BrewCommander™ Electric

Assembly, Operation, & Maintenance

Congratulations on your purchase, and thank you for selecting the BrewCommander™ Brewhouse Control from Blichmann Engineering™. We are confident that it will provide you years of service and many gallons of outstanding beer. This manual will familiarize you with the use and assembly procedures for the product.

IMPORTANT INFORMATION

PLEASE READ AND THOROUGHLY UNDERSTAND THIS MANUAL PRIOR TO USE FOR IMPORTANT SAFETY INFORMATION!

WARNING: Sections labeled "Warning" can lead to serious injury or death if not followed. Please thoroughly read these sections and understand them completely before use. If you do not understand them or have any questions, contact your retailer or Blichmann Engineering (www.BlichmannEngineering.com) before use.

CAUTION: Sections labeled "Caution" can lead to equipment damage or unsatisfactory performance of the equipment. Please read these sections thoroughly. If you have any questions, contact your retailer or Blichmann Engineering (www.BlichmannEngineering.com) before use.

IMPORTANT: Sections labeled "Important" should specifically be followed to ensure satisfactory results with the product.

What's In the Box?

120V / 240V Controller

aBrewCommander-120V
aBrewCommander-240V

Temperature Sensor Probe

BE-001500-00

Temperature Sensor Bulkhead Assembly

See Page 3 for entire list of Part #'s located under Temperature Sensor Assembly.

Power Cord

120V - BE-000365-01
240V - BE-000364-01

OVERVIEW

The BrewCommander™ Brewhouse Controller is an accurate and intuitive complete brewhouse control for automatically ramping and maintaining the temperature of your boil kettle, mash tun, or hot liquor tank. With digital power control, automated mash profile ramping, boil addition timers, pump control, delayed starting, and easy to use advanced control settings, the BrewCommander™ is clearly in a league of its own. It's a perfect plug-and-play match for controlling the power output of your BoilCoil™ electric immersion heater or RIMS Rocket™ electric recirculation heater, or any single phase heater up to 30A at 240V (20A at 120V). Need to control a tank with more than one heater? The patent pending modular design offers the ability to add up to 4 relay modules to simultaneously control up to 5 elements!

The Electric BrewCommander™ Brewhouse Controller is, by design, modular. A single control module can be used for controlling one vessel, or multiple temperature control modules can be combined for simultaneous control of multi-kettle systems. The controllers can operate as standalone units or can be installed on the feature-rich TOWER of POWER™ stand, which provides all of the fittings, plumbing, and valves and flow meters necessary in a convenient package. Also available is the TOWER of POWER LTE™, offering a more compact design with basic features.

CAUTION: Always keep the controller away from heat and moisture. When necessary, clean with a damp cloth.

POWER REQUIREMENTS

The BrewCommander™ Brewhouse Controller is available in either 120VAC or 208/240VAC. All units must be connected to the appropriate sized GFCI circuit. Refer to the chart to determine the appropriate breaker required for your circuit. If you are uncertain about the power requirements or your service location, contact a licensed and qualified electrician familiar with National Electrical Code standards and requirements.

Unit	Blichmann BoilCoil™ Electric Heaters		3rd Party Electric Heaters	
	Maximum Heater Power (Watts)	GFCI Breaker Size (Minimum)	Maximum Heater Power (Watts)	GFCI Breaker Size (Minimum)
120VAC	2250	20A	2400	25A
240VAC	5750	30A	7200	35A

WARNING: The Electric BrewCommander™ Brewhouse Controller is only to be used in conjunction with a Ground Fault Circuit Interrupter (GFCI) protected power source. If you are uncertain about the status of your power source contact a licensed and qualified electrician familiar with National Electric Code standards before proceeding. Operating the Electric BrewCommander™ Brewhouse Controller in any fashion other than described in this manual can result in personal property damage, injury, electrocution, or death.

SENSOR INSTALLATION

For installation of temperature sensor in Hot Liquor Tanks and boil kettles , a ½" inch hole is required. Temperature sensors can be installed in the existing BrewMometer™ hole in Blichmann Engineering BoilerMaker™ kettles. Install temperature sensor and bulkhead as shown in **Figure 1**.

For RIMS mash tuns, install the temperature sensor directly in the wort recirculation path immediately after the heat source (see Figure 1). Brewers using the RIMS Rocket™ should reference the RIMS Rocket™ Owner's Manual for detail instructions on installing the temperature sensor.

IMPORTANT: Installing the temperature sensor directly in the mash tun will result in instability and severe overshooting of mash temperature. Always install the temperature sensor in the wort recirculation path as close to the heat source as possible as shown in **Figure 2**.

