

Multi-channel Signal Conditioners

For Conditioning ICP® and Charge Output Pressure, Force, and Vibration Sensors

- Simultaneously Condition up to 16 Input Channels
- Adjust Set-Up Parameters via Computer Control*
- Daisy-Link Multiple Racks for up to 256 Channels*
- Apply Gain, Filtering, Integration, Switching*

* Available features



Multi-channel piezoelectric sensor signal conditioners are cost-effective instruments which prepare multiple measurement signals for recording or analysis. Versions to accommodate either ICP® sensors, or both charge output and ICP® sensors, are available. Each unit is housed in a standard, 19-inch, rack-mountable chassis.

The building-block design easily permits configuring a unit with appropriate features to suit a particular requirement. Several pre-configured models include some of the more popular features and are available for quick delivery.

As with all PCB® instrumentation, this equipment is complemented with toll-free applications assistance, 24-hour customer service, and is backed by a no-risk policy that guarantees satisfaction or your money refunded.

Series 481A and Series 498A
Multi-channel Signal Conditioners



INPUT/OUTPUT OPTIONS

- 084** Selectable ICP® sensor or direct voltage input per channel: (manually selected via jumper position on the internal circuit board).
- 284*** Same as option 084 except selectable by computer or front panel.
- 082** Accepts both piezoelectric charge output sensor and ICP® sensor inputs. Adds one coaxial 10-32 charge output sensor input for each channel, each with 0.1 mV/pC charge-to-voltage conversion and 5 Hz (-5%) LF response, one BNC ICP® sensor input for each channel, and input mode selector switch (all on rear panel).
- 182** Same as option 082 except with 0.5 Hz LF response
- 282*** Same as option 082 except selectable by computer or front panel.
- 382*** Same as option 082 except selectable by computer or front panel and 0.5 Hz (- 5%) LF response for charge sensor input.
- 086** Accepts both piezoelectric charge output sensor and ICP® sensor inputs. Adds one coaxial 10-32 charge output sensor input for each channel, each with 1 mV/pC charge-to-voltage conversion and 5 Hz (-5%) LF response, one BNC ICP® sensor input for each channel, and input mode selector switch (all on rear panel).
- 186** Same as option 086 except with 0.5 Hz LF response
- 286*** Same as option 086 except selectable by computer or front panel.
- 386*** Same as option 086 except selectable by computer or front panel and 0.5 Hz (- 5%) LF response for charge sensor input.
- 087** Accepts both piezoelectric charge output sensor and ICP® sensor inputs. Adds one coaxial 10-32 charge output sensor input for each channel, each with 10 mV/pC charge-to-voltage conversion and 5 Hz (-5%) LF response, one BNC ICP® sensor input for each channel, and input mode selector switch (all on rear panel).
- 187** Same as option 087 except with 0.5 Hz LF response
- 287*** Same as option 087 except selectable by computer or front panel.
- 387*** Same as option 087 except selectable by computer or front panel and 0.5 Hz (- 5%) LF response for charge sensor input.
- 486*†** Accepts both piezoelectric charge output sensor and ICP® sensor inputs. Adds one coaxial 10-32 charge output sensor input for each channel, each with selectable 0.1, 1.0, and 10 mV/pC charge-to-voltage conversion, one BNC ICP® sensor input for each channel, and input mode selector switch (all on rear panel).
- 686*** Same as option 486 except for use with single-ended, high temperature, charge output sensors at temperatures >500 °F (260 °C).
- 782*** Accepts both differential charge output sensor and ICP® sensor inputs. Adds one twin BNC differential sensor input for each channel, each with 0.1 mV/pC charge-to-voltage conversion and 5 Hz (-5%) LF response, one BNC ICP® sensor input for each channel, and input mode selector switch (all on rear panel).
- 786*** Same as option 782 except with 1.0 mV/pC charge-to-voltage conversion.
- 787*** Same as option 782 except with 10 mV/pC charge-to-voltage conversion.
- 041*** Switched outputs (Dual 16-to-1 for 481A, Dual 8-to-1 for 498A): two BNC outputs added to rear panel, each accommodating the switched outputs.
- 080** Connector configuration: one BNC input per channel added to rear panel.
- 085** Connector configuration: one BNC output per channel added to rear panel.
- 081** Connector configuration: one BNC input per channel and one BNC output per channel added to rear panel.

