EINBREW 3V3P-HC

Electric Nano Brewing Controller

For 3 Vessel Systems

USER INSTRUCTIONS

INTRODUCTION

Congratulations on your investment in an EINBREW 3V3P-HC electric brewing controller. Our precise temperature control, automatic mash steps, Boil Detect and hop insertion alarms means that you can focus on what you really want – making great beer with your home or craft brewery.

There's nothing as satisfying as putting together your own brewery, however dealing with complex electrical and temperature control can be concerning – not only making sure everything works the way you want, but safely too! EINBREW 3V3P-HC takes away those concerns with a flexible, configurable and industrial-grade control system – all expertly engineered into an easy to install package.

We'll work with your existing heaters and pumps – no need to purchase additional, expensive equipment. Our control will help you make a great batch of sweet wort every time, and give you the repeatability you want.

Our temperature control will automatically adjust itself to your system's requirements – you don't need to be a chemical engineer to get brewing.

These user instructions will help you get the best out of your EINBREW 3V3P-HC system and allow you to use it safely, and we recommend you read through them fully before installation and starting brewing!

For further help, search 'EINBREW' or '3V3P-HC' on YouTube.com

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SAFETY INFORMATION

- Please inspect your EINBREW 3V3P-HC system and accessories for damage when you receive it. If there is any damage, please do not use the system and contact your supplier or Support for assistance.
- Do not operate the system if the power leads show any signs of damage or wear.
- If you need to clean the surface of your EINBREW 3V3P-HC system, please ensure that it is fully disconnected from the mains supply beforehand. We recommend removing the plug from the socket to ensure disconnection. Use only a damp cloth and do not allow liquid to come in contact with EINBREW 3V3P-HC, and ensure the vessel is dry before reconnecting the electricity supply.
- **The EINBREW 3V3P-HC MUST be used with a RCD/GFCI/RCBO device. Ensure that you test it prior to every use. Installation by a competent person (e.g. Electrician) is required.**
- Ensure that any power leads are fully unwound during use. If using any extension leads, ensure that they are fully unwound and have an adequate current capacity when unwound.
- EINBREW 3V3P-HC is not to be used by children or vulnerable adults, or around pets. Please ensure that the device is only used with adequate supervision to ensure safety.
- EINBREW 3V3P-HC does not contain any internal user serviceable parts, and should not be disassembled or repairs attempted. Please contact your supplier or Support for any assistance required.
- Ensure that EINBREW 3V3P-HC is positioned as far away as possible from liquids and vapours being used in the brewing process or condensate paths that may form – its enclosure is not water-tight.
- You must manually control the Pumps during brewing. This is especially important if you are using a RIMS system, as it can be dangerous to operate the heater without the pump and water circulation.
- Do not operate your brewery or EINBREW 3V3P-HC unless you are certain it has been correctly and safely setup. You may need to refer to a qualified/licensed electrician to achieve this.
- **DO NOT USE THIS PRODUCT AS AN ISOLATION DEVICE, TO ISOLATE PUMPS, ELEMENTS OR ANY EQUIPMENT.**

TECHNICAL SPECIFICATIONS

Feature	EINBREW 3V3P-HC
Product Dimensions	300mm x 260mm x 85mm
Power Supply Input	220Vac/230Vac, 50Hz, 15Amax
Control Precision	0.1C (or 0.1F in Fahrenheit mode)
Temperature Measurement Accuracy	0.1C (or 0.1F in Fahrenheit mode)
Heating Elements Supported	3, (Hot Liquor Tank, Mash Tun and Boil Kettle), concurrent use
Pumps Supported	3, 2.9A Max (1.4A each), C14 Sockets (man & auto control)
Product Weight	3kg
Environmental	IP43, keep dry, splash proof fascia.
Brewing Vessels Supported	3, for Hot Liquor Tank, Mash Tun and Boil Kettle
Temperature Monitoring	YES, 3 PT100 sensors (Hot Liquor Tank, Mash Tun and Boil Kettle)
PCB fuses	2, 3A, 20mm x 5mm
Power fuses	2, 15A, 32mm x 6.3mm
HERMS Support	YES
RIMS Support	YES
Audible Alarms	YES
Visible Alarms	YES
Audible Cooling Alarm	YES
Visible Cooling Alarm	YES
Automatic Timer	YES
Recipe Stored in Memory	YES, one recipe.
Programmable Recipe	YES, 9 programmable mash stages
Automatic Boil Detect	YES
Microprocessor Control	YES
Hop Insertions Alarms	YES, 9 programmable insertion alarms
Ergonomic Design	YES
Limited Lifetime Warranty	YES
Product Compliance	CE and LVD Compliant
Country of Manufacture	United Kingdom

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COMPONENTS AND ACCESSORIES

Your EINBREW 3V3P-HC system will come shipped with the following components. When you unpack please ensure you check everything is there, and if any parts are missing please contact your supplier or Support immediately.

1) 1 x EINBREW 3V3P-HC Electric Brewery Controller
2) 3 x Temperature Sensor, ¼" BSPP thread, 80mm length, with 3m lead.
3) 3 x Pump output plug, C13.
4) 1 x User Instructions (detailed).
5) 1 x Quick Start Guide.

BREWING SYSTEM REQUIREMENTS

We aim for EINBREW 3V3P-HC to take care of electrical control for you, leaving you to concentrate on designing and building your brewing system!

Constructing your own Electric Brewery is beyond the scope of these user instructions, and there are a number of great guides out there that'll help you achieve this. There are also a number of performance and safety issues to consider when specifying and putting together your brewery.

However, for EINBREW 3V3P-HC to work effectively, there are some areas to consider.

- Your heating elements must be appropriately sized for the amount of wort you're trying to heat/produce, whilst meeting the maximum EINBREW 3V3P-HC power restrictions. If the heating elements are too small, it may take a long time to increase the temperature of the wort as you go through the brewing process, especially when boiling. In the worst case, you may be unable to maintain your target temperature at all due to losses. You can also improve system performance by ensuring that you keep a lid on your vessels when brewing, and insulating the vessels. Elements that are too large may result in scorched wort, or considerable temperature overshoot and oscillation during heating.

- EINBREW 3V3P-HC supports one heating element each for the Hot Liquor Tank, Mash Tun and Boil Kettle, used concurrently. The element can be directly in the vessel, or you can use an external heating element through which wort is pumped around.

- Your system pump must be sufficiently powerful for the task – importantly, if using RIMS the water flow must be able to remove heat from the in-circuit heating element at a sufficient rate, or you may encounter issues where the water is e.g. boiling at the heater itself and much cooler elsewhere. The pumps must also be rated for use at the operating temperature – it is worth noting that many pumps will not operate correctly at 100C (boiling) due to cavitation. You ideally want the temperature throughout the system to be as equal as possible, helping to reduce temperature overshoot and oscillation. In the worst case, you could encounter equipment damage or scorched wort. Similarly, the pump must be powerful enough to continuously recirculate the wort through your mash without sticking, if relevant. The amount of flow required can also vary depending on the type of grain and crush quality used.

- It is important that you do use pumps in your system where feasible, as if the volume of water is not well mixed, the accuracy and quality of the control system will degrade.

- Ensure that your system interconnector pipes are of sufficient diameter to let through enough flow, and is rated for use at the operating temperature. Make sure you test the system with the pumps running and cold water after installation, to ensure there's no leaks – these could be dangerous when working with heated wort!

- Ensure that you have added sufficient filtering to the pump inlet – otherwise, you may encounter clogging or flow restrictions after adding grain due to debris or grain in the fluid path/circuit. The same applies if you intend to e.g. recirculate after hops have been added.

- EINBREW 3V3P-HC supports up to three pumps up to 2.9A, which you manually activate via the Control Panel. Typically, you'd use a pump for recirculation between the Hot Liquor Tank and the Mash Tun, and sometimes also used with an external heating element. The additional pumps can be used for moving wort between the Mash Kettle and the Boil Kettle, or vessel recirculation.

- Ensure that the 3 temperature probes provided with EINBREW 3V3P-HC are adequately fitted. For example, it is important that you install the Mash Tun temperature probe near the point where heated liquid is fed back into the Mash Tun, and not for example after it has circulated through the mash bed or at the pump inlet. Not doing so will result in issues such as temperature overshoot and oscillation, or in the worst-case equipment damage or scorched wort. If you are using an internal heating element, do not place the temperature probe right beside it.

- EINBREW 3V3P-HC provides precision temperature probes and control systems, and should provide excellent temperature control over a wide range of brewery configurations. However, its performance is ultimately down to the equipment you've specified. It is normal that the maintained temperature will fluctuate and you may see slight temperature overshoot when brewing. This can be exacerbated by issues such as insufficient pump flow, too large/too small heating element.

- Additional safety equipment such as installing a float switch to prevent your pump running dry and the elements operating without water added can be worthwhile additions.

- Unless you're building an off-the-shelf brewery kit, be prepared to experiment and improve your brewery as you go! It's not unusual for systems to require tweaking after first being assembled.

GETTING STARTED

We know you're eager to get on with making some beer, so the first thing to do is get your EINBREW 3V3P-HC system installed with your brewing setup!

Once you've checked you've got everything, work out where you're going to install your EINBREW 3V3P-HC controller. Everyone's brewery is different; however, you should make sure that it is situated far enough away from your brewing vessels that there won't be any liquid splashed on the controller, or any danger of steam condensing and dripping on the controller for above.

Please also make sure that the inlet power cable for EINBREW 3V3P-HC, the outlet power cables for the heating elements and pumps, and the temperature sensor cables will reach without being taut or presenting a trip hazard.

EINBREW 3V3P-HC should be connected to an electric outlet suitable for the total electrical load you wish to drive, controller + heaters + pumps. The supply MUST be protected by an **RCD/GFCI/RCBO device**, for your safety – please test the **RCD/GFCI/RCBO device** before use, using the built-in test function.

IF YOU DO NOT UNDERSTAND THE ABOVE STATEMENT, PLEASE CONSULT A LOCAL EXPERT.

Once that's done you're ready to turn on! Move the power switch to the ON position and EINBREW 3V3P-HC will power on, running through a short self-test of the onboard displays, indicators and alarm buzzer before starting. This will only take a few seconds.

When operational, EINBREW 3V3P-HC will display the readings from the 3 temperature sensors on its displays and you can begin configuring and testing the system.

BREWING SYSTEM INTEGRATION

We know you're eager to get on with making some beer, so the first thing to do is get your EINBREW 3V3P-HC system installed with your brewing setup!

