



Handheld LCD Digital Calibrator Type ATE-100 Pressure, Temperature, Voltage and Current Measurement

- **Interchangeable pressure and temperature modules**
- **Pressure measurement accuracies of $\pm 0.025, 0.05$ and 0.10%**
- **Pressure ranges from $0.25 \text{ in. H}_2\text{O}$ to 10000 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 is a calibration system with a vast array of capabilities. 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 RS232 interface.



PRODUCT SPECIFICATIONS

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, 0.037 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

Damping (Measurement Averaging)

Programmable averaging from zero through 16 consecutive readings

Electrical Measurements

0-50 mA 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
0/50mA	$\pm 0.05\%$ FS

Auto Ranging 10/30 Vdc and 20/50mA

Temperature Effect; Electrical Measurement

$\pm 0.001\%$ of Span per $^\circ\text{F}$ over compensated range

Serial Interface

Type: RS-232

Baud Rate: 300, 1200, 2400 or 9600 selectable

Field Calibration

Both Quick Select pressure modules and base unit electronics can be calibrated in the field via prompted keypad commands

Options

Datalogging with Hi-Lo Relay Feature – Data logging 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) 9Vdc 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

PRESSURE SENSOR MODULE SPECIFICATIONS

AQS-1

Pressure Types

Gauge, differential & compound

Available Ranges

(See Chart)

Available Accuracies

± 0.06 (0/2-0/200 in. H₂O), ± 0.07 (0/0.25-0/1 in. H₂O) or 0.1% of Span

Compensated Temperature Range

20°F to 120°F

Temperature Effect

$\pm 0.004\%$ of Span per $^\circ\text{F}$ over compensated range (from reference temperature range of $70^\circ \pm 3^\circ$)

Repeatability

$\pm 0.01\%$ of span (range 0/1 in. H₂O or higher)
 $\pm 0.02\%$ of span (ranges below 0/1 in. H₂O)

Sensitivity

$\pm 0.002\%$ of span (typical)

Media Compatibility

Clean, dry, non-conductive, non-corrosive gas

Under/Overpressure Capability

-15 to 50 psi

Maximum Static (line) Pressure

100 psi

Process Connection

Standard: $1/8$ NPT female

Optional: G $1/8$ British standard

Other Options

FM Approved (for use with FM approved base unit)

CE Mark (for use with CE Mark rated base unit)

AQS-2

Pressure Types

Gauge, absolute, compound & vacuum

Available Ranges

(See Chart)

Available Accuracies

$\pm 0.025, 0.05$ or 0.1% of Span (± 0.025 & 0.05% not available on 0/10,000 psi range)

Compensated Temperature Range

20°F to 120°F

Temperature Effect

Standard: $\pm 0.004\%$ of Span per $^\circ\text{F}$ over the compensated range (from reference temperature range of $70^\circ \pm 3^\circ$)

Optional: No additional error due to temperature over the compensated range

Repeatability

$\pm 0.01\%$ of span

Sensitivity

$\pm 0.002\%$ of span (typical)

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Media Compatibility

0/5 psi range only: Clean, dry, non-conductive, non-corrosive gas
0/10-0/10,000 psi ranges: Any medium compatible with 316 stainless steel isolation.
Optional: Cleaned for Oxygen Service (0/10-0/10,000 psi ranges only)

Overpressure Capability

200% for ranges up to 1000 psi
150% for ranges over 1000 psi

Process Connection

Standard: 1/8 NPT female
Optional: 1/8 NPT female with flush port (ranges 10 psi and over)
G 1/8 British standard
G 1/8 British standard with flush port (ranges 10 psi and over)
Welded VCR fitting with standard finish

Other Options

FM Approved (for use with FM approved base unit)
CE Mark (for use with CE Mark rated base unit)

TEMPERATURE INTERFACE MODULES

AQS-RT Series (RTD)

AQS-RT1 and AQS-RT2 interface modules allow the ATE-100 to measure temperature with an RTD

AQS-RT1: Accommodates Pt100, Ni120, Cu120 and other common 2, 3 or 4 wire probes with resistance outputs of 400 ohms or less.

