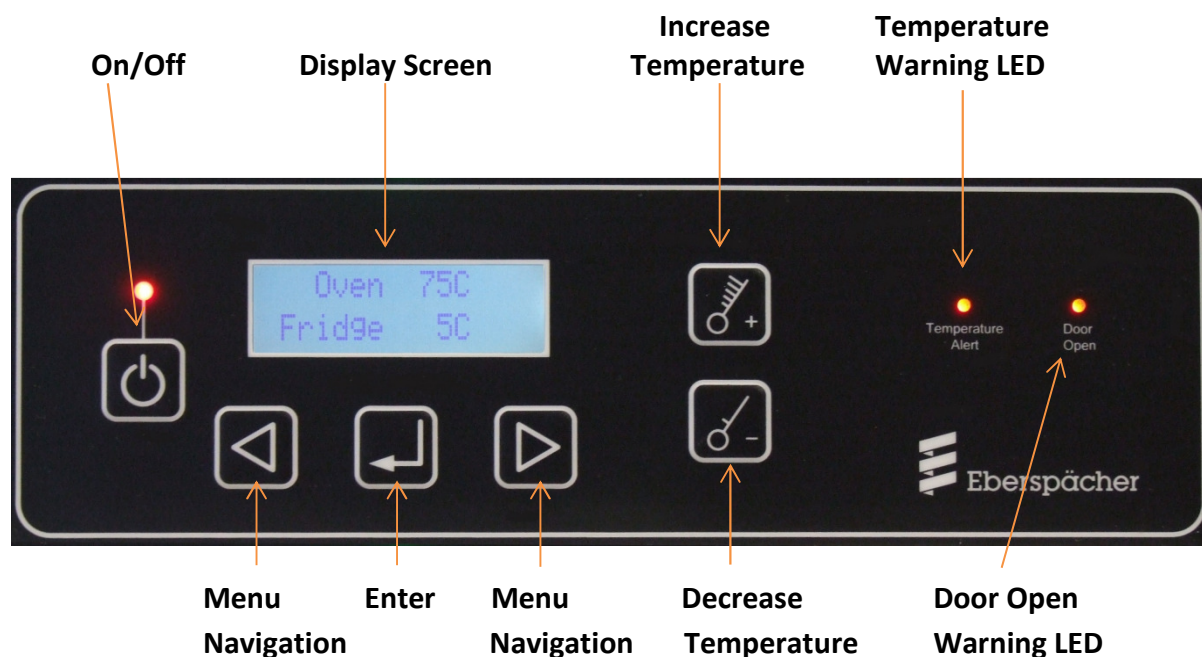


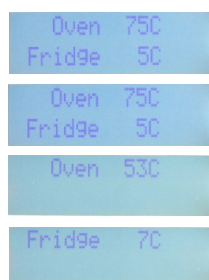
# Combined Oven & Fridge Control

Firmware Version v5.4



## Introduction:

The Eberspächer (UK) Mobile Combined Oven & Fridge Control has been designed to control both the hot and chilled compartments of a mobile food delivery vehicle. There are four operational modes available of which one will be pre-set during installation depending on the requirements of the vehicle operator, below is this default display of each mode.



Oven control only with fridge temperature display

Oven and fridge control

Oven control only

Fridge control only



## IMPORTANT INFORMATION.

**Under NO CIRCUMSTANCE should this control system be used for the cooking, re-heating or regeneration of food.**

**It has been designed to keep READY HEATED food at the required storage temperature only.**

# Combined Oven & Fridge Control

Firmware Version v5.4



## Operational Overview - Oven:

The oven is regulated by inputting the desired temperature (oven target) into the control panel. When the oven temperature reaches 2°C before the oven target, the control system will reduce the heat output from the heater to LOW.

Once the oven temperature has fallen sufficiently, usually around 5°C below oven target, the control system increases the heaters output to MAXIMUM, the system will continue to monitor and regulate the oven temperature until switched off.

To avoid unnecessary wastage of oven heat, the heater will automatically switch to LOW output when the vehicles main side serving door is opened.

***PLEASE NOTE: The heater should not switch off during normal operation with the exception of the following circumstance:***

If the oven target temperature is reached while the heater is operating in LOW but the temperature continues to rise, then a safety function called the “BUMP STOP” will activate.