TIP: Use the optional temperature sensor fitting, part number BE-000268-00, for inline sensor installation as shown in **Figure 3.**

CAUTION:
 • Do not pull sensor by cord, pull by stainless sheath only.
 • Do not remove sensor when kettle is full of liquid without optional thermowell.
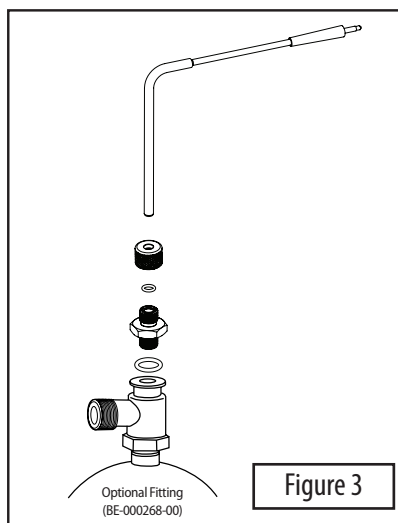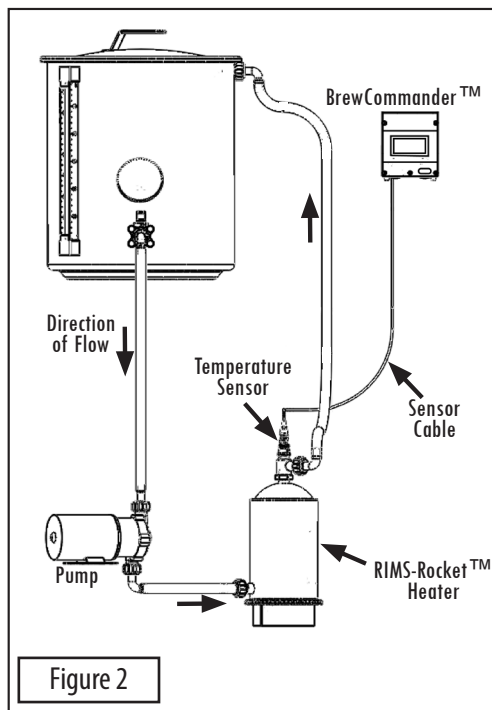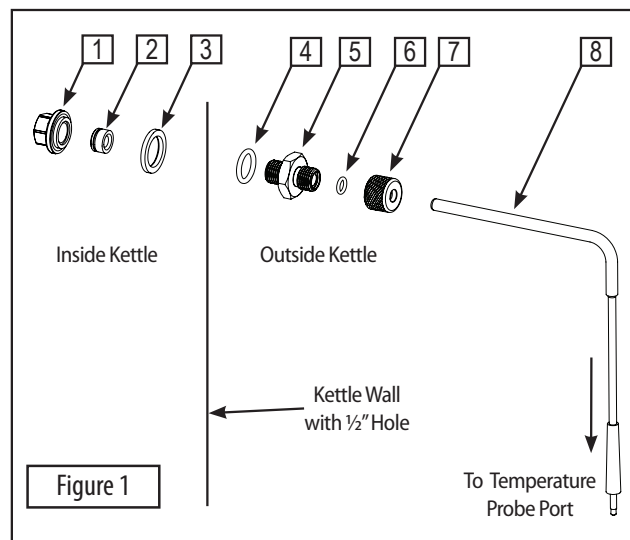
OPTIONAL THERMOWELL:
The optional Thermowell (BE-001500-00) is available to purchase to allow sensor removal in full kettles.
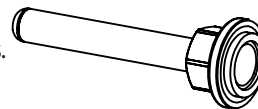
TEMPERATURE SENSOR ASSEMBLY

Number	Part Number	Description
1	BE-000882-01	Sanitary Nut
2	BE-000882-01	Sanitary Nut Inner Seal
3	BE-000882-01	Sanitary Nut Outer Seal
4	BE-000013-00	Bulkhead O-ring -113
5	BE-001474-00	Weldless Captive Bulkhead
6	BE-001476-00	Captive Nut O-ring -010
7	BE-001475-00	Captive Nut
8	BE-001500-00	Temperature Sensor Probe

COMPLETE TEMPERATURE SENSOR ASSEMBLY

Inside Kettle   Outside Kettle

Kettle Wall
with ½" Hole

Figure 1

To Temperature
Probe Port

BrewCommander™

Direction
of Flow

Temperature
Sensor

Sensor
Cable

Pump

RIMS-Rocket™
Heater

Figure 2

Optional Fitting
(BE-000268-00)

