X-Line 101

June 2019

X-Line Unit Overview

What makes X-Line unique

Technology Changes, The Function Stays The Same

Old Technology

- Carburetor
- Distributor
- Manual Steering
- Drum Brakes

- Internal Combustion Engine
- Steering Wheel / Foot Pedals
- Bed

New Technology

- Fuel Injection
- Electronic Ignition
- Power Steering
- Disk Brakes

- On-Board Diagnostics
- Seatbelts / Airbags
- Crash Avoidance
- Heated Seats / A/C

- Internal Combustion Engine
- Steering Wheel / Foot Pedals
- Bed

The new truck looks different, has extra features, and is more efficient, but it is still a truck.

Technology Changes, The Function Stays The Same

Old Technology

- Mechanical Controls
- “Box” Design
- “Air Beater” Fan

- Scroll Compressor
- Condenser
- Outdoor Enclosure

New Technology

- Electronic Controls
- Slim Design
- High Efficient Fan

- On-Board Diagnostics
- Communication
- System Protection
- Heated Seats / A/C

- Scroll Compressor
- Condenser
- Outdoor Enclosure

The new unit looks different, has extra features, and is more efficient, but it is still a unit.

X-Line Benefits

Uptime - improve maintenance accuracy and reduce callbacks
- Diagnostics, protection, and connectivity standard

Flexibility – install in more location options
- Lightweight, slim profile
- Corrosion resistant
- Quiet
- Multi-refrigerant

Efficiency – lower usage costs
- High efficient scroll compressor and optimized condenser sizing
- Floating head pressure control and low condensing ready

X-Line Nomenclature / Features

X	F	A	M	-	0 2 0	Z	-	T F C	-	0 8 1
X = Outdoor	F = Multi-Refrigerant J = R-404A / R-407A/C	A = Air Cooled	L = Low Temp M = Medium Temp. P = Multi- Application		Nominal HP: 008 = ¾ HP 015 = 1.5 HP 060 = 6 HP	Z = Scroll Compressor		CFV = 208/230v 1Ph. 60 Hz. TFC = 208/230v 3Ph. 60 Hz.		Bill Of Material
Base Model							Electrical		BOM	

BOM		Features																UL	
Generation 0.1 – 1.1	Generation 2.0	Receiver W/ Valve	Reciever Heater / Insulation	Suction Valve	Liquid Valve	Accumulator	Oil Seperator (Low Temp Only)	Pressure Controls (Adjustable low, Fixed High)	Defrost Control	Filter Drier	Moisture Indicator / Sight Glass	Crankcase Heater	Variable Speed Condenser Fan	Demand Cooling Low Temp - Enhanced Vapor Injection (EVI) Med/Ext Med Temp - Suction Line Liquid Injecton	One-Way Communication	Two-Way Communication	CoreSense Diagnostics / Protection	Listed	Recognized
002		X		X	X	Low Temp Only	X	X	X	X	X	X	X	X			X	X	
012		X		X	X	Low Temp Only	X	X	X	X	X	X	X	X	X		X	X	
022		X	X	X	X	Low Temp Only	X	X	X	X	X	X	X	X	X		X	X	
	081	X	X	X	X	XFAL, XFAP Only	X	X	X	X	X	X	X	X		X	X	X	

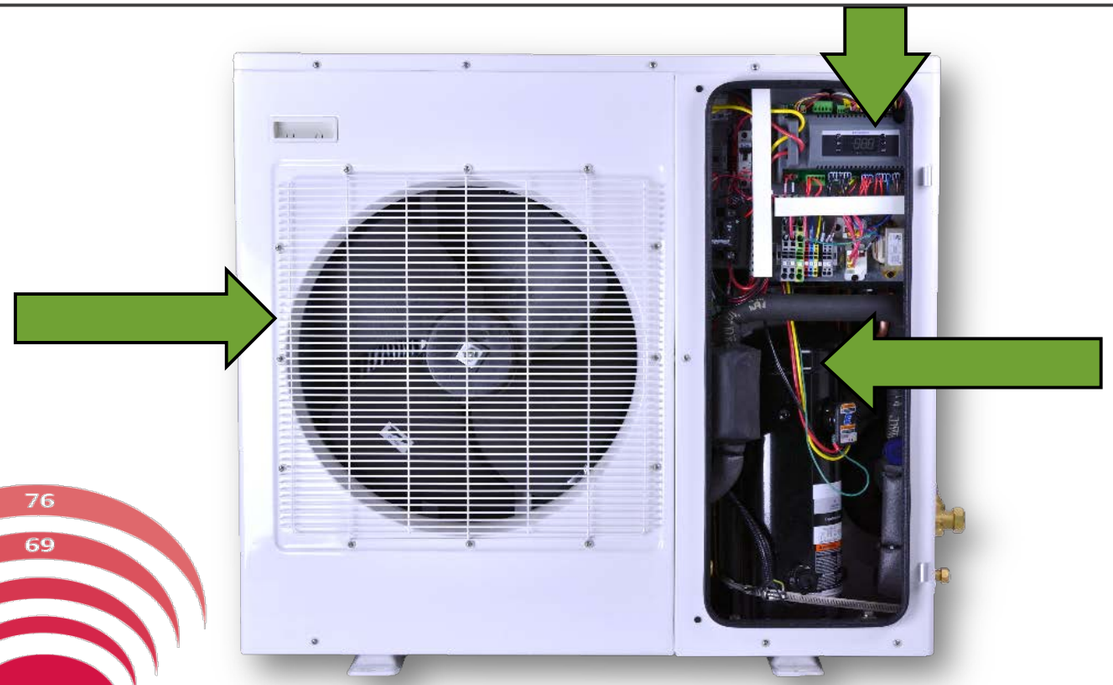
Integrated Technology Delivers Highest Efficiency And Diagnostic Protection

CoreSense ™ Diagnostics And Protection

- •Over Current protection
- •Incorrect Phase Detection
- •High Pressure Lockout
- •Flood-Back Prediction
- •Demand Cooling™
- •Flooded Start Protection (“Bump-Start” Logic)
- •Discharge Temp. Protection
- •Anti-Short Cycle Time Delay
- •Digital Fault Code Display / Remote Alarming
- •Over/Under Voltage Protection

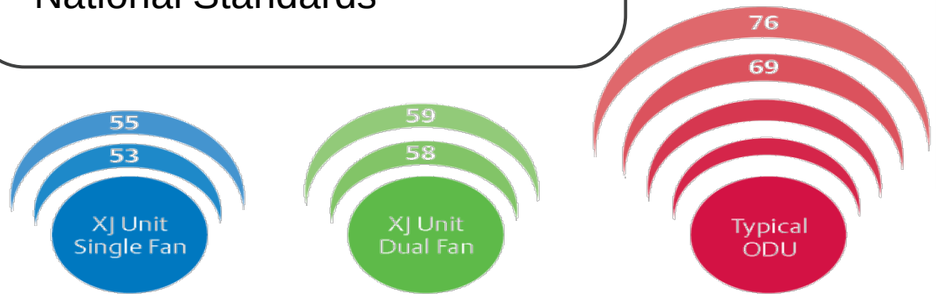
Variable Speed PSC Fan Motors

- High Efficiency
- Ultra Quiet
- Optimizes Air-Flow For Maximum Heat Transfer
- Meets CEC and National Standards



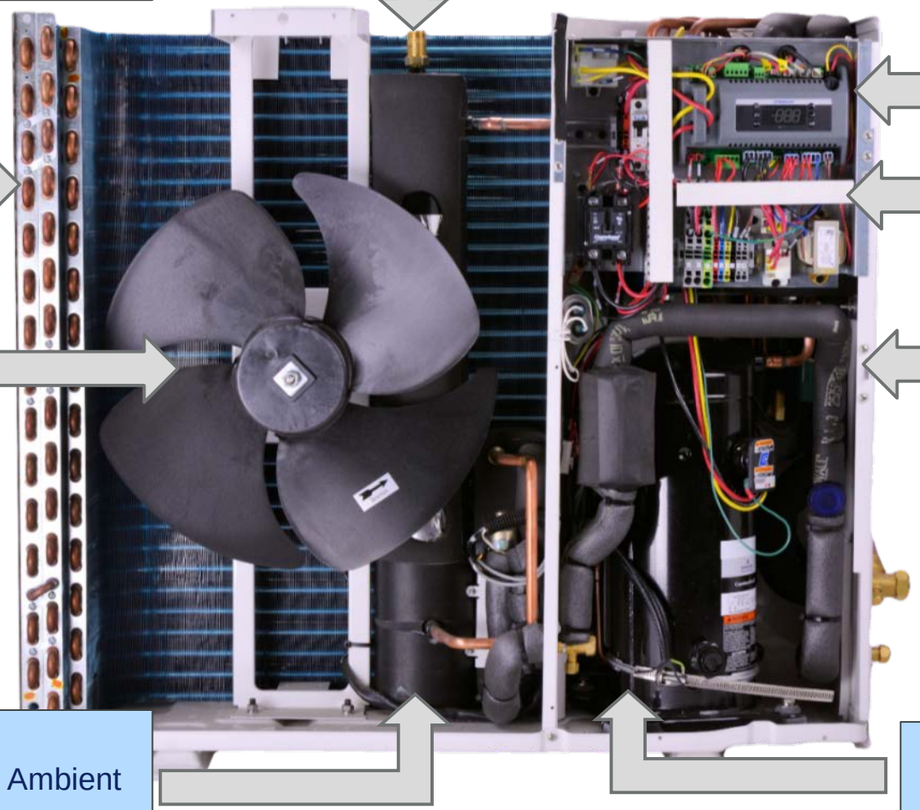
Copeland Scroll Compressor Technology

- High Efficiency
- Ultra Quiet
- High Reliability



Unit Sound Levels at Minimum and Maximum Load

Wide Ambient Operating Range



Pressure Relief Valve
Pre-Installed For Zoning Code Compliance

Large Condenser Coil
Optimized For High Ambient Conditions

Variable Speed Fan
Continually Adjusts Speed Between Approximately 300 to 1000 RPM For Current Conditions

Heated And Insulated Receiver
Maintains Liquid Pressure For Starting In Low Ambient
T-Stat Controlled Heater

Built In Low Pressure Bypass
Automatic Bypass For Low Ambient Startup With Adjustable Time Delay.

Low Ambient Approved Electronics And Sensors

Demand Cooling
XFAM/P – Liquid Injection
XFAL – Vapor Injection
Keeps Compressor Cool During High Compression

Check Valve At Inlet Of Receiver
Maintains Pressure Build Up Inside Receiver

System Location, Refrigerant, And Application May Affect Min/Max Operating Capability.

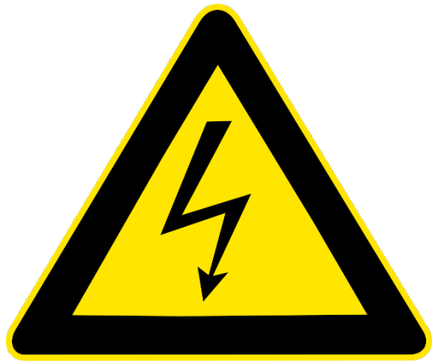
Setup / Diagnostics / Protection

EMERSON

Top Diagnosis of Returned Compressors

No Fault Found

- Compressors are misdiagnosed and returned with no faults.



