

Valve Positioners

Series 760P/E Valve Positioners

Introduction

Features & Benefits

- ▶ Universal design and choice of interchangeable NAMUR IEC 534-6 rectilinear VDI/VDE 3845 rotary mountings provide wide application flexibility
- ▶ Double-acting or single-acting service and split ranging afford application versatility in a single unit
- ▶ Non-interaction of the zero and span adjustments and CAMLOC (TM) cam locking mechanism significantly reduce calibration and setup time
- ▶ Modular design reduces inventory because it allows interchangeable spare parts
- ▶ Comes standard with 3 cams, linear, quick opening and equal % for application versatility

Description

The Series 760 Valve Positioners provide a cost effective universal approach to your valve control. Their modular concept allows all models to be built on the base pneumatic unit (Model 760P). The electro-pneumatic model (Model 760E) is created by adding an I/P transducer to the base pneumatic unit, and a wide range of accessories easily installs inside the unit.

The 760 base pneumatic unit provides cam characterization, split ranging, direct or reverse action, and single or double acting without requiring additional parts. Key design features include non-interaction of the zero and span adjustments.

Series 760 Valve Positioners include provisions for internal limit switch mounting and position feedback devices without requiring additional housings. Thus, the need to stack housings that impede access to the main enclosure are eliminated.



A spool valve is used to load the actuator for positioning in response to an input signal. A characterized cam provides mechanical feedback. There are linear, equal percentage and quick opening operation cam profiles, and a blank profile cam is available for custom applications. Rectilinear action length can range from 1/2 inch to 6 inches.

The feedback shaft and characterized cam can be replaced in the field to configure the positioner for use with either a rectilinear or rotary actuator. No additional parts are necessary to change between single or double acting actuators or direct or reverse action.

3

Mounting Dimensions



Valve Positioners

Series 760P/E Valve Positioners

Technical data

Specifications

Functional Specifications

Temperature Range

760P: -40 to 185°F (-40 to 85°C)
 -4 to 185°F (-20 to 85°C)
 High temp. option available to 300°F (148°C)
 760E: -40 to 167°F (-40 to 75°C)
 -4 to 167°F (-20 to 75°C)
 with optional Viton® dynamic elastomers

Ingress

NEMA 4X, IP 65

Connections

Pneumatic – 1/4" NPT
 Gauge – 1/8" NPT
 Electrical – 3/4" NPT, 25mm
 Exhaust – 1/4" NPT

Finish

Epoxy/Polyester Powder Coat

Output Configuration

Single or Double Acting

Action

Direct or Reverse

Supply Pressure

150 psig max.

Air Consumption

Standard Spool: 0.5 scfm typical
 Low Gain Spool = 0.5 scfm
 High Flow Capacity Spool: 1.0 scfm (typical)

Flow Capacity (at 60 psi with 25% drop)

9.0 scfm (Cv = 0.3) Standard
 18.0 scfm (Cv = 0.6) Optional

Input Signal

760P: 3-15 psig, 3-27 psig, 50% split range
 760E: 4-20 mA, 50% split range

Mechanical Feedback

90°, rotary std.
 1/2" to 6" linear optional (longer lengths available on request)

Characterization

Equal %; Quick Opening; Linear

Pressure Gain

160:1@ 60 psig standard

Span

Adjustable -60% to +25% of normal span

Zero

Adjustable -10% to +60% of normal span

®Viton is a registered trade name of DuPont Performance Elastomers

Performance Specifications

Linearity (Independent)

760P: 0.5% of normal span (typical)
 760E: 0.75% of normal span (typical)

Hysteresis

760P: 0.75% of normal span (typical)
 760E: 1.0% of normal span (typical)

Deadband

Less than or equal to 0.25% of span

Repeatability

Within 0.5% of span

Supply Pressure Effect

Less than 0.2% of span for a 5 psi change in supply pressure

Hazardous Area Class Approval

Series 760 Approvals & Certifications

FM Approvals:

Intrinsically Safe:

Class I, Division 1, Groups A, B, C, D
 Class II, Division 1, Groups E, F and G
 Class III, Division 1

When installed in accordance with Siemens drawing 15032-7602 rev.5

Non-incendive:

Class I, Division 2, Groups A, B, C, D

Suitable for:

Class II, Division 2, Groups F and G
 Class III, Division 2

CSA Certification

Intrinsically Safe:

Class I, Division 1, Groups A, B, C, D
 Class II, Division 1, Groups E, F, G
 Class III, Division 1

