TECHNICAL SPECIFICATIONS

NUFLO MC -III EXP Flow Analyzer

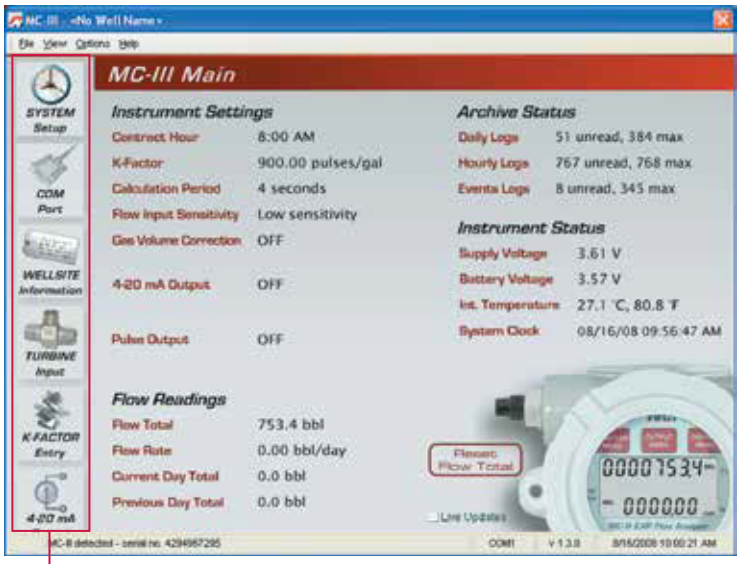
Cameron's NUFLO ™ MC-III ™ EXP Flow Analyzer provides state-of-the-art liquid and gas measurement with data logging and Modbus ® communications in an easy-to-use explosion-proof totalizer.

The MC-III EXP stores more flow logs and downloads them faster than any other flow analyzer on the market.

This powerhouse records up to 384 daily flow logs, 768 hourly logs, 345 event logs and downloads them to your computer via Modbus in less than a minute.

The MC-III EXP is designed to perform reliably in hazardous areas and in the harshest environmental conditions across the globe.

The MC-III EXP connects to a gas or liquid turbine meter or a pre-amplifier. Users can select a 4 to 20 mA output, a pulse output or an amplified flow meter frequency output that allows remote equipment to calculate flow rates and volume.



Users can access every configuration parameter from one screen.

Benefits

The MC-III EXP offers:

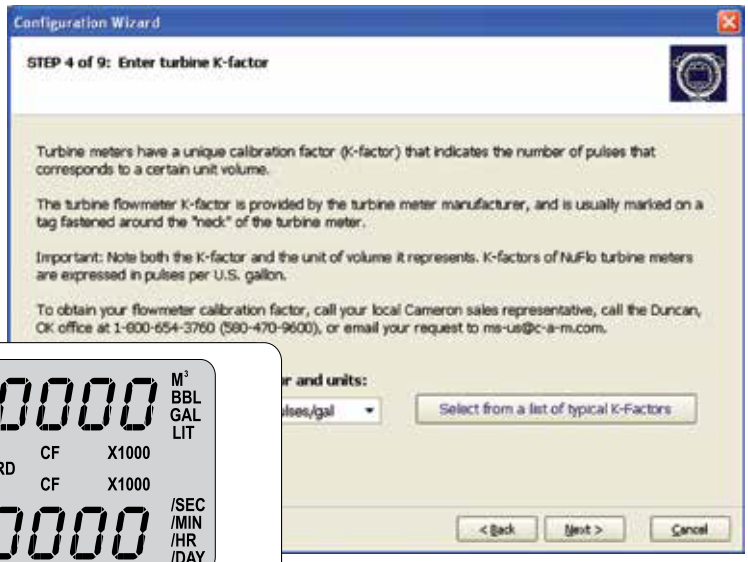
- RS-485 Modbus communications
- Extensive log archival capacity
- High-speed data downloads
- Interactive software for quick and easy calibration and data access
- Simultaneous indication of rate and total
- Easy-to-read LCD displays
- Loop-powered analog output
- 12-point linearization
- Nonvolatile memory
- Password-protected security
- Optional hardware for daily log viewing and external laptop connection
- Intrinsically safe RS-485 output (option)
- CSA, ATEX, IECEx and CE approvals

