TABLE OF CONTENTS

TYPES OF TEMPERATURE CONTROLS

The cabinet's General Sequence of Operation is
determined by the temperature control.

What is a temperature control or thermostat?

A device interposed in a cooling system
by which temperature is automatically
maintained between certain levels.

MECHANICAL TEMPERATURE CONTROLS

MECHANICAL CONTROLS CYCLE THE COMPRESSOR BY SENSING *EITHER* AIR TEMPERATURE OR EVAPORATOR COIL TEMPERATURE.

Refrigerator = Evaporator Coil
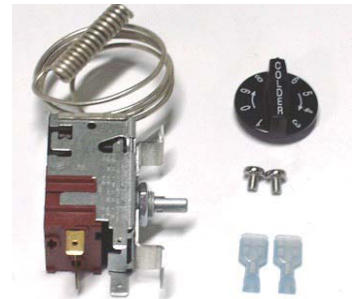
Freezer = Air

ELECTRONIC TEMPERATURE CONTROLS

ELECTRONIC CONTROLS CYCLE THE COMPRESSOR BY SENSING AIR TEMPERATURE.

MECHANICAL TEMPERATURE CONTROLS

Mechanical Temperature Control General Sequence of Operation
Air Sensing Control
How to Diagnose
Checking the Cut In and Cut Out of the Temperature Control
Conditions That Could Cause A Temperature Control Misdiagnosis
Changing Out and Installing a Mechanical Temperature Control
When to Make an Adjustment to a Mechanical Temperature Control
How to Adjust a Mechanical Temperature Control

MECHANICAL TEMPERATURE CONTROLS

COIL SENSING

An evaporator coil sensing temperature control ensures that the evaporator coil will remain clear of frost and ice by not allowing the compressor to restart until the coil temperature is above the freezing temperature. This is considered an **off cycle defrost.**

AIR SENSING

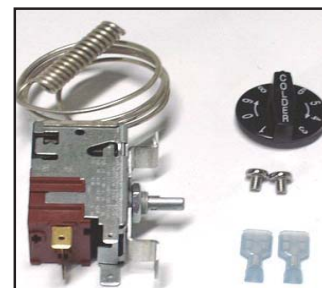An air sensing temperature control used in a freezer application will require a defrost cycle with heaters to ensure that the evaporator coil is kept clear of frost and ice.

MECHANICAL TEMPERATURE CONTROL GENERAL SEQUENCE OF OPERATION

MECHANICAL CONTROL <u>REFRIGERATOR</u> GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
   a. Interior lights will illuminate on Glass Door Models only. If lights do not come on verify the light switch is in the "ON" position. Solid door cabinets may or may not have lights that may be controlled by the door switch.

2. The compressor and evaporator fans will start if the temperature control is calling for cooling.
   (If the compressor does not start, verify that the temperature control is not in the "OFF" or "0" position.)

3. The temperature control may cycle the compressor and evaporator fan(s) on and off together.
   a. The temperature control is sensing the evaporator coil temperature.
   b. The temperature control should be set on the #4 or #5.
   c. The warmest setting is #1, the coldest is #9, and #0 is the off position.
   d. The thermometer is designed to read and display a cabinet temperature **not a product temperature.**
      The thermometer may reflect the refrigeration cycle swings of up and down temperatures.
      The most accurate temperature on a cabinet's operation is to verify the product temperature.

4. There is not a defrost timer as the temperature control will initiate the off-cycle defrost during each refrigeration cycle.
   a. At this time, the compressor will and the evaporator fan(s) may turn off. Defrost heaters are not installed on refrigerators and therefore will not be energized.
   b. After the evaporator coil temperature has been reached, as determined by the temperature control, the compressor will restart.

5. There may be a timer located on the condensing unit base. This timer is not used for a defrost event.
   The timer will change the rotation of the reversing condenser fan motor.

MECHANICAL CONTROL <u>FREEZER</u> GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
> a. Interior lights will illuminate on glass door models only. If lights do not come on, verify the light switch is in the "ON" position. Solid door cabinets may or may not have lights that may be controlled by the door switch.

2. The compressor only will start if the temperature control is calling for cooling. (If the compressor does not start, verify that the temperature control is not in the "OFF" or "0" position or the cabinet is not in a defrost event.)
> a. The evaporator fan(s) will remain off until a specific temperature of the evaporator coil is reached.

3. The temperature control may cycle the compressor and evaporator fan(s) on and off together.
> a. The temperature control is sensing the air temperature.
> b. The temperature control should be set on the #4 or #5.
> c. The warmest setting is #1, the coldest is #9, and #0 is the off position.
> d. The thermometer is designed to read and display a cabinet temperature **not a product temperature.**
> The thermometer may reflect the refrigeration cycle swings of up and down temperatures.
> The most accurate temperature on a cabinet's operation is to verify the product temperature.

4. The defrost timer will initiate defrost during specific times of day.
> a. At this time, the compressor and evaporator fan(s) will turn off and the evaporator coil heater and drain tube heater will be energized. Some cabinets may also change the rotation of the reversing condenser fan motor.
> b. After the predetermined evaporator coil temperature has been reached or duration for defrost has expired, the compressor will restart and the evaporator fan(s) will remain off until a specific temperature of the evaporator coil is reached.

MECHANICAL CONTROL <u>DELI</u> DISPLAY GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
> a. Interior lights will illuminate. If lights do not come on verify the light switch is in the "ON" position.

2. 1. The compressor and evaporator fans will start on a model TCGR if the temperature control is calling for cooling. (If the compressor does not start, verify that the temperature control is not in the "OFF" or "0" position.)
> 2. The compressor will start on models TSID, TDBD, and TCGG if the temperature control is calling for cooling. (The above 3 models are a gravity style coil design and do not have an evaporator fan motor.)

3. The temperature control may cycle the compressor and evaporator fan(s) on and off together.
> a. The temperature control is sensing the evaporator coil temperature.
> b. The temperature control should be set on the #4 or #5.
> c. The warmest setting is #1, the coldest is #9, and #0 is the off position.
> d. The thermometer is designed to read and display a cabinet temperature **not a product temperature.**
> The thermometer may reflect the refrigeration cycle swings of up and down temperatures.
> The most accurate temperature on a cabinet's operation is to verify the product temperature.

4. 1. There is not a defrost timer on a model TCGR as the temperature control will initiate the off-cycle defrost during each refrigeration cycle.
> a) At this time, the compressor will turn off. Defrost heaters are not installed on refrigerators and therefore will not be energized.
> b) After the evaporator coil temperature has been reached determined by the temperature control, the compressor will restart.

> 2. The defrost timer will initiate defrost on models TSID, TDBD, and TCGG during specific times of day.
> a) At this time, the compressor will turn off. No heaters will be energized.
> b) After the predetermined duration has expired, the compressor will restart.

AIR SENSING CONTROL

Some refrigerators used for special applications may have an air sensing control.
These cabinets will run at a temperature where the evaporator coil never has the potential to freeze.

White Wine:	45-50 degrees
Red Wine / Chocolate:	50-55 degrees

GDM / T-Series Coolers

Coil

Baffle

Baffle

Old location
(Old sensor was coil sensing and was located in the coil).

Front of Cabinet

Temperature Control Pig Tail Install Here
(New sensor is air sensing and mounted in front of the coil).

TBB Units

Old location
(Old sensor was coil sensing and was located in the coil).

Coil

Baffle

Baffle

Front of Cabinet

Mount as close to the evaporator housing edge as possible.
Temperature Control Pig Tail Install Here
(New sensor is air sensing and mounted in front of the coil).

HOW TO DIAGNOSE

STEP 1 - Control must operate within its pre-calibrated range of temperatures.

STEP 2 - *Cut-in* is the ON temperature.

STEP 3 - *Cut-out* is the OFF temperature.

NOTE: All temps are at mid-point setting #5. All temps advised have a +/- 2 degree variance.

Confirmed Calibration

TRUE P/N	MFG P/N	APPLICATION	CUT-IN	CUT OUT
800303	9531N376		35	15
800304	9530N1490		-9	-15
800306	9531N251		40	19
800312	9530N1284		-8	-15
800313	9531N335		37	16
800320	9530N1185		33	27
800325	9530N1318	RED WINE, CHOCOLATE	62	55
800335	9530N1376		38	20
800340	9530N1155		26	11
800345	077B1264		-3	-16
800357	9530266		-3	-8
800358	077B1214		-9	-14
800363	9530C311		-3	-13
800366	077B6806		37	17
800368	077B6857		42	23
800369	077B1212		-3	-12
800370	077B1216		-14	-25
800371	077B6863		42	24
800382	077B6856		37	18
800383	077B1227		0	-6
800384	077B1229		25	19
800385	077B1228	WHITE WINE	43	34
800386	077B6871		41	20
800387	077B6887	FLOWER COOLER	39	21
800390	9530N1329	SUPER NOVA	13	8
800393	077B6827		42	21
800395	931N370	HIGH ALTITUDE	40	23
800399	9530C304		0	-5
822212	CAP-075-174R	HEATED		
822213	077B6894		37	22
822214	077B1309		31	17
822223	077B1331		26	9
831931	077B1277		-2	-9
831932	3ART56VAA4		40	18
831987	077B0995	RED WINE, CHOCOLATE	57	50
908854	077B6926		36	10
908975	077B1352		-16	-32
911427	077B1354		38	26
913382	077B1367		-11	-23
917838	077B1369		0	-14
930794	091X9775		42	25
933190	091X9796		42	19
958745	3ART55VAA4		39	18
958747	095X0028		37	
958857	3ART5VAA198		8	-6
959268	3ART55VAA3		40	26
960640	3ART55VAA5		43	20
962728	3ART55VAA6		42	20
963056	3ART55VAA2		39	16

CHECKING THE CUT IN AND CUT OUT OF THE TEMPERATURE CONTROL

COIL SENSING

AIR SENSING
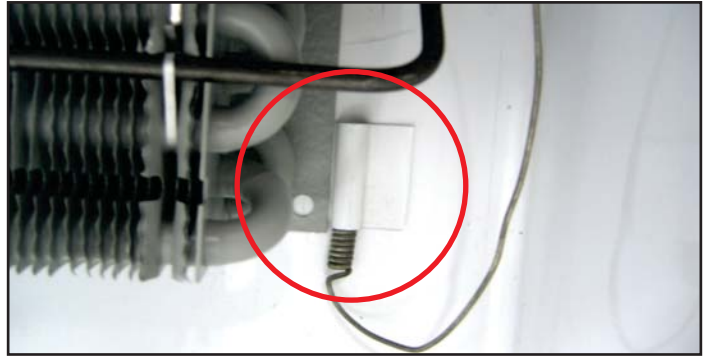
CONDITIONS THAT COULD CAUSE A TEMPERATURE CONTROL MISDIAGNOSIS

- Dirty Condensing Coil

- Bad Door Gasket

- Poor Ventilation / High Ambient Conditions

- Refrigeration System Failure

- Temperature Control Relay
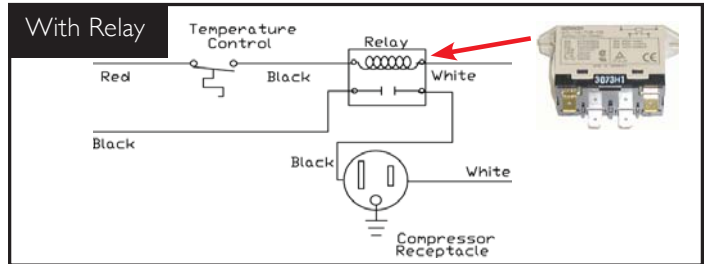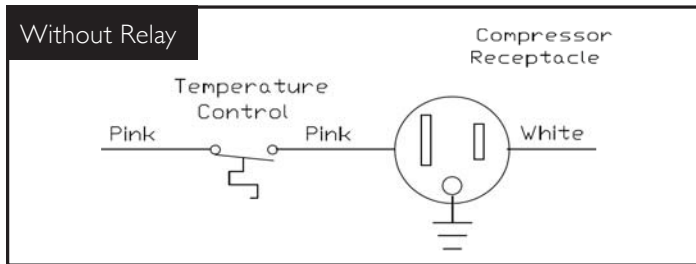
Without Relay

With Relay

CHANGING OUT AND INSTALLING A MECHANICAL TEMPERATURE CONTROL
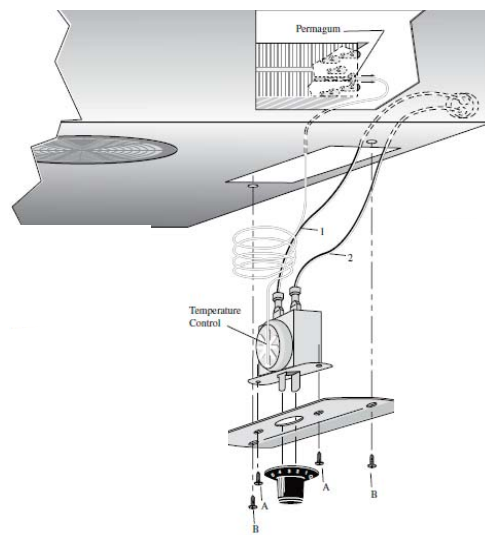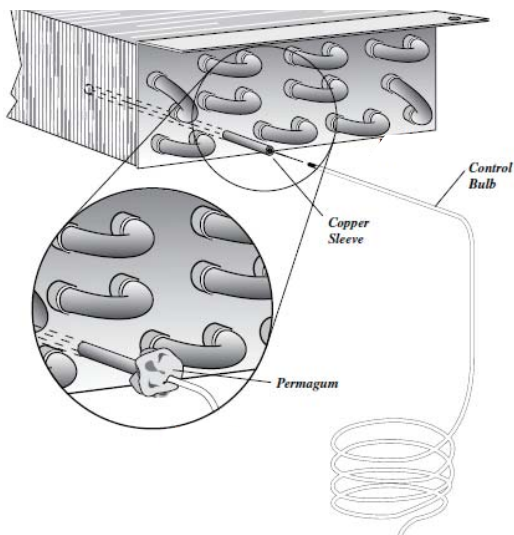
WHEN TO MAKE AN ADJUSTMENT TO A MECHANICAL TEMPERATURE CONTROL

We advise to make a mechanical temperature control adjustment only for a high altitude location.

HOW TO ADJUST A MECHANICAL TEMPERATURE CONTROL

OPERATION INSTRUCTIONS:

REQUIRED TOOLS:

* Jewelers Screw Driver (Small Screw Driver)

GE CONTROL INSTRUCTIONS:

The scale to the right may be used as a guide for measuring degrees of rotation required for altitude correction. See Figure 1. The arrows indicate direction of screw rotation. Turn calibration screw clockwise to obtain warmer operating temperatures.

