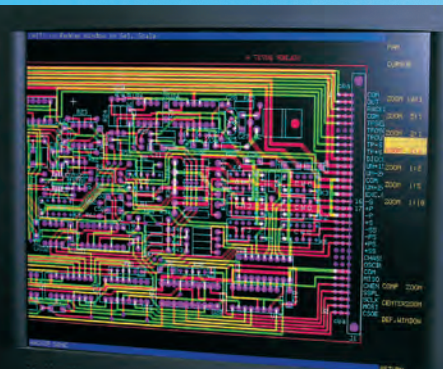


Encore Electronics, Inc.

Short Form Product Catalog



www.encore-elec.com

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Encore's Products and Services

Signal Conditioners

Encore Electronics manufactures signal conditioners and amplifiers for signals from strain gages, LVDTs, accelerometers, thermocouples, RTDs, pressure transducers and flow sensors. They are available in various configurations including rack assemblies, DIN-rail mount and computer-controlled amplifiers.

Applications

Encore's products and services are used in a wide variety of engineering, industrial and technology applications including aircraft engine, automotive and turbine testing, product design, research and development, power generation and aerospace electronics.

Custom Engineering and Services

Encore's engineering staff and associated test and shop facilities permit a quick response to your individual signal conditioning requirements.

Our specialty is designing and building customized units to meet your specific needs.

Encore's Delivery

In-stock units can ship overnight. Most custom requests, including new designs, are fulfilled and shipped within 4 weeks of receipt.

Rental

Equipment rentals are available on a monthly basis for your short term needs. Purchase options based on length of rental are available.

Additional Services

- Electronic cabling and assembly
- Small scale sheetmetal fabrication
- Painting and screen printing on metal
- Computerized PC board layouts

Quality Control

Encore's quality control system is in accordance with MIL I-45208A. We maintain a quality control manual available for review. ISO9001:2000 certification is pending.

Encore Electronics, Inc.

Since 1967, Encore Electronics, based in New York State, has pioneered custom designs and instrumentation that fulfill our customers' needs worldwide.

Please call us today with your application needs.

866-936-2673

Vibration Instrumentation

Encore Electronics offers a wide variety of vibration monitors, conditioners and amplifiers for applications using accelerometers.



Model 144

Accelerometer Conditioner

Compact and economical package in a two-channel portable carry case.

SPECIFICATIONS

Three output modes: $\pm 10V$ at filtered signal frequency; $3\frac{1}{2}$ digit LED volt-meter readout; relay trip protection

Input signal: Accelerometer/charge converter; typically 50mV/g

Excitation: 4mA DC constant current to charge converter; 24VDC compliance

Gain: Front panel switch selects pre-filter gains of 0.1, 1, or 10. Overall range 0.1 to 200

Bandpass filter: Sharply tuned twin-tee filter at 120Hz (factory adjusted from 40Hz to 5kHz)

AC output: Acceleration signal 120Hz filtered (0-7VRMS max)

DC output: RMS/DC output (0-7VDC) or 4-20mA

Display: $3\frac{1}{2}$ digit LED meter indicates RMS/DC output

Alarm level: Settable by front panel trimpot from 0.1-7VRMS

Mechanical: Available in a two-module carry case



Model 149

Dual Channel Charge Amplifier Module

Provides a DC (RMS) signal from charge mode accelerometers for acceleration, velocity and displacement in engineering units.

SPECIFICATIONS

Input signal: Charge output from accelerometer

Input sensitivity: 1 to 11pC/g or 10 to 110pC/g with 10-turn locking adjustment

Acceleration gain: Front panel switch selects 10mV/g or 100mV/g

Acceleration frequency response: 5Hz to 15kHz (factory adjustable)

Integration: Two stages convert acceleration to displacement, unity gain frequency set at 350Hz

Displacement gain: Front panel switch selects 10mV/mil or 100mV/mil

Acceleration output: $\pm 10V$ max, 10mA peak load

DC output: DC voltage equal to RMS value of either acceleration or displacement signal, selected by front panel switch; +7VDC max

Maximum signal input: 12000pC peak, up to 2kHz

Calibration: Onboard sinewave charge source

Mechanical: 19"W x 5.25"H x 9"D, eight module 16-channel rack adapter or two module four-channel carry case



Model 158

Vibration Amplifier

Used to convert acceleration signal inputs to velocity outputs. Typically scaled for 2 inches/second peak velocity when used with a 100mV/g accelerometer.

