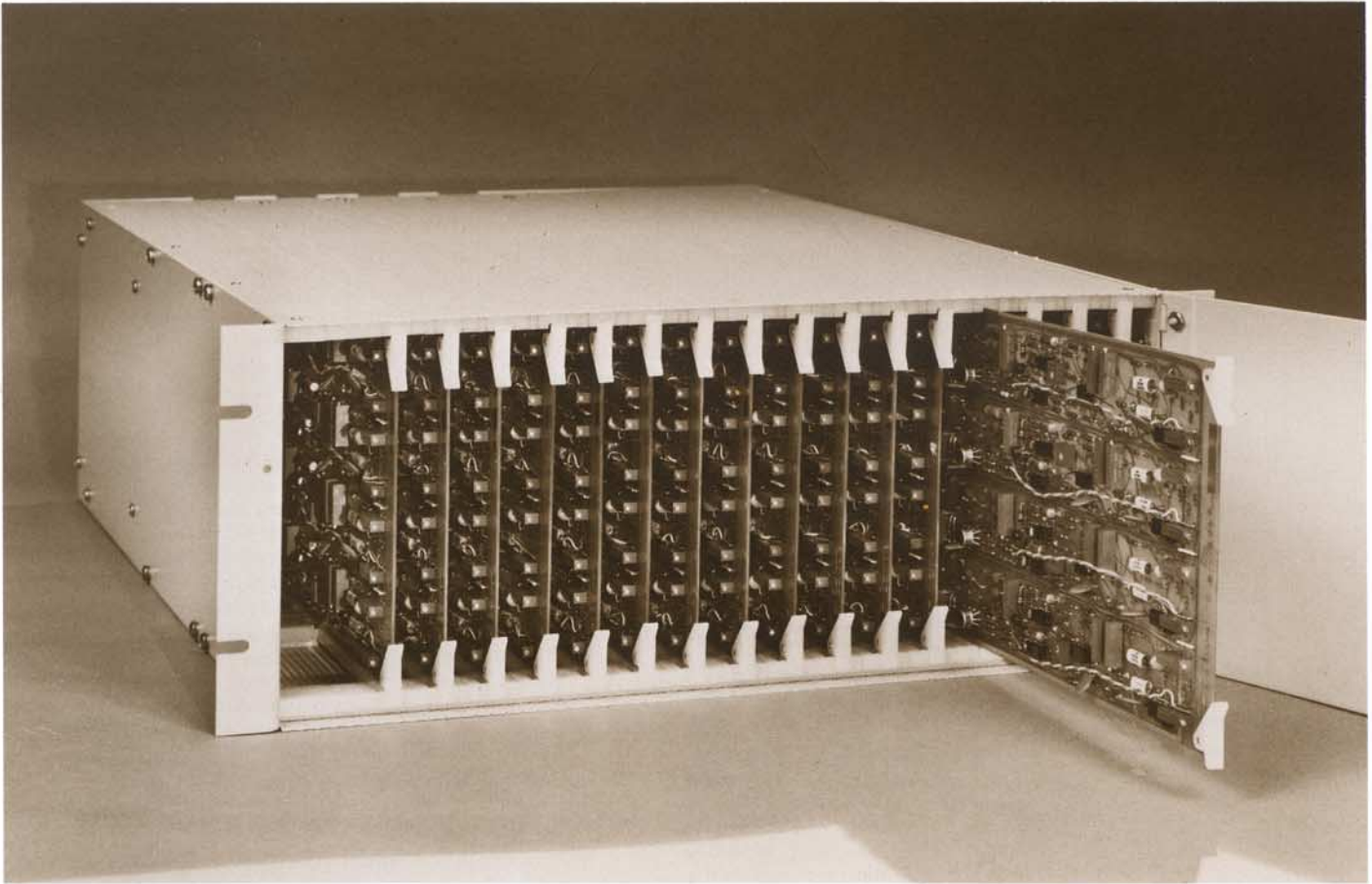




## 540 SERIES

FOUR CHANNEL DIFFERENTIAL DC  
AMPLIFIER SIGNAL CONDITIONER



### FEATURES

- 4 Channels Per Card
- 64 Channels Per Enclosure
- Bridge Calibration
- Independent Amplifiers

### DESCRIPTION

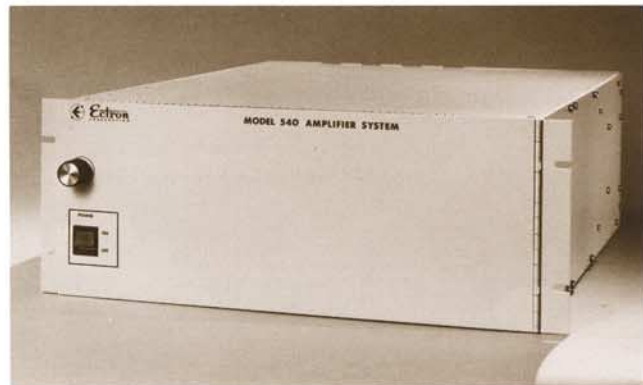
The Ectron Model 540 is a single plug-in card incorporating 4 independent direct coupled differential amplifiers with optional strain gage signal conditioning. They are designed for use as the "front end" in data logging or data acquisition and other systems where a large number of channels of amplification and/or signal conditioning is required.

