



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

Physical Specifications

Temperature Range	-40° to 185° F (-40° to 85° C)	-40° to 158° F (-40° to 70° C)
Port Sizes	Pneumatic: 1/4" NPT; Gauge Ports - 1/8" NPT Electric: 1/2" NPT; M20-1.5 (ATEX)	
Media	Clean, dry, oil-free instrument air, filtered to 40 micron	Sweet natural gas or methane
Enclosure	Nema 4X / IP65 aluminum with polyester epoxy finish	
Weight	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)	
Input Signal	Honeywell V15S05-CZ100 A05-01	Voltage	Supply 12-30 VDC
Switch Type	SPDT	Output	2 Wire; 4-20 mA DC
Loop Load	5A 125/250 VAC/0.1A 48 VDC	Loop Impedance	Max. 700Ω @ 24 VDC
Operating Force	100gf	Linearity Error	<1.5% f.s.
Position Feedback	<0.3% f.s.	Hysteresis Error	<0.5% f.s.

Approvals (I/Ps only)

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

Intrinsically Safe
Class I, Division 1, Groups A, B, C, D

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

2020 Intrinsically Safe
Class I, II & III, Division 1, Groups A, B, C, D, E, F, G

Explosion-Proof
Class I, Division 1, Groups B, C, D

Dust Ignition-Proof
Class II, III, Division 1, Groups E, F, G

Entity Parameters
Ui (Vmax) = 40 VDC
Li (Imax) = 150 mA
Ci = 0
Li = 0
Pi = 0.7 watts max.

Model 2011 ATEX Approvals

2011 Intrinsically Safe
II 1 G Ex ia IIC T4/T5/T6

2021 Intrinsically Safe
II 1 G Ex ia IIC T4/T5/T6

Flame-Proof - ATEX
II 2 G Ex d IIB + H2 T6
II 2 D Ex tD A21 T85° C

2022 Intrinsically Safe
Class I, II & III, Division 1, Groups C, D, E, F & G

Explosion-Proof
Class I. II & III, Division 1, Groups B, C, D, E, F & G

2023 Intrinsically Safe
II 1 G Ex ia IIB

Flameproof
II 2 G Ex d II B + H2

Entity Parameters

Ui (Vmax) = 40 VDC
Li (Imax) = 150 mA
Ci = 0
Li = 0
Pi = 0.7 watts max.

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)

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

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)

