Actuator Accessories

Twist-Set Controls

ACTUATOR CONTROL STATIONS

ATEX

C US

EASY SET COLOUR CODED CAM

PROXIMITY SENSORS

MECHANICAL SWITCHES

ANALOGUE POSITION TRANSMITTER

FULLY ENCAPSULATED ASI CARD

INTERNAL SOLENOID PILOT

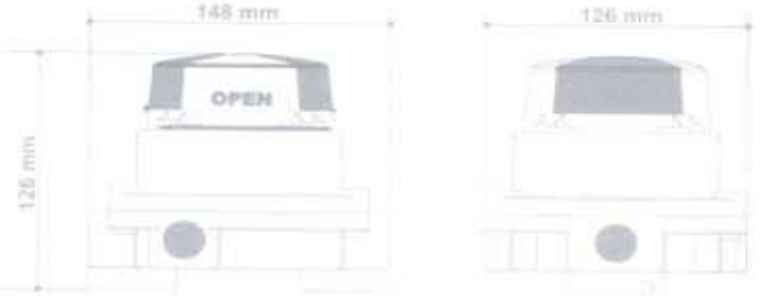
M12 PLUG & SOCKET

INTEGRAL SOLENOID

1100 SERIES COMPOSITE WITH MECHANICAL SWITCHES
1200 SERIES COMPOSITE WITH PROXIMITY SENSORS

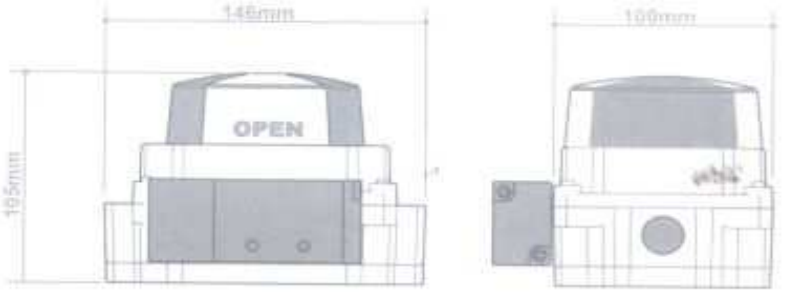
ALSO AVAILABLE IN VESTAMID

1300 SERIES ATEX FLAME PROOF SWITCH BOX
1400 SERIES ALUMINIUM SWITCH BOX WITH BEACON INDICATOR



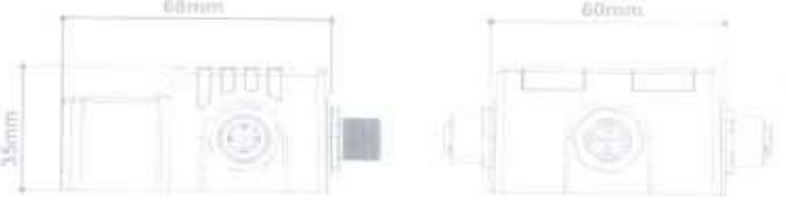
ALSO AVAILABLE IN STAINLESS STEEL

1500 SERIES CONTROL STATION WITH INTEGRAL SOLENOID
1600 SERIES CONTROL STATION WITH BUS COMMUNICATION CARD



ALSO AVAILABLE IN STAINLESS STEEL

1800 SERIES PUCK WITH PROXIMITY SENSORS
1900 SERIES PUCK WITH AS-I BUS COMMUNICATION



Twist-Set Controls

NAMUR SOLENOID VALVES

IP65, FLAME PROOF & INTRINSICALLY SAFE

5 port 2 position single coil
5 port 2 position double coil
5 port 3 position

Flow Rate:	1680 l/min @ 6 Bar
Ports:	1/4"BSP (NPT Optional)
Pressure range:	1.5 to 8 bar
Maximum pressure:	10 bar
Voltages:	12, 24, 48 & 110 VDC 24, 48, 110 & 220 VAC

MANIFOLD SOLENOID VALVES

IP65, FLAME PROOF & INTRINSICALLY SAFE

5 port 2 position single coil
5 port 2 position double coil
5 port 3 position

Size:	1/8" to 1/2"
Ports:	BSP (NPT Optional)
Pressure range:	1.5 to 8 bar
Maximum pressure:	10 bar
Voltages:	12, 24, 48 & 110 VDC 24, 48, 110 & 220 VAC

PROXIMITY SENSORS

IP67 & INTRINSICALLY SAFE

Output:	PNP or NPN NAMUR (I/S) AC & DC two wire
Size:	M12 to M30 with Plug & Socket

LINEAR MOUNTING KITS

VALVE TYPES

- Globe Valves
- Diaphragm Valves
- Control Valves
- Knife Gate Valves
- Gate Valves
- Pinch Valves

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Co. Reg. No. 200104741K

REMOTE CONTROL

Electro – Pneumatic Positioner

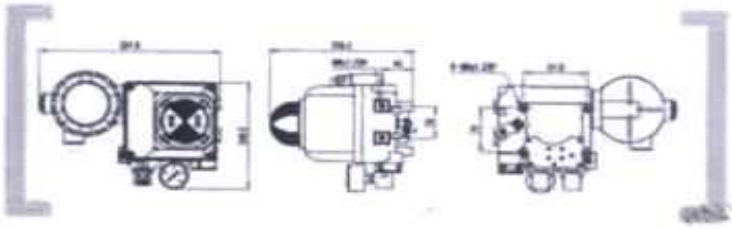
RCR1000 With internal L.S.

Ordering Symbols: RCR1000 □ □ □ □ ■ ■ □ ■

Model	Acting Type	Explosion Proof	Lever Type	Orifice Type	Connection Type	Ambient Temp	Option1	Option2
RCR1000	S Single	EXdmIIBT5	M6 x 40L	1 Φ1	PT	-20℃ ~80℃	S Std Indicator	NONE
	D Double	EXdmICT5	M6 x 63L	2 Φ2	NPT	-20℃ ~ 120℃	T Dome Indicator	+ PTM(Internal)
		ExiaIIBT6	M8 x 40L	S None		-40℃ ~ 70℃		+ PTM(External)
		Non-Explosion	M8 x 63L					+ L / S(Internal)
			NAMUR					+ L / S(External)
								+ PTM + L / S(Internal)

Specifications

Limit Switch	Rating	0.6A 125V ~ 16A 250V AC
	Switch Type	2 x SPDT
POSITIONER	Same	



The Electro-Pneumatic Positioner **RCR1000** is used for operation of pneumatic rotary valve actuators by means of electrical controller or control systems with an analog output signal of DC 4 to 20 mA or split ranges and Limit Switch is attached internally Positioner.

- It is able to get feedback of electrical signal in setting particular opening point due to built in Limit Switch.
- It is not necessary extra bracket for Limit Switch, and it is convenient to install and maintain.
- The confirmation of positioner's opening rate is possible in the long-distance due to Dome Indicator.
- The change of RA / DA Action is convenient, it is able to apply to single or double acting actuator.
- It is possible to prevent the hunting with orifice to the small size actuator.

