

PD420/21 4-20 mA Set Point Generators & PD460/61 Valve Positioners

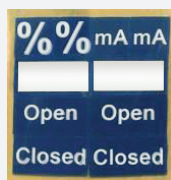
Instruction Manual



PD421



PD461



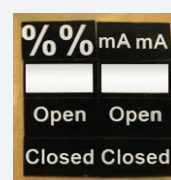
Decals



PD420



PD460



Decals

FEATURES

- 4-20 mA Loop Set Point Generator
- Panel Mount or NEMA 4X
- 4-20 mA or 3-21 mA Output Ranges
- Set Point Displayed as 0-100%, 4-20 mA, or 3-21 mA
- Valve Position Displayed as 0-100%
- Built-in Dial for Changing Output
- Backlit Display
- Coarse or Fine Set Point Adjustment
- $\pm 0.5\%$ Output Accuracy
- 0.01 Display Accuracy
- 15-30 VDC Power Requirement
- < 500 ohms Sampling Resistance
- Decals Provided for %, mA, Open, Closed, and Custom

OVERVIEW

The PD420/21 set point generator and the PD460/61 valve positioner provide a convenient way to generate a 4-20 mA signal that can be used to control another device.

Both feature a backlit LCD. The PD420/21 set point generator can be programmed to display 0-100%, 4-20 mA or 3-21 mA and output either 4-20 mA or 3-21 mA. The PD460/61 valve positioner is programmed to display a value of 0-100% relating to the 4-20 mA output. A built-in dial is provided to vary the displayed / output value. The dial may be programmed for coarse or fine adjustment.

The signal generator and valve positioner are both available as a panel mount or NEMA 4X version. In addition, NEMA 4X enclosures are provided to house up to three of the panel mount versions.

Decals are provided for %, mA, Open, and Closed for the user to apply to the faceplate. There is also a decal with a white background for the user to write a custom label.

PROGRAMMING INSTRUCTIONS

Parameter Table 1: Entering F002-F007 (FXXX System Settings) requires a password “- - -” first:

Index	Designation	Comments		
F001	Output mode	0: Coarse tuning mode: use F004 to adjust increment value per click 1: Fine tuning mode: use F005 to adjust increment value per click 2: Quick output: use F100 to enter number of quick output settings 3: Automatic curve output: use F200 to enter number of curves		
F002	Output range	0: 4-20 mA	1: 3-21 mA	
F003	Display range	0: Current	1: 0-100%	2: 0-50%
F004	Coarse tuning Increment Value	1-50 Addition and subtraction for each click. Disregard decimal point (1-50) x10		
F005	Fine tuning increment value	1-50 Addition and subtraction for each click. Disregard decimal point (1-50) x10		
F006	Auto save of adjustment value	0: Not automatically saved. Need to press knob to save	1: Automatic save	
F007	Calibration	Factory set only		

Default Values	Set Point Generator	Valve Positioner
Coarse tuning mode	Increments of 0.10	Increments of 1
Output range	4-20 mA	4-20 mA
Display mode	4-20 mA	0-100%

Change from coarse to fine tuning mode:

1. Press and hold the knob for two seconds until F001 appears.
2. Press the knob again
3. Change the number from 0 (coarse tuning mode) to 1 (Fine tuning mode)
4. Press the knob again

Entering Passwords:

1. Rotate knob one click clockwise for “-”
2. Rotate knob one click counter-clock for “-”
3. Press the knob to confirm

Change output range from 4-20 mA to 3-21 mA:

1. Enter the password as described above
2. The F002 menu is used to change the output range.
Turn knob until the desired parameter number appears and press enter:
 - a. 0: 4-20 mA
 - b. 1: 3-21 mA
3. Keep turning the knob until FEnd appears and press the knob to exit programming

Change display from current (4-20 or 3-21 mA) to 0.0-100.0% or 0.0-50.0%:

1. Enter the password as described above
2. Turn the knob once clockwise and F003 appears.
3. Press the knob and turn the knob until the desired parameter number appears and press enter:
 - a. 0: Current
 - b. 1: 0.0-100.0%
 - c. 2: 0.0-50.0%
4. Keep turning the knob until FEnd appears and press the knob to exit

Change the value for how much each click on the knob adjusts coarse tuning:

1. Enter the password as described above
2. Turn the knob twice clockwise until F004 appears.
3. Press the knob and turn the knob until the number that represents how much the display will change with each click appears and press enter.
4. Keep turning the knob until FEnd appears and press the knob to exit

Change the value for how much each click on the knob adjusts fine tuning:

1. Enter the password as described above
2. Turn the knob three times clockwise until F005 appears.
3. Press the knob and turn the knob until the number that represents how much the display will change with each click appears and press enter.
4. Keep turning the knob until FEnd appears and press the knob to exit

