

MODEL 444A53

# Ballistic Peak Pressure Monitoring System

Captures and Compares Peak Output from Piezoelectric Ballistic Pressure Sensors

- Displays Peak Voltage or Pressure Directly in Engineering Units
- Dual Set Points for Establishing “Acceptable” Limits
- Operates with ICP® and Charge Output Piezoelectric Sensors
- Normalizes Sensor Output for Ease of Data Interpretation
- Long Discharge Time Constant Mode for Sensor Calibration

The Model 444A53 is a modular-style signal conditioner that combines a dual-mode amplifier module (443B102), a peak voltage monitoring module (444A152), and an AC power supply module (441A101) into one, integrated device. The unit connects directly with an ICP® or charge output pressure sensor, normalizes sensor sensitivity, and displays peak transient measurement signals in voltage or pressure units.

CE



**Model 444A53**  
Ballistic Peak Pressure Monitoring System

Unlike a digitizing peak detector, which is limited in accuracy by the sampling rate, the 444A152 peak monitoring module captures the true peak voltage of the transient event. Additionally, the module incorporates a 20 kHz low pass filter, offers reset capability between events, and delivers an analog output signal to profile the entire pressure event.

This device is ideal for barrel chamber pressure testing, lot testing of ammunition, and cartridge load studies. Two alternative versions (Models 444A51 and 444A52) eliminate the dual mode amplifier module and are intended for direct connection to ICP® pressure sensors, any direct voltage input, or for existing systems that already utilize a separate charge amplifier.

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.

 **PCB** PIEZOTRONICS<sup>INC.</sup>  
PRESSURE DIVISION

*Total Customer Satisfaction Guaranteed*



## Specifications

Model	444A53
<b>Performance</b>	
Channels	1
Input Sensor Type (selectable)	ICP <sup>®</sup> , charge, voltage
Input Sensitivity Adjustment (normalization)	0.001 to 9999 (pC or mV per unit)
Excitation Supplied (ICP <sup>®</sup> mode)	24 VDC @ 0 to 20 mA
Voltage Gain (ICP <sup>®</sup> or voltage mode)	0.1 to 1000
Charge Converter (charge mode)	0.1 to 10,000 mV/pC
Charge Input Limit	100,000 pC
Drift (long DTC mode)	<0.03 pC/sec
Discharge Time Constant (selectable)	0.18, 1.8, 10, 100, 1000, >100,000 sec
Peak / DVM Display	4-digit LCD
Peak Voltage Display Range (infinite hold)	± 10 V
Accuracy	± 1%
Display Mode	Peak, DVM, Bias Test (for ICP <sup>®</sup> sensors)
Rise Time	<1 μsec
Low Pass Filter	20 kHz
Peak Reset	Manual, Remote, or Auto (1 to 99 sec)
<b>Environmental</b>	
Temperature Range	+32 to +120 °F (0 to +50 °C)
<b>Electrical</b>	
Power Required	100 to 240 VAC, 50 to 60 Hz
Relays (2 Form C each with HI or LOW setpoint)	1 A @ 30 VDC, 1/2 A @ 125 VAC
<b>Physical</b>	
Size (h x w x d)	6.2 x 6.06 x 10.2 in (157.5 x 153.9 x 259.1 mm)
Electrical Connectors (input, peak/DVM output, analog output, remote reset)	BNC Jack



**Models 444A51, 444A52**  
Peak Monitoring Systems



**Model 441A102\***  
DC Power Supply Module

## Alternate Configurations

The modular nature of this equipment permits custom configurations to suit particular requirements. For complete details and specifications, contact a factory applications engineer or your local sales representative.

### Standard Configurations

#### for Ballistics applications:

Model 444A53 includes in a common enclosure:  
 Model 443B102 Dual-Mode Amplifier Module  
 Model 444A152 Peak Monitoring Module (with 20 kHz filter)  
 Model 441A101 AC Power Supply Module\*

Model 444A52 includes in a common enclosure:  
 Model 444A152 Peak Monitoring Module (with 20 kHz filter)  
 Model 441A101 AC Power Supply Module\*

#### for Pressure, Force, Vibration, Shock, and Impact applications:

Model 444A51 includes in a common enclosure:  
 Model 444A151 Peak Monitoring Module (without 20 kHz filter)  
 Model 441A101 AC Power Supply Module\*

### Options:

\*Model 441A102 DC Power Supply Module - contains internal, rechargeable battery source and connector for external DC power input (substitute for Model 441A101 AC power supply module).



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ISO 9001:2000 CERTIFIED

A2LA ACCREDITED to ISO 17025

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The Pressure Division of PCB<sup>®</sup> Piezotronics, Inc. specializes in the development, application, and support of piezoelectric and piezoresistive pressure sensors, transducers, and transmitters for dynamic and static pressure test, measurement, monitoring, and control requirements. This product focus, coupled with the strengths and resources of PCB, permits the Pressure Division to offer exceptional customer service, 24-hour technical assistance, and a **Total Customer Satisfaction** guarantee.

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