SPECIFICATIONS

Input: Accelerometer, 100mV/g sensitivity

Accel excitation: 4mA $\pm 2\%$ at 24VDC to input connection

Output: 4-20mA current loop output, into 0-600 ohms load resistance

Full scale output: 2 inches/second peak velocity results in 20mA output

Zero signal output: Zero acceleration results in 4mA output

Calibration level: 0.14VRMS input (1.4gRMS) at 60.14Hz results in full-scale 20mA output

Frequency range: 5Hz to 2000Hz filtering, or customer-specified range

Accel signal output: Buffered accelerometer signal on separate BNC

Sensor fault alarm: Red LED indicating open/shorted accelerometer reduces 4-20mA output below 2mA



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Vibration Instrumentation



Model 165

General Purpose Vibration Monitor

Switch-selectable to display acceleration, velocity or displacement.

SPECIFICATIONS

Input: 100mV/g accelerometer with 15 ft. cable (included)

Accel excitation: 4mA $\pm 2\%$ at 24VDC to input connection

Lowpass filter output: Switch-selectable acceleration, velocity or displacement display

Highpass filter: 1.6Hz or customer-specified

Integration: Two stages of integration with unity gain at 40Hz

Connectors: BNC



Model 521/522

Dual Channel Low Cost AC Vibration Amplifier Module

Plugs into Encore's 19" eight-slot rack or two-slot carry case.

Eight-slot rack accommodates up to eight modules for 16 channels. Amplifier provides gain, noise filtering and RMS/DC output for any voltage input signal. Front panel gain adjustments provided to match output to desired engineering units. Model 522 adds an integration stage.

SPECIFICATIONS

Transducer excitation: -20VDC at 6mA per channel

Input signal: Voltage 0 to 70VRMS max

Gain: Three calibrated settings of 0.1, 1, and 10, plus 10:1 attenuator

Integrator frequency (522): Unity gain at 307Hz, factory adjustable

Frequency response: 10Hz to 100kHz

Signal output: $\pm 10V$ max, 10mA peak load



General Purpose Signal Conditioner System (GPSC)

Designed with common edge card wiring to accommodate various modules.

Operates on 115VAC or 12VDC through a modular power supply.

Common cal input on the rear of the chassis provided to calibrate the entire system.

The GPSC rack or two module carry case may be populated using any combination of the following modules:

Model 118 - Potentiometer Conditioner

Model 119 - LVDT/LVRT Conditioner

Model 145 - Dual Channel Charge Amplifier

Model 149 - Dual Channel Charge Amplifier

Model 151 - Digital Voltmeter Module

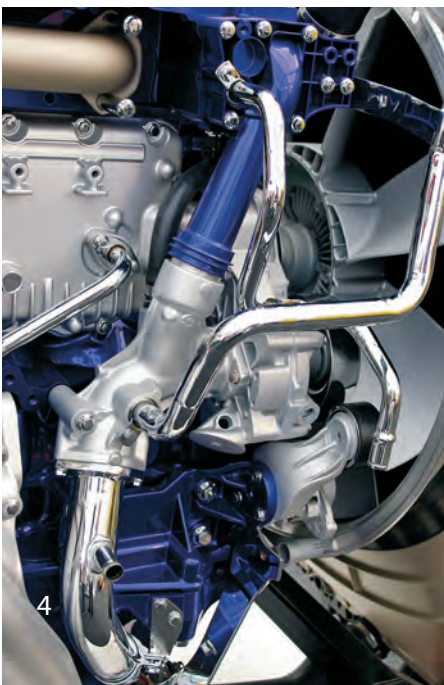
Model 223 - F/V Converter

Model 521 - Proximity Conditioner

Model 522 - Vibration Amplifier with Integrator

Model 633 - Strain Gage Amplifier

Model 849 - DC Power Supply Module
10 to 15VDC input
(portable applications)



Signal Conditioners

Encore Electronics designs and manufactures instrumentation to work in conjunction with various signals and to meet specific customer needs.



