

# Additel 761

## Automated Pressure Calibrators

### Selection Guide

| Model Features                   | 761-LLP  | 761-D  | 761-L                                 | 761-LA                                 | 761-M                               | 761-MA                                | 761-H                               | 761-HA                                | 761-BP          |
|----------------------------------|--|--|---------------------------------------|--|-------------------------------------|---------------------------------------|-------------------------------------|---------------------------------------|-----------------|
| Pressure Range                   | -25 to 25 mbar<br>(-10 to 10 inH <sub>2</sub> O) | -0.95 to 1 bar<br>(-13.5 to 15 psi)              | -0.95 to 7 bar<br>(-13.5 to 100 psi)  | 0.05 to 8 bar.a<br>(1.2 to 115 psi.a)  | -0.90 to 25 bar<br>(-13 to 375 psi) | 0.1 to 26 bar.a<br>(1.7 to 390 psi.a) | -0.90 to 40 bar<br>(-13 to 600 psi) | 0.1 to 41 bar.a<br>(1.7 to 615 psi.a) | 100 to 1200 hPa |
| Pressure Module 1                | -2.5 to 2.5 mbar<br>(-1 to 1 inH <sub>2</sub> O) | -25 to 25 mbar<br>(-10 to 10 inH <sub>2</sub> O) | -0.95 to 2.5 bar<br>(-13.5 to 35 psi) | 0.05 to 3.5 bar.a<br>(1.2 to 50 psi.a) | -0.9 to 2.5 bar<br>(-13 to 35 psi)  | 0.1 to 3.5 bar.a<br>(1.7 to 50 psi.a) | -0.9 to 2.5 bar<br>(-13 to 35 psi)  | 0.1 to 3.5 bar.a<br>(1.7 to 50 psi.a) | 100 to 1200 hPa |
| Pressure Module 2                | -25 to 25 mbar<br>(-10 to 10 inH <sub>2</sub> O) | -0.95 to 1 bar<br>(-13.5 to 15 psi)              | 0 to 7 bar<br>(0 to 100 psi)          | 0.05 to 8 bar.a<br>(1.2 to 115 psi.a)  | 0 to 25 bar<br>(0 to 375 psi)       | 0.1 to 26 bar.a<br>(1.7 to 390 psi.a) | 0 to 40 bar<br>(0 to 600 psi)       | 0.1 to 41 bar.a<br>(1.7 to 615 psi.a) | NA              |
| Differential Pressure            | ●  | ●  |                                       |  |                                     |                                       |                                     |                                       |                 |
| Gauge Pressure                   | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     |                 |
| Absolute Pressure                |  |  |                                       | ●                                      |                                     | ●                                     |                                     | ●                                     | ●               |
| Barometric Pressure              |  |  |                                       | ●                                      |                                     | ●                                     |                                     | ●                                     | ●               |
| Temperature Compensated          | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Built-in Electrical Pump         | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Built-in Filter                  | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Built-in Liquid Trap             | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Source 0 to 22mA                 | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Measure mA or V                  | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Measure external pressure module | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| 24V Loop power                   | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Pressure switch test             | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| HART Communication               | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |
| Documenting                      | ●  | ●  | ●                                     | ●                                      | ●                                   | ●                                     | ●                                   | ●                                     | ●               |



## Additel 761 Automated Pressure Calibrators



- Fully automated pressure calibrator with built-in pressure generator / controller to as high as 600 psi (40 bar) or as low as 0.01 Pa (0.00004 inH<sub>2</sub>O)
- 0.02%FS accuracy
- Dual pressure modules
- Built-in filter and liquid trap with venting system prevents contamination of the calibrator
- Portable (12.4 lb)

### OVERVIEW

With a built-in high performance electronic pump and precision pressure controller, the 761 series portable automated pressure calibrators provide a turnkey solution for calibration of gauges, transmitters, and switches both in the field and in the laboratory. In a portable package, this calibrator can automatically generate pressures from 90% vacuum to 600 psi (40 bar) with 0.005% FS pressure control stability and 0.02% FS accuracy. To improve the calibrator accuracy, two pressure modules with differing ranges are built-in and integrated with the internal pump and controller.