Installing C13 Plug to Pump Leads

The EINBREW 3V3P-HC connects to your pumps using C14 power sockets. To interface with these, you need to install C13 plugs onto the power leads for each of your pumps. If you are unsure of any aspects of how to undertake this task, please contact a competent person (e.g. qualified and certified Electrician) for advice and assistance. Miswiring a plug can be fatal. FIRST ENSURE YOUR POWER LEAD IS NOT CONNECTED TO THE POWER SUPPLY.

Remove the screws holding together the spare C13 plug that has been supplied with your system. Leave these carefully to one side.

Once you've done that, you'll note that there are screw terminals for Live, Neutral and Earth – along with a retaining clamp for the power cable to be inserted, to ensure that it cannot be taken out later. Unscrew the retaining clamp to allow you to feed in the power cable.

Strip back the Live, Neutral and Earth conductors to allow you to fit the exposed conductors into the appropriate screw terminals. You may need to shorten one or more of the conductors for a good fit. For safety, ensure that you only strip enough of the protective sheath to allow insertion of the relevant conductor into each of the screw terminals – no more. Earth to the centre, Neutral to the left and Live to the right.

Screw each of the terminals down firmly to ensure that the conductor cannot move and is securely in place, then screw down the retaining clamp for the power cable such that it is also secure.

Finally, reassemble the C13 plug using the screws from earlier, firmly screwing the plug back together.

To test, ensure that EINBREW 3V3P-HC is turned off, then insert the assembled C13 plug with attached power cable into the C14 receptacle. Ensure that the system the pump is fitted to has enough water added to operate the pump sufficiently – this is especially important if the pump will be damaged if run dry, and does not have run dry protection. Turn on the EINBREW 3V3P-HC system, and utilise the relevant pump button to activate it. You should observe that the pump will activate.

Installing Temperature Probes to Brewing Vessels

The EINBREW 3V3P-HC comes supplied with 3 Temperature Probes to allow you to monitor and control your system. These will typically be PT100 probes depending on the type of system you have purchased; however, installation and operation is identical.

To fit the probes into each vessel, firstly consider where you are going to place each probe. The ideal placement will vary depending on factors like the type of heating system you have chosen to

use, along with other factors. Generally, the temperature probe is positioned near the bottom of a vessel, about 40/45mm from the base and at 90 degrees to the heating element. The sensors are 80mm in length and have a ¼" BSPP thread, which requires a 13/14mm hole in the vessel.

Hot Liquor Tank (HLT) – if you are using a HERMS system, then the HLT should have a heating element fitted. It is important not to install the temperature sensor too near the heating element, as this can produce readings which are artificially high and prevent the control system from operating correctly. A good place may be close to the heat exchanger coil that is used to supply heat to the Mash Tun. If you are using a RIMS system, the temperature sensor should be placed in the area of the RIMS outlet into the vessel, in order to monitor the output temperature of that system.

Mash Tun (MT) – Generally the Mash Tun will be indirectly heated by the HLT. As such, the temperature sensor should probably be placed around bottom inlet for the circulation pump, if utilised. If a RIMS system is being used to heat the MT, then fit the sensor around the heated water inlet.

Boil Kettle (BK) – normally the Boil Kettle will have a direct heating element fitted. It is important not to install the temperature sensor too near the heating element, as this can produce readings which are artificially high and prevent the control system from operating correctly. Around the middle of the vessel may be a useful place to site the probe.

Extending EINBREW 3V3P-HC C20 Power Lead

The EINBREW 3V3P-HC comes supplied with a 2m power lead. However, you may find this is insufficient for your purposes. If this is the case, please extend the cable using a suitable extension cord, or purchase a longer power lead.

Please note any replacement/extension must be capable of handling 15A of current. If using a wound extension cord, please ensure that it is fully unwound before use to allow it to handle its maximum rated capacity. Not doing so will reduce the current capacity of the cable and may result in fire or death.

Replacing user-replaceable fuses

There are two user-replaceable fuse receptacles mounted on the base of the enclosure. If you believe that these fuses have blown, these can be replaced. Please ensure to replenish them with an equivalent specification of fuse.

To replace, first ensure that you have turned off EINBREW 3V3P-HC by disconnecting it at the plug. This will ensure the system is isolated. Then use a screwdriver to access the fuse compartments, and replace the damaged fuses. If capable, you may wish to use a e.g. multimeter to test if the fuse(s) are actually damaged or not, as the fault may lie elsewhere.

Insert the new fuse(s) and screw in the fuse compartment again. Then reconnect the system to mains electrical supply, and test the system to ensure that it operates correctly.

Drilling Holes in Stainless Steel Vessels for Heating Elements and/or Temperature Probes

Depending on which vessels you are using in your system, you may already have holes pre-drilled for heating elements and water pump inlet/outlets – this makes things very convenient as you can simply use those for installation, as long as they're in the right place!

However, if you are building a system without any of this work carried out, you will have to undertake the work yourself.

Firstly, confirm that you have appropriate drill bits (or hole saws, etc) and drill (available speed, etc) for the job of creating these holes. You will likely require special drill bits, and depending on the grade and thickness of the stainless steel, you may require non-standard and/or higher speed drill drivers also. If you do not have experience in this work, you would be advised to contract a specialist metal worker to help, as it can be easy to damage or cosmetically mark your vessels.

Next, mark out the holes in the design to ensure that placement of the new equipment is correct. Then create the hole. After the metal has cooled down afterwards, fit the elements and probes as necessary. Ensure that the vessels are well cleaned afterwards to ensure that no metal shavings or dust get into the brewing system during use.

Mounting the Control Panel

The panel must be mounted vertically. There are mounting holes in tabs on the corners of the enclosure, these are used to mount the panel. During use the rear of the panel can get hot, this is normal. It is vital that a gap be left between the rear and the mounting surface, to allow airflow, the outward dimples are to facilitate this. It is also vital that the mounting surface can withstand temperatures of up to 50C. Ensure that you do not over-tighten the 4 mounting screws and bend the tabs, the tabs should remain vertical like the rear of the control panel.

Side view of mounted panels
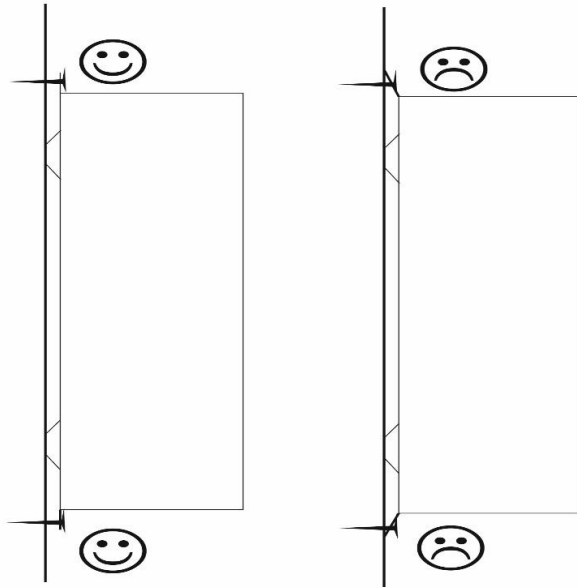
Basic System Testing

Once you've installed all your heating elements, pumps and temperature probes – it's time to test everything out before properly brewing wort!

Connect up everything to EINBREW 3V3P-HC, and add some water into each of the 3 vessels. The water level will need to be sufficient to cover the elements and to correctly fill the circulation system(s).

The first thing to try is to activate each pump in turn. Ensure the correct valves are in the correct orientation open/closed as required. Press the P1, P2 and P3 buttons on the interface respectively to drive each pump in turn, if you have enabled Pump Vent, then the pump will pulse on and off several times before remaining on. Confirm that it is operating correctly, and flowing well. Also ensure that there are no leaks coming from any pipework! If there are any leaks that look as if they may contact with electrical connections, disconnect the power to your system immediately.

Once the circulation system seems to be working OK, activate the Pre-Heat/Mash In stage and confirm that the heating system/heat exchanger is warming the HLT and/or MT as expected. It will take time for the temperature to increase, so do not expect an instant ramp to your set temperature. Take care to look for any leaks as time goes on. You may find that you need to tighten connectors, add washers, etc. before everything is completely watertight.

Then move onto the Mash stages, and test the heater in the Mash Tun. You should see the temperature rising in the vessel when activated.

Next move onto the Boil stage, and test the heater in the Boil Kettle. Again, you should see the temperature rising in the vessel when activated.

When testing, make sure that the temperature probes have been connected to each vessel correctly – for example, that the Boil Kettle probe has not been connected to the Hot Liquor Tun, or similar. Also make sure that the heating elements and pumps turn on appropriately, and they haven't been connected to the wrong sockets.

After you've carried out the basic tests, dispose of all the water from the system in case there is any loose debris or other material present. Then you're ready to brew for real!

CONTROL PANEL

Before beginning to make your brew, let's go through the main control panel. EINBREW 3V3P-HC is designed to be similar to a traditional brewery control system, with separate temperature monitoring for each vessel in the system. Each vessel has a dedicated LCD display with temperature and status.

Our diagram of the front panel below illustrates some of the options available.
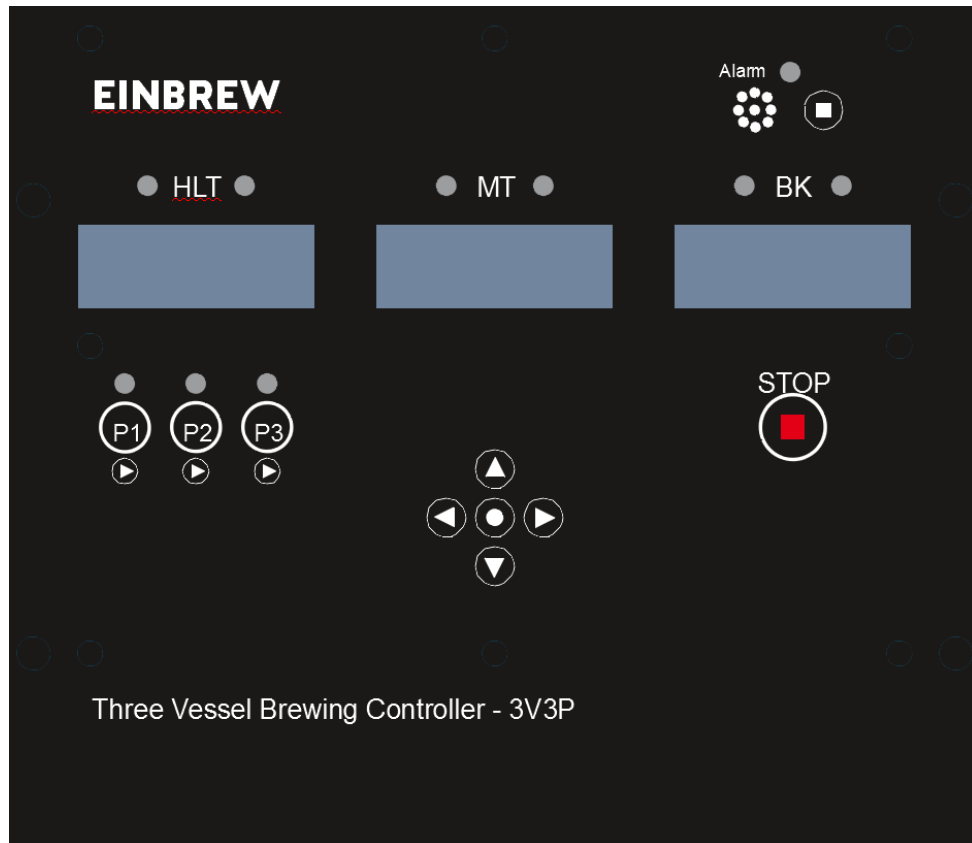
Above each display there are two indicator – a green indicator to denote that the Controller is active (i.e. **Start** has been selected) and a red indicator to denote whether or not that Controller is supplying heat demand presently.

