

## Brasch GSE Carbon Monoxide and Nitrogen Dioxide Gas Detector Operation Sequence

- Normal Operation

If the monitored gas concentration level is below the field adjustable Low Alert setting, the detector will be in the Normal Operation mode. In this mode the front panel display will indicate the ambient gas concentration. If a second sensor is employed, either internally or remotely, the display will alternate between their readings. The detector output control relays will be in the inactive state and only the power and active sensor front panel lamps will be illuminated.

- Low Alert Operation

If the monitored gas concentration level for a sensor reaches the Low Alert setting, the detector will flash the Low Alert indicator lamp and activate a delay timer. The duration of the delay is field adjustable from 0 to 7 minutes. If the concentration level remains at or above the Low Alert setting for the duration of the delay period, the Low Alert relay contacts will close. This contact closure can be used to actuate exhaust fans.

Once the monitored gas concentration level drops below the Low Alert setting, the panel will activate another delay timer. If the concentration level remains below the Low Alert setting for the duration of the delay period, the panel will revert to the Normal Operation state.

- High Alert Operation

If the detector is in a Low Alert status and the monitored gas concentration reaches a factory set High Alert level, the detector will actuate its High Alert relay contacts and front panel lamp. If configured for 50%-100% operation, these contacts may be used to activate additional stages of ventilation. If configured for 2 speed operation, the Low Alert relay contacts will open. Once the concentration is no longer at or above the High Alert setting, the detector will return to the Low Alert Operation mode.

If the Low Alert relay is actuated, High Alert Operation will be immediate. If the detector is processing a Low Alert delay period, it will enter the High Alert Operation mode upon its completion.

- Alarm Mode Operation

If the monitored gas concentration remains at or above the factory set High Alert level longer than 15 minutes, a set of Alarm relay contacts will close and an internal buzzer will sound. This set of contacts can be used to actuate an external alarm. The buzzer will stay on and the contacts will remain closed until the monitored gas concentration falls below the factory set High Alert level. The internal buzzer may be silenced by pressing a front panel mounted push-button switch.

- Fail-Safe Operation

If a sensor fails, the detector will enter a Fail-Safe operating mode. The Low Alert Relay contacts will close, actuating the ventilation equipment controlled by that relay; the internal buzzer will sound and the Alarm Relay contacts will activate.

If the detector loses power, the Low Alert Relay contacts will close and allow controlled ventilating equipment with power to operate. When power is restored, the detector will reset. This power restoration process will take approximately 5 minutes at the end of which the detector will again monitor the sensor(s) and respond based upon the selected parameters.

- Self Test Operation

This operation mode must be initiated within the first five minutes after power is applied. To activate, press and hold the Alarm-Off / Test button for one second. Each display digit will be tested by displaying "0" through "9". The Low Alert relay and indicator lamp will activate for 30 seconds. A 30 second pause will ensue followed by activation of the High Alert relay for 30 seconds. After another 30 second delay, the Alarm Relay contacts and internal buzzer will activate for 3 seconds, followed by a third 30 second delay, after which the detector will begin Normal Operation.