



Multifunction Process Calibrators

Selection Guide

Models	Additel 209 Loop Calibrator	Additel 210 Loop Calibrator	Additel 220 Multifunction Loop Calibrator	Additel 221A Multifunction Temperature Calibrator	Additel 222A Multifunction Process Calibrator	Additel 223A Documenting Process Calibrator
Measure						
Voltage(mV)			±300 mV	±75 mV	±75 mV	±75 mV
Voltage(V)	0 to 30 V	0 to 30 V	±60 V	±30 V	±30 V	±30 V
Current (mA)	0 to 24 mA	0 to 24 mA	±30 mA	±30 mA	±30 mA	±30 mA
Resistance(ohm)			0 to 2,000 Ω	0 to 4,000 Ω	0 to 4,000 Ω	0 to 4,000 Ω
Frequency(Hz)				1 to 50,000 Hz	1 to 50,000 Hz	1 to 50,000 Hz
Pulse				0 to 999,999	0 to 999,999	0 to 999,999
Limit Switch			3 to 24V	3 to 24V	3 to 24V	3 to 24V
Pressure					● ^[1]	● ^[1]
Source / Simulate						
Voltage(mV)			-10 to 200 mV	-10 to 75 mV	-10 to 75 mV	-10 to 75 mV
Voltage(V)			0 to 12 V	0 to 12 V	0 to 12 V	0 to 12 V
Current (mA)	0 to 24 mA	0 to 24 mA	0 to 22 mA	0 to 22 mA	0 to 22 mA	0 to 22 mA
Resistance(ohm)				1 to 4,000 Ω	1 to 4,000 Ω	1 to 4,000 Ω
Frequency(Hz)				0 to 50,000 Hz	0 to 50,000 Hz	0 to 50,000 Hz
Pulse				0 to 999,999	0 to 999,999	0 to 999,999
DC 24 V	●	●	●	●	●	●
Record						
Scaling			●	●	●	●
Min/Max/Avg/Tare			●			
Hold			●			
As found/ As left			●	●	●	●
On-demand logging			●	●	●	●
Upload data to PC				●	●	●
Features						
24V loop supply			●	●	●	●
Ramp/ Step			●	●	●	●
Simulate Transmitter				●	●	●
RTD				11 types ^[2]	11 types ^[2]	11 types ^[2]
Thermocouple				13 types ^[3]	13 types ^[3]	13 types ^[3]
HART communication			● ^[4]			●
Documenting				●	●	●
Warranty	3 years	3 years	3 years	3 years	3 years	3 years
NIST traceable calibration	●	●	●	●	●	●
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[1] Additel 160A External Pressure Module required

[2] RTD Includes Pt10(385), Pt100(385), Pt100(3916), Pt100(3926), Pt500(385), Pt1000(385), Cu10(427), Cu50(428), Cu100(428), Ni100(617), Ni120(672), Ni1000 and customized

[3] Thermocouple Includes S, R, B, K, N, E, J, T, C, D, G, L, U

[4] Built-in 250Ω resistor for HART communications.

Additel 209 and 210 Series Loop Calibrator

- Accuracy to 0.01% of reading
- Small and rugged handheld design
- Measure, source, or simulate loop current
- Measure DC volts
- Simultaneously mA and % span display
- Switch functionality
- Selectable ramp and step functions
- Easy to read display and user interface
- HART 250Ω resistor in series with 24V loop



OVERVIEW

The new Additel 209 and 210 loop calibrator series combine ease of use and functionality, making them the ideal tools to troubleshoot your process loop. The ADT209 has an accuracy of 0.03% of reading whereas the ADT210 holds an accuracy of 0.01% of reading. If you want to source, simulate or simply measure, the Additel Loop calibrator series will fit your need. The ADT209 and ADT210 allow for measurement of current, voltage and a switch. You can also simulate or source mA or a process transmitter. With a push of a button, you can switch to zero and span values, auto ramp, and auto step throughout the range. Each loop calibrator has a large, easy to read screen which simultaneously displays the measurement with the % of span.

