

D3 Digital Positioner



Single and double-acting

High air delivery
- low air consumption

Clear graphic display

Robust die-cast
aluminum housing

NEMA 4X, IP 66

Linear and rotary

Position indicator

Easily accessible,
replaceable air filter



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 low steady state air consumption. All information is presented on a large graphic display and configuration is simple with five large push buttons.

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

Environmentally tough

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.



Sealed electrical compartment.

Easy installation

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 the correct position when mounted to the actuator.

PMV offer a great variety of mounting kits to most actuators found on the market.



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

Versatile

Linear



Rotary



Function

High air delivery – Low air consumption

Many hours of development work has gone into the pneumatic relay, which has been optimised in a in-house developed computer program.

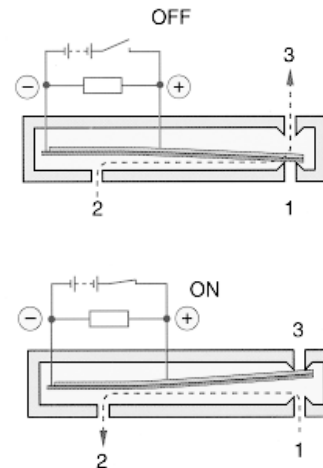
The relay contains two piezo electric elements, which control “poppet” valves. This technology provides both high air delivery capacity and a low air consumption at steady state, two qualities that are hard to combine with conventional technologies.

The relay is constructed of glass fibre reinforced resin, to offer high corrosion resistance and long service life.

Two built in, easy to adjust damper screws allows D3 to be installed on the smallest actuators despite its high air delivery capacity.

The two piezo elements are protected by an easily replaceable secondary filter.

Piezo-electric elements



The core is a piezo-electric ceramic element, which is built in several layers. When voltage is applied, this element bends a few hundredths of a millimeter, which allows air to flow through the piezo-electric valve through port 1 to port 2.

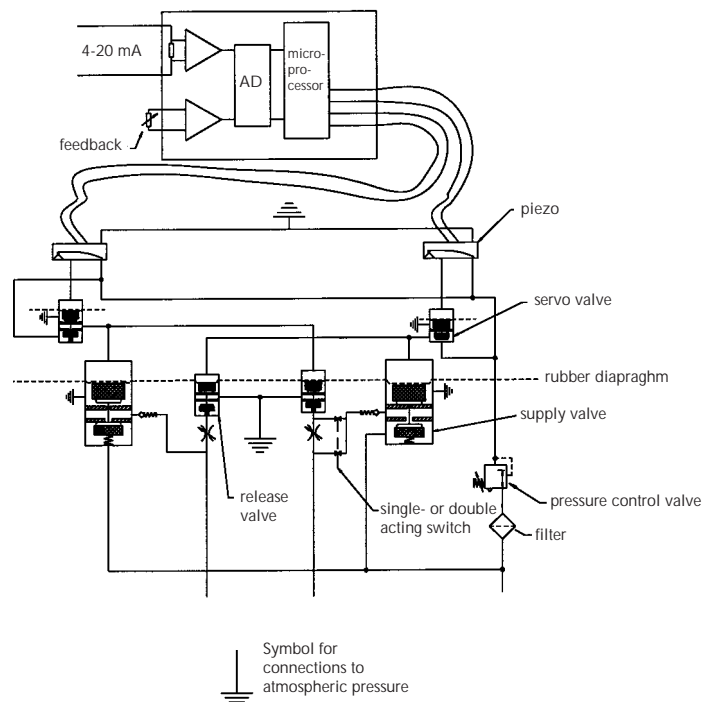
Pneumatic Block

The pneumatic block contains “poppet” valves that are controlled by piezo electric elements, all in a glass fibre reinforced resin enclosure.

