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Find the *WinSystems PCM-518* at our website: ***Click HERE***

WinSystems®
PC/104 MODULE

PCM-518
Intelligent PC/104
Sensor Interface Module

FEATURES

- Supports thermocouples, RTD's, strain gauges, voltage inputs, 4-20 mA current loops, and thermistors
- 8 Channels of 16-bit A/D resolution
- Each channel software programmable for sensor type and gain
- Onboard processor unburdens PC/104 system CPU by performing control, linearization, and conversion to engineering units.
- True four-wire circuits for resistive sensors
- Pulsed excitation source reduces self-heating in resistive sensors
- Totally electronic calibration - no trimpots to adjust
- Optional ADP-7409TC field termination board
  - Screw terminals for easy wiring
  - Supplied with 8 removable terminal blocks
  - Integral cold junction temperature sensor for thermocouples
  - Breadboard area for custom circuitry
  - Available with DIN snap rails

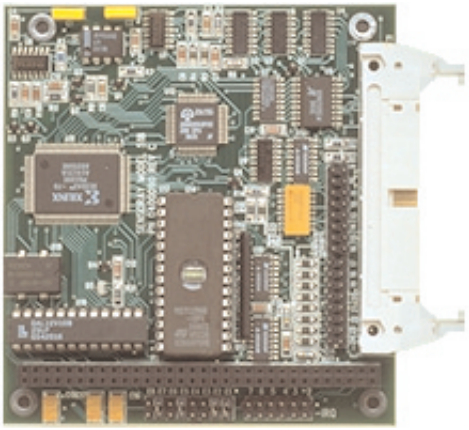
The PCM-518 module is a complete 8 channel analog subsystem designed to offer a simple and inexpensive way to acquire high precision sensor data for any PC/104 based system. It is optimized for temperature and low level signal measurements and includes signal filtering, sensor excitation and linearization on all channels. The onboard CPU performs all data acquisition control and preprocesses the data, thus reducing the software overhead by the PC/104 Bus host CPU.

Two termination boards, the ADP-7409TC and ADP-7409TDIN, are available that are an interface between field wiring and the PCM-518. They have removable screw terminal blocks, a temperature sensor, prototyping area, and analog signal conditioning area.

FUNCTIONAL CAPABILITY

PC/104 Interface - The PCM-518 is an 8-bit PC/104 stackthrough card that is I/O mapped requiring 2 contiguous addresses. The board will generate interrupts which are jumper selectable to the IRQ 2 - 7 lines on the PC/104 bus. Interrupts are enabled or disabled in software and are generated by an alarm violation, data available or control register empty.

Sensor Input - The PCM-518 supports eight independent, differential sensor channels with 16-bit resolution. Each channel is individually programmable for a different sensor type. Channel linearization, calibration, and



sensitivity are software-settable, eliminating trim potentiometers and the need for board access. Analog-to-digital conversion is performed in under 8 milliseconds, providing 110 channels-per-second scan rate.

The PCM-518's onboard microprocessor continuously scans and updates all channels with new A/D conversions. Each channel is amplified, filtered, digitized, linearized, converted to engineering units, tested against minimum/maximum limits, and stored in onboard memory, independent of the main PC/104 Bus host CPU's activity. The PCM-518's internal CPU is programmed to recognize a small but powerful set of commands. One of the commands, Define Channel Sensor, declares the type of sensor connected to a channel so that the specified channel will automatically be setup properly. This also permits any combination of sensors to input the PCM-518 card in any mix.

Each channel is over-voltage protected and may be directly connected to an unconditioned sensor. Signal conditioning is produced for thermocouples, RTD's strain and pressure gages, resistors, thermistors, and voltage inputs. A pulsed constant voltage source supplies excitation to other resistive sensors. Constant current excitation combined with true four-wire circuits completely eliminates lead-loss errors for RTD's, thermistors, and resistors.

Signal conditioning is provided for thermistors, RTDs, thermocouples, strain and pressure, resistance and voltage inputs. Standard correction compensation for nonlinear resistive sensors is built-in. Custom compensation can be downloaded.

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Sensor	Resolution	Range
Thermocouple	0.1°C	-270°C to 1760°C
Thermistor	0.01°C	-55°C to 145°C
Resistors	0.03	0 to 600k
RTD's	0.05°C	-200°C to 800°C
Strain/pressure	5uV	+100 mV
DC voltage	10uV	+500 mV, +10 V
Current loops	0.01%	4 to 20 mA

The board periodically calibrates itself by measuring internal references. Reference junction compensation is automatically performed for thermocouples using a reference transducer on the ADP-7409TC or ADP-7409TDIN termination board. This reference transducer uses a special dedicated channel so that all eight sensor channels remain free for application use. Reference data is stored in a EEPROM so that the PCM-518 boards may be quickly interchanged without hassle. Board calibration is easily performed with the aid of a menu-driven calibration procedure.

Field Wiring - The ADP-7409TC and ADP-7409TDIN termination boards are the recommended interface between field wiring and the PCM-518. The ADP-7409TC is designed for panel mounting while the ADP-7409TDIN is assembled into a mechanical carrier for DIN rail mounting. They have removable terminal blocks, a temperature sensor, prototyping area, and analog signal conditioning area for thermocouples.

A low-pass filter and open-sensor detection circuit may be connected to any channel by installing jumpers. They must installed for thermocouple use.

The PCM-518 and ADP-7409TC/7409TDIN are connected by the CBL-126-2, 24 inch 40-pin ribbon cable connector.

ADP-7409TC/TDIN I/O Terminals - Each channel is supplied with a removable terminal block that has five screw terminals: two for voltage input, two for sensor excitation, and one shield. Field wires need only be stripped of insulation and screwed into the terminal block.

SPECIFICATIONS

Electrical

PC/104 Interface: 8-bit, stackthrough
Max input voltage: 63 VAC rms
Common Mode Rejection: 90 dB minimum
A/D converter: 16-bit integrating
Conversion time: 8mS or 16mS
A/D scan rate: 110 samples/Sec
Power: ±12.0 VDC ±5%, 35mA
+5.0 VDC ±5%, 150mA

Mechanical

Dimensions: 3.6" x 3.8" (91mm x 96mm)

Connectors

Sensor Input: 40-pin on 0.100" centers
Jumpers: 0.025" square posts

Environmental

Operational Temperature: -25°C to +85°C

ORDERING INFORMATION

PCM-518	8-channel Sensor Interface Module
ADP-7409TC	Field termination board
ADP-7409TDIN	7409TC with DIN snap rails
CBL-126-2	40-conductor 2 foot cable

WinSystems®, Inc.
715 Stadium Drive ● Arlington, Texas 76011 ● (817) 274-7553 ● http://www.winsystems.com

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