



KE2 EvapOEM

Quick Start Guide

PN 21231 (21214v3.0)

FIRST YEAR FREE
NO COMMITMENT REQUIRED

Get your controller
online, & benefit from remote
monitoring, control, and text/
e-mail alarm notices.

Just a few easy steps, with
KE2 SmartAccess



Q.1.45 October 2022



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Overview

The KE2 Evap OEM provides the energy savings, precise temperature control, frost reduction, and communications capability of the KE2 Evaporator Efficiency in a compact and economical package. It replaces and performs the function of multiple mechanical components such as the thermostat, defrost time clock, defrost termination, and fan delay. The KE2 Evap OEM controls the liquid line solenoid (LLS), evaporator fans, and defrost heaters (if present). It is able to control an electronic expansion valve (EEV) to regulate superheat, but will also function with a mechanical thermostatic expansion valve.

Dreftsts are initiated by a proprietary calculation of actual evaporator efficiency. When evaporator efficiency has dropped to 90%, the controller will initiate a defrost. Defrost is terminated based on one or more coil temperature sensors. To maximize efficiency, fans may run for several minutes at the start of a defrost before turning off and energizing heaters.

Fans are also managed in a unique way. If wired to control fans with fan management enabled, during the off cycle the controller will intelligently cycle fans based on room and coil temperature for precise room temperature control. Fans should always be running when the controller is calling for refrigeration.

Communications capability on the KE2 Evap OEM was designed with the service technician in mind. The controller has built-in webpages that show system performance in real time, allow setpoint changes, provide a 30 day room/coil temperature graph, and a 30 day datalog of all variables. The webpages can be accessed by smartphone or tablet through a KE2 Therm WiFi accessory, a local network, or by plugging directly into the controller with a Cat5e cable and laptop. If the controller is provided wired internet access, it can be accessed remotely via KE2 SmartAccess.

This **Quickstart** guide provides an overview of the controller, general wiring, basic display operation, and setpoints. Please follow the link below for the latest version of this document, alarm troubleshooting guide, and webpage explanations for further information.

KE2 Evap OEM Literature

<https://ke2therm.com/literature/literature-ke2-evap-oem/>



KE2 Combo Display

KE2 Evap OEM controllers may be installed with the KE2 Combo Display. The KE2 Combo Display provides a remote display for the KE2 Evap OEM and a number

of extra features. Please follow the link below for further information on the KE2 Combo Display.

KE2 Combo Display Literature

<https://ke2therm.com/literature/literature-ke2-combo-display/>



KE2 Humidity Control

KE2 Evap OEM controllers with firmware v3.0 or above may add the KE2 Humidity Control to new or existing installs. This adds humidity monitoring & control, including outputs for humidification, dehumidification, heat, and a unique superheat control designed to maximize or minimize dehumidification.

KE2 Combo Display



Remote Display

Door Heater Control

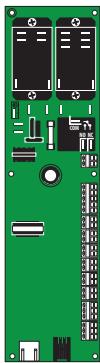
Light Control

Temp Alarm

Panic Alarm



KE2 Evap OEM



TEV/EEV

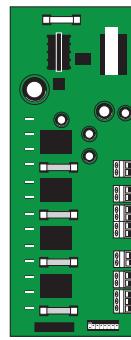
Precise Room Temperature

Evap. Fan Management

Liquid Line Sol./ Comp. Contactor

Defrost Heater Management

KE2 Humidity Control



Humidity Control & Monitoring

Humidifier / Dehumidifier

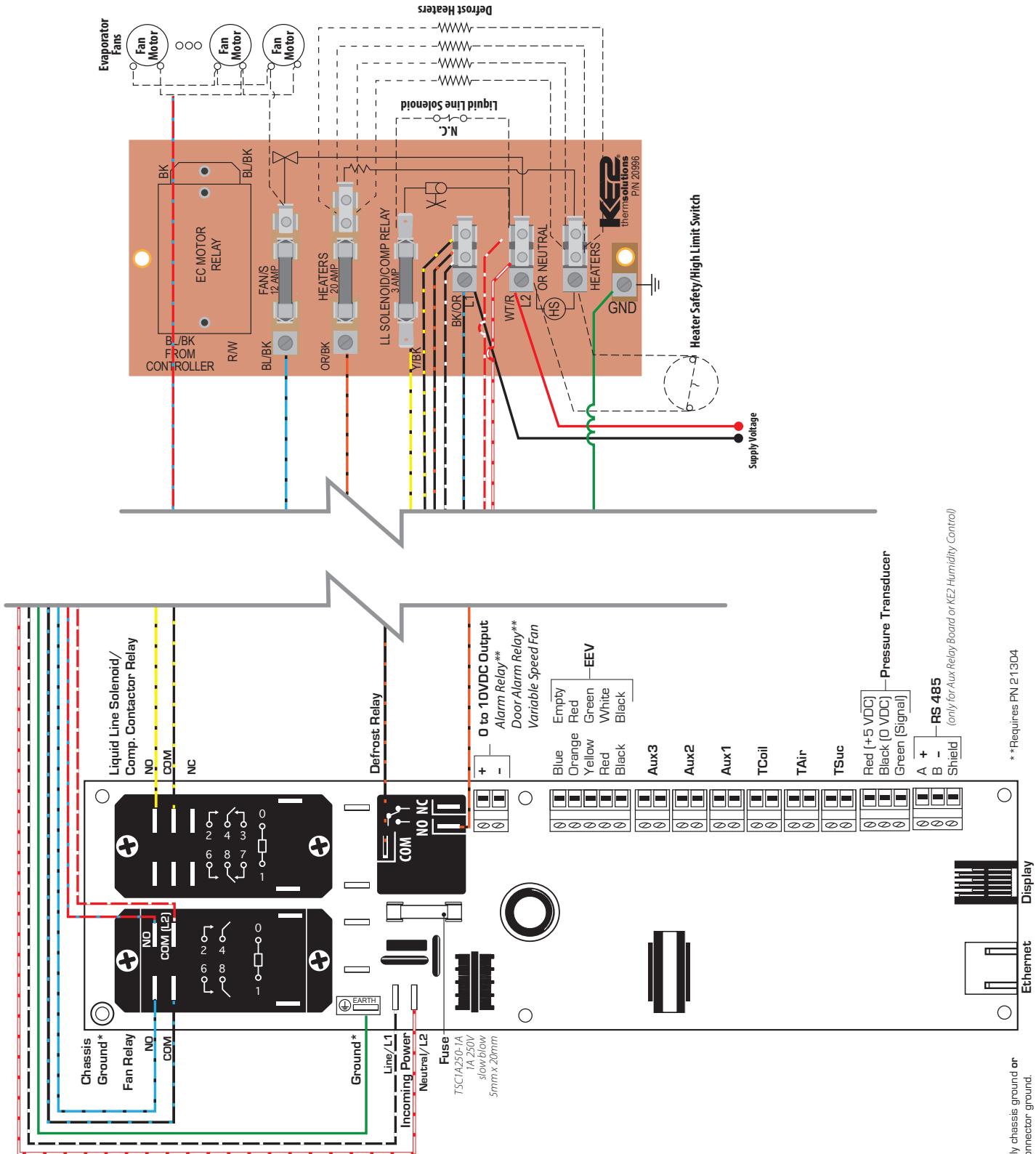
Heat / Reheat

Superheat Control Based on Humidity

Timer Output



Point to Point Wiring Diagram - Controller with KE2 Terminal Board

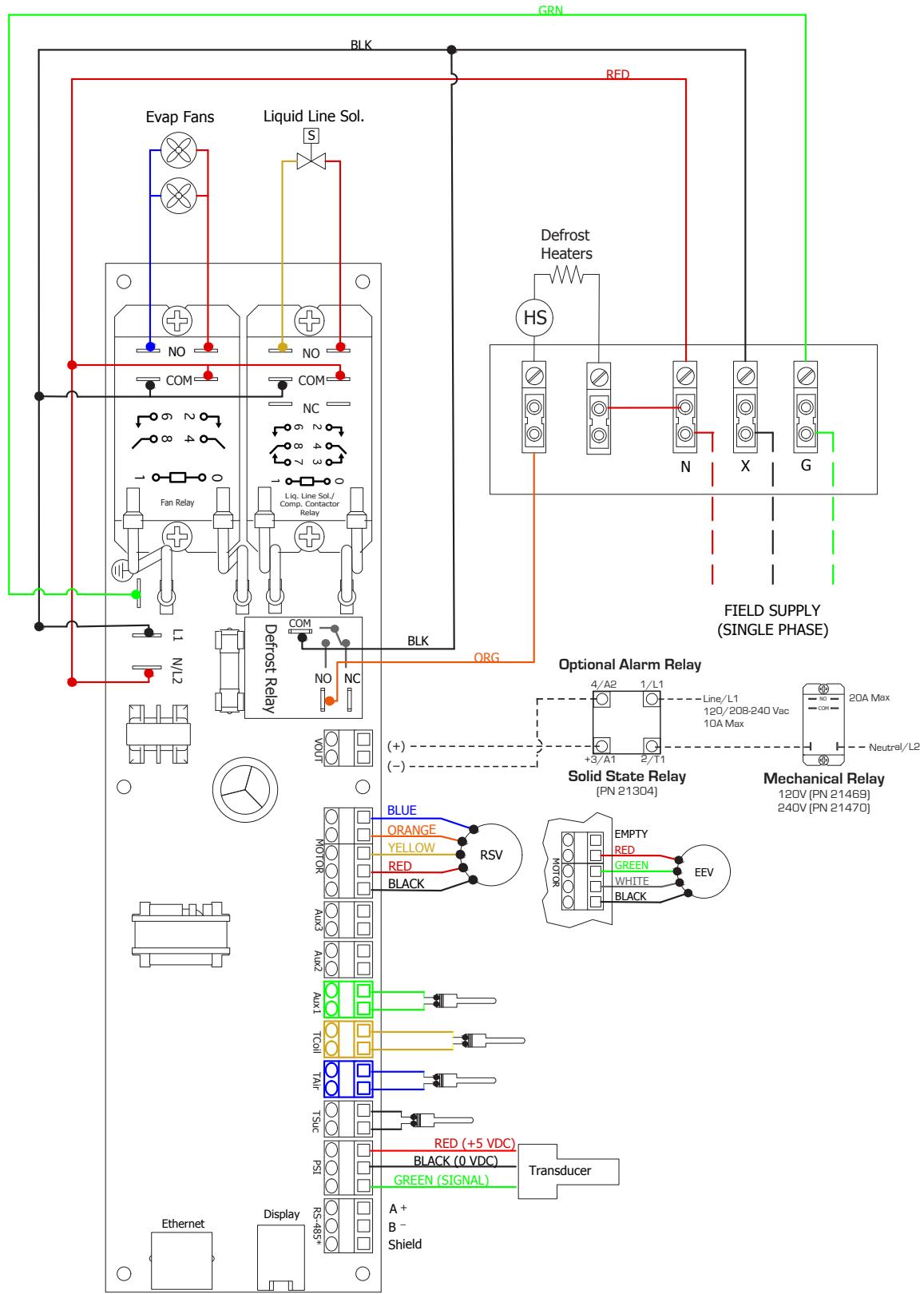




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General Wiring Diagram - Controller without KE2 Terminal Board



*Only for use with Aux Relay Board or KE2 Humidity Control.



IMPORTANT

Steps to Ensure Proper Coil Sensor Location

The coil sensor acts as defrost termination sensor, and must be installed where frost is last to disappear during defrost to ensure a clear coil.

Installing the Sensor - The most active portion of the sensor is the first 1/2" of the probe.

