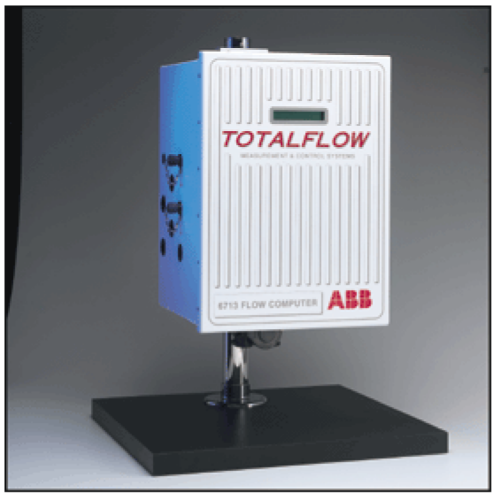
Data Sheet	6000 Series Products	Rev. AA
6713 Differential Flow Computer	**Overview**	

BENEFITS

- "Smart" transducer accuracy
- Comprehensive measurement data history
- Expandable I/O provides for changing automation needs
- Custody quality measurement



The Model Series 6713 Differential (orifice, v-cone, annubar, etc.) Flow Computers from Totalflow are designed for measurement sites where advanced features, 4expandability yet deterministic measurement are important. These flow computers offer features that can be used for flow measurement, site automation, data acquisition and control. Totalflow products provide users the best opportunity for successful projects – site by site or system by system.

DESCRIPTION

In addition to the basic flow computer inputs (Differential Pressure, Absolute Pressure, Flowing Temperature), the standard hardware includes: Two analog inputs (0-5 volts, converted by 18-bit ADC), two digital outputs, two state inputs, and two high-speed pulse accumulator inputs.

This unit can be expanded to perform more advanced control functions by insertion of a Totalflow Plug-In RTU card or AO card, or valve control termination panel.

Communications are modular and user selectable for RS232, RS485, or RS422 on three separate remote communications ports. Users can select independently which communication type and/or protocol is required. Simultaneous remote communication through all ports is supported. Communications throughput is rated to 19,200 bps.

The series 6700 Flow Computer is supplied with an efficient smart solar charging system that has been optimized for most applications (30 Watt max.)

FEATURES

- Low cost,high reliability design
- Meets NEMA 4X / TYPE 4X requirements aluminum enclosure, powder coated
- Low power digital main electronics board
- LCD 2 × 24 character display standard
- Crystal controlled clock provides stable time base
- Industrial grade battery included (various sizes)
- Charging source 13-18 VDC (solar panel, etc.)
- 128-512K RAM (5-year lithium battery back-up)
- RAM and system functional tests on cold-start with diagnostic results displayed on LCD
- 256K ROM standard (expandable to 512K)
- Flash memory available
- Multi-level security code protection of data
- Notification of alarm by exception conditions
- Calculation of flow rates and volumes per AGA 3-85, AGA 3-92 (user selectable) or AGA-7, ISO 5167
- Supercompressibility calculations per NX-19 or AGA
- 8-92-Gross or AGA 8-92-Detail method
- Smart Differential and Static Pressure transducers included (see page 2, AMU)
- High speed synchronous DP/AP transducer link
- Transducers factory calibrated (NIST traceable)
- Extrapolation of flow during field sensor calibrations
- User selectable three or five point field calibration

