EMERSON

Application Engineering

COPELAND

BULLETIN

AE8-1376 R8 **May 2023**

Electronic Unit Controller

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Revision Tracking R6

Pg. 1 – 1st. Page Picture changed.
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Pg. 12 – LMO and LPA parameter added to Table 4.
Pg. 22-23 – Causes added on Troubleshooting Guide
Pg. 22 – Figure 14 (Measuring Suction Pressure Transducer Voltage) modified.
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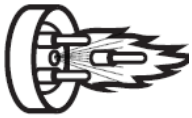
IMPORTANT SAFETY INFORMATION

Those involved in the design, manufacture, and installation of a system, system purchasers, and service personnel may need to be aware of hazards and precautions discussed in this section and throughout this document. OEMs integrating the compressor into a system should ensure that their own employees follow this bulletin and provide any necessary safety information to those involved in manufacturing, installing, purchasing, and servicing the system.

Responsibilities, Qualifications and Training

- OEMs are responsible for system design, selection of appropriate components, integration of this component into the system, and testing the system. OEMs must ensure that staff involved in these activities are competent and qualified.
- OEMs are also responsible for ensuring that all product, service, and cautionary labels remain visible or are appropriately added in a conspicuous location on the system to ensure they are clear to any personnel involved in the installation, commissioning, troubleshooting or maintenance of this equipment.
- Only qualified and authorized HVAC or refrigeration personnel are permitted to install, commission, troubleshoot and maintain this equipment. Electrical connections must be made by qualified electrical personnel.
- Observe all applicable standards and codes for installing, servicing, and maintaining electrical and refrigeration equipment.

Terminal Venting and Other Pressurized System Hazards



If a compressor's electrical terminal pin loses its seal, pressurized oil, refrigerant, and debris may spray out. This is called "terminal venting".

The ejected debris, oil, and refrigerant can injure people or damage property. The oil and refrigerant spray can be ignited by electrical arcing at the terminal or any nearby ignition source, producing flames that may project a significant distance from the compressor. The distance depends on the pressure and the amount of refrigerant and oil mixture in the system. The flames can cause serious or fatal burns and ignite nearby materials.

Each compressor has a terminal cover or molded plug that covers electrical connections. The cover or plug helps to protect against electric shock and the risks of terminal venting. If terminal venting occurs, the cover or plug helps contain the spray of refrigerant and oil and reduces the risk of ignition. If ignition occurs, the plug or cover helps contain the flames. However, neither the terminal cover nor the molded plug can completely eliminate the risk of venting, ignition, or electric shock.

See www.*Climate.Emerson.com/terminal* for more details about terminal venting.

Additionally, a compressor's refrigerant lines keep refrigerant and oil under pressure. When removing or recharging refrigerant from this component during service, this can pose a pressurized fluid hazard.

Flammable Refrigerant Hazards

If flammable refrigerant is released from a system, an explosive concentration can be present in the air near the system. If there is an ignition source nearby, a release of flammable refrigerant can result in a fire or explosion. While systems using flammable refrigerant are designed to mitigate the risk of ignition if the refrigerant is released, fire and explosion can still occur.

See *Climate.Emerson.com/flammable* for more information on flammable refrigerant safety.

Electrical Hazards

Until a system is de-energized, and capacitors have been discharged, the system presents a risk of electric shock.

Hot Surface and Fire Hazards

While the system is energized, and for some time after it is deenergized, the compressor may be hot. Touching the compressor before it has cooled can result in severe burns. When brazing system components during service, the flames can cause severe burns and ignite nearby combustible materials.

Lifting Hazards

Certain system components may be very heavy. Improperly lifting system components or the compressor can result in serious personal injury. Use proper lifting techniques when moving.

POE Oil Hazards

This equipment contains polyol ester (POE) oils. Certain polymers (e.g., PVC/CPVC and polycarbonate) can be harmed if they come into contact with POE oils. If POE oil contacts bare skin, it may cause an allergic skin reaction.

Precautions

- Always wear personal protective equipment (gloves, eye protection, etc.).
- Keep a fire extinguisher at the jobsite at all times.
- Keep clear of the compressor when power is applied.
  - IMMEDIATELY GET AWAY **if you hear unusual sounds in the compressor. They can indicate that terminal pin ejection may be imminent. This may sound like electrical arcing (sizzling, sputtering or popping). However, terminal venting may still occur even if you do not hear any unusual sounds.**
- Never reset a breaker or replace a blown fuse without performing appropriate electrical testing
  - **A tripped breaker or blown fuse may indicate an electrical fault in the compressor. Energizing a compressor with an electrical fault can cause terminal venting. Perform checks to rule out an electrical fault.**
- Disconnect power and use lock-out/tag-out procedures before servicing.
  - Before removing the terminal cover or molded plug, check that ALL electrical power is disconnected from the unit. Make sure that all power legs are open. (*Note: The system may have more than one power supply*.)
  - Discharge capacitors for a minimum of two minutes
  - Always use control of hazardous energy (lock-out/tag-out) procedures to ensure that power is not reconnected while the unit is being serviced.
- Allow time for the compressor to cool before servicing.
  - Ensure that materials and wiring do not touch high temperature areas of the compressor.
- Keep all non-essential personnel away from the compressor during service.

- Remove refrigerant from both the high and low side of the compressor. Use a recovery machine and cylinder designed for flammable refrigerants. Do not use standard recovery machines because they contain sources of ignition such as switches, high- and low-pressure controls, and relays. Only vent the refrigerant into the atmosphere if the system is in a well-ventilated area.
- Never us a torch to remove the compressor. Only tubing cutters should be used.
- Use an appropriate lifting device to install or remove the compressor.
- Never install a system and leave it unattended when it has no charge, a holding charge, or with the service valves closed without electrically locking out the system.
- Always wear appropriate safety glasses and gloves when brazing or unbrazing system components.
- Charge the system with only approved refrigerants and refrigeration oils.
- Keep POE oils away from certain polymers (e.g., PVC/CPVC and polycarbonate) and any other surface or material that might be harmed by POE oils. Proper protective equipment (gloves, eye protection, etc.) must be used when handling POE lubricant. Handle POE oil with care. Refer to the Safety Data Sheet (SDS) for further details.
- Before energizing the system:
    1. Securely fasten the protective terminal cover or molded plug to the compressor, and
    2. Check that the compressor is properly grounded per the applicable system and compressor requirements.

Signal Word Definitions

The signal word explained below are used throughout the document to indicate safety messages.

DANGER	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury

1. Introduction

Using the Electronic Unit Controller with Copeland™ brand condensing units will provide many benefits to the contractor and end-user. It has been designed specifically for demanding refrigeration applications to ensure precision in installation and operation. While the Electronic Unit Controller will replace existing adjustable low-pressure controls, fan cycle switches, and other relays, it also has additional features. These features include bump start (where applicable), data storage, and short cycling protection. This controller does NOT replace the fixed high-pressure control required by UL.

The Electronic Unit Controller can be used on any condensing unit application with the appropriate sensors and relays that are factory installed on the condensing unit. This document will explain how Electronic Unit Controllers affect the installation process and how they can assist in troubleshooting

Factory-installed controllers are pre-programmed with the proper settings, resulting in little to no setup time. The unit comes with an attached label showing how to adjust the low pressure cut-in and cut-out (See **Figure 1**).

There is a label on the inside of the enclosure which lists all of the factory default settings for the controller (including those not adjustable), a basic controller wiring schematic, basic button descriptions, the controller part number, the pre-loaded program part number, and contact information (See **Figure 2**). This information can be used if a service replacement controller is needed.

1.1. Technical Specifications

Mounting: Panel mounting in a 71x29mm panel cut-out
Controller IP Rating: IP20
Front Panel IP rating: IP65
Power supply: 208/230Vac ±10%, 50/60Hz
120Vac ±10%, 50/60Hz
Power absorption: 3VA max
Relay outputs:
Compressor Relay: 250VAC, 16A FLA, 96A LRA
Fan Relay 1: 250VAC, 4.9 FLA, 29.4 LRA
Fan Relay 2: 250VAC, 1.9 FLA. 11.4 LRA

SPECIAL NOTE: EUC FAN CYCLING RELAYS ARE NOT APPROVED FOR USE WITH ECM MOTORS.

