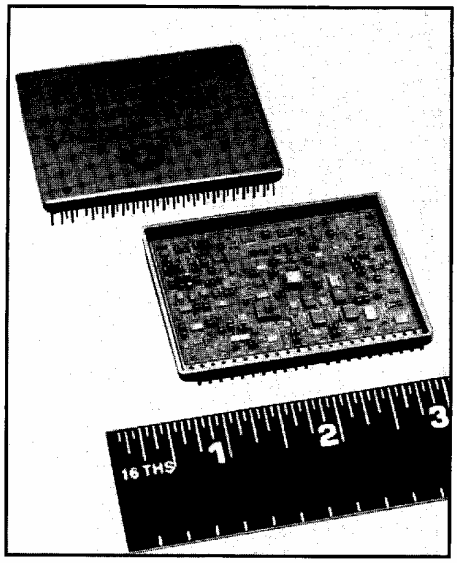
PROGRAMMABLE SIGNAL CONDITIONING HYBRIDS

SSC-2008 Super Signal Conditioner

The SSC-2008 is a complete ultra high precision signal conditioning module that contains its own 12-bit, 6 μS digitizer, excitation sources, and bridge balancing circuits.

The SSC-2008 module is intended to excite, balance, condition and digitize a wide range of transducers such as strain gauges, RTD's, pressure transducers, potentiometers, microphones with frequency outputs up to 20 kHz, and accelerometers with the addition of external capacitors.



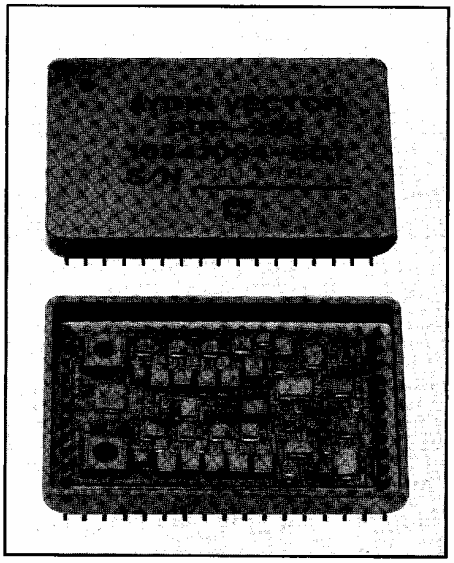
Features

- Digitally Programmable Instrumentation Amplifier
- 6 Pole Programmable Butterworth Filter
- Excitation Voltage, 12 Bit Programmable
- Offset Correction, (2) Each 12 Bit Programmable
- Dual, Tracking Constant Current Sources
- 12 Bit Digitized Output 6 Microsecond Conversion Time
- TTL, and CMOS Compatible Logic Signals

PDF-288 Programmable, Dual Channel, Presample Signal Conditioner

The PDF-288 is a two (independently programmable) channel, microprocessor compatible, presample signal conditioner, designed for applications requiring high performance measurements. The PDF-288 is particularly suited for systems with programmable calibration functions.

Each channel consists of an input source selector switch, for calibration functions, followed by a differential instrumentation amplifier with eight, software programmable gains. After the amplifier is an eight-pole, Butterworth, low pass filter, preset for a cutoff frequency of 5 Hz. The cutoff frequency can be set to any value up to 15 kHz, by adding eight resistors outside the hybrid. Following the filter, is a buffer amplifier, which is suited to driving an analog switch, such as a multiplexer or a low impedance amplifier for direct transmission.



