

Smart Transducer/ISOTRON® Rack-Mounted Signal Conditioner

Model 482A

- Low Per-Channel Cost
- 8-Channel SMART ISOTRON® (I-TEDS) Amplifier Compatible with IEEE P1451.4
- Designed for Multi-Channel Modal Testing
- Programmable Gain: 1 to 100
- 0.015 Hz to 100 KHz Bandwidth (-3 dB Corners)
- Gain Auto Range
- Selectable Butterworth 2-Pole Low Pass Filters
- $\pm 0.5^\circ$ Phase Matching
- Digital Electronic Output Channel Identification



Not Actual Size

ENDEVCO
MODEL
482A

DESCRIPTION

The Model 482A eight-channel amplifier card is the new revolutionized signal conditioner that communicates with newly developed SMART ISOTRONS, yet provides backwards compatibility for use with other Integral Electronic PiezoElectric (IEPE) transducers and Remote Charge Convertors (RCC). Up to 16 Model 482A cards can be used in the Model 4990 rack, providing a powerful 128 channels of flexible, intelligent signal conditioning.

Significant features of this revolutionized combination of SMART ISOTRONS and intelligent electronics provides a solution that a modal test lab cannot afford NOT to use. Data entry errors are virtually eliminated and signal conditioning setup time is minimized - SMART ISOTRONS contain all pertinent data, which is automatically loaded into a software database at the click of a button. Each Model 482A card has an independent microprocessor, providing the fastest means of setup data transfer possible with increased reliability. Model 482A also provides built-in computer-selected, Butterworth, Low Pass filter corners at 100 Hz, 1 KHz, 5 KHz and broadband.

Sensor-specific digital read/write data is in the form of the proposed IEEE-1451.4 TEDS (Transducer Electronic Data Sheet). TEDS data includes: Transducer sensitivity, manufacturer, sensor serial number, date of last calibration and sensor location.

The Model 4990 rack provides the communication link (Ethernet or RS-232) from a PC to the Model 482A cards. The system controlling program is a Windows® based application software providing an extremely user-friendly communication interface. The 4XX series amplifier card family includes: Model 428 - Dual-Channel Amplifier with isolation; Model 433 - a three-channel PE/ISOTRON, non-isolated card; and the Model 436 - the three-channel, non-isolated DC bridge amplifier card.

Applications include: Multi-channel modal tests on large structures, such as airplanes, spacecraft, automobiles, buildings, bridges and heavy machinery.

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SPECIFICATIONS

INPUTS

TRANSDUCER TYPES	Smart ISOTRON or any IEPE (Integral Electronic PiezoElectric) type transducers and remote charge converters.
CONSTANT EXCITATION CURRENT	5 mA \pm 20%
ACCURACY	\pm 1.0 mA
COMPLIANCE VOLTAGE	\geq 22 VDC
MAXIMUM INPUT VOLTAGE	< 22 V (AC + DC Components)
INPUT IMPEDANCE	10 MOhms and 1 μ F

OUTPUTS

AC VOLTAGE	Single-ended with one side connected to ground. Signal proportional to input. (All 8 channels provided to the 9 pin D connectors. One of the eight outputs is routed to the front panel BNC connector; computer selectable.)
MINIMUM LINEAR OUTPUT VOLTAGE	10 Vpk
MINIMUM OUTPUT CURRENT	10 mA (10V into a 1 KOhm load)
DC OFFSET	15 mV maximum
PROTECTION	Short-circuit protected

TRANSFER CHARACTERISTICS

GAIN	Programmable 0 to 100.
ACCURACY	\pm 0.5% at 1 KHz for gains greater than 1
LINEARITY	\pm 0.1% of full scale, best fit straight line at 1 KHz
RESIDUAL NOISE	40 μ V rms (0.05 Hz to 100 Hz) 150 μ V rms (0.05 Hz to 5 KHz) Maximum noise specification valid for the following conditions: 1. Unit not communicating with host PC; 2. Input shunted with 50 Ohms \pm 5%, 5 mA excitation.
BROADBAND MAGNITUDE FREQUENCY RESPONSE	\pm 5%: 0.05 Hz to 30 KHz, referenced to 1KHz -3 dB: 0.015 Hz to 100 KHz, referenced to 1KHz
WORST CASE PHASE DEVIATION FROM NOMINAL	Less than \pm 0.5 degrees from 0.5 Hz to 5 KHz
CROSSTALK BETWEEN CHANNELS	>80 dB; RTI Minimum. Crosstalk specifications valid for the following conditions: (1.) Inject a signal through the Isotron input into one channel set at a gain of 1; (2.) The other channels Isotron inputs shorted with 249 Ohms.

POWER REQUIREMENTS

VOLTAGE	DC power source provided by Model 4990 Rack (90 to 264 VAC, 50 Hz to 60 Hz, Universal Input)
POWER DISSIPATION	6 Watts typical
ISOLATION	
Channel to Channel Signal Grounds	No isolation between channels
Signal Ground to Case Ground	No isolation

PHYSICAL CHARACTERISTICS

CARD DIMENSIONS	Fits into Model 4990 Rack
FRONT PANEL	173.15 mm (6.81" X 1.00" (5HP)
WEIGHT	1.0 lbs (454g)
CONNECTORS ON CARDS	
Isotron Inputs	Double density subminiature-D, 25 PIN, female (receptacle) shell size 2.
Signal Outputs	Standard-D, 9-pin, female (receptacle). One BNC computer selected to one of the 8 channels.

ENVIRONMENTAL CHARACTERISTICS

OPERATING TEMPERATURE	32° F to 122° F (0° to 50° C)
STORAGE TEMPERATURE	-40° F to 185° F (-40° to 85° C)
HUMIDITY	0% to 90% non-condensing.

ACCESSORIES

IM482A Instruction Manual

OPTIONS

33734-1	Input breakout box with BNC connectors	33136-1-040	40-inch Cable with DB9 and VXI connectors
33734-2	Input breakout box with Fischer connectors	33645	Handheld Programmer Kit, TEDS
33798	Output breakout box with BNC connectors	33646	Programmer, TEDS 1451.4 Reader/Writer Kit

NOTES

This is an advance, preliminary data sheet. All specifications are subject to change without notification.

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.