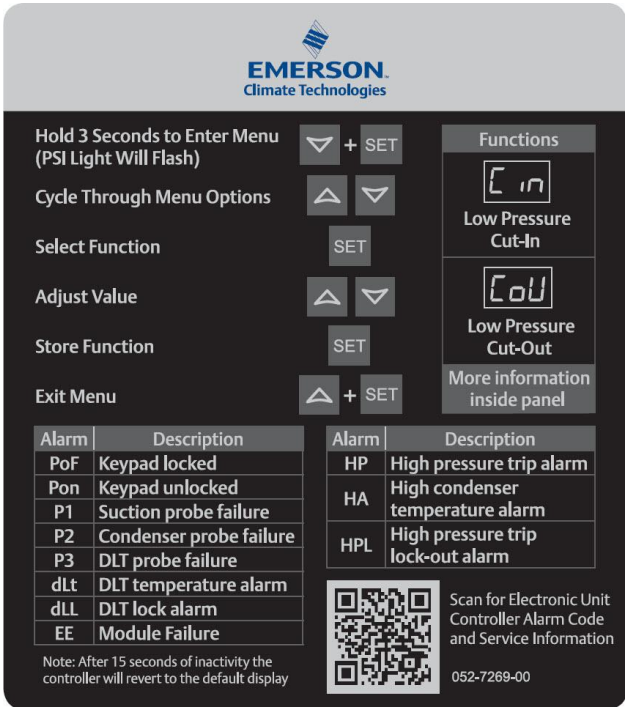


Figure 1 Emerson Tag

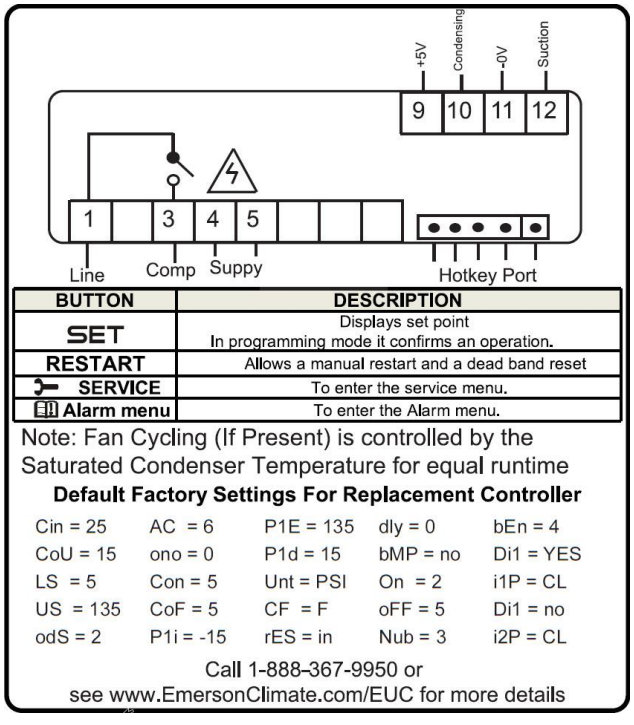


Figure 2 Factory default settings

Data storage: Non-volatile memory (EEPROM).
Rated impulsive voltage: 2500V; Overvoltage Category: II
Factory Installed Operating Range: -40 - 120°F Ambient
Non-Factory Installed Operating Range: -4 to 120°F Ambient

1.2. Pressure Probe Error Bypass

In the event where suction pressure rises above the controller's maximum value of 135 PSIG (this frequently happens during cleaning cycles or other off-cycle conditions), the controller will enter a pressure probe bypass mode during startup to allow the system to stabilize pressures. The controller will flash "135" on the display and the compressor will run continuously unless stopped by a high-pressure or temperature control. If suction pressure remains above 135 PSIG for more than 15 minutes, the controller will flash "P1" on the display and cycle the compressor on and off according to the time set with the "Con" and "CoF" parameters. These are set to 5 minutes by default and can be adjusted in the Advanced Options Menu (See Section 2.6).

1.3. Bump Start

Bump start is an optional feature which provides additional flooded start protection. Bump start drives refrigerant out of the oil, preventing the refrigerant from circulating through the compressor as a liquid and washing the oil film off of the load-bearing surfaces.

When bump start is enabled, the compressor is turned on for 2 seconds, then turned off for 5 seconds. This occurs 3 times before the compressor runs normally. This allows refrigerant to exit the compressor without the oil being removed.

Bump start can be turned on in the Advanced Options Menu by changing "bnP" to "Y" (See Section 2.6).

1.4. Compressor Shutdown (Optional Feature)

In the event the suction pressure falls below the LAP (Pressure to end time), the compressor will shut down. This parameter is in the advanced options menu and is only enabled when the LMO (Minimum on Time) parameter is not set to zero.

2. Installation and Controller Operation Instructions

2.1. Condensing Unit Installation Instructions

Customer connections will not change, and in most cases, wiring to the unit will not change either. See Section 6 for more information.

If the unit trips on low pressure during charging, the low pressure cut-out can be lowered to allow it to run. Be sure to adjust it back to the proper application setting after charging. See the appropriate Application Engineering Bulletin according to compressor model family.

2.2. Controller Display

The controller display is shown in **Figure 3**, below. **Table 1** provides a description of each of the labeled lights. The controller is defaulted to display the current suction pressure to three significant digits in pounds per square inch gage (PSIG).

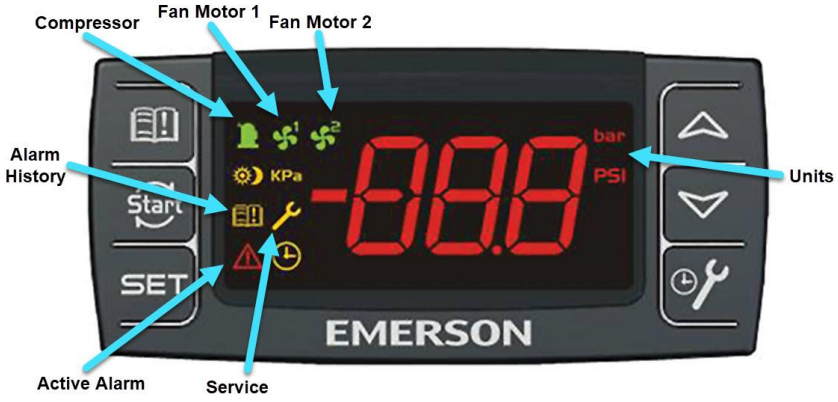


Figure 3 Controller Display

Table 1 LED Descriptions

LED	Mode	Function
	ON	Compressor on
	Flashing	Anti-short cycle delay enabled
1	ON	Fan 1 on
2	ON	Fan 2 on
PSI	ON	Pressures displayed in PSIG
PSI	Flashing	Programming mode
	ON	Browsing service menu
	Flashing	New alarm indication
	ON	Browsing alarm menu
	ON	An alarm is occurring

2.3. Button Descriptions and Key Combinations

Table 2 lists the different buttons on the controller (See **Figure 3**) and their functions. **Table 3** lists the different key combinations and their functions.

Table 2 Button Descriptions

Button	Description
SET	Displays set point. In programming mode, it confirms an operation.
Start	When held for 3 seconds, it overrides cut-in value and starts compressor. When DLL or HPL lockout condition occurs, it resets lockout condition when held for 3 seconds 2 consecutive times (if temperatures or pressures exceed cut-out trip point values, pressing this button will not clear the fault).
(UP)	Displays current condenser temperature. In programming mode, it browses parameters or increases the displayed parameter value.
(DOWN)	Displays current discharge temperature. In programming mode, it browses parameters or decreases the displayed parameter value.
Alarm Menu	Enters Alarm menu (See Section 3).
SERVICE Menu	Enters SERVICE menu (See Section 4).

Table 3 Key Combinations

Key Combinations	
+	Locks and unlocks the keypad.
SET +	Enters programming mode.
SET +	Returns to suction pressure display.

2.4. Viewing Temperature Readings

1. Press ▲ button to view condenser temperature.
2. Press ▼ button to view discharge temperate.

2.4.1. Viewing Setpoints

1. Press and immediately release SET button: the display will show the "[in" message.
2. Press SET button to see the setpoint value.
3. Press and immediately release SET button: the display will show the "[oU" message.
4. Press SET button to see the setpoint value.

2.5. Changing a Parameter Value

To change a parameter value, do the following:

1. Hold down SET + ▼ keys for 3 seconds, or until the "**PSI**" LED starts blinking, to enter the Programming Menu.
2. Press ▲ or ▼ button to select the required parameter. Press SET button to display parameter value.
3. Press ▲ or ▼ button to change parameter value.
4. Press SET button to store the new parameter value.