ELECTRICAL MEASURE SPECIFICATIONS

	Range	Resolution	ADT209 Accuracy	ADT210 Accuracy
Voltage DC ¹	0 to 30 V	1 mV	0.03%RD + 2mV	0.01%RD + 2mV
Current DC ²	0 to 24 mA	1 μA	0.03%RD + 2μA	0.01%RD + 2μA
Switch test	Input resistance more than 500 MΩ Trigger level: low level <0.3V; high level: >2V			

[1] 1MΩ input resistance

[2] Loop transmitter current measure: 7000Ω maximum

ELECTRICAL SOURCE SPECIFICATIONS

	Range	Resolution	ADT209 Accuracy	ADT210 Accuracy
Current DC	0 to 24 mA	1 μA	0.03%RD + 2μA	0.01%RD + 2μA
Source mode	7000Ω/20 mA maximum			
Sink mode	External loop voltage nominal 24V, maximum 30V, minimum 12V			

GENERAL SPECIFICATIONS

Voltage limit	30V between terminals or between terminals and ground
Measurement Functions	Auto step, auto ramp, span step
Display	VA LCD display. 2.04 x 2.04 in (52 x 52 mm)
Loop power	24V
Over-voltage protection	30V DC (240V AC)
Overload current protection	33 mA DC
Storage temperature	-20°C to 70°C
Working Environment	-10 to 50°C, 95%RH
Working Altitude	<3,000 m
Vibration/shock	Random 2G 5 to 500Hz 1 meter drop
Power	One 9V alkaline battery (ANSI/NEDA 1604A or IEC) DC9V optional adapter available
Battery life (typical)	Output mode: 18 hours (12 mA/500Ω) Measure mode: 50 hours
Size (LxWxH)	163 x 83 x 41 mm
Weight	350 g
Calibration Certification	NIST-traceable certificate of calibration with data
Compliance Certification	ADT209: CSA, CE, DNV ADT210: CSA, CE, DNV
Warranty	3 years

ORDERING INFORMATION

Model Number

ADT209

ADT210

Accessories included

9024	Test lead set	1 set
	Alligator clips	2 pcs
	User manual	1 pc
	9V Alkaline battery	1 pc

Optional Accessories

9812	110V/220V external power adapter (DC 9V)
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Additel 220

Multifunction Loop Calibrator

- Measure and source loop current, mV, and V
- Measure and source simultaneously
- Loop Continuity Test capability
- 24V loop supply with simultaneous current measurement
- 3 year warranty



OVERVIEW

The 220 is a highly integrated loop calibrator featuring several patented technologies. The calibrator is an ultra-compact, rugged, and best of all, easy to use hand-held device that will source, simulate and measure loop current, mV/V, Loop Continuity Test, and also perform switch testing. Its smart phone-like menu and interface makes it simple and easy to use. The 220 is ideal for calibrating, maintaining, and troubleshooting various loop devices in the field.

FEATURES

- **Measuring and sourcing loop current, mV and V**
Measures loop current up to 30mA with 0.1 μ A resolution
Measures voltage signals up to 60 V, and mV signals up to 300 mV
Sources/sink loop current, mV and V
24V loop power supply with simultaneous current measurement
Simultaneous dual reading capability
Capture switch
- **Data statistics and analysis**
Display max, min, peak-to-peak, average, and percentage simultaneously
Convert data to a real physical value through re-scaling function
- **On-demand logging**
High-capacity storage with up to twenty thousand records
On-line view, index, analyze, auto-curve, and list the data
- **Various sources and converting mode**
Support linear, flow, valve, and 25% stepping source
Auto-source of ramping and stepping
Gauge span examination
- **"As Cal" on-site calibration tools**
Four on-site calibration tools preset: loop indicator, sensor/transmitter, signal isolator/converter, and limit alarm/switch
- **Support 2W transmitter connection**
- **Multi lingual interface**
English, Simplified Chinese
- **Convenient tools**
Calculator, thermocouple converter, HOLD screen lock
- **Display rate**
4 readings/second
- **Easy to use**
Smartphone-like menu and interface make the operation simpler and easier
Ultra-compact, size 3.9" x 7.6" x 2.0" (100mm x 192mm x 52mm), and weight 1.6 lb (0.7 kg)
One hand operation
- **Snapshot**
Save and manage up to 100 snapshots
- **Display**
3.5 inch TFT color screen
4, 5, or 6 digits adjustable display
- **Rugged**
Rugged design for harsh environments.
Passed a 1-meter drop test
Three years warranty for the 220, and one year for the battery pack
- **Misuse protection and Electrical isolation**
Up to 30V voltage on any two sockets and up to 1A current on current sockets will not damage the calibrator. The calibrator will return to normal condition as soon as the voltage or current is removed.
Measuring, sourcing and loop power circuits are electrically isolated each other.
- **Rechargeable battery**
Rechargeable Li-ion battery for 15 hours uninterrupted use.
Battery life will be reduced when 24V is applied.
The rechargeable battery is replaceable.
- **NIST Traceable Calibration with data**
- **Firmware upgrade**
Support firmware upgrade when available
- **Warranty: 3 years**