When installed in accordance with Siemens drawing 15032-7620

Suitable for:

Class I, Division 2, Groups A, B, C, D
 Class II, Division 2, Groups E, F, G
 Class III, Division 2

CE

EN50081-1 and EN50081-2 Emission
 EN61000-6-1 and EN60000-6-2 Immunity

ATEX Certified:

II 2G EEx ia IIC T4/T5/T6

II 3G EEx nL IIC T5

See ATEX Certificates for Service Restrictions

SIRA 03 ATEX 2577X

SIRA 03 ATEX 4578

Enclosure:

Type 4X, in accordance with NEMA Std. 250

Type IP65, in accordance with IEC Std. 529

Valve Positioners

Series 760P/E Valve Positioners

Ordering data

Model Number

Series 760 Valve Valve Controller/Positioner

Basic Model Code No.

- 760 Valve Controller (Positioner)

Input signal

- 4 to 20 mAdc (not available with High Temp. Option)
- 3 to 15 psig
- 3-27/6-30 psig
- 20 to 100 kPa
- 0.2 to 1.0 Bar
- 0.2 to 1.0 kg/cm²

Action (Rising Stem/Linear or Rotary)

- 1/2 to 4 inch stroke lever with set of (3) 60° cams
- 2 to 6 inch stroke lever with set of (3) 60° cams
- 1/4 turn - 1/2 inch square shaft with set of (3) 90° cams
- 1/2 to 2 inch stroke lever with set of (3) 60° cams
- 1/4 turn NAMUR style shaft end with set of (3) 90° cams
- 1/4 turn - 1/2 inch square shaft with set of (3) 60° cams
- 1/2 to 4 inch stroke lever with (1) 90° linear cam
- 2 to 6 inch stroke lever with (1) 90° linear cam
- 1/4 turn NAMUR shaft with set of (3) 60° cams

Enclosure Type 4X/IP65 (with 3/4 inch NPT Conduit Connection)

- Standard
- With 90° Beacon Indicator (not available with High Temp. Option)
- With 60° Flat Indicator (not available with High Temp. Option)
- With 90° Flat Indicator (not available with High Temp. Option)

Enclosure Type 4X/IP65 (with M25 Conduit Connection)

- Standard
- With 90° Beacon Indicator (not available with High Temp. Option)
- With 60° Flat Indicator (not available with High Temp. Option)
- With 90° Flat Indicator (not available with High Temp. Option)

Flow Capacity

- Standard Capacity Spool Valve Assembly (Cv = 0.3)
- High Flow Capacity Spool Valve Assembly (Cv = 0.6)
- Low Flow Gain Spool Valve Assembly

Order No.

760

▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ (cont. on page 3.5)

E1
P1
P2
P4
P5
P6

1
2
3
4
5
7
E
F
S

A
B
J
K

E
F
N
P

A
B
C

NOTES:

1. Fix feedback pin in lever to hold non-linearity error to 3% max. Consult factory for more details.
2. The Low Flow Gain Spool Valve Assembly option can provide more stable operation when the positioner is installed on small volume actuators, i.e. piston diameters less than 4" (10mm). Consult factory for more details.

Valve Positioners

Series 760P/E Valve Positioners

Ordering data

Model Number

Series 760 Valve Controller/Positioner (cont'd)

Environmental Construction Options

- Standard Temperature (-40°F to +185°F) (-40°C to +85°C)
- High Temp. (-20°F to +300°F)(-29°C to +149°C) avail. on 760P w/ no elec. options or approvals
- Ozone Resistant with Viton® dynamic elastomers and iso-elastomeric spring

Gauges (Not available with Hi Temp. Environmental Construction "C")

- Not Required
- Gauges (set of three gauges)

Limit Switches (Not avail. with Hi Temp Environmental Construction "C")

- Not Required
- Mechanical Switches, (2) SPDT
- Proximity Switches (2) NAMUR type

Feedback Devices (Not avail. with Hi Temp Environmental Construction "C")

- Not Required
- Potentiometer - 1K
- 4 to 20 mAdc Feedback
- Potentiometer - 1K w/SS feedback gear
- 4 to 20 mAdc Feedback w/SS feedback gear

Design Level

- Revision

Electrical Approval

- None
- FM / CSA / ATEX / CE

Order No.

