

Introduction:

The KE2 Evap OEM has advanced communications and alarming features, never before seen in the refrigeration industry. These alarms provide early indications of a poorly performing refrigeration system.

Text messages and/or e-mail alerts provide notification of system issues immediately, whether on-site or remote, as long as there is an Internet connection.

Advanced alarming, diagnostic and troubleshooting are key features of the KE2 Evap OEM controller, and help prevent catastrophic failures. This protects contractor, owner, product, and refrigeration equipment.

When using KE2 SmartAccess, the controllers can be viewed, setpoints changed, and defrosts can even be initiated remotely; saving time and frustration. And, your home office or KE2 Therm technical support can even login with you to diagnose the system in real time.

Alarm Notifications:

Users are notified of alarms in several ways in addition to e-mail/texts.

From the face of the Remote Display:

Using the Remote Display, the alarm is shown as a three digit code, and the yellow or red LED light on the right side of the display will illuminate. If there is more than one alarm present at the same time, press \checkmark to cycle through the alarms.





Alarm Severity:



Red LED: Critical Alarm - will turn the system off. The system is unable to run safely under these conditions, and the controller will cease operating the refrigeration system. The controller is attempting to prevent a catastrophic system failure, such as damage to the compressor. Critical alarms must be addressed immediately.

Yellow LED: Cautionary Alarm - The controller will continue to function to the best extent possible given the system conditions, but the **alarm should be addressed as soon as possible**.

On the controller's webpage:

Alarms can also be viewed on the right hand side of the controller's Home Page when connected to the controller via a smart device (smartphone, tablet, PC etc.), or remotely via KE2 SmartAccess. When not in alarm, the controller displays "All Clear."



If the controller is connected to the Internet, the KE2 Evap OEM can also send text messages and/or e-mails to immediately notify all necessary personnel of the alarm condition.

Alarm thresholds such as high temp and door alarm can be adjusted, and should be set so as not to trigger during normal loading and use.

All alarms, except for the Excess Defrost Alarm, will automatically clear once the alarm condition no longer exists. To clear an alarm manually; press and hold the button until **tS** (temperature Setpoint) appears, press the button to **CLA** (CLear Alarm), finally press and hold with until the alarms are cleared. Power cycling the controller to clear alarms is not recommended, but will also reset the alarm conditions.

Clearing alarms before calling technical support will make diagnosis more difficult or impossible; please call technical support before clearing alarms if assistance is required.

Note: If the alarm is a sensor alarm and the sensor is still disconnected or shorted, the alarm will immediately reappear.



These videos may also be relevant when troubleshooting or for basic setup or your controller.

Troubleshooting:

Video 034 – Iced Evaporator Coil on a Walk-in Freezer Video 044 – Iced Evaporator Coil on a Walk-in Cooler Video 107 – Troubleshooting a Temperature Sensor Video 106 – Troubleshooting a Pressure Transducer

Basic setup:

Video 066 – How to Assign Controllers to your KE2 SmartAccess Site. Video 068 – How to Determine Proper Coil Sensor Location Video 069 – How to Properly Install a Coil Sensor





