

Additel 793

Pressure Controller/Generator



- Maximum pressure control range to 15,000 psi (1,000 Bar)
- Interchangeable pressure module
- Oil and water versions available
- Accuracy of 0.02%FS, 0.01%FS or 0.01%RD
- Dual-range from -15~3,000 psi (-1~200 Bar) to 0~15,000 psi (0~1,000) Bar
- Control stability 0.005%FS
- Ultra-High speed pressure generation and control
- No external pressure source required
- Control using internal or external pressure modules
- Contamination Prevention System (CPS) (ADT793 optional)
- LAN, USB, RS232, and Ethernet communication
- External reservoir support
- Easy maintenance
- Emulation mode

OVERVIEW

The Additel 793 pressure controller combines the latest control/measure technology, modular design and easy to use/maintenance features into a single users friendly device. The Additel 793 provides pressure control up to 15,000 psi (1,000 Bar). For users who require automated production, test, and calibration, Additel has the workload covered with this pressure controller. The ADT793 accepts one ADT151 dual-range pressure module in addition to a barometric pressure module. This allows user to quickly cover a wide range of pressures.



Quick Change Pressure Modules (30 seconds)

Additel's 151 pressure control modules can be installed or replaced within 30 seconds or less. Simply open the upper edge of the cabin to open. As the door opens, the controller will automatically release pressure, providing the safe removal and installation of the ADT151 modules. Additel offers five different pressure ranges for the ADT793 controller. Select between 1000 bar (15000 psi), 700 bar (10000 psi), 400 bar (6000 psi), 350 bar (5000 psi) or 200 bar (3000 psi) with the variety of accuracies to meet application requirements.



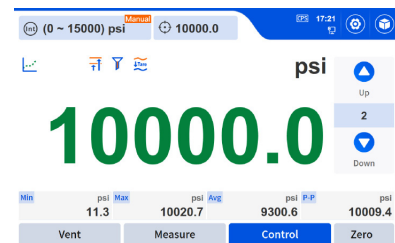
A Singular Pressure Module Design with a Wide Range of Capabilities

Additel's 151 pressure modules have been designed with flexibility and efficiency in mind and can easily be swapped out as needed to meet changing needs and workloads. Higher pressure ADT151 modules cover two separate pressure ranges and come with individual calibrations for each range. This allows for each module to accurately cover a wide range of pressure workloads. Also, each ADT151 is available in (3) different accuracy levels (0.02% FS, 0.01% FS and 0.01% of reading) to meet the demanding needs of our customers.



20% Pressure Step within 30 Seconds

In the process of efficient and fast-paced production line testing, verification and calibration, users have strict requirements on the speed of pressure controllers. ADT793 adopts professional control technology to effectively improve control rate and stability: control response time (typical) ≤ 30 seconds, control stability (typical) $\leq \pm(0.003\sim 0.005)\%FS$, see specifications for more details.



External Reservoir Support

High volume high pressure calibration work can quickly consume working media which can increase hands-on time and can be a hassle for laboratory personnel. The ADT793 supports switching between internal and external liquid storage tanks, allowing users to quickly connect the large capacity external liquid reservoir saving time and labor.



Contamination Prevention System (CPS) Prolongs the Maintenance Interval of the Controller

Calibration of DUT's (devices under test) often introduces contaminants to a calibration system. Contaminates can cause restrictions in valves, lines and filters. Additel has included a turn-key solution with the ADT793 to help reduce these concerns and improve durability and dependability when calibrating customers devices. The use of an automatic contamination prevention system and integration firmware allows for purges between pressure cycles to further reduce the possibility of introducing contaminants into the system.



