

# TopWorx™ PD Series Smart Valve Positioner

Models PD100 and PD200

Series  
**PD**

## General Description

The PD Series Smart Valve Positioner has a compact and robust design for both linear and rotary actuators and can be used in applications with either single or double acting actuators. The PD series provides precise valve feedback and data as well as complete control of the valve, while maintaining plant efficiency and safety in any process application.



## Features & Benefits

- Hall-effect, contactless position sensing
- Feedback through 4-20mA and discrete signals
- HART® Capable with configurable alarms
- Autocalibration features
- Mechanical & magnetic buttons for easy operation
- Local user interface with Liquid Crystal Display
- Easy to install – can be mounted at any angle
- Mounting options for both rotary and linear applications

## Specifications

Operating Specifications	PD100	PD200
Certifications	<b>General Purpose</b> Type 4X <b>Non-Incendive (Pending)</b> Class I, Div 2, Groups A, B, C & D; Class II, Div 2, Groups F & G; Class III Ex ec nC IIC T4 Gc; Tamb -40°C to +65°C IP66, Type 4X	<b>Intrinsically Safe (Pending)</b> Class I, Div 1, Groups A, B, C & D; Class II, Div 1, Groups F & G; Class III Ex ia IIC T4 Ga; IIIC T4 Da; Tamb -40°C to +75°C IP66, Type 4X
Communications Protocol	4-20 mA (nominal)	4-20 mA (nominal) and HART Capable
Configurable Alarms	No	Yes
Minimum Voltage	8.5 VDC for analog control 9.0 VDC for HART communication	8.5 VDC for analog control 9.0 VDC for HART communication
Oversupply	36 VDC	36 VDC
Voltage Drop	12.2 VDC @ 4mA/24 VDC	12.2 VDC @ 4mA/24 VDC
Input Impedance	470 ohms @ 20mA/24 VDC	470 ohms @ 20mA/24 VDC
Output Impedance (Feedback)	800 ohms @ 20mA/24 VDC	800 ohms @ 20mA/24 VDC
Actuator Signal	0% to 100% of the supply pressure	0% to 100% of the supply pressure
Stroke Range	Linear: 12 to 200 mm Rotary: 0° to 120°	Linear: 12 to 200 mm Rotary: 0° to 120°
Hysteresis	1.5% of Full Scale	1.5% of Full Scale
Repeatability	1.5% of Full Scale	1.5% of Full Scale
Linearity	0.8% of Full Scale	0.8% of Full Scale
Temperature Range	-40°C to +65°C (-40°F to +149°F)	-40°C to +75°C (-40°F to +167°F)
Electrical Connection	1/2" NPT female	1/2" NPT female
Pneumatic Connection	1/4" NPT female (Inlet & Outlet)	1/4" NPT female (Inlet & Outlet)
Air-Supply Pressure	2.8 to 8 bar (40 to 116 psi)	2.8 to 8 bar (40 to 116 psi)
Output Air Consumption	8.8 l/m   0.5N m³/h   0.31 scfm @ 60 psi   4 bar   0.6 cv	8.8 l/m   0.5N m³/h   0.31 scfm @ 60 psi   4 bar   0.6 cv

# TopWorx™ PD Series Smart Valve Positioner

Models PD100 and PD200

Series  
**PD**

## Specifications

Physical Specifications	PD100	PD200
Display Type	Liquid Crystal Display (LCD) 4 numeric digits	Liquid Crystal Display (LCD) 4 .5 numeric & 6 alphanumeric digits
Local Controls	3 mechanical buttons Up, Down, & Enter	3 mechanical & 3 magnetic buttons Up, Down, & Enter (Includes magnetic key for operation without removing cover)
Actuator Action	Rotary & Linear, Single & Double, Direct (DA) & Reverse (RA)	Rotary & Linear, Single & Double, Direct (DA) & Reverse (RA)
Enclosure & Cover	Thermoplastic Composite	Thermoplastic Composite
Actuator Mounting Base	Aluminum	Aluminum
Manifold	ZAMAC	ZAMAC
Seals	Fluoroelastomer	Fluoroelastomer
Net Weight - With Manifold	2.2 kg (4.8 lbs.)	2.3 kg (5.1 lbs.)

## Ordering Information

Nomenclature guide below. Choose codes for desired features(s). Not all feature combinations are compatible.  
Please consult TopWorx or Online "Configure Your Product" guide at [www.topworx.com](http://www.topworx.com) for confirmation.

