

## KE2 Temp+Air Defrost (pn 20611)

### General Product Information



## Introduction

The KE2 Temp + Air Defrost (KE2 Temp) controller is designed to simplify refrigeration controls by combining the functions of a thermostat and defrost time clock. The KE2 Temp eliminates complexity, by increasing functionality and reducing wiring.

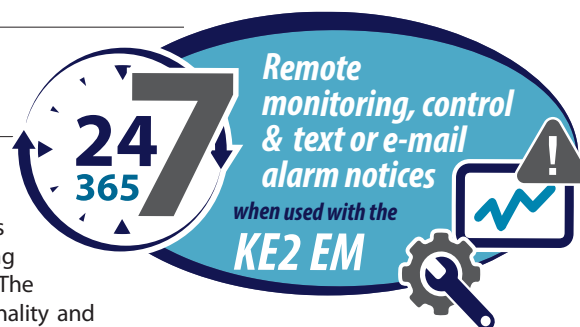
When used with the Alarms KE2 Edge Manager (KE2-EM) the KE2 Temp is accessible through a local dashboard, where you can monitor or make setpoint adjustments. Additionally, alarm notifications can be sent to you via text or e-mail.

The KE2 Temp's robust design is versatile for a wide range of medium and low temperature applications. In medium temperature applications of 35°F and higher, the built-in defrost clock performs time-initiated and time-terminated defrost cycles.

In low temperature applications, the KE2 Temp provides an easy-to-understand thermostat that eliminates end user frustration with the overly complicated or inaccurate options available today.

The KE2 Temp provides precise system operation, an intuitive user interface, and a battery powered real-time clock, that won't lose time during a power outage.

The controller's robust single-pole-double-throw relay controls the refrigeration and air defrost cycles.



## Applications



## Features

- Thermostat
- Off time (air) defrost on schedule or custom defrost
- Compressor protection - Maximum starts per hour
- Manual defrost
- Visual Alarming - High temp/Low temp/Sensor
- PC/tablet/smartphone interface, e-mail alarm alerts, remote access with KE2 EM
- 1st defrost 2 hrs after start up

## Remote Monitoring, Control, Alarm Notifications

The KE2 Temp includes RS-485 Modbus communications, and can now be accessed remotely using the Alarms KE2 Edge Manager (KE2-EM). See page 2 & 3 for further details.

### Service Call Saver - Post Defrost Indicator

To eliminate unnecessary/unwarranted service calls, the KE2 Temp + Air Defrost alerts the user when it is coming out of a defrost cycle

using the onboard display. The display alternates between dEF and the actual temperature measured by the air sensor. This continues until the temperature has reached setpoint, or for the amount of time set by dFt (Defrost Time), whichever is shorter.

**Low Battery Indicator** - Blinking red light indicates the Real Time Clock battery needs to be replaced.

## Hardware

- Relay for solenoid / compressor contactor
- 3 digit 7-segment display
- 4-button user interface
- Modbus terminals

The **space temperature sensor** is supplied with a 45 inch lead, and functions to control the space temperature of the room.

## Communications

The KE2 Temp includes RS-485 Modbus communication.



## KE2 Temp Navigation



**Indicator lights**

- **Red light** - Blinking red indicates the Real Time Clock battery needs to be replaced.
- **Yellow light** - non-critical alarm (system running)
- **Green light** - Liquid Line Solenoid (LLS) relay energized.
- **Green flashing** - waiting on min. run or min. off timer to energize/de-energize LLS relay.

