

VAC



Valve Accessories & Controls



VAC V100 Series Positioners

Dependable Products • Reliable Service

Distributed
by:



Ph: 612-331-1776
www.duncanco.com

reliable

modular

modularity

The V100 positioner can be ordered as a base model pneumatic positioner, converted to standard NEMA 4X electropneumatic, EX model, or FF (fail freeze) model in a matter of minutes, without removing the unit from the mounted valve package. You can add gauges, a feedback module, or a raised indicator, at any time...in just a matter of minutes. Of course, you can also order them configured in any of these models and then change or remove components in the field as needed. Maximum modularity equals maximum flexibility. And with a simple design and quality components, the performance is maximum as well.

V100E-FF

Gas Approved
V100E(GA) or
V100E-EX

The V100E (0/10V)

Nema 4x I/P or
V100E-IS

V100P

R100 Feedback Module

Standard
cover with
pointed
indicator

add a raised indicator
(yellow/black or red/
green)

Features



Flexibility

One housing for pneumatic or electropneumatic

Multiple mounting capability

Standard indicator allows for air to open or air to close operation—raised indicator available

F05 standard housing with interchangeable drives.



Unique electrical compartment, fitted with an o-ring, is pressure sealed by the cover

Features



Options

Special cams, range springs, various NEMA ratings, and feed-back capability are components of the BLX positioner package.



Simple Calibration

With the less interactive span and zero adjustment, and the external zero adjustment, calibration is simple and time saving.



Maintenance friendly

The BLX pilot valve assembly can be exchanged or cleaned by simply removing one screw and can only be installed one way—the correct way.

The gauge block is standard

I/P test point facilitates positioner loop testing



Durable

Cast aluminum, Polyester coated housing with Stainless steel retained fasteners

Double locked stainless cam

Quality metal internal parts

Positioner Options



V100P

The base pneumatic positioner has a unique spool valve for controlling air pressure, is cam characterized, and incorporates a force balance principal of operation. The V100P is simple, rugged, and very user friendly for calibration and maintenance. The NEMA 4X housing is die casted aluminum, with electrostatically applied polyester for a wide range of applications. This unit normally operates on a 3-15 PSI instrument signal (optional 24 psi) and can provide years of trouble free service in a wide range of applications. The standard gauge block is cast into the housing. The large indicator has scaling for CW or CCW operation. This unit becomes the “base” for the following Ip options.



V100E

All V100 electropneumatic units use the base V100P, with either an internal (V100E or IS) Ip converter, or an external (V100 EX, FF, 0/10V, GA) module that is custom fitted to the unit and very simple to adapt. Conversion from one type of unit to the other can be made in minutes, and of course all electropneumatic units can be ordered as a single, complete assembly. This gives the product a lot of flexibility and application coverage.

Positioner Options



V100E-IS

Where Intrinsically Safe applications are needed.



The V100E (0/10V)

This unit operates on a 0-10 volt input vs. the traditional 4/20 mA signal.



V100E-EX

Where “explosion proof” Class 1 Div 1 applications are needed-Atex-FM-CSA approvals available.



V100E-FF

This “fail freeze” unit has a unique Ip transducer that fails in place on loss of 24 v power.



Gas Approved V100E(GA)

This special unit is an FM Approved Electropneumatic unit that can be used with natural gas as the operating medium.

Feedback Options



R100 Feedback Module

This simple, reliable product “piggybacks” on to any V100 positioner. It can be ordered with the initial positioner product or field mounted. The feedback module becomes the cover for the positioner and the positioner cover for the feedback module. No special parts are needed. The module is available with mechanical or reed switches, 4-20 mA transmitter, or combinations of these items, all in a very simple and cost effective package. This positioner/feedback package is Nema 4X rated, has simple spring loaded devices for easy calibration, and can be fitted with a flat or raised indicator.

This unit can be supplied for stand alone feedback installations as the R300—all information is the same, but would be ordered with its own cover, and drive spindle.

General Specifications:

-40 to 185° F

Two 1/2” conduit connections

4/20 Transmitter- 2 wire-10-30 VDC-Max impedance 700W @24 VDC

Mechanical Switches-SPDT-Co Form C, (V3)-max 10A (3) 12/250 VAC

Reed Switches-SPDT-Co form C-contact rating 5W or 5VA @ 30 VDC/VAC .16 A

PC Board Settings: Jumpers for CCW or CW-(45) 30-60 degree rotation-(90) 60-120 degree rotation-zero and span adjustments-test pins for loop calibration.

