



# Type 2000

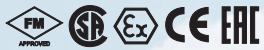
## Pneumatic and Electro-Pneumatic Valve Positioner

Stable and accurate positioning of rotary and linear valves

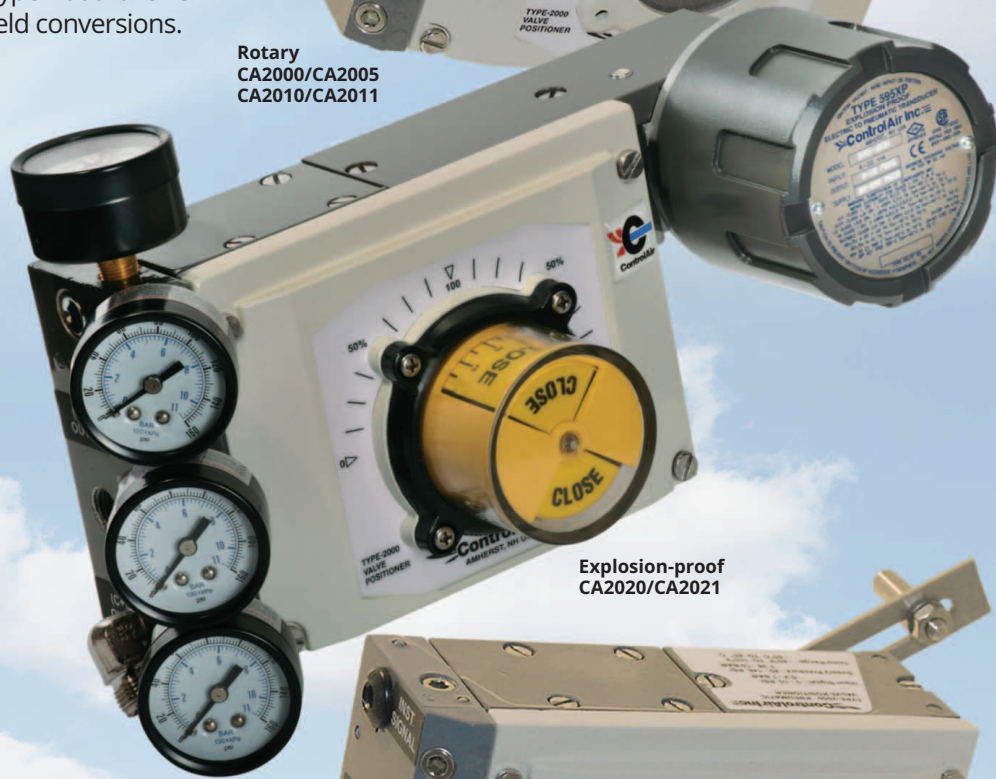
The ControlAir Type-2000 pneumatic and electro-pneumatic positioner provides stable and accurate positioning of rotary and linear valves. The force balanced instrument is simple, reliable and user friendly for calibration, maintenance and field upgrades. The electro-pneumatic unit is available with worldwide safety approvals in an Intrinsically Safe and Explosion-proof version. The NEMA-4X (IP 66) housing provides rugged resistance to severe industrial environments. The modular design of the Type-2000 allows multiple feature ordering options or easy field conversions.

### Features

- Rotary and linear
- Optional 4-20 mA feedback or mechanical switches
- External zero adjustment for easy calibration
- Vibration, position and shock insensitive
- High gain pilot valve  
Provides quick and accurate valve/actuator response
- Standard pointed indicator (rotary), standard blank cover (linear) and optional raised beacon
- High maximum supply pressure  
145 psig (10 Bar)
- FM, CSA & ATEX approvals  
Intrinsically Safe: CA2010, CA2011  
Explosion-proof: CA2020, CA2021  
Natural Gas: CA2022, CA2023