The BUMP STOP function removes excess heat from the oven ensuring not only that the product does not spoil but also that the heater can continue to operate within its designed parameters.

This process can take up to 10 minutes to complete, in this time the air temperature in the oven may briefly drop below 63°C activating the temperature alert warning, although the products core will remain above the minimum serving temperature.

***PLEASE NOTE: The BUMP STOP safety feature operates in addition to the heaters own internal overheat sensors and safety systems. It has been designed to add an additional layer of protection to the heater and would usually only activate during the summer months on days with an above average ambient temperature.***

***If the bump stop has activated at any other time it is usually a sign of an additional problem, in this case please refer to the troubleshooting section at the back of this manual.***

# Combined Oven & Fridge Control

Firmware Version v5.4



## Operational Overview - Fridge:

The fridge temperature is regulated by inputting the desired temperature (fridge target) into the control panel, when the fridge temperature drops 2°C below the fridge target, the system will switch the fridge OFF.

**Please note: *While the fridge is off, the fans will continue to circulate the cold air around the fridge.***

When the fridge temperature raises 2°C above the fridge target, the system will switch the fridge ON. The system will continue to monitor and regulate the fridge temperature until switched off.

To avoid unnecessary fuel usage the fridge will not operate in ambient temperatures less than 2°C, although the fans will still circulate the air.

The fridge system also has an automatic defrost cycle, the operation of the defrost cycle is explained in detail on page 11 of the manual.

**Please note: *In the combined Oven and Fridge control mode it is possible to switch either the oven or fridge off or back on independently of one another see page 5 for further information.***

# Combined Oven & Fridge Control

Firmware Version v5.4



## Instruction for Basic Operation:

### Switch ON & Off

To switch the system on press the ON/OFF button (🔌), the panel will illuminate, bleep three times and show the self-test screen.



The system will automatically switch on the oven and fridge and the screen will default to the **Actual Temperature Screen**.



To switch the system off, simply press the 🔌, the controller will give you the option of switching off or not, if you do not want to switch the system off press the ↵ to cancel the shutdown, or to continue the shutdown press the 🔌 again and the LCD backlight will turn off and the display will read - POWER IS OFF - Cooling Down





# Combined Oven & Fridge Control

Firmware Version v5.4

## Instruction for Basic Operation: (Cont...)

### Switch Off Individual Component (Combined Oven & Fridge Control Only)

In combined operation mode (Oven & Fridge Control) there maybe a requirement to only have either the oven heater or the fridge system on, for example if delivering a cold buffet which only requires fridge cooling.

It is possible from v5.4 to switch the individual components off and back on, to do this press the  and when the confirmation screen appears press the right scroll  to select the required component to switch off or back on again.



**Please note: Once the system has been switched off completely, the system will always revert to combined operation mode once switched back on. ie next day.**





# Combined Oven & Fridge Control

Firmware Version v5.4

## Instruction for Basic Operation: (Cont...)

### Setting the Temperature

Using  or  the required oven temperature can be selected (Oven Target), if either of the temperature buttons are pressed the display will change as shown below and each additional press of the button will adjust the Oven Target.


Pressing  or  once will return to the default temperature screen.



**Please Note: This parameter can only adjust the oven target between 65°C and 85°C, it cannot adjust the fridge target as this is pre-set at 5°C.**

If the oven temperature drops below 58°C or the fridge temperature rises above 8°C then the temperature alert will activate, this consists of an audible alarm, the temperature alert LED will flash and the screen will display a warning.



The audible alarm can be manually silenced once the alert has been acknowledged by pressing , once pressed the display to revert to the default temperature screen and the temperature alert LED will stop flashing but stay illuminated until the temperature rises/lowers above / below the 58°C or 8°C

**Please note: The temperature alert will automatically cancel when the temperature rises or lowers above the 58°C or the 8°C thresholds.**

# Combined Oven & Fridge Control


Firmware Version v5.4

## Instruction for Basic Operation: (Cont...)

### Door Open Alarm

When the side serving door is opened then the door alert alarm will sound, this consists of an audible alarm, the display will change to SERVER DOOR OPEN and the door open LED with start flashing.



The audible alarm can be manually silenced once the alert has been acknowledged by pressing , once pressed the display to revert to the default temperature screen and the door open LED will stop flashing but stay illuminated until the door is closed.

