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Application Note for RIO Series

Introduction

The RIO Series is an industrial Remote I/O module used for collecting analog and digital field signals. It communicates over RS485 Modbus RTU, and through an RS485 to USB converter, connects directly to a SCADA server for centralized monitoring and control.

System Architecture Overview

Application Diagram:

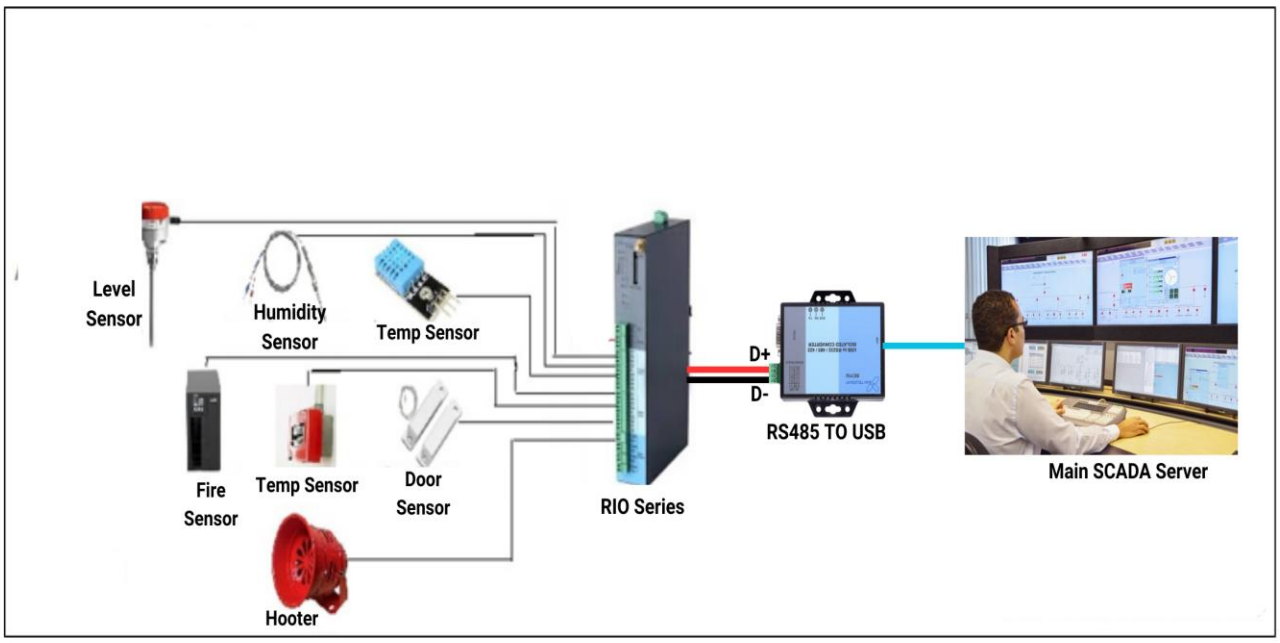

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Diagram Explanation

Field devices such as Level, Humidity, and Temperature sensors are connected to the analog inputs of the RIO module. Digital devices like Fire Sensors, Door Sensors, and switches are connected to digital inputs, while a hooter is connected to the digital output. The RIO transmits data via RS485 (D+, D−) to an RS485-to-USB converter, which links to the Main SCADA Server for real-time monitoring and alarm management.

Additional Devices That Can Be Connected

- Pressure and flow transmitters
- RTD and thermocouple sensors
- Limit switches and smoke detectors
- Emergency stop switches
- Alarm beacons and hooters
- Pumps, relays, and solenoid valve

Typical Applications

This architecture is commonly used in:

- Factory automation systems
- Industrial plant monitoring
- Fire and safety systems
- Environmental monitoring
- Warehouse and facility automation

Summary

The RIO Series with RS485 to USB converter provides a simple, reliable, and cost-effective data acquisition solution. It enables seamless integration of field devices with SCADA systems, ensuring efficient monitoring, alarm handling, and centralized control for industrial and commercial applications.