DAC)	No	No	Yes (0-10V)	No
Analog input (ADC)	1 pcs (0-76V)	1 pcs (0-76V)	1 pcs (high precision – 0-76 V, 0-20 mA)	2 pcs (0-76 V)
Built-in relay	No	No	1 (10A, 250 VAC)	No

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Comparison Chart

Software functionality

MADE IN RUSSIA

	ERD-2.3	Thermo-out DHT22	ERD-2s	ERD-4s ERD-4s-GSM	ERD-5c
GSM Functions	No		No	Yes	No
Convertor: Ethernet - RS485/232	No		No	Yes	Yes
DTS-2 (DS18B20) Temperature sensors support	1 pcs (the sensor is included into the device and attached to it with the cable 550 mm)		Yes (1 pcs)	Yes (up to 10 pcs)	Yes (up to 10 pcs)
ADC IN	U		U	U/1	U
Scheduler	No		No	Yes	Yes
Network diagnostics (watchdog)	Yes		Yes	Yes	Yes
PID Controller	No		No	Yes	No
Thermostat	Yes		Yes	Yes	Yes
Hydrolock	Yes		Yes	Yes	No
Humidistat	No		No	Yes	No
Megatec/APC-Smart UPS Parameters Monitoring	No		No	Yes	Yes (extended functionality)
DHCP	No		No	Yes	Yes
SMTP, L2TP	No		No	Yes	Yes
SNMP	Yes		Yes	Yes	Yes
MQTT	No		No	Yes	No
TFTP	No		No	Yes	No
NTP	No		No	Yes	No
Read / Write configuration	No		No	Yes	Yes
Event log	No		No	Yes	No

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Monitoring for ATMs

Problem: The ATM is installed autonomously, there are no operational personnel. If the supply voltage fails, the monitoring engineer has no information whether a normal shutdown occurred or whether it was the work of intruders. Sending a critical incident response group is not always reasonable.

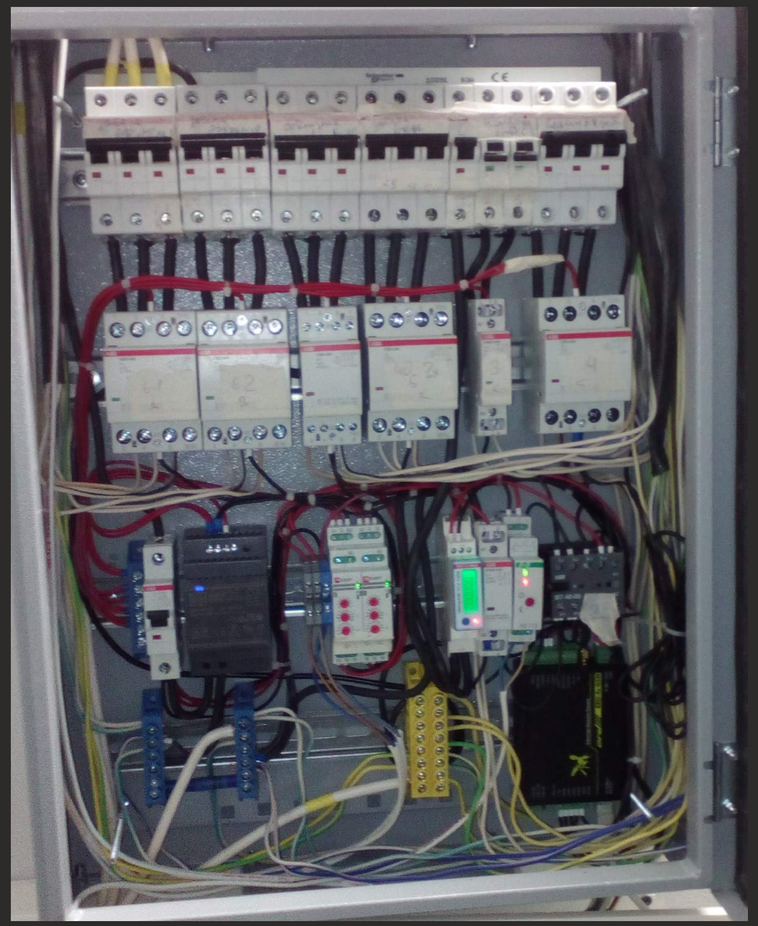
The solution based on the SNR-ERD-4s-GSM controller allows solving the current problem by providing the following functionality:

- SNMP trap/SMS/Email notification in case of events:
  - Power supply disconnection
  - Increased or decreased temperature
  - Opening the enclosure
- Consumer power management, manually (web, snmp, sms) and automatically (if there is no ping)
- Communication channel back up and switching over to a backup channel (GSM) in case of failure of the main channel (Ethernet)
- The system can operate autonomously up to 4 hours

Equipment list:

- Remote monitoring and control device SNR-ERD-4s-GSM
- External GSM antenna
- External GSM antenna
- Power supply with UPS function
- Battery
- Voltage sensor
- Magnetic contact security detector
- Managed socket
- Circuit breaker
- Special Purpose Housing

Monitoring in the data center/server room + diesel generator set



Problem: The data center/server room + diesel generator set are located in the same building, but in different rooms. It is necessary to receive data from sensors and devices into the interface of one controller.

The solution based on ERD-4 series controllers allows accomplishing the task: Up to five expansion modules can be connected to ERD-4 devices, such as:

- Extension splitter for 1-wire sensors (up to 10 sensors);
- Digital input expander for 8 channels;
- Digital input expander for 16 channels.

Expansion modules are connected to the controller via the RS-485 bus, therefore they can operate at a distance of up to 1200 meters from the controller. This scheme allows:

- To combine signals from sensors from various systems and devices in one interface, such as:
  - Temperature and humidity;
  - Availability of 230 V voltage at the input;
  - Smoke;
  - Control of access to the premises;
  - Liquid leakage;
  - Ventilation and air conditioning system;
  - Automatic fire extinguishing system;
  - Security fire alarm;
  - State of the diesel generator set;
  - To generate control signals:
  - Load control in “manual” mode
  - DO and Relay signals;
- Load control based on presets scenarios:
  - Thermostat;
  - Network diagnostics;
  - Signal generation from PID controller 0-10 V;
  - To poll UPS parameters (via MegaTec protocol);
  - To receive information about the system status via: WEB, SNMP, MQTT, SMTP, SMS and GPRS (in versions with a GSM module);
  - Communication channel back-up: automatic switching over to the backup channel (GSM) in case the main channel fails (Ethernet).

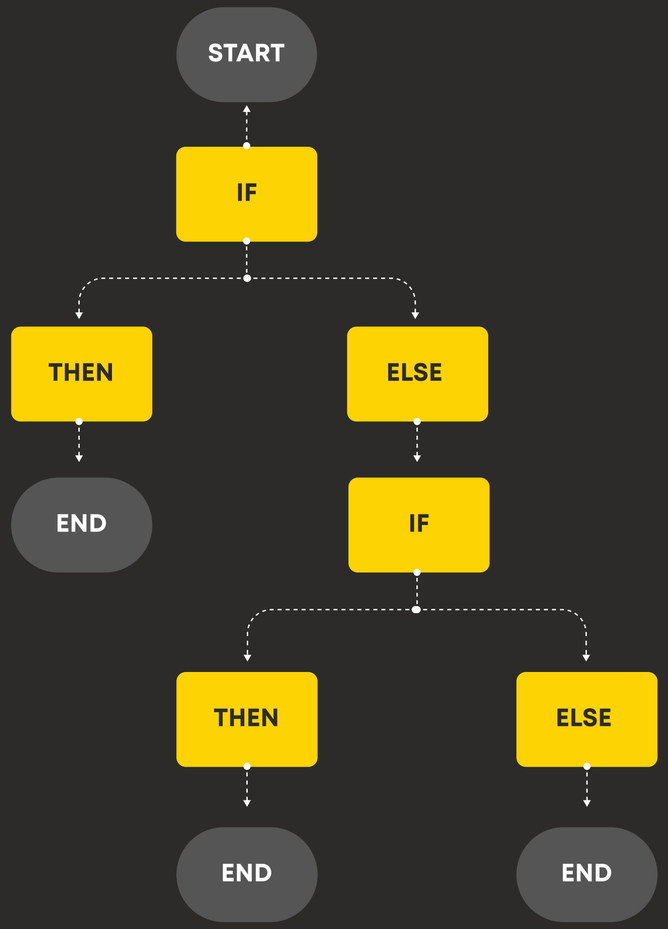
Parking barrier control, integration with Macroscop

