

# Technical Data for PCD-Series Pressure Controllers

0.07 through 3000 PSI full scales in absolute, gauge, or differential pressure models

Standard specifications. Consult Alicat for available options.



SENSOR AND CONTROL PERFORMANCE	
Pressure accuracy <sup>1</sup>	Standard accuracy: $\pm 0.25\%$ of full scale High accuracy: $\pm 0.125\%$ of full scale
Pressure repeatability ( $2\sigma$ ) <sup>1</sup>	$\pm 0.08\%$ of full scale
Steady state control range	0.01% – 100% of full scale (10,000:1 turndown ratio)
Temperature sensitivity <sup>2</sup>	Zero shift: $\pm 0.02\%$ full scale per °C from tare temperature <sup>2</sup> Span shift: $\pm 0.02\%$ full scale per °C from calibration temperature
Operating temperature range	-10 – 60°C (ambient and gas)
Valve function	Normally closed
Sensor response time	< 1 ms
Typical control response time	As fast as 30 ms, flow rate and valve size dependent, user-adjustable
Typical indication response time	< 10 ms, flow rate dependent
Typical warm-up time	< 1 s

<sup>1</sup> Stated accuracy is after tare under equilibrium conditions; includes repeatability and linearity. Please consult an application engineer when full scale is ranged below 2 inH<sub>2</sub>O (0.07 PSI).

<sup>2</sup> Tare not available on absolute pressure devices without the optional integrated barometer.

MECHANICAL	
Fluid compatibility	PCD: Compatible with all non-corrosive gases; check wetted materials PCDS: Compatible with all non-corrosive gases and liquids, and many corrosive gases; check wetted materials
Sensor burst pressure	0.07 – 100 PSI models: 3× full scale range 500 – 3000 PSI models: 1.5× full scale range
Maximum common mode pressure for differential pressure models	$\leq 100$ PSID models: 200 PSIG 500 PSID models: 750 PSIG
Humidity range	0 – 95%, non-condensing
Ingress protection	IP40 (consult Alicat for weatherproofing options)
Mounting orientation sensitivity	PCD: None PCRD: Rolamite valves must be upright
Mounting holes	PCD: 2× 8-32 UNC $\downarrow$ 0.250" [6.35 mm] PCRD: 8× 8-32 UNC $\downarrow$ 0.250" [6.35 mm]

POWER AND COMMUNICATION	
Digital input and output options	RS-232 Serial and Modbus RTU (default) RS-485 Serial and Modbus RTU, Modbus TCP/IP, DeviceNet, EtherCAT, EtherNet/IP®, Profibus, PROFINET®
Digital data update rate <sup>3</sup>	40 Hz at 19200 Baud
Analog input and output options	4 – 20 mA, 0 – 5 Vdc, 1 – 5 Vdc, 0 – 10 Vdc
Analog data update rate <sup>3</sup>	1 kHz
Analog signal accuracy	$\pm 0.1\%$ of full scale additional uncertainty
Interactive display	Monochrome LCD or color TFT display with integrated touchpad; simultaneously displays setpoint and pressure
Display update rate	10 Hz
Electrical connection options	8-pin mini-DIN, 6-pin locking, 8-pin M12, DB-9, DB-15
Power requirements <sup>3</sup>	PCD, PCDS and PCP: 12 – 24 Vdc, 250 mA PCRD and PCRDS: 24 Vdc, 1 A Add 40 mA if equipped with 4 – 20 mA output

<sup>3</sup> For specific industrial protocol models' power requirements and data transmission specifications, please consult their individual operating bulletins.

# Technical Data for PCD-Series Pressure Controllers

0.07 through 3000 PSI full scales in absolute, gauge, or differential pressure models

Standard specifications. Consult Alicat for available options.