TO EXIT: Press SET + ▲ keys or wait up to 30 seconds without pressing a button or key.

NOTE: The set value is stored, even when the procedure is exited, by waiting for the time-out to expire.

2.6. Entering the Advanced Options Menu

The Advanced Options Menu will be locked 5 minutes after the controller is powered. If access to the Advanced Options Menu is needed, cycle power to the controller.

1. Hold down SET + ▼ keys for 3 seconds, or until the "PSI" LED starts blinking, to enter the Programming Menu.
2. Release keys, then hold down SET + ▼ keys again for at least 7 seconds. The "Pr2" label will be displayed immediately followed by the "[i_n" parameter.

   NOTE: THIS IS THE ADVANCE OPTIONS MENU.
3. Press ▲ or ▼ button to select the required parameter.
4. Press SET button to display parameter value.
5. Press ▲ or ▼ button to change parameter value.
6. Press SET button to store the new parameter value.

TO EXIT: Press SET + ▲ keys or wait up to 30 seconds without pressing a button or key.

NOTE: If no parameter is present in "Pr 1" after 3 seconds, the controller will display the "noP" message. Keep the keys pushed until the "Pr2" message is displayed.

NOTE: The set value is stored, even when the procedure is exited, by waiting for the time-out to expire.

2.6.1. Moving Parameters between Programming Menu and Advanced Options Menu

While in the Advanced Options Menu, certain parameters will have a period between the 2nd and 3rd characters. For example: "[i_n". These parameters are in both the Programming and Advanced Options menus.

To add or remove a parameter from the Programming Menu, do the following:

1. Enter the Advanced Options Menu and select the required parameter (See Section 2.6, steps 1 through 3).
2. With the required parameter displayed, press SET + ▼ keys.

NOTE: A period will be added or removed between the 2nd and 3rd characters of the selected parameter.

TO EXIT: Press SET + ▲ keys or wait up to 30 seconds without pressing a button or key

2.6.2. Programming Using a Hotkey

Hotkeys (part # 943-0019-00) can be used to store the user's custom parameters. To upload parameters to a hotkey, do the following:

1. Turn controller ON.
2. Ensure controller is programmed as desired.
3. Disconnect 5-pin harness from rear of controller (See **Figure 4**).
4. Insert hotkey into 5-pin receptacle on rear of controller (See **Figure 4**).
5. Press ▲ + 🔧 keys; controller will blink "UPL" and then display the "End" message.
6. Press SET button; "End" message will disappear.
7. Turn controller OFF.
8. Remove hotkey from rear of controller (See **Figure 4**).
9. Connect 5-pin harness to rear of controller (**Figure 4**).
10. Turn controller ON.

NOTE: If controller displays an "Err" message, programming has failed. Repeat steps 1-9 to restart upload process. Remove hotkey to abort.

To program controller using a hotkey, do the following:

1. Turn controller OFF.
2. Disconnect 5-pin harness from rear of controller (See **Figure 4**).
3. Insert pre-programmed hotkey into 5-pin receptacle on rear of controller (See **Figure 4**).
4. Turn controller ON.

NOTE: The download is successful when the following happens:

   a. Controller blinks "doL" and displays "End." message.
   b. After 10 seconds, the controller goes back to the default display (suction pressure).
   c. Remove hotkey from rear of controller (See **Figure 4**).
   d. Connect 5-pin harness to rear of controller (See **Figure 4**).

NOTE: If controller displays an "Err" message, programming has failed. Cycle power to controller to restart download process. Remove hotkey to abort.

2.7. Locking the Keypad

1. Press ▲ + ▼ keys for more than 3 seconds.

NOTE: Controller will display "POF" message when keypad is locked. While keypad is locked, only set points can be viewed. If a key is pressed for more than 3 seconds, controller will display "POF" message.

2.8. Unlocking the Keypad

1. Press ▲ + ▼ keys for more than 3 seconds, until controller displays "Pon" message.

Figure 4 Programming Using a Hotkey

2.9. Resetting Alarm and Runtime Counters

See **Sections 3** and **4** for more information on Alarm and Service menus. The Advanced Options Menu will be locked for 5 minutes after the controller is powered. If counters need to be reset during this time, cycle power to the controller.

1. Hold down **SET** + ▽ keys for 3 seconds, or until the "PSI" LED starts blinking, to enter the Programming Menu.
2. Release keys, then hold down **SET** + ▽ keys again for at least 7 seconds. The "Pr2" label will be displayed immediately followed by the "C i_n" parameter.

   NOTE: THIS IS THE ADVANCED OPTIONS MENU.
3. Press △ or ▽ button to select the required parameter, listed below:

   rSA- Reset Alarm Counters (HP, dLt, and Loc)

   rCA - Reset Compressor Starts Counters

   rCH - Reset Compressor Run Hours Counters

   rFH - Reset Fan Run Hours Counters
4. Press **SET** button to display counter values.
5. Press △ button to change "n" to "y_"
6. Press **SET** button to store new value and reset counter.
7. Repeat steps 3 through 6 to reset other counters.

3. Alarm Menu

The controller records the activations of the following alarms in the Alarm menu:

- High pressure trips (up to 999) - HP
- High DLT temperature alarm (up to 999) - dLt
- Total number of manual restarts (HPL and dLL) (up to 255) - Loc

To view alarm counters, do the following:

1. Press and release the 📖 button; controller will display the "HP" label.
2. With controller displaying the "HP" label, press **SET** button to see the number of high pressure trips.
3. With controller displaying the "dLt" label, press **SET** button to see the number of DLT trips.
4. With controller displaying the "Loc" label, press **SET** button to see the number of manual resets.

4. Service Menu 🔧

The controller stores the following values in the SERVICE menu:

- **Number of compressor starts:**

  StH (0-999; resolution 1,000);

  StL (0-999; resolution 1) -

  Example: If StH= 12 and StL = 500:
  Total number of compressor starts = 12,500
- **Compressor run hours:**

  CHH (0-65; resolution 1,000);

  CHL (0-999; resolution 1) -

  Example: If CHH = 8 and CHL = 500:
  Total number of compressor run hours = 8,500
- **Fan motor 1 run hours:**

  F 1H (0-65; resolution 1,000);

  F 1L (0-999 resolution 1)
- **• Fan motor 2 run hours:**

  F2H (0-65; resolution 1,000);

  F2L (0-999 resolution 1)

To view service counters, do the following:

1. Hold down 🔧 button for 3 seconds.
2. Press **SET** button to view selected service counters. See the above list for counter names and meanings.

5. Parameter List

All parameters and their descriptions, default values, and operating ranges are listed in **Table 4** and **Table 5**. Depending on the condensing unit model, some parameter values may be different than shown or not applicable.

Table 4 Parameters

Label	Description	Default	Range
	Default Display Value		
	Current Suction Pressure (PSIG)		
	Adjustable In Programming Menu		
C in	Compressor cut-in (PSIG)	25	CoU - 95
CoU	Compressor cut-out (PSIG)	15	L5 - C in
	Adjustable From Advanced Options Menu		
odS	Outputs delay at start up (seconds) (Only adjustable on single phase scroll units)	2 or 4	2 - 255
AC	Anti-short cycle delay (Minimum time between compressor off then on) (seconds)	6	6 - 900
Con	Compressor ON time with faulty probe (minutes)	5	0 - 255
CoF	Compressor OFF time with faulty probe (minutes)	5	0 - 255
P IF	Suction Pressure Transducer Offset (PSI)	0	- 120 - 120
bnP	Bump start enabled	no	no - YES
nPS	Number of activations of DLT alarm in a hour to lock compressor (Units with discharge line temperature protection only)	4	0- 15; 0 = always automatic restart
HPn	UL safety digital input activation before compressor lock (Units with fixed high pressure controls only)	5	0- 15; 0 = always automatic restart
SF 1	Fan 1 Cut-out (°F) (Fan cycling units only)	70	-40 - SF2
HF 1	Fan 1 differential (°F) (Fan cycling units only)	10	1 - 100
SF2	Fan 2 Cut-out (°F) (Fan cycling units only)	85	SF 1 - 230
HF2	Fan 2 differential (°F) (Fan cycling units only)	15	1 - 100
rSA	Reset Alarm Counters (HP,dLt, and Loc)		
rCA	Reset Compressor Starts Counters		
rCH	Reset Compressor Run Hours Counters		
rFH	Reset Fan Run Hours Counters (Fan cycling units only)		
LAP	Pressure to end time		- 15 to CoU
LnO	Minimum on time		0 to 15 (minutes)