NOTE: Each 1/4 turn of the calibration screw is equal to approximately 2 degrees F. Do not make more than 3/4 turn. After making adjustment, measure temperature during three cycles before adjusting again.

NOTE: Only adjust the screw (small flathead) on the face of the control (next to the cam). See Figure 3. Follow the Altitude Correction Table to the right.

Scale Guide for Measuring

1

Back of Temperature Control

Compressor Terminals

Ground Terminal

2

Altitude Correction Table: Calibration Screw Adjusts Both Cut-in and Cut-out	
Altitude (Feet)	Clockwise Turns
2000	7/60
3000	11/60
4000	15/60
5000	19/60
6000	23/60
7000	27/60
8000	30/60

Altitude Correction   Front of Temperature Control

Calibration Screw

To adjust the temperature control take the control knob off to view the cut-in screw. (See Photo Above)

3
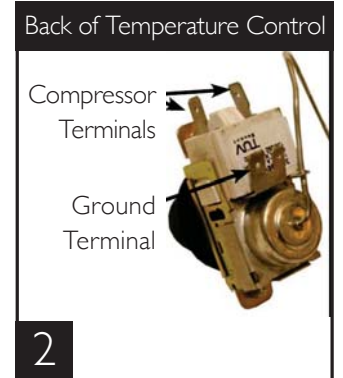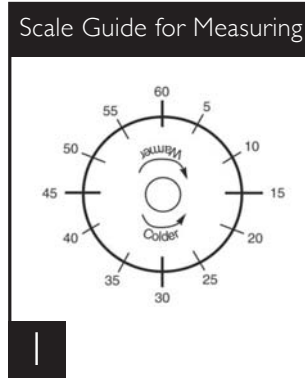
INSTALLATION INSTRUCTIONS
DANFOSS TEMPERATURE CONTROL ADJUSTMENT FOR HIGH ALTITUDE APPLICATIONS:

REQUIRED TOOLS:

* Allen Wrench (5/64")

* Torx Screw (T-7)

TERMS:

Cut-out - Temperature sensed by the controller that shuts the compressor off.

Cut-in - Temperature sensed by the controller that turns the compressor on.

Bottom of Temperature Control

Cut-out Adjustment Screw Allen (5/64" or 2 mm.)

Cut-in Adjustment Screw Torx (T-7)

Compressor Connection

Compressor Connection (double terminal)

1
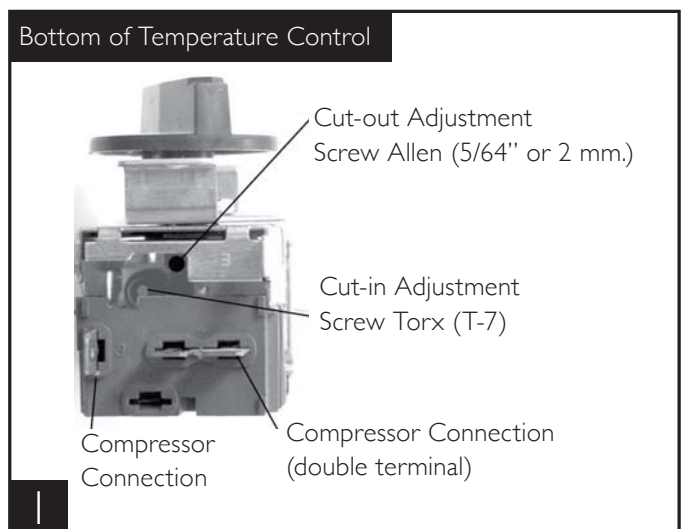
INSTRUCTIONS: DANFOSS TEMPERATURE CONTROL ADJUSTMENT FOR HIGH ALTITUDE APPLICATIONS

STEP 1 - Unplug cooler.

STEP 2 - Remove the screws that secure the temperature control to the inset box.

STEP 3 - To make these adjustments it may be necessary to remove the temperature control from the housing.

NOTE: You may have to remove the wires attached to the control. Take note as to which wire is on which spade terminal.

STEP 4 - Pull out gently from cabinet.

NOTE: Mechanical temperature controllers are affected when functioning at high altitude. The cut-in and cut-out temperatures will be colder than when the controller functions closer to sea level.

STEP 5 - For high elevation installations, it may be necessary to "warm-up" the set points. To make the adjustment, insert the appropriate tool in each adjustment screw and turn 1/4 of a revolution clockwise (to the right). This procedure will adjust both the cut-in and cut-out about 2°F warmer.

STEP 6 - Make sure to reconnect the wires to the proper spade terminal when reinstalling.

INSTALLATION INSTRUCTIONS
TEMPERATURE CONTROL ALTITUDE ADJUSTMENT:

REQUIRED TOOLS:

- Allen Wrench (5/64")

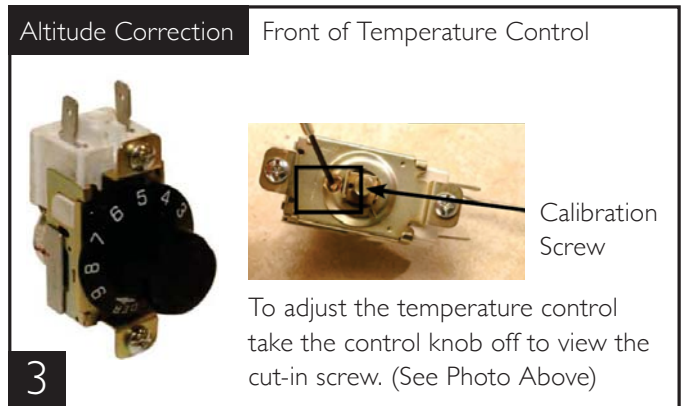- Torx Screw (T-7)

The scale to the right may be used as a guide for measuring degrees of rotation required for altitude correction. The arrows indicate direction of screw rotation. See Figure 1.

IMPORTANT: Upright models ordered with "High Altitude" temperature controls are pre-calibrated and do not require adjustment.

Scale Guide for Measuring
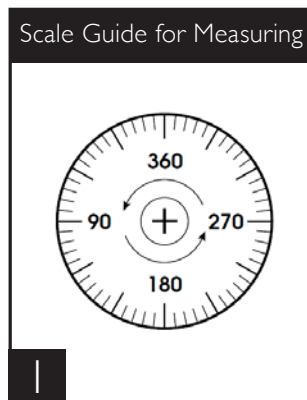
INSTRUCTIONS: CUTLER HAMMER TEMPERATURE CONTROL ALTITUDE ADJUSTMENT

STEP 1 - Unplug cooler.

STEP 2 - Turn the temperature control to the "9" position.

STEP 3 - Remove the screws that secure the mounting plate to the evaporator top. See Figure 2.

STEP 4 - Pull control down gently from housing.

STEP 5 - Turn screws counterclockwise (CCW).

STEP 6 - Reassemble to cooler housing and return the temperature control to the "5" position.
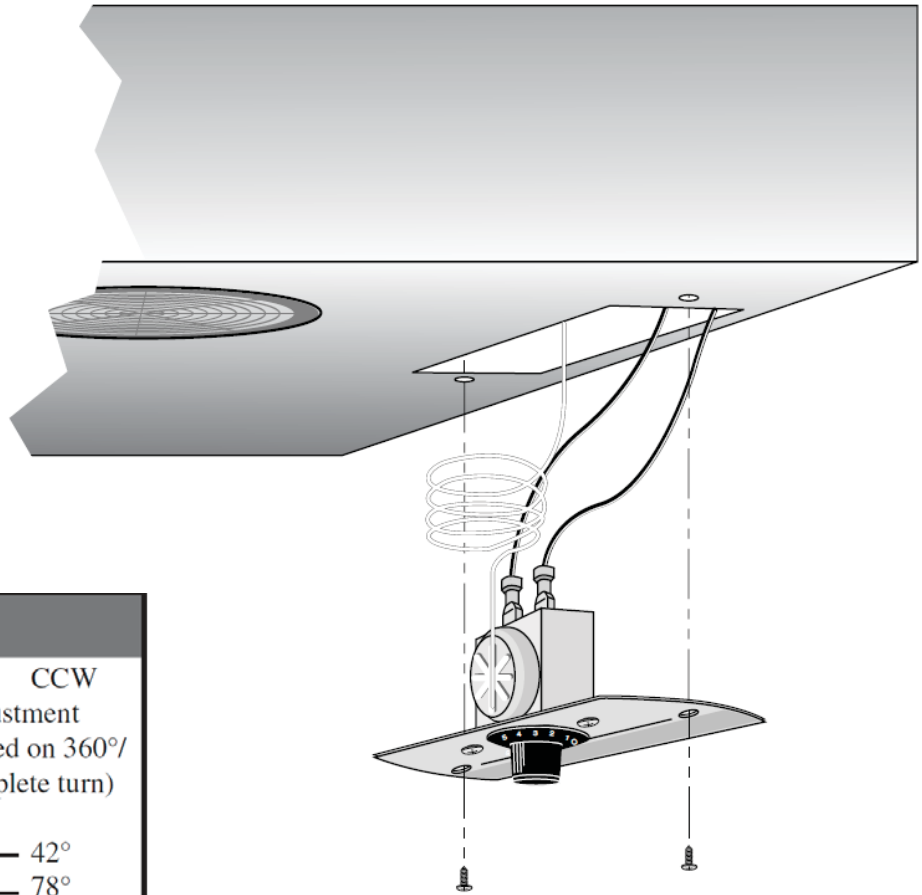
CHART

Height	CCW Adjustment (based on 360°/ complete turn)
2000'	42°
3000'	78°
4000'	114°
5000'	150°
6000'	186°
7000'	222°
8000'	258°
9000'	294°
10,000'	330°
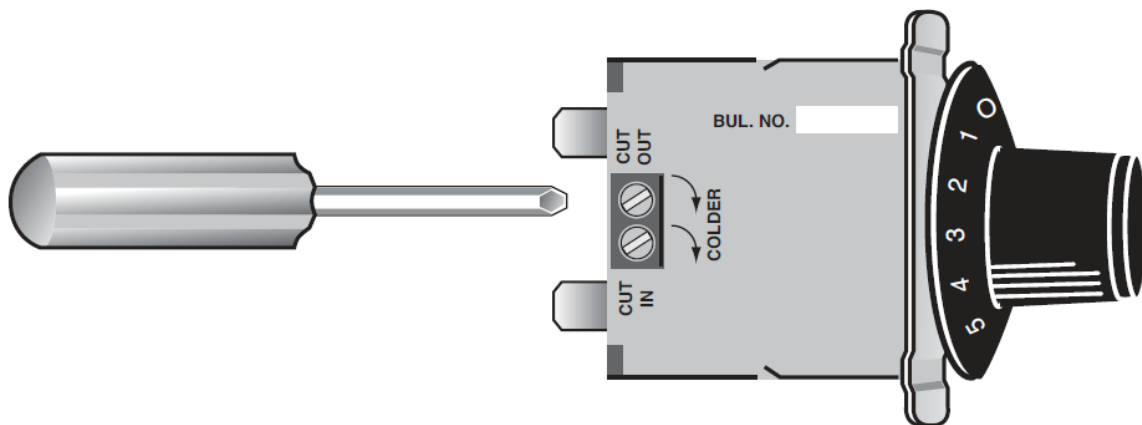
CUT
OUT

COLDER

CUT
IN

BUL. NO.

0 1 2 3 4 5

2

ELECTRONIC TEMPERATURE CONTROLS

ELECTRONIC TEMPERATURE CONTROLS

(Control version will vary with model and age of cabinet.)

DIXELL:

p1 = supply air (thermostat)
p2 = coil / copper line (defrost)
p3 = return air (display)

p3 probe is not installed and / or activated in all applications if p3 is not installed and / or activated, the display probe is p1.

DIXELL PROBES

12 - Thermostat
13 - Defrost
14 - Display

LAE:

t1 = supply air / return air* (thermostat)
t2 = coil / copper line (defrost)
t3 = return air / supply air* (display)

t3 probe is not installed and / or activated in all applications if t3 is not installed and / or activated, the display probe is t1.

* STA, STG, STM, STR Models.

LAE CURRENT PROBES

GRAY- Thermostat
BLUE - Defrost
YELLOW - Display

LAE PRIOR PROBES

DANFOSS:

control probe = return air
defrost probe = coil

NOTE: An electronic control with an air sensing temperature probe (refrigerator and freezer) will require a defrost cycle to ensure that the evaporator coil is kept clear of frost and ice.

DANFOSS ELECTRONIC PROBES

DEFROST
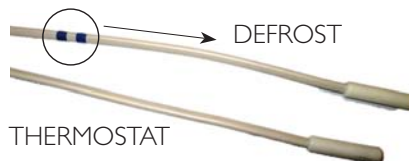
THERMOSTAT

DIXELL ELECTRONIC TEMPERATURE CONTROL GENERAL SEQUENCE OF OPERATION

p1 = supply air (thermostat)
p2 = coil / copper line (defrost)
p3 = return air (display)

p3 probe is not installed and / or activated in all applications with p3 is not installed and / or activated, the display probe is p1.

DIXELL ELECTRONIC CONTROL GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
    a. Display will illuminate.
    b. Interior lights will illuminate on Glass Door Models only. If lights do not come on verify the light switch is in the "ON" position. Solid door cabinets may or may not have lights that may be controlled by the door switch.
    c. Evaporator motors will come on (refrigerator only).

2. After the Dixell control preprogrammed time delay of 3-5 minutes, the compressor and freezer evaporator fan(s) will start if the control is calling for cooling.

3. The Dixell control will cycle the compressor but may also cycle the evaporator fan(s) on and off determined by the Set-Point and Differential temperatures.
    a. The Set-Point is the <u>adjustable</u> preprogrammed temperature which shuts off the compressor and evaporator fan(s). This is not the programmed cabinet temperature.
    b. The Differential is the <u>non adjustable</u> preprogrammed temperature that is added to the Set-Point temperature that will start the compressor and evaporator fan(s).
    c. The Dixell control is designed to read and display a cabinet temperature **not a product temperature.** This cabinet temperature may reflect the refrigeration cycle of the Set-Point and it's Differential. The most accurate temperature on a cabinets operation is to verify the product temperature.

Example: If the Set-Point is 33°F/1°C and the Differential is 8°F/4°C
(Set-Point) 33°F + 8 (Differential) = 41°F

Or

(Set-Point) 1°C + 4 (Differential) = 5°C
The compressor will cycle off 33°F/1°C and back on at 41°F/5°C

4. The Dixell control may be preprogrammed to initiate defrost at specific intervals that start when the cabinet is plugged in.
    a. At this time the "dEF" may appear on the display and compressor will turn off until a preprogrammed temperature or duration is reached. During this time, for freezers only, evaporator fan(s) will also turn off and the coil heater and drain tube heaters will also be energized. Some cabinets may also change the rotation of the reversing condenser fan motor.
    b. After the preprogrammed temperature has been reached or duration for defrost has expired, there may be a short delay for both the compressor and evaporator fans to restart. At this time "dEF" may still appear on the display for a short time.

