The NuFlo Dual Run GFC-332 Gas Flow Computer offers the latest technology in electronic gas and liquid measurement. It provides the flexibility and functionality required in today's electronic measurement applications. Its user-friendly keypad, software and easy-to-read display allows it to be installed and configured in minutes.

The Dual Run GFC-332 measures and records flow data for two independent gas orifice meter runs and two frequency output liquid meter runs over a user defined interval. All flow information is stored in nonvolatile memory and can be downloaded with optional personal computer software or industry standard SCADA software.

Features

- **Alphanumeric keypad** – You can easily configure the Dual Run GFC-332 with the front-panel alphanumeric keypad.
- **Local Readout** - Monitor all flow parameters and volume totals on a 4-line by 20-character Liquid Crystal Display (LCD). See parameters individually or in a user-configured scan mode showing only those of interest.
- **Data security** – Four levels of security keep data secure. NuFlo’s patented internal circuitry assures that flow data cannot be altered. All transaction records, alarms, and events are stored in battery backed memory. On-board memory stores 60 days of hourly data.
- **Sensor Inputs** – You may use a variety of transducer and transmitter inputs to measure flow parameters. All sensor inputs are protected from high voltage transients.
- **SCADA Support** – Compatible with off-the-shelf SCADA software. Three independent communications ports for maximum flexibility. Protected from high voltage transients on all three communications ports.

Functional Description

The flow, event and alarm record data provide the most valuable audit trail of any electronic gas measurement instrument.

Flow, Event and Alarm Data

For the evaluation of gas production, the Dual Run GFC-332 stores data on each run for:

- Average static pressure
- Average differential pressure
- Average gas temperature
- Total compensated gas volume
- No flow periods
- Gas rate

This information forms the basic hourly, daily and monthly transaction records discussed in API MPMS, Chapter 21.1.

For liquid flow, the Dual Run GFC-332 provides two independent turbine meter inputs.

The Dual Run GFC-332 maintains a list of the most recent 256 events and alarms.

Setup and Calibration

Chose the setup menu for your type of information. For example, the “Gas Data” menu has everything you need to set up the gas composition. Simple, user-friendly menus guide you through setup with the front panel keypad in minutes. You have no need for a bulky handheld interface, even for calibration.
Standard Configuration
Inputs and Outputs

Update of Flow Totals
The Dual Run GFC-332 updates flow totals every second. See the flow parameters in real time using the keypad and LCD on the front panel. The Dual Run GFC-332 easily accommodates specialized modes of operation, such as stacked differential pressure transducers.

Specifications

Enclosure
- Weatherproof Fiberglass
- Bulkhead Mount
- 12 x 10 x 6 in.

System Power
- Typically 1.4 watt @ 12VDC
- Low power transmitters (not including serial communication)

Operating Temperature
- -40°F to +185°F (-40°C to +85°C)
- LCD: -4°F to + 158°F (-20°C to +70°C)

Analog Input Accuracy
- 0.1% full scale (FS)
- 0.007% FS per °C drift
- 0.5% repeatability

Display
- 4-Line by 20-Character alphanumeric LCD

Keypad
- 24-key membrane keypad for all parameter viewing, setup and calibration

Gas Sensor Inputs
- Differential Pressure 1:
  - 0.8 to 3.2VDC
  - 0 to 5VDC
  - 0 to 20mA
- Differential Pressure 2:
  - 0.8 to 3.2VDC
  - 0 to 5VDC
  - 0 to 20mA
- Static Pressure 1:
  - 0 to 5VDC
  - 0 to 20mA
- Static Pressure 2
  - 0 to 3.8VDC
  - 0 to 5VDC
  - 0 to 20mA
- Gas Temperature 1:
  - 100 ohm Platinum RTD
  - -4°F to 300°F (-20°C to + 150°C)
  - 1 to 5VDC
  - 4 to 20mA
- Gas Temperature 2
  - 0 to 3.8VDC
  - 0 to 5VDC
  - 0 to 20mA
Two Frequency Inputs
• Amplitude: 20mV to 10V
• Contact Closure
• NuFlo Line Amplifier
• Frequency: 1 to 3000 Hz

Communication
• Three Independent Ports:
  • RS-232-DCE for a Laptop Computer
  • Selectable RS-232C DTE for a MODEM or RS-485 with RS-485 PTT for SCADA
  • RS-485 with RS-485 PTT for SCADA
• Selectable comm port baud rates: 1200, 2400, 4800, 9600 and 19200 baud
• MODBUS and Square D RNIM protocols

Software Calculations
• Gas Compressibility: PAR Research Project NX-19 or American Gas Association (AGA) Report 8.
• V-Cone Calculations
• Liquid Flow: API MPMS, Chapter 12.2

Pending Electrical Certification
• UL, NRTL/C use in USA/Canada; Hazardous Location-Class I, Division 2, Groups C & D. FCC Class A Device

Ordering Information
Standard Unit Description
• Name: NuFlo Dual Run GFC-332 Gas Flow Computer
• Enclosure: Fiberglass Weatherproof Bulkhead Mount
• Input Power: 12VDC
• Sensor Inputs: Specify type of inputs and process parameters at time of order.

Optional Features
• Readout Software: Windows™ 3.1, Windows 95/98™ or Windows NT™ performs all calibration and data retrieval.
• Fiberglass Enclosure Mounting: 2-inch pole mount
• Stainless Steel Enclosure: Type 4X Weatherproof 16 x 16 x 6 in.; Bulkhead Mount or 2 in. pole mount
• Power Supply: 12V solar power
• Temperature: 100 ohm RTD, 12 ft. cable, Specify pipeline size
• Gas or Liquid turbine flowmeter:
  Frequency: 1 to 3000 Hz
  Amplitude: 20mV to 10V
  Dry contact closure
  NuFlo Line Amplifier
• Communications:
  Telephone/Cellular Modem, Radio Systems

Windows™ is a Trademark of Microsoft Corporation.
WARRANTY-LIMITATION OF LIABILITY: Seller warrants only title to the product, supplies, and materials and that, except to software, the same are free from defects in workmanship and materials for a period of one (1) year from the date of delivery. Seller does not warrant that software is free from error or that software will run in an uninterrupted fashion. Seller provides all software "as is". THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Seller’s liability and Buyer’s exclusive remedy in any case of action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale or use of any product, software, supplies, or materials is expressly limited to the replacement of such products, software, supplies, or materials on their return to Seller or, at Seller’s option, to the allowance to the customer of credit for the cost of such items. In no event shall Seller be liable for special, incidental, indirect, punitive or consequential damages. Seller does not warranty in any way products, software, supplies, and materials not manufactured by Seller, and such will be sold only with the warranties that are given by the manufacturer thereof. Seller will pass only through to its purchaser of such items the warranty granted to it by the manufacturer.