The photo in **Figure 2** shows that the sensor is positioned so that it is touching two circuit tubes. When inserting the sensor into the coil, the tip should touch one of the circuit tubes, and the probe should be inserted into the fins so approximately 1/16" of the stainless shielding is still outside of the fins. Pinch the fins gently together, securing the sensor in place. This provides thermal ballast to ensure a complete defrost.

NOTE: The sensor should not be located adjacent to the electric heating elements.

Alternate Method - As the defrost termination sensor, it is important to ensure the sensor does not terminate defrost before all frost is removed from the coil. In some installations, inserting the sensor into the coil may position it too close to the defrost heat source. An alternate method of positioning, **Figure 3a**, places the sensor vertically between the coil fins. **Figure 3b** shows the coil sensor properly secured.

NOTE: On a small fraction of installations the sensor placement may require adjusting. This is typically caused by product loading, door openings, air flow, high/low superheat etc. The sensor(s) should be placed where frost disappears last on the coil.

Extending sensor wires

- After the sensors are mounted, they are routed back to the controller. If the wires must be extended, use **18 gauge twisted shielded pair cable**. Maximum recommended combined length for extension is 100 ft.

If additional resistance affects the temperature or pressure reading of the controller, the temperature and pressure may be "offset" to read correctly. Use the OFFSET* function, in the SETPOINTS menu.

* Requires KE2 Combo Display or access to the KE2 Evap OEM's webpage.

- When running the sensor wires to the controller, avoid introducing electrical noise. Electrical noise can occur when sensor wires are located near high voltage lines. Underwriter's Laboratories defines high voltage as above 30V. The higher the voltage, the more likely electrical noise will occur.

- If crossing a high voltage line is necessary, run sensor wiring at right angles to prevent noise.

Figure 1

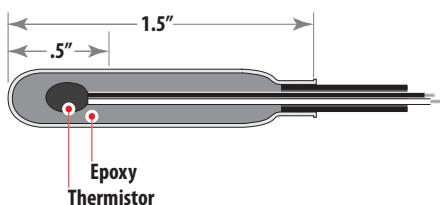


Figure 2

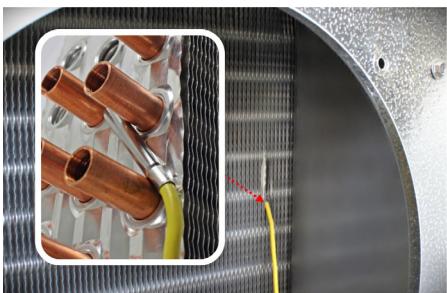
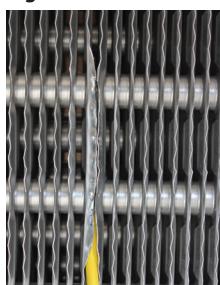


Figure 3a



Figure 3b



Technical Videos

Further information on coil sensor placement and installation are available in the videos below:

Determine coil sensor location:

<https://www.youtube.com/watch?v=ZZWfEkNK-cE>



Properly install a coil sensor:

<https://www.youtube.com/watch?v=Q9p3rcjKIAM>





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KE2 Basic Display

Most KE2 Evap OEM controllers ship with the KE2 Basic Display. The display allows service technicians to change major setpoints. Setpoints can also be accessed using the KE2 Combo Display or the controller's webpages.

Navigation Using the Basic Display

Indicator lights		Red light	Critical alarm (system not running)
		Yellow light	Non-critical alarm (system running)
		Green light	Calling for refrigeration, liquid Line Solenoid (LLS)/compressor contactor relay energized.
		Green flashing	Waiting on min. run or min. off timer to energize/de-energize LLS/comp. contactor relay.

- Access the basic setpoint menu by pressing and holding **ENTER**, or advanced setpoint menu by pressing and holding **BACK**, until **tS** (temperature setpoint) displays on the screen.
- Press **▲** or **▼** to scroll through available setpoints.
- Press **ENTER** to view the current setting.
- Press **▲** or **▼** to change the setpoint. Press **ENTER** momentarily to move between the digits to accelerate the changes.
- Press and hold **ENTER** to save setpoint changes.
- Press **BACK** to escape.

Controller Setup

When powering up the controller for the first time, the controller will enter **Introduction Mode**. Introduction Mode consists of four **Types of Control**. A maximum of four steps are required to begin refrigeration.

Step 1

Press **▲** or **▼** to move through the available **Types of Control**. Once the correct option is displayed, press and hold **ENTER** for 3 seconds.

Ed	Ed	Electric Defrost with Mechanical TEV
AdE	RdE	Air Defrost with Electric Expansion Valve (EEV)
Ad	Rd	Air Defrost with Mechanical TEV
Ede	Ede	Electric Defrost with Electric Expansion Valve (EEV)

Note: For mechanical valve control options (Ed and Ad), go to Step 4.
For EEV control options (Ede and AdE), go to Step 2.

Step 2

Next, the controller asks for the **Expansion Valve Type** and displays **F5** (RSV). If this is the correct valve, press and hold **ENTER** for 3 seconds. If not, press **▲** or **▼** to select the correct valve. See page 12 for a list of valve types. With correct EEV displayed, press and hold **ENTER** for three seconds.

Note: Custom valve setup is not available from the Basic Display.

Step 3

The controller next prompts for **Refrigerant Type** and displays **HFC (R-404a)**. Press **▲** or **▼** to change the selection. See page 12 for a list of refrigerants. Once you have the correct refrigerant, press and hold **ENTER** for three seconds.

Step 4

The final prompt is to set **KE2 SMART ACCESS** to **ENABLED** or **DISABLED**. **KE2 SMART ACCESS** allows you to easily view and modify your controllers online. Press **▲** or **▼** to make your selection, then press and hold **ENTER** for three seconds.

THESE ARE THE ONLY SETPOINTS REQUIRED TO BEGIN REFRIGERATION.

Variables Menu

When not in a menu, press **▲** or **▼** to cycle through the **Variables**. The variables show important system information in real time. Press **ENTER** to toggle between the variable name and value.

Changing Setpoints

To enter the **Basic Setpoints** menu press and hold **ENTER** until **tS** is displayed. Press **▲** or **▼** to cycle through available **Setpoints**. Press **ENTER** to view the current setpoint value.

To enter the **Advanced Setpoints** menu press and hold **BACK** until **tS** is displayed. Press **▲** or **▼** to cycle through the available **Setpoints**. Press **ENTER** to view the current setpoint value.

▲ or **▼** will increase or decrease the numerical value or scroll through the available options. Press **ENTER** momentarily to change the digit being modified.

Press and hold **ENTER** for 3 seconds to save the displayed value.

To cancel changes, press **BACK** to return to the setpoint abbreviation.

Manual Valve Control

Press and hold **BACK** and **▼** to switch to EEV **Manual Control** mode. The current valve open percentage will be displayed. To open the valve press **▲**. To close the valve press **▼**. The controller will immediately attempt to move the valve in the direction indicated. **ENTER** will advance to the next digit. **BACK** will exit this mode and return to automatic control.

Manual Defrost

Press and hold **ENTER** and **▼** to put the controller into **Defrost**. The defrost will terminate automatically based on coil temperature, however, pressing and holding **ENTER** and **▼** again during defrost will skip to drain (drip) mode.

Note: Fans may run for the first few minutes of electric defrost before fans turn off and heaters are energized.



System Off (Pumpdown)

Press and hold **BACK** and **▲** at the same time until **SoF** is displayed. The controller is in system off and will not refrigerate or defrost until system off is cleared or one hour has passed. Press and hold **BACK** and **▲** again to exit system off. Power cycling the controller resets the one hour timer. If controller maintains **SoF** even after the proper button presses, check auxiliary inputs (AU1, AU2, AU3) for proper operation.

Display Lock

Press and hold **BACK** and **ENTER** at the same time until **LoL** is displayed. The display will be locked and show **LoL** whenever a button is pressed. To unlock, press and hold **BACK** and **ENTER** until **LoL** disappears.

Diagnostics Mode

The KE2 Evap OEM has been programmed with a diagnostics mode. When activated in the advanced setpoints menu, the controller energizes each relay for 30 seconds. While the LLS relay is energized, the EEV will regulate to the superheat setpoint.

To activate diagnostics mode, go to **d.F** in the Advanced Setpoints Menu. Press and hold **ENTER** until fan relay **FRe** is displayed. The defrost relay **DeR**, then LLS/Comp. Contactor relay **LPr** will be energized in turn.

Web Login

The User Name and Password are required when making changes to the controller using the built-in webpages. **Upon logging in for the first time the user will be required to change the password.** Please record the new password in a secure location for future reference.

The defaults are: **User Name:** ke2admin **Password:** ke2admin

IMPORTANT: For security purposes, the Password MUST be changed from the default.

Resetting the controller Web Password

If the username or password for the controller is forgotten or lost, the web page login must be reset to regain login access.

From the KE2 Basic Display default screen, press and hold **BACK** until **ES** is displayed. Press **▲** several times to display **PAS**. Press and hold **ENTER** until the red LED blinks, then release.

From the KE2 Combo Display default screen, press **◀** several times to navigate to **MANUAL MENU**. Press **ENTER**. **LOGIN** will be displayed, if not logged in already. Press **ENTER** again, **0000** will be displayed. Use **▲▼◀▶** to enter the password **2222**. Press and hold **ENTER** until the screen changes. Press **▼** to navigate to **WEB PASSWORD RESET**. Press **ENTER** to display **RESET**. Press and hold **ENTER** until the display goes back to **WEB PASSWORD RESET**. Press **BACK** to exit.

The username and password will be reverted to the default "ke2admin", however, the user will still be required to change from the default password when logging in for security purposes.

Bonding (Multi-Evap Applications)

Bonding allows multiple controllers to synchronize refrigeration and/or defrost. It is required on systems with multiple evaporators on one condensing unit with no unloading capability. Bonding can easily be done through the controller webpages, or from the KE2 Basic Display if only bonding two controllers.

Run a Cat5e cable between the two controllers. Plug the cable into the Ethernet port at each controller. The cable will remain permanently plugged into both controllers in order to allow the synchronization. Cables can also be run from each controller to a network switch, however, only the two controllers to be bonded can be connected to the switch during the bonding process when bonding from the display.

Go to **bnd** in the Advanced Menu. Press and hold **ENTER** until the red LED is blinking. Wait several seconds. **PAS** means the bond was successful and both controllers will restart. **FR1** means the bond failed, check cables and ensure only two KE2 Evap OEM controllers are on the network before trying again. Press **ENTER** again to return to the Advanced Menu.

To unbond controllers from the display, go to **Unb**. Press and hold **ENTER** until the red LED is blinking. Wait several seconds. The controllers will unbond and restart. If bonded to more than one controller, the controllers must be unbonded using the webpages.

Note: Only controllers with the same firmware and version can be bonded.

Pairing (Lead/Lag, KE2 Combo Display)

Pairing is used to setup two KE2 Evap OEM controllers for lead/lag control, or to allow them to both be displayed on a single KE2 Combo Display.

Run a Cat5e cable between the two controllers. Plug the cable into the Ethernet port at each controller. The cable will remain permanently plugged into both controllers in order to communicate. Cables can also be run from each controller to a network switch, however, only the two controllers to be paired can be connected to the switch during the pairing process when pairing from the display.

Go to **PR** in the Advanced Menu. Press and hold **ENTER** until the red LED is blinking. Wait several seconds. **PAS** means the pair was successful. **FR1** means the pair failed, check cables and ensure only two KE2 Evap OEM controllers are on the network before trying again. Press **ENTER** again to return to the Advanced Menu.

