## 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.

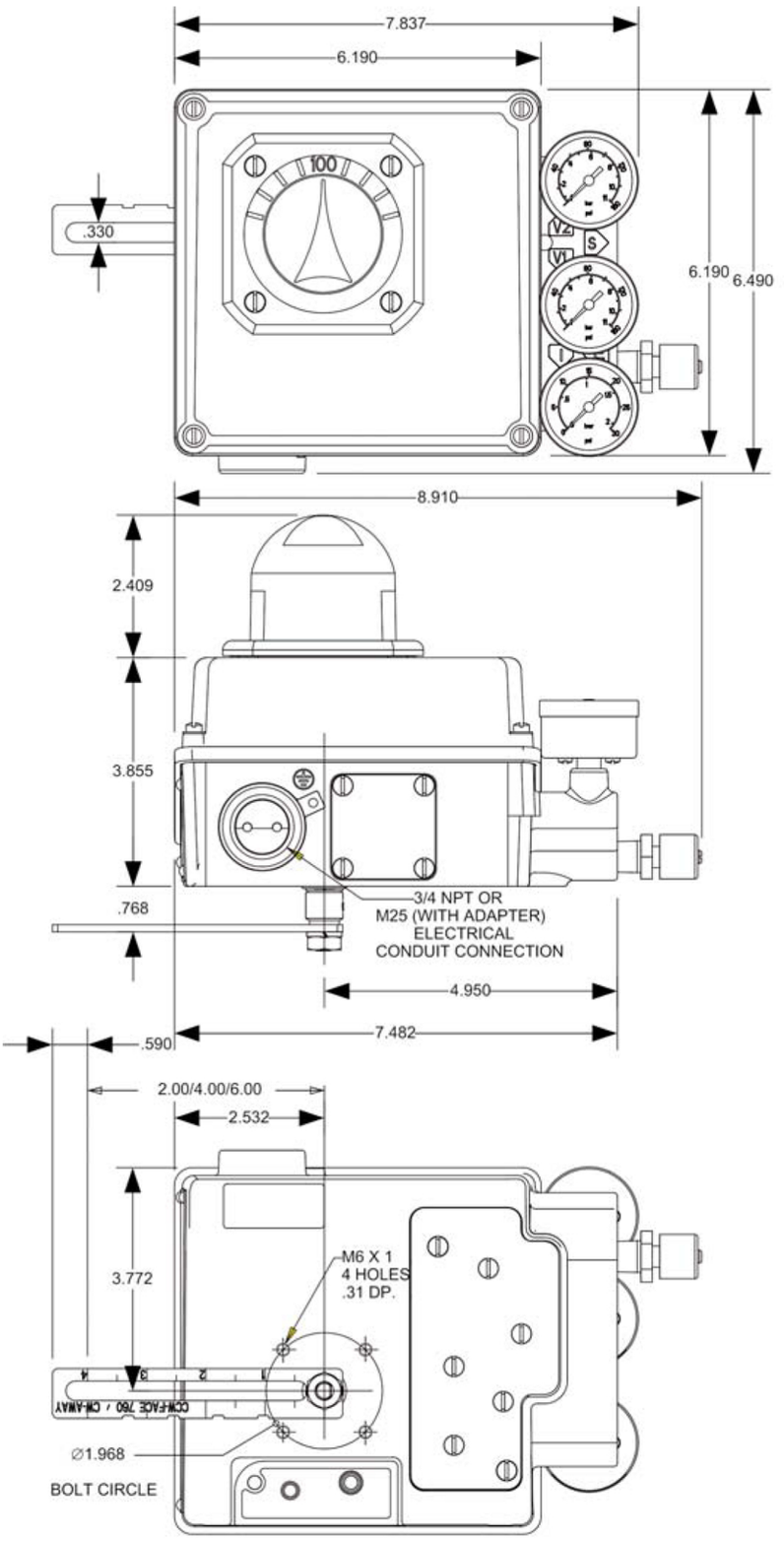
A spool valve is used to load the actuator for positioning in response to an input signal. A characterized cam provides mechanical feedback. There are linear, equal percentage and quick opening operation cam profiles, and a blank profile cam is available for custom applications. Rectilinear action length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

