Emerson® Electronic Unit Controller

Copeland® brand products

EMERSON™ Climate Technologies

Emerson® Electronic Unit Controller

Key Functions

- Controls Unit Based On Suction Pressure
- Fan Cycling With Mid Coil Temperature*
- Discharge Line Protection*

Key Benefits

- Quick & Easy Set-Up
- Improved Set-Point Accuracy
- Enables Multi-Refrigerant Product
- Trouble Shooting Diagnostics
- Added System Safeguards

* Feature Dependent On System Design

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Emerson® Electronic Unit Controller Delivers System Value On Many Fronts…

2011

Multi-Refrigerant Capabilities	→	• Reduced SKUs	→ Less Inventory on the Shelf
Easy Digital Set Points	→	• 25 min. → 30 seconds • Improved, more stable and tighter set-point Tolerance	→ Quick, Accurate Setup & Service
Trouble Shooting Diagnostics	→	• Compr / Motor run time • Compr, DLT, HPC trips • Cond T, Suct P Display • DLT & Perf Alert Display	→ Faster Service & Reduced Callbacks
System Protection	→	• Low Pressure Control • DLT Protection • Smart FC & Time Delay • Bump Start	→ Fewer Service Calls & Extended System Life

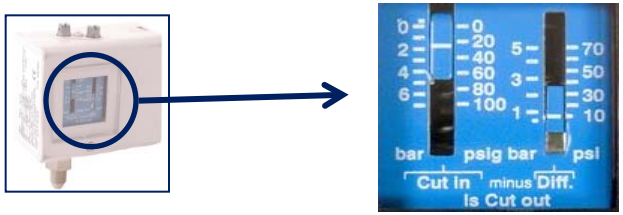
Today

Mechanical Controls	→	• Low Pressure Control • DLT Protection • Fan Cycling	→ 50 Year Old Technology

Step-Change In Technology Significantly Improves Service And Lifecycle Costs

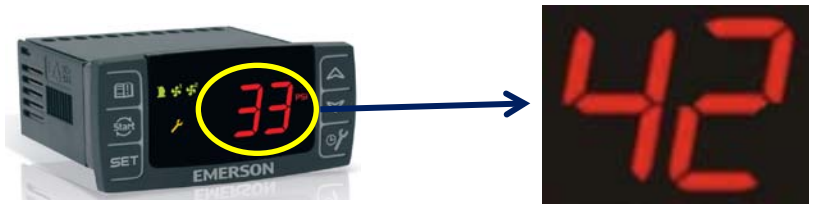
Mechanical Vs Electronics
Ease Of Use – Adjusting Pressure Controls

Mechanical



- Coarse Adjustments
- Drift Over Time

Electronics



- Fine Adjustments
- 1.5% Accuracy Over Life

Steps For Adjusting Mech. Low Pressure Control

1. Hook Up Gage Set
2. Read System Pressure
3. Adjust The Mechanical Pressure Control With A Wrench Or Screwdriver
4. Allow System Pressures To Settle
5. Read System Pressures
6. Final Adjustment To The Mechanical Pressure Control
7. Remove The Gage Set

Steps For Adjusting Electronic Low Pressure Control

1. Hold 3 Seconds To Enter Menu (PSI Light Flashing) — SET + ▽
2. Cycle Through Menu Options — △ ▽
3. Select Value — SET
4. Adjust Value — △ ▽
5. Store Value — SET

Up To 25 Minutes!

Less Than 1 Minute!

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Feature Details

Feature	Standard	Optional
Low Pressure	Std Setting	Customer Specified Setting
	Digital Setup	
	Improved/Stable Set-point Accuracy	
Protection	DLT On Scroll Units	DLT Added And Set To Customer Specified Setting
	Bump Start Off	Bump Start On And Set To Customer Specified Setting
	Short Cycle Protection Off Time Set To 6 Seconds	Short Cycle Protection Off Time Set To Customer Specified Setting
	Smart Fan Control On Units With Fan Cycling	Customer Specified Fan Cycling Set Points
		Short Cycle Protection - Min Time Between 2 Compressor Starts
		Condenser Temp Warning On 2 Fan Units
		Alarm Output For Non-dual Fan Cycling Units
Diagnostics	Condensing Temp	
	Suction Pressure	
	Fan Run Hours	
	Compressor Run Hours	
	High Pressure Control Trips	
	Compressor Cycles	
		Performance Alert Readouts

