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.

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SENSOR AND CONTROL PERFORMANCE	
Pressure accuracy[1]	**Standard accuracy:** ± 0.25% of full scale **High accuracy:** ± 0.125% of full scale
Pressure repeatability (2σ)[1]	± 0.08% of full scale
Steady state control range	0.01% – 100% of full scale (10,000:1 turndown ratio)
Temperature sensitivity[2]	**Zero shift:** ± 0.02% full scale per °C from tare temperature[2] **Span shift:** ± 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

1 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_2O (0.07 PSI).

2 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	**≤ 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 ↧ 0.250" [6.35 mm] **PCRD:** 8× 8-32 UNC ↧ 0.250" [6.35 mm]

POWER AND COMMUNICATION	
Digital input and ouput options	RS-232 Serial and Modbus RTU (default) RS-485 Serial and Modbus RTU, Modbus TCP/IP, DeviceNet, EtherCAT, EtherNet/IP®, Profibus, PROFINET®, IO-Link
Digital data update rate[3]	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[3]	1 kHz
Analog signal accuracy	± 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[3]	**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

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

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STANDARD AVAILABLE RANGES[4]											
Model	**0.07 PSI (2 inH_2O)**	**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[5]				✓	✓	✓	✓	✓	✓	✓	✓
PCDS PSIG[5]			✓	✓	✓	✓	✓	✓	✓	✓	✓
PCDS PSID[5]			✓	✓	✓	✓	✓				

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[6]						
PCD	0.07 PSI (2 in H_2O)	✓		✓		✓	✓	Opt.	Opt.
	1 – 100 PSI	✓		✓	✓		✓	Opt.	Opt.
	500 – 3000 PSI	✓	✓				✓	Opt.	Opt.
PCDS[5]	5 – 3000 PSI		✓				Opt.	✓	Opt.

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

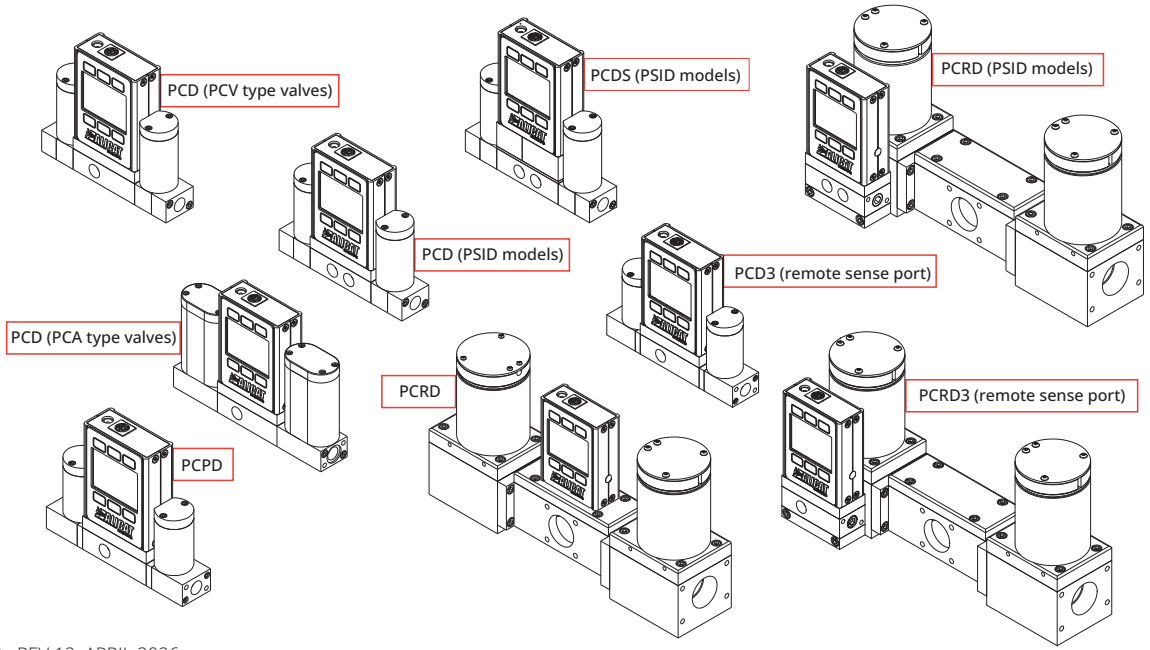
4 Not all valves are available at all pressure ranges. Consult Alicat for details.

