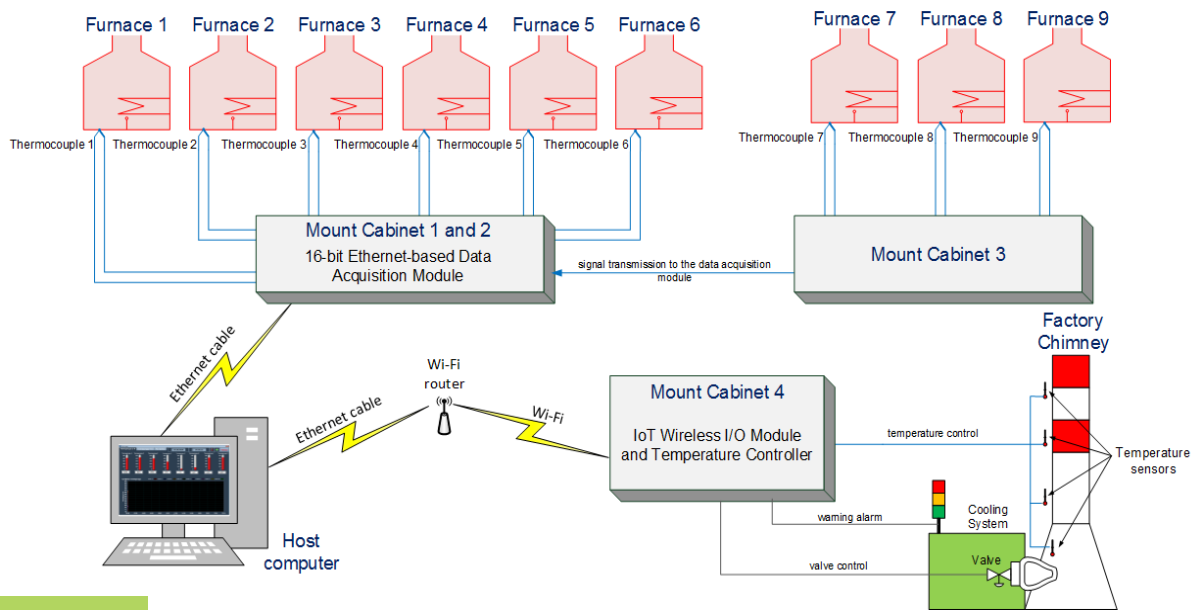


Data Acquisition System for Metallurgical Production



Overview

Data acquisition system is designed to collect and register data from various types of temperature sensors. The system is based on two Ethernet data acquisition modules: a 2.4 GHz IoT wireless I/O module and a 16-bit analog differential input module with programmable input ranges on all channels. The IoT module supports various communication protocols: Modbus/TCP, TCP/IP, UDP, HTTP, DHCP, MQTT. The modules acquire information from the sensors connected to them and transmit data to the host computer via Ethernet channels.

The special data acquisition system software developed in the LabVIEW graphical programming environment is installed on the host computer. The software visualizes the received data in real time and records them to the log file. The software has an easy to use interface.

Due to the fact that the data acquisition system has a distributed architecture, in order to avoid distortion of the signals transmitted from the sensors to the data acquisition modules, all signals are converted to 4-20mA current signals. Due to its high noise immunity and processing speed, the system provides the user with accurate data in real time.

System Features

1. Data acquisition from various types of sensors:
 - Thermocouples (temperature range from -100 °C to +1000 °C)
 - Thermistors (temperature range from 0 °C to +200 °C).
2. Ability to connect all common thermocouple types.
3. Programmable input ranges on all channels.
4. Each analog channel can be configured to an independent range.
5. Wireless data transfer from the IoT I/O module to the Wi-Fi router.
6. User friendly software.
7. Visualization of data in graphical and numerical form in real time with parallel registration of data in the log file.
8. Generation of a control signal to the actuator (valve) from the software.

Channels Characteristic

Input/Output Type	Channels Quantity	Channels Characteristic		
Analog input (differential)	8	mV	V	mA
		±150, ±500, 0-150, 0-500	±1, ±5, ±10, 0-1, 0-5, 0-10	0-20, 4-20, ±20
Digital output	2	open collector to 30 V, 100 mA (max. load)		
Universal input	4	Analog input		
		mV	V	mA
		±150, ±500, 0-150, 0-500	±1, ±5, ±10, 0-1, 0-5, 0-10	0-20, 4-20, ±20
		Digital input (dry contact)		
		0: open	1: close	
Digital output	2	open collector to 30 V, 400 mA (max. load)		

Software Interface

