FLOWSERVE

PMV™ D20
Smart Digital Positioner

A compact, reliable and precise single-acting smart positioner that's easy to use

Experience In Motion

Our mission: continuous improvement in flow management

Flowserve offers a range of intelligent flow control solutions for almost every application, works with different industries to master varied and challenging conditions, and helps to provide a process solution that keeps operations safe, efficient and profitable. Industries we serve include oil and gas, pulp and paper, power, chemicals, wastewater management and many more. Today, Flowserve employs more than 16,000 people and has a presence in more than 50 countries around the world, including over 160 Quick Response Centers that provide aftermarket parts and services to customers.

The PMV D20 digital positioner offers reliable and precise valve control, yet setup and calibration are quick and easy.

Precise, smart and easy to use

The PMV D20 smart digital positioner offers reliable and precise control — even on the smallest valves — in a rugged, compact package. A one- or two-button auto calibration feature tunes the D20 positioner in seconds; just set it and forget it. Based on proven digital technology, the unit features a unique intelligent control algorithm that includes a piezo-driven large poppet with a hall sensor that detects the poppet's position and provides precise control. Built-in self-diagnostics help keep the unit functioning reliably by alerting you to potential concerns before they become bigger problems.

The D20 positioner is designed for use with linear or rotary actuators in single-acting applications. Its simple, rugged design makes it an ideal replacement for legacy analog positioners, enabling a smooth transition to digital technology. A simple human-machine interface (HMI) — including a graphical LCD screen and LEDs — allows local operation, configuration and calibration. Plug-in modules for limit switches are available. ValveSight™ software enables optimization and predictive maintenance, reducing costs while improving service levels.

Up and running in minutes

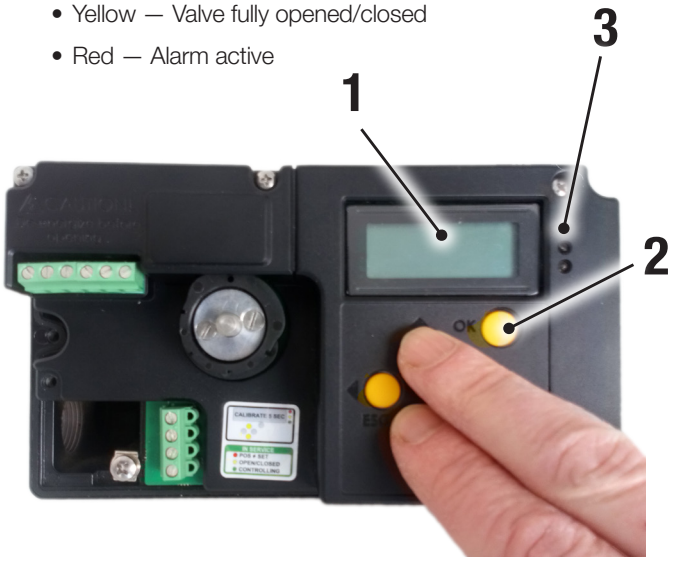
The PMV D20 positioner features proven technologies, including a spring-loaded spindle with a friction clutch for easy and flawless installation, combined with modern control processors and a full-text LCD display.

Innovative, reliable digital technologies

- **Spring-loaded, solid metal shaft —** Eliminates play and improves control accuracy
- **Friction clutch for position sensor —** Enables shaft to freely rotate 360° without sensor damage
- **Easy to use —** Quick setup, configuration and calibration
- **Language options —** Capability to program in 8 languages
- **Sturdy cover with indicator —** Ensure durability and visibility

