PACIFIC INSTRUMENTS
A VPG Brand

Metromatics MODEL 6018

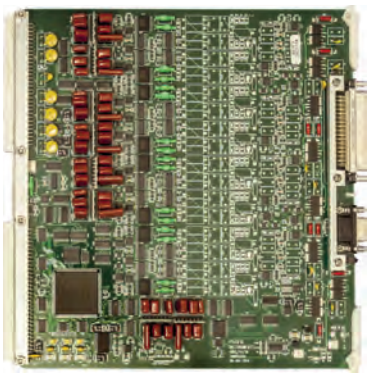
8-Channel RTD / Potentiometer Amplifier-Filter-Digitizer

The 6018 input module has eight channels, each with programmable constant current excitation, programmable gain instrumentation amplifier, low pass filter and sample and hold. The high level outputs are multiplexed and digitized to 16 bits then output to the 6000 data bus.

The 6018 is used with RTDs, potentiometers and low-level voltages. Each channel has a highly-stability constant current transducer excitation supply that is programmable from 0.5 to 5mA. A four wire input provides individual signal and excitation leads for high-accuracy measurements. Resistance substitution is provided for calibration of RTDs and other resistive transducers.

Voltage substitution is provided for channel gain calibration utilizing an external voltage standard. A calibration attenuator enables the voltage standard to be used on its highest accuracy ranges and provides a post-attenuator output on the rear panel for calibration. Using Pacific's PI660 software zero and gain calibrations are automatic.

The four-pole, low-pass filter uses an easily changed plug-in module to set bandwidth. Either the wideband or filtered output may be digitized and sent to the 6000 data bus. Two programmable alarms with upper and lower limits are checked each time the outputs are digitized. High-level analog outputs provide a means to independently monitor or record each channel.



FEATURES

- **RTDs, potentiometers & other current excited transducers**
- **Programmable current excitation**
- **Gains 1 to 5,000 with 0.05% accuracy**
- **Automatic zero & gain calibration**
- **Four-pole, low-pass filter**
- **Up to 10 kS/s per channel with 16-bit resolution**
- **Two alarms with programmable upper & lower limits**

SPECIFICATIONS

INPUT

Configuration .....8 channels, differential, 2 wire with shield.
Range .....±2 mV to ±10 Volts.
Impedance .....50 Megohms, shunted by 1,000 pf.
Protection.....±50 Volts differential, ±50 Volts common mode.

RTD INPUT

RTD Type .....10 Ohms to 1000 Ohms.
Configuration .....4 Wire with shield.

EXCITATION / TRANSDUCER POWER

Current.....Programmable current from 0.5 mA to 5 mA, ±0.05% in 0.5 mA steps. A short on one channel will not affect other channels. Other ranges can be accomodated.
Compliance .....10 Volts.
Stability.....±0.01%, ±0.005%/°C.

AMPLIFIER

Gain.....Programmable 1-5000, in 1, 2, 3, 5 steps, with ±0.05% accuracy.
Gain Stability..... ±0.01%, ±0.005%/°C.
Bandwidth.....1 kHz (-3dB).
Linearity.....±0.01% for gains < 1,000, ±0.02% for gains 1,000 and higher.
Common Mode .....80 dB plus gain in dB up to 110 dB, DC to 60 Hz.
CM Voltage.....±10 Volts.
Zero .....Automatic to ±1µV RTI, ±0.5 mV RTO.
Zero Stability.....±5µV RTI, ±1 mV RTO, ±1µV/°C RTI. ±0.2 mV/°C RTO. Short term: ±2µV RTI, ±0.4 mV RTO for 8 hours.
Source Current .....±5nA, ±0.01nA/°C.
Noise (10 Hz) .....0.1 µV RMS, RTI.
Noise (1kHz) .....1.0 µV RMS, RTI.
Recovery.....800 µS to ±0.1% for 10X overload to ±10 Volts.
Analog Output .....±3.0 Volt full scale, unfiltered.

FILTER

Type .....Four-pole, low-pass Butterworth.
Frequency.....Plug-in, 4Hz to 1kHz, 10 Hz supplied
Noise .....1.0 mV RMS RTO.
Other.....Other filter characteristics and cut offs available.

DIGITIZER

Sample.....Simultaneous sample & hold, within ±50 nS channel-to-channel. Droop is less than ±0.005%.
Resolution .....16 bits, two's complement output.
Sample Rate .....Up to 10 KS/s per channel.
Linearity .....±2 LSB (±0.006%).
Continuity.....Monotonic to 15 bits.
Alarms.....Two alarms each with upper and lower limits that are programmable from negative to positive full scale. Limits checked on each ADC sample.

CALIBRATION

Resistance.....Substitution of precision calibration resistor. 100 Ohm ±0.1% supplied.
Voltage Subst. .....Alternate input for external calibration reference. Programmable attenuation steps of 1, 0.1, and 0.01 with ±0.01% accuracy. Output of the attenuator is provided on a rear panel connector for calibration.
Zero .....Amplifier input disconnected and shorted.

MECHANICAL

Mounting.....Occupies one slot in Series 6000 enclosures.
Connectors .....Input connector is 50-pin Type D. Connectors are mounted on the front and mates are supplied.
Temperature .....0°C to +50°C operating.

ACCESSORIES

SCREW TERMINAL ADAPTER (6081)

Termination .....8 channels, screw clamp terminals for inputs and outputs, #18 to #28 wire.
Mounting.....Installs on the front of the input module behind the enclosure door. Cables route to the rear through the enclosure's cable tray.

ORDERING INFORMATION

6018 .....8-Ch RTD / Potentiometer.
6081 .....Screw Terminal Adapter.

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