GAIN OPTIONS

- 031** Internal fixed gain of x5 (substituted for standard gain of x1).
- 032** Internal fixed gain of x10 (substituted for standard gain of x1).
- 035*** Programmable gain of x1, x10, x100 (total device gain becomes the internal fixed gain x the programmable gain setting). Includes auto-ranging.
- 037*** Programmable, incremental gain control of x0.1 to x200 (times fixed gain x1 only). (Gain between x0.1 to x200 incremented in steps of 0.1). Includes auto-ranging and normalization.
- 038*** Expanded, programmable, incremental gain control x0.0025 to x200 (Gain between x0.0025 to x9.9975 incremented in steps of 0.0025) (Gain between x10.000 to x99.975 incremented in steps of 0.025) (Gain between x100.00 to x200.00 incremented in steps of 0.25). Includes auto-ranging and normalization.
- 039*** Programmable, continuous extended fine gain, x0.0025 to x1000. Includes auto-ranging and normalization.

CONTROL OPTIONS

- 101*** RS-232 and RS-485 computer interface (serial port). Includes Model EE-75 Control Software for PCB Series 481A and Series 498A. Two D-Sub 9-pin communication connectors on rear panel. This feature is required for all options indicated with (*).
- 070*** IEEE-488 computer interface (parallel port).
- 103*** Front panel display and keypad for local control.

FREQUENCY AND FILTERING OPTIONS

- 013*** Selectable discharge time constant of 2 or 10 seconds across all channels simultaneously. (May also be expressed as a selectable high pass filter with -3 dB @ 0.08 Hz (2 sec) or -3 dB @ 0.015 Hz (10 sec).
 - 050** Fixed low pass filter, -3 dB @ 2 kHz.
 - 051** Fixed low pass filter, -3 dB @ 10 kHz.
 - 056** Fixed low pass filter, -3 dB @ 20 kHz.
 - 052** Fixed low pass filter, -3 dB @ 100 kHz.
 - 053** Fixed low pass filter, -3 dB @ 150 kHz.
 - 054** Fixed low pass filter, -3 dB @ 200 kHz.
 - 055** Fixed low pass filter, customer-defined.
- } All fixed low pass filters are fourth-order Butterworth type with -80 dB/decade roll off. The filter is applied simultaneously across all channels and may be user enabled or disabled.
- 157*** Programmable, low pass filter, -3 dB @ 2 Hz to 21.4 kHz with > 500 steps. Eighth-order Elliptical type. Enable / disable capability.
 - 158*** Programmable, low pass filter, -3 dB @ 2 Hz to 20 kHz with > 500 steps. Eighth-order Butterworth type. Enable / disable capability.

ARITHMETIC FUNCTION OPTIONS

- 061*** Integration to velocity and displacement: provides selected velocity or displacement output signal at switched output connector for switch-selected channel of interest (requires switched output option 041). Example: for a 100 mV/g ICP® sensor input, you can output a velocity signal of 1000 mV/in/sec or a displacement signal of 200 mV/mil.
- 062** Integration to velocity output signals for all input channels simultaneously. Example: for each 100 mV/g ICP® sensor input there is an output velocity signal of 100 mV/in/sec. The feature may be user enabled or disabled.
- 064** DC output signal: each channel provided with a 0 to 5 VDC output signal, proportional to the RMS value of the analog input signal, provided on an additional BNC output per channel on rear panel.
- 065** Metric integration to velocity output signals for all input channels simultaneously. eg: for each 100 mV/g ICP® sensor input, there is an output velocity signal of 100 mV/m/sec. The feature may be user enabled or disabled.

