



GDM-26

**True**®

## ELSTAT TRAINING BOOKLET

GDM SERIES COOLER EQUIPPED WITH EMS (ELSTAT) CONTROL

- **ELSTAT SEQUENCE OF OPERATION**
- **ELSTAT COMPONENTS**
- **FRONT VIEW OF ELSTAT**
- **REAR VIEW OF CONTROLLER**
- **FREQUENTLY ASKED QUESTIONS (FAQ)**
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## ELSTAT SEQUENCE OF OPERATION

Once the cabinet is plugged in, the ELSTAT control will flash "888" and then go through a parameter check. Once completed, the control will do a "soft start". Lights come on first, approximately 30 seconds later the compressor will start. Approximately 30 seconds from the compressor start up, the evap motor will start. The control will display "Use". The control will then cycle the compressor on and off at the predetermined temp (Model specific).

The whole time the controller is on it is learning the customer traffic. Once enough data has been accumulated the controller will now cycle between two modes. "Standby" and "Use". In the standby mode the controller predicts that customer traffic is nonexistent. It will display (---). It cycles the compressor to hold about 50°F. It shuts the lights off and cycles the evap fan motor. It will hold this pattern until roughly 2 hours before customer traffic is predicted to start. The controller will then switch into the "use" mode. Cycling the compressor on and off based on temperature (Approx 36°F to 38°F product temp). Running lights continuously. The controller will then cycle between these two modes.

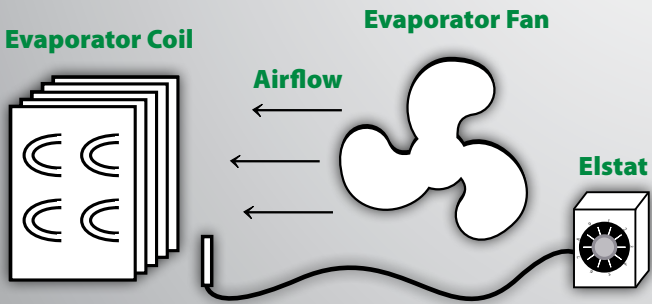


# ELSTAT COMPONENTS



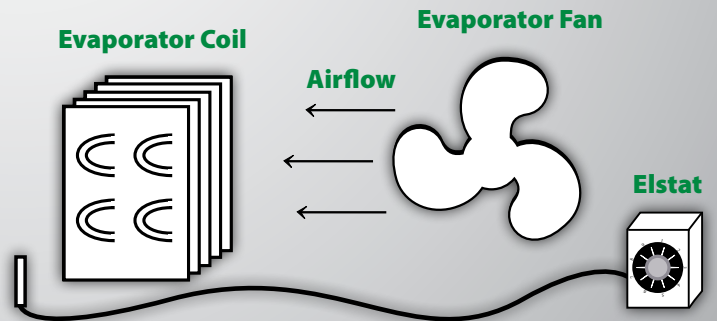
**Transformer**

**Probe**



**Probe Location 1**

GDM-10 through GDM-37
Probe is in return air mounted by the evaporator fan motor.