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

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

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

Representative Examples



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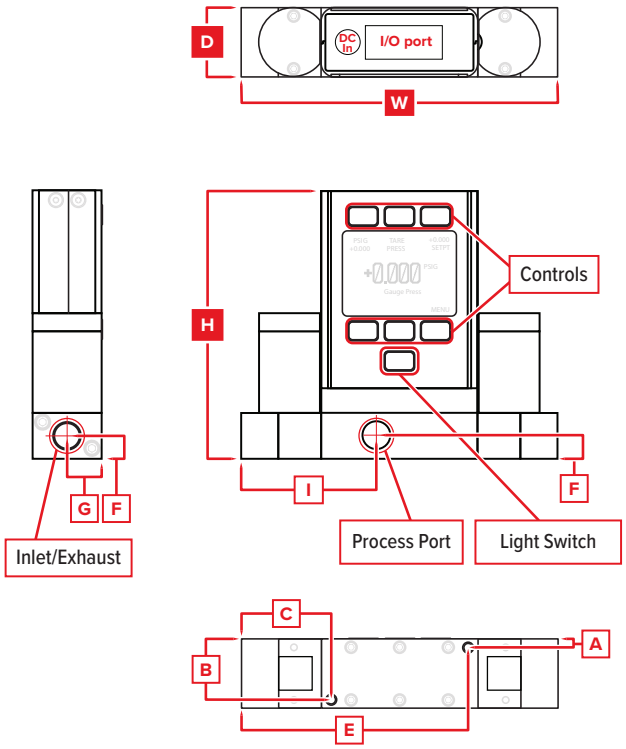
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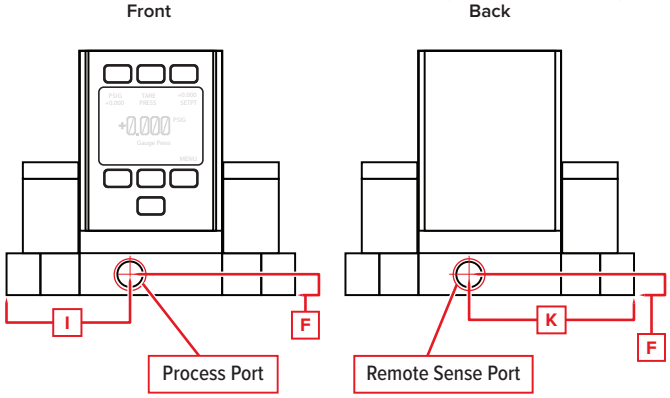
PCD-SERIES, PCDS-SERIES DIMENSIONS AND THREADED MOUNTING LOCATIONS								WEIGHT
Valve configuration	Width	Depth	Height[8]	A	B	C	E	
PCD, PCDS Dual PCV Valves	4.800 in	1.050 in	4.083 in	0.125 in	0.925 in	1.363 in	3.438 in	≈ 1.6 lb
	121.92 mm	26.67 mm	103.71 mm	3.18 mm	23.50 mm	34.62 mm	87.33 mm	≈ 0.7 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	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

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

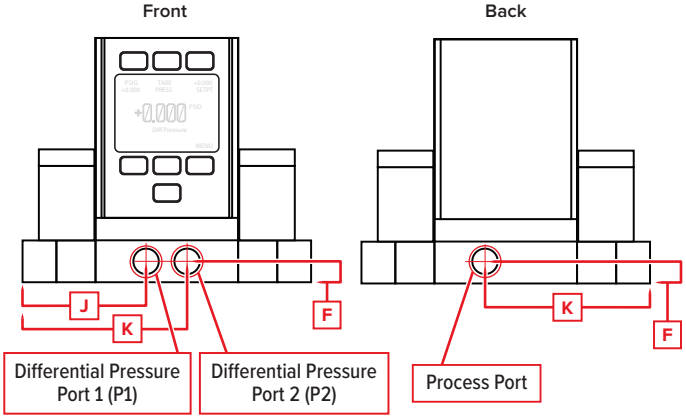
Dual-Valve Controllers (PCD & PCPD Models)



Dual-Valve with Remote Sense Port (PCD3 Models)



Dual-Valve Differential Pressure (PCD-PSID Models)



PCD-SERIES, PCDS-SERIES PORT DIMENSIONS[9]						
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