Additel 220 Multifunction Loop Calibrator



APPLICATIONS

The 220 loop calibrator is a process tool for measuring, sourcing and simulating mA, mV and V, captures switch values and provides 24V loop power. It is a high performance solution for calibration, repair and maintenance of various loops devices, Loop Continuity Test, and switch capture.

SPECIFICATIONS

■ Electrical Specifications

Measurement Accuracy			
	Range	Resolution	Accuracy
Voltage DC	-300.000 to 300.000 mV	1 μ V	0.01%RD+15 μ V
	-60.0000 to 60.0000 V	0.1mV	0.01%RD+3mV
Current DC	-30.0000 to 30.0000 mA	0.1 μ A	0.01%RD+1.5 μ A
Loop Continuity	0 to 2000.0 ohm	0.1 Ω	0.02%RD+0.2 Ω
Switch Test	For the contact with potential, the voltage within the range 3V to 24V.		

Source Accuracy			
	Range	Resolution	Accuracy
Voltage DC	-10.00 to 200.00 mV	0.01mV	0.02%RD+10.5 μ V
	0 to 12.000 V	1mV	0.02%RD+0.6mV
Current DC	0 to 22.000 mA	1 μ A	0.02%RD+1.1 μ A
DC24V	N/A	N/A	0.5V

■ General Specifications

Environmental Specifications	
Operating Temperature	-10°C to 50°C
Storage Temperature	-20°C to 60°C
Humidity	<90%, non-condensing

Safety Specifications	
Compliance	CE Mark
Protection Level	IP30

Mechanical Specifications	
Display	3.5 inch TFT color screen
Electrical Connection	Ø4mm sockets and flat mini-jack thermocouple socket
RS232 Interface	Standard RS232-DB9 socket
Size	3.9" x 7.6" x 2.0" (100mm x 192mm x 52mm)
Weight	1.6 lb (0.7 kg)
Power Supply	Polymer Li-ion rechargeable battery, or 10V DC adaptor
Battery	Rechargeable Li-ion battery (included)
Battery Life	15 hours uninterrupted use Battery life will be reduced when 24V is applied
Battery Charge	110V/220V external power adapter (included)

ORDERING INFORMATION

■ Model Number ADT220

Accessories (included)		
9816-X	110V/220V external power adapter	1 pc
9712	Chargeable Li-ion battery	1 pc
9022	Test leads	2 sets(4 pcs)
9020	Short circuit cable	1 sets(2 pcs)
	User Manual	1 pc
	NIST traceable calibration certificate	1 pc

* Additel/Land software could be downloaded for free at www.additel.com

Optional Accessories	
Model number	Description
9050	USB to RS232 (DB-9 Male) Adapter
9050-EXT	RS 232 (DB9/M) extension cable, 9 feet
9712	Spare chargeable Li-ion battery for multifunction calibrator
9816	110V/220V external power adapter
9906	Carrying case for multifunction calibrator

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Additel 221A, 222A & 223A Multifunction Documenting Process Calibrators

- Sourcing, simulating and measuring pressure, temperature and electrical signals
- Smartphone-like menu and interface for simple operation
- HART Communication capability (223A)
- The internal cold junction compensation sensor can be re-calibrated at the ice point
- Ultra-compact, 3.9" x 7.6" x 2.0", and 1.6 lb (0.7 kg)



OVERVIEW

This series of highly integrated multifunction calibrators feature several patented technologies. These are an ultra-compact, rugged, and easy to use hand-held device for sourcing, simulating and measuring pressure, temperature, and electrical signals. Their smartphone-like menu and interface make the operation simple. Automation and documentation capabilities make these calibrators a turnkey solution.

Additel 221A

The Additel 221A is very unique to the multifunction temperature calibrator market. Not only does it provide you with the ability to source, simulate and measure temperature and electrical functions but it also incorporates full documenting capability and many other solutions other competitors do not provide. As a standalone device, you can create tasks, run tests and store the results. With the use of Additel/Land Software or Additel/Cal software, all saved tasks and data can be downloaded and managed. With its unique internal cold junction compensation sensor, cold junction compensation is very simple and easy.