DIGITAL TEMPERATURE CONTROL COMMANDS:

Use of LED: Each LED function is described in the table below.

Key Combinations:

❄ + ⬇ ▶ To lock & unlock the keyboard.
set + ⬇ ▶ To enter the programming mode.
set + ❄ ▶ To exit the programming mode.

LED	MODE	Function
❄	ON	The compressor is running
❄	FLASHING	- Programming Phase (flashing with LED ✿) - Anti-short cycle delay enabled
✿	ON	The fan is running
✿	FLASHING	Programming Phase (flashing with LED ❄)
❄	ON	The defrost is enabled

Alarm Signals

Message	Cause	Outputs
"P1"	Thermostat probe failure	Alarm output ON; Compressor output according to parameters "COn" and "COF"
"P2"	Evaporator probe failure	Alarm output ON; Other outputs unchanged
"P3"	Display probe failure	Alarm output ON; Other outputs unchanged
"HA"	Maximum temperature alarm	Alarm output ON; Other outputs unchanged
"LA"	Minimum temperature alarm	Alarm output ON; Other outputs unchanged
"EE"	Data or memory failure	Alarm output ON; Other outputs unchanged
"dA"	Door switch alarm	Alarm output ON; Other outputs unchanged
"EAL"	External alarm	Alarm output ON; Other outputs unchanged
"bAL"	Serious external alarm	Alarm output ON; Other outputs OFF
"PAL"	Pressure switch alarm	Alarm output ON; Other outputs OFF

NOTE: To silence alarm, press any button on keypad.

HOW TO START A MANUAL DEFROST:

STEP 1 - Push the **(DEFROST)** key for more than (2) seconds and a manual defrost will start.

STEP 2 - By pushing the (**ON/OFF**) key, the instrument shows **"OFF"** for 5 seconds and then the **ON/OFF LED** switch **ON**.

USING THE DIXELL ELECTRONIC CONTROL

HOW TO LOCK / UNLOCK THE KEYS:

STEP 1 - Press the **(UP)** and **(DOWN)** keys at the same time for more than (3) seconds.

STEP 2 - The "POF" message will be displayed if the keyboard is locked. At this point, it is only possible to view the set point, MAXIMUM / MINIMUM temperature stored.

STEP 3 - To unlock the keyboard, press the **(UP)** and **(DOWN)** keys at the same time for more than (3) seconds. The "Pon" message will be displayed.

Dixell Control XW60VS

Dixell XRI60C

THE SET POINT IS WHERE THE COMPRESSOR WILL SHUT OFF.

HOW TO SEE AND MODIFY THE SET POINT:

STEP 1 - Model XW60VS push and immediately release the **(SET)** key. Model XR160C push and hold the **(SET)** key: The display will show the **(SET)** point value.

STEP 2 - The **(SET LED)** will start blinking.

STEP 3 - To change the **(SET)** value, push the **(UP)** or **(DOWN)** arrows within (10) seconds.

STEP 4 - To memorize the new set point value, push the **(SET)** key again or wait (10) seconds.

Dixell Control XW60VS

1

Dixell XR160C

2

THE LOCAL DISPLAY SHOWS WHICH PROBE IS READING.

HOW TO SEE "LOD" LOCAL DISPLAY:

STEP 1 - Press and hold the **(SET)** and **(DOWN)** arrows at the same time for (7-12) seconds.

STEP 2 - You should then see **(HY)**.

STEP 3 - Release the keys.

STEP 4 - Press the down arrow until you see the letters **(LOD)**.

STEP 5 - Press the **(SET)** button. You should see P1, P2, P3. This is the probe used for the display. (All probes may not be used in some applications). To change, press the **(UP / DOWN)** arrow to set a new number and then push the **(SET)** button to save these changes.

Wait 10 seconds for control to display temperature.

Dixell Control XW60VS

1

Dixell XR160C

2

THE INTERVAL BETWEEN DEFROST TERMINATION IS THE TIME BETWEEN EACH DEFROST CYCLE.

NOTE: This interval is started when the cabinet is plugged in or after initiate of manual defrost.

HOW TO SEE "idF" INTERVAL BETWEEN DEFROST:

STEP 1 - Press and hold the **(SET)** and **(DOWN)** arrows at the same time for (7-12) seconds.

STEP 2 - You should then see **(HY)**.

STEP 3 - Release the keys.

STEP 4 - Press the down arrow until you see the letters "idF".

STEP 5 - Press the **(SET)** button. You should see the number 6. This is time in hours between each defrost cycle. To change, press the **(UP / DOWN)** arrow to set a new number and then push the **(SET)** button to save these changes. Wait 10 seconds for control to display temperature.

NOTE: The interval between defrost termination is the time between each defrost cycle.

Dixell Control XW60VS

1

Dixell XR160C

2

THE PROGRAM PARAMETERS CAN BE DOWNLOADED BY THE USE OF A "HOT KEY."

NOTE: These parameters will vary from model to model.

HOW TO DOWNLOAD THE CONTROL PARAMETER:

STEP 1 - Turn controller in the off position or unplug cabinet.

STEP 2 - Insert "Hot Key" into the back of the controller.

STEP 3 - Turn on controller or plug in cabinet.

STEP 4 - "Hot Key" will download automatically once download is complete. Remove "Hot Key".

Dixell Control XW60VS

1

Dixell Probe Temperature to Resistance Chart

Temperaure		Resistance
C	F	K-ohm
-50	-58	329.50
-45	-50	247.70
-40	-40	188.50
-35	-31	144.10
-30	-22	111.30
-25	-12.5	86.43
-20	-4	67.77
-15	5	53.41
-10	14	42.47
-5	23	33.90
0	32	27.28
5	41	22.05
10	50	17.96
15	59	14.69
20	68	12.09
25	77	10.00
30	86	8.31
35	95	6.94
40	104	5.83
45	113	4.91
50	122	4.16
55	131	3.54
60	140	3.02
65	149	2.59
70	158	2.23
75	167	1.92
80	176	1.67
85	185	1.45
90	194	1.27
95	203	1.11
100	212	0.97
105	221	0.86
110	230	0.76

DIXELL PROBES

12 - Thermostat
13 - Defrost
14 - Display

LAE ELECTRONIC TEMPERATURE CONTROL GENERAL SEQUENCE OF OPERATION

t1 = supply air / return air* (thermostat)   * STA, STG, STM, STR Models.
t2 = coil / copper line (defrost)
t3 = return air / supply air* (display)

t3 probe is not installed and / or activated in all applications
with t3 is not installed and / or activated, the display probe is t1.

LAE ELECTRONIC CONTROL GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
> a. Display will illuminate.
> b. Interior light will illuminate on Glass Door Models only. Solid door cabinet lights are controlled by the door switch.

2. After the LAE control preprogrammed time delay of up to 6 minutes, the compressor and evaporator fan(s) will
start if the control is calling for cooling.
> a. Control may be already pre-programmed from the factory so at the start of every compressor cycle or during a
> defrost cycle, the condenser fan(s) will reverse for 30 seconds to blow dirt off the condensing coil.

3. The LAE control will cycle the compressor but may also cycle evaporator fan(s) on and off determined by the
Set-Point and Differential temperatures.
> a. The Set-Point is the adjustable preprogrammed temperature which shuts off the compressor and evaporator fan(s).
> This is not the programmed cabinet temperature.
> b. The Differential is the non adjustable preprogrammed temperature that is added to the Set-Point temperature that
> will restart the compressor and evaporator fan(s).
> c. The LAE control is designed to read and display a cabinet temperature **not a product temperature**.
> This cabinet temperature may reflect the refrigeration cycle of the Set-Point and it's Differential.
> The most accurate temperature on a cabinets operation is to verify the product temperature.

<center>

Example: If the Set-Point is -9°F/-23°C and the Differential is 10°F/5°C
(Set-Point) -9°F + 10 (Differential) = 1°F

Or

(Set-Point) -23°C + 5 (Differential) = -18°C
The compressor and evaporator fan(s) will cycle off -9°F/-23°C and back on at 1°F/-18°C

</center>

4. The LAE control may be preprogrammed to initiate defrost by interval or at specific times of day.
> a. At this time the "dEF" will appear on the display and compressor will turn off until a preprogrammed temperature
> or duration is reached. During this time for freezers only, evaporator fan(s) will also turn off and the coil heater and
> drain tube heaters will also be energized. Some cabinets may also change the rotation of the reversing condenser
> fan motor.
> b. After the preprogrammed temperature or duration for defrost has been reached there may be a short delay
> for both the compressor and evaporator fans to restart. At this time "dEF" may still appear on the display for a
> short time.

LAE MODEL TMW ELECTRONIC CONTROL GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
   a. Display will illuminate.

2. After the LAE control preprogrammed time delay of up to 6 minutes, the compressor will start if the control is calling for cooling.
   a. Control may be already preprogrammed from the factory so at the start of every compressor cycle, the condenser fan(s) will reverse for 30 seconds to blow dirt off the condensing coil.

3. The LAE control will cycle the compressor on and off determined by the Set-Point and Differential temperatures.
   a. The Set-Point is the <u>adjustable</u> preprogrammed temperature which shuts off the compressor and evaporator fan(s). This is not the programmed cabinet temperature.
   b. The Differential is the <u>non adjustable</u> preprogrammed temperature that is added to the Set-Point temperature that will restart the compressor and evaporator fan(s).
   c. The LAE control is designed to read and display a cabinet temperature **not a product temperature.** This cabinet temperature may reflect the refrigeration cycle of the Set-Point and it's Differential. The most accurate temperature on a cabinets operation is to verify the product temperature.

<div align="center">

Example: If the Set-Point is -9°F/-23°C and the Differential is 10°F/5°C
(Set-Point) -9°F + 10 (Differential) = 1°F

Or

(Set-Point) -23°C + 5 (Differential) = -18°C
The compressor will cycle off -9°F/-23°C and back on at 1°F/-18°C

</div>

4. The LAE control is not and cannot be preprogrammed to initiate defrost, only refrigeration.
   a. The cabinet will need to be manually defrosted. Unplug the cabinet or turn the LAE control to "OFF" per LAE instruction sheet. The manual defrost frequency will depend on the units usage, environment, and the amount of frost.

LAE MODEL HEATED CABINET ELECTRONIC CONTROL GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
    a. Display will illuminate.

2. The LAE control will energize the heat elements if the control is calling for heat.

3. The LAE control will cycle the heating elements on and off determined by the Set-Point and Differential temperatures.
    a. The Set-Point is the <u>adjustable</u> preprogrammed temperature which de-energizes the heat elements. This is not the programmed cabinet temperature.
    b. The Differential is the <u>non adjustable</u> preprogrammed temperature that is added to the Set-Point temperature that will re-energize the heat elements.
    c. The LAE control is designed to read and display a cabinet temperature **not a product temperature**. This cabinet temperature may reflect the heating cycle of the Set-Point and it's Differential. The most accurate temperature on a cabinets operation is to verify the product temperature.

Example: If the Set-Point is 180°F/82.2°C and the Differential is 1°F/.56°C
(Set-Point) 180°F + 1 (Differential) = 181°F

Or

(Set-Point) 82.2°C + .56 (Differential) = 82.76°C
The heating elements will cycle on 180°F/82.2°C and back off at 181°F/82.76°C

HOW TO DIAGNOSE AN LAE ELECTRONIC CONTROL

Indicator lights for Refrigeration/Heating Mode, Fan Operation, Defrost Mode.

LAE Control Icons

❄ Compressor Running

✿ Evaporator Fan Running

❄ Cabinet in Defrost

II° Activation of 2nd Parameter Set - NA

🔔 Alarm - NA

LAE Control

Info / Set Point Button

Manual Defrost / Down Button

Manual Activation Up Button

Stand-By Button
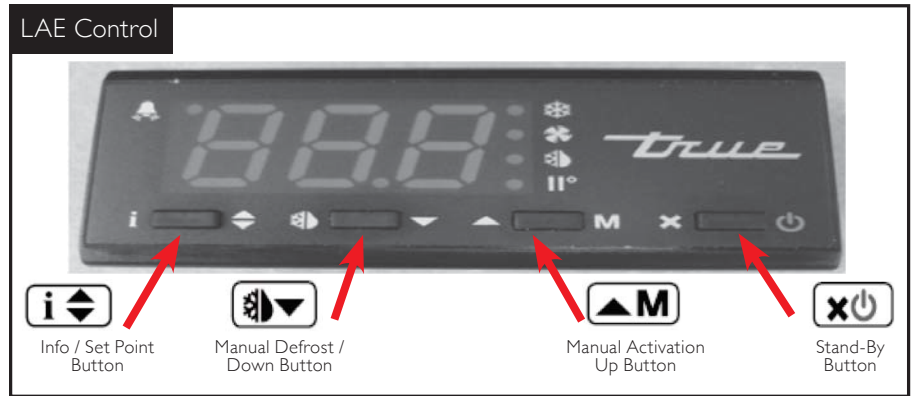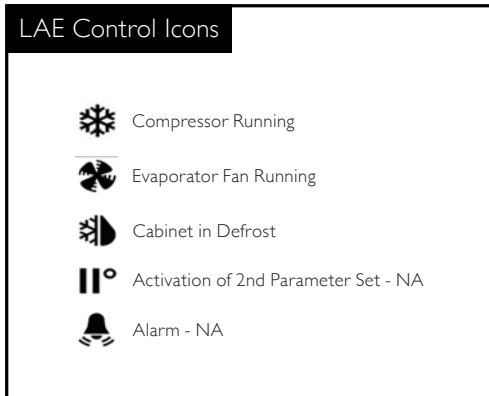
USING THE LAE ELECTRONIC CONTROL

LOCKING AND UNLOCKING THE LAE CONTROLLER:

WHY: Locking of control is necessary to prevent changes to program that may affect cabinet operation.

HOW TO LOCK AND UNLOCK LAE CONTROLLER:

STEP 1 - To change lock setting press and release the Info button [i ⬍] . "tl" will appear. See image 1.

STEP 2 - Press the Down button [❄▼] until "Loc" appears. See image 2.

STEP 3 - While pressing and holding the Info button [i ⬍] press the Up [▲M] or Down [❄▼] button to change the lock settings. If "no" appears, the controller is unlocked. If "yes" appears, the controller is locked. See images 3 and 4.

STEP 4 - Once the lock setting has been set correctly release the info button [i ⬍] . Wait 5 seconds for the display to show temperature. See image 5.

