

# Additel 161, 161Ex

## Intelligent Digital Pressure Modules



- Pressure ranges to 60,000 psi (4,200 bar)
- Precision accuracy to 0.01% RD
- Intrinsically Safe (Ex) models available
- Fully temperature compensated accuracy
- Advanced temperature compensation
- ISO 17025 accredited calibration and data included



Gauge pressure    Differential pressure

### OVERVIEW

With advanced microprocessor technology and state-of-the-art silicon pressure sensors, Additel's 161 and 161Ex series Digital Pressure Modules provide an accurate, reliable, and economic solution for wide range of pressure applications. Our intrinsically safe (Ex) models are up to the task of providing the best possible results, even in hazardous environments. 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 modules for Additel's 760 automatic handheld pressure calibrator, the ADT761A automated pressure calibrator, ADT226/227 series handheld process calibrator and Additel's flagship 783 pressure controller, the Additel 161 is unmatched in performance and reliability. If intrinsic safety is a critical requirement for your workload, we have you covered when you combine our model ADT226Ex/227Ex process calibrator with any of our ADT161Ex pressure modules.

### PRESSURE RANGE

| Gauge Pressure <sup>[1]</sup> |                |       |                      |                              |                |
|-------------------------------|----------------|-------|----------------------|------------------------------|----------------|
| P/N                           | Pressure Range |       | Media <sup>[2]</sup> | Accuracy(%FS) <sup>[4]</sup> | Burst Pressure |
|                               | (psi)          | (bar) |                      |                              |                |
| V15                           | -15            | -1.0  | G, L <sup>[3]</sup>  | 0.01, 0.02, 0.05             | 2x             |
| GP2                           | 2              | 0.16  | G                    | 0.01, 0.02, 0.05             | 2x             |
| GP5                           | 5              | 0.35  | G, L <sup>[3]</sup>  | 0.01, 0.02, 0.05             | 2x             |
| GP10                          | 10             | 0.7   | G, L <sup>[3]</sup>  | 0.01, 0.02, 0.05             | 2x             |
| GP15                          | 15             | 1.0   | G, L <sup>[3]</sup>  | 0.01, 0.02, 0.05             | 2x             |
| GP30                          | 30             | 2.0   | G, L                 | 0.01, 0.02                   | 2x             |
| GP50                          | 50             | 3.5   | G, L                 | 0.01, 0.02                   | 2x             |
| GP100                         | 100            | 7.0   | G, L                 | 0.01, 0.02                   | 2x             |
| GP150                         | 150            | 10    | G, L                 | 0.01, 0.02                   | 1.3x           |
| GP300                         | 300            | 20    | G, L                 | 0.01, 0.02                   | 2x             |
| GP500                         | 500            | 35    | G, L                 | 0.01, 0.02                   | 2x             |
| GP600                         | 600            | 40    | G, L                 | 0.01, 0.02                   | 2x             |
| GP1K                          | 1,000          | 70    | G, L                 | 0.01, 0.02                   | 2x             |
| GP1.5K                        | 1,500          | 100   | G, L                 | 0.01, 0.02                   | 2x             |
| GP2K                          | 2,000          | 140   | G, L                 | 0.01, 0.02                   | 2x             |
| GP3K                          | 3,000          | 200   | G, L                 | 0.01, 0.02                   | 2x             |
| GP5K                          | 5,000          | 350   | G, L                 | 0.01, 0.02                   | 2x             |
| GP10K                         | 10,000         | 700   | G, L                 | 0.01, 0.02                   | 2x             |
| GP15K                         | 15,000         | 1,000 | G, L                 | 0.01, 0.02                   | 1.3x           |
| GP20K                         | 20,000         | 1,400 | G, L                 | 0.05                         | 1.3x           |
| GP25K                         | 25,000         | 1,600 | G, L                 | 0.05                         | 1.2x           |
| GP30K                         | 30,000         | 2,000 | G, L                 | 0.05                         | 1.5x           |
| GP36K                         | 36,000         | 2,500 | G, L                 | 0.05                         | 1.5x           |
| GP40K                         | 40,000         | 2,800 | G, L                 | 0.05                         | 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

[3] 0.01%FS for gas media only, 0.02%FS, 0.05%FS for gas and Liquid media

[4] Accuracy includes calibration uncertainty, linearity and long-term stability.

