

D3 Digital Positioner

Product
Information





D3 Digital Positioner

General

The D3 is a digital valve positioner with exceptional features and benefits.

It's very simple to use and operate due to a large graphic display where all information is presented. Configuration is simply done from five large push buttons.

The zero bleed pneumatic relay offers savings due to very low air consumption.

Optional plug in modules offers limit switches, both mechanical, proximity and P+F inductive, 4–20 mA feedback and alarm with output function.

Communication via HART, Profibus PA or Foundation Fieldbus is possible. For the HART version of D3, a free of charge PC configurator is available.

IP66/NEMA 4X, 7 & 9

The strong, die-cast housing is treated with a powder epoxy, protecting the unit from corrosion and mechanical damage.

Additionally, the uniquely designed strut on the cover protects the graphic display.

The screw terminals for the electrical connection are located in an isolated and sealed housing to help protect the electronics if moisture should intrude the conduit.

Easy installation

Installation is simple and quick with split spindle design, a friction coupling for the feedback sensor and the great variety of mounting kits available from inventory to fit most actuators found on the market. The D3 is not orientation sensitive and mounts on both rotary and linear actuators.

A. Linear



B. Rotary



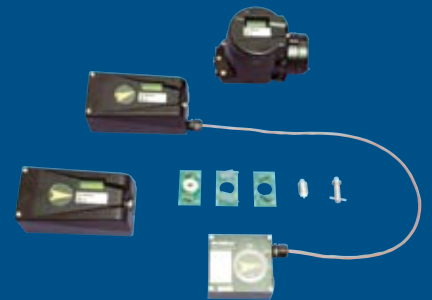
D3 Intrinsically Safe



D3 Explosion Proof



Feedback and Remote mount



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®, Profibus PA or Foundation Fieldbus is possible.

Further features are gauge ports, local graphic LCD display.

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.

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 + Alarm plug in module

Optional plug in feedback modules offer limit switch function; select between mechanical or proximity SPDT switches or P+F inductive sensors. A 4-20 mA position feedback sensor is available as well as an alarm function for deviation, limit and temperature.

Fail Freeze

This special version offers the unique feature of upon loss of input signal the D3 will fail in last position, a function that is highly valued for dampers or other critical applications.



PC Configurator

A PC configurator is available to connect your D3 with a PC. All you need is a HART® modem and a D3 with HART® option. This PC configurator is available free of charge.



UI – User Interface

A large graphic display and five keys make D3 simple to operate. All information is presented clearly in text form in the display. The display itself is visible with cover installed. The menu position indicator shows you how far you are in the menu structure.

There are no LEDs, cryptic codes or other non-understandable messages on the display.

During calibration and initialisation, D3 walks you thru a guide where you set actuator type and function, all you do is to select the proper setting, then simply press OK. D3 will now autocalibrate itself for optimal function.



- | | |
|---|--|
| <ol 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 or jog of the valve. 3. Unprotected – The positioner is not write protected. All settings can be overwritten. 4. Heading Position – Indicates the position of shown heading within a level. 5. Ok – Confirms choices or changes of parameters. Performs as an "enter" key. | <ol style="list-style-type: none"> 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. |
|---|--|



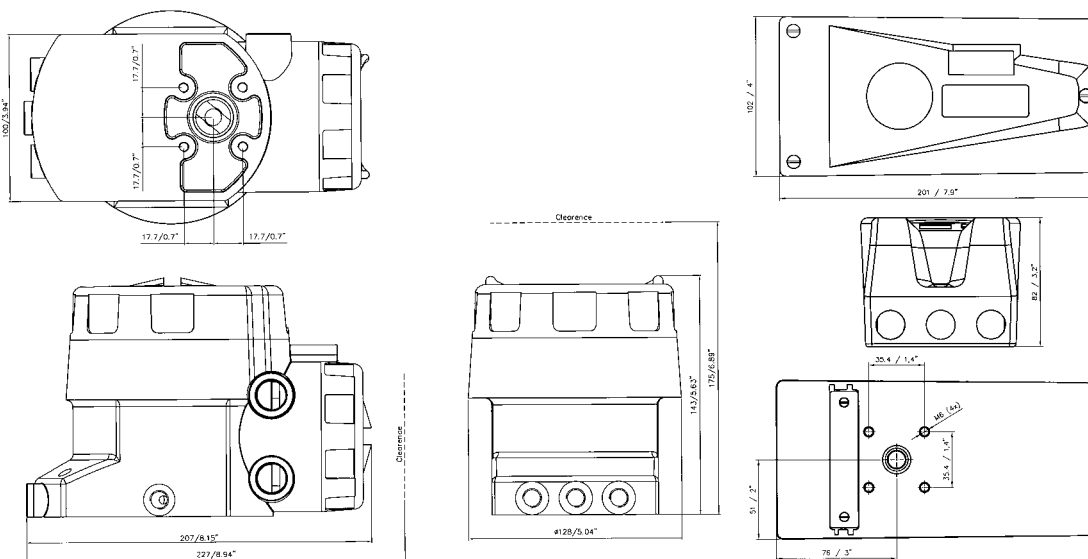
Communication



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

A PC configurator for HART® is available free of charge from PMV. All you need is a HART® modem to connect the D3 to your computer. The configurator offers you possibility to select cam functions, do a stroke test among many other functions.