To enable lead/lag control, go to **LLC** in the Advanced Menu. Select **LCL** for redundant cool, **LGF** for redundant off, or **ALT** for Alternate. If using a redundant mode, the default switch time is 12 hours. This can be adjusted using the Lead/Lag Time setpoint **LLT**. Confirm the 2nd Room Temp setpoint **RSP**, as this will be the backup temperature setpoint for the lag controller.

To unpair controllers from the display, go to **UnP**. Press and hold **ENTER** until the red LED is blinking. Wait several seconds. **PAS** means the unpairing was successful. **FR1** means the unpair failed. Press **ENTER** again to return to the Advanced Menu.

Note: Only controllers with the same firmware and version can be paired.



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Menus and Parameters

BASIC Setpoints Menu - Press and hold **ENTER**

Basic Display	KE2 Combo Display		Min	Max	Default	Description
Abbreviation	Scrolling Text					
ts	ES	ROOM TEMP	-50.0°F	90.0°F	0.0°F (E) 37.8°F (A)	Room temperature to be maintained (cut-out temperature).
rFG	RFG	REFRIGERANT	N/A	N/A	R-404A	Refrigerant used. See table on page 12.
dtY	dtY	DEFROST TYPE	N/A	N/A	Electric	(ELE) for Electric. (Air) for off time. (Hgn) for hot gas with LLS relay on. (Hgf) for hot gas with LLS relay off.

ADVANCED Setpoints Menu - Press and hold **BACK**. Setpoints marked with * depend on an auxiliary board or other setpoints to appear.

(E) denotes default if **DEFROST TYPE = ELECTRIC**, (A) denotes default if **DEFROST TYPE = AIR**.

Basic Display	KE2 Combo Display		Min	Max	Default	Description
Abbreviation	Scrolling Text					
ts	ES	ROOM TEMP	-50.0°F	90.0°F	0.0°F (E) 37.8°F (A)	Room temperature to be maintained (cut-out temperature).
rFG	RFG	REFRIGERANT	N/A	N/A	R-404A	Refrigerant used. See table on page 12.
dtY	dtY	DEFROST TYPE	N/A	N/A	Electric	(ELE) for electric. (Air) for off time. (Hgn) for hot gas with LLS relay on. (Hgf) for hot gas with LLS relay off.
Edt	Edt	VALVE TYPE	N/A	N/A	Mechanical	Expansion valve used on system. See table on page 12.
ind	ind	DEFROST MODE	N/A	N/A	Demand	Mode to initiate defrost. (dnd) demand. (SCH) schedule. (rnt) comp run time.
dPd*	dPd	DEFROSTS / DAY	0	8	5	If DEFROST MODE = SCH: Defrosts per day. Number of evenly spaced defrosts per day.
dtP	dtP	DEFROST TERM TEMP	35.0°F	90.0°F	50.0°F(E) 39.8°F (A)*	Temperature the coil sensor(s) must exceed to terminate defrost. *If DEFROST TYPE = AIR, term temp will automatically adjust 2.0°F above ROOM TEMP if ROOM TEMP is changed.
dEF*	dEF	DEFROST PARAMETER	0	90	30 (E) 40 (A)	If DEFROST MODE = DEMAND: Do not adjust unless directed to by KE2 Therm tech support.
dtL*	dtL	MAX DEFROST TIME	0 min.	90 min.	45 min.	If DEFROST MODE = SCH: Maximum amount of time the defrost relay will be energized.
drn	drn	DRAIN TIME	0 min.	15 min.	2 min. (E) 0 min. (A)	Time to be in drain mode (drip time).
rFt	RFT	REFRIG FAN TYPE	Manage/Cycle, Permanent, On with Compressor, Title 24	On w/ Compressor		Select evaporator fan management. (CYC) cycle, i.e. manage fans during refrigeration and off cycle. (F0C) fans on w/ compressor will primarily manage fans only during the off cycle. (PER) permanent forces fans to run during refrigeration and off cycle. (t24) Title 24 cycles fans based on California's Title 24 regulations.
FtS	FtS	MIN FAN SWITCH TIME	10 sec.	240 sec.	10 sec.	Minimum time before fans can be turned on again after turning off.
Stt	SEE	SUPERHEAT	5.0°F	30.0°F	EEV = 8.0°F TEV = 20.0°F	When EEV selected, target superheat value. When mechanical valve selected, high superheat alarm threshold. If humidity control enabled, becomes minimum superheat value.
LPt*	LPT	MAX TIME FOR LPCO	0 min.	15 min.	0 min.	If EEV selected: 0 = Disabled. Do not enable unless instructed to by KE2 Therm tech support. Maximum time allowed to run compressor after entering off mode or defrost. If suction pressure does not reach (LPC) Low Pressure Cutout in this time will lead to (Pdt) Pump Down Timeout alarm.
LPC*	LPC	LOW PRESSURE CUT OUT	-5.0 psig	138.0 psig	8.0 psig	If LPt greater than 0: Low pressure cut-out when low pressure cut-out (LPCO) mode is enabled. LPCO is enabled when (Lpt) is set to a value higher than 0 min.
LPd*	LPD	PRESS DIFF FOR LPCO	1.0 psig	50.0 psig	15.0 psig	If LPt greater than 0: Differential for low pressure cut-in when LPCO mode is enabled. LOW PRESSURE CUT OUT + PRESS DIFF FOR LPC = low pressure cut-in.
Att*	Att	LPCO ATTEMPTS	1	5	5	If LPt greater than 0: Number of times comp. contactor relay may be de-energized during a refrigeration run cycle due to low pressure, or energized during an off cycle due to high pressure, before triggering (SCC) Short Compressor Cycle alarm.
rnt*	rnt	COMP RUN TIME	0 hrs.	24 hrs.	6 hrs.	If DEFROST MODE = rnt: Runtime defrost only, hours of refrigeration before initiating a defrost.
Htn*	Htn	ELECTRIC DEFROST MODE	N/A	N/A	Pulse	If DEFROST TYPE = ELE: (Prn) Permanent, leaves defrost relay energized during the defrost cycle. (PUL) Pulse, utilizes advanced heater management.
HAo	HAo	HIGH TEMP ALARM OFFSET	0°F	99.9°F	10.0°F (E) 3.0°F (A)	Degrees above ROOM TEMP + AIR TEMP DIFF to trigger HIGH TEMP ALARM.
HAd	HAd	HIGH TEMP ALARM DELAY	0 min.	120 min.	60 min.	Delay before triggering HIGH TEMP ALARM.
LAo	LAo	LOW TEMP ALARM OFFSET	0°F	20.0°F	4.0°F	Degrees below ROOM TEMP to trigger LOW TEMP ALARM.
LAd	LAd	LOW TEMP ALARM DELAY	0 min.	30 min.	10 min.	Delay before triggering LOW TEMP ALARM.
dAd	dAd	DOOR ALARM DELAY	0 min.	180 min.	30 min.	Time door must be open before triggering DOOR OPEN ALARM. Requires door switch.
AU1	AU1	AUX IN 1 MODE	N/A	N/A	Disabled	See Auxiliary Input Modes table on page 12.



ADVANCED Setpoints Menu (Continued)

Basic Display	KE2 Combo Display					
Abbreviation	Scrolling Text	Min	Max	Default	Description	
A1A R1R	AUX IN 1 STATE	N/A	N/A	Closed	(oPn) active if input is an open circuit. (ClO) active if input is shorted.	
AU2 R1Z	AUX IN 2 MODE	N/A	N/A	Disabled	See Auxiliary Input Modes table on page 12.	
A2A R2R	AUX IN 2 STATE	N/A	N/A	Closed	(oPn) active if input is an open circuit. (ClO) active if input is shorted.	
AU3 R1E	AUX IN 3 MODE	N/A	N/A	Sys Off	See Auxiliary Input Modes table on page 12.	
A3A R3R	AUX IN 3 STATE	N/A	N/A	Closed	(oPn) active if input is an open circuit. (ClO) active if input is shorted.	
tS2 ESZ	2ND ROOM TEMP	-50.0°F	90.0°F	-50.0°F	If AU1, AU2, or AU3 = (t2n) 2ND ROOM TEMP: This value becomes the ROOM TEMP setpoint when the Auxiliary Input is active, or, if (tEt) = (LGC) Redundant Cool or (Alt) Alternate, this value becomes the ROOM TEMP setpoint when the controller is in Lag mode.	
10t IEE	0 TO 10 VDC MODE	-	-	Alarm Relay	(ALr) Alarm relay. (Fsd) Evap fan speed control. (DAL) Door alarm relay.	
tEt EEE	MULTI EVAP MODE	-	-	Off	Lead/lag mode. (oFF) Off, lead/lag disabled. (LGC) Redundant Cool, time based lead/lag with backup system controlling to 2nd Room Temp. (LGf) Redundant Off, time based lead/lag with backup system always off. (Alt) Alternate, lead/lag system will switch after every refrigeration run cycle.	
PAd PRd	PAIRED DEFROST MODE	-	-	Off	Select operation when lead/lag pair controller goes into defrost. (oFF) Off, paired controller will stay off. (Aut) Auto, paired controller will refrigerate based on room temp.	
LLt LLE	LEAD/LAG TIME	1 hour	168 hours	12 hours	Toggle time between lead/lag when (tEt) = (LGC) Redundant Cool or (LGf) Redundant Off.	
HU* HH	HUMIDITY MODE	dis, EnA, HEt	diS	diS	(dis) Disabled. (EnA) humidity control enabled. (HEt) heater control only.	
HSP* HSP	HUMIDITY SP	0.0 %	100.0 %	65.0 %	Humidity target for humidity control.	
HdP* HdP	HUMIDITY DIFF SP	0.0 %	25.0 %	5.0 %	Humidity differential. Humidity setpoint +/- the differential will determine the control range.	
UAo* URO	HUM ALARM OFST SP	0.0 %	25.0 %	5.0 %	Offset added & subtracted above/below Humidity Target & Humidity Differential for High/Low Humidity alarms.	
UAd* UHD	HUMIDITY ALARM DELAY	0 min.	360 min.	120 min.	Delay before triggering High/Low Humidity alarm once humidity is out of range.	
USt* USE	MAX SUPERHEAT	8.0°F	60.0°F	25.0°F	Maximum allowed superheat for humidity control.	
dto* DEO	DEHUM TEMP OFFSET	-140.0°F	0.0°F	0.0°F	DeHumidify Offset. Allows controller to overcool the space if humidity is high. Room Temp - DeHumidify Offset is new target temperature if humidity is high. Must be a negative number.	
HEt* HEE	HEATER SP	-50.0°F	90.0°F	-50.0°F	Cut-in temperature for heater control.	
HEd* HEH	HEATER DIFF SP	0.1°F	25.0°F	0.1°F	Differential added to Heater Setpoint to determine heater cut-out temperature.	
H2P* H2P	HUMIDITY 2 SP	0.0 %	100.0 %	65.0 %	Second Humidity target used when 2nd Humidity Input is active.	
Unt Unt	TEMP UNITS	N/A	N/A	Fahrenheit	Display temperature in (FAH) Fahrenheit or (CEL) Celsius.	
EdF EdF	EXTREME TEMP DIFF	0°F	99.9°F	20.0°F	Should not be adjusted unless instructed to by KE2 Therm.	
CLA CLR	CLEAR ALARMS	N/A	N/A	-	Press and hold ENTER until red LED starts blinking, alarms will be reset. Sensor and transducer alarms will immediately return until fixed.	
diA d1R	DIAGNOSTICS MODE	N/A	N/A	-	Press and hold ENTER until FAr is displayed. Energizes each relay individually for 30 seconds: (FAr) fan relay, (dEr) defrost relay, (CPr) compressor relay.	
FAC FRC	FACTORY RESET	N/A	N/A	-	Press and hold ENTER to reset the controller's refrigeration setpoints to KE2 Therm defaults. Does NOT reset network settings. Do not press unless requested to by tech support.	
PAS PRS	WEB PASSWORD RESET	N/A	N/A	-	Press and hold ENTER to reset the web username and password to the factory default.	
PAr* PRr	PAIR L/L	-	-	-	Press and hold ENTER until red LED blinks. (PAS) successful pairing. (FAi) pairing failed. Only two controllers can be present on network.	
UnP* UnP	UNPAIR L/L	-	-	-	Press and hold ENTER until red LED blinks. (PAS) successful unpairing. (FAi) unpairing failed.	
bnd* bnd	BOND	-	-	-	Press and hold ENTER until red LED blinks. (PAS) successful bond. (FAi) bond failed. Check cabling and only two controllers can be present on network to bond from display.	
Unb* Unb	UNBOND	-	-	-	Press and hold ENTER until red LED blinks. Controllers will unbond and restart. Only works if bonded to one other controller.	
SA SH	SMART ACCESS	N/A	N/A	Disabled	Turn KE2 SmartAccess on or off. (EnA) enabled. (dis) disabled.	
dHC DHC	DHCP	N/A	N/A	Disabled	Turn DHCP client mode on or off. (EnA) enable DHCP mode. (dis) disable DHCP mode. IP address can change automatically from default when DHCP mode is enabled.	



