Phoenix Controls ADVANCED PRESSURE MONITOR II (BACNET®)

The Advanced Pressure Monitor II (APM2) is a flexible, touch-screen local display unit that measures pressure, temperature, humidity, and air change rate for pressurized spaces for the purpose of ensuring integrity of ventilation and airflow. BACnet® communications enable a number of advanced features, and allows the APM2 to integrate seamlessly with Phoenix Controls Traccel® and Theris® family of BACnet valve controllers. One APM2 is also capable of supporting two rooms when used with optional accessories.

The APM2 provides a bright, easy-to-read display that combines a free-form message banner on the left one-third of the screen, together with dynamic room operating parameters on the right two-thirds of the screen. The touch-screen display makes the APM2 easy to operate by just pressing areas of the screen to perform functions. Nuisance alarms are virtually eliminated because of the high accuracy and reliability of the APM2, and through the use of eight types of alarm functions. If desired, the APM2 can be configured so it never needs to be touched by staff on the floor.

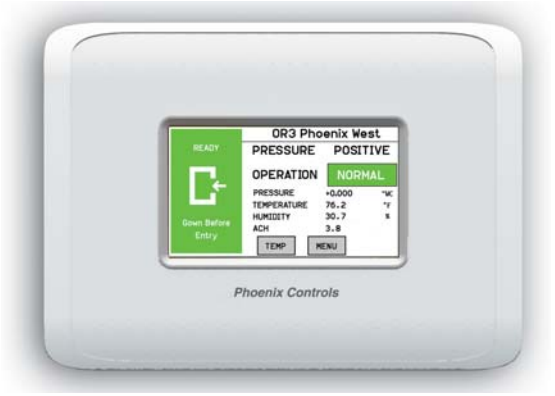
BACnet AND ADVANCED FEATURES

The APM2 hosts a BACnet MS/TP bus that enables easy integration with floor-level BACnet controllers. There are 156 objects supported by the APM2 that reflect configuration settings and data shown on the home screen. Read/write properties enable remote configuration and polling to capture long-term trend data. The APM2 BACnet pressure monitor also supports a number of advanced features, including:

- Occupancy control using the Message Banner to trigger changes in airflow and temperature
- On-screen temperature control bound to the local BACnet valve controller
- Display and alarming of air changes per hour (ACH)
- Full screen Message Banner
- Alarming disables if door is open
- French language home screen and keyboard
- Audit record of configuration changes
- Field-upgradable firmware

ACCURACY

Using pressure transducer technology, the APM2 is capable of sensing at a 0.5% (±0.25%) full scale accuracy and with a display resolution up to 0.0001"WC. It can meet the stringent requirements of pressure sensing for laboratory animal facilities, critical healthcare spaces, biocontainment cleanrooms and any application where very low room pressure sensing is required.



Advanced Pressure Monitor II BACnet®

STANDARD FEATURES

- 4.3" Color touch-screen TFT display
- Monitor two spaces with one APM2 (option)
- One-touch room mode change
- Message banner informs staff of room condition
- Two levels of password protection
- Visual/audible local or remote alarming
- Valve flow alarming
- Door status indicator
- Positive, negative, or neutral setpoints
- High speed differential pressure (dP) output (for active pressure control applications)
- Mode switches alarm setpoints for positive, negative or neutral rooms
- Resistant to spray washdown (IP-54)
- Resistant to decontamination chemicals
- Mounts in standard off-the-shelf electrical box
- Clone configuration feature

NOTE: If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.

