pressure

JOFRA calibration

Advanced Pressure Module
APM Mk.II

» Accuracies to 0.025% RDG + 0.01 FS
Performance to meet almost any calibration and measurement task.

» % RDG specification
Wide range of pressure ranges, from 25 mbar to 700 bar (0.4 to 10,000 psi) Full Scale.

» More pressure types
Gauge, differential, absolute, and vacuum pressure modules available.

» Rugged construction
Cast aluminium housing. Engineered for rough field use, almost unbreakable.

» Plug and pressurize
JOFRA calibrators recognize the modules for ease of use, just plug it in…

» Self contained intelligent module
Calibration data are stored and processed inside the APM. Enabling use of the APM with any JOFRA calibrator, without initial calibration of the “system”. Calibration and traceability follows the module!

» Compatible with your JOFRA
The APM Mk.II modules are compatible with your AMC900, AMC910, ASC300, ASC301, APC or HPC500, HPC502 or HPC600 calibrators.

The JOFRA APM Mk.II 2nd generation of pressure modules offers the functionality and flexibility needed to perform pressure calibrations with your multi-purpose or multifunction signal calibrator.

Expand the ranges to meet all of your pressure calibration applications by using APM modules.

The APM series of pressure modules are compatible with current AMC910, ASC300, ASC301 or HPC calibrators, and the former AMC900 and APC calibrators. The pressure model span across a wide pressure range and are available for all pressure types. From vacuum to absolute pressure, AMETEK covers any application with the pressure modules to meet your calibration needs.

These rugged modules are engineered for in-plant, field, or laboratory use. They are ready-to-use with the JOFRA calibrators and the protocol allows for immediate recognition and use of the module once it is connected to the calibrator.

The APM Mk.II is temperature compensated from 0 to 50°C / 32 to 122°F for on-site operation. It is a truly superior pressure module for laboratory and field use, bringing laboratory accuracy into the field.

When combined with the calibrators and pump systems these modules makes powerful calibration tools. And, it is always possible to add modules as the calibration needs changes.

ISO 9001 Manufacturer

Specification Sheet
SS-APM Mk.II

AMETEK®
TEST & CALIBRATION INSTRUMENTS

JOFRA calibration

FUNCTIONAL SPECIFICATIONS

Pressure: gauge / compound ranges

bar ..... -0.96 to 1 or 2
bar ..... -0.82 to 7, 20 or 35

psi ..... -14 to 15 or 30
psi ..... -12 to 100, 300 or 500

Pressure: gauge

bar .....1, 2, 7, 20, 35, 70, 100, 200, 350, 400 or 700
psi..... 15, 30, 100, 300, 500, 1,000, 1,500,
..... 3,000, 5,000, 6,000, 10,000

Pressure: absolute ranges

bar .....0.025 to 1.1 or 2
bar ..... 0.07 to 1.1, 3.5, 7, 20

psi.....0.35 to 16 or 30
psi..... 1 to 16, 50, 100, 300

Pressure: differential ranges

mbar .....±25, ±70 or ±350
psi.....±0.35, ±1 or ±5

Engineering units

User selectable.....Host calibrators spec.
(bar, mbar, MPa, kPa, inHg@0°C, mmHg@0°C, kg/cm2, mmH2O@4°C, mmH2O@20°C, psi, inH2O@4°C, inH2O@20°C, inH2O@60°F, cmH2O@4°C, cmH2O@20°C)

Pressure accuracy ambient temp. (18 to 28°C/65 to 82°F)

±25 mbar / 0.35 psi .....±0.10% F.S.
±70, 350 mbar / 1, 5 psi .....±0.05% F.S.
700 bar / 10k psi ..... ±0.025% RDG + 0.015% F.S.
All other pressure ranges..... ±0.025% RDG + 0.01% F.S.
Vacuum.....±0.025% F.S.

F.S. (full scale) is the numerical value of the positive pressure range.
Accuracy includes hysteresis, nonlinearity, repeatability and reference standard uncertainty, 1 Year typical long-term stability, operated inside the rated temperature span and pressure range.
For optimal performance “zero” the unit for gauge/differential measurements or enter the reference pressure for absolute measurements.