Technical Specifications: Overview

	Pneumatic		Electropneumatic-----		
	V100P	V100E	V100E-EX	V100E-FF	V100E - 0/10V
Input Signal	3-15 PSI	4-20mA	4-20 mA (Ri < 475)	4-20 mA	0-10 volts
Supply Pressure	145 PSI	145 PSI	100 PSI	100 PSI	100 PSI
Linearity error	<0.7%f.s.	<1.0%f.s.	<1.0%f.s.	<1.0%f.s.	<1.0%f.s.
Hysteresis	<0.4%f.s.	<0.6%f.s.	<0.6%f.s.	<0.6%f.s.	<0.6%f.s.
Repeatability	<0.3%f.s.	<0.5%f.s.	<0.5%f.s.	<0.5%f.s.	<0.5%f.s.
Pressure Gain	750 Pout/Pin				
Air Delivery	SCFM(same for all units)				
@29 PSI (200 kPa)	9.5				
@87 PSI (600 kPa)	28.3				
@145 PSI (1 MPa)	47.1				
Bleed Rate	Pneumatic	Electropneumatic-all units			
	SCFM (SLPM)	SCFM	(SLPM)		
@29 PSI (200 kPa)	.18 (5)	0.2	(5.7)		
@87 PSI (600 kPa)	.53 (15)	0.6	(17.0)		
@145 PSI (1 Mpa)	.88 (25)	1.0	(28.3)		
Temperature range	V100P -40 to 185 F (85 C)		V100E -20 to 185 F (85 C)		
Air connections	1/4" NPT				
Gauges	1/8" NPT				
Cable Entry	1/2" NPT				
Ingress & corrosion protection	NEMA 4X and IP66				
Coating Options	Polyester (Standard)		Tuftram®	Nickel	
Weight	3.5 lbs	3.8 lbs.	4.9 lbs.	5.8 lbs.	4.2 lbs.

Options: 6-30 psi spring for pneumatic, various cams, low bleed and high gain pilot assemblies, nickel and Tuftram® coating (for P and standard E), dome indicator, 0-10 Volts, position feedback

Approvals

Ratings for hazardous locations:

V100E-EX

Enclosure is Nema 4 X (IP65)

ATEX

Explosion Proof EEx d IIB + H2 T4 Temp

Intrinsically Safe EEx ia IIB T4 Temp

-40° C ≤ Ta ≤ 70° C

Entity Parameters Umax = 30 VDC Ci=0 uF

I_{max}=125 mA L=0 m H

Pi = 0.7 w max

FM and CSA

Explosion Proof CL I, Div 1 & 2, Groups B, C, D

T6 Temp Ta=70° C

Dust Ignition Proof CL II & III, Div 1 Groups E, F, G

T6 Temp Ta= 70° C

Suitable For CL II & III, Div 2, Groups F, G

T6 Temp Ta= 70° C

Intrinsically Safe CL I, Div 1, Groups C & D

CL II, Div 1, Groups E, F, G

CL III, Div 1 Fibers

T4 Temp Ta= 70° C

Non-Incendive CL 1, Div 2, Groups A,B,C,D
T4 Temp Ta= 70° C

Entity Parameters U: (V_{max}) = 30 VDC Ci= 0 uF

For Intrinsically I: (I_{max}) = 125 mA Li=0 m H

Safe systems Pi= .7 w max

V100E-IS (Intrinsically safe)

Atex

EEx ia IIC T4/T6

FM

CL1 DIV1 Grp A B C D

CSA

Ex ia, CL I Grp A B C D

Ex ia CL I DIV2 Grp A B C D



Positioner Products Ordering Codes

V100 (BLX) Series

Pneumatic	V100 P
Electropneumatic	V100 E
Explosion Proof	V100 EX
Intrinsically Safe	V100 IS
Fail Freeze	V100 FF

Spindle

DX See spindle section below

Front Cover

90 degree rotation	90
60 degree rotation	60
45 degree rotation	45
30 degree rotation	30
Blank scale	XX

Indicator

Arrow	A
Standard Beacon/Raised (Black/Yellow)	B
Optional Beacon/Raised (Red & Green)	BRG
	Cam
(standard) 90° (0-100, 0-50, 50-100)	C1
45/90°	C2
30/60°	C3
60/120° (others available)	C4

Spool Valve Options

Comes with standard medium gain if not specified otherwise

Low Gain	LG
High Gain	HG

Options

0-10 Volt I/P (V100E only)	0/10V
Nickel Coating (V100P & V100 E only)	NIC
Tufram Coating (V100P & V100 E only)	TUF
Gas Approved (V100EX only)	GA
24 Psi spring (V100P only)	24 SPG

Examples: V100E-D1-90-B-C1

Electropneumatic with namur spindle, 90 degree cover, raised indicator, 90 degree cam.