Rotary  
CA2000/CA2005  
CA2010/CA2011



Explosion-proof  
CA2020/CA2021



Linear  
CA2000/CA2005  
CA2010/CA2011



Natural Gas  
CA2022/CA2023

# Type 2000 Pneumatic and Electro-Pneumatic Valve Positioner

## Functional Specifications

Type-2000	Pneumatic (CA2000)		Electro-Pneumatic (CA2005/CA2010/CA2011/CA2020/CA2021)		Electro-Pneumatic (CA2022/CA2023)	
	<b>Input Signal</b>	3-15 PSI (0.2-1.0 Bar)		4-20 mA (Ri<250 ohms)		4-20 mA (Ri<500 ohms)
<b>Supply Pressure</b>	<145 PSI (<10 Bar)		21.8-145 PSI (1.5-10 Bar)		21.8-100 PSI (1.5-7 Bar)	
<b>Linearity Error</b>	<0.7 % f.s.		<1.0% f.s.		<0.8% f.s.	
<b>Hysteresis</b>	<0.4% f.s.		<0.6% f.s.		<0.5% f.s.	
<b>Repeatability</b>	<0.3% f.s.		<0.5% f.s.		<0.4% f.s.	
<b>Flow Capacity</b> @29 PSI (2.0 Bar) @87 PSI (6.0 Bar) @145 PSI (10 Bar)	<b>SCFM</b>	<b>NI/min</b>	<b>SCFM</b>	<b>NI/min</b>		
	9.5	268.9	9.5	268.9		
	28.3	800.1	28.3	800.1		
	47.1	1333	47.1	1333		
<b>Air Consumption</b> @29 PSI (2.0 Bar) @87 PSI (6.0 Bar) @145 PSI (10 Bar)	<b>SCFM</b>	<b>NI/min</b>	<b>SCFM</b>	<b>NI/min</b>		
	0.18	5.09	0.2	5.7		
	0.53	424.5	0.6	17.0		
	0.88	707.5	1.0	28.3		
<b>Impedance</b>			260 Ohms @ 70 ° F		500 Ohms @ 70 ° F	
<b>Loop Load</b>			5.2 Volts @ 20 mA		9.5 Vdc @ 20 mA	

## Physical Specifications

<b>Temperature Range</b>	-40° to 185° F (-40° to 85° C)	-40° to 158° F (-40° to 70° C)
<b>Port Sizes</b>	Pneumatic: 1/4" NPT; Gauge Ports - 1/8" NPT Electric: 1/2" NPT; M20-1.5 (ATEX)	
<b>Media</b>	Clean, dry, oil-free instrument air, filtered to 40 micron	Sweet natural gas or methane
<b>Enclosure</b>	Nema 4X / IP65 aluminum with polyester epoxy finish	
<b>Weight</b>	3.5 lbs (1.6 kg) 5.1 lbs (2.3 kg)	3.8 lbs (1.7 kg) CA2005/CA2010/CA2011 5.4 lbs (2.5 kg) CA2005 with feedback 4.8 lbs (2.2 kg) CA2020/CA2021 6.0 lbs (2.7 kg) CA2022/CA2023

Mechanical Switches (S & FS Option)		Mechanical Switches (F & FS Option)	
<b>Input Signal</b>	Honeywell V15S05-CZ100 A05-01	<b>Voltage</b>	Supply 12-30 VDC
<b>Switch Type</b>	SPDT	<b>Output</b>	2 Wire; 4-20 mA DC
<b>Loop Load</b>	5A 125/250 VAC/0.1A 48 VDC	<b>Loop Impedance</b>	Max. 700Ω @ 24 VDC
<b>Operating Force</b>	100gf	<b>Linearity Error</b>	<1.5% f.s.
<b>Position Feedback</b>	<0.3% f.s.	<b>Hysteresis Error</b>	<0.5% f.s.