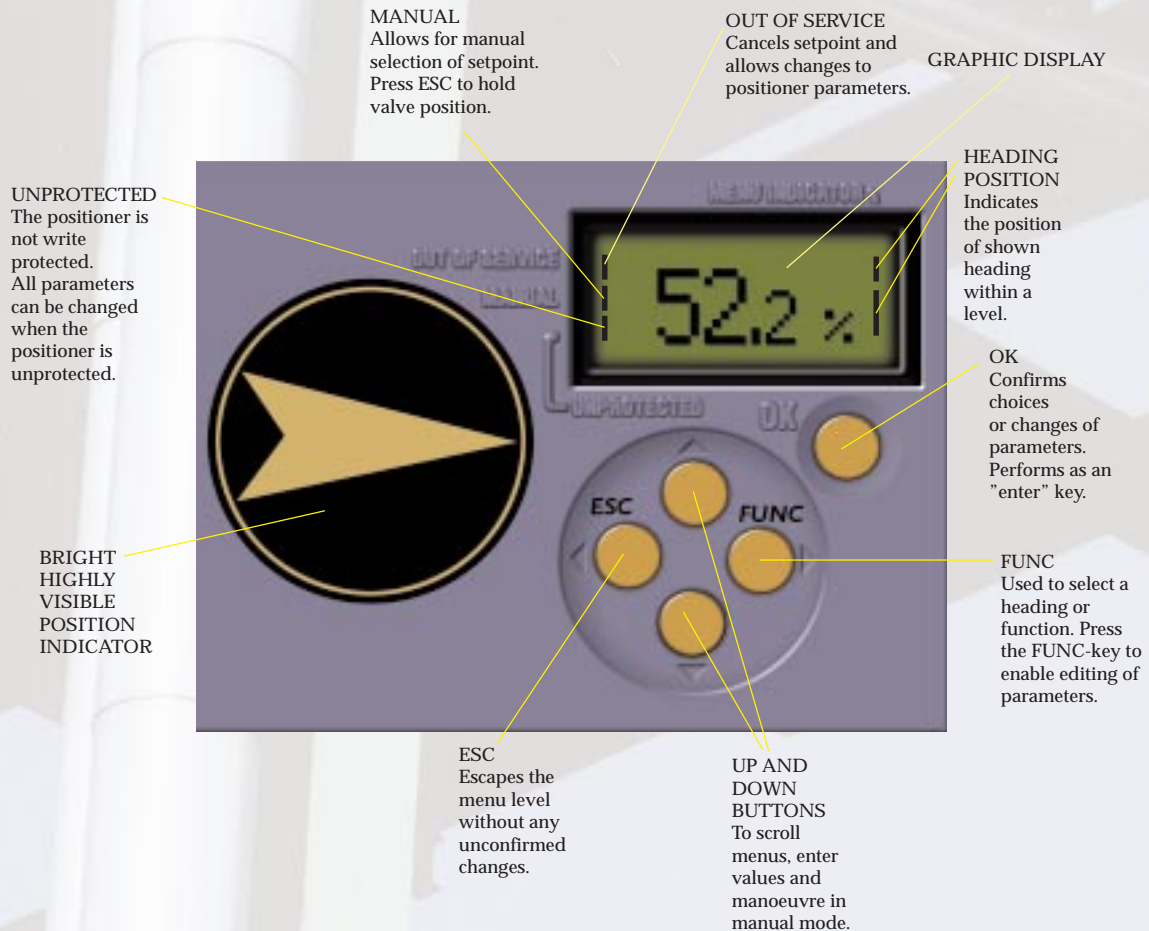
This unique design offers a true digital function, very low air consumption at steady state and high air delivery to provide good dynamic performance for large actuators.

The two piezo electric elements control servo poppet valves which control larger poppet valves.

This design offers very high air delivery capacity together with low air consumption.



MMI – Man Machine Interface



Engineers at PMV have gone to great effort in the design of a simple, easy to understand MMI- Man Machine 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".