LCD Displays

The five-way directional pad in the middle of the panel allows you to navigate between each of the vessels and access menu items and control options. The highlighted/active display will be brighter than the others, and you can switch between them using the **Left** and **Right** directional buttons. The highlight will move accordingly to show which display is controllable. They are labelled as **HLT, MT and BK** respectively, for Hot Liquor Tank/Preheat/Mash In, Mash Tun and Boil Kettle.
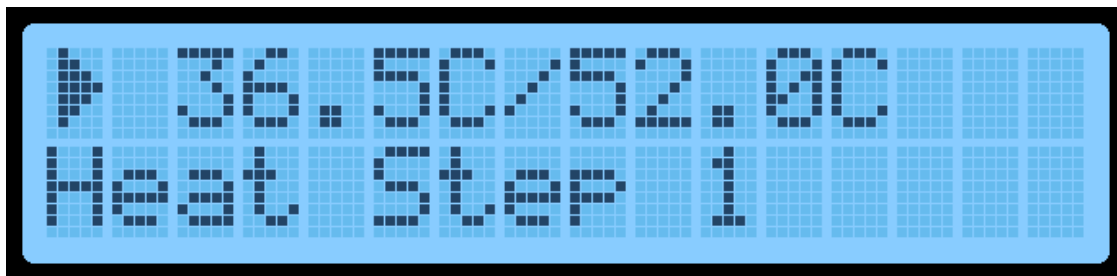

Each vessel's LCD display has similar context-sensitive functions available via the Menu, which is accessible by pressing the **OK** button in the middle. The **Up/Down** buttons are used to scroll between menu items, **Left/Right** to adjust values and **OK** to select the present item in the list.

- **Start/Pause/Stop/Restart** - Depending on current status, start, pause, stop or restart the control using a recipe.
- **Recipe** – Set the Recipe configuration for the selected vessel.
- **Settings** – Configure options for this vessel and the brew process in general.
- **Cleaning** – Enter a cleaning mode that will aid with sanitising the vessel.
- **Exit** – return to normal display.

The menu will also automatically time out after a period of time, returning to the standard display. **The menu must be exited before you will be allowed to switch to another display.**

Each display can be controlled independently, with concurrent control available in each. This allows back-to-back brews and continuous production.

Preheat/Mash In Displays (HLT)
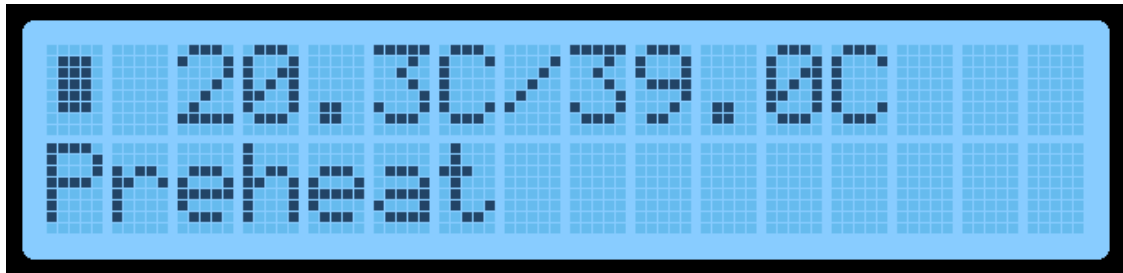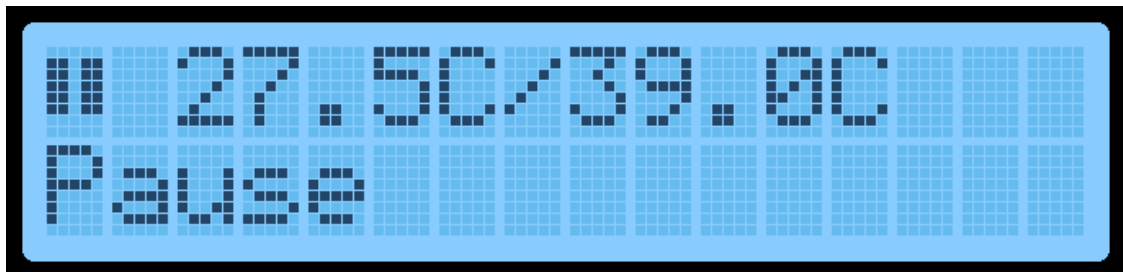
```
█  20.3C/39.0C
Preheat
```

Stop/Standby Mode

Displays the current and target set temperature.

```
█ 27.5C/39.0C
Pause
```

Paused Mode

Displays the current and target set temperature.

```
▶ 21.5C/39.0C
Preheat 01m40
```
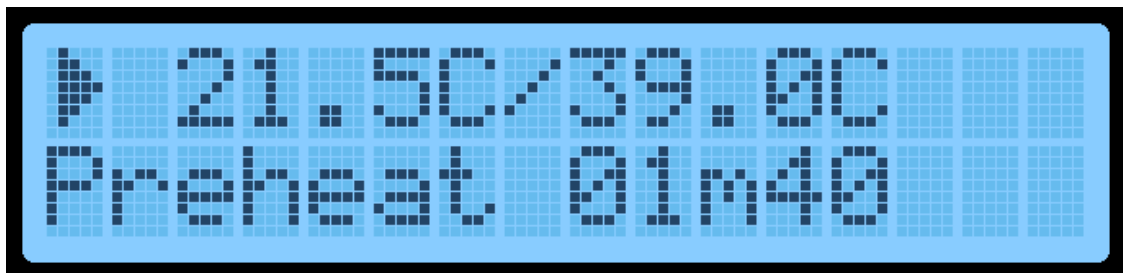
Start Mode

Displays the current and target set temperature, along with how long Preheat has been running for.

Preheat/Mash In Menu Options (HLT)

The following menu options are available in the Preheat/Mash In Controller:

Control Section	Explanation
Play	Begins controlling the HLT using the preset Mash In temperature. Only available when the controller is **Paused** or **Stopped/Standby**.
Pause	Pauses the currently operating sequence. Only available when the controller is **Started**. Can be restarted again by selecting **Start**.
Stop	Stops the currently operating sequence. Only available when the controller is **Started** or **Paused**. All timers and progress will be reset to starting values.
Edit Step	Available when in **Started** or **Paused** mode. Displays a screen which allows the user to edit the target temperature by pressing the **Up** or **Down** keys. Exited by pressing the **OK** button again.
Recipe	Displays the **Recipe** menu and allows the user to edit the Mash In temperature. Available when **Stopped** only.
Settings	Displays the **Settings** menu for the HLT. Available when **Stopped** only.
Cleaning	Displays the **Cleaning** menu, allowing the system to heat to a preset temperature and run for a defined time. Available when **Stopped** only.
Exit	Exits the Menu.

Mash Displays (MT)

Stop/Standby Mode

Displays the current and target set temperature, and the first Mash Step.

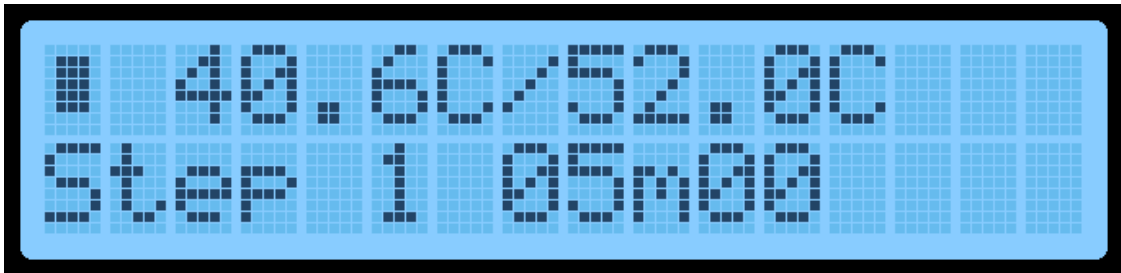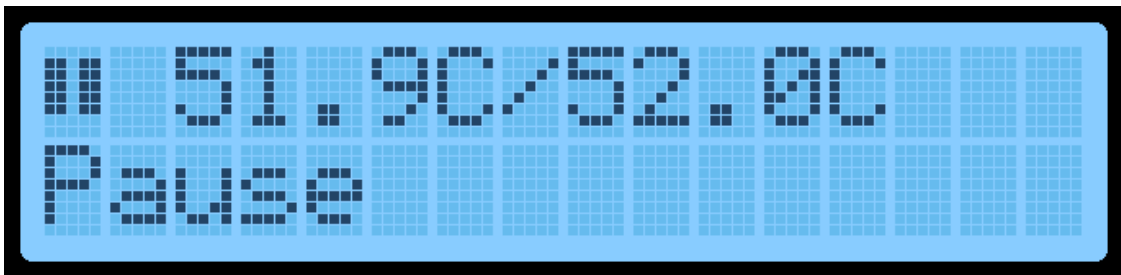***Paused Mode***

Displays the current and target set temperature.

Start Mode

Displays the current and target set temperature, along with remaining time left in the current Step. Alternatively displays the total runtime in this Step.

