

CPC PRESSURE CONTROLLER



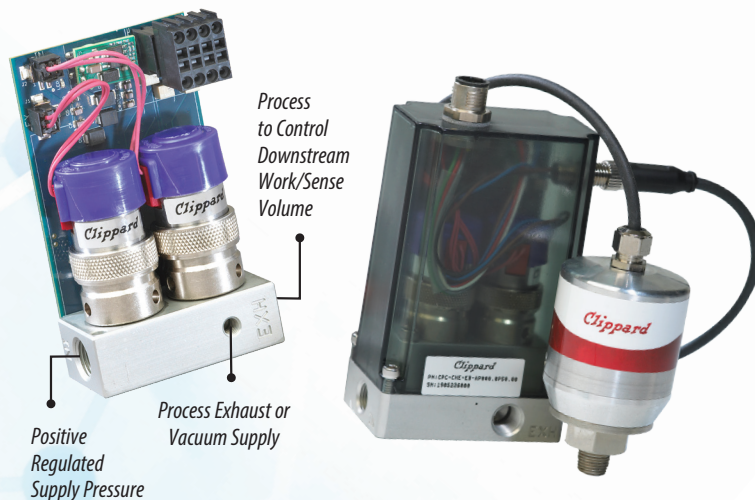
The Cordis CPC is a closed-loop pressure control valve system designed to maintain a steady and repeatable downstream pressure as demand or process changes occur. It is available in a compact card style (CPC-C) or with an IP65 rated enclosure (CPC-H) for manufacturing and industrial environments, and is also available in a CE-approved version. All styles come standard with two Clippard proportional electronic valves designed for high resolution pressure control.

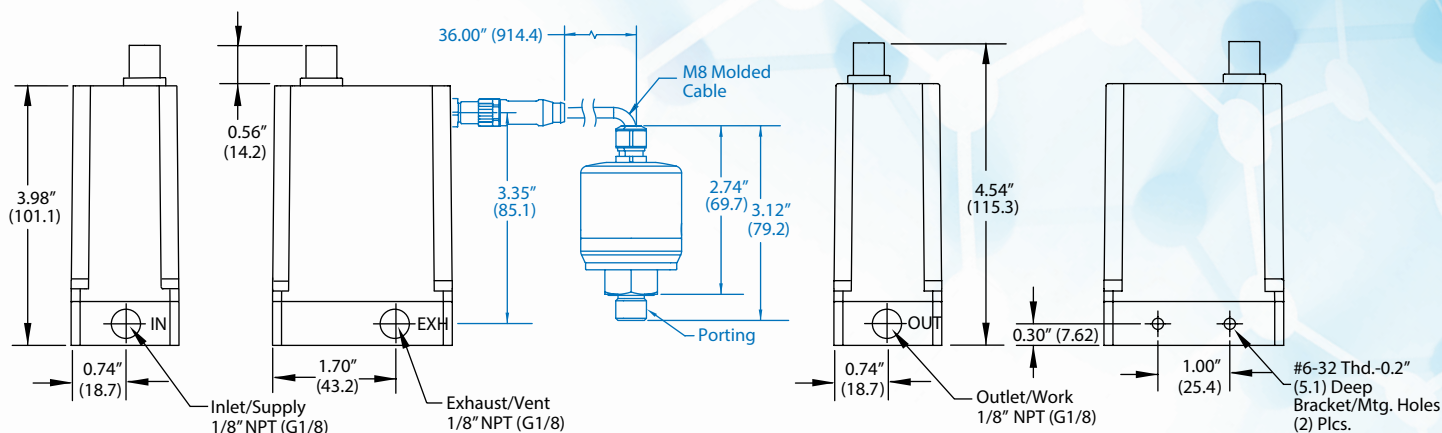
The Cordis CPC series is available with 23 different pressure sensor ranges to choose from, allowing any calibration within vacuum through 150 psig (10.3 bar) range. A 24th option—remote sensor—allows for external downstream sensor feedback. Contact Clippard for more details.