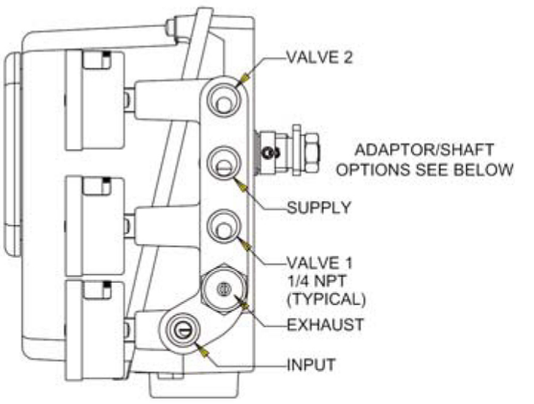
The feedback shaft and characterized cam can be replaced in the field to configure the positioner for use with either a rectilinear or rotary actuator. No additional parts are necessary to change between single or double acting actuators or direct or reverse action.

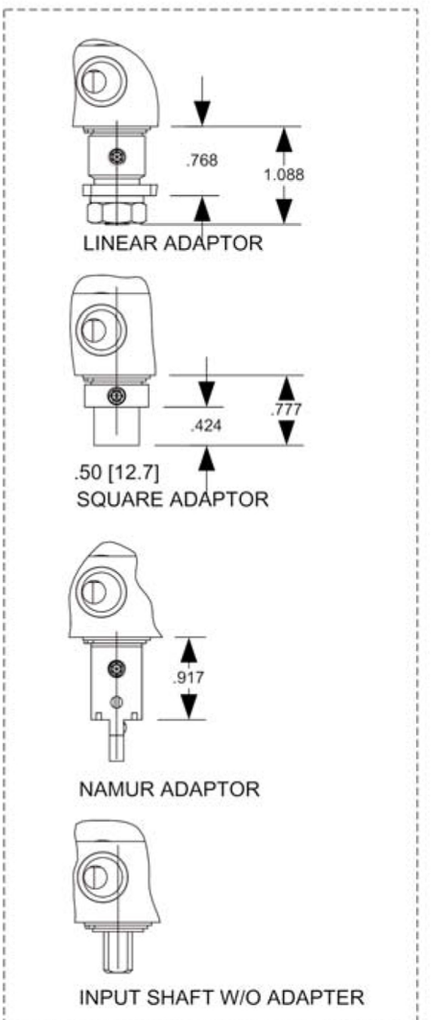
## Technical data

### Mounting Dimensions






ADAPTOR/SHAFT OPTIONS

## 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

## Ordering data

### Model Number

Series 760 Valve Controller/Positioner

**Basic Model Code No.**

- 760 Valve Controller (Positioner)

Order No.

**760** ■■■ ■ ■■■■■■ (cont. on page 3.5)

| | |
|---|---|
| **Input signal** | |
| • 4 to 20 mAdc (not available with High Temp. Option) | **E1** |
| • 3 to 15 psig | **P1** |
| • 3-27/6-30 psig | **P2** |
| • 20 to 100 kPa | **P4** |
| • 0.2 to 1.0 Bar | **P5** |
| • 0.2 to 1.0 kg/cm$^2$ | **P6** |
| **Action (Rising Stem/Linear or Rotary)** | |
| • 1/2 to 4 inch stroke lever with set of (3) 60° cams | **1** |
| • 2 to 6 inch stroke lever with set of (3) 60° cams | **2** |
| • 1/4 turn - 1/2 inch square shaft with set of (3) 90° cams | **3** |
| • 1/2 to 2 inch stroke lever with set of (3) 60° cams | **4** |
| • 1/4 turn NAMUR style shaft end with set of (3) 90° cams | **5** |
| • 1/4 turn - 1/2 inch square shaft with set of (3) 60° cams | **7** |
| • 1/2 to 4 inch stroke lever with (1) 90° linear cam | **E** |
| • 2 to 6 inch stroke lever with (1) 90° linear cam | **F** |
| • 1/4 turn NAMUR shaft with set of (3) 60° cams | **S** |
| **Enclosure Type 4X/IP65 (with 3/4 inch NPT Conduit Connection)** | |
| • Standard | **A** |
| • With 90° Beacon Indicator (not available with High Temp. Option) | **B** |
| • With 60° Flat Indicator (not available with High Temp. Option) | **J** |
| • With 90° Flat Indicator (not available with High Temp. Option) | **K** |
| **Enclosure Type 4X/IP65 (with M25 Conduit Connection)*** | |
| • Standard | **E** |
| • With 90° Beacon Indicator (not available with High Temp. Option) | **F** |
| • With 60° Flat Indicator (not available with High Temp. Option) | **N** |
| • With 90° Flat Indicator (not available with High Temp. Option) | **P** |
| **Flow Capacity** | |
| • Standard Capacity Spool Valve Assembly (Cv = 0.3) | **A** |
| • High Flow Capacity Spool Valve Assembly (Cv = 0.6) | **B** |
| • Low Flow Gain Spool Valve Assembly | **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.