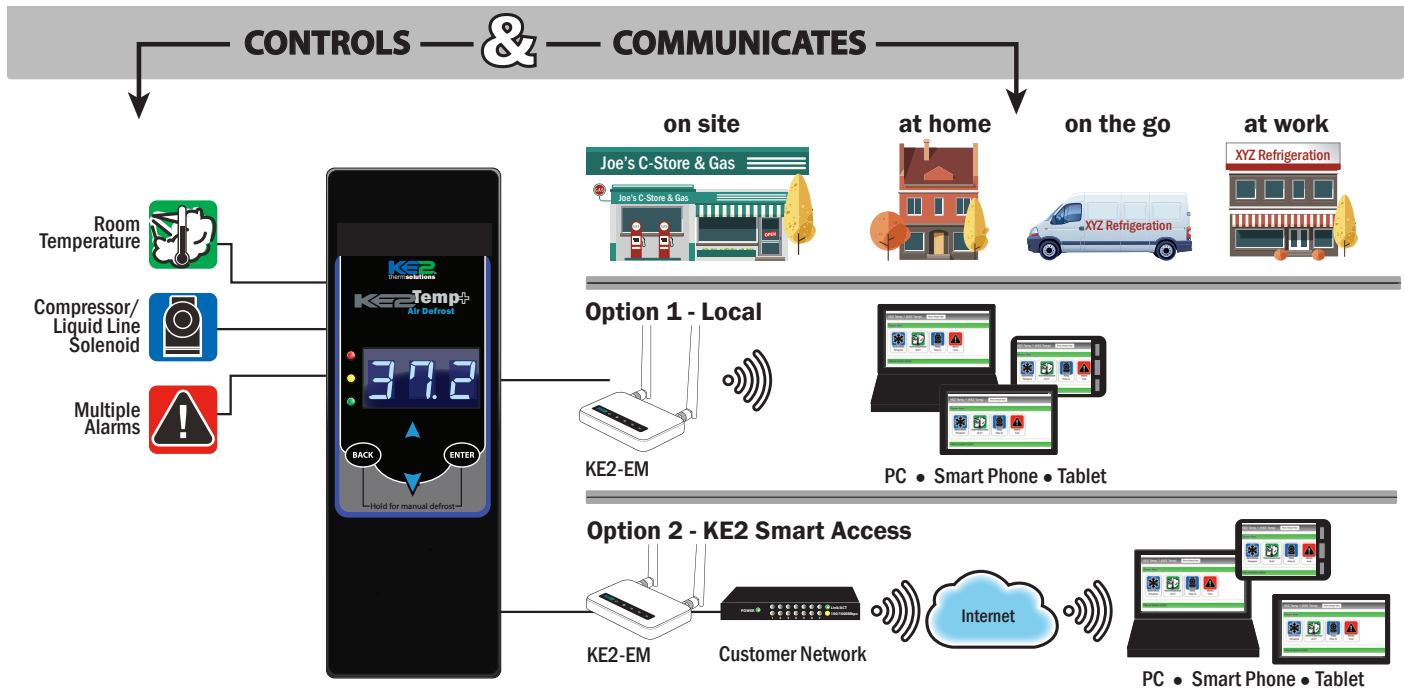
- Access Setpoint mode by pressing and holding **ENTER** until tS (temperature setpoint) is displayed.
- Use **▲** and **▼** to scroll through setpoints.
- Press **ENTER** to view the current setting.
- Use **▲** and **▼** to change the setpoint  
Momentarily press **ENTER** to move between digits to accelerate the changes.
- Press and hold **ENTER** to save the setpoint change
- Press **BACK** to escape.

### Connecting to the KE2 Temp with a KE2-EM

The KE2-EM is a simple, multi-functional communication device that not only provides access to system conditions and setpoints, but also has the ability to send alarm messages to multiple recipients via text and/or email. All KE2 Therm controllers are compatible with the KE2-EM.

- Display a local dashboard showing all controllers connected to the customer's network

- Send email and/or text alert for all connected KE2 Therm devices.
- View the KE2 Temp current system conditions in a webpage, make changes to setpoints, and initiate manual defrosts.
- Connect controllers to the KE2 Smart Access customer portal. View multiple controllers 24/7/365 from anywhere over the Internet.
- Provides permanent Wi-Fi access to controllers while at site.