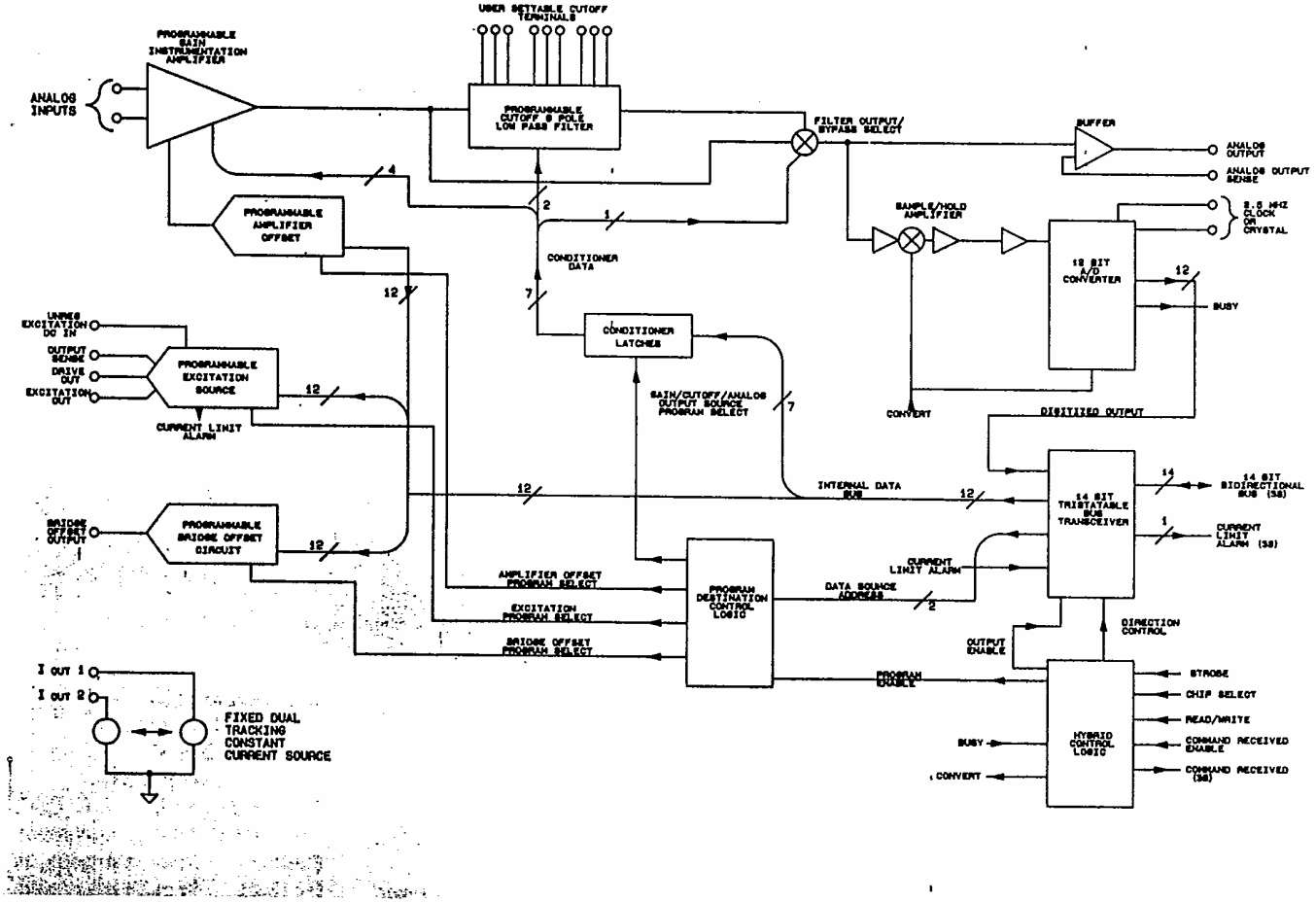
Features

- Inputs Support System Calibration Functions
- Differential Inputs
- Two Independent Channels
- Programmable Instrumentation Amplifier with Eight Gains
- Eight-Pole Low Pass Butterworth Anti-Aliasing Filter
- Output Buffer-per-Channel
- Addressing Capability
- Microprocessor Controllable

The PDF-288 has separate inputs for voltage calibration. It has two TTL/CMOS compatible inputs, which are used to select one of three input sources: signal, voltage calibration source or zero-volts-in; for the zero calibration function.

The hybrid has three address bits, which are pulled low, or left floating (high) so that each PDF-288 can be given a unique address. It receives address data, program data and two control bits for communications with a digital controller.

SSC-2008
Block Diagram



Common Mode Rejection	90dB for gain = 1
1000 ohm Source Imbalance:	140dB for gain = 1000
Common Mode Impedance:	1000 Megohoms shunted with 4pF
Input Voltage Range:	±10Vdc or 20V P-P AC

Filter:

Four cutoff frequencies, selectable digitally: 10Hz, 50Hz, 200Hz, 400Hz

Note: Other frequencies are available in groups of four.

Range:	10Hz to 20KHz
Pass Band Accuracy:	0.06dB to 0.25Fc 0.2dB to 0.5Fc
Roll Off Accuracy:	-3dB point at Fc to ±0.5dB
Phase Accuracy:	±2° max from module to module at given gain cutoff frequency and temperature.
Attenuation:	Greater than 35dB per octave

Excitation Supply:

Excitation Voltage:	Programmable 0-10.24 volts in 4096 steps
Excitation Current:	5mA continuous, foldback protected for indefinite short circuit. Note: Outputs for attachment of external current boost transistor are provided.
Output Impedance:	5 ohms
Line Regulation:	Less than 4mV from no load to full load (0 to 100% load variation). This technique is accomplished by the use of sense line at the load.
Excitation Voltage vs Temperature	0.005%/degree C

Offset Correction: Accomplished by two 12 bit DACs, and setable to 0.1% at the highest gain.

Digitizer:

Resolution:	12 Bit
Conversion speed:	6 usec max
Accuracy 25°C:	0.1%
Over Temperature:	0.3%
Clock Requirement:	2.5 MHz 50% Duty Cycle CMOS Clock or 2.5 MHz crystal.