# Honeywell

# Y7230A CO$_2$ Alarm System

## FOR CO$_2$ GAS DETECTION

## FEATURES

- **Use as stand alone system with the ability to communicate to a building automation system.**
- **Strobe flashes at 15,000 ppm CO$_2$ level.**
- **Strobe flashes and audio alarm sounds at 30,000 ppm CO$_2$ level.**
- **Separate dry contact available for output to a fire alarm panel at 30,000 ppm CO$_2$ level.**
- **0-5 Vdc analog output for 0-30,000 ppm CO$_2$ range for input to a building automation system.**
- **Hard-wired for security against tampering.**
- **Power on sequence verifies Strobe/Alarm and sensor are properly wired.**
- **Solid LED on sensor when power is supplied. Intermittent flashing strobe indicates sensor is out of calibration and requires replacement.**
- **Self calibrating sensor-Automatic Background Calibration-maintains accuracy for up to 15 years.**
- **Warning signs in multiple languages have universal icons.**

## APPLICATION

Y7230A CO$_2$ alarm system is used to detect gas leaking from CO$_2$ beverage dispensing systems and posts an alarm to occupants of the building. The system consists of 50016094-001 CO$_2$ sensor (a range of 0-30,000 ppm CO$_2$ with one 0-5 Vdc and three relay outputs), 50016095-001 12 Vdc power supply with button override, a P4W-ECC CO$_2$ strobe/alarm and a English/Spanish warning sign.

### Contents

# SPECIFICATION

**Models:**  Two models of the Y7230A available containing:
- One (1) CO$_2$ sensor, one (1) Strobe/Alarm, one (1) 12 Vdc power supply with push button and one (1) warning sign in English/Spanish.
- Two (2) CO$_2$ sensors, two (2) Strobe/Alarms, one (1) 12 Vdc power supply with push button and two (2) warning signs in English/Spanish.
- Additional language warning signs available, see Accessories section.

**Dimensions** See Figures 1 through 3

**Electrical Ratings:**
CO$_2$ sensor
   Power:12 Vdc only. Maximum peak power consumption 500 mA.
   Relay Outputs: Relay 1—rating 1A @ 24 Vdc
      Relay 2, 3—rating 2A @ 30 Vdc
   Cable length: 35 feet
Strobe/Alarm
   Maximum power consumption 180 mA at 12 Vdc.
Power Supply
   12 Vdc output, 1.7 amp.
   Cable length: 15 feet
All devices to be hard wired, not pluggable in outlet.

**Ambient Ratings:**
Shipping and storage temperature: -40 F to +170 F (-40 C to +76.6 C)
Humidity: 5 to 95% RH non-condensing
Operating temperature: 32 F to 120 F (0 C to 49 C)

**Inputs:**
CO$_2$ Sensor: Measurement range is 0-30,000 ppm CO$_2$ with 30 second response time.
Strobe/Alarm: 12 Vdc input

**Outputs:**
Start up sequence. See Operating section page 6.
CO$_2$ sensor: 0-5 Vdc, 0 Vdc equals 0 ppm and 5 Vdc equals 30,000 ppm; Relay 1 output for CO$_2$ detect level at 15,000 ppm; Relay 2 output for CO$_2$ detect level at 30,000 ppm; Relay 3 output for fire panel at 30,000 ppm.
Strobe/Alarm: At 15,000 ppm CO$_2$ Strobe/Alarm flashes a white warning light at >30 flashes per minute.
   At 30,000 ppm CO$_2$ audible alarm at 75 dB.
Power Supply: 12 Vdc

**Approvals:**  CE, TUV

**Environmental Ratings:**
Product cases are NEMA 2
Sensor tested to withstand minor beverage spills and cleaning fluids.