760

(see page 3.4)

A
C
E

N
G

N
1
2

N
1
2
3
4

D

N
6

Series 760 Approvals & Certifications

FM (Factory Mutual) Approvals:

- Intrinsically Safe:
 - Class I, Division 1, Groups A, B, C, D;
 - Class II, Division 1, Groups E, F, G;
 - Class III, Division 1;
- Non-Incendive:
 - Class I, Division 2, Groups A, B, C, D
- Suitable for:
 - Class II, Division 2, Groups E, F, G
 - Class III, Division 2

CSA (Canadian Standards Association) Certification

- Intrinsically Safe:
 - Class I, Division 1, Groups A, B, C, D;
 - Class II, Division 1, Groups E, F, G;
 - Class III, Division 1;
- Suitable for:
 - Class I, Division 2, Groups A, B, C, D;
 - Class II, Division 2, Groups E, F, G
 - Class III, Division 2

NOTES:

1. Fix feedback pin in lever to hold non-linearity error to 3% max. Consult factory for more details.
2. The Low Flow Gain Spool Valve Assembly option can provide more stable operation when the positioner is installed on small volume actuators, i.e. piston diameters less than 4"(10mm). Consult factory for more details.

Valve Positioners

Series 760P/E Valve Positioners

Ordering data

PAC™ Valve Controller (cont'd)

Enclosure:

- Type 4X, in accordance with NEMA Std. 250
- Type IP65, in accordance with IEC Std. 529

Conversions

- Add I/P Module Kit (Converts 760P to 760E)
- 3-15 PSI Input Spring (Std. Temp.)
- (3) Pressure Gauge Kit
- Add 90° Beacon Indicator Kit (for 1/4 Turn Actuators)
- Add 60° Flat Indicator Kit (for Lever Action Actuators)
- Add 90° Flat Indicator Kit (for 1/4 Turn Actuators)
- 3-15 PSI Conversion Kit (Hi Temp)
- 3-27/6-30 psi Conversion Kit (Std. Temp)
- Hi-temps 3/27 PSI

Options

- Add Mechanical Limit Switches Kit (2) SPDT
- Add Proximity Limit Switches Kit (2) NAMUR type
- Add 1K Feedback Potentiometer Kit
- Add 4 to 20 mAdc Feedback Kit
- Add Mechanical Limit Switches & 1K Feedback Potentiometer Kit
- Add Mechanical Limit Switches & 4 to 20 mAdc Feedback Kit
- Add Proximity Limit Switches & 1K Feedback Potentiometer Kit
- Add Proximity Limit Switches & 4 to 20 mAdc Feedback Kit
- Add 1K Feedback Potentiometer Kit w/SS feedback gear
- Add 4 to 20 mAdc Feedback Kit w/SS feedback gear
- Add Mechanical Limit Switches & 1K Feedback Potentiometer Kit w/SS feedback gear
- Add Mechanical Limit Switches & 4 to 20 mAdc Feedback Kit w/SS feedback gear
- Add Proximity Limit Switches & 1K Feedback Potentiometer Kit w/SS feedback gear
- Add Proximity Limit Switches & 4 to 20 mAdc Feedback Kit w/SS feedback gear

Note: Above listed options are limited to standard upper temperature limit of +185° F.

- Standard Flow Spool Valve Kit
- High Flow Spool Valve Kit
- Low Gain Spool Valve Kit
- Sealing Plate Kit (converts 760E to 760P)

Cams

- 760 P/E Cam Kit, rotary 90° Action (3 cams: Linear, QO, =%)
- 760 P/E Cam Kit, linear 60° Action (3 cams: Linear, QO, =%)
- 75° Rectilinear-Linear
- Cam, 180° - CW, Rotary -Linear
- Cam, 30° - Rectilinear - Linea
- Blank Cam Kit
- Cam, 180° - CCW, Rotary-Linear

Spare Parts Kits

- Spare Parts Kit includes all recommended rebuild parts as shown in SD760, Issue 2

Accessories

- Wired On Stainless Steel Tag
- Manual
- User Manual CD (included with each instrument)

Order No.

Series 760 Valve

16300-1355

16300-331

16300-442

16300-488

16300-486

16300-487

16300-640

16300-771

16300-772

16300-500

16300-501

16300-503

16300-502

16300-505

16300-504

16300-507

16300-506

16300-580

16300-577

16300-581

16300-578

16300-582

16300-579

16300-468

16300-469

16300-470

16300-641

16300-783

16300-784

16300-805

16300-807

16300-816

16300-267

A6X30005613

16300-686

SD760