- Smooth linear control
- Integrated internal or external sensor feedback
- Multiple flow configurations
- Static or dynamic applications with the same proportional control
- Non-pulsing proportional fill and bleed
- Customizable pressure ranges, mounting options, and connections
- No integral bleed required to maintain 5 mV resolution
- No constant bleed
- Compatible with multiple inert gases
- Both housing and external sensor are IP65 rated

| | |
|---------------------------------|--|
| Accuracy | ±0.25% of full scale |
| Calibrated Range | Vacuum to 150 psig (10.3 bar) |
| Current Draw | <250 mA max. |
| Filtration | 40 micron filter (recommended) |
| LED Indicators | Power (red) and command mode (blue—solid indicates analog, flashing indicates serial) |
| Linearity | ± 0.05% BFSL |
| Material, Wetted | Elastomers: Nitrile Manifold: Anodized aluminum Sensor: Polyamide Valves: Nickel plated brass |
| Max. Hysteresis | ± 0.05% of full scale |
| Medium | Clean, dry, non-corrosive gases |
| Mounting Attitude | Any |
| Operating Pressure Range | Vac. to 150 psig (10 bar) |
| Operating Temperature | 32 to 120°F (0 to 49°C), <i>proportional valves</i> |
| Port Size | 1/8" NPT, G1/8, or manifold |
| Resolution | ≤5 mV |
| Response Time | <20 ms typical (application dependent) |
| Signal / Command | 0 to 10 VDC, 4 to 20 mA, or 3.3 VDC serial |
| Type | Card unit, housed unit, or CE approved housed unit |
| Typical Flow | 2.7 to 65 l/min typical, ±10% @ 100 psig (7 bar) |
| Valve Type | Normally-closed proportional |
| Voltage | 15 to 24 VDC |
| More Details | clippard.com/link/cordis-cpc |

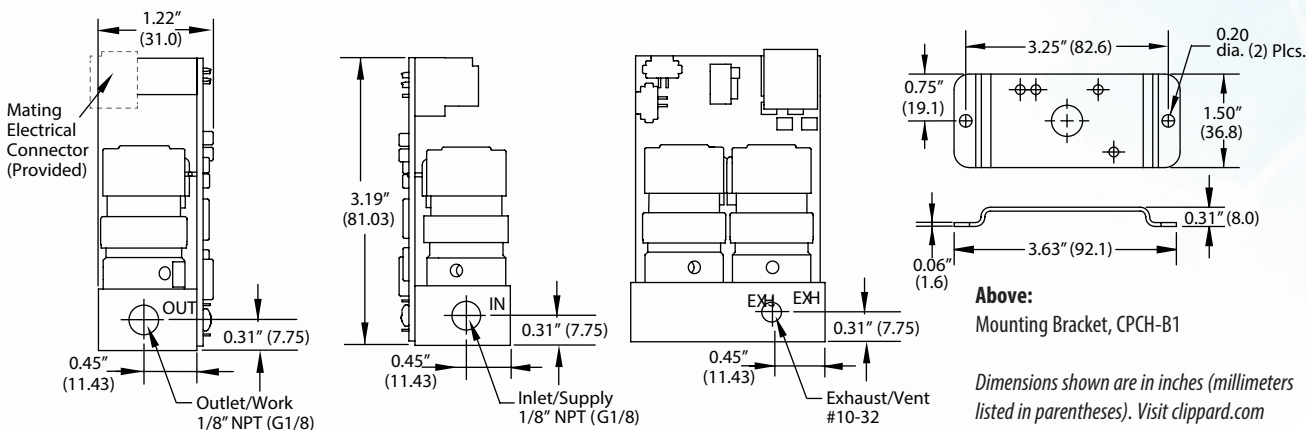
Equipment used for test and calibration is NIST traceable.





Above:
Housed Unit, CPC-H
External Sensor, CPC-Z
(See brochure pp. 10-11 for more info)