OTHER OPTIONS

- 012*** Internal calibration / test signal source: Fixed frequency (100 Hz), adjustable amplitude (0.1 to 2 V pk to pk). Delivered simultaneously across all input channels and monitored at each output connector. Includes option 014 (external calibration signal input connector (BNC) for input of user defined test signals of up to 2 V pk to pk).
- 014*** External calibration signal input connector (BNC) for input of user defined test signals of up to 2 V pk to pk.
- 020*** Programmable overload limit: provides adjustable threshold of overload indication from 1 to 10 V pk to pk (in 1V increments).
- 102*** Memory default: retains user settings upon power-down.
- 104*** TEDS - ability to read information from and write information to TEDS sensors (UTID1 format).

Notes:

Some options are incompatible and cannot be ordered together in the same unit (e.g., option 081 is incompatible with 082, 086, or 087). Contact the factory for assistance with configuring compatible options.

(*) Computer interface option 101 is required and must be ordered in conjunction with all options indicated with *. Option 101 includes Model EE-75 software (also available separately), which permits set-up and control with a Windows based PC.

(†) 0.5 Hz (-5%) LF response for 0.1 and 1.0 mV/pC setting and 5.0 Hz (-5%) LF response for 10 mV/pC setting.



Feature Selection Chart

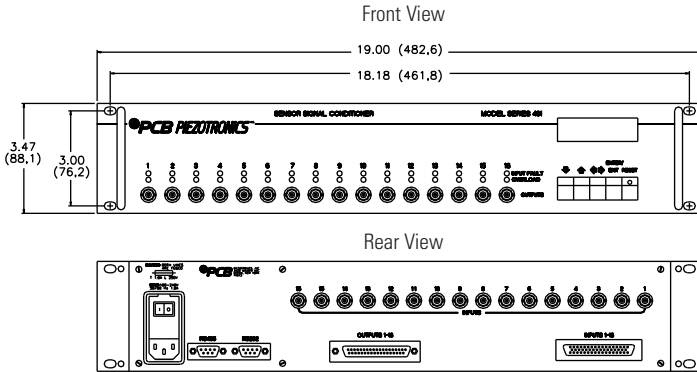
To order a custom configured unit, indicate preference of either Series 481A (16-channel) or Series 498A (8-channel) base model, and select the option numbers desired as a suffix to the base model. For example, 16-channel Model 481A with options 481-101, 481-103, 481-038, and 481-102 designates a 16-channel unit with RS-232/RS-485 computer interface, menu display with keypad control, incremental gain control, and setup parameter memory retention options. Preconfigured models cannot be customized.