Vent Valve Control Module

Pressure Specifications

| Model | ADT793 |
|---------------------------------------|--|
| Specification | |
| Pressure Range | 0 to 15,000 psi (1,000 Bar) |
| Precision ^[1] | 0.008%RD or 0.007%FS or 0.01%FS |
| Accuracy ^[2] | 0.01%RD or 0.01%FS or or 0.02%FS |
| Control Stability ^[3] | < 0.005%FS, typically 0.003%FS |
| Control Response Time ^[4] | < 30 Seconds |
| Pressure Type ^[5] | Gauge, absolute |
| Internal Pressure Control Modules | 1 |
| External Pressure Control Modules | 1 |
| Max Pressure Range of Internal Module | 0~15,000 psi (0~1,000 Bar) |
| Min Pressure Range of Internal Module | -15~3,000 psi (-1~200 Bar) |
| Min Range of External Module | -15~1,000 psi (-1~70 Bar) |
| Range Switching Mode ^[6] | Fixed, auto |
| Pump Source Type ^[7] | Built-in hydraulic pump, no external pressure source required. |
| Control Mode | Fast, standard, custom |
| Maximum Overshoot | < 1%FS |
| Maximum Load Volume | <10,000 psi: Max: 80 ml, 50 mL recommend 10,000~15,000 psi: Max: 60 ml, 35 mL recommend |
| Contamination Prevention System (CPS) | Optional |
| Pressure Port | 1/4 BSP M |
| Built-in Reservoir Volume | 800 mL |
| External Reservoir Extension | Optional |
| Port Filter ^[8] | Support |
| Media | Diethylhexyl Sebacate or deionized water |

[1] Precision: the error components include linearity, hysteresis, repeatability, resolution, and temperature compensation.

[2] Accuracy: the error components include linearity, hysteresis, repeatability, resolution, reference standard measurement uncertainty, annual drift, temperature compensation, K=2.

[3] In order to achieve 0.003% FS control stability, some additional stabilization time at the desired pressure may be needed depending on the configuration and pressure level.

[4] The hydraulic pressure is tested under an external load volume 10 ml, 20% step, and the time to reach 0.005% FS stability.

[5] Absolute pressure measurements require the optional barometer pressure module (ADT151-BP) to be installed.

[6] Does not support automatic range switching between the internal control pressure module and the external control pressure module.

[7] Liquid refers to Diethylhexyl Sebacate or deionized water.

[8] All pressure ports are installed with 40~100 µm filters.

General Specifications

| Specification | Description |
|---------------------------------------|--|
| Power Requirements | Power supply: AC 100~240 V, 50/60 Hz |
| | Fuse: T3.15A 250V AC |
| | Maximum Power consumption: 150 W |
| Size /Weight | Chassis Size: 17.32 × 5.23 × 14.96 in (440(W) × 133(H) × 380(D) mm) |
| | Rack Mount Dimensions: 3U-19" rack, Horizontal Direction |
| | Chassis weight: 20.7 kg |
| | Pressure module weight: 0.5 kg |
| Environment | Operating Ambient: 10 °C ~50 °C |
| | Storage Temperature: 5°C ~70 °C |
| | Operating humidity: 5%RH~95%RH, non-condensing |
| | Altitude (Operation): < 2000 m |
| | Ingress Protection: IP20, Indoor use only |
| | Vibration level: 2G |
| | Impact intensity: 4G |
| Conformity | Warmup Time: 15 minutes |
| | Bare Machine drop height: 250 mm |
| Communications | CE, UKCA |
| | RS232, USB-A*2, LAN |
| | WIFI, Bluetooth, GPIB, mouse, keyboard and other peripheral components can be expanded based on the USB port. SCPI Command set is compatible with ADT780, PACE5000/6000, DRUCK DPI520, user customizable. |
| External drive valve port | 3-channel external drive valves, green terminal connector with lock. |
| | Maximum driving ability 24 V / 12 W, 30 V max |
| | One channel fixed to the CPS pollution prevention device, the remaining 2 channels can be used to control the external vacuum pump and external isolation valve. |
| I/O Alarm port | 3-channel, green terminal connector with a lock |
| | Volt-Free No/Nc relay, the maximum current-carrying capacity: 24 V / 0.5 A, 30 V max |
| Pressure switch test port | One channel, green terminal connector with lock |
| | Maximum load 24 V / 0.1 A 30 V max |
| | Support mechanical switch, electronic switch testing |
| Display | 7-inch capacitive touch screen, 1280 * 800 resolution, reflective panels, black, white background can be user selectable. |
| | Communication update speed: 10 times per second |
| | Display refresh rate: 5 times per second |
| | Pressure value maximum displays: + 9999999, display digits is adjustable |
| External pressure control module port | 5 pin standard Lemo plug |
| | Connect external pressure control module (ADT161) |
| Internal pressure control module port | Opening the cabin door will automatically release the pressure for safe removal of modules |
| | Inside of cabin: For ADT793, 3 bays, from left to right, including an accumulator inflation bay , a pressure control module bay, and a barometric module bay. For ADT793W, 2 bays, from left to right, including a pressure control module bay, and a barometric module bay. |
| Warranty | 1 year |