Dimensional Drawings





D3 Digital Positioner

| | |
|------------------------|---|
| Rotation angle | Min. 30° max. 100°, optional 270° |
| Stroke | 5–130 mm (0.2" to 5.1") |
| Input signal | 4–20 mA |
| Air supply | 2–7 bar (30–105 psi) Free from oil, water & moisture, filtered to min. 30 micron. |
| Air delivery | 350 nl/min (12 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 | 8 V (400 Ohm) non-Hart, 9,4 V (470 Ohm Hart) |
| 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°C to +80°C (–22°F to 176°F) |
| Weight | D3X, 1.4 kg (3 lbs) – D3E, 3 kg (6.6 lbs) |
| Mounting position | Any |

Optional plug in module

| | |
|----------------------------|---------------------------------|
| Mechanical Switches | |
| Type | SPDT |
| Size | Sub Sub miniature |
| Rating | 100 mA/ 30 V DC/ 42 V AC |
| Namur Sensors | |
| Type | Proximity DIN 19234 NAMUR |
| Load Current | <1mA >3mA |
| Voltage range | 5–25 V DC |
| Hysteresis | 0,2% |
| Temp | –20°C to 85°C (–4°F to 185°F) |
| Proximity Switches | |
| Type | SPDT |
| Rating | 100 mA/ 30 V DC/ 42 V AC |
| Operating time | 0,7 ms |
| Breakdown voltage | 200 V DC |
| Contact resistance | 0,1Ω |
| Mechanical/electrical life | > 50x10 ⁶ operations |
| 4–20 mA Transmitter | |
| Supply | 13–28 V DC |
| Output | 4–20 mA |
| Resolution | 0,1% |
| Linearity full span | +/- 0,5% |
| Output current limit | 30 mA DC |
| Load impedance | 800Ω @ 24 V DC |
| Alarmoutput | |
| Alarm output | Transistor Ri 1KΩ |
| Alarm Supply Voltage | 8–28 V |



D3 Series Coding

Model no

- D 3 X Digital positioner with display and indicator, General purpose
- D 3 I Digital positioner with display and indicator, Intrinsically safe ATEX
- D 3 E Digital positioner with display, no indicator, Explosion proof ATEX, CSA/FM
- D 3 F Digital positioner with display, Explosion proof ATEX, CSA/FM, Direct mount to Flowact

Connections

- G 1/4" G air, 3 pcs M20 x 1,5 electrical
- N 1/4" NPT air, 1/2" NPT electrical
- M 1/4" NPT air, M20 x 1,5 electrical

Surface treatment

- U Powder epoxy
- E Stainless Steel enclosure (only for D3E & D3F)

Function

- S Single acting
- L Single acting, Fail Freeze
- P Single acting, Fail freeze remote mounted
- M Single acting, remote mounted
- D Double acting acting
- K Double acting Fail Freeze function
- Q Double acting Fail freeze remote mounted
- R Double acting Remote mounted

Spindle

- 2 3 Rotary VDI/VDE 3845
- 3 9 D type Linear

Cover and Indicator (No indicator on D3E, D3F)

- P V A Black PMV, 90 deg, Arrow indicator
- P V B Black, Extended travel, 270 deg Arrow indicator
- W C A Worcester Controls, Arrow indicator

Sensors/Temperature/seals

- Z No pressure sensors, NBR -30 to 80 deg C
- Y On Board pressure sensors, NBR -30 to 80 deg C

Input signal/Protocoll

- 4 4-20 mA
- 5 HART, 4-20 mA
- P Profibus PA
- F Foundation Fieldbus (Not for D3I)

Feedback option

- X No feedback option
- T 4-20 mA transmitter only + Alarm
- S* Limit switches MEC + 4-20 mA + Alarm
- N* Limit sensors NAM + 4-20 mA + Alarm
- P* Limit switches PXY + 4-20 mA + Alarm
- 4* Slot type Namur sensor, P+F SJ2 S1N + Alarm
- 5* Slot type Namur sensor, P+F SJ2 SN + Alarm
- 6* Slot type Namur sensor, P+F SJ2N + Alarm

Accessories

- X No accessories
- M Gauge block (For D3X, D3I only, built in on D3E, D3F)

| | | | | | | | | | | | | | | | |
|---|---|--|--|---|---|--|--|--|--|--|---|---|--|--|--|
| D | 3 | | | U | - | | | | | | - | Z | | | |
|---|---|--|--|---|---|--|--|--|--|--|---|---|--|--|--|

* Not for D3E, D3F



p/n: FCD PMENBR0001-02



Hazardous Locations



Intrinsically safe: ATEX EEX ia IIC T4 (Ex) II 1 G D
Explosion proof: ATEX EEX d IIB+H₂ T6 (Ex) II 2 G D
 CSA, FM Div.1, Class 1 Group B,C,D,
 Class II Group E,F,G, Class III

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