

pressure

# JOFRA™

### Accuracies to 0.01% of FS

Performance to meet most application requirements

### Dedicated ranges

Both imperial and metric ranges for worldwide use without conversions

### Several pressure references

Gauge, differential, absolute, and vacuum references available

### Rugged construction

Engineered for use in the laboratory or in the field

### Plug and pressurize

Calibrators recognize range and reference of the modules for ease of use

### Multiple applications

Use a module with one or more JOFRA calibrators or use one or more modules with one JOFRA calibrator

### Compatible with your calibrator

The APM modules are compatible with your AMC910, ASC300, or HPC calibrators

### Complete marine program

Part of a complete program of marine approved temperature, pressure and signal calibrators; including temperature sensors

## Advanced Pressure Module APM Series



The APM series of pressure modules offers the functionality and flexibility needed to perform pressure calibrations with your multi-purpose or multi-function signal calibrator.

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

The APM series of pressure modules are compatible with the AMC910, ASC300, or HPC calibrators. These units are available in a series of ranges, units, and pressure references. From vacuum to absolute pressure, AMETEK covers any application with the pressure modules to meet your calibration needs.

There are different accuracies, ranges, and references designed to offer the exact specifications needed.

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 plugged into the calibrator.

When combined with the JOFRA calibrators and pump systems these modules make for a powerful arsenal of calibration tools. And, it is always possible to add more as the calibration needs changes.

INSTRUMENTS • CONTROLS • VALVES

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ISO 9001 Manufacturer

Specification Sheet  
SS-APM

**AMETEK®**

## JOFRA APM Advanced Pressure Module Serie S

The JOFRA APM S series are industrial pressure modules with good accuracies. The modules are designed so that the cable is integrated into the module housing, and the overall profile allows for easy storage of multiple modules.



Resolution .....5 digits (20 to 100 ppm depending on range)  
 Dimensions ..... 60 x 45 x 75 mm / 2.4 x 1.8 x 3 in  
 Weight ..... 350 g / 0.77 lb  
 Cable length ..... 60 cm / 24 in  
 Pressure connections ..... 1/4" NPT female  
 Conversion adapter to ..... 1/4" BSP female  
 Electrical connection ..... Lemo, 5-pole, male  
 Warm up ..... 10 minutes to rated accuracy  
 Reading rate ..... 50 per second  
 Display rate ASC300, AMC910 and HPC ..... 2 per second  
 Compliance - CE standards ..... EN 50081-1, EN 50082-1  
 ..... EN 50081-2, EN 50082-2  
 The JOFRA APM modules are type approved by Det Norske Veritas. Find the certificate at [www.jofra.com](http://www.jofra.com)  
 Approval, Certificate no ..... A-10549

