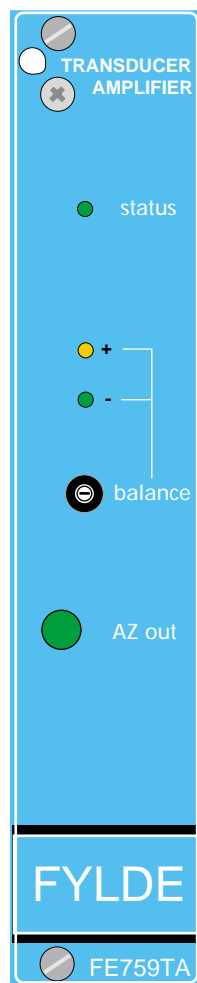


FE-759-TA programmable transducer amplifier



This complete general-purpose transducer amplifier enables the conditioning of full and fractional bridge type transducers.

Computer control via RS232C, allows gain, filter setting, shunt calibration, voltage calibration, transducer supply voltage and auto zero control providing considerable flexibility of operation.

Featuring a microprocessor controlled 14 bit non-volatile digital auto-zero system, the module also provides a Butterworth low pass filter with a choice of cut off frequencies.

Very low noise performance is complemented by high gain accuracy, stability and linearity, high CMR and wide dynamic range.

Amplifier input is protected against excessive normal or common mode voltages, and the output is proof against indefinite duration short circuit.

A serial RS232C rack controller, the FE-705-SB, will control up to 16 Transducer Amplifiers, although, as each amplifier is controlled through a local serial bus, modules will connect directly to a computer serial port.

Power requirement is 220-250V AC or alternative 110-120V a.c. 50/60Hz. 12V d.c. power may be utilised by fitment of an FE-605-DCC converter.

Circuitry is earth free.

Up to 16 modules (plus RS232C controller module) fit standard 3u-Eurocard frame.

Description

A Transducer Amplifier in Euro Card format. The FE-759-TA features programmable gain, bridge voltage, low pass filter setting and shunt calibration. In addition, each module carries a digital auto zero system capable of correcting a full scale offset to within 1mV. Sixteen modules will fit a standard 19" crate, leaving space for an RS232C controller card. (Type FE-705-SB). The module provides a $\pm 10V$ output ready to interface with a suitable data acquisition system and an optional additional 4-20 mA output is available. System rear panel connectors are generally 5 or 7 pin Tuchel screw lock connectors for bridge connection, and BNC, or "D" type multi-way for outputs. All settings including auto-zero corrections are retained on power down and restored when power is re-applied.

Specification

INPUT	resistance	2M Ω single ended, 4M Ω differential.
	offset voltage	<50 μV warmed up.
	current	<10 nA.
	protection	± 30 V protection.
	filter	capacitors limit high frequency noise pick-up.
	voltage drift	<1 μV / $^{\circ}C$.
	voltage noise	10 μV pk. - pk. (note 1).
GAIN	steps	1,2,5,10, 20, 50, 100, 200, 500, 1k, 2k, 5k.
	error (any step)	<0.1%
	stability	better than 0.02% / $^{\circ}C$.
COMMON MODE	rejection	>100 dB DC - 1kHz (± 10 V).
FREQUENCY	response	DC to 100kHz (- 3dB) >2 V / μs slew rate.
FILTER	response	4 pole Butterworth (Bessel to special order)
	steps	100Hz, 1kHz, 10kHz and 50kHz.
BRIDGE	supply	0, 1, 2, 3, 5, 6, 10 and 12 V.
	accuracy	$\pm 0.25\%$.
	current	50mA, s/c protected.
	calibration	shunt - 3 selections. output voltage injection - 1 selection.
	auto zero	14 bit digital voltage correction, will correct $\pm FS$ to <1 mV in less than 1 second.
	completion	full, half and quarter, for 350 Ω and 120 Ω , by pcb jumper.
	manual balance	22 turn shunt balance control and internal Rbal resistor balances transducers outside AZ correction range.
balance indication	Using two leds. Thresholds set to ± 7 V	
OUTPUT	noise	< 1mV pk. - pk. (note 1).
	offset	< 5 mV
	impedance	<0.1 Ω (note 2).
	protection	continuous short circuit.
STATUS	indicator	LED indicator normally lit, will extinguish following an auto-zero operation if balance requirement is out of range. or on reception of an illegal command.
POWER SUPPLY		220V-240 V 50Hz or 110V-120V 50/60Hz 12 V d.c. by fitment of FE-605-DCC d.c. converter.
ENVIRONMENTAL	temperature range	0 to 50 $^{\circ}C$
DIMENSIONS		panel 3U x 5HP, pcb 160 mm x 100 mm. card and panel, DIN 41612 (C Body) edge connector.
PROGRAMMING		Gain, filter, bridge supply voltage, calibration and auto-zero activation by RS232 rack interface (17th module).
	Notes	1. Measurement bandwidth 50kHz. 2. Module only, excluding backplane wiring and rear panel connectors.