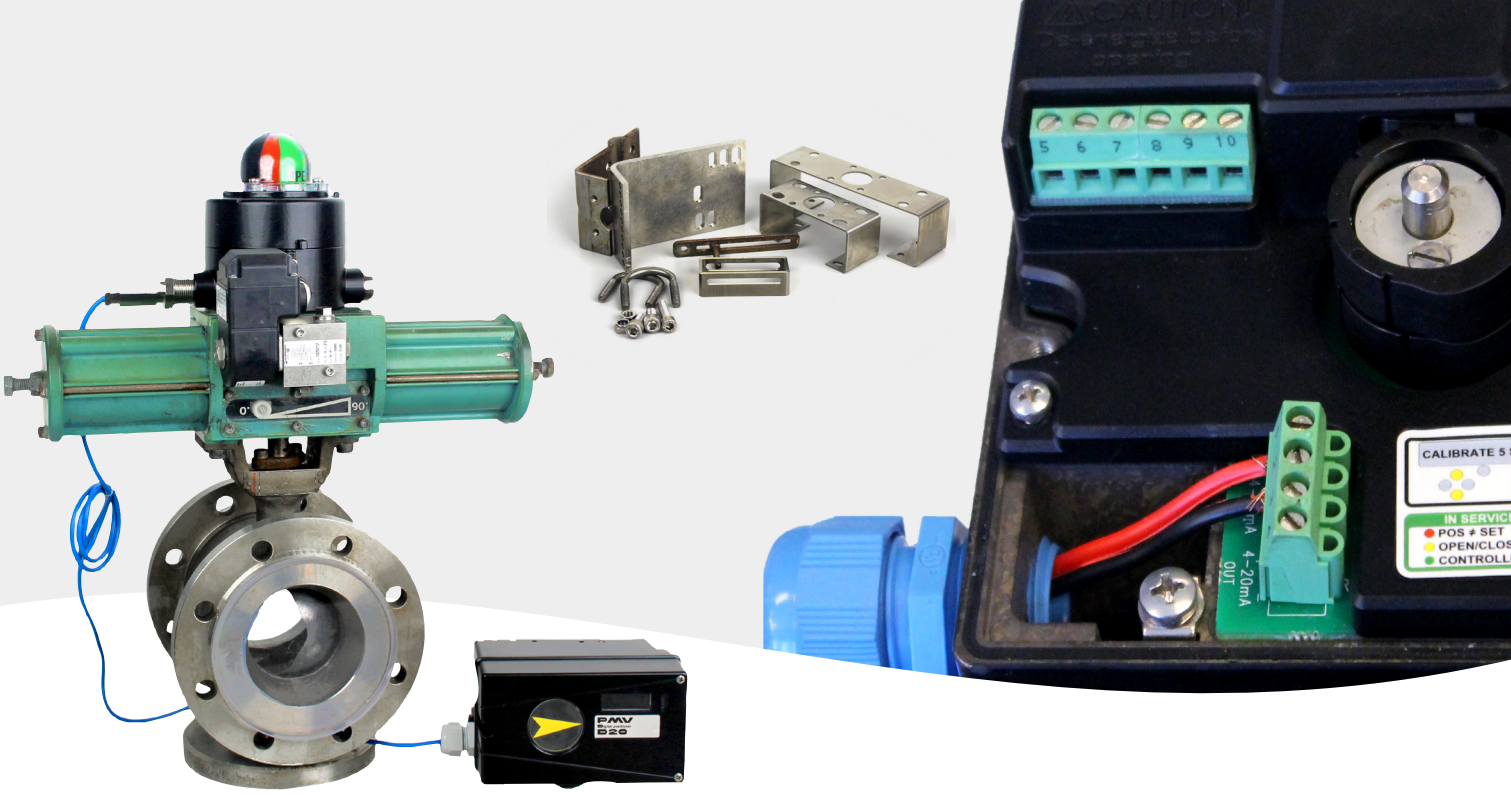
Auto-calibration in less than a minute

1. LCD with 5 buttons for simple menu navigation (D22 model)
2. Depending on the model, a one- or two-button auto-calibration feature accurately calibrates the unit in an instant.
3. LEDs immediately signal the following conditions:
   - Green — Normal operation
   - Yellow — Valve fully opened/closed
   - Red — Alarm active



Options to suit application needs

- 4-20 mA position transmitter
- HART, Profibus PA and Foundation Fieldbus
- Bolt-on gauge block
- Direct- and remote-mounting versions
- Plug-in limit switches
- Included free: DTM, ValveSight



Mounting kits

Flowserve offers a variety of mounting kits and accessories to enable a perfect fit for all major types of valve controllers. Mounting options include brackets and direct mounting for rotary and linear applications.