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- Programmable differential pressure zero cut-off
- 100-Ohm Platinum RTD included
- Automatic calibration of RTD with programmable bias adjustment
- Modular remote communications (Plug-in module, RS232/RS485)
- Two additional analog inputs (1-5 VDC or 4-20 mA)
- Two Pulse Inputs (rated to 5 Khz)
- Two Digital Inputs (Open drain FET, source 100 mA)
- Two Digital Outputs (Open drain FET, sink 1.5 amps continuous, 3 amps/1 minute @ 50% duty cycle)
- Expansion connector for enhanced I/O cards
- Supports the following protocols: Totalflow Low Power and Packetized protocols, Modbus ASCII & Modbus RTU protocols, others.
- CSA certified for Class I, Division 1 and 2, Groups C and D (NRTL/C)
- Dimensions: 13.00" W × 22.00" H × 12.5" D (330.2mm × 558.8mm × 317.5mm)
- Installed depth: 6713 – 12.35" (311.15mm)
- Approximate weight: 20.0 lbs (12.02 kg)
- Meets FCC Part 15, Class A Certification
- EMI/RFI Tested: 26 Mhz – 1000 Mhz at 32V/meter
- TF-LocalBus© dedicated communication port for additional meter runs and live Btu chromatograph input
- Valve control support built-in
- Supports Pump-Off Controller applications
- Programmed using the Totalflow hand-held (PCCU) or a laptop computer running hand-held emulation software (PCCU32).
- Advanced embedded trending database

ANALOG MEASUREMENT UNIT (AMU)

- The AMU concept provides a controlled environment for the processing of analog measurements. It provides the isolation needed to protect sensitive low level signals from EMI/RFI, environmental effects, and high-speed digital logic without adding additional cost to the end user. Major features of the AMU include:
- 18-bits of A/D Range
- Two analog inputs 4-20 mA or 1 to 5 VDC
- Differential inputs for Totalflow Smart transducers
- 5:1 turn down capability on Totalflow Smart Differential and Absolute Pressure transducers
- EEPROM for holding factory calibration data
- Power supply effect included in accuracy statements below
- Total system (FCU/AMU) tested for EMI/RFI susceptibility from 30 to 1000 MHz and for field strengths to 32 V/m, minimum (verified by independent lab) with no effect
- Dedicated 100 Ohm Platinum RTD input. Measurement range of -96°F to +624°F, (-69°C to 329°C)
- Temperature Limits
  - Compensated -20 to 140°F. (-29 to 60°C)
  - Operational -40 to 200°F. (-40 to 93°C)
  - Storage -60 to 225°F. (-51 to 107°C)

Performance Specifications as per SAMA guidelines
Reference conditions, zero-based spans at calibration temperature.

Accuracy

- Includes the effects of linearity, hysteresis, and repeatability.
- Standard Accuracy: < ± 0.2% of Upper Range Limit (URL)
- Accuracy after turn down: < ± 100 x (0.2% of URL + 0.13% of Span) / Span for spans 1:1 to 5:1
- Optional Accuracy: < ±0.05% of factory calibrated span. (After calibration, NIST traceable, additional charge)
- Accuracy after turn down: < ± 100 × (0.05% of URL + 0.13% of span) / span for spans 1:1 to 5:1

- Stability: ±0.25% of URL for 6 months
- Static Pressure Effect (DP Units)
  – Zero Error: ±0.1% of calibrated span
  – Span Error: ±0.15% per 1000 psi (6895 kPa)

Temperature Effect (DP Units)
±0.25% Total temperature effect including zero and span errors.

Temperature Effect on AP transducers same as DP.

Residual Thermal Effects
- Thermal Hysteresis
  - Typically ±0.15% of URL for 200°F (93°C)
  - Temperature cycle without recalibration
  - Worst case ±0.3% of URL for 200°F (93°C)
  - Temperature cycle without recalibration
- Thermal Repeatability
  - Typically ±0.15% of URL for 200°F (93°C)
  - Temperature cycle without recalibration
  - Worst case ±0.3% of URL for 200°F (93°C)
  - Temperature cycle without recalibration

Over Pressure Effects (Toggle)
- ±0.6% of URL for < 1000 psi (6895 kPa)
- ±1.0% of URL for >1000 < 2000 psi (13790 kPa)

Vibration Effect
The total effect (maximum effect at any point on scale) at frequencies up to 200 Hz and amplitude up to 0.25" peak to peak, or for accelerations up to 1 G (10 m/s2), whichever is smaller, is less than 0.25% of span.

Shock
Maximum of 25 G's in any axis, 11 ms duration.

Humidity
0-95% R.H. 12 hours exposure non-condensing over compensated temperature range.

For more information, contact your local ABB Totalflow Sales office or visit www.abb.com/totalflow .