

# Technical Data for **PCD-Series** Pressure Controllers

## 0.07–3000 PSI full scale in absolute, gauge, or differential pressure applications



Standard specifications. Consult Alicat for available options.

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

SENSOR AND CONTROL PERFORMANCE	
Accuracy at Calibration Conditions <sup>1</sup>	±0.25% of full scale
High Accuracy Option <sup>1</sup>	±0.125% of full scale
Repeatability (2σ) <sup>1</sup>	±0.08% of full scale
Steady State Control Range	0.01–100% of full scale
Typical Control Response Time	As fast as 30 ms, flow rate and valve size dependent, user adjustable
Valve Function	Normally closed
Temperature Sensitivity	Zero shift: 0.02% full scale per °C from tare temperature <sup>2</sup> Span shift: 0.02% full scale per °C from calibration temperature
Operating Temperature Range	–10–60°C (expanded range available)
Sensor Response Time	<1 ms
Typical Indication Response Time	<10 ms
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	
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
Mounting Attitude Sensitivity	PCRD-Series (Rolamite valves): Mount with valve cylinders vertical and upright All others: None
Ingress Protection	IP40 (consult Alicat for weatherproofing options)
Humidity Range	0–95%, non-condensing

COMMUNICATIONS AND ELECTRICAL	
Monochrome LCD or Color TFT Display with Integrated Touchpad	Simultaneously displays pressure and setpoint
Display Update Rate	10 Hz
Digital I/O Options	RS-232 Serial and Modbus RTU (default) RS-485 Serial and Modbus RTU, Modbus TCP/IP, DeviceNet, EtherCAT, EtherNet/IP, Profibus
Digital Data Update Rate <sup>3</sup>	40 Hz at 19200 Baud
Analog I/O 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	±0.1% of full scale additional uncertainty
Electrical Connection Options	8-pin mini-DIN, 6-pin locking, 8-pin M12, DB-9, DB-15
Power Requirements <sup>3</sup>	PCD, PCDS, PCPD models: 12–24 Vdc, 250 mA PCRD, PCRDS models: 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.

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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-Series PSIA				✓	✓	✓	✓	✓	✓	✓	✓
PCD-Series PSIG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PCD-Series PSID	✓	✓	✓	✓	✓	✓	✓				
PCDS-Series PSIA <sup>5</sup>				✓	✓	✓	✓	✓	✓	✓	✓
PCDS-Series PSIG <sup>5</sup>			✓	✓	✓	✓	✓	✓	✓	✓	✓
PCDS-Series PSID <sup>5</sup>			✓	✓	✓	✓	✓				

WETTED MATERIALS: MEASUREMENT HEAD										
	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-Series	0.07 PSI (2 inH <sub>2</sub> O)	✓			✓		✓	Opt.	Opt.	
	1–100 PSI	✓			✓		✓	Opt.	Opt.	
	500–3000 PSI	✓	✓				✓	Opt.	Opt.	
PCDS-Series <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>5</sup>	430FR							
PCD-Series	PCV	✓		✓			✓		✓		
	PCA	Opt. <sup>7</sup>	✓		✓					✓	Opt. <sup>7</sup>
	P	✓		✓			✓		✓		
	R	✓				✓			✓	Opt.	Opt.
PCDS-Series <sup>6</sup>	PCV-SS	✓		✓						✓	
	PCA	Opt. <sup>7</sup>	✓		✓					✓	Opt. <sup>7</sup>
	R	✓					✓		Opt.	✓	Opt.