Pressure accuracy ambient temp. (0 to 50°C / 32 to 122°F)

±25 mbar / 0.35 psi .....±0.15% F.S.
±70, 350 mbar / 1, 5 psi .....±0.10% F.S.
700 bar / 10k psi ..... ±0.04% RDG + 0.015% F.S.
All other pressure ranges..... ±0.04% RDG + 0.01% F.S.
Vacuum.....±0.05% F.S.

F.S. (full scale) is the numerical value of the positive pressure range.
Temperature effect -10 to 0°C / 14 to 32°F ±0.005% F.S./°C.
Accuracy includes hysteresis, nonlinearity, repeatability and reference standard uncertainty, 1 Year typical long-term stability, operated inside the rated temperature span and pressure range.
For optimal performance “zero” the unit for gauge/differential measurements or enter the reference pressure for absolute measurements.

Output

Pressure resolution.....5 digits
Display update .....Host dependable

RS232 communication interface

Connector..... 5 pin LEMO
Serial..... 0-5 VDC, 9600 baud, 8 data, no parity, 1 stop
Protocol ..... ASCII command language

JOFRA calibrator compability

JOFRA AMC900*..... Signal calibrator
JOFRA AMC910 .....Multifunction signal calibrator
ASC300 .....Handheld multifunction calibrator
ASC301 ..... Advanced multifunction calibrator
APC series*..... Pressure calibrators
HPC500 series..... Pressure calibrators
HPC502 series..... Pressure calibrators
HPC600 series.....Pressure calibrators w/electrical pump

* Obsolete product

Media compatibility

Nickel plated brass or 316 stainless steel - see pressure table on page 3.

Environmental

Operating temperature .....-10 to 50°C/14 to 122°F
Storage temperature ..... -20 to 60°C/-4 to 140°F
Ingress protection rating IP54

Pressure connection

All calibrators.....1/8” BSP female
Adapters to 1/4” NPT male and 1/4” BSP female are included as standard.

Pressure overload

Overload alarm ..... “OL” in display at approx. +20% F.S.

Power supply

Power supply.....Host calibrator

Instrument dimensions (LxWxH)

APM Mk.II .....76x45x76 mm / 3.0x1.8x3.0 in
APM Mk.II weight (incl. cable) ..... 370 g / 13.1 oz
APM Mk.II shipping .....245x180x80 mm / 9.6x7.1x3.1 in
APM Mk.II weight, shipping..... 670 g / 23.7 oz

Miscellaneous

Compliance: EN 61326 : 2006 & CISPR 11, Edition 5.0 - 2009 Class “B”.

Differential pressure, ranges & acc.

Model	APM 025MD	APM 070MD	APM 350MD
Range (bar)	±25 mbar	±70 mbar	±350 mbar
Range (psi)	0.36	1	5
Sensor type	non-isolated	non-isolated	non-isolated
Pressure type	differential	differential	differential
Accuracy, 18 to 28°C / 65 to 82°F	±0.10% F.S.	±0.05% F.S.	±0.05% F.S.
Accuracy, 0 to 50°C / 32 to 122°F	±0.15% F.S.	±0.10% F.S.	±0.10% F.S.

Compound pressure, ranges & acc.

Model	APM 001C	APM 002C	APM 007C	APM 020C	APM 035C
Range (bar)	-0.96 to 1	-0.96 to 2	-0.82 to 7	-0.82 to 20	-0.82 to 35
Range (psi)	-14 to 15	-14 to 30	-12 to 100	-12 to 300	-12 to 500
Sensor type	non-isolated	non-isolated	isolated	isolated	isolated
Pressure type	compound	compound	compound	compound	compound
Accuracy, 18 to 28°C / 65 to 82°F	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.
Accuracy, 0 to 50°C / 32 to 122°F	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.

Absolute pressure, ranges & acc.