Model 146
Load Cell Conditioner

Strain gage conditioner for load cell applications. 4½ digit LCD display switch-selectable to show excitation or amplifier output.

SPECIFICATIONS

Gain: Switch-selectable from 1 to 1000 in log steps with vernier

Offset: Referred-to-input and referred-to-output offset adjustment pots

Filter: Switch-selectable lowpass filter at 10, 100, 2k or 10kHz, plus bypass

Output: ±10VDC max, up to 10mA load

Excitation: 1.25VDC to 15VDC, front panel adjustable, plus on/off switch

Bridge completion: Internal completion resistors for full, half or quarter bridge configurations

Bridge balance: 10-turn locking trimpot plus coarse/medium/fine range select

Calibration: Switch-selectable precision cal resistors can be placed across one leg of the bridge



Model 147
LVDT Signal Conditioner

4½ digit LCD display switch-selectable to show excitation, calibration voltage, or amplifier output. Available with two- and four-module bench top carrying cases.

SPECIFICATIONS

Gain: Switch-selectable 0.5, 1, 2, or 5 with vernier

Filter: Fixed lowpass filter at 1kHz, four-pole Bessel response

Output: ±10VDC max, up to 10mA load

Excitation: Two sources, +18VDC and +6VDC front panel adjustable

Suppression: 10-turn lockable trimpot adjusts DC offset injection from 0-6VDC

Connectors: Bridge inputs are PT02-style bulkhead connectors; amplifier outputs are BNC



Model 227
Analog Frequency to Voltage Converter

Wideband converter with six frequency ranges from 200Hz to 10kHz and input isolation to 1000V.

SPECIFICATIONS

Input: 0.025V peak to 100V peak
Input isolation: Transformer isolated to 1000VRMS

Common mode rejection: 2.5VRMS DC to 1kHz will not trigger the unit

Frequency range: Six full scale ranges selected with front panel switch; 200Hz, 500Hz, 1kHz, 2kHz, 5kHz, 10kHz

Analog output: 0-10VDC full scale output with front panel trimpot to adjust span; front panel BNC for voltmeter monitoring

Mechanical: 19"W x 5.25"H x 11"D for a six-module rack assembly, two-channel portable carry case also available



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Signal Conditioners



Model 422

Thermocouple Isolation Amplifier

Each module is dual channel with CJC for Type J thermocouples. Type K available upon request.

TC isolated from the output by up to 3500VDC. Millivolt signals can also be isolated and amplified.

SPECIFICATIONS

Input: Type J thermocouple connector (type K also available) or millivolt signal

Cold junction compensation: Type J or K

Output: 10mV per °C; 3.1mV at 0°C

Voltage input scaling: Factory set at unity gain; other gains available

Gain accuracy: $\pm 0.5\%$ max

Input-output isolation: $\pm 3500\text{VDC}$ or 2500VRMS

Open TC indication: Front panel LED on open channel

Frequency response: Two-pole low-pass filter with -3dB point set at 10kHz

Mechanical: PC boards mounted in ten-channel 19" rack adapter



Model 619M

Instrumentation Amplifier with Filtering

Low cost differential amplifier useful in test environments where high CMRR is desired.

SPECIFICATIONS

Input signal: $\pm 10\text{V}$ max on $\times 1.0$ range; $\pm 100\text{V}$ max on $\times 0.1$ range

Input impedance: 100k ohms minimum each input

Operating modes: DC coupled, AC coupled, zero

Gain: Switch-selectable 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000 plus $\times 1.0/\times 0.1$ attenuator

Gain vernier: Continuously adjustable lockable 10-turn dial spans gain steps

CMRR: 75dB, DC to 70Hz

Frequency response: DC to 100kHz unfiltered

Filter: Four-pole lowpass filter, switch-selectable for 300Hz, 1kHz, 20kHz and out

Other frequencies available on request

Signal output: $\pm 10\text{V}$ max, 10mA peak load

Output noise: 10mV RMS RTI max, DC to 20kHz at $G=1000$

Input DC offset suppression: 0 to $\pm 1.2\text{V}$ in $\times 1.0$ range, 0 to $\pm 12\text{V}$ in $\times 0.1$ range

Available in two- and six-channel configurations



Model 632

Strain Gage Amplifier

Auto balance, adjustable bridge excitation, selectable bridge completion with capacity of sixteen channels per 19" rack adapter.

