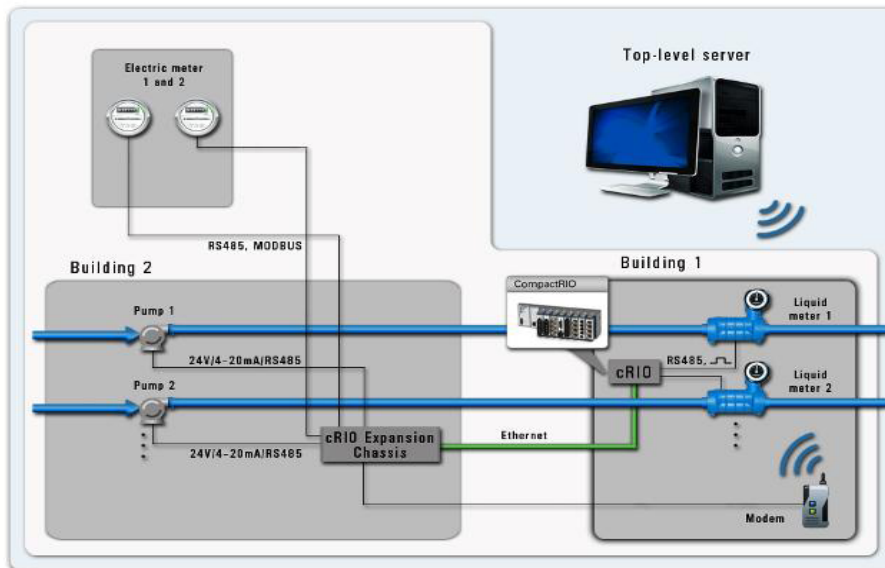


Cluster Pump Station Automation System



Overview

Due to depletion of oil resources, increasing power costs and other factors oil companies are trying to reduce well maintenance costs and further improve the manufacturing efficiency. Therefore, modern approach to oil production automation dictates strict requirements for cluster pump station (CPS) control and monitoring software and hardware systems.

The CPS pump refresh or stratal waters from the bottom into the productive stratal of the oil field terrastatic pressure maintenance system.

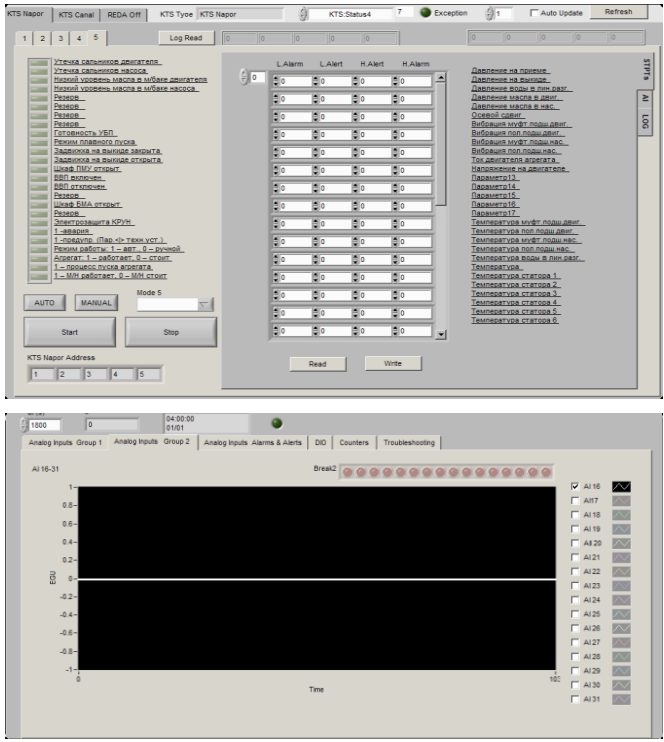
The system consists of pump units and the control system. The pump units apply pressure to the process water to a level sufficient for injection into the wells of terrastatic pressure maintenance system. The control system is responsible for pump automation, parameters control, fault signaling, automatic pump shut-off, activation of the reserve pumps and protection of equipment when process parameters change beyond the admissible limits.

Features

- Liquid meters data acquisition
- Monitoring of climate conditions
- Pump units monitoring
- Power meters data acquisition
- Alarm management
- Communication with the server Modbus
 1. Extended Modbus
 2. Modbus UDP

Automated Control System

The automated control system (ACS) is based on a reconfigurable (RIO) technology NI CompactRIO. The ACS processes the data and communicates it to the operator console for storage and remote control by controller. The controller allows the connection of different analog and digital sensor types.



Software

The automation system provides monitoring and control based on the data from liquid meters environmental conditions sensors in the plant area, pump units, power meters, fault control devices, etc. The system communicates with the top-level server to send a top-level object condition data. The software is based on the Real-Time automated control systems architecture.

