



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 Evaporator Efficiency**

Energy saving refrigeration controller for walk-in freezers and coolers, with remote monitoring and diagnostics — for new equipment or upgrade of existing refrigeration equipment - **pn 20178**

**DESCRIPTION:**

Recent field tests have shown more than 20% energy savings when the KE2 Evaporator Efficiency (KE2 Evap) is used on a refrigeration system that is currently operating efficiently. Savings are realized by defrosting the evaporator only when needed, eliminating unnecessary defrosts by up to 87%.

Further savings are possible with the controller’s graphing, data logging and alarm alerts features. By reviewing the performance graphs of the controller, system issues are often identified, many of which correspond to inefficient performance. In cases where the KE2 Evap was used to identify and correct system performance issues, energy improvements of up to 49% were realized. Additionally, the KE2 Evap’s alarm alert feature sends notification of system issues via text or e-mail, allowing the issue to be corrected promptly and keeping the refrigeration system performing at optimum efficiency.

Another benefit of the KE2 Evap controller is the reduction in ice build up on the evaporator, as well as walk-in walls, ceilings, floors and product. Eliminating the ice build up on the evaporator keeps it running at design conditions, this improves efficiency, while the reduction of ice on surfaces improves temperature consistency in the walk-in and eliminates potential safety issues.

When KE2 SmartAccess is enabled, Internet connected controllers will automatically set up a secure website. The controllers may be monitored, viewed, and set from any Internet capable device.

**SPECIFICATIONS:**

**Evaporator Controller** - 1 per evaporator

- Microprocessor driven controller that includes the following:
  1. (5) Analog Inputs
    - a. (4) Temperature Sensors
    - b. (1) Pressure Transducer
  2. (4) Relay Outputs
    - a. (1) 10 Amp (Inductive) Fan Relay
    - b. (1) 20 Amp (Resistive) Defrost Relay
    - c. (1) 3 Amp General Purpose (2 Amp Pilot Duty) Solenoid Relay
    - d. (1) 3 Amp General Purpose (2 Amp Pilot Duty) Auxiliary Relay
  3. (3) Programmable Digital Inputs
  4. (1) Ethernet Connection
  5. (1) Output 0-10V DC
  6. (1) Electric Expansion Valve Driver for unipolar or bipolar electric expansion valve
- The microprocessor board shall be potted to protect it from moisture and allow it to be located within refrigerated environment. Operating Environment -40°F to 140°F
- The controller shall operate on 120V or 208V - 240V
- The controller shall have a 4 digit alphanumeric, scrolling LED display and operating status lights showing system conditions.



- The controller shall have a 6 push button user interface that provides full access to variables and setpoints.
- The microprocessor shall have an onboard web server allowing system parameters to be monitored remotely utilizing standard TCP/ IP protocols HTML and XML communication. Multiple controllers will have the ability to utilize TCP / IP communication to communicate with each other, providing the ability to sync compressor run/off 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. Two speed fans based on room temperature
  - e. Variable speed fans using a 0-10v output
- 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 include a 31 day rolling graph of the evaporator return air and coil temperatures.
- The controller shall have the ability to send alarm notifications via e-mail or text message.
- The controller's microprocessor will provide compressor protection by minimum runtime and minimum off-time setpoints.
- The controller's microprocessor shall have the option of selecting between auxiliary relay types:
  - a. Alarm Relay
  - b. 2nd compressor relay
  - c. 2nd fan relay
  - d. 2nd defrost relay
  - e. 2 speed fan control
- f. Light relay
- g. Permanent defrost relay
- The controller shall have the option of data logging the following, at 10 minute intervals for one month:
  - 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. Digital Input Status
  - m. Alarms
- Pressure Transducer
  - Input 0-5VDC
  - Pressure Range: 0 to 150 psia
  - Proof Pressure: 450 psi
  - Burst Pressure: 1500 psi
  - Operating Temperature: -40°F to 275°F
- Temperature Sensor
  - Operating Range -60°F to 150°F
  - Stainless steel housing
  - Moisture resistant package
  - 2KΩ@77°F

**DIMENSIONS -**

Inches

