Model: BGL-PTG1000
(BGL-PTA1000)

Smart Pressure Transmitter

For Gauge Pressure/Absolute Pressure

Budenberg's range of transmitters includes a complete range of "intelligent"high performance transmitters for Temperature, Gauge, Absolute, Vacuum & Differential pressure measurements for standalone monitoring and/or closed loop control applications.These "intelligent" microprocessor-based "Smart" transmitters features a two-wire loop powered 4 to 20mA current outputs with "Digital" HART as standard (Foundation Fieldbus optional) communication(s) for seamless Communicator(HHC). "integration with a host DCS, PLC, SCADA, AMS, PDM and/or a local Hand Held communicator

Description of Product

The BGL-PTG1000 series of smart transmitters have excellent stability high accuracy and include features that facilitate easy installation start up and minimum maintenance, thereby lowering process downtime and overall cost of ownership in the long run.
Budenberg transmitters are products with
analog (4/20mA- 2 wire) and digital (HART or Foundation Fieldbus communication protocols for seamless integration with a host control System such as DCS, PLC, SCADA, AMS, PDM and/or Hand Held Communicator (HHC). Through Digital HART protocol one can easily acquire process measured variable, configure and modify various Parameters (Range, Tag Name and Damping, Transfer Function, Trimming)
These transmitters are equipped with an automatic temperature compensation function integrated into its advanced signal processing circuitry to ensure high reliability and performance corresponding to change of ambient temperature.

Features

 Superior Performance
 High Reference Accuracy :+/-0.075% of calibrated span
 Long-Term Stability
 High Rangeability (100 : 1)
 Flexibility
    Data Configuration with HART Configurator
    Zero Point Adjustment
    Reliability
    Continuous Self-Diagnostic Function
    Automatic Ambient Temperature Compensation
    Fail-mode Process Function
 EEPROM Write Protection
 CE EMC Conformity Standards(EN5081-2, EN50082-2)

Function

 Flexible Sensor Input : Gauge Pressure, Absolute Pressure
 Various Output : 4 ~20mA , Digital Signals
 Setting Various Parameters : Zero/Span,
 Trim, Unit, Fail-mode, etc
 Self Diagnostic Function : Sensor, Memory
 A/D Converter, Power, etc
 Digital Communication with HART protocol
 Explosion-proof Approval & Intrinsic Safety Approval: KOSHA, KTL CSA,FM, ATEX

The heart of Budenberg smart transmitter is a microprocessor-based high performance module. In addition, each transmitter is ambient temperature characterised using state of the art technologies to ensure maximum transmitter accuracy and minimized drift over a wide range of operating temperatures.
On integrated sensor models such as in BGL-PTG1000 series transmitters the characteristics data of its sensor are stored in internal non-volatile EEPROM to minimize measuring error. On non sensor transmitter models such as BGL-TT1000 temperature transmitters, it has a linearization table built in wherein user can modify the various necessary values in field per the added temperature sensor (RTD or T/C) characteristics to get better accuracy from the overall measurement system. Its integral microprocessor module then automatically converts the required value referring to the customized linearization table.
All transmitters include advanced self diagnostic functions for detecting any malfunctions of sensor and/or fault of A/D converter, internal memory and microprocessor. All diagnostic/error status is transmitted to a connected Master by analog current signal (fail mode current 3.75mA or 22mA) or digital HART (or FF) communication.
The transmitters have Last Value Status (L V S) function for safety of instrumentation. When the sensor input occurs in abnormal status, output is fixed to the previous value and when the recovery to normal status, output is updated to the current value. If abnormal status of sensor is being continued during the defined interval, the fault is recognized as a sensor failure & reported accordingly for corrective action.

SMART PRESSURE TRANSMITTER

Electronics Module

The Electronics module consists of a circuit board sealed in an enclosure. There is a MCU module, a power module, an analog module, a LCD module and a terminal module included within the transmitter.All circuit boards are tropicalised suitable for hot and humid, and damp and cold climates. The MCU modules acquire the digital value from the analog module and apply correction coefficients selected from EEPROM. The output section of the power module converts the digital signal to a 4~20 mA output. The MCU module communicates with the HART-based Configurator or Control Systems such as DCS. The Power modules have a DC-to-DC Power conversion circuit and an Input/output isolation circuit. An optional LCD module plugs into the MCU module and displays the digital output in user-configured unit.

Basic Set-up

The BGL-PTG1000 Pressure transmitter can be easily configured from any host that supports the HART protocol.
 Operational Parameters
 Operational Parameters.
 4~20mA Points (Zero/Span)
 Engineering Units
 Damping Time: 0.25 ~ 60 sec
 Tag: 8 alphanumeric characters
 Descriptor: 16 characters
 Message: 32 characters.
 Date: day/month/year

Self Diagnosis & Others

 CPU & Analog Module Fault Detection
 Communication Error
 Fail-mode Handling
 LCD Indication
 Temperature Measurement of Sensor Module

Sensor Inputs

The model BGL-PTG1000 is available in a gauge sensor of a capacitance type.
The capacitance pressure sensor measures gauge and absolute pressure and is commonly used in standard process applications. Both sides in the capacitance sensor transmit process pressure from the process isolators to the sensor.
The model BGL-3100-A is available in an absolute pressure sensor of a piezo-resistive type and measures absolute pressure.
The sensor module converts the capacitance or the resistance to the digital value. The MCU module calculates the process pressure based on the digital value.
The sensor modules include the following features
 +/-0.075%accuracy, the most accurate sensor in the industry.
 The software of the transmitter compensates for the thermal effects, improving performance.
 Precise Input Compensation during operation is achieved with temperature and pressure correction coefficients that are characterized over the range the transmitter and stored in the sensor module EEPROM memory.
 EEPROM stores sensor information and correction coefficients separately from MCU module, allowing for easy repair,

Calibration & Trimming

 Lower/Upper Range (zero/span)
 Sensor Zero Trimming
 Zero Point Adjustment
 DAC Output Trimming
 Transfer Function
 Self-Compensation