## ⚠ CAUTION
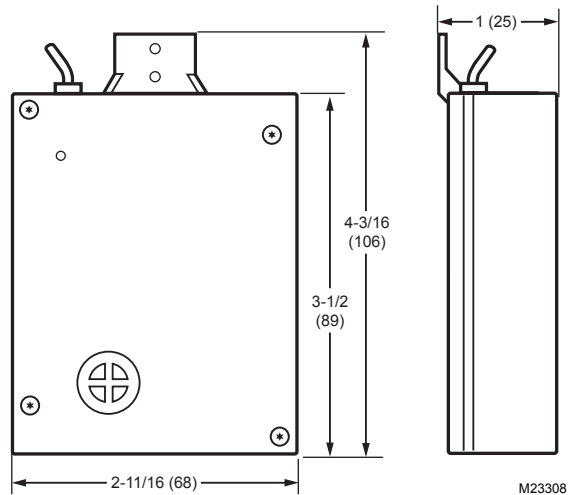**Do not spray cleaning fluids directly on sensor diaphragm.**



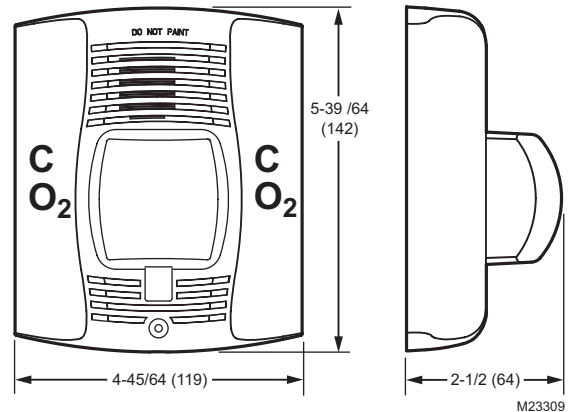**Fig. 1. Dimensions of CO$_2$ Sensor in inches (mm).**



**Fig. 2. Dimensions of Strobe/Alarm in inches (mm).**

# FURTHER INFORMATION

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:
1. Your local Honeywell Automation and Control Products Sales Office (check white pages of your phone directory).
2. Honeywell Customer Care
   1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386
In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Toronto, Ontario M1V 4Z9.
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.
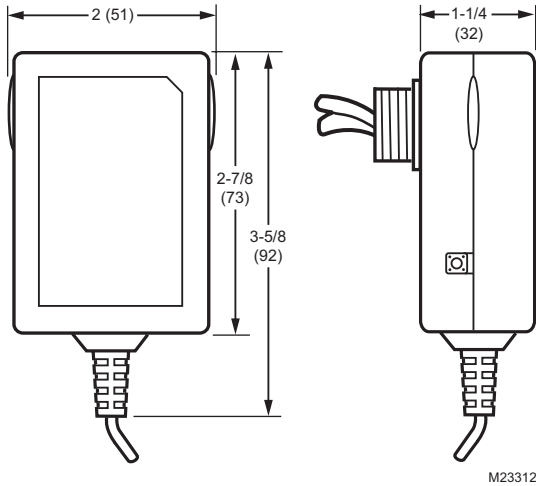
Fig. 3. Dimensions of Power Supply in inches (mm).

**Approved Accessories and Replacement Parts:**
50016094-001: Replacement CO$_2$ sensor with a range of
   0-30,000 ppm
50016095-001: Replacement 12 Vdc power supply with a
   button override
P4W-ECC: Replacement CO$_2$ alarm/strobe
62-0225ES: English/Spanish warning sign*
62-0225EI: English/Italian warning sign*
62-0225EG: English/German warning sign*
62-0225EP: English/Portuguese warning sign*
62-0225ED: English/Dutch warning sign*
62-0225EJ: English/Japanese warning sign*
62-0225EC: English/Chinese warning sign*
62-0225EK: English/Korean warning sign*
62-0225EF: English/French Canadian warning sign**
62-0234; CO$_2$ Alarm System Quick Installation Guide
63-4369; CO$_2$ Alarm System Monthly Test Checklist
  * Packet of 25 signs
 ** Packet of 25 signs and 25 Product Data sheets in French
    (63-2641F)