Internal Module Specifications

The following tables provide information regarding our ADT151 modular pressure sensors that are designed to easily mount in the front bays of the ADT793 Pressure controller. Our gauge pressure (GP) and Compound pressure (CP) module accuracy specifications include linearity, hysteresis, repeatability, temperature compensation and annual drift, precision specifications include linearity, hysteresis, repeatability, resolution, and temperature compensation. Both the GP and CP style gauges can be zeroed by the controller from time to time to mitigate the effect of zero drift. The specifications are valid from 15°C~35°C. We recommend that these pressure models be calibration annually.

| Model Range | Compound Gauge pressure | | Measurement Type | Precision ^[2] (%FS) | Accuracy ^{[3][4]} (% FS) |
|-----------------|---------------------------------|---------------------------------|-----------------------|-----------------------------------|--------------------------------------|
| | 1st range ^[1] | 2nd range | | | |
| ADT151-XX-GP15K | (0~15000) psi/ (0~1000) bar | (0~6000) psi/ (0~400) bar | Sealed gauge pressure | 0.007 (0.01) | 0.01 (0.02) |
| ADT151-XX-GP10K | (0~10000) psi/ (0~700) bar | (0~5000) psi/ (0~350) bar | Sealed gauge pressure | 0.007 (0.01) | 0.01 (0.02) |
| ADT151-XX-CP6K | (-15~6000) psi/ (-1~400) bar | (-15~3000) psi/ (-1~200) bar | Sealed gauge pressure | 0.007 (0.01) | 0.01 (0.02) |
| ADT151-XX-CP5K | (-15~5000) psi/ (-1~350) bar | (-15~3000) psi/ (-1~200) bar | Sealed gauge pressure | 0.007 (0.01) | 0.01 (0.02) |

[1] The overload pressure of all pressure modules is 110%FS, and the burst pressure is 200%FS, the burst pressure of GP15K is 130%FS

[2] Precision: the error components include linearity, hysteresis, repeatability, resolution, and temperature compensation.

[3] FS specification applies to the span of the range.

[4] Accuracy: the error components include linearity, hysteresis, repeatability, resolution, reference standard measurement uncertainty, annual drift, temperature compensation, K=2.

| High-precision Compound Gauge Pressure Module Specification | | | | | |
|---|-------------------------------------|--|-----------------------|--|---|
| Model | Gauge pressure range ^[1] | Absolute Pressure Range ^[2] | Measurement Type | Precision ^[3] | Accuracy ^[4] |
| ADT151-XX-GP15KM | (0~15000) psi | (15~15015) psi | Sealed gauge pressure | 0.008% rdg or 0.004% FS whichever is greater | 0.01% rdg or 0.005% FS whichever is greater |
| ADT151-XX-GP10KM | (0~10000) psi | (15~10015) psi | Sealed gauge pressure | 0.008% rdg or 0.004% FS whichever is greater | 0.01% rdg or 0.005% FS whichever is greater |
| ADT151-XX-CP6KM | (-15~6000) psi | (0~6015) psi | Sealed gauge | 0.008% rdg or 0.004% FS whichever is greater | 0.01% rdg or 0.005% FS whichever is greater |
| ADT151-XX-CP5KM | (-15~5000) psi | (0~5015) psi | Sealed gauge pressure | 0.008% rdg or 0.004% FS whichever is greater | 0.01% rdg or 0.005% FS whichever is greater |
| ADT151-XX-CP3KM | (-15~3000) psi | (0~3015) psi | Sealed gauge pressure | 0.008% rdg or 0.004% FS whichever is greater | 0.01% rdg or 0.005% FS whichever is greater |

[1] The overload pressure of all pressure modules is 110%FS, and the burst pressure is 200%FS, among which the burst pressure of GP15KM is 130%FS.