SPECIFICATIONS

Bridge configuration: Quarter, half, and full bridges; switch-selectable

Bridge completion: Switch selects either 120 ohm or 350 ohm internal precision completion resistors

Bridge excitation: Front panel adjustable, 0 to 15VDC; front panel on/off switch; BNC provided for voltmeter monitoring

Bridge balance:

Auto: Remote control activation of bridge balance on all modules

Manual: Adjustable via front panel trimpot

Gain: Front panel switch-selectable gains of 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000

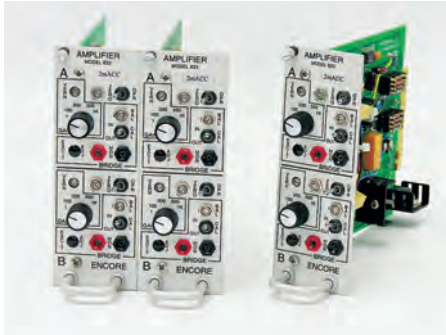
Frequency response: DC to 100kHz

Calibration: Shunt cal activated by remote command; internal cal resistors provided for 120/350 ohm bridges

Signal output: $\pm 10\text{V}$ max, 100mA peak load

Output noise: 5mV RMS RTI max, DC to 100kHz at $G=1000$

Signal Conditioners



Model 633

Cost-Effective Strain Gage Amplifier

Provides two channels per module, for up to sixteen channels per 19" rack.

SPECIFICATIONS

Bridge configuration: Quarter, half, and full bridges with internal bridge completion header.

Bridge excitation: Front panel adjustable, 1.25 VDC to 10.0 VDC; monitor jacks provided for voltmeter monitoring. Constant current excitation available.

DC shunt calibration: Front panel switch actuated header-mounted calibration resistor

Gain: Switch-selectable 1, 100, 200, 500, 1000 with adjustable gain vernier

Frequency response:
DC to 20kHz, -3dB, G=1 to 500
DC to 15kHz, -3dB, G=1000

Signal output: $\pm 10V$ max,
10mA peak load

Output noise: 5mV RMS RTI max,
DC to 20kHz at G=1000

Available in four- and sixteen-channel configurations



Model 635

Strain Gage Amplifier

Very low output noise, broadband response and auto-bridge balance.

Dual channels allow dynamic and static measurements simultaneously from one bridge.

SPECIFICATIONS

Bridge configuration: Quarter, quarter dynamic, half and full bridges; switch-selectable

Bridge completion: Switch selects either 120 ohm or 350 ohm internal precision completion resistors

Bridge excitation: Front panel adjustable, isolated 1.25VDC to 15.0VDC; front panel on/off switch; monitor jacks provided for voltmeter

Bridge balance: Front panel pushbutton or remote control activation of autobridge balance cycle

LED indicates unbalanced condition

Operating modes: Switch selects AC coupled, DC coupled, zero, DC cal or external cal signal

Gain: Main channel: Front panel 1- 5000; DC channel: Board-mounted jumper selectable gain of 1, 100, 200, 500

Frequency response: DC to 100kHz, with filters at 200, 500, 5k, 16k, 32kHz

DC channel: DC to 10Hz

Calibration: Shunt cal or external cal

Signal outputs: $\pm 10V$ max, 100mA peak load

Output limit: Front panel LED lights if output signal exceeds 1VRMS

Output noise: 2.5mV RMS RTI max,
DC to 32kHz at G=1000

A variety of rack adapters are available depending on the number of channels needed



Model 910

Rack Mounted Carrier Amplifier

Provides 1kV bridge isolation. Used where strain gages are mounted in an electrically noisy environment such as a 60Hz electromagnetic field. Provision is made for synchronization.

