

ROOTS® Micro Corrector Integral Volume Correction Differential Pressure Monitoring



ROOTS Meter with IMC/W2, Model ptz-dp + LOG



The Differential Pressure (DP) Micro Corrector now offers an integrated solution, which monitors meter health by constantly measuring the differential pressure drop across the meter. The Micro DP is capable of learning the differential pressure curve for an individual meter. During the learning period, DP is monitored using the values present in the Dresser Differential Test Acceptance Calculator (DTAC).

The DP Micro retains the last valid average differential pressure measurement on the LCD of the corrector along with the date when this occurred. It also displays the average line pressure, average line temperature and meter flow rate for that same date. The differential pressure test information required to be in compliance with state PUC requirements is available with the push of a button! This is a significant cost savings as the number of return trips to the meter set is greatly reduced, and is environmentally friendly as it eliminates the need for venting gas during periods of low consumption.

Developed from the proven IMC/W platform, the ROOTS® Micro Corrector continues to provide industry-leading volume correction through a simple-to-use interface. Features such as improved low flow accuracy, greatly enhanced data logging capability, and significantly reduced accuracy test times combine to offer a complete solution with major customer benefits.

The ROOTS Micro Corrector, model IMC/W2, is the only integral corrector rated for Division 1 hazardous locations.

VERSIONS

ptz-dp + LOG

T-dp + LOG

ptz + LOG

P + LOG

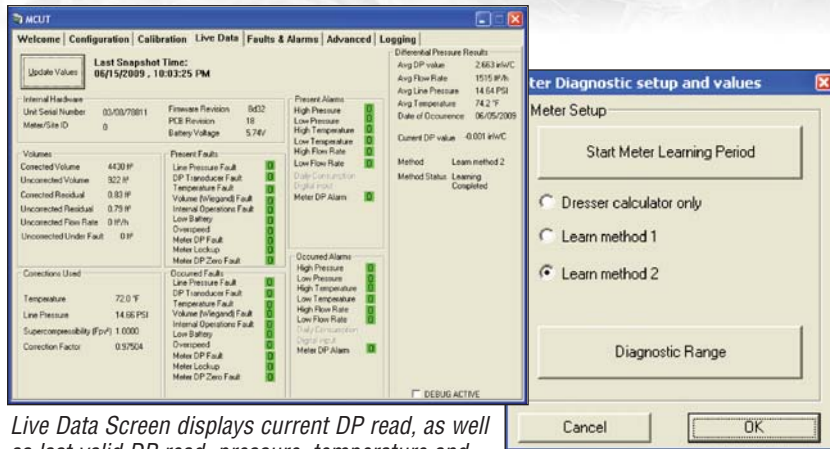
T + LOG

FEATURES

- Monitors meter health
- Lowers O&M costs by eliminating unnecessary scheduled maintenance
- Aids in regulatory compliance of DP testing where applicable
- Last valid DP measurement displayed on LCD and Live Data Screen
- Real-time differential pressure measurement
- Compatible with Dresser Series A (LM-MA), Series B, and Romet meters
- DP measurement is independent of volume correction
- Remote monitoring capability with Dresser Micro Modems - GSM/GPRS and telephone line modems
- dp + LOG units feature faults for high DP and meter lock-up



ROOTS GPS/GRPS
and Telephone Line Micro Modems



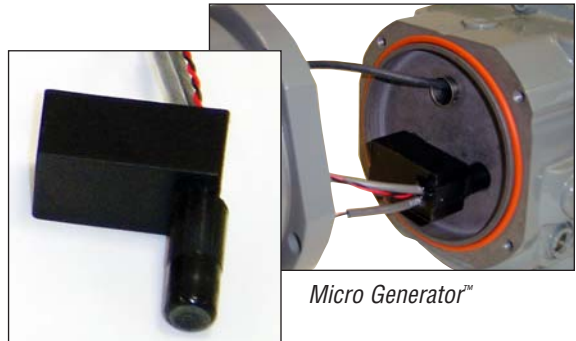
Live Data Screen displays current DP read, as well as last valid DP read, pressure, temperature and flow rate with date of occurrence.

Learning methods are customer selectable in the User Terminal Software.