ADVANCED Setpoints Menu (Continued)

Basic Display	KE2 Combo Display	Min	Max	Default	Description
Abbreviation	Scrolling Text				
Only available on KE2 Combo Display or controller built-in webpages.	MOTOR TYPE	Unipolar or Bipolar		Unipolar	Motor type for custom valve, bipolar or unipolar.
	MOTOR STEP RATE	30	400	40	Motor Step rate for custom valve.
	MAX VALVE STEPS	200	6400	500	Full stroke steps for custom valve.
	MAX OPERATING PRES	10.0 psig	150.0 psig**	150.0 psig**	**Max operating pressure. Max is 300 when R-410A selected, 750 when R-744 selected.
	FAN SPEED	-100.0%	100.0%	0.0%	Fan speed %. Do not adjust unless using the 0-10 VDC output for variable speed fans.
	MIN COMP RUN TIME	0 min.	15 min.	2 min.	Minimum Compressor Run Time.
	MIN COMP OFF TIME	0 min.	15 min.	5 min.	Minimum Compressor Off Time.
	1ST DEFROST DELAY	0 min.	240 min.	120 min.	If DEFROST MODE = SCHEDULED delay after power cycle before initiating 1st scheduled defrost.
	DEFROST FAN STATE	ON or OFF		OFF(E)/ON(A)	OFF = fans off during defrost; ON = fans ON during defrost.
	FAN DELAY TEMP	-40.0°F	35.0°F	5.0°F	After electric or hot gas defrost, temperature that coil must fall below to resume normal fan operation, or Max Fan Delay Time elapses, whichever is sooner.
	MAX FAN DELAY TIME	0 min.	20 min.	3 min. (E) 0 min. (A)	Maximum amount of time after defrost to resume normal fan operation.
	PUMP DOWN TIME	0 min.	90 min.	0 min.	Minimum time between de-energizing the liquid line solenoid/compressor contactor relay and energizing the defrost relay.
	MULTI AIR TEMP CTRL	Warmest or Average	Warmest Air	Bonded controls w/synchronized refrigeration only. Warmest Air = use warmest air temp from bonded controls; Average Air = use average of air temp from bonded controls.	
	MULTI EVAP COOL	Synchronized or Independent	Synchronized	Synchronized = synchronize bonded controller in refrigeration mode; Independent = bonded controllers control temperature independently bonded controllers refrigerate independently based on their local room temp sensor.	
	MULTI EVAP DEFROST	Synchronized or Independent	Synchronized	Synchronized = synchronize bonded controller in defrost mode; Independent = bonded controllers defrost independently.	
	MULTI EVAP SENSOR	Shared or Unshared	Shared	Shared = share sensor readings from bonded controllers; Unshared = use local sensor readings only.	
	ROOM TMP IND DEF	-50.0°F	90.0°F	0.0°F	Room temp while bonded controller is in defrost. Only applies to bonded controllers with Multi Evap Defrost set to Independent. Allows better defrost performance in certain multi-evap applications.
	SUCT PRES OFFSET	-5.0°F	5.0°F	0.0°F	Offset added or subtracted from the suction line pressure transducer reading, if needed.
	SUCT TEMP OFFSET	-5.0°F	5.0°F	0.0°F	Offset added or subtracted from the suction temp sensor reading, if needed.
	COIL TEMP OFFSET	-5.0°F	5.0°F	0.0°F	Offset added or subtracted from the coil temperature sensor reading, if needed.
	AIR TEMP OFFSET	-5.0°F	5.0°F	0.0°F	Offset added or subtracted from the room temperature sensor reading, if needed.
	AUX 1 OFFSET	-5.0°F	5.0°F	0.0°F	When Aux1, Aux2, or Aux 3 is used as a temperature sensor, an offset is added or subtracted from the reading.
	AUX 2 OFFSET	-5.0°F	5.0°F	0.0°F	
	AUX 3 OFFSET	-5.0°F	5.0°F	0.0°F	
	PROPORTIONAL	0	255	3	Coefficient to valve control algorithm. Increases responsiveness as value increases.
	INTEGRAL	0	255	5	Coefficient to valve control algorithm. Increases responsiveness as value increases.
	DERIVATIVE	0	255	3	Should not be adjusted unless instructed to by KE2 Therm.
	AIR TEMP DIFF	0.1°F	5.0°F	1.0°F	Degrees above ROOM TEMP before the controller will begin REFRIGERATION.
	HUMIDITY OFFSET*	-5.0%	5.0%	0.0%	Offset added or subtracted from the humidity sensor reading, if needed.
	MIN OPERATING PRESSURE*	0.0 psig	150.0 psig**	0.0 psig	**Min operating pressure when humidity control is enabled & EEV present. Max is 300 when R-410A selected, 750 when R-744 selected.
Only available on controller built-in webpages.	Webpage Text	Min	Max	Default	Description
	START TIMER 1*	12:00 AM	11:59 PM	12:00 AM	Energizes the Timer Relay on the KE2 Humidity Control board at the specified time.
	STOP TIMER 1*	12:00 AM	11:59 PM	12:00 AM	De-energizes the Timer Relay on the KE2 Humidity Control board at the specified time.
	START TIMER 2*	12:00 AM	11:59 PM	12:00 AM	Energizes the Timer Relay on the KE2 Humidity Control board at the specified time.
	STOP TIMER 2*	12:00 AM	11:59 PM	12:00 AM	De-energizes the Timer Relay on the KE2 Humidity Control board at the specified time.



KE2 EvapOEM

Quick Start Guide



Alarm Status Menu - See Q.1.61 Alarm Troubleshooting Guide for further details. <https://ke2therm.com/literature/literature-ke2-evap-oem/>

Basic Display	KE2 Combo Display	Description
Abbreviation	Scrolling Text	
EAP	ERP	N/A
PrF	PrF	N/A
PSA	PSA	PRESSURE SENSOR
SSA	SSA	SUCTION TEMP SENSOR
ASA	ASA	AIR TEMP SENSOR
CSA	CSA	COIL TEMP SENSOR
HSH	HSH	HIGH SUPERHEAT
LSH	LSH	LOW SUPERHEAT
HtA	HtA	HIGH AIR TEMP
LtA	LtA	LOW AIR TEMP
EdF	EdF	EXCESS DEFROST
dtt	dtt	DEFR TERM ON TIME
dor	dor	DOOR SWITCH
CoA	CoA	COMMUNICATION ERROR
EA1	EA1	EXTERNAL ALARM 1
EA2	EA2	EXTERNAL ALARM 2
EA3	EA3	EXTERNAL ALARM 3
EFL	EFL	EMAIL FAILURE
A1A	A1A	AUX1 SENSOR
A2A	A2A	AUX2 SENSOR
A3A	A3A	AUX3 SENSOR
Pdt	Pdt	PUMP DOWN TIMEOUT
SCC	SCC	SHORT COMP CYCLE
LPA	LPA	LOW PRESSURE
CLL	CLL	LEAD/LAG COMM ERROR
CCA	CCA	COMP SEQ COMM ERROR
ntP	ntP	TIMER SERVER COMM
dtS	dtS	DOOR TEMP SENSOR
dt2	dt2	DISPLAY AUX2 SENSOR
dt3	dt3	DISPLAY AUX3 SENSOR
dtH	dtH	DOOR TEMP HIGH
dtL	dtL	DOOR TEMP LOW
Hd2	Hd2	HIGH MONITOR TEMP2
Ld2	Ld2	LOW MONITOR TEMP2
Hd3	Hd3	HIGH MONITOR TEMP3
Ld3	Ld3	LOW MONITOR TEMP3
EA1	EA1	DISPLAY EXTERNAL ALARM 1
EA2	EA2	DISPLAY EXTERNAL ALARM 2
EA3	EA3	DISPLAY EXTERNAL ALARM 3
Pbt	Pbt	HELP
HSA	HSA	HUMIDITY SENSOR
HHA	HHA	HIGH HUMIDITY
LHA	LHA	LOW HUMIDITY
CHA	CHA	HUMIDITY COMM



Variables Menu

Basic Display	KE2 Combo Display	Description
Abbreviation	Scrolling Text	
rtP	rTP	ROOM TEMP
HU	HU	HUMIDITY
CLt	CLt	COIL TEMP
SYS	SYS	SYSTEM MODE
SHt	SHt	SUPERHEAT
PrS	PrS	SUCTION PRESSURE
SUt	SUt	T1 SUCTION TEMP
SAt	SAt	SATURATION TEMP
oPn	oPn	VALVE % OPEN
LLS	LLS	LLS RELAY
dEr	dEr	DEFROST RELAY
FAr	FAr	FAN RELAY
HUr	HUr	HUMIDIFIER RELAY
dHr	dHr	DEHUMIDIFIER RELAY
Htr	Htr	HEATER RELAY
t r	t r	TIMER RELAY
AU1	AU1	AUX 1 STATUS
AU2	AU2	AUX 2 STATUS
AU3	AU3	AUX 3 STATUS
HU2	HU2	2ND HUM SP STAT
ott	ott	OR TIMER STAT
iP1	iP1	IP OCTET 1
iP2	iP2	IP OCTET 2
iP3	iP3	IP OCTET 3
iP4	iP4	IP OCTET 4
PnH	PnH	FIRMWARE PARTNUM
PnL	PnL	FIRMWARE PARTNUM
Fir	Fir	FIRMWARE VERSION

**KE2 EvapOEM**

Quick Start Guide

First Time Setup - Types of Control & KE2 SmartAccess

Basic Display		KE2 Combo Display	Description
Abbreviation	Scrolling Text		
Ed	Ed	ELECTRIC DEFROST /TEV	Electric Defrost w/Mechanical valve
EdE	EdE	ELECTRIC DEFROST /EEV	Electric Defrost w/Electric Expansion Valve
Ad	Ad	AIR DEFROST /TEV	Air Defrost w/Mechanical Valve
AdE	AdE	AIR DEFROST /EEV	Air Defrost w/Electric Expansion Valve
SA	SA	SMART ACCESS MODE	KE2 SmartAccess (Enabled/Disabled)

Auxiliary Input Modes

Basic Display		KE2 Combo Display	Description
Abbreviation	Scrolling Text		
dis	dis	DISABLED	Not used.
rtP	rtP	ROOM TEMP	Sets the Aux Input as an additional room (air) temperature sensor input.
CLt	CLt	COIL TEMP	Sets the Aux Input as an additional coil temperature sensor input.
oni	oni	MONITOR	Sets the Aux Input as a monitor temperature input. Monitor temp does not affect controller operation.
t2n	t2n	2ND (ROOM) TEMP	Switches between main and 2nd Room Temperature setpoints. Inactive = 2nd room temp SP off (t2F). Active = 2nd room temp SP on (t2n).
dor	dor	DOOR SWITCH	Inactive = Door Closed (dCL). Active = Door Open (don).
EAL	EAL	EXT ALARM	Receive a dry contact from a 3rd party device to show an alarm for that device on the controller. Active = (EAo). Inactive = (EAF).
SoF	SoF	SYS OFF	Active input will cause the controller to enter system off (pumpdown). Inactive = System On (Son). Active = System Off (SoF).
dFi	dFi	DFR INTERLOCK	Prevents the defrost relay from energizing when active. Inactive = Defrost Heaters normal (Aut). Active = Defrost Heaters Off (off).
dFL	dFL	DEFR LOCK	Prevents defrost from initiating when active. Inactive = Defrost Normal (Aut). Active = Defrost Not Allowed (dLo).