SPECIFICATIONS

Choice of Full Scale Ranges			**Environmental Data**	
Bi-Directional	**± 0.05" WC (± 12.45 Pa)** **± 0.10" WC (± 24.90 Pa)** **± 0.25" WC (± 62.27 Pa)** **± 0.50" WC (± 124.54 Pa)** **± 1.00" WC (± 249.08 Pa)**		**Temperature** Operating[3] °F (°C) 32 to +120 (0 to +50) Storage °F (°C) -20 to +160 (-30 to +70)	
Performance Data			**Operating Humidity**	**5 to 95 % RH (non-condensing)**
	Standard Accuracy	**High Accuracy**	**Pressure Media**	**Air, or non-conductive non-explosive gasses**
Accuracy RSS[1, 2] (at constant temp)	**± 0.5% FS**	**± 0.25% FS**	**Altitude**	**6562 ft. (2000 m) max.**
Non-linearity (BFSL-based)	**± 0.49% FS**	**± 0.24 % FS**	**Physical Description**	
Hysteresis	**± 0.05% FS**	**± 0.05% FS**	Display	**4.3" touch-screen TFT LCD, 480 x 272 pixels, dimmable, password protected**
Non-repeatability	**± 0.05% FS**	**± 0.05% FS**	Faceplate and housing	**Fire-retardant plastic (UL94V-0)**
Zero setting tolerance	**± 0.5% FS**	**± 0.5% FS**	Electrical connections	**Removable terminal blocks**
Span setting tolerance	**± 0.5 % FS**	**± 0.5 % FS**	Pressure fittings	**Barbed fittings for ¼" flexible tubing**
Stability per year	**± 1.0 % FS**		Weight	**1 lb. 3 oz. (590 grams)**
Overpressure	**15.00" WC (0.5 PSI)**		**Relay Type**	**SPDT**
Thermal Effects[1]			**Relay Contact Rating**	**0.6A @125 Vac / 2A @ 30 Vdc**
Zero	**± 0.03% FS/°F (± 0.05% FS/°C)**		**Interoperability**	
Span	**± 0.03% FS/°F (± 0.05% FS/°C)**		BACnet® compliant on MS/TP LAN at up to 76.8 Kbps	
Mounting			**Mains Supply Voltage**	
Rough-in electrical box	**RACO 697, Appleton M3-350**		Not to exceed 18-32 Vac, 50-60 Hz, isolated, resettable fuse, 9.6 VA maximum. Mains supply voltage fluctuations up to ±10%	
Position	**Housing to be 90° in reference to level surface, ± 5°**			
Wire				
Power	**2 or 3-conductor (depending on application) stranded unshielded twisted pair, 16-22 AWG**			
I/O	**Stranded shielded twisted pair, Belden 950x, 16-28 AWG**			
Communications - 3-conductor, twisted, shielded 22 AWG cable (See “Phoenix controls Recommended Cables” on page 24)				
Inputs				
AI-1, AI-2	**Analog Inputs. Multi-purpose, choose a function:** - Function 1: Primary or secondary room input - Function 2: Tri-state input to switch pressure alarm thresholds 0 Vdc = Space is intended to be positive pressure. Alarm threshold values are placed in the negative range. 5 Vdc = Space is intended to be neutral pressure. Alarms are placed in the span zero neutral range. 10 Vdc = Space is intended to be negative pressure. Alarms threshold values are placed in the positive range. - Function 3: Temperature or humidity sensor (voltage output either 0-5 V or 0-10 V).			