Mash Menu Options (MT)

The following menu options are available in the Mash Controller:
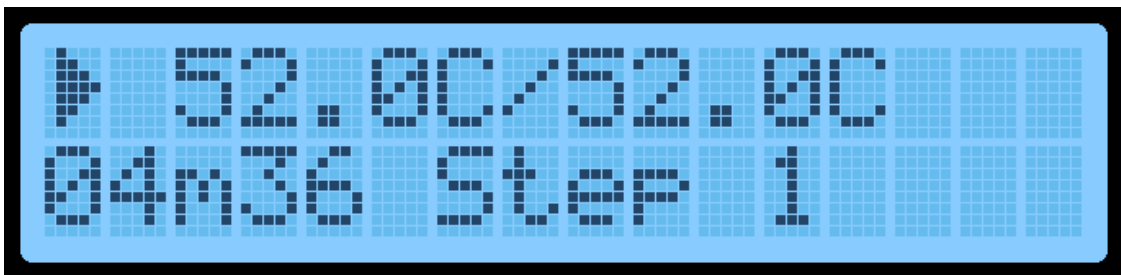
Control Section	Explanation
Play	Begins controlling the MT using the preset Mash Steps (time and temperature). Only available when the controller is **Paused** or **Stopped/Standby**.
Pause	Pauses the currently operating sequence. Only available when the controller is **Started**. Can be restarted again by selecting **Start**.
Stop	Stops the currently operating sequence. Only available when the controller is **Started** or **Paused**. All timers and progress will be reset to starting values.
Edit Step	Available when in **Started** or **Paused** mode. Displays a screen which allows the user to edit the current Step target time and temperature by pressing the **Up** or **Down**, **Left** or **Right** keys. Exited by pressing the **OK** button again.
End Step	Available when in **Started** mode. Completes the current Step (regardless of time remaining/temperature status) and moves to the next Mash Step.
Recipe	Displays the **Recipe** menu and allows the user to edit the Mash Step temperatures and times. Mash Steps set to 0m will end once specified temperature is reached. Set to below 0 to turn the Step off. Available when **Stopped** only.
Settings	Displays the **Settings** menu for the MT. Available when **Stopped** only.
Cleaning	Displays the **Cleaning** menu, allowing the system to heat to a preset temperature and run for a defined time. Available when **Stopped** only.
Exit	Exits the Menu.

Boil Displays (BK)

```
█ 81.2C P30%
Boil 01h10
```
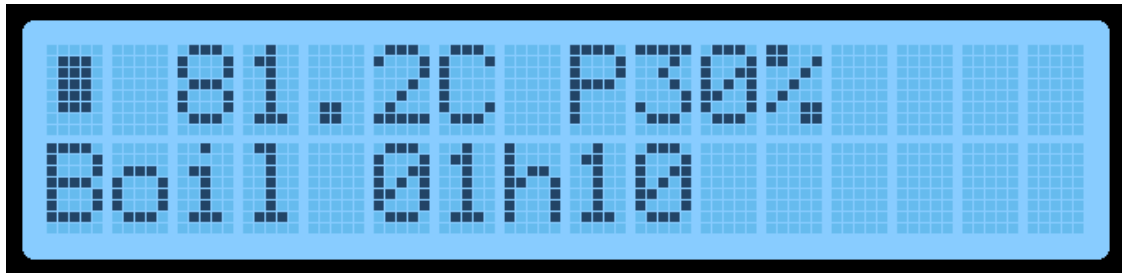
Stop/Standby Mode

Displays the current temperature, the default boil power (30% in this example) and the Boil Time.
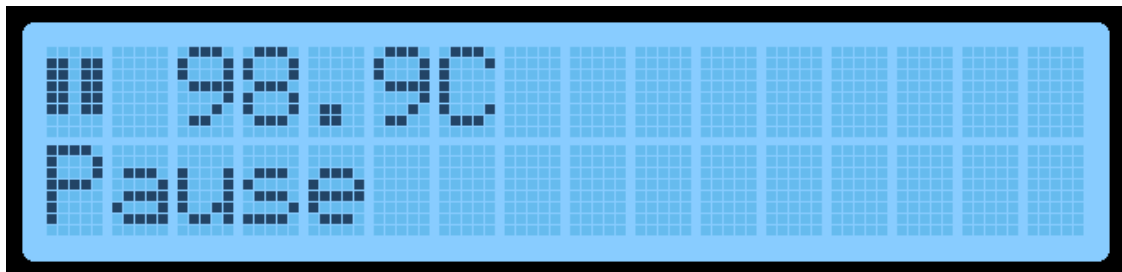
```
❚❚ 98.9C
Pause
```

Paused Mode

Displays the current temperature.

```
▶ 85.6C Auto
05m46 Preheat
```

```
▶ 99.9C P30%
00h54 01h10
```
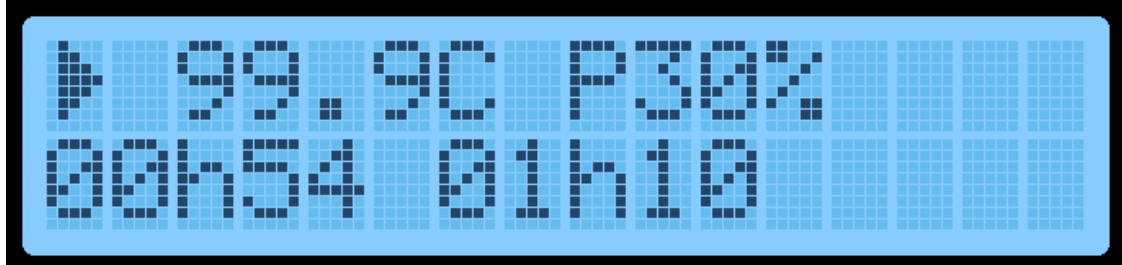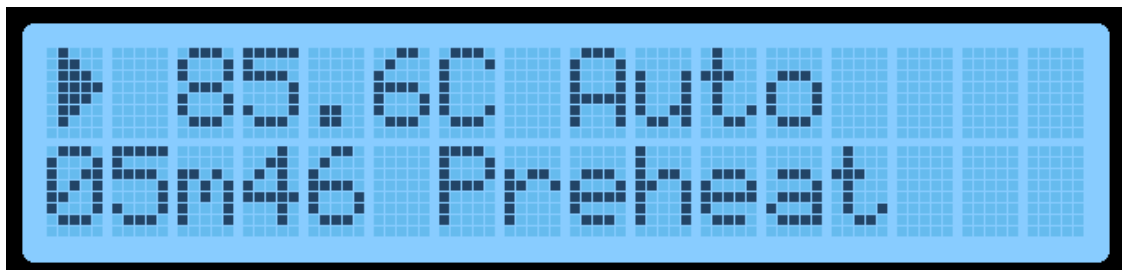
Start Mode

Displays the current temperature, along with Preheat Time or Time Remaining/Total Time depending if the Boil point has been detected or not yet.

Boil Power Control percentage can be viewed and modified using the **Up** or **Down** buttons in 10% steps, after Boil has been detected.

Boil Menu Options (BK)

The following menu options are available in the Boil Controller:

| Control Section	Explanation
Play	Begins controlling the BK and bringing it to boil. Only available when the controller is **Paused** or **Stopped/Standby**.
Pause	Pauses the currently operating sequence. Only available when the controller is **Started**. Can be restarted again by selecting **Start**.
Stop	Stops the currently operating sequence. Only available when the controller is **Started** or **Paused**. All timers and progress will be reset to starting values.
Edit Step	Available when in **Started** or **Paused** mode. Displays a screen which allows the user to edit the target time and Boil Control Power by pressing the **Up** or **Down, Left** or **Right** keys. Exited by pressing the **OK** button again.
Override BD	Available when in **Started** mode and **Boil Detect** has not triggered. Bypasses Boil Detection and tells the controller to begin the Boil Timer and Boil Power Control immediately.
Cool Mode	Switch to the **Cooling Controller** mode for the BK.
Recipe	Displays the **Recipe** menu and allows the user to edit the Boil Time and the Hop Insert times. Hop Inserts set to 0/Srt will trigger as soon as the Boil point has been reached. Available when **Stopped** only.
Settings	Displays the **Settings** menu for the BK. Available when **Stopped** only.
Cleaning	Displays the **Cleaning** menu, allowing the system to heat to a preset temperature and run for a defined time. Available when **Stopped** only.
Exit	Exits the Menu.

Cooling Displays (BK)

Cooling uses the Boil Kettle (BK) temperature probe, and aids with monitoring the wort temperature as you cool it down before pumping out for fermentation. The cooling process is not actively controlled by the 3V3P-HC.
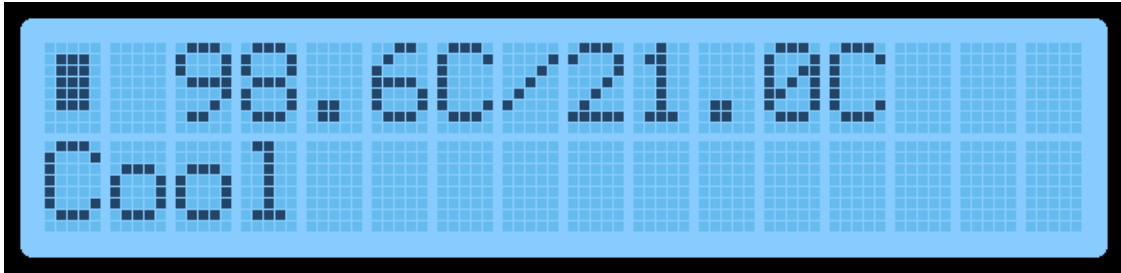
Stop/Standby Mode

Displays the current temperature and the set Cooling Temperature.
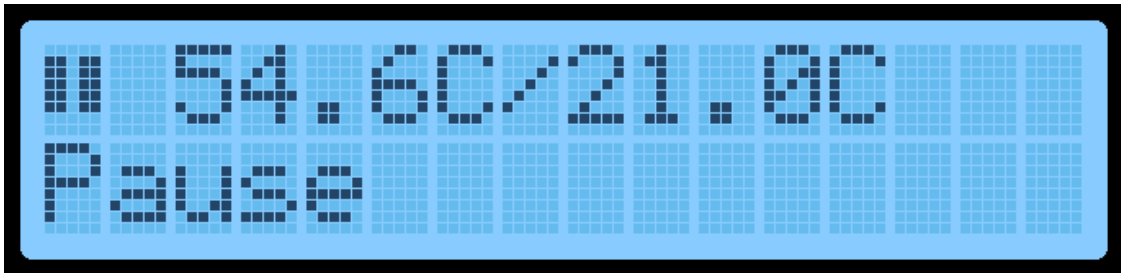
Paused Mode

Displays the current temperature and the set Cooling Temperature.
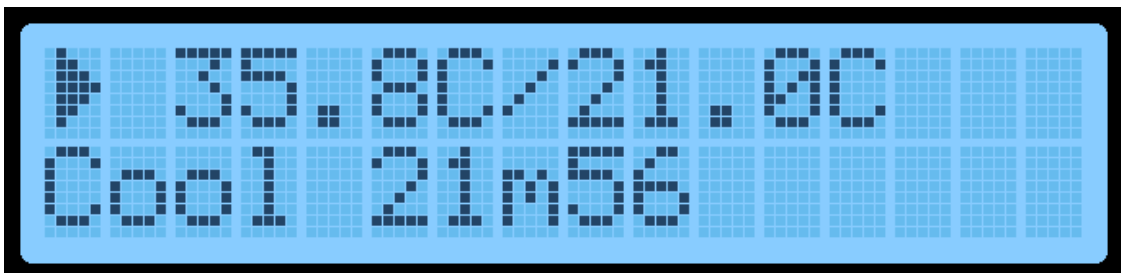
Start Mode

Displays the current temperature and Cooling Temperature, along with Elapsed Time.

