# **Downstream Pressure Contro** Adaptive Pressure Controllers

# **Advanced Control System Performance**

The Intellisys Adaptive Pressure Controller (APC) provides advanced control system performance by combining closed loop motor control with adaptive pressure control. APCs are available in two basic configurations - the buried box style and the new on-valve IQ-series. The patented closed loop motor control technology, found at the core of the Intellisys controller technology, results in 250 times

greater motor positional resolution at 10-20 times the speed compared to other existing technologies. The adaptive pressure control algorithm eliminates pressure over- and under-shoots as well as ringing during process step transitions.

APC controllers are available for all of Nor-Cal's Intellisys control valves and

drives, and can be supplied with auto-ranging AC, or low voltage DC power supplies. Depending on the model and intended valve operation, users can choose from additional optional features such as battery back-up, local and remote displays and a range of communication modes including Analog/TTL, RS-232 and RS-485 serial, as well as DeviceNet.

# Low Voltage Controllers

MODEL NUMBER	FOR USE WITH	BATTERY BACK-UP	WEIGHT
APC-100L-A	Geared Butterfly Valves (TBV-G-xxx)	NO	1.6 (0.7)
APC-100L-AB	Geared Butterfly Valves (TBV-G-xxx)	YES	2.5 (1.1)
APC-200L-A	Direct Drive Butterfly Valves (TBV-D-xxx)	NO	1.6 (0.7)
APC-200L-AB	Direct Drive Butterfly Valves (TBV-D-xxx)	YES	2.5 (1.1)
APC-300L-A	Sealing Butterfly Valves (TBVS-G-xxx)	NO	1.6 (0.7)
APC-300L-AB	Sealing Butterfly Valves (TBVS-G-xxx)	YES	2.5 (1.1)
APC-700L-A	SoftShut Linear Gate Valves (TSS-xxx)	NO	1.6 (0.7)
APC-700L-AB	SoftShut Linear Gate Valves (TSS-xxx)	YES	2.5 (1.1)
APC-800L-A	Pendulum Valves (TPV-xxx)	NO	1.6 (0.7)
APC-800L-AB	Pendulum Valves (TPV-xxx)	YES	2.5 (1.1)



# Low Voltage Controllers with DeviceNet

MODEL NUMBER	FOR USE WITH	BATTERY BACK-UP	WEIGHT
APC-100L-D	Geared Butterfly Valves (TBV-G-xxx)	NO	1.6 (0.7)
APC-100L-DB	Geared Butterfly Valves (TBV-G-xxx)	YES	2.5 (1.1)
APC-200L-D	Direct Drive Butterfly Valves (TBV-D-xxx)	NO	1.6 (0.7)
APC-200L-DB	Direct Drive Butterfly Valves (TBV-D-xxx)	YES	2.5 (1.1)
APC-300L-D	Sealing Butterfly Valves (TBVS-G-xxx)	NO	1.6 (0.7)
APC-300L-DB	Sealing Butterfly Valves (TBVS-G-xxx)	YES	2.5 (1.1)
APC-700L-D	SoftShut Linear Gate Valves (TSS-xxx)	NO	1.6 (0.7)
APC-700L-DB	SoftShut Linear Gate Valves (TSS-xxx)	YES	2.5 (1.1)
APC-800L-D	Pendulum Valves (TPV-xxx)	NO	1.6 (0.7)
APC-800L-DB	Pendulum Valves (TPV-xxx)	YES	2.5 (1.1)





# vacuum gauge attached Valve position output: 0-10 VDC or 0-5 VDC analog output proportional to valve position

SECTION 4.6

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SPECIFICATIONS

Construction material

Battery back-up: Optional

on DB-15 female connector. Analog/TTL communication: Four (4) analog I/O and seven (7) TTL I/O on DB-25

System interface

female connector

position

General

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Chassis:5052-aluminum **Power input:** +24 VDC +/-10%, 100W max (600W nonminal) power input

Ambient operating conditions: 0-45°C @ 0-95% humidity, non-condensing

Serial communication: RS-232 or RS-485

DeviceNet communication: Micro-style 5-pin male connector Analog setpoint input: 0-10 or 0-5 VDC linearly proportional to pressure or valve