The 761-LLP is specially designed for low pressure calibration, and pressures can be set to as low as 0.01 Pa (0.00004 inH<sub>2</sub>O) with a control stability better than 0.05 Pa (0.0002 inH<sub>2</sub>O).

The 761-BP is designed for barometric gauge calibration. With a quartz pressure sensor, the accuracy of 761-BP can achieve 0.01%FS accuracy.

With optional external pressure modules (160A series), the 761 can measure pressures up to 10,000 psi (700 bar) with 0.02%FS accuracy. In addition to the pressure generation, control, and measurement capabilities, the 761 also features HART communication capability, supplies 24V loop power, and reads the current or voltage produced by the pressure transducers. The 761 is a state of the art automated pressure calibrator which brings automated pressure calibration to the field.

## FEATURES

|   |   |
|---|---|
| Pressure Range                          | Pressure generated by built-in pump and controlled automatically from 90% vacuum to 600 psi (40 bar)                        |
|   | Pressure measured with external pressure modules (160A series) to 10,000 psi (700 bar)                                      |
| Accuracy                                | 0.02%FS   |
|   | 0.05%FS (ADT761-LLP)  |
|   | 0.01%FS (ADT761-BP)   |
| Control Stability                       | <0.005%FS   |
|   | ADT761-LLP: < 0.05 Pa (0.0002 inH <sub>2</sub> O)   |
| Contamination Prevention System         | Built-in filter and liquid trap with venting system prevent contamination of the calibrator.                                |
|   | Solid particles can be blocked by built-in filter<br>A small amount of liquid can be collected by the built-in liquid trap. |
|   | Both solid particles and liquid can be blown out through the venting system.  |
| Automation and Test Program             | Fully Automated pressure calibration  |
|   | Task preset and auto run  |
|   | Auto step   |
| Easy to Use                             | User friendly interface   |
|   | Intuitive icon driven menu structure  |
| Source and Measuring Electrical Signals | Measure mA with 0.01% RD + 1.5µA accuracy   |
|   | Measure V with 0.01% RD + 1.5mV accuracy  |
|   | Source/sink 0 to 22mA current   |
|   | 24 VDC loop power supplied to pressure transmitter during test  |
|   | Automated switch test   |
| Misuse Protection                       | Up to 30V misuse protection on any two sockets  |
| Display                                 | 7" LCD color screen (800X480)   |
| Documenting and On-demand Logging       | Task management capability  |
|   | Internal memory stores 200 tasks  |
|   | Download tasks and upload results<br>900 snapshots  |
| HART Communication Capability           | Support HART instrumentation  |
| Pressure Output Rate                    | 2.4 liters/minute   |
| Rechargeable Battery                    | Rechargeable battery with up to 8 hours operation between charges   |

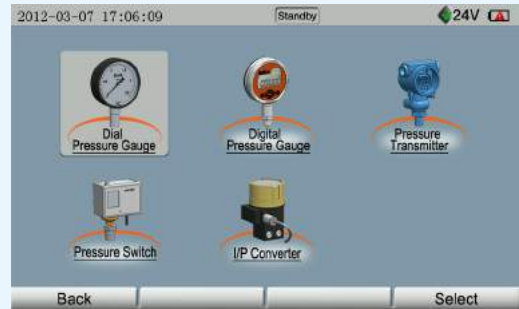


|                         |  |
|-------------------------|--|
| Leak Testing            | Apply leak test to an external pressure system to determine the magnitude of pressure variations due to leaks                                      |
| Pipeline Protection     | Special design the pipeline layout to avoid possible blockage and leakage  |
| Portable                | Only 12.4 lb   |
| Multi Lingual Interface | English, German, French, Italian, Spanish, Portuguese, Simplified Chinese<br>(Traditional Chinese, Japanese and Russian are available per request) |
| ISO17025                | ISO17025 accredited calibration with data (included)   |