| Range          | Type         | psi     | bar     | Pressure port* 2 | Reference port* 2 | Over pressure* 3 | Burst pressure* 4 | Reference accuracy* 5 | 12 month accuracy* 6 | Part number |
|----------------|--------------|---------|---------|------------------|-------------------|------------------|-------------------|-----------------------|----------------------|-------------|
| 1 psi*1        | Gauge        | 10.000  | 0.6889  | DRY              | DRY               | x 5              | x 10              | 0.15%                 | 0.30%                | APM001PNSG  |
| 5 psi*1        | Gauge        | 50.000  | 0.3447  | DRY              | DRY               | x 5              | x 10              | 0.05%                 | 0.10%                | APM005PNSG  |
| 15 psi*1       | Gauge        | 15.000  | 10.342  | DRY              | DRY               | x 4              | x 6               | 0.025%                | 0.05%                | APM015PNSG  |
| 1 psi          | Gauge        | 10.000  | 0.0689  | 316L SS          | DRY               | x 4              | x 6               | 0.075%                | 0.15%                | APM001PGSG  |
| 5 psi          | Gauge        | 50.000  | 0.3449  | 316L SS          | DRY               | x 2              | x 3               | 0.025%                | 0.05%                | APM005PGSG  |
| 15 psi         | Gauge        | 15.000  | 10.342  | 316L SS          | DRY               | x 2              | x 3               | 0.025%                | 0.05%                | APM015PGSG  |
| 30 psi         | Gauge        | 30.000  | 20.684  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM030PGSG  |
| 100 psi        | Gauge        | 100.00  | 68.948  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM100PGSG  |
| 200 psi        | Gauge        | 200.00  | 13.790  | 316L SS          | N/A               | x 2.5            | x 3.7             | 0.025%                | 0.05%                | APM200PGSG  |
| 300 psi        | Gauge        | 300.00  | 20.684  | 316L SS          | N/A               | x 1.6            | x 2.5             | 0.025%                | 0.05%                | APM300PGSG  |
| 500 psi        | Gauge        | 500.00  | 34.486  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM500PGSG  |
| 1000 psi       | Gauge        | 1000.0  | 68.948  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM01KPGSG  |
| 2000 psi       | Gauge        | 2000.0  | 137.90  | 316L SS          | N/A               | x 2.5            | x 3.7             | 0.025%                | 0.05%                | APM02KPGSG  |
| 3000 psi       | Gauge        | 3000.0  | 206.84  | 316L SS          | N/A               | x 1.6            | x 2.5             | 0.025%                | 0.05%                | APM03KPGSG  |
| 5000 psi       | Gauge        | 5000.0  | 344.76  | 316L SS          | N/A               | x 1.5            | x 2               | 0.025%                | 0.05%                | APM05KPGSG  |
| 10000 psi 15   | Gauge        | 10000   | 689.48  | 316L SS          | N/A               | x 1.2            | x 2               | 0.025%                | 0.05%                | APM10KPGSG  |
| ±15 psi        | Combination  | ±15.000 | ±1.0342 | 316L SS          | DRY               | x 2              | x 3               | 0.035%*12             | 0.07%                | APM015PCSG  |
| -15 to 200 psi | Combination  | -015.00 | -10.342 | 316L SS          | N/A               | x 2.5            | x 3               | 0.025%*13             | 0.05%                | APM200PCSG  |
|                |              | +200.00 | 13.790  |                  |                   |                  |                   |                       |                      |             |
| 5 psi*10       | Differential | 50.000  | 0.3449  | 316L SS          | DRY               | x 2              | x 3               | 0.035%                | 0.07%                | APM005PDSG  |
| 100 psi*11     | Differential | 100.00  | 68.948  | 316L SS          | DRY               | x 2              | x 3               | 0.025%                | 0.05%                | APM100PDSG  |
| 5 psi          | Absolute     | 50.000  | 0.3448  | 316L SS          | N/A               | x 6              | x 9               | 0.035%                | 0.07%                | APM005PASG  |
| 15 psi         | Absolute     | 15.000  | 10.342  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM015PASG  |
| 30 psi         | Absolute     | 30.000  | 20.684  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM030PASG  |
| 1 bar          | Gauge        | 14.503  | 10.000  | 316L SS          | DRY               | x 2              | x 3               | 0.025%                | 0.05%                | APM001BGSG  |