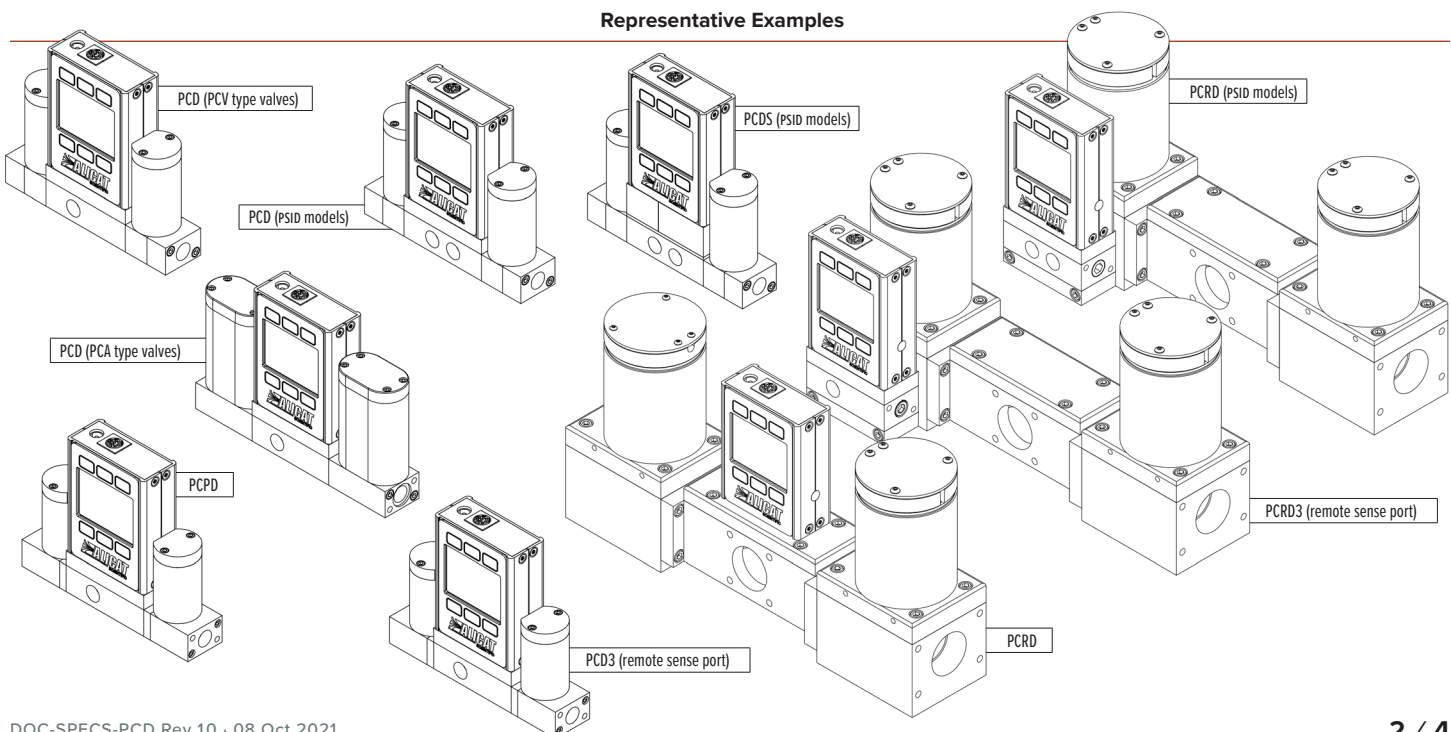
**4** Not all valves are available at all pressure ranges. Consult Alicat for details.

**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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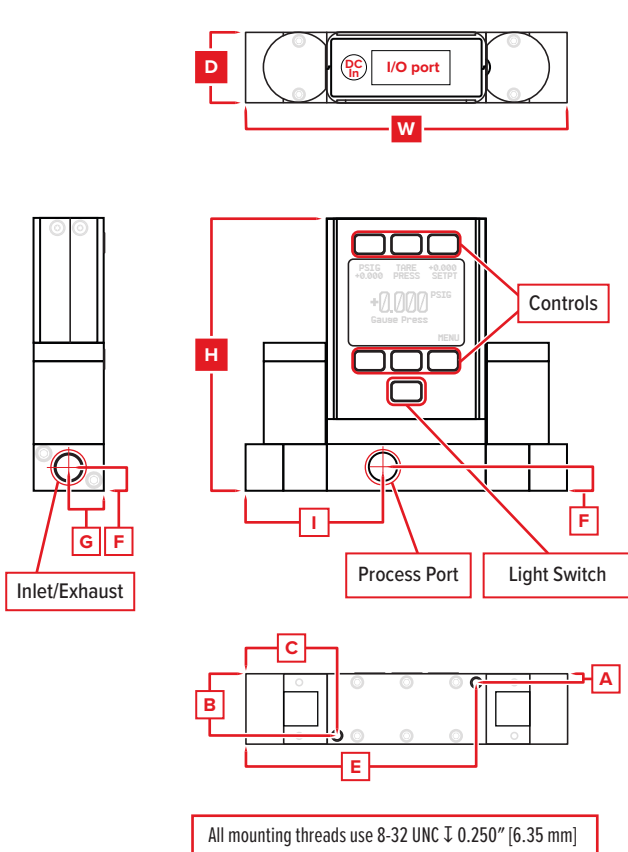
## 0.07–3000 PSI full scale in absolute, gauge, or differential pressure applications

