Sensor bus controller for industrial automation

Model PM-450 Vacuum Particle Controller

FEATURES

- Low profile design
- Reliable and intelligent embedded control system
- Sensor bus protocol
- Integrated web server

APPLICATIONS

- Supports on-the-fly control for key sets of process equipment

Hach Ultra Analytics introduces the HYT PM-450 Sensor Bus Controller, a next generation system which integrates *in situ* particle monitoring (ISPM), process control, Sensor Bus and web server technology.

Sensor Bus is SEMI's new object-based communication system which promotes interoperability by encapsulating data into well-defined objects. Each self-contained object holds information to disclose its identity and capabilities to another device or host. For example, the SensorAnalogInput object for laser current includes it's identity, status, reporting units, and separate warning and alarm trip levels.

In addition to Sensor Bus, this controller is a complete web server. Using a standard web browser, from anywhere on your network, information such as sensor and controller status, particle counts, and diagnostics may be monitored. And, using file transfer protocol (FTP), the entire firmware may be upgraded to add new capabilities.

The PM-450 includes the Apache web server and SEMI Sensor Bus compliant server. For configuration, the web-enabled Linuxconfig-configuration utility allows the user to easily change configuration settings. The PM-450 controller employs the Red Hat Linux operating system, which is reduced in size to fit the ISPM's needs. Linux runs on a 586-133Mhz CPU, while real-time duties such as particle counting and sensor diagnostics are handled by a separate 16 bit CPU.

The Sensor Bus interface uses Modbus/TCP port 502 to provide a server for multiple clients. It uses Modbus/TCP function code 91 and includes Alternate transport capability. In addition, it provides a Modbus register table accessible by standard Modbus FC 3, 16, and 23.

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SPECIFICATIONS

Sensors Supported*	20BE, 70E, 70XE, 9000
Particle Sensitivity	Determined by sensor
Maximum Count Rate	1000/sec Main CPU Am5x86-P75 @ 133MHz
Real-Time Processor	80C196
Operating System	Red Hat Linux 5.2 (Kernel 2.0.36)
Web Server	Apache 1.3.2
Networking	SEMI Sensor Bus, Modbus/TCP
Ethernet Protocols	TCP, IP, UDP, ICMP, BOOTP, ARP, FTP, TFTP, HTTP, TELNET
COM1 Port	RS232 port Linux console user logon
COM2 Port	Spare
Operating Voltage	100-230 VAC, 50-60 Hz
Power Consumption	11 Watts typical
Operating Temperature	50 to 122°F (10 to 50°C)
Dimensions	5" x 5" x 5" (12.7 x 12.7 x 12.7 cm) plus .75" (1.9 cm) for connectors
Weight	2.9 lbs (1.31 kg)
SEMI and Modbus/TCP Standards	SEMI E54.1-0298 SEMI draft 2986 dated 4/27/99 SEMI draft 3042 dated 5/4/99 Object Messaging Specification for Modbus/TCP, version 1.0 Open Modbus/TCP Specification Release 1.0, dated 3/29/99 A. Swales correspondence of 7/14/99 and 7/15/99 for transmission byte ordering.

* The "E" suffix designates CE marking.

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