Figure 3

OPTIONAL 1/2" NPT ADAPTER:
The optional 1/2" NPT Adapter (TOP-007-01) converts from 1/2 - 20 straight thread to 1/2" male NPT thread.
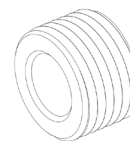
OPTIONAL 1.5" TRI-CLAMP ADAPTER:
The optional 1.5" Tri-Clamp Adapter (BE-001139-00) allows the sensor to be installed on a 1.5" Tri-Clamp fitting.
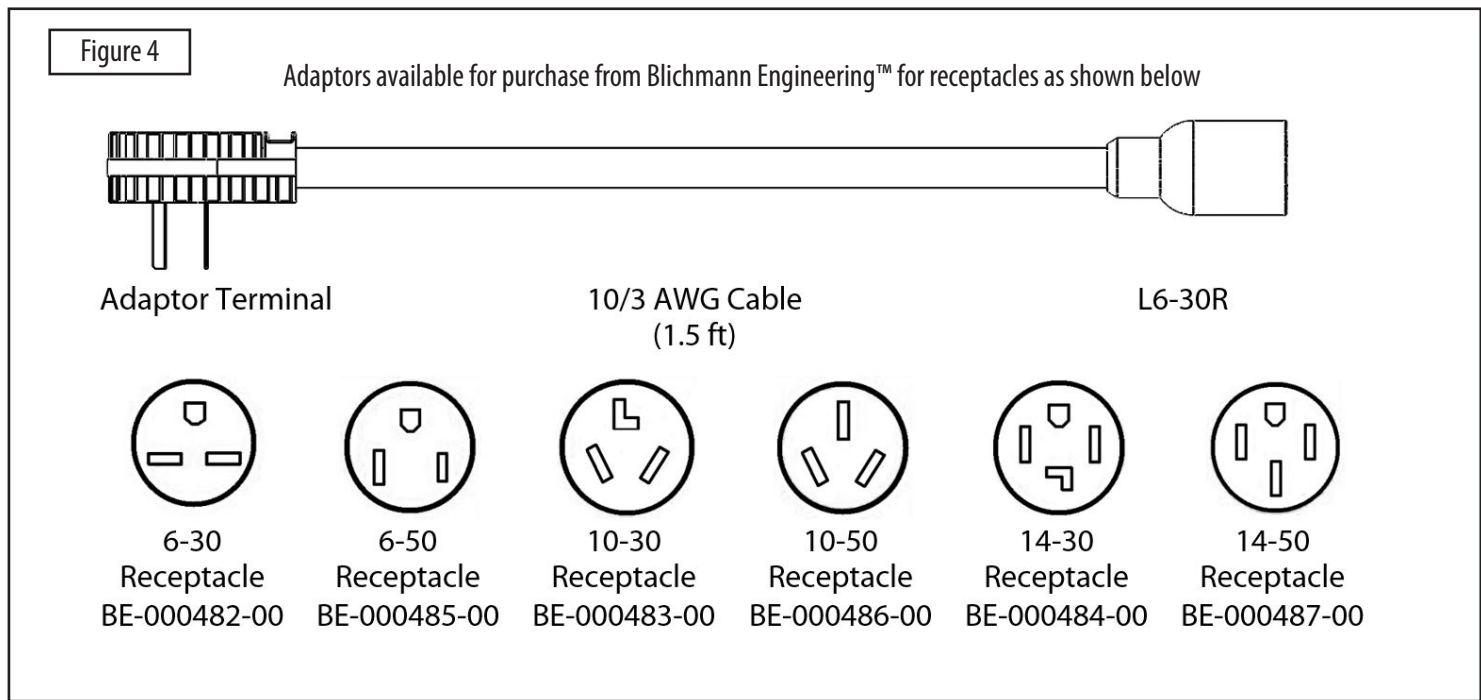
CONNECTING POWER

First, ensure that the power switch on the front of the unit is in the off position before connecting power to the controller.

The 240V model of the Electric BrewCommander™ Brewhouse Controller is equipped with L6-30 connections. Blichmann Engineering™ offers six optional power cord adapters to adapt common 240V outlets to an L6-30R connection as shown in **Figure 4**.

The 120V model of the Electric BrewCommander™ Brewhouse Controller is equipped with L5-20 connections on the controller, and a power cord adapter with a 5-20P plug for the wall receptacle.

5-20R

WARNING: Inspect all cables, wires, and connectors for wear and/or damage before every use. Do not use if cables, wires, and/or connections are damaged, loose, or worn. Replace damaged and worn parts with genuine Blichmann Engineering™ parts available online at BlichmannEngineering.com.

Figure 4

Adaptors available for purchase from Blichmann Engineering™ for receptacles as shown below

Adaptor Terminal   10/3 AWG Cable   L6-30R
                              (1.5 ft)

| 6-30 Receptacle BE-000482-00 | 6-50 Receptacle BE-000485-00 | 10-30 Receptacle BE-000483-00 | 10-50 Receptacle BE-000486-00 | 14-30 Receptacle BE-000484-00 | 14-50 Receptacle BE-000487-00 |

FEATURE CALLOUT

POWER BUTTON ON / OFF

RELAY MODULE WIRING PORT

Female 240V L6-30R

MALE 120V NEMA 5-15

PUMP RECEPTACLE

TEMPERATURE SENSOR PORT

Male 240V L6-30P

WIRED FROM BOTTOM

BOTTOM OF CONTROLLER

BOTTOM OF RELAY MODULE

NOTE: For wiring out the bottom of the controller and for wall mounting, please visit our website at blichmannengineering.com to view the instructional video.

WALL MOUNTING THE CONTROLLER

A universal mounting kit (PN: aPS-PowerCont-Mount) is available for purchase that includes a din rail and set of screws and nuts for mounting any of our controllers and relay modules to a wall. To mount the Brew Commander™, the only parts from the kit that will be used are the DIN rail and the small 8/32 set screws. Hardware for fastening the DIN rail to the wall is not included.