## SPECIFICATIONS

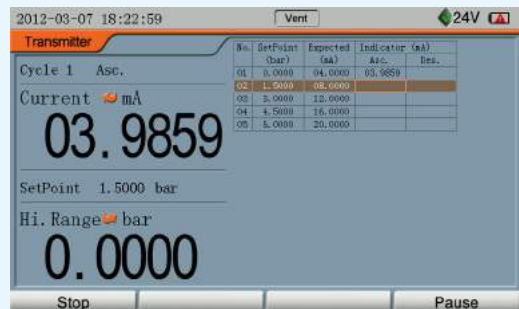
|                                     |  |
|-------------------------------------|--|
| Control Stability                   | <0.005%FS, FS specification applies to the span of the range<br><b>ADT761-LLP:</b> < 0.05 Pa (0.0002 inH <sub>2</sub> O)   |
| Pressure Connections                | <b>ADT761-L/M/H/LA/MA/HA:</b><br>1. One ADT100-761 Hose Test Kit with quick connector 1/8 BSP Female on calibrator<br>2. Two 1/4NPT(or 1/2NPT, 1/4BSP, 1/2BSP, M20x1.5) female hand-tight connectors on the external pressure manifold<br><b>ADT761-LLP/BP:</b><br>Stainless steel hose barb fitting |
| External Pressure Module Connection | Accepts Intelligent Pressure Module  |
| Electrical Connection               | 0.156 inch (Ø4mm) banana sockets   |
| Documenting and On-demand Logging   | Task management capability<br>Internal memory stores 200 tasks<br>Download tasks and upload results  |
| Display                             | 7" LCD color screen (800x480)<br>Display rate: 5 readings per second<br>Resolution: 4, 5 or 6 digit, user selectable   |
| Pressure Units                      | Pa, kPa, MPa, psi, bar, mbar, inH <sub>2</sub> O@4°C, mmH <sub>2</sub> O@4°C, inH <sub>2</sub> O@20°C, mmH <sub>2</sub> O@20°C, inHg@0°C, mmHg@0°C, kgf/cm <sup>2</sup> , and hPa (ADT761-BP)  |
| Pump Life                           | >100,000 cycles  |
| Power                               | Battery: Rechargeable Li-ion Polymer battery (included)<br>Li-Battery working time: ~8 hours<br>Recharge time: ~3 hours<br>External Power: 110/220V Power adapter (DC 27 V) (Included)   |
| Environmental Specification         | Operating temperature: 32°F to 122°F (0°C to 50°C)<br>Compensated Temperature: 32°F to 122°F (0°C to 50°C)<br>Storage temperature: -20°C to 60°C (-4°F to 120°F)<br>Humidity: <90%, non-condensing   |
| European Compliance                 | CE Marked  |
| Communication                       | RS232 (DB9/F, environmentally sealed)<br>Baud rate: 2400, 4800, 9600, 19200, 38400, 57600, 115200<br>Data length: 7 Bits, 8 Bits<br>Stop bit: 1 Bit, 2 Bits<br>Address: from 1 to 121  |
| Dimension                           | 11.65 X 7.32 X 7.09 in (296 X186 X180 mm)  |
| Weight                              | 12.4 to 16.3 lb (5.6 to 7.4 kg)  |
| Warranty                            | 18 months  |