Electrical Problem

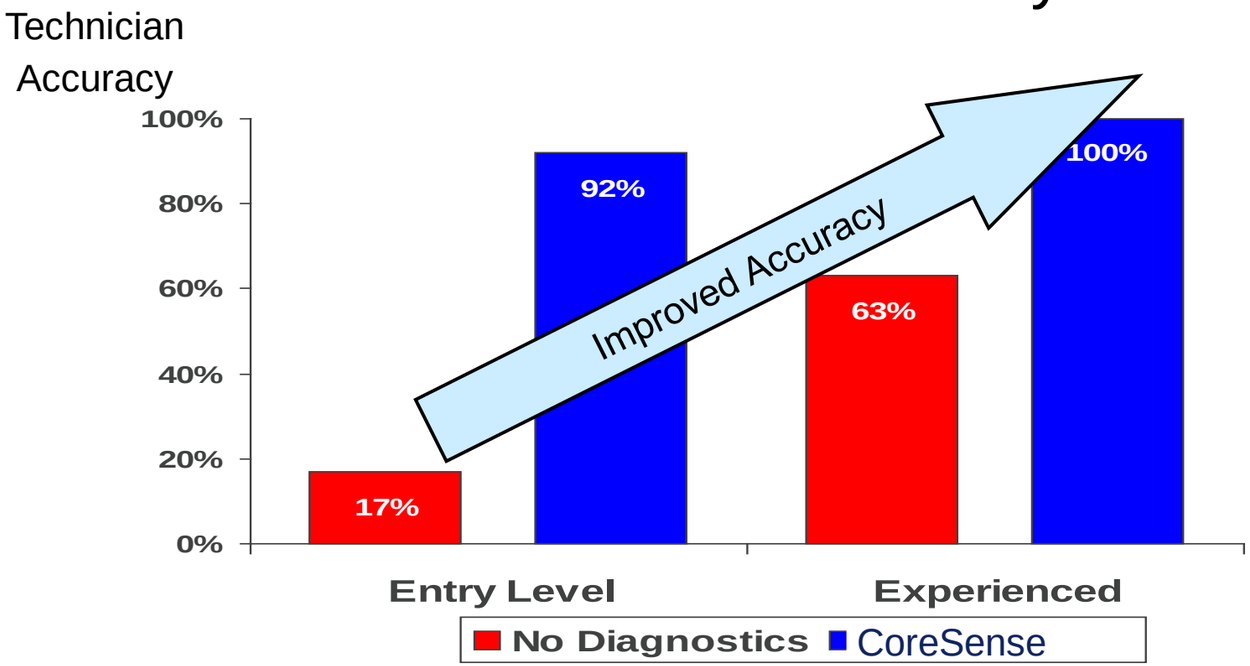
- Hi/Low voltage or current
- Phase loss
- Reverse rotation

Mechanical Problem

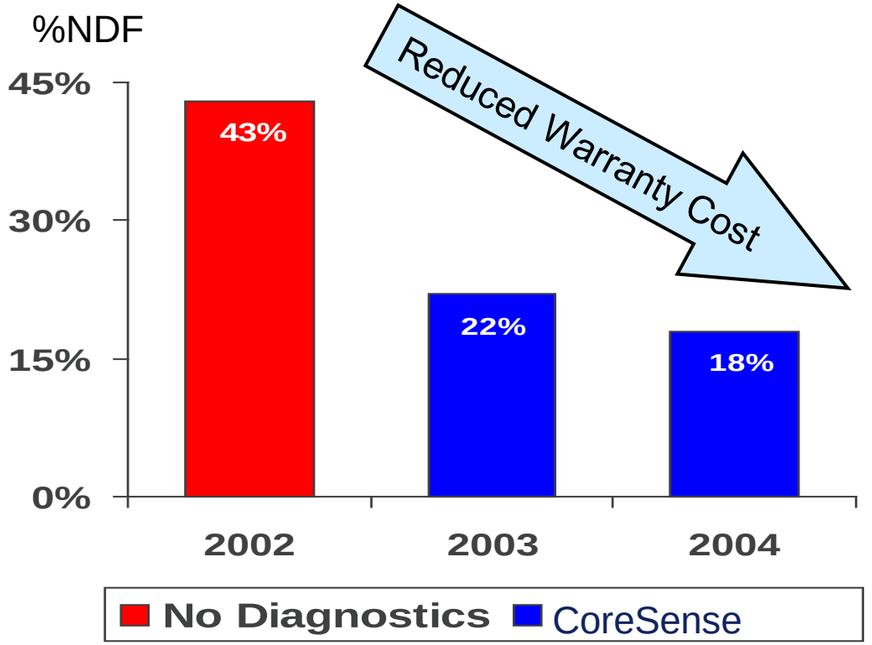
- Overheating
- Flooded start
- Liquid Floodback

How Diagnostics Improve Troubleshooting Accuracy And Warranty

Service Technician Study



Actual Warranty Results



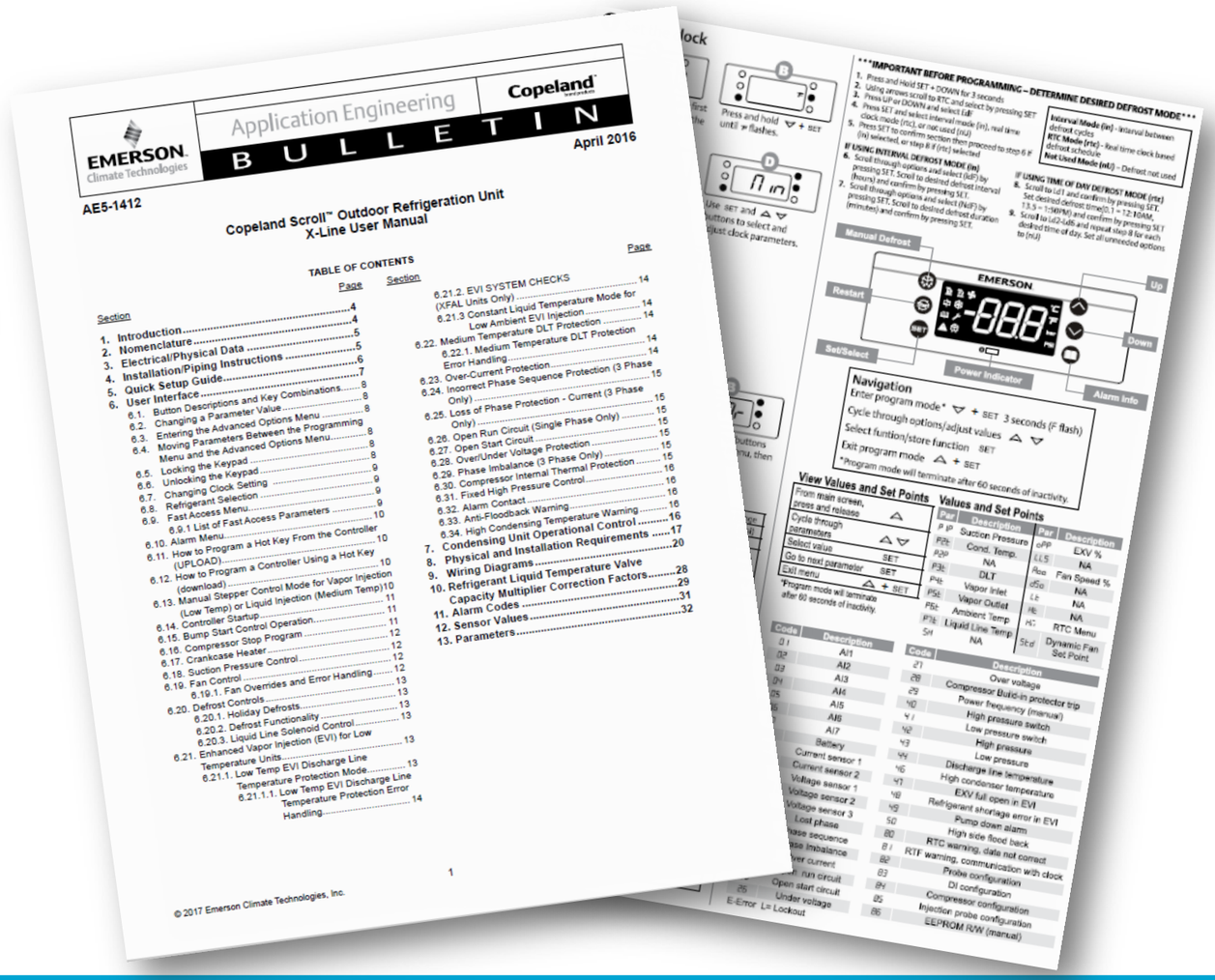
Improved Service Technician Accuracy

Lower “No Defect Found” Warranty Failures

“My main concern is getting the equipment repaired the first time on the first visit. . . “ – Refrigeration Contractor

X-Line Installation
Controller Setup

- All installation instructions, diagrams, and guidelines are included in the application bulletin (AE5-1412)
- A quick start guide is supplied with each unit (attached to door), showing how to set the control (also in manual)
- Setup is similar to the EUC



Simplified Commissioning Allows For Setup in about 1 Minute.

2.0 Diagnostic Codes

E=Error Code

L=Lockout

Code	Description
01	AI1 error (Suction Transducer)
02	AI2 error (Condenser Temp Probe)
03	AI3 error (Discharge Line Temp Probe)
04	AI4 error (Vapor Inlet Temp Probe)
05	AI5 error (Vapor Outlet Temp Probe)
06	AI6 error (Ambient Temp Probe)
07	AI7 error (Liquid Line Temp Probe)
08	Battery error
09	Current sensor 1 error
10	Current sensor 2 error
11	Voltage sensor 1 error
12	Voltage sensor 2 error
13	Voltage sensor 3 error
20	Lost phase error
21	Phase sequence error
22	Phase Imbalance
23	Over current 1
24	Over current 2
25	Open run circuit error
26	Open start circuit error

Code	Description
27	Under voltage alarm
28	Over voltage alarm
29	Compressor Build-in protector trip
40	High pressure switch
41	Low pressure switch
42	High pressure alarm
43	Low pressure alarm
44	Discharge line temperature alarm
46	High condenser temperature alarm
47	EXV full open in EVI
48	EVI high superheating alarm
49	EVI low superheating alarm
50	High side flood back alarm
80	RTC warning, date not correct
81	RTF warning, communication with clock
82	Probe configuration error
83	DI configuration error
84	Compressor configuration error
85	Injection probe configuration error
86	EEPROM R/W error (manual)

Lockouts Occur After An Adjustable Number Of Errors Within A Set Timeframe.
Lockouts Can Be Disabled To Always Allow Auto Restarts

System Protection

Proactive

- Floodback Prediction
- Flooded Start Protection (Bump Start)
- Short Cycle Protection
- Demand Cooling™
- Phase Imbalance Protection
- High Condensing Temperature Protection

Identify or protect against conditions that may lead to compressor damage. System may adapt and continue running.

Reactive

- Over Current*
- Lost Phase
- High Pressure*
- High Discharge Temperature*
- Incorrect Phase Detection
- Open Start Or Open Run Circuit
- Over/Under Voltage

Shut down and prevent compressor damage from system or power supply issues that are occurring.

*Can be set to Lockout or auto restart

Compressor Lockouts

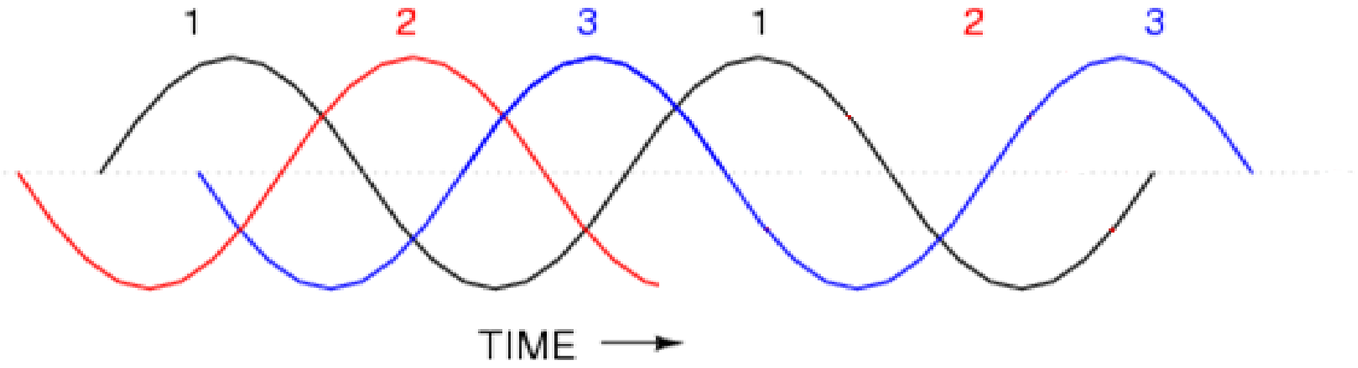
Code	Condition	Controlling Parameter	Default Setting	Value Range
L20	Lost Phase	pEn	5	0 – 15; 0=Always Auto Restart
L21	Reversed Phase	-	-	On power up
L23	Over Current	oCn	5	0 – 15; 0=Always Auto Restart
L24	Open Run Circuit	oCn	5	0 – 15; 0=Always Auto Restart
L25	Open Start Circuit	oCn	5	0 – 15; 0=Always Auto Restart
L26	Under Voltage	pEn	5	0 – 15; 0=Always Auto Restart
L27	Over Voltage	pEn	5	0 – 15; 0=Always Auto Restart
L40	High Pressure	HPn	5	0 – 15; 0=Always Auto Restart
L44	Discharge Line Temp	dLn	4	0 – 15; 0=Always Auto Restart
L86	EEPROM (Memory)	-	-	-

Repeated Trips Are Often Indicative Of A Larger System Problem. If A Compressor Is Locked Out, The System Should Be Closely Examined To Determine The Cause Of The Issue.

