



General

The D3 is a digital valve positioner with exceptional features and benefits. The computer-optimised pneumatic relay with piezo-electric valves offers great dynamic performance together with very low steady state air consumption. All information is presented on a large graphic display and configuration is simple from five large push buttons or via HART® and Profibus PA communication.

The combination of these features result in lower energy consumption and considerable savings, while maintaining a high degree of valve performance.

IP66/NEMA 4X



Sealed electrical compartment.

The strong, die-cast housing is treated with a powder epoxy, which offers an effective protection against corrosion and mechanical damage. Additionally, the cover has a special design to protect the graphic display. The electrical connection is provided with terminals located in a separate sealed area, for protection of the electronics in case of a leakage in the conduit entry.

Easy installation



The spindle can easily be changed by using two screw drivers.

D3 is quickly and easily installed since it features a split spindle design and a friction coupling for the feedback sensor. This means that D3 can quickly and simply be made to suit almost any actuator and it doesn't need to be installed in a specific position when mounted to the actuator. PMV offer a great variety of mounting kits to most actuators found on the market.

Linear



Rotary



Versions/Options

D3 Intrinsically Safe

The D3 is available in an intrinsically safe version for installation in hazardous areas. It features the same easy to use user interface for local configuration as D3. Communication with HART® or Profibus PA is possible. It features all benefits and options similar to the Standard D3 positioner, gauge block, local graphic LCD display and feedback option etc.



D3 Explosion Proof

The digital positioner D3 is available in explosion proof enclosure. It features the same easy to use user interface for local configuration as D3. Communication via HART® or Profibus PA is possible. Further features are gauge ports local graphic LCD display, and a built in 4–20mA position transmitter.



D3 Remote Mounted

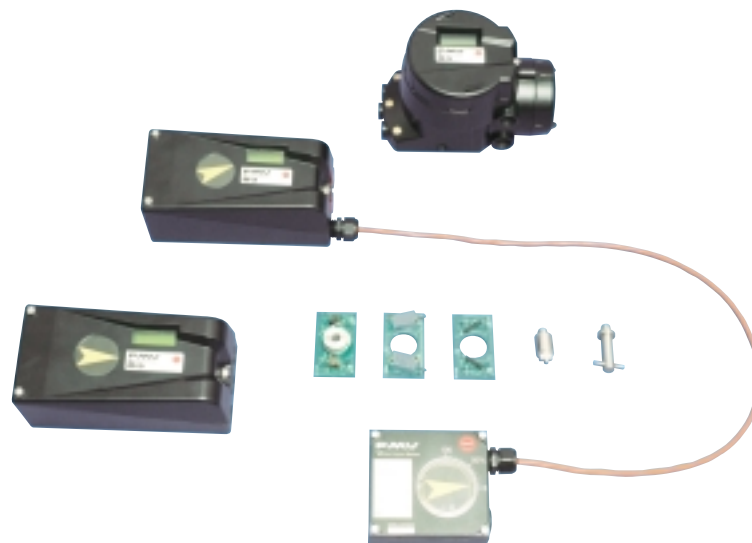
The D3 with remote mount is suitable for installations in severe applications e.g. heavy vibrations, high or low temperature corrosive environment, difficult of access, etc. A flat or dome style indicator can be fitted on the feedback box installed on the actuator. Max recommended distance between D3 and remote unit is 5 m.

D3 270°

D3 up to 270° for extended travel range. All Pmv D3 versions are available with a 270° option.

Feedback

The D3 can be equipped with an optional feedback plug in module, which can contain switches or Namur sensors, and a 4–20 mA transmitter. Installation may be done at the factory or in the field.

