

ATE-100 Handheld Pressure Calibrator



LOOK FOR THESE MARKS ON OUR PRODUCTS

FEATURES

- *Interchangeable pressure and temperature modules*
- *Pressure measurement accuracies of $\pm 0.025, 0.05$ and 0.10% , or $.06/.07\%$*
- *Pressure ranges from $0.25 \text{ in. H}_2\text{O}$ to $10,000 \text{ psi}$*
- *Supports most standard RTD probes and thermocouples*
- *Min/max, tare, flow, leak, programmable damping, percent function, trip detect, all standard*
- *High static DP measurement capability*
- *Optional: FM Approval for Class I, Div. 1, Groups A, B, C & D hazardous areas, datalogging, hi/low alarm relays*

The Ashcroft® ATE-100 handheld system introduces a new era in pressure calibration standards. This unique instrument measures pressure, temperature, flow, vacuum, leak, current, voltage and change-of-state for switch testing. A fully equipped ATE-100 system provides all calibration capabilities needed in virtually all pressure measurement and test applications.

Each handheld system consists of a base unit and one or two Quick-Select™ pressure modules. An array of pressure modules is available to cover ranges from $0.25 \text{ inches H}_2\text{O}$ through $10,000 \text{ psi}$. Modules can be inter-changed quickly and easily without the use of tools. In addition to pressure measurement, Quick-Select interface modules are also available to allow the ATE-100 to measure temperature with common RTDs or thermocouple devices.

For the most demanding applications, the ATE-100 can be optionally configured in an intrinsically safe “FM approved” version, for use in Class 1, Div. 1 hazardous environments. In areas where EMI/RFI immunity is required, an optional “CE Mark” version is also available.

With a broad variety of ranges and features, the ATE-100 is one of the most powerful, versatile and useful test and measurement instruments available today.

The Quick-Select Pressure Module

Quick-Select pressure modules are available in full-scale ranges from $0.25 \text{ inches H}_2\text{O}$ through $10,000 \text{ psi}$. Gauge, vacuum, absolute, differential or compound pressure ranges are available.

Each base unit can accommodate two pressure sensor modules simultaneously. Select from multiple modules which can be interchanged in seconds without the use of tools. When installed in the base unit, a pressure module becomes an integral part of the measurement system, thereby protecting the sensor from damage. Any combination of Quick-Select pressure modules may be used or interchanged as needed in the lab or field.

The AQS-1 Module

The AQS-1 Quick-Select low pressure module is based on a proprietary, Ashcroft engineered, variable-capacitance sensor. This sensor is available in ranges from $0/0.25$ to $0/200 \text{ inches H}_2\text{O}$. AQS-1 Quick-Select pressure modules are available in accuracies from $\pm 0.1\%$ to $\pm 0.06\%$ of span. These Quick-Select pressure modules are available for gauge, differential and compound measurement requirements.

The variable-capacitance sensing element in the AQS-1 incorporates a micro-machined silicon diaphragm. Silicon provides optimum repeatability with minimal hysteresis. The sensor is extremely stable, since the sputtered metal capacitance plates are molecularly bonded to the silicon. This design allows for the elimination of epoxies and other types of bonding and adhesive agents from the sensor assembly.

The AQS-1 sensor is also extremely rugged. It can withstand extreme overpressure without significant error or calibration offset. In addition, the sensor is capable of withstanding significant shock and vibration without damage or loss of measurement output integrity.

The AQS-2 Module

The AQS-2 Quick-Select pressure module incorporates a piezoresistive, micro-machined silicon sensor. These sensors are available in ranges from $0/100 \text{ inches H}_2\text{O}$ through $0/10,000 \text{ psi}$ and are also offered in gauge, absolute, vacuum and compound variants.

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316 SS sensor isolation is provided on all AQS-2 modules. AQS-2 Quick-Select pressure modules are available in a variety of accuracies from $\pm 0.1\%$ of span through $\pm 0.025\%$ of span.

Also Measure Temperature

The AQS-RT1, AQS-RT2 and AQS-TC1 interface modules allow the ATE-100 to measure temperature with common RTD or thermocouple temperature measurement devices.

The Base Units

The base unit provides access to the complete capabilities of the ATE-100 calibration system. These capabilities extend far beyond those of precision pressure measurement. The base unit contains a wide variety of application-specific firmware as well as the ability to measure both current and voltage inputs. In addition, this unit has the ability to interface the system with a computer, data acquisition system or dumb terminal via the standard RS-232 interface.

Each base unit can accommodate two Quick-Select pressure modules simultaneously. In addition, the modules can be interchanged quickly and easily for on-the-fly system configuration as application requirements change.