## Codification

Model	PD200	-	H	S	N	G	K3	00	00	-	ES	
<b>Model</b>												
<b>PD100</b> Positioner with standard Controls											<b>Regional Certifications</b>	
<b>PD200</b> Positioner with enhanced controls											Blank No Regional Certifications	
<b>Input &amp; Communication</b>												
<b>C</b> 4-20mA (PD100 only)											<b>Hazardous Area Classification</b>	
<b>H</b> 4-20mA with HART® 7 (PD200 only)											<b>GP</b> General Purpose (PD100 Only)	
											<b>EN</b> Non-Incendive (PD100 Only)	
											<b>ES</b> Intrinsically Safe (PD200 Only)	
<b>Feedback Output</b>												
<b>F</b> Isolated position feedback transmitter 4-20mA (PD100 only)											<b>Options</b>	
<b>S</b> Isolated position feedback transmitter 4-20mA plus two mechanical switches for alarms (PD200 only)											<b>00</b> No additional options	
<b>Connection</b>												
<b>N</b> Single conduit entry 1/2" NPT / Pneumatic manifold with 1/4" NPT											<b>Actuator Mounting Bracket</b>	
											<b>00</b> No Mounting Bracket (Sold Separately)	
<b>Manifold</b>												
<b>G</b> Pneumatic Manifold with two pressure gauges (PSI)											<b>Type of Actuator</b>	
											<b>RN</b> Rotary NAMUR adapter	
											<b>K3</b> Linear feedback lever 12-120mm	
											<b>K4</b> Linear feedback lever 80-200mm	

TWMD0001-R5



2 **EMERSON**

Visit our website at [Emerson.com/TopWorx](http://Emerson.com/TopWorx)

