

# PRESSURE SENSOR MODULES

## Pressure Measurement Modules for use with MFT 4000, MFT 4010 and MFT 4020



Pressure Sensor Modules from Meriam Process Technology are available in a several types and ranges to provide the ultimate in flexibility and convenience for calibration standards. Meriam pressure modules are used with any **MFT 4000 Series Multi-Function Tester** by installing modules into any of three (3) MFT sensor bays. The modules are completely interchangeable and can also be hot-swapped, when needed, to facilitate most any pressure testing needs (restrictions on module installation and removal apply to Intrinsically Safe MFT units).

NIST traceable accuracy of  $\pm 0.025\%$  FS is available for most pressure ranges and types. This accuracy statement includes all effects of linearity, hysteresis, repeatability and temperature from 23° F to 122° F (no partial temperature compensation here!). A NIST certificate and calibration data are included with each module for quality assurance purposes. A reduced specification of  $\pm 0.025\%$  FS  $\pm 0.004\%$  FS per °F (Ref. Temp. = 70° F) is also available for most pressure ranges. This specification offers customers a cost savings with virtually the same measurement accuracy when used in conditioned or temperate environments.



Calibration coefficients for all modules are stored in non-volatile sensor module memory. This means any pressure module can be used in any Meriam MFT without manual programming of coefficients. When a module is installed or the MFT is powered up, the MFT senses the module bay connection, polls the module for the calibration coefficients and configures the display for pressure readout in the last engineering unit selected. Engineering units, including PSI, centimeters or inches of H<sub>2</sub>O (at 4°C, 20°C, or 60°F), kg/cm<sup>2</sup>, kPa, mBars, Bars, millimeters or inches of Hg (at 0°C ref. temp), are all selectable from the MFT keypad.



Meriam sensor modules are designed to be re-calibrated in the field with appropriate local calibration standards. The MFT's Rcal feature allows customers to adjust zero (offset) and full scale (gain) plus up to seven (7) addition points on the calibration curve. Dead weight testers are generally used to apply a known pressure to a module. The Rcal feature allows the user to key in the applied pressure value, which lets the module know how to correct its calibration curve. Meriam also provides factory re-calibration services for pressure modules including complete documentation and certification.

### Certifications Available

- CE Mark (standard)
- NIST traceability certificate (standard)
- Intrinsically Safe, MET Laboratories per CSA C22.2 & UL Class I Division I (standard on all pressure modules)



## Available Pressure Modules

| Accuracy | Model           | Pressure range           | Type         |
|----------|-----------------|--------------------------|--------------|
| ±.10% *  | FDN0010         | 0-10" H <sub>2</sub> O   | Differential |
|          | FDN0020         | 0-20" H <sub>2</sub> O   | Differential |
| ±.025% * | <u>x</u> DN0100 | 0-100" H <sub>2</sub> O  | Differential |
|          | <u>x</u> DN0200 | 0-200" H <sub>2</sub> O  | Differential |
|          | <u>x</u> DN0400 | 0-400" H <sub>2</sub> O  | Differential |
|          | <u>x</u> DN2000 | 0-2000" H <sub>2</sub> O | Differential |
|          | OR              |                          |              |
| ±.025%   | <u>x</u> GI0020 | 0-20 PSIG                | Gauge        |
|          | <u>x</u> GI0200 | 0-200 PSIG               | Gauge        |
| ±.004%   | <u>x</u> GI0500 | 0-500 PSIG               | Gauge        |
| FS / °F  | <u>x</u> GI1000 | 0-1000 PSIG              | Gauge        |
|          | <u>x</u> GI1500 | 0-1500 PSIG              | Gauge        |
|          | <u>x</u> GI2000 | 0-2000 PSIG              | Gauge        |
|          | <u>x</u> AI2000 | 0-2000 mm Hg             | Absolute     |
|          | <u>x</u> AI0900 | 0-900 mm Hg              | Absolute     |
|          | <u>x</u> AI5200 | 0-100 PSIA               | Absolute     |
|          |                 |                          |              |
| ±.05% *  | GGI3000         | 0-3000 PSIG              | Gauge        |

\* Includes all effects of linearity, hysteresis, repeatability and temperature from 23° F to 122° F

where x = D for ±0.025% FS with full temp comp  
E for ±0.025% FS ±0.004% FS per °F



**DDN0400 Module**



**MFT with T/C, DDN0400 & VMA Modules installed**

## Specification

### Temperature:

Storage: -40° F to 140° F (-40° C to 60° C)

Operating: 23° F to 122° F (-5° C to 50° C)

### Model codes and uses

xDN: Differential Non-isolated – clean, dry, non-corrosive gases only

xGI: Gauge Isolated – medias compatible with 316SS

xAI: Absolute Isolated – medias compatible with 316SS

### NIST Traceable Accuracy:

See specification in Table above

**Connections:** 1/8" FNPT, 316ss

### Pressure limits:

xGI / xAI modules: 2X range / 316ss compatible

xDN modules: 2X range when pressurized on high side only, 150 PSI when applied simultaneously to high and low sides

## Accessories

P/N A900529-00015 VMA Test Lead Kit - banana plugs on 9" breakouts both ends, assorted connectors

P/N B34686 961P pressure pump with integral variator, bleed valve, 1/8" FNPT connection, 0 - 145 PSIG

P/N B34700 961V vacuum pump with integral variator, bleed valve, 1/8" FNPT connection, -650 mm Hg

