# Glass Sentry Description and Installation

**Product Description:**

Glass Sentry is an electronic energy-savings device designed to smartly control the operation of glass door and frame heaters for walk-in coolers/freezers. Programming within the microcontroller of the Glass Sentry efficiently runs the heater circuit enough to keep condensation from occurring on the door frame and glass without wasting additional energy. By maintaining a temperature on the coldest spot on the door frame just a few degrees above the dew point, run time on the heater circuit can be reduced by as much as 90%. Glass Sentry can pay for itself within months of installation based upon current costs for electricity. Its compact size and design allows for easy installation translating into minimum up-front costs and head-aches.

Unlike other anti-sweat heater controls, Glass Sentry requires no adjustments as conditions in the freezer environment change. Glass Sentry is factory-preset to turn the heater circuit on whenever the coldest point on the door frame drops near the dew point, where condensation begins to form. Once the heater circuit is turned on, it stays on for a minimum of 5 minutes, assuring that the surface temperature of the glass is properly elevated without wasting energy. An adjustment on the end of the unit is set for optimum energy savings, but can be changed to adjust for more heater run time, depending on the local conditions. Referring to Figure 1 below, the adjustment can be rotated clockwise to increase the run time on the heater circuit. Fully counterclockwise will run the heaters enough to keep the frame temperature at the dewpoint, and fully clockwise will elevate the frame temperature 18 degrees above the dewpoint.

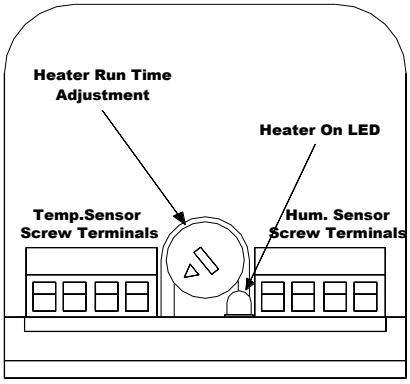



Figure 1 – End View of Glass Sentry Showing the Heater Run Time Adjustment

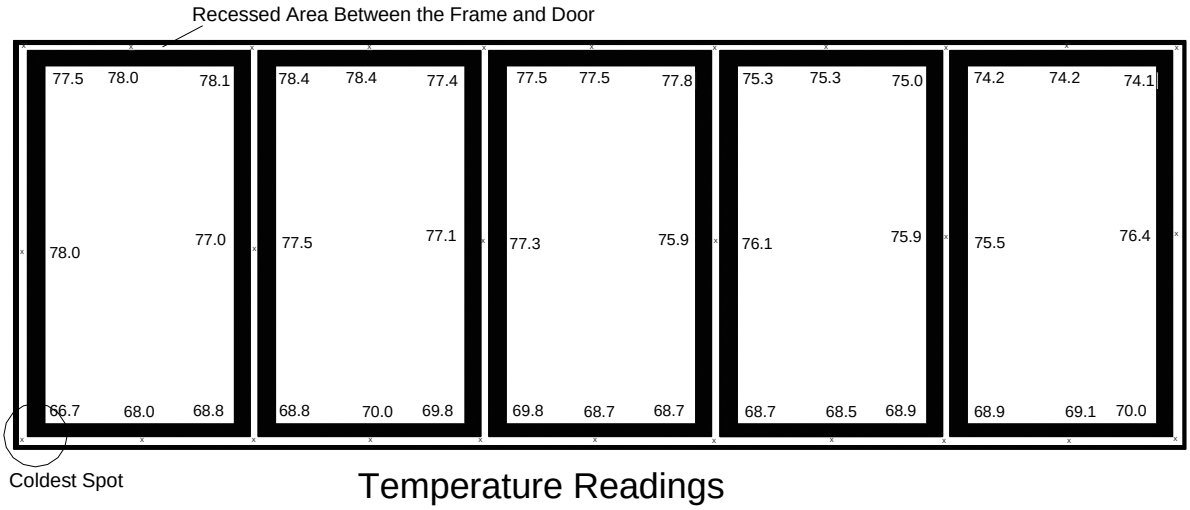
| | |
|---|---|
| **Operating ambient temperature** | -40°C to 60°C |
| **Shipping and storage temperature** | -40°C to 60°C |
| **Control type** | Electronically Operated Control |
| **Software Class** | A |
| **Overvoltage category** | III |
| **Pollution degree** | 2 |
| **Rated impulse voltage** | 2500 V |
| **Maximum phase to ground voltage of the supply source** | 150 Vac |
| **Protection against electric shock class** | Class II (Intended for mounting internal to equipment) |
| **Environmental** | Panel Mount Only for installation internal to end product equipment |
| **Classification of installation and use** | Independently Mounted Panel Mount |
| **Supply Connection** | External Conductors |
| **Operating Frequency** | Continuous |