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

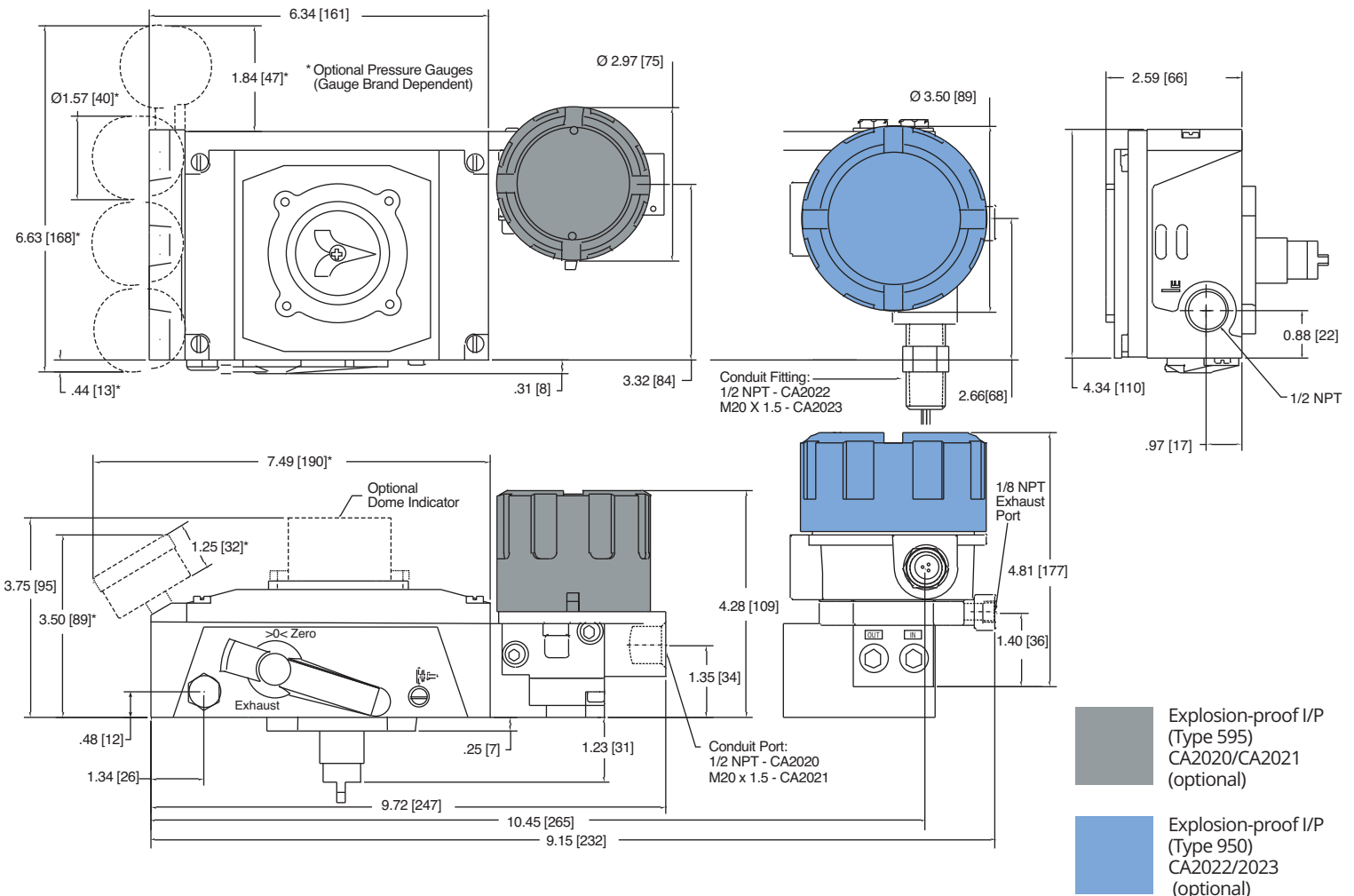
Linear Bracket Kits

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]

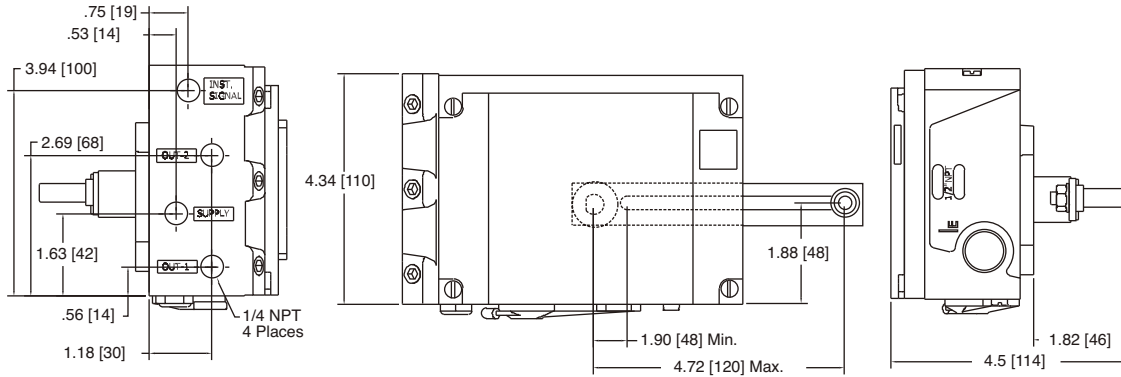
Rotary



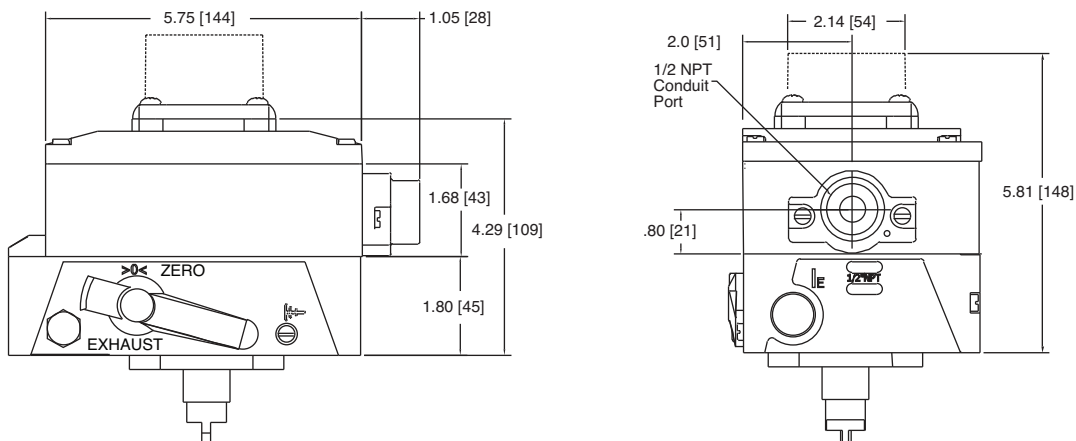
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Dimensions In [mm]

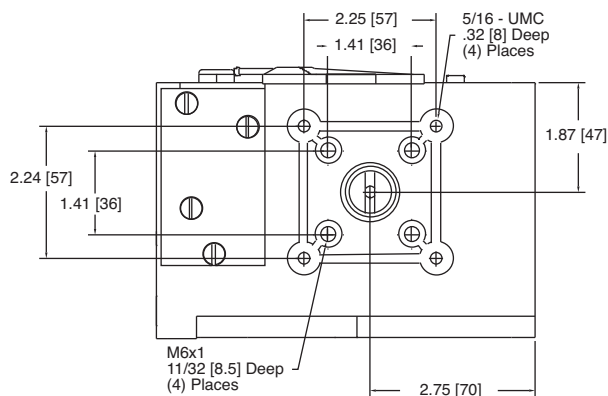
Linear In [mm]



Feedback / Switch (Option)



Mounting view (Back)



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