Image 3: If "no" appears on screen, the controller is unlocked.

Image 4: If "yes" appears on screen, the controller is locked.

LAE Control

Info / Set Point Button

Manual Defrost / Down Button

Manual Activation Up Button

Stand-By Button
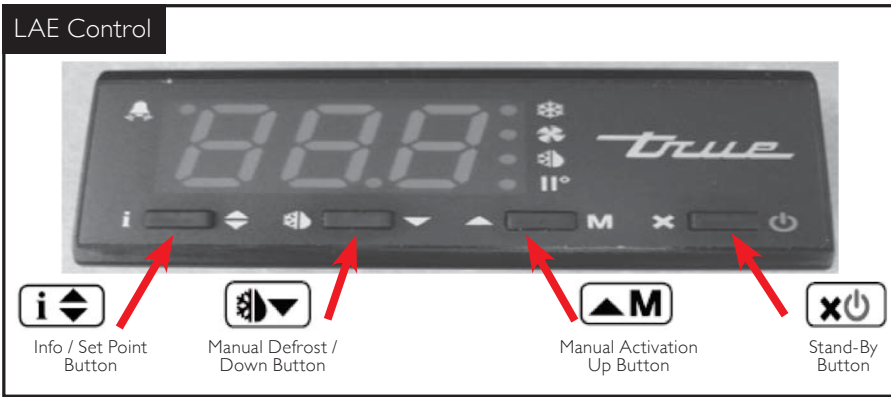
HOW TO TURN OFF THE LAE ELECTRONIC CONTROL:

May need to unlock control.

WHY: Turning off the control will deactivate all electrical components.

CAUTION: Turning off the control will not shut off power to the cabinet. Cabinet must be unplugged prior to any repair.

HOW TO TURN OFF THE LAE ELECTRONIC CONTROLLER:

STEP 1 - To turn off control, press and hold the Stand-by button until "OFF" appears. Release Stand-by button. See Image 2.

STEP 2 - To turn on control, repeat prior steps and a temperature will appear.

TURNING THE GLASS DOOR MODEL LIGHTS ON AND OFF:

May need to unlock control.

WHY: Light may be controlled by LAE Controller or interior light switch.

ON Position

HOW TO TURN THE GLASS DOOR MODEL LIGHT ON AND OFF:

STEP 1 - To control interior / sign lights by the LAE Controller, press and release the Manual Activation button.

STEP 2 - To control interior / sign lights by the interior door switch, depress the rocker switch to the "ON" position. Light switch is located on inside top right of the ceiling.

(Solid Door model lights are controlled by a door switch)

LAE Control

Info / Set Point Button	Manual Defrost / Down Button
Manual Activation Up Button	Stand-By Button
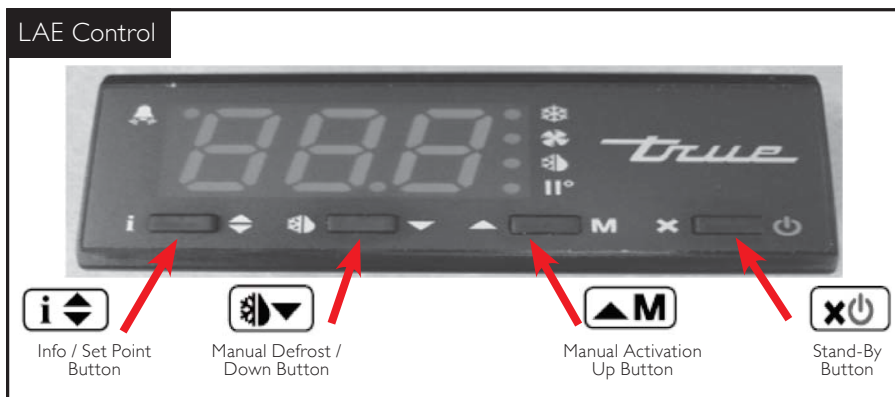
CHANGING THE "SET POINT":

May need to unlock control.

WHY: The set point is the temperature at which the compressor will shut off.

NOTE: The "set point" *IS NOT* the cabinet holding temperature.

HOW TO CHANGE THE "SET POINT":

STEP 1 - To see the set point, press and hold the Info button (i⬍). See image 1.

STEP 2 - While still holding the Info button (i⬍), press the Up (▲M) or Down (⬥▼) button to change the "set point".

STEP 3 - Once the "set point" has been set correctly release the Info button (i⬍). The display will show temperature. See image 2.

LAE Control

Info / Set Point Button

Manual Defrost / Down Button

Manual Activation Up Button

Stand-By Button
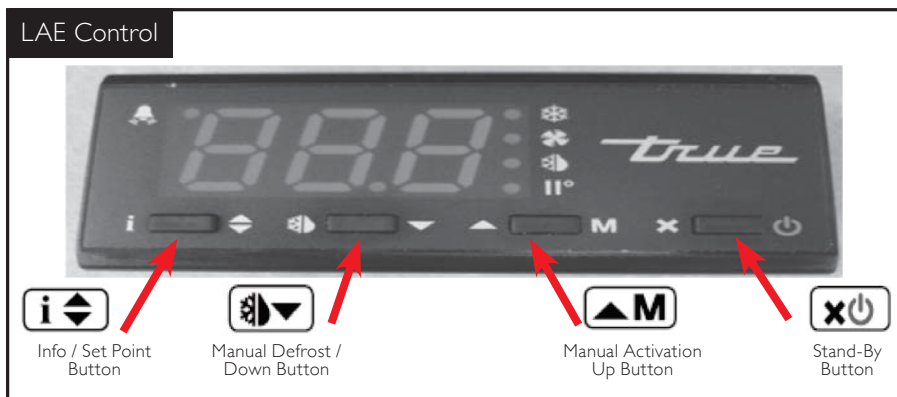
INITIATE A MANUAL DEFROST:
May need to unlock control.

WHY: A one time additional defrost may be necessary to clear accumulated frost / ice from evaporator coil.

HOW TO INITIATE A MANUAL DEFROST:

The method to initiate a manual defrost is determined by the Defrost Mode Parameter "DTM" preprogrammed in the controller.

REGULAR TIME DEFROST (TIM)
If controller is preprogrammed for "TIM", press and release the Manual Defrost button until "dEF" appears.

REAL TIME CLOCK (RTC)
If controller is preprogrammed for "RTC" press the and hold the Manual Defrost button for 5 seconds until "dh1" appears. Release the Manual Defrost button and then press and hold for an additional 5 seconds until "dEF" appears.

NOTE: Defrost will only terminate once a specific preset temperature or a preset time duration is reached.

LAE Control

Info / Set Point Button

Manual Defrost / Down Button

Manual Activation Up Button

Stand-By Button
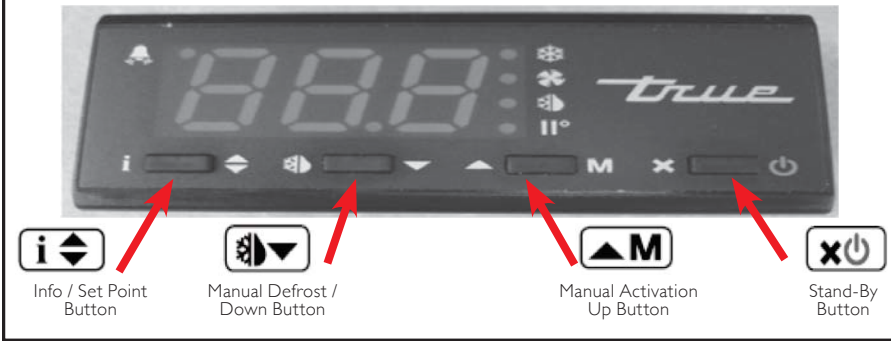
CHANGING "DEFROST INTERVALS":
May need to unlock control.
This can only be changed if defrost mode parameter "DFM" is set for "TIM".

WHY: The defrost interval is the time duration between defrost cycles. The defrost interval time starts when the cabinet is supplied power or after a manual defrost.

HOW TO CHANGE "DEFROST INTERVALS":

STEP 1 - To see the set point, press and hold the Info button [i⬍] and the Stand-by button [✕⏻] at the same time. "ScL" will appear.
See image 1.

NOTE: If using BIT25 controller "SPL" will appear. See image 2.

STEP 2 - Push the Up button [▲M] until "dFt" appears. See image 3.

STEP 3 - Press and hold the Info button [i⬍] to see the defrost interval time. See image 4

STEP 4 - While pressing and holding the Info button [i⬍], press the Up [▲M] or Down [◖▼] button to change the defrost interval times (higher the number the less frequent the cabinet will defrost).

STEP 5 - Once the defrost interval time has been changed, release the Info button [i⬍].

STEP 6 - Wait 30 seconds for the display to show temperature.
See image 5.

1

2

3

4

5

LAE Control

Info / Set Point Button

Manual Defrost / Down Button

Manual Activation Up Button

Stand-By Button
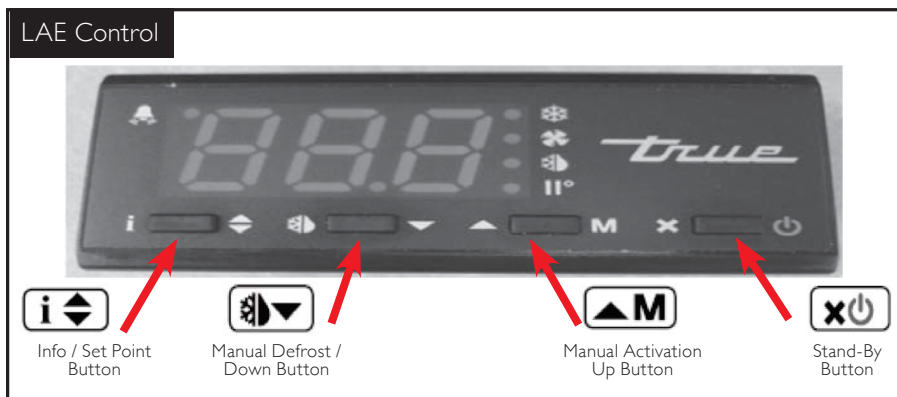
HOW TO CHANGE DISPLAY READOUT FROM FAHRENHEIT TO CELSIUS:

May need to unlock control.
This can only be changed with the LAE model BRI version of the control.

WHY: Changing readout will assist with customer application.

HOW TO CHANGE DISPLAY READOUT FROM FAHRENHEIT TO CELSIUS:

STEP 1 - To change the display, press and hold the Info button [i⬍] and the Stand-by button [✕⏻] at the same time. "MdL" will appear. See image 1.

STEP 2 - Push the Down button [⬥▼] until "ScL" appears. See image 2.

STEP 3 - Press and hold the Info button [i⬍] to see the "readout scale". See image 3.

STEP 4 - While pressing and holding the Info button [i⬍] , press the up [▲M] or down [⬥▼] button to change the "readout scale". See image 4.

STEP 5 - Once the "readout scale" has been changed, release the info button [i⬍].

STEP 6 - Wait 30 seconds for the display to show temperature. See image 5.

LAE Control

Info / Set Point Button
Manual Defrost / Down Button
Manual Activation Up Button
Stand-By Button
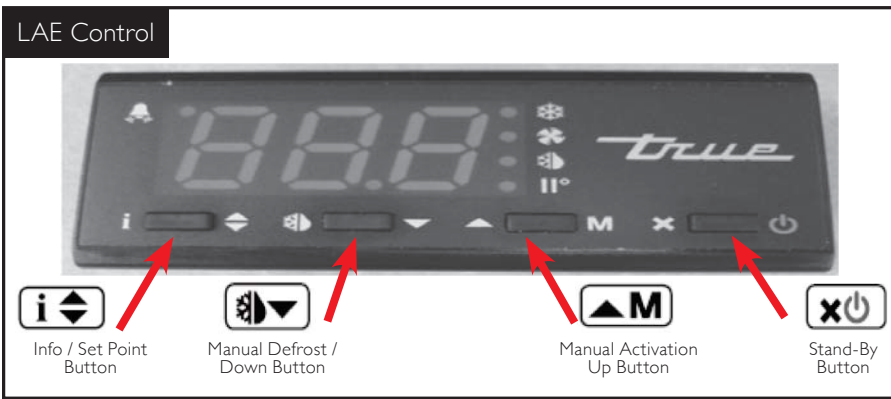
DISPLAYING TEMPERATURE PROBES, T1, T2, T3:

WHY: To display temperature probe readings in different locations of the cabinet.

HOW TO DISPLAY PROBE TEMPERATURES:

STEP 1 - To display T1 temperature, press and release the info button [i⇕]. "t1" will appear. See image 1.

STEP 2 - Press and hold the info button[i⇕]. This is the temperature of the T1 Probe. See image 2.

STEP 3 - By releasing the info button [i⇕], "t2" will appear. Press and hold the info button[i⇕] to display the temperature of the T2 probe.

STEP 4 - By releasing the info button [i⇕] again, "t3" will appear. Press and hold the info button [i⇕] to display the temperature of the T3 probe. (If probe T3 is not activated, "t3" will not appear of the display.)

DISPLAY CODES

DISPLAY			
dEF	Defrost in progress	hi	Room high temperature alarm
oFF	Controller in stand-by	Lo	Room low temperature alarm
do	Door open alarm	E1	Probe T1 failure
t1	Instant probe 1 temperature	E2	Probe T2 failure
t2	Instant probe 2 temperature	E3	Probe T3 failure
t3	Instant probe 3 temperature	thi	Maximum probe 1 temperature recorded
min	Minutes of the Real Time Clock	tLo	Minimum probe 1 temperature recorded
hrS	Hours of the Real Time Clock	Loc	Keypad state lock

LAE Controller Parameter Settings
for Celsius

For every model / version of the LAE controller,

ALL parameters with a formula shown need to be

converted for Celsius applications.