DI-1	**Digital Input, door status indicator or valve pressure switch indicator (choose one).** **Door status: visual on LCD, yellow on door open** **Dry contact Closed = Door closed or no valve alarm; Open = Door open or valve alarm** **Configurable, door open can disable alarming**
Outputs	
AO-1	**Analog Output. Filtered output signal of primary room pressure differential.** **Field selectable: 0-5 Vdc; 0-10 Vdc; or 4-20 mA.** **Speed of response = 100 ms Max., 3 time constants**
DO-1	**Digital Output. SPDT alarm relay to remote annunciator or the relay can be used for occupancy contact with message banner (choose one)** **Alarm deadband 0—10% of setpoint adjustable** **Contact rating 2.0A @ 30 Vdc/Vac, 0.6A @ 125 Vac** **Calibrated into a 50KΩ load, operable into a 5KΩ load or greater**
Alarming	
Ranges	**Positive, negative or spanning zero pressure (across neutral)**
Audible	**Dual piezo with 4 volume levels, (from 0—75dB)**
Visual	**LCD display Red = Alarm, Yellow = Warning, or Green = Normal, Backlight = 4 levels**
Remote	**Annunciation via Digital Output SPDT relay**
Latch	**Alarm must be acknowledged at the touch-screen and pressure must return within range**
Silence	**Selectable 0-9999 (9999 = forever) seconds**
Delay	**Selectable 0-9999 (9999 = forever) seconds**
Valve	**Flow alarm notification**
BACnet	**Alarm and event notification services**
Display Parameters	
Temperature — °F or °C Pressure — "WC or Pa Humidity — %RH ACH (Air Changes per Hour) — calculated based on total supply or return airflow	
USB Port	
A micro-USB type AB port is provided for firmware updates or for copying configurations from one monitor to others that require similar parameters (i.e., cloning). Phoenix Controls REQUIRES the Sandisk Cruzer 2GB (minimum) flash drive, along with the aid of a Micro USB Host Mode OTG cable from T & S Electronics (Model: OTG-SBK6) or from SonoXY (Model: USB_MIC-OTG). No PC is required.	
Washdown and Chemical Resistance	
IP-54 rated against dust and liquid penetration. Exposed surfaces are chemically resistant to vaporized hydrogen peroxide (VHP), formaldehyde, chlorine dioxide (clidox), perchloric acid, sodium hypochlorite 3-6% (bleach), quaternary ammonium 7% in 1:128 tap water (ammonia).	
Regulatory Compliance • RoHS • EU Contact Address: Honeywell GmbH Boeblinger Str. 17 71101 Schoenaich Germany	
[1] Units calibrated at nominal 70°F. Maximum thermal error computed from this datum. [2] RSS is root sum of squares of non-linearity (BFSL), non-repeatability, and hysteresis. [3] Operating temperature limits of electronics only, not pressure transducer.	

ORDERING GUIDE

MONITORS

APM2 00 - ENG - BAC - STL

PRODUCT FAMILY
APM2 = Advanced Pressure Monitor II, comes standard with white faceplate and two pressure pickup ports.

OPERATIONAL PRESSURE RANGE
00 = ±0.05" WC (12.45 Pa) (±0.5% accuracy)
01 = ±0.10" WC (24.90 Pa) (±0.5% accuracy)
03 = ±0.25" WC (62.27 Pa) (±0.5% accuracy)
05 = ±0.50" WC (124.54 Pa) (±0.5% accuracy)
10 = ±1.00" WC (249.08 Pa) (±0.5% accuracy)
30 = ±0.05" WC (12.45 Pa) (±0.25% accuracy)
31 = ±0.10" WC (24.90 Pa) (±0.25% accuracy)
33 = ±0.25" WC (62.27 Pa) (±0.25% accuracy)
35 = ±0.50" WC (124.54 Pa) (±0.25% accuracy)
40 = ±1.00" WC (249.08 Pa) (±0.25% accuracy)

FACEPLATE LANGUAGE
ENG = English

NETWORK TYPE
BAC = BACnet Communications

OPTIONS
NPP = No pressure ports, APM2XX is provided without the two standard pressure pickup ports
RET = Retrofit kit; includes modified APM2xx with 90 degee ports and faceplate that covers hole from APM1xx and excludes the two pressure pick-up ports that come standard with non-retrofit units. (see Note)
STL = Simulated brushed steel faceplate (No extra charge)

NOTES: Cannot be ordered with ±0.25 accuracy pressure range APM2xx, nor with options "NPP"or "STL"
Calibration certificates are provided with all products except ±1.00% accuracy

Accessories

APM2 AC - F01

PRODUCT FAMILY
APM2 = Advanced Pressure Monitor, second generation

PRODUCT OPTION
AC = Accessory

TYPE
ANC = Remote annunciator sounds an audible alarm; remote unit is located away from the wall-mounted unit housed in a single-gang stainless steel wall plate; includes a remote alarm speaker and remote acknowledge button to temporarily ilence the alarm.
PPP = Pressure Pickup Port, an additional single-gang stainless steel plate used to sense room pressure - two PPPs are included standard with the APM2.

