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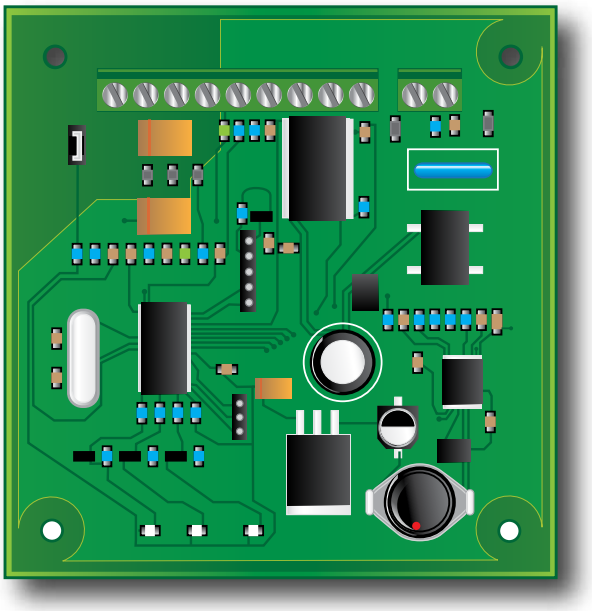
thermsolutions

KE2 SimpleSuperheat

General Product Information

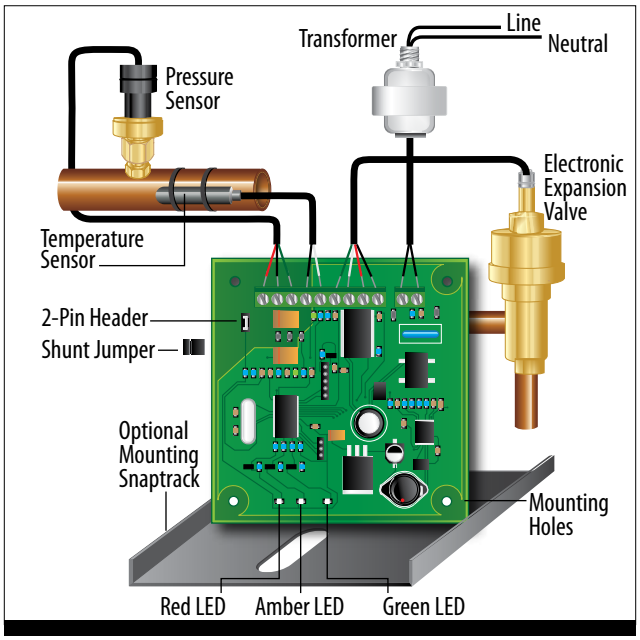


Advanced Energy Saving Technology
for Commercial Refrigeration and AC Systems

KE2 Simple **Superheat**
Product Specification

Introduction

The KE2 Simple Superheat controller is a microprocessor based solution for Electronic Expansion Valve control. The controller was designed with simplicity in mind. It controls refrigerant flow to the evaporator coil using the latest technology, and eliminates the expense of unnecessary functionality.



The KE2 Simple Superheat provides OEM customers a cost effective option for controlling Electronic Expansion Valves (EEV) for the best control possible. The controller is equipped with all necessary components for controlling the superheat, and can be configured to meet individual system needs. The controller also limits the OEMs exposure to field issues by preventing modifications by unauthorized personnel, eliminating nuisance trouble calls caused by improper field adjustments.

The KE2 Simple Superheat's software is available with a standard configuration or may be customized to meet specific needs. Through testing, the set points can be optimized for the OEMs specific requirements. The board's hardware consists of an eleven position input/output (I/O) terminal strip, 3 multi-pin headers, and 3 LEDs. The terminal strip connects the valve, temperature sensor, pressure transducer and 24 VAC power supply. Pin headers CN1 (5-pin), CN3 (3-pin) and CN4 (2-pin) provide 4 custom setpoint configurations. Table 2 lists available configurable setpoints and refrigerants.

A 0-150 psia pressure transducer is used for most refrigerants. The exceptions are R-410A and R-744, which use 0-300 psig and 0-500 psig respectively. Transducers are installed on a ¼" flare connector. A flare connector with Schrader valve is recommended to simplify field service. The transducer attaches to the board with screw terminals and to the sensor with a 3-pin Packard Metripack connector. Various cable lengths are available.

The temperature sensor is custom to KE2 Therm. It is configured to have the most precise control in the -50°F to 150°F range. This is the only sensor that should be used with the KE2 Simple Superheat controller.

Valve - The KE2 Simple Superheat controller controls multiple types of stepper motor valves. The controller is not specific to either unipolar, bipolar valves, or number of steps.

Status Indicators / Alarms - The board's 3 light emitting diodes (LEDs) indicate the status of the controller, alerting the technician to the specific problem — saving time and warranty costs.

Table 1 - Status Indicators / Alarms

Alarm	Green LED	Amber LED	Red LED
None (Normal Operation)	●	○	○
Pressure Sensor Fault	○	○	●
Temperature Sensor Fault	○	●	○
High Superheat Alarm	●	●	○
Low Superheat Alarm	●	○	●

Table 2 - Factory Setpoints

Name	Description	Range	Example
Refrigerant	Type of refrigerant used: R22, R134a, R404A, R407A, R407C, R410A, R417A , R422A, R422D, R507, R744		R404A
Valve Type	Whether the valve is a unipolar stepper or bipolar stepper	Unipolar or Bipolar	Bipolar
Step Rate	Number of steps per second to step valve	30 to 400 steps/second	200 steps
Steps for full stroke	Number of steps to move the valve from fully closed to fully open	100 to 6400 steps	1600 steps
Superheat Setpoint	Setpoint where controller modulates valve to control superheat	3 to 60°F	8°F
Initial Valve Position	Open valve this % when going into REFR mode	0 to 100%	30.00%
Max Operating Pressure Setpoint	If pressure reading rises to this setpoint, modulate valve to not allow pressure to go above setpoint, letting superheat rise if necessary. See superheat algorithm for more details.	0 to 150 psig	150 psig
P Setpoint	proportional multiplier for PID control	0 to 255	40
I Setpoint	integral multiplier for PID control	0 to 255	20
D Setpoint	derivative multiplier for PID control	0 to 255	5

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