Table 5 Factory Set Parameters

Label	Description	Default	Range
	Factory Set Definitions		
LS	Minimum set point (PSIG)	-7 or 5	-7 - US
US	Maximum set point (PSIG)	135	LS - 135
ono	Minimum time between two compressor starts (minutes)	0	0 - 15
nFA	Number of fans on during probe fault	2	0 - 2
Unt	Measurement unit for pressure: PSIG, bar, kPA	PSI	PSI , bAr, HPA
CF	Measurement unit for temperature	F	C or F
on	Bump Start Compressor on time (seconds)	2	1 - 15
oFF	Bump Start Compressor off time (seconds)	5	1 - 15
nUb	Number of cycles during bump start	3	1 - 15
bEn	Compressor stop time for next bump start (hours)	4.0	1.0 - 23.5
doF	DLT alarm temperature to stop compressor (°F)	220	don - 302
don	DLT temperature for compressor restart (°F)	170	-58 - doF
ALd	DLT stop compressor delay (seconds)	0-5	0 - 255
dLF	Minimum time of compressor off with dLL alarm (minutes)	0	0 - 15
AU2	Cut-in for Condenser Temperature/Pressure alarm (°F)	150	AH2 - 230
AH2	Cut-out for high Condenser Temperature/Pressure alarm (°F)	140	-40 - AU2
Ad2	High condenser temperature alarm delay (minutes)	0	0 - 255
HPF	Minimum off time after a High-Pressure Trip (minutes)	5	0 - 15
P1,	Start scale for probe 1 (PSIG)	- 15	- 15 to P1E
P1E	End scale for probe 1 (PSIG)	135	P1, to 999
P1d	P1 alarm display delay, with P1C=0-5V (min)	0	0 - 100
P2P	Probe 2 presence		YES, nO
P2C	Probe 2 configuration		ntC, 0-5
P2,	Start scale for probe 2 (PSIG)	- 15	- 15 to P2E
P2E	End scale for probe 2 (PSIG)	485	P2, to 999
P3C	Probe 3 configuration		nU, dLt, CPA
Ab2	High condenser temperature alarm with compressor off		YES, no
oA1	AUX1 configuration		FAn, Fn2, ALr
oA2	AUX 2 configuration		FAn, Fn2, ALr

6. Controller Wiring

WARNING

Always disconnect and lockout the power supply before beginning electrical installations or troubleshooting.

6.1. Non-Fan Cycling Wiring Schematic

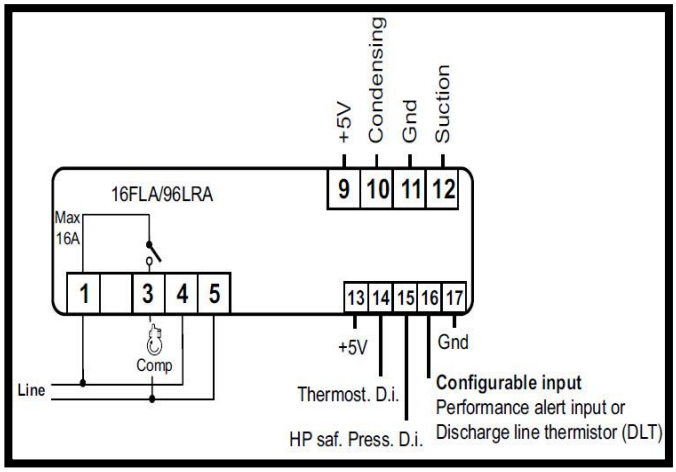


Figure 5 Non-Fan Cycling Wiring Schematic

Compressor: Use terminals 1-3.

Power Supply: Use terminals 4-5 (terminals 4 and 5 are for power supply at 110VAC or 230VAC, depending on the model).

Suction Pressure Transducer: Use terminal 9 (+5V) for supply, terminal 11 for ground, and terminal 12 for signal.

Condenser Temperature Sensor: Connect probe to terminal 11 (ground) and 10.

Thermostat Digital Input: Use terminals 14-17.

UL HP input: Use terminals 15-17.

DLT Sensor: Connect probe to terminals 16-17.

Copeland PerformanceAlert (CPA): See **Figure 7**.

6.2. Fan Cycling Wiring Schematic

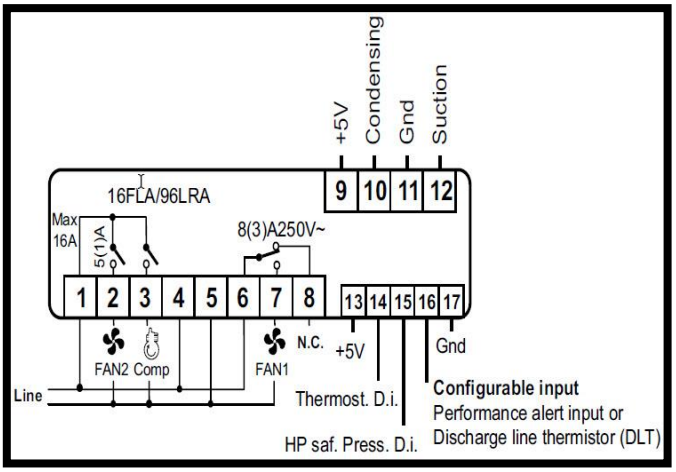


Figure 6 Fan Cycling Wiring Schematic

Compressor: Use terminals 1-3.

Power Supply: Use terminals 4-5 (terminals 4 and 5 are for power supply at 110VAC or 230VAC, depending on the model).

FAN 1: Use terminals 6-7.

FAN 2: Use terminals 1-2.

Suction Pressure Transducer: Use terminal 9 (+5V) for supply, terminal 11 for ground, and terminal 12 for signal.

Condenser Temperature Sensor: Connect probe to terminal 11 (ground) and 10.

Thermostat Digital Input: Use terminals 14-17.

UL HP input: Use terminals 15-17.

DLT Sensor: Connect probe to terminals 16-17.

Copeland PerformanceAlert (CPA): See **Figure 7**.

6.3. Copeland PerformanceAlert Connection

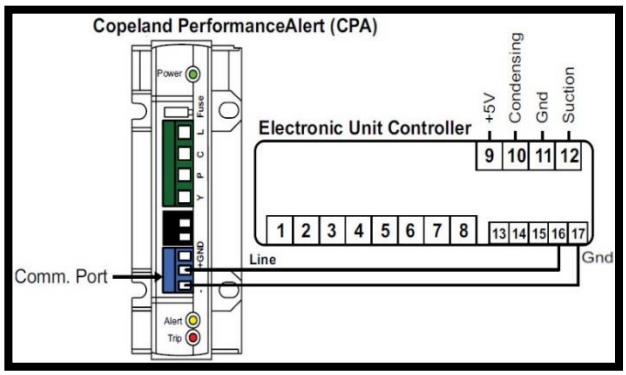


Figure 7 Wiring Schematic Example for Controller with Copeland PerformanceAlert

Copeland PerformanceAlert (CPA) connection: Use terminals 16-17. Connect the CPA as shown in **Figure 7**. For more information on PerformanceAlert, see Application Engineering Bulletin **AE8-1347**.

6.4. Additional Controller Inputs

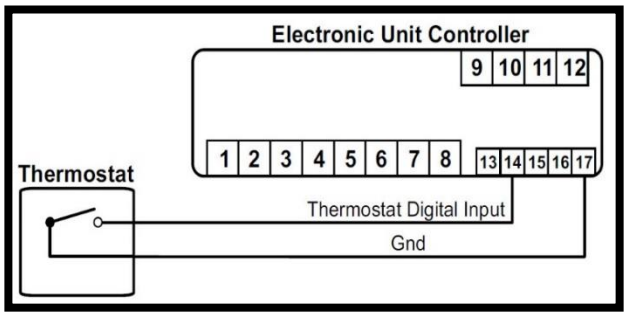


Figure 8 Wiring Schematic Example for Optional Thermostat

If another device, such as a thermostat, will be used to control the condensing unit, terminals 14 and 17 need to be connected to a dry contact (no voltage) on that control device (see **Figure 8**). Condensing units from the factory are configured for no thermostat, so pins 14 and 17 are tied together (see **Figure 13**). To use a thermostat, separate this jumper and connect the dry contact of the thermostat between the two wires. The polarity of the thermostat input is CLOSED for cooling and OPEN for no cooling.