**Installation Instructions:**

**Tools Required**- Drill with a 7/64" drill bit and one 1/4" diameter drill bit at least 6" in length, #2 Phillips screw driver, 3/32" standard blade screw driver, wire cutters, wire strippers, infra-red thermometer, and ten feet of wire molding, two ¼" grommets, a 6' ladder(for walk-in's only).

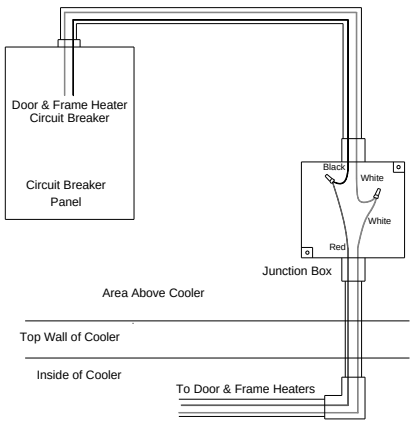
**Parts Provided with Glass Sentry**- Five #6x1/2" self-tapping screws, bread ties, one walk-in Dew Point housing, and one reach-in Dew Point housing .

1. Before removing power to the door and frame heater circuit, take temperature readings with an infra-red temperature meter in the recessed area around the door frame to determine the coldest spot while the heater circuit has been running. Please refer to the illustration below for locations of points to measure the frame temperature. Make sure that this spot is marked for future sensor placement.

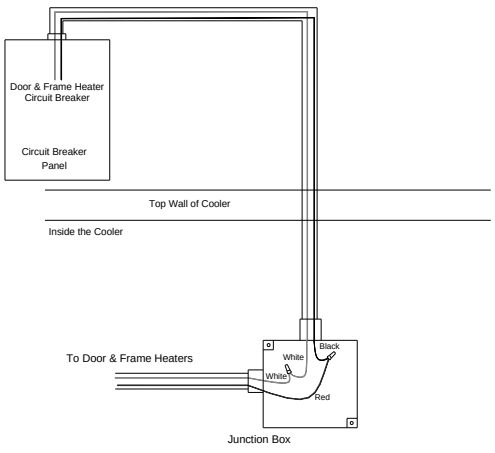



Temperature Readings

2. Find the circuit breaker in the electrical panel feeding power to the door and frame heater circuit, and open the circuit breaker connected to that circuit. Locate the junction box mounted inside or above the cooler that connects the circuit breaker wires (black and white) to the door and frame heater wires (red and white). Add the conduit to the Glass Sentry unit, connect the other end of the conduit to the junction box, and mount Glass Sentry in a convenient location using three zinc-plated #6x1/2" self-tapping screws (provided with the unit). Refer to the diagram below.