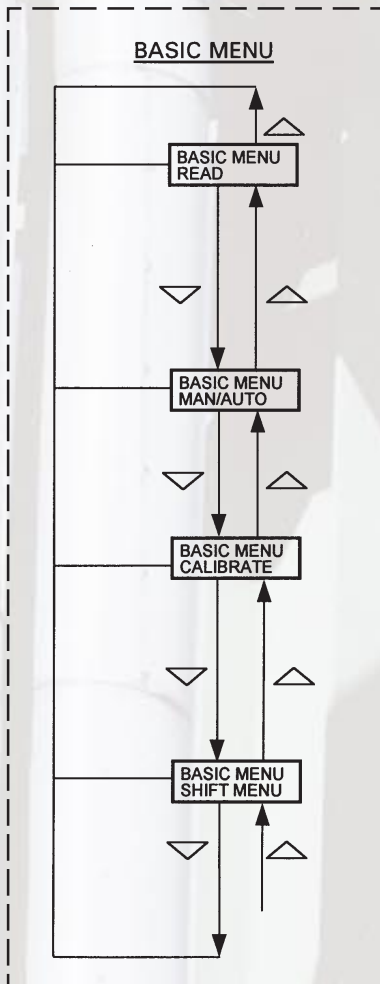
The menu offers you the possibility to simply set or change, among other things, the following parameters;

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

Menu Basic – Full

Basic Menu



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.

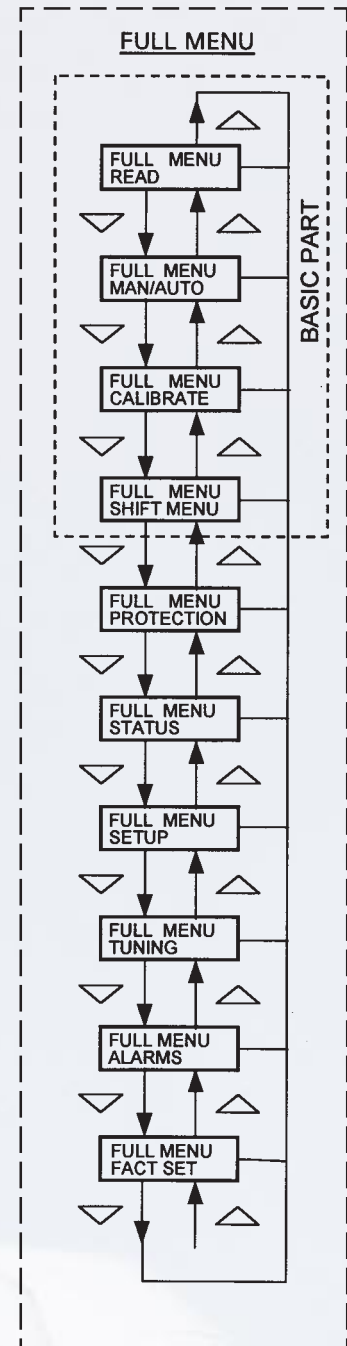
The keyboard can be locked to prevent non-authorized personal from making adjustments. Passwords can be set to access various levels of the menu.

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



Display visible through cover.

Full Menu



Feedback

The D3 can be equipped with a feedback module which can contain switches, sensors, or a 4-20 mA transmitter. This may be done at the factory or in the field.

