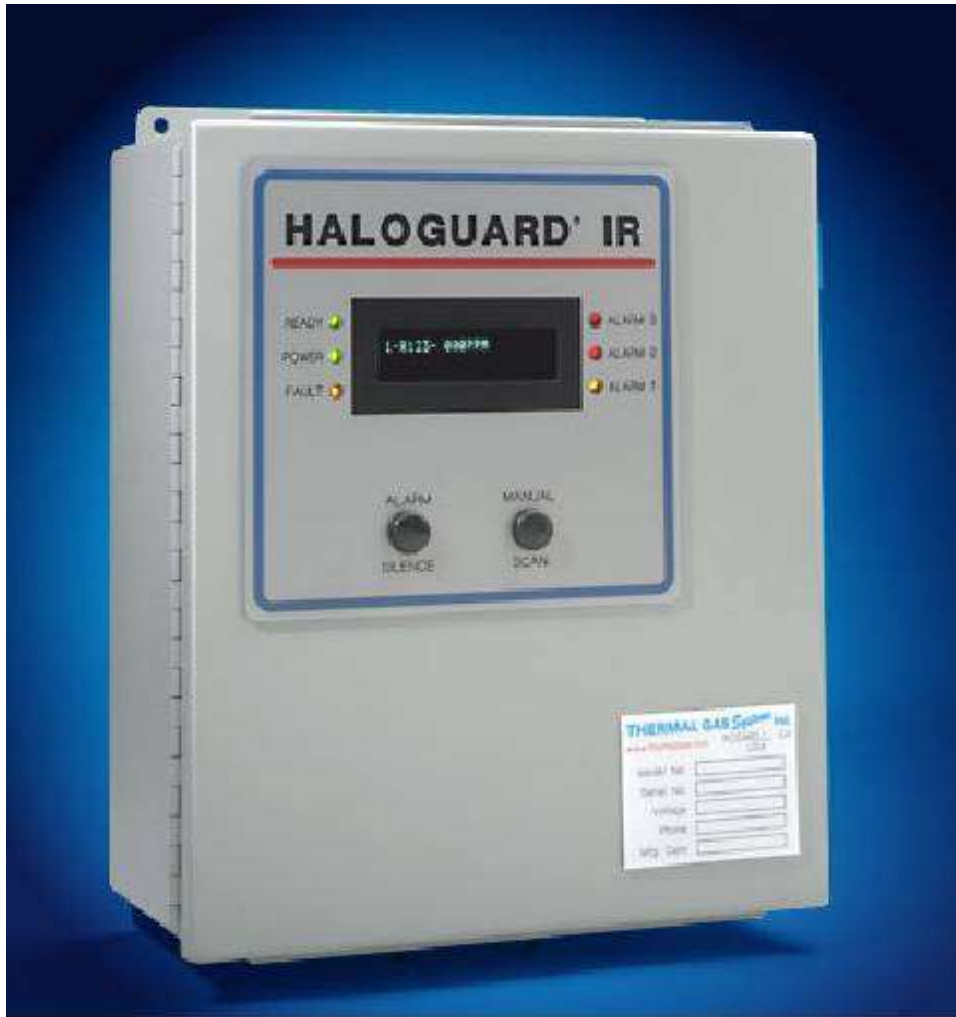


HALOGUARD™ IR MONITOR

INSTRUCTIONS FOR ADDING AND REPLACING OXYGEN SENSORS
(Procedures also apply to Haloguard® III Monitors)



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Haloguard® IR Refrigerant Monitor

Adding And Replacing OXYGEN Sensors Procedure

This bulletin provides the proper procedure to add or replace a chemical reactive **OXYGEN** Sensor to an external input of the **Haloguard® IR** Controller. There are 3 steps to this procedure: 1) The **OXYGEN** Sensor is connected to the **EXT INPUT 1**, **EXT INPUT 2**, or **EXT INPUT 3** terminal block. 2) The **Haloguard® IR** Controller is programmed to recognize the new **OXYGEN** Sensor. 3) The **OXYGEN** Sensor is trimmed for local atmospheric conditions. Read the document in its entirety before performing any steps of the procedure.

BEFORE INSTALLATION

1. Remove **Haloguard® OXYGEN** Sensor from carton. Check contents against packing list. If shipment is incomplete, contact us immediately.
2. The following tools and hardware are required for installation and calibration.
 - a. One jewelers' fine standard & one medium Philips screwdrivers.
 - b. Needle-nosed electrician's pliers
 - c. (1) No. 10 x 1" Screw (if a new installation)

Skip Step 3 if replacing (not adding) sensor

IMPORTANT

SENSOR ELEMENT CAN BE DESTROYED BY IMMERSION IN LIQUIDS. IMMERSION INVALIDATES SENSOR LIFE WARRANTY.