V100E-EX-D2-90-A-C1-GA

Explosion proof with 1/2" square spindle, 90 degree cover, arrow indicator, 90 degree cam, and approved for natural gas.

Gauges

Please specify quantity and pressures as second line information

400500	0 to 30 PSI, 1/8" NPT Back Mount
400501	0 to 160 PSI, 1/8" NPT Back Mount
400502	0 to 30 PSI, 1/8" NPT Bottom Mount
400517	0 to 30 PSI, 1/8" NPT Back Mount Stainless Steel
400518	0 to 160 PSI, 1/8" NPT Back Mount Stainless Steel
400519	0 to 30 PSI, 1/8" NPT Bottom Mount Stainless Steel

Please call VAC with any ordering code questions at 205.678.0507

Feedback Products Ordering Codes

R100 Series (BLX)

R100	Mounts directly to positioner
R300	Mounts directly to actuator; called "Stand alone"

Switches

2 SPDT mechanical	M
2 SPDT reed/proximity	R

Feedback transmitters

4/20 mA mA

Front Cover (R300 only)

90 degree rotation	90
60 degree rotation	60
45 degree rotation	45
30 degree rotation	30
Blank scale	XX

Indicator (R300 only)

Arrow	A
Standard Beacon/Raised (black/yellow)	B
Optional Beacon/Raised (Red & Green)	BRG

Spindle (R300 only)

See spindle section/dimensional drawing DX

Examples: R100-M-mA

Feedback with mechanical switches and 4-20mA transmitter

R300-mA-90-B-D1

Stand alone feedback with 4-20 transmitter, raised indicator and namur spindle.

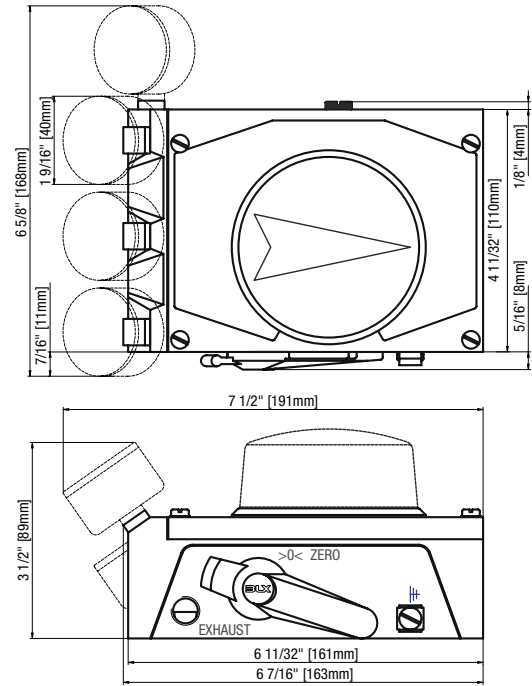
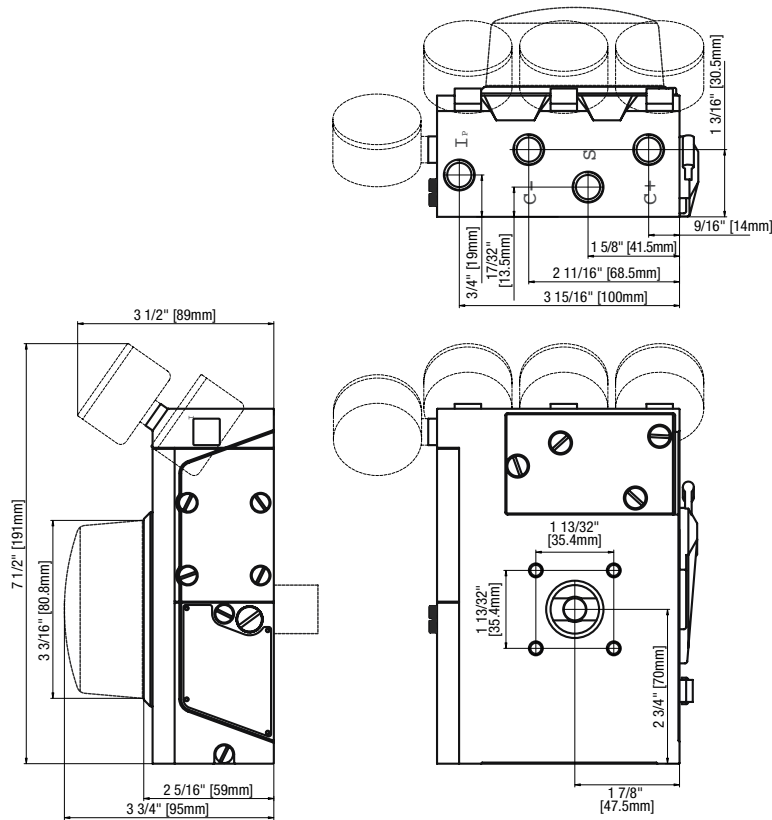
Please call VAC with any ordering code