STANDARD AVAILABLE RANGES <sup>4</sup>											
Model	0.07 PSI (2 inH <sub>2</sub> O)	1 PSI	5 PSI	15 PSI	30 PSI	100 PSI	500 PSI	1000 PSI	1500 PSI	2000 PSI	3000 PSI
PCD PSIA				✓	✓	✓	✓	✓	✓	✓	✓
PCD PSIG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PCD PSID	✓	✓	✓	✓	✓	✓	✓				
PCDS PSIA <sup>5</sup>				✓	✓	✓	✓	✓	✓	✓	✓
PCDS PSIG <sup>5</sup>			✓	✓	✓	✓	✓	✓	✓	✓	✓
PCDS PSID <sup>5</sup>			✓	✓	✓	✓	✓				

WETTED MATERIALS: MEASUREMENT HEAD									
Series	Pressure range	Stainless steels		Heat-cured epoxy and silicone rubber, alumina, gold, silicon, glass	Polyamide	Glass-reinforced polyphenylene sulfide	FKM	FFKM	EPDM
		300 Series	316L <sup>6</sup>						
PCD	0.07 PSI (2 in H <sub>2</sub> O)	✓		✓		✓	✓	Opt.	Opt.
	1 – 100 PSI	✓		✓	✓		✓	Opt.	Opt.
	500 – 3000 PSI	✓	✓				✓	Opt.	Opt.
PCDS <sup>5</sup>	5 – 3000 PSI		✓				Opt.	✓	Opt.

WETTED MATERIALS: CONTROL VALVE											
	Valve type <sup>4</sup>	Stainless steels			Sandvik proprietary metals, Elgiloy	Delrin	Brass	USP Class VI PTFE	FKM	FFKM	EPDM
		300 series	316L <sup>6</sup>	430FR							
PCD	PCV	✓		✓			✓		✓		
	PCA	Opt. <sup>7</sup>	✓		✓					✓	Opt. <sup>7</sup>
	P	✓		✓			✓		✓		
	R	✓				✓			✓	Opt.	Opt.
PCDS <sup>4</sup>	PCV-SS	✓		✓						✓	
	PCA	Opt. <sup>7</sup>	✓		✓					✓	Opt. <sup>7</sup>
	R	✓						✓	Opt.	✓	Opt.

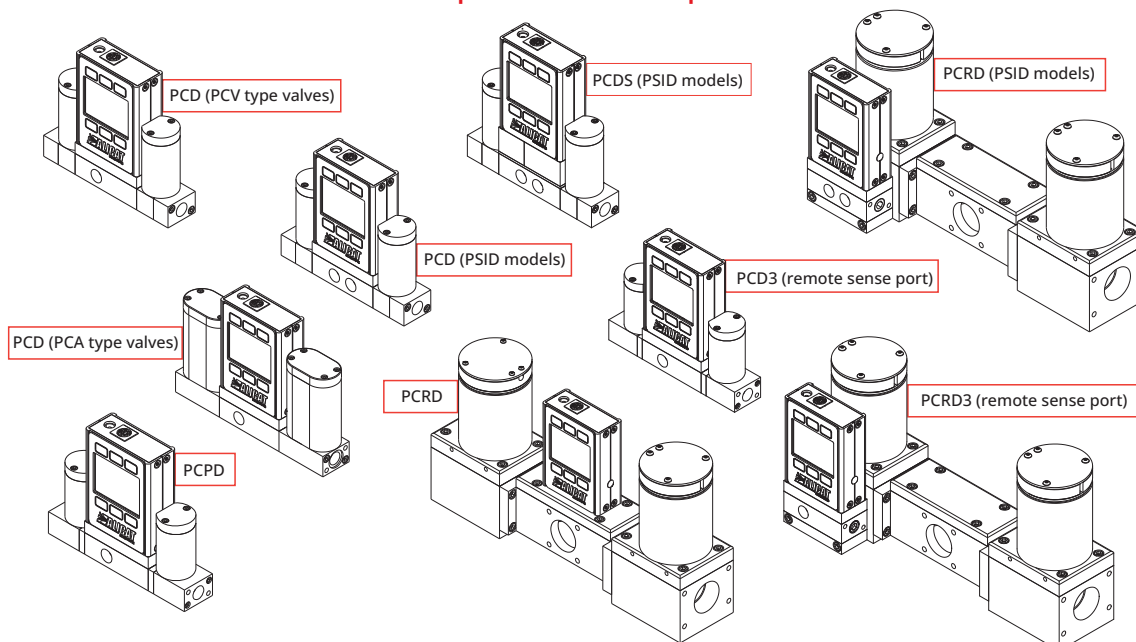
<sup>4</sup> Not all valves are available at all pressure ranges. Consult Alicat for details.