Please note: **The door alert will automatically cancel if the door is closed.**



# Combined Oven & Fridge Control

## Firmware Version v5.4



### Instruction for Operation:

#### Displaying Useful Information

The system is able to display some useful information, this is accessed by pressing either   while on the default temperature screen.

#### **Screen 1 – Actual Oven & Fridge Temperature:**

Displays the actual temperatures inside the oven and fridge compartments.

#### **Screen 2 – Oven Target & Fridge Target:**

Displays the requested target temperatures for the oven and fridge (various Info)

#### **Screen 3 – Heater Operating State & Fridge Operating State:**

Start Cycle 280s	Countdown while the heater is in its start cycle
Maximum	The heater is required to run in Maximum
Low	The heater is required to run in Low
Bump Stop 500s	The oven temperature has reached an excess and the bump stop has been activated, the 500 second countdown is the approximate time left to heater re-start
Fridge Start 30s	30 second countdown time before the fridge switches on during initial start
Fridge Running	The fridge is running normally
Defrost In 3600s	If the evaporator coil drops below -4°C this countdown will start, which indicates when the defrost cycle will activate
Defrosting 600s	The previous countdown has reached 0 and the fridge is now defrosting.
Defrost Dwell 60s	Fridge system is off for 1 minute after defrost before re-starting

#### **Screen 4 – Evaporator Temperature (Defrost Control)**

Displays the evaporator coil temperature used by the defrost




# Combined Oven & Fridge Control

## Firmware Version v5.4



## Instruction for Operation: (Cont...)

### Main Menu >

The main menu is accessed by pressing the  from any of the main four information screens. There are various settings which can be modified to suit the user, below are the options, function of option and available settings to option.

The settings can be adjusted by using the   to select the ON/OFF options or   to adjust a numerical value up or down.

All settings are saved automatically.

### **Set Event Mode > Event Mode: ON or OFF (default OFF)**

By default the system has a feature which when the side server door is opened the heater automatically is forced into LOW heat output, this is to avoid the heater from expelling the built up heat from the inside the oven while the oven door is open.

**Please Note: *When forced to LOW because the side server door is open, if the temperature in the oven compartment drops below 70°C then the heater will increase to Maximum to avoid the temperature reducing too far.***

Should the vehicle be used in a stationary environment such as a market or event where the side door will be open for an extended duration then the Event Mode option should be changed to ON, this will stop the heater being forced into LOW. This option will default back to OFF when the system is switched off.

### **Set Display > LED Brightness > LED Dimming ON or OFF (default OFF)**

Reduces the intensity of the 3 LEDs by 50%

### **Set Display > Menu Timeout > Menu Timeout 5 – 30 seconds (default 5s)**

Sets the length of time the LED backlight to stay on, before switching off and changing back to the default temperature display.

# Combined Oven & Fridge Control

## Firmware Version v5.4



## Instruction for Operation: (Cont...)

### Main Menu > (Cont...)

#### **Set Display > Fridge Decimal > Decimal ON or OFF (default OFF)**

Set the fridge display on the default temperature display to show the temperature as a decimal. ie. off 5C or on 5.2C.

#### **Set Display > Display Menu Back**

Exits the display menu and returns to the start of the main menu.

#### **Set Alarms > Server Door Beep > Server Door On or Off (default ON)**

Sets the side door serving doors audible alarm on or off.

#### **Set Alarms > Temp Beep > Temperature On or Off (default ON)**

Sets the temperature alert audible alarm on or off

#### **Set Alarms > Alarms Menu Back**

Exits the alarms menu and returns to the start of the main menu

#### **Module Info > Hardware Revision > Bootcode Revision > Software Revision**


Displays the current version of the hardware and software of the control device.

#### **Show Faults > Active Fault XXX > Stored Fault or Fail Code HX XXX**

The Show Faults option gives the user the ability to read the heaters fault code memory. It is possible to display a 3 digit number which can assist diagnosis should the heater not be working correctly. Please see the troubleshooting section on page 13 for more information.

#### **Exit**

Exits the main menu and returns to the default temperature screen.

**Please Note: By pressing  at any time while in the menu screens will act as a back button and take you back either to the main menu or the default temperature screen**

# Combined Oven & Fridge Control

Firmware Version v5.4

## Instruction for Operation: (Cont...)

### Fridge Automatic Defrost

The fridge has an automatic defrost cycle to which the user has no control, it has been designed to protect the evaporator coil from icing up, especially in damp humid conditions. The user can monitor the defrost by viewing **Screen 3** as described in the displaying information section.