Steps:
   1) Rewire your controller out the bottom by following the instructions given in the rewiring video on our Blichmann Engineering™ YouTube
       channel.
   2) Trim the included DIN rail to be 1/8" shorter than with width of the controller.
   3) Mount the DIN rail to the desired location on the wall.
   4) Slide the controller onto the DIN rail using the channel on the back of the controller.
   5) Install 2 of the 8/32 set screws into the top of the controller being careful not to over tighten. Stop tightening the screws once the controller can
       no longer slide along the DIN rail.
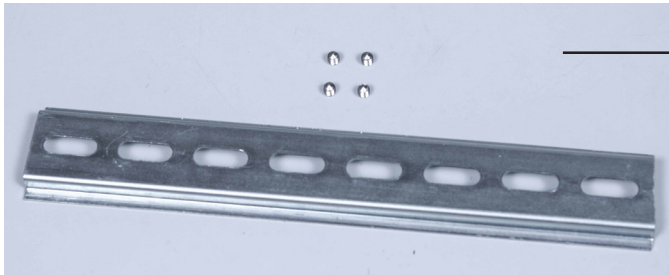
**Hardware Required
from Mounting Kit:
4 Set Screws
DIN Rail**
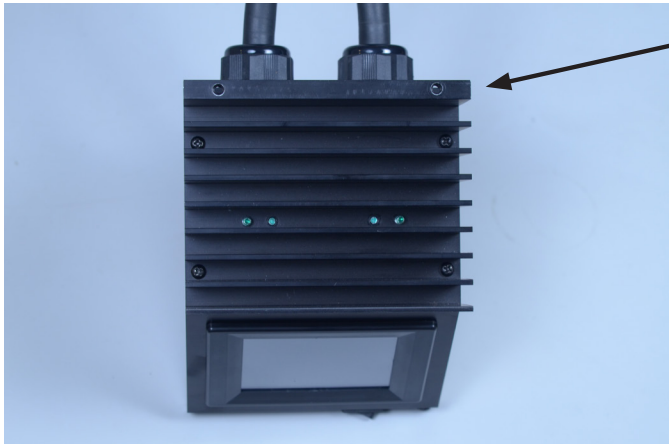
**Set Screw
Location**
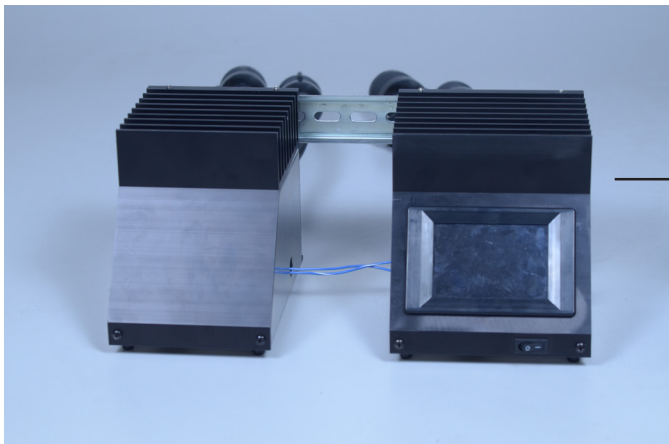
**Controller &
Relay Module
Shown with
DIN Rail**

CONTROLLER SCREEN OPERATION
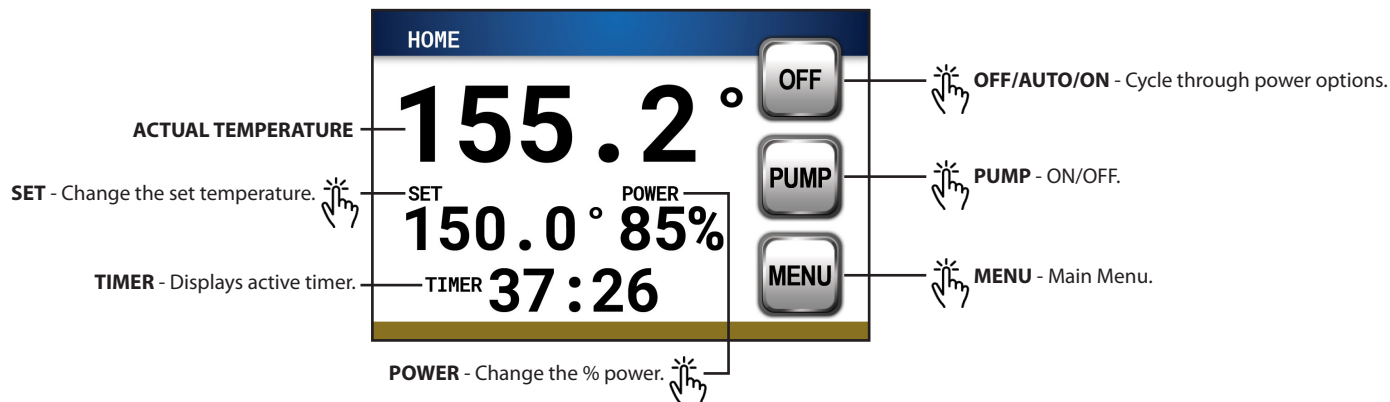
SCREEN CONVENTIONS

 = Active Button   = Inactive Button   = Interactive

TIP: A screen operation tutorial video is available at blichmannengineering.com.