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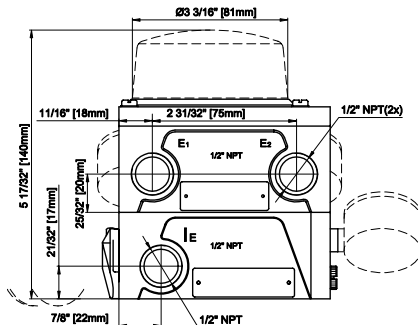
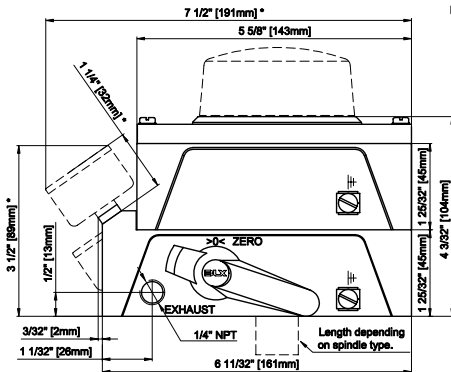
Spindles (Drive):

D1	Namur - Standard
D2	1/2" Square
D3	3/8" Square - Short
D4	Round - Linear
D5	Double D
D6	3/8" Square - Long
D7	3/4" Slotted
D8	12mm Dual Post
D9	Old Namur - Special
D10	Namur - Special
D11	Octagon

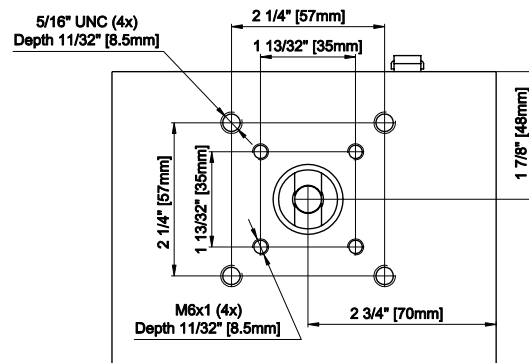
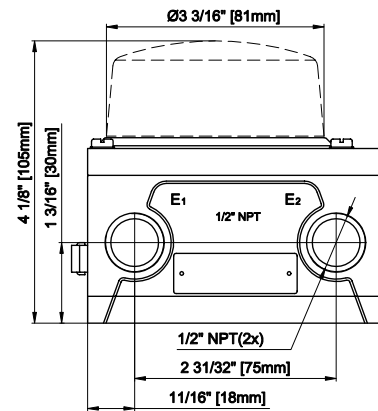
Dimensional Drawings V100P and E, R100 and R300