| 4 bar          | Gauge        | 58.012  | 40.000  | 316L SS          | N/A               | x 1.2            | x 2.5             | 0.025%                | 0.05%                | APM004BGSG  |
| 6 bar          | Gauge        | 87.018  | 60.000  | 316L SS          | N/A               | x 2.3            | x 3.5             | 0.025%                | 0.05%                | APM006BGSG  |
| 10 bar         | Gauge        | 145.03  | 10.000  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM010BGSG  |
| 16 bar         | Gauge        | 232.05  | 16.000  | 316L SS          | N/A               | x 2.1            | x 3.2             | 0.025%                | 0.05%                | APM016BGSG  |
| 21 bar         | Gauge        | 304.56  | 21.000  | 316L SS          | N/A               | x 1.6            | x 2.4             | 0.025%                | 0.05%                | APM021BGSG  |
| 25 bar         | Gauge        | 362.58  | 25.000  | 316L SS          | N/A               | x 2.7            | x 4.1             | 0.025%                | 0.05%                | APM025BGSG  |
| 40 bar         | Gauge        | 580.12  | 40.000  | 316L SS          | N/A               | x 1.7            | x 2.5             | 0.025%                | 0.05%                | APM040BGSG  |
| 60 bar         | Gauge        | 870.18  | 60.000  | 316L SS          | N/A               | x 2.2            | x 3.4             | 0.025%                | 0.05%                | APM060BGSG  |
| 100 bar        | Gauge        | 1450.3  | 100.00  | 316L SS          | N/A               | x 3.4            | x 5               | 0.025%                | 0.05%                | APM100BGSG  |
| 160 bar        | Gauge        | 2320.5  | 160.00  | 316L SS          | N/A               | x 2.1            | x 3.2             | 0.025%                | 0.05%                | APM160BGSG  |
| 200 bar        | Gauge        | 2900.6  | 200.00  | 316L SS          | N/A               | x 1.7            | x 2.5             | 0.025%                | 0.05%                | APM200BGSG  |
| 250 bar        | Gauge        | 3625.8  | 250.00  | 316L SS          | N/A               | x 2              | x 2.7             | 0.025%                | 0.05%                | APM250BGSG  |
| 400 bar        | Gauge        | 5801.2  | 400.00  | 316L SS          | N/A               | x 1.3            | x 1.7             | 0.025%                | 0.05%                | APM400BGSG  |
| 600 bar        | Gauge        | 8701.8  | 600.00  | 316L SS          | N/A               | x 1.4            | x 2.2             | 0.025%                | 0.05%                | APM600BGSG  |
| 700 bar 15     | Gauge        | 10152   | 700.00  | 316L SS          | N/A               | x 1.2            | x 2               | 0.025%                | 0.05%                | APM700BGSG  |
| ±1 bar         | Combination  | ±14.503 | ±1.0000 | 316L SS          | DRY               | x 2              | x 3               | 0.035%*14             | 0.07%                | APM001BCSG  |
| -1 bar         | Vacuum       | -14.503 | -10.000 | 316L SS          | DRY               | 2 bar            | 3 bar             | 0.035%                | 0.07%                | APM001BVSG  |
| 7 bar          | Absolute     | 101.52  | 70.000  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM007BASG  |
| 7 kPa          | Gauge        | 10.152  | 0.0700  | 316L SS          | DRY               | x 4              | x 6               | 0.10%                 | 0.20%                | APM007KGSG  |
| 35 kPa         | Gauge        | 50.761  | 0.3500  | 316L SS          | DRY               | x 2              | x 3               | 0.035%                | 0.07%                | APM035KGSG  |
| 70 kPa         | Gauge        | 10.152  | 0.7000  | 316L SS          | DRY               | x 2              | x 3               | 0.035%                | 0.07%                | APM070KGSG  |
| 160 kPa        | Gauge        | 23.206  | 16.000  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM160KGSG  |
| 200 kPa        | Gauge        | 29.006  | 20.000  | 316L SS          | N/A               | x 2.1            | x 3.1             | 0.025%                | 0.05%                | APM200KGSG  |
| 250 kPa        | Gauge        | 36.259  | 25.000  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM250KGSG  |
| 350 kPa        | Gauge        | 50.761  | 35.000  | 316L SS          | N/A               | x 2              | x 3               | 0.025%                | 0.05%                | APM350KGSG  |
| -29 inHg       | Vacuum       | -14.243 | -10.342 | 316L SS          | DRY               | 60 inHg          | 90 inHg           | 0.035%                | 0.07%                | APM029HVSG  |
| 10 inH2O*1     | Gauge        | 0.3612  | 0.0249  | DRY              | DRY               | x 5              | x 10              | 0.20%                 | 0.30%                | APM010WGSG  |

