



Project Name: _____ Notes/Comments: _____

Location: _____

Order Number: _____

Contractor: _____

Supplier: _____

Architect/Engineer: _____

BENEFIT SUMMARY

- Energy savings through reduction of defrosts
- Energy savings through identification of system performance issues using graphing and data logging feature
- Energy savings through improved evaporator performance due to the elimination of ice on the evaporator
- Alarm notification text/e-mail
- Remote monitoring & system control
- Provides graphs of one week or one month of air and coil temperature as well as number of defrosts during that time
- Downloadable data file provides a system history for the preceding 30 days
- Improved product integrity and reduced spoilage - elimination of unnecessary defrost cycles reduces freezer burn, and temperature spikes, which can degrade product quality
- Helps eliminate ice buildup on surfaces and product, keeping refrigerated space cooled evenly and efficiently
- Reduces liability by eliminating ice buildup on floors
- For new equipment or upgrade of existing equipment

KE2 Evap OEM

The KE2 Evap OEM provides the energy savings, precise temperature control frost reduction and communication 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 the 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 super-heat, but will also function with a mechanical thermostatic expansion valve. - pn 21321

Defrosts (Air, Electric, Hot Gas):

Are initiated by a proprietary calculation of the 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 fans and energizing heaters.

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

Communications:

The 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 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 in the controller with a Cat5e cable and laptop. If the controller is provided wired internet access, it can be accessed remotely via KE2 Smart Access.

KE2 SmartAccess:

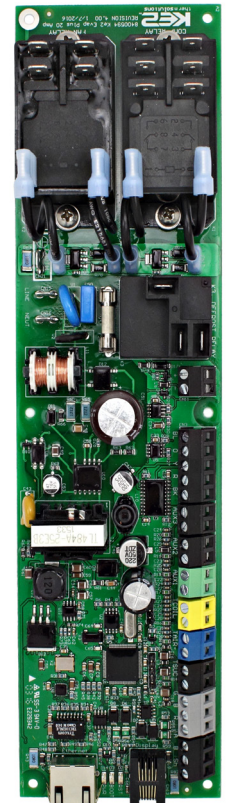
If this is enabled, Internet connected controllers will automatically set up a secure portal website. The controllers may be monitored, viewed, and set from any Internet capable device.

Lead Lag – Modes: Controllers can operate using one of three Lead/Lag control modes:

Alternate – Controllers will alternate Lead and Lag after every refrigeration run cycle. If temperature gets too high, Lag system will refrigerate.

Redundant Cool - Controllers will switch Lead Lag based on time. If the temperature gets too high, Lag system will refrigerate.

Redundant Off – Controllers will switch Lead and Lag based on time.



ACCESSORIES:

PN 21232 - KE2 Remote Display w/ 18" Cable
PN 21320 - KE2 Combo Display Less Junction Box
PN 21782 - KE2 Combo Display Junction Box
PN 21877 - KE2 Combo Display (w/Junction Box, Battery & 25' Cable)

Pressure Transducer:

PN 20201 - 0 to 150 psia, 10 ft. lead

Replaceable Parts:

PN 21373 - Replacement Fan Relay
PN 21374 - Replacement LLS Relay
PN 21375 - 1A 250V Fuse (slow blox, 5mm x 20mm), pack of 5

Temperature Sensors:

PN 21843 - Temperature Sensor Pack - Yellow, Green, Blue 5 ft.
PN 21151 - Temperature Sensor Pack - Yellow, Green, Blue 15 ft.
PN 21066 - Temperature Sensor Pack - Yellow, Green, Blue 40 ft.
PN 21851 - Temperature Sensor - Yellow 5 ft.
PN 21852 - Temperature Sensor - Green 5 ft.
PN 21850 - Temperature Sensor - Blue 5 ft.
PN 20199 - Temperature Sensor - Black 10 ft.
PN 21795 - Temperature Sensor - Yellow 10 ft.
PN 21793 - Temperature Sensor - Green 10 ft.
PN 21794 - Temperature Sensor - Blue 10 ft.
PN 20200 - Temperature Sensor - Black 40 ft.

Pressure Transducer

- Input 0 to 5 Vdc
- Pressure Range: 0 to 150 psia
- Proof Pressure: 450 psi
- Burst Pressure: 1500 psi
- Operating Temperature: -40°F to 275°F (-40°C to 135°C)

Temperature Sensor

- Operating Range: -60°F to 150°F (-51°C to 65°C)
- Stainless steel housing
- Moisture resistant package
 - 2KΩ@77°F (25°C)

Real time Clock (RTC)

RTC without battery back up.

Time is Updated by:

- Entering an NTP site (ex. 0.pool.ntp.org).
- Through local smart device (type local for the SNTP server).
- Manual Entry.
- Updates every 10 minutes after initial check.
- Time stamped 30 day CSV data log.
- After a controller reset, the time of day is set to the last date & time stamp saved in the CSV log until updated by another option.

SPECIFICATIONS:

Evaporator Controller - 1 per evaporator

- Microprocessor driven controller that includes the following:
 1. (4) Analog Inputs
 - a. (3) Temperature Sensors
 - b. (1) Pressure Transducer
 2. (3) Relay Outputs
 - a. (1) 10 Amp (Inductive) Fan Relay
 - b. (1) 20 Amp (Resistive) Defrost Relay
 - c. (1) 10 Amp Liq. Line Solenoid Relay
 3. (3) Programmable Digital/Temperature Inputs
 4. (1) Ethernet Connection
 5. (1) Output 0-10V DC
 6. (1) Electric Expansion Valve Driver for unipolar or bipolar electric expansion valve
 7. (1) RS485 for Aux. relay board.
- The microprocessor board shall be conformal coated. Ambient/ Operating Temperature Range: -40°F to 140°F (-40°C to 60°C)
- The controller shall operate on 120 Vac or 208 to 240 Vac, auto-switching
- The controller shall have on board web server allowing system parameters to be monitored remotely utilizing standard TCP/IP protocols RESTful API. Multiple controllers will have the ability to utilize TCP/IP communication to communicate to each other, providing the ability to sync refrigeration run/off cycles and defrosts between multiple evaporators.
- The controller's microprocessor shall have the option of controlling evaporator fans the following ways:
 - a. Run Continuously
 - b. Cycle on room temperature and coil temperature
 - c. Cycle on with compressor
 - d. Variable speed fans using a 0-10V output. According to Title 24 regulation
- The controller's microprocessor shall have the option of selecting between the following defrost types:
 - a. Air
 - b. Electric
 - c. Hot Gas
- The controller shall have the option of data logging the following, at 10 minute intervals for 30 days:
 - a. System Status
 - b. Suction Pressure
 - c. Suction Temperature
 - d. Saturated Temperature
 - e. Superheat
 - f. Valve % open (for EEV only)
 - g. Room Temperature
 - h. Coil Temperature
 - i. Compressor Status
 - j. Fan Status
 - k. Defrost Status
 - l. Auxiliary Input Status
 - m. Alarms

DIMENSIONS -

Inches