*760 with M25 metric enclosure no longer avaialable. For M25 thread requirements, use adapter TGX:16300-1439

## Ordering data

### Model Number

Order No.

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

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.

## Ordering data

| 760 Series Valve Controller/Positioner (cont'd) | Order No. |
|---|---|
| **Conversions** | |
| • Add I/P Module Kit (Converts 760P to 760E) | **16300-1355** |
| • 3-15 PSI Input Spring (Std. Temp.) | **16300-331** |
| • (3) Pressure Gauge Kit | **16300-442** |
| • Add 90° Beacon Indicator Kit (for 1/4 Turn Actuators) | **16300-488** |
| • Add 60° Flat Indicator Kit (for Lever Action Actuators) | **16300-486** |
| • Add 90° Flat Indicator Kit (for 1/4 Turn Actuators) | **16300-487** |
| • 3-15 PSI Conversion Kit (Hi Temp) | **16300-640** |
| • 3-27/6-30 psi Conversion Kit (Std. Temp) | **16300-771** |
| • Hi-temps 3/27 PSI | **16300-772** |
| **Options** | |
| • Add Mechanical Limit Switches Kit (2) SPDT | **16300-500** |
| • Add Proximity Limit Switches Kit (2) NAMUR type | **16300-501** |
| • Add 1K Feedback Potentiometer Kit | **16300-503** |
| • Add 4 to 20 mAdc Feedback Kit | **16300-502** |
| • Add Mechanical Limit Switches & 1K Feedback Potentiometer Kit | **16300-505** |
| • Add Mechanical Limit Switches & 4 to 20 mAdc Feedback Kit | **16300-504** |
| • Add Proximity Limit Switches & 1K Feedback Potentiometer Kit | **16300-507** |
| • Add Proximity Limit Switches & 4 to 20 mAdc Feedback Kit | **16300-506** |
| • Add 1K Feedback Potentiometer Kit w/SS feedback gear | **16300-580** |
| • Add 4 to 20 mAdc Feedback Kit w/SS feedback gear | **16300-577** |
| • Add Mechanical Limit Switches & 1K Feedback Potentiometer Kit w/SS feedback gear | **16300-581** |
| • Add Mechanical Limit Switches & 4 to 20 mAdc Feedback Kit w/SS feedback gear | **16300-578** |
| • Add Proximity Limit Switches & 1K Feedback Potentiometer Kit w/SS feedback gear | **16300-582** |
| • Add Proximity Limit Switches & 4 to 20 mAdc Feedback Kit w/SS feedback gear | **16300-579** |
| *Note: Above listed options are limited to standard upper temperature limit of +185° F.* | |
| • Standard Flow Spool Valve Kit | **16300-468** |
| • High Flow Spool Valve Kit | **16300-469** |
| • Low Gain Spool Valve Kit | **16300-470** |
| • Sealing Plate Kit (converts 760E to 760P) | **16300-641** |
| **Cams** | |
| • 760 P/E Cam Kit, rotary 90° Action (3 cams: Linear, QO, =%) | **16300-783** |
| • 760 P/E Cam Kit, linear 60° Action (3 cams: Linear, QO, =%) | **16300-784** |
| • 75° Rectilinear-Linear | **16300-805** |
| • Cam, 180° - CW, Rotary -Linear | **16300-807** |
| • Cam, 30° - Rectelinear - Linea | **16300-816** |
| • Blank Cam Kit | **16300-267** |
| • Cam, 180° - CCW, Rotary-Linear | **A6X30005613** |
| **Spare Parts Kits** | |
| • Spare Parts Kit includes all recommended rebuild parts as shown in SD760, Issue 7 | **16300-686** |
| **Accessories** | |
| • Manual | **SD760** |
| • User Manual CD (included with each instrument) | |