#### **1. The defrost cycle will start if the evaporator coil drops to -4°C or below**

The evaporator coil temperature can be seen on **Screen 4** as described in the displaying information section.

#### **2. Once -4°C has been detected a 3600 second (1 hour) countdown timer starts although the fridge will operate normally**

The countdown will reset and the display will revert to fridge running if the evaporator coil rises to 4°C or above at any time during the countdown time

#### **3. Once the 3600 second (1hour) countdown has reached 0 then the system will switch off the fridge circulation fans and start the actual defrost.**

#### **4. The defrost cycle will run for 600 seconds (10 minutes) unless the evaporator coil temperature rises to 4°C or above when the countdown time will end the defrost cycle.**

If the evaporator coil is still -4°C or under after the 600 second (10 minute) defrost then the cycle will repeat until the evaporator coil is 4°C or above.

#### **5. Following completion of the defrost cycle the fridge will enter dwell time for 60 seconds**

Dwell time allows any water droplets which have built up on the evaporator to drain away to avoid spraying the water out into the fridge compartment.

# Combined Oven & Fridge Control

## Firmware Version v5.4

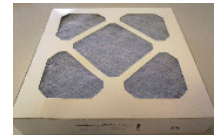


### Instruction for Operation: (Cont...)

#### Troubleshooting

Certain heater faults can be avoided by performing regular maintenance, the most common are the following:

- i. Blocked or clogged fresh air intake filter, these filters should be changed every 4 – 6 weeks.
- ii. Air outlet in hot food compartment floor clogged with pastry and/or grease
- iii. Damaged Ducting or Air inlet vent on roof of vehicle closed or blocked with leaves or snow. (If Fitted)
- iv. The heater should be serviced by an Approved Eberspächer main dealer on an annual basis
- v. The fridge should also be serviced by an approved Eberspächer main dealer on an annual basis.



**Please Note: *Failing to comply with the heater or fridge service schedule may invalidate any remaining warranty as set out in the Eberspächer (UK) Warranty Terms & Conditions***

# Combined Oven & Fridge Control

## Firmware Version v5.4

### Instruction for Operation: (Cont...)

### Troubleshooting: (Cont...)

In the event of an oven, fridge or evaporator sensor fault the control panel LCD will display the following on the default temperature screen or evaporator temperature screen. Please contact your local dealer to solve this issue.

Oven 999 Oven Sensor Short Circuit

Oven -99C Oven Sensor Open Circuit

Fridge 999 Fridge Sensor Short Circuit

Fridge -99C Fridge Sensor Open Circuit


Evap 999 Evap Sensor Short Circuit

Evap -99 Evap Sensor Open Circuit

If there is a fault with the heating system due to lack of fuel or low battery power then the heater will usually log a fault in its memory and if the system is switched off then back on again the heater will usually restart.

If the heater does not restart then please check the fault code memory as shown below and refer to the following page for further information on the fault codes.



To display any fault codes in the heater, enter the main menu and navigate to the Show Faults option, when the  is pressed again the screen will show Active Fault XXX scrolling right using the navigation button will show the last five faults which are stored in the heaters memory. Fail Code H1,2,3,4,5 XXX



# Combined Oven & Fridge Control

Firmware Version v5.4



## Instruction for Operation: (Cont...)

## Troubleshooting: (Cont...)

Common Heater Fault Codes & Quick Check

010 = Over voltage - Check battery charging system

011 = Under voltage - Check battery voltage is sufficient

012 = Overheating - Check outlet in bottom of oven for blockage, check air intake filter

013 = Overheating – Check outlet in bottom of oven for blockage, check air intake filter

031 = Blower Motor – Contact an authorised Eberspächer main dealer to arrange repair

033 = Blower Motor – Contact an authorised Eberspächer main dealer to arrange repair

052 = Safety time exceeded - Check fuel supply, has vehicle run low on fuel

For any other codes that are not shown above please contact your local dealer to arrange further investigation or repair.

**Please Note: *Heater fault codes can only be cleared by an authorised Eberspächer dealer or service agent.***

**Your local Eberspächer heating dealer can be found by visiting:**

**[www.eberspacher.com/dealers](http://www.eberspacher.com/dealers)**