SPECIFICATIONS

Bridge configuration: Accommodates a 3-wire strain gage

Bridge completion: Completion resistors can be external or mounted to an internal header

Bridge excitation: 1.4-7VRMS at 10-20kHz with one common source for all modules in rack; frequency and amplitude are front panel adjustable; multiple racks may be synchronized to one master

Bridge balance: Front panel trimpots provide both resistive and capacitive balancing adjustments

Operating modes: Switch selects zero, null, operate or DC cal

Gain: Front panel switch-selectable gains of 100, 200, 500, 1000, 2000 with lockable gain vernier

Isolation: 1kVRMS for externally connected bridge elements and calibration resistor

Frequency response: Four-pole active filter; five position switch selects 30Hz, 100Hz, 300Hz, 1kHz, or 5kHz

Carrier filter: Six-pole active filter; 120dB attenuation at carrier frequency; 105dB attenuation at 2x carrier frequency



Filters

Encore Electronics offers lowpass, highpass, bandpass, bandstop and anti-aliasing filters. Designs feature switch-selectable cutoffs, switched-capacitor tracking filters and twin-tee notch/bandpass types. Active filters are available in two- to eight-pole designs with rolloffs to 100kHz.



Model 711 14-Channel Universal Highpass/Lowpass Filter

Designed to be used with strain gage, accelerometer or vibration measuring systems.

SPECIFICATIONS:

Response: Each channel can be highpass or lowpass depending on the filter module

Frequency: Customer-specified -3dB frequencies from 0.3Hz to 30kHz for each of five positions per module, plus filter bypass

Attenuation: 24dB per octave (four-pole filter)

Response: Butterworth or Bessel

Gain: 0dB \pm 0.3dB in passband

Signal range: \pm 10V max

Input impedance: 100k ohms minimum

Connections: Rear panel mounted BNC connectors for input and output signals

Construction: 19" wide rack adapter



Model 721/721M Switch Selectable Anti-Aliasing Filter

Modular rack-mounted lowpass filter. Two channels per module and up to 16-channels per rack. One of five frequency cutoffs or filter bypass selected with front panel rotary switch for each channel.

SPECIFICATIONS:

Frequency: Customer-specified -3dB frequencies from 0.3Hz to 30kHz for each of five positions per module plus filter bypass

Attenuation: 48dB per octave (eight-pole filter)

Response: Bessel response (linear phase) standard; Butterworth available

Gain: 0dB \pm 0.3dB in passband; Model 721M adds switch-selectable gain of 1, 10 or 100

Signal range: \pm 10V max

Input impedance: 100k ohms min.

Test points: Front panel tip-jack connections for output signal monitoring

Rack: Modules plug into Model 4015-109 19" rack with integral power supply

Connections: Rear panel mounted BNC connectors for input and output signals



Model FL724 Notch Reject Filter (DIN-Rail Module)

Can be configured for up to 55dB of signal rejection at 60Hz or 50Hz. Operates in conjunction with the \pm 15VDC power module (#FL854). Offered in 60Hz or 50/60Hz configurations.

SPECIFICATIONS:

Input signal: 0-7VRMS

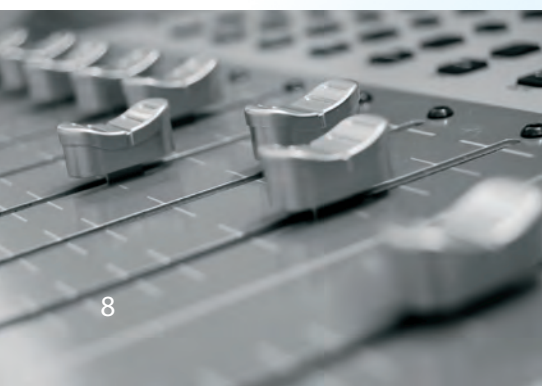
Output signal: 0-7VRMS, DC to 10kHz, 5mA max into 2k ohm min. load

Notch frequency: 50Hz or 60Hz

Attenuation: Greater than 50dB at the selected frequency

Connections: Six wire-clamp screw terminals

Mechanical: 2.9"H x 0.9"W x 3.1"D DIN-rail mount



Power Supplies

Both linear and switching power supplies are available for instrument and control systems. These units are available in modular (plug-in), rack-mountable and benchtop configurations. Power supply monitoring and electronic test loads are also offered.



