



SS 4203 Gas Flow Computer

Weatherford's production optimization division offers the SS 4203 gas flow computer (GFC), a highly integrated and complete programmable logic controller (PLC) that incorporates a multivariable sensor. The product is compatible with industry standard programming environments including IEC 61131-3. Coupled with a second multivariable transmitter, the GFC provides a fully programmable platform usable in a wide variety of process control applications and can be used as a two run gas flow computer.

Overview

Flexible Installation—The SS 4203 GFC incorporates a highly accurate multivariable sensor that is compact and rugged. The 2-1/8 in. tap centers enable cost-effective use of three- and five-valve instrument manifolds. The GFC can be installed horizontally or vertically for easy retrofit of any conventional differential pressure transmitter.

Integrated PLC—With a PLC incorporated inside the GFC body; this product provides a fully programmable platform that can be used in a wide variety of process control applications. Since both of the serial ports can communicate with other devices, the GFC can scale to accommodate specific needs. When connected to other PLCs, the SS 4203 GFC can take advantage of expanded input/output (I/O) capabilities and the wide variety of functions they enable.

Applications

With a choice of I/O configurations available, the GFC can accommodate multiple input and output devices and can be easily expanded for more complex installations. The GFC's two discrete inputs are versatile. The first of which can use level or pulse inputs up to 10 kHz. The second input has an integral pre-amplifier for use with turbine meters. An optional analog output can be used for variable speed motor drives, control valves, emergency shutdown and more.





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Applications (continued)

Alternatively, the SS 4203 GFC may be ordered with two analog inputs that can be used for measuring tubing and casing pressures in well applications.

The GFC provides two, fully functional RS-232/485 serial ports that can be used with remote I/O, radios, local displays or other serial devices. The unit provides Modbus® master/slave and EFM Modbus as its native protocols. DNP 3 is available and custom protocols can be easily implemented using the RealFLO™ C programming tools.

As a fully programmable GFC with remote configuration capabilities, the unit can be used in a wide range of process control applications including well optimization, pressure control, odorant injection and more.

Features, Advantages and Benefits

- AGA-3, 7, 8, V-Cone and API 21.1 compliant
- Two RS232/485 selectable serial ports
- One resistance temperature detector (RTD), one turbine meter input
- One digital pulse/input/output, one analog output–DR version
- One digital pulse/input/output, two analog inputs, one digital output shared with the turbine meter input–DS version
- Modbus master/slave and Modbus EFM protocols
- Small and lightweight with flexible installation options and easy retrofit applications
- RTD connections rated non-incendive in Division 2 areas
- c(CSA)us Class I, Division 1, Groups B, C and D for use in Hazardous Locations
- c(CSA)us Class I, Division 2, Groups A, B, C and D for use in Hazardous Locations
- IECEx to Exd IIC T6
- ATEX to EEx d IIC T6
- Three-year warranty on parts and labor



Modbus is a registered trademark of Modbus Organization, Inc.
RealFLO is a trademark of Kimray Inc.