Change from pressing the knob to save programming to automatic save:

1. Enter the password as described above
2. Turn the knob four times clockwise until F006 appears.
3. Press the knob and turn the knob until the desired parameter number appears and press enter:
 - a. 0: Need to press knob to save programming
 - b. 1: Automatic save
4. Keep turning the knob until FEnd appears and press the knob to exit

Parameter Table 2: Entering F100... (Quick Output Settings) requires password “-1-1-” first

Index	Designation	Comments
F 100	Number of quick settings	0: Not used 2-9: Number of points
F 10 1- 109	Output value of up to 9 points	Range: 3.00-21.00 mA (F100 must be > 0)

Programming Quick Output Points:

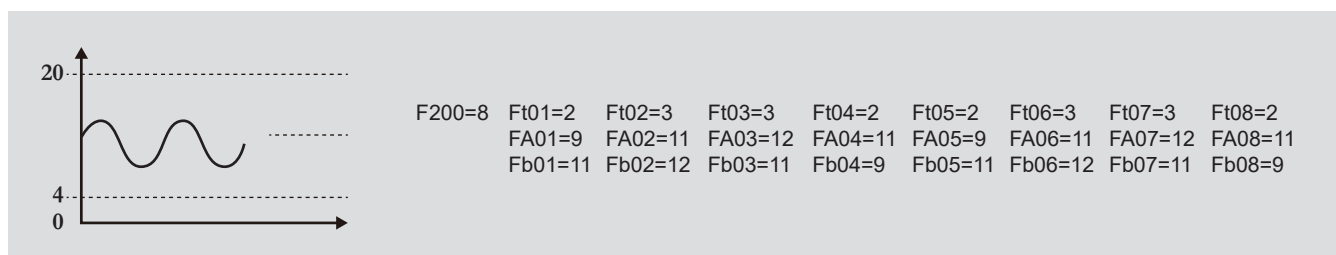
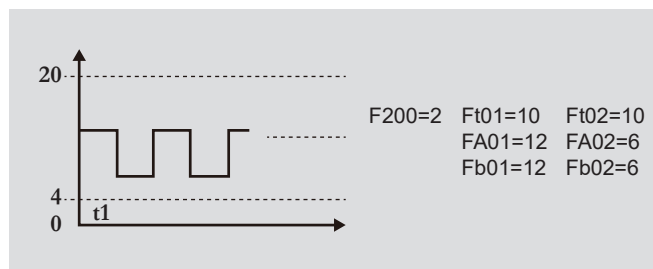
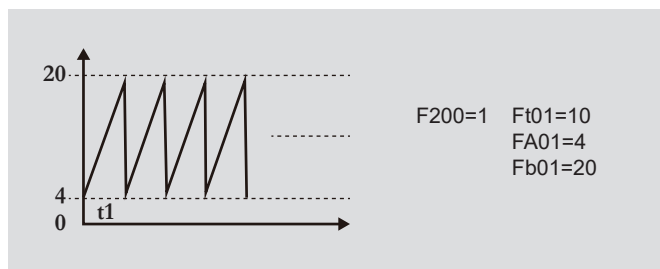
- Press and hold the knob for two seconds until **F00 !** appears.
 - Press the knob again
 - Change the number from 0 (coarse tuning mode) to 2 (Quick Output Settings)
 - Press the knob again to return to operation mode
- Press and hold the knob for two seconds until **F00 !** appears.
 - Enter password per instructions above to: -1-1-
- Press the knob and **F 100** appears
 - Adjust the knob until the desired number of Output Points appears and press the knob.
- Enter in Output Points
 - F101 and value; enter all points

Parameter Table 3: Entering F200... (Curve Output Settings) requires password “-1-1-” first

Index	Designation	Comments
F200	Number of curves	0: Not used 1-9: Number of segments
Ft01	Curve 1 run time	0-999 seconds (F200 must be > 0)
FA01	Curve 1 start current	Range: 3.00-21.00 mA
Fb01	Curve 1 end current	Range: 3.00-21.00 mA
Ft02	Curve 1 run time	0-999 seconds
Fb03	Curve 1 end current	Range: 3.00-21.00 mA

Programming Curve Output Points:

- Press and hold the knob for two seconds until **F00 !** appears.
 - Press the knob again
 - Change the number from 0 (coarse tuning mode) to 3 (Automatic curve output)
 - Press the knob again to return to operation mode
- Press and hold the knob for two seconds until **F00 !** appears.
 - Enter password per instructions above to: -1-1-
- Press the knob and **F200** appears
 - Press knob and enter the number of curves to be programmed
 - Set Ft01: Run time for curve (0-999 seconds)
 - Set FA01: Start current value (3.00 to 21.00 mA)
 - Set Fb01: End current value (3.00 to 21.00 mA)
 - Repeat for remaining curves