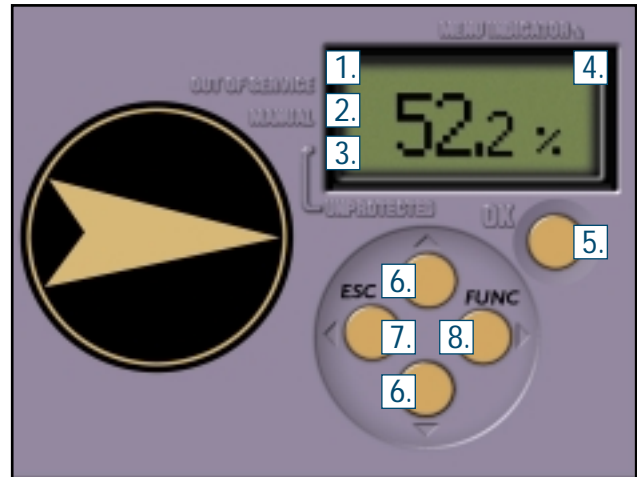


UI – User Interface

Engineers at PMV have gone to great effort in the design of a simple, easy to understand UI-User Interface. A large graphic display and five keys for configuration makes the D3 simple to operate. The menu position indicator shows you how far you are in the menu structure. All information is presented clearly in text form in the display. The display itself is visible with cover installed. If the positioner is mounted upside down the display can be "flipped". The menu offers you the possibility to simply set or change, among other things, the following parameters;

Function	Direct or Reverse
Actuator	Rotary or Linear
Split range	From 0% to 100%
Action	Linear, Quick opening, Equal percent or to create your own cam curve, up to 33 points.

**Travel Limits or Cut off
Language on the display**



- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Out of Service – Cancels setpoint and allows changes to positioner parameters. 2. Manual – Allows for manual selection of setpoint. Press Esc to hold valve position. 3. Unprotected – The positioner is not write protected. All parameters can be changed when the positioner is unprotected. 4. Heading Position – Indicates the position of shown heading within a level. | <ul style="list-style-type: none"> 5. Ok – Confirms choices or changes of parameters. Performs as an "enter" key. 6. Up and Down buttons – To scroll menus, enter values and operate the valve in manual mode. 7. Esc – Escapes the menu level without any unconfirmed changes. 8. Func – Used to select a heading or function. Press the FUNC-key to enable editing of parameters. |
|---|---|

The menu structure is divided into two parts: “Basic menu” and “Full menu”.

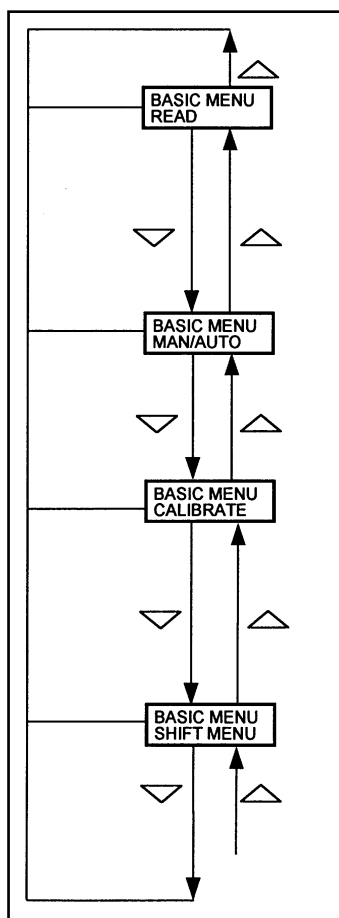
The “Basic Menu” offers you what is needed for set up and auto calibration while the “Full Menu” provides the possibility for further adjustments of the control parameters or set alarms.

When installed on an actuator, simply run the auto calibration procedure, and the D3 will set and optimize the control parameters for best dynamic performance. The friction clutch for the feedback sensor ensures that the feedback element is always in the correct position.