[2] Absolute pressure is realized by calculating the gauge pressure and the optional barometric module.

[3] Precision: the error components include linearity, hysteresis, repeatability, resolution, and temperature compensation.

[4] Accuracy: the error components include linearity, hysteresis, repeatability, resolution, reference standard measurement uncertainty, annual drift, temperature compensation, K=2.

Barometric Specifications

| Model ^[1] | Absolute Pressure Range | Maximum Tolerance |
|----------------------|-------------------------|-------------------|
| ADT151-BP | (60~110) kPa | ±22 Pa |
| ADT151-BPH | (60~110) kPa | ±10 Pa |

[1] A barometric pressure module is optional. After inserting the barometric pressure module, the controller can be toggled to and from gauge and absolute pressure units.



CP Pressure Module with Calibration Fixture



BP Pressure Module with Calibration Fixture

ORDERING INFORMATION
Model Number (Base Unit Only - No Pressure Modules)

| | |
|--------|-----------------------------|
| ADT793 | Model: ADT793 ADT793W |
|--------|-----------------------------|


Model Number (Pressure Modules)

ADT151 - 01 - GP15K

Accuracy:

01 = 0.01% of full span
 01RD = 0.01% of reading
 02 = 0.02% of full span

See internal module
 specification table



ADT151-01-GP15K

ADT151 - BP






Model:












ADT151-BP (± 22 Pa)
 ADT151-BPH (± 10 Pa)






ADT151-BP

Note: The ADT793 has two bays for pressure modules. One bay is designated for a BP modules only and the other bay is for CP and CP modules.



| Accessories (included) | | |
|--|----------|---|
| Model number | Quantity | Picture |
| AC power cord (10A 250V) | 1 pc |  |
| ISO17025 accredited calibration certificate | 1 pc | |
| Green terminal plug (For switch test) | 2 pcs |  |
| O-ring 3.5 x 1.5 (For sealing pressure module) | 10 pcs |  |
| Drain switch valve assembly (Switch valve + 0.5m x 6mm tube) | 1 set |  |
| Accumulator inflation assembly (Adapter + 1.5m tube for gas inflation), oil media units only | 1 set |  |

| General Optional Accessories | | |
|------------------------------|---|---|
| Model number | Description | Picture |
| 9050 | USB to 232 cable |  |
| 9055-1 | USB to Bluetooth module |  |
| 9055-2 | USB to WIFI module |  |
| 9053 | USB to GPIB cable |  |
| 9050-EXT | RS232 communication cable |  |
| 9054 | Calibration fixture for ADT151 (Including adapter base w/ 1/4BSP male fitting, RS232/power supply cable, 9V adapter, calibration software) |  |
| 9245 | Rack mount assembly |  |
| Waiting | Green terminal plug (Drive valve, for I/O) |  |
| 9230 | Liquid level indicator (For observe the level and refill) |  |
| ADT161 | Pressure modules. External connection with ADT793 can be used as controlling module. Selectable range is 1K-15K. See ADT161 tables for module ranges and types. |  |
| 9060 | ADT161 pressure modules connection cable |  |

Output pressure connections (Optional)

| Model number | Description | Picture |
|----------------------|--|---|
| Load volume expander | Can expand the load volume to 250ml from 80ml max. |  |
| ADT123 | Hydraulic manifold (4 ports, 700 bar, with high pressure hose) |  |
| ADT109-X-KIT | Contamination Prevention System (Including ERP#:1650800039 polyurethane hose 700 kPA Max 1.5m length, and adaptor, 6mm Festo to 1/4BSP F) |  |

External Liquid Connections (Optional)

| Model number | Description | Picture |
|--------------|--|--|
| 9084 | External reservoir connection components (Includes 2 pcs 1.5m x 6mm hoses) |  |
| 9230 | Liquid level indicator (For observe the level and refill) |  |