RCE4L and RCE4

Switch box

For open and closed position

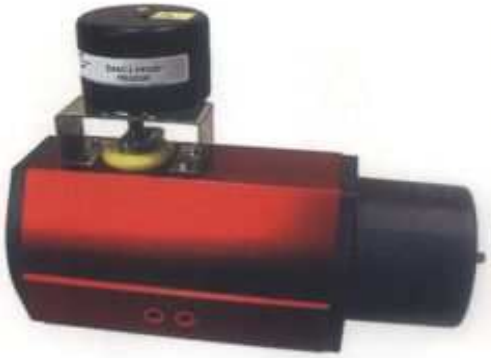
RCE4L and RCE4 are mounted according to VDI/VDE 3845 on the top side of the actuator and are operated by its shaft.

In the standard design, the switch box is supplied with two microswitches which are effected by two independently adjustable cams.

The terminal strip for 8 connections, together with two cable entries, enable connection of the solenoid valve to the actuator.

Can be fitted together with our visual indication.

RCE4, which is higher than RCE4L, enables mounting of several microswitches or inductive sensors.



STANDARD

Material
Shaft, mounting plate: Stainless steel
Base plate, cover: Anodized aluminium

Switches
Type V3 (2x), –25 to +80 °C

Load
6A 250 V ~, 0,6A 125V=, 0,3A 250V=

Enclosure
IP 67

Entries
Pg 11, Pg 16 (will be altered during 2001 to M16 and M20)

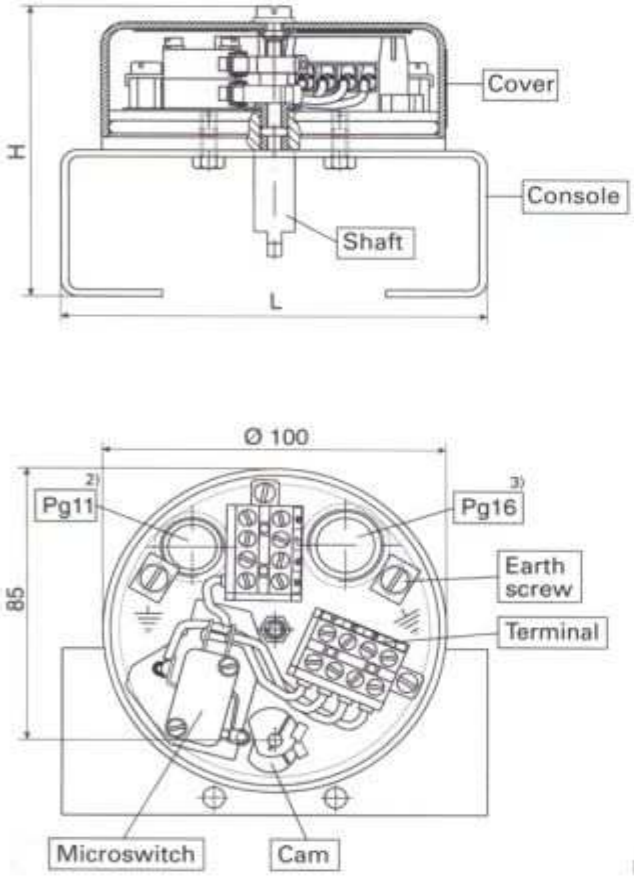
SPECIAL

- Enhanced corrosion protection
- Cover in transparent Macrolon
- For max. 4 microswitches or inductive sensors
- Pneumatic switches
- Gold plated switches
- Continuous indication with the aid of a potentiometer 1 kOhm
- High temperature design ±0 to +140 °C

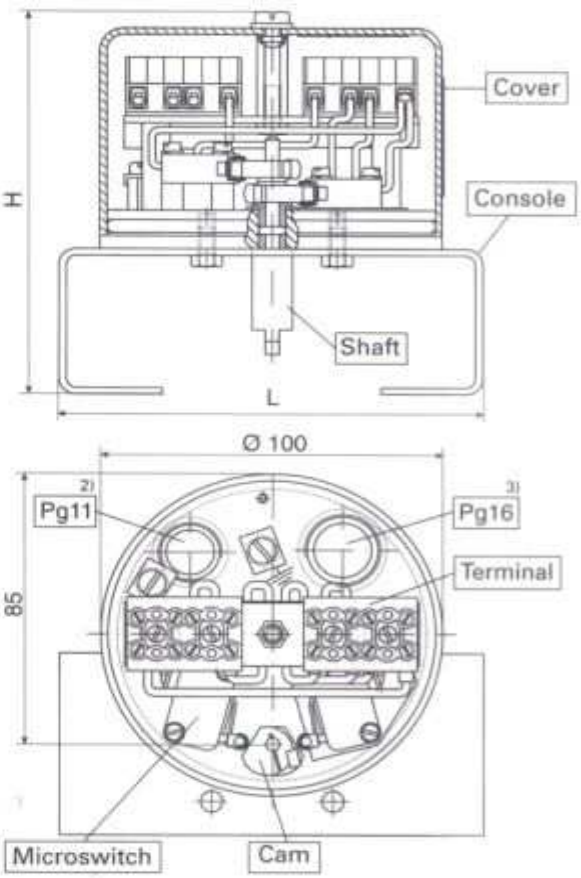
Inductive sensors:
IFM NS 5002 NAMUR
IFM IS 5001 10–30V DC PNP 3-thread
IFM IS 5026 5–36V DC 2-thread Quadronorm
IFM IN 0081 20-250 AC/DC (E4)
Pepperl + Fuchs NJ2-V3-N
Pepperl + Fuchs NBB2-V3-E2

For further information about special switches and wiring diagram, please contact Remote Control.

RCE4L



RCE4

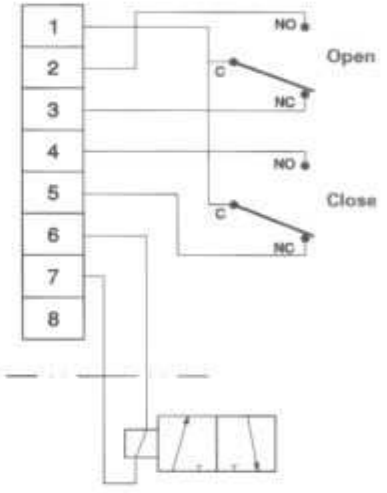


Measurements

	RC210	RC220–RC260	RC270–RC280	RCG90–RCG100
E4L				
H	90	90	100	155 [1]
L	68	110	160	200 [1]
E4				
H	120	120	130	185 [1]
L	68	110	160	200 [1]

1) Not VDI/VDE-console.
2) Will be altered during 2001 to M16.
3) Will be altered during 2001 to M20.

Standard wiring diagrams for RCE4L and RCE4



Ref No 381 D / Art No 9800381

We reserve our right for modifications caused by technical development.

RCS-459

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RCE4

Switch box

With Namur console. For RC210–280 and RC88.

See drawing 106893 on reverse side.

1. Place the actuator in "closed valve position". If the actuator is of DA type, it closes with the aid of compressed air connected to the left connection port. An SR actuator of normal "Fail Close" type closes by venting.

