



# ***APEX 9000 Digital Positioner Automax Valve Automation Systems***



***Experience In Motion***



## **APEX 9000 Digital Positioner**

### **Description**

The APEX 9000 is a compact digital positioner that is very simple and quick to install and operate. To calibrate it, simply press the button for 5 seconds, the APEX 9000 will auto-calibrate and tune itself in a few seconds.


The APEX 9000 can be fitted with optional 4-20 mA feedback transmitter and limit switches. HART communication is also possible as an option.

For visual indication you can select between flat indicator or a dome indicator.

### **Features and Benefit**

- Self-Calibrating
- Modular
- Flexible
- Rotary Applications
- Intrinsically Safe, Non-Incendive, or Explosion proof FM, CSA, and ATEX
- Additional switch and position feedback options
- VDI/VDE 3845
- HART option
- 4-20mA feedback option
- LCD - Menu Options


#### **Intrinsically safe:**

ATEX II 1 G  Ex ia IIC T6  
 FM Class I, Div. 1, Group A, B, C, D T4  
 FM AEx ia IIC T4

#### **Non-Incendive**

FM Class I, Div. 2, Groups A, B, C, D T4 (NIFW)  
 FM Class I, Div. 2, IIC T4 (NIFW)

#### **Explosion proof:**

ATEX II 2 GD Exd IIB + H<sub>2</sub> T6 (Ta: 65°C) T5 (Ta: 80°C)  
 FM Class I, Div. 1,  Groups B,C,D T6 (Ta: 65°C) T5 (Ta: 80°C),  
 Class II, Div 1, Groups E,F,G T6 (Ta: 65°C) T5 (Ta: 80°C), Type  
 4X  
 IECEx Ex d IIB + H<sub>2</sub> T6 GB Ta: 60°C, Ex tb IIIC 100°C Db Ta:80°C



APEX 9000



APEX 9200  
LCD + Menu

1. LED's for status and calibration
2. Calibration/configuration button
3. Modular feedback options



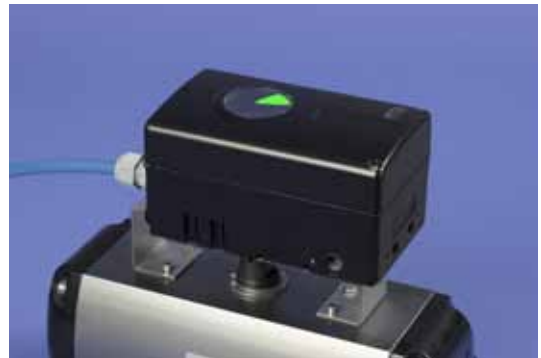
Press button and APEX 9000 will auto calibrate itself.



Press button and APEX 9200 will auto calibrate itself.



APEX 9000 modular design provides many options.



APEX 9000 mounted according to VDI/VDE 3845.



APEX 9000 with LCD, Dome Indicator, and Double Acting module.