Examples of Automatic Curve Output Settings:

AVAILABLE ENCLOSURES



PDA2802



PDA2814

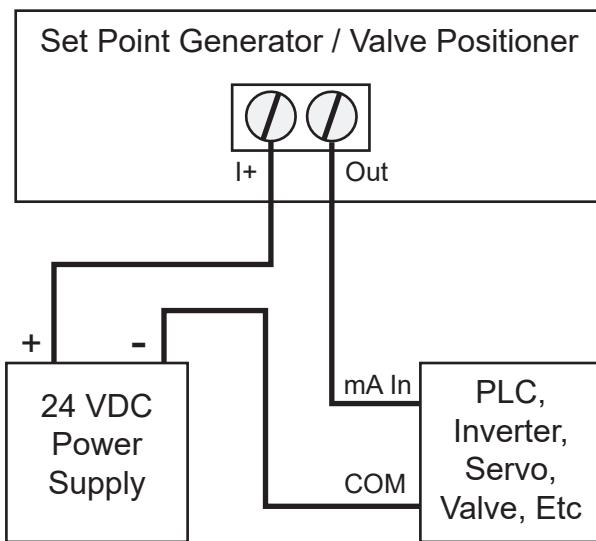


PDA2815

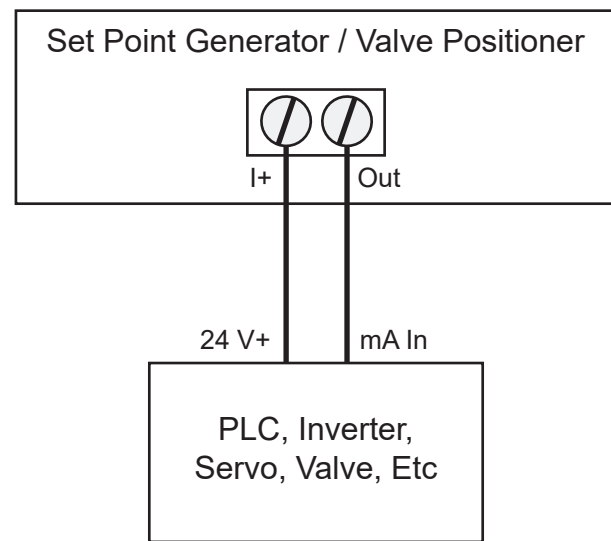
The enclosures are constructed from durable plastic and are rated NEMA 4X for enhanced protection. They are specifically designed to accommodate one, two, or three PD420 or PD460 models, providing flexible housing options for various configurations.

CONNECTIONS

The connections are the same for all products.



**Set Point Generator / Valve Positioner
Powered by 24 VDC Supply**

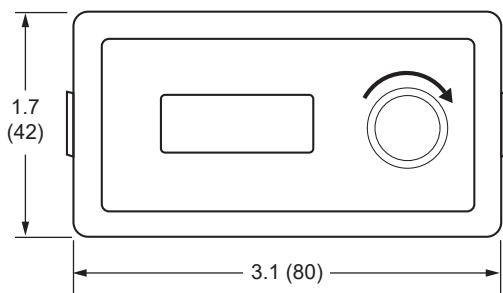


**Set Point Generator / Valve Positioner
Powered by Controlled Device**

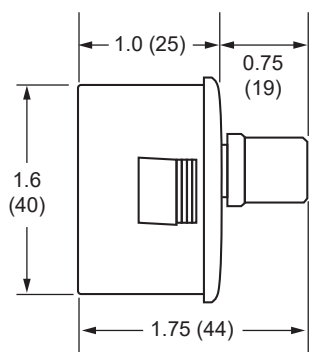
DIMENSIONS

PD420/60 Panel Mount Dimensions

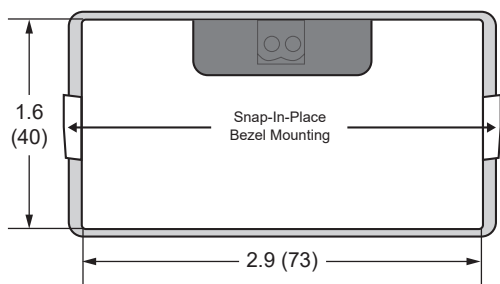
Units: Inches (mm)