AQS-RT2: Accommodates Pt1000 and other common 2, 3 or 4 wire probes with resistance outputs of 4000 ohms or less.



Model ATE-100 with
AQS-RT1 and RTD Probe installed

Selectable Units of Measure

°C, °F, °K, °R and ohms

Input Receptacle

Accepts TA4F type RTD connector

RTD Probes Available

Pt-100 probes, 6" or 12" length, with or without handle. DIN Class A accuracy. Includes mating TA4F connector. Consult factory for details and availability.

Options

FM approved (for use with FM approved base unit) (CE) not available

AQS-TC1 (Thermocouple)

The AQS-TC1 interface module allows the ATE-100 to measure temperature with a thermocouple

Compatibility

Programmed to provide direct temperature readout from types J, K, T, E, R, S, B & N thermocouples or direct millivolt readout from any thermocouple.

Reference Junction

Automatic internal or manual external

Resolution

Automatic or manually selectable, up to .01°

Units of Measure

Selectable; °C, °F, °K, °R and millivolts

Receptacle

Accepts "miniature thermocouple connector", Omega® type SMP



Model ATE-100 with
AQS "Quick Select" Modules

Options

FM approved (for use with FM approved base unit) (CE) not available

ACCESSORIES

110Vac/60 Hz ac Adapter
220Vac/50 Hz ac Adapter
Contoured protective case
Soft carrying case
Hard carrying case
External 24vdc Loop Power Supply – to power transducers and pressure switch test circuit
SM-1 Voltage Adapter – allows ATE-100 to be used to check "live" pressure switches

STANDARD RANGES

AQS-2 psi (gauge and absolute pressure)	AQS-1 in.H ₂ O (gauge/ differential pressure)	Other Engineering Units**
5	0.25	psi
10	0.5*	in.H ₂ O
15	1.0*	in.Hg
20	2.0*	ftSW
25	3.0*	bar
30	5.0*	mbar
50	10*	kPa
60	15*	MPa
100	25*	mmHg
150	50*	cmH ₂ O
200	100*	mmH ₂ O
250	150*	kg/cm ²
300	200*	User Selectable
500		
600		
1000		
1500		
2000		
2500		
3000		
5000		
6000		
7500		
10,000		
vacuum		
*5		
10		
15		
compound		
±5	±0.125*	
±10	±0.25*	
±15	±0.5*	
-15/+30	±1.0*	
-15/+60	±1.5*	
	±2.5*	
	±5.0*	
	±7.5*	
	±12.5*	
	±25*	
	±50*	
	±75*	
	±100*	

**Note: Engineering units identified above are accessible through the unit select feature. However, readout will default to the primary unit of measure on start-up. Sensor modules scaled in primary units other than in. H₂O (AQS-1) or psi (AQS-2) are also available. Consult factory.

* Non-isolated, for clean dry gas only

TO ORDER

Base Display Unit

- Specify Model: ATE-100
- Specify Options: (Datalogging, Enhanced LCD, FM Approval, CE Mark)

Sensor Modules

- Type (AQS-1 or AQS-2)
- Pressure Range and Unit of Measure (see range chart)
- Pressure Type (see specifications)
- Accuracy (see specifications)
- Specify Options
 - "zero temperature error over compensated range" (AQS-2 only)

- Optional fitting (see specifications)
- Clean for Oxygen Service (AQS-2, 0/10-1/10,000 psi only)
- FM approval or CE Mark

Temperature Interface Module

- Type (AQS-RT1, AQS-RT2 or AQS-TC1)
 - Specify FM approval if required
- RTD Probe Type (when required. Consult factory for probe P/N)

Accessories

- Specify required accessories

Consult factory for guidance in product selection
Phone (203) 385-0217, Fax (203) 385-0602 or
visit our web site at www.ashcroft.com