Terminals 14 and 17 are located on the hotkey cable and will be connected together by push-on type connectors. See **Figure 5 Figure 6**, **Figure 7**, and **Figure 8** for wiring details.

NOTE: If using a control (e.g., thermostat) with another device (e.g., pump down solenoid), no connections to the controller are required.

7. Alarms and Notifications

In the event of an issue or fault, the codes listed below will flash to indicate the alarm condition. See **Section 9** for troubleshooting information.

Table 6 Alarms and Notifications

Code	Description
PoF	Keypad locked
Pon	Keypad unlocked
P1	Suction probe failure
P2	Condenser probe failure
P3	DLT probe failure
HA	High condenser temperature alarm
dLt	DLT temperature alarm
dLL	DLT lock alarm
HP	High-pressure trip alarm
HPL	High-pressure trip lockout alarm
CPA	Copeland PerformanceAlert not connected properly
EE	Electronic Unit Controller failure
CH	Compressor working hour counter alarm
FH	Fan working hour counter alarm
HdL	Maximum alarm count has been reached - alarm counters need to be reset

If a Copeland PerformanceAlert* module is installed in the unit, PerformanceAlert error codes will be displayed on the controller screen. This eliminates the need to count lights flashed on the PerformanceAlert module itself. For more information on PerformanceAlert, see Application Engineering Bulletin **AE8-1347**.

Table 7 Copeland PerformanceAlert Error Codes

Code	Three Phase Recip.	Three Phase Scroll	Single Phase
C01	Discharge Temperature Trip	Discharge Temperature Trip	Discharge Temperature Trip
C02	System Trip	System Trip	System Trip
C03	Short Cycling	Short Cycling	Short Cycling
C04	Locked Rotor	Locked Rotor	Locked Rotor
C05	Open Circuit	Open Circuit	Open Circuit
C06	Missing Phase	Missing Phase	Missing Phase
C07	N/A	Reverse Phase	Open Run
C08	Welded Contactor	Welded Contactor	Welded Contactor
C09	Low Voltage	Low Voltage	Low Voltage
C10	Lost Communications	Lost Communications	Lost Communications
C11	DLT Sensor Failure	DLT Sensor Failure	DLT Sensor Failure

*Copeland PerformanceAlert is not replaced by the Electronic Unit Controller. The PerformanceAlert module includes many features not included in the Electronic Unit Controller, such as locked rotor protection, loss of phase, etc. The Electronic Unit Controller is able to interface with PerformanceAlert to display error codes in an easy-to-read format.

7.1. Discharge Line Temperature Protection

The Electronic Unit Controller uses a temperature sensor, which allows for more flexibility in what the controller can do. If the unit trips, the unit will display an error code and log that an error has occurred. In addition, the controller will allow an automatic reset up to 4 times per hour. On the fourth trip, the controller will require a manual reset. The parameter "nP5" can be changed in the Advanced Options Menu (see Section 2.6) to adjust the total number of trips allowed in an hour before a lockout. If an automatic reset is always needed, parameter "nP5" can be set to 0.

Controllers built in September 2015 and after are programmed with a higher discharge line cut-out temperature and a 5 second trip delay, reducing nuisance trips.

NOTE: If nuisance trips are occurring on controllers built before September 2015 (15I date code), contact application engineering for support.

Controllers built before September 2015:

Default Discharge Line Cut-in Temp:	170°F
Default Discharge Line Cut-out Temp:	220°F
Trip Delay:	N/A

Controllers built September 2015 and after:

Default Discharge Line Cut-in Temp:	170°F
Default Discharge Line Cut-out Temp:	225°F
Trip Delay:	5 seconds

7.2. UL High Pressure Safety Control

High-pressure control is a UL (Underwriters Laboratories) safety device. As such, Emerson Climate Technologies condensing units equipped with the

Electronic Unit Controller still come with the high-pressure mechanical control installed on the unit. The high-pressure controls are fixed to work with the control, and the value of the cut-out is determined by the working pressure of the high side of the condensing unit. This should have no effect on a customer's UL requirements.

The high-pressure control breaks power to the compressor output relay, which shuts down the compressor regardless of the program state. This allows the controller to read the high-pressure control state and display the appropriate error codes. In addition, the controller allows an automatic reset up to 4 times per hour. On the fifth trip, the controller requires a manual reset. The parameter "HPn" can be changed in the Advanced Options Menu (See Section 2.6) to adjust the total number of trips allowed in an hour before a lockout. If an always automatic reset is needed, parameter "HPn" should be set to 0.

8. Electronic Unit Controller Replacement

WARNING

Electronic Unit Controller replacement must be performed in accordance with safety instructions. Disconnect and lockout power before servicing. See **Safety** section for additional information.

8.1. Silver Electrical Box Applications

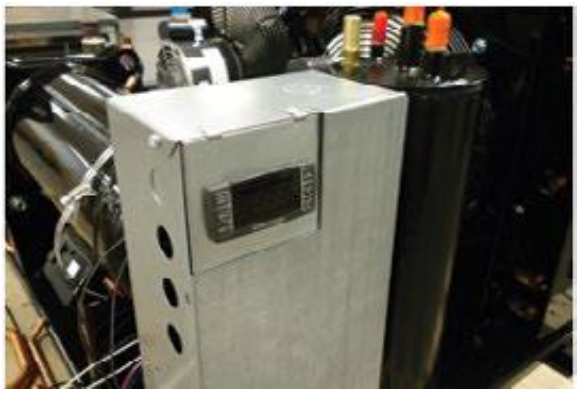


Figure 9 Silver Electrical Box

1. Disconnect main power source.
2. Remove electrical box cover.
3. Remove Electronic Unit Controller assembly and rotate it up 90 degrees. The assembly should now slide and clip onto the top of the electrical box, leaving the wiring harnesses exposed.
4. Disconnect three wiring harnesses from rear of controller.
5. Verify replacement controller and existing controller have the same part number (e.g., part number: 543-0133-00).

   NOTE: A controller with a part number ending in -00 may be replaced with a controller with a part number ending in -01 or -02 (See Section 8.5).
6. Insert replacement controller through the slot. Ensure controller wiring schematic is pointing away from the operator.
7. Connect three wiring harnesses to rear of controller. Ensure the part number on the blue harness is facing towards the operator.
8. Unclip Electronic Unit Controller assembly from the top of the electrical box and slide it back into its original position.
9. Install electrical box cover.
10. Connect main power source.
11. Set controller parameters to match values listed on inside label (See Section 8.4).

8.2. Small Black Electrical Box Applications

Figure 10 Small Black Electrical Box

1. Disconnect main power source.
2. Remove electrical box cover.
3. Bend the metal tabs on either side of the controller outward and pull controller approximately halfway out.

4. Disconnect three wiring harnesses from rear of controller.
5. Completely remove controller from assembly.
6. Verify replacement controller and existing controller have the same part number (e.g., part number: 543-0133-00).

   NOTE: A controller with a part number ending in -00 may be replaced with a controller with a part number ending in -01 or -02 (See **Section 8.5**).
7. Bend the metal tabs on either side of the empty slot inward prior to installing replacement controller.
8. Insert replacement controller through the slot with label facing away. Push controller halfway in.
9. Connect three wiring harnesses to rear of controller. Ensure controller wiring schematic is pointing away from the operator.
10. Finish installing replacement controller in assembly.
11. Install electrical box cover.
12. Connect main power source.
13. Set controller parameters to match values listed on inside label (See **Section 8.4**).

8.3. Plastic Retainer Applications (Large Black Electrical Box and X-Line Units)

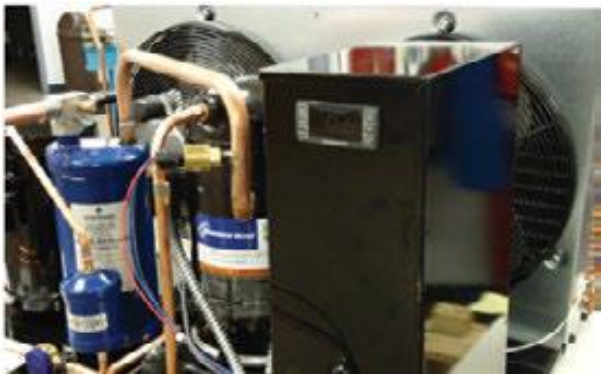


Figure 11 Large Black Electrical Box

1. Disconnect main power source.
2. Remove electrical box cover.
3. Disconnect three wiring harnesses from rear of controller.
4. Press the centers of the white plastic connectors and pull them straight out.
5. Remove controller.
6. Verify replacement controller and existing controller have the same part number (e.g., part number: 543-0133-00).