V100 P, E, and IS

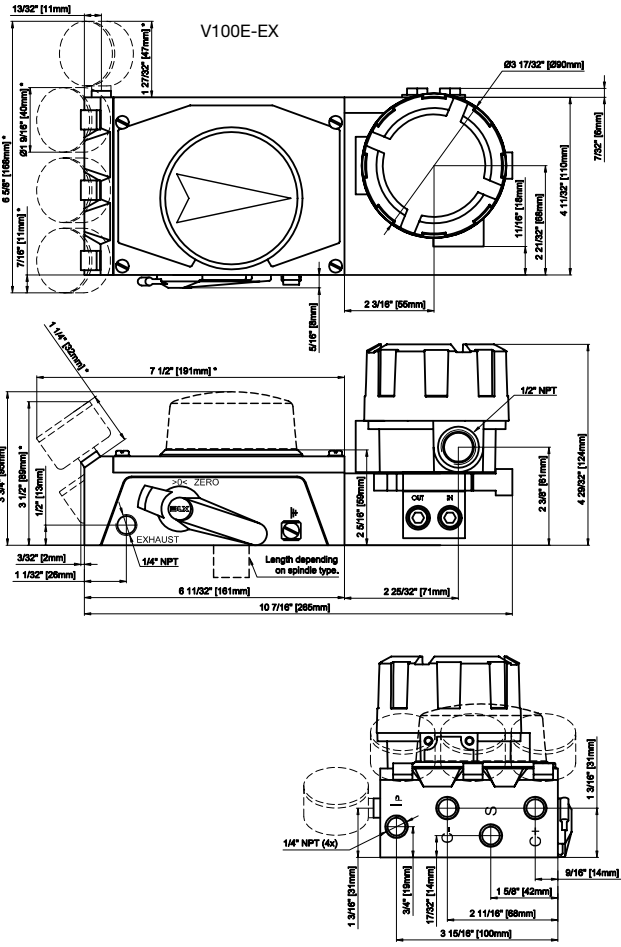


R100

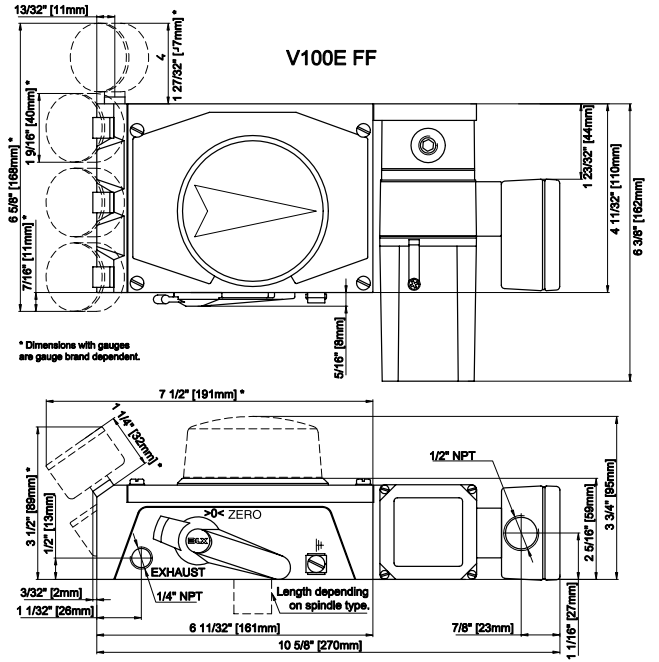


R300

Dimensional Drawings V100E EX, V100E FF and Specials

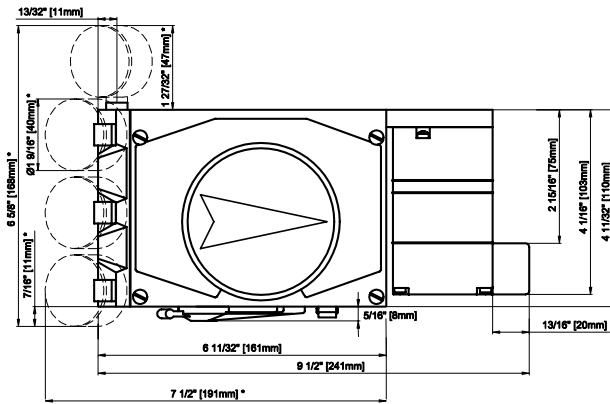


V100E EX

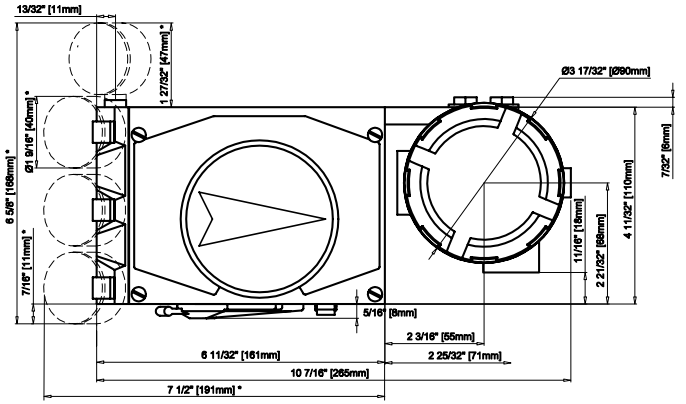


* Dimensions with gauges are gauge brand dependent.

V100E FF



V100E 0-10V



V100E GA

V100 Specials