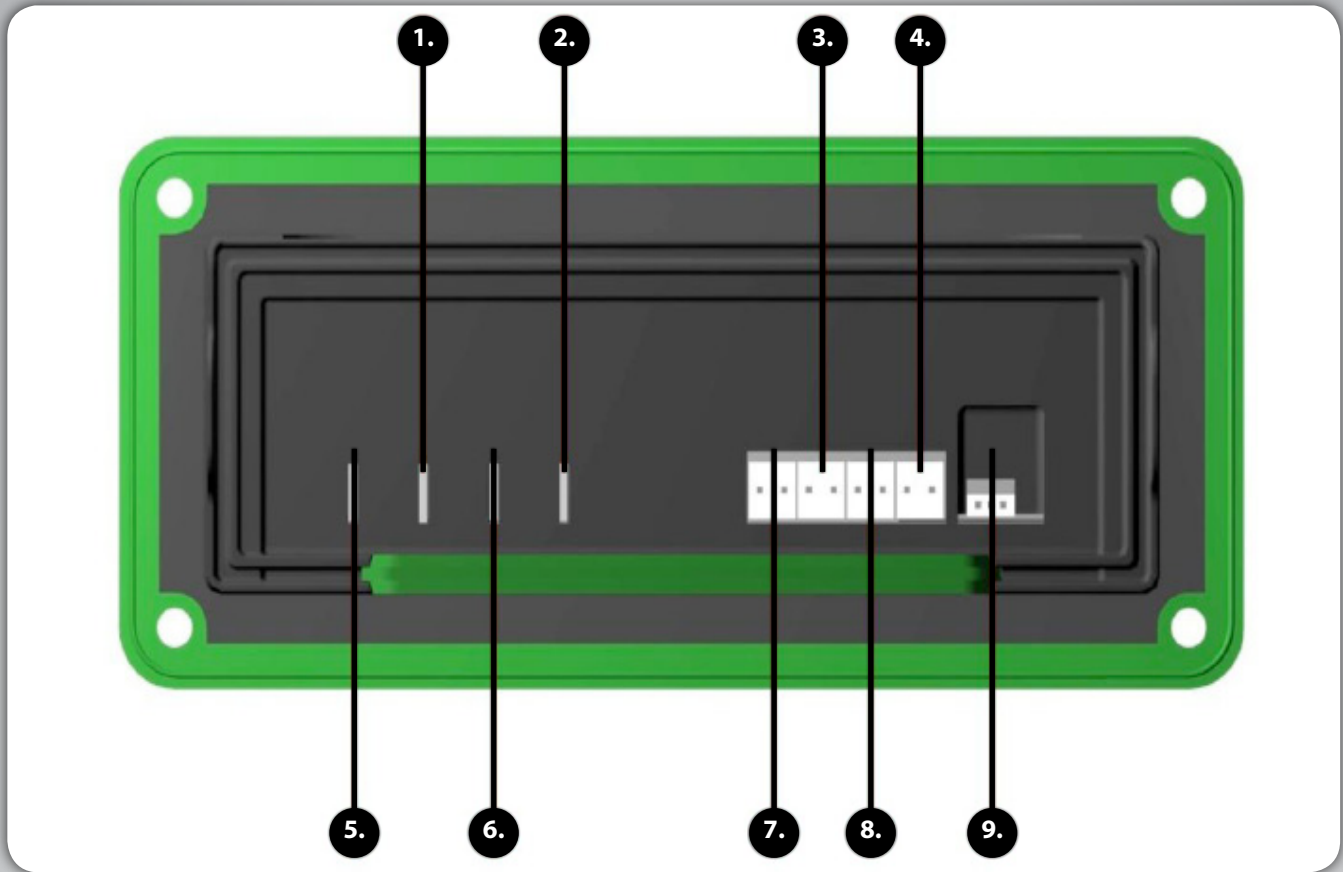
**Probe Location 2**

GDM-45 to GDM-72
Probe is in the discharge air stream
Off of the Evaporator Coil

# FRONT VIEW OF ELSTAT



# REAR VIEW OF CONTROLLER



NO.	NAME
1.	Line In
2.	Lights
3.	Not Used
4.	Appliance Sensor
5.	Compressor
6.	Fan (s)
7.	12 Vac
8.	Not Used
9.	Not Used

## FREQUENTLY ASKED QUESTIONS

### Can the Elstat come out of the "Stand by" mode before its predetermined time?

**No.** If the motion sensor is set off during the "Stand by" mode the control will automatically turn the lights on, however it will stay in stand by mode.

### Can the Elstat be set up for continuous use and not go into the "Stand by" mode?

**Yes.** The control can be set into perishable mode. This would shut down the "stand by" mode. The lights will still cycle (like stand by mode) when cabinet doesn't see activity.

**NOTE: There is no ability to set lights on all the time.**

### Can lights be set to stay on at all times?

**No.** Elstat controller does not have this capability. Lights will always turn off in "stand by" Mode.

### How do I put controller into Perishable mode?

## WHAT?

- Perishable mode is used when anything perishable is being stored in the cabinet.
- In perishable mode, cabinet will maintain a 36°F-38°F product temperature. The cabinet will not go into standby mode.

**NOTE: All Energy Star cabinets are shipped in perishable mode**

## HOW?

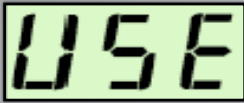
- Press the set button key (looks like a snow flake): the screen should show PAS
- You will now need to enter the key dance:
- Press the snow flake key 3 beeps
- Press the up arrow key 2 beeps
- Press the down arrow key 1 beep
- Press the water drops key 4 beeps (should show display of "PS")
- Now press and hold down the snow flake key until the screen shows PEr and 00.
- Next press and hold the up arrow key until the screen shows PEr and 01.
- Wait until controller reads "USE"; unplug the cabinet and plug it back in. At this point the red LED in center of the control should be "on" which means that the control is in perishable mode.