<sup>5</sup> For aggressive gases, use PCDS-Series pressure controllers. For use with water and other liquids, please contact Alicat.

<sup>6</sup> For applications that require predominately 316L construction, a PCDS-Series model paired with PCA-type control valves must be selected.

<sup>7</sup> When EPDM is selected for the PCA type valve, 300 Series Stainless Steel will also be present in the valve.

## Representative Examples



# Technical Data for PCD-Series Pressure Controllers

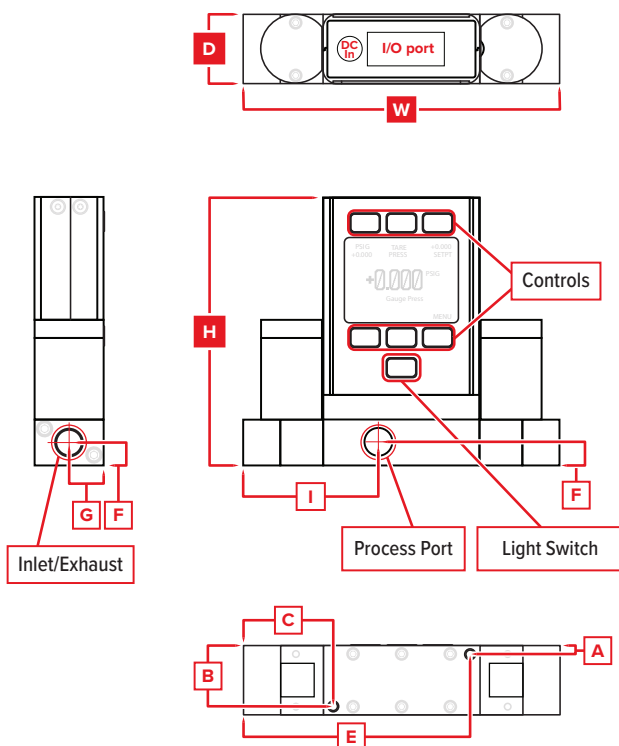
0.07 through 3000 PSI full scales in absolute, gauge, or differential pressure models

Standard specifications. Consult Alicat for available options.

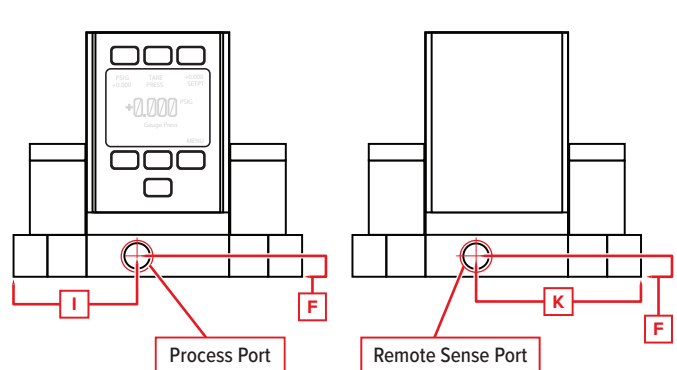
PCD-SERIES, PCDS-SERIES DIMENSIONS AND THREADED MOUNTING LOCATIONS								WEIGHT
Valve configuration	Width	Depth	Height <sup>8</sup>	A	B	C	E	
PCD, PCDS Dual PCV Valves	4.800 in	1.050 in	4.083 in	0.125 in	0.925 in	1.363 in	3.438 in	≈ 1.6 lb
	121.92 mm	26.67 mm	103.71 mm	3.18 mm	23.50 mm	34.62 mm	87.33 mm	≈ 0.7 kg
PCD, PCDS Dual PCA Valves	5.875 in	1.050 in	4.083 in	0.125 in	0.925 in	1.900 in	3.975 in	≈ 2.1 lb
	149.23 mm	26.67 mm	103.71 mm	3.18 mm <td 23.50 mm	48.26 mm	100.97 mm	≈ 1.0 kg	
PCPD Dual P Valves	5.000 in	1.600 in	4.458 in	0.175 in	1.425 in	1.875 in	3.125 in	≈ 1.6 lb
	127.00 mm	40.64 mm	113.23 mm	4.45 mm	36.20 mm	47.63 mm	79.38 mm	≈ 0.7 kg

<sup>8</sup> Differential pressure models for aggressive gases are 0.500" [12.7 mm] taller.