   NOTE: A controller with a part number ending in -00 may be replaced with a controller with a part number ending in -01 or -02 (See **Section 8.5**).
7. Insert replacement controller through the slot. Ensure controller wiring schematic is facing up.
8. Secure controller with white retainer clips.
9. Connect three wiring harnesses to rear of controller. Ensure part label on blue wiring harness is facing down.
10. Install electrical box cover.
11. Connect main power source.
12. Set controller parameters to match values listed on inside label (See **Section 8.4**).

8.4. Setting Controller Parameters After Replacement

Control settings vary for each condensing unit model. The replacement controller must be programmed for the condensing unit to function properly.

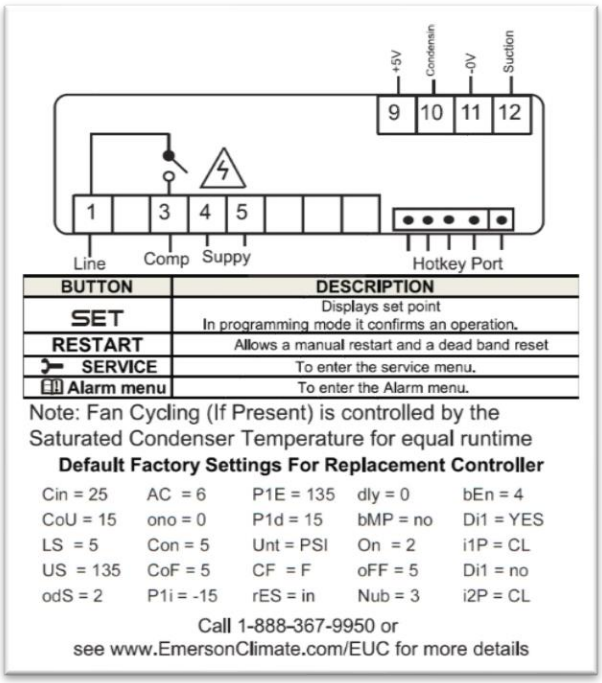
See the provided programming instruction label (052-7272-00) or wiring schematic (X-Line units only) for a list of default parameter values.

To program a replacement controller with default parameter values, do the following:

1. Hold down **SET** + ⌄ keys for 3 seconds, or until the "**PSI**" LED starts blinking, to enter the Programming Menu.
2. Release keys, then hold down **SET** + ⌄ keys again for at least 7 seconds. The "Pr2" label will be displayed immediately followed by the "LOn" parameter.

NOTE: THIS IS THE ADVANCED OPTIONS MENU.

3. Press ▲ or ▼ button to select the required parameter.
4. Press SET button to display parameter value.
5. Compare displayed values with the values on the provided label (See **Figure 12**).



BUTTON	DESCRIPTION
SET	Displays set point In programming mode it confirms an operation.
RESTART	Allows a manual restart and a dead band reset
SERVICE	To enter the service menu.
Alarm menu	To enter the Alarm menu.

Note: Fan Cycling (If Present) is controlled by the Saturated Condenser Temperature for equal runtime

Default Factory Settings For Replacement Controller

Cin = 25	AC = 6	P1E = 135	dly = 0	bEn = 4
CoU = 15	ono = 0	P1d = 15	bMP = no	Di1 = YES
LS = 5	Con = 5	Unt = PSI	On = 2	i1P = CL
US = 135	CoF = 5	CF = F	oFF = 5	Di1 = no
odS = 2	P1i = -15	rES = in	Nub = 3	i2P = CL

Call 1-888-367-9950 or
see www.EmersonClimate.com/EUC for more details

Figure 12 Example of Default Parameters and Schematic on Inside Label

6. Press ▲ or ▼ button to change parameter value, if needed.
7. Press SET button to store the new parameter value, if needed.
8. Repeat steps 3 through 7 as needed to complete the process.

TO EXIT: Press SET + ▲ keys or wait 15 seconds without pressing a button or key.

8.5. Replacing -00 Controller with -01 or -02 Controller

NOTICE

The following procedure only applies to replacing the existing control with a part number ending with -00. If replacing a control with a part number ending with -01 or -02, use the existing jumper cable.

1. Check to see if there is a blue wire in the jumper cable (See **Figure 13**).

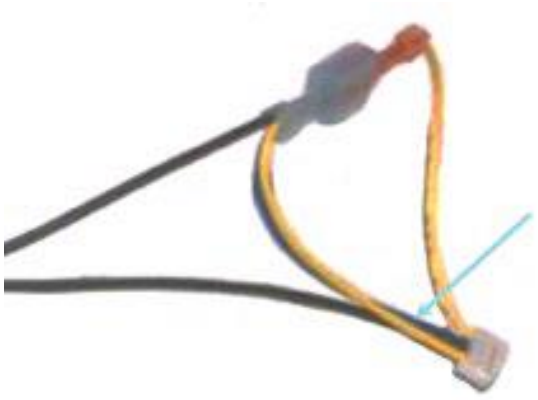


Figure 13 Jumper Cable with Blue Wire

- If blue wire is present, continue with controller replacement.
- If blue wire is not present, use the jumper cable supplied with the replacement controller kit and continue with controller replacement.

NOTE: If the jumper cable without a blue wire is not replaced, replacement controller will flash "HP" error code and will not operate.

NOTE: The replacement jumper cable includes a discharge line temperature probe. If condensing unit is not equipped with discharge temperature protection, secure discharge line temperature probe to jumper cable using a cable tie.

9. Thermistor Temperature/Resistance Values for Condenser Temperature Sensor

Deg °C	Deg °F	Resistance (kOhms)
-50	-58	329.5
-49	-56	310.9
-48	-54	293.5
-47	-53	277.2
-46	-51	262
-45	-49	247.7
-44	-47	234.3
-43	-45	221.7
-42	-44	209.9
-41	-42	198.9
-40	-40	188.5
-39	-38	178.5
-38	-36	169
-37	-35	160.2
-36	-33	151.9
-35	-31	144.1
-34	-29	136.7
-33	-27	129.8
-32	-26	123.3
-31	-24	117.1
-30	-22	111.3
-29	-20	105.7
-28	-18	100.5
-27	-17	95.52
-26	-15	90.84
-25	-13	86.43
-24	-11	82.26
-23	-9	78.33
-22	-8	74.61
-21	-6	71.1
-20	-4	67.77
-19	-2	64.57
-18	0	61.54
-17	1	58.68
-16	3	55.97
-15	5	53.41
-14	7	50.98
-13	9	48.68
-12	10	46.5
-11	12	44.43
-10	14	42.47
-9	16	40.57
-8	18	38.77
-7	19	37.06
-6	21	35.44
-5	23	33.9
-4	25	32.44
-3	27	31.05
-2	28	29.73
-1	30	28.48
0	32	27.28
1	34	26.13
2	36	25.03
3	37	23.99
4	39	23
5	41	22.05
6	43	21.15
7	45	20.3
8	46	19.48
9	48	18.7
10	50	17.96
11	52	17.24
12	54	16.56
13	55	15.9
14	57	15.28
15	59	14.69
16	61	14.12
17	63	13.58
18	64	13.06
19	66	12.56
20	68	12.09
21	70	11.63
22	72	11.2
23	73	10.78
24	75	10.38
25	77	10
26	79	9.632
27	81	9.281
28	82	8.944
29	84	8.622
30	86	8.313
31	88	8.014
32	90	7.728
33	91	7.454
34	93	7.192
35	95	6.94
36	97	6.699
37	99	6.467
38	100	6.245
39	102	6.032
40	104	5.827
41	106	5.629
42	108	5.438
43	109	5.255
44	111	5.08
45	113	4.911
46	115	4.749
47	117	4.593
48	118	4.443
49	120	4.299
50	122	4.16
51	124	4.026
52	126	3.896
53	127	3.771
54	129	3.651
55	131	3.536
56	133	3.425
57	135	3.318
58	136	3.215
59	138	3.116
60	140	3.02
61	142	2.927
62	144	2.838
63	145	2.751
64	147	2.668
65	149	2.588
66	151	2.511
67	153	2.436
68	154	2.364
69	156	2.295
70	158	2.228
71	160	2.163
72	162	2.1
73	163	2.039
74	165	1.98
75	167	1.924
76	169	1.869
77	171	1.816
78	172	1.765
79	174	1.716
80	176	1.668
81	178	1.621
82	180	1.577
83	181	1.533
84	183	1.491
85	185	1.451
86	187	1.411
87	189	1.373
88	190	1.336
89	192	1.3
90	194	1.266
91	196	1.232
92	198	1.2
93	199	1.168
94	201	1.137
95	203	1.108
96	205	1.079
97	207	1.051
98	208	1.024
99	210	0.9984
100	212	0.9731
101	214	0.9489
102	216	0.9246
103	217	0.9014
104	219	0.8789
105	221	0.8572
106	223	0.836
107	225	0.8155
108	226	0.7956
109	228	0.7763
110	230	0.7576