Lost Phase Protection

Error Code: E20 or L20

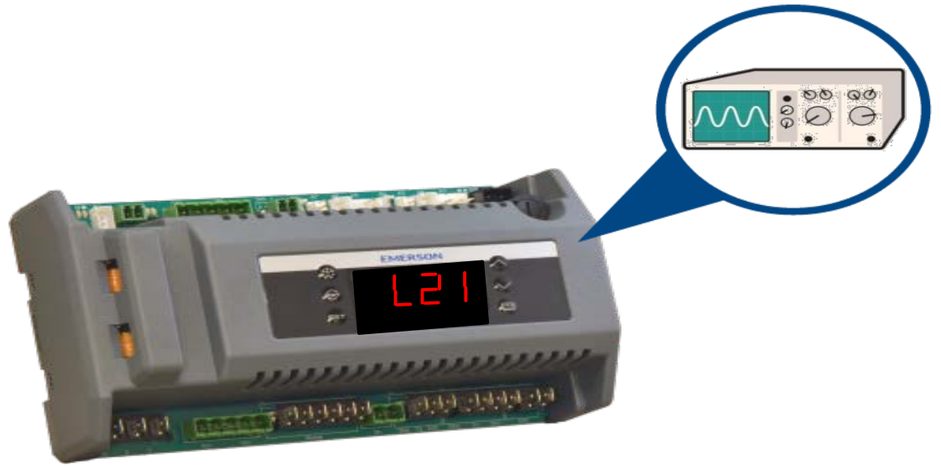
- Monitored by voltage sensing terminals on control module
- Triggered if any phase is not detected
- Unit will restart after 3 minutes if phase returns
- Unit will lockout if phase is lost more than 5 times in an hour



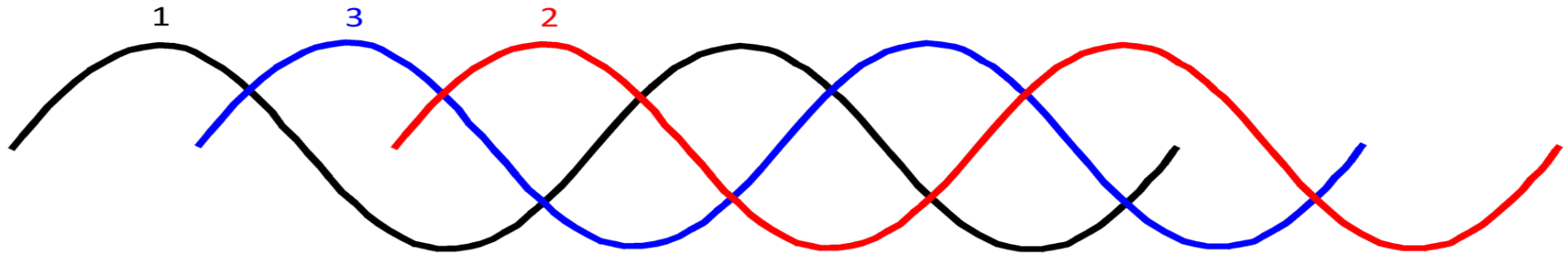
Incorrect Phase Protection

Error Code: L21

- Monitored by voltage sensing terminals on control module
- Triggered if any phase does not lead the next by 120°
- Unit will not start until phase is corrected



Required Phase Sequence
1 - 2 - 3 - 1 - 2 - 3 - 1 - 2 - 3

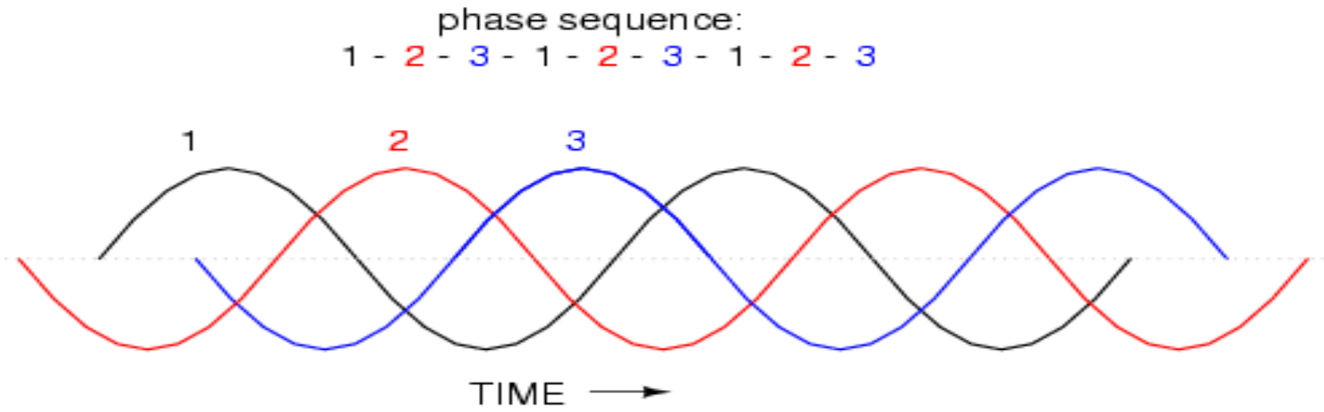


Measured Phase Sequence
1 - 3 - 2 - 1 - 3 - 2 - 1 - 3 - 2

Phase Imbalance Protection

Error Code: E22

- Monitored by voltage sensing terminals on control module
- Triggered if voltage on any phase drops below 10% of the average
- Unit will not start until phase is corrected

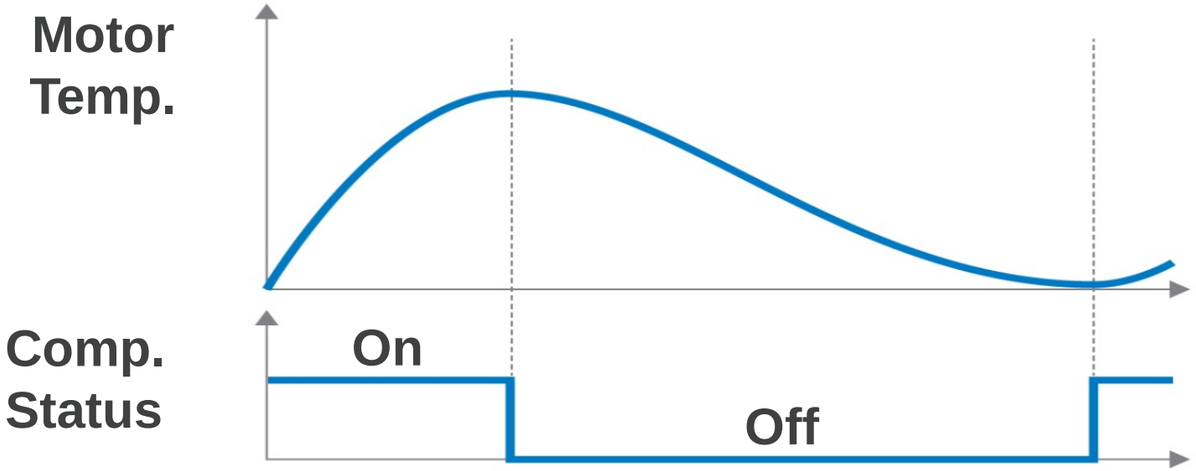


Over Current Protection

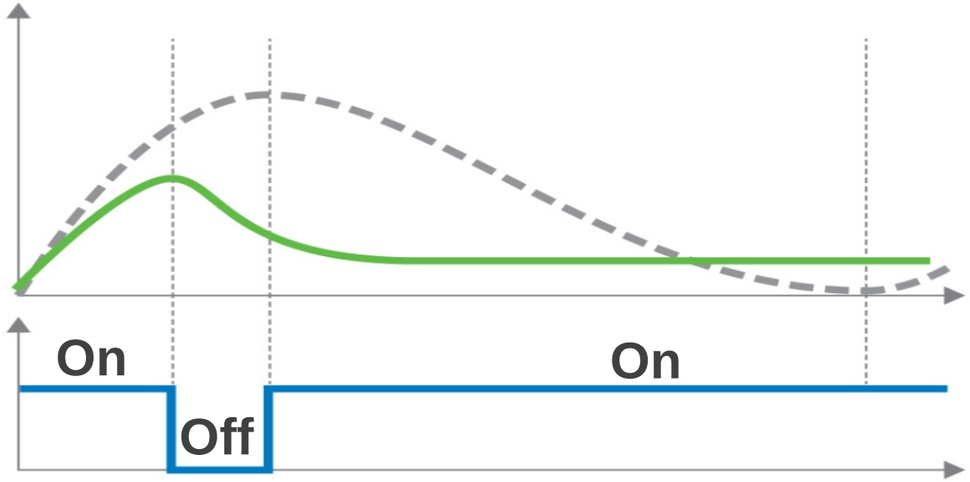
Error Code: E23 or L23

- Over current protection is provided before the compressor overheats and trips on internal thermal protection. This shortens restart times from as long as 45 minutes down to 3 minutes.
- Unit will restart after 3 minutes and lockout if more than 5 trips occur within an hour

Without Protection



With Protection

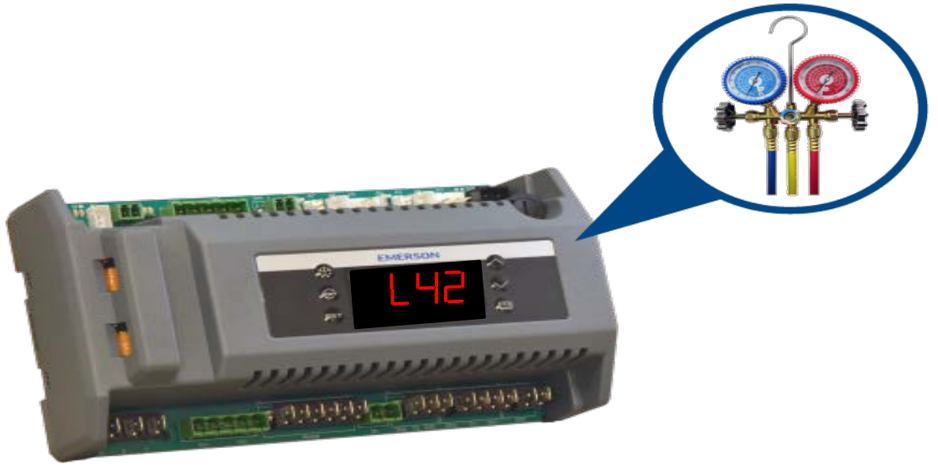


High Pressure Lockout

Error Code: L42

High pressure cut-out will stop compressor and restart after 3 minutes.