Cooling Menu Options (BK)

The following menu options are available in the Cooling Controller:

Control Section	Explanation
Play	Monitors the current temperature versus the Cooling Temperature and displays the elapsed cooling time. Only available when the controller is **Paused** or **Stopped/Standby**.
Pause	Pauses the elapsed timer. Only available when the controller is **Started**. Can be restarted again by selecting **Start**.
Stop	Stops the elapsed Timer and temperature monitoring. Only available when the controller is **Started** or **Paused**. All timers will be reset to starting values.
Edit Step	Available when in **Started** or **Paused** mode. Displays a screen which allows the user to edit the target temperature by pressing the **Up** or **Down** keys. Exited by pressing the **OK** button again.
Boil Mode	Switch to **Boil Controller** mode for the BK.
Recipe	Displays the **Recipe** menu and allows the user to edit the Cooling Temperature. Available when **Stopped** only.
Settings	Displays the **Settings** menu for the BK. Available when **Stopped** only.
Exit	Exits the Menu.

Pump Control

Press the pump buttons to turn Pump 1, 2 and 3 respectively on and off. Each Pump is associated with a Controller – Pump 1 is used with the HLT/Mash In/Preheat Stage, Pump 2 is used with the MT/Mashing Stage, Pump 3 is used with the BK/Boil Stage.

The Pump will automatically go through a Pump Ventilation cycle each time it is turned on – you can set this in the **Settings Menu** for each Controller. The button must be held down for approximately a second before it will activate.

The red indicator will show if the pump is presently turned on or off.

Please note that the pump is manually controlled using this button – it will not generally be switched on or off automatically. The exceptions are Pump 2 will be temporarily turned off during Grain Rest intervals if it is selected as the Mashing Pump.

Alarm Control

The EINBREW 3V3P will sound an alarm in various different scenarios:

- End of Stage (Mash In, Mashing, Boiling, Cooling) on a Controller
- Hop Inserts
- Pre-Boil Alarm (set to 95°C by default)
- Boil Detected (Start of Boiling)
- End of Cleaning Cycle

Whenever an alarm is active, the blue Alarm indicator will flash, an audible buzzer will sound, and it will be indicated on the relevant Controller. For example, at the end of Mash In/Preheat the Controller will display the following text:
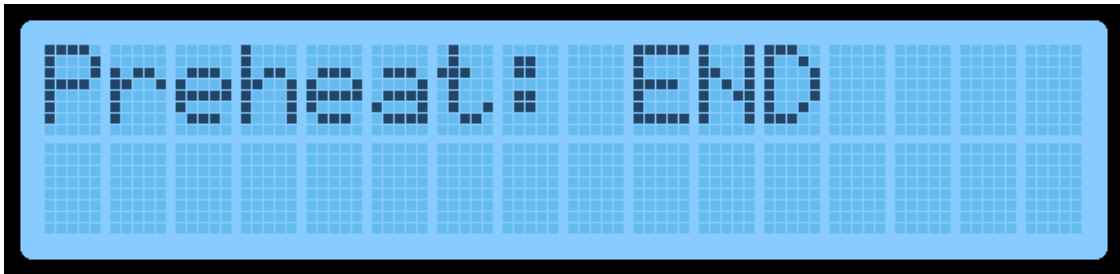
If the controller that is alarming is also not active, it will flash on and off alternately as well to draw attention to it.

To acknowledge an alarm, you should use the **Left** and **Right** buttons to navigate to the display that is alarming, and then press the **Alarm** button. If there are multiple alarms queued, you will need to press the **Alarm** button once for each alarm that is active on that Controller. The Alarm Buzzer will keep sounding until all active alarms have been acknowledged.

SETTINGS MENU

EINBREW 3V3P-HC has a number of configuration options you can customise your system. These settings are not normally changed beyond the initial configuration of EINBREW 3V3P-HC.

Settings are configured on a per-controller basis. To configure settings for a controller, select it using the **Left** and **Right** buttons, ensure that is it in **Stop/Standby** mode, and then press OK to display the Menu. Use the **Up** and **Down** buttons to select **Settings**, and press **OK**.

You can then use the **Up/Down** buttons to navigate between the menu options, press **Left** or **Right** to alter the selected value, or press **OK** to enter a submenu or run a command.

If you do nothing, the menu will automatically time out and EINBREW 3V3P-HC will return to normal operation. For some menu options (particularly Time and Temperature settings) you can press and hold the **Left** or **Right** buttons to move the selected value to the minimum or maximum value respectively.

Additional configuration options are also available in the **Maintenance Menu** section. This provides access to settings that do not normally need to be changed.

Each menu also has **Reset Settings** (reset all Settings and Maintenance Settings for all Controllers, to Factory Default), **Save** (exit settings and save changes) and **Exit** (exit settings without saving changes) options.

HLT/Mash In/Preheat Controller Settings

Menu Option	Default	Min	Max	Explanation
Temp Units Temperature Units	Celsius	N/A	N/A	Toggle the Temperature Units between Celsius and Fahrenheit. All displayed values and settings will be converted accordingly after switching.
KeepWarm End of Stage Keep Warm	10 min	0 min	60 min	Length of time to maintain vessel temperature for after a Controller has ended its control sequence.
P1 MaxTemp Maximum Pump 1 Temp.	95° (C)	0° (C)	105° (C)	Set the Maximum Pump 1 Temperature. Pump will turn off above this setting. Disabled by default; can be enabled in **Maintenance Menu**.
HLT Offset HLT Probe Offset	0.0° (C)	-2.0° (C)	2.0° (C)	If you would like to alter the temperature reading to match another probe you are using for reference, you can utilise the Temperature Probe Offset setting to do so. This should not normally be required.

MT/Mashing Controller Settings

Menu Option	Default	Min	Max	Explanation
Temp Units Temperature Units	Celsius	N/A	N/A	Toggle the Temperature Units between Celsius and Fahrenheit. All displayed values and settings will be converted accordingly after switching.
KeepWarm End of Stage Keep Warm	10 min	0 min	60 min	Length of time to maintain vessel temperature for after a Controller has ended its control sequence.
P2 MaxTemp Maximum Pump 2 Temp.	95° (C)	0° (C)	105° (C)	Set the Maximum Pump 2 Temperature. Pump will turn off above this setting. Disabled by default; can be enabled in **Maintenance Menu**.
Use GrainR Enable Grain Rests	Yes	N/A	N/A	Enable the Grain Rests during Mashing (pump is automatically turned off to let the wort run through the grain and prevent grain compaction)
GrainR Len Grain Rest Length	1 min	1 min	10 min	Define the length of the Grain Rests that are carried out during Mashing, to allow wort to circulate down through the grain. During this rest, pump and heating will be automatically turned off.
GrainR Prd Grain Rest Period	10 min	1 min	20 min	Define how often a Grain Rest is triggered, e.g. 10 minutes = a Grain Rest every 10 minutes during Mashing Stage.
Mash Offset MT Probe Offset	0.0° (C)	-2.0° (C)	2.0° (C)	If you would like to alter the temperature reading to match another probe you are using for reference, you can utilise the Temperature Probe Offset setting to do so. This should not normally be required.

BK/Boiling & Cooling Controller Settings

Menu Option	Default	Min	Max	Explanation
Temp Units Temperature Units	Celsius	N/A	N/A	Toggle the Temperature Units between Celsius and Fahrenheit. All displayed values and settings will be converted accordingly after switching.
KeepWarm End of Stage Keep Warm	10 min	0 min	60 min	Length of time to maintain vessel temperature for after a Controller has ended its control sequence.
P3 MaxTemp Maximum Pump 3 Temp.	95° (C)	0° (C)	105° (C)	Set the Maximum Pump 3 Temperature. Pump will turn off above this setting. Disabled by default; can be enabled in **Maintenance Menu**.
Boil Alm Boil Alarm Level	80° (C)	110° (C	95° ©	Set the Temperature Level that the system will alarm on the way to the Boiling Point. This allows you to prepare any necessary Hops for insertion, or observe the wort as it comes to the boil to ensure that it isn't too vigorous.
BK Offset BK Probe Offset	0.0° (C)	-2.0° (C)	2.0° (C)	If you would like to alter the temperature reading to match another probe you are using for reference, you can utilise the Temperature Probe Offset setting to do so. This should not normally be required.

PREPARING FOR BREWING

EINBREW 3V3P-HC lets you focus on what you do best – brewing beer! It'll take care of the temperature control and timing on your bespoke 3-vessel system, along with all the electrical control. All you have to do is enter your recipe!

Before brewing, please ensure that you've sterilised/sanitised all your equipment – this will help prevent infection.

This is also a good point to ensure that you've connected everything you need to EINBREW 3V3P-HC, and that all electrical connectors are firmly seated. Ensure that the 3 Temperature Probes are connected and that their readings appear to be correct.

For demonstration purposes we'll go through the process of entering and brewing a single recipe – although of course in practise you can run the HLT/MT/BK independently, and thus could be brewing several recipes at once!

Entering your Recipe

The last step before you start brewing is to enter your Recipe into EINBREW 3V3P-HC! We'll take an example recipe below with timings and temperature for each stage, and show you how to enter it.