Task Manual



Built-in User's Manual



Pressure gauge / transmitter / switch calibration



Documenting

## Additel 761 Automated Pressure Calibrators

### SPECIFICATIONS

#### ■ Pressure Ranges

| Type                      | Model      | Pressure Range                                   | Pressure Module 1                                |                         | Pressure Module 2                                |                         |
|---------------------------|------------|--|--|-------------------------|--|-------------------------|
|                           |            |  | Range  | Accuracy <sup>[1]</sup> | Range  | Accuracy <sup>[1]</sup> |
| Low/Differential Pressure | ADT761-LLP | -25 to 25 mbar<br>(-10 to 10 inH <sub>2</sub> O) | -2.5 to 2.5 mbar<br>(-1 to 1 inH <sub>2</sub> O) | 0.05%FS <sup>[2]</sup>  | -25 to 25 mbar<br>(-10 to 10 inH <sub>2</sub> O) | 0.05%FS <sup>[2]</sup>  |
|                           | ADT761-D   | -0.95 to 1 bar<br>(-13.5 to 15 psi)              | -25 to 25 mbar<br>(-10 to 10 inH <sub>2</sub> O) | 0.05%FS <sup>[2]</sup>  | -0.95 to 1 bar<br>(-13.5 to 15 psi)              | 0.02%FS                 |
| Gauge Pressure            | ADT761-L   | -0.95 to 7 bar<br>(-13.5 to 100 psi)             | -0.95 to 2.5 bar<br>(-13.5 to 35 psi)            | 0.02%FS                 | 0 to 7 bar<br>(0 to 100 psi)                     | 0.02%FS                 |
|                           | ADT761-M   | -0.90 to 25 bar<br>(-13 to 375 psi)              | -0.9 to 2.5 bar<br>(-13 to 35 psi)               | 0.02%FS                 | 0 to 25 bar<br>(0 to 375 psi)                    | 0.02%FS                 |
|                           | ADT761-H   | -0.90 to 40 bar<br>(-13 to 600 psi)              | -0.9 to 2.5 bar<br>(-13 to 35 psi)               | 0.02%FS                 | 0 to 40 bar<br>(0 to 600 psi)                    | 0.02%FS                 |
| Gauge/Absolute Pressure   | ADT761-LA  | -0.95 to 7 bar<br>(-13.5 to 100 psi)             | -0.95 to 2.5 bar<br>(-13.5 to 35 psi)            | 0.02%FS                 | -0.95 to 7 bar<br>(-13.5 to 100 psi)             | 0.02%FS                 |
|                           |            | 0.05 to 8 bar.a<br>(1.2 to 115 psi.a)            | 0.05 to 3.5 bar.a<br>(1.2 to 50 psi.a)           | 0.03%FS                 | 0.05 to 8 bar.a<br>(1.2 to 115 psi.a)            | 0.025%FS                |
|                           | ADT761-MA  | -0.90 to 25 bar<br>(-13 to 375 psi)              | -0.9 to 2.5 bar<br>(-13 to 35 psi)               | 0.02%FS                 | -0.9 to 25 bar<br>(-13 to 375 psi)               | 0.02%FS                 |
|                           |            | 0.1 to 26 bar.a<br>(1.7 to 390 psi.a)            | 0.1 to 3.5 bar.a<br>(1.7 to 50 psi.a)            | 0.03%FS                 | 0.1 to 26 bar.a<br>(1.7 to 390 psi.a)            | 0.025%FS                |
|                           | ADT761-HA  | -0.90 to 40 bar<br>(-13 to 600 psi)              | -0.9 to 2.5 bar<br>(-13 to 35 psi)               | 0.02%FS                 | -0.9 to 40 bar<br>(-13 to 600 psi)               | 0.02%FS                 |
|                           |            | 0.1 to 41 bar.a<br>(1.7 to 615 psi.a)            | 0.1 to 3.5 bar.a<br>(1.7 to 50 psi.a)            | 0.03%FS                 | 0.1 to 41 bar.a<br>(1.7 to 615 psi.a)            | 0.025%FS                |
| Barometric pressure       | ADT761-BP  | 100 to 1,200 hPa                                 | 100 to 1,200 hPa                                 | 0.01%FS                 | NA   | NA                      |

[1] One year accuracy (including 1 year stability). FS specification applies to the span of the module range.