Alarms & Notifications List

Alarm Type	Abbreviation		Scrolling Text*	Full Name	Description	Page
	Blank D	Display			No LEDs are illuminated on the display.	Page 3
	Ed			Intro Mode	"Ed" on display, Yellow and Red LEDs flashing	Page 3
	PSA	PSR	PRESSURE SENSOR	Pressure Sensor Alarm	Suction pressure sensor is shorted, open or pressure out of range	Page 3
	SSA	55R	SUCTION TEMP SENSOR	Suction Sensor Alarm	Suction temperature sensor is shorted or open	Page 4
	ASA	RSR	AIR TEMP SENSOR	Air Sensor Alarm	Return air temperature sensor is shorted or open	Page 4
Sensor Alarms	CSA	ESR	COIL TEMP SENSOR	Coil Sensor Alarm	Coil temperature sensor is shorted or open	Page 4
	A1A	818	AUX1 SENSOR	AU1 Temp Sensor Alarm	AU1 temperature sensor is shorted or open	Page 4
	A2A	82R	AUX2 SENSOR	AU2 Temp Sensor Alarm	AU2 temperature sensor is shorted or open	Page 4
	АЗА	R3R	AUX3 SENSOR	AU3 Temp Sensor Alarm	AU3 temperature sensor is shorted or open	Page 4
Defrect	EdF	EdF	EXCESS DEFROST	Excess Defrost Alarm	Exceeds maximum number of allowable defrosts	Page 5
Detrost	dtt	dEE	DEFR TERM ON TIME	Defr Term on Time Alarm	Defrost terminated on time instead of temperature for two consecutive cycles	Page 5
Sunarhaat	HSH	HSH	HIGH SUPERHEAT	High Superheat Alarm	System has been running with a higher than expected superheat.	Page 6-7
Supernear	LSH	LSH	LOW SUPERHEAT	Low Superheat Alarm	System has been running with a lower than expected superheat.	Page 6-7
-	HtA	HER	HIGH AIR TEMP	High Temperature Alarm	Room temperature is above rtP (ROOM TEMP) + AIR TEMP DIFF + HAo (HIGH TEMP ALARM OFFSET) for longer than HAd (HIGH TEMP ALARM DELAY).	Page 8
Temperature	LtA	LER	LOW AIR TEMP	Low Temperature Alarm	Room temperature is below rtP (ROOM TEMP) - LAO (LOW TEMP ALARM OFFSET) for longer than LAd (LOW TEMP ALARM DELAY).	Page 8
Door Switch	dor	dor	DOOR SWITCH	Door Open Alarm	Door is open and room temperature is 5.0°F above rtP (ROOM TEMP) + AIR TEMP DIFF for dAd (DOOR ALARM DELAY) time.	Page 9
Communica-	СоА	C 0 8	COMMUNICATION ERROR	Communication Error	ONLY FOR BONDED CONTROLLERS: No communication between controllers for one minute or more	Page 9
tion	PrF	PrF	N/A	Process Failure	Remote Display is not communicating to the controller	Page 9
	EA1	ERI	EXTERNAL ALARM 1	External Alarm 1	If AU1 IN MODE = EXT ALARM: The digital input is in an active state	Page 10
Digital Inputs	EA2	ER2	EXTERNAL ALARM 2	External Alarm 2	If AU2 IN MODE = EXT ALARM: The digital input is in an active state	Page 10
	EA3	ERB	EXTERNAL ALARM 3	External Alarm 3	If AU3 IN MODE = EXT ALARM: The digital input is in an active state	Page 10
Email	EFL	EFL	EMAIL FAILURE	Email Failure Alarm	Email alert was not confirmed by email server provided after seven consecutive attempts	Page 10
	Disconnect				Controller has been disconnected from KE2 SmartAccess for over 10 minutes.	Page 10
KE2 Smart	Reconnect				Controller has been reconnected to KE2 SmartAccess.	Page 10
Access	Access Denied				Response from https://smartaccess.ke2therm.net when trying to login with invalid site	Page 10
	Contro	ller Comn	n Failure - Retry in XX secc	onds.	This error will prevent viewing the controller's webpage.	Page 10
	Pdt	PdE	PUMPDOWN TIMEOUT	Pump Down Timeout	Max time for LPCO pumpdown exceeded	—
Call KE2 Therm	scc	SEE	SHORT COMP CYCLE	Short Compressor Cycle	Compressor is started an excessive number of times to maintain suction pressure	_
for assistance.	LPA	<u>L PR</u>	LOW PRESSURE	Low Pressure Alarm	Suction pressure dropped below expected point excessive number of times	_

*Scrolling Text is available when using the KE2 Combo Display.