Stage	Temperature	Time
HLT Controller	39°C	N/A
Hot Liquor Tun/Preheat/Mash In Stage		
MT Controller		
Mash Tun/Mashing Stage		
Mash Step 1	52°C	5 minutes
Mash Step 2	62°C	30 minutes
Mash Step 3	72°C	20 minutes
Mash Step 4	78°C	15 minutes
BK Controller		
Boil Kettle/Boiling Stage	99°C	70 minutes
Hop Insertion 1	-	0 minutes
Hop Insertion 2	-	30 minutes
Hop Insertion 3	-	70 minutes
Cooling	21°C	-

As we can see, this recipe has 4 mash stages and 3 hop insertions. Up to 9 mashing stages and 9 hop insertions are supported, although of course you can always manually control the system to do additional steps if needed.

Ensure that the green **Active** indicator is not lit on each Controller and that they're in **Standby/Stop** mode before entering the recipe settings – if you've just turned on the system you'll not have to worry about doing anything. This means that none of the Controllers have started yet.

Setting Preheat/Mash In Stage

Use the Left and Right buttons to select the **HLT** LCD Display, which will be highlighted by the brightness of the selected display. Ensure that the green Active indicator above the **HLT** section is not lit, signifying that the Preheat/Mash In Stage is not running.

Press **OK** to enter the Menu, then use the **Up** and **Down** buttons to select the **Recipe** menu option**.** Select the **MashIn Temp** option then use the **Left**/**Right** buttons to adjust the temperature to 39°C. Select **Save** and press **OK** to exit and save changes.
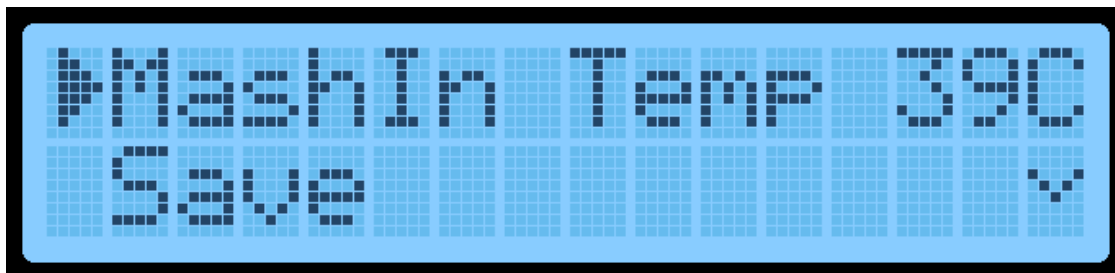
Setting Mashing Stage

Use the Left and Right buttons to select the **MT** LCD Display, which will be highlighted by the brightness of the selected display. Ensure that the green Active indicator above the **MT** section is not lit, signifying that the Mashing Stage is not running.

Press **OK** to enter the Menu, then use the **Up** and **Down** buttons to select the **Recipe** menu option**.** Select the **S1 Temp** (Mash Step 1) option then use the **Left**/**Right** buttons to adjust the temperature to 52°C. Select the **S1 Time** option then use the **Left**/**Right** buttons to adjust the time to 5m. Proceed to do the same for the options for Mash Step 2, 3 and 4 (**S2/3/4**).
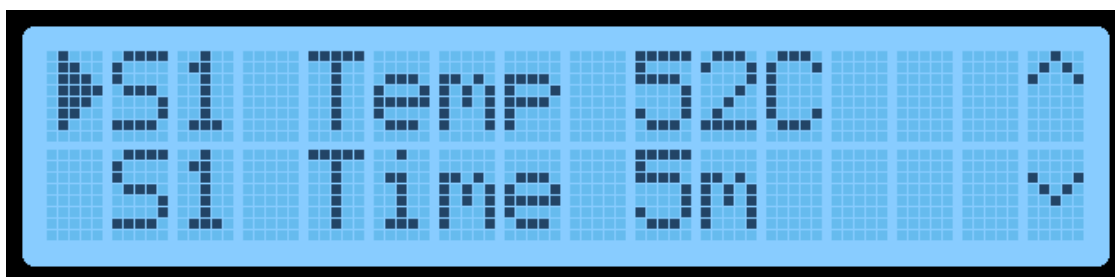
When you move to Mash Step 5, since we aren't actually utilising this Step, we'll do something slightly different. Select the **S5 Time** then press and hold the **Left** button for about a second – you'll hear a short beep and the displayed value will be set to **off** where it previously indicated the time. This signifies that Mash Step 5 will not be used. Do the same for Mash Step 6-9.

You can use as many or as few Mash Steps as you like up to the limit of 9 – just set their Time to **off** to disable them, or set a time of 0 minutes or greater to enable.

Select **Save** and press **OK** to exit and save changes.

Setting Boiling Stage/Automatic Boil Detect

Use the Left and Right buttons to select the **BK** LCD Display, which will be highlighted by the brightness of the selected display. Ensure that the green Active indicator above the **BK** section is not lit, signifying that the Boiling/Cooling Stage is not running. The controller should display that it is in the Boil mode – if it isn't, press **OK** to enter the Menu, then select the option to switch to **Boil Mode**.

Press **OK** to enter the Menu, then use the **Up** and **Down** buttons to select the **Recipe** menu option**.** Select the **Boil Time** option then use the **Left/Right** buttons to adjust the time to 70m. Select the **Hop1 Time** option then use the **Left** button to adjust the time to **Srt** (Start – this means the Hop Insert will trigger immediately after boil commences. Move the displayed value to below 0m to set this). Proceed to set the time Hop Inserts 2 and 3 (**Hop2/Hop3**).
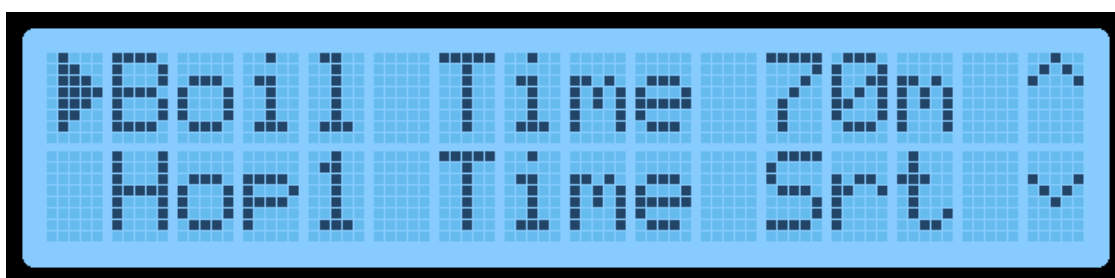
Select **Save** and press **OK** to exit and save changes.

The 3V3P-HC uses a unique Boil Detection feature to determine when the wort has reached its boiling point, so you don't need to set a boil temperature! It'll work it out for you. It'll also alarm at the Boil Alarm Level you've configured (95°C by default) to give you a chance to prepare your hops and monitor the start of the boil.

If you do have an issue with the boil not being detected – or detected too late for your requirements – you can bypass Boil Detection by pressing **OK** to go into the runtime menu and selecting the **Override BD** menu option. This will instruct the system to automatically go into Boil mode and let you control the Boil Control Power directly.

Setting Cooling Stage

Use the Left and Right buttons to select the **BK** LCD Display, which will be highlighted by the brightness of the selected display. Ensure that the green Active indicator above the **BK** section is not lit, signifying that the Boiling/Cooling Stage is not running. The controller should display that it is in the Cool mode – if it isn't, press **OK** to enter the Menu, then select the option to switch to **Cool Mode**.

Press **OK** to enter the Menu, then use the **Up** and **Down** buttons to select the **Recipe** menu option**.** Select the **Cool Temp** option then use the **Left/Right** buttons to adjust the temperature to 21C.
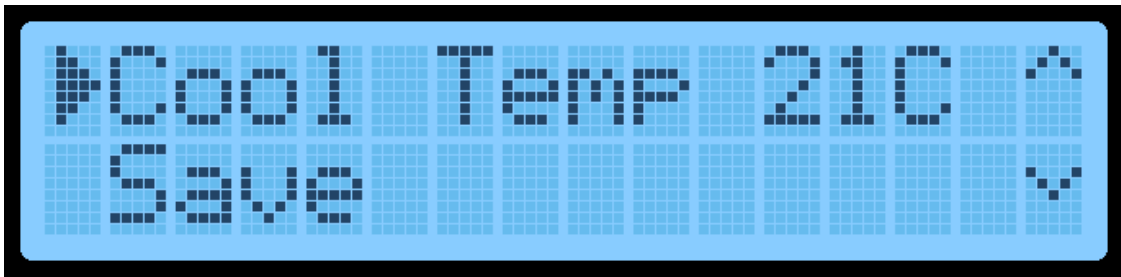
Select **Save** and press **OK** to exit and save changes.

<u>You will need a external cooler or heat exchanger in a pump circuit for cooling to work.</u> When you enter the cooling stage, turn on the cooler or start the coolant flow and use an attached Pump (e.g. attach to P3) to run the cooler until the required temperature is reached, at which point the system will alarm to notify you. Alternatively, just use it as a convenient temperature monitor and run cooling entirely independently.

BREWING WORT

For demonstration purposes we'll go through the process of entering and brewing a single recipe – although of course in practise you can run the HLT/MT/BK independently, and thus could be brewing several recipes at once!

HLT/Pre-Heat/Mashing In Stage

Now that you've entered your recipe, you're ready to start! Add your water to the Hot Liquor Tank as necessary for your system, select the **HLT** display, open the menu and select **Start**.

The heater will automatically operate until the HLT temperature matches the one you've set. If you need to, you can enter the runtime menu by pressing **OK** and select the **Edit Step** option to change the set temperature dynamically.

IMPORTANT: You must manually start the Pump(s) during brewing. This is especially important if you are using a RIMS system, as it can be dangerous to operate the heater without the pump and water circulation.

Once the temperature has been reached, the **HLT** LCD display will indicate 'END', and the alarm will sound. Press the **Alarm** button to silence the alarm.

You can now pump water from the **HLT** to **MT** and add your grain to the Mash Tun.

Mashing Stage

Select the **MT** display, open the menu and select **Start**. EINBREW 3V3P-HC will automatically run through the Mashing Steps that you've setup previously. You'll see that the system will preheat up to the target set temperature for each step, and once that's reached the timer will start counting down.

The LCD display will show you the current/set temperature and remaining/total time along with the Mash Step (Step 1 to Step 9). If you need to, you can enter the runtime menu by pressing **OK** and select the **Edit Step** option to change the set time/temperature for the Step dynamically.

Once all the steps that you've setup have been completed, the **MT** LCD display will indicate 'END' and the alarm will sound. Press the **Alarm** button to silence the alarm.

The grain can now be removed from the Mash Tun, and you can pump the wort into the Boil Kettle.