Model	APM 001A	APM 002A	APM 003A	APM 007A	APM 020A
Range (bar)	0.025 to 1.1	0.025 to 2	0.070 to 3.5	0.070 to 7	0.070 to 20
Range (psi)	0.35 to 16	0.35 to 30	1 to 50	1 to 100	1 to 300
Sensor type	non-isolated	non-isolated	isolated	isolated	isolated
Pressure type	absolute	absolute	absolute	absolute	absolute
Accuracy, 18 to 28°C / 65 to 82°F	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.
Accuracy, 0 to 50°C / 32 to 122°F	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.

Gauge pressure, ranges & acc.

Model	APM 001G	APM 002G	APM 007G	APM 020G	APM 035G	APM 070G
Range (bar)	1	2	7	20	35	70
Range (psi)	15	30	100	300	500	1,000
Sensor type	isolated	isolated	isolated	isolated	isolated	isolated
Pressure type	gauge	gauge	gauge	gauge	gauge	gauge
Accuracy, 18 to 28°C / 65 to 82°F	±0.025%RDG +0.01%F.S.	±0.025%RDG 0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.
Accuracy, 0 to 50°C / 32 to 122°F	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.

Model	APM 100G	APM 200G	APM 350G	APM 400G	APM 700G
Range (bar)	100	200	350	400	700
Range (psi)	1,500	3,000	5,000	6,000	10,000
Sensor type	isolated	isolated	isolated	isolated	isolated
Pressure type	gauge	gauge	gauge	gauge	gauge
Accuracy, 18 to 28°C / 65 to 82°F	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.01%F.S.	±0.025%RDG +0.015%F.S.
Accuracy, 0 to 50°C / 32 to 122°F	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.01%F.S.	±0.04%RDG +0.015%F.S.

STANDARD DELIVERY

- Pressure Module
- Adapter fitting for NPT and BSP threads
- Communication cable (integrated)
- NIST traceable calibration certificate in Bar, Pa and PSi

ACCESSORIES

Number	Description
SPK-APM-003	APM Mk.II Communication kit for PC. USB to female 5 pin Lemo will supply power for APM Mk.II as well.

Fittings to connect APM Mk.II modules with pump systems

System A	
SPK-HPC-008	Fitting APM Mk.II to T-960/T-970 pump
System B	
SPK-HPC-008	Fitting APM Mk.II to T-965/T-975 pump
System C	
Included fitting	Fitting APM Mk.II to T-620 / T-620H pump
System D	
SPK-HPC-004	Fitting APM Mk.II to P016 & P017 pump
System E	
SPK-HPC-004	Fitting APM Mk.II to P014 pump
System F	
Included fitting	Fitting APM Mk.II to T-1 pump

AMETEK Test & Calibration Instruments
A business unit of AMETEK Measurement & Calibration Technologies Division offering the following industry leading brands for test and calibration instrumentation.

JOFRA Calibration Instruments
Temperature Calibrators
Portable dry-block calibrators, precision thermometers and liquid baths. Temperature ranges from -90°C(-130°F) to 1205°C(2200°F). Temperature sensors for industrial and marine use.
Pressure Calibrators
Convenient electronic systems ranging from -25 mbar to 1000 bar - fully temperature-compensated for problem-free and accurate field use.
Signal Instruments
Process signal measurement and simulation for easy control loop calibration and measurement tasks.

M&G Pressure Testers & Pumps
Pneumatic floating-ball or hydraulic piston dead weight testers with accuracies to 0.015% of reading. Pressure generators delivering up to 1,000 bar.

Lloyd Instruments
Materials testing machines and software from Lloyd Instruments guarantees expert materials testing solutions. The comprehensive program also covers Texture Analysers to perform rapid, general food testing and detailed texture analysis on a diverse range of foods and cosmetics.

Davenport Polymer Test Equipment
Allows measurement and characterization of moisture-sensitive PET polymers and polymer density.

Chatillon Force Measurement
The hand held force gauges and motorized testers have earned their reputation for quality, reliability and accuracy and they represent the de facto standard for force measurement.

Newage Testing Instruments
Hardness testers, durometers, optical systems and software for data acquisition and analysis.

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