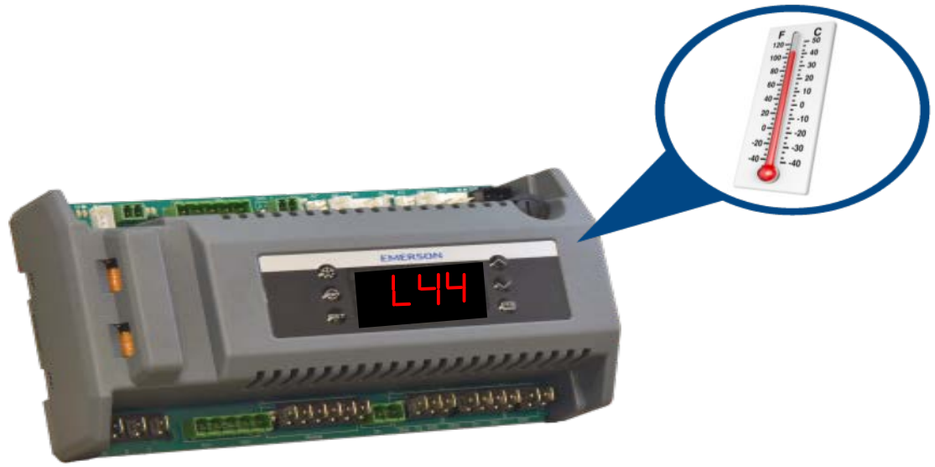
- Fixed cut-out at 440psig, cut-in at 348psig
- Lockout after 5 trips within one hour



Discharge Line Temperature Protection

Error Code: E44 or L44

- Monitored by temperature sensor on discharge line located 6” from compressor discharge fitting.
- Compressor shuts down if temperature exceeds 250°f (low temp) or 255°f (medium temp)
- Unit will restart after 3 minutes if temperature drops below 170°F.
- System will lockout if compressor trips more than 4 times in an hour



Flood Back Prediction

Error Code: E50

- Error will display if high-side superheat (discharge – condenser temp) is less than 18°F for more than 30 minutes of the last 45 minutes
- Unit will continue to run

Flooded Start Protection (Bump Start)

Bump start is a startup process that protects against bearing wear caused by flooded starts (refrigerant absorbed into the oil). The compressor and fans will run for 2 seconds then turn off for 15 seconds repeating this sequence 3 times. Once this sequence is completed, the unit resumes normal operation.

The bump start sequence will initiate on first startup, and anytime power is lost and restored. Bump start will also initiate anytime the compressor does not run for more than 4 hours, and the ambient temperature is below 95°F.

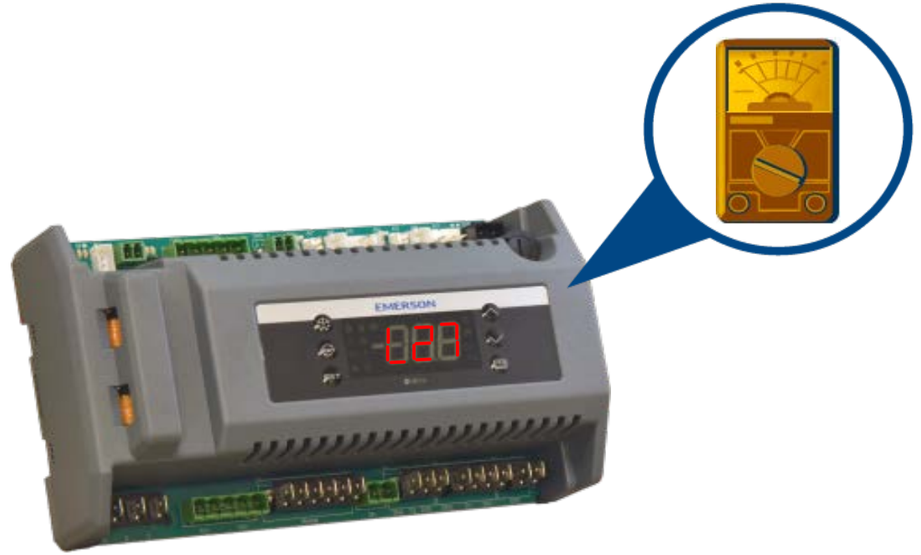
Anti-Short Cycle Protection

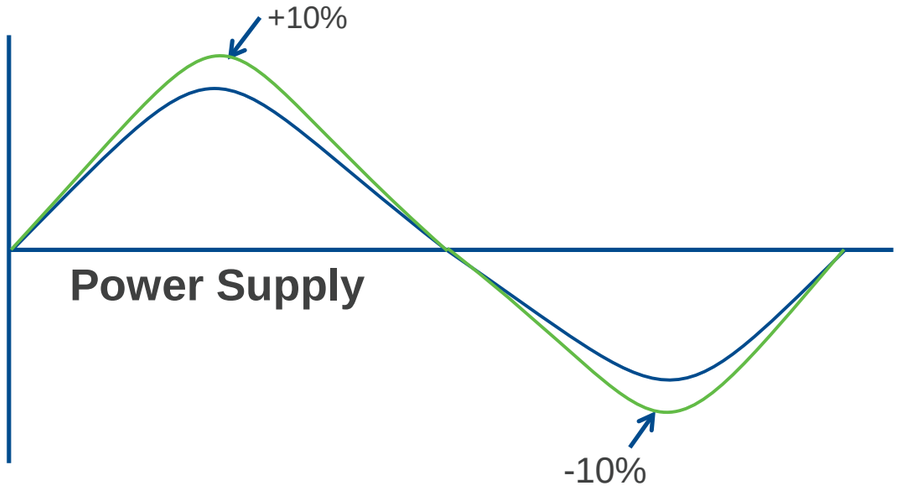
- Compressor will remain off for 3 minutes after any compressor shutdown.
- Use Parameter 2oF to adjust timing.
- Compressor indicator on display will flash during time delay

Under/Over Voltage Protection

Error Code: L26 or L27

- Monitored by voltage sensing terminals on control module
- Compressor stopped if voltage exceeds 10% of min/max rated voltage for more than 1 second
- Unit will restart after 3 minutes if voltage returns
- Will lockout if compressor is stopped more than 5 times in an hour

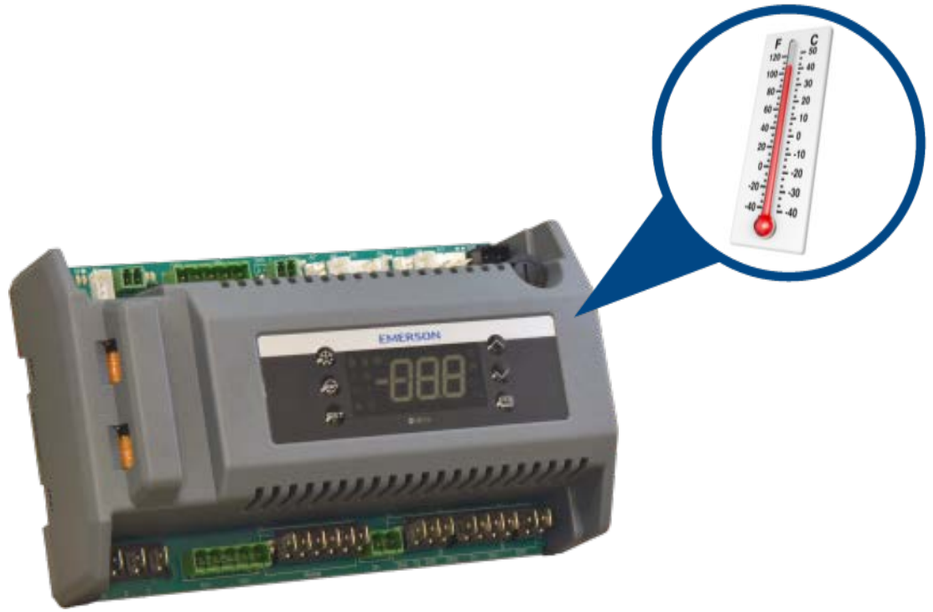




Smart Crankcase Heater

Crankcase heater operates when:

- Ambient temperature < 50°F
- Compressor off



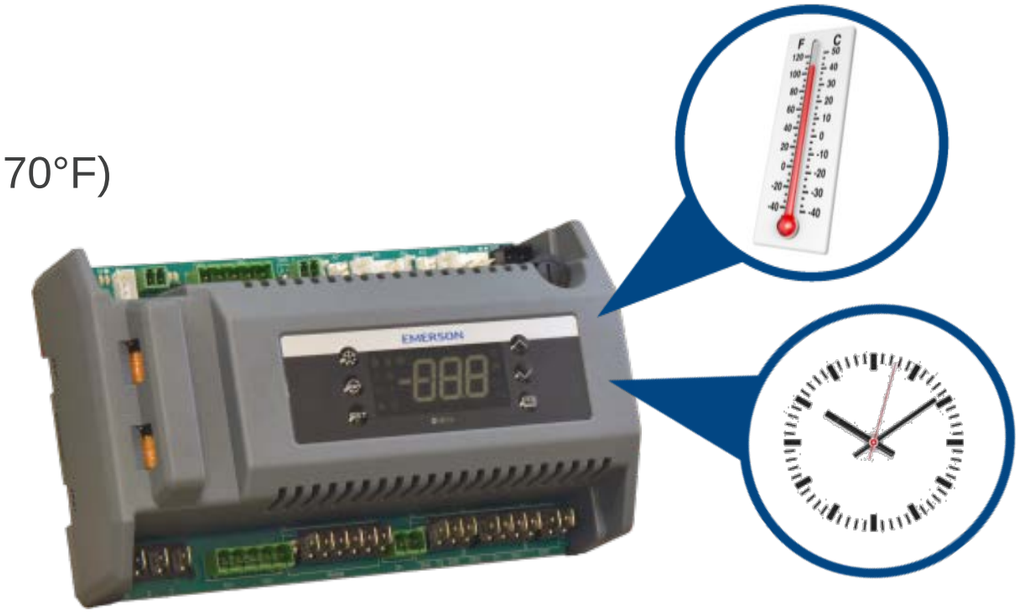
Low Ambient Operation

Receiver heater operates when:

- Ambient temperature < 50°F
- Compressor off
- Receiver temperature thermostat is closed (cut-in: 30°F, cut out: 70°F)

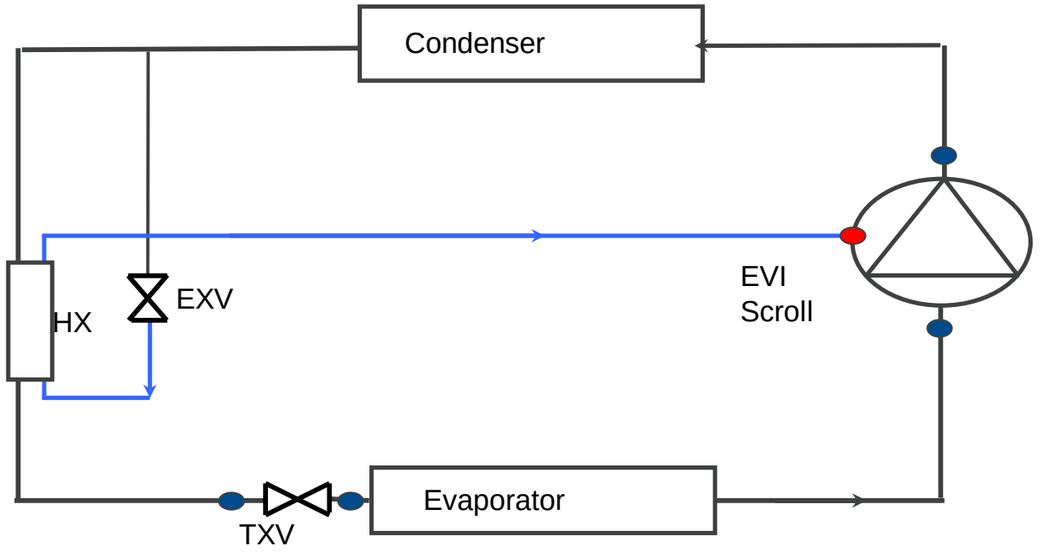
Low pressure control bypass:

- Ambient temperature < -20°F
  - Controlled by parameter LAS
- 6 second duration
  - Adjustable with parameter LMO



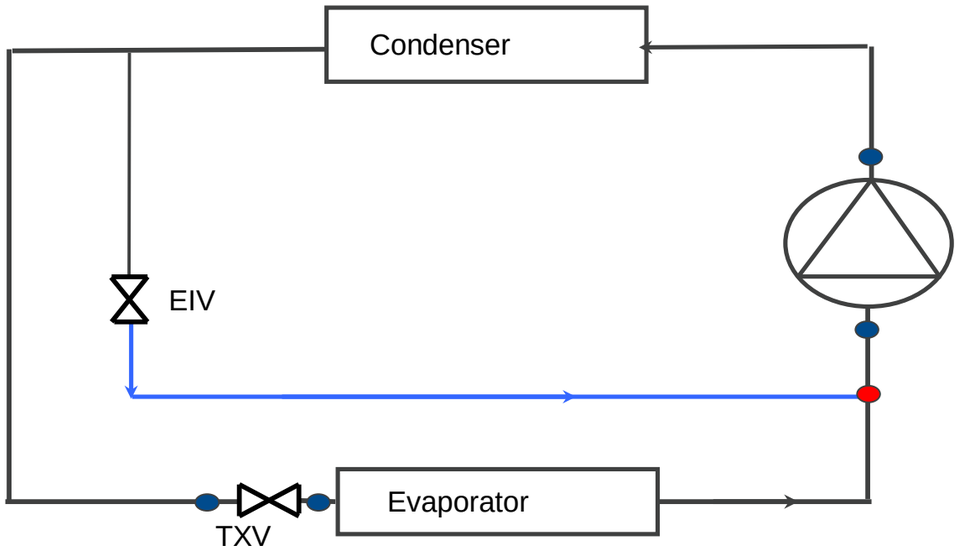
Demand Cooling™

Enhanced Vapor Injection (2-6 HP LT)



