

PAS 9510/MON

Remote Monitoring Module



GENERAL DESCRIPTION

The **PAS 9510/MON** provides the capability to remotely monitor sixteen open collector fan status lines and four thermistor temperature sensors. The status of these signals is transmitted to the host computer over an RS-232 serial interface, in response to queries from the host. All of the circuitry is contained in a small anodized aluminum enclosure that can be mounted close to the points being monitored.

Two D-sub connectors terminate all of the I/O signal lines. Terminations for the open collector fan status lines are provided on a DB37 female connector. Terminations for the four temperature measurement lines are provided on a DB15 female connector. Connection to the RS-232 serial port is accomplished with a DB9 female connector, and the power connection is made with a two position latching connector. Status of the module is displayed with a three position red, yellow and green LED.

The four temperature measurement channels monitor thermistors. Each channel provides signal conditioning and amplification of the low level input signals. Conditioned outputs are multiplexed into a common 12-bit Analog-to-Digital Converter (ADC). Temperature measurement range is -40 to $+85$ degrees C. The onboard microprocessor linearizes the voltages from the signal conditioning circuitry, and returns temperature readings in degrees C over the RS-232 serial port. Ground and half scale reference channels verify the integrity of the analog input section.

Sixteen digital inputs are provided for monitoring the fan and power supply status lines. All digital inputs are pulled up to +5 volts with 5.1K ohm resistors; making them compatible with open collector outputs. The digital inputs can be forced to known states with an overwrite register. High ohmic value resistors are used to isolate the open collector outputs from the overwrite register. Low pass filtering and over-voltage protection is also provided on the digital input circuits.

Status of the open collector and thermistor inputs is returned over the RS-232 interface in response to commands issued by the host computer. The onboard processor performs a module health check as a background operation. Conditions that are tested to determine the health of the monitor module include, overdrive of digital inputs, ADC zero and mid-scale accuracy, power supply voltages within range and temperature within range. When all of these tests produce satisfactory results, the module will return status indicating the overall health of the module is good. When the module returns bad health status, more detailed status can be read to determine which section of the module is malfunctioning.



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Electrical Specifications

Number of Channels	16 Digital Inputs 4 Thermistor Inputs 4 Analog Voltage Inputs 5 Voltage Monitor Channels
Temperature Measurement Range	-40 to +85° C
Transduce Type	10K Ohm Thermistor
Analog Input Range	0.000V to 5.000V
Integral Linearity	+/- 1 LSB (max)
ADC Resolution	12 Bits
Differential Linearity	+/- 1 LSB (max)
Voltage Monitor Channels	5V, +/-12 V Power Analog Ground Half Scale Reference
High Digital Input Threshold	2.5 Volts (min)
Low Digital Input Threshold	1.0 Volt (max)
Maximum Digital Input	+/-70 VDC
Digital Input Filter	2 mSec
Serial Link Baud Rate	9600 Baud
Serial Port Settings	8 Data Bits, No Parity, 1 Stop Bit
Card Power Requirements	5 Volts @ 300 mA (typ)

Environmental Specifications

Operating Temperature Range	-20 to +65 degrees Celsius
Storage Temperature Range	-40 to +71 degrees Celsius
Relative Humidity Range	0 to 90% non-condensing

Physical Specifications

Dimensions	5.57" Wide (connector side) 4.56" Deep, with mounting flanges 1.78" Tall
Construction	Extruded Aluminum Split Body
Finish	Black Anodized
Marking	White Epoxy Ink - Silkscreened
Weight	13 Ounces (typ); 16 Ounces (max)
Connectors	DB37 female – Digital Inputs DB15 female – Analog Inputs DB9 female – RS-232 port 2-Pin Shrouded Header – Power (Mating connector is Molex p/n: 50-57-9402)