EXCEPT MODEL: BR1

Example:

**If current SPL is set for 20 degrees F
the formula is (X-32) / 1.8**

(20-32) / 1.8 = -6.7 Celsius

AR2-28			
SCL	1C	ADO	
SPL	(X-32) / 1.8	AHM	
SPH	(X-32) / 1.8	AHT	(X-32) / 1.8
SP	(X-32) / 1.8	ACC	
C-H		IISM	
HYS	(X) / 1.8	IISL	(X-32) / 1.8
CRT		IISH	(X-32) / 1.8
CT1		IISP	(X-32) / 1.8
CT2		IIHY	(X) / 1.8
CSD		IIFC	
DFM		HDS	
DFT		IIDF	
DH1		SB	
DH2		DS	
DH3		DSM	
DH4		DI2	
DH5		STT	
DH6		EDT	
DLI	(X-32) / 1.8	LSM	
DTO		OA1	
DTY		OA2	
DPD		CD	
DRN		INP	
DDM		OS1	(X) / 1.8
DDY		T2	
FID		OS2	(X) / 1.8
FDD	(X-32) / 1.8	T3	
FTO		OS3	(X) / 1.8
FCM		TLD	
FDT	(X) / 1.8	TDS	
FDH	(X) / 1.8	AVG	
FT1		SIM	
FT2		ADR	
FT3			
ATM			
ALA	(X-32) / 1.8		
AHA	(X-32) / 1.8		
ALR	(X) / 1.8		
AHR	(X) / 1.8		
ATI			
ATD			

BIT25			
SPL	(X-32) / 1.8	ADO	
SPH	(X-32) / 1.8	AHM	
SP	(X-32) / 1.8	AHT	(X-32) / 1.8
HYS	(X) / 1.8	ACC	
CRT		IISM	
CT1		IISL	(X-32) / 1.8
CT2		IISH	(X-32) / 1.8
CSD		IISP	(X-32) / 1.8
DFM		IIHY	(X) / 1.8
DFT		IIFC	
DFB		IIDF	
DLI	(X-32) / 1.8	SB	
DTO		DI1	
DTY		DI2	
DPD		T3M	
DRN		OS3	(X) / 1.8
DDM		PSL	(X-32) / 1.8
DDY		PSR	(X-32) / 1.8
FID		POF	
FDD	(X-32) / 1.8	LSM	
FTO		OA1	
FCM		OA2	
FDT	(X) / 1.8	OS1	(X) / 1.8
FDH	(X) / 1.8	T2	
FT1		OS2	(X) / 1.8
FT2		TLD	
FT3		SCL	1C
ATM		SIM	
ALA	(X-32) / 1.8	ADR	
AHA	(X-32) / 1.8		
ALR	(X) / 1.8		
AHR	(X) / 1.8		
ATI			
ATD			

BIT25 Heating			
SPL	(X-32) / 1.8	ADO	
SPH	(X-32) / 1.8	SB	
SP	(X-32) / 1.8	DI1	
CM		DI2	
HYS	(X) / 1.8	PSL	(X-32) / 1.8
TON		PSR	(X-32) / 1.8
TOF		POF	
PB		DSM	
IT		LSM	
DT		OA1	
AR		OA2	
CT		OS1	(X) / 1.8
PF		TLD	
HSD		SCL	1C
ATM		SIM	
ALA	(X-32) / 1.8	ADR	
AHA	(X-32) / 1.8		
ALR	(X) / 1.8		
AHR	(X) / 1.8		
ATD			

SUBJECT TO CHANGE

LAE CONTROLLER SETTING
AR2-28

SCL	ADO
SPL	AHM
SPH	AHT
SP	ACC
C-H	IISM
HYS	IISL
CRT	IISH
CT1	IISP
CT2	IIHY
CSD	IIFC
DFM	HDS
DFT	IIDF
DH1	SB
DH2	DS
DH3	DSM
DH4	DI2
DH5	STT
DH6	EDT
DLI	LSM
DTO	OA1
DTY	OA2
DPD	CD
DRN	INP
DDM	OS1
DDY	T2
FID	OS2
FDD	T3
FTO	OS3
FCM	TLD
FDT	TDS
FDH	AVG
FT1	SIM
FT2	ADR
FT3	
ATM	
ALA	
AHA	
ALR	
AHR	
ATI	
ATD	

MODEL:

LAE CONTROLLER SETTING
BIT25

SPL	ADO
SPH	AHM
SP	AHT
HYS	ACC
CRT	IISM
CT1	IISL
CT2	IISH
CSD	IISP
DFM	IIHY
DFT	IIFC
DFB	IIDF
DLI	SB
DTO	DI1
DTY	DI2
DPD	T3M
DRN	OS3
DDM	PSL
DDY	PSR
FID	POF
FDD	LSM
FTO	OA1
FCM	OA2
FDT	OS1
FDH	T2
FT1	OS2
FT2	TLD
FT3	SCL
ATM	SIM
ALA	ADR
AHA	
ALR	
AHR	
ATI	
ATD	

MODEL:

Per our design or control version, highlighted Parameters may or may not be displayed.

Parameters list settings are subject to change without prior notification.

Model specific parameters settings are on separate pages.

LAE CONTROLLER SETTING
BIT25 HEATING

SPL
SPH
SP
CM
HYS
TON
TOF
PB
IT
DT
AR
CT
PF
HSD
ATM
ALA
AHA
ALR
AHR
ATD
ADO
SB
DI1
DI2
PSL
PSR
POF
DSM
LSM
OA1
OA2
OS1
TLD
SCL
SIM
ADR

MODEL:

LAE CONTROLLER SETTING
BRI-28

MDL	FMS
SPL	ATM
SPH	ALA
SP	AHA
C-H	ALR
HYO	AHR
HY1	ATI
CRT	ATD
CT1	IISM
CT2	IISL
HRT	IISH
TIL	IISP
HT	IIH0
DFM	IIH1
DFT	IIHT
DFB	IIDF
DH1	IIFC
DH2	ECS
DH3	EPT
DH4	SB
DH5	DSM
DH6	DAD
DLI	CSD
DTO	D1O
DTY	D1A
DSO	D2O
SOD	D2A
DPD	LSM
DRN	LSA
DDM	STT
DDY	EDT
FID	OA1
FDD	OA2
FTO	OA3
FCM	2CD
FDT	OSI
FDH	T2
FT1	OS2
FT2	T3
FT3	OS3
	T4
	OS4
	TLD
	TDS
	AVG
	SCL
	SIM
	ADR
	FRS

MODEL:

SUBJECT TO CHANGE

Per our design or control version, highlighted Parameters may or may not be displayed.

Parameters list settings are subject to change without prior notification.

Model specific parameters settings are on separate pages.

LAE Controller Settings for AR2-28

	GDM-10F	GDM-12F	GDM-19T-F	GDM-23F	GDM-26	GDM-26F	GDM-35F	GDM-43F	GDM-49	GDM-49F	GDM-72F
SCL	F	F	F	F	F	F	F	F	F	F	F
SPL	-20	-20	-15	-20	20	-20	-20	-20	20	-20	-20
SPH	10	10	10	10	45	10	10	10	45	10	10
SP	-14	-14	-10	-14	20	-14	-15	-17	20	-16	-16
CH	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
HYS	18	18	8	18	18	18	18	18	18	18	18
CRT	3	3	3	6	3	3	3	3	0	3	3
CT1	10	10	5	10	10	10	10	10	10	10	10
CT2	20	20	5	20	30	20	20	20	30	20	20
CSD	1	1	1	1	0	1	1	1	1	1	1
DFM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
DFT	6	6	6	6	8	6	6	6	8	6	6
DH1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
DH2	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
DH3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
DH4	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
DH5	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DH6	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DLI	60	60	60	50	45	50	80	80	45	60	60
DTO	30	30	40	30	20	30	30	30	20	30	30
DTY	ELE	ELE	ELE	ELE	OFF	ELE	ELE	ELE	OFF	ELE	ELE
DPD	30	30	120	30	30	30	30	30	30	30	30
DRN	3	3	2	3	3	3	3	3	3	3	3
DDM	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF
DDY	5	5	40	5	10	5	5	5	10	5	5
FID	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO
FDD	-5	-5	28	-5	140	-5	-5	-5	140	-5	-5
F-TO	0	0	5	0	1	0	0	0	1	0	5
FCM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
FDT	-20	-20	-2	-20	-20	-20	-20	-20	-20	-20	-20
FDH	30	30	3	30	30	30	30	30	30	30	30
FT1	5	5	30	30	0	30	180	180	0	5	5
FT2	10	10	4	10	5	10	10	10	5	10	10
FT3	1	1	1	1	1	1	1	1	1	1	1
ATM	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
ALA	0	0	0	0	0	0	0	0	0	0	0
AHA	0	0	0	0	0	0	0	0	0	0	0
ALR	0	0	0	0	0	0	0	0	0	0	0
AHR	0	0	0	0	0	0	0	0	0	0	0
ATI	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1
ATD	60	60	60	60	60	60	60	60	60	60	60
ADO	5	5	5	5	5	5	5	5	5	5	5
AHM	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
AHT	0	0	0	0	0	0	0	0	0	0	0
ACC	0	0	0	0	0	0	0	0	0	0	0
IISM	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
IISL	-20	-20	-15	-20	20	-20	-20	-20	20	-20	-20
IISH	10	10	10	10	45	10	10	10	45	10	10
IISP	-14	-14	-10	-19	20	-16	-15	-17	23	-16	-16
IIHY	18	18	8	18	18	18	18	18	18	18	18
IIFC	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
HDS	0	0	0	0	0	0	0	0	0	0	0
IIDF	6	6	6	6	8	6	6	6	6	6	6
SB	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
DS	YES	YES	NO	YES	NO	YES	YES	YES	NO	YES	YES
DSM	STP	STP	NON	STP	NON	STP	STP	STP	NON	STP	STP
DI2	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
STT	0	0	0	0	0	0	0	0	0	0	0
EDT	0	0	0	0	0	0	0	0	0	0	0
LSM	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN
OA1	LGT	LGT	2CU	LGT	2CU	LGT	LGT	LGT	LGT	LGT	LGT
OA2	0-1	0-1	2EU	0-1	0	0-1	0-1	0-1	2CU	0-1	0-1
CD	0	0	a	0	0	0	0	0	0	0	0
INP	SN4	SN4	SN4	SN4	SN4	SN4	SN4	SN4	SN4	SN4	SN4
OS1	0	0	0	0	0	0	0	0	0	0	0
T2	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
OS2	0	0	0	0	0	0	0	0	0	0	0
T3	NON	NON	NON	NON	DSP	NON	NON	NON	DSP	NON	NON
OS3	0	0	0	0	5	0	0	0	5	0	0
TLD	0	0	5	5	5	5	5	5	0	5	5
TDS	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1
AVG	0	0	0	0	0	0	0	0	0	0	0
SIM	0	0	0	0	3	0	0	0	3	0	0
ADR	1	1	3	1	1	1	1	1	1	1	1

LAE Controller Settings for AR2-28 cont.

	ST*1R-1S	ST*1R-1G	ST*1F-1S	ST*1F-1G	ST*2R-2S	ST*2R-2G	ST*2F-2S	ST*2F-2G
SCL	F	F	F	F	F	F	F	F
SPL	25	25	-20	-20	25	25	-20	-20
SPH	45	45	13	13	45	45	10	10
SP	35	34	0	-4	35	35	0	-5
CH	REF	REF	REF	REF	REF	REF	REF	REF
HYS	5	8	12	3	7	7	13	13
CRT	3	3	3	3	3	3	3	3
CT1	9	9	6	6	9	9	6	6
CT2	21	21	10	10	21	21	10	10
CSD	1	1	3	3	1	1	3	3
DFM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
DFT	6	6	6	6	6	6	6	6
DH1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
DH2	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
DH3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
DH4	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
DH5	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DH6	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DLI	45	45	60	60	45	45	60	60
DTO	30	30	30	30	30	30	30	30
DTY	OFF	OFF	ELE	ELE	OFF	OFF	ELE	ELE
DPD	0	0	0	0	0	0	0	0
DRN	3	3	6	6	3	3	6	6
DDM	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF
DDY	10	10	5	5	10	10	5	5
FID	YES	YES	NO	NO	YES	YES	NO	NO
FDD	-50	-50	5	5	90	90	5	5
FTO	0	0	10	10	0	0	10	10
FCM	TIM	TIM	TIM	NON	NON	NON	TIM	TIM
FDT	-20	-20	0	30	0	0	30	30
FDH	30	30	30	30	30	30	5	5
FT1	60	60	5	5	30	30	15	15
FT2	5	5	15	15	5	5	10	10
FT3	2	2	1	1	0	0	1	1
ATM	NON	NON	NON	NON	NON	NON	NON	NON
ALA	0	0	0	0	0	0	0	32
AHA	0	0	0	0	0	0	0	32
ALR	0	0	0	0	0	0	0	0
AHR	0	0	0	0	0	0	0	0
AT1	T1	T1	T1	T1	T1	T1	T1	T1
ATD	60	60	60	60	60	60	60	60
ADO	5	5	5	5	5	5	5	5
AHM	NON	NON	NON	NON	NON	NON	NON	NON
AHT	0	0	0	0	0	0	0	0
ACC	0	0	0	0	0	0	0	0
IISM	NON	NON	NON	NON	NON	NON	NON	NON
IISL	25	25	-20	-20	25	25	-20	-20
IISH	45	45	13	13	45	45	10	10
IISP	35	34	12	-4	35	35	13	-5
IIHY	5	8	12	5	7	7	7	13
IIFC	TIM	TIM	TIM	NON	NON	NON	TIM	TIM
IIDF	6	6	6	6	6	6	6	6
SB	YES	YES	YES	YES	YES	YES	YES	YES
DS	YES	YES	YES	YES	YES	YES	YES	YES
DSM	STP	STP	STP	STP	STP	STP	STP	STP
DI2	NON	NON	NON	NON	NON	NON	NON	NON
STT	0	0	0	0	0	0	0	0
EDT	0	0	0	0	0	0	0	0
LSM	DOR	MAN	DOR	MAN	DOR	MAN	DOR	MAN
OA1	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT
OA2	NON	NON	2CU	2CU	NON	NON	2CU	0-1
CD	0	0	0	0	0	0	0	1
INP	SN4	SN4	SN4	SN4	SN4	SN4	SN4	SN4
OS1	0	0	0	0	0	0	0	0
T2	YES	YES	YES	YES	YES	YES	YES	YES
OS2	0	0	0	0	0	0	0	0
T3	NON	NON	NON	NON	NON	NON	NON	NON
OS3	0	0	0	0	0	0	2EU	2EU
TLD	5	5	5	5	5	5	5	5
TDS	T1	T1	T1	T1	T1	T1	T1	T1
AVG	0	0	0	0	0	0	0	0
SIM	3	3	3	3	3	3	3	3
ADR	1	1	1	1	1	1	1	1

Per our design or control version, highlighted Parameters may or may not be displayed.

LAE Controller Settings for AR2-28 cont.