Model 821

Multi-Output Linear Power Supply

Rack-mountable supply with four floating and regulated DC output voltages. Mainly used for signal conditioning power requirements. Load monitor meter for all outputs.

SPECIFICATIONS:

Input: 115V or 230VAC @ 50/60Hz

Typical outputs: Dual $\pm 15\text{VDC}$ @ 2A; 5VDC @ 2A; and 24VDC @ 0.5A

Regulated outputs: Four voltages, all floating with respect to power supply common and ground, allowing any jumper-selected combination of polarities

Regulation: $\pm 0.1\%$ typical line and load

Ripple: Less than 10mV p-p

Front panel meters: Three at 0-3ADC from the 15V and 5V output and one at 0-1ADC for the 24V output

Connections: Five-way banana jacks with shorting links



Model 842B

Series Regulated Power Supply

Tightly regulated for applications requiring low ripple and noise. Heat sinks on the rear of the supply provide adequate convection cooling for operation without the need for fans.

SPECIFICATIONS:

Input voltage: 97 to 132VAC, 47 to 500Hz, 10ARMS at full load

Output:
842-22: $-22\text{VDC} \pm 0.5\text{V}$, 0 to 15ADC
842-24: $+24\text{VDC} \pm 0.5\text{V}$, 0 to 15ADC
842-30: $+30\text{VDC} \pm 1.0\text{V}$, 0 to 12ADC

Regulation: 0.1% max over line and load variations

Ripple: 1mVRMS max

Output protection: Overvoltage and current limited

Front panel: Analog meters display output voltage and current



Model 850A

Regulated 23VDC Linear Power Supply

Designed for applications requiring low ripple and noise. Can operate in standby mode with backup unit for critical power applications.

SPECIFICATIONS:

Input voltage: 115VAC $\pm 10\%$, 50/60Hz

Output voltage: 23VDC adjustable from 21 to 25VDC

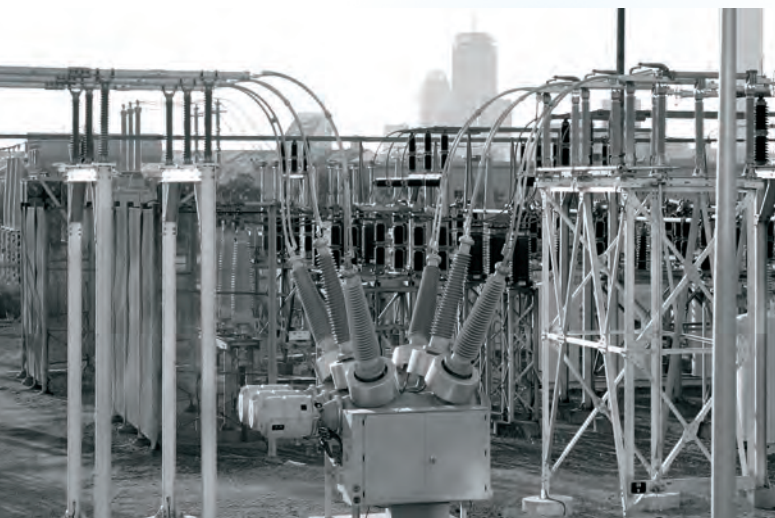
Load: 0 to 12ADC, limited to 18ADC

Regulation: $\pm 10\text{mV}$, line and load

Ripple: $< 2\text{mVp-p}$

Output protection: Overvoltage and current limited

Load sharing: Two units in parallel operation allows the highest voltage output to assume the load



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Power Supplies



Model 851A front view

Model 851A Regulated 125VDC Linear Power Supply

Designed for applications requiring low ripple and noise. Can operate in standby mode with a backup unit for critical power applications.

SPECIFICATIONS:

Input voltage: 115VAC $\pm 10\%$, 50/60Hz
Output voltage: 125VDC adjustable from 122V to 128V
Load: 0 to 3ADC, limited to 4.5ADC
Regulation: $\pm 50\text{mV}$, line and load
Ripple: $< 10\text{mVp-p}$

Output protection: Overvoltage and current limited

Load sharing: Two units in parallel operation allows the highest voltage output to assume the load



Model 851A rear view



Model 853 Instrumentation Power Supply

Can operate in standby mode with a backup unit for critical power applications. LEDs monitor output voltage.

