

USER MANUAL



KE2 Basic Display



KE2 Combo Display

KE2 Console/Controller

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This manual is also available online in our resource center. **www.polarking.com**

All diagrams are available in larger format online in our resource center at www.polarking.com

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Basic Display Instructions



Description

The KE2 Basic Display, is a small unit on the inside of the box located on the Evaporator. The Basic Display will always display the room temperature. You can also do adjustments to your Evap OEM Board from the Basic Display.

Lights and their meaning

The Basic Display has three (3) lights.

- **Red**: Critical alarm, system is not running.
- Yellow: Non-critical alarm, system is running.
- **Green**: Calling for refrigeration, Liquid Line Solenoid (LLS) / Compressor Contactor Relay energize.
- **Green Flashing**: Waiting on min. run or min. off timer to energize/ de-energize LLS / Comp. Contactor Relay.

Getting to Evap OEM Board Set Points and Adjustments

- To access the basic set points, press and hold ENTER until "tS" (Room Temperature Screen) appears
- Press the ▲ or ▼ to scroll through the set points.
- Press ENTER to view the current set points.
- Press ▲ or ▼ to change the setpoints. Press ENTER to move between digits to accelerate changes.
- Press and hold ENTER to save the setpoint.
- Press BACK to escape

Room Temperature and Defrost type

Please follow the steps above to do the tasks below.

- The sign for Room Temperature is tS.
- The sign for Defrost type is dtY.
 - If your room temperature is ≥ 33° Fahrenheit (0.5° Celsius), the Defrost Type should be "Air", will be displayed as "Air".
 - If your room temperature is ≤ 32° Fahrenheit (0° Celsius), the Defrost Type should be "Electric", will be displayed as "ELE".

Combo Display Instructions



Description

The KE2 Combo Display, located on the front of your Polar King unit, will automatically display the room temperature of your unit. From the Combo Display, you can also access the Set Points of your Evap OEM Board and change settings. All the set points for both the Evap OEM Board and the Combo Display come preprogrammed for you. Later, you may decide to make some changes and you can do that from your Combo Display.

Get to the Set Points from your Web Interface

- Connect and login to your Evap OEM Board.
- Once you are on, click on the three bars in the top left side of the screen.
- Scroll down to "Pair Controller/ Combo Display".

\equiv				thermsolutions		
				Cooler Combo Display		
	Status			Settings	Setpoints	-
Door Switch Disabled Panic Panic Off	Aust Input Disabled	Auzinput Disabled	AuxOraget Disabled	Vinited Consolute	Aust Function Description Desc	
					Buzzer Mode Enabled Enabled Aux Temp2 Function	F

• On the far right you will find your Combo Display set points.

Aux1 Function Disabled	Aux1 State Open
Door Temperature (units: F)	Door Temperature Differential (units: F)
35.0	3.0
High Door Alarm Offset (units: F)	Low Door Alarm Offset (units: F)
100.0	5.0
High/Low Door Temperature Alarm Delay (units: MIN)	Door Switch State Disabled 🗸
Door Alarm Delay - Standalone Only (units: MIN) 30	Lights Off Delay (units: MIN) 10
Buzzer Mode Disabled v Aux2 State Open v	Aux Temp2 Function Disabled Monitor Temp2 High Alarm (units: F) 35.0
Monitor Temp2 Low Alarm (units: F)	Monitor Temp2 Alarm Delay (units: MIN)
-10.0	10
Aux Temp3 Function Disabled	Aux3 State Open 👻
Monitor Temp3 High Alarm (units: F)	Monitor Temp3 Low Alarm (units: F)
35.0	-10.0
Monitor Temp3 Alarm Delay (units: MIN)	
10	

- All Combo Display set points will come preprogrammed.
- One you may look into changing would be "Buzzer Mode".
 - Buzzer Mode- this set point has three options.
 - Disabled- alarm will never make sound.
 - Enabled- alarm will make sound.
 - Door Alarm Only- alarm only makes sound for the door being opened to long (will need a door switch for this feature).