Each of the 4 channels on a plug-in card is independent and they are differential direct coupled amplifiers with connection of guard to input source providing adequate return path. Each channel may be used inverting, non-inverting, differential or single-ended.

Individual amplifier gain and filter cut-off frequency, for each channel, is set by simple plug-in or solder-in components which may be changed at any time.

Optional bridge signal conditioning features both Bridge Calibration and Bridge Completion including individual balance potentiometers accessible from the front of the units.

The companion 7 inch high standard 19 inch rack mount enclosure, Model R540-2, provides the capability to house up to 16 Model 540 cards (64 channels). The Model R540-1 accepts 10 Model 540 cards (40 channels), plus 2 Model P540-5SG plug-in excitation supplies.



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FOUR CHANNEL DIFFERENTIAL DC  
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### SPECIFICATIONS

|                        |                                                                                                                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Configuration:   | Differential, direct coupled, may be used inverting, non-inverting, differential or single-ended. Connection of guard to input source provides adequate return path.                                                                                                                  |
| Input Impedance:       | 20M ohms and .001mfd.                                                                                                                                                                                                                                                                 |
| Common Mode Rejection: | 110dB DC to 60Hz with 350 ohm unbalance, Gain = 1K                                                                                                                                                                                                                                    |
| Common Mode Voltage:   | Operating: $\pm 10V$ including signal<br>Overload: $\pm 50V$ Continuous without damage                                                                                                                                                                                                |
| Zero Drift:            | $\pm 1\mu V/^\circ C$ RTI $\pm 150\mu V/^\circ C$ RTO                                                                                                                                                                                                                                 |
| Gain:                  | Any single fixed gain between x1 and x1000 by fixed plug-in resistor. A gain vernier provides 3% range with 0.01% resolution.                                                                                                                                                         |
| Gain Stability:        | 0.005%/° C plus stability of gain determining plug-in resistor.                                                                                                                                                                                                                       |
| Linearity:             | 0.005% of full scale                                                                                                                                                                                                                                                                  |
| Frequency Response:    | DC to 80KHz $\pm 3dB$ .                                                                                                                                                                                                                                                               |
| Full Power Bandwidth:  | DC to 20KHz                                                                                                                                                                                                                                                                           |
| Filter:                | Two pole with any single frequency cutoff between 10Hz and 1000Hz by two capacitors on solder terminals.                                                                                                                                                                              |
| Noise, Peak 3 Sigma:   | 1Hz to 10Hz $.75\mu V$ RTI + $50\mu V$ RTO<br>10Hz to 1KHz $4\mu V$ RTI + $0.5mV$ RTO                                                                                                                                                                                                 |
| Output Impedance:      | Less than 1 ohm, at DC.                                                                                                                                                                                                                                                               |
| Output Capability:     | $\pm 10$ Volts DC at 5 MA, 10 MA at $\pm 5V$                                                                                                                                                                                                                                          |
| Crosstalk:             | If three amplifiers on one card are set to a gain of x1 with an input signal of 20V p-p at 1KHz, and a fourth amplifier is set to a gain of x1000 with a shorted input, crosstalk to the fourth amplifier will not exceed 5 microvolts RTI. Crosstalk decreases at lower frequencies. |
| Operating Environment: | 0 to 55°C, 95% R.H. to 40°C.                                                                                                                                                                                                                                                          |
| Storage Temperature:   | -25°C to 71°C                                                                                                                                                                                                                                                                         |

### OPTIONAL FEATURES

|                     |                                                                                                                                                                                                                                        |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bridge Calibration: | Shunt Resistance Calibration is provided by means of remotely controlled FET switch. The calibration resistor mounts on pin jacks provided. A single external switch closure will calibrate all channels in the system simultaneously. |
| Bridge Completion:  | Terminals are provided on the card for "Solder on" completion resistors for each channel. A bridge balance potentiometer for each channel is accessible from the front of the amplifier card.                                          |

### ENCLOSURES

The Model R540-1 enclosure with AC Power Supply will accept 10 Model 540 four channel amplifiers and 2 Model P540-5SG plug-in excitation power supplies.

The Model R540-2 enclosure with AC Power Supply will accept 16 Model 540 four channel amplifiers.

Size: 7 inches high by standard 19 inch width by 21 inches deep.

Wiring: Input and output wiring is soldered by user directly to card edge connectors provided and mounted on the enclosure. Wiring to the amplifiers from power supply is provided by the factory. AC line cord supplied.

The internal AC power supply provides the necessary +20V and -15V DC power for up to 64 channels. The enclosure is equipped with a power on-off switch, fuse and front panel light.

### EXCITATION POWER SUPPLY

The Model P540-5SG plug-in excitation power supply will drive 20 parallel bridges at any voltage between 0 and 10V in 1V steps with  $\pm 10\%$  vernier. Output capability is 1.7 amps. The Model R540-1 enclosure will accept two of these power supplies.

### ORDERING INFORMATION

Model 540 Channel Amplifier Card  
Optional Bridge Calibration, Option A  
Optional Bridge Completion, Option B

Model R540-1 Enclosure  
Model R540-2 Enclosure  
Model P540-5SG Power Supply

Delivery: 30-90 days ARO.

Specifications subject to change without notice.

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