Additel 222A

The Additel 222A Multifunction Process Calibrator takes all the functionality of the 221A and adds the ability to measure and source pressure using the ADT160A Intelligent Pressure Modules. With calibration characteristics programmed directly into the ADT160A pressure modules, you can simply connect them to the 222A and it will automatically recognize and display the module as the source or measure pressure. For ultimate convenience, the 222A allows for modules to be "hot swapped" with a simple connection at the top of the module.

Additel 223A

The 223A has all the capability of the 221A and 222A and HART Communication in one small, easy-to-use package. The 223A has a full HART library that allows for the reading of HART-smart devices and also the capability to write to devices. Combined with full task automation and documentation, the 223A is an ideal tool to accomplish many of your important calibration tasks.

FEATURES

- **Sourcing, simulating and measuring temperature and electrical signals**
Sources and measures mV, mA, ohms, RTDs, thermocouples, frequency, and pulses
Simulates and measures 13 thermocouples and 11 RTDs to calibrate transmitters
Measures and sources pressure using Additel 160A series Intelligent Digital Pressure Modules from -15 psi to 10,000 psi (-1 bar to 700 bar)
24V loop power supply
Simultaneous dual reading capability
Automatic switch test
Supports square root transmitter
Pulse frequency output for the calibration of flow totalizer
- **Easy to use**
Smartphone-like menu and interface make the operation simpler and easier
Ultra-compact, size 3.9" x 7.6" x 2.0" (100mm x 192mm x 52mm), and weight 1.6 lb (0.7 kg)
One handed operation
- **Calibrated cold junction compensation (Patented)**
Cold junction equalizing block in the calibrator
A calibrated PRT element with flexible leads is installed in the equalizing block for thermocouple cold junction compensation
This PRT element can be pulled out from the calibrator and re-calibrated and corrected at the ice point
- **Documenting and automated procedure capability**
Manage the information of the device under test.
Set up automated calibration procedures, and 223A performs the test, calculates the errors, displays and/or stores the results in the memory, and highlights the out-of-tolerance points.
As-found and As-left functions allow recording and documenting results for quality control.
Download tasks and upload the results.
Snapshots allow you to capture and save data.
- **NIST traceable calibration with data**
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- **Built-in temperature readout**
CVD coefficients of a calibrated PRT can be input into the calibrator for accurate temperature measurement.
- **Multi lingual interface**
English, German, French, Italian, Spanish, Portuguese, Simplified Chinese
(Traditional Chinese, Japanese and Russian are available per request)
- **Build-in unit conversion tool**
Build-in converters for pressure units, temperature units, temperature vs. resistance (RTDs), and temperature vs millivolt (thermocouples)
- **Warranty:** 3 years

SPECIFICATIONS

Electrical Specifications

Measurement Accuracy			
	Range	Resolution	Accuracy
Voltage DC	±75.0000 mV	0.1µV	0.01%RD + 3.75 µV
	±30.0000 V	0.1 mV	0.01%RD + 1.5 mV
Current DC	± 30.0000 mA	0.1µA	0.01%RD + 1.5 µA
Resistance	Two-wire 0 to 400.000 Ω	1mΩ	0.02%RD + 0.02 Ω
	Three-wire 0 to 400.000 Ω	1mΩ	0.02%RD + 0.02 Ω
	Four-wire 0 to 400.000 Ω	1mΩ	0.01%RD + 0.02 Ω
	Two-wire 0 to 4000.00 Ω	10mΩ	0.02%RD + 0.2 Ω
	Three-wire 0 to 4000.00 Ω	10mΩ	0.02%RD + 0.2 Ω
	Four-wire 0 to 4000.00 Ω	10mΩ	0.01%RD + 0.2 Ω
Frequency	1 to 50000.0 Hz	0.1Hz	0.005%RD + 1 Hz
Pulse	0 to 999999	1	N/A
Limit Switch	For the contact with potential, the voltage within the range 3V to 24V.		

