PACIFIC INSTRUMENTS

MODEL 6152
4-Channel Transducer Amplifier

Series 6100 is an computer automated, transducer signal conditioning amplifier system. Each 6100 enclosure holds 64 channels of the 6152 Transducer Amplifiers. Systems are expandable to 1,024 channels using multiple enclosures. They are available with USB 2.0, IEEE-488 or Ethernet interface and software for Windows XP.

The 6152 module has four channels of high performance signal-conditioning amplifiers for strain gages and bridge transducers. Each channel has programmable excitation with remote sensing, voltage calibration, local and remote shunt calibration, programmable gain instrumentation amplifier, four-pole low pass filter and buffered ±10 Volt analog output.

The 6152 is used with quarter, half and full bridge transducers, potentiometers and low-level voltage signals in demanding applications such as load control. The standard filter is a 4-pole, low-pass Butterworth with plug-in frequency module. The filter frequency may be specified from 4 Hz to 20 kHz. The PF option is a four-pole low-pass filter with programmable cutoff frequency

Voltage substitution using an external voltage standard is provided for traceable gain calibration. Internal or external shunt calibration is provided for transducer calibration. Transducer balance, zero and gain calibration are automatic. The output may be selected for wideband or filtered response.

FEATURES

- **Programmable excitation with remote sensing**
- **Programmable input configuration**
- **Shunt and voltage calibration**
- **Automatic zero and balance**
- **Gains 1 to 5,000 with 0.05% accuracy**
- **Optional programmable filter, 4 Hz to 20 kHz**
- **±10 Volt analog output**

SPECIFICATIONS

VOLTAGE EXCITATION

Output .....Programmable from 0-12 Volts in 1 Volt ±0.1% steps, with 3.3 mV resolution adjustment.
Current .....50 mA limited to 70 mA.
Regulation .....±0.01% for ±10% line and no-load to full-load using remote sensing.
Stability .....±0.01%, ±0.005%/°C.
Noise .....200 µV peak to peak.
Monitor.....Calibration mode applies excitation voltage to amplifier input.

INPUT

Configuration .....2 to 8 wire with guard shield. Bridge configuration is programmable for ¼, ½ and full bridge, 120 Ohm and 350 Ohm.
Balance .....Automatic by program control. Balance accuracy ±0.05% of range, ±1 mV RTO. Stability ±0.02% for 8 hours, ±0.005%/°C. Range set by resistor up to 10 mV/V, 2 mV/V (for 350 Ohms) installed.
Impedance .....50 Megohms shunted by 1,000 pF.
Protection.....±50 Volts differential and common mode.

CALIBRATION

Shunt .....Single step shunt, either polarity, internal or external connection, 0.502 mV/V (350 Ohm bridge), ±0.1% installed.
Voltage .....Alternate input for external calibration source. Programmable attenuator with steps of 1, 0.1 and 0.01, ±0.01% accuracy. Output of the attenuator is provided for calibration.
Zero .....Amplifier input disconnected and shorted.

AMPLIFIER

Gain .....Programmable from 1 to 5,000 in 1, 2, 3, 5 steps with ±0.05% accuracy
Gain Stability .....±0.01%, ±0.004%/°C.
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 106 dB, DC to 60Hz for ±10 Volts.
Zero .....Automatic to ±1 µV RTI, ±0.5 mV RTO.
Zero Stability.....±5 µV RTI, ±1 mV RTO, ±1 µV/°C RTI, ±0.2 mV/°C RTO. Short term: ±2 µV RTI, ±0.4 mV RTO.
Source Current .....±25 nA, ±0.01 nA/°C
Noise (10 Hz).....0.1 µV rms, RTI.
Noise (10 kHz).....2 µV rms, RTI.
Bandwidth .....20 kHz (-3dB).
Slew Rate.....5 V/uS.
Recovery.....800 µS to ±0.1% for 10X overload to ±10 V.
Analog Output.....±10 Volt full scale, 20 mA. Programmable wideband or filtered response.

FILTER (STANDARD)

Type .....Four-pole, low pass Butterworth.
Frequency.....Plug-in, 4 Hz to 20 kHz, 10 Hz supplied unless otherwise requested.
Resolution .....1 Hz up to 1 kHz and 5 Hz above 1 KHz.
Noise .....0.5 mV rms, RTO.

FILTER (OPTION PF)

Type .....Four pole, low pass Butterworth.
Frequency.....4Hz to 20kHz.
Noise .....0.5 mV rms, RTO

GENERAL

Mounting .....Occupies one slot in Series 6100 enclosures.
Connectors .....Input is 50-pin Type D, output is 9-pin Type D.
Temperature .....0°C to +50°C operating.

ORDERING INFORMATION

6152 .....Four-channel transducer amplifier 20kS/s bandwidth.
Opt. PF .....4-Ch. Programmable filter, 4 Hz to 20 kHz.

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