Plug-in limit switches

Limit switches to indicate open or closed position can be added to the PMV D20 positioner at any time. You can choose from single pole, double throw (SPDT) mechanical or proximity switches and NAMUR 2 wire sensors.

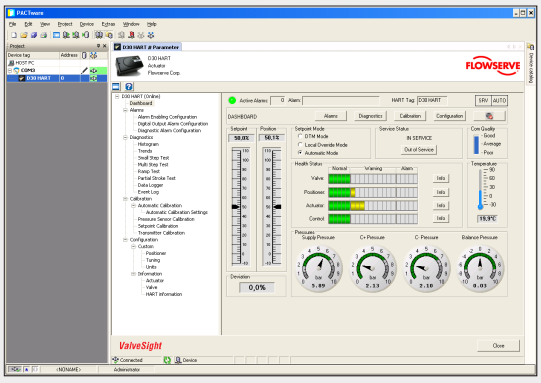
Remote mounting

Remote mounting is an ideal solution for demanding process conditions such as extreme temperatures, vibration or dusty environments. It's also beneficial for long-stroke linear valves or valves installed in locations that are difficult to access. The maximum suggested distance is 10 m (33 ft) between the remote sensor and the D20 positioner.

Make your operation more profitable and easier to manage with ValveSight software

ValveSight software is a proactive, FDT/DTM-based diagnostic solution for process and control valves. It can be integrated into a DCS or AMS system, improving system efficiency without compromising safety and reliability.

This user-friendly and charge-free software monitors the valve assembly 24/7. Data is saved and stored inside the positioner, can be retrieved at any time, and is not lost if there's a loss of input signal or power. Data is divided into online and offline diagnostics.