## APEX 9000 Technical data

### APEX 9000/9200 Digital Positioner

Input signal	4-20 mA
Current supply min.	3,6 mA
Current supply Max.	150 mA
Load Standard	400 ohm at 20mA
Load HART	470 ohm at 20mA
User Interface D20	Single push button, LEDs
User Interface D22	LCD menu + 5 push buttons, LEDs
Voltage drop Standard	8 VDC at 20mA
Voltage drop HART	9.4 VDC at 20mA
Angle of rotation min	0-40°
Angle of rotation Max	0-90°
Air supply range	1.5 – 6 bar / 22 – 87 psi
Out put	0-100% of air supply pressure
Air supply quality	Free from oil, dust and moisture IEC 770, ISA 7.0.01
Air supply effect	<0.1%FS for 10% pressure change at 6Bar / 87 psi
Ingress protection	IP66 / Nema 4X
Operating humidity	0-100% rh non-condensing
Air connections	¼" NPT
Gauge ports	1/8" NPT (Bolt on block)
Cable entry	2 x ½" or 2 x M20x 1,5
Terminals	Screw terminals 2,5 mm <sup>2</sup> (AWG 14)
Operating Temperature	-20 to +85°C / -4 to +179°F -40°C/F (optional)
Storage temperature	-40 to +85°C / -40 to +179°F
Air delivery capacity	7 Nm <sup>3</sup> /h @ 6 bar / 4.12 SCFM @ 87 psi
Air delivery capacity Double acting	7 Nm <sup>3</sup> /h @ 6 bar / 4.12 SCFM @ 87 psi
Air consumption Single acting	0.120 Nm <sup>3</sup> /h @ 6 bar / 0.071 SCFM @ 87 psi
Air consumption Double acting	0.120 Nm <sup>3</sup> /h @ 6 bar / 0.071 SCFM @ 87 psi
Cv air delivery Single acting	0,12
Cv air delivery Double acting	0,12
Cut off function	Close 0.5% Open 99.5%
Linearity	<1%
Sensitivity	<0.05%
Resolution	<0,1%
Repeatability	<0.2%
Hysteresis + dead band	<0.5%
Temp effect	<0.1%/10K
Mounting position effect	<0,2%
CE	93/68/EEC, 2004/108/EEC, 2006/95/EEC
Housing material	Die cast Aluminium
Surface treatment	Powder coating
Soft goods	Nitrile
Weight	1.4 kg / 3.1 lbs

#### APEX 9000, 9200 (as above except)

Air delivery capacity	6,3 Nm <sup>3</sup> /h @ 6 bar / 3,7 SCFM @ 87 psi
Cv air delivery:	0.08
Gauge ports	2 x 1/8" NPT
Weight, Al version	3 kg / 6.6 lbs
Weight, Stainless steel version	5.9 kg / 13 lbs

### Optional plug in module

Mechanical switches	
Type	SPDT
Size	Sub Sub miniature
Rating	3A, 125 VAC / 2A, 30VDC
Mechanical life	>1 x 10 <sup>6</sup> operations
Namur sensors	
Type	P+F NJ2 V3 N Inductive DIN 19234
Load current	<1mA>3mA
Voltage range	5-25 VDC
Hysteresis	3-15% (5% typical)
Temp range	-25° to +100° C (-248° to +373° F)
Namur sensors	
Type	P+F SJ2-N
Normal Voltage	8 VDC
Load current	1mA<l<3mA
Voltage range	5-25 VDC
Hysteresis (max)	0.2%
Temp range	-25° to +100° C (-248° to +373° F)
Namur sensors	
Type	P+F SJ2-SN
Normal Voltage	8 VDC
Load current	1mA<l<3mA
Voltage range	5-25 VDC
Hysteresis (max)	(0.2%)
Temp range	-40° to +100° C (-233° to +373° F)
Namur sensors	
Type	P+F SJ2-S1N
Normal Voltage	8 VDC
Load current	1mA<l<3mA
Voltage range	5-25 VDC
Hysteresis (max)	0.2%
Temp range	-25° to +100° C (-248° to +373° F)
Proximity switches	
Type	SPDT
Rating	10W
Voltage max	200VDC
Current max	500mA
Contact resistance max	0.2 Ohm
Operating time	1.0 ms
Transmitter	
Power supply	12-28 VDC
Output	1-22 mA
Resolution	0.1%
Linearity	±0.5%
Load impedance	600 Ohm at (12 VDC and 20mA)
Alarm Output	
Supply	3-28 VDC
Output	20mA @ 24 VDC

## **APEX 9000 Digital Positioner Model Code**

### **Brand**

AX - Automax

### **Model**

90 - Digital Positioner, Single Button Interface, LED Status

92 - Digital Positioner, Full LCD Menu, LED Status

### **Approvals, Certifications**

G - General Purpose

I - Intrinsically Safe, ATEX/FM

N - Class I Division 2, Non-incendive w/ Fieldwiring, FM

E - Explosion proof ATEX/FM

### **Connections Air, Electrical**

M - 1/4" NPT Air, M20 x 1.5 Electrical

N - 1/4" NPT Air, 1/2" NPT Electrical

### **Housing/Surface Treatment**

U - Aluminum/Powder Epoxy, Black

R - Remote Mount Feedback Sensor

S - Explosion proof, Stainless Steel (N Connectors Only)