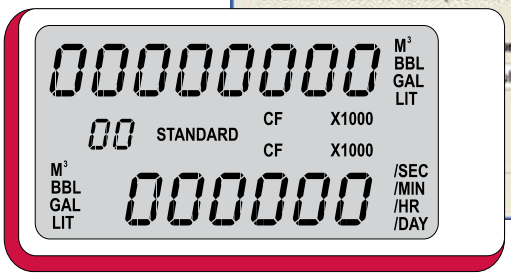
Calibration

Calibrating the MC-III EXP is as easy as entering the calibration factor of the flow meter and selecting the desired units of measurement. The instrument automatically calculates its own divisor.

The wide variety of unit options for total and rate gives users the freedom to customize the display, inputs and outputs for specific needs.

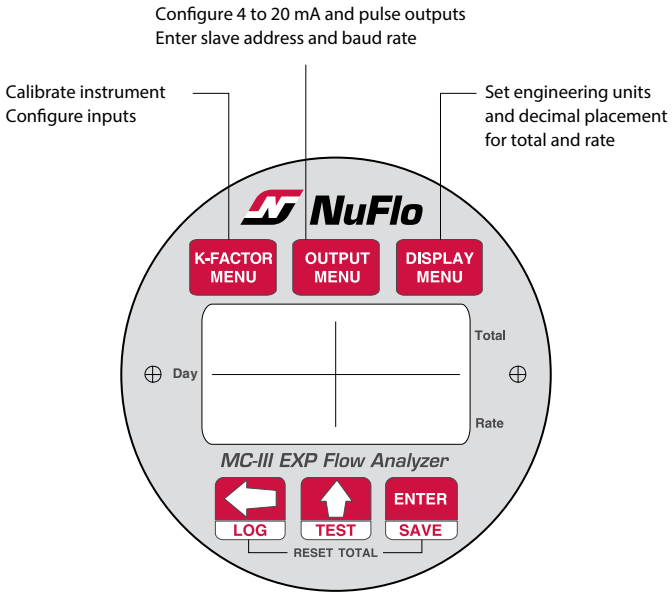
With the built-in wizard that guides users step by step through the configuration process, even first-time users will get dependable results in just minutes.





Keypad Configuration

The MC-III EXP can be configured with either the software interface or the six-button keypad on the front of the instrument. Built-in shortcuts to common functions (see diagram below) simplify configuration, reducing the user's time spent on site.



MC-III EXP and Turbine Meter Packages

The MC-III EXP can be packaged with a NUFLO or BARTON ® 7000 Series gas or liquid turbine meter and a suitable CSA or ATEX approved adapter and shipped straight from the factory, ready for installation.

Display

- Eight-digit display of total
- Six-digit display of rate (11-segment characters for easy-to-read prompts)
- Character height – 0.3"
- Adjustable contrast and update period
- User-selectable units of measurement:
  - Total: bbl, gal, liters, cubic meters, cubic feet, standard cubic feet, user-defined units (and all units x 1000)
  - Rate: Any of the above total engineering units per day, hour, minute or second

Calibration

- Liquid flow meter: User enters calibration factor of meter and selects units of measurement
- Gas flow meter: User enters calibration factor of meter, pressure and temperature parameters, and FPV via user interface software

Power Supply Options

- 3.6 VDC lithium battery pack
  - Two-year life, typical (main or backup power supply)
- Alkaline battery pack option (main or backup power supply)
  - CSA approved devices only
  - not recommended for temperatures consistently below 20° F (-7° C)
- External power supply (6 to 30 VDC) with internal battery backup
- Loop-powered (4 to 20 mA output) with internal battery backup