Front View



Side View



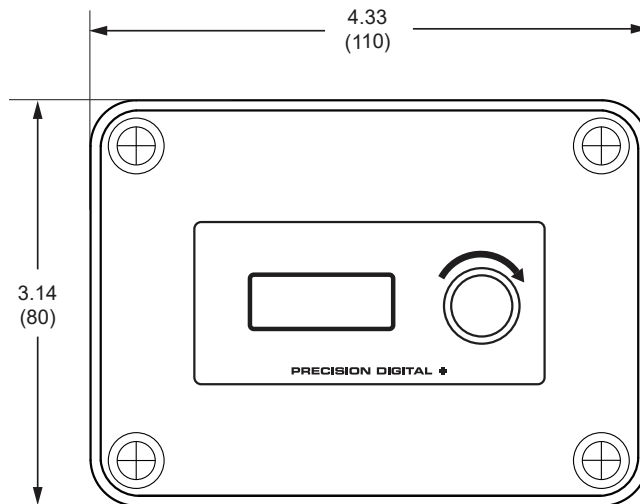
Back View

Notes:

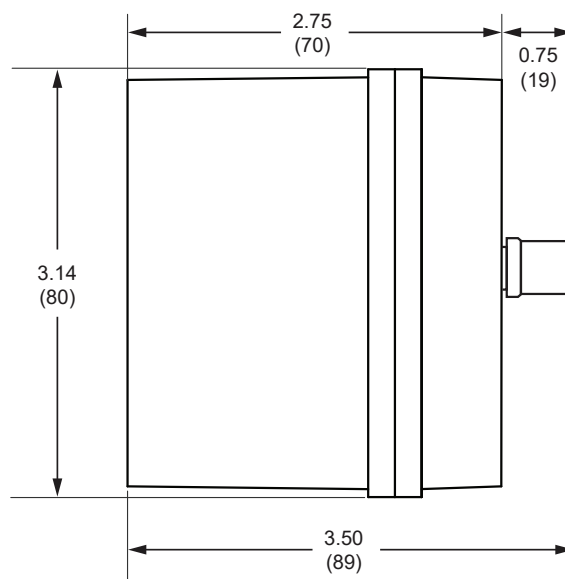
1. Panel cutout required: 2.9" x 1.6" (73 mm x 40 mm)
2. Panel thickness: must be greater than 0.06" (1 mm)
3. Snap-in-place bezel mounting requires no tools

PD421/61 NEMA 4X Dimensions

Units: Inches (mm)



Front View



Side View

SPECIFICATIONS

Except where noted all specifications apply to operation at +25°C.

Output Accuracy	± 0.5%
Output Ranges	4-20 mA or 3-21 mA
Display	0.3" (8 mm) high backlit LCD
Display Accuracy	0.01
Display Modes	Current, 0-100%, 0-50.0 Hz
Display Change Adjustment	User may program coarse and fine adjustments such that each pulse on the dial results in a change of between 1 and 50 counts on the display.
Front Panel	NEMA 1 (PD420 and PD460)
Enclosure	NEMA 4X (PD421 and PD461)
Decals	(2 each): %, mA, Open, Closed, and white background for the user to write a custom label.
Operating Temperature	0 to 50°C (32 to 122°F)
Storage Temperature	0 to 50°C (32 to 122°F)
Relative Humidity	0 to 90% non-condensing
Connections	Removable Screw Terminal Block
Power Requirement	15-30 VDC
Sampling Resistance	Less than 500 Ω
Panel Cutout	2.9" x 1.6" (73 mm x 40 mm)
Depth Behind Panel	1.0" (25 mm)
Mounting	Snap-in bezel; No tools required
Overall Dimensions	PD420 and PD460: 3.1" x 1.7" x 1.75" (80 mm x 42 mm x 44 mm) (W x H x D) PD421 and PD461: 4.33" x 3.14" x 3.50" (110 mm x 80 mm x 89 mm) (W x H x D)
Weight	PD420 and PD460: 1.6 oz (45 g) PD421 and PD461: 8.8 oz (249 g)
Warranty	1 year parts and labor. See Warranty Information and Terms & Conditions on www.predig.com for complete details.

ORDERING INFORMATION

Model	Description
PD420	Panel Mount 4-20 mA Set Point Generator
PD421	NEMA 4X 4-20 mA Set Point Generator
PD460	Panel Mount Valve Positioner
PD461	NEMA 4X Valve Positioner

Accessories

Model	Description
PDA2802	Plastic NEMA 4X Enclosure for 1 PD420/PD460
PDA2814	Plastic NEMA 4X Enclosure for 2 PD420/PD460
PDA2815	Plastic NEMA 4X Enclosure for 3 PD420/PD460
PDA6845-SS	Stainless Steel 2" Pipe Mount Kit for PDA2802, PD421, PD461
PDA6545-SS	Stainless Steel 2" Pipe Mount Kit for PDA2814, PDA2815

Your Local Distributor is:



WARNING

Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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