



## Hardware-software complex

# Oil Refinery

Software and hardware complex "Oil Refinery" is a system consisting of software and hardware, which is designed for monitoring and control systems of technological processes of enterprises built using radio channels.

### **Purpose of the device**

Software and hardware complex "Oil Refinery" is a complex solution designed for collection, processing and visualization of data from terminal equipment at customer's facilities:

- Ammeters, voltmeters, meters on power equipment;

- Vibrometers for control and registration of vibration velocity, vibration acceleration, amplitude and frequency of sinusoidal vibrations of various objects;
- Gas analyzers for measuring the concentration of various gases in the environment or in confined spaces;
- Ultrasonic range finders to determine various distances;
- Level gauges to determine the level of contents in open and closed vessels, tanks, storages and other containers;
- Thermometers for measuring indoor and outdoor temperature, as well as for temperature monitoring of various kinds of production;
- Thermomanometers for simultaneous combined measurement and control of pressure and temperature for compliance with established standards.

### **Main functions**

- There is a mobile application;
- Monitoring and data collection from sensors;
- Information visualization (readings, graphs, reports, related documentation);
- Data storage;
- Device configuration;
- Remote software upgrades;
- Report generation.

### **Hardware:**

- 19" 1U enclosure;
- Power supply unit (2pcs):

- Main (220 AC);

- Backup (48 DC);

- CPU: 8-core 64-bit ARM processor (4xCortex-A76 and 4xCortex-A55);
- 16GB DDR4;
- SSD drive: 256 GB (NVMe SSD drive into M.2 PCIe2.0 slot);
- HDMI - for monitor connection;
- Switch - 10/100/1000 (6 Ethernet ports).

**Optional:**

- LTE modem (USB) - for wireless data transmission;
- Data export via API.

**Program part**

- PostgreSQL - database;
- Network Server (if necessary) - installed and configured to work with devices operating via LoRaWan communication channel.

**Scaling**

Adding new devices, sensors, users, customization of LoRaWan to meet the customer's requirements.

**Number of supported devices**

Up to 250 pcs.

**Number of supported users**

Up to 5.

**Delivery set**

**Standard delivery set:**



- Software and hardware complex “Oil Refinery”;
- AC 220 V power cable;
- DC 48 V power cable;
- Passport.

**Additional to the standard delivery set (on request):**

- Keyboard
- Mouse;
- Monitor;
- 19" rack for the Software and hardware complex “Oil Refinery”.

## Technical specifications

Name of characteristic	Value
Power Specifications	(85-265VAC) - main power input (36-72VDC) - redundant power input
Power consumption	max. 50 W
Processor	8-core 64-bit: 4 Cortex A76 cores and 4 Cortex A55 cores
Maximum frequency	2.4 GHz
RAM capacity	at least 8GB of LPDDR4/4x memory
Flash memory for bootloader	16 MB SPI
Primary SSD drive (M.2 PCIe2.0 slot)	256GB - SSD NVME NVME M.2 NETAC
Enclosure	metal 19" (482x250x44mm)
Service life	8 years
Switch	built-in 6-port managed 10/100/1000 Mbps
Monitor connection port	HDMI
USB port	2pcs
Watchdog timer	built-in
Operating system	Pre-installed Linux
IoT platform	Pre-installed Jcom-iot
DBMS	Pre-installed “PostgreSQL”