### **Function**

S - Single Acting

D - Double Acting

### **Shaft**

23 - NAMUR VDIVDE 3845 Rotary

### **Cover**

1 - Flat Top, No Indicator

2 - Dome Indicator, Red/Green

3 - Flat Top, Disk Indicator, Green/Black

### **Temperatures/Seals**

Z - Standard -20°C to 85°C (-4°F to 185°F)

Q - Low Temperature -40°C to 85°C (-40°F to 185°F)

### **Input Signal**

N - 4-20 mA/None

H - 4-20 mA/HART

### **Feedback Options**

X - No Feedback Options

T - 4-20 mA Transmitter Only

S - Limit Switches, Mechanical SPDT + 4-20 mA Transmitter

N - NAMUR V3 Type Sensor, P&F NJ2-V3-N + 4-20 mA Transmitter

P - Limit Switches, Proximity SPDT + 4-20 mA Transmitter

### **Options, Add In Electronics**

0 - Standard Diagnostics

1 - Advanced, Built in Pressure Sensors (Available in Model 92 Only)

### **Accessories**

X - No Accessories

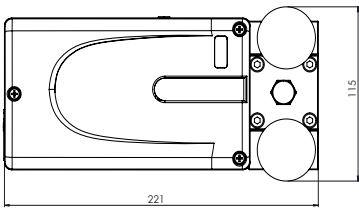
M - Gauge Block 1/8" G (2 gauges included)

N - Gauge Block 1/8" NPT (2 gauges included)

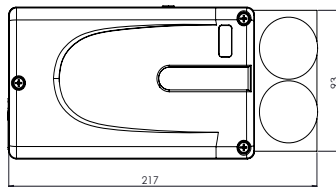
**NOTE 1:** If you order double acting, you do not need to order a gauge block. Also comes with 2 gauges, Stainless Steel with brass internals.



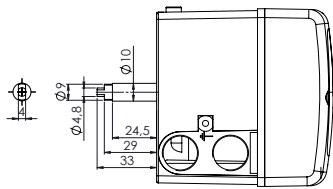
**Spindles and Dimensions drawings (mm)**



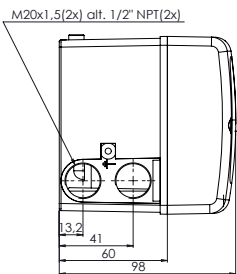
Double acting block



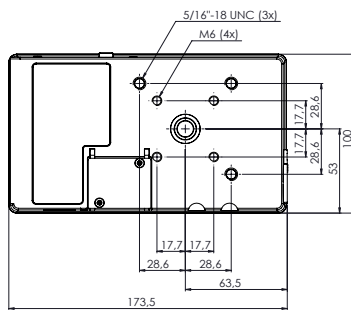
Gauge block



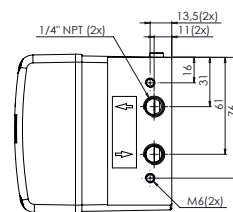
S23 "Namur Spindle"



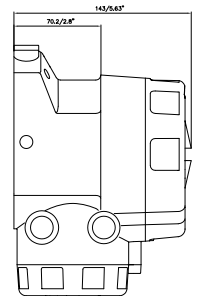
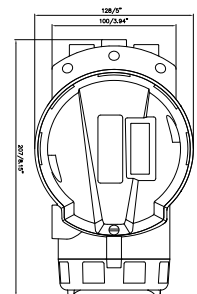
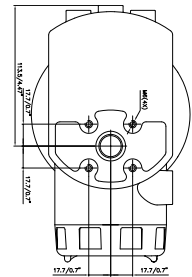
S39 "D Spindle"



S09 "Double D Spindle"



**Explosion proof**





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