### How do I perform a Half reset, and what is it? Half reset clears any of the learning memory.

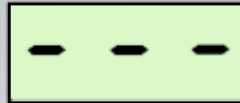
## HOW?

- Push the set button key (looks like a snow flake) the screen should show PAS
- You will now need to enter the key dance
- Press the snow flake key 3 beeps
- Press the up arrow key 2 beeps
- Press the down arrow key 1 beep
- Press the water drops key 4 beeps (should show display of "PS")
- Press and hold the down arrow key until you view HR
- Press the snow flake key (display should show PAS)
- Re enter key dance and the Half Reset is complete.

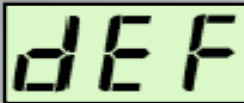
# NORMAL OPERATING CODES



Normal operating mode. Cabinet should be holding proper product temperature.

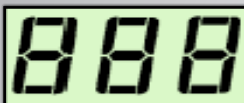


Units is in Standby mode. Control will cycle the unit at a warmer temperature. Lights will be off.

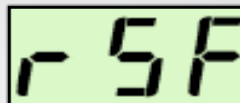


Units is in defrost . Compressor has been shut off and evaporator fan motor is running to clear any ice that may have accumulated. This is a predetermined program function.

## FAULT CODES/ TROUBLESHOOTING



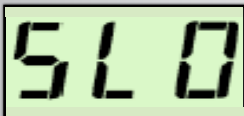
Freeze up protection. This unit has gone down below the minimum temperature Set Point.



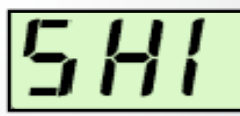
Refrigeration System Failure. The unit has not satisfied the set point in the amount of time allowed.

Possible Problems	Action to take
Compressor not shutting off	Check compressor. Relay at controller
Faulty Probe	Ohm out evaporator probe
Parameters have been changed	Check parameter list

Possible Problems	Action to take
Unit is not cooling	Check the Refrigeration System
Faulty Probe	Ohm out evaporator probe
Faulty Controller	Bypass control to see if system will run
Parameters have been changed	Check the parameter list



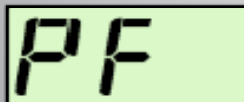
Power supply voltage is low.



Power supply voltage is too high.

Possible Problems	Action to take
Poor voltage at outlet	Verify proper voltage to cabinet
Faulty Transformer	Verify 120V to transformer. Check for 12V on secondary. Connector 7 <b>(see page 2)</b>
Faulty Controller	Bypass control to see if system will run
Faulty Elstat	If 12V is present at connector 7, replace Elstat

Possible Problems	Action to take
High voltage at outlet	Verify proper voltage to cabinet
Faulty Transformer	Verify 120V to transformer. Check for 12V on secondary. Connector 7 <b>(see page 2)</b>
Faulty Elstat	If 12V is present at connector 7, replace Elstat.



Probe failure

Elstat Probes by the evaporator motor GDM-10 to 33 probes in air stream GDM-35 to 72

Possible Problems	Action to take
Connector off at controller	Verify that connector 4 is in place <b>(see page 2)</b>
Probe is open	Ohm out probe
Probe is shorted	Ohm out probe
Probe wire is open	Ohm out probe wire

Value	Ohms
32°	32,000 Ohms
70°	12,000 Ohms
80°	9,300 Ohms
85°	8,500 Ohms
90°	7,000 Ohms



**TROUBLESHOOTING GUIDE****TROUBLESHOOTING GUIDE**

(Please note this does not cover any and all situations)

<b>Complaint</b>	<b>Possible Cause</b>	<b>Repair</b>
<b>Cabinet not cold enough</b>	1. No product in cabinet.	1. Load cabinet Elstat is equipped with a anti-short cycle that can make the unit run warm with no product.
	2. Unit in a unpredictable location. Elstat control may be going in standby mode.	2. Move cabinet or put into Perishable mode.
	3. Unit was in a previous location.	3. Perform half reset.
<b>Warm Product</b>	1. Unit in a unpredictable location. Elstat control may be going into standby mode.	1. Move cabinet or put into Perishable mode.
	2. Compressor not running.	2. Check for out put voltage at controller. If good follow compressor diagnosis.
	3. Compressor running.	3. Follow refrigeration trouble shooting guides.
	4. Unit in standby mode.	
<b>Unit displaying a temperature instead of "use."</b>	1. Unit recently worked on. Parameters have been changed.	1. Reset the DIS parameter to "0".