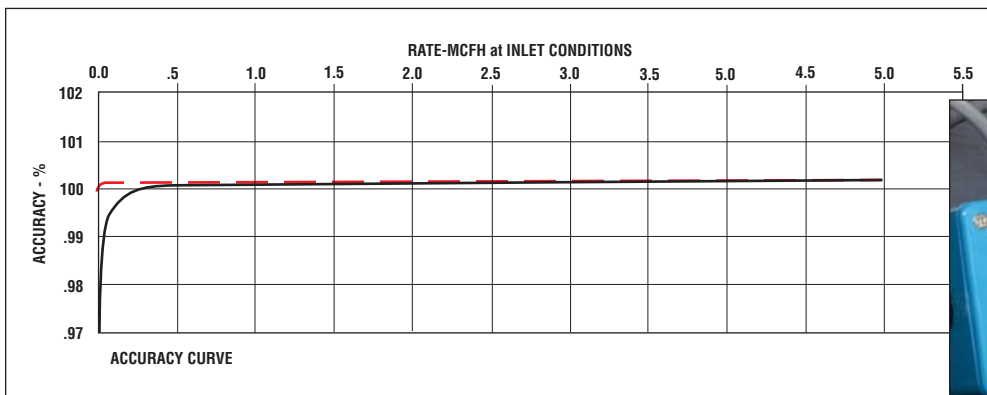
FEATURES INCLUDE

- **Rotating Index** makes meter reading easier, especially in non-typical installations
- **Uncorrected Instantaneous Flow Rate Displayed on LCD** aids meter differential testing in the field.
- **Maximum Uncorrected Peak Flow also Displayed on LCD**
- **The SmartProve™ Interface** not only reduces meter and corrector test times by as much as 90%, but allows the meter and corrector to be tested as a complete measurement system. This feature is unique to Dresser!
- **User Selectable Trim Table** improves rotary meter accuracy at flow rates less than 10% of meter Qmax, adding revenue to the utility's bottom line.
- **Micro Generator™** adds years to main battery life, extending the interval between battery changes.
- **Simple User Terminal Software** allows for easy configuration, calibration and data log downloads.
- **1 to 3 Data Logs** provide for years of historical information and are configurable in increments from 1 minute to 1 month. Data logs include the option to log live battery voltage.
- **Audit Log** maintains a record of configuration and calibration changes.
- **Alarms** notify the user of over-range conditions for pressure, temperature, and flow rate.
On units with DP transducer installed, alarms are present for higher than normal differential pressure
- **Alarm & Fault** activity is displayed in the Data Log and Audit Log reports, and the Live Data screen.
- **E²PROM** provides non-volatile storage of recorded data and corrector configuration regardless of battery condition.
- **Uncorrected Volume Under Fault** register in E2PROM replicates a backup mechanical index.
- **MS Excel® Formatted Reports** allow easy manipulation and sharing of information.

These features provide compelling value that can add thousands of dollars annually to the bottom line!



Micro Generator™



Trim Table



ROOTS® SmartProve™ Interface

SPECIFICATIONS

PERFORMANCE

Resolution:

Volume: 0.01 ft³ (0.01 m³)

Pressure: 0.01 psi (1 mbar)

Temperature: 0.1 °F (0.1 °C)

Supercompressibility (Fpv²): 0.0001

Correction Factor: 0.00001

Accuracy over Operating Temperature range of -40 °F to 140 °F (-40 °C to 60 °C)

Line Pressure: ±0.25% reading

Line Temperature: ±0.9 °F (0.5 °C)

Differential Pressure: +/- 0.1 in. WC

IMC/W2-PTZ: ±0.5% corrected volume

IMC/W2-P: ±0.35% corrected volume

IMC/W2-T: ±0.25% corrected volume

LONG TERM STABILITY

Pressure: 0.1% FS/yr non-cumulative

Temperature: 0.3 °F (0.2 °C)/yr non-cumulative

METER TRIM TABLE

Meter accuracy correction: 0.3% to 10% Qmax

E²PROM DATA LOG MEMORY

Time-stamped Entries: up to 32,287 (depending on the number of Parameters logged)

Parameters Logged: Corr Vol; Uncorr Vol; Fault Vol; Corr Factor; Supercomp; Avg and Peak Corr Flow Rate; 4 Pressures – Min, Max, Avg and Ending; 4 Temps – Mix, Max, Avg and Ending; Batt Voltage

NOMINAL BATTERY LIFE

Sealed Pack: 5-years nominal life

Micro Generator™: 7-years nominal

Low Battery Reserve: 3-months approx.

