NOVA-5000 DETECTION & CONTROL SYSTEM

Model GT821 Oxygen Deficiency/ Enrichment NOVA-Sensor®

- ***Maintenance free electrochemical cell sensing element in stainless steel housing***
- ***Epoxy coated Copper-free aluminum electronics enclosure with viewing window***
- ***Pushbutton switch initiates "one-man" calibration sequence***
- ***Digital readout of oxygen concentration to ±0.1% resolution***
- ***Alarm and Fault relay outputs for local control***
- ***4-20 mA output suitable for connection to external equipment, including PLC's, SCADA or distributed control systems.***
- ***24 volt DC nominal operating voltage***
- ***CompTest™ check of analog and relay outputs***
- ***Suitable for Class I Division 1 Groups B,C,D locations***

The SST Model GT821 Oxygen Deficiency/Enrichment NOVA-Sensor® is a completely self-contained device that measures and displays the concentration of oxygen present in a protected area, performs local control functions, and optionally transmits this information to a central control point. Two alarm relays and a fault relay are included.

An electrochemical fuel cell sensing element with a patented diffusion barrier is located inside the stainless steel flameproof housing. The three electrode cell is maintenance free and stable over long periods of time. The capillary diffusion barrier technology results in a direct response to volume concentration. A high reserve of electrochemical activity insures a long life and excellent temperature stability. The performance is relatively unaffected by humidity, provided that conditions are non-condensing.

Each SST NOVA-Sensor includes a high reliability microprocessor based transmitter/ controller in the associated explosion proof housing. A digital readout continuously displays operating status and the actual concentration of oxygen. The transmitter converts this reading to a standard 4-20 mA signal. This signal may be connected to any remote device with a standard 4-20 mA input. The HIGH and LOW alarm relays operate at user adjustable alarm trip points; either relay may be set to operate above or below the normal oxygen level. The fault relay operates upon loss of power or internal failure of the unit. Relays are suitable for controlling local HVAC or equipment shutdown.

The automatic calibration sequence is easily completed by just one person. The microprocessor stores the results of the calibration in its permanent (non-volatile) memory for use in subsequent operation. There are no screwdriver or other manual adjustments required. During the calibration process, the 4-20 mA and relay outputs from the sensor are normally suppressed. The sensor automatically returns to normal operation when the calibration is complete. During calibration, the technician may optionally activate the built-in comprehensive input/output test sequence (CompTest™). During CompTest, the NOVA-Sensor's analog and relay outputs are not suppressed, thus providing a complete operational check of the overall system.

The Model GT821 is suitable for the most demanding applications. A large body mass insures excellent vibrational characteristics when used for offshore use. Corrosion resistant materials permit uses in most environments.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

Oxygen deficiency/enrichment sensing capability shall be provided by electrochemical fuel cell sensors with diffusion barrier contained in a stainless steel housing. The sensing element shall be exposed to the detected gas through a suitable filter. The element shall use a capillary diffusion barrier technology which results in a direct response to volume concentration. The performance shall be relatively unaffected by humidity, provided that conditions are non-condensing. The sensor shall include microprocessor based control electronics which converts the measured gas concentration to the industry standard 4-20 mA signal, plus alarm and fault relay outputs. A continuously reading digital display shall be provided on the sensor, capable of displaying sensor status and the current oxygen concentration in percent. A switch for initiating sensor calibration shall be provided. Calibration shall not require any operator adjustment. All calibration data shall be stored in non-volatile memory in the sensor. Relay and analog outputs shall normally be inhibited during calibration; however, it shall be possible for the calibrating technician to selectively enable outputs when desired. The sensor shall be suitable for offshore use, and the manufacturers data shall so state. Safety Systems Technology Model GT821 Oxygen Deficiency/Enrichment NOVA-Sensor®, or approved equivalent, shall be supplied.

TECHNICAL SPECIFICATIONS

Power Input:	24 volts DC nominal, 110 mA standby, 125 mA in alarm Will operate within specifications at any supply voltage between 16 and 32 volts.
Nominal Range:	0-25% Oxygen
Max Overload:	30% Oxygen
Operating Temperature:	-4 to +131 °F, -20 to +55 °C Continuous -4 to +131 °F, -20 to +55 °C Intermittent Recommended Storage: +32 to +68 °F, 0 to +20 °C
Display Resolution:	0.1%
Relay Outputs:	Low Alarm (latching or non-latching) High Alarm (latching) Malfunction (non-latching)
Relay Contact Ratings:	6 amps @ 28 VDC or 300 VAC resistive 1/8 HP @ 120/240 VAC
Analog Output:	0 to 20 mA into a load of 600 ohms or less
Output Drift:	Less than 2% signal loss per month Typically less than 10% over operating life
Operating Humidity:	0 to 99% Relative Humidity non-condensing
Operating Life of Cell:	2 years Plug-in cell offers easy field replacement
Size:	7.0 inches wide X 5.0 inches high X 4.0 inches deep Includes junction box and sensor
Weight:	5.75 pounds
Approval Code:	Class I, Division 1, Groups B,C,D

ORDERING INFORMATION

PART NO.	DESCRIPTION
821-1	Model GT821 Oxygen Deficiency/Enrichment NOVA-Sensor® with 4-20 mA output, alarm and fault relays

OPTIONAL ACCESSORIES

851-1	Rain Shield to protect sensor from rain or snow, stainless steel
852-1	Dust Cover with 40 micron filter to protect sensor from airborne dust
854-1	Duct Mounting Assembly for installing sensor in an air duct

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