# INSTALLATION

## Location and Mounting

Mount a Strobe/Alarm and warning sign at each entrance to the space containing the CO$_2$ source. Mount the Strobe/Alarm high on the wall near the ceiling of the entrance where it will not be obstructed by furniture or food racks. It should be a minimum of 7ft from the floor. It may also be ceiling mounted. If no electrical box is located at the desired location of the strobe/alarm, an additional electrical box should be installed. Mount the warning sign at eye level near the entrance. Make sure it will be unobstructed.
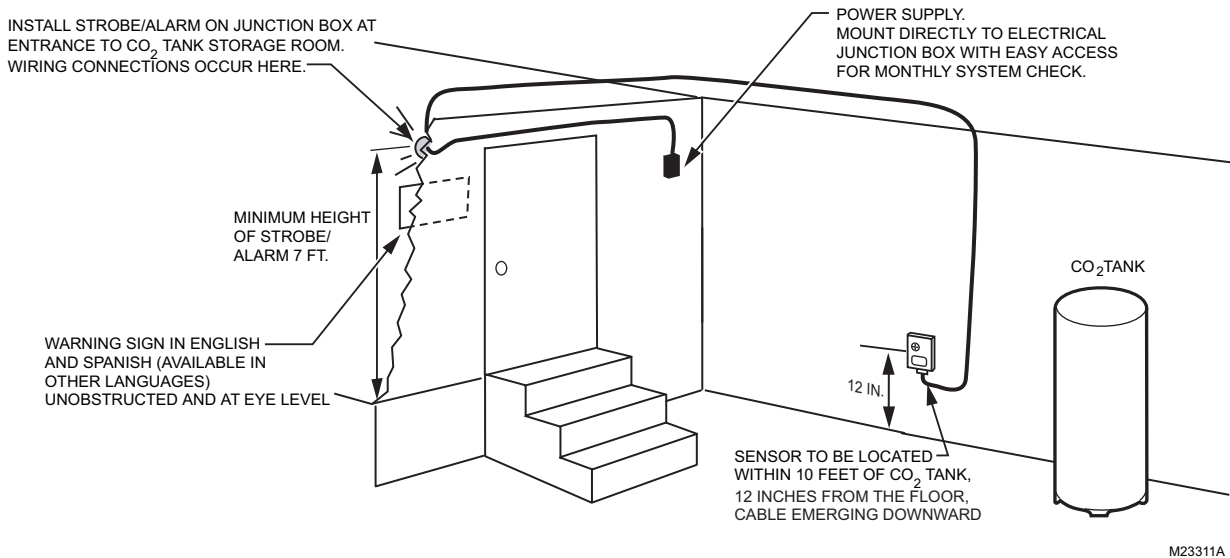


Fig. 4. Location of system components.

# ⚠ CAUTION
**Disconnect power supply before installation.**

## Mounting Strobe/Alarm on Wall

1. Attach mounting plate to junction box as shown in Fig. 5. The mounting plate is compatible with 4 inch square, double gang, and 4 inch octagon junction boxes.
2. Connect field wiring according to terminal definitions.

   See Wiring section on page 5 for more information.

3. If the strobe housing is not to be installed at this point, use the dust cover to prevent contamination of the wiring terminals of the mounting plate.
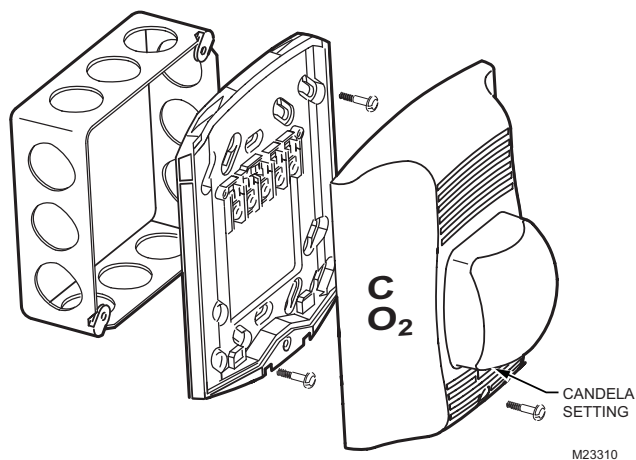
**Fig. 5. Installation of Strobe/Alarm on double gang junction box.**

**4.** Adjust horn setting to #4 for continuous output at 75 dB. See Fig. 6.
**5.** Make sure candela setting is set at "15/75". Adjustment is made on back of strobe/alarm. The number is visible in front underneath strobe light (see Fig. 5).
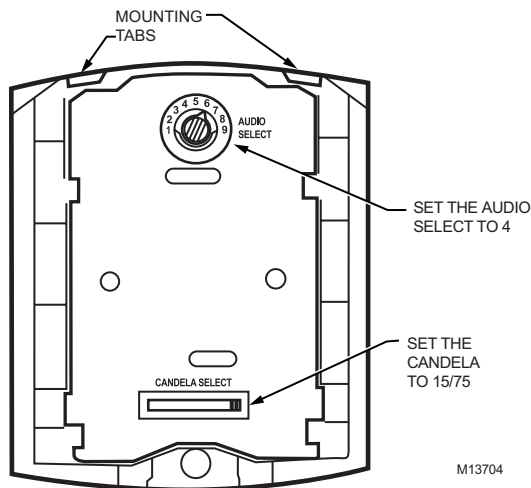