## KE2 Temp + Defrost General Product Information

### Accessing the KE2 Temp on a Local Area Network

When the KE2 Temp is wired to a KE2-EM, the KE2-EM will provide immediate local network communication.

### Accessing the KE2 Temp on the Internet

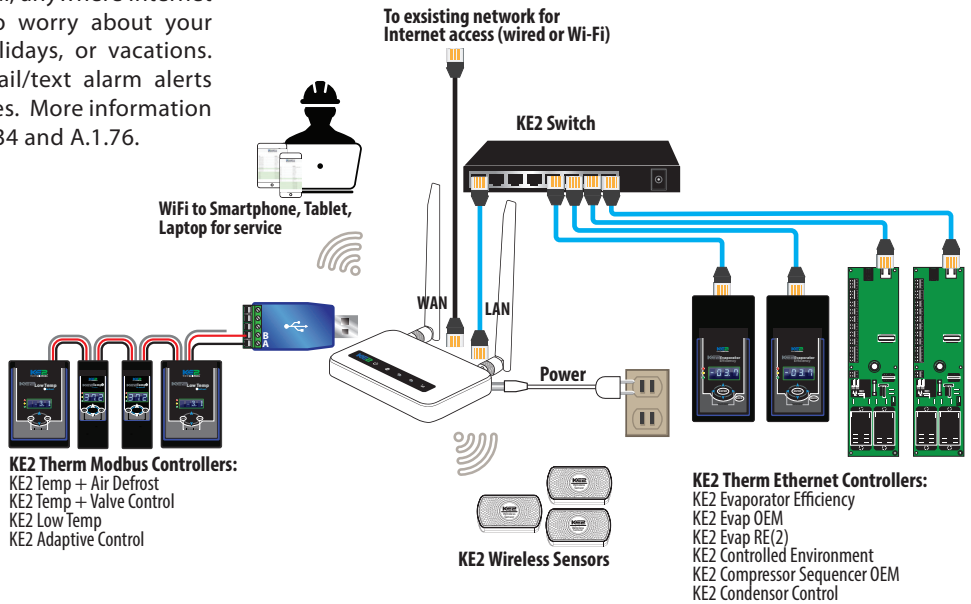
When used with the KE2-EM, the KE2 Temp can be accessed remotely through the KE2 Smart Access portal, anywhere Internet service is available. So, there's no need to worry about your refrigerated products overnight, during holidays, or vacations. Just go online and see, or setup the e-mail/text alarm alerts feature for instant notification of system issues. More information on KE2 Smart Access is found in bulletin Q.1.34 and A.1.76.



Please visit [youtube.com/ke2therm](https://youtube.com/ke2therm) for these KE2-EM & KE2 Smart Access Videos

Video 061 Dashboard and Management Console

Video 062 Communication Made Easy with KE2 Smart Access



### Service View Webpage

From the controller webpage you can monitor temperatures, relay status, and alarms, make changes to setpoints, and manually control the system.



Please visit [youtube.com/ke2therm](https://youtube.com/ke2therm) for this video on the KE2 Temp Webpage

Video 098 What information is on the Temp's Webpage



**KE2 Temp 1 (KE2 Temp)** Show Simple View

**System State**

- SystemMode: Refrigerate
- RoomTemperature: 36.9 F
- Relay: Relay On
- Alarms: None

**Manual System Control**

Next Mode

**Setpoints**

- RoomTemperature: Limits Min: -50 F, Max: 100 F, Value: 35 F
- AirTempDiff: Limits Min: 1 F, Max: 30 F, Value: 3 F
- Compressor Starts Per Hour: Limits Min: 5, Max: 10, Values: 0, Special: 0 => Disabled, Value: 6
- Defrost Time: Limits Min: 0, Max: 720, Value: 1
- DefrostsPerDay: Limits Min: 0, Max: 13, Special: 13 => Custom, Value: 8
- HITempAlarmOffset: Limits Min: 1 F, Max: 10 F, Value: 10 F
- HighAndLowAlarmDelay: Limits Min: 1, Max: 180, Value: 1
- LowTempAlarmOffset: Limits Min: 1 F, Max: 10 F, Value: 5 F
- ModbusAddress: Limits Min: 1, Max: 247, Value: 31
- Temperature Units: Limits Values: Fahrenheit, Celsius, Value: Fahrenheit