Adjustments on your Combo Display

- · Combo Display set points can also be adjusted on the combo display itself.
 - To get to Combo Display setpoints, press and hold ENTER and BACK till "Aux 1 Function" appears.
 - Once you are on "Aux 1 Function" you can scroll through the settings using ▲ and ▼.
 - Once on the set point you would like to change, press ENTER.
 - If the yellow and red LEDs are blinking, that set point has selectable options.
 - Use ▲ and ▼ to scroll through the options.
 - If the set point is a number, use ▲ and ▼ to change the number.
 - Use ◀ and ► to move to the next digit.
 - Press and hold **ENTER** for 3 seconds to save changes.
 - Press **BACK** to go back to the setpoints page.
 - Press **BACK** 3 times to return to default screen.

Evap OEM Board changes from your Combo Display

- Press ◀ or ► so you will see "SELECT CONTROLLER" come across your Combo Display.
- Then use ▲ or ▼ to select the controller you would like to look at.
- Press **ENTER** on your desired controller.
- Then use ◀ and ► to scroll through the menus.
 - Setpoints, Variables, Manual Menu, Login, Alarms.
- Press ENTER on "Setpoints".
- "LOGIN" will be displayed, Press ENTER.
 - 0000 will be displayed.
 - Use ▲ and ▼ to change the digit to 2.
 - Use ◀ and ► to move to the next digit.
 - The password is 2222.
 - Press and hold ENTER for 3 seconds.
- Once logged in, use ◀ and ► to scroll through the set points.
- Press ENTER to display current value of set point.
- If yellow and red LEDs are blinking, the set point is adjustable.
 - Use ▲ and ▼ to scroll through the options.
 - If it is a number, the right most digit will be blinking.
 - Use ▲ and ▼ to adjust the digit.
 - Use ◀ and ► to change digit.
- Press and hold **ENTER** for 3 seconds to save the change.
- Press BACK to return to the Setpoint menu.
- Press BACK 3 times to return to default display.

Management Console Instructions

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+8 Q 50 S * 2 S 50 1						Since module River mode a Different of the Different of the Ender the way
VOB/D	lpe	/decs	Had,	Model	Description	Domain
v • 6.92	8 10 1	at 25-10-26-25-28	10 AZ (21 (9 A) (21 (21	02 sl/1 Second	(Mitestia)	7900
V . 672	8 m	ALCONDUCTOR .	Registic calls of scalar Regist	002 sile4 server	(set Goodlar)	man
•	% ==	Tals Index	N.31.72 18-95-95	winner solr1	ue in	6967
Our		A00	port		+	
Access 🖬						
Aleso						
Logs 🖬						
System						
Updates						

٦

Check Boxes

Logout 🕩 Go to Dashboard 🖵 ?
Show modbus devices Allow vendor assistance Show client services Show only KE2 services Enable WAN access Enable W-WAN access

Г

- On the right side of the page should be 6 check boxes, you will want to make sure the following boxes are checked.
 - Allow vendor assistance.
 - Show client services.

Services

Services (1 / 35)	Туре	Address	Host	Model	Description	Domain
VA 4/	BLE	AC:23:3F:A9:C9:28	BLE:AC:23:3F:A9:C9:28	KE2 WiFi Sensor	(Set Location)	TTXXDU
۵	€ EI	This Device	94:83:C4:10:38:93	unknown model	WEB UI	КОНАТО

- On the left side of your screen, you will see all your KE2 devices that are connected to that EM-Plus (OEM board(s), wireless sensors, EM-Plus).
- You will need to make sure for all your devices to click on the 3 of the 4 icons: the check mark, the cloud, the bell, and the pencil.
- If your EM-Plus is not connected to internet, the cloud will not allow you to click it.
- The EM-Plus only has a cloud.