KE2 Evap OEM thermsolutions | Alarm Troubleshooting Guide

Troubleshooting Tables

Alarm	Alarm Name	Description	Parameter in VARIABLES menu to diagnose further.	Corrective Action
Blank Display	N/A	No LEDs are illuminated on the display.	N/A	Note: While not an alarm condition, the controller may or may not be operational if nothing is shown on the Remote Display. The KE2 Evap OEM can continue to operate the system even while the Remote Display is disconnected.
				If controller is still powered and system is running troubleshoot the Re- mote Display:
				• Make sure the plugs are fully inserted into the jacks at both the KE2 Evap OEM and the Remote Display.
				• Check the connection between the KE2 Evap OEM board and the Remote Display for any burned, chaffed, cut or otherwise damaged sections. If damaged, replace cable.
				• There are two jacks on the Remote Display. Switch the jack used on the Remote Display and check for functionality.
				Check to see if Remote Display cable is longer than 5ft. Maximum cable length between Remote Display and KE2 Evap OEM board is 5ft.
				If system is not running and there are no LEDs lit on the KE2 Evap OEM board, check:
				 Incoming voltage to the board. Voltage should be between 100VAC – 240VAC, if not address supply voltage issue.
				• Remove power to controller and check fuse located on board. The fuse can- not be checked visually; remove fuse from board and check resistance across the fuse. An open reading indicates the fuse has blown and points to a sup- ply voltage issue or short on the board or connected devices. The fuse will blow in order to protect the controller from permanent damage. Check for proper incoming power, examine all cables for burned, cut, chaffed or other- wise damaged insulation/wire and repair. Replace fuse (PN 21375).
				• Remove all connections to controller except for power and the Remote Display; see if the Remote Display illuminates.
				Note: Power injected into the controller's Ethernet port may reuslt in the display going blank and other unexpected problems.
				Power over Ethernet (POE) switches connected to the KE2 Evap OEM should have the power output feature disabled.
Ed	Intro	"Ed" is blinking on the Remote Display, yel- low and red LEDs are flashing.	N/A	Not an alarm condition, controller is in introduction mode. Please refer to Q.1.45 for controller setup.
PSA	Pressure Sensor Alarm	ONLY ACTIVE WHEN AN ELECTRONIC EXPANSION VALVE IS SELECTED:	Red LED is illuminated. System cannot operate while this alarm is present.	The majority of sensor alarms and inaccurate readings are caused by cut, burned, chaffed or otherwise damaged sensor cables. Inspect the length of the cable for any burned, chaffed or otherwise damaged sections. Repair any damaged sections; take care not to swap colors when repairing.
		Suction pressure sensor is shorted, open or pressure is out of range.	PrS - SUCTION PRESSURE • If wiring connects Signal terminal (G) to Ground terminal (B) or open, PrS will read -15.	• Check that the pressure transducer cable wires are inserted into the proper position on the board (gray connector) and that the colors are inserted into the proper screw down terminal gates. The bare stranded wire of the transducer cable should be inserted so that the wire is directly touching the gate of the connector. If the gate is contacting the insulation of the wire, it will not allow the controller to read the sensor.
			the +5 VDC terminal (R), PrS will read 154.	• If wires have been extended, check that colors have not been swapped when extended. Check for any bad splices, crimps or solder joints where extended.
			• If actual pressure is over the range of the transducer, PrS will read over 150*.	• Check that the pressure transducer cable is fully inserted into the pressure transducer. The cable should click when fully inserted into the transducer.
			* 300 psig or 500 psig depending on range of the pressure transducer.	• Confirm that the proper transducer is being used for the system. 0-150psia for most common refrigerants, 0-300psig for R-410A and 0-500psig for R-744 (CO2). Confirm that the proper refrigerant (rFG) is selected in the setpoints menu.
				• To verify the accuracy of the transducer, remove the transducer from the system. The controller should read suction pressure as approximately 0 psig when measuring atmosphere.
				Note: If PrS shows -15 when transducer is measuring atmosphere, the wrong pressure transducer/refrigerant combination has been selected.