Source Accuracy			
	Range	Resolution	Accuracy
Voltage DC	-10.000 to 75.000mV	1µV	0.02%RD + 4.25 µV
	0 to 12.0000 V	0.1mV	0.02%RD + 0.6 mV
Current DC	0 to 22.000 mA	1µA	0.02%RD + 1.1 µA
Resistance	1 to 400.00 Ω	10mΩ	0.02%RD + 0.02 Ω
	1 to 4000.0 Ω	100mΩ	0.03%RD + 0.4 Ω
Frequency	0 to 50000.0 Hz	0.1Hz	0.005%RD + 1 Hz
Pulse	0 to 999999	1	N/A
DC24V	N/A	N/A	0.5V

General Specifications

Environmental Specifications	
Operating Temperature	-10°C to 50°C
Storage Temperature	-20°C to 60°C
Humidity	<90%, non-condensing

Safety Specifications	
European Compliance	CE Mark

Mechanical Specifications	
Display	3.5 inch TFT color screen
Electrical Connection	Ø4mm sockets and flat mini-jack thermocouple socket
RS232 Interface	Standard RS232-DB9 socket
Size	3.9" x 7.6" x 2.0" (100mm x 192mm x 52mm)
Weight	1.6 lb (0.7 kg)
Power Supply	Polymer Li-ion rechargeable battery, or 10V DC adaptor
Battery	Rechargeable Li-ion battery (included)
Battery Life	15 hours uninterrupted use Battery life will be reduced when 24V is applied
Battery Charge	110V/220V external power adapter (included)

Pressure Specification(222A & 223A)

The 160A series Intelligent Digital Pressure Modules are available for gauge, vacuum and absolute pressure from -15 psi to 10,000 psi (-1 bar to 700 bar). Accuracy from 0.02% FS includes operation over 14°F to 122°F (-10°C to 50°C), one year stability and calibration uncertainty. For detail specification refer to pressure modules datasheet.

HART Communication capability (223A)

Support HART® instrumentation

Display

3.5 inch TFT color screen

Misuse protection

Up to 30V voltage on any two sockets and up to 1A current on current sockets will not damage the calibrator. The calibrator will return to normal condition as soon as the voltage or current is removed.

Rechargeable battery

Rechargeable Li-ion battery for 15 hours uninterrupted use.

Battery life will be reduced when 24V is applied.

The rechargeable battery is replaceable.

Temperature Specification

Thermocouple Measurement and Source Accuracy

Measure and Simulate	Standard	Temperature Range (°C)		Accuracy (°C)				
				Measure	Source			
S	IEC 584	-50 to 1768	-50 to 400	1.0	1.1			
			400 to 1000	0.6	0.6			
			1000 to 1768	0.7	0.8			
R	IEC 584	-50 to 1768	-50 to 200	1.4	1.4			
			200 to 500	0.6	0.6			
			500 to 1768	0.6	0.7			
B	IEC 584	0 to 1820	50 to 450	3.8	3.8			
			450 to 800	0.9	0.9			
			800 to 1820	0.6	0.7			
K	IEC 584	-270 to 1372	-250 to -200	1.0	1.1			
			-200 to -100	0.4	0.5			
			-100 to 600	0.3	0.3			
			600 to 1372	0.4	0.5			
			N	IEC 584	-270 to 1300	-250 to -200	1.5	1.6
						-200 to -100	0.5	0.6
-100 to 1300	0.4	0.5						
E	IEC 584	-270 to 1000	-250 to -200	0.6	0.7			
			-200 to -100	0.3	0.3			
			-100 to 0	0.2	0.2			
			0 to 700	0.2	0.3			
			700 to 1000	0.2	0.4			
			J	IEC 584	-270 to 1200	-210 to -100	0.3	0.3
						-100 to 1200	0.3	0.4
T	IEC 584	-270 to 400				-250 to -200	0.8	0.9
			-200 to 0	0.4	0.4			
			0 to 400	0.2	0.2			
C	ASTM E988	0 to 2315	0 to 1000	0.5	0.5			
			1000 to 1800	0.7	0.9			
			1800 to 2315	1.0	1.4			
D	ASTM E988	0 to 2320	0 to 100	0.5	0.5			
			100 to 1100	0.4	0.5			
			1100 to 2000	0.6	0.9			
			2000 to 2320	0.9	1.3			
G	ASTM E1751	0 to 2315	0 to 200	2.4	2.4			
			200 to 400	0.5	0.5			
			400 to 1400	0.4	0.5			
			1400 to 2315	0.7	1.0			
L	DIN43710	-200 to 900	-200 to -100	0.2	0.3			
			-100 to 400	0.2	0.2			
			400 to 900	0.2	0.3			
U	DIN43710	-200 to 600	-200 to 0	0.4	0.4			
			0 to 600	0.2	0.3			