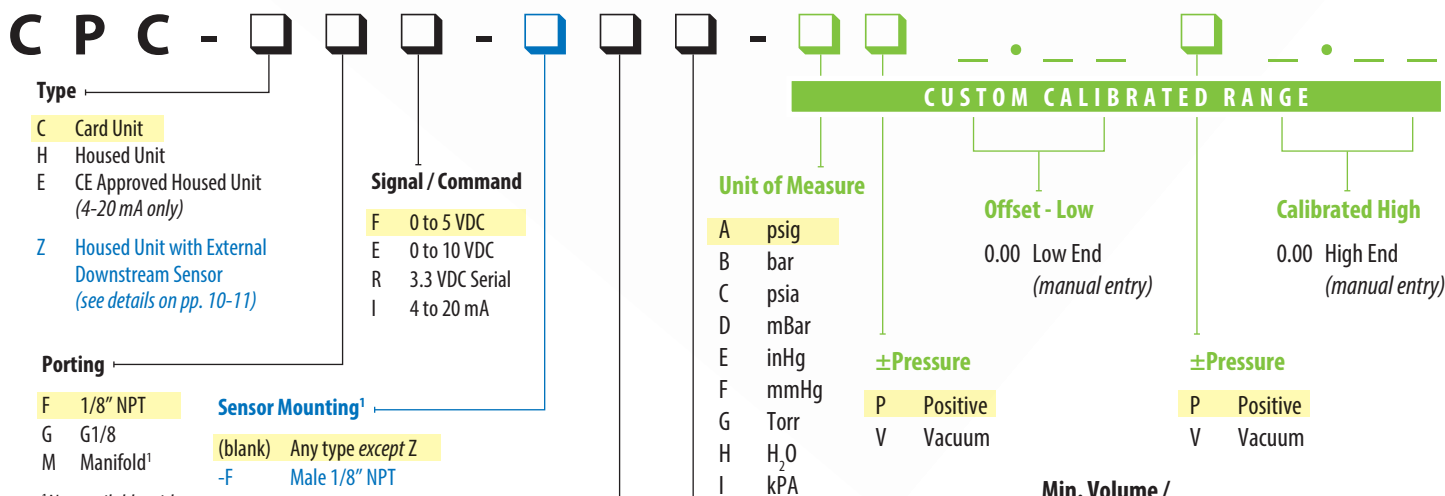
Right:
Card Unit, CPC-C



Above:
Mounting Bracket, CPCH-B1

Dimensions shown are in inches (millimeters listed in parentheses). Visit clippard.com for more detailed 2D and 3D drawings.

ORDERING INFORMATION



Type

- C Card Unit
- H Housed Unit
- E CE Approved Housed Unit (4-20 mA only)
- Z Housed Unit with External Downstream Sensor (see details on pp. 10-11)

Signal / Command

- F 0 to 5 VDC
- E 0 to 10 VDC
- R 3.3 VDC Serial
- I 4 to 20 mA

Unit of Measure

- A psig
- B bar
- C psia
- D mBar
- E inHg
- F mmHg
- G Torr
- H H₂O
- I kPA

Offset - Low

- 0.00 Low End (manual entry)

Calibrated High

- 0.00 High End (manual entry)

Porting

- F 1/8" NPT
- G G1/8
- M Manifold¹

Sensor Mounting¹

- (blank) Any type except Z
- F Male 1/8" NPT
- I 7/16-20 UNF
- M Manifold
- R Male 1/8" BSPT

¹Not available with external downstream sensor option (Z)

¹Sensor mounting is only applicable to the CPC-Z external sensor option. Leave blank for CPC-C, CPC-H, and CPC-E options

Calibrated Range

- | | | |
|-----------------|----------------|--------------------|
| A 0 to 1 psig | J 0 to 1 bar | Q 0 to 100 psia |
| B 0 to 5 psig | K 0 to 2 bar | R -5 to +5 psid |
| C 0 to 15 psig | L 0 to 4 bar | S -15 to +15 psid |
| D 0 to 30 psig | M 0 to 7 bar | T 0 to 10" H2O |
| E 0 to 60 psig | N 0 to 10 bar | U -10" to +10" H2O |
| F 0 to 100 psig | O 0 to 15 psia | V 0 to 4" H2O |
| G 0 to 150 psig | P 0 to 30 psia | W -1 to +1 psid |
| I 0 to 0.5 bar | | |

Min. Volume / Flow @ Max. Pressure*

- A ≥0.25 in³ / 2.7 l/min
- B ≥0.50 in³ / 6.7 l/min
- C ≥1.00 in³ / 25.0 l/min
- D ≥2.00 in³ / 65.0 l/min
- F ≥1.00 in³ / 32.0 l/min

*All flow ranges are factory tested at 100 psig (7 bar) on the process side. Positive pressure supply to the "IN" port. Vacuum pressure supply to the "EXH" port.