2. Fasten the Namur console to the E4 base plate (8) with 2 pcs M6 screws according to the drawing.

3. Dismantle the cover (50) on the switch box with the screw (1). Twist the cover and lift it straight up when the screw is loosened.

4. Mount the E4 shaft through the hole in the E4 base plate. The shaft journal must go through the oil bronze bearings (23) and (21).
   Turn the E4 shaft so that it aligns with the groove on the shaft journal.

5. Mount the E4 and console with the shaft in the groove on the top side of the actuator stem.

6. Fasten the console with 4 pcs screws to the upper side of the actuator and centre the units with eachother before tightening the screws.

7. Slide the two cams (24) over the shaft with the washers (35) between them. Refer to the drawing how the cams should be turned.

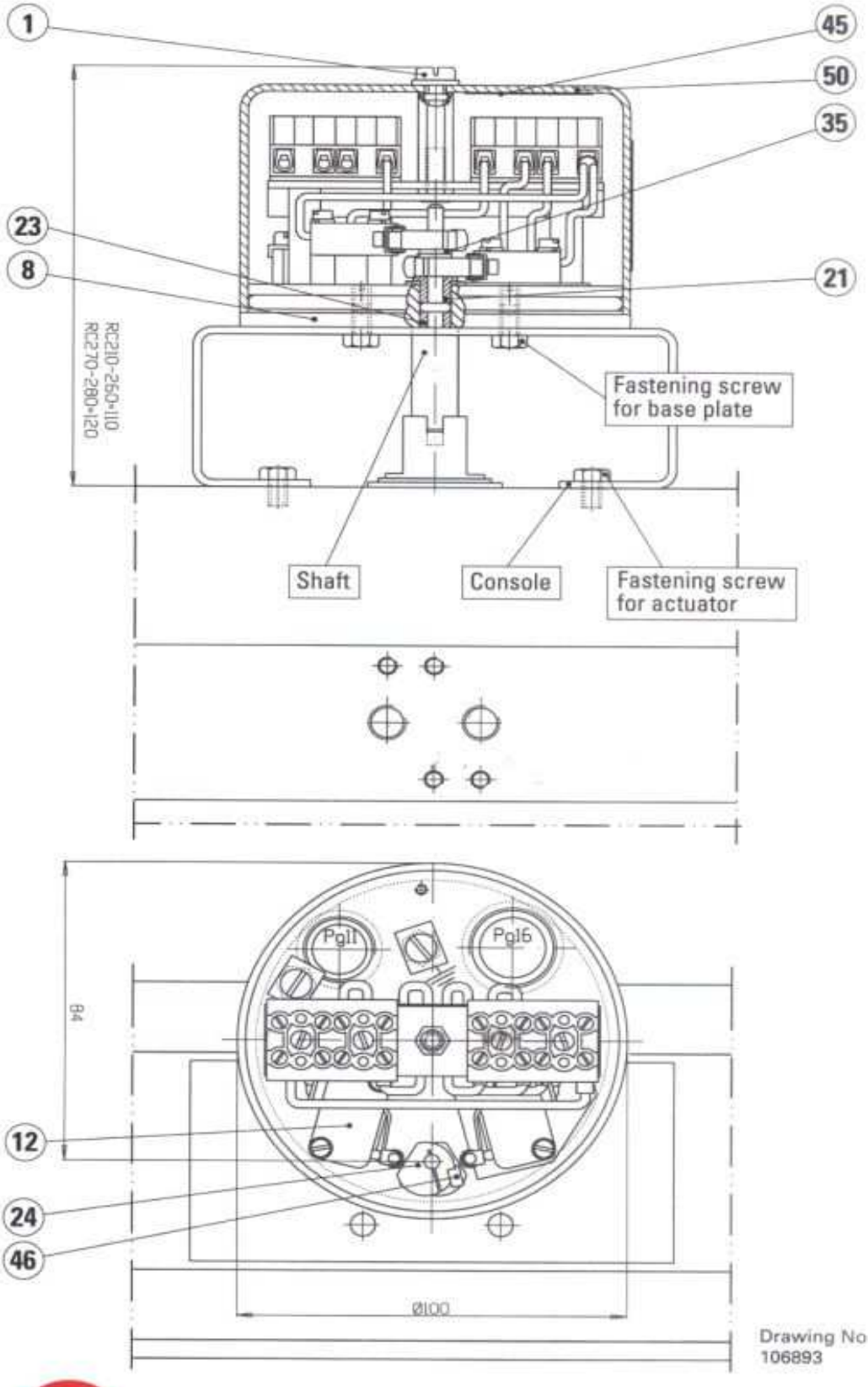
8. Adjustment of the left switch (12) indicating "closed valve position":
   Turn the upper cam (24) clockwise so that the operating arm of the switch is effected. When a clicking noise is heard, the cam must be locked with socket screw (46).

9. Adjustment of the right switch indicating "open valve position":
   An actuator of DA type opens with the aid of compressed air connected to the right connection port. An SR actuator of normal "Fail Close" type opens with the aid of compressed air connected to the left connection port. The key handle on the shaft journal will now align with actuator longitude side. Turn the lower cam anti-clockwise so that the operating arm of the switch is effected. When a clicking noise is heard, the cam must be locked with socket screw (46).

10. Fit cable gland Pg 16. If you also want to connect the solenoid valve to the switch box, 1 pc cable gland Pg 11 must be fitted.

11. Connect cable inlets according to connection diagram (45) attached to the inside of the switch box cover.

INSTRUCTION No 553 A



Drawing No
106893

REMOTE CONTROL

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rc.falun@remotecontrol.se · www.remotecontrol.se

Ref No 553 A / Art No 980553

RCE4L

Switch box

With Namur console. For RC210–280 and RC88.

See drawing 106883 on reverse side.

1. Place the actuator in "closed valve position". If the actuator is of DA type, it closes with the aid of compressed air connected to the left connection port. An SR actuator of normal "Fail Close" type closes by venting.

2. Fasten the Namur console to the E4 base plate (8) with 2 pcs M6 screws according to the drawing.

3. Dismantle the cover (4) on the switch box with the screw (1). Twist the cover and lift it straight up when the screw is loosened.

4. Mount the E4 shaft through the hole in the E4 base plate. The shaft journal must go through the oil bronze bearings (23) and (21).
   Turn the E4 shaft so that it aligns with the groove on the shaft journal.

5. Mount the E4 and console with the shaft in the groove on the top side of the actuator stem.

6. Fasten the console with 4 pcs screws to the upper side of the actuator and centre the units with eachother before tightening the screws.

7. Slide the two cams (24) over the shaft with the spacer (18) between them. Refer to the drawing how the cams should be turned.