Pressure output: 0-10 VDC analog out-put proportional to pressure, one for each

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# **Device interface**

- Gauge connection: Differential analog signal input with ±15 VDC power output to one or two gauges
- Valve connection: DB-15 female connector provides power and transmits position information required to operate the high performance valve

#### **User Interface**

Switches: Valve open & close, and mutliposition rotary switches for communications settings

Indicating LED's Power, Fault, Control, Valve open and closed, DeviceNet: Mod and Net

### **Pressure Control Performance**

Accuracy: The greater of 5 mV or 0.25% of reading

Repeatability: Within 2.5 mV or 0.12% of reading

**Control range:** 0.5% - 100% of the vacuum gauge range

Reliability (99% confidence level, in clean environment)

MTBF: >50,000 hours continuous

operation **Approvals** 

**CE** (EMC and Low Voltage Directives) NRTL (United States) SCC (Canada)

EU Directives (Europe)

All dimensions are in inches (mm) & weights are in pounds (kg), unless otherwise noted.



# **Downstream Pressure Control** Adaptive Pressure Controllers



# **A/C Adaptive Pressure Controllers**

MODEL NUMBER	FOR USE WITH	BATTERY BACK-UP	WEIGHT
APC-100-A	Geared Butterfly Valves (TBV-G-xxx)	NO	3.5 (1.6)
APC-200-A	Direct Drive Butterfly Valves (TBV-D-xxx)	NO	3.5 (1.6)
APC-300-A	Sealing Butterfly Valves (TBVS-G-xxx)	NO	3.5 (1.6)
APC-700-A	SoftShut Linear Gate Valves (TSS-xxx)	NO	3.5 (1.6)
APC-800-A	Pendulum Valves (TPV-xxx)	NO	3.5 (1.6)



Construction material Chassis: 5052-aluminum

- Power input: 100-240 VAC, 50-60Hz, 100W max (60W nominal) power input. Battery Back-up: N/A
- Ambient operating conditions: 0 45°C @ 0 95% humidity, non-condensing

### System interface

- Serial communication: RS-232 or RS-485
- on DB-9 female connector. Analog / TTL communication: Six (6) analog I/O and thirteen (13) TTL I/O on DB-37 female connector
- DeviceNet communication: N/A Analog setpoint input: 0-10 or 0-5 VDC linearly proportional tp pressure or valve position
- Pressure output: 0-10 VDC analog output proportional to pressure, one for each vacuum gauge attached
- Valve position output: 0-10 VDC or 0-5 VDC analog output proportional to valve position

#### **Device interface**

- Gauge connection: Differential analog signal input with ±15 VDC power output to one or two gauges
- Valve connection: DB-15 female connector provides power and transmits position information required to operate the high performance valve

#### **User interface**

- Switches: Power ON/OFF, Valve
- OPEN/CLOSE Indicating LEDs: Power, Fault, Control, Valve open and closed Graphic display: N/A
- (Touch screen LCD on listed model)

# **Pressure control performance**

- Accuracy: The greater of 5 mV or 0.25% of reading Repeatability: Within 2.5 mV or 0.12%
- of reading
- Control range: 0.5% 100% of the vacuum gauge range

## Reliability

(99% confidence level, in clean environment)

MTBF: >50,000 hours continuous operation

# Approvals

CE (EMC and Low Voltage Directives) NRTL (United States) SCC (Canada) EU Directives(Europe)



# A/C Adaptive Pressure Controllers with Touch Screen

MODEL NUMBER	FOR USE WITH	BATTERY BACK-UP	WEIGHT
APC-150-A	Geared Butterfly Valves (TBV-G-xxx)	NO	4.2 (1.9)
APC-250-A	Direct Drive Butterfly Valves (TBV-D-xxx)	NO	4.2 (1.9)
APC-350-A	Sealing Butterfly Valves (TBVS-G-xxx)	NO	4.2 (1.9)
APC-750-A	SoftShut Linear Gate Valves (TSS-xxx)	NO	4.2 (1.9)
APC-850-A	Pendulum Valves (TPV-xxx)	NO	4.2 (1.9)







All dimensions are in inches (mm) & weights are in pounds (kg), unless otherwise noted.