3. Select the site for the sensor:
 - a. Oxygen Sensor should be mounted near potential leaks in a quiet area or downstream from leak source in area with air movement.
 - b. Oxygen Sensor should be mounted on an indoor surface, in a **VERTICAL NOSE DOWN** position. (*Oxygen sensors must be in vertical nose down position to operate properly.*) Sensor should be mounted 18" - 24" above the floor. **Maximum extended sensor cable length is 300 Ft.**
 - c. Make sure the area selected is not subject to flooding, potential impact or severe ambient temperature and humidity changes (i.e. boiler blow-down or near roll-up doors).

IMPORTANT

CONSULT LOCAL AND NATIONAL ELECTRICAL CODES FOR ANY SPECIAL REQUIREMENTS OR RESTRICTIONS BEFORE INSTALLING.

INSTALLATION

1. Disconnect power from Haloguard® IR Controller.
1. Locate and mount **OXYGEN** Sensor (See section "**BEFORE INSTALLATION**" above)
2. Remove cover from **Haloguard® IR** Controller using Phillips screwdriver.
3. Remove "**AUDIBLE**" Jumper (See *FIGURE 1 - Haloguard IR Printed Circuit Board* for location)

**Refer to FIGURE 1 and 2 before proceeding.
DO NOT CUT SUPPLIED CABLE**

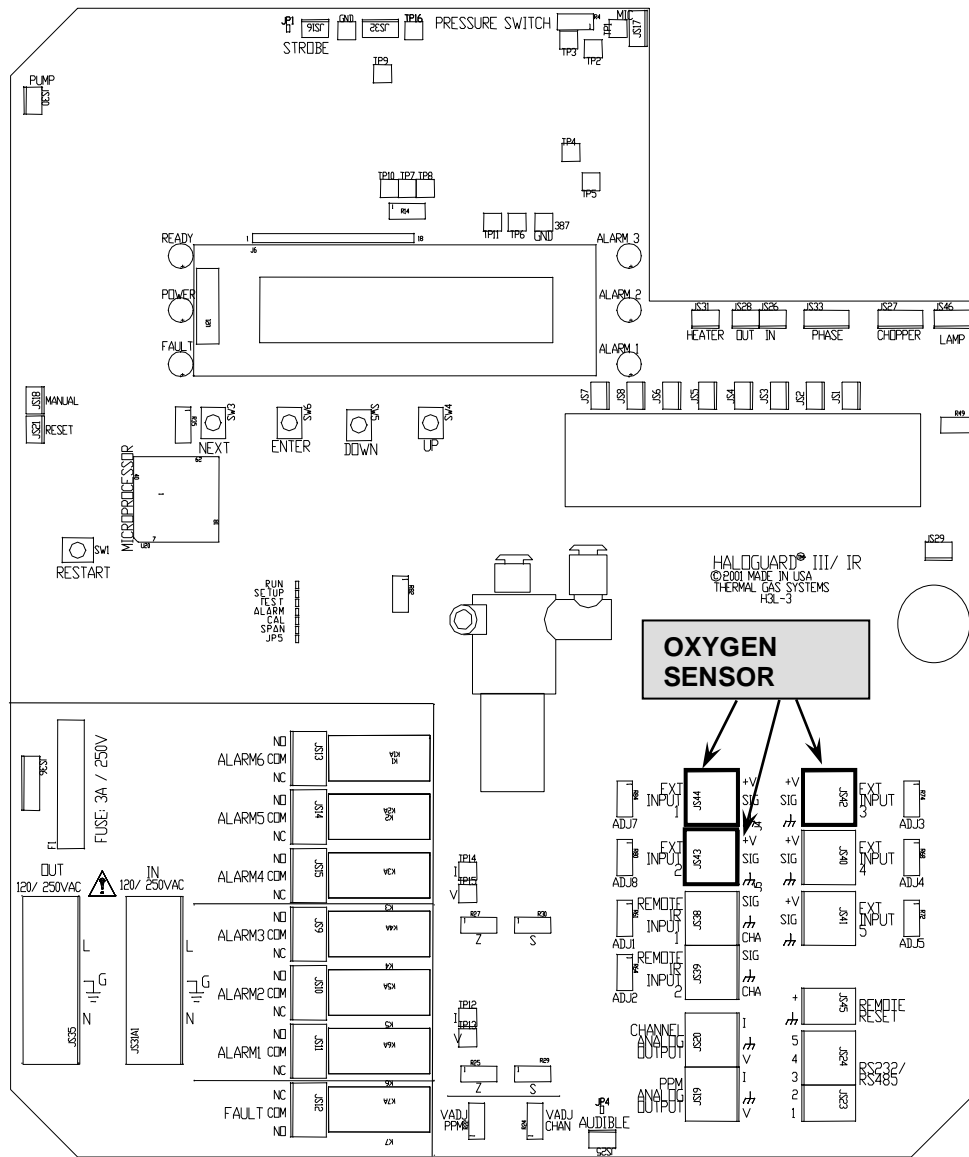


Figure 1 - Haloguard IR Printed Circuit Board

4. Wiring Instructions:

- a. **Standard Sensor cable: (Standard sensor DIN cables are 8'. If an additional cable extension is to be field installed proceed to section 4b below.)** Attach supplied 18" cable with DIN Connector to **EXT INPUT 1, 2, or 3** terminal block (See *Figure 1 - Haloguard IR Printed Circuit Board* above for location) on the **Haloguard® IR** circuit board. (See *FIGURE 2* for wire terminal connections)