**Fig. 6. Back of Strobe/Alarm**

**6.** To attach the strobe housing to mounting plate, hook tabs (Fig. 6) on the strobe housing into the grooves on mounting plate. Swing the strobe housing down into position to engage the pins with the terminals on the mounting plate. Make sure the tabs on the back of the strobe housing fully engage with the mounting plate.
**7.** Secure strobe housing by tightening the single mounting screw in the front of the housing.

## Mounting Power Supply and CO$_2$ Sensor

Mount the CO$_2$ alarm power source on an electrical box easily accessible by maintenance personnel. Monthly access to the test button is required for testing the system. If no electrical box is located at the desired location of the power supply, an additional electrical box may need to be installed. See Fig. 7.
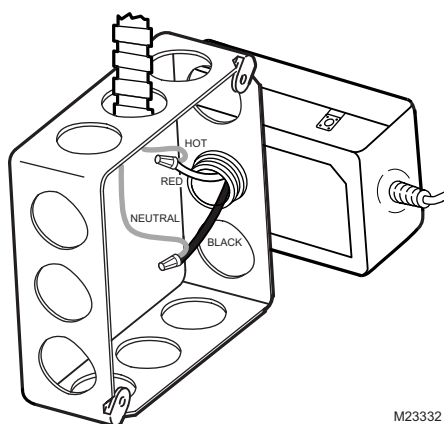




**Fig. 7. Power Supply installation with easy access to Test button.**

If the provided cable lengths for the sensor and power supply are insufficient, splice in additional 18 gauge cable for the power supply and 24 gauge cable for the CO$_2$ sensors.

CO$_2$ sensor is mounted within 10 feet radius of CO$_2$ source and should be 12 inches above the finished floor (maximum of 24 inches) in the space containing the CO$_2$ source with the cable emerging downward.

## ⚠ CAUTION

- **Make sure every entrance to the space containing the CO$_2$ source has a Strobe/Alarm AND a warning sign at eye level.**
- **Make sure the CO$_2$ alarm power supply is mounted in location and orientation so the test push button is accessible by maintenance personnel.**
- **Use the 12Vdc power supply supplied with the system or the replacement 50016095-001 power supply. Use of other power supplies will not permit proper operation of the system.**
- **Replace sensor and power source immediately after a fire or flood.**
- **CO$_2$ Alarm System has been tested and approved with original components. Do not attempt to replace components with non-approved devices.**

# Wiring

All wiring connections are made at the strobe alarm. Run the wires above the ceiling if possible. If not possible, secure cables to wall and run wires high near the ceiling.

See Figures 8 through 11 for wiring diagrams.

**Table 1. Wire Color Code for CO$_2$ Sensor.**

| Wire Color | Function | Rating |
|---|---|---|
| Red | 12 Vdc ±10% | |
| Shield (Bare Silver) | GND | |
| White | 0-5 Vdc for 0-30,000 ppm CO$_2$ to Honeywell Energy Management System | |
| Brown | 12 Vdc output at 15,000 ppm CO$_2$ | 1A at 24 Vdc |
| Black | 12 VDC output at 30,000 ppm CO$_2$ | 2A at 30 Vdc |
| Green Blue | Dry contact (potential free) (between Green and Blue wires) at 30,000 ppm CO$_2$ | 2A at 30 Vdc |

**Table 2. Wire Color Code for Power Supply.**

| Wire Color | Function | Rating |
|---|---|---|
| **Power Supply - Primary** | | |
| Black | 120/240 Vac Common | |
| Red | 120/240 Vac Hot | |
| **Power Supply - Secondary** | | |
| Black | 12 Vdc + Positive | |
| Black with gray stripe | – Negative | |