9.1. Thermistor Temperature/Resistance Values for Discharge Temperature Sensor

Deg °C	Deg °F	Resistance (kOhms)
-40	-40	2889.6
-35	-31	2087.22
-30	-22	1522.2
-25	-13	1121.44
-20	-4	834.72
-15	5	627.28
-10	14	475.74
-5	23	363.99
0	32	280.82
5	41	218.41
10	50	171.17
15	59	135.14
20	68	107.44
25	77	86
30	86	69.28
35	95	56.16
40	104	45.81
45	113	37.58
50	122	30.99
55	131	25.68
60	140	21.4
65	149	17.91
70	158	15.07
75	167	12.73

Deg °C	Deg °F	Resistance (kOhms)
80	176	10.79
85	185	9.2
90	194	7.87
95	203	6.77
100	212	5.85
105	221	5.09
110	230	4.45
115	239	3.87
120	248	3.35
125	257	2.92
130	266	2.58
135	275	2.28
140	284	2.02
145	293	1.8
150	302	1.59
155	311	1.39
160	320	1.25
165	329	1.12
170	338	1.01
175	347	0.92
180	356	0.83

10. Measuring Pressure/Voltage Values for Suction Pressure Transducer

To measure voltage to the suction pressure transducer manually, do the following:

1. Turn controller ON.
2. Monitor current suction pressure on controller display (See **Section 2.2**) and record reading.
3. Using a voltmeter, measure the voltage on the green-block-plug wiring connections located on rear of controller (See **Figure 14**).

   Pin 9 Red wire (+5VDC) supply voltage from the controller to the transducer.

   Pin 11 Black wire (ground)

   Pin 12 Blue wire. Feedback voltage from the transducer to the controller.
4. Using the table below, compare the PSI indicated by the measured voltage between pins 11 and 12 to the suction pressure displayed on the controller.

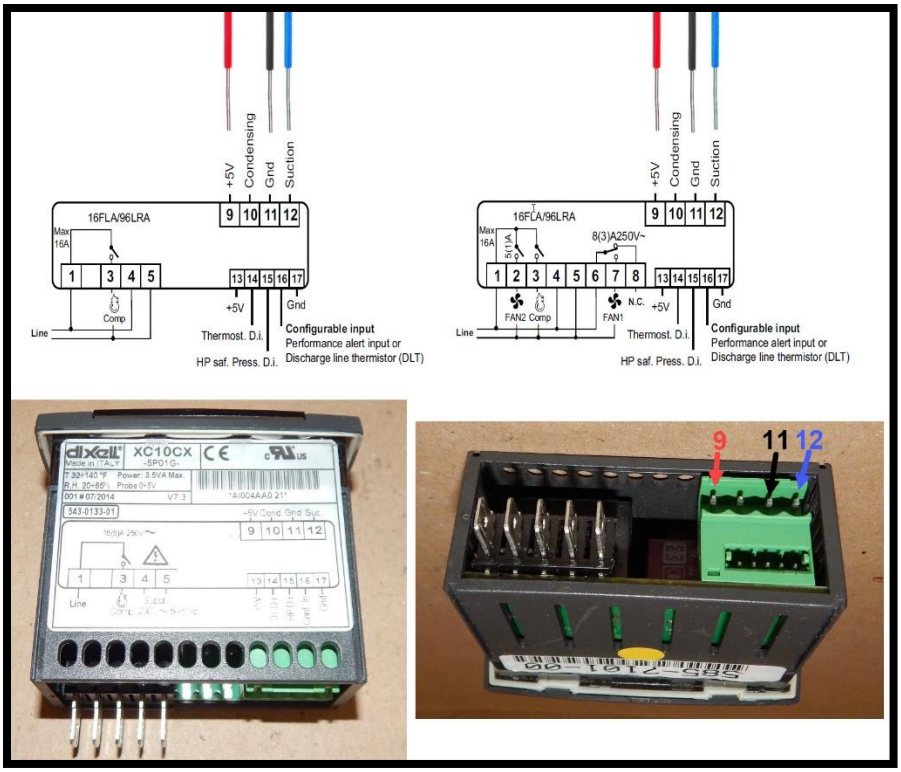


Figure 14 Measuring Suction Pressure Transducer Voltage

DC Voltage	PSI
0.5	-15
0.6	-11.3
0.7	-7.5
0.8	-3.8
0.9	0
1	3.8
1.1	7.5
1.2	11.3
1.3	15
1.4	19
1.5	23
1.6	26
1.7	30
1.8	34
1.9	38
2	41
2.1	45

DC Voltage	PSI
2.2	49
2.3	53
2.4	56
2.5	60
2.6	64
2.7	68
2.8	71
2.9	75
3	78.8
3.1	82.5
3.2	86.3
3.3	90
3.4	93.8
3.5	97.5
3.6	101.3
3.7	105

DC Voltage	PSI
3.8	108.8
3.9	112.5
4	116.3
4.1	120
4.2	123.8
4.3	127.5
4.4	131.3
4.5	135

11. Troubleshooting Guide

Display	Likely Causes	Other Possible Causes
Controller display remains blank after applying power.	• Unit power not properly applied – check • Power cable harness not plugged in properly or securely into the back of the controller - check connections.	• Power cable miswired – inspect cable; replace if needed. • Electrical assembly miswired – trace wiring diagrams.
Controller displays correctly, but the green compressor light is off and the compressor is not running.	• Jumper cable not plugged in properly or securely into the back of the controller – check connections • Controller is currently above the cut-in setting – check cut-in and cut-out settings	• Jumper cable miswired – inspect cable; replace if needed.
Controller displays correctly, the green compressor light is on, and the compressor is not running	• Power cable harness not plugged in properly or securely into the back of the controller – check connections.	• Power cable not wired to the contactor or compressor correctly – check wiring. • Power cable miswired – inspect cable; replace if needed.
Controller flashes “135” or “P 1”	• Current system pressure above 135 PSIG – wait for system to pull down. • Green harness not plugged in properly or securely into the back of the controller – check connections. • Cable not connected properly with the pressure transducer – check connections. • Compressor is not running to pulldown suction pressure below 135 PSIG.	• Transducer cable miswired – inspect cable; replace if needed. • Damaged transducer– inspect transducer DC voltage value against table in Section 10.; replace if needed. • After 15 minutes Standby system pressure is above 135 PSIG and compressor is not running to pulldown pressure a P1 alarm is shown.
Controller flashes “P2” on a unit with fan cycling	• Green harness not plugged in properly or securely into the back of the controller – check connections.	• Transducer cable miswired – inspect cable; replace if needed. • Check condenser temperature sensor resistance values against table in Section 9.
Controller flashes “P2” on a unit without fan cycling after replacing a controller	• Controller not programmed properly – check parameters in Advanced Options Menu.	• All EUC controller from the factory are factory set controller and need to be program base on the default factory settings of the replacement controller found on the EUC back electrical box cover.

Troubleshooting Guide (continued)

Display	Likely Causes	Other Possible Causes
Controller flashes "P3" on a unit with DLT	• Jumper cable not plugged in properly or securely into the back of the controller – check connections.	• Jumper cable miswired – inspect cable; replace if needed. • Faulty DLT temperature sensor – check discharge line temperature sensor resistance values against table in Section 9. Or Press the down arrow once to display the actual temperature reading of the DLT sensor. • Check DLT temperature sensor location at compressor discharge line. Proper location is 6 inches away from compressor discharge line.
Controller flashes "P3" on a unit without DLT after replacing a controller	• Controller not programmed properly – check parameters in Advanced Options Menu.	• All EUC controller from the factory are factory set controller and need to be program base on the default factory settings of the replacement controller found on the EUC back electrical box cover.
Fans not running on a fan cycling unit and the fan lights are not on	• Mid coil condensing temperature currently below the fan cut-in settings. • Condensing temperature sensor not properly installed – check installation. • Fan cycling control are cycle ON and OFF base on the run time settings. Note: SF1 value for cut-out temperature must be added deferential HF1 for the cut-in temperature settings for Fan 1. Apply the same rule to SF2 and HF2 for Fan 2.	• Transducer cable miswired – inspect cable; replace if needed. • Faulty temperature sensor - check condenser temperature sensor resistance values against table in Section 9.