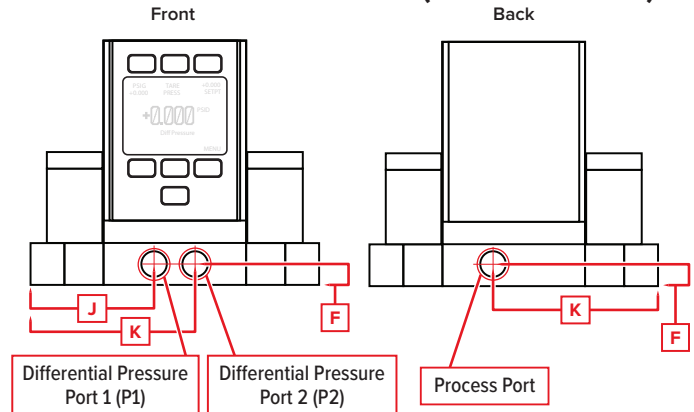
## Dual-Valve Controllers (PCD & PCPD Models)



## Dual-Valve with Remote Sense Port (PCD3 Models)



## Dual-Valve Differential Pressure (PCD-PSID Models)



PCD-SERIES, PCDS-SERIES PORT DIMENSIONS <sup>9</sup>						
Valve type	Port size	Inlet & outlet ports		Process or remote sense port	Differential port (P1)	Differential port (P2)
		F	G	I	J	K
PCV	1/8" NPT	0.350"	0.525"	2.013"	2.080"	2.721"
		8.89 mm	13.34 mm	51.13 mm	52.83 mm	69.11 mm
PCA	1/8" NPT	0.350"	0.525"	2.525"	2.617"	3.258"
		8.89 mm	13.34 mm	64.14 mm	66.47 mm	82.75 mm
P	1/4" NPT	0.500"	0.800"	2.113"	2.113"	2.88"
		12.70 mm	20.32 mm	53.67 mm	53.67 mm	73.36 mm

<sup>9</sup> Consult Alicat for available connection options, such as: compression, face seal, push-to-connect, BSPP, SAE, or Swagelok®-compatible (VCO® and VCR®).

# Technical Data for PCD-Series Pressure Controllers

0.07 through 3000 PSI full scales in absolute, gauge, or differential pressure models

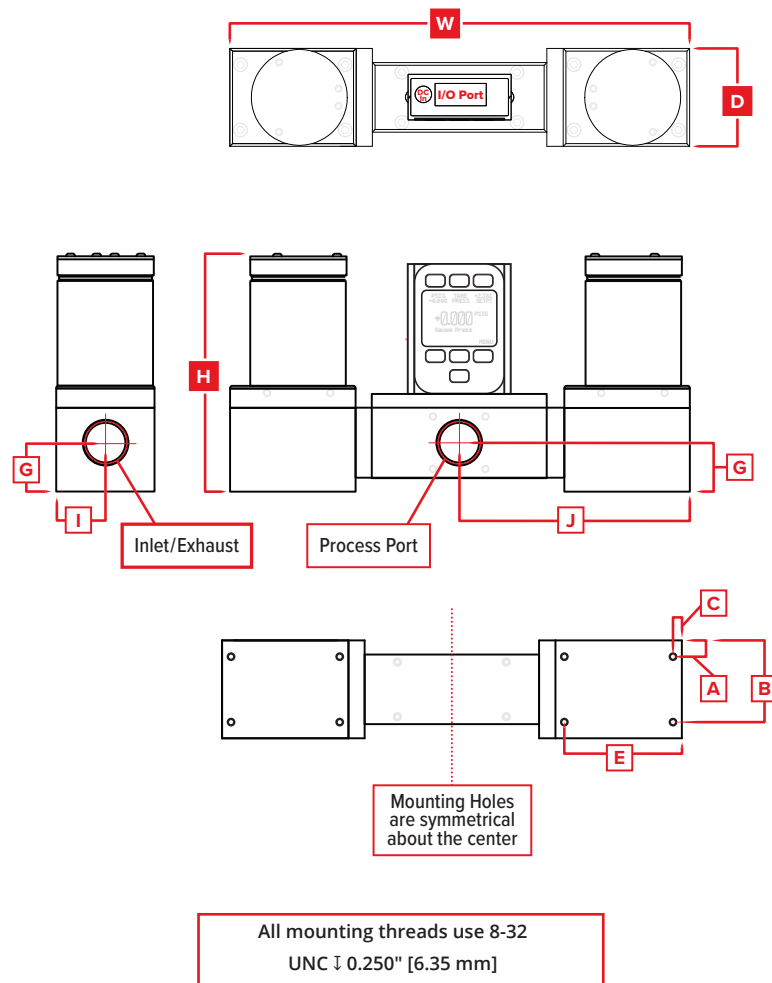
Standard specifications. Consult Alicat for available options.