Terminal	Provided Wire Color	Extension Wire Color	Function
+V	Red	Red	7.5 VDC
SIG	White	White	Signal
	Blk./Blk	Black	Ground

Figure 2 - EXT INPUT 1, 2, 3 Terminal Connection

- b. **Extension cable: (Use 3 conductor 18 ga. cable with foil shield, Carol C0455 or equal. Maximum extension wire length is 300 Feet.)** Remove 18" cable with DIN connector from **EXT INPUT** terminal block on the **Haloguard® IR** circuit board. (See *Figure 1 - Haloguard IR Printed Circuit Board* for location) Connect extended sensor cable to terminal block. (See *FIGURE 2* for terminal connections) Splice or solder 18" cable to end of extension cable.
5. Connect the DIN connector to the corresponding DIN connector on the 8' sensor cable.
6. Continue to **"PROGRAMMING"** section.

PROGRAMMING

In the following steps, refer to *FIGURE 1 - Haloguard IR Printed Circuit Board*.

1. Connect power to **Haloguard® IR**. The **Haloguard® IR** controller will perform a normal 20-minute warm up.
2. Locate the **RUN** jumper on the **Haloguard® IR** printed circuit board. Move the jumper from the **RUN** position to the **SETUP** position. The display will show: (Note: "X" refers to an unknown number)

```

Set Channel: 1 ←
Set Gas Type: RXXX
    
```

3. Press the **NEXT** pushbutton. The display will show:

```

External Input: 1 ←
Sens: NONE
    
```

4. Use the **UP** and **DOWN** pushbutton to select the external input (**EXT INPUT 1**, **EXT INPUT 2**, or **EXT INPUT 3**) to program.
5. Press the **ENTER** pushbutton to accept the selection. The arrow cursor will point to **"Sens:"**
6. Press the **UP** pushbutton to indicate the OXYGEN (**O2**) sensor type. The display will show:

```

External Input: 1 ←
Sens: O2
    
```

7. Press the **ENTER** pushbutton to accept the selection. The display will show: with the **L1:** number **6** blinking

```

External Input: 1 ←
Sens: O2 L1: 6 L1: 6
    
```

8. Use the **UP** and **DOWN** pushbutton to assign a relay (1 – 6) to an alarm level. **L1:** represents an alarm at 19.5% Oxygen and **L2:** represents an alarm at 15% Oxygen. Press the **ENTER** pushbutton to accept the selection. The arrow cursor will point to the next External Input.
9. Adding more than one **OXYGEN** Sensor, repeat steps 4 through 8 as needed.
10. Move the jumper from the **SETUP** position back to the **RUN** position to return the **Haloguard® IR** back to normal operation.
11. Replace **"AUDIBLE"** Jumper (See *FIGURE 1 - Haloguard IR Printed Circuit Board* for location)
12. Replace the cover on **Haloguard® IR** using Phillips screwdriver.

CALIBRATION

ROOM AIR MUST BE CLEAN OF GAS OR OTHER CONTAMINANTS.

1. Remove the cover from the **Haloguard® IR** Controller using a Phillips screwdriver.
2. Remove the “**AUDIBLE**” Jumper (See *FIGURE 1 - Haloguard IR Printed Circuit Board* for location).
3. Use the **NEXT** pushbutton to display the OXYGEN Sensor to be calibrated.

Normal air contains approximately 21% oxygen depending on altitude above sea level.

4. With the **OXYGEN** sensor mounted (pointed vertically nose down) use a jeweler’s screwdriver to turn the adjustment screw through the small hole on the sensor. Adjust the screw until the **Haloguard® IR** Controller display reads the desired value.
5. Replace “**AUDIBLE**” Jumper (See *FIGURE 1 - Haloguard IR Printed Circuit Board* for location)
6. Replace the cover on **Haloguard® IR** using Phillips screwdriver.

TROUBLESHOOTING

The most frequent cause of nuisance alarms is improper set-up, primarily due to:

- a. Too short a warm-up time.
- b. Poor sensor location.
- c. Failure to follow SET-UP procedures properly.
- d. Sensor cable is not wired and/or trimmed properly when extended beyond factory-supplied length.

We wish to aid with any problems you might experience with the **Haloguard®** line of products. When contacting Thermal Gas Systems, Inc. Service Department, your assistance is requested to provide the following information.

1. Model Number and Serial Number.
2. Description of problem.
3. Remove cover from the controller. Place Setup Jumper on Alarm setting and record settings.
4. Using *FIGURE 1 - Haloguard IR Printed Circuit Board* as a guide, measure voltage between SIG and GND. Write down values.
5. Advise the condition of all LED’s and any information displayed on the LCD.
6. Place Jumper on JP5 - Record Code Version Number and Sensor Type.