Communication

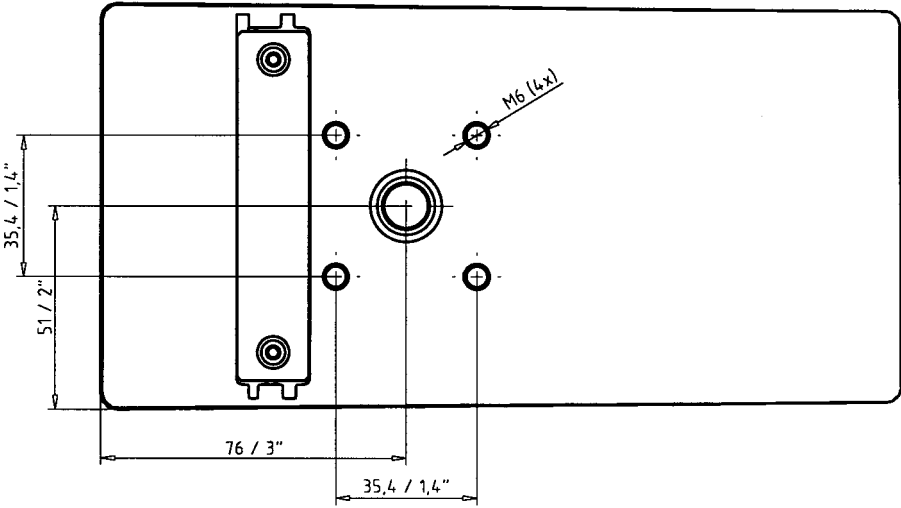
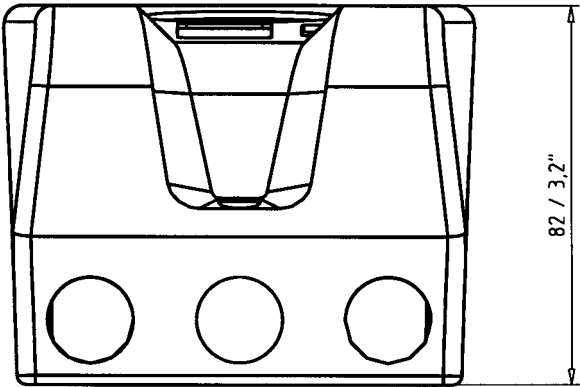
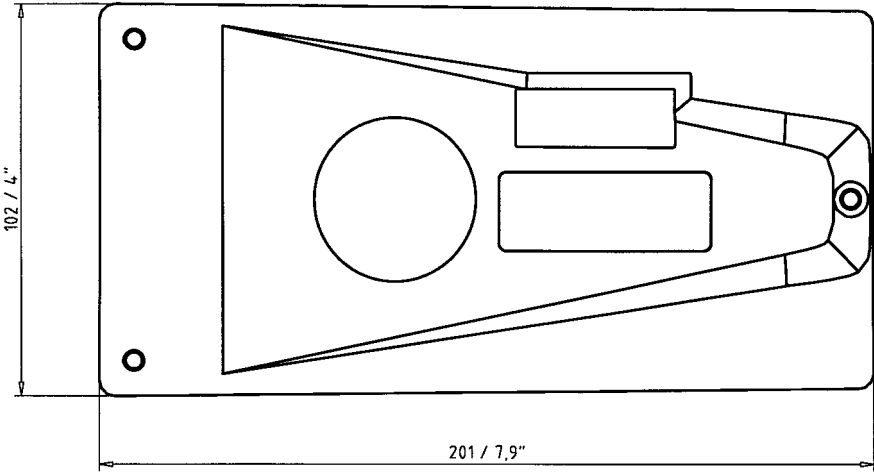
In addition to standard feedback, the D3 is ready for bus communication with room for optional modules.

Technical Specification

Rotation angle	30 to 100°
Stroke	5-130 mm (0.2" to 5.1")
Input signal	4-20mA
Air supply	2-6 bar (30-90 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 or 1/2" NPT
Electrical connections	Screw terminals 2.5 mm ² /AWG14
Linearity	<1%
Repeatability	<0.5%
Hysteresis	<0.4%
Dead band	0-10% adjustable
Display	Graphic, view area 15 x 41 mm (0.6 x 1.6")
MMI	5 push buttons
Processor	16 bit
CE directives	93/68EEC, 89/336/EEC, 92/31/EEC
EMC	EN 50 081-2, EN 50 082-2
Voltage drop	<11V
Enclosure	IP66/NEMA 4X
Material	Die-cast aluminium, A2/A4 fasteners
Surface treatment	Powder epoxy
Temperature range	-30 to +85 °C (-22 to 185 °F)
Weight	1.4 kg (3 lbs)

Note! A good quality filter must always be used with digital positioners.

Dimensional Drawing



How to order

1. Model	D3X	Digital positioner with display
	D3H	Digital positioner with display, HART communication
2. Air connections	G	1/4" G
	N	1/4" N
3. Surface treatment	U	Powder epoxy
4. Function	S	Single acting
	D	Double acting
5. Spindle	01	S01 to S36
6. Cover and indicator	PVA	Standard PMV, arrow
7. Temperature/seals	Z	NBR -30 to 85 deg C (-22 to 185 deg F)
8. Input signal	4	4-20 mA
9. Feedback option	X	No option
	S	Limit switches MEC + 4-20 mA
	N	Limit sensors NAM + 4-20 mA
	P	Limit switches PXY + 4-20 mA
10. Accessories	X	No accessories
	M	Gauge block

Example: D3XGU-D23PVA-Z4XX
1 23 45 6 7 8 9 10



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(The information in this brochure is subject to change without notice.)



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