Boiling Stage / Automatic Boil Detect

Select the **BK** display. The controller should display that it is in the Boil mode – if it isn't, press **OK** to enter the Menu, then select the option to switch to **Boil Mode**. Open the menu and select **Start**. EINBREW 3V3P-HC will automatically start heating the wort to the boiling point and 'Auto' will be displayed in the LCD Display area; and then once boil has been reached the timer will appear and start counting down.

Our unique Boil Detect feature will automatically work out when the boil has been reached by examining the temperature profile of the wort, and sound an alarm to let you know. It'll also alarm at the Boil Alarm Level you've configured (95°C by default) to give you a chance to prepare your hops and monitor the start of the boil.

If you do have an issue with the boil not being detected – or detected too late for your requirements – you can bypass Boil Detection by pressing **OK** to go into the runtime menu and selecting the **Override BD** menu option. This will instruct the system to automatically go into Boil mode and let you control the Boil Control Power directly.

Once Boil has been detected you can use the Boil Temperature Up/Down arrows to change the Boil Control Power dynamically – you'll need to experiment to see what's best for your system, depending on how strong a boil you want, from vigorous to gentle simmer! We default to 30% to start with to reduce the risk of the wort boiling or frothing over, and you can modify that in 10% steps. When you've reached a level you're happy with, you can leave it where it is and the system will automatically maintain that power input level.

If you've selected to have Hop Insertions as per our example, then when they're triggered the LCD display will show the hops to insert – e.g. Hop1 will be shown right at the start. When this is displayed, the Alarm will also sound. Press the **Alarm** button twice to acknowledge that you've inserted the hops and are aware of the start of the boil, and the display will return to normal.

If you've configured multiple hops to be inserted at the same time, or if you missed an earlier alarm and more have triggered, you'll need to press the button once to acknowledge each insertion in turn.

Once the boil timer has completed, the LCD display will indicate 'END' and the alarm will sound. Press the **Alarm** button to silence the alarm. The heater will be automatically turned off at the end of the Boil stage.

Cooling Stage

Select the **BK** display. The controller should display that it is in the Cooling mode – if it isn't, press **OK** to enter the Menu, then select the option to switch to **Cool Mode**. Open the menu and select **Start**.

EINBREW 3V3P-HC will monitor until the temperature you've setup previously has been reached, whilst you engage your active cooling system. When the desired temperature is met, and alarm will sound and you can shut down your cooling system and transfer the wort to a fermenter. If you're using any pumps you'll need to manually shut those off.

Brew Complete!

You've now finished your first batch of wort with EINBREW 3V3P-HC! You can now switch it off, or if you have e.g. a controlled pump setup to help pump out to fermenters, manually use that to help you finish it off.

In practise you may be running back-to-back brews in each vessel, in which case you can simply deal with each controller independently to achieve what you need – no need to run through sequentially.

Cleaning

One last thing to take care of - cleaning! It's important to clean immediately after brewing, as leaving it as-is will encourage growth of mould and other unpleasant effects.

Optionally you can use the Cleaning Mode in the menu for each Controller to heat water in the vessels for sanitisation purposes – this can also be done independently. By default, this will preheat to 80˚C and run for 10 minutes. You may prefer to use a sanitising agent instead, or sterilise with both heated water and chemically.

TROUBLESHOOTING

- Controller is beeping
  - It is alarming because a control stage has ended in the process (e.g. Mash In, Mashing, Boiling) and human intervention is required to proceed. Alternatively, this may be informational, e.g. reaching the pre-set Boil Alarm Level, or a Fault may have occurred. Select the relevant controller that is displaying the Alarm, if not already selected, and press the Alarm button to cancel the alarm. If there are multiple alarms, you will need to press the Alarm button to cancel each one in turn.
- Turning the Control Panel On/Off
  - Use the dedicated on/off switch to turn the Control Panel On/Off.
- Control Panel does not turn on
  - Please ensure that the power inlet cable is inserted securely, and the supplying power socket is turned on.
  - If using an **RCD/GFCI/RCBO device** as recommended, please ensure that it is activated and not in TEST mode. It will not provide power in this state.
  - Please check that the fuses (accessible via the external fuse holders) have not blown. Ensure that the system is disconnected from mains electricity whilst removing or replacing the fuses.
- Brew taking a long time to reach Set Temperatures
  - It can be normal for it to take a reasonable length of time to preheat to temperatures. How long will depend on your system – how much water, and how powerful the heating elements are – it can be typical to find an increase in temperature of 1°C every 1 minute. This will differ depending on the ambient temperature, and if you have the lid on the vessels being heated on or off. Also, the higher the temperature, the more heat losses will occur – it will be slower to transition from 90°C to 100°C, than 20°C to 30°C. Adding insulation to the vessels may help, or adding a more powerful heating element.
  - When cooling, for example using cold water, the temperature drop will typically be very quick at the start and become progressively slower as your wort temperature nears the temperature of your cooling medium. This means that it may take a long time to achieve your required cooling temperature – or if it's set too low and your cooling medium is too hot, you may never reach it. If cooling has ceased before your set point, you may need to e.g. use ice baths or similar methods to cool further, or consider an active cooling system such as a glycol chiller.
- The Brew Temperature changes a lot when trying to maintain temperature
  - It is normal that there will be some variation in temperature. Typically, you will see a small overshoot when trying to obtain a particular set temperature, and may see some oscillations below and/or above the set temperature when controlling. This is to be expected, and totally normal. How much this occurs is entirely down to your system,

and will depend on things like volume of water, element size, and vessel insulation – and also the set temperature, as you will have bigger ambient losses at higher temperatures.

- o If you are seeing larger swings than you would like, there are some things you can do to improve system stability.
    - ▪ Ensure that you keep the lid on at all times. Continually removing and replacing the lid will cause fluctuations in temperature.
    - ▪ Add insulation to the vessel. This will help to remove ambient losses and make things more stable.
    - ▪ Ensure that you are using a recirculation pump with good flow to ensure that the water is well-mixed. This will help the control system do its job.
    - ▪ Consider if where you have positioned the temperature probe is appropriate – for example, if it is very near the heating element, it will read an artificially high temperature when the heater is running.
    - ▪ As Grain Rests in Mashing turn off the pump, there will be temperature fluctuations whilst the pump is off, and immediately after turning it back on, as the system temperature equalises again.
- Error Indicators
    - o If you see an unusual temperature reading, this may be due to an incorrectly placed, incorrectly connected or damaged temperature probe.
    - o If the LCD display is showing 'Err', this means there is a problem with the temperature probe. Please ensure that it is connected correctly. It may also provide an error code – e.g. 'Err1'. Please communicate this to Support if you cannot resolve yourself. If a momentary error occurs but it recovers, this may only be displayed briefly.
    - o If the fault does not go away on its own, try resetting the power on the system to see if that clears it.
    - o Please note any information and communicate it to Support if necessary. For example, did it occur at the same time as a Pump or Heater was activated, or any other potentially relevant data.
- Pump does not operate
    - o This may be due to the pump inlet getting clogged by debris. Please check that the filter for the inlet is not covered and remove any debris.
    - o As the Pump is manually operated, please ensure that you have turned it on – the relevant Pump indicator light will be lit when it is active. It will also automatically go through a Pump Ventilation sequence when first turned on, which is normal.
    - o Ensure that you are operating the correct pump, and that any relevant valves are open.
- Power Failure during Brewing Process
    - o If a power failure occurs, please switch off EINBREW 3V3P-HC at the plug.
    - o Once power has been restored, turn on EINBREW 3V3P-HC again. Depending on the duration of the outage, you may be able to pick off close to where you left off for each Controller.

- Move to the relevant Brewing Stage (if you were using the Mashing Controller) and confirm that the time/temperatures are correct. Depending on when the power cut occurred, you may e.g. need to use the End Step option to skip to the appropriate Mashing Step to start with. You should also reduce the time for that stage to reflect the time remaining at that temperature level. Once you're ready, press the **Start** button to commence.
  - If the outage has been for a substantial period of time, you may need to adjust your recipe accordingly to compensate, or unfortunately dispose of the batch of wort.
- Boil Temperature is detected early by Boil Detect
  - Please ensure that you don't do anything to cause a temperature disturbance coming up to the boil, e.g. lift the lid when you're close to the boiling point – this can potentially cause a false positive detection due to the temperature profile change.
  - Increase the Boil Control Power to 100% and manually increase the temperature to obtain the boil, then manually throttle back the power once it has been achieved to modify the boil as required.
  - If the problem persists, please note any information and communicate it to Support if necessary.
- System continually resets itself
  - Ensure that the power lead is firmly plugged in. Consider replacing the main power lead with an alternative, to ensure that it is not faulty.
  - If you are having regular power fluctuations at your premises, this may be causing resets due to low supply voltage. Please contact your electricity company to report the fault.
  - Check to see if the reset occurs at particular times, e.g. when you are turning a Pump on/off, or a heater on/off, or something else.
  - If the problem persists, please note any information and communicate it to Support if necessary.
- I've changed a menu parameter and the system isn't working as well as it did anymore!
  - You may have inadvertently made a change that has caused something to go wrong. To correct this, you can go into the **Settings Menu** and select the Reset **Settings** option. Select it, then confirm the choice. All options (including recipe settings) will be reset to factory defaults on all Controllers, not just the currently active one.
  - You can also reset your parameters and recipe settings by holding down the **Left and Right buttons** when powering up the system – you will hear 2 short beeps to acknowledge the reset, then the rest of the start-up sequence will continue as normal.
- I try to start a controller but another vessel starts heating up!
  - Ensure that you have the correct temperature probe in the correct vessel.
  - Confirm that you have selected the LCD Display corresponding to the vessel you're trying to control – and not another one by accident.
- I want to change a recipe/setting value, but can't find the option in the menu.

o   Ensure that you have the correct Controller display selected – some properties are only accessible via the relevant Controller.

o   You may need to start the system in Maintenance Mode by holding down the **Left and Emergency Stop** buttons when powering up the system – you will hear 3 short beeps to acknowledge the command, then the rest of the start-up sequence will continue as normal.

MAINTENANCE MENU

The Maintenance Menu allows you to change a number of options that do not normally require adjustment, and are available for testing purposes only. Adjusting these options is at your own risk, and we generally only advise adjusting them on the advice of Support.

For these options to be displayed, power down your EINBREW 3V3P-HC system. Press and hold the **Left** and **Emergency Stop** buttons, then power up the system again. You will hear 3 short beeps almost immediately, signifying success; the normal power-up sequence with a long beep will then continue. You can release the two buttons as soon as you hear the 3 short beeps.