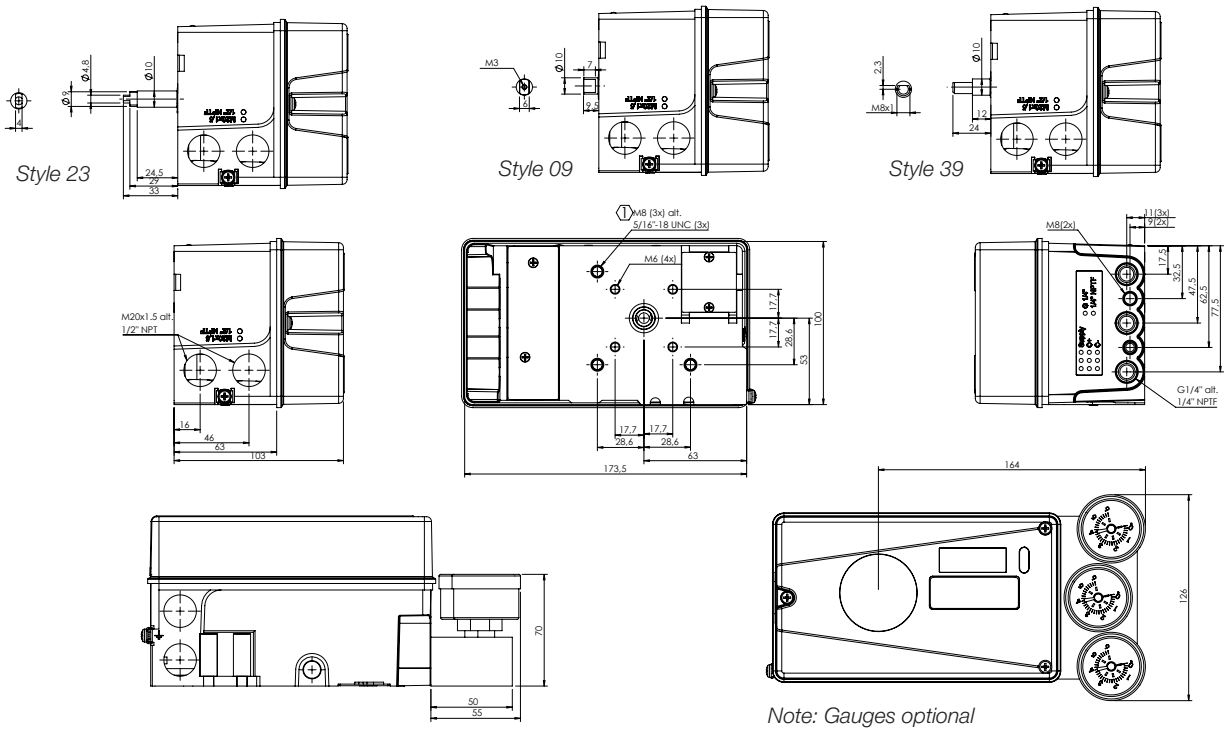


ValveSight monitors the health of the valve, actuator, positioner and control signal, displaying data in an easy-to-understand bar graph scale. Offline step and ramp tests enable you to check the valve's performance and stroke times.

ValveSight integrates seamlessly with your existing host system using open standards and can be retrofitted to existing control valves.

Technical information

Dimensions, mm



Optional plug-in modules

Mechanical switches	
Type	SPDT
Size	V3
Rating	3 A/125 VAC; 2 A/30 VDC
Temperature range	-40°C to 85°C (-40°F to 185°F)

NAMUR sensors	
(NJ2-V3-N on RHS)	
Type	Proximity DIN EN 60947-5-6:2000
Load current	1 mA ≤ I ≥ 3 mA
Voltage range	8 VDC
Hysteresis	0.2%
Temperature range	-25°C to 85°C (-13°F to 185°F)

Proximity switches	
Type	SPDT
Rating	0.4 A @ 24 VDC, Max 10 W
Operating time	Max 1.0 ms
Max voltage	200 VDC
Contact resistance	0.2 Ω
Temperature range	-30°C to 80°C (-22°F to 180°F)

Slot NAMUR switches	
(SJ2-N, SJ2-SN)	
Type	Proximity DIN EN 60947-5-6:2000
Load current	1 mA ≤ I ≥ 3 mA
Voltage	8 VDC
Hysteresis	0.2%
Temperature range	-25°C to 85°C (-13°F to 185°F)

4-20 mA transmitter	
Supply	11 to 28 VDC
Output	4-20 mA
Resolution	0.1%
Linearity full span	+/- 0.5%
Output current limit	30 mA DC
Load impedance	800 Ω @ 24 VDC

Specifications and certifications

Specifications

Rotation angle	min 25°; max 100°
Stroke	From 5 mm (0.2 in.)
Input signal	4-20 mA DC
Air supply	1.4 to 6 bar (20 to 85 psi) DIN/ISO 8573-1 3.2.3 Free from oil, water and moisture.
Air delivery	7 Nm^3/h @ 6 bar (4.12 SCFM @ 85 psi)
Air consumption	0.12 Nm^3/h at 6 bar (0.071 SCFM @ 85 psi)
Air connections	½ in. NPT
Cable entry	2x M20x1.5 or ¼ in. NPT
Electrical connections	Screw terminals 2.5 mm^2 AWG14
Linearity	< 0.4%
Repeatability	< 0.5%
Hysteresis	< 0.3%
Deadband	0.1 to 10% adjustable
Display	Graphic, view area 15 x 41 mm (0.6 x 1.6 in.)