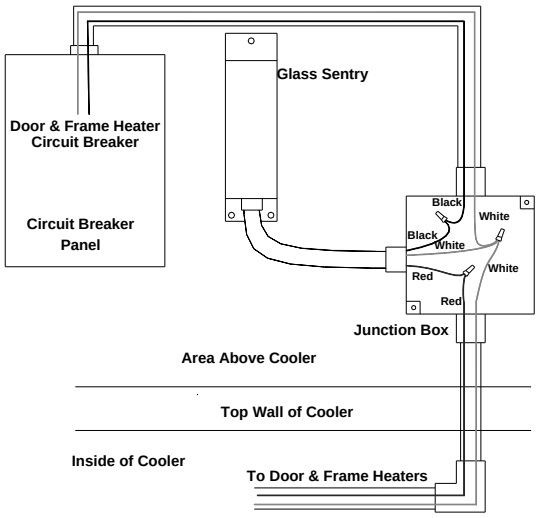



Junction Box Above the Cooler

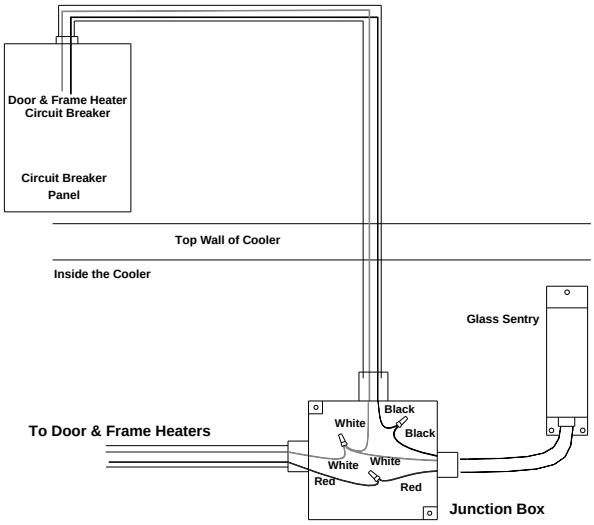



Junction Box Inside the Cooler

3. Following the wiring diagram below, connect Glass Sentry so that white wire is tapped into the Neutral junction of the breaker panel and heater circuit. The Black wire should connect to the line power from the breaker panel, and then the Red wire connects to the line side of the heater circuit (Red Wire) as shown on the below. Make sure all connections are firm and secure.



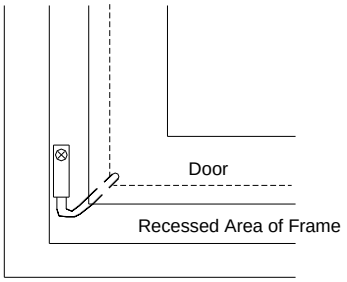

**Glass Sentry Mounting Above the Cooler**



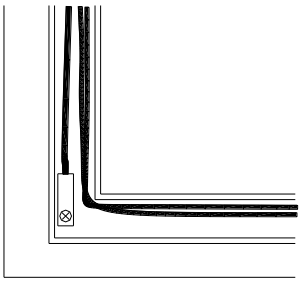

**Glass Sentry Mounting Inside the Cooler**

4. Mount Glass Sentry's temperature sensor on the cold spot on the frame identified in the first step of the installation by drilling a 7/64" dia. hole on the frame, and securing it with one black #6x1/2" self-tapping screw (provided with the unit). Wrap the sensor cable behind the door and around the inside of the frame and secure the cable to any conduit, lighting fixture, or stationary hardware using the bread ties supplied with the unit. Refer to the illustration on the left below.

The sensor may also be mounted inside the frame, however, consulting the manufacturer of the frame may be required for directions on the disassembly process. Refer to the illustration to the right below.