ACCESSORIES

- CPCH-C1 Actuation Cable, 8-Pin, 6' (1.8 meter)
- CPCH-C2 3.3 VDC Serial Cable, 3' (0.9 meter) USB
- CPCH-B1 Mounting Bracket
- CPCH-CA6 Power Cord, 6' (1.8 meter) card unit only

Example Part Number:

CPC-CFF-AA
or CPC-CFF-AA-AP0.00P0.75

For more info, scan the QR code or visit

clippard.com/link/cordis-cpc



Calibration

The calibration of the Cordis series is performed at the time of manufacture to NIST traceable standards. Each unit is calibrated and the PIDs are set to the Cordis standard tuning. If specific application details are known prior to manufacture (recommended), the PIDs can be tuned in accordance with the known specifications to provide the most stable and repeatable control.

Understanding the Numbers

What do you get when you use a Cordis CPC unit in your application? As the world's technology grows, the demand for tighter control, accuracy, and resolution is the direction that is expected. Cordis provides these requirements and gives you the ability to truly hone in your controlling pressures which ensures significantly better output quality.

| Sensor | Accuracy ±0.25% | Hysteresis ±0.05% | Resolution ≤5 mV |
|------------------|--------------------|----------------------|---------------------|
| 1 psig (0.1 bar) | ±0.0025 psig | ±0.0005 psig | 0.0005 psig |
| 5 psig (0.3 bar) | ±0.0125 psig | ±0.0025 psig | 0.0025 psig |
| 15 psig (1 bar) | ±0.0375 psig | ±0.0075 psig | 0.0075 psig |

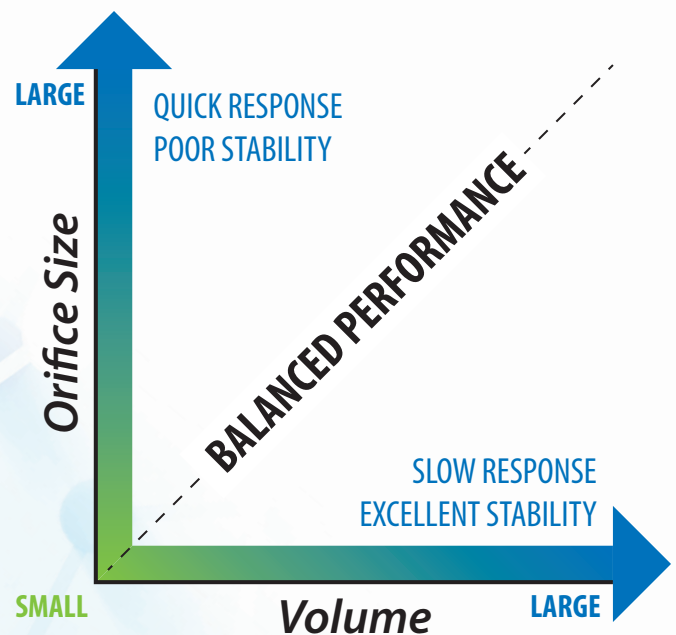
RATED INLET PRESSURE FOR CALIBRATED RANGE

| Ordering Code | Calibrated Range | Maximum Inlet Pressure |
|---------------|------------------------------|------------------------|
| A | 0 to 1 psig | 10 psig |
| B | 0 to 5 psig | 30 psig |
| C | 0 to 15 psig | 30 psig |
| D | 0 to 30 psig | 60 psig |
| E | 0 to 60 psig | 100 psig |
| F | 0 to 100 psig | 115 psig |
| G | 0 to 150 psig | 165 psig |
| I | 0 to 0.5 bar | 2 bar |
| J | 0 to 1 bar | 2 bar |
| K | 0 to 2 bar | 4 bar |
| L | 0 to 4 bar | 7 bar |
| M | 0 to 7 bar | 8 bar |
| N | 0 to 10 bar | 11 bar |
| O | 0 to 15 psia | 10 psig |
| P | 0 to 30 psia | 45 psig |
| Q | 0 to 100 psia | 165 psig |
| R | -5 to +5 psid | 25 psig |
| S | -15 to +15 psid | 45 psig |
| T | 0 to 10" H ₂ O | 5 psig |
| U | -10" to 10" H ₂ O | 6 psig |
| V | 0 to 4" H ₂ O | 4 psig |
| W | -1 to +1 psid | 8 psig |

*Sensor must have an output of 0.5 to 4.5, 0 to 5, or 0 to 10 VDC. Sensor data sheet must be provided for proper calibration of the Cordis unit. Contact Clippard to discuss.