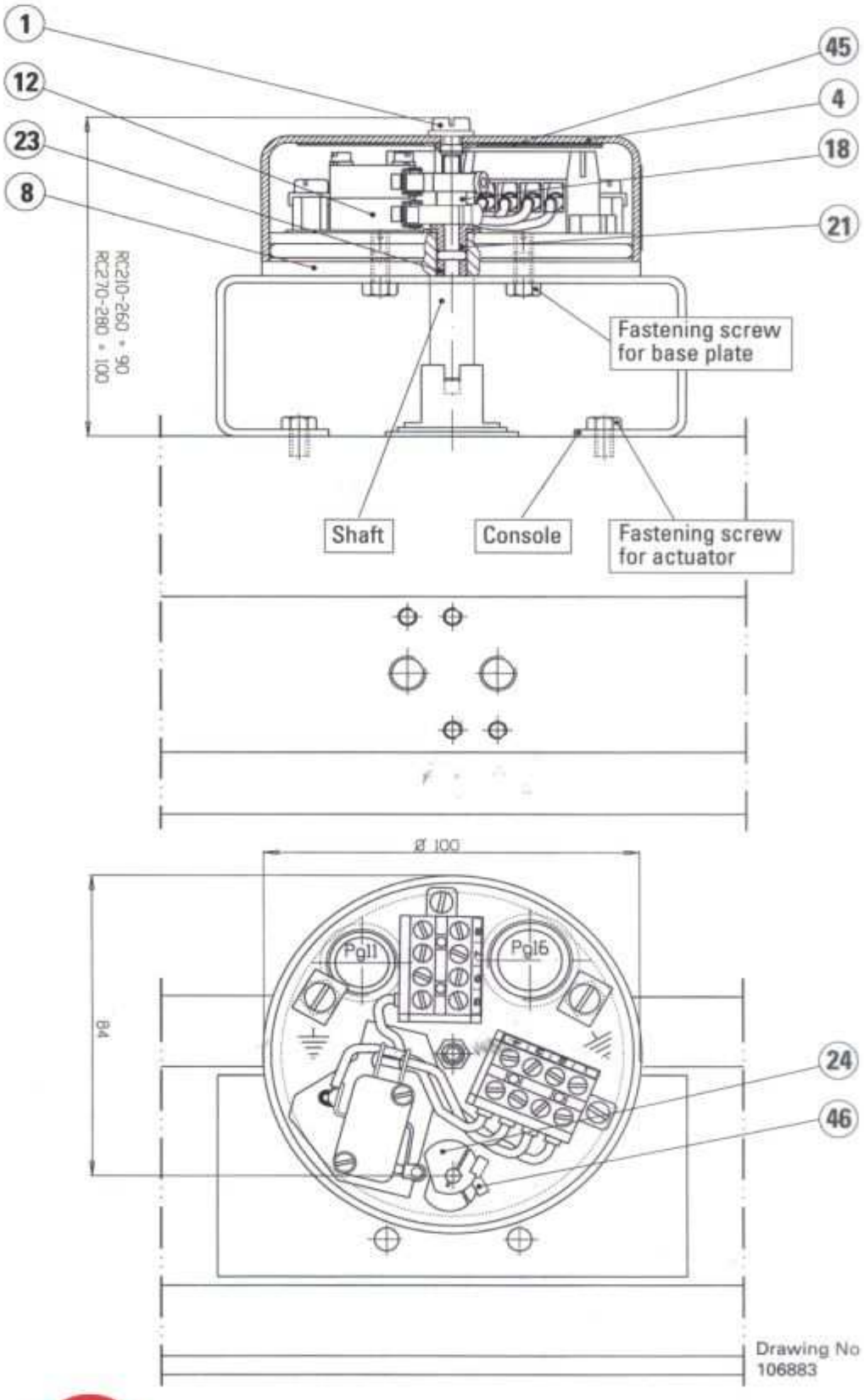
8. Adjustment of the lower switch (12) indicating "closed valve position": Turn the lower cam (24) clockwise so that the operating arm of the switch is effected. When a clicking noise is heard, the cam must be locked with socket screw (46).

9. Adjustment of the upper switch indicating "open valve position": An actuator of DA type opens with the aid of compressed air connected to the right connection port. An SR actuator of normal "Fail Close" type opens with the aid of compressed air connected to the left connection port. The key handle on the shaft journal will now align with actuator longitude side. Turn the upper cam anti-clockwise so that the operating arm of the switch is effected. When a clicking noise is heard, the cam must be locked with socket screw (46).

10. Fit cable gland Pg 16. If you also want to connect the solenoid valve to the switch box, 1 pc cable gland Pg 11 must be fitted.

11. Connect cable inlets according to connection diagram (45) attached to the inside of the switch box cover.

INSTRUCTION No 559 A



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Ref No 168 A / Art No 990888

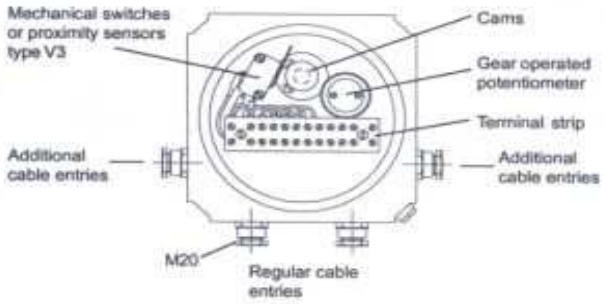
RC1990

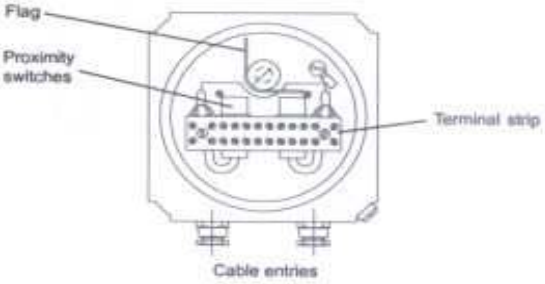
Explosion-proof switch box

- Enclosure IP66 / IP67, in cast iron for arduous conditions
- Certified to ATEX 94/9/EG CE EexdIIC T4-T6 Ex II 2 G D
- Two cable entries M20 as standard. Up to four cable entries permitted obviating the need for a junction box
- Screwed lid for ease of access
- Ambient temperature -50 °C to +110 °C
- Individually adjustable cams for switch operation
- 12-way terminal strip with screw connections
- Mechanical switches are standard, as an alternative proximity sensors are available
- Available as junction box with up to six cable entries

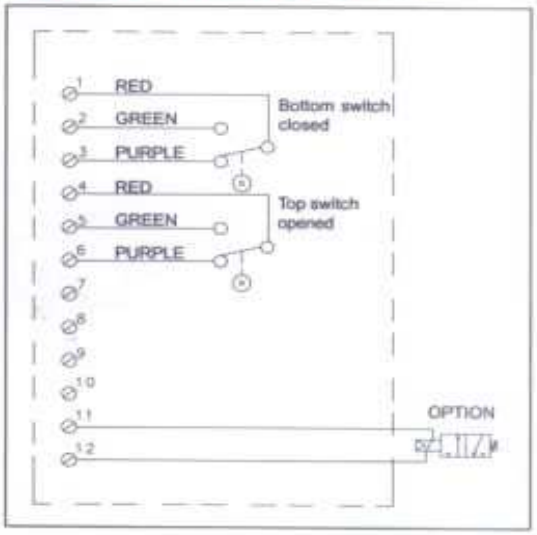
Note: Cable entries in Ex design suitable for the cable type and ambient condition and/or a plug are a demand for approved application.