*Accuracy with external cold junction; for internal cold junction add 0.1°C (k=2)

SPECIFICATIONS

Measurement Accuracy						
Measure and Simulate	Standard	Temperature Range (°C)		Accuracy (°C)		
				Measure (2W/3W)	Measure (4W)	Source
Pt10(385)	IEC 751	-200 to 850	-100 to 200	0.65	0.60	0.65
			200 to 600	0.82	0.72	0.82
			600 to 850	0.96	0.82	0.96
Pt100(385)	IEC 751	-200 to 850	-100 to 200	0.15	0.1	0.15
			200 to 600	0.26	0.16	0.26
			600 to 850	0.34	0.20	0.34
Pt100(3916)	JIS 1604	-200 to 850	-100 to 200	0.15	0.1	0.15
			200 to 600	0.26	0.16	0.26
			600 to 850	0.33	0.20	0.33
Pt100(3926)	Minco Application Aid #18	-200 to 850	-100 to 200	0.15	0.1	0.15
			200 to 600	0.26	0.16	0.26
			600 to 850	0.33	0.20	0.33
Pt500(385)	IEC 751	-200 to 850	-100 to 200	0.20	0.16	0.36
			200 to 600	0.32	0.22	0.54
			600 to 850	0.40	0.27	0.67
Pt1000(385)	IEC 751	-200 to 850	-100 to 200	0.1	0.05	0.25
			200 to 600	0.2	0.10	0.42
			600 to 850	0.27	0.14	0.54
Cu10(427)	Minco Application Aid #18	-100 to 260	-100 to 260	0.61	0.56	0.61
Cu50(428)	GOST 6651-94	-50 to 150	-50 to 150	0.17	0.13	0.17
Cu100(428)	GOST 6651-94	-50 to 150	-50 to 150	0.12	0.09	0.12
Ni120(672)	Edison curve #7	-100 to 260	-100 to 260	0.07	0.05	0.07
Ni100(618)	DIN 43760	-100 to 260	-100 to 260	0.08	0.06	0.08

ORDERING INFORMATION

Model Number

ADT221A

ADT222A

ADT223A

Accessories (included)		
9816-X	110V/220V external power adapter	1 pc
9712	Chargeable Li-ion battery	1 pc
9022	Test leads	2 sets(4 pcs)
9020	Short circuit cable	1 sets(2 pcs)
9060	Pressure module connection cable (only for 222A & 223A)	1 pc
	Manual	1 pc
	NIST traceable calibration certificate	1 pc

Optional Accessories	
Model number	Description
ADT160A (only for 222A & 223A)	Intelligent Digital Pressure Modules
9060 (only for 222A & 223A)	Pressure module connection cable
9050	USB to RS232 (DB-9 Male) Adapter
9050-EXT	RS 232 (DB9/M) extension cable, 9 feet
9080	Cable kit (including TC plug, compensation cable, S,R,B,K,J,T,E,N)
9712	Spare chargeable Li-ion battery for multifunction calibrator
9816	110V/220V external power adapter for ADT22X and ADT672 calibrator
9906	Carrying case for multifunction calibrator
9510	Additel/Cal Task management software for multifunction calibrator

* Additel/Land software can be downloaded for free at www.additel.com

Additel 160A

Intelligent Digital Pressure Modules



New Ranges to 60,000 psi (4,200 bar)

- Pressure ranges to 60,000 psi (4,200 bar)
- Precision accuracy to 0.005%RD + 0.005%FS
- Pressure measurement accuracy of 0.02% FS
- Fully temperature compensated accuracy



Gauge pressure Differential pressure

OVERVIEW

With advanced microprocessor technology and state-of-the-art silicon pressure sensors, the Additel 160A series Intelligent Digital Pressure Module (IDPM) provides an accurate, reliable, and economic solution for wide range of pressure applications. It is loaded with functionality and remarkably easy to use. In order to reach the best performance, every silicon pressure sensor in the module has been specially aged, tested and screened before assembly. Designed as external pressure module for Additel 760 automatic handheld pressure calibrator, Additel 761 automated pressure calibrator and Additel 222A, Additel 223A and Additel 780 calibrators, the Additel 160A IDPM is unmatched in performance and reliability.