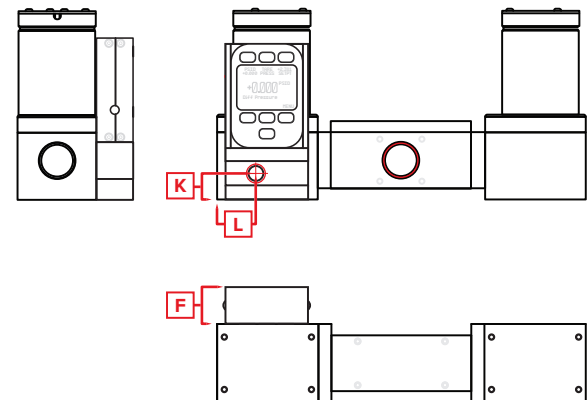
+1 (888) 290-6060  
alicat.com/pcd

PCRD-SERIES, PCRDS-SERIES DIMENSIONS AND THREADED MOUNTING LOCATIONS									WEIGHT
Valve configuration	Width	Depth	Height	A	B	C	E	F	
PCRD, PCRDS	10.55"	2.250"	5.442"	0.375"	1.875"	0.200"	2.700"	—	≈ 15.5 lb
	267.97 mm	57.15 mm	138.23 mm	9.53 mm	47.63 mm	5.08 mm	68.58 mm	—	≈ 7.0 kg
PCRD3, PCRD3S, PCRD-PSID, PCRDS-PSID	10.550"	3.300"	5.442"	0.375"	1.875"	0.200"	2.700"	1.050"	≈ 16.0 lb
	267.97 mm	83.82 mm	138.23 mm	9.53 mm	47.63 mm	5.08 mm	68.58 mm	26.67 mm	≈ 7.3 kg

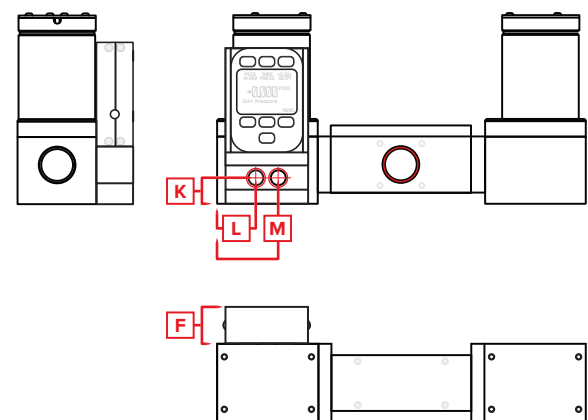
## Dual Valve Controllers (PCRD Models)



## Dual Valve Controllers with a Remote Sensor (PCRD3)



## Dual Valve Controllers with Differential Control (PCRD-PSID)



PCRD-SERIES, PCRDS-SERIES PORT DIMENSIONS <sup>9</sup>							
Port size	Remote sensor or differential port size	Inlet and outlet Ports		Process port	Differential port (P1) or remote sensor		Differential port (P2)
		G	I	J	K	L	M
3/4" NPT	1/8" NPT	1.120"	1.125"	5.275"	0.725"	1.130"	1.771"
		28.45 mm	28.58 mm	133.99 mm	18.42 mm	28.70 mm	44.98 mm

<sup>9</sup> Consult Alicat for available connection options, such as: compression, face seal, push-to-connect, BSPP, SAE, or Swagelok®-compatible (VCO® and VCR®).