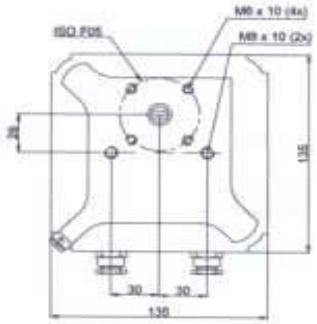
REMOTE CONTROL

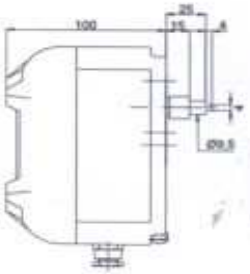




STANDARD WIRING DIAGRAM







OPTIONS

- Up to 4 pcs single pole changeover V3 style mechanical switches. 6 amps at 250 VAC.
- Up to 4 pcs V3 style proximity sensors.
- One or two cylindrical proximity sensors.
- Potentiometer, may be combined with up to 3 pcs V3 style changeovers/sensors.
- Signal amplifier, two-wire and three-wire versions available, may be combined with up to 3 pcs V3 style changeovers/sensors.
- Epoxy coating.
- Stainless steel housing.
- Potentiometer 1 KOhm max 1W.

We reserve the right to alterations without previous notice.

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Ref No 398E/Art No 980096

RC200

Speed Restrictor

- For close adjustment of operation time, open and close (RC-DA)
- For close adjustment of operation time, open or close (RC-SR)
- Ajustable air flow 0-161 Nl/min
- For all actuators with Namur connection
- Material: Aluminium

REMOTE CONTROL

PMV D3 Digital Positioner

Product Information

A Flowserve Company

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

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 a specific 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.

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

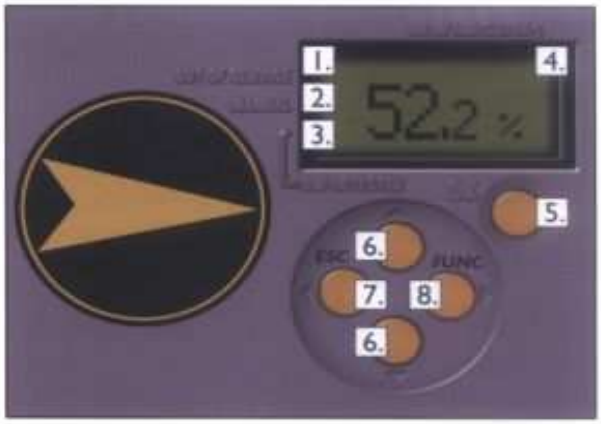
The D3 can be equipped with an optional feedback plug in module, which can contain switches or Namur sensors, and a 4–20 mA transmitter. Installation may be done at the factory or in the field.

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



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.
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".

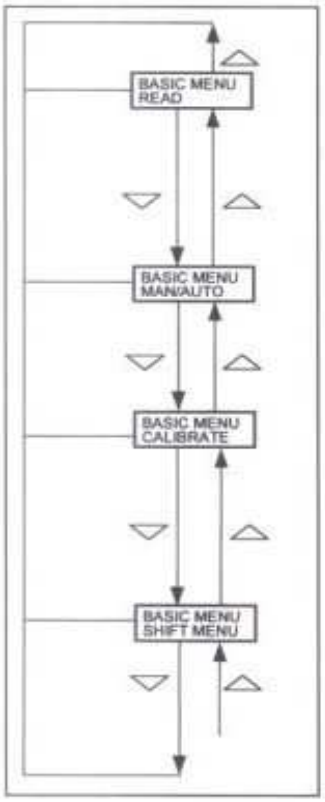
The "Basic Menu" offers you what is needed for set up and auto calibration while the "Full Menu" provides the possibility for further adjustments of the control parameters or set alarms.

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.

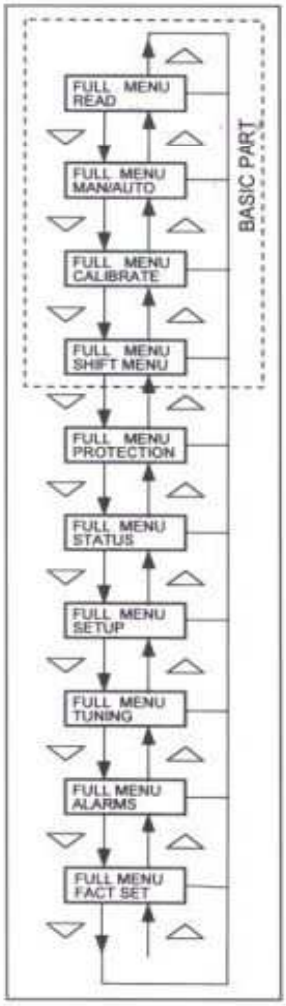
The keyboard can be locked to prevent non-authorised personal from making adjustments. Passwords can be set to access various levels of the menu.

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

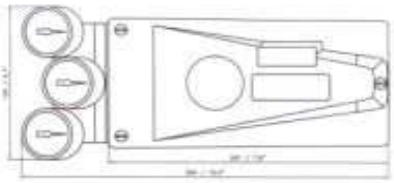


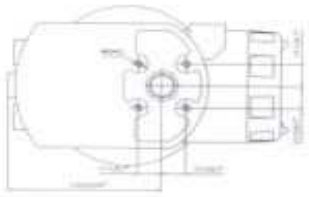
Display visible through cover

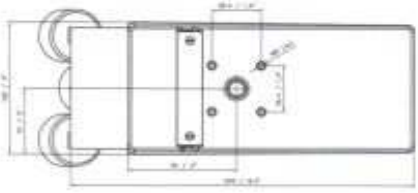
Communication

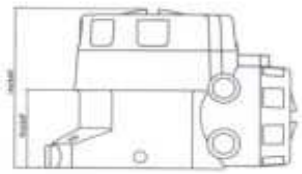
D3 is available with HART® and Profibus PA protocol for bi-directional communication, enabling remote configuration and initialisation from PC or a HART® communicator. Drivers are available for AMS software.