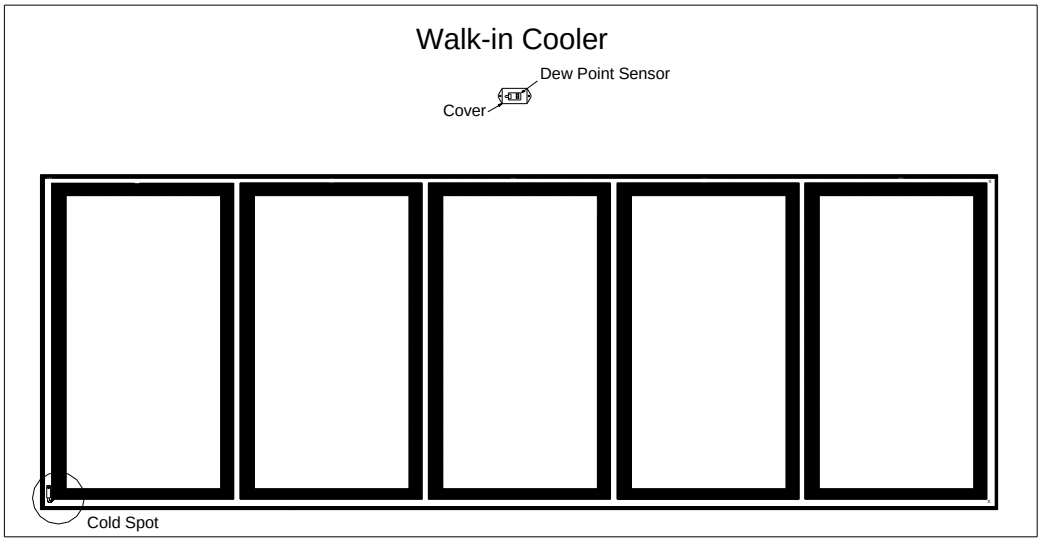

Frame Sensor Mounting
From Outside the Frame



Frame Sensor Mounting
From Inside the Frame

5. Run the sensor cable back to the Glass Sentry and connect the two wires to the “T1” terminals on the end of the unit, securing the cable with the necessary bread ties. In the case where the Glass Sentry is mounted above the cooler, drilling a ¼” diameter hole through the ceiling of the cooler will be necessary to run the cable to the unit.

6. Locate a spot on the wall, above the center of the door frame, or at eye level to the side of the door frame, to mount the Glass Sentry’s Dew Point sensor. Drill a 1/4" diameter hole through the wall, next to the mounting spot, above or below the cooler, depending upon where the Glass Sentry is mounted. Run the loose end of the Dew Point sensor cable through the hole until all of the loose cable is on the other side of the wall. Clean the surface of the wall where the sensor is to be mounted, peel the paper from the back of the sensor, and stick to the wall. Secure the walk-in Dew Point sensor cover using two black self-tapping screws supplied with the unit. Refer to the next illustration below.




7. Run the dew point sensor cable back to the unit and connect the four wires (Green, Yellow, Black, Red) correspondingly to the screw terminals labeled "G Y B R" on Glass Sentry. Use the bread ties supplied with the Glass Sentry to secure the cable, if needed.

8. Apply power to the circuit by closing the circuit breaker and insure that the Heater LED on Glass Sentry is lit and the heater circuit is running. Using an amp meter, measure the current going to the heater circuit to determine the amp draw and whether or not the heater is running. Follow the troubleshooting steps on the last page if the LED is not lit or the heater circuit is not running, or if the heater circuit never shuts off.

**Troubleshooting**

**If the Heater LED is not lit and the heater circuit does not energize:**
Check the voltage to ensure that it is between 95 to 128 VAC. If there is no AC voltage present, check the fuse or circuit breaker feeding the heater circuit. In the event that the fuse or breaker is blown, recheck your wiring and insure that the heater circuit does not exceed 30 amps.

Make sure that the temperature sensors have been properly placed on the door frame.
Replace the Glass Sentry if no other issues are found.

**If the Heater LED is lit but the heater circuit is not running:**
Check the wiring to make sure that it is correct and that all connections are tight and secure.

**If the Heater LED is lit and the heater circuit never turns off:**
Check the wiring to make sure that it is correct and ensure that the heater circuit is not drawing more than 30 amps.

If the humidity is above 70%, the heater circuit may not shut off until the humidity level drops.

Make sure that all the sensors have been properly placed on the door frame.
Replace the Glass Sentry if no other issues have been found.

**If the Heater LED is off but the heater circuit is still running:**
Check the wiring to make sure that it is correct and ensure that the heater circuit is not drawing more than 30 amps.

If the humidity is above 70%, the heater circuit may not shut off until the humidity level drops.

Replace the Glass Sentry if no other issues have been found.

**If the heater circuit is not running enough and condensation begins to form on the glass:**
Rotate the adjustment on the side of Glass Sentry clockwise, in small increments, until the issue is resolved. Refer to Figure 1.

**Technical Support**

For additional questions and support you may either direct your email to **sales@GlassSentry.com**, or you may call (888) 780-4827.