ERD devices with a software product from Macroscop can solve the problem of automated provision of access for cars.

The system allows:

- To control the parking barrier manually and automatically (according to pre-set scenarios);
- To control the parking barrier using a signal from the software;
- To interact with the video analytics system to recognize vehicle license plates;
- To integrate ACS controllers at the facility.

Flexible Logic



ERD-4 devices can be programmed to perform up to 6 scenarios. To use this feature, the device software has to be updated.

Features:

- Using logic functions does not require special programming knowledge;
- All available functions and device inputs/outputs can be used to create a scenario: ADC, DAC, DIO, time, SNMP, email;
- The possibility to automate the process according to a unique scenario.

Photos of Implementation examples

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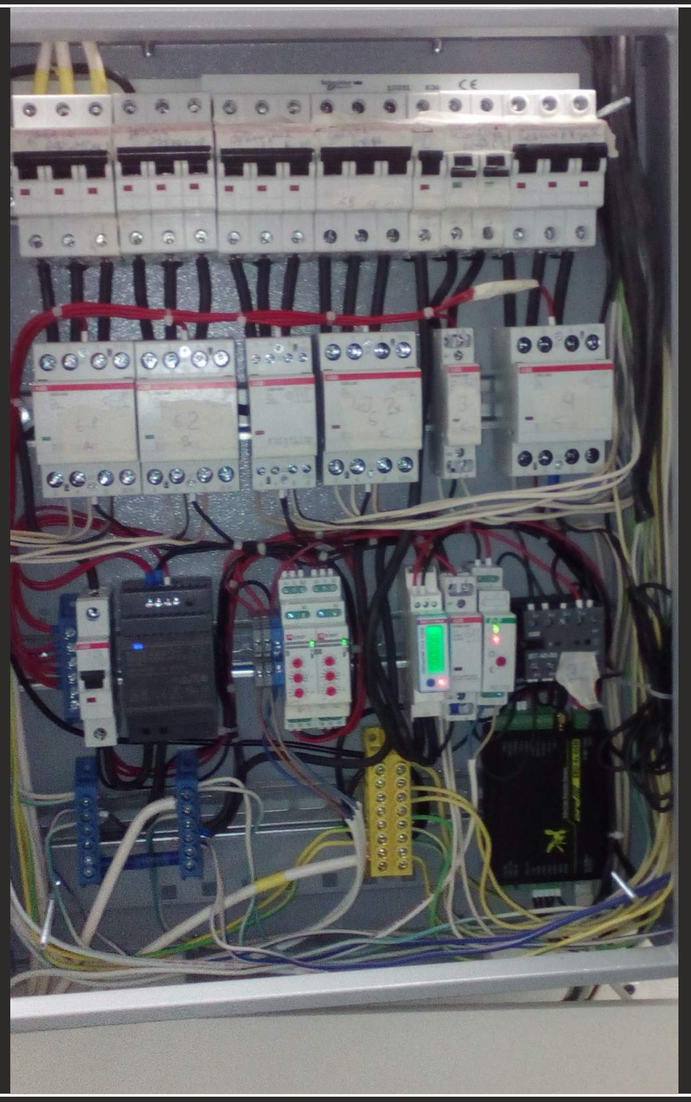