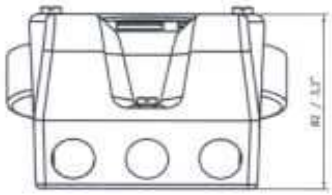
Dimensional Drawings



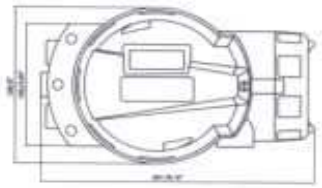








D3X, D3I



D3E

Hazardous Locations

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

Explosion proof: ATEX EEX d IIB+H_2,T6 ⟨Ex⟩ II 2 G D
Div.1, Class I Group B,C,D, Class II Group E,F,G, Class III
For use with natural Gas
D3E. CL. I DIV. 1C. D T5
Certified: CSA C22.2 No 30.142

D3 Digital Positioner

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 mm²/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	> 50x10⁶ 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	☐
	D3I	Digital positioner with display, Intrinsically safe	☐
	D3E	Digital positioner with display, explosion proof	☐
2. Connections	G	1/4" G Air, M20 x 1.5 electrical	☐
	N	1/4" NPT Air, ½" NPT	☐
3. Surface treatment	U	Powder epoxy	☐
4. Function	S	Single acting	☐
	D	Double acting	☐
	C	Single acting, remote mounted	☐
	R	Double acting, remote mounted	☐
5. Spindle	01	S01–S39	☐
6. Cover and indicator	PVA	Standard PMV, 90 deg, arrow indicator*	☐
	PVB	Extended travel, max 270 deg	☐
7. Temperature/seals	Z	NBR –30 to 80 deg C (–22 to 176 deg F)	☐
8. Input signal/protocols	4	4–20 mA	☐
	5	4–20 mA HART® protocol	☐
	P	Profibus PA	☐
	F	Foundation Fieldbus	☐
9. Feedback option	X	No option	☐
	T	Transmitter only. No switches.	☐
	S*,#	Limit switches Mechanical –4–20 mA	☐
	N*,#	Limit sensors Namur –4–20 mA	☐
	P*	Limit switches Proximity –4–20 mA	☐
10. Accessories	X	No accessories	☐
	M*	Gauge Block	☐

* Not available for D3E

Not for PVB option

Artnr: 22548 Kan Grafiska AB Order: 16157 Revision: 2001:01

A Flowserve Company

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PMV P5 Pneumatic Positioner

Product Information

A Flowserve Company

P5

- ☐ Sturdy, simple, reliable design.
- ☐ Tapped exhaust port.
- ☐ Easy to add on Feedback Unit F5.
- ☐ Simple calibration, external zero adjustment.
- ☐ High gain pilot valve.
- ☐ Built in gauge ports.
- ☐ Bright visible indicator, flat or Dome style.
- ☐ Stainless steel cam.

Simple Handling

1. Gauge ports
2. Gold plated spool valve
3. Simple calibration
4. Stainless cam
5. Simple cam locking

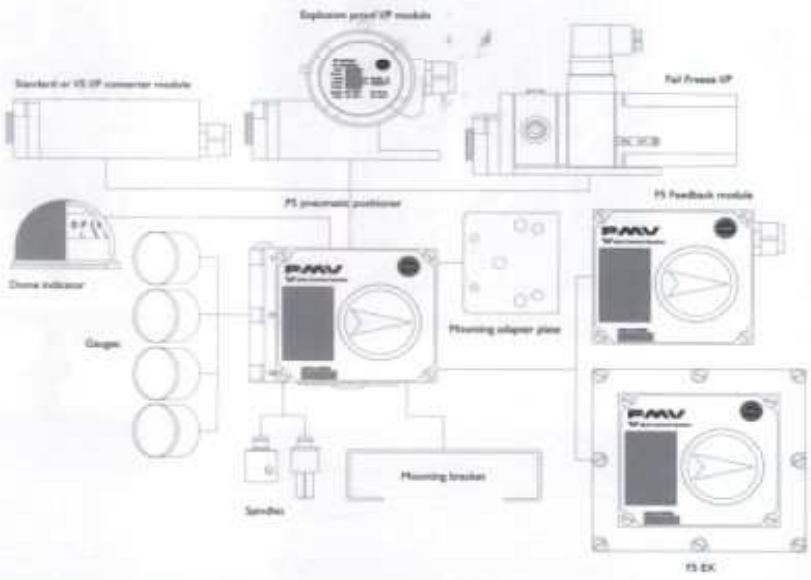
P5 Pneumatic Positioner

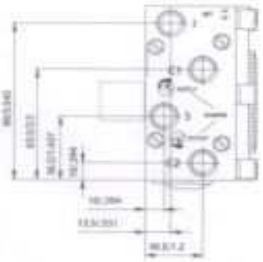
Modular

F5

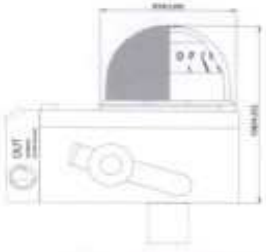
Simple to add on:

- ☐ Feedback Unit F5
- ☐ Dome Style Indicator
- ☐ I/P Converter

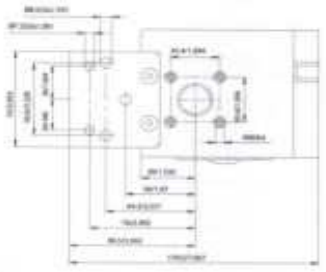




P5



P5 with dome (H5)



P5

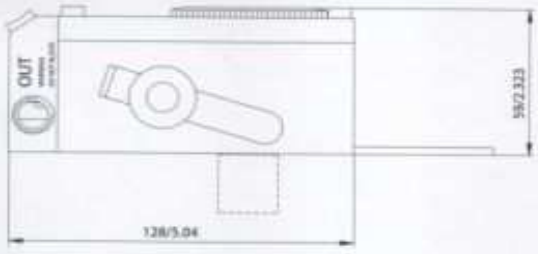
P5 Pneumatic Positioner

Input signal	20–100 kPa/3–15 Psi (6–30 Psi option)	
Linearity	≤ 0.5%*	
Hysteresis	≤ 0.5%*	
Repeatability	≤ 0.5%*	
Gain factor at: 600 KPa/87 Psi	**High Performance Version**	**Normal Gain Version**
	Min: 1000 KPa/KPa Min: 66%/% ISA S75.13-1989	Min: 450 KPa/KPa Min: 30%/%
Max. air consumption at supply pressure:		
0.2 MPa/29 Psi	6.1 nl/min (0.22 SCFM)	2.7 nl/min (0.1 SCFM)
0.4 MPa/58 Psi	13.6 nl/min (0.48 SCFM)	6.1 nl/min (0.21 SCFM)
0.6 MPa/87 Psi	22 nl/min (0.78 SCFM)	9.9 nl/min (0.35 SCFM)
0.8 MPa/116 Psi	30.5 nl/min (1.08 SCFM)	13.7 nl/min (0.48 SCFM)
1 MPa/145 Psi	39 nl/min (1.38 SCFM)	17.5 nl/min (0.62 SCFM)
Min. air delivery at supply pressure:		
0.2 MPa/29 Psi	200 nl/min (6.9 SCFM)	156 nl/min (5.5 SCFM)
0.4 MPa/58 Psi	370 nl/min (12.8 SCFM)	288 nl/min (10.1 SCFM)
0.6 MPa/87 Psi	540 nl/min (18.8 SCFM)	421 nl/min (14.8 SCFM)
0.8 MPa/116 Psi	710 nl/min (24.7 SCFM)	553 nl/min (19.4 SCFM)
1 MPa/145 Psi	880 nl/min (30.6 SCFM)	686 nl/min (24 SCFM)