KE2 Evap OEM Alarm Troubleshooting Guide

Alarm	Alarm Name	Description	Parameter in VARIABLES menu to diagnose further.	Corrective Action	
SSA	Suction Tem- perature Sensor	ONLY ACTIVE WHEN AN ELECTRONIC EXPANSION VALVE IS SELECTED: Red LED is illuminated. System cannot operate while this alarm is present. Temperature sensor is shorted or open (not connected).	SUt - T1 SUCTION TEMP • If SUt reads -88 the sensor is open, or not connected. • If SUt reads 180+ the sensor is shorted.	 The majority of sensor alarms and in burned, chaffed or otherwise damage the cable for any cut, burned, chaffed of any damaged sections Check that the sensor is inserted into sensor is not polarized; black and whit tion on the connector: Suction Temp: black connector labeled Air Temp: blue connector labeled TAII Coil Temp: yellow connector labeled T 2nd Coil Temp/Aux 1 Temp: green co Aux 2 Temp: black connector labeled Aux 3 Temp: black connector labeled 	haccurate readings are caused by cut, ed sensor cable. Inspect the length of protherwise damaged sections. Repair the proper position on the board. The te wires can be inserted in either posi- d TSUC . R . TCOIL . nnector labeled AUX1 . AUX2 . AUX3 .
ASA	Air Tem-	Yellow LED is illumi-	rtP - ROOM TEMP	 The bare stranded wire of the temperative the wire is directly touching the gate tacting the insulation of the wire, it w 	ature sensor should be inserted so that e of the connector. If the gate is con- vill not allow the controller to read the
	perature Sensor Alarm	nated. Controller will attempt to continue to operate system while this alarm	 If rtP reads -88 the sensor is open, or not connected. If rtPt reads 180+ the sensor is shorted. 	 If wires have been extended, check for any bad splices, crin where extended. 	any bad splices, crimps or solder joints
CSA	Coil Tem- perature Sensor Alarm	Temperature sensor is shorted or open (not connected).	CLt - COIL TEMP • If CLt reads -88 the sensor is open, or not connected. • If CLt reads 180+ the sensor is shorted.	 robe may have been damaged, and needs to be replaced To verify accuracy of the sensor, the preferred method is in a proper ice bath while connected to the controller. V menu, temperature should read around 32.0°F. If adjustr offset can be applied via the browser interface. Sensor accuracy can also be verified using a third party 	referred method is to place the sensor o the controller. View SUt on variables ad 32.0°F. If adjustment is necessary, an interface.
A1A	Auxiliary 1 Tempera- ture Sen- sor Alarm		1 AU1 - AUX TEMP 1 ever, it must be calibra • If AU1 reads -88 the sensor is open, or not connected. • Unplug the connecto matches the temperat	ever, it must be calibrated and rated to • Unplug the connector and check that matches the temperature vs. resistance	ated and rated to measure low temperatures. or and check that the resistance reading of the senso ture vs. resistance table.
				Temperature °F	Ohms
A2A	Auxiliary 2 Tempera- ture Sen- sor Alarm		AU2 - AUX TEMP 2 • If AU2 reads -88 the sensor is open, or not connected. • If AU2 reads 180+ the sensor is shorted.	-22 -4 14 32 50 68	19480 12110 7763 5114 3454 2387
A3A	Auxiliary 3 Tempera- ture Sen- sor Alarm		AU3 - AUX TEMP 3 • If AU3 reads -88 the sensor is open, or not connected. • If AU3 reads 180+ the sensor is shorted.	77 86 104 122 • If temperature appears to be within the alarming sensor with the sensor being • If the new sensor is read properly by nosed will need to be replaced. • If the sensor was disconnected for do to the appropriate location on the cor	2000 1684 1231 885 re proper operating range, swap a non- g diagnosed. the controller, the sensor being diag- liagnostic purposes, return the sensor throller once diagnostics are complete.



thermsolutions **KE2** Evap OEM Alarm Troubleshooting Guide

Alarm	Alarm Name	Description	Parameter in VARIABLES menu to diagnose further.	Corrective Action
EdF	Excess Defrost Alarm	Exceeds maximum number of allowable defrosts.	Yellow LED is illuminated. Controller will attempt to continue to operate system while this alarm is present. CLt - COIL TEMP dEr - DEFROST RELAY	Excess Defrost Alarm and Defrost Termination on Time Alarm are closely linked; both often indicate issues with the defrost process. Excess defrost alarm only occurs when using defrost based on evaporator efficiency, and is the only alarm condition that does not clear automatically when alarm condi- tions are resolved. Do not clear the Excess Defrost Alarm until diagnostics have been performed and the source of the excess defrost alarm is resolved.
dtt	Defrost Ter- mination on Time Alarm	Defrost terminated on time instead of temperature for two consecutive defrosts	Yellow LED is illuminated. Controller will attempt to continue to operate system while this alarm is present. CLt – COIL TEMP dEr – DEFROST RELAY	 in refrigeration or satisfied on temperature, initiate a defrost from the Remote Display by pressing and holding the main of buttons until ddF (defrost delay Fan) or ddF appears. The solenoid valve should close and the flow of liquid refrigerant to the evaporator stopped for the entire defrost. Note: For electric and hot gas defrost, the controller should run fans only for several minutes while the system pumps down in ddF (defrost delay Fan) mode. In ddF, solenoid valve and heaters should be off. The display will change to dEF (dEfrost) after the fan operation is complete. Fans should turn off, solenoid valve should remain off, and all heaters should turn on. Electric Defrost - Verify that the heaters are working properly. Measure amgaged heaters and any cut, burned, chaffed or disconnected wires in the heater circuit. Repair damage and check for proper defrost operation. Note: Controller periodically turns heaters on and off during defrost to reduce steaming and overall heat of forst toward the end of the defrost cycle. Air/ Electric / Hot Gas Defrost - Verify coil sensor location. An excessive number of defrost is often due to coil sensor location. The coil sensor, or sensors, serve as defrost termination sensors. If in an imprope location (such as close to a heater), or if a coil sensor has been pulled out forst, and the cycle will continue until the Excess Defrost Alarm is triggered. Relocate the coil sensor to where frost has built up the heaviest on the coil and initiate a defrost. Check to make sure the defrost terminates in a reasonable amount of time (less than 30-35 minutes for air defrost, less than 18-22 minutes for electric defrost) and the coil is completely clear of frost. If there is any frost remaining on the coil after the defrost, relocate a coil sensor to that location. The proper location for the coil sensor to state or discopters. Air/ Electric / Hot Gas Defrost - Verify door has not been left open for an extende period by viewing gra