## JOFRA APM Series Advanced Pressure Module Serie H

The JOFRA APM H series are high accuracy laboratory units: 0.01% of F.S. The outstanding performance makes these modules perfect for use as an electronic pressure reference at the top of your calibration hierarchy. These modules are easy to work with and easy to transport.



Resolution .....6 digits (2 to 10 ppm depending on range)  
 Dimensions .....99 x 55 x 55 mm / 3.9 x 2.18 x 2.18 in  
 Weight ..... 450 g / 1 lb  
 Pressure connections ..... 7/16-20 SAE female  
 Conversion adapter to..... 1/8" NPT and BSP female  
 Electrical connection.....9 pole D-sub, male  
 Communication cable ....module to ASC300/AMC910/HPC  
 Cable length .....24 in / 60 cm  
 Warm up..... 10 minutes to rated accuracy  
 Reading rate..... 50 per second  
 Display rate ASC300, AMC910 and APC ..... 2 per second  
 Compliance - CE standards..... EN 50081-1, EN 50082-1  
 .....EN 50081-2, EN 50082-2  
 The JOFRA APM modules are type approved by Det Norske Veritas. Find the certificate at [www.jofra.com](http://www.jofra.com)  
 Approval, Certificate no.....A-10549

| Type      | psi      | bar      | Pressure port* 2 | Reference port* 2 | Over pressure* 3 | Burst pressure* 4 | Reference accuracy* 5 | 12 month accuracy* 6 | Part number |
|-----------|----------|----------|------------------|-------------------|------------------|-------------------|-----------------------|----------------------|-------------|
| 15 psi* 9 | Gauge    | 15.0000  | 1.03427          | DRY               | DRY              | x 1.5             | 0.003%                | 0.010%               | APM015PGHG  |
| 50 psi    | Gauge    | 50.0000  | 3.44756          | DRY               | DRY              | x 1.5             | 0.003%                | 0.010%               | APM050PGHG  |
| 100 psi   | Gauge    | 100.0000 | 6.89512          | DRY               | DRY              | x 1.5             | 0.003%                | 0.010%               | APM100PGHG  |
| 500 psi   | Gauge    | 500.000  | 34.4756          | DRY               | DRY              | x 1.5             | 0.003%                | 0.010%               | APM500PGHG  |
| 1000 psi  | Gauge    | 1000.00  | 68.9513          | DRY               | DRY              | x 1.5             | 0.003%                | 0.010%               | APM01KPGHG  |
| 15 psi* 9 | Absolute | 15.0000  | 1.03427          | DRY               | N/A              | x 1.5             | 0.003%                | 0.010%               | APM015PAHG  |
| 50 psi    | Absolute | 50.0000  | 3.44756          | DRY               | N/A              | x 1.5             | 0.003%                | 0.010%               | APM050PAHG  |
| 100 psi   | Absolute | 100.000  | 6.89512          | DRY               | N/A              | x 1.5             | 0.003%                | 0.010%               | APM100PAHG  |
| 500 psi   | Absolute | 500.000  | 34.4756          | DRY               | N/A              | x 1.5             | 0.003%                | 0.010%               | APM500PAHG  |
| 1000 psi  | Absolute | 1000.00  | 68.9513          | DRY               | N/A              | x 1.5             | 0.003%                | 0.010%               | APM01KPAHG  |
| 3000 psi  | Absolute | 3000.00  | 206.854          | DRY               | N/A              | x 1.25            | 0.003%                | 0.010%               | APM03KPAHG  |

- Note \*1 Non isolated transducer - dry air or non-corrosive gas compatible media only
- Note \*2 Media compatability on pressure or reference port side of the module - DRY indicates dry air or non-corrosive gas as compatible media. 316L SS indicates media compatible with type 316 stainless steel
- Note \*3 Applying steady pressure up to the specified overpressure will not destroy or change performance of the module
- Note \*4 Applying burst pressure (short pressure spikes) above the specified limit can destroy the module
- Note \*5 Reference accuracy is expressed as % F.S. and includes only liniarity, hysteresis, and repeatability at laboratory conditions.
- Note \*6 12 month accuracy - expressed as % F.S. Includes liniarity, repeatability, hysteresis, and temperature compensation 0 to 50°C (32 to 122°F).
- Note \*7 The closeness of agreement between independent test results obtained under laboratory conditions.
- Note \*8 6 month accuracy - expressed as % F.S. Includes liniarity, repeatability, hysteresis, and temperature compensation 15 to 45°C (59 to 113°F).
- Note \*9 All ranges less than 30 psi (2 bar) specify physical orientation of use.
- Note \*10 5 psi module: Line pressure max. 10 psi
- Note \*11 100 psi module: Line pressure max. 200 psi
- Note \*12 F.S. = 30 psi
- Note \*13 F.S. = 215 psi
- Note \*14 F.S. = 2 bar
- Note \*15 10000 psi and 700 bar series S module is delivered with 1/8" NPT female pressure connection and 1/8" BSP female conversion adapter.