Low Temp

Suction Line Liquid Injection (MT/EMT)



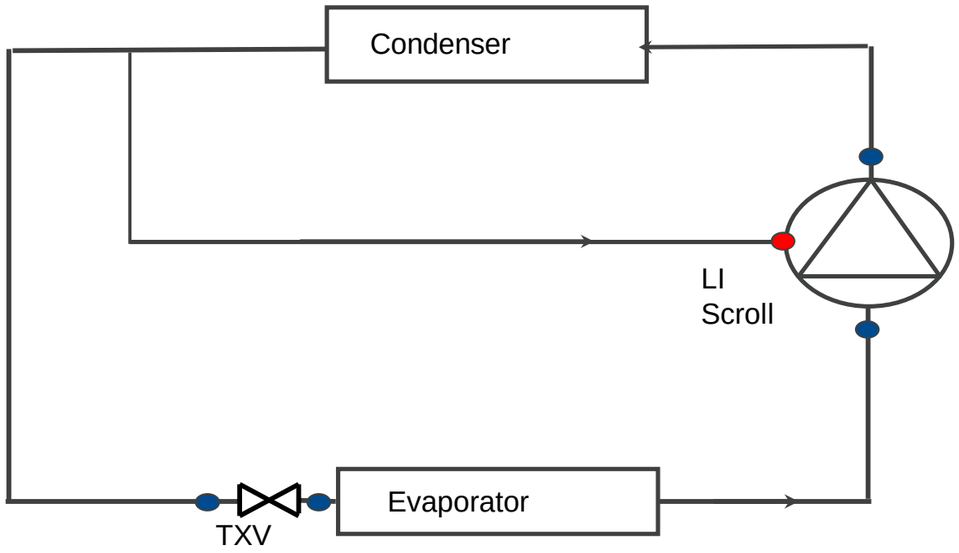
Medium Temp

Injection Attempts To Maintain Discharge Line Temps Below 225°F (LT) Or 235°F (MT)
Electronic Injection Valves (EIV) Control Refrigerant Flow For Optimum Injection
Provides Protection For Out Of Envelope Operation
EVI Increases Capacity And Efficiency

Demand Cooling™ Continued

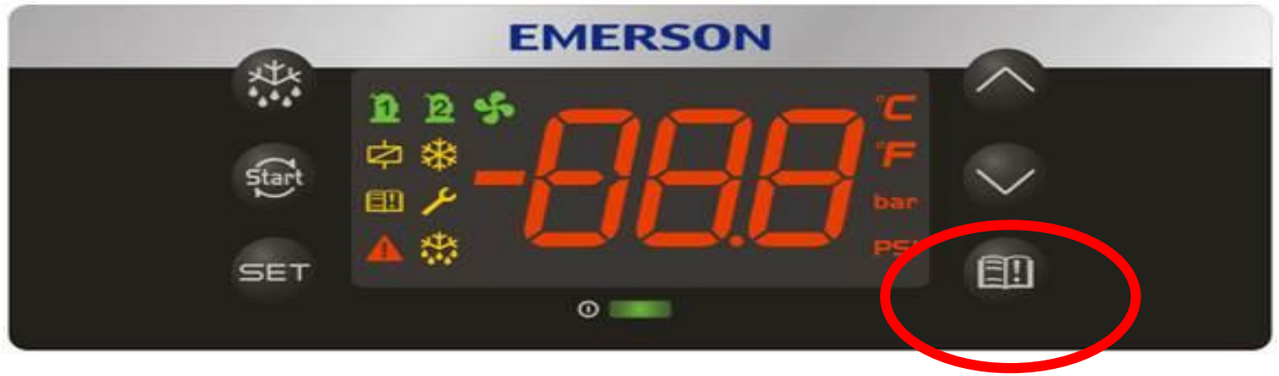
ZF*KAE

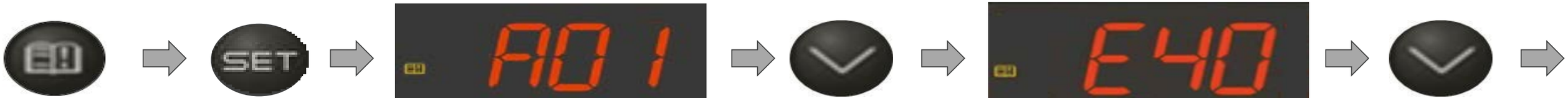
Direct Liquid Injection (3/4 – 1 1/4 HP LT)



Low Temp units with ZF*KAE compressors use direct liquid injection instead of EVI.

On-Board Alarm History





Alarm 01

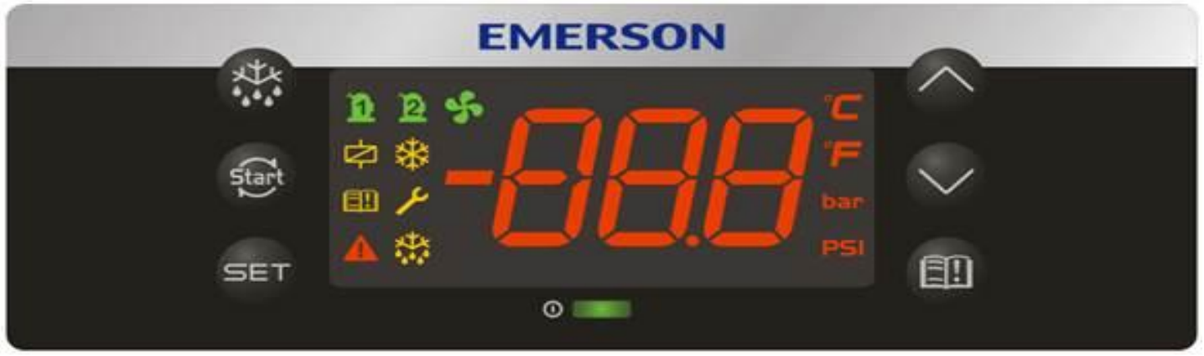
Error 40

Alarm 02

Error 40

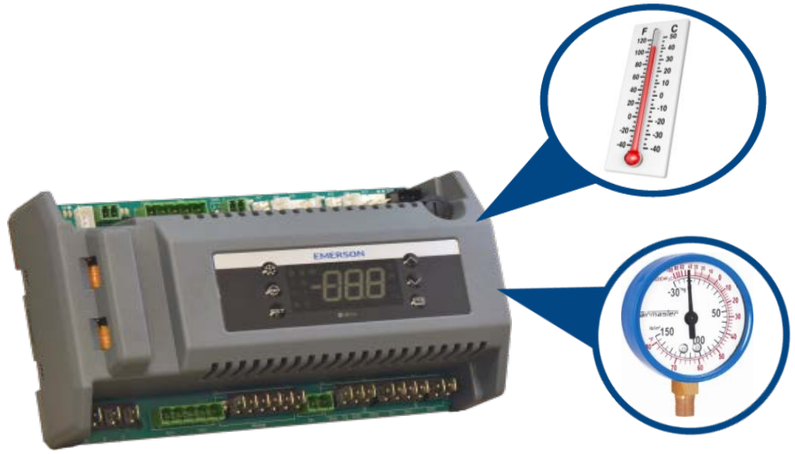
Alarm History Retains The Last 50 Alarms With Date/Time Stamp

Digital Temperature And Pressure Display (Fast Access Menu)



Probe 1 - Pressure

Probe 2 - Temperature



Par	Description	Par	Description
P 1P	Suction Pressure	oPP	EXV %
P2t	Cond. Temp.	LLS	NA
P2P	NA	Aoo	Fan Speed %
P3t	DLT	dSo	NA
P4t	Vapor Inlet	Lt	NA
P5t	Vapor Outlet	Ht	NA
P6t	Ambient Temp	Hn	RTC Menu
P7t	Liquid Line Temp	Std	Dynamic Fan Set Point
SH	NA		

X-Line Communications

RS485 Modbus

Remote Display	CoreSense PC Software	XWEB Internet Gateway	E2 Site Control	Site Supervisor
Kit # 943-0058-00	Kit # 943-0224-00		Existing installations V4.08	Available to end users thru retail solutions

Local “On-Site” Visibility And Control

Remote “Off-Site” Visibility And Control

Availability Timing Varies. Product Information And Training Will Be Provided When Available.

PC Interface Software (PCIF)

Version 3.00F01

Browse “Software Downloads” from OPI homepage

Requires RS485 to USB adapter http://a.co/3fG9T4U

X-Line Installation
Mounting And Connections

Mount almost anywhere with optional wall mount brackets or snow legs. Will accept brackets and legs from most mini-split manufacturers.

Easy access hinged door panel allows access to centralized color-coded terminal block for main power, defrost, and accessory connections. Door hinges separate for easy door removal.

External valves with standard 7/8” suction and ½” liquid connections

Physical Installation Is Simple And Standardized Across All Models

Integration With Advanced Evaporators

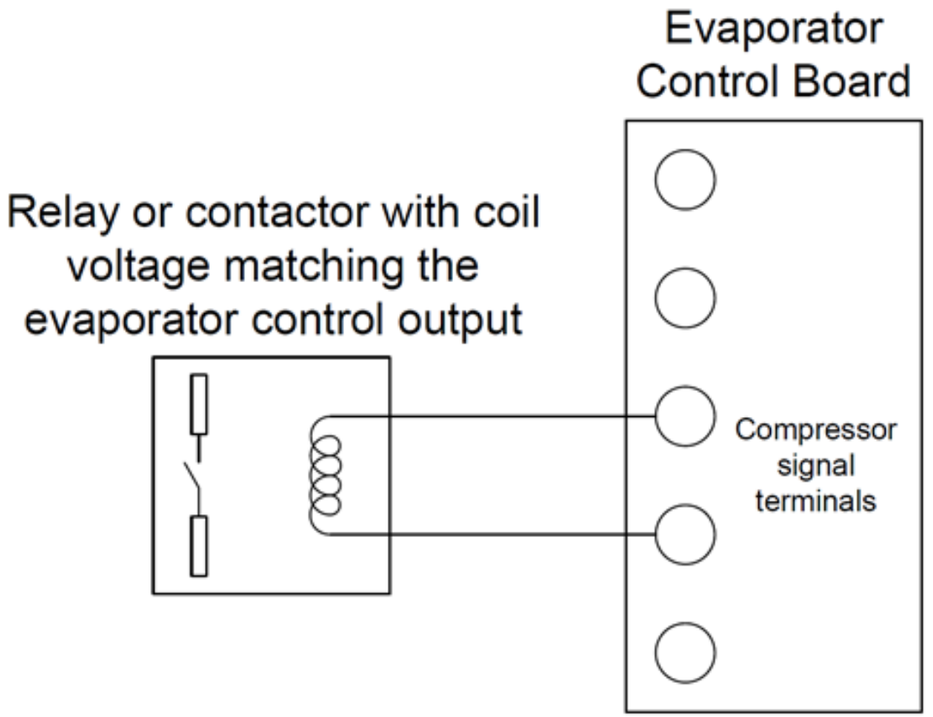
EMERSON

Using An X-Line Unit With An Interconnected Evap/CDU System

When a connected CDU is removed, the evaporator may require modification to avoid false alarms.

Example:
Beacon II System

Other systems are similar. Contact the evaporator manufacturer for model specific instructions.



A false load needs applied to the evaporator control. Contact the evap manufacturer for the proper procedure

Evaporators with built-in time delay function

If the evaporator has a built-in time delay, it may conflict with the time delay function in the X-Line unit. One of the time delays must be disabled or adjusted.

