

EFM3000™ Electronic Flow Meter

**FERGUSON
BEAUREGARD™**
New Intelligence In Problem Solving™



Ni Work Smarter with New Intelligence.

Designed to meet the specific needs of gas producers, New Intelligence (Ni) by Ferguson Beauregard is a series of integrated products intended to remove the hassle from production operations. From intelligent wellhead control and precise electronic flow meters to a full-featured SCADA host, Ni can enhance production and provide a quicker return on your investment.

EFM3000™

Does accurate and reliable flow measurement at your wellhead, pipeline or gathering system demand precise production control? Check out the new industry standard in dependability, the economical EFM3000™ Electronic Flow Meter.

Using state-of-the-art industry components (including an Emerson-Rosemount dual-variable 205 pressure sensor) this meter is designed to operate in the most demanding applications. The EFM3000 provides the accuracy and functionality producers and pipeline operators require for custody transfer applications.

Loaded With Features

Various packaging options are available, including one agency certified for installation in Class 1, Division 1, Group D hazardous environments.

A second all-in-one configuration features an all-weather NEMA 4 stainless-steel enclosure, agency approved for Class 1, Division 2, Group D environments. This model offers a 4-line x 20-character LCD panel with through-the-door viewing, an internal 12Vdc battery pack with charge regulator circuits, radio/modem and an optional solar power panel. It can also be field upgraded to include Ferguson Beauregard's patented Auto-Cycle™ plunger-lift control.

Many Communication Options

Communication options include spread spectrum and licensed radio systems, analog and digital cellular (CDPD), and satellite modems. A built-in communications sleep mode helps extend the autonomy of the EFM3000, making it the logical choice for low-power applications.



For more extensive applications, the EFM3000 comes standard with four analog inputs, two discrete inputs, and one discrete output. In addition, the serial communications interface uses industry-standard Modbus protocol, supported by many third-party SCADA systems.

User-Friendly Software

Adding to the reliability of the EFM3000 hardware is the EFMaintainer™ PC software. Quick and easy to install, it is judged by industry users to be the most friendly software available.

It provides technicians and operations personnel an intuitive method for set-up and configuration of the EFM3000.

The EFMaintainer also supports local/remote communications for retrieval of measurement data, reports, alarms, logs and audit records.

Contact us today to learn how Ni technology can help improve your production performance.

*Visit our web site – or email us at:
Automation@FergusonBeauregard.com*

FEATURES

- Volume Calculations
AGA 3, Nov. 92; AGA 8,
July 94 (Detail or Gross)
- 35 Days storage of
hourly data
- 300 Alarms; 275 Events
- Differential range 0-250
inches of water
- Static range 0-800 psia /
0-3626 psia
- Flow logging
- Real-time clock &
watchdog timer
- Poll on demand
- Additional Input/
Output capacity
- Solar powered w/
battery backup
- Modbus ASCII &
Modbus RTU protocols
- 4 Line 20 character LCD
- Multi level password
security

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A **DOVER** COMPANY

TECHNICAL SPECIFICATIONS

FUNCTIONS

Functional Capability

Electronic Gas Measurement (Orifice Meter) compliant with API MPMS Chapter 21 Section 1-First Edition, September 1993.

Alarms

Low DP, high DP, low AP, high AP, low flow rate, high flow rate, back flow, low flowing temperature, high flowing temperature, low battery voltage, high battery voltage, auxiliary inputs high and low, discrete input.

Communications

MODBUS Serial Protocol, RTU & ASCII modes.

SENSOR

Type

Field proven dual-variable pressure sensor.

Absolute Pressure (AP)

Upper Range Limit (URL)

Range 3: 0 -800 psia
Range 4: 0 -3626 psia

Turndown: 10:1 of URL
Accuracy: +0.075%

Differential Pressure (DP)

Upper Range Limit (URL)

Range 2: 0 -250 in. H2O
Range 3: 0 -1000 in. H2O

Turndown: 10:1 of URL
Accuracy: ±0.075% of Span

Reference Accuracy

Applicable under reference conditions and zero-based spans. Includes combined effects of terminal based linearity, hysteresis, and repeatability.

Static Line Pressure Effects

DP Zero Accuracy: ±0.05% of URL/1000 psi
DP Span Accuracy: ±0.20% of reading/1000 psi

Ambient Temperature Effects(per 50° F)

AP: ±0.05% of URL +0.125% of Span
DP: ±0.025% of URL +0.125% of Span

Firmware Sampling Frequency

AP: 10 times/second
DP: 6 times/second

Process Connections

1/4-18 NPT on 2.125 inch centers (requires a coplanar flange or instrument valve manifold assembly).

POWER

Consumption

0.220 watts (w/o communications device. 4.0 watts when equipped with radio modem in quiescent RX mode).

Battery

12Vdc, 15 AH standard; 57 AH High Capacity System optional.

Solar Panel

10 watts standard; 30 watts High Capacity System optional.

Autonomy Period

18 days @ 15 AH battery (w/o communications device). Firmware "communications device sleep mode" extends the autonomy period.

INPUT/OUTPUT

Serial Ports

(1) Local Port / EFMaintainer RS-232
(1) Host Port RS-232 or RS-485

Analog Inputs

(4) 0-15Vdc total span, 12 bit A/D resolution: 1-5 Vdc input; (or 4-20ma & requiring precision loop resistor(s) & auxiliary 24 Vdc loop power supply).

Discrete/Pulse Input

(2) Dry Contact Closure

Discrete Output

(1) Open Collector, 15Vdc @ 100 ma Max.

Protection

Transient protection is provided in-circuit.

ENVIRONMENTAL

Operating Temperature

-20° to +140° F including LCD readout.

Operating Humidity

0 to 95% non-condensing.

OTHER

Agency Approvals CSA UL

EFM3000xp: Class 1 / Div 1 / Group D exp proof
EFM3000: Class 1 / Div 2 / Group D

Local Readout

LCD 4 x 20 character; temperature compensated.

Enclosure

EFM3000xp: Explosion proof machined aluminum
EFM3000: Stainless steel NEMA 4X

Weight

Approximately 30 lbs (EFM3000 w/15 AH battery)

Dimensions

12" H x 8.5" W x 7.25" D (EFM3000 enclosure)

Configurable Functions

Configured using EFMaintainer software running on a laptop or PC.

Auto-Cycle is a trademark and patent of Ferguson Beauregard/Delaware Capital Formation, Inc. and is manufactured under one or both of the following patent numbers: U.S./ Patent #435376 and U.S. Patent # 5146991. © 2003 Ferguson Beauregard

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