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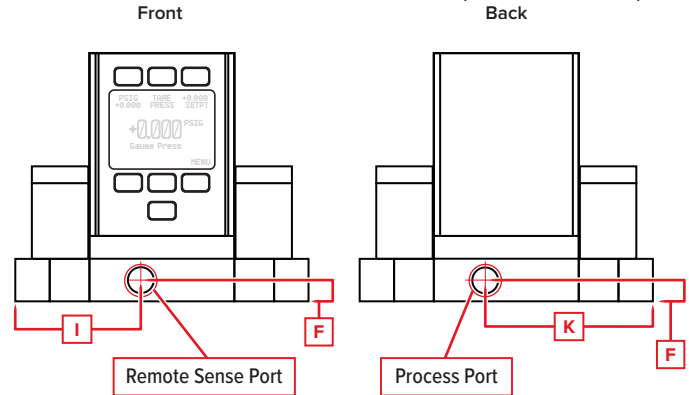
PCD-SERIES, PCDS-SERIES DIMENSIONS AND THREADED MOUNTING LOCATIONS								WEIGHT
Valve configuration	Height <sup>8</sup>	Width	Depth	A	B	C	E	
PCD, PCDS	4.083 in	4.800 in	1.050 in	0.125 in	0.925 in	1.363 in	3.438 in	≈ 1.6 lb
Dual PCV Valves	103.71 mm	121.92 mm	26.67 mm	3.18 mm	23.50 mm	34.62 mm	87.33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

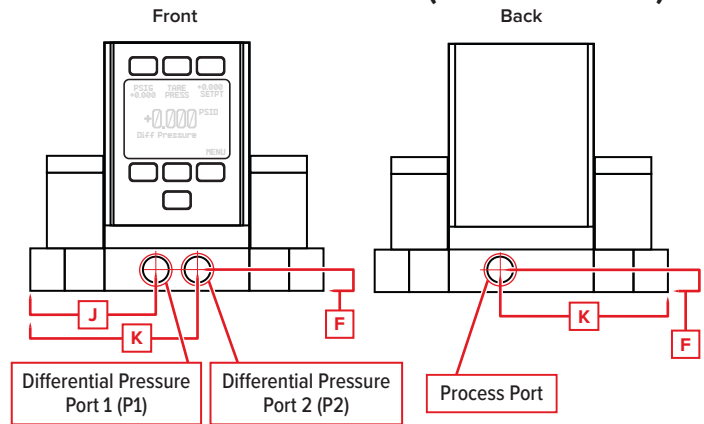
### Dual-Valve Controllers (PCD & PCPD Models)



### 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 in NPT	0.350 in	0.525 in	2.013 in	2.080 in	2.721 in
		8.89 mm	13.34 mm	51.13 mm	52.83 mm	69.11 mm
PCA	1/8 in NPT	0.350 in	0.525 in	2.525 in	2.617 in	3.258 in
		8.89 mm	13.34 mm	64.14 mm	66.47 mm	82.75 mm
P	1/4 in NPT	0.500 in	0.800 in	2.113 in	2.113 in	2.888 in
		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®).