**IMPORTANT**

*All wiring shall comply with local electrical codes and ordinances.*
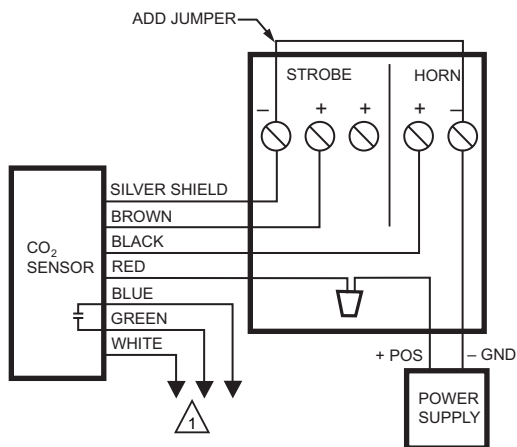


1 THIRD RELAY IS CONNECTED TO SECONDARY DEVICE SUCH AS FIRE PANEL AT THE DISCRETION OF THE INSTALLER
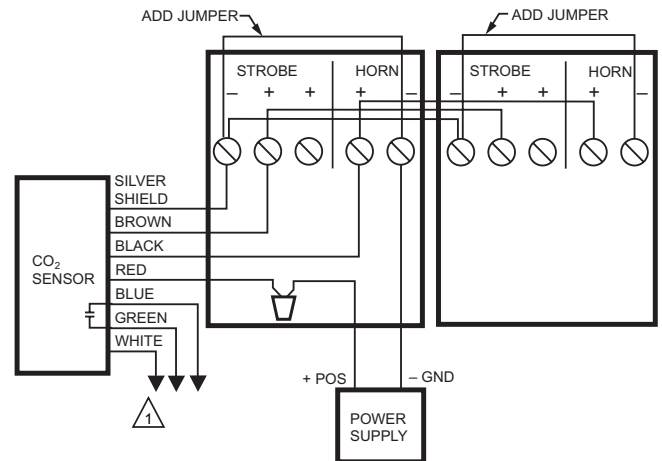
M23313