## Approvals (I/Ps only)

### Model 2010 Factory Mutual (FM) & Canadian Standards (CSA) Approvals

<b>Intrinsically Safe</b> Class I, Division 1, Groups A, B, C, D	<b>Entity Parameters</b> Ui (Vmax) = 40 VDC Li (Imax) = 150 mA Ci = 0 Li = 0 Pi = 0.7 watts max.
<b>Nonincendive</b> Class I, Division 2, Groups A, B, C, D	
<b>Intrinsically Safe</b> Class I, II & III, Division 1, Groups A, B, C, D, E, F, G	
<b>Explosion-Proof</b> Class I, Division 1, Groups B, C, D	
<b>Dust Ignition-Proof</b> Class II, III, Division 1, Groups E, F, G	

### Model 2011 ATEX Approvals

<b>Intrinsically Safe</b> II 1 G Ex ia IIC T4/T5/T6	<b>Entity Parameters</b> Ui (Vmax) = 40 VDC Li (Imax) = 150 mA Ci = 0 Li = 0 Pi = 0.7 watts max.
<b>Intrinsically Safe</b> II 1 G Ex ia IIC T4/T5/T6	
<b>Flame-Proof - ATEX</b> II 2 G Ex d IIB + H2 T6 II 2 D Ex tD A21 T85° C	
<b>Intrinsically Safe</b> Class I, II & III, Division 1, Groups C, D, E, F & G	
<b>Explosion-Proof</b> Class I. II & III, Division 1, Groups B, C, D, E, F & G	
<b>Intrinsically Safe</b> II 1 G Ex ia IIB	
<b>Flameproof</b> II 2 G Ex d IIB + H2	

**Model 2021**  
**Intrinsically Safe**  
II 1 G Ex ia IIB

**Model 2022**  
**Intrinsically Safe**  
II 1 G Ex ia IIB

**Model 2023**  
**Intrinsically Safe**  
II 1 G Ex ia IIB

# Ordering Use this coding system to order

**Model**  
**CA20**

**Type of Motion**  
R Rotary  
L Linear

**Cam**  
C1 90°/180° (Standard Rotary)  
C2 45°/90°  
C3 30°/60° (Standard Linear)

**Type of Positioner**  
00 P/P Pneumatic  
05 E/P Electro-pneumatic; no approvals; general purpose only  
10 E/P Electro-pneumatic; FM/CSA Intrinsically Safe  
11 E/P Electro-pneumatic; ATEX Intrinsically Safe  
20 E/P Electro-pneumatic; FM/CSA Explosion-proof  
21 E/P Electro-pneumatic; ATEX Flame-proof  
22 E/P Electro-pneumatic, FM/CSA XP, Natural Gas  
23 E/P Electro-pneumatic, ATEX Flame-proof, Natural Gas

**Spindle**  
0 Namur (Rotary)  
1 Standard (Linear)  
2 3/8" Square  
3 1/2" Square

**Indicator**  
N None (Standard Linear)  
A Arrow (Standard Rotary)  
D Dome (Option)

**Feedback/ Switches**  
(factory installed)  
CA20-05-R or CA20-00-R only  
F 4-20 mA Feedback  
S Mechanical Switch (2 spdt)  
FS 4-20 mA Feedback & mechanical switches

## Accessories

### Gauges

0-30 psi (0-2 bar), 1/8" NPT Back Mount	P/N: 446-725-006
0-160 psi (0-11 bar), 1/8" NPT Back Mount	P/N: 446-725-008
0-30 psi (0-2 bar), 1/8" NPT Bottom Mount	P/N: 446-725-033

### Mounting Kits

**Rotary Namur Bracket Kits (Namur spindle required)**

ISO-1 Bracket	P/N: 449-542-032
ISO-2 Bracket	P/N: 449-542-033
ISO-3 Bracket	P/N: 449-542-034
ISO-4 Bracket	P/N: 449-542-035