INPUTS

Volume: High speed magnetic pickup in meter magnet cup

Pressure: Proprietary semiconductor strain gauge

Temperature: ITS-90 Platinum 100Ω RTD α=0.00385

LCD DISPLAY

21 user selectable parameters

3 FULLY PROGRAMMABLE PULSE OUTPUTS

Corrected, Uncorrected, and Alarm/Fault:

Loop Voltage: 5-15 Vdc

Loop Current: 10 mA maximum

Pulse Width: 62.5, 125, 187, or 312 ms

On/Off Resistance: <10_/> 10MΩ

Isolation: 2,500 Vdc

ENVIRONMENT

Operating Temperature:

-40 °F to 140 °F (-40 °C to 60 °C)

Storage Temperature: -58 °F to 176 °F (-50 °C to 80 °C)

Humidity: Up to 95% sustained outdoor exposure

ENCLOSURE

NEMA 4X (IP66)

INTRINSIC SAFETY

(includes Sealed Battery Pack)

Class-I, Division-1, Group D:

CSA Approval No. 1224451

Zone 0: EEX ia IIC T4 Tamb = -40 °C to 60 °C

Class-I, Division-1, Group A, B, C, D: BAS98ATEX 1083

ELECTROMAGNETIC/RADIO FREQUENCY IMMUNITY

FCC Class B: Meets EMI/RFI immunity at 10 V/m, 0.1 to 1,000 MHz EN50081-1 and EN5088-2

OTHER

ISO-9001, CE Mark

ROOTS® Micro Corrector also available in ID and wall mount versions.



ORDERING INFORMATION

The IMC/W2 with or without DP can be ordered as either:

- An integral part of a new meter.
- As a kit to convert existing ROOTS Series-A (LMMA), Series-B (TQM), or Romet meters.

For P and PTZ versions:

The IMC/W2 is available in the following pressure transducer ranges:

| Transducer Range | Gauge | Absolute |
|-------------------|-------|----------|
| 30 psi (2bar) | X | X |
| 180 psi (12 bar) | X | X |
| 350 psi (24 bar) | X | X |
| 1000 psi (70 bar) | | X |

- The 350 psi (24 bar) and 1000 psi (70 bar) transducers would typically be used for High Pressure Meter applications
- The IMC/W2 can be ordered with either an external or internal pressure connection.
- IMC/W2's for Series-A meters, 23M - 56M high capacity meters, and high pressure meters require external pressure connections.
- Optional piping kits are available for convenient connection of external pressure connections.

Pressure Piping Kits for Non-DP versions

| Approved for use to 350 psi G | |
|-------------------------------|-------------|
| Length of SS Tubing | Part Number |
| 32" | 051416-320 |
| 84" | 051416-420 |
| 120" | 051416-520 |

| Approved for use to 1480 psi G | |
|--------------------------------|-------------|
| Length of SS Tubing | Part Number |
| 32" | 051416-310 |
| 84" | 051416-410 |
| 120" | 051416-510 |

- For IMC/W2-dp version, the following piping kits are available:

Pressure Piping Kits for DP versions:

| Piping Kit | Part Number |
|-----------------------|-------------|
| 36" | 051416-600 |
| 36" with Pipe Plugs | 051416-610 |
| 36" with Pete's Plugs | 051416-620 |

For PTZ and T versions:

- All 23M - 56M high capacity meters, and high pressure meters require an external temperature probe and thermowell. The probes are available with 5 ft or 10 ft armored cables and in 2 in or 8-1/2 in insertion lengths.
- Thermowells are available in sizes 1/4-NPT x 2, 1-NPT x 2, 1-NPT x 4, and 1-NPT x 6; all dimensions are in inches.

A variety of pulse output connectors are available:

- Metal 6-pin Circular twist lock connectors.
- Plastic cable-gland connectors.
- Conduit fittings and other special connectors are available upon request.

The IMC/W2 will be shipped with a factory standard configuration unless the customer specifies otherwise.

A Sealed Battery Pack is included and will provide a nominal 5-years of reliable corrector operation. Adding the optional Micro Generator may extend battery life to 7-years or more.

New users will want to order the User Terminal Software and one or more communication cables to allow local configuration, calibration, and data retrieval. The cables are available in 6, 25, and 50 ft. lengths. Special cables are available for proving the meter and corrector with the ROOTS® Model-5 Transfer Prover. See TS: SmartProve for further details.

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