**Note:** 0.01%FS accuracy sensors cannot be configured as Ex models and cannot be read by Ex devices.

## PRESSURE RANGE

| Compound Pressure |                |            |                     |                              |                |
|-------------------|----------------|------------|---------------------|------------------------------|----------------|
| P/N               | Pressure Range |            | Media               | Accuracy(%FS) <sup>[2]</sup> | Burst Pressure |
|                   | psig           | bar.g      |                     |                              |                |
| CP2               | ±2             | ±0.16      | G                   | 0.01, 0.02, 0.05             | 2x             |
| CP5               | ±5             | ±0.35      | G, L <sup>[1]</sup> | 0.01, 0.02, 0.05             | 2x             |
| CP10              | ±10            | ±0.7       | G, L <sup>[1]</sup> | 0.01, 0.02, 0.05             | 2x             |
| CP15              | ±15            | ±1.0       | G, L <sup>[1]</sup> | 0.01, 0.02, 0.05             | 2x             |
| CP30              | -15 to 30      | -1 to 2.0  | G, L                | 0.01, 0.02                   | 2x             |
| CP100             | -15 to 100     | -1 to 7.0  | G, L                | 0.01, 0.02                   | 2x             |
| CP150             | -15 to 150     | -1 to 10   | G, L                | 0.01, 0.02                   | 1.3x           |
| CP300             | -15 to 300     | -1 to 20   | G, L                | 0.01, 0.02                   | 2x             |
| CP500             | -15 to 500     | -1 to 35   | G, L                | 0.01, 0.02                   | 2x             |
| CP600             | -15 to 600     | -1 to 40   | G, L                | 0.01, 0.02                   | 2x             |
| CP1K              | -15 to 1,000   | -1 to 70   | G, L                | 0.01, 0.02                   | 2x             |
| CP2K              | -15 to 2,000   | -1 to 140  | G, L                | 0.01, 0.02                   | 2x             |
| CP3K              | -15 to 3,000   | -1 to 200  | G, L                | 0.01, 0.02                   | 2x             |
| CP5K              | -15 to 5,000   | -1 to 350  | G, L                | 0.01, 0.02                   | 2x             |
| CP10K             | -15 to 10,000  | -1 to 700  | G, L                | 0.01, 0.02                   | 2x             |
| CP15K             | -15 to 15,000  | -1 to 1000 | G, L                | 0.01, 0.02                   | 1.3x           |

[1] 0.01%FS for gas media only, 0.02%FS, 0.05%FS for gas and Liquid media.

[2] Accuracy includes calibration uncertainty, linearity and long-term stability.

**Note:** 0.01%FS accuracy sensors cannot be configured as Ex models and cannot be read by Ex devices.

| Precision Sensors <sup>[1]</sup> |                |               |       |                                             |                |
|----------------------------------|----------------|---------------|-------|---------------------------------------------|----------------|
| P/N                              | Pressure Range |               | Media | Accuracy <sup>[2]</sup>                     | Burst Pressure |
|                                  | psi            | bar           |       |                                             |                |
| AP15R                            | 0 to 15        | 0 to 1        | G     | 0.01% FS                                    | 2x             |
| CP5M                             | -5 to 5        | -0.35 to 0.35 | G     | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP10M                            | -10 to 10      | -0.7 to 0.7   | G     | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP15M                            | -15 to 15      | -1 to 1.0     | G     | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP30M                            | -15 to 30      | -1 to 2.0     | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP50M                            | -15 to 50      | -1 to 3.5     | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP100M                           | -15 to 100     | -1 to 7.0     | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP300M                           | -15 to 300     | -1 to 20      | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP500M                           | -15 to 500     | -1 to 35      | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP1KM                            | -15 to 1,000   | -1 to 70      | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP3KM                            | -15 to 3,000   | -1 to 200     | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP5KM                            | -15 to 5,000   | -1 to 350     | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 3x             |
| CP10KM                           | -15 to 10,000  | -1 to 700     | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 1.5x           |
| CP15KM                           | -15 to 15,000  | 1 to 1,000    | G, L  | 0.01% rdg or 0.005% FS whichever is greater | 1.5x           |

[1] Contact Additel for other range options.