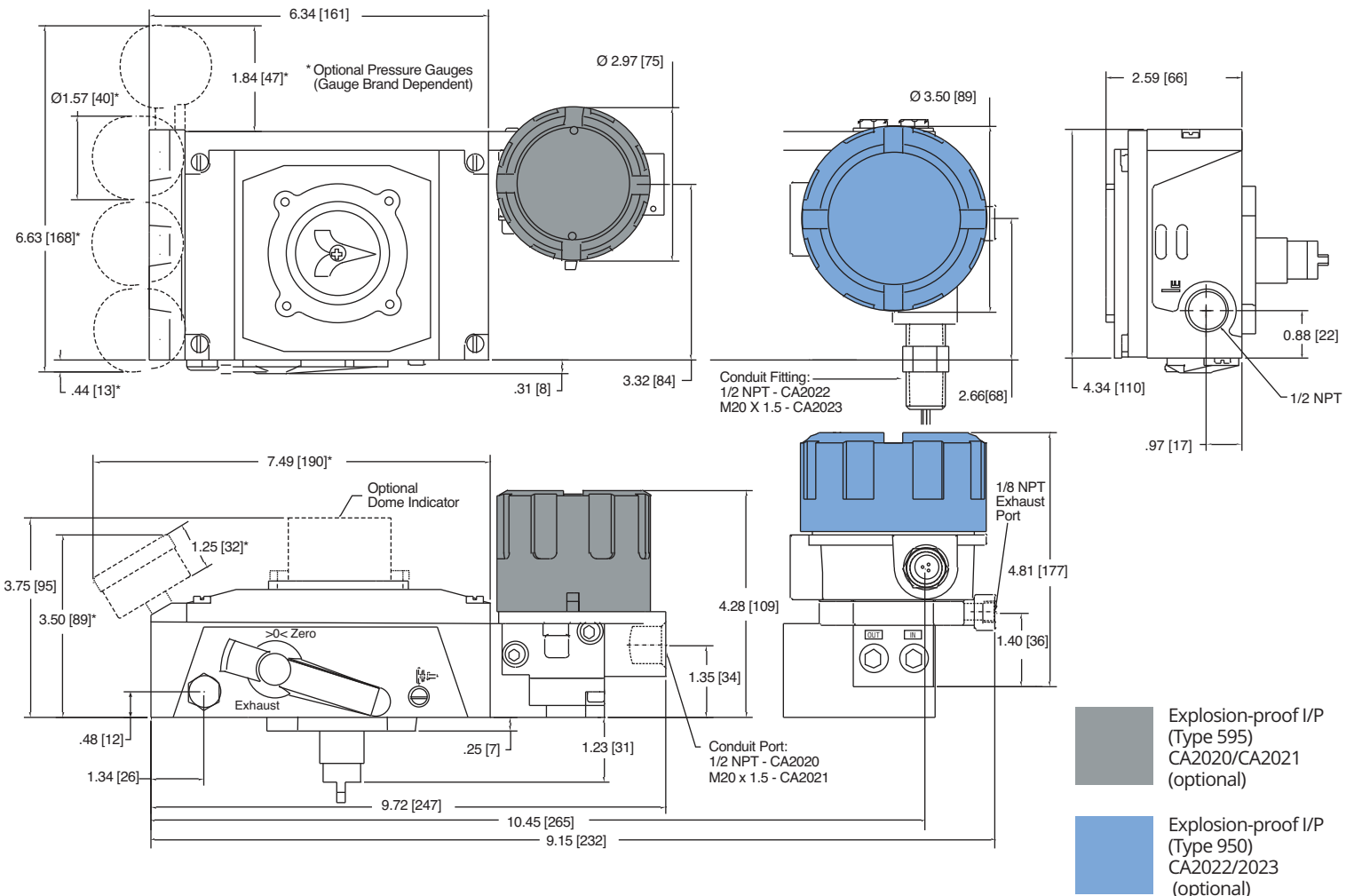
### Linear Bracket Kits

Universal	P/N: 449-542-036
Namur IEC534	P/N: 449-542-037

I/P plate assemblies to make quick field conversions are available.