Alarm	Alarm Name	Description	Parameter in VARIABLES menu to diagnose further.	Corre	ctive Act	ion		
HSH	High Superheat Alarm	ONLY ACTIVE WHEN AN ELECTRONIC EXPANSION VALVE IS SELECTED:	Yellow LED is illuminated. Controller will attempt to continue to operate system while this alarm is present.	• Check or the in the sized f	c the syste controller' range of t or the syst	em suction pressure s browser interface a he system design. If em.	e using either the Remo nd validate the suction a new install, confirm	ote Display (PrS) pressure is with- valve is properly
		System has been run- ning with a higher than expected superheat.	PrS - SUCTION PRESSURE SUt - SUCTION TEMP oPn - VALVE % OPEN	• Checl Press refrige	k refrigera to rFG. erant press to save co	ant type. Press and Press ENTER to see cu Wuntil the correct rrect refrigerant type	I hold ENTER OF BACK I Irrently selected refrige refrigerant is shown. e. To exit the menu hit.	until tS appears. erant. To change Press and hold
				Refrig	jerants			
LSH	Low	System has been run-	-	Abbr	eviation	Full Name	Abbreviation	Full Name
	Superheat	ning with a lower than			R22	R-22	449	R-449A
	Aldilli	expected superneat.			134	R-134a	448	R-448A
					42d	R-422D	744	R-744
					42A	R-422A	410	R-410A
					40C	R-407C	407	R-407F
					40A	R-407A	409	R-409A
					507	R-507	408	R-408A
					404	R-404A	438	R-438A
					513	R-513A	717	R-717
					450	R-450A	452	R-452A
				Valve Abbr	Types eviation	Scrolling Text*	Description	variables menu.
				tHr	<u></u> EHr	MECHANICAL	Thermostatic Expa	nsion Valve
				нс	HC	HSV	KF2 Therm's Hybrid	Stenner Valve
				rS	r 5	RSV	KE2 Therm's Refrige	eration Stepper
				SEi	SE.	SEI	Sporlan Valve with	1 600 stops
				SEr	552	SER	Sporlan Valve with	2 500 steps
				CrL	i ci	CAREL	Carel Valve with 50	O stens
				*Scrollir • If syst	ng Text is av tem operat	vailable when using the tion has not improve the "Reset" button of	e KE2 Combo Display. ed, re-initialize the val	lve. This can be f the browser in-
				terface	e, or power	r may also be cycled to position in the var	to the controller.	the valve is fully
				open, from the Displa the va to opens	verify the he Remote y until a n lve percen en and ▼to with each	valve is operating pro Display. Press Back umber with the right t open, and the EEV o close the valve. Press button press (0.1%,	poperly by manually operation of the same time most number blinking is now under manual sector to change how 1.0% or 10.0%). The v	erating the valve e on the Remote displays. This is control. Press v much the valve alve should start
				to mor ing su gauge decrea 0.0%; s valve, low ch sure de	ve immedi action pres as, begin cle ase somew system sho valve shou harge, restr oes not res	ately to the position sure either from the osing the valve 10.0% what with each 10% of ould pump down. If so Id be operating corre- iction in the liquid lir pond to manually op	Indicated on the displ controller's browser i 6 at a time. The suction closure. Completely cl uction pressure respon ectly and a system issue ne, dirty condenser etc perating the valve, proc	ay. While verify- nterface or with pressure should lose the valve to ids to closing the s likely present: . If suction pres- eed to next step.



KE2 Evap OEM Alarm Troubleshooting Guide

HSH / LSH Corrective Action - Continued

• Check wiring to the EEV terminal on the KE2 Evap OEM board. Refer below for proper wiring of the KE2-RSV EEV and other common EEV wiring.



- The bare stranded wire of the EEV cable should be inserted so that the wire is directly touching the gate of the connector. If the gate is contacting the insulation of the wire, it will not allow the controller to correctly operate the valve.
- If wires have been extended, check that colors have not been swapped
- Measure resistance across the EEV leads. This will measure the resistance from entire length of the lead wire, through the windings of the EEV and back to the other lead. Remove the EEV leads from the terminals, and for KE2 RSV measure:

Check resistance across EEV leads:

Wire Colors	RSV-100 to 320	RSV-400 to 550
Blue - Orange	36 ohms	32 ohms
Blue – Yellow	36 ohms	32 ohms
Blue – Red	36 ohms	32 ohms
Blue – Black	36 ohms	32 ohms