Options

- Disable the evaporator time delay function.
- If the evaporator time delay cannot be disabled, the time delay on the X-Line can be adjusted.
  - Field installs have shown setting parameter 2oF to 20 seconds has avoided conflicts with evaporator time delay settings.

Built-In Defrost Controls

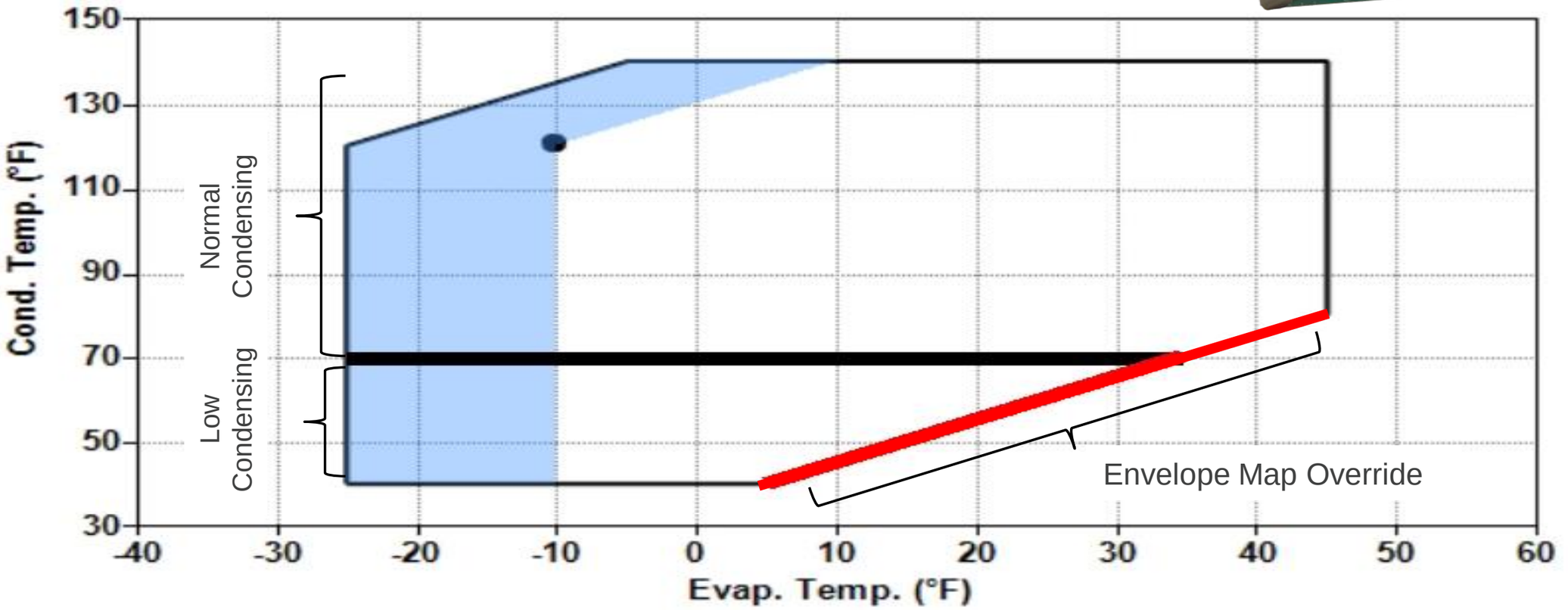
Many new evaporators come with defrost controls built into the evaporator. If the evaporator defrost control is used, the defrost control on the X-Line unit must be disabled.

To disable the defrost on the X-Line unit:

- Set parameter EDF to nU

Low Condensing / Envelope Mapping

- Default setting allows 70° minimum condensing (80° for XFAL)
- 15-20% energy savings for each 10° lower condensing
- **System EXV needed to handle fluctuation**
- Adjust parameter MCS to allow low condensing
- Control will override to remain within envelope



Energy Savings

EMERSON

X-Line Outdoor AWEF Scores

	Outdoor AWEF (With Factory Settings)							Outdoor AWEF (With 50°F Minimum Condensing Temperature Settings)						
Basic Model	22	134a	404A	407A	407C	448A	449A	22	134a	404A	407A	407C	448A	449A
XFAM/P-015Z	9.57	8.87	9.79	9.82	9.7	9.17	9.2	10.11	8.87	10.18	10.28	10.03	9.51	9.54
XFAM/P-017Z	9.97	9.29	10.22	9.98	10.01	9.62	9.62	10.45	9.29	10.58	10.44	10.36	10.06	10.08
XFAM/P-022Z	10.08	9.87	10.39	10.27	10.22	9.79	9.79	10.51	9.87	10.74	10.72	10.53	10.23	10.23
XFAM/P-030Z	10.81	10.93	10.41	10.5	10.96	10.4	10.41	11.22	10.93	10.73	10.82	11.3	10.75	10.76
XFAM/P-045Z	10.51	10.46	10.37	9.93	10.57	10.38	10.38	10.9	10.46	10.65	10.21	10.9	10.66	10.66
XFAM/P-050Z	9.22	9.59	9.17	9.25	9.26	9.31	9.28	9.22	9.59	9.17	9.51	9.47	9.25	9.25
XFAM/P-060Z	9.45	9.9	9.36	9.43	9.42	9.48	9.48	9.45	9.9	9.33	9.74	9.62	9.56	9.54

DOE Minimum AWEF For Outdoor MT Equipment: 7.6

Capacity, Refrigerants, and AWEF (New Small Scroll Units)

Medium Temp Capacity @ 95°F Ambient / 25°F Evap											
Unit	Comp.	R-134a		R-404A / 507A		R-407A		R-407C		R-448A / 449A	
		Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF
XFAM-008Z	ZB06KAE	**4,980**	9.00	**7,965**	8.76	**7,225**	8.22	**6,775**	8.08	**7,390**	8.45
XFAM-010Z	ZB07KAE	**6,030**	9.00	**9,620**	9.22	**8,785**	8.76	**8,085**	8.63	**8,785**	8.75
XFAM-012Z	ZB08KAE	**7,080**	10.00	**10,950**	9.77	**10,200**	8.94	**9,370**	9.20	**10,260**	9.01

Low Temp Information not yet available.

Service Kits / Accessories

Service Kits

- XCM25D controller (943-0214-00)
  - Supplied without program
  - One control for all applications
  - Program supplied on hotkey with each unit
  - Tracked for warranty
- Master service kit (980-0080-00)

List of all service items is provided in the latest revision of catalog number 2011DS-4.

Accessories

- Remote display (943-0058-00)
- PC connectivity kit (943-0224-00)
- Wall bracket (074-7286-00)
- 12” Snow legs (074-7289-00)
- Blank hotkey (943-0039-00)
- Thermostat / door switch signal kit (929-0220-16)

Annual Energy Savings Compared To Traditional Units

XF Outdoor Scroll Vs Standard Units Typical Annual Energy Savings[1]

Medium Temperature						
HP	Unit Compressor	XFAM kWh Savings	$0.08/kWh	$0.12/kWh	$0.16/kWh	$0.20/kWh
1.5	Hermetic	4,521	$362	$543	$723	$904
	Scroll	2,561	$205	$307	$410	$512
	Semi-Hermetic	5,588	$447	$671	$894	$1,118
2	Hermetic	3,713	$297	$446	$594	$743
	Scroll	5,247	$420	$630	$840	$1,049
	Semi-Hermetic	5,546	$444	$666	$887	$1,109
3	Hermetic	5,417	$433	$650	$867	$1,083
	Scroll	5,484	$439	$658	$877	$1,097
	Semi-Hermetic	6,994	$560	$839	$1,119	$1,399
4	Hermetic	6,967	$557	$836	$1,115	$1,393
	Scroll	6,900	$552	$828	$1,104	$1,380
5	Hermetic	9,854	$788	$1,182	$1,577	$1,971
	Scroll	8,889	$711	$1,067	$1,422	$1,778
	Semi-Hermetic	3,440	$275	$413	$550	$688
6						
	Scroll	13,237	$1,059	$1,588	$2,118	$2,647
	Semi-Hermetic	8,046	$644	$966	$1,287	$1,609

Low Temperature						
HP	Unit Compressor	XFAL kWh Savings	$0.08/kWh	$0.12/kWh	$0.16/kWh	$0.20/kWh
2	Hermetic	3,775	$302	$453	$604	$755
	Scroll	2,892	$231	$347	$463	$578
3						
	Scroll	2,288	$183	$275	$366	$458
	Semi-Hermetic	4,100	$328	$492	$656	$820
4						
	Scroll	4,504	$360	$540	$721	$901
	Semi-Hermetic	5,739	$459	$689	$918	$1,148
5						
	Scroll	2,892	$231	$347	$463	$578
	Semi-Hermetic	2,050	$164	$246	$328	$410
6						
	Scroll	5,369	$430	$644	$859	$1,074
	Semi-Hermetic	1,209	$97	$145	$193	$242

Ambient Temperature Zones

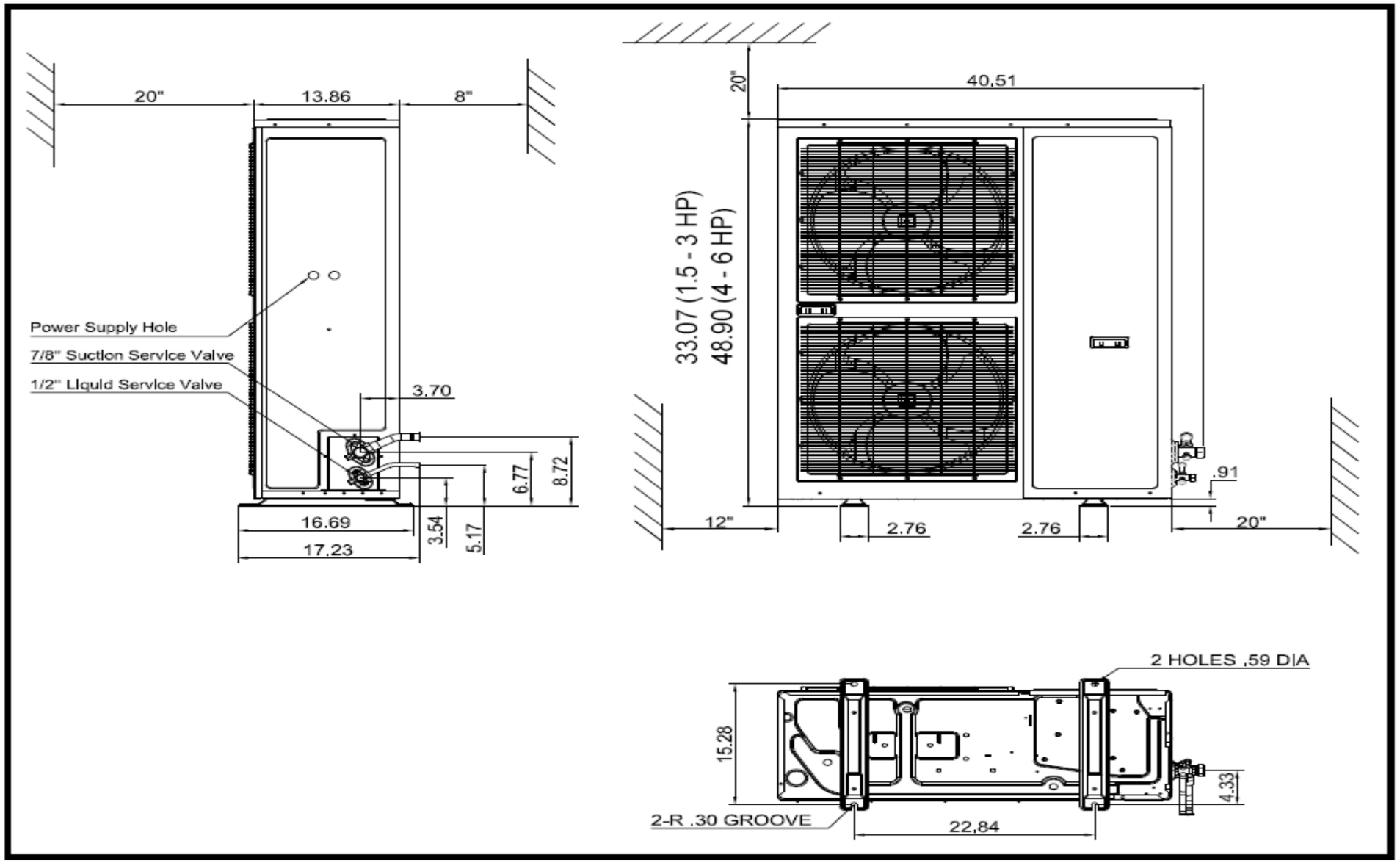
http://energycalculator.emersonclimate.com/xline