UI	Single-button UI with LED; single-button UI with LED and LCD; or five-button UI with LED and LCD
CE directives	2014/30/EU (EMC) 2014/35/EU (certain voltage limit) 2014/34/EU (ATEX) EEC
Voltage drop, without HART	8 V
Voltage drop, with HART	9.4 V
Vibrations	< 0.25% FS 10 to 500 Hz, 2g max
Enclosure	IP66/NEMA 4X
Material	Die-cast aluminum
Surface treatment	Powder coating, polyester
Temperature range	-40°C to 80°C (-40°F to 176°F)
Weight	1.8 kg (4 lbs)
Mounting position	Any
Communication protocols	Hart Profibus PA Foundation Fieldbus

Safety certifications

The PMV D20 positioner is approved for installation in hazardous areas, including intrinsically safe and non-incendive applications:

- ATEX
- CCC
- SIL 3
- FM
- INMETRO

For a complete list of certificates, please contact your local PMV representative or visit www.pmv.nu.

Model code*

Example code:

A	A	A	B	C	D	E	-	F	G	G	H	H	H	-	I	J	K	L	M	N

For latest version of valid model code, please see www.pmv.nu

A =	**Model number**			
	D20	Single-button interface, LED status		
	D21	Single-button interface, LED status and LCD		
	D22	Full LCD menu, five-button UI, LED status		
B =	**Approval, certificate**			
	D	General purpose version		
	A	Intrinsically safe Ex ia ATEX		
	B	Intrinsically safe Ex ia INMETRO		
	N	Intrinsically safe Ex ia CCC		
	M	Intrinsically safe Ex ia CCOE		
	F	Intrinsically safe Ex ia FM		
C =	**Function**			
	S	SA D20 E/P (poppet valve)		
D =	**Connections air, electrical**			
	M	¼ in. NPT air, M20x1.5 electrical		
	N	¼ in. NPT air, ½ in. NPT electrical		
E =	**Connection feature**			
	2	2 electrical conduits		
	T	2 electrical conduits, threaded auxiliary ventilation optional		
F =	**Housing material/surface treatment**			
	U	Aluminum/powder coating		
G =	**Mounting options/shaft**			
	0	9	Double D type, adaptor spindle	
	1	2	Flowtop, direct mounting, D4-As909m (D20) included	
	2	3	VDI/VDE 3845 rotary, mounting kit not included	
	3	0	½ in. square (adapter shaft; select among 06, 26, 30, 36 and 43)	
	3	9	IEC 534-6, Flat D type, nut included; mounting kit not included	
H =	**Cover and indicator**			
	P	V	A	PMV, black cover, arrow indicator
	P	V	B	PMV, black cover, no indicator
	F	W	A	Flowserve, white, arrow indicator
	F	W	B	Flowserve, white, no indicator
I =	**Temperature/seals**			
	Z	-40°C (-40°F)		
J =	**Input signal/protocol**			
	4	4-20 mA/none		
	5	4-20 mA/HART		
	P	Profibus PA (D22 only; not when K = T)		
	F	Foundation Fieldbus (D22 only; not when K = T)		
K =	**Feedback option, switches**			
	X	No feedback option		
	T	4-20 mA transmitter only (J = 4 and 5)		
	S	Limit switches mechanical SPDT		
	N	NAMUR V3-type sensor, P+F NJ2-V3-N		
	P	Limit switches proximity SPDT		
	5	Slot-type NAMUR sensor, P+F SJ2-SN		
	6	Slot-type NAMUR sensor, P+F SJ2-N		
L =	**Options, add in electronics**			
	0	No pressure sensors		
M =	**Accessories**			
	X	No accessories		
	N	Gauge block ¼ in. NPT (2 gauges included)		
N =	**Special options**			
	N	No special options		

*Note: Contact us for valid combination.

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