FEATURES

- Precision sensor measurement accuracy to 0.005%RD + 0.005%FS
- Gauge pressure measurement accuracy of 0.02% FS
- Absolute Pressure measurement accuracy of 0.1% FS
- Pressure ranges to 60,000 psi (4,200 bar)
- Advanced temperature compensation
- NIST traceable calibration and data included

PRESSURE RANGE

Differential Pressure						
P/N	Pressure Range ^[1]		Media	Accuracy (%FS)	Burst Pressure	Static Pressure Range
	(inH ₂ O)	(mbar)				
DP1	±1	±2.5	G	0.05 ^[2]	100x	±10 psi
DP2	±2	±5.0	G	0.05 ^[2]	100x	±10 psi
DP5	±5	±10	G	0.05 ^[2]	50x	±10 psi
DP10	±10	±25	G	0.05 ^[2]	20x	±10 psi
DP20	±20	±50	G	0.05	20x	±10 psi
DP30	±30	±75	G	0.05	20x	±10 psi
DP50	±50	±160	G	0.05	3x	±10 psi
DP150	±150	±350	G	0.02	3x	50 psi
DP300	±300	±700	G	0.02	3x	50 psi

[1] FS specification applies to the span of the range. Accuracy includes 1 year stability.

[2] 0.05%FS accuracy (incl 6 months stability). One year accuracy is 0.05%FS calibration accuracy combined with 0.05%FS one year stability.

Gauge Pressure ^[1]					
P/N	Pressure Range		Media ^[2]	Accuracy(%FS)	Burst Pressure
	(psi)	(bar)			
V15	-15	-1.0	G	0.02	3x
GP2	2	0.16	G	0.05	3x
GP5	5	0.35	G	0.05	3x
GP10	10	0.7	G	0.02	3x
GP15	15	1.0	G	0.02	3x
GP30	30	2.0	G	0.02	3x
GP50	50	3.5	G , L	0.02	3x
GP100	100	7.0	G , L	0.02	3x
GP150	150	10	G , L	0.02	3x
GP300	300	20	G , L	0.02	3x
GP500	500	35	G , L	0.02	3x
GP600	600	40	G , L	0.02	3x
GP1K	1,000	70	G , L	0.02	3x
GP2K	2,000	140	G , L	0.02	3x
GP3K	3,000	200	G , L	0.02	3x
GP5K	5,000	350	G , L	0.02	3x
GP10K	10,000	700	G , L	0.02	2x
GP15K	15,000	1,000	G , L	0.05	2x
GP20K	20,000	1,400	G , L	0.05	1.5x
GP25K	25,000	1,600	G , L	0.1	1.5x
GP30K	30,000	2,000	G , L	0.1	1.5x
GP36K	36,000	2,500	G , L	0.1	1.5x
GP40K	40,000	2,800	G , L	0.1	1.35x
GP50K	50,000	3,500	G , L	0.1	1.2x
GP60K	60,000	4,200	G , L	0.1	1.1x

[1]. Sealed gauge pressure for above 1000 psi

[2]. G=Gas, L=Liquid

SPECIFICATIONS

Precision Quartz Sensors ^[1] - Absolute Pressure						
P/N	Pressure Range		Media	Accuracy	Pressure Rating	
	psia	bar.a			Burst	Over Pressure
AP45Q	0 to 45	3.0	G	0.005% rdg + 0.005% FS	3x	1.2x
AP100Q	0 to 100	7.0	G	0.005% rdg + 0.005% FS	3x	1.2x
AP300Q	0 to 300	20	G	0.005% rdg + 0.005% FS	3x	1.2x
AP400Q	0 to 400	28	G	0.005% rdg + 0.005% FS	3x	1.2x
AP500Q	0 to 500	35	G	0.005% rdg + 0.005% FS	3x	1.03x
AP1KQ	0 to 1,000	70	G	0.005% rdg + 0.005% FS	3x	1.1x
AP2KQ	0 to 2,000	140	G	0.005% rdg + 0.005% FS	3x	1.1x
AP3KQ	0 to 3,000	200	G	0.005% rdg + 0.005% FS	3x	1.1x
AP6KQ	0 to 6,000	400	G,L	0.01% FS	3x	1.2x
AP10KQ	0 to 10,000	700	G,L	0.01% FS	2x	1.2x
AP15KQ	0 to 15,000	1,000	G,L	0.01% FS	2x	1.2x
AP20KQ	0 to 20,000	1,400	G,L	0.01% FS	2x	1.2x
AP30KQ	0 to 30,000	2,000	G,L	0.02% FS	1.5x	1.1x
AP40KQ	0 to 40,000	2,800	G,L	0.02% FS	1.5x	1.1x

[1] Contact Additel for other range options.