Parameter	T-12FG	T-23F	T-23FG	T-43F	T-49F	T-49FG	T-72F	T-23F-2-MC
SCL	F	F	F	F	F	F	F	F
SPL	-20	-20	-20	-20	-20	-20	-20	-10
SPH	10	0	10	20	10	10	10	0
SP	-14	-12	-14	-10	-19	-16	-17	-9
CH	REF	REF	REF	REF	REF	REF	REF	REF
HYS	18	10	18	16	18	18	18	10
CRT	3	3	6	3	3	3	3	3
CT1	10	6	10	10	10	10	10	6
CT2	20	20	20	20	20	20	20	10
CSD	1	3	1	1	1	1	1	3
DFM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	RTC
DFT	6	6	6	8	6	6	6	5
DH1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5
DH2	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11
DH3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14
DH4	22.0	22.0	22.0	22.0	22.0	22.0	22.0	17
DH5	NONE	NONE	NONE	NONE	NONE	NONE	NONE	20
DH6	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DLI	60	65	50	60	60	60	60	65
DTO	30	30	30	30	30	30	30	30
DTY	ELE	ELE	ELE	ELE	ELE	ELE	ELE	ELE
DPD	30	30	30	30	30	30	30	ELE
DRN	3	3	3	4	3	3	3	3
DDM	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF
DDY	5	5	5	5	5	5	5	5
FID	NO	NO	NO	NO	NO	NO	NO	NO
FDD	-5	-5	-5	-5	-5	-5	-5	-5
FTO	10	10	0	0	0	0	0	10
FCM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
FDT	-20	0	-20	-20	-20	-20	-20	0
FDH	30	30	30	30	30	30	30	30
FT1	5	5	5	5	5	5	5	0
FT2	10	10	10	10	10	10	10	10
FT3	1	0	1	1	1	1	1	0
ATM	NON	NON	NON	NON	NON	NON	NON	NON
ALA	0	0	0	0	0	0	0	0
AHA	0	0	0	0	0	0	0	0
ALR	0	0	0	0	0	0	0	0
AHR	0	0	0	0	0	0	0	0
AT1	T1	T1	T1	T1	T1	T1	T1	T1
ATD	60	60	60	60	60	60	60	60
ADO	5	5	5	5	5	5	5	5
AHM	NON	NON	NON	NON	NON	NON	NON	NON
AHT	0	0	0	240	0	0	0	0
ACC	0	0	0	0	0	0	0	0
IISM	NON	NON	NON	NON	NON	NON	NON	NON
IISL	-20	-20	-20	-20	-20	-20	-20	-10
IISH	10	10	10	10	10	10	10	-9
IISP	-14	-10	-19	-10	-19	-16	-19	10
IIHY	18	10	18	16	18	18	18	10
IIFC	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
HDS	0	0	0	0	0	0	0	0
IIDF	6	6	6	6	6	6	6	6
SB	YES	YES	YES	YES	YES	YES	YES	YES
DS	YES	YES	YES	YES	YES	YES	YES	YES
DSM	STP	STP	STP	STP	STP	STP	STP	STP
DI2	NON	NON	NON	NON	NON	NON	NON	NON
STT	0	0	0	0	0	0	0	0
EDT	0	0	0	0	0	0	0	0
LSM	MAN	DOR	MAN	DOR	DOR	MAN	DOR	DOR
OA1	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT
OA2	0-1	0-1	0-1	2C0	0-1	0-1	0-1	0-1
CD	0	0	0	30	0	0	0	0
INP	SN4	SN4	SN4	SN4	SN4	SN4	SN4	SN4
OS1	0	0	0	0	0	0	0	0
T2	YES	YES	YES	YES	YES	YES	YES	YES
OS2	0	0	0	0	0	0	0	0
T3	NON	NON	NON	NON	NON	NON	NON	NON
OS3	0	0	0	0	0	0	0	0
TLD	5	5	5	3	5	5	5	5
TDS	T1	T1	T1	T1	T1	T1	T1	T1
AVG	0	1	0	0	0	0	0	0
SIM	-	1	1	1	1	0	0	0
ADR	1	1	1	1	1	1	1	1

Per our design or control version, highlighted Parameters may or may not be displayed.

LAE Controller Settings for AR2-28 cont.

	T1F-1S	T2F-2G	T2F-2S	T2FR-2S	STM1F-1S	STM2F-2S
SCL	F	F	F	F	F	F
SPL	-15	-25	-17	-25	-20	-20
SPH	15	10	10	10	13	10
SP	-9	-8	-11	-10	0	0
CH	REF	REF	REF	REF	REF	REF
HYS	12	10	16	16	12	13
CRT	3	3	3	3	3	3
CT1	10	10	10	10	6	6
CT2	10	20	10	20	10	10
CSD	5	3	1	3	3	3
DFM	TIM	TIM	TIM	TIM	TIM	TIM
DFT	6	6	6	6	6	6
DH1	4.0	4.0	4.0	4.0	4.0	4.0
DH2	11.0	11.0	11.0	11.0	11.0	11.0
DH3	15.0	15.0	15.0	15.0	15.0	15.0
DH4	22.0	22.0	22.0	22.0	22.0	22.0
DH5	NONE	NONE	NONE	NONE	NONE	NONE
DH6	NONE	NONE	NONE	NONE	NONE	NONE
DLI	50	45	45	45	60	60
DTO	30	30	30	30	30	30
DTY	ELE	ELE	ELE	ELE	ELE	ELE
DPD	30	30	30	30	0	0
DRN	3	3	3	3	6	6
DDM	DEF	DEF	DEF	DEF	DEF	DEF
DDY	1	5	5	5	5	5
FID	NO	NO	NO	NO	NO	NO
FDD	0	-5	-20	-5	5	5
FTO	0	0	3	0	10	10
FCM	TIM	TIM	TIM	TIM	TIM	TIM
FDT	-20	-20	-20	-20	0	0
FDH	30	30	30	30	30	30
FT1	180	5	180	30	5	5
FT2	5	10	10	10	5	5
FT3	1	1	1	1	15	1
ATM	NON	NON	NON	NON	NON	NON
ALA	0	0	-500	0	0	0
AHA	0	0	1200	0	0	0
ALR	0	0	0	0	0	0
AHR	0	0	0	0	0	0
AT1	T1	T1	T1	T1	T1	T1
ATD	60	60	60	60	60	60
ADO	5	5	5	5	5	5
AHM	NON	NON	NON	NON	NON	NON
AHT	0	0	600	0	0	0
ACC	0	0	0	0	0	0
IISM	NON	NON	NON	NON	NON	NON
IISL	-15	-25	-17	-25	-20	-20
IISH	15	10	10	10	13	10
IISP	-9	-8	-11	-8	0	0
IIHY	12	10	16	16	12	13
IIFC	TIM	TIM	TIM	TIM	TIM	TIM
IIDS	0	0	3	3	0	0
IIDF	0	6	6	6	6	6
SB	YES	YES	YES	YES	YES	YES
OS	YES	YES	YES	YES	YES	YES
OSM	STP	STP	STP	NON	STP	STP
DI2	NON	NON	NON	NON	NON	NON
STT	0	0	0	0	0	0
EDT	0	0	0	0	0	0
LSM	DOR	MAN	DOR	MAN	DOR	DOR
OA1	LGT	LGT	LGT	LGT	LGT	LGT
OA2	0-1	0-1	0-1	0-1	2CU	2CU
CD	30	30	30	30	0	0
INP	SN4	SN4	SN4	SN4	SN4	SN4
OS1	0	0	0	0	0	0
T2	YES	YES	YES	YES	YES	YES
OS2	0	0	0	0	0	0
T3	NON	NON	NON	NON	NON	NON
OS3	0	0	0	DSP	0	0
TLD	5	5	5	5	5	5
TDS	T1	T1	T1	T1	T1	T1
AVG	0	0	0	0	0	0
SIM	3	0	3	0	3	3
ADR	1	1	1	1	1	1

Per our design or control version, highlighted Parameters may or may not be displayed.

LAE Controller Settings for BIT25

	GDM-72	TAC-14GS	TAC-36	TAC-48	STM1R-1S	STM2R-2S
SPL	15	20	20	20	25	25
SPH	45	38	38	32	45	45
SP	24	26	31	28	33	33
HYS	18	18	3	18	7	7
CRT	3	3	3	3	3	3
CT1	10	10	10	10	9	9
CT2	10	5	5	5	21	21
CSD	1	0	0	0	1	1
DFM	TIM	TIM	TIM	TIM	TIM	TIM
DFT	6	6	6	3	6	6
DFB	NO	YES	YES	YES	NO	NO
DLI	45	45	45	45	45	45
DTO	30	30	30	30	30	30
DTY	OFF	OFF	OFF	OFF	OFF	OFF
DPD	0	0	0	0	0	0
DRN	3	0	0	0	3	3
DDM	DEF	DEF	DEF	DEF	DEF	DEF
DDY	10	0	0	0	10	10
FID	YES	YES	YES	YES	YES	YES
FDD	23	23	23	23	90	90
FTO	0	0	0	0	0	0
FCM	TIM	NON	NON	NON	TIM	TIM
FDT	-3	-3	-3	-3	0	0
FDH	5	5	5	5	5	5
FT1	180	30	30	30	30	30
FT2	5	3	3	3	5	5
FT3	1	0	0	0	2	2
ATM	NON	NON	NON	NON	NON	NON
ALA	-58	-58	-58	-58	-58	-58
AHA	230	230	230	230	230	230
ALR	0	0	0	0	0	0
AHR	0	0	0	0	0	0
AT1	T1	T1	T1	T1	T1	T1
ATD	60	60	60	60	60	60
ADO	5	5	5	5	5	5
AHM	NON	NON	NON	NON	NON	NON
AHT	140	140	140	140	140	140
ACC	0	0	0	0	0	0
IISM	NON	NON	NON	NON	NON	NON
IISL	15	20	20	20	-13	-13
IISH	45	38	38	38	77	77
IISP	24	31	31	28	-4	-4
IIHY	17	18	18	18	7	7
IIFC	TIM	NON	NON	NON	NON	NON
IIDF	6	6	6	6	6	6
SB	YES	YES	YES	YES	YES	YES
DI1	NON	NON	NON	NON	DOR	DOR
DI2	NON	NON	NON	NON	NON	NON
T3	DSP	DSP	DSP	DSP	DSP	DSP
OS3	0	0	0	0	0	0
PSL	23	23	23	23	23	23
PSR	18	18	18	18	18	18
POF	NO	YES	YES	YES	YES	YES
LSM	MAN	MAN	MAN	MAN	DTO	DTO
OA1	LGT	FAN	FAN	FAN	FAN	FAN
OA2	FAN	LGT	LGT	LGT	LGT	LGT
OS1	0	0	0	0	0	0
T2	YES	YES	YES	YES	YES	YES
OS2	0	0	0	0	0	0
TLD	5	5	5	5	5	5
SCL	F	F	F	F	F	F
SIM	3	3	3	3	3	3
ADR	1	1	1	1	1	1

Per our design or control version, highlighted Parameters may or may not be displayed.

LAE Controller Settings Spec Series for BIT25 Heating

	ST**1H-1S	ST*2H-2S
SPL	140	140
SPH	180	180
SP	180	180
CM	PID	PID
HYS	1	1
TON	0	0
TOF	0	0
PB	9	18
IT	300	300
DT	20	90
AR	90	90
CT	10	10
PF	OFF	OFF
HSD	20	20
ATM	NON	NON
ALA	14	14
AHA	0	0
ALR	0	0
AHR	0	0
ATD	0	0
ADO	5	5
SB	YES	YES
DI1	NON	NON
DI2	NON	NON
PSL	0	0
PSR	0	0
POF	NO	NO
DSM	STP	STP
LSM	NON	NON
OA1	0-1	0-1
OA2	0-1	0-1
OS1	0	0
TLD	5	5
SCL	F	F
SIM	0	3
ADR	1	1

LAE Controller Settings for BR1-28

	GDM-10F	GDM-12F	GDM-19T-F	GDM-23F	GDM-26	GDM-26F	GDM-35F	GDM-43F	GDM-49	GDM-48F	GDM-72F
MDL	-	-	-	-	-	-	-	-	-	-	-
SPL	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
SPH	10	10	10	10	45	10	10	10	45	10	10
SP	-14	-14	-19	-14	20	-14	-15	-17	23	-16	-16
CH	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
HYO	18	18	18	18	18	18	18	18	18	18	18
HY1	0	0	0	0	0	0	0	0	0	0	0
CRT	3	3	6	6	0	3	3	3	0	3	3
CT1	10	10	20	10	10	10	10	10	10	10	10
CT2	20	20	20	20	30	20	20	20	30	20	20
HRT	0	0	0	0	0	0	0	0	0	0	0
TIL	0	0	0	0	0	0	0	0	0	0	0
HT	10	10	10	10	10	10	10	10	10	10	10
DFM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
DFT	6	6	6	6	8	6	6	6	8	6	6
DFB	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
DH1	4.0	4	4	4	4	4	4	4	4	4	4
DH2	11.0	11	11	11	11	11	11	11	11	11	11
DH3	15.0	15	15	15	15	15	15	15	15	15	15
DH4	22.0	22	22	22	22	22	22	22	22	22	22
DH5	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DH6	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DLI	60	60	50	50	45	50	50	50	45	60	60
DTO	30	30	30	30	20	30	30	30	20	30	30
DTY	ELE	ELE	ELE	ELE	ELE	ELE	ELE	ELE	ELE	ELE	ELE
DSO	ELE	ELE	ELE	ELE	OFF	ELE	ELE	ELE	OFF	ELE	ELE
SOD	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
DPD	30	30	30	30	5	5	5	30	30	30	5
DRN	3	3	3	30	30	30	30	30	30	30	30
DDM	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF
DDY	5	5	5	5	10	5	5	5	10	5	5
FID	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO
FDD	-5	-5	-5	-5	140	-5	-5	-5	140	-5	-5
FTO	0	0	0	0	1	0	0	0	0	0	0
FCM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
FDT	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
FDH	30	30	30	30	30	30	30	30	30	30	30
FT2	5	5	5	5	0	10	180	180	5	5	5
FT3	10	10	10	10	5	10	10	10	10	10	10
FMS	1	1	1	0	1	0	0	0	1	1	1
ATM	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
ALA	0	0	0	0	0	0	0	0	0	0	0
AHA	0	0	0	0	0	0	0	0	0	0	0
ALR	0	0	0	0	0	0	0	0	0	0	0
AHR	0	0	0	0	0	0	0	0	0	0	0
AT1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1
ATD	60	60	60	60	60	60	60	60	60	60	60
IISM	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
IISL	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
IISH	10	10	10	10	45	10	10	10	45	10	10
IISP	-14	-14	-19	-19	20	-16	-15	-17	23	-16	-16
IIH0	18	18	18	18	18	18	18	18	18	18	18
IIH1	0	0	0	0	0	0	0	0	0	0	0
IIHT	10	10	10	10	10	10	10	10	10	10	10
IIDF	6	6	6	6	8	6	6	6	6	6	6
IIFC	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
ECS	0	0	0	0	0	0	0	0	0	0	0
EPT	0	0	0	0	0	0	0	0	0	0	0
SB	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
DSM	STP	STP	STP	STP	NON	STP	STP	STP	NON	STP	STP
DAD	5	5	5	5	5	5	5	5	0	5	5
CSD	1	0	1	1	1	0	1	0	0	1	1
D1O	DOR	DOR	DOR	DOR	NON	DOR	DOR	DOR	NON	DOR	DOR
D1A	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN
D2O	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
D2A	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN	MAN
LSM	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN
LSA	0	0	0	0	0	0	0	0	0	0	0
STT	0.0	0	0	0	0	0	0	0	0	0	0
EDT	0.0	0	0	0	0	0	0	0	0	0	0
OA1	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT
OA2	0-1	0-1	0-1	0-1	2CJ	0-1	0-1	0-1	2CJ	0-1	0-1
OA3	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
2CD	0	0	0	0	0	0	0	0	0	0	0
OSI	0	0	0	0	0	0	0	0	0	0	0
T2	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
OS2	DSP	0	NON	NON	DSP	NON	NON	NON	DSP	NON	NON
T3	0	0	0	0	0	0	0	0	0	0	0
OS3	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
T4	0	0	0	0	0	0	0	0	0	0	0
OS4	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
TLD	5	5	5	5	5	5	5	5	5	5	5
TDS	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1
AVG	0	0	0	0	0	0	0	0	0	0	0
SCL	F	F	F	F	F	F	F	F	F	F	F
SIM	0	0	0	0	3	0	0	0	3	0	0
ADR	1	0	1	0	1	1	1	1	1	1	1
FRS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Per our design or control version, highlited Parameters may or may not be displayed.

