

# PSID Family

## Digital Differential Pressure Measurement and Control



[alicat.com/dp](http://alicat.com/dp)

### Series Overview

Alicat Scientific P-PSID Series digital differential pressure gauges accurately and rapidly measure the pressure differential between two points in a process using separate dead-ended pressure sense ports. PC-PSID Series pressure controllers provide precise maintenance of the differential pressure in open systems via customized high-speed proportional control valves. PCD-PSID Series dual-valve differential pressure controllers control differential pressure within closed systems via dedicated inlet and exhaust valves, eliminating the need for additional bleed valves and wasteful outgasing. These series are also available with remote sense ports for maintenance of pressure in volumes that are distant from the controller (PC3-PSID, PCD3-PSID).



Each instrument within the PSID Family is also available with corrosion-resistant wetted materials and stainless steel flow bodies in the PS/PCS/PCS3/PCDS series. All pressure instruments come with NIST-traceable calibration sheets. Alicat backs every PSID-Family pressure instrument with generous customer support, including free technical phone support, prompt recalibration service and a lifetime warranty.

Alicat PSID-Family pressure gauges and controllers feature large integrated displays and both analog and RS-232 digital communications. Controller touchpads enable setpoint control access and PID valve tuning. Extensive customizations are available, including Class 1, Div 2 ATEX/CSA ratings for use in hazardous environments and battery operation for portable differential pressure gauges (PB-PSID Series).

### Applications

Alicat Scientific PSID-Family digital differential pressure gauges and controllers are used in a variety of industries, including gas analysis and filter characterization. A low 200:1 turndown ratio, available 0.125% accuracy, 0.2% full-scale repeatability and <100 ms control response times ensure optimal performance of pressure measurement and control processes.

The PSID Family is available in full-scale differential pressure ranges from 0-1 psid to 0-100 psid.

# Technical Data for Alicat PCD and PCDR Dual Valve Pressure Controllers



Alicat's PCD and PCDR Dual Valve Pressure Controllers accurately and efficiently control pressure within a closed system with a minimum loss of expensive gases through the exhaust process.

Tel: 888-290-6060  
[www.alicat.com/pressure](http://www.alicat.com/pressure)

PCDR-Series pressure controllers are best for flows greater than 20 lpm.

## Standard Specifications (Contact Alicat for available options.)

Performance	PCD Controllers	PCDR Controllers
Full scale pressure < 2" H2O Accuracy	Consult Factory	
Full scale pressure ≥ 2" H2O Standard Accuracy	± 0.25%	
Full scale pressure ≥ 2" H2O High Accuracy Option	± 0.125%	
Repeatability	± 0.08% Full Scale	
Zero Shift and Span Shift	0.02% Full Scale / °Celsius	
Operating Range / Turndown Ratio	0.05% to 100% Full Scale / 200:1 Turndown	
Excess Pressure	102.4% FS Controllable	
Burst Pressure	3 X Full Scale	
Typical Response Time <sup>1</sup>	100 ms (Adjustable)	
Warm-up Time	< 1 Second	

1. Volumes, feed pressures, exhaust pressures and line sizing will determine the limits of response times.

Operating Conditions	PCD Controllers	PCDR Controllers
Gas Compatibility	Compatible with all non-corrosive gases <sup>1</sup>	
Operating Temperature	-10 to +50 °Celsius	
Common Mode Pressure	150 psig	
Mounting Attitude Sensitivity	None	Mount with valve cylinders vertical & upright
Valve Type	Normally Closed	
Ingress Protection	IP40	
Wetted Materials	302 & 303 Stainless Steel, Viton®, Silicone RTV, Brass, 400 Series Stainless Steel, Silicon, Glass. If your application demands a different material, please contact Alicat.	

1. For aggressive gases, please see our PCDS and PCRDS-Series pressure controllers. For use with water or other liquids please contact Alicat

Communication / Power	PCD Controllers	PCDR Controllers
Monochrome LCD or Color TFT Display with integrated touchpad	Displays Pressure	
Digital Output Signal <sup>1</sup> Options	RS-232 Serial / RS-485 Serial / PROFIBUS <sup>3</sup>	
Analog Output Signal <sup>2</sup> Options	0-5 Vdc / 1-5 Vdc / 0-10 Vdc / 4-20 mA	
Optional Secondary Analog Output Signal <sup>2</sup>	0-5 Vdc / 1-5 Vdc / 0-10 Vdc / 4-20 mA	
Electrical Connection Options	8 Pin Mini-DIN / 9-pin D-sub (DB9) / 15-pin D-sub (DB15) / 6 pin locking	
Supply Voltage	12-30 Vdc (15-30 Vdc for 4-20 mA outputs)	24-30 Vdc
Supply Current	0.250 Amp	0.750 Amp

- The **Digital Output Signal** communicates Pressure
- The **Analog Output Signal** and **Optional Secondary Analog Output Signal** communicate Pressure
- If selecting **PROFIBUS**, no analog signal is available. PROFIBUS units do not have the display. See PROFIBUS specifications for PROFIBUS supply voltages and currents. ([www.alicat.com/profibus](http://www.alicat.com/profibus))

## Mechanical Specifications

Dual Valve Controllers	Mechanical Dimensions	Process Connections <sup>1</sup>
PCD All Standard Ranges	4.1"H x 4.8"W x 1.1"D	1/8" NPT Female
PCRD All Standard Ranges	5.5"H x 10.6"W x 2.3"D	3/4" NPT Female

1. Compatible with Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings. VCR and SAE connections upon request.

## Standard Available Ranges

PCD and PCRD Pressure Controllers		
-15 psig to 0 psig		
2 inH <sub>2</sub> OD	2 inH <sub>2</sub> OG	
4 inH <sub>2</sub> OD	4 inH <sub>2</sub> OG	
1 psid	1 psig	
5 psid	5 psig	
15 psid	15 psig	15 psia
30 psid	30 psig	30 psia
100 psid	100 psig	100 psia
150 psid	300 psig	300 psia
	500 psig*	500 psia*

\*Not available on PCRD  
 Other ranges available. Please contact Alicat

Select One Unit of Measure when Ordering		
PSIA	inHG	Atm
PSIG	inH <sub>2</sub> O	Torr
mmHG	mBar	kPa