Also check resistance between the windings:

Wire Colors	RSV-100 to 320	RSV-400 to 550
Orange – Yellow	96 ohms	65 ohms
Orange – Red	96 ohms	65 ohms
Orange – Black	96 ohms	65 ohms
Yellow – Red	96 ohms	65 ohms
Yellow – Black	96 ohms	65 ohms
Red – Black	96 ohms	65 ohms

For Sporlan SER-AA to L, measure:

Wire Colors	
Black – White	100 ohms
Red – Green	100 ohms
Black – Green	Open
Red – White	Open

All values should be within 10% of stated values, otherwise indicating a wiring issue. If absolutely sure of no wiring issue, the external coil may need to be replaced. For valves with internal windings, the valve may need to be replaced.

• If electrical diagnosis reveals no issues, and no system issues are present, there may be debris in the valve port. The valve can be driven open/closed several times through the manual control, while also lightly tapping the valve in an attempt to dislodge any debris. If valve has a strainer, strainer may need to be cleaned.

HSH / LSH Corrective Action - Continued

Low Superheat Alarm Only

The Low Superheat Alarm is most commonly caused by the compressor failing to start/ compressor not running. There is a common misconception in the industry that the low pressure switch cut-in and cut-out pressure control on the condensing unit is set correctly for the application from the factory.

The equipment manufacturers' installation instructions recommend that the installing contractor adjust the low pressure cut-in and cut-out to recommended settings for the application. The low pressure cut-in and cut-out set point should be set to either the ambient or space temperature, whichever is lower.

When the controller calls for refrigeration, if suction pressure is not able to rise to the cut-in pressure before the EEV closes due to low superheat, the system will not start, and a Low Superheat Alarm triggered.

Our technical support team typically sees an increase of these alarms in the fall when the ambient temperatures begins to decrease. If the low superheat alarm is intermittent, this is the most likely source of the alarm. Check the following:

- Low Pressure Control Pressure Switch. Reduce the cut-out pressure to meet the equipment manufacturer's specification for the coldest ambient or box temperature, whichever is lower.
- Measure continuity across the low pressure control, if it indicates a closed circuit, next check the compressor start components and continue diagnosis at the condensing unit.
- Verify all fans are moving. Check if there is a mechanical service switch for the fans in the space being used inappropriately. If only one fan is not moving, verify whether the fan is operational. Replace the motor if necessary.
- Check fan motor rotational direction and fan blade pitch to ensure air is flowing in the proper direction.
- Check for diminished load due to low air movement across the coil. This can be caused by excessive frost build-up on the coil on the air entering and/or air exiting sides of the coil. The fans should be turned off while checking for frost buildup to allow a clear view of the coil. Product that is stacked too close to the coil and impedes airflow through the coil can also be a source of diminished load.
- Check EEV and EEV wiring/cables Please see previous steps.



Alarm	Alarm Name	Description	Parameter in VARIABLES menu to diagnose further.	Corrective Action
HtA	High Air Temp Alarm	High Air Temp is caused by the air temperature being above rtP (ROOM TEMP) + Air Temp Diff + HAo (HIGH TEMP ALARM OFFSET) for longer than the HAd (HIGH TEMP ALARM DELAY). Example Room Temp 20.0°F Air Temp Diff 1.0°F High Temp Alarm Offset 10.0°F Alarm countdown trig- ger temp 31.1°F These variables can be set by the user. The default from the factory is 10.0°F above the setpoint for 60 minutes.	Yellow LED is illuminated. Controller will attempt to continue to operate system while this alarm is present. rtP - ROOM TEMP (AIR SENSOR) HAo - HIGH TEMP ALARM OFFSET HAd -HIGH TEMP ALARM DELAY If the controller shows that the sensor reads -88, the sensor is open, or not con- nected. If the controller show that the sensor reads 180+, the sensor is shorted. SHt - SUPERHEAT (if available) oPn - VALVE % OPEN (if available)	 Investigate condition. The majority of high temperature alarms are not related to the controller. To resolve the High Air Temp Alarm will require basic refrigeration troubleshooting. Ask staff if the door has been propped open for an extended period of time due to loading, unloading, inventory, etc. If this is not the case, begin to troubleshoot the system. Check air sensor. Check the evaporator coil to verify the coil is free from excessive frost. Check the fans to ensure all fans are rotating properly. Check compressor operation. Check for proper refrigerant charge. Make sure the system has sufficient system capacity. If pressure transducer and suction temperature sensor are installed, check superheat and investigate if superheat is abnormally high. Troubleshoot TEV or EEV (if installed, see high superheat corrective action on the previous pages).
LtA	Low Air Temp	Low Air Temp is caused by the air temperature being below rtP (ROOM TEMP) by the LAo (LOW TEMP ALARM OFFSET) for the LAd (LOW TEMP ALARM DELAY) time. The default from the factory is 4.0°F below the setpoint for 10 minutes. These variables can be set by the user.	Yellow LED is illuminated. Controller will attempt to continue to operate system while this alarm is present. rtP - ROOM TEMP (AIR SENSOR) CLt – COIL TEMP (COIL SENSOR) LAO - LOW TEMP ALARM OFFSET LAd - LOW TEMP ALARM DELAY If the controller shows that the sensor reads -88, the sensor is open, or not con- nected. If the controller show that the sensor reads 180+, the sensor is shorted. SHt - SUPERHEAT (if available) oPn - VALVE % OPEN (if available)	 Verify the system will pumpdown. This can be done in multiple ways; the easiest is to initiate a defrost from the Remote Display. Press and hold the entry and vuntil ddF (Defrost Delay Fan) or dEF (Defrost) is displayed. Liquid line solenoid should close immediately, if not, troubleshoot the solenoid and the wiring controlling the solenoid. Solenoid should shut tightly and not allow liquid refrigerant through. If the system only has an EEV, the EEV should also shut tightly during the defrost. Check that the low pressure control is set, and operating properly. Check the rtP (Room Temperature Setpoint), LAo (Low Temp Alarm Offset) and LAd (Low Temp Alarm Delay) settings. If there are multiple systems in the room, check the room temperature setpoint of the other systems. Check for outside air infiltration. Example: Infiltration from freezer into cooler.



