

Modbus Protocol Overview

Intellis 7500



The Modbus® protocol is a messaging structure that was developed by Modicon in 1979 and is used to establish master-slave/client-server communication between intelligent devices. It is the most widely used network protocol in the industrial manufacturing environment and is supported by almost every PLC, DCS and operator interface (OI) company. It is implemented by hundreds of vendors on thousands of different devices to transfer discrete/analog I/O and register data between control devices.

The Modbus, Intellis 7500 Series network system utilizes the Modbus, RTU protocol. A single Modbus, Intellis system will support up to 10 independent automated valve networks, controlling and monitoring a maximum of 100 valves per network. Each network will support 800 programmable discrete I/O points or 8000 I/O points per system.

The Modbus Intellis 7500 Series network system consists of:

1. 7500 Series network monitors that read and transmit valve status and turn the valves on and off.
2. A Network Interface Manager (NIM) that controls the network monitors and communicates with the host PLC, PC or DCS.
3. An optional maintenance PC to host the diagnostic Telanetics software.

For high uptime applications, options exist for redundancy of network communications and control.

Physical Media	Twisted pair for communications and two wires for power
Maximum Distance	4000 ft. trunk
Maximum Network Monitors per System	100/network, 10 networks/system
Maximum I/O Points per System	800/network, 8,000/system
Current Consumption Per Network Monitor	27 mA + 20 mA/coil (25 mA XP coil)
Interface Capability	All PLC's & DCS w/ Modbus port
Communications Method	Master/slave with cyclic polling
Error Checking	CRC check
Network Topology	Closed loop bus
Transmission Speed	9.6 kbps
Redundancy	Yes
Valves Specific Diagnostics	Yes