| Channel Count | | Base Model | Preconfigured Models | | | |
|---|---|--|----------------------|--------|--------|---------|
| 16-channels | | 481A | 481A01 | 481A02 | 481A03 | |
| 8-channels | | 498A | 498A01 | 498A02 | 498A03 | 498A30 |
| Standard Features Included with Base Model | | | | | | |
| Enclosure | Size 19 x 16.25 x 3.50 in. (Rack Mountable) | ✓ | ✓ | ✓ | ✓ | ✓ |
| Input Type | ICP® Sensor | ✓ | ✓ | ✓ | ✓ | ✓ |
| Excitation Current | Adjustable from 3 to 20 mA (for ICP® Sensor) | ✓ | ✓ | ✓ | ✓ | ✓ |
| LED (Red) | Input Fault Monitoring | ✓ | ✓ | ✓ | ✓ | ✓ |
| LED (Yellow) | Overload Detection | ✓ | ✓ | ✓ | ✓ | ✓ |
| Gain | Fixed Gain x1 | ✓ | ✓ | ✓ | ✓ | ✓ |
| Connectors | Rear Panel | One DB50 Female Input | ✓ | ✓ | ✓ | ✓ |
| | Rear Panel | One DB37 Female Output | ✓ | ✓ | ✓ | ✓ |
| | Front Panel | One BNC Jack Output Per Channel | ✓ | ✓ | ✓ | ✓ |
| Power Required | 100 to 240 VAC, 47 to 63 Hz, 0.6 A | ✓ | ✓ | ✓ | ✓ | ✓ |
| Optional Features for Configurable Models | | | | | | |
| Input Sensor Type | Jumper Selectable ICP® Sensor or AC Voltage Signal Input | 084 | | | | |
| Input Sensor Type | Panel/Computer Selectable ICP® Sensors or AC Voltage Signal | 284* | | | | |
| Input Sensor Type | Switch Selectable Charge or ICP® Sensors, 5 Hz LF | 082, 086, 087 | | | | |
| Input Sensor Type | Switch Selectable Charge or ICP® Sensors, 0.5 Hz LF | 182, 186, 187 | | | | |
| Input Sensor Type | Panel/Computer Selectable Charge or ICP® Sensors, 5 Hz LF | 282*, 286*, 287* 686*, 782*, 786*, 787* | | | | ✓ (286) |
| Input Sensor Type | Panel/Computer Selectable Charge or ICP® Sensors, 0.5 Hz LF | 382*, 386*, 387*, 486*† | | | | |
| Output Switching | Dual output switching, 16-to-1 or 8-to-1 (two output BNC's added) | 041* | | | | |
| Connectors (added): (includes standard): | Rear Panel | One BNC Jack Input Per Channel | | ✓ | ✓ | ✓ |
| | Rear Panel | One DB50 Female Input | | ✓ | ✓ | ✓ |
| | Rear Panel | One DB37 Female Output | | ✓ | ✓ | ✓ |
| | Front Panel | One BNC Jack Output Per Channel | | ✓ | ✓ | ✓ |
| Connectors (added): (includes standard): | Rear Panel | One BNC Jack Output Per Channel | | | | |
| | Rear Panel | One DB50 Female Input | | | | |
| | Rear Panel | One DB37 Female Output | | | | |
| | Front Panel | One BNC Jack Output Per Channel | | | | |
| Connectors (added): (includes standard): | Rear Panel | One BNC Jack Input Per Channel | | | | |
| | Rear Panel | One BNC Jack Output Per Channel | | | | |
| | Rear Panel | One DB50 Female Input | | | | |
| | Front Panel | One BNC Jack Output Per Channel | | | | |
| Gain | Fixed Gain of x5 (substituted for standard gain of x1) | 031 | | | | |
| Gain | Fixed Gain of x10 (substituted for standard gain of x1) | 032 | | | | |
| Gain (Auto Ranging) | Selectable Gain of x1, x10, x100 (times fixed gain) | 035* | | ✓ | | |
| Gain (Auto Ranging) | Incremental Gain of x0.1 to x200 (times unity gain only) | 037* | | | | |
| Gain (Auto Ranging) | Incremental Gain of x0.0025 to x200 (times unity gain only) | 038* | | | ✓ | ✓ |
| Gain (Auto Ranging) | Incremental Gain of x0.0025 to x1000 (times unity gain only) | 039* | | | | |
| Filtering, High Pass | Selectable Discharge Time Constant of 2 or 10 sec | 013* | | | | ✓ |
| Filtering, Low Pass | Fixed Low Pass Filters | 050 through 056 | | | | ✓ (051) |
| Filtering, Low Pass | Programmable 8th-Order Elliptical (2 Hz to 21.4 kHz, >256 steps) | 157* | | | ✓ | |
| Filtering, Low Pass | Programmable 8th-Order Butterworth (2 Hz to 20 kHz, >256 steps) | 158* | | | | |
| Control | RS-232 and RS-485 Serial Computer Interface and Control Software | 101 | | ✓ | ✓ | ✓ |
| Control | IEEE-488 Parallel Computer Interface | 070* | | | | |
| Control | Front Panel Menu Display with Keypad Control | 103* | | ✓ | ✓ | ✓ |
| Integration | Velocity and Displacement to Switched Outputs | 061*§ | | | | |
| Integration | Velocity Output Each Channel (100 mV/g : 100 mV/in/sec) | 062 | | | | |
| Integration | Metric Velocity Output Each Channel (100 mV/g : 100 mV/m/sec) | 065 | | | | |
| Function | RMS Conversion, 0-5 VDC on added rear panel outputs | 064 | | | | |
| Calibration | Internal Calibration Signal and External Cal Input Connector | 012* | | | ✓ | |
| Calibration | External Calibration Signal Input Connector | 014* | | | | ✓ |
| Overload | Programmable Overload Threshold | 020* | | | ✓ | |
| Memory | Retains User Settings Upon Power-down | 102* | | ✓ | ✓ | ✓ |
| TEDS | Reads and Writes TEDS Sensor Data | 104* | | | | |