KE2 Evap OEM

Alarm	Alarm Name	Description	Parameter in VARIABLES menu to diagnose further.	Corrective Action
dor	Door Open Alarm	Door is open and room temperature is 5.0°F de- grees above rtP (ROOM TEMP) + AIR TEMP DIFF for dAd (DOOR ALARM DELAY) time.	Yellow LED is illuminated. Controller will attempt to continue to op- erate system while this alarm is present.	 Verify that the door is closed. Verify which auxiliary input is being used for the door switch (AU1, AU2 or AU3). Press and hold ACK until tS appears. Press V until AU1, AU2 or AU3 appears. Press AUE to view what the auxiliary input is currently set to, door switch will display dor on the Remote Display. Press AUE to return to the advanced setpoints menu and check the other inputs. Verify the leads of the door switch are connected to the correct auxiliary input, and that the bare stranded wire of door switch lead is inserted so that the wire is directly touching the gate of the connector. If the gate is contacting the insulation of the wire, it will not allow the controller to read the door switch. Inspect the length of the cable for any cut, burned, chaffed or otherwise damaged wire. Repair if there is damage and verify operation. Verify that the door switch is in proper working order. Door switches provided by KE2 Therm are normally closed switches. To test them, move the two pieces of the switch close together, remove the leads from the connector on the board and check that the circuit is continuous using a multimeter. Move the two pieces of the switch apart more than 6 inches. Check continuity again; it should be open. If the door switch is operating in an opposite manner, the switch is an open switch and the controller should be reconfigured appropriately: select the correct input, A1A, A2A or A3A (indicating Aux In 1, 2 or 3 state) as CLO for activate on closed circuit. If the switch is verified to be inoperable, replace the switch. Confirm proper door switch operation by opening the door, fans should turn off and refrigeration and fans. If there is a blinking green light on the sourd the time for where the up to reture the with the sourd the time for where the upper door does does the with a door does does does does does does does does
CoA	Commu- nication Alarm	ONLY FOR BONDED CONTROLLERS: No communication between controllers for one minute or more.		 controller, it has not cleared the time for short cycle protection and should resume refrigeration in a few minutes. Communication Error is most commonly caused by local network issues. Verify all network switches are connected and functioning properly. Check that all controllers in a bonded group are powered up. Verify communication to each individual controller using whatever method is usually used to communicate to the controllers in question. If one or more are unreachable, investigate those controllers and their network cabling further. Ensure all cables are inserted fully into their respective jacks. Check for any damaged cable. On new installations, where the cables are built in the field, check network cables for proper wire color code (Ethernet standard A or B, see Q.5.5 Making Ethernet Cable for more information). Also make sure copper for each wire goes fully into the clip. If one or more wires is out of order or doesn't fully insert into the clip, it needs to be fixed before it can be used to communicate. Attempt to break and re-bond the controllers. If any of the controllers are not discoverable form the Network page, investigate those controllers further.
PrF	Process Failure Alarm	Remote Display is not communicating to the controller.		The Remote Display is not properly communicating with the KE2 Evap OEM board. The KE2 Evap OEM can continue to refrigerate without the Remote Display, but setpoints can only be changed via the browser interface. • Check that cable is inserted into the correct location on the board. • Check that cable between board and display is firmly inserted at both ends. • Check that cable is not cut, burned, chaffed, disconnected or otherwise dam- aged. • Cable should not be extended over 5ft.