HOME SCREEN

ACTUAL TEMPERATURE

SET - Change the set temperature.

TIMER - Displays active timer.

POWER - Change the % power.

OFF/AUTO/ON - Cycle through power options.

PUMP - ON/OFF.

MENU - Main Menu.

ACTUAL TEMPERATURE - Displays the sensor temperature value.
NOTE: If the temperature is beyond the "out of range" value (programmable in basic settings) the text color will change. Blue is below (too cold), black is in the desired range, and red is above the range (too hot).

SET TEMP - This is the desired temperature. Pressing this value will display a numerical keypad. Enter the desired value and press ENTER to accept.

POWER - This reduces the heating output of your heating element to the set percentage. Pressing this value will display a numerical keypad. Enter the desired value and press ENTER to accept.

TIMER - This value displays the remaining time of the active timer. This value can't be changed from the home screen.

OFF/AUTO/ON - Press button to cycle through the options below.
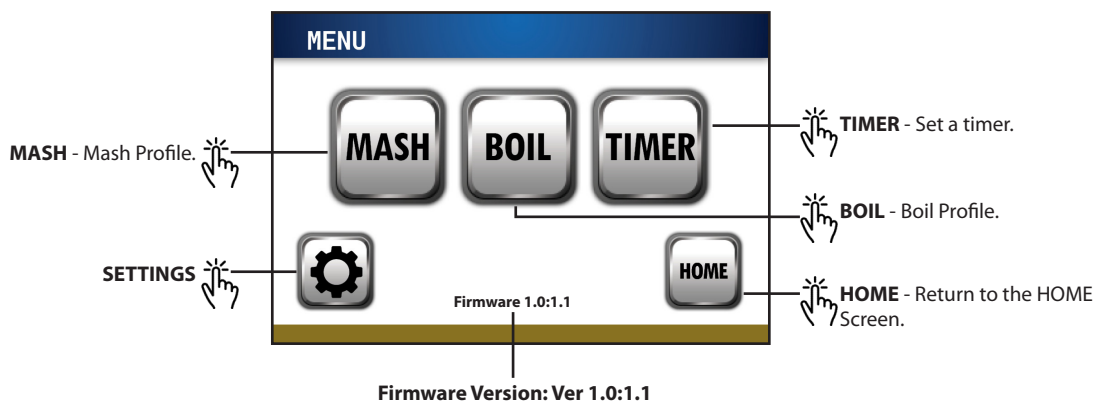**OFF** - Power to the heaters is disabled.
AUTO - The heating element will automatically energize as needed to maintain the desired SET temperature at the selected power.
ON - The heating element will turn on and continually run at the selected power percentage. This setting overrides the automatic control. The SET value will change to BOIL.

PUMP - Turns the auxiliary 120V receptacle located on the back of the unit on and off. Green illuminated button indicates that the power is in the ON mode.

MENU - Pressing this button will open the main menu screen.

MENU SCREEN

MASH - Mash Profile.

SETTINGS

Firmware 1.0:1.1

TIMER - Set a timer.

BOIL - Boil Profile.

HOME - Return to the HOME Screen.

Firmware Version: Ver 1.0:1.1

MASH PROFILE

MASH PROFILE		
	TEMP	TIME
1	122°	20
2	149°	60
3	168°	10
4	0	0
5	0	0

2 PROFILE   SELECT

↺   ⊞

▶   HOME

SELECT - Highlight a value.

PROFILE - Switch between 9 custom Mash Profiles.

KEYPAD - Enter a value.

RESET - Cancel the active profile.

HOME - To the Home Screen.

PLAY / PAUSE - Start / pause the selected profile.

PROFILE - Switch between 9 custom profiles that can be stored for future use. Values are saved upon entry.

SELECT - Press SELECT to cycle through TEMP and TIME.

KEYPAD - When a temperature or time is selected and flashing, press the keypad to change that value and press enter.

PLAY / PAUSE - Start / pause the selected profile. This button will become a pause button when a profile is active.

RESET - When a profile is active, press the RESET button to end the profile. To reset an active timer, press pause and then press reset.

HOME - To the Home Screen.

BOIL PROFILE

BOIL PROFILE			
	TIME (MIN)		TIME (MIN)
BL	60	4	10
1	60	5	0
2	45	6	0
3	15	7	0
TIMER	0:00		

BOIL LENGTH →

TIMER →

2 PROFILE   SELECT

↺   ⊞

▶   HOME

SELECT - Highlight a value.

PROFILE - Switch between 9 custom Mash Profiles.

KEYPAD - Enter a value.

RESET - Cancel the active profile.

HOME - To the Home Screen.

PLAY / PAUSE - Start / pause the selected profile.

PROFILE - Switch between 9 custom profiles that can be stored for future use. Values are saved upon entry.

SELECT - Press SELECT to cycle through TEMP and TIME.

KEYPAD - When a temperature or time is selected and flashing, press the keypad to change that value and press enter.