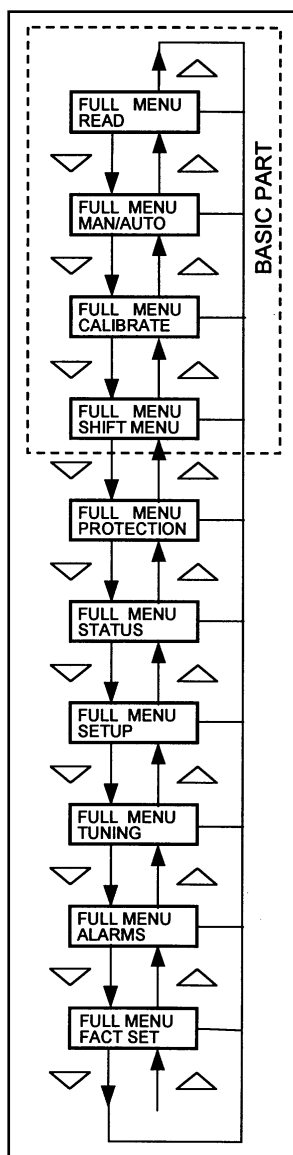
The keyboard can be locked to prevent non-authorized personal from making adjustments. Passwords can be set to access various levels of the menu.

At any time the D3 can be returned to “factory settings” by selecting the FACT SET function within the full menu.

Basic Menu



Full Menu

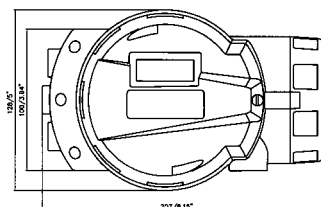
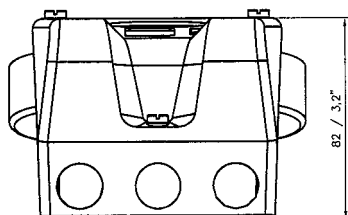
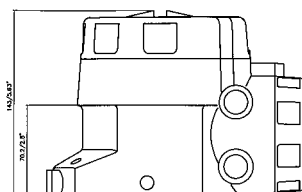
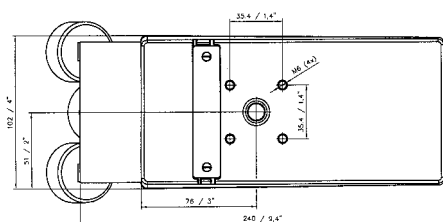
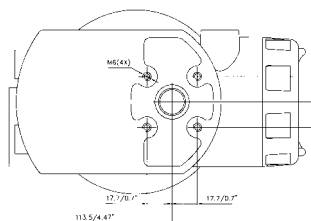
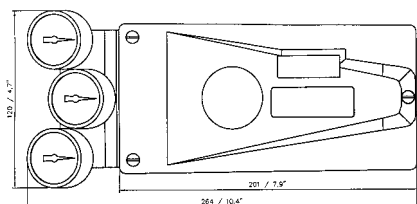


Display visible through cover

Communication

D3 is available with HART® and Profibus PA protocol for bi-directional communication, enabling remote configuration and initialisation from PC or a HART® communicator. Drivers are available for AMS software.

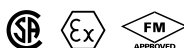
Dimensional Drawings



D3X, D3I

D3E

Hazardous Locations



Intrinsically safe: ATEX EEX ia IIC T4 Ex II 1 G D
 CSA, FM Div.1, Class 1 Group C,D, Class II Group E,F,G, Class III

Explosion proof: ATEX EEX d IIB+H₂, T6 Ex II 2 G D
 Div.1, Class 1 Group B,C,D, Class II Group E,F,G, Class III
 For use with natural Gas
 D3E. CL. 1 DIV. 1C. D T5
 Certified: CSA C22.2 No 30.142