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Specifications

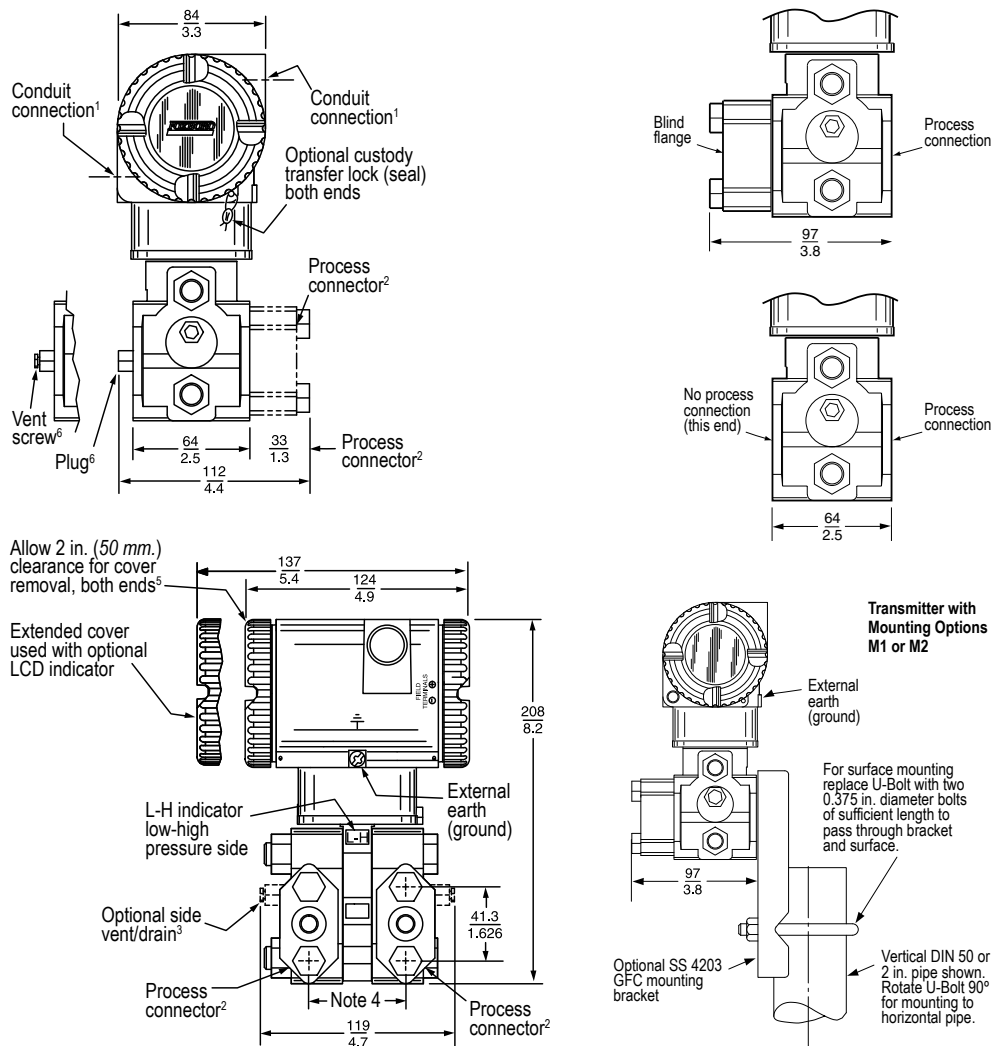
Functional	
Flow Calculations	AGA-3 1992/2000 orifice plate, V-Cone and AGA-7 turbine meter
Density Calculations	AGA-8, 1992 and NX-19
Event/Alarm/History Logs	35 days hourly history, 35 days daily history, 700 events and 300 alarms (as per API 21.1)
Features	
Protocols	Modbus master/slave with store and forward EFM (Enron) Modbus Optional DNP 3
Discrete Input/Output	One, dry contact, usable for level or pulse inputs to 10 kHz shared with 0.5 A sinking digital output
Turbine Meter Input	One turbine meter input with integral pre-amplifier to 10 kHz shared with 0.5 A sinking digital output (DS version only)
Analog Inputs	Two 0 to 5 V, 15-bit resolution (DS version only)
Analog Outputs	Two 0 to 20 mA, sinking, 12-bit resolution (DR version only)
Communication Ports	Two configurable RS-232/485 ports, 1200 to 115200 baud
Processors	One 32-bit ARM microcontroller, 32 MHz clock One sensor interface co-processor
Memory	4 Mb CMOS static RAM 8 Mb flash ROM (remotely downloadable) 1024 bytes EEPROM
Battery	RAM memory and clock calendar retained for two years
Sensor Performance	
Differential and Absolute Pressure	Accuracy $\pm 0.05\%$ of span (for spans between 10% and 90% of URL)
Digital Output (spans <10% URL)	Accuracy $\pm(0.005) \times (\text{URL}/\text{span})\%$ of span*
Long Term Drift Stability	$< \pm 0.05\%$ of URL per year over five years
Temperature Accuracy	Accuracy $\pm 0.5^\circ\text{F}$ (0.28°C), not including RTD uncertainties
Static Pressure Effect on Differential Pressure Readings	The zero shift and span shift for a 1000 PSI (7 MPa) static pressure change is: ZERO Shift $\pm 0.05\%$ of URL, SPAN Shift $\pm 0.1\%$ of reading
Ambient Temperature Effect	Total effect for a 50°F (28°C) change within normal operating condition limits for absolute and differential pressure is: Digital Output: $\pm(0.0625\% \text{ URL} + 0.125\% \text{ Reading})$
Power	
Supply Requirements	9 to 30 Vdc, 330 mW typical at 12 Vdc
Certifications	
	c(CSA)us Explosion Proof, Class I, Division 1, Groups B, C and D Hazardous Locations c(CSA)us Class I, Division 2, Groups A, B, C and D Hazardous Locations IECEX to Exd IIC T6 ATEX to EEx d IIC T6 RTD connections rated non-incendive in Division 2 areas

*Accuracy stated includes the effects of linearity, hysteresis and repeatability.



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Dimensions



1. Conduit connection $\frac{1}{2}$ NPT or PG 13.5, both sides: plug unused connection with metal plug (supplied).
2. Process connectors may be removed and connections may be made directly to process cover using $\frac{1}{4}$ NPT internal thread in process cover.
3. Process cover can be inverted, making optional side vents or side drains.
4. Process connectors can be inverted to give either 2.0, 2.125 or 2.25 inch (51, 54, or 57 mm) center-to-center distance between high- and low-pressure connections.
5. Topworks can be rotated to any position within one turn counterclockwise of the fully tightened position.
6. Process cover end plugs are substituted for vent screws when optional side vents (Note 3) are specified.