41

LAE Controller Settings for BR1-28

	ST*1R-1S	ST*1R-1G	ST*1F-1S	ST*1F-1G	ST*2R-2S	ST*2R-2G	ST*2F-2S	ST*2F-2G					NO
MDL		1		1									
SPL	25	25	-20	-20	25	25	-20	-20					
SPH	45	45	13	13	45	45	10	10					
SP	35	34	13	-4	35	35	0	-5					
CH	REF	REF	REF	REF	REF	REF	REF	REF					
HYO	5	8	12	5	7	7	13	10					
HY1	0	0	0	0	0	0	0	0					
CRT	3	3	3	3	3	3	3	3					
CT1	9	9	6	6	9	9	6	6					
CT2	21	21	10	10	21	21	10	10					
HRT	0	0	0	0	0	0	0	0					
TIL	0	0	0	0	0	0	0	0					
HT	10	10	10	10	10	10	10	10					
DFM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM					
DFT	6	6	6	6	6	6	6	6					
DFB	NO	NO	NO	NO	YES	YES	NO	NO					
DH1	4	4	4	4	4	4	4	0					
DH2	11	11	11	11	11	11	11	0					
DH3	15	15	15	15	15	15	15	0					
DH4	22	22	22	22	22	22	22	0					
DH5	NONE	NONE	NONE	NONE	NONE	NONE	NONE	60					
DH6	NONE	NONE	NONE	NONE	NONE	NONE	NONE	30					
DLI	45	45	60	60	45	45	60	60					
DTO	30	30	30	30	30	30	30	30					
DTY	OFF	OFF	ELE	ELE	OFF	OFF	ELE	ELE					
DSO	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF					
SOD	5	5	5	5	5	5	5	5					
DPD	0	0	0	0	0	0	0	0					
DRN	3	3	6	6	3	3	6	6					
DDM	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF					
DDY	10	10	5	5	10	10	5	5					
FID	YES	YES	NO	NO	YES	YES	NO	NO					
FDD	-50	-50	5	5	90	90	5	5					
FTO	0	0	10	10	0	0	10	10					
FCM	TIM	TIM	TIM	NON	NON	NON	TIM	TIM					
FDT	-20	-20	0	0	0	0	0	0					
FDH	30	30	30	30	30	30	30	30					
FT1	60	60	15	15	30	30	15	15					
FT2	5	5	15	15	0	0	15	15					
FT3	2	2	0	0	0	0	0	0					
FMS	0	0	0	0	6	6	10	10					
ATM	NON	NON	NON	NON	NON	NON	NON	NON					
ALA	0	0	0	0	0	0	0	32					
AHA	0	0	0	0	0	0	0	32					
ALR	0	0	0	0	0	0	0	0					
AHR	0	0	0	0	0	0	0	0					
AT1	T1	T1	T1	T1	T1	T1	T1	T1					
ATD	60	60	60	60	60	60	60	0					
IISM	NON	NON	NON	NON	NON	NON	NON	NON					
IISL	25	25	-20	-20	25	25	-20	-20					
IISH	45	45	13	13	45	45	10	10					
IISP	35	34	-4	-4	35	35	0	-5					
IIH0	5	8	12	5	7	7	13	10					
IIH1	0	0	0	0	0	0	0	0					
IIHT	10	10	10	10	10	10	10	10					
IIDF	6	6	6	6	6	6	6	6					
IIFC	TIM	TIM	TIM	NON	NON	NON	TIM	TIM					
ECS	0	0	0	0	0	0	0	30					
EPT	0	0	0	0	0	0	0	0					
SB	YES	YES	YES	YES	YES	YES	YES	YES					
DSM	STP	STP	STP	STP	STP	STP	STP	STP					
DAD	5	5	5	5	5	5	5	5					
CSD	3	5	3	3	1	1	3	3					
D1O	DOR	DOR	DOR	DOR	DOR	DOR	DOR	NON					
D1A	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN					
D2O	NON	NON	NON	NON	NON	NON	NON	DOR					
D2A	DI1	MAN	DI1	MAN	MAN	MAN	DI1	OPN					
LSM	DI1	OPN	DI1	OPN	OPN	OPN	OPN	MAN					
LSA	OPN	OPN	OPN	OPN	OPN	OPN	OPN	CLS					
STT	0	0	0	0	0	0	0	0					
EDT	0	0	0	0	0	0	0	0					
OA1	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT					
OA2	NON	NON	2CJ	2CJ	NON	NON	2CJ	0-1					
OA3	NON	NON	NON	NON	NON	NON	NON	2CJ					
2CD	0	0	0	0	0	0	0	1					
OSI	0	0	0	0	0	0	0	0					
T2	YES	YES	YES	YES	YES	YES	YES	YES					
OS2	NON	NON	NON	NON	NON	NON	NON	0					
T3	0	0	0	0	1	1	0	DTP					
OS3	NON	NON	NON	NON	NON	NON	NON	0					
T4	0	0	0	0	0	0	0	NON					
OS4	5	5	5	5	5	5	5	DSP					
TLD	5	5	5	5	5	5	5	0					
TDS	T1	T1	T1	T1	T1	T1	T1	T1					
AVG	0	0	0	0	0	0	0	0					
SCL	F	F	F	F	F	F	F	F					
SIM	3	3	3	3	3	3	3	F					
ADR	1	1	1	1	1	1	1	1					
FRS	NO	NO	NO	NO	NO	NO	NO	NO					NO

Per our design or control version, highlighted Parameters may or may not be displayed.

LAE Controller Settings for BR1-28

	T-12FG	T-23F	T-23FG	T-43F	T-49F	T-49FG	T-72F	T-23F-2-MC
MDL	-20	-20	-20	-20	-20	-20	-20	-10
SPL	10	0	10	20	10	10	10	0
SPH	-14	-12	-14	-10	-19	-16	-17	-9
SP	REF	REF	REF	REF	REF	REF	REF	REF
CH	18	10	18	16	18	18	18	10
HYO	0	0	0	0	0	0	0	0
HY1	3	3	6	3	3	3	3	3
CRT	10	6	20	10	10	10	10	6
CT1	20	10	20	20	10	20	20	10
CT2	20	10	20	20	20	20	20	10
HRT	0	0	0	0	0	0	0	0
TIL	0	0	0	0	0	0	0	0
HT	10	10	10	10	10	10	10	10
DFM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	RTC
DFT	6	6	6	8	6	6	6	5
DFB	NO	YES	NO	NO	NO	NO	NO	NO
DH1	4	4	4	4	4	4	4	5
DH2	11	11	11	11	11	11	11	11
DH3	15	15	15	15	15	15	15	14
DH4	22	22	22	22	22	22	22	17
DH5	NONE	NONE	NONE	NONE	NONE	NONE	NONE	20
DH6	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DLI	60	65	50	60	60	60	60	65
DTO	30	30	30	30	30	30	30	30
DTY	ELE	ELE	ELE	ELE	ELE	ELE	ELE	ELE
DSO	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOD	5	5	5	5	5	5	5	5
DPD	30	30	30	30	30	30	30	0
DRN	3	3	3	4	3	3	3	3
DDM	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF
DDY	5	5	5	5	5	5	5	5
FID	NO	NO	NO	NO	NO	NO	NO	NO
FDD	-5	-5	-5	-5	-5	-5	-5	-5
FTO	0	10	0	0	0	0	0	10
FCM	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
FDT	-20	-20	-20	-20	-20	-20	-20	30
FDH	30	30	30	30	30	30	30	0
FT1	5	10	10	10	5	10	0	10
FT2	1	0	0	0	1	0	0	0
FT3	1	0	1	1	1	1	0	0
FMS	NON	NON	NON	NON	NON	NON	NON	NON
ATM	0	0	0	0	0	0	0	0
ALA	0	0	0	0	0	0	0	0
AHA	0	0	0	0	0	0	0	0
ALR	0	0	0	0	0	0	0	0
AHR	0	0	0	0	0	0	0	0
AT1	T1	T1	T1	T1	T1	T1	T1	T1
ATD	60	60	60	60	60	60	30	60
IISM	NON	NON	NON	NON	NON	NON	NON	NON
IISL	-20	-20	-20	-20	-20	-20	-20	-10
IISH	10	10	10	20	10	10	10	10
IISP	-14	-10	-19	-10	-19	-16	-19	-9
IIHO	18	10	18	16	18	18	18	10
IIH1	10	0	0	0	0	0	0	0
IIHT	10	6	10	0	10	10	10	10
IIDF	6	6	6	6	6	6	6	6
IIFC	TIM	TIM	TIM	TIM	TIM	TIM	TIM	TIM
ECS	0	0	0	0	0	0	0	0
EPT	0	0	0	0	0	0	0	0
SB	YES	YES	YES	YES	YES	YES	YES	YES
DSM	STP	STP	STP	STP	STP	STP	STP	STP
DAD	5	5	5	5	5	5	5	5
CSD	1	3	1	1	1	1	1	1
D1O	DOR	DOR	DOR	DOR	DOR	DOR	DOR	DOR
D1A	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN
D2O	NON	NON	NON	NON	NON	NON	NON	NON
D2A	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN
LSM	MAN	DI1	MAN	DI1	DI1	MAN	DI1	DI1
LSA	OPN	OPN	OPN	OPN	OPN	OPN	OPN	OPN
STT	0	0	0	0	0	0	0	0
EDT	0	0	0	0	0	0	0	0
OA1	LGT	LGT	LGT	LGT	LGT	LGT	LGT	LGT
OA2	0-1	0-1	0-1	2CU	0-1	0-1	0-1	0-1
OA3	NON	NON	NON	NON	NON	NON	NON	NON
2CD	0	0	0	30	0	0	0	0
OSI	0	0	0	0	0	0	0	0
T2	YES	YES	YES	YES	YES	YES	YES	YES
OS2	0	0	0	0	0	0	0	0
T3	NON	NON	NON	NON	NON	NON	NON	NON
OS3	0	0	0	0	0	0	0	0
T4	NON	NON	NON	NON	NON	NON	NON	NON
OS4	0	0	0	0	0	0	0	0
TDS	5	5	5	5	5	5	5	5
TLD	T1	T1	T1	T1	T1	T1	T1	T1
AVG	0	0	0	0	0	0	0	0
SCL	F	F	F	F	F	F	F	F
SIM	0	1	0	0	0	0	0	0
ADR	1	1	1	1	1	1	1	1
FRS	NO	NO	NO	NO	NO	NO	NO	NO

Per our design or control version, highlighted Parameters may or may not be displayed.

LAE Controller Settings for BR1-28

Parameter	T1F-15	T2F-25	T2FRR-25	STM1F-15	STM2F-25
MDL	1	1	1	1	1
SPL	-15	-17	-25	-20	-20
SPH	15	10	10	13	10
SP	-9	-11	-10		
CH	REF	REF	REF	REF	REF
HY0	12	16	16	12	13
HY1	0	0	0	0	0
CRT	3	3	3	3	3
CT1	10	10	10	6	6
CT2	10	10	20	10	10
HRT	0	0	0	0	0
TIL	0	0	0	0	0
HT	10	10	10	10	10
DFM	TIM	TIM	TIM	TIM	TIM
DFT	6	6	6	6	6
DFB	NO	YES	NO	NO	NO
DH1	4	0	4	4	4
DH2	11	11	11	11	11
DH3	15	15	15	15	15
DH4	22	22	22	22	22
DH5	NONE	0	NONE	NONE	NONE
DH6	NONE	0	NONE	NONE	NONE
DLI	50	45	45	60	60
DTO	30	30	30	30	30
DTY	ELE	ELE	ELE	ELE	ELE
DSO	ELE	ELE	ELE	ELE	ELE
SOD	OFF	OFF	OFF	OFF	OFF
DPD	5	5	30	5	5
DRN	30	30	3	0	0
DDM	3	3	DEF	6	6
DDY	DEF	DEF	5	DEF	DEF
FID	1	5	NO	5	5
FDD	NO	NO	-5	NO	NO
FTO	0	-5	0	5	5
FCM	0	3	TIM	10	10
FDT	TIM	TIM	-20	TIM	TIM
FDH	-20	-20	30	0	0
FT1	30	30	10	30	30
FT2	180	180	5	5	5
FT3	5	5	1	15	15
FMS	1	1	0	1	1
ATM	0	0	NON	0	0
ALA	NON	NON	0	NON	NON
AHA	0	-500	0	0	0
ALR	0	1200	0	0	0
AHR	0	0	T1	0	0
AT1	T1	T1	60	T1	T1
ATD	60	60	NON	60	60
IISM	NON	NON	-25	NON	NON
IISL	-15	-17	10	-20	-20
IISH	15	10	-8	13	10
IISP	-9	-11	16	0	0
IIH0	12	16	10	12	13
IIH1	0	0	6	0	0
IIHT	10	10	TIM	10	10
IIDF	0	6	0	6	6
ECS	TIM	TIM	YES	TIM	TIM
EPT	0	0	NON	0	0
SB	YES	YES	5	YES	YES
DSM	STP	STP	3	STP	STP
DAD	5	5	NON	5	5
CSD	5	1	OPN	3	3
D1O	DOR	DOR	NON	DOR	DOR
D1A	OPN	OPN	OPN	OPN	OPN
D2O	NON	NON	MAN	NON	NON
D2A	OPN	OPN	OPN	OPN	OPN
LSM	DI1	DI1	0	DI1	DI1
LSA	OPN	OPN	0	OPN	OPN
STT	0	0	LGT	0	0
EDT	0	0	0-1	0	0
OA1	LGT	LGT	NON	LGT	LGT
OA2	0-1	0-1	0	2CJ	2CJ
OA3	NON	NON	0	NON	NON
2CD	0	30	YES	0	0
OSI	0	0	DSP	0	0
T2	YES	YES	0	YES	YES
OS2	NON	NON	NON	NON	NON
T3	0	0	0	0	0
OS3	NON	NON	NON	NON	NON
T4	0	0	5	0	0
OS4	NON	NON	T1	NON	NON
TLD	5	5	0	5	5
TDS	T1	T1	F	T1	T1
AVG	0	0	F	0	0
SCL	F	F	3	F	F
SIM	0	0	1	3	3
ADR	1	1	NO	1	1
FRS	NO	NO		NO	NO

Per our design or control version, highlited Parameters may or may not be displayed.