PRODUCT SPECIFICATIONS

Ashcroft®									
Model No.:	ATE-100								
Dimensions:	7.88 in. (L) x 4.24 in. (W) x 3.25 in. (H)								
Weight:	Max. 2.2 lbs. w/2 pressure modules installed								
Case Material: High impact ABS									
Sensor Module Capacity: 2 bays for Ashcroft AQS "Quick Select®" sensor modules									
Display:	2 line LCD, 0.37 in. height per line. Can display simultaneous readings from 2 modules								
Electrical Connection: Miniature recessed banana jacks (one set of test leads provided with each ATE-100)									
Operating Temp. Range: Standard: 32° to 120°F Optional: -4 to 120°F									
Storage Temperature: -4° to 158°F									
Update Rate:	130 ms (nominal) with one sensor installed								
Resolution:	$\pm 0.002\%$ of span, 60,000 count (max)								
Warm-Up:	5 minutes for rated accuracy								
Electrical Measurements: 0-20mA or 0-30 Vdc									
Input:	<table border="0"> <tr> <td>(volts)</td> <td>Accuracy</td> </tr> <tr> <td>0/10 Vdc</td> <td>$\pm 0.025\%$ fs</td> </tr> <tr> <td>0/30 Vdc</td> <td>$\pm 0.10\%$ fs</td> </tr> <tr> <td>0-20mA</td> <td>$\pm 0.03\%$ fs</td> </tr> </table>	(volts)	Accuracy	0/10 Vdc	$\pm 0.025\%$ fs	0/30 Vdc	$\pm 0.10\%$ fs	0-20mA	$\pm 0.03\%$ fs
(volts)	Accuracy								
0/10 Vdc	$\pm 0.025\%$ fs								
0/30 Vdc	$\pm 0.10\%$ fs								
0-20mA	$\pm 0.03\%$ fs								
Temperature Effect Electrical Measurement: $\pm 0.001\%$ of span per °F over compensated range									
Serial Interface:	Type: RS-232 Baud Rate: 300, 1200, 2400, 9600								
Serial Interface:	Both Quick-Select pressure modules and base unit electronics can be calibrated in the field.								

OPTIONAL FEATURES

- **Datalogging with Hi-Lo Relay Feature** – Datalogging manually or automatically stores up to 715 measured values for upload to PC. Includes upload utility software. Hi-Lo relay feature allows programming of setpoints for activation of alarms or control valves. (Hi-Lo not available with FM approval.)
- **Enhanced LCD**
For -4 to 120°F operating range
- **FM Approval** – Class 1, Div. 1, Groups A,B,C & D (Not available with CE Mark)
- **CE Mark**
EMI/RFI immunity rating (not available with FM approval)

BASE UNIT PHYSICAL SPECIFICATIONS

Dimensions	
7.88 in. (L) x 4.24 in. (W) x 3.25 in. (H)	
Weight	
Max. 2.2 lbs. w/2 pressure modules installed	
Case Material	
High impact ABS	
Sensor Module Capacity	
2 bays for Ashcroft AQS "Quick Select®" sensor modules	
Display	
2 line LCD, 0.37 in. height per line. Can display simultaneous readings from 2 modules	
Electrical Connection	
Miniature recessed banana jacks (one set of test leads provided with each ATE-100)	

BASE UNIT OPERATING SPECIFICATIONS

Operating Temperature Range	
Standard: 32° to 120°F Optional: -4 to 120°F	
Storage Temperature	
-4° to 158°F	
Update Rate	
130 ms (nominal) with one sensor installed	
Resolution	
$\pm 0.002\%$ of span, 60,000 count (max)	
Warm-Up	
5 minutes for rated accuracy	
Electrical Measurements	
0-20mA or 0-30 Vdc	
Input (volts)	Accuracy
0/10 Vdc	$\pm 0.025\%$ fs
0/30 Vdc	$\pm 0.10\%$ fs
0-20mA	$\pm 0.03\%$ fs
Temperature Effect Electrical Measurement: $\pm 0.001\%$ of span per °F over compensated range	
Serial Interface	
Type: RS-232 Baud Rate: 300, 1200, 2400, 9600	
Serial Interface	
Both Quick-Select pressure modules and base unit electronics can be calibrated in the field.	

Options

Datalogging with Hi-Lo Relay Feature – Datalogging manually or automatically stores up to 715 measured values for upload to PC. Includes upload utility software. Hi-Lo relay feature allows programming of setpoints for activation of alarms or control valves. (Hi-Lo not available with FM approval.)

Enhanced LCD – For -4 to 120°F operating range

FM Approval – Class 1, Div. 1, Groups A,B,C & D (Not available with CE Mark)

CE Mark – EMI/RFI immunity rating (not available with FM approval)

Power Requirements

Standard: (2) 9 Vdc Alkaline Batteries (provides up to 30 hours operation per set)

Optional: 110 or 220 Vac transformer to power calibrator from line power

Certification

N.I.S.T. Traceable certification document provided for base display unit and sensor modules