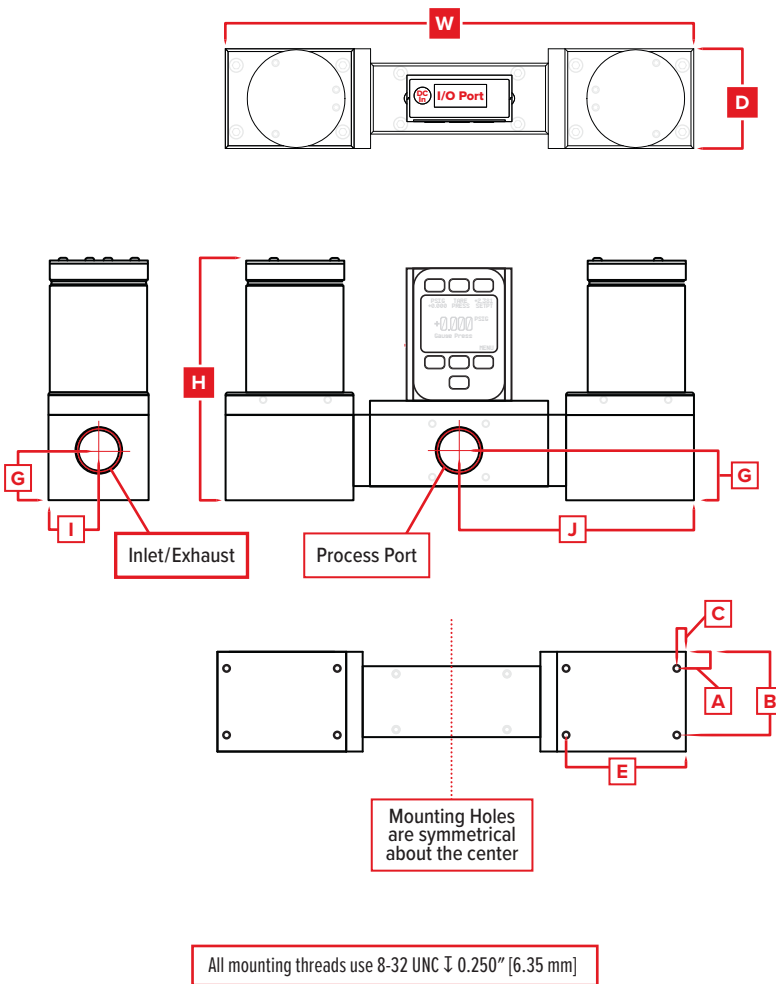
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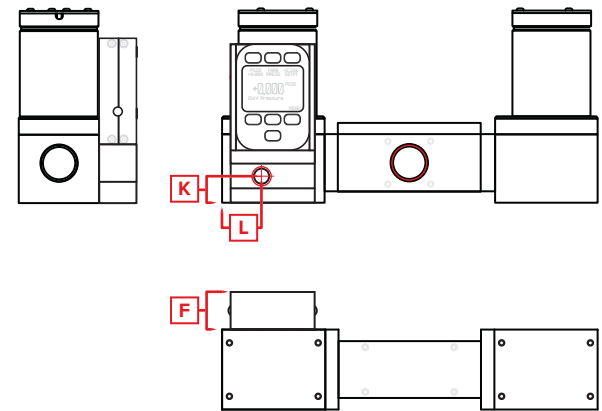
Standard specifications. Consult Alicat for available options.

PCRD-SERIES, PCRDS-SERIES DIMENSIONS AND THREADED MOUNTING LOCATIONS									WEIGHT
Valve configuration	Height	Width	Depth	A	B	C	E	F	
PCRD, PCRDS	5.442 in	10.550 in	2.250 in	0.375 in	1.875 in	0.200 in	2.700 in	—	≈ 15.5 lb
	138.23 mm	267.97 mm	57.15 mm	9.53 mm	47.63 mm	5.08 mm	68.58 mm	—	≈ 7.0 kg
PCRD3, PCRDS3, PCRD-PSID, PCRDS-PSID	5.442 in	10.550 in	3.300 in	0.375 in	1.875 in	0.200 in	2.700 in	1.050 in	≈ 16.0 lb
	138.23 mm	267.97 mm	83.82 mm	9.53 mm	47.63 mm	5.08 mm	68.58 mm	26.67 mm	≈ 7.3 kg

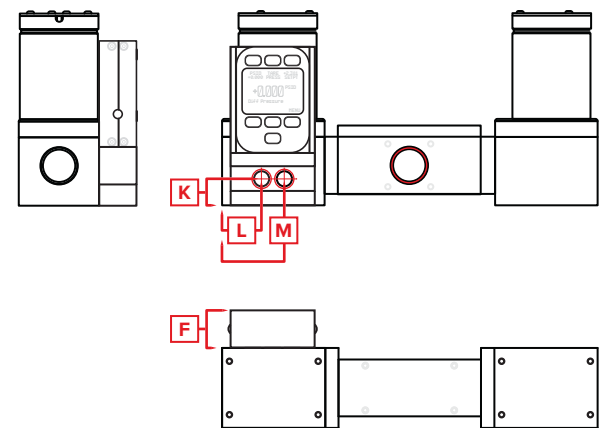
### Dual Valve Controllers (PCRD Models)



### 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
¾ in NPT	⅝ in NPT	1.120 in	1.125 in	5.275 in	0.725 in	1.130 in	1.771 in
		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®).