Rotation angle	min. 30° max. 100°
Stroke	5–130 mm (0.2" to 5.1")
Input signal	4–20mA
Air supply	2–7 bar (30–105 psi) Free from oil, water & moisture, filtered to min. 30 micron.
Air delivery	400 nl/min (13.8 scfm)
Air consumption	<0.3 nl/min (0.01 scfm)
Air connections	1/4" G or NPT
Cable entry	3 x M20 x 1.5 or 1/2" NPT
Electrical connections	Screw terminals 2.5 mm ² /AWG14
Linearity	<1%
Repeatability	<0.5%
Hysteresis	<0.4%
Dead band	0,2–10% adjustable
Display	Graphic, view area 15 x 41 mm (0.6 x 1.6")
UI	5 push buttons
Processor	16 bit, M 16C
CE directives	93/68EEC, 89/336/EEC, 92/31/EEC
EMC	EN 50 081–2, EN 50 082–2
Voltage drop	<10,1V
Vibrations	<1% up to 10g at frequency 10–500 Hz
Enclosure	IP66/NEMA 4X
Material	Die-cast aluminium, A2/A4 fasteners
Surface treatment	Powder epoxy
Temperature range	–30 to +80 °C (–22 to 176 °F)
Weight	D3X, 1.4 kg (3 lbs) – D3E, 3 kg (6.6 lbs)
Alarm output	Transistor Ri 1KΩ
Alarm Supply Voltage	8–28V

Mechanical Switches

Type	SPDT
Size	Sub Sub miniature
Rating	100mA/30VDC/42VAC

Namur Sensors

Type	Proximity DIN 19234 NAMUR
Load Current	≤1mA ≥3mA
Voltage range	5–25 VDC
Hysteresis	0,2%
Temp	–20°C to 85°C (–4°F to 185°F)

Proximity Switches

Type	SPDT
Rating	100mA/30VDC/42VAC
Operating time	0,7ms
Breakdown voltage	200V DC
Contact resistance	0,1Ω
Mechanical/electrical life	> 50x10 ⁶ operations

4–20 mA Transmitter

Supply	9–28VDC
Output	4–20 mA
Resolution	0,1%
Linearity full span	+/- 0,5%
Output current limit	30 mA DC
Load impedance	800Ω @ 24VDC

How to order

			Mark your choice
1. Model	D3X	Digital positioner with display	<input type="checkbox"/>
	D3I	Digital positioner with display, Intrinsically safe	<input type="checkbox"/>
	D3E	Digital positioner with display, explosion proof	<input type="checkbox"/>
2. Connections	G	1/4" G Air, M20 x 1.5 electrical	<input type="checkbox"/>
	N	1/4" NPT Air, 1/2" NPT	<input type="checkbox"/>
3. Surface treatment	U	Powder epoxy	<input type="checkbox"/>
4. Function	S	Single acting	<input type="checkbox"/>
	D	Double acting	<input type="checkbox"/>
	C	Single acting, remote mounted	<input type="checkbox"/>
	R	Double acting, remote mounted	<input type="checkbox"/>
5. Spindle	01	S01–S39	<input type="checkbox"/>
6. Cover and indicator	PVA	Standard PMV, 90 deg, arrow indicator*	<input type="checkbox"/>
	PVB	Extended travel, max 270 deg	<input type="checkbox"/>
7. Temperature/seals	Z	NBR –30 to 80 deg C (–22 to 176 deg F)	<input type="checkbox"/>
8. Input signal/protocols	4	4–20 mA	<input type="checkbox"/>
	5	4–20 mA HART® protocol	<input type="checkbox"/>
	P	Profibus PA	<input type="checkbox"/>
	F	Foundation Fieldbus	<input type="checkbox"/>
9. Feedback option	X	No option	<input type="checkbox"/>
	T	Transmitter only. No switches.	<input type="checkbox"/>
	S* ^F	Limit switches Mechanical –4–20 mA	<input type="checkbox"/>
	N* ^F	Limit sensors Namur –4–20 mA	<input type="checkbox"/>
	P*	Limit switches Proximity –4–20 mA	<input type="checkbox"/>
10. Accessories	X	No accessories	<input type="checkbox"/>
	M*	Gauge Block	<input type="checkbox"/>

* Not available for D3E

^F Not for PVB option



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