SPECIFICATIONS:

Input voltage: 115VAC $\pm 10\%$, 50/60Hz

Output voltage: Adjustable range

Output 1: +5VDC, $\pm 0.5\text{V}$ @ 1A

Output 2: +15VDC, $\pm 1\text{V}$ @ 1A

Output 3: -15VDC, $\pm 1\text{V}$ @ 1A

Output 4: +26VDC, $\pm 1\text{V}$ @ 3A

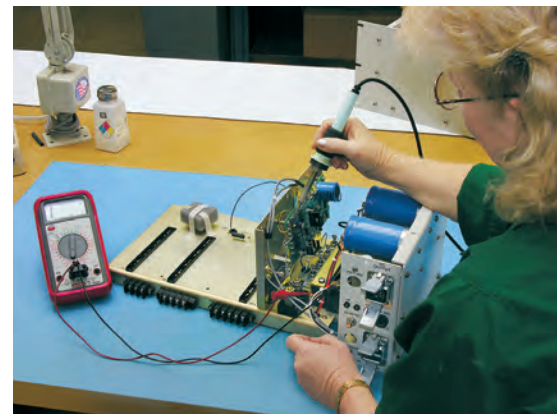
Output 5: -24VDC, $\pm 1\text{V}$ @ 0.2A

Regulation: 0.15% line and load

Ripple: $< 3\text{mVp-p}$

Output protection: Overvoltage and current limited

Load sharing: Two units in parallel operation allows the highest voltage output to assume the load



DIN-Rail (Flexi-line) Instrumentation

Encore offers a line of compact, economical instrumentation packaged in plastic DIN-rail mounted enclosures. Available models include a frequency to voltage converter, strain gage amplifier, notch filter, accelerometer conditioner, line driver, power supply and others.



Models Available

FL157 Magnetic Pick Up Line Driver

Input: Magnetic speed pickup, $\pm 100\text{mV}$ to $\pm 60\text{V}$

Output: 0-5V pulses $\pm 0.25\text{V}$ at the input frequency

Frequency range: 20Hz to 200kHz

FL161 4-20mA Accelerometer Conditioner

Input: Accelerometer, 100mV/g (not supplied)

Accel excitation: 4mA, $\pm 2\%$ at 24VDC to input connection

Output: Internal jumper selects voltage or 4-20mA current output

FL228 Frequency to Voltage Converter

Input signal: 0.5V peak to 20V peak, DC coupled

Frequency range: Single range, factory settable; standard is 10kHz full scale

Analog output: Up to 10VDC fullscale output

FL230 Voltage to Frequency Converter

Input: 0-10V; 4-20mA; -0.6 to 3.4V (depending on version selected)

Output: 0-5V pulses (frequency proportional to input signal); 0-15V or open collector output available

Frequency range: Customer-specified

FL424 Dual Channel Thermocouple Amplifier

Input: Type K thermocouple

Output: 3mVDC per $^{\circ}\text{F}$; 0 to 4.76VDC for -50°F to 1500°F

FL639 Strain Gage Amplifier

Bridge configuration: Quarter, half and full bridges

Bridge excitation: Front panel adjustable, 4 to 10VDC or constant current of 10 to 20mA

Gain range: 2-2000

FL644 High Voltage Isolation Module

Input: 0 to 1000VRMS (ver. 001), 0 to 10VRMS (ver. 002), 0 to 10mVDC, 0 to 7mVRMS

Input isolation: $\pm 1000\text{VDC}$

Gain: 0.01 to 1000 (depending on version)

Frequency response: DC to 15kHz, $\pm 5\%$

FL645 RTD Conditioner

Input: 100 to 300 ohm RTD

Input isolation: $\pm 1000\text{VDC}$

Output: -5VDC to 10VDC

FL646 Thermocouple Conditioner

Input: Thermocouple or other millivolt signal up to $\pm 40\text{mVDC}$

Gain: 250, $\pm 1\%$

Output: 0 to $\pm 10\text{VDC}$ at 5mA max

FL651 Differential Instrumentation Amplifier

Input: 0 to $\pm 500\text{V}$ peak

Output: $\pm 10\text{V}$, 5mA max

Gain: 0.01 to 1000

Frequency range: DC to 100kHz (customer-specified)