## KE2 Temp + Air Defrost

### General Product Information

### Basic Menu

Setpoint	Description	Minimum	Default	Maximum
tS	Temperature Setpoint	-50°F	35°F	100°F
diF	Differential	1°	2°	30°***
CSH	Maximum Compressor Starts/Hour	5 (Off)*	6	10
dPd	Defrost Per Day	0	6	12, CUS**
dFt	Defrost Time	0 min	15 min	720 min
HAO	High Alarm Offset	1°	5°	10°
LAO	Low Alarm Offset	1°	3°	10°
tAd	Temp Alarm Delay	1 min	90 min	180 min
Adr	Mod Bus Address	1	1	247
Unt	Units for temp display	FAH	FAH	CEL

\* Selecting fewer than 5 compressor starts per hour results in the starts per hour feature being turned off. The compressor will then function on temperature only.

\*\* Selecting CUS (custom) unlocks additional Setpoints. See Q.3.20 for details.

\*\*\*Maximum 10° on versions 1.7 and before.

### Specifications

Controller					
<b>Input Voltage:</b>	120V / 208-240V				
<b>Storage Temp:</b>	-13° to 120°F (-25° to 49°C)				
<b>Operating Temp:</b>	-40° to 120°F (-40° to 49°C)				
<b>Display:</b>	3 digit 7-segment LED				
<b>IP Rating:</b>	IP65				
<b>Input:</b>	1 temp. sensor (Replacement SKU 20715)				
<b>Outputs: (1) Relay</b> Single Pole Double Throw		Normally Open		Normally Closed	
		120V	240V	120V	240V
	<b>FLA</b>	12A	12A	10A	10A
	<b>Resistive</b>	20A	20A	20A	20A
	<b>Pilot Duty</b>	800VA	720VA	290VA	360VA
<b>Communication:</b>	RS-485 (Modbus)				
Temperature Sensor					
<b>Sensor Specs:</b>	-60° to 150°F (-51°C to 66°C) moisture resistant package				

### Alarm Codes

When the KE2 Temp is in alarm, it illuminates the amber LED, displays the appropriate alarm code, and sends an e-mail alert to any designated e-mail addresses (when used with the KE2 EM):

SSA Shorted Sensor Alarm

OSA Open Sensor Alarm

HtA High Temperature Alarm

LtA Low Temperature Alarm



Please visit [youtube.com/ke2therm](https://www.youtube.com/ke2therm) for videos on the KE2 Temp



- Video 091 How to Wire the KE2 Temp
- Video 079 How to Change the KE2 Temp's Room Temp Setpoint
- Video 080 How to Set the KE2 Temp's Air Temperature Differential
- Video 081 How to Set the Compressor Starts Per Hour for the KE2 Temp
- Video 082 How to Set the Defrost Cycles Per Day for the KE2 Temp
- Video 083 How to Set a Custom Defrost Schedule for the KE2 Temp
- Video 085 How to Set the Defrost Time for the KE2 Temp
- Video 087 How to Set the Low Temp Alarm Offset on the KE2 Temp
- Video 088 How to Set the Temperature Alarm Delay on the KE2 Temp
- Video 089 How to Set the ModBus Address on the KE2 Temp
- Video 090 How to Change the Temp Units on the KE2 Temp or KE2 Temp + Valve
- Video 092 How to Lock the KE2 Temp's Display

### Dimensions -

Inches

