Flow Computer

Kongsberg FPM 207CE

*FMC Technologies **Kongsberg FPM 207CE** is a panel-mount or rack-mount flow computer designed for fiscal measurement, custody transfer and batch loading of petroleum products in both gas and liquid phase. Its powerful software and hardware are capable of handling multi-stream applications with a wide variety of flow meters.*

Description

The FPM 207CE can operate as a high-integrity stand-alone flow computer or as a powerful component in sophisticated metering applications integrated into a Supervisory or PCDA system.

FPM207CE supports all major international standards for both liquid and gas flow calculations. Each flow computer can handle a maximum of 3 meter runs in any combination of gas and liquid in the same computer. The FPM207CE is designed to accommodate both continuous pipeline or batch loading applications.

The FPM207CE uses a low power, high performance Pentium® class processor with an integral floating point processor. The computing power allows for complex meter configuration with high demand on calculations such as AGA8, AGA10 and others.

Features

- **High Performance Advanced I/O Board** with multiple processor computation
- **PC104 CPU Board** with Pentium® class processor
- **Two Mounting Choices –** high-density rack or panel mounted.
- **Built-in PLC Logic –** for valve monitoring and control
- **Three Password Protected Security Levels** for parameter access
- **Three Meters –** mix of gas and liquid applications in same computer
- **K-Factor/M-Factor Linearization**
- **Advanced High Accuracy ADC** – with auto-calibration against a high stability reference.
- **Dual Sampler Control**
- **Totalization** (period/batch/totals)
- **Batch Volume Correction and Re-calculation**
- **PID Control** with automatic flow vamping
- **Automatic Proving Sequence**
- **Station/Meter Run Densitometers**
- **Dual Instrumentation** with condition based monitoring
- **Data Exchange** of common station data between multiple flow computers using high speed TCP/IP connections
- **Advanced Application Interface** for calculation checks using Microsoft® Excel spreadsheet
- **Supports Interface** for standard office and technical application using a MS Windows® DLL-driver.

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Communication

- **Two RS232 Serial Ports** for connection to printers or local equipment
- **Two RS232/485 Serial Ports** for connection to field instruments or SCADA/PCDA systems
- **Two LAN Ports** for redundant 10/100Base T connections using TCP/IP protocol
- **One Dedicated RS232 Port** for configuration and maintenance located on front panel
- **Eight HART Channels** for communication with smart transmitters
- **Modbus Master and Slave, Serial or LAN protocol**
- **Profibus DP/PA**

Supported Flow Meters

Liquid

Turbine
PD Meter
Orifice
Venturi
Ultrasonic
Coriolis
Mag Meter
Multi Phase Meters

Gas

Orifice
Ultrasonic
Turbine
Venturi
Annubar
V-Cone
Coriolis
Vortex

Prover

Compact (piston type)
Uni-directional
Bi-directional
Master meter
Supports up to 4 sphere switches

Fiscal Calculations

Liquid

API 2540
API 11.1
API 11-2-1
API 11-2-2
ASTM-D-1250 Table 24 or 54
ASTM-IP-API 5.5.1
ASTM-IP-API 5.5.2
API 12.2
ISO/DIS 12916
ISO 4267-2
ISO 6551/API 5.5
ISO 8222
Solartron 7835 Density
COSTALD
ISO 5167
VDI/VDE 2040 Part 2
IP Petroleum Measurement Manual. Part XII

Gas

ISO 5167-2003
ISO/DIS 9951
AGA 3 / API 14.3
AGA 5
AGA 7
AGA 8
AGA 10
VDI/VDE 2040 Part 2
Solartron 7812 Density
ISO 6976
ISO 12213
KATZ IP 74-008
GERG-88/GERG-91
GOST 301396
Isentropic exponent
Specific Heat Ratio

Specifications

Processor

333MHz AMD Geode GX466 (Pentium® class)

128MB RAM

1MB SRAM

64MB Flash

Input/Output

Analog Input: 4 channels, 4-20mA,> 16 bit

Analog Output: 4 channels, 4-20mA, 16 bit

Digital Input: 16 channels, optical isolated

Digital Output: 16 channels, optical isolated

Pulse Input: 4 channels (2x2), DC to 50kHZ, optical isolated, ISO 6551 Level A

Frequency Input: 3 channels, DC to 50kHZ, optical isolated

Sphere switch input: 4 channels

HART Input/Output: 8 channels

Dimensions & Weight

19" Horizontal Version:

- 482 mm (19") x 88 mm (3.5") x 310 mm (12.2")
- Allow 76 mm (3") free space at rear for connectors

Vertical Rack Mount Version:

- 51 mm (2") x 235 mm (9.25") x 310 mm (12.2")
- Allow 76 mm (3") free space at rear for connectors

Power Requirements

- **Supply Voltage:** 20-32VDC
- **Consumption:** 25W nominal

Environmental

- **Operating Temperatures:**
  0°C to 60°C (32°F to 140°F)
- **Storage Temperatures:**
  -40° to 70°C (-40°F to 158°F)
- **Operating Humidity:** 0 to 90% (Non-condensing)
- **Operating Altitude:**
  0 to 4000 m (0' to 13,123') above sea level

Approvals and Compliances

- **European CE 89/336/EEC**
- **GOST Approval**
- **PAC (China)**
- **PTB**

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