Troubleshooting Guide (continued)

Display	Likely Causes	Other Possible Causes
Fans not running on a fan cycling unit and the fan lights are on	• Power cable harness not plugged in properly or securely into the back of the controller – check connections.	• Power cable miswired – inspect cable, replace if needed. • Electrical assembly miswired – trace wiring diagrams.
Controller flashes "HP" at power-up	• Jumper cable not plugged in properly or securely into the back of the controller – check connections. • High-pressure switch seeing above the cut-out pressure. • If replacing a -00 controller, ensure jumper cable is the latest revision. It should have a blue wire in the harness. See Section 8.5 for more details.	• Jumper cable miswired – inspect cable; replace if needed. • Faulty fixed Hp switch – inspect switch; replace if needed. • HP switch settings are: 440 PSI cut-out 325 PSI cut-in.
Controller flashes "HP" or "HPL"	• System operation causing high discharge pressures – check system operations.	• Bad high-pressure switch – verify system pressure when the pressure switch trips. • See Section 7.2 for more details.
Controller flashes "dLt" or "dLL"	• System operation causing high discharge line temperatures – check system operations.	• Faulty temperature sensor - check DLT sensor values against table in Section 9. • See Section 7.1 for more details. • DLT maximum temperature settings is 225F.
Controller flashing "HPL" or "dLL"	• System operation causing high discharge pressures (HPL) or high discharge line temperatures (DLL) repeatedly – check system operations. • To clear an HPL or DLL lockout, hold the Start button for 3 seconds 2 consecutive times, or cycle power to the unit. If using the reset button, the alarm condition will have to clear (DLT temperature drops or Hp switch resets) and any minimum off time will need to complete (5 minutes for the fixed Hp switch).	• (HPL) high discharge pressures lock alarm is displayed if 5 repeatedly HP alarms occur within 1 hour. • (DLL) high discharge line temperatures lock alarm is displayed if 4 repeatedly HP alarm occur within 1 hour.

12. Parts Kits

Kit	Part Number	Description	Qty
943-0152-00 115V Non Fan Cycling Controller	543-0132-00*/01/02	CONTROLLER	1
	529-0113-04	CABLE-SENSOR ASSM.	1
	032-7050-00	CLIP	2
	FM-2011IP-74	CONTROLLER FORM	1
943-0153-00 230V Non Fan Cycling Controller	543-0133-00*/01/02	CONTROLLER - ELECT UN	1
	529-0113-04	CABLE-SENSOR ASSM.	1
	032-7050-00	CLIP	2
	FM-2011IP-74	CONTROLLER FORM	1
943-0154-00 115V Fan Cycling Controller	543-0134-00*/01/02	CONTROLLER - ELECT UN	1
	529-0113-04	CABLE-SENSOR ASSM.	1
	032-7050-00	CLIP	2
	FM-2011IP-74	CONTROLLER FORM	1
943-0155-00 230V Fan Cycling Controller	543-0135-00*/01/02	CONTROLLER - ELECT UN	1
	529-0113-04	CABLE-SENSOR ASSM.	1
	032-7050-00	CLIP	2
	FM-2011IP-74	CONTROLLER FORM	1
929-0113-00 White Input Sensor Cable Kit with DLT Sensor 	529-0113-02	CABLE-SENSOR ASSM.	1
	529-0113-04	CABLE-SENSOR ASSM.	1
929-0114-00 Suction Pressure Transducer and Cables 	039-0026-06	TRANSDUCER - PRESSUR	1
	529-0114-00	CABLE-SENSOR ASSM.	1
	529-0114-01	CABLE-SENSOR ASSM.	1

*Old Electronic Unit Controller part number

Kit	Part Number	Description	Qty
929-0114-01 Suction Pressure Transducer Cable with Condenser Temperature Sensor	529-0114-01	CABLE-SENSOR ASSM.	1
943-0037-00 115V Non Fan Cycling Stand Alone Kit	543-0132-03	CONTROLLER - ELECT UN	1
	032-7050-00	CLIP	2
	529-0113-02	CABLE-SENSOR ASSM.	1
	529-0114-00	CABLE-SENSOR ASSM.	1
	039-0026-06	TRANSDUCER - PRESSUR	1
	AE8-1376 AE	BULLETIN	1
943-0037-01 230V Non Fan Cycling Stand Alone Kit	543-0133-03	CONTROLLER - ELECT UN	1
	032-7050-00	CLIP	2
	529-0113-02	CABLE-SENSOR ASSM.	1
	529-0114-00	CABLE-SENSOR ASSM.	1
	039-0026-06	TRANSDUCER - PRESSUR	1
	AE8-1376 AE	BULLETIN	1
943-0037-02 115V Pressure Based Fan Cycling Stand Alone Kit	543-0134-03	CONTROLLER - ELECT UN	1
	032-7050-00	CLIP	2
	529-0113-02	CABLE-SENSOR ASSM.	1
	529-0114-03	CABLE-SENSOR ASSM.	1
	039-0026-06	TRANSDUCER - PRESSUR	1
	039-0026-03	TRANSDUCER - PRESSUR	1
	AE8-1376 AE	BULLETIN	1
943-0037-03 230V Pressure Based Fan Cycling Stand Alone Kit	543-0135-03	CONTROLLER - ELECT UN	1
	032-7050-00	CLIP	2
	529-0113-02	CABLE-SENSOR ASSM.	1
	529-0114-03	CABLE-SENSOR ASSM.	1
	039-0026-06	TRANSDUCER - PRESSUR	1
	039-0026-03	TRANSDUCER - PRESSUR	1
	AE8-1376 AE	BULLETIN	1

Kit	Part Number	Description	Qty
962-0007-00 EUC Enclosure Kit	062-7048-01	BOX - ELECTRICAL	1
	005-7226-01	COVER - LID	1
	036-0275-00	FITTING - KNOCKOUT PLU	2
	100-0180-09	SCREW - HEX HD SELF TA	1

943-0019-00
Hot Key

Supplier Numbers equivalence*			
Copeland Part Number	**Dixell Part Number**	**Features**	**Voltage**
543-0132-01 **543-0132-02**	**XC10CX-4P0IG**	Without fan cycling control	115V
543-0134-01 **543-0134-02**	**XC30CX-4P0IG**	With fan cycling control	
543-0133-01 **543-0133-02**	**XC10CX-5P0IG**	Without fan cycling control	230V
543-0135-01 **543-0135-02**	**XC30CX-5PI0G**	With fan cycling control	

* Supplier equivalent parts don't include Copeland Parts settings.

13. For Service Only

Since July 2018, pressure transducer and cables 039-0026-06 replaced the legacy 039-0026-02 pressure transducer and cables. See **Figure 15** and **Figure 16** for a comparison between both parts.

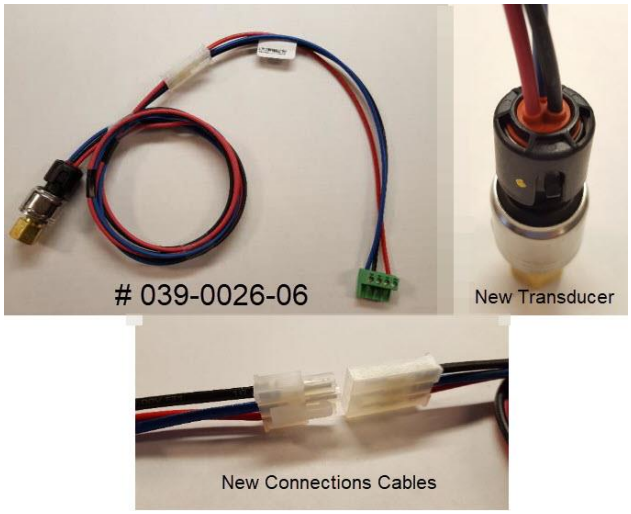


Figure 15 – Part # 039-0026-06 New pressure transducer and connection cable

Figure 16 – Part # 039-0026-02 Legacy pressure transducer and cables.