Compound Pressure						
P/N	Pressure Range		Media	Accuracy	Pressure Rating	
	psig	bar.g			Burst	Over Pressure
CP2	±2	±0.16	G	0.05% FS	3x	1.2x
CP5	±5	±0.35	G	0.02% FS	3x	1.2x
CP10	±10	±0.7	G	0.02% FS	3x	1.2x
CP15	±15	±1.0	G	0.02% FS	3x	1.2x
CP30	-15 to 30	-1 to 2.0	G	0.02% FS	3x	1.2x
CP50	-15 to 50	-1 to 3.5	G	0.02% FS	3x	1.2x
CP100	-15 to 100	-1 to 7.0	G,L	0.02% FS	3x	1.2x
CP300	-15 to 300	-1 to 20	G,L	0.02% FS	3x	1.2x
CP500	-15 to 500	-1 to 35	G,L	0.02% FS	3x	1.2x
CP600	-15 to 600	-1 to 40	G,L	0.02% FS	3x	1.2x
CP1K	-15 to 1,000	-1 to 70	G,L	0.02% FS	3x	1.2x
CP2K	-15 to 2,000	-1 to 140	G,L	0.02% FS	3x	1.2x
CP3K	-15 to 3,000	-1 to 200	G,L	0.02% FS	3x	1.2x
CP5K	-15 to 5,000	-1 to 350	G,L	0.02% FS	3x	1.2x
CP10K	-15 to 10,000	-1 to 700	G,L	0.02% FS	2x	1.2x

Absolute Pressure					
P/N	Pressure Range		Media	Accuracy(%FS)	Burst Pressure
	(psi)	(bar)			
AP5	5	0.35	G	0.1	3x
AP10	10	0.7	G	0.1	3x
AP15	15	1.0	G	0.1	3x
AP30	30	2.0	G	0.1	3x
AP50	50	3.5	G	0.1	3x
AP100	100	7.0	G , L	0.05 (0.1)	3x
AP300	300	20	G , L	0.05 (0.1)	3x
AP500	500	35	G , L	0.05 (0.1)	3x
AP1K	1,000	70	G , L	0.05 (0.1)	3x
AP3K	3,000	200	G , L	0.05 (0.1)	3x
AP5K	5,000	350	G , L	0.05 (0.1)	3x

Barometric Pressure					
P/N	Pressure Range		Media	Accuracy	Burst Pressure
	Low	High			
BP	60 kPa	110 kPa	G	40 Pa	3x



Additel 223A with ADT160A Pressure Module

SPECIFICATIONS

	Standard Accuracy			Precision Accuracy	
	CPXXX	DPXXX	GPXXX	AP3KQ AP1KQ	AP100Q
Temperature compensation	-10°C to 50°C (14°F to 122°F)			0°C to 50°C (32°F to 122°F)	
Operating temperature	-10°C to 50°C (14°F to 122°F)			0°C to 50°C (32°F to 122°F)	
Storage temperature	-20°C to 70°C (-4°F to 158°F)			-20°C to 70°C (-4°F to 158°F)	
Relative humidity	95% RH			95% RH	
Pressure connections (for external use only)	1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20x15			1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20x15	
Enclosure (for external use only)	SS enclosure			SS enclosure	
Dimensions (Dia x H)	33 mm x 123 mm (1.3" x 4.84")			44 mm x 220mm (1.7" x 8.7")	60 mm x 190 mm (2.4" x 7.5")
Weight	0.4 kg (0.99 lb)			0.8 kg (1.8 lb)	1.2 kg (2.6 lb)
Warranty	1 Year			1 Year	1 Year

ORDERING INFORMATION

Model Number

ADT160A — 02 — GP300 — PSI — N

Model

Accuracy:
 01-0.005%rdg+0.005% of full scale
 02-0.02% of full scale
 05-0.05% of full scale
 10-0.1% of full scale

Pressure range P/N:
 See pressure range table

Range type:
 PSI - range by psi
 BAR - range by bar

Pressure port type:
 N - 1/4NPT male
 N2 - 1/2NPT male
 B - 1/4BSP male
 B2 - 1/2BSP male
 M - M20 X 1.5 male

Accessories included

NIST Traceable Calibration Certificate

Optional Accessories

Model number	Description	Picture
9060	Pressure module connection cable	