Emerson® Electronic Unit Controller Customer Implementation

- **Implementation Will Begin February 2011**
- **Distribution Services Will Start Transitioning Late March**
- **Phase-In Of All Units Complete By December 2011**
- **All Units With The Controller Will Have The Following Label On The Outside Of The Package:**

Electronic Pressure Control Service Parts

- **Kit Including Controller, Sensors, And Instructions Will Be Available At The Distribution Center For Wholesalers To Stock.**
- **Controllers Provided To Wholesalers Will Have A Basic Program And Be Able To Be Configured To Exactly Match The Previous Controller. Detailed Instructions Will Be Provided – See Example Label Below.**

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Electronic Unit Controller

Hold 3 Seconds to Enter Menu (PSI Light Will Flash)	▽ + SET
Cycle Through Menu Options	△ ▽
Select Function	SET
Adjust Value	△ ▽
Store Function	SET
Exit Menu	△ + SET

Functions

[in — Low Pressure Cut-In

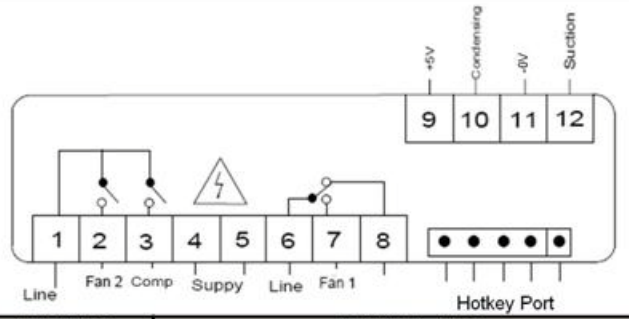
[oU — Low Pressure Cut-Out

More information inside panel

Alarm	Description
PoF	Keypad locked
Pon	Keypad unlocked
P1	Suction probe failure
P2	Condenser probe failure
P3	DLT probe failure
HA	High condenser temperature alarm

Alarm	Description
dLt	DLT temperature alarm
dLL	DLT lock alarm
HP	High pressure trip alarm
HPL	High pressure trip lock-out alarm
EE	Module Failure

NOTE: After 15 seconds of inactivity the controller will revert to the default display.



BUTTON	DESCRIPTION
SET	Displays set point In programming mode it confirms an operation.
RESTART	Alows 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	SF1 = 84	oA1 = Fan
CoU = 15	ono = 0	P1d = 15	bMP = no	Di1 = YES	HF1 = 11	oA2 = Fn2
LS = -7	Con = 5	Unt = PSI	On = 2	i1P = CL	SF2 = 94	P2P = YES
US = 135	CoF = 5	CF = F	oFF = 5	Di2 = no	HF2 = 15	P2C = ntC
odS = 2	P1i = -15	rES = in	Nub = 3	i2P = CL	nfA = 2	P3C = CPA

Controller Part Number: 543-0135-00
Program Part Number: Field Test
Call 1-888-367-9950 or
see www.EmersonClimate.com/EUC for more details

Quick Start Guide – 2010ECT-143

Emerson® Electronic Unit Controller
for Copeland® condensing units

Key Functions
- Controls unit based on suction pressure
- Fan cycling with mid coil temperature*
- Discharge line protection*

Key Benefits
- Quick and easy setup
- Improved set point accuracy
- Enables multi-refrigerant product
- Troubleshooting diagnostics
- Added system safeguards

*Feature dependent on system design

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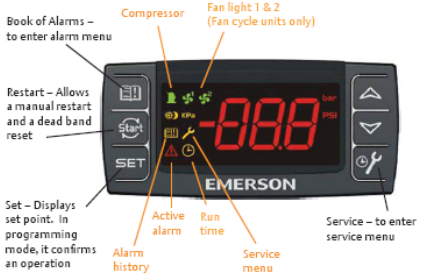
Quick Setup Guide