Settings are configured on a per-controller basis. To configure settings for a controller, select it using the **Left** and **Right** buttons, ensure that is it in **Stop/Standby** mode, and then press OK to display the Menu. Use the **Up** and **Down** buttons to select **Settings**, and press **OK**.

You can then use the **Up/Down** buttons to navigate between the menu options, press **Left** or **Right** to alter the selected value, or press **OK** to enter a submenu or run a command.

If you do nothing, the menu will automatically time out and EINBREW 3V3P-HC will return to normal operation. For some menu options (particularly Time and Temperature settings) you can press and hold the **Left** or **Right** buttons to move the selected value to the minimum or maximum value respectively.

HLT/Mash In/Preheat Controller Maintenance Settings

Menu Option	Default	Min	Max	Explanation
ActBright Active Display Brightness	10	5	15	Sets the brightness of the LCD display when the Controller is selected.
InBright Inactive Display Brightness	0	0	5	Sets the brightness of the LCD display when the Controller is not selected.
Temp DB Temperature Dead Band	0.0° (C)	0.0° (C)	2.0° (C)	This defines the dead band applied to the Set Temperature. This is the amount of variation allowed in the Measured Temperature from the Set Temperature, before heating is applied to correct any deviations.
P1 UseVent Enable Pump 1 Ventilation	Yes	N/A	N/A	Enable the system to automatically turn Pump 1 on and off in bursts when first activated, in order to vent any air from the Pump.
P1 Vent On Pump 1 Ventilation On Time	5s	1s	10s	Set the length of the Pump 1 Ventilation On Cycle in seconds.
P1 Vent Off Pump 1 Ventilation Off Time	2s	1s	10s	Set the length of the Pump 1 Ventilation Off Cycle in seconds.
P1 Vent Cyc Pump 1 Ventilation Cycles	3x	1x	5x	Set the number of Pump 1 Ventilation Cycles that are carried out when Pump 1 is activated, to prevent trapped air.
P1MaxTempOn Enable Maximum Pump 1 Temp.	No	N/A	N/A	Enable the system to automatically turn off Pump 1 once the measured temperature exceeds the set value. This is typically used to prevent pumping when boiling, or because your pump has a set temperature limit (e.g. 60°, 85°, or 95° to prevent cavitation during boil).
MaxTemp Maximum Heater Temperature	110° (C)	0° (C)	110° (C)	Temperature value which when exceeded the Heater will be deactivated, when Maximum Heater Temperature is active. This is primarily to react in case of Boil Dry situations.
MaxTempOn Enable Maximum Heater Temperature	Yes	N/A	N/A	Enable/Disable Maximum Temperature for the Heater. When enabled, the heater will be deactivated if the temperature exceeds the defined value.

MT/Mashing Controller Maintenance Settings

| Menu Option	Default	Min	Max	Explanation
ActBright Active Display Brightness	10	5	15	Sets the brightness of the LCD display when the Controller is selected.
InBright Inactive Display Brightness	0	0	5	Sets the brightness of the LCD display when the Controller is not selected.
Temp DB Temperature Dead Band	0.0° (C)	0.0° (C)	2.0° (C)	This defines the dead band applied to the Set Temperature. This is the amount of variation allowed in the Measured Temperature from the Set Temperature, before heating is applied to correct any deviations.
P1 UseVent Enable Pump 2 Ventilation	Yes	N/A	N/A	Enable the system to automatically turn Pump 2 on and off in bursts when first activated, in order to vent any air from the Pump.
P2 Vent On Pump 2 Ventilation On Time	5s	1s	10s	Set the length of the Pump 2 Ventilation On Cycle in seconds.
P2 Vent Off Pump 2 Ventilation Off Time	2s	1s	10s	Set the length of the Pump 2 Ventilation Off Cycle in seconds.
P2 Vent Cyc Pump 2 Ventilation Cycles	3x	1x	5x	Set the number of Pump 2 Ventilation Cycles that are carried out when Pump 2 is activated, to prevent trapped air.
P2MaxTempOn Enable Maximum Pump 2 Temp.	No	N/A	N/A	Enable the system to automatically turn off Pump 2 once the measured temperature exceeds the set value. This is typically used to prevent pumping when boiling, or because your pump has a set temperature limit (e.g. 60°, 85°, or 95° to prevent cavitation during boil).
Use GRI Enable Grain Rest Inhibition	Yes	N/A	N/A	**NOT RECOMMENDED TO MODIFY** Enable Grain Rest Inhibition when approaching the Set Point in Mashing Stage. This ensures that a Grain Rest will not occur when approaching the Set Point, ensuring greater control accuracy.
MaxTemp Maximum Heater Temperature	110° (C)	0° (C)	110° (C)	Temperature value which when exceeded the Heater will be deactivated, when Maximum Heater Temperature is active. This is primarily to react in case of Boil Dry situations.
MaxTempOn Enable Maximum Heater Temperature	Yes	N/A	N/A	Enable/Disable Maximum Temperature for the Heater. When enabled, the heater will be deactivated if the temperature exceeds the defined value.

BK/Boiling & Cooling Controller Maintenance Settings

Menu Option	Default	Min	Max	Explanation
ActBright Active Display Brightness	10	5	15	Sets the brightness of the LCD display when the Controller is selected.
InBright Inactive Display Brightness	0	0	5	Sets the brightness of the LCD display when the Controller is not selected.
Temp DB Temperature Dead Band	0.0° (C)	0.0° (C)	2.0° (C)	This defines the dead band applied to the Set Temperature. This is the amount of variation allowed in the Measured Temperature from the Set Temperature, before heating is applied to correct any deviations.
P3 UseVent Enable Pump 3 Ventilation	Yes	N/A	N/A	Enable the system to automatically turn Pump 3 on and off in bursts when first activated, in order to vent any air from the Pump.
P3 Vent On Pump 3 Ventilation On Time	5s	1s	10s	Set the length of the Pump 3 Ventilation On Cycle in seconds.
P3 Vent Off Pump 3 Ventilation Off Time	2s	1s	10s	Set the length of the Pump 3 Ventilation Off Cycle in seconds.
P3 Vent Cyc Pump 3 Ventilation Cycles	3x	1x	5x	Set the number of Pump 3 Ventilation Cycles that are carried out when Pump 3 is activated, to prevent trapped air.
P3MaxTempOn Enable Maximum Pump 3 Temp.	No	N/A	N/A	Enable the system to automatically turn off Pump 3 once the measured temperature exceeds the set value. This is typically used to prevent pumping when boiling, or because your pump has a set temperature limit (e.g. 60°, 85°, or 95° to prevent cavitation during boil).
MaxTemp Maximum Heater Temperature	110° (C)	0° (C)	110° (C)	Temperature value which when exceeded the Heater will be deactivated, when Maximum Heater Temperature is active. This is primarily to react in case of Boil Dry situations.
MaxTempOn Enable Maximum Heater Temperature	Yes	N/A	N/A	Enable/Disable Maximum Temperature for the Heater. When enabled, the heater will be deactivated if the temperature exceeds the defined value.
Boil LBS Boil Level Buffer Size	10x	4x	30x	**NOT RECOMMENDED TO MODIFY** The gap between samples carried out for Boil Detection.
Boil LSP Boil Level Sample Period	4x	1x	30x	**NOT RECOMMENDED TO MODIFY** The number of samples carried out for Boil Detection.

Menu Option	Default	Min	Max	Explanation
BD Temp Boil Detection Threshold	97° (C)	80° (C)	105° (C)	**NOT RECOMMENDED TO MODIFY** Automatic Boil Detection will commence when the temperature measured in the Boil Kettle meets or exceeds this value during the Boil Stage.
BD Tol Boil Detec sction Tolerance	0.0	0.0	0.5	**NOT RECOMMENDED TO MODIFY** Increases the allowable tolerance for triggering the boiling point detection. Increasing this value may help if your system is unable to detect boil when it occurs, although too high a value will lead to false positive detections.

PT100 TEMPERATURE SENSORS

Wiring of 3 wire PT100 probe to the Redel-4 plug. Should you wish to use your own PT100 sensors, we can supply you with plugs to solder the probe leads to.

PT100 3-wire probe to REDEL-4 plug connection, rear view of plug.
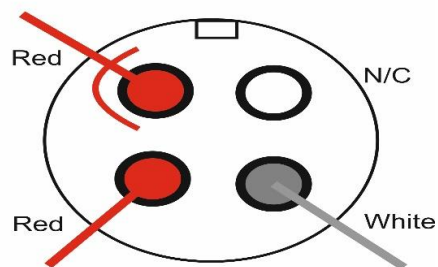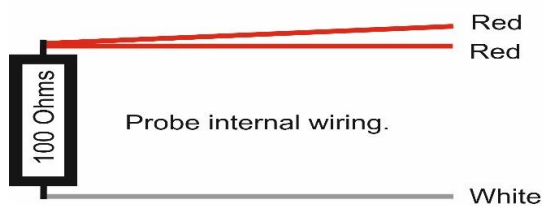
WARRANTY

All EINBREW 3V3P-HC products carry a 1 year back to base warranty covering manufacturing defects and component failures. The product has no user-serviceable parts except where otherwise stated, and must never be opened or disassembled, and as such should only be repaired by skilled and authorised personnel. Failure to comply could result in unsafe operation and should not be attempted under any circumstances. Contact below for a list of approved service agents. Note: Any unauthorised repair or adjustment will automatically render the warranty invalid.

The only user serviceable parts are the externally mounted electrical fuses. These can be replaced as needed. Please ensure that the system is completely disconnected from the electrical supply before attempting to remove or replace these fuses.

MAINTENANCE

Prior to each use of the unit, check the casing for signs of damage or misuse. Check the leads for signs of damage, ensure the outer insulation is not broken. If the unit is damaged it must NOT be used and should be returned to the supplier. The unit must not be used for any purpose than for that recommended by the manufacturer. The unit must not be submerged or exposed to liquid.

RETURNING EINBREW 3V3P-HC FOR REPAIR

If returning a product to the manufacturer for repair, it should be sent freight pre-paid to the appropriate address. A copy of the Invoice and of the packing note should be sent simultaneously by airmail to expedite clearance through Customs, if relevant. A repair estimate showing freight return and other charges will be submitted to the sender, if required and applicable, before work on the device commences.

Manufacturer Address for Repair and Spare Parts:

EINBREW
BT37 0AW - United Kingdom

Or an approved repair company.

WEEE REGULATIONS

For EU customers EINBREW offer a product take-back service. For customers within the European Union (only) and products manufactured or sold by us; when those products reach the end of their life, simply send them back to us at your expense, we will dispose of them according to the relevant legislation. WEEE Registration Number WEE/DD2117VU.