Temperature Range

- Lithium battery: -40° F to 158° F (-40° C to 70° C)
- Alkaline battery pack (CSA only): 20° F to 140° F (-7° C to 60° C)
- LCD contrast is reduced below -4° F (-20° C)

Certification

- CSA approved for US and Canada
  - Class I, Div. 1, Groups B, C, D (explosion-proof)
  - Type 4 enclosure
  - T6 temperature class
- ATEX/IECEx approved
  - Category II, Group 2, Gas/Dust
  - Ex d IIC T6 Gb
  - Ex tD A21 IP66 T85°C
- CE-approved
- Complies with EMC Directive 2004/108/EC

Communications/Archive Retrieval

- RTU mode Modbus
- Enron Modbus
- 16-bit slave address supported
- Data printouts in tabular or chart formats
- Data export to spreadsheet (.xls and .csv formats)

Inputs

Turbine Meter Input

- Configurable sensitivity adjustment
- Frequency range: 0 to 3500 Hz

Remote Reset Input

- Optically isolated
- Supply range: 3.0 to 30 VDC

External Reset Switch (Option)

- Explosion-proof
- Daily log viewing capabilities

Pulse Input

- Optically isolated
- Supply range: 3.0 to 30 VDC
- Frequency range: 0 to 3500 Hz

Outputs

Analog Output

- 4 to 20 mA, loop-powered (two-wire)
- 16-bit resolution
- Accuracy: 0.1% of full scale at 77° F (25° C), 50 PPM/°C temperature drift
- Loop power: 8.0 to 30 VDC
- Zero and full-scale engineering values configurable from front panel
- Cannot be used simultaneously with amp and square output

RS-485 Communications

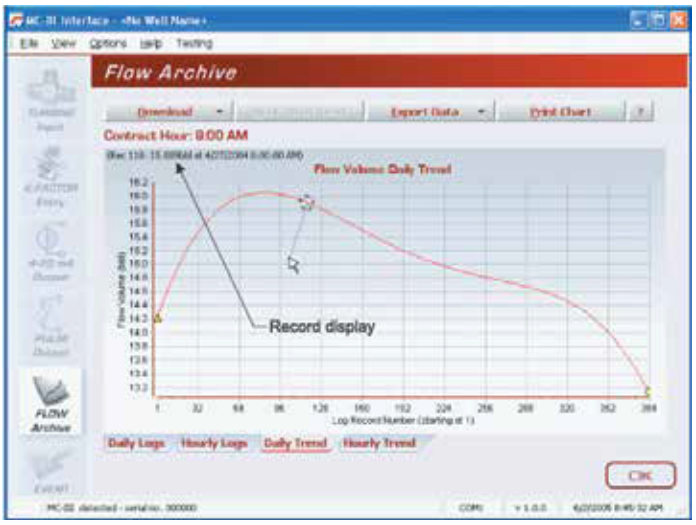
- Baud rates: 300, 600, 1200, 2400, 4800, 9600, 19,200, 38,400, 57,600 and up to 115.2 K
- Optional external communications port
  - RS-485 adapter (CSA and ATEX approved)
  - USB adapter (CSA approved)

Volumetric Pulse Output

- Solid-state relay
- Output rating: 60 mA max at 30 VDC
- Configurable pulse duration and scale factor

Amp and Square Output

- Open-drain transistor output of turbine meter input signal
- Output rating: 50 mA at 30 VDC
- Cannot be used simultaneously with analog output



Interface Software

- Provided at no additional charge
- Complete configuration
- Real-time data
- Downloads and exports
- "Wizard" offers step-by-step calibration procedure
- Windows® XP, Windows Vista ®, or Windows ® 7 required

Flow Archive

- 384 daily logs
- 768 hourly logs
- 345 event logs
  - K-factor changes
  - Input setting changes