

REGAL™ SERIES 3000 GAS DETECTOR

GENERAL

The REGAL Series 3000 Gas Detector shall be capable of accurately sensing and displaying the presence of free chlorine and/or sulfur dioxide in the environment. The gas levels detected shall be below those mandated by OSHA throughout the working life of the sensor(s).

The monitor shall continuously scan and display the sensor data using a multi-color bargraph indicator (one for each sensor) to present both the current gas concentration levels and the peak levels. A three digit numeric display shall continuously indicate the current gas levels for a single sensor detector and alternately (in five second intervals) for a dual sensor detector. The dual sensor detector will also have arrowhead LED indicators under each bargraph to designate which sensor information is currently being displayed. A separate LED indicator will show the type (chlorine or sulfur dioxide) of gas that each sensor is set up to monitor. Dual sensor detectors shall be configured to monitor one of the aforementioned gases at two different locations or both gases separately.

All REGAL Series 3000 Gas Detectors shall include the following six relay circuits.

- 2 **WARNING** relays
- 2 **DANGER** relays
- 1 **HORN/FAILURE** relay
- 1 **LATCH** relay



The **WARNING** relays activate at 1 PPM for chlorine and at 2 PPM for sulfur dioxide, whereas the **DANGER** relays will activate at 3 PPM for chlorine and at 5 PPM for sulfur dioxide. On a single sensor unit, both **WARNING** relays and both **DANGER** relays will activate during an alarm event. On a dual sensor unit, one **WARNING** relay and one **DANGER** relay will be dedicated to each sensor.

The internal alarm horn (and any remote alarm devices) will engage if the gas concentration reaches the **WARNING** level and it will disengage if it drops below this level before the "**LATCH**" time (operator set between 0 and 240 seconds) is reached. If the latch time is reached, the horn (and other remote alarm devices) will sound continuously. If gas concentration rises from the **WARNING** level to the **DANGER** level, the alarm horn will sound and latch instantly. Under either condition (**WARNING** or **DANGER**), once the latch relay(s) is engaged, it will only be possible to **SILENCE** the horn and **RESET** the relays by means of the

keypad. **NOTE:** Setting the latch time at Zero will deactivate the latch relay for **WARNING** level conditions, however, the latch relay for **DANGER** level conditions will remain active.

The **HORN/FAILURE** relay may be configured via an internal electronic DIP switch to give the user a choice between either a continuous or a pulse alarm. After any alarm condition, both the current and peak gas levels will continue to be indicated on the LED bargraph. When alarm readings exceed 10 PPM for chlorine or 20 PPM for sulfur dioxide, an OFS (off-scale) message will be presented on the numeric display. If there is a loss of signal from the sensor(s), a "Fail" message will appear on the numeric display and the **HORN/FAILURE** relay will engage.

Calibration of the gas detector may be performed through a program designed to operate directly from the keypad. While using this program, all alarm relay operations will automatically be disabled until the calibration process is completed.

Programs will be included to test both the sensor and relay conditions. The sensor test will disable all alarm relays for a 15-minute time interval to allow the application (and dissipation) of the appropriate gas to the sensor inlet(s). The relay test will individually and sequentially activate, then deactivate the six relay circuits.

An **OPTIONAL** battery back-up module, shall activate during primary power outages and all illuminated displays (except the battery LED) will automatically turn off to conserve battery power. The user will still be able to observe the present conditions by pressing any keypad button to temporarily activate the bargraph and numeric displays. After one sensor(s) scan cycle is completed, the illuminated displays will return to their dormant state.

An **OPTIONAL** serial communications output circuit board will offer the choice of either RS232 or RS485 interface standards as well as a choice between OPTO-22 or MODBUS (ASCII) Protocol.

AVAILABLE OPTIONS

Battery Back-Up

Serial Communications Output
Circuit Board

User has a choice of two interface standards (RS232 or RS485) and a choice of OPTO-22 or MODBUS (ASCII) protocol.

GENERAL SPECIFICATIONS

Power Supply

Input: 100-250 VAC 50/60 Hz. @
0.6A peak.

Inrush Current: 20A @ 115 VAC,
40A @ 130 VAC.

Output: +15 V @ 1.7A current
limited.

Fuse Protection

2.5 Amps (250 V) for 120/240 VAC.

Input Capability

1 or 2 Sensors. Must be specified
at purchase.

Sensor Scan Display Rate

Approximately five second intervals.

Sensor Signal

4-20 mA, DC

Sensor Full Scale Response

For Chlorine - 10 mg/l

For Sulfur Dioxide - 20 mg/l

Cable Lengths

(Based on using 22 gauge,
2-conductor shielded cable)

Sensor Cable Length - 25' standard.
Can be extended up to 1,000'.

Battery Cable Length - 5'.

Resolution

For Chlorine - 0.1 mg/l

For Sulfur Dioxide - 0.5 mg/l

Warning/Danger Alarm Points

Chlorine: 1 PPM/3 PPM

Sulfur Dioxide: 2 PPM/5 PPM

Repeatability

±5%

Temperature Range

0-50°C (32-120°F)

Horn

Internal 95 db

Relays

Warning, Latch, and Horn/Failure
relays are SPDT.

Danger relays are DPDT.

All relays are rated at 10 Amps
@ 250 VAC and 50 or 60 Hz.

All relays (except for the horn/failure
relay) can be field configured for
normal or failsafe operation.

Delay Timer for the LATCH Relay Circuit

Adjustable. 0 - 240 Seconds.

Isolated Analog Output

Isolated and un-powered 4-20 mA.

Battery Back-Up

12 Volt, 1.1 AH, Lead Acid Gel Cell
in a vented enclosure.

Operating Humidity

0-99% Non-Condensing.

Monitor Enclosure

Wall Mounted Polycarbonate
or ABS NEMA 4X.
(7.87" X 7.87" X 5.25")

Sensor Enclosure

Wall Mounted, Watertight,
UL Approved.
(4.0" X 4.0" X 2.5")

Serial Communications (Opt.)

RS232 or RS485 using OPTO-22
or MODBUS Protocol.

Baud Rate: 1200 - 115,200.