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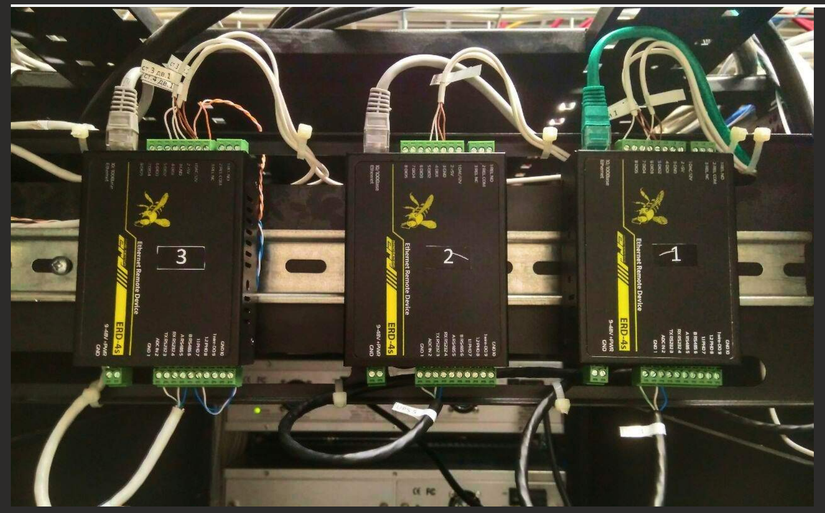
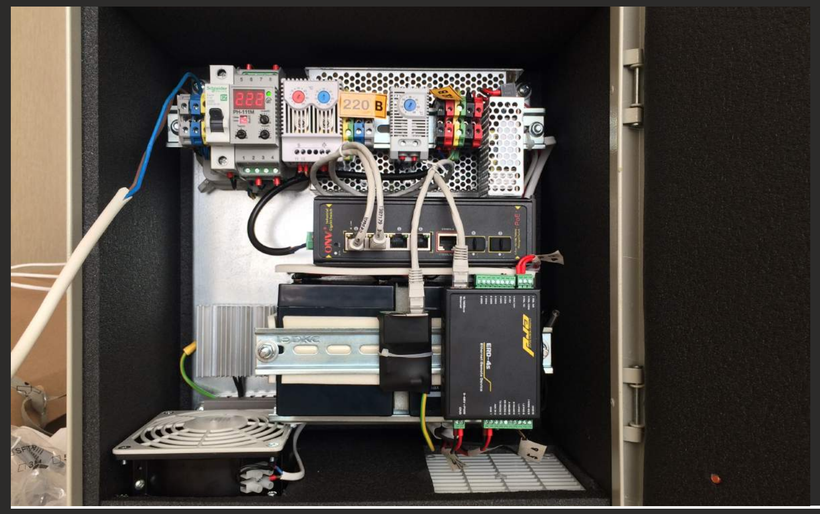
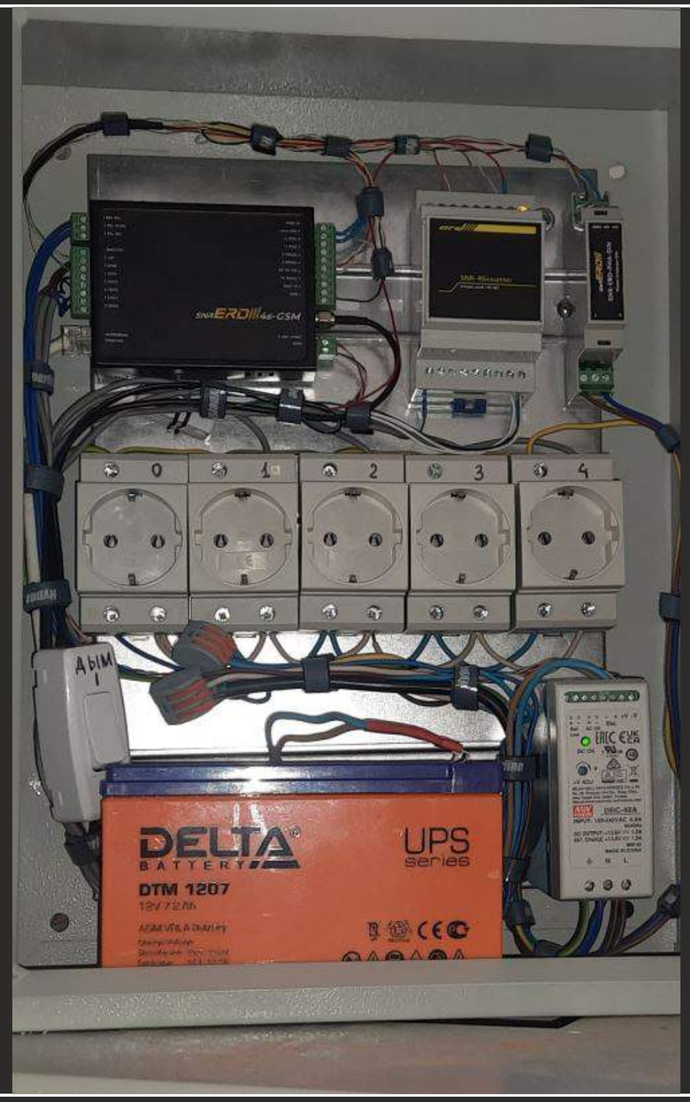