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

\* Additel 761 calibrators support 160A series intelligent digital pressure modules that 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 detailed specification refer to 160A series pressure modules datasheet.

#### ■ Electrical Measurement and Source Accuracy

|                     | Range  | Resolution | Accuracy           |
|---------------------|--|------------|--------------------|
| Voltage Measurement | ±30.0000V  | 0.1mV      | ±(0.01%RD + 1.5mV) |
| Current Measurement | ±30.0000mA   | 0.1µA      | ±(0.01%RD + 1.5µA) |
| Current Source      | 0.000 to 22.000mA  | 1µA        | ±(0.02%RD + 2.2µA) |
| Switch Test         | If the switch has detective Voltage, the range is from 3V to 24V |            |                    |
| DC 24V output       | 24V ± 0.5V, max: 50mA  |            |                    |

# Additel 761

## Automated Pressure Calibrators



### ORDERING INFORMATION

#### Model Number

ADT761 — L — N

**Pressure range:**  
See pressure range table.

#### Pressure port type on External Pressure Manifold:

N - 1/4NPT female  
N2 - 1/2NPT female  
B - 1/4BSP female  
B2 - 1/2BSP female  
M - M20X1.5 female



| Accessories (included)                                   |                       |  |
|--|-----------------------|--|
| External Pressure Manifold (ADT106)<br>(Except 761-LLP)  | 1 pc                  |  |
| 9818<br>110V/220V external Power adapter                 | 1 pc                  |  |
| 9723<br>Chargeable Li-ion battery                        | 1 pc                  |  |
| 9022<br>Test Leads for calibrator                        | 2 sets<br>(4 pcs)     |  |
| 9020<br>Short circuit cable                              | 1 set<br>(2 pcs)      |  |
| 9907<br>Carrying case for 761 calibrator and accessory   | 1 pc                  |  |
| 9060<br>Pressure module connection cable                 | 1 pc                  |  |
| 9240<br>DP gauge holder, rubber<br>(Only for ADT761-LLP) | 1 pc                  |  |
| ADT100-761<br>(Except 761-LLP)                           | 1 pc + 3 pcs adapters |  |
| O-rings(Except 761-LLP)                                  | 20 pcs                |  |
| Manual   | 1 pc                  |  |
| Allen wrench   | 1 set                 |  |
| ADT100-761Hose<br>(Except 761-LLP: 2 pcs)                | 1 pcs                 |  |
| ISO17025 accredited calibration certificate              | 1 pc                  |  |

\* Additel/Land software could be downloaded for free at [www.additel.com](http://www.additel.com)

| Optional Accessories |  |         |
|----------------------|--|---------|
| Model Number         | Description  | Picture |
| ADT100-761-N4        | Hose Test Kit, 5 feet flexible hose, 0.156" (Ø4mm) tube to 1/4NPT hand-tight quick connector |         |
| ADT100-761-B4        | Hose Test Kit, 5 feet flexible hose, 0.156" (Ø4mm) tube to 1/4BSP hand-tight quick connector |         |
| ADT106-N             | External Pressure Manifold (with two 1/4NPT hand-tight quick connectors)                     |         |
| ADT106-B             | External Pressure Manifold (with two 1/4BSP hand-tight quick connectors)                     |         |
| ADT106-M             | External Pressure Manifold (with two M20X1.5 hand-tight quick connectors)                    |         |
| ADT160A              | See pg. 51 for more info; connection cable sold separately                                   |         |
| 9050                 | USB to RS232 (DB9/M) Adapter   |         |
| 9060                 | Pressure module connection cable   |         |
| 9510                 | Additel/Cal task management software   |         |
| ADT100-761Hose       | ADT761 hose, 5 feet  |         |