LAE Probe Temperature to Resistance Chart

Temperaure		Resistance
C	F	K-ohm
-40	-40	195.65
-35	-31	148.17
-30	-22	113.35
-25	-13	87.56
-20	-4	68.24
-15	5	53.65
-10	14	42.51
-5	23	33.89
0	32	27.22
5	41	22.02
10	50	17.93
15	59	14.67
20	68	12.08
25	77	10.00
30	86	8.32
35	95	6.95
40	104	5.83
45	113	4.92
50	122	4.16
55	131	3.54
60	140	3.01
65	149	2.59
70	158	2.23
75	167	1.93
80	176	1.67
85	185	1.45
90	194	1.27
95	203	1.15
100	212	0.97
105	221	0.86
110	230	0.76
115	239	0.67
120	248	0.60
125	257	0.53

LAE CURRENT PROBES

GRAY- Thermostat
BLUE - Defrost
YELLOW - Display

LAE PRIOR PROBES

LAE ELECTRONIC CONTROL CHANGE FROM MODEL AR1 AND MODEL AR2 TO MODEL BR1.

REASON FOR ADVISMENT: LAE Electronic Control model update will change the display, connecting cable, module, wiring and programming*.

*Control is pre-programmed from the factory.
New control is Universal voltage

NOTE: Below instructions do not pertain to cabinet models with display cable foamed in the wall.

AR2 DISPLAY, CABLE AND MODULE CONNECTIONS

BR1 DISPLAY, CABLE AND MODULE CONNECTIONS
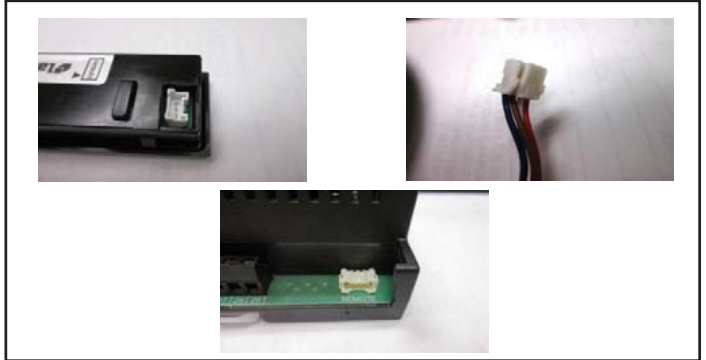
AR2 Terminals	BR1 Terminals
1	1
2	2
6	4
7	5 OR 6
8	7
9	8 OR 9
10 OR 11	10 OR 11
14-19	13-18
26	23
27	24
28	20
29	21
30	22
31	25
32	27
33	26

LAE
AR2-28C1Q5U

LAE
BR1-28C0Q5W
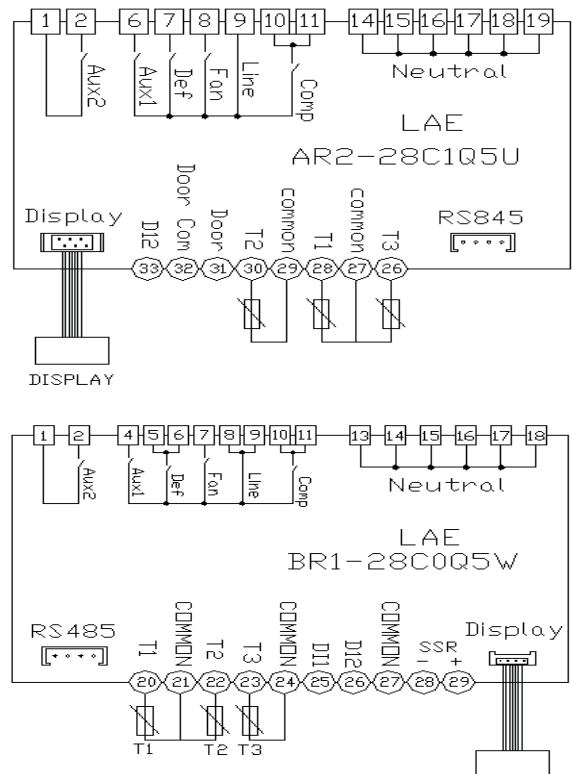
DANFOSS ELECTRONIC TEMPERATURE CONTROL GENERAL SEQUENCE OF OPERATION

control probe = return air
defrost probe = coil

DANFOSS ELECTRONIC CONTROL <u>REFRIGERATOR WITH DIGITAL DISPLAY</u> GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
   a. Interior lights will illuminate on glass door models only. If the lights do not come on verify the light switch is in the "ON" position. Solid door cabinets may or may not have lights that may be controlled by the door switch.
   b. Cabinet will start in a Defrost Cycle. The duration for defrost will be a minimum of 4 minutes and a maximum of 60 minutes.
   c. The Danfoss Control Display will illuminate showing "deF".

2. The Danfoss control is preprogrammed to initiate defrost every 4 hours of compressor run time. If deemed necessary by the Danfoss control additional defrost may occur at unspecified times.
   a. At this time the, evaporator fans will continue to run but the compressor will turn off. Some cabinets may also change the rotation of the reversing condenser fan motor.
   b. Once a preprogrammed temperature of the evaporator coil is reached, the Defrost Cycle will terminate and the 2 minute delay will start.
   c. After the 2 minute delay the compressor will restart.
   d. The Danfoss Control Display will continue to show "deF" for an additional 30 minutes.

3. The Danfoss control will cycle the compressor and the evaporator fan(s) on and off determined by the Set-Point and Differential temperatures.
   a. The Set-Point is the <u>adjustable</u> preprogrammed temperature which shuts off the compressor and evaporator fan(s). This is not the programmed cabinet temperature.
   b. The Differential is the <u>non adjustable</u> preprogrammed temperature that is added to the Set-Point temperature that will start the compressor and evaporator fan(s).
   c. The Danfoss control is designed to read and display a cabinet temperature **not a product temperature**. This cabinet temperature may reflect the refrigeration cycle of the Set-Point and its Differential. The most accurate temperature on a cabinets operation is to verify the product temperature.

Example: If the Set-Point is 34°F/1.1°C and the Differential is 6°F/3.3°C
(Set-Point) 34°F + 6 (Differential) = 40°F

Or

(Set-Point) 1.1°C + 3.3 (Differential) = 4.4°C
The compressor will cycle off 34°F/1.1°C and back on at 40°F/4.4°C

DANFOSS ELECTRONIC CONTROL <u>FREEZER</u> WITH DIGITAL DISPLAY
GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
   a. Interior lights will illuminate on glass door models only. If the lights do not come on verify the light switch is in the "ON" position. Solid door cabinets may or may not have lights that may be controlled by the door switch.
   b. Cabinet will start in a Defrost Cycle. The duration for defrost will be a minimum of 4 minutes and a maximum of 30 minutes.
   c. The Danfoss Control Display will illuminate showing "deF".

2. The Danfoss control is preprogrammed to initiate defrost every 4 hours of compressor run time.
   If deemed necessary by the Danfoss control additional defrost may occur at unspecified times.
   a. At this time, the compressor and evaporator fan(s) will turn off and the evaporator coil heater and drain tube heater will be energized. Some cabinets may also change the rotation of the reversing condenser fan motor.
   b. Once a preprogrammed temperature of the evaporator coil is reached, or 30 minutes, the Defrost Cycle will terminate and the 2 minute delay will occur.
   c. After the 2 minute delay the compressor will restart.
   d. The evaporator fans will remain off for an additional 3 minutes.
   e. The Danfoss Control Display will continue to show "deF" for an additional 30 minutes.

3. The Danfoss control will cycle the compressor and the evaporator fan(s) on and off determined by the Set-Point and Differential Temperatures.
   a. The Set-Point is the <u>adjustable</u> preprogrammed temperature which shuts off the compressor and evaporator fan(s). This is not the programmed cabinet temperature.
   b. The Differential is the <u>non adjustable</u> preprogrammed temperature that is added to the Set-Point temperature that will start the compressor and evaporator fan(s).
   c. The Danfoss control is designed to read and display a cabinet temperature **not a product temperature**. This cabinet temperature may reflect the refrigeration cycle of the Set-Point and it's Differential. The most accurate temperature on a cabinets operation is to verify the product temperature.

Example: If the Set-Point is -6°F/1°C and the Differential is 6°F/4°C
(Set-Point) -6°F + 6 (Differential) = 0°F

Or

(Set-Point) -21.4°C + 3.3 (Differential) = -18.1°C
The compressor will cycle off -6°F/-21.4°C and back on at 0°F/-18.1°C

DANFOSS ELECTRONIC CONTROL <u>REFRIGERATOR WITHOUT DIGITAL</u> DISPLAY
GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
>   a. Interior lights will illuminate on glass door models only. If the lights do not come on verify the light switch is in the "ON" position. Solid door cabinets may or may not have lights that may be controlled by the door switch.
>   b. Cabinet will start in a Defrost Cycle. The duration for defrost will be a minimum of 4 minutes and a maximum of 60 minutes.

2. The Danfoss control is preprogrammed to initiate defrost every 4 hours of compressor run time. If deemed necessary by the Danfoss control additional defrost may occur at unspecified times.
>   a. At this time, the evaporator fans will continue to run but the compressor will turn off. Some cabinets may also change the rotation of the reversing condenser fan motor.
>   b. Once a preprogrammed temperature of the evaporator coil is reached, the Defrost Cycle will terminate and the 2 minute delay will start.
>   c. After the 2 minute delay the compressor will restart.

3. The Danfoss control will cycle the compressor and the evaporator fan(s) on and off together.
>   a. The temperature control is sensing the discharge air temperature.
>   b. The temperature control should be set on the #4 or #5.
>   c. The warmest setting is #1, the coldest is #9, and #0 is the off position.
>   d. The thermometer is designed to read and display a cabinet temperature **not a product temperature**. This cabinet temperature may reflect the refrigeration cycle determined by the temperature control. The most accurate temperature on a cabinets operation is to verify the product temperature.

DANFOSS ELECTRONIC CONTROL <u>FREEZER / GC WITHOUT DIGITAL DISPLAY</u>
GENERAL SEQUENCE OF OPERATION

1. Cabinet is plugged in.
>   a. Interior lights will illuminate on glass door models only. If the lights do not come on verify the light switch is in the "ON" position. Solid door cabinets may or may not have lights that may be controlled by the door switch.
>   b. Cabinet will start in a Defrost Cycle. The duration for defrost will be a minimum of 4 minutes and a maximum of 30 minutes.

2. The Danfoss control is preprogrammed to initiate defrost every 4 hours of compressor run time. If deemed necessary by the Danfoss control additional defrost may occur at unspecified times.
>   a. At this time, the compressor and evaporator fan(s) will turn off and the evaporator coil heater and drain tube heater will be energized. Some cabinets may also change the rotation of the reversing condenser fan motor.
>   b. Once a preprogrammed temperature of the evaporator coil is reached, or 30 minutes, the Defrost Cycle will terminate and the 2 minute delay will occur.
>   c. After the 2 minute delay the compressor will restart.
>   d. The evaporator fans will remain off for an additional 3 minutes.

3. The Danfoss control will cycle the compressor and the evaporator fan(s) on and off together.
>   a. The temperature control is sensing the discharge air temperature.
>   b. The temperature control should be set on the #4 or #5.
>   c. The warmest setting is #1, the coldest is #9, and #0 is the off position.
>   d. The thermometer is designed to read and display a cabinet temperature **not a product temperature**. This cabinet temperature may reflect the refrigeration cycle determined by the temperature control. The most accurate temperature on a cabinets operation is to verify the product temperature.

USING THE DANFOSS ELECTRONIC CONTROL

ELECTRONIC TEMPERATURE CONTROLS - DANFOSS:

USING A DANFOSS ELECTRONIC CONTROL WITH DIGITAL DISPLAY:

STEP 1 - Press both buttons to power on the temperature control. See Figure 1.

STEP 2 - Press both buttons and hold for 6 seconds to power off the temperature control. See Figure 2.

STEP 3 - Press bottom button and hold for 6 seconds to defrost. See Figure 3.

STEP 4 - Press and release top or bottom button for 2 seconds to display cut out temperature.

Raise or lower the set point, use the top or bottom to go up or down. Release the button and temperature will go back. See Figure 4.

NOTE: Cut-in temperature is the set point plus the fix differential. See Figure 4.

STEP 6 - Press upper button and hold for 5 seconds to change temperature settings from °F to °C. See Figure 5.

Turning On Power

1

Turning Off Power

2

Defrost

3

Cut Out Temperature

OR

4

Celsius Temperature

5

Alarms	Alarm type	Code shown	Value
	Sensor 1 defect	E1	-
	Sensor 2 defect	E2	-
	Compressor fault	E4	-
	Heater fault	E5	-
	Pot fault	E6	-
	Supply voltage low	ULo	-
	Supply voltage high	UHi	-
	High temperature alarm	Hi	Temperature
	Low temperature alarm	Lo	Temperature
	Communication error	E13	-
	Communication errorE13		-

Danfoss Probe Temperature to Resistance Chart

Temperaure		Resistance
C	F	K-ohm
-55	-67	487.89
-50	-58	338.25
-45	-49	237.69
-40	-40	169.16
-35	-31	121.80
-30	-22	88.77
-25	-13	65.34
-20	-4	48.61
-15	5	36.50
-10	14	27.68
-5	23	21.17
0	32	16.33
5	41	12.70
10	50	9.95
15	59	7.86
20	68	6.25
25	77	5.00
30	86	4.03
35	95	3.27
40	104	2.67

DANFOSS PROBES

→ **DEFROST**

THERMOSTAT

NOTES

NOTES

NOTES

NOTES

NOTES