Access Tab

Access 2		?
Portal		
sa.ke2.io	Ø	
ready		
Site		
PolarKing		
Password		
Retype Password		

- Under this tab, is where you set up your KE2 Portal (this tab is usually preprogrammed, and you can reach out to Polar King Inc. to get access to the site.
- If you wish to have your own site or you already have one and would like to add this, please contact KE2 Tech Support at information@ke2therm.com or call 636-266-0140.
- Click the check box next to the cloud to save.

Alerts Tab

- 🌲 Alerts 🔽	?
To required	
useri@example.com,user2@example.com	
Subject	
[Alarm 1; Alarm 2] @ <site> - <device></device></site>	
*SMTP advanced	
Set Cer	

- Under this tab, you can set up your EM-Plus to email you alerts (please note your EM-Plus must be connected to internet).
- In the "To" field, please type in the email address you would like to receive alerts on.
- If there is more than one, put a coma in between the email addresses.
- In the "subject" field, put in the subject you would like the email to say in your inbox once you receive an alert.
- Click the check box next to the bell to save.

Logs Tab

quency
0 MIN
Delete
de

- Under this tab, you will be able to set up how often your EM-Plus logs on your unit's data (please note these come preprogrammed at every 10 MIN or 144 logs a day).
- Click the check box next to the pencil to save.

System Tab

₩i-Fi 2.4GHz (ON) Radio enabled	
- Wifi Advanced	Wifi bridge 🗆 Wifi Repeater(Beta) 🗆 🧵
Name	
Nothing selected	×
Use hidden SSID	
Pass	
Set as Priority See Charges The set of the	
- Wifi Advanced	Wifi bridge Wifi Repeater(Beta) ?
Name	
Nothing selected	
Use hidden SSID	
Use hidden SSID Pass	
Lee hidden SSID Pass	
Use hidden SSID ParsSet as Priority	

- Under this tab, you will be able to set up a wi-fi bridge.
 - To do a wi-fi bridge, click the Wi-fi 2.4GHz section or Wi-Fi 5 GHz section.
 - In the "Name" field, type in the SSID you wish to connect to (if your SSID is hidden make sure to click the check box).
 - In the "Pass" field, type in the password to that SSID.
 - Click the check box by "Wi-Fi bridge".
 - Once a Wi-Fi bridge is complete, please not that one of your two EM-Plus Wi-Fi will be gone.

System	
WI-FI 2.4GHz (IM) Radio enabled	
[®] Wi-Fi \$ GHz ON Radio enabled	
E Static WAN 🗆	7
E Static LAN	7
E Guest AP LAN	7
II Activate BACnet	3
EModem Configuration	7
EAdvanced Device Management (Beta)	7
Credentials	
Ø€ Manage	7
User	
-	
Confirm Pass	
Contem Password	

- Under the "Credentials" section under the "Systems" tab, you will find where you can change your username and password.
 - Go to the "Manage" section.
 - In the "User" field, you can type in your new Username.
 - In the "Pass" field, you can type in your new Password.
 - In the "Confirm Pass" field, re-enter your new Password.
 - Click "Change and log out" to confirm your change (Please note that this will log you out and make you resign in.

Credentials	
©Ç Manage	?
Sensors	7
♣ Modbus	7
A Foreign devices	7
₩ ¹ -FI	
SSID	
KE2EMPlus-103893	
Pass	
Confirm Password?	
Change SSID Password	
A Manage Controllers	

- Under the "Credentials" section under the "Systems" tab, you will find where you can change your EM-Plus SSID password.
 - Go to the "Wi-Fi" section.
 - In the "Pass" field, type in your new password.
 - In the "Confirm Pass" field, re-enter your new password.

Once you are done on the EM-Plus, make sure to properly log out at the top right of your screen.

EM-Plus Instructions



How to Connect

- Wi-Fi
 - Open your computer and open your wi-fi settings.
 - On the list of available wi-fis should be a "KE2EMPlus-#####".



