



Unit Shown Actual Size

## FE-498-DSA Dynamic Strain Gauge Amplifier

- RUGGED, PORTABLE & SELF CONTAINED
- RECHARGEABLE BATTERY
- LOW NOISE CONSTANT CURRENT SUPPLY
- ACCURATE SINGLE GAUGE MEASUREMENT
- SIMPLE OPERATION
- USER CONFIGURABLE SETTINGS
- AUTOMATIC POWER DOWN

The FE-498-DSA is a battery powered portable dynamic strain gauge amplifier for use with a single 120Ω or 350Ω strain gauge. A low noise constant current supply of 10mA generates 1.2V across a 120Ω gauge or 3.5V across a 350Ω gauge. The gauge is AC coupled into a high gain low noise amplifier followed by a user programmable low pass filter.

This arrangement allows dynamic signals to be measured very accurately using a single gauge. The complexity of gauge wiring has been reduced to a single twisted pair and no bridge completion resistors are required. No balance controls are required as the system only responds to dynamic signals.

The unit is charged via a USB-C port and a full charge gives over 15 hours use. To preserve battery life, the unit automatically turns off after 60 minutes of inactivity.

Gauge Supply	Current	350 $\Omega$ 10mA $\pm$ 0.2% (3.5V across gauge). 120 $\Omega$ 10mA $\pm$ 0.2% (1.2V across gauge).
	Impedance	Approximately 70k $\Omega$ .
	Stability	0.05% / $^{\circ}$ C.
	Noise	<10nA RMS (equivalent to 1 $\mu$ Strain pk-pk in 350 $\Omega$ ).
	Cal	<b>200<math>\mu</math>E and 1000<math>\mu</math>E for 120<math>\Omega</math> or 350<math>\Omega</math> gauges.</b>
Amplifier	Gain Settings	<b>Gain set for 1mV/<math>\mu</math>E output for 120<math>\Omega</math> or 350<math>\Omega</math>.</b>
	Accuracy	0.25%.
	Stability	<50ppm / $^{\circ}$ C.
	Bandwidth	1Hz to 30kHz (filter out).
	Output Capability	$\pm$ 5V @ $\pm$ 2.5mA.
	Output Offset	< 5mV.
Output Impedance	200 $\Omega$ (2x 100R + 470pF for EMC protection).	
Filter Low Pass	Characteristics	
	Programmable Type	100Hz, 1kHz and 30kHz (-3dB). Butterworth 4 pole (80 dB/decade, -24dB/octave roll-off).
High Pass	Fixed Type	0.5Hz (-3dB) Butterworth 2 pole (40 dB/decade, -12dB/octave roll-off).
Switches	Config Mode	Press and hold both Power & Cal buttons together for 1.5s to start configuration mode. Then use Set and Func keys to navigate through all available functions.
	Power	Push switch requires 1.5s hold down for Power on or off. Power Auto off: Automatic power down after 60 minutes due to inactivity. Power On: Unit will stay on indefinitely.
	Cal	Cal on is indicated by Cal LEDs blinking slowly. Dynamic squarewave calibration produced when switch pressed. 2 discrete frequencies of 25Hz & 250Hz.
	Presets	<b>Saving Settings:</b> 1.5s hold down, flashing LED indicates a successful save. <b>Recall Settings:</b> Short press, LED will remain on continuously.
Power Requirement	Battery	Lithium-Ion rechargeable battery gives up to typ. 20 hours continuous operation.
	USB-C Charging	Capable of 15W Maximum Power Delivery. Typ. fast charges to half of the battery capacity in an hour.
	Current Consumption	95mA.
	Low Battery Indicator	Orange Power LED will flash twice per second.
	Enclosure	Black Textured ABS with internal RFI shield coating.
	Size	117mm x 69mm x 27mm (exc. Connectors & armoured outer).
	Weight	270g
Environment	Temperature	0 to 40 $^{\circ}$ C