**Fig. 8. Wiring for system with 1 strobe, 1 sensor and 1 power supply.**
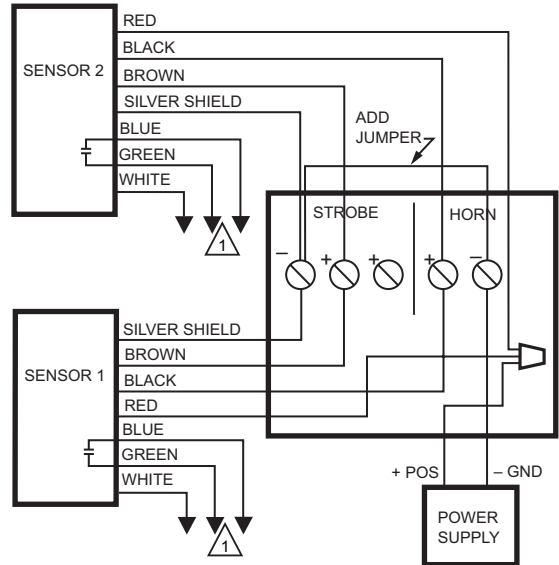


1 THIRD RELAY IS CONNECTED TO SECONDARY DEVICE SUCH AS FIRE PANEL AT THE DISCRETION OF THE INSTALLER

M23315

**Fig. 9. Wiring for system with 1 strobe, 2 sensors and 1 power supply.**



1 THIRD RELAY IS CONNECTED TO SECONDARY DEVICE SUCH AS FIRE PANEL AT THE DISCRETION OF THE INSTALLER

M23316

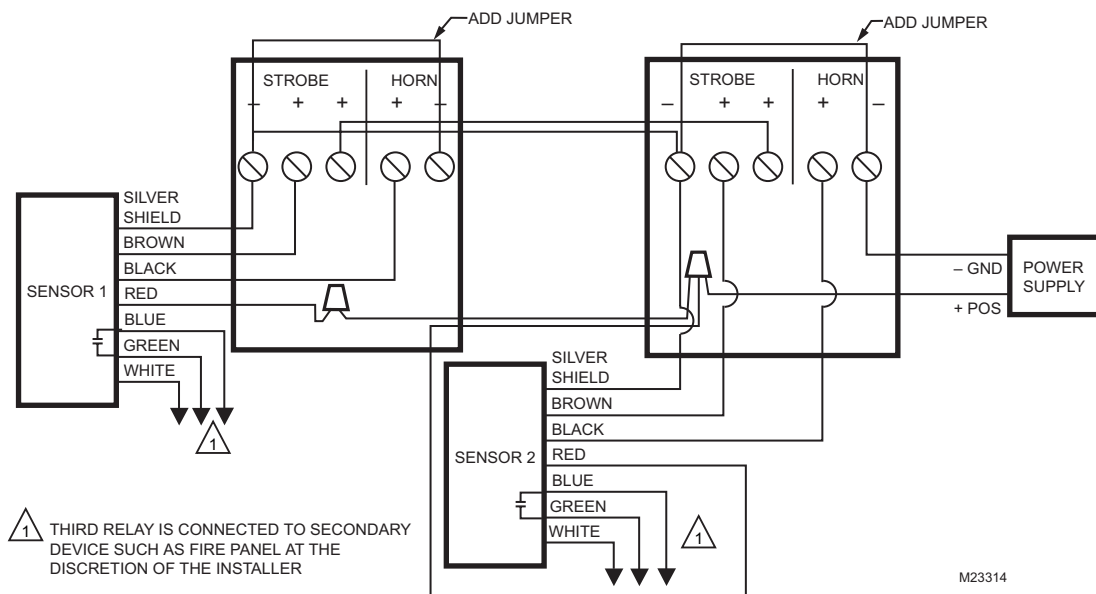**Fig. 10. Wiring for system with 2 strobes, 1 sensor and 1 power supply.**

63-2641—1

**Fig. 11. Wiring for system with 2 strobes, 2 sensors and 1 power supply.**

# OPERATION

## Start up

The start up sequence will verify the Strobe/Alarm and CO$_2$ sensor are wired correctly when power is applied to the system. Approximately 15 seconds after power is applied or the test button on the power supply is pressed, the horn will sound for about 2 seconds and the strobe will continue to flash for 5 - 10 seconds. Make sure green LED on the sensor is lit. Check wiring and power if this does not occur as described.

## Normal Operation

The purpose of the CO$_2$ alarm system is to activate a warning to building occupants when the CO$_2$ level in a space where tanks or bulk CO$_2$ is stored approaches a harmful level.

The CO$_2$ sensor will close a relay when 15,000 ppm CO$_2$ is sensed. The Strobe/Alarm will flash with a white light at >30 flashes per minute. Two additional relays will close when the

CO$_2$ level reached 30,000 ppm. The second relay activates the audible alarm. The third relay is dedicated two-wire dry contact (blue and green wires). This third relay does not have to be connected in the system. This is at the discretion of the installer.

The CO$_2$ sensor will also output a linear 0-5 Vdc signal where 0 Vdc is 0 ppm CO$_2$ and 5 Vdc is 30,000 ppm CO$_2$.

When CO$_2$ levels decrease or power is removed, the relays will open and the audible and flashing alarms will stop.

The CO$_2$ sensor has a solid on green LED when power is supplied to the sensor.

## Field Adjustments

The system is not field adjustable.

# CHECKOUT AND TROUBLE SHOOTING

**IMPORTANT**
> ***Test system monthly by depressing the push button on the power supply to make sure system has not been tampered with and is operating normally.***

Once per month, test the system by pressing the push button on the power supply to reset the power. Approximately 15 seconds after power is applied or the test button on the power supply is pressed, the horn will sound for about 2 seconds and the strobe will continue to flash for 5 - 10 seconds. Make sure green LED on the sensor is lit. The system is working properly. Check wiring and power if this does not occur as described.

The CO$_2$ sensor has an Automatic Background Calibration. If the background calibration drifts from the factory calibration by 3,000 ppm, the strobe light will flash 10 seconds every minute.

If this occurs it could indicate a slow leak in CO$_2$ equipment. Ventilate the space. Replace the sensor and check for slow leaks in the CO$_2$ equipment. Replace any leaking equipment.

**IMPORTANT**
> ***Strobe will flash for 10 seconds every minute when out of calibration and sensor needs to be replaced.***

If the flashing repeats after a period of a few months with a replacement sensor, there is possibly a slow leak in the CO$_2$ equipment. Investigate the leak and replace the leaking equipment.

Use of a power supply other than that supplied with the system or the replacement 50016095-001 power supply will not permit proper operation of the system.

**Automation and Control Solutions**

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