- Type in password provided for you.
- Open web browser (ex: Chrome, Safari).
- Type in 192.168.50.1 in the URL bar.
- Ethernet Wire
 - Connect ethernet wire to the LAN port and to your ethernet port on your computer.
 - Open web browser (ex: Chrome, Safari).
 - Type in the IP address 192.168.50.1 in the URL bar.

Management Console

How to get to Management Console

• After you are on the web page, in the top right-hand corner of the screen, there should be a link saying "Go to Management Console".



• Once you click on the link, it will have you login (login information should be provided to you).



• This is the page where you will be able to edit: Alarms, KE2 Smart Access Portal, Logs, and Network Settings.

OEM Board Instructions



How to Connect

- Via EM-Plus
 - Connect to your EM-Plus.
 - Go to Management Console.
 - Under Management Console, your OEM should be towards the top of your screen.
 - Click the IP address.
- Via Ethernet wire
 - Connect an Ethernet wire to the OEM board (Please note that the ethernet hook up port on the outside of the unit, by the door, is there for this purpose, you can plug into the ethernet hook up).
 - On your Windows Operating System,
 - Click the windows key **#** on your keyboard, and type "Control Panel".

All Apps Documents Web More ~	D	
lest match		
Control Panel App		
and the unit	Control Panel	

• Go to control panel.

🛛 All Co	ntrol Panel Items						– o ×
	・ 、 个 図 、 Control Panel	> All C	ontrol Panel Items				
Adjust	your computer's settings						View by: Large icons 🔻
	AutoPlay	*	Backup and Restore (Windows 7)	R	BitLocker Drive Encryption	2	Color Management
8	Credential Manager	P	Date and Time		Default Programs		Device Manager
	Devices and Printers	٩	Ease of Access Center	- 2	File Explorer Options		File History
A	Fonts	P	Indexing Options	•	Intel(R) Rapid Storage Technology	e	Internet Options
1	Keyboard	٩	Mail (Microsoft Outlook)	9	Mouse	ų	Network and Sharing Center
۷	Phone and Modem	۱	Power Options		Programs and Features	5_	Recovery
P	Region	-	RemoteApp and Desktop Connections	p	Security and Maintenance	9	Sound
Q.	Speech Recognition		Storage Spaces	0	Sync Center		System
	Taskbar and Navigation		Troubleshooting	88	User Accounts	1	Windows Defender Firewall

• Network and Sharing Center.

$\stackrel{\textbf{int}}{\leftarrow} \rightarrow \checkmark \uparrow \qquad \stackrel{\textbf{int}}{\blacksquare} \rightarrow \bigcirc$	Control Panel > All Control Panel Items > Netw	ork and Sharing Center	~ C S	earch Control Panel	× ם – X
Control Panel Home Change adapter settings Change advanced charing	View your basic network informa View your active networks vptfp.vptag.com	tion and set up connections			
settings Media streaming options	Domain network Change your networking settings Set up a new connection or netw Set up a broadband, dial-up, or V Toubleshoot problems Diagnose and repair network pro	Connections: U Etherne	s point.		
See also Internet Options Windows Defender Firewall					

Change adapter settings.



• Right Click "Ethernet" and scroll down "Properties".

Ethernet Properties ×
Networking Sharing
Connect using:
Intel(R) Ethemet Connection (4) I219-LM
Configure
Glient for Microsoft Networks
Internet Protocol Version 4 (TCP/IPv4)
Microsoft Network Adapter Multiplexor Protocol
Microsoft LLDP Protocol Driver Internet Protocol Vergion 6 (TCP/IPv6)
Install Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
OK Cancel

Double Click Internet Protocol Version 4 (TCP/IPv4).