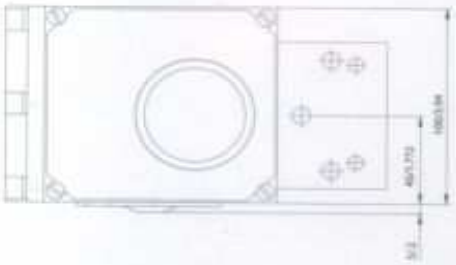
Position sensivity	None	
Supply pressure effect	Max 1MPa/150Psi	
Temperature range	–20°C to +85°C/(–4°F to +185°F)	
Low temp option	–40°C to +85°C/(–40°F to +185°F)	
Connector threads	1/4" NPT or G (BSP)	
Gauge threads	1/8" NPT or G (BSP)	
Weight	1.1 kg/2.4 lbs	
Housing	Die cast aluminum	
Surface treatment	ED Epoxy paint, black	
Fasteners	A2/A4 Stainless	
Ingress protection	IP 66/NEMA 4	ATEX II 1 G D

* Percent of full scale

Dimension drawings



P5



P5

P5 Pneumatic Positioner

The foundation of the PMV Valve Control System is the PMV P5 pneumatic positioner. Performance of this unit has been enhanced with the special high gain/high capacity spool valve assembly providing very quick and accurate actuator/valve response. For a single or double acting application, this new modular design allows for the simple addition of I/P converters and/or a feedback unit with a variety of feedback options. Other features include gauge ports, stainless steel cam with a simple cam locking device, tapped exhaust port for venting of supply media, external zero adjustment, and completely sealed cover.

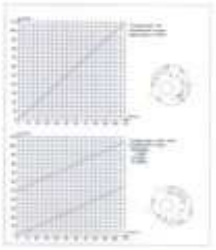
How to order

1. Model	PP5XX	Double acting pneumatic
2. Spool valve	HP	High performance
	LB	Normal gain
3. Air connection	N	NPT 1/4"
	G	G 1/4"
4. Surface treatment	U	Epoxy coating
	M	Tufram
5. Spindle	01, 23 etc	01 to 35. See dwg SPNDLSP_5
6. Cam	K01	K01 to K17, K01 = linear 90°, standard
7. Front cover	PV9DA	90°, Direct, arrow indicator
8. Input signal	3	3–15 psi
	6	6–30 psi
9. Temperature	Z	Nitrite –20°C – +85°C
	Q	Silicon seals, –40°C – +85°C

Mark your choice

*For 30, 45, 60 deg rotation, change PV9 to PV3, PV4 or PV6

Cams



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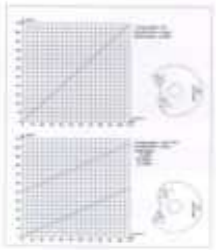

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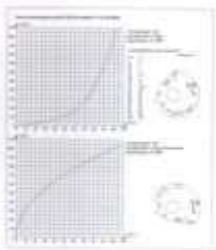
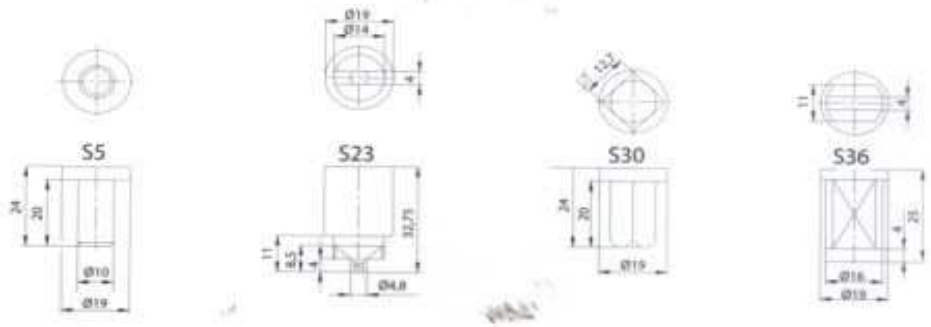


K8

Spindles



Artnr: 22529, Rev: Grafiska AB Order: 15875, Revisionsnr: 20030501

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PMV EP5 Electropneumatic Positioner

Product Information

A Flowserve Company

EP5

- ☐ Sturdy, simple, reliable design.
- ☐ Tapped exhaust port.
- ☐ Easy to add on Feedback Unit F5.
- ☐ Simple calibration, external zero adjustment.
- ☐ High gain pilot valve.
- ☐ Built in gauge ports.
- ☐ Bright visible indicator, flat or Dome style.
- ☐ Stainless steel cam.

Simple Handling

1. Filter plug.
2. Gauge ports
3. Spool valve (High performance or Normal Gain)
4. Simple calibration.
5. Stainless cam
6. Simple cam locking.
7. I/P converter.

Hazardous Locations

Intrinsically safe: ATEX EEX ia IIC T4–T6 Ⓔx II 1 G D
CSA, FM Class 1, Div 1, Group ABCD

Explosion proof: ATEX EEX d IIB+H_2, T4–T6 Ⓔx II 2 G D
CSA, FM Div 1, Class 1,2 & 3 Group BCDEFG

EP5 Electropneumatic Positioner

Deadband	≤ 0.15%
Input signal	4–20 mA
Linearity	≤ 1%*
Hysteresis	≤ 0.75%*
Repeatability	≤ 0.5%*
Air supply	Max 1 MPa/150 Psi, Oil, water and dustfree Min 0.14 MPa/21 Psi
Connector threads	1/4" NPT or G (BSP)
Gauge threads	1/8" NPT or G (BSP)
Counduit entry	1/2" NPT or PG 13.5 (M20)
Terminals	2.5 mm² (AWG 14) Screw terminals

Gain factor at: 600 KPa/87 Psi	**High Performance Version**	**Normal Gain Version**
	Min: 1000 KPa/KPa Min: 66%/% ISA S75.13-1989	Min: 450 KPa/KPa Min: 30%/%
Max. air consumption at supply pressure:		
0.2 MPa/29 Psi	6.1 nl/min (0.22 SCFM)	2.7 nl/min (0.1 SCFM)
0.4 MPa/58 Psi	13.6 nl/min (0.48 SCFM)	6.1 nl/min (0.21 SCFM)
0.6 MPa/87 Psi	22 nl/min (0.78 SCFM)	9.9 nl/min (0.35 SCFM)
0.8 MPa/116 Psi	30.5 nl/min (1.08 SCFM)	13.7 nl/min (0.48 SCFM)
1 MPa/145 Psi	39 nl/min (1.38 SCFM)	17.5 nl/min (0.62 SCFM)
Min. air delivery at supply pressure:		
0.2 MPa/29 Psi	200 nl/min (6.9 SCFM)	156 nl/min (5.5 SCFM)
0.4 MPa/58 Psi	370 nl/min (12.8 SCFM)	288 nl/min (10.1 SCFM)
0.6 MPa/87 Psi	540 nl/min (18.8 SCFM)	421 nl/min (14.8 SCFM)
0.8 MPa/116 Psi	710 nl/min (24.7 SCFM)	553 nl/min (19.4 SCFM)
1 MPa/145 Psi	880 nl/min (30.6 SCFM)	686 nl/min (24 SCFM)