P/N A34386 Low Pressure Connector Kit (not for use above 250 PSIG)

P/N A34102 1/8" O.D. tubing to 1/8" MNPT connector (not for use above 250 PSIG)

P/N A34112 1/8" O.D. tubing union tee (not for use above 250 PSIG)

P/N A34099-1 1/4" MNPT X 1/8" FNPT reducer bushing, brass

P/N A34103-2 10 ft of 1/8" O.D. nylon tubing (not for use above 250 PSIG)

P/N A36856 Push to read equalizing manifold for DP modules, brass, 1/8"FNPT connections

P/N A900020-90502 High Pressure Connection Kit, 3' hose (not for use above 9,000 PSIG)

P/N A900020-90503 High Pressure Connection Kit, 1' hose (not for use above 9,000 PSIG)

P/N A900020-90501 5 pcs 1/4" MNPT x HP Quick Connect Fitting (not for use above 9,000 PSIG)

P/N A900436-00001 1 pcs 1/8" MNPT HP Quick Connect fitting (not for use above 9,000 PSIG)

**Pressure Module Units Resolution Table No. 1**

| Press. Unit        | 10" WC | 20" WC | 200" WC | 400" WC | 2000" WC | 20 PSIG | 200 PSIG | 500 PSIG | 1000 PSIG |
|--------------------|--------|--------|---------|---------|----------|---------|----------|----------|-----------|
| mm Hg              | XX.XXX | XX.XXX | XXX.XX  | XXX.XX  | XXXX.X   | XXX.XX  | XXXX.X   | XXXX.X   | XXXX.X    |
| in. Hg             | X.XXXX | X.XXXX | XX.XXX  | XX.XXX  | XXX.XX   | XX.XXX  | XXX.XX   | XXX.XX   | XXX.XX    |
| cm H2O             | XX.XXX | XX.XXX | XXX.XX  | XXX.XX  | XXXX.X   | XXX.XX  | XXXX.X   | XXXX.X   | XXXX.X    |
| Bar                | X.XXXX | X.XXXX | X.XXXX  | X.XXXX  | XX.XXX   | X.XXXX  | XX.XXX   | XX.XXX   | XX.XXX    |
| mBar               | XX.XXX | XX.XXX | XXX.XX  | XXX.XX  | XXXX.X   | XXX.XX  | XXXX.X   | XXXX.X   | XXXX.X    |
| KPa                | XX.XXX | XX.XXX | XXX.XX  | XXX.XX  | XXXX.X   | XX.XXX  | XXX.XX   | XXX.XX   | XXX.XX    |
| Kg/cm <sup>2</sup> | X.XXXX | X.XXXX | X.XXXX  | X.XXXX  | XX.XXX   | X.XXXX  | XX.XXX   | XX.XXX   | XX.XXX    |
| inH2O 4°C          | XX.XXX | XX.XXX | XXX.XX  | XXX.XX  | XXXX.X   | XXX.XX  | XXXX.X   | XXXX.X   | XXXX.X    |
| inH2O 60°C         | XX.XXX | XX.XXX | XXX.XX  | XXX.XX  | XXXX.X   | XXX.XX  | XXXX.X   | XXXX.X   | XXXX.X    |
| inH2O 20°C         | XX.XXX | XX.XXX | XXX.XX  | XXX.XX  | XXXX.X   | XXX.XX  | XXXX.X   | XXXX.X   | XXXX.X    |
| PSI                | X.XXXX | X.XXXX | XX.XXX  | XX.XXX  | XXX.XX   | XX.XXX  | XXX.XX   | XXX.XX   | XXX.XX    |

**Pressure Module Units Resolution Table No. 2**

| Press. Unit        | 1500 PSIG | 2000 PSIG | 3000 PSIG | 900mm<br>Hg Abs | 2000mm<br>Hg Abs | 5200mm<br>Hg Abs |
|--------------------|-----------|-----------|-----------|-----------------|------------------|------------------|
| mm Hg              | XXXX.X    | XXXXX     | XXXXX     | XXXX.X          | XXXX.X           | XXXX.X           |
| in. Hg             | XXX.XX    | XXXX.X    | XXXX.X    | XXX.XX          | XXX.XX           | XXX.XX           |
| cm H2O             | XXXX.X    | XXXXX     | XXXXX     | XXXX.X          | XXXX.X           | XXXX.X           |
| Bar                | XX.XXX    | XXX.XX    | XXX.XX    | XX.XXX          | XX.XXX           | XX.XXX           |
| mBar               | XXXX.X    | XXXXX     | XXXXX     | XXXX.X          | XXXX.X           | XXXX.X           |
| KPa                | XXX.XX    | XXXX.X    | XXXX.X    | XXX.XX          | XXX.XX           | XXX.XX           |
| Kg/cm <sup>2</sup> | XX.XXX    | XXX.XX    | XXX.XX    | XX.XXX          | XX.XXX           | XX.XXX           |
| inH2O 4°C          | XXXX.X    | XXXXX     | XXXXX     | XXXX.X          | XXXX.X           | XXXX.X           |
| inH2O 60°C         | XXXX.X    | XXXXX     | XXXXX     | XXXX.X          | XXXX.X           | XXXX.X           |
| inH2O 20°C         | XXXX.X    | XXXXX     | XXXXX     | XXXX.X          | XXXX.X           | XXXX.X           |
| PSI                | XXX.XX    | XXXX.X    | XXXX.X    | XXX.XX          | XXX.XX           | XXX.XX           |