Valve Types

Basic Display		KE2 Combo Display	Description
Abbreviation	Scrolling Text		
tHr	tHr	MECHANICAL	Traditional Thermostatic Expansion Valve.
PLS	PLS	PULSE VALVE	Pulse Width Modulation (PWM) Valve.
rS	rS	KE2 RSV	KE2 Therm's Refrigeration Stepper Valve.
SEi	SEi	SER/SEI 1 TO 20	12 VDC Bipolar Sporlan EEV with 1,600 max steps, 200 steps/second.
SEr	SEr	SER AA TO L	12 VDC Bipolar Sporlan EEV with 2,500 max steps, 200 steps/second.
CrL	CrL	CAREL	12 VDC Bipolar Carel EEV with 480 max steps, 50 steps/second.

System Modes

Basic Display		KE2 Combo Display	Description
Abbreviation	Scrolling Text		
EAP	EAP	EVAP	Displays when controller is starting up (KE2 Evap OEM).
rEF	rEF	REFRIGERATE	Controller is calling for refrigeration (LLS/Compressor Contactor relay should be energized).
ddF	ddF	DEFROST DELAY FAN	Preparing for defrost by stopping refrigeration and running fans only.
dEF	dEF	DEFROST	Controller in defrost mode.
drn	drn	DRAIN TIME	Controller in drain or "drip" time.
FdL	FdL	FAN DELAY	Controller in fan delay, will turn on fans once coil reaches fan delay temp.
SoF	SoF	SYSTEM OFF	Controller in system off.
off	off	OFF	Satisfied on temperature or off for other reason (ex. door switch).

Refrigerants

Abbreviation	Full Name
404	R-404A
458	R-458A
452	R-452A
513	R-513A
450	R-450A
449	R-449A
448	R-448A
744	R-744
410	R-410A
407	R-407F
409	R-409A
408	R-408A
438	R-438A
717	R-717
r22	R-22
134	R-134a
42d	R-422D
42A	R-422A
40C	R-407C
40A	R-407A
507	R-507



Alphabetical List of Abbreviations

Abbreviation	Full Name	Type	Description
10t	10t 0 to 10 VDC Mode	Setpoint	(ALr) Alarm relay. (FSD) Evap fan speed control. (dAL) Door alarm relay.
A1A	A1A Aux Input 1 state	Setpoint	(oPn) active if input is an open circuit. (CLo) active if input is shorted.
A1A	A1A AU1 Temp Sensor Alarm	Alarms	AU1 is set to rtP, CLt, or oni and temp sensor is shorted or open.
A2A	A2A Aux Input 2 state	Setpoint	(oPn) active if input is an open circuit. (CLo) active if input is shorted.
A2A	A2A AU2 Temp Sensor Alarm	Alarms	AU2 is set to rtP, CLt, or oni and temp sensor is shorted or open.
A3A	A3A Aux Input 3 state	Setpoint	(oPn) active if input is an open circuit. (CLo) active if input is shorted.
A3A	A3A AU3 Temp Sensor Alarm	Alarms	AU3 is set to rtP, CLt, or oni and temp sensor is shorted or open.
Ad	Ad Air Defrost w/ Mechanical valve	Type of Control	System operates with default values for Air Defrost and Mechanical Valve.
AdE	AdE Air Defrost w/EEV	Type of Control	System operates with default values for Air Defrost and Electric Valve.
Ai	ai Air Defrost (Off time)	Setpoint	Option for evaporator Defrost Type (dtY) setpoint. (Ai) Air Off time Defrost. Other options are (ELE) Electric, (Hgn) Hot Gas w/ Compressor On, and (HGF) Hot Gas w/ Compressor Off.
Alt	Alt Alternate	Setpoint	Sets lead/lag control to alternate. Lead/lag will switch after every refrigeration run cycle.
Alr	Alr Alarm Relay	Setpoint	Sets 0 to 10 VDC output to alarm relay.
ASA	ASA Air Sensor Alarm	Alarms	Return air temp sensor is shorted or open.
AU1	AU1 Aux Input 1	Variables	Current status/temperature as measured by controller at Aux1 input.
AU1	AU1 Aux Input 1 mode	Setpoint	Options for configuring the Auxiliary Input, see Auxiliary Input Modes table.
AU2	AU2 Aux Input 2	Variables	Current Status/Temperature as measured by controller at Aux2 input.
AU2	AU2 Aux Input 2 mode	Setpoint	Options for configuring the Auxiliary Input, see Auxiliary Input Modes table.
AU3	AU3 Aux Input 3	Variables	Current Status/Temperature as measured by controller at Aux3 input.
AU3	AU3 Aux Input 3 mode	Setpoint	Options for configuring the Auxiliary Input, see Auxiliary Input Modes table.
AUt	AUt Defrost Interlock -Heaters Normal	Auxiliary Input	Defrost interlock inactive. Defrost heaters will energize as needed.
AUt	AUt Defrost Lockout - Defrost Normal	Auxiliary Input	Defrost lockout inactive. Defrost will be initiated as normal by controller logic.
bnd	bnd Bond	Setpoint	Press and hold ENTER until red LED blinks. (PAS) successful bond. (FAI) bond failed. Only two controllers can be present on network to bond from display.
CCA	CCA Compressor Communications Alarm	Alarms	[Siteview Only] Communication lost to KE2 Compressor Sequencer OEM.
CEL	CEL Celsius	Setpoint	Option for Temp Units (Unt) setpoint. (FAH) Fahrenheit. (CEL) Celsius.
CHA	CHA Humidity Comms Alarm	Alarms	KE2 Evap OEM lost communication with KE2 Humidity Control board for 10 seconds.
CLA	CLA Clear Alarms	Setpoint	Press and hold ENTER until red LED starts blinking, alarms will be reset. Sensor and transducer alarms will immediately return until fixed.
CLL	CLL Lead/Lag Comm Error	Alarms	Communication lost between lead/lag controllers.
CLo	CLo Closed	Setpoint	Option for Aux Input State (A1A, A2A, A3A) setpoints. Input will be Active when it reads a closed circuit.
CLt	CLt Coil Temp	Variables	Coil temperature (TCoil Sensor) as measured by the controller.
CLt	CLt Coil Temp	Auxiliary Input	Coil Temp as measured by Aux input.
CoA	CoA Communication Alarm	Alarms	[Bonded controllers only] No communication between bonded controllers for one minute or more.
CrL	CrL Carel	Valve Type	Pre-configured EEV selection. 12 VDC Bipolar Carel EEV with 480 max steps, 50 steps/second.
CSA	CSA Coil Sensor Alarm	Alarms	Coil temperature sensor is shorted or open.
CYC	CYC Cycle	Setpoint	Option under Refrig Fan Type (rfT) setpoint. (CYC) to cycle, i.e. managed fan control. Other options are (FoC) on w/ compressor, (PEr) permanent, and (t24) title 24.
dAd	dAd Door Open Alarm Delay	Setpoint	Time door must be open before triggering DOOR OPEN ALARM . Requires door switch.
dAL	dAL Door Alarm	Setpoint	Sets 0 to 10 VDC output to door alarm. Will only activate for door alarm.
dCL	dCL Door Switch - Door Closed	Auxiliary Input	Auxiliary input set to Door Switch indicates that the door is closed.
ddF	ddF Defrost Delay Fan	System Mode	At start of defrost, fans will continue running for several minutes, using stored cooling in the coil. Once the coil reaches room temp, fans will stop, and heaters will turn on to begin electric defrost.
dEF	dEF Defrost Parameter	Setpoint	If DEFROST MODE = DEMAND: Do not adjust unless directed to by KE2 Therm tech support.
dEF	dEF Defrost	System Mode	Controller is performing a defrost cycle.



Alphabetical List of Abbreviations - (Continued)

Abbreviation	Full Name	Type	Description
dEr	Defrost Relay	Variables	Current state of the defrost relay.
dFi	Defrost Interlock Switch	Auxiliary Input	Option for Auxiliary Input. When inactive (AUT) defrost energize as normal. Active (OFF) defrost heaters forced off.
dFL	Defrost Lockout Switch	Auxiliary Input	Option for Auxiliary Input. When inactive (AUT) defrost will be initiated as normal by controller logic. Active (dLo) defrost not allowed.
dHC	DHCP	Setpoint	Turn DHCP client mode on or off. (EnA) enable DHCP mode. (dis) disable DHCP mode.
dHr	Dehumidifier Relay	Variables	Current status of Dehumidifier Relay.
diA	Diagnostics Mode	Setpoint	Press and hold ENTER until FAr is displayed. Energizes each relay individually for 30 seconds: (FAr) fan relay, (dEr) defrost relay, (CPr) compressor relay.
diS	Disabled	Auxiliary Input	Input is not used by the controller.
dLo	Defrost Lockout	Auxiliary Input	Defrost Lockout active. Defrost not allowed while signal is active.
dnd	Demand Defrost	Setpoint	Option for Defrost Initiation Mode (ind) setpoint. (dnd) Demand Defrost, system will defrost only when dictated to by a decrease in evaporator efficiency. Other options are (SCH) Scheduled, and (mt) Compressor Run Time.
don	Door Switch - Door Open	Auxiliary Input	Auxiliary Input set to Door Switch indicates door is open.
dor	Door Switch	Auxiliary Input	Inactive (dCL) door closed. Active (don) door open, refrigeration, and fans will temporarily stop.
dor	Door Open Alarm	Alarms	Door open and room temp above ROOM TEMP + 0.5°F longer than DOOR ALARM DELAY.
dPd	Defrosts per day	Setpoint	If DEFROST MODE = SCH: Defrosts per day. Number of evenly spaced defrosts per day.
drn	Drain Time	Setpoint	Time to be in drain mode (drip time).
drn	Drain	System Mode	Time after defrost to allow moisture to drain from coil (drip time).
dt2	Disp Aux2 Sensor	Alarms	Combo Display Aux 2 Temp Sensor is shorted or open.
dt3	Disp Aux3 Sensor	Alarms	Combo Display Aux 3 Temp Sensor is shorted or open.
dtH	High Door Temp	Alarms	Combo Door Temp above High Door Alarm Offset longer than High/Low Door Temperature Alarm Delay.
dtL	Low Door Temp	Alarms	Combo Door Temp below Low Door Alarm Offset longer than High/Low Door Temperature Alarm Delay.
dtL	Max Defrost Time	Setpoint	If DEFROST MODE = SCH: Maximum amount of time the defrost relay will be energized.
dto	DeHumidify Temp Offset	Setpoint	Allows controller to overcool the space if humidity is high. Room Temp - DeHumidify Offset is new target temperature if humidity is high. Must be a negative number.
dtP	Defrost Term Temp	Setpoint	Temperature the coil sensor(s) must exceed to terminate defrost. If DEFROST TYPE = AIR, term temp will automatically adjust 2.0% above ROOM TEMP if ROOM TEMP is changed.
dtS	Door Temp Sensor Alarm	Alarms	Combo Display Aux 1 Door Temp Sensor is shorted or open.
dtt	Defr Term on Time Alarm	Alarms	Defrost terminated on time instead of temperature for two consecutive cycles.
dtY	Defrost Type	Setpoint	(ELE) for Electric. (Air) for off time. (Hgn) for hot gas with LLS relay on. (Hgf) for hot gas with LLS relay off.
EA1	External Alarm Switch	Auxiliary Input	Shows status of external alarm input. Active (EAo). Inactive (EAF).
EA1	External Alarm 1	Alarms	If AU1 = EAL and the auxiliary input is in an active state.
EA2	External Alarm 2	Alarms	If AU2 = EAL and the auxiliary input is in an active state.
EA3	External Alarm 3	Alarms	If AU3 = EAL and the auxiliary input is in an active state.
EA1	Disp Ext 1 Alarm	Alarms	Combo External Alarm 1 input is active.
EA2	Disp Ext 2 Alarm	Alarms	Combo External Alarm 2 input is active.
EA3	Disp Ext 3 Alarm	Alarms	Combo External Alarm 3 input is active.
EAo	External Alarm Switch Active	Auxiliary Input	Auxiliary input set to external alarm is receiving an active signal.
EAF	External Alarm Switch Inactive	Auxiliary Input	Auxiliary input set to external alarm is not receiving an active signal.
EAP	N/A	System Mode	Not an alarm. Displays when controller is powering up.
Ed	Electric Defrost w/ Mech. valve	Type of Control	System operates with default values for Electric Defrost with Mechanical Valve.