FL724 Notch Filter

Input signal: 0-7VRMS

Output signal: 0-7VRMS, DC to 10kHz, 5mA max into 2k ohm min. load

Notch frequency: 50Hz or 60Hz

FL854 AC/DC Power Supply (Regulated)

Input: 115VAC, $\pm 10\%$, 50/60Hz

Outputs: Regulated $\pm 15\text{VDC}$, $\pm 1\%$; unregulated $\pm 22\text{VDC}$ nominal $\pm 1\%$

FL857 AC/DC Power Supply (Unregulated)

Input: 230VAC (-001 version is 115VAC) $\pm 10\%$; 50/60Hz

Output: Unregulated +22VDC

NEW PRODUCTS

Computer-Controlled Systems

Encore Electronics manufactures computer-controlled amplifiers and signal conditioning instrumentation which can be controlled via your web browser through an ethernet connection.

Internal battery backup to maintain settings. Interactive software control over all features through a web browser. Custom software for specific applications available.



Encore is partnering with private industry and government agencies to find solutions for our ongoing energy conservation challenges.



Model 662

Computer-Controlled Strain Gage Amplifier System

Analog output to $\pm 10V$ levels.
Low noise levels, automatic offset adjustment and bridge balance.
Programmable voltage excitation from 1 - 15VDC, remote sensing.

SPECIFICATIONS:

Gain: Eight fixed gains- 1, 3.01, 10, 30.1, 100, 301, 1000, 3010

Gain accuracy: $\pm 0.5\%$

Filter: Eight-pole Bessel lowpass at 1, 10, 100Hz

Noise: Less than 0.3mV RMS RTI, G=1000, 100Hz filter, zero mode

Bridge connection: Eight-wire: $\pm P$ and $\pm S$ with remote sensing ($\pm P$ s and $\pm S$ s)

Excitation range: 1-15VDC, $\pm 50mV$ accuracy, 4mV resolution

Bridge balance: Automatic on request with status report message

Balance resolution: Coarse and fine ranges, 12-bit (4096 step) per range

Bridge modes: Quarter, half, full bridge with internal completion resistors

Completion resistors: Selectable 350 ohm or 1000 ohm precision resistors

Shunt cal: 50k or 500k precision resistor



Model 656

Computer-Controlled Strain Gage Amplifier System (Full-Featured)

Amplifier characteristics similar to Encore's Model 635. No knobs, indicators or connectors on the rack front panel. In addition to all the features of Model 662, the 656 has continuously-variable gain from 1 to 3000, isolated excitation supply per channel, excitation monitor function, AC coupled amplifier mode, 1/4 dynamic and EMF (no completion) bridge modes. External calibration signal can replace bridge input.

SPECIFICATIONS:

Output range: $\pm 10V$ (7VRMS) max

Gain: 0.1 - 3000 (continuously variable), 0.1% resolution, 1% accurate

Offset: Autozero cycle at each gain and filter change, $\pm 100mV$ RTO range

CMRR: 120dB DC-70Hz

Bandwidth: DC-100kHz, filter bypassed, 1VRMS

Filtering: Eight-pole lowpass, 10, 100, 1k, 10kHz, -3dB plus bypass

Noise: 2.0mV RMS RTI, DC to 10kHz at G=1000

AC/DC coupling: 4.8Hz, -3dB highpass

Bridge excitation: 1-15VDC in 4mV steps plus off; remote sense

Excitation monitor: Amplifier output can be replaced by 1/2 excitation voltage

Autobalance: Dual 12-bit DAC, coarse and fine resolution

Shunt calibration: One of four internal RCAL values to +P or -P

Voltage calibration: External cal signal substitution for input signal

Bridge configuration: Quarter, half and full bridges, quarter dynamic, EMF

Bridge completion: 120 and 350 ohm or any two customer-specified values

Mechanical: 8.75"H x 19"W x 16"D 16-channel rack; 7"H x 10"W x 16"D six-channel carry case



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