[2] Accuracy includes calibration uncertainty, linearity and long-term stability.

**Note:** Precision Sensors (CPXM) cannot be configured as Ex models and cannot be read by Ex devices.

## PRESSURE RANGE

| Differential Pressure |                      |        |       |                                  |                |                       |
|-----------------------|----------------------|--------|-------|----------------------------------|----------------|-----------------------|
| P/N                   | Pressure Range       |        | Media | Accuracy <sup>[1]</sup><br>(%FS) | Burst Pressure | Static Pressure Range |
|                       | (inH <sub>2</sub> O) | (mbar) |       |                                  |                |                       |
| DP1                   | ±1                   | ±2.5   | G     | 0.05 <sup>[2]</sup>              | 100x           | ±10 psi               |
| DP2                   | ±2                   | ±5.0   | G     | 0.05 <sup>[2]</sup>              | 100x           | ±10 psi               |
| DP5                   | ±5                   | ±10    | G     | 0.05 <sup>[2]</sup>              | 50x            | ±10 psi               |
| DP10                  | ±10                  | ±25    | G     | 0.05 <sup>[2]</sup>              | 20x            | ±10 psi               |
| DP20                  | ±20                  | ±50    | G     | 0.05 <sup>[2]</sup>              | 20x            | ±10 psi               |
| DP30                  | ±30                  | ±75    | G     | 0.05 <sup>[2]</sup>              | 20x            | ±10 psi               |
| DP50                  | ±50                  | ±160   | G     | 0.05 <sup>[2]</sup>              | 3x             | ±10 psi               |
| DP100                 | ±100                 | ±250   | G     | 0.02                             | 3x             | ±15 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.

| Barometric Pressure |                |         |       |          |                |
|---------------------|----------------|---------|-------|----------|----------------|
| P/N                 | Pressure Range |         | Media | Accuracy | Burst Pressure |
|                     | Low            | High    |       |          |                |
| BP                  | 60 kPa         | 110 kPa | G     | 55 Pa    | 3x             |
| BPH                 | 60 kPa         | 110 kPa | G     | 10 Pa    | 3x             |

## ORDERING INFORMATION

### ■ Model Number

ADT161 — 01 — GP300 — PSI — N

**Model:**  
ADT161  
ADT161Ex

#### Accuracy:

01 - 0.01% FS  
(non-Ex models only)  
02 - 0.02% of full span  
05 - 0.05% of full span  
10 - 0.1% of full span  
01RD - See precision sensor table  
(non-Ex models only)

**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  
AF - Autoclave F-250-C female  
AM - Autoclave M-250-C male

### ■ Accessories included

Silicone tube -1 meter each (2 pcs for DP models only)

ISO 17025 accredited Calibration Certificate

### ■ Optional Accessories

| Model number | Description                                                                       | Picture                                                                             |
|--------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 9060         | Pressure module connection cable                                                  |  |
| 9064         | Pressure module connection cable to USB for high-speed connection of ADT161 to PC |  |



Additel 226Ex with ADT161Ex Pressure Module

## SPECIFICATIONS

| Model                                        | ADT161 Modules                                                                                                                                                    |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating temperature                        | -10°C to 50°C (14°F to 122°F)                                                                                                                                     |
| Storage temperature                          | -30°C to 70°C (-22°F to 158°F)                                                                                                                                    |
| Relative humidity                            | 95% RH                                                                                                                                                            |
| Pressure connections (for external use only) | 1/4NPT, 1/2NPT, 1/4BSP, 1/2BPS, M20 x1.5                                                                                                                          |
| Enclosure (for external use only)            | SS enclosure                                                                                                                                                      |
| Intrinsic Safety (ADT161Ex models only)      | ATEX certified intrinsically safe<br>II 1G EX ia IIC T4 Ga<br>(ADT161Ex modules only work together with ADT226Ex or ADT227Ex to conform to the ATEX certificate.) |
| Dimensions (Dia x H)                         | 33 mm x 123 mm (1.3" x 4.84")                                                                                                                                     |
| Weight                                       | 0.4 kg (0.99 lb)                                                                                                                                                  |
| Warranty                                     | 1 Year                                                                                                                                                            |