PLAY / PAUSE - Start / pause the selected profile. This button will become a pause button when a profile is active.

RESET - When a profile is active, press the RESET button to end the profile. To reset an active timer, press pause and then press reset.

HOME - To the Home Screen.

BASIC SETTINGS

To navigate through the basic settings, press the SELECT button to scroll between them.
Use the up/down buttons to change the value. Pressing SELECT again will accept the new value.

START DELAY – The Start Delay is used to automatically heat mash strike water at a
future time. Enter the desired delay in hours. Press the HOME button. DELAY will show
in OFF/AUTO/ON button. The TIMER display will show remaining time. Be sure to set the
desired temperature and % power. If it is desired to have the pump turn on at the end of the
delay timer, first ensure that the pump is properly primed and the appropriate valves needed
for recirculation are open. Then, set the pump button to on (green). **NOTE:** As a safety feature,
the controller will automatically turn off the heater after 6 hours if the SET point has not been changed.

SET PT ALARM – This audible alarm will alert the user that the set point is close to being reached.
Values from 0-9° can be selected. Choose OFF to disable this alarm. Default value is 5°.

OUT OF RANGE – This setting will alert the user that the actual temperature is outside
of the desired SET temperature range. Values from 0-9° can be selected. Choose OFF to disable
this alarm. Default value is 2°. The text color of the temperature displayed on the home screen will change
based on this setting. Blue is below (too cold), black is in the range, red is above the range (too hot).

AUDIBLE ALARMS – Used to enable or disable ALL audible alarms. Color indicators will still function. Value is ON/OFF.

UNITS – Changes all temperature Units between C and F.

CALIBRATE - The sensor supplied with this product is extremely precise and accurate and does not require calibration. However, calibrate can be used for sensor to sensor variation, if the user so desires to fine tune this reading, or simply match to another sensor. For example, if CALIBRATE is set to +0.7, the sensor values will be increased by 0.7°.
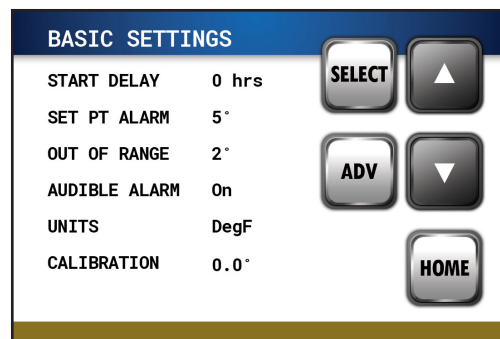
ADVANCED SETTINGS

In the BASIC SETTINGS screen press the ADV button to navigate to the advanced settings screen.

The advanced settings are intended to enrich the user experience for the ultimate in performance. The default values will provide excellent control for most applications.

MASH HEAT RATE - This setting is used to compensate for the heating delay time between mash steps when using the Mash Timer. Since each system will vary in how fast it can heat, the user will need to experiment with their system to measure the approximate heating rate in degrees per minute. The controller will add extra time to the rest to allow the mash to heat to the rest temperature before activating the rest timer. During the ramp time the TIMER will alternate between RAMP and remaining time. Default setting is 2° per minute.

> **Measuring the Ramp Rate**
> To measure the approximate ramp rate of your system measure the time it takes to go through a typical ramp. Divide the change in degrees by the ramp time in minutes. For example, if ramping from 145 F to 155F takes 5 minutes, the ramp rate is (155-145)/5=2 deg/min. Enter this value in MASH HEAT RATE.

RIMS OFFSET - This offset is used for Recirculation Infusion Mash System (RIMS), Heat Exchanger Recirculation Mash System (HERMS), or the Blichmann Engineering™ BrewEasy™ Kettle RIMS system. In these systems the temperature at the sensor will read an average of a few degrees higher than the actual temperature in the mash due to heat losses. The RIMS offset increases the temperature of the mash to match the Actual Temperature displayed on the BrewCommander™.

> **Measuring the RIMS Offset**
> Ensure the RIMS OFFSET is set to 0.0. Next, calibrate your mash thermometer to match the BrewCommander™ sensor so that you can accurately measure the temperature difference between the mash and the recirculation temperature. Calibration at your typical mash temperature is most accurate. During a mash, allow the mash thermometer to reach a steady state temperature. This may take 30-45 minutes. Subtract the mash thermometer temperature from the BrewCommander™ temperature. Enter this value into the RIMS OFFSET. From this point forward, the brewer can enter the desired mash SET temperature without having to compensate for temperature losses.
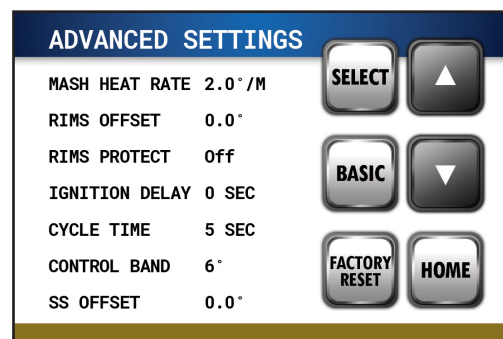
RIMS PROTECT - If a RIMS heater is on, but no wort is flowing, the wort will continue to heat and may scorch. The RIMS PROTECT feature is used to prevent this situation by automatically turning the RIMS heater off when the pump is turned off. If the user desires, the pump and heater can be manually turned back on. When set to OFF, this implies the user is not using the controller in a RIMS system and the auto heater disable feature will not be enabled. This feature is not needed for HERMS systems. The default setting is OFF.