For all of the following transducers:
Remote pressure transducers can be used with the APM2 to measure differential pressure in a secondary space. The 264 and 267 transducers sense differential pressure and convert this pressure difference to a proportional electrical output signal - either 0-5 Vdc or 0-10 Vdc, respectively. Using 0-10 Vdc (267 model) provides a higher resolution output signal than 0-5 Vdc (264 model). Standard accuracy is usually adequate for most critical room applications. Use high accuracy if building specifications require it.

F00 = 264 transducer, 0-5V output, ±0.05" WC (12.45 Pa) (±1.00% accuracy)
F01 = 264 transducer, 0-5V output, ±0.10" WC (24.90 Pa) (±1.00% accuracy)
F03 = 264 transducer, 0-5V output, ±0.25" WC (62.27 Pa) (±1.00% accuracy)
F05 = 264 transducer, 0-5V output, ±0.50" WC (124.54 Pa) (±1.00% accuracy)
F10 = 264 transducer, 0-5V output, ±1.00" WC (249.08 Pa) (±1.00% accuracy)
F20 = 264 transducer, 0-5V output, ±0.05" WC (12.45 Pa) (±0.4% accuracy)
F21 = 264 transducer, 0-5V output, ±0.10" WC (24.90 Pa) (±0.4% accuracy)
F23 = 264 transducer, 0-5V output, ±0.25" WC (62.27 Pa) (±0.4% accuracy)
F25 = 264 transducer, 0-5V output, ±0.50" WC (124.54 Pa) (±0.4% accuracy)
F30 = 264 transducer, 0-5V output, ±1.00" WC (249.08 Pa) (±0.4% accuracy)
F40 = 264 transducer, 0-5V output, ±0.05" WC (12.45 Pa) (±0.25% accuracy)
F41 = 264 transducer, 0-5V output, ±0.10" WC (24.90 Pa) (±0.25% accuracy)
F43 = 264 transducer, 0-5V output, ±0.25" WC (62.27 Pa) (±0.25% accuracy)
F45 = 264 transducer, 0-5V output, ±0.50" WC (124.54 Pa) (±0.25% accuracy)
F50 = 264 transducer, 0-5V output, ±1.00" WC (249.08 Pa) (±0.25% accuracy)
T00 = 267 transducer, 0-10V output, ±0.05" WC (12.45 Pa) (±1.00% accuracy)
T01 = 267 transducer, 0-10V output, ±0.10" WC (24.90 Pa) (±1.00% accuracy)
T03 = 267 transducer, 0-10V output, ±0.25" WC (62.27 Pa) (±1.00% accuracy)
T05 = 267 transducer, 0-10V output, ±0.50" WC (124.54 Pa) (±1.00% accuracy)
T10 = 267 transducer, 0-10V output, ±1.00" WC (249.08 Pa) (±1.00% accuracy)
T20 = 267 transducer, 0-10V output, ±0.05" WC (12.45 Pa) (±0.4% accuracy)
T21 = 267 transducer, 0-10V output, ±0.10" WC (24.90 Pa) (±0.4% accuracy)
T23 = 267 transducer, 0-10V output, ±0.25" WC (62.27 Pa) (±0.4% accuracy)
T25 = 267 transducer, 0-10V output, ±0.50" WC (124.54 Pa) (±0.4% accuracy)
T30 = 267 transducer, 0-10V output, ±1.00" WC (249.08 Pa) (±0.4% accuracy)
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