Alarm	Alarm Name	Description	Parameter in VARIABLES menu to diagnose further.	Corrective Action
EA1	External Alarm 1	If AU1 (AUX IN 1 MODE) = EA1 (EXT ALARM 1): The digital input is in an active state.		• Troubleshoot the device connected to the auxiliary input to discover why it is in alarm condition and resolve the issue. • If the device is not in alarm, check to make sure the device is connected to
EA2	External Alarm 2	If AU2 (AUX IN 2 MODE) = EA2 (EXT ALARM 2): The digital input is in an active state.		 • Review the KE2 Evap OEM settings to make sure they match the type of device connected to the controller. AU1, AU2 or AU3 should be set to EA1, EA2 or EA3 respectively to set the aux input to be an external alarm.
EA3	External Alarm 3	If AU3 (AUX IN 3 MODE) = EA3 (EXT ALARM 3): The digital input is in an active state.		• Verify the aux input state (A1A, A2A or A3A) is appropriately set to oPn (open) or CLo (closed) to match the input's functionality. If the controller is displaying the opposite of what is expected, changing the state will reverse the logic.
EFL	E-mail Failure Alarm	E-mail alert was not confirmed by email server provided after seven consecutive attempts.	N/A	 Ensure the controller has Internet access. If possible plug a laptop into the Ethernet cable at the controller to test Internet connection. E-mail Failure Alarm is a function of the controller attempting to send out an e-mail alert using the information entered in the Alert Notifications section of the Settings Page, and failing to communicate successfully with the e-mail server provided. Servers requiring basic authentication should provide User name and Password, and ensure it is correctly entered. Servers without authentication requirements should not enter information in the User name or Password field. If unsure of server requirements and alarm occurs, ensure both User name and Password are blank and retry.

Alarm Name	Description	Corrective Action
Disconnect	Controller has been disconnected from KE2 SmartAccess for over 10 minutes.	• The Disconnect Alarm indicates the controller has lost connection to the portal site, and is only gener- ated if Disconnect Alarms are enabled from the portal site dashboard. The KE2 Evap OEM requires In- ternet access to connect to KE2 SmartAccess, and a Disconnect Alarm typically indicates the controller has lost connection to the Internet, or the controller that is connected to the portal site has lost power.
		 Check the Ethernet cable between the IT equipment and the KE2 Evap OEM board. Make sure both ends are firmly inserted into the jacks.
Reconnect	Controller has been reconnected to KE2 SmartAccess.	•If possible, check connectivity to the Internet through the Ethernet cable at the KE2 Evap OEM. Contact local IT staff to have the local network diagnosed.
		Once the KE2 Evap OEM is able to reconnect to the portal site, it will send an e-mail notifying that the controller has reconnected to KE2 SmartAccess.
Access Denied	Response from https://smartaccess.ke2th- erm.net when trying to login with invalid Site and/or Password.	Site name and Password are case sensitive and must be entered exactly as originally set by the user. • If site and password are correct, the controller(s) have stopped communicating to KE2 Therm's server. The local network's functionality should be validated to ensure the controller is communicating proper- ly. The Internet connection should also be checked to ensure it is working properly. The KE2 Evaporator Efficiency must be configured to register on KE2 SmartAccess from the Settings page on the Masterview screen. The default site is installer and the password is the MAC address exactly as shown on the con- troller label, e.g., 12:34:56:AB:CD:EF. The user may change the site and password on the Settings page to something more convenient.
Controller Commu- nication Failure. Retry in XX Seconds.	Clicking on any controller from the KE2 SmartAcces Services screen should redirect to that controller. This error will prevent viewing the controller's webpage.	After connection to KE2 SmartAccess, the dashboard will show all registered controllers, clicking on any controller will redirect to that controller's Masterview webpage. • Browsers commonly maintain a cache to improve the user experience. After changes to the user view, like a firmware update, the webpage view stored in the browser's cache may be falsely displayed. To resolve, the browser's cache must be cleared completely. Some browsers refer to this as 'from the beginning of time'. Refer to your browser's help for more information on clearing the brower's cache.