Internet Protocol Version 4 (TCP/IPv4)	Properties	\times
General		
You can get IP settings assigned autom this capability. Otherwise, you need to for the appropriate IP settings.	natically if your network supports ask your network administrator	
 Obtain an IP address automatical 	Y	
Use the following IP address:		
IP address:	10 . 10 . 166 . 202	
Subnet mask:	255.0.0.0	
Default gateway:	· · · ·	
Obtain DNS server address autom	natically resses:	
Preferred DNS server:		
Alternate DNS server:		
Validate settings upon exit	Advanced	
	OK Cance	

- Change IP address to match the first 3 sections of the IP address of your OEM Board.
 - Ex: OEM IP- 10.10.166.211.
 - Your IP- 10.10.166.202.
 - Change your Subnet mask to 255.0.0.0.
- Click "OK".
- Click "OK" under Ethernet Properties.
- Getting to web interface
 - Once you have changed your computers IP address, open your web browser (ex: Chrome, Safari).
 - Type in the IP address of your OEM Board into the URL bar.
 - A pop up may occur saying that this website is not safe, advance through this page.

How to Operate your OEM Board

• The opening page will be the Home page.



- On the home page in the top left corner, will be three bars.
 - If you click on the three bars, you will be able to jump around to the other pages.

Close
A Home
Kee Status
Pair Controller/ Combo Display
SetPoints
Network
Graphs
➔ Next Mode

Status page.

	thermsolution KE2 Evap O System Mode: Re 2022-08-29 14:21	s EM frigerate	
	Main Eva	р	
	Applicable Doors	Closed	
Aux Inputs	2.6 F Room Temp Coll Temp 23.8 PSIG Suction Press Sat Temp - 99 F	4.1 F Suction Temp -3.6 F Aux1 Coil Temp	Utput Status Lis Experter far Riely On Experter far Status Experter far Status Experter far Status Experter far

- The Status page is just a viewing page, you may view
 - Room Temp.
 - Coil Temp.
 - Suction Temp.
 - Suction Pressure.
 - Saturation Temp.
 - Super Heat.
 - And all other Auxiliary sensors.
- Pair Controller/ Combo Display.

≡				Cooler Combo Dis	nlav		
	St	tatus		Settings	Jidy	Setpoints	
Disabled	Aux linput Disabled	Aux2Input Disabled	Aux3Input Disabled	Named Controller 10.11.15.101 (6024-1282/76.25 Prezer 2 Thic Controller Type Freezer 1	0 0	Auri Function Diabled Auri State Open Door Imperature 35.0 F Door Temperature Differential	0 0 0
Panic Off	Relay Off	Relay Off	Relay Off			1.0 F High Door Alam Offset 100 F Low Door Alam Offset 5.0 F High/Low Door Temperature Alam Delay 15 Jan 15 Jan	0 0 0
						Door Sainch State Deabled Door Alarm Delay - Standalone Cely 30 MN Lights: Off Delay 15 MN	0 0 0
						Buzzer Mode Enabled Aux Temp2 Function	0

- Pair Controller/ Combo Display page is for accessing your Combo Display set points and pairing controllers.
- Your controllers come paired.
- Your Combo Display set points come preprogrammed.
 - Some set points you may look into changing later would be
 - Buzzer settings (disabled, enabled, or door only)
 - If you do not have a door switch the door open alarm will never buzz
- You will have to login with the username and password provided to you to make any changes.

Set Points

themselutions
KE2 Evap OEM
- Important Settings
- Refrigeration
- Expansion Valve
- Defrost
- Multi Evap Control
- Inputs & Outputs
- Alarms
- Lead/Lag
- Communications
- General Information
Save Reset Login

- Set Points page is where you make all adjustments to your unit such as room temperature, main valve type, super heat goal temperature, and so much more.
- All these settings will come preprogrammed to your liking.
- Graphs



• Graphs page is another viewing page where you can see how your box has been running, it will show you room temperature and coil temperature readings from the last week or month. It also shows the defrost count of whichever time frame you choose.

When done with the KE2 OEM Board, make sure to properly logout of the device before closing the window.

Notes

Notes

Notes



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