Input impedance	170–260 Ohms at 20°C (71°F)
RFI influence	Not measureable
Capacitance	Negligible
Position sensivity	None
Supply pressure effect	0.5%/0.1 MPa (15Psi)
Temperature range	–20°C to +85°C/(–4°F to +185°F)
Low temp option	–40°C to +85°C/(–40°F to +185°F)
Weight	1.5 kg/3.4 lbs
Housing	Die cast aluminum
Surface treatment	ED Epoxy paint, black
Fasteners	A2/A4 Stainless
Ingress protection	IP 66/NEMA 4

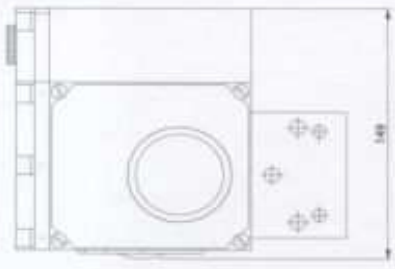
Approvals

ATEX	Intrinsically safe	EEX ia IIC T4–T6 Ⓔx II 1 G D	
	Flameproof**	EEX d IIC T4–T6 Ⓔx II 2 G D	Non-electrical device PS Ⓔx II 1 G D
FM	Intrinsically safe	Div.1, Class 1 Group ABCD	
	Explosion proof**	Div.1, Class 1 Group BCD	
CSA	Intrinsically safe	Div.1, Class 1 Group ABCD	
	Explosion proof**	Div.1, Class 1,2,3 Group BCDEFG	

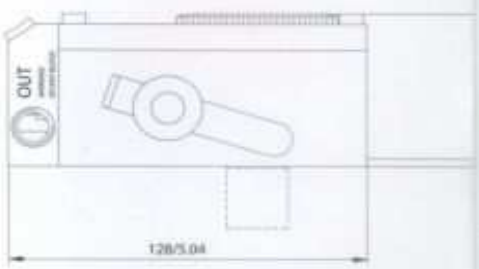
* Percent of full scale
** I/P in round housing

Dimension drawings

EP5



EP5

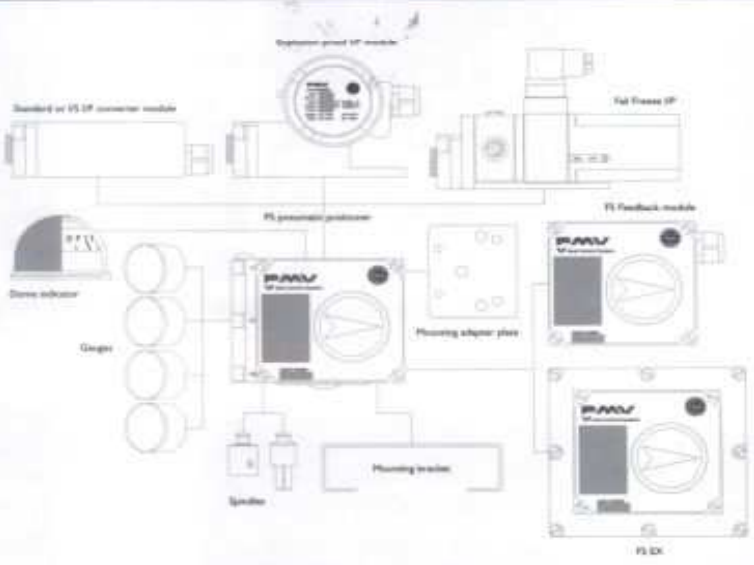


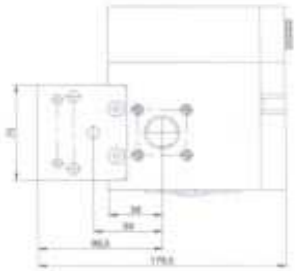
EP5

EP5 Electropneumatic Positioner

Modular

- ☐ EP5 – For all normal applications
- ☐ EP5-EX – Explosion proof
- ☐ EP5-FS – Fail freeze
- ☐ EP5-IS – Intrinsically safe





EP5

EP5 EX

EP5-FS

EP5 Electropneumatic Positioner

The EP5 electropneumatic positioner is adapted from the PMV P5 pneumatic positioner. This compact and sturdy unit is designed for maximum performance in all types of environments. The EP5 is available in Standard, Intrinsically Safe, Explosion Proof and Fail Freeze versions. A modular feedback unit F5 allows for the addition of limit switches and/or position transmitters, without additional mounting brackets. Other features include repairable filter, gauge ports, dampers, tapped exhaust port for venting of supply media, external zero adjustment and completely sealed cover.

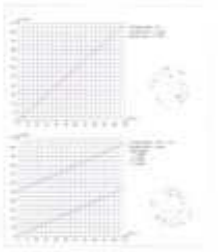
EP5 Electropneumatic Positioner

How to order

			Mark your choice
1. Model	EP5XX	EP5 Double acting pneumatic	☐
	EP5FS	Fail freeze function	☐
	EP5IS	Intrinsically safe, ATEX, FM, CSA	☐
	EP5EU	Explosion proof ATEX	☐
	EP5US	Explosion proof CSA, FM	☐
2. Spool valve	HP	High performance	☐
	LB	Normal Gain	☐
3. Connections	N	NPT ¼", El. ½" NPT	☐
	G	G ¼", El. PG13.5 (M20x1.5)	☐
4. Surface treatment	U	Epoxy coating	☐
	M	Tufram	☐
5. Spindle	01, 23 etc	01 to 35. See dwg SPNDL5P_5	☐
6. Cam	K01	K01 to K17, K01 = linear 90°, standard	☐
7. Front cover	PV9DA	90°, Direct, arrow indicator	☐
8. Input signal	4	4–20 input	☐
9. Temperature	N	Nitrile seals –20°C to +85°C	☐
	Q	Silicon seals, –40°C to +85°C	☐

*For 30, 45, 60 deg rotation, change PV9 to PV3, PV4 or PV6

Cams

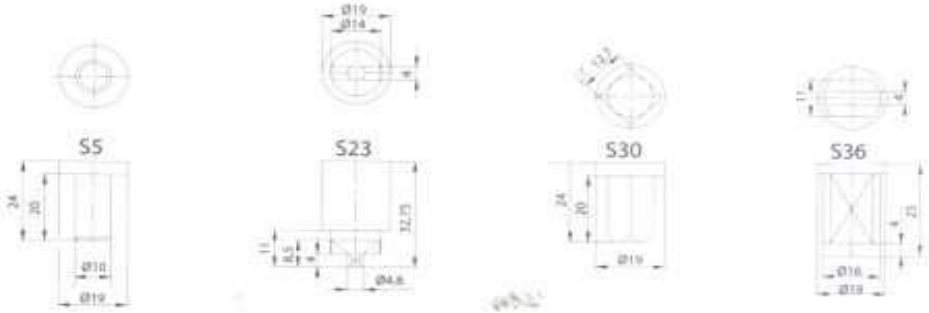


K1

K3

K8

Spindles



Artnr: 22530 Kurs Grafiska AB Order: 13876, Kundnummer: 20030101

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