Alphabetical List of Abbreviations - (Continued)

Abbreviation	Full Name	Type	Description
EdE	EDE Electric Defrost w/EEV	Type of Control	System operates with default values for Electric Defrost with Electric Valve.
EdF	EDF Extreme Temp Diff	Setpoint	Should not be adjusted unless instructed to by KE2 Therm.
EdF	EDF Excess Defrost Alarm	Alarms	Time between defrosts too short in demand defrost. Check if defrost terminating on temp properly.
Edt	EDT Valve Type	Setpoint	Expansion valve on the system: (tHr) mechanical, pre-configured electronic, or custom EEV configuration.
EFL	EFL Email Failure Alarm	Alarms	Email alert was not confirmed by email server provided after seven consecutive attempts.
ELE	ELE Electric Defrost	Setpoint	Option for evaporator Defrost Type (dtY) setpoint. (ELE) Electric. Other options are (Ai) Air (Off Time) Defrost, (HGn) Hot Gas w/ Compressor On, and (HGF) Hot Gas w/ Compressor Off.
EnA	ENR Enabled	Setpoint	Enables connection with KE2 SmartAccess for remote monitoring and control.
FAC	FAC Factory reset	Setpoint	Press and hold ENTER to reset the controller's refrigeration setpoints to KE2 Therm defaults. Does NOT reset network settings. Do not press unless requested to by tech support.
FAH	FAH Fahrenheit	Setpoint	Option for Temp Units (Unt) setpoint. (FAH) Fahrenheit. (CEL) Celsius.
FAr	FAr Fan Relay	Variables	Current state of the fan relay.
FdL	FDL Fan Delay	System Mode	After drain mode (drn), the LLS relay will energize, and the coil will pulldown until it reaches the Fan Delay Temp or Max Fan Delay Time, whichever is sooner. This allows any moisture on the coil to re-freeze, keeping it from spraying and forming ice drops on the walk-in's surfaces.
Fir	FIR Firmware Version	Variables	Current version of the firmware on the controller.
FoC	FoC Fans on with Compressor	Setpoint	Option under Refrig Fan Type (rFt) setpoint. (FoC) on w/ compressor. Other options are (CYC) to cycle, i.e. managed fan control, (PER) permanent, and (t24) title 24.
FSd	FSd Evap Fan Speed	Setpoints	Sets 0 to 10 VDC output to variable speed evaporator fan control.
FtS	FTS Min Fan Switch Time	Setpoints	Minimum time before fans can be turned on again after turning off.
H2P	H2P Second Humidity Setpoint	Setpoint	Humidity target used when 2nd Humidity Input is active.
HAd	HAD High Temp Alarm Delay	Setpoint	Delay before triggering HIGH TEMP ALARM .
HAo	HAo High Temp Alarm Offset	Setpoint	Degrees above ROOM TEMP + AIR TEMP DIFF to trigger HIGH TEMP ALARM .
Hd2	Hd2 High Mon2 Temp	Alarms	Combo Aux2 Monitor Temp above Monitor Temp2 High Alarm longer than Monitor Temp2 Alarm Delay .
Hd3	Hd3 High Mon3 Temp	Alarms	Combo Aux3 Monitor Temp above Monitor Temp3 High Alarm longer than Monitor Temp3 Alarm Delay .
HdP	HdP Humidity Differential	Setpoint	Humidity differential. Humidity setpoint +/- the differential will determine the control range.
HEd	HEd Heater Differential	Setpoint	Differential added to Heater Target to determine heater cut-in temperature.
HEt	HEt Heater Target	Setpoint	Cut-out temperature for heater control.
HGF	HGF Hot Gas Defrost w. Compressor Off	Setpoint	Option for evap Defrost Type (dtY) setpoint. (HGF) Hot Gas w/ Compressor Off. Other options are (Ai) Air Off time Defrost, (ELE) Electric, and (HGn) Hot Gas w/ Compressor On.
HGn	Hgn Hot Gas Defrost w. Compressor On	Setpoint	Option for evap Defrost Type (dtY) setpoint. (Hgn) Hot Gas w/ Compressor On. Other options are (Ai) Air Off time Defrost, (ELE) Electric, and (HGF) Hot Gas w/ Compressor Off.
HHA	HHA High Humidity	Alarms	Humidity above HUMIDITY SP + HUMIDITY DIFF + HUMIDITY ALARM OFFSET for longer than HUMIDITY ALARM DELAY .
HS	HS HSV	Valve Type	Pre-configured EEV selection. (HS) KE2 Therm's HSV, Hybrid Stepper Valve (removed in v2.05).
HSA	HSA Humidity Sensor	Alarms	Humidity sensor is shorted or open.
HSH	HSH High Superheat Alarm	Alarms	[EEV] Superheat 2°F above SUPERHEAT setpoint for 90 min. of cumulative runtime, and valve > 90% open. [TEV] Superheat above SUPERHEAT setpoint for 90 minutes of cumulative runtime.
HSP	HSP Humidity Target Setpoint	Setpoint	Humidity target for humidity control.
HTA	HTA High Temperature Alarm	Alarms	Air temp above ROOM TEMP + AIR TEMP DIFF + HIGH TEMP ALARM OFFSET longer than HIGH TEMP ALARM DELAY .
Htn	Htn Electric Defrost Mode	Setpoint	If DEFROST TYPE = ELE : (Prn) Permanent, leaves defrost relay energized during the defrost cycle. (PUL) Pulse, utilizes advanced heater management.
Htr	Htr Heater Relay		Current status of Heater Relay.
HU	HU Humidity Mode	Setpoint	(dis) Disabled. (EnA) humidity control enabled. (HeT) heater control only.
HU	HU Humidity	Variables	Relative humidity as measured by controller.
HU2	HU2 2nd Humidity Setpoint Input	Variables	2nd Humidity Input status, when active uses 2nd Humidity Setpoint as humidity target.
HUr	HUr Humidifier Relay	Variables	Current status of Humidifier Relay.
ind	ind Defrost Initiation Mode	Setpoint	Mode to initiate defrost. (dnd) demand. (SCH) schedule. (rnt) comp run time.
iP1	IP1 IP Address Part 1	Variables	First 3 digits of the controller's IP address.
iP2	IP2 IP Address Part 2	Variables	Second 3 digits of the controller's IP address.
iP3	IP3 IP Address Part 3	Variables	Third 3 digits of the controller's IP address.
iP4	IP4 IP Address Part 4	Variables	Fourth 3 digits of the controller's IP address.
LAd	LAD Low Temp Alarm Delay	Setpoint	Delay before triggering LOW TEMP ALARM .



Alphabetical List of Abbreviations - (Continued)

Abbreviation	Full Name	Type	Description
LAo	L _{AO}	Low Temp Alarm Offset	Setpoint Degrees below ROOM TEMP to trigger LOW TEMP ALARM.
Ld2	L _{D2}	Low Mon2 Temp	Alarms Combo Aux2 Monitor Temp below Monitor Temp2 Low Alarm longer than Monitor Temp2 Alarm Delay.
Ld3	L _{D3}	Low Mon3 Temp	Alarms Combo Aux3 Monitor Temp below Monitor Temp3 Low Alarm longer than Monitor Temp3 Alarm Delay.
LGC	L _{GC}	Redundant Cool	Setpoint Sets lead/lag control to redundant cool. Switches lead/lag based on time. Lag system will act as backup system and refrigerate if room temperature rises.
LGF	L _{Gf}	Redundant Off	Setpoint Sets lead/lag control to redundant off. Switches lead/lag on time. Both systems will never simultaneously refrigerate, however, lead/lag will switch under certain alarm conditions.
LHA	L _{HA}	Low Humidity	Alarms Humidity below HUMIDITY SP - HUMIDITY DIFF - HUMIDITY ALARM OFFSET for longer than HUMIDITY ALARM DELAY.
LLS	L _{LS}	LLS/Compressor Contactor Relay	Variables Current state of liquid line solenoid (LLS)/compressor contactor relay.
LLt	L _{LT}	Lead/Lag Time	Setpoint Toggle time between lead/lag when (tEt) = (LGC) Redundant Cool or (LGF) Redundant Off.
LPA	L _{PA}	Low Pressure Alarm	Alarms [LPCO only] Suction pressure below LOW PRESSURE CUT OUT + PRESS DIFF FOR LPCO despite attempts to run.
LPC	L _{P1}	Low Pressure Cut Out	Setpoint If LPt greater than 0: Low pressure cut-out when low pressure cut-out (LPCO) mode is enabled. LPCO is enabled when (LPt) is set to a value higher than 0 min.
LPd	L _{Pd}	Press Diff for LPCO	Setpoint If LPt greater than 0: Differential for low pressure cut-in when LPCO mode is enabled. LOW PRESSURE CUT OUT + PRESS DIFF FOR LPC = low pressure cut-in.
LPt	L _{Pt}	Max Time for LPCO	Setpoint IF EEV selected: 0 = Disabled. Do not enable unless instructed to by KE2 Therm tech support. Maximum time allowed to run compressor after entering off or defrost mode. If suction pressure does not reach (LPC) Low Pressure Cutout in this time will lead to (Pdt) Pump Down Timeout alarm.
LSH	L _{SH}	Low Superheat Alarm	Alarms Superheat below 3°F for 5 minutes, and, if EEV valve < 10% open.
LtA	L _{TA}	Low Temperature Alarm	Alarms Air temp below ROOM TEMP - LOW TEMP ALARM OFFSET longer than LOW TEMP ALARM DELAY.
ntP	n _{tP}	Time Server Comm Alarm	Alarms Controller cannot communicate with external time of day server (SNTP server).
OFF	o _{FF}	Off	System Mode System has satisfied on temperature.
OFF	o _{FF}	Defrost Heaters Off	Auxiliary Input Defrost Interlock is active on the Auxiliary Input, defrost heaters forced off (oFF).
OFF	o _{FF}	Off (Lead/Lag)	Setpoint Option for Multi Evap Mode (tEt) setpoint. (oFF) lead/lag control is disabled.
oni	o _{nI}	Monitor Temp	Auxiliary Input Monitor Temp as measured by the Auxiliary Input.
oPn	o _{Pn}	Valve % Open	Variables Percentage the EEV is open (only available if EEV is selected).
oPn	o _{Pn}	Open	Setpoint Option for Aux Input State (A1A, A2A, A3A) setpoints. Input will be Active when it reads an open circuit.
ott	o _{tt}	Timer Override Input	Variables When input is active energizes Timer Relay.
PAd	P _{Ad}	Paired Defrost Mode	Setpoint Select operation when lead/lag pair controller goes into defrost. (oFF) Off, paired controller will stay off. (AUT) Auto, paired controller will refrigerate based on room temp.
PAR	P _{AR}	Pair L/L	Setpoint Press and hold ENTER until red LED blinks. (PAS) successful pairing. (FAI) pairing failed. Only two controllers can be present on network.
PAS	P _{AS}	Web password reset	Setpoint Press and hold ENTER to reset the web username and password to the factory default "ke2admin".
Pbt	P _{Bt}	Panic Button - HELP	Alarms Combo Display panic button is active. Press and hold panic button again to clear.
Pdt	P _{Dt}	Pump Down Timeout	Alarms [LPCO only] LOW PRESSURE CUT OUT TIME exceeded before suction pressure reached LOW PRESSURE CUT OUT.
PEr	P _{Er}	Permanent Fan	Setpoint Option for Refrig Fan Type (rFt) setpoint. (PEr) permanent forces fans to run during off cycle.
PLS	P _{LS}	Pulse Valve	Setpoint Pulse Width Modulation (PWM) type expansion valve (changed from PUL in v2.05).
PnH	P _{nH}	Firmware Partnumber 1	Variables First three digits of firmware PN.
PnL	P _{nL}	Firmware Partnumber 2	Variables Last three digits of firmware PN.
PrF	P _{rF}	Process Failure	Alarms KE2 Basic Display not able to communicate with controller.
Prn	P _{rn}	Permanent	Setpoint Option for Electric Defrost Mode (Htn) setpoint. Applies if DEFROST TYPE = ELE. Permanent (Prn) forces the defrost relay to stay energized during the entire defrost cycle.
PrS	P _{rs}	Suction Pressure	Variables Suction pressure measured by the controller (only available if suction pressure transducer used).
PSA	P _{SA}	Pressure Sensor Alarm	Alarms Suction pressure sensor is shorted, open, or pressure out of range.
PUL	P _{UL}	Pulse	Setpoint Option for Electric Defrost Mode (Htn) setpoint. Applies if DEFROST TYPE = ELE. Pulse (PUL) uses the advanced defrost algorithm to manage the defrost relay during the defrost cycle.
rEF	r _{Ef}	Refrigeration	System Mode System is currently in Refrigeration mode.
rFG	r _{FG}	Refrigerant	Setpoint Refrigerant used. See table on page 12.
rFt	r _{Ft}	Refrigeration Fan Type	Setpoint Select evaporator fan management. (CYC) cycle, i.e. manage, fans during refrigeration and off cycle. (FoC) fans on w/ compressor will primarily manage fans only during the off cycle. (PEr) permanent forces fans to run during refrigeration and off cycle. (t24) Title 24 cycles fans based on California's Title 24 regulations.