9 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

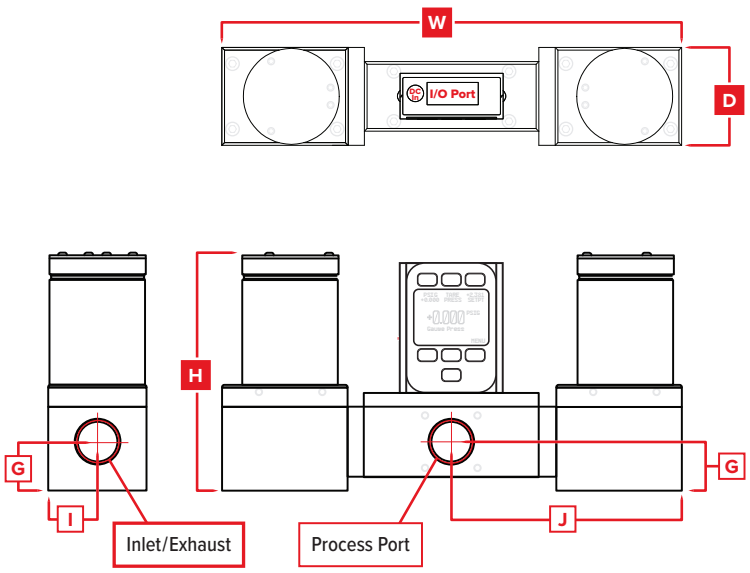
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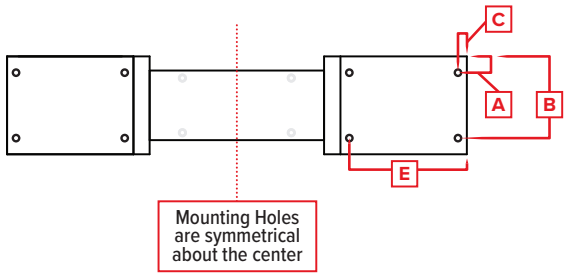
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PCRD-SERIES, PCRDS-SERIES DIMENSIONS AND THREADED MOUNTING LOCATIONS									WEIGHT
Valve configuration	Width	Depth	Height	A	B	C	E	F	
PCRD, PCRDS	10.55"	2.250"	5.442"	0.375"	1.875"	0.200"	2.700"	—	≈ 15.5 lb
	267.97 mm	57.15 mm	138.23 mm	9.53 mm	47.63 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

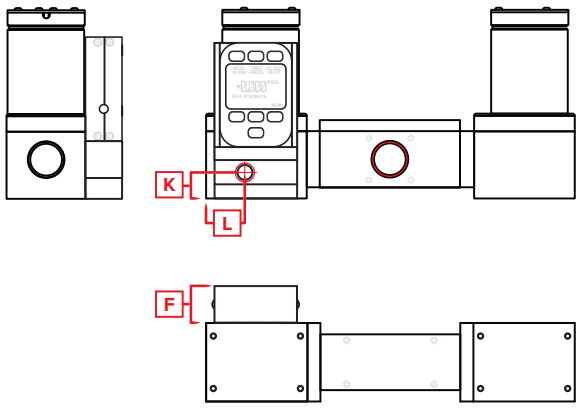
Dual Valve Controllers (PCRD Models)



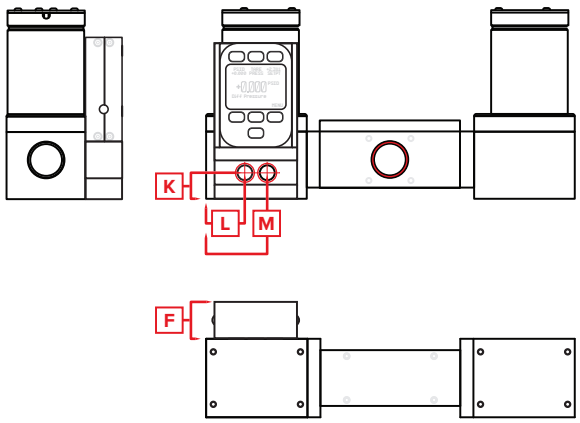


All mounting threads use 8-32 UNC ↧ 0.250" [6.35 mm]

Dual Valve Controllers with a Remote Sensor (PCRD3)



Dual Valve Controllers with Differential Control (PCRD-PSID)



PCRD-SERIES, PCRDS-SERIES PORT DIMENSIONS[9]							
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
¾" NPT	⅛" 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

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