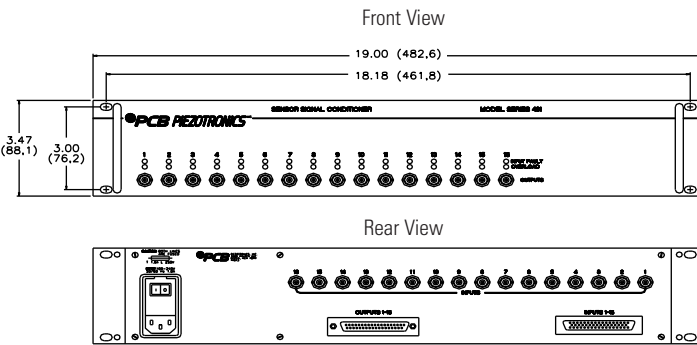
Notes: (*) Computer interface option 101 must also be ordered in conjunction with this option.
 (§) Switched output option 041 must also be ordered in conjunction with this option.
 (✓) Designates included feature or option.
 Consult factory for additional customization options.



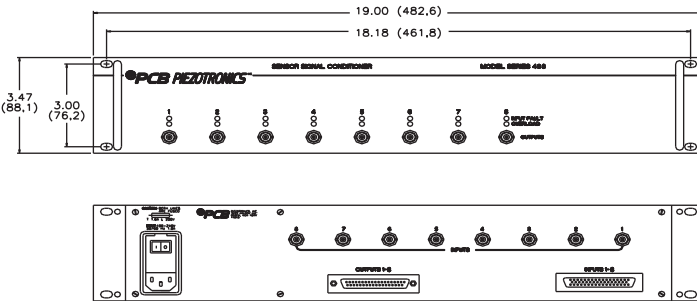
SERIES 481A AND SERIES 498A MULTI-CHANNEL SIGNAL CONDITIONERS



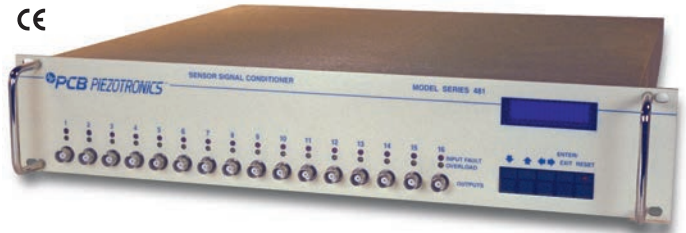
Series 481A with options 080, 101, and 103



Series 481A with option 080



Series 498A with options 080, 101, and 103



Series 481A
16-channel configuration



Series 498A
8-channel configuration



Optional Accessories:
Model 488A05 Power Inverter, 12 VDC to 115 VAC, 60 Hz.

CE These products conform to applicable European Directives for CE marking.



3425 Walden Avenue, Depew, NY 14043-2495 USA
Electronics Division toll free 888-684-0015
24-hour SensorLineSM 716-684-0001
Fax 716-685-3886 E-mail electronics@pcb.com
Web site www.pcb.com

ISO 9001:2000 CERTIFIED A2LA ACCREDITED to ISO 17025

© 2018 PCB Group, Inc. In the interest of constant product improvement, specifications are subject to change without notice.
PCB and ICP are registered trademarks of PCB Group, Inc.
SensorLine is a service mark of PCB Group, Inc. All other trademarks are properties of their respective owners.
ELE-481-498-0418 Printed in U.S.A.

The Electronics Division of PCB® Piezotronics, Inc. specializes in the development, application, and support of signal conditioners, cables, and accessories for a wide variety of sensor interfacing requirements. This product focus, coupled with the strengths and resources of PCB, permits the Electronics Division to offer exceptional customer service, 24-hour technical assistance, and a **Total Customer Satisfaction** guarantee.

Visit www.pcb.com to locate your nearest sales office