## STANDARD DELIVERY

- Module
- Adapter fitting for NPT and BSP threads
- Communication cable
- NIST traceable calibration certificate

## ACCESSORIES

| Number      | Description   |
|-------------|---|
| SPK-APM-001 | APM-H Communication cable to JOFRA products HPC, ASC300 and AMC910              |
| SPK-APM-002 | APM Communication kit for PC  |
| 124673      | Carrying case for APM applications<br>230 x 440 x 750 mm / 9.1 x 17.3 x 29.5 in |
| 125106      | Carrying case for APM applications<br>188 x 440 x 560 mm / 7.4 x 13.8 x 22 in   |

Please note that the carrying case is delivered without any cutouts

### Fittings to connect APM modules with pump systems

#### System A

- 11-90067 Fitting 1/8" NPT male to 1/4" NPT male (APM-H)
- 11-90057 Fitting 1/4" NPT male to 1/4" NPT male (APM-S)

#### System B

- 11-90067 Fitting 1/8" NPT male to 1/4" NPT male (APM-H)
- 11-90057 Fitting 1/4" NPT male to 1/4" NPT male (APM-S)

#### System C

- 11-90057 Fitting 1/4" NPT male to 1/4" NPT male (APM-S)
- 12-90135 Fitting 1/8" NPT male to 1/8" NPT male (APM-H)

#### System D

- 60R115 Fitting 1/4" BSP male x 1/4" BSP male (APM-S)
- 11-90109 Fitting 1/4" BSP male to 1/4" NPT female (APM-H)
- 11-90067 Fitting 1/8" NPT male to 1/4" NPT male (APM-H)

Both 11-90109 and 11-90067 are needed to work with APM-H

#### System E

- 60R115 Fitting 1/4" BSP male x 1/4" BSP male (APM-S)
- 11-90109 Fitting 1/4" BSP male to 1/4" NPT female (APM-H)
- 11-90067 Fitting 1/8" NPT male to 1/4" NPT male (APM-H)

Both 11-90109 and 11-90067 are needed to work with APM-H

#### System F

- T-134 Union Body-1/4" NPT Female for manifold pump T
- 11-90067 Fitting 1/8" NPT male to 1/4" NPT male (APM-H)
- 11-90057 Fitting 1/4" NPT male to 1/4" NPT male (APM-S)

Both T-134 and 11-90067 are needed to work with APM-H

Both T-134 and 11-90057 are needed to work with APM-S



#### AMETEK Calibration Instruments

is one of the world's leading manufacturers and developers of calibration instruments for temperature, pressure and process signals as well as for temperature sensors both from a commercial and a technological point of view.

#### JOFRA Temperature Instruments

Portable precision thermometers. Dry-block and liquid bath calibrators: 5 series, with more than 25 models and temperature ranges from -90° to 1205°C / -130° to 2200°F. All featuring speed, portability, accuracy and advanced documenting functions with JOFRACAL calibration software.

#### JOFRA Pressure Instruments

Convenient electronic systems ranging from -25 mbar to 1000 bar (0.4 to 15,000 psi) - multiple choices of pressure ranges, pumps and accuracies, fully temperature-compensated for problem-free and accurate field use.

#### JOFRA Signal Instruments

Process signal measurement and simulation for easy control loop calibration and measurement tasks - from handheld field instruments to laboratory reference level bench top instruments.

#### JOFRA / JF Marine Instruments

A complete range of calibration equipment for temperature, pressure and signal, approved for marine use.

#### FP Temperature Sensors

A complete range of temperature sensors for industrial and marine use.

#### M&G Pressure Testers

Pneumatic floating-ball or hydraulic piston dead weight testers with accuracies to 0.015% of reading.

#### M&G Pumps

Pressure generators from small pneumatic "bicycle" style pumps to hydraulic pumps generating up to 1,000 bar (15,000 psi).

*...because calibration is  
a matter of confidence*

**AMETEK®**  
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