## Dimensions In [mm]

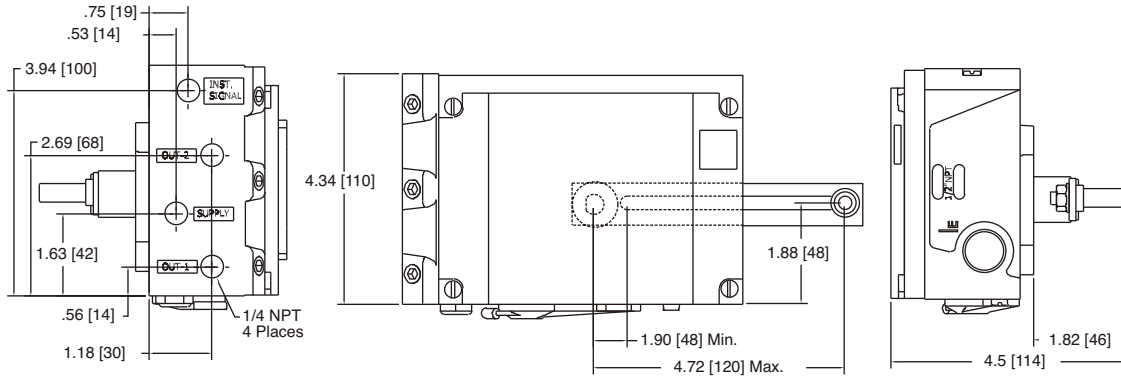
### Rotary



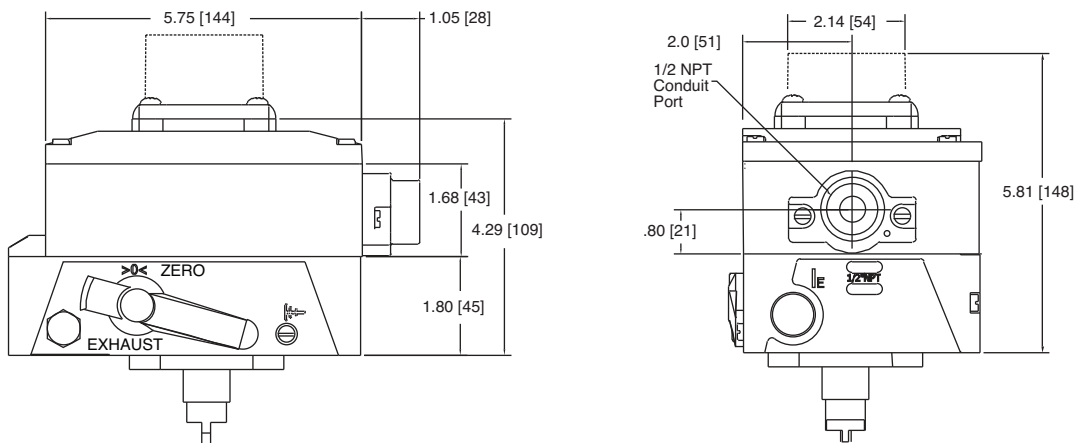
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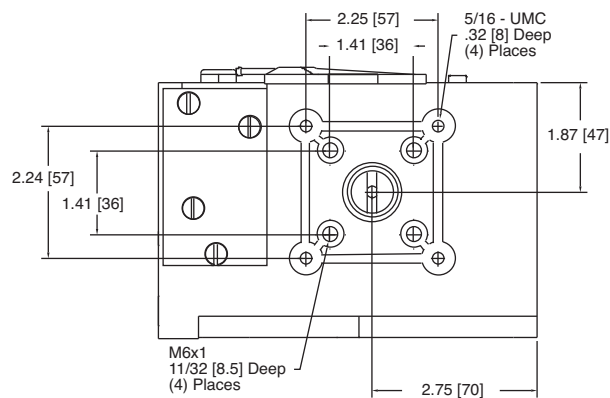
### Linear In [mm]



### Feedback / Switch (Option)



### Mounting view (Back)



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