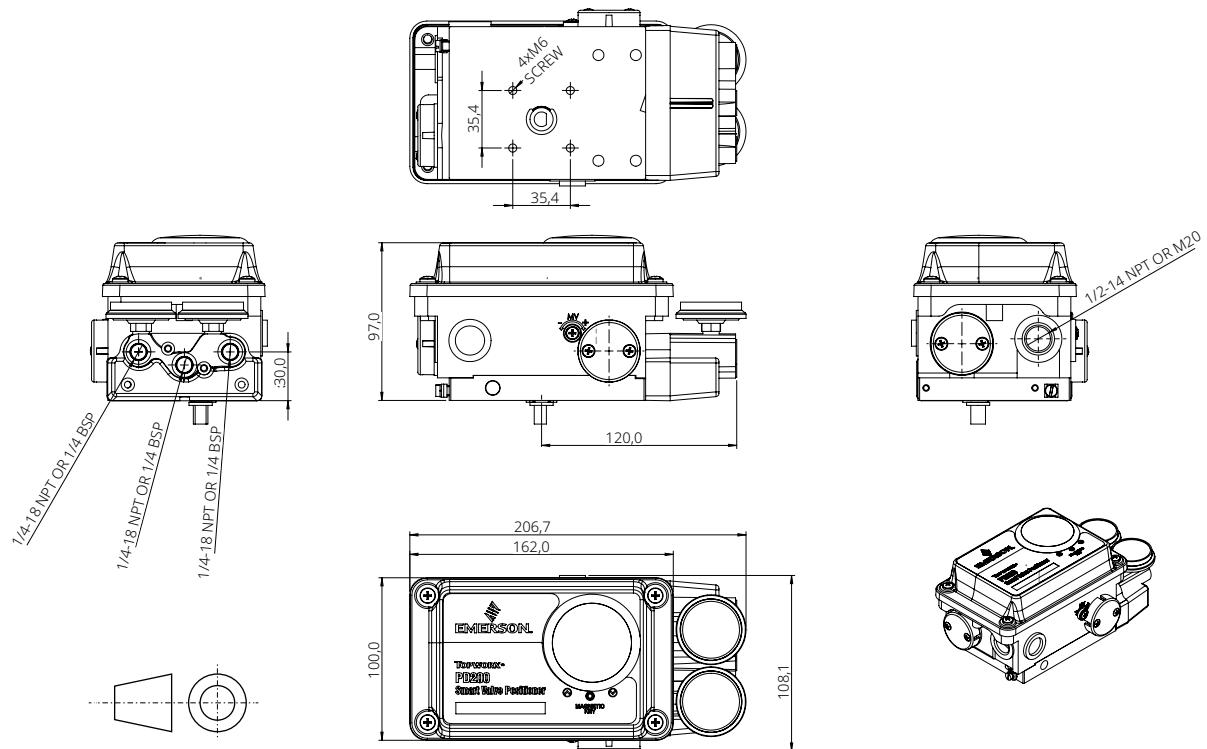
**TOPWORX™**

# TopWorx™ PD Series Smart Valve Positioner

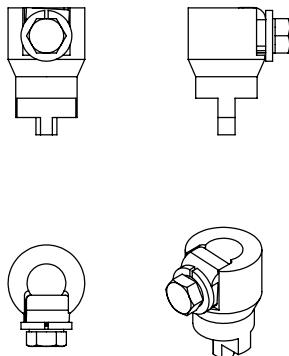
Models PD100 and PD200

Series  
**PD**

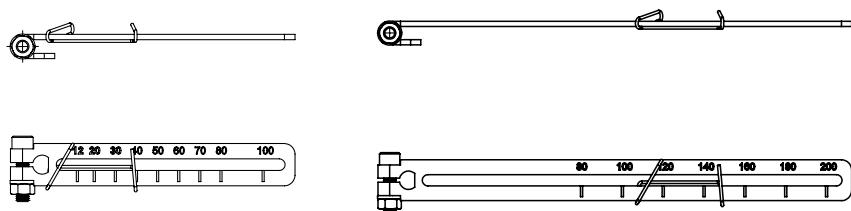
## Dimensions in mm



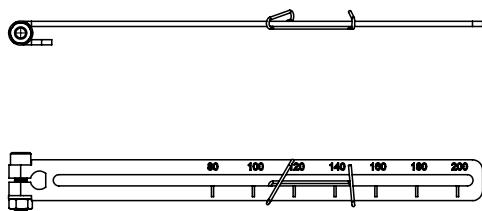
## Actuator Adaptor Options



RN - Rotary NAMUR Adaptor



K3 - Linear Adaptor (12 - 120mm)



K4 - Linear Adaptor (80 - 200mm)

# TopWorx™ PD Series Smart Valve Positioner

Models PD100 and PD200

Series  
**PD**

## Model Comparison Chart



Features	PD100	PD200
General Purpose certification	•	•
Non-incendive certification (Ex n)	•	
Intrinsically Safe certification (Ex i)		•
Digital technology with hall-effect continuous sensing	•	•
Analog 4-20mA input signal	•	•
4-20mA feedback position transmitter	•	•
HART® communication protocol		•
Configurable Position Alarms		•
Setup using mechanical push buttons	•	•
Setup using magnetic keys (without removing outer cover)		•
Digital display (LCD) with 4 numeric digits	•	
Digital display (LCD) with 4.5 numeric & 6 alphanumeric digits		•
Position indication 0% to 100%	•	•
Linear and rotary valve compatibility	•	•
Linear stroke range 12mm to 200mm (0.47 to 7.87 inches)	•	•
Rotary angle range 0° to 120°	•	•
Included rotary or linear actuator adaptors	•	•
Included manifold with two pressure gauges	•	•
Modes	PD100	PD200
Autocalibration	•	•
Calibration Setup: Tune, Auto, & Full	•	•
Display Choices: Setpoint, feedback position (mA or %), position / SP or MV%		•
Operating Range: Range, zero, & span adjustment		•
Split range: 4-12mA / 12-20mA		•
PID Adjustment: Proportional Gain (KP), Integral Time (TR) & Derivative Time (TD)	•	•
Position alarm setting and options		•
Valve Action : Direct or Reverse setup		•
Manual or auto operation modes		•
Valve Characterization Curve: Linear		•
Valve Characterization Curve: Equal Percentage - EP25, 33, & 50		•
Valve Characterization Curve: Quick Opening - QO25, 33, & 50		•
Adjustable input trim to correct small variations in 4-20mA signal vs. position %	•	•
Lock Function: Block unwanted setting changes (local & remote)		•
Opening & closing valve time indication		•
Adjustable delay time for calibration.	•	•
Configure air pressure effect on valve action		•
Factory reset option		•

TWMD0001-R5



4 **EMERSON**

Visit our website at Emerson.com/TopWorx

**TOPWORX™**