KE2 EvapOEM

Quick Start Guide

Alphabetical List of Abbreviations - (Continued)

Abbreviation	Full Name	Type	Description
rnt	Compressor Run Time	Setpoint	Option for Defrost Initiation Mode (ind) setpoint. (rnt) Compressor Run Time, system will defrost after a set number of cumulative hours of run time.
rS	RSV	Valve Type	Pre-configured EEV selection. (RSV) KE2 Therm's Refrigeration Stepper Valve.
rtP	Room Temp	Variables	Walk-in freezer or cooler room temperature (TAir Sensor) as measured by the controller.
rtP	Room Temp	Auxiliary Input	Room temp as measured by the Auxiliary Input.
SA	KE2 SmartAccess	Setpoint	Turn KE2 SmartAccess on or off. (EnA) enable KE2 SmartAccess. (dis) disable KE2 SmartAccess.
SAt	Saturation Temp	Variables	Saturation temperature as calculated by the controller (requires suction pressure transducer and T1 suction temperature sensor).
SCC	Short Compressor Cycle	Alarms	[LPCO only] Compressor started excessive number of times due to suction pressure in off mode, or compressor cut-out excessive number of times due to suction pressure while in refrigeration mode.
SCH	Scheduled Defrost	Setpoint	Option for Defrost Initiation Mode (ind) setpoint. (SCH) Scheduled, system will defrost a set number of times per day, spaced evenly throughout the day. Other options are (and) Demand Defrost, and (rnt) Compressor Run Time.
SEi	SEI	Valve Type	Pre-configured EEV selection. 12 VDC Bipolar Sporlan EEV with 1,600 max steps, 200 steps/second.
SEr	SER	Valve Type	Pre-configured EEV selection. 12 VDC Bipolar Sporlan EEV with 2,500 max steps, 200 steps/second.
Sht	Superheat	Variables	Superheat as calculated by the controller (requires suction pressure transducer and T1 suction temperature sensor).
SoF	System Off Switch	Auxiliary Input	Option for Auxiliary Input. When inactive (Son), system runs as normal. Active (SoF), system enters pumpdown mode and will not refrigerate or defrost until cleared.
SoF	System Off	System Mode	System off has been activated from the display, or by an external signal to an Auxiliary Input.
Son	System Off Switch - System On	Auxiliary Input	System Off Auxiliary Input is Inactive (Son), system runs as normal.
SSA	Suction Sensor Alarm	Alarms	Suction temp sensor is shorted or open.
Stt	Superheat	Setpoint	When EEV selected, target superheat value. When mechanical valve selected, high superheat alarm threshold.
SUt	Suction Temp	Variables	Suction Temperature as measured by controller.
SYS	System Mode	Variables	Current operating status.
tr	Timer Relay	Variables	Current status of Timer Relay.
t2F	2nd Room Temp Setpoint Off	Auxiliary Input	2nd Temp Auxiliary Input is Inactive (t2f). System is controlling to the regular Room Temp setpoint.
t2n	2nd Temp Switch Setpoint On	Auxiliary Input	2nd Temp Auxiliary Input is Active (t2n). System is controlling to the 2nd Room Temp Setpoint.
tHr	Mechanical	Valve Type	Thermostatic Expansion Valve in the Expansion Device Type (Edt) setpoint.
t24	Title 24	Setpoint	Option for Refrig Fan Type (rft) setpoint. (t24) Title 24, cycle fans to comply with California Title 24 regulations.
tEt	Multi Evap Mode	Setpoint	Lead/lag mode. (off) Off, lead/lag disabled. (L6C) Redundant Cool, time based lead/lag with backup system controlling to 2nd Room Temp. (L6F) Redundant Off, time based lead/lag with backup system always off. (Alt) Alternate, lead/lag system will switch after every refrigeration run cycle.
tS	Room Temp SP	Setpoint	Room temperature to be maintained (cut-out temperature).
tS2	2nd room temp SP	Setpoint	If AU1, AU2, or AU3 = (t2n) 2ND ROOM TEMP: This value becomes the ROOM TEMP setpoint when the Auxiliary Input is active.
UAd	Humidity Alarm Delay	Setpoint	Delay before triggering High/Low Humidity alarm once humidity is out of range.
UAo	Humidity Alarm Offset	Setpoint	Offset added & subtracted above/below Humidity Target & Humidity Differential for High/Low Humidity alarms.
Unb	Unbond	Setpoint	Press and hold ENTER until red LED blinks. Controllers will unbond and restart. Only works if bonded to one other controller.
UnP	Unpair L/L	Setpoint	Press and hold ENTER until red LED blinks. (PAS) successful unpairing. (FAI) unpairing failed.
Unt	Temperature Units	Setpoint	Option for Temp Units (Unt) setpoint. (Fah) Fahrenheit. (Cel) Celsius.
USt	Max Superheat	Setpoint	Maximum allowed superheat for humidity control.



KE2 EvapOEM

Quick Start Guide

Introduction to KE2 SmartAccess

KE2 SmartAccess provides quick and easy real time access to your refrigeration systems, 24/7.

Now it's easier than ever to monitor and adjust your KE2 Evap OEM remotely. While the KE2 Evap OEM's webpages can be accessed via traditional IT techniques, many customers prefer the simplicity and convenience of KE2 SmartAccess.

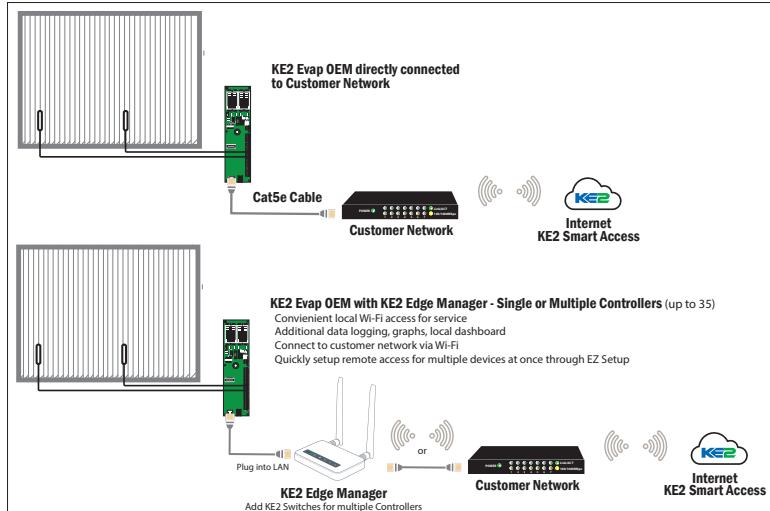
Once the controller is provided Internet access and KE2 SmartAccess is enabled, the controller quickly connects to your personal web portal. Hosted by KE2 Therm, the portal provides a customized dashboard of all the controllers you setup with KE2 SmartAccess, for a nominal monthly fee. No port forwarding or VPN required.

Preliminary Setup

Connect your KE2 Evap OEM to the existing network directly, or, add a KE2-Edge Manager Plus (KE2-EM Plus) & KE2 Switch to manage the refrigeration network if you need any of the following:

KE2-EM Plus

- Bridge to existing Wi-Fi for Internet instead of running cable
- One year+ of detailed datalogs and graphs (@ 15 minute interval)
- Local dashboard of up to 35 KE2 Therm devices on location
- Add KE2 Therm Wireless Sensors to monitor additional spaces
- Incorporate existing KE2 Therm devices at site
- Local Wi-Fi access for service
- BACnet/IP integration



KE2 SmartAccess setup with KE2-EM

Please follow the KE2-EM Plus Quick Start Guide that comes with the KE2-EM to complete the EZ SETUP, or visit the link below for a digital copy:

<https://ke2therm.com/literature/literature-ke2-edge-managers/>

KE2 SmartAccess with direct connection to network - Online Access in 3 Easy Steps

Step 1

Enable KE2 SmartAccess in the Setpoints menu

■ After the initial Introduction Mode setup, press and hold **BACK** until **EN** appears.

■ Press **▲** two times to view **SA** (abbreviation for KE2 SmartAccess). Press **ENTER**, then press **▼** to change **DIS** (disabled) to **EN** (enabled).

■ Press and hold **ENTER** for 3 seconds to save the change.