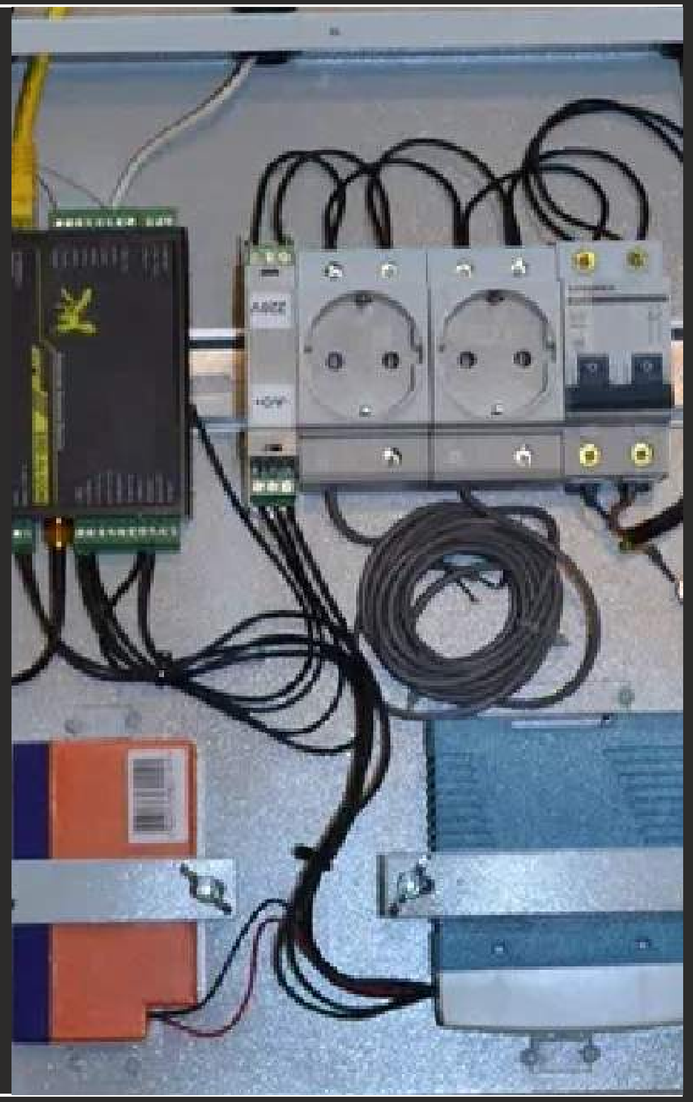
Photos of Implementation examples









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