Premium To Upgrade Typically < 1 Year Payback
Exclusive Technology Only Available From Emerson

1 Estimated kWh savings shown based on simulated unit operation based on average seasonal ambient temperatures in Climate Zone 2. Reciprocating, Scroll, and Semi-Hermetic refer to typical standard condensing units using these compressor technologies, with capacity generally matched to ± 10% of the Copeland Outdoor Scroll unit. Every effort has been made to assure the accuracy of the estimated annual operating cost and savings analysis. Actual energy results may vary by: type of application; load calculation assumptions; proper equipment sizing and matching selections; operational variables; and specific location. Emerson Climate Technologies, Inc. assumes no responsibility for actual energy performance deviations from these estimates, or for damages incurred through the use of the information presented. Detailed Annual Energy Efficiency Ratio (AEER) calculation assumptions, comparative unit and compressor model details, and additional Climate Zone savings estimates are available at: www.EmersonClimate.com/copelandoutdoorunit

Performance / Specs

Spacing Requirements



Medium Temp Capacity and AWEF

Medium Temp Capacity @ 95°F Ambient / 25°F Evap													
Unit	Comp.	R-134a		R-22		R-404A / 507A		R-407A		R-407C		R-448A / 449A	
		Capacity	AWEF	Capacity	AWEF	Capacity	AWEF	Capacity	AWEF	Capacity	AWEF	Capacity	AWEF
XFAM-008Z	ZB06KAE	4,745	9.00	N/A	N/A	7,965	10.59	7,225	10.01	6,775	9.94	7,390	10.00
XFAM-010Z	ZB07KAE	5,750	10.00	N/A	N/A	9,620	10.84	8,785	10.39	8,085	10.34	8,785	10.00
XFAM-012Z	ZB08KAE	6,715	10.00	N/A	N/A	10,950	11.32	10,200	10.37	9,370	11.00	10,260	10.00
XFAM-015Z	ZS09KAE	7,810	8.87	12,100	9.79	12,400	9.78	11,400	9.82	10,900	9.66	10,700	9.07
XFAM-017Z	ZS11KAE	9,270	9.29	14,100	9.97	14,600	10.08	13,500	9.98	12,900	10.01	12,900	9.51
XFAM-020Z	ZS13KAE	10,500	9.36	16,050	10.07	16,950	10.42	15,300	9.89	14,600	9.94	14,450	9.38
XFAM-022Z	ZS15KAE	12,600	10.08	26,800	9.87	20,300	10.43	18,200	10.19	17,450	10.22	17,300	9.66
XFAM-025Z	ZS19KAE	14,100	9.99	21,000	10.07	21,800	10.61	20,400	10.27	19,550	10.22	19,150	9.69
XFAM-030Z	ZS21KAE	18,700	10.93	27,600	10.81	28,200	10.43	26,300	10.50	25,800	10.96	26,500	10.24
XFAM-033Z	ZS26KAE	20,550	11.06	30,300	10.87	31,850	10.49	29,300	10.55	28,350	10.95	28,000	10.05
XFAM-037Z	ZS29KAE	22,850	11.06	33,450	10.79	35,500	10.36	31,850	10.33	31,400	10.86	32,500	10.41
XFAM-045Z	ZS33KAE	25,600	10.46	37,900	10.51	39,100	10.26	36,800	9.93	35,400	10.57	36,800	10.21
XFAM-050Z	ZS38K4E	29,900	9.59	47,100	9.22	44,800	8.71	42,600	8.93	42,600	9.07	44,600	9.31
XFAM-060Z	ZS45K4E	35,000	9.90	51,500	9.45	53,000	9.36	51,500	9.43	51,000	9.42	52,500	9.48

This refrigeration system is designed and certified for use in walk-in cooler applications. See Emerson.com/OPI for complete specifications.

Low Temp Capacities

Low Temp Capacity @ 95°F Ambient / -10°F Evap					
Unit	Compressor	R-404A / 507A	R-407A	R-407C	R-448A / 449A
		Capacity	Capacity	Capacity	Capacity
XFAL-008Z	ZF03KAE	**4,005**	3,500	3,390	**3,650**
XFAL-009Z	ZF04KAE	**5,480**	4,780	4,600	**4,975**
XFAP-015Z	ZS09KAE	**5,700**	N/A	N/A	N/A
XFAL-010Z	ZF05KAE	**6,625**	5,660	5,470	**5,895**
XFAP-017Z	ZS11KAE	**6,845**	N/A	N/A	N/A
XFAP-022Z	ZS15KAE	**9,290**	N/A	N/A	N/A
XFAL-012Z	ZF07KAE	**10,170**	**8,830**	**8,320**	**8,870**
XFAL-020Z	ZXI06KCE	**12,910**	**9,234**	**9,111**	**11,448**
XFAP-030Z	ZS21KAE	**13,700**	N/A	N/A	N/A
XFAL-030Z-TFC	ZXI09KCE	**16,795**	**13,455**	**11,949**	**13,931**
XFAL-035Z-CFV	ZXI11KCE	**18,900**	**16,201**	**14,555**	**17,196**
XFAP-045Z	ZS33KAE	**19,000**	N/A	N/A	N/A
XFAP-050Z	ZS38K4E	**22,800**	N/A	N/A	N/A
XFAL-040Z	ZXI14KCE	**24,210**	**21,078**	**19,760**	**22,872**
XFAL-050Z-TFC	ZXI15KCE	**26,615**	**22,165**	**20,530**	**25,664**
XFAL-051Z-CFV	ZXI16KCE	**26,615**	**22,982**	**23,440**	**24,438**
XFAP-060Z	ZS45K4E	**27,200**	N/A	N/A	N/A
XFAL-060Z	ZXI18KCE	**33,720**	**29,271**	**25,377**	**27,677**

Resources

New Website

http://www.emerson.com/CopelandOutdoorUnit

EMERSON | Automation Solutions | Commercial & Residential Solutions | Industries | Expertise & Best Practices | Documents & Drawings | Search...

Copeland Scroll Outdoor Refrigeration Unit – X-Line

The X-Line offers the highest energy efficiency available in a standard unit to lower utility bills for operators. Ranging in size from 1.5–6 HP, the X-Line units are perfectly suited for walk-in cooler and freezer applications.

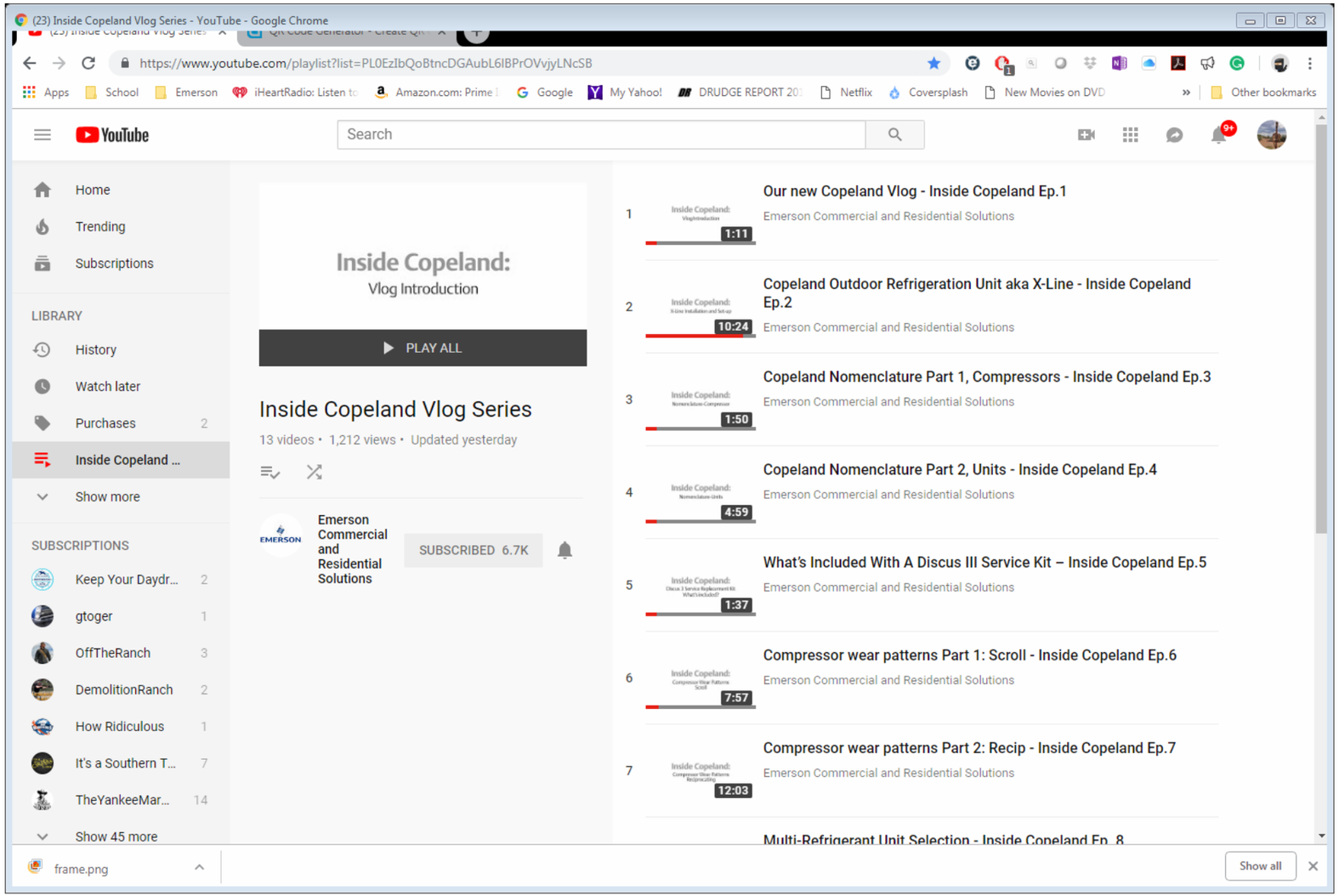
These units combine the latest Copeland Scroll™ variable speed fan motor control, large condens fan blade design to deliver up to 40% higher a compared to standard industry offerings.