NOTE: Enabling SA also enables DH (DHCP client mode)

Step 2

Go to smartaccess.ke2therm.net

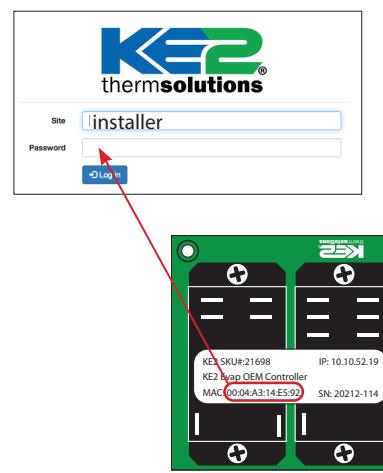
Using your PC, tablet, or smartphone, enter <http://smartaccess.ke2therm.net> in the web browser's address bar.

Step 3

Enter default information and click Log In button

Site: installer

Password: controller's MAC address (from sticker on controller, all capital including colons).



Once logged in, clicking on the controller allows access to the controller's built-in webpages. Navigate to *Setpoints* -> *Communications* -> KE2 SmartAccess and change the *Site* and *Password* to something unique (Site Example: MyStore-04CD). Follow best practices for password creation. Setting multiple controllers to the same *Site* and *Password* will cause them all to appear on a single KE2 SmartAccess dashboard for easy access and monitoring. See Q.1.46 Web Screens for more details on everything available on the KE2 Evap OEM's built-in webpages:

<https://ke2therm.com/literature/literature-ke2-evap-oem/>



VISIT OUR YOUTUBE CHANNEL FOR VIDEOS ON KE2 SMARTACCESS.

youtube.com/ke2therm

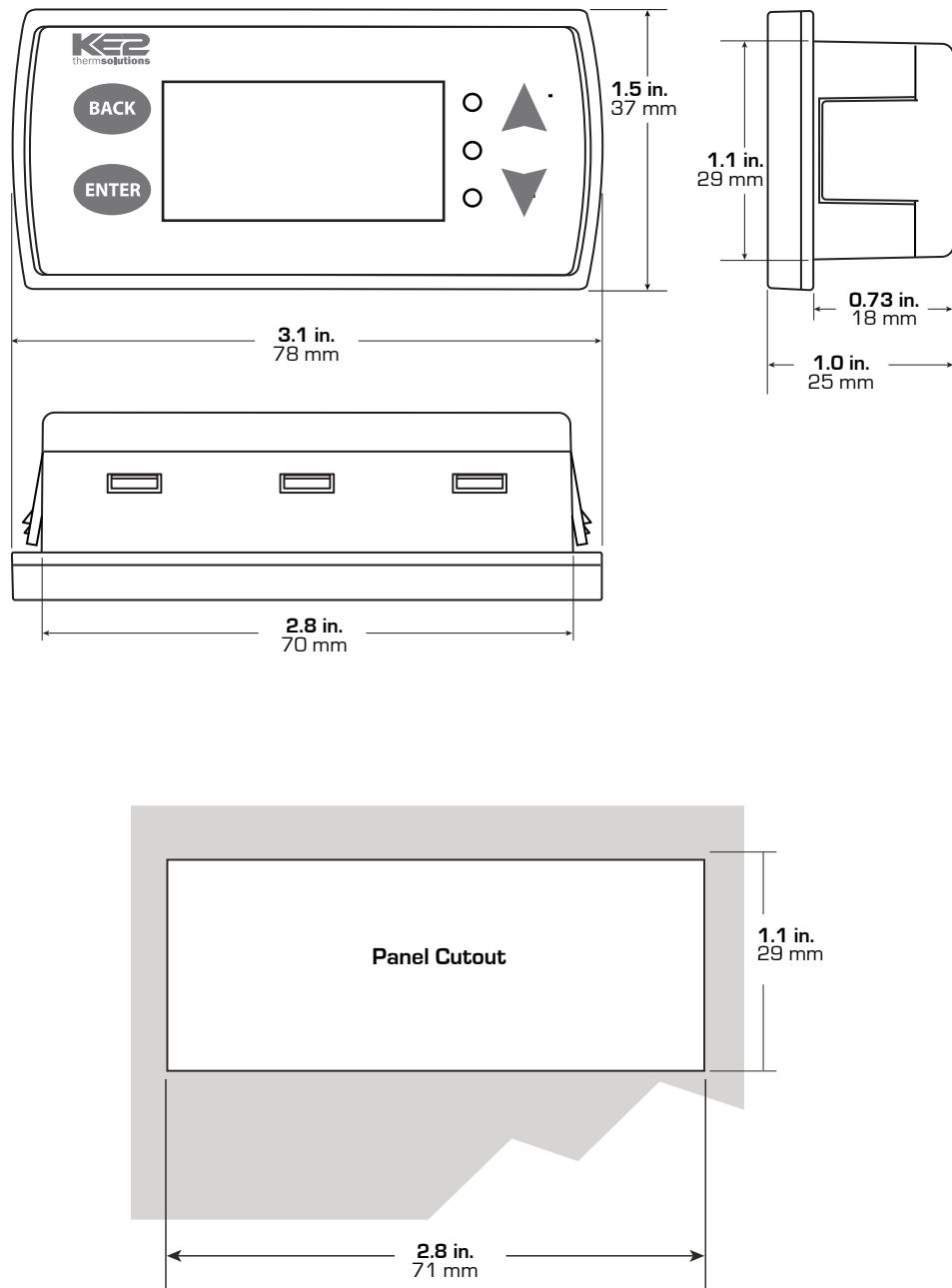




KE2 EvapOEM

Quick Start Guide

KE2 Basic Display Dimensions



**KE2 EvapOEM**

Quick Start Guide

Accessories**Panel Kits**

Part #	Description
21958	KE2 Evap Panel (Single): Includes a single KE2 Evap OEM controller mounted in UL-508 panel, (3) 40' color temperature sensors & terminal board.
21959	KE2 Evap Panel (Double): Includes two KE2 Evap OEM controllers mounted in UL-508 panel, (6) 40' color temperature sensors & (2) terminal boards. For Lead/Lag control or control of two evaporators.
21999	KE2 Environment Panel: Includes a single KE2 Evap OEM controller and Aux Humidity Board mounted in UL-508 panel, (3) 40' color temperature sensors, 40' humidity sensor & terminal board.
22006	KE2 Humidity Panel: Includes a single KE2 Humidity Board mounted in UL-508 panel & 40' humidity sensor. For adding to existing KE2 Evap OEM install. Requires KE2 Evap OEM.

Displays

Part #	Description
21232	KE2 Basic Display w/ 18" cable
21324	Snap track - 11.2"
21877	KE2 Combo Display (w/ junction box, battery, 25' cable)
21320	KE2 Combo Display (no accessories or junction box)
21786	Combo Display - 25 ft. Cable
21320	Combo Display - Junction Box
21781	9V Rechargeable Battery for Combo Display

Auxiliary Boards

Part #	Description
22003	KE2 Humidity Control (board only)
21323	Aux Relay Board

Sensors

Part #	Description	Lead Length
21151	Temperature Sensor Pack - Yellow, Green, Blue	15 ft.
21066	Temperature Sensor Pack - Yellow, Green, Blue	40 ft.
20199	Temperature Sensor - Black	10 ft.
21795	Temperature Sensor - Yellow	10 ft.
21793	Temperature Sensor - Green	10 ft.
21794	Temperature Sensor - Blue	10 ft.
20200	Temperature Sensor - Black	40 ft.
20651	KE2 Humidity Sensor	40 ft.

Communications

Part #	Description
21902	KE2-EM Plus
21920	KE2-EM Plus (w/ BACnet/IP)
21924	KE2-EM Plus Mounting Bracket
20166	KE2 Switch - 8 Port Ethernet Switch
21011	KE2 Switch - 16 Port Ethernet Switch

Pressure Transducer

Part #	Description	Lead Length
20201	Pressure Transducer - 0 to 150 psia	10 ft.
20204	Pressure Transducer - 0 to 150 psia	40 ft.

RSV - Refrigeration Stepper Valves

Valve Body	Part #	Connections - Inches ODF Inlet x Outlet	Lead Length
RSV-100	21667	3/8 x 1/2	5 ft.
RSV-100	21665	3/8 x 1/2	10 ft.
RSV-100	21666	3/8 x 1/2	40 ft.
RSV-130	21169	3/8 x 1/2	5 ft.
RSV-130	21161	3/8 x 1/2	10 ft.
RSV-130	21162	3/8 x 1/2	40 ft.
RSV-220	21170	3/8 x 1/2	5 ft.
RSV-220	21163	3/8 x 1/2	10 ft.
RSV-220	21164	3/8 x 1/2	40 ft.
RSV-320	21171	3/8 x 1/2	5 ft.
RSV-320	21165	3/8 x 1/2	10 ft.
RSV-320	21166	3/8 x 1/2	40 ft.
RSV-320	21172	1/2 x 1/2	5 ft.
RSV-320	21167	1/2 x 1/2	10 ft.
RSV-320	21168	1/2 x 1/2	40 ft.
RSV-400	21529	5/8 x 7/8	15 ft.
RSV-400	21530	5/8 x 7/8	40 ft.
RSV-550	21594	5/8 x 7/8	15 ft.
RSV-550	21595	5/8 x 7/8	40 ft.
RSV-650	21779	5/8 x 7/8	15 ft.
RSV-650	21778	5/8 x 7/8	40 ft.
RSV-C10 Stator	21149	For RSV-100 to 320	10 ft.
RSV-C40 Stator	21150	For RSV-100 to 320	40 ft.
RSV-LC15 Stator	21525	For RSV-400 to 650	15 ft.
RSV-LC40 Stator	21526	For RSV-400 to 650	40 ft.

External Relays

Part #	Description
21304	Solid State Relay for 0/10 VDC Alarm Output
21469	120V Mechanical Relay (for dry contact alarm output)
21470	240V Mechanical Relay (for dry contact alarm output)

Replacement Relays

Part #	Description
21373	Replacement Fan Relay (Form A)
21374	Replacement LLS Relay (Form C)

Replacement Fuse

Part #	Description
21375	Replacement Fuses (5 pcs), 1 Amp, 250V ceramic



Specifications

Controller

Input Voltage:	100 to 240 VAC
Ambient Temp:	-40°F to 140°F (-40°C to 60°C)
Operating Temp:	-40°F to 140°F (-40°C to 60°C)
Inputs:	(3) temperature sensor (3) multi-use (temp sensor or digital input) (1) pressure sensor input
Valve Types:	unipolar and bipolar stepper motors (L/R 12 VDC)
Relays:	(1) 20A resistive (defrost) (2) 10A inductive
Auxiliary Input 1:	
Auxiliary Input 2:	room temp, coil temp, monitor, 2nd temp setpoint, door switch, external alarm, system off, defrost interlock, defrost lockout
Auxiliary Input 3:	
Communication:	Standard TCP/IP, RESTful API, BACnet/IP (w/ KE2-EM)

Pressure Transducer

Pressure Range:	0 to 150 psia
Proof Pressure:	450 psi
Burst Pressure:	750 psi
Operating Temp:	-40°F to 248°F (-40°C to 120°C)

Temperature Sensor

Sensor Specs:	-60°F to 150°F (-51°C to 65°C) moisture resistant package
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Technical Videos

KE2 Therm has created quick technical videos based on commonly asked questions, and are often the quickest way to find the answer to common questions:

KE2 Therm YouTube channel:

<https://www.youtube.com/user/KE2Therm/videos>



Ice buildup on coil:

<https://youtube.com/watch?v=RHXX3ane5as>



Troubleshoot temperature sensor:

<https://www.youtube.com/watch?v=Jl789uGUuRM>



Troubleshoot pressure transducer:

<https://www.youtube.com/watch?v=4MvlXVh-Dic>



Connect directly to the controller (static IP):

<https://www.youtube.com/watch?v=NjRLXLGnbkU>