IGNITION DELAY - (intended for gas systems only) This value should always be set to 0.

CONTROL BAND - This value adjusts the range near the set point that the controller begins to cycle the power on and off. The default value is 6° (+/- 3° from the set point) and should not need to be adjusted. Increasing this value reduces overshoot when ramping to the set point, but also increases the time to reach the setpoint. Decreasing this value decreases the time to reach the setpoint, but also increases overshoot.

CYCLE TIME - This value determines how frequently the power is cycled on and off when the temperature is within the control band. The default value is 5 seconds.

SS OFFSET (Steady State Offset) - Steady State is when the temperature of the kettle is no longer rising or falling but has leveled out to a steady temperature. The steady state offset corrects a difference between the Actual Temperature and Set Temperature on the BrewCommander™. This setting adds a small increase in power to fine tune the system. This is particularly helpful when brewing in cold environments.

FACTORY RESET - This feature will reset all the settings from any altered state back to the original factory settings programmed into the controller. It will give the user the option to select ELECTRIC defaults or GAS defaults. Please note that all mash and boil profiles will be erased during this reset.

The kettle's thermometer has stabilized at 151°F and will not get any hotter. The BrewCommander™ is set at 152°F After a 1°F Steady State Offset was applied, the temperature of the kettle will now stabilize at the desired temperature.

WITHOUT SS OFFSET

WITH SS OFFSET
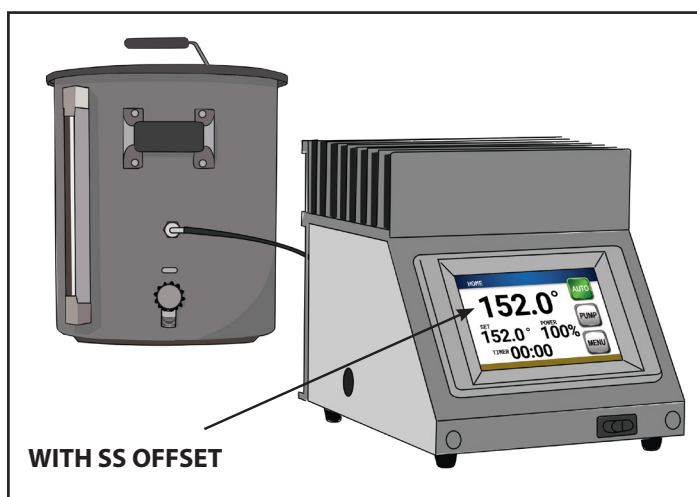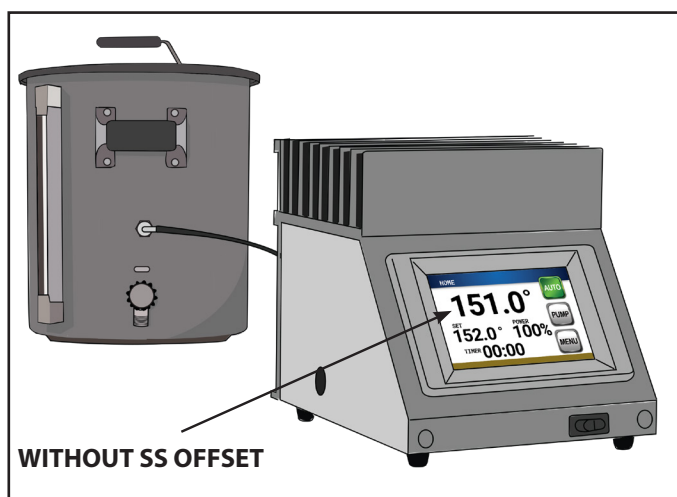
RIMS / HERMS SYSTEM REQUIREMENTS

For the BrewCommander™ electric modular brewing system to function properly in a recirculation system (RIMS / HERMS), your brewing system must meet some basic requirements. If your system is unable to meet these requirements please contact your RETAILER for guidance. We cannot guarantee the performance of the product if these basic minimums are not met.

For RIMS brewers, your mashing system must be capable of continuously recirculating wort with a pump for the duration of the mash without sticking. The flow rates in the chart below are minimum values.

IMPORTANT: Grain bed flow rates are highly dependent on crush quality and mash tun geometry. Move to a coarser crush if you are not able to achieve the above flow rates. It is also recommended that you allow a 10 min dough-in prior to turning on the pump. This allows air to purge from the grain bed and for the grain to fully absorb the water.

Finished Batch Size Gal (L)	Minimum Flow GPM (LPM)
5 (19)	0.5 (2.8)
10 (38)	0.75 (3.8)
15 (57)	1.25 (4.75)
20 (76)	1.5 (5.7)
32 (121)	2.25 (8.5)

RIMS SETUP AND OPERATION TIPS

Recommended setting changes from the default settings.