Adjusting Low Pressure Settings

Hold DOWN and SET simultaneously for 3 seconds to enter menu (PSI light will flash)	▽ + SET
Cycle through menu options – UP/DOWN	△ ▽
Select function – SET	SET
Adjust value – UP/DOWN	△ ▽
Store function - SET	SET
Exit menu - UP and SET	△ + SET

Low Pressure Cut-In

Low Pressure Cut-Out



When light is on, feature or component is on or active

Accessing Alarm Code Information

Press and release ALARM	
Cycle through menu options – UP/DOWN	△ ▽
Press SET to see number of alarms	SET
Press SET again to return to menu options	SET
Exit menu - UP and SET	△ + SET

Accessing Service Menu

Hold SERVICE for 3 seconds	
Cycle through menu options – UP/DOWN	△ ▽
Press SET to see number of alarms	SET
Press SET again to return to menu options	SET
Exit menu - UP and SET	△ + SET

Alarm	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 lock-out alarm
EE	Module Failure

Code	Description
StH	CompressorStarts –1000 -999999
StL	Compressor Starts –0 -999
CHH	CompressorHours -1000 -999999
CHL	Compressor Hours -0 -999
F1H	Fan 1 Hours -1000 -999999
F1L	Fan 1 Hours-0 -999
F2H	Fan 2 Hours -1000 -999999
F2L	Fand 2 Hours -0 -999
Example: If StH=12 and StL=500, the total number of compressor starts=12,500	

Note: After 15 seconds of inactivity the controller will revert to the default display.

For more information visit EmersonClimate.com/electronicunitcontroller

EmersonClimate.com

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Technical Support
Toll Free Hotline

For All Technical Related Questions or Support

Please Contact The Following Toll Free Number

1-888-367-9950

Hours Of Operation (8:00am-5:00pm EST)

Monday Through Friday, (Excluding Holidays)

Or Visit *www.emersonclimate.com/Electronicunitcontroller* for on-line brochures, bulletins, instruction videos, and general product information

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FAQ's

- **What Changes Does The Customer Need To Make?** *If They Change The Low Pressure Control Set Point, The Process Will Be Simpler But Require Power To Controller, See Previous Slides*
- **Will Model Numbers Change?** *No, This Is A Running Change*
- **Will The Dimensions Of The Condensing Unit Change?** *No*
- **Will We Still Offer Mechanical Pressure Controls If A Customer Requests?** *No*
- **Are There Any UL Updates / Changes Needed?** *Only In IPD's File. Customers Will Not Need To Make Updates.*
- **Will This Affect The Performance Of The Unit?** *No, But Set Points Will Be Held More Accurately*
- **If A Customer Has An Adjustable High Pressure Control Today, Will They Have It When Dixell Is Implemented?** *No*
- **How Accurate Is The Product?** *Improved, more stable and tighter set-point Tolerance*
- **What is the Default Setting – Can I have This Factory Set At IPD?** *The default setting is the same as what you have today. We can set it at IPD as an optional and extra feature.*

FAQ's Continued

- **What Happens If The Midcoil Temp Sensor Fails?** *Fans Will Run*
- **Are The Sensors For Multi-ref Units Different From The Standard Sensor?** *No*
- **Will Bumpstart Be On Every Unit?** *It Will Be Set To "Off" For Every Unit Except T-line Units.*
- **What Are The Bumpstart Settings?** *2 Seconds On, 5 Seconds Off – 3 Times*
- **What Is The LP Rating Of The Controller?** *IP 65 For The Front, IP 20 For The Back.*
- **What Happens If The Plug Comes Off The Transducer?** *The Unit Goes Into Limp Along Mode.*
- **What Is "Limp Along" Mode?** *The Unit Will Turn On For 5 Minutes And Then Off For 5 Minutes.*
- **Can The Time Delay Function Be Used For Low Ambient When The Low Pressure Controll Needs To Be Pulled Out Of The Circuit?** *No, But We Are Planning For This In The Next Generation.*
- **Will This Be Available For Retrofit?** *Not at this time because the temperature sensing required for accurate fan cycling requires a thermo well brazed on the condenser.*