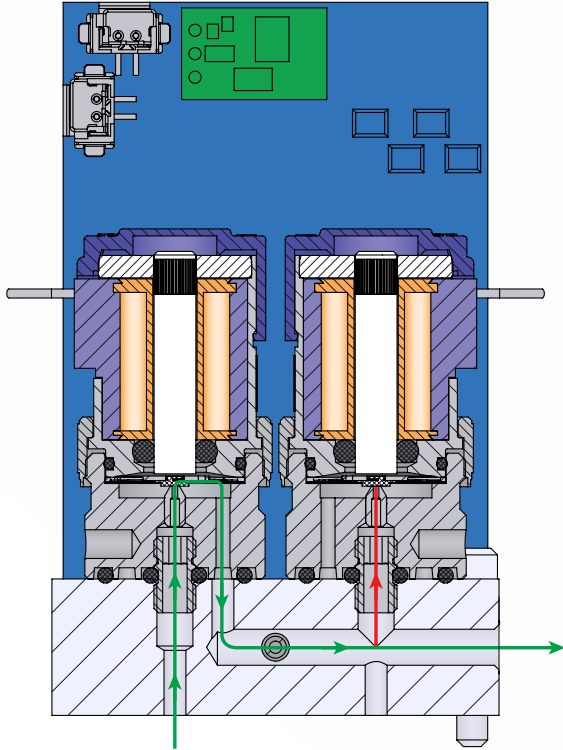
How to Select Your Pressure Controller

- 1 TYPE** - Card unit, housed unit, or CE approved housing
Housings are ideal for exposed units when protection is recommended. IP65 housing is translucent so LEDs are visible. Housing also comes with an 8-pin connector. Wire harness not included with either unit.
- 2 PORTING** - 1/8 NPT or G1/8 manifold mount
- 3 SIGNAL/COMMAND** - 0-5 or 0-10 VDC, 4-20 mA, or 3.3 VDC serial
What is the minimum/maximum pressure in your application? This is critical to verify for proper valve selection.
- 4 PRESSURE RANGE** - Vac to 150 psig (10.3 bar)
- 5 MIN. VOLUME / FLOW @ MAX. PRESSURE**
 - ≥0.25 in³ / 2.7 l/min (EVP)
 - ≥0.50 in³ / 6.7 l/min (EVP)
 - ≥1.00 in³ / 25.0 l/min (EVP)
 - ≥1.00 in³ / 32 l/min (DVP)
 - ≥2.00 in³ / 65.0 l/min (DVP)



How It Works

Using our proportional valves allows you to very precisely ramp up or ramp down your output providing smooth and quiet transition from one set point to another.



STEP 1 Cordis is given a setpoint command via 0-5 or 0-10 VDC, 4-20 mA, or 3.3 VDC serial

STEP 2 Cordis compares the setpoint command to the feedback signal from the internal/external sensor

STEP 3 If the command is higher than the sensor feedback, the inlet valve opens (filling)
If the command is lower than the sensor feedback, the exhaust valve opens (bleeding)

The reverse of the aforementioned process is used when working with vacuum. Vacuum supply is ported to the exhaust and the inlet valve allows atmosphere or positive supply pressure in where transitioning from a lower level of vacuum.

EXCEPTIONAL RESOLUTION

Clippard's dual proportional valve Cordis pressure controller provides 5 mV resolution using a 0-10 VDC command with 1,000 mV per volt. This means that at 5 mV, you'll have 200 potential steps or command changes that the Cordis will respond to within 1 volt.

For 4-20 mA command, the resolution would equal ≤ 0.008 mA, or 200 potential steps/commands within 1.6 mA (10% of 4-20 mA range).