LEARN MORE >

Brochures, Manuals, and QBR's

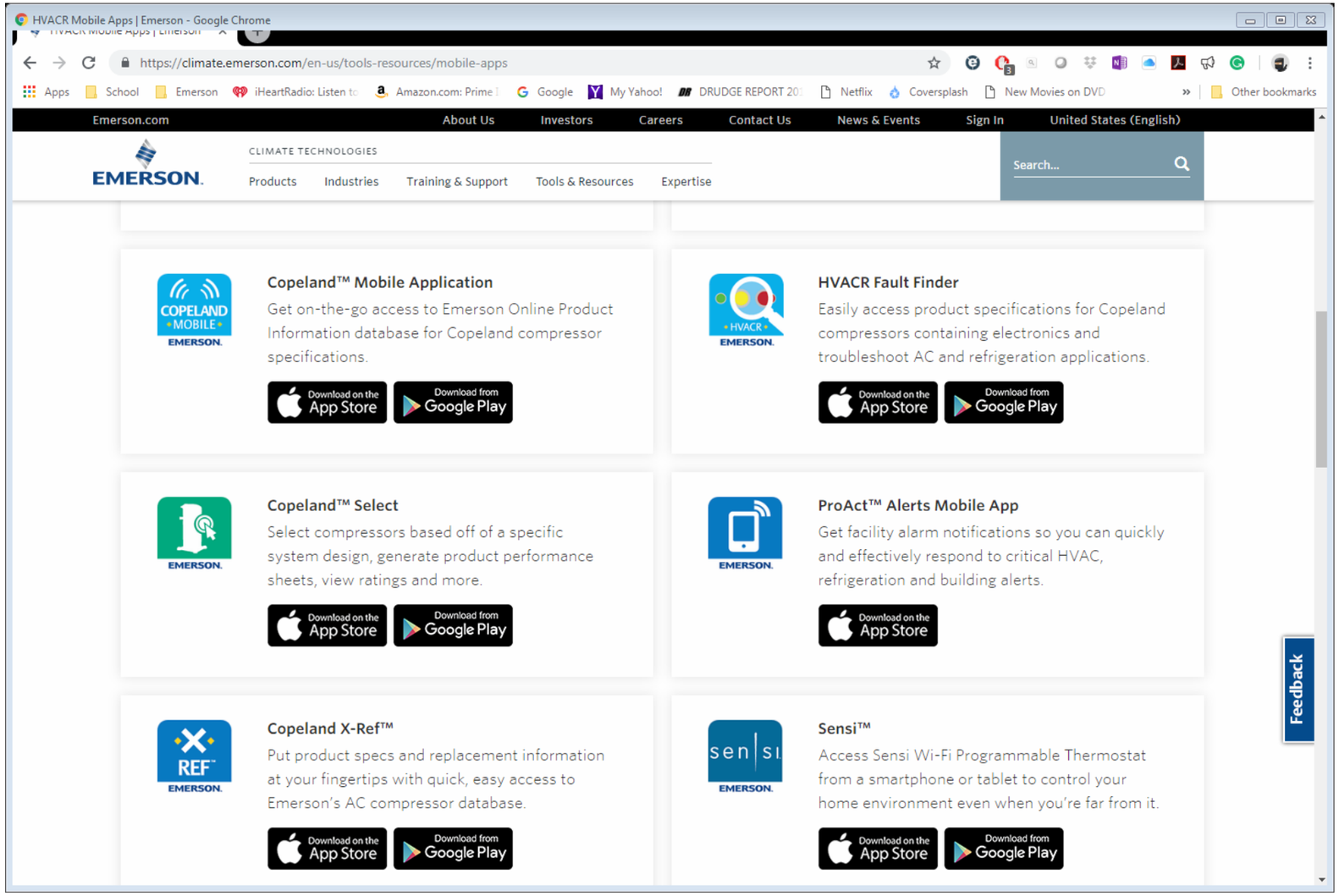
Videos

- https://www.youtube.com/playlist?list=PL0EzIbQoBtncDGAubL6lBPrOVvjyLNcSB



Mobile Apps

- https://climate.emerson.com/en-us/tools-resources/mobile-apps



Questions?

EMERSON

Backup Slides

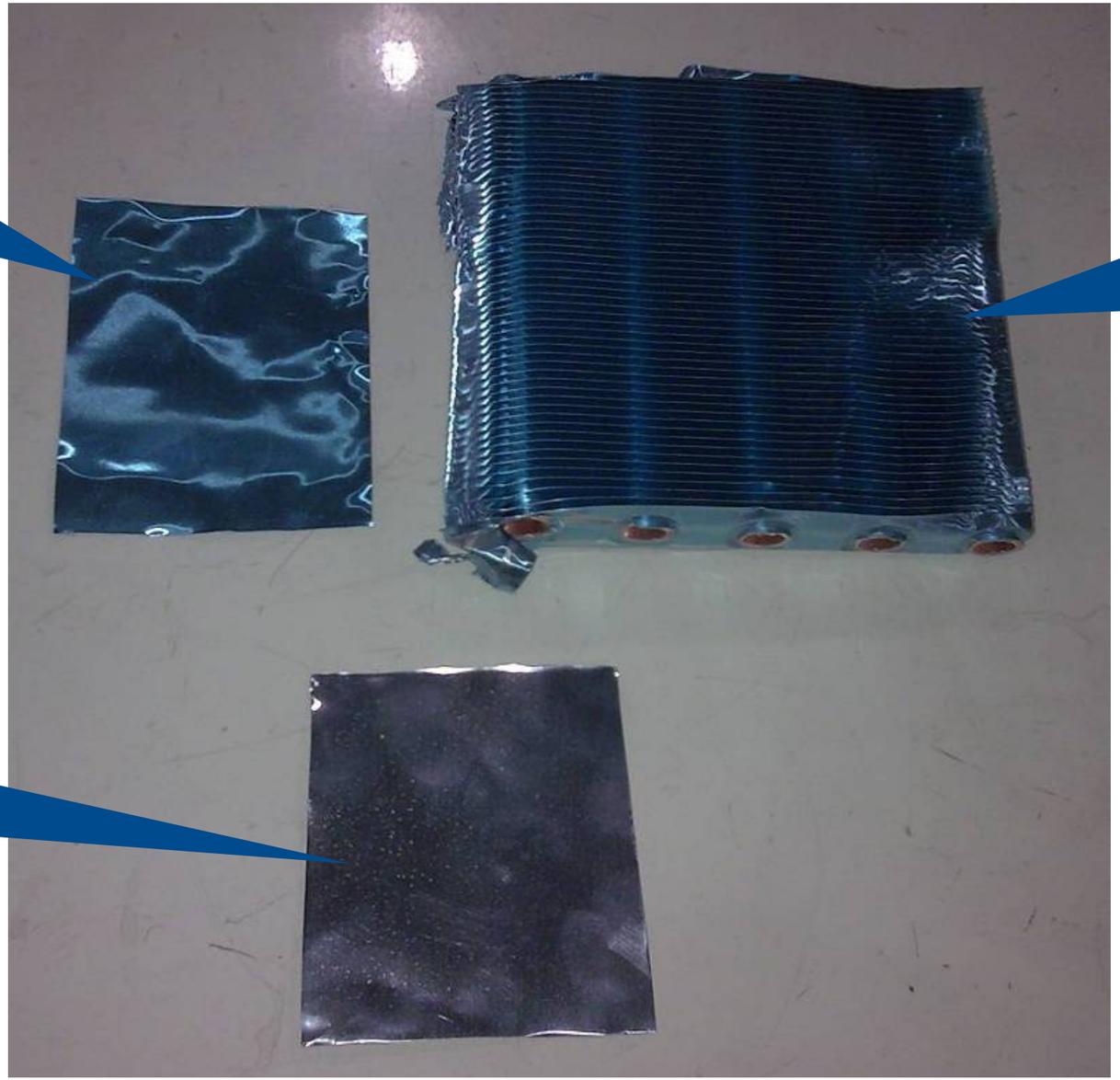
EMERSON

Condenser Coating

Salt Corrosion Test

Test Parts Ys/T95.2-2001 Aluminum foil

Hydrophilic Coated Aluminum



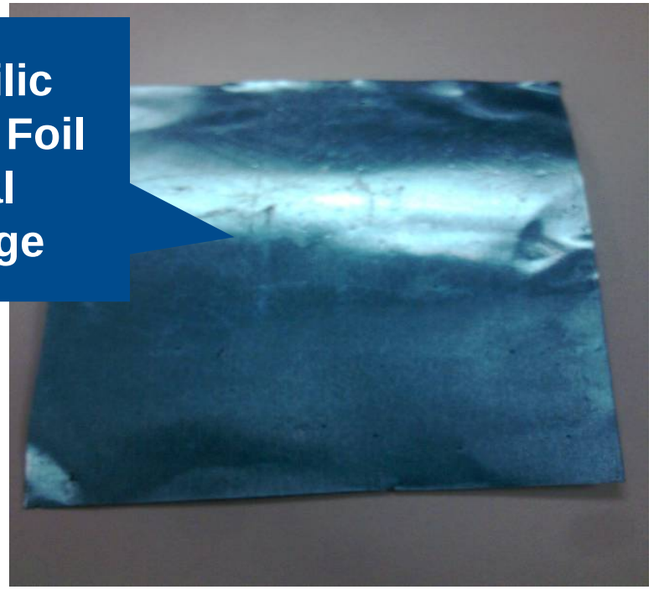
Condenser Section W/Coated Aluminum

Uncoated Aluminum

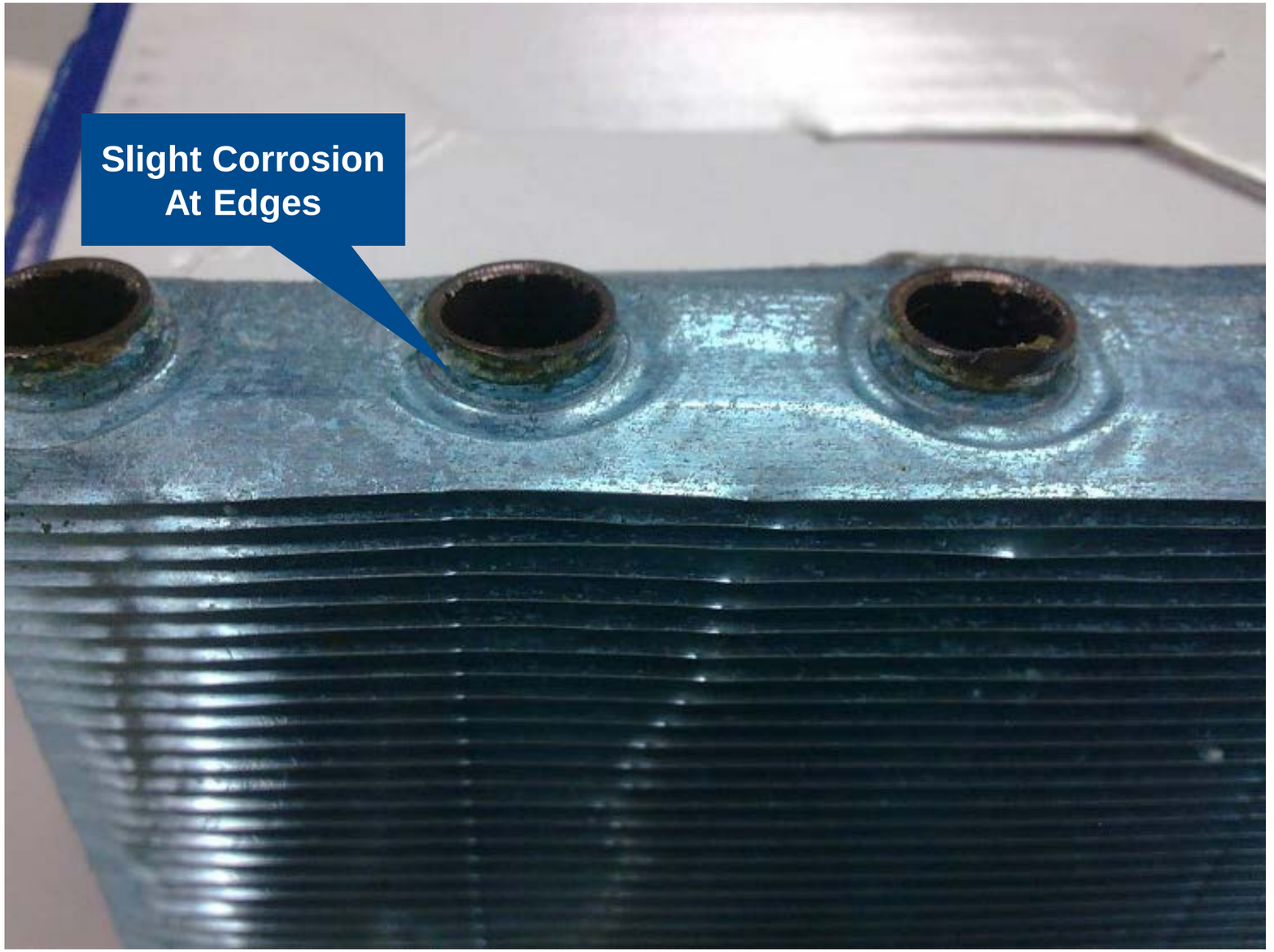
900 Hours Salt Spray (Maximum Environment)

Standard Aluminum Material Dark Grey / Slight Corrosion

Hydrophilic Aluminum Foil Material No change



Slight Corrosion At Edges



Coastal Environment Field Test

Unit Installed 12/8/08
Tommy Bahamas
Tampa Bay Florida
Approximately 100
Yards From The Gulf
Of Mexico.

Unit Inspected 3/24/14
(5 ½ Yrs.) No Issues
With Aluminum Fins,
Slight Rust On the
Cabinet.

Updates Since Inspection:

- Screws changed to stainless steel.
- Cabinet changed to galvannealed steel with powder coating
- Plastic parts resin changed to more UV stable material