BASIC SETTINGS
SET PT ALARM: 6°F
OUT OF RANGE: 8°F

ADVANCED SETTINGS
*RIMS OFFSET: 2.0°F
CYCLE TIME: 3 Sec
CONTROL BAND: 10°F
RIMS PROTECT: ON

IMPORTANT: It is recommended that before changing the above settings to read the descriptions in the basic and and advanced setting sections to fully understand how these settings function.

General Operation
When using a RIMS Heater, such as the Blichmann Engineering RIMS Rocket™, the temperature readings taken in the RIMS Heater will be higher than vessel temperature. This difference varies depending on the power supplied to the RIMS Heater and the rate of flow of the wort or hot liquor through it. When the vessel is at a steady temperature this temperature difference is typically from 1° to 4°F due to normal heat losses in the system. When using the RIMS Offset feature, the temperature displayed on the controller will always be the measured value from the temperature sensor minus the programmed RIMS Offset value in the advanced settings.
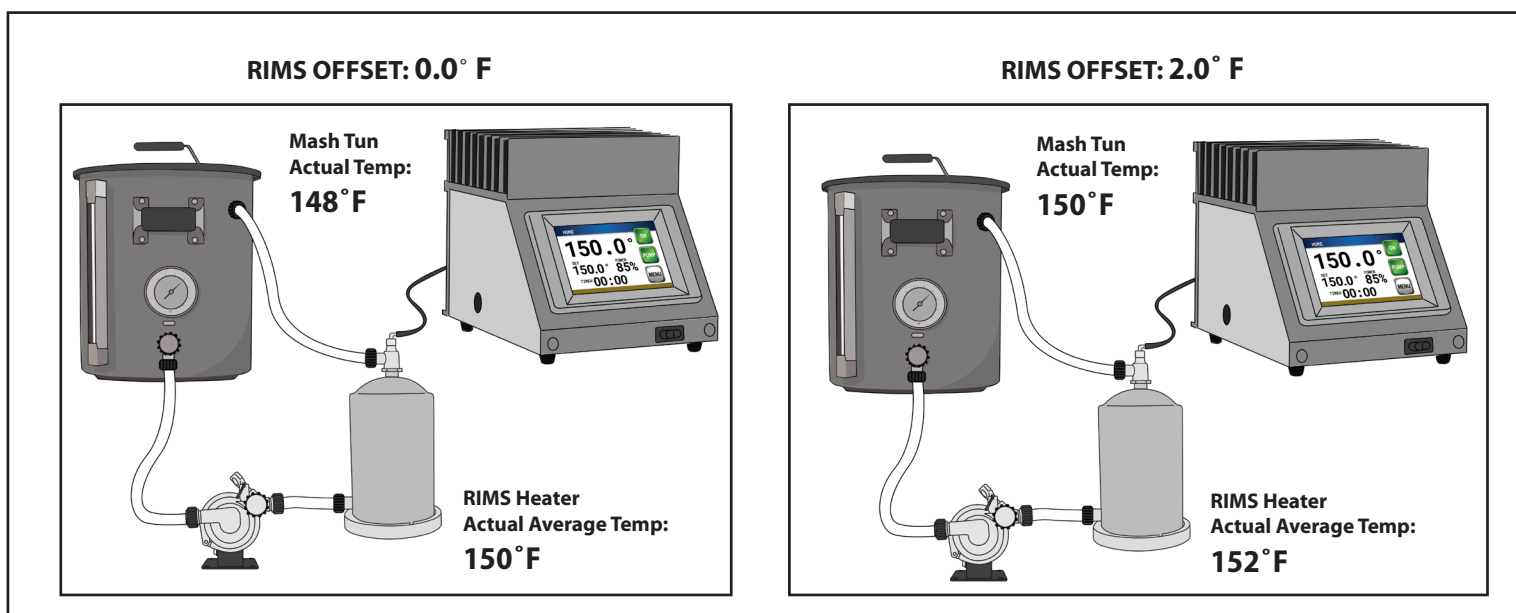
Heating Strike Water
It is common to heat the strike water in the mash tun using the RIMS heater. However the rims offset for heating a mash is higher than that of heating strike water. To compensate, use a set point 1-2 degrees below the desired strike water temperature. This can be fine tuned with experience using your system.

Mashing
The brew commander can compensate for losses in the system by using the RIMS OFFSET feature. The set point should be programmed to the desired mash temperature. The above recommended Basic and Advanced settings are a good starting point, and can be adjusted with experience. Refer to the advanced settings section for details.

TIP: If step mashing, decreasing your control band will help speed up the heating between steps, but larger temperature fluctuations will be experienced in the RIMS Heater.

RIMS OFFSET: 0.0° F

Mash Tun
Actual Temp:
148°F

RIMS Heater
Actual Average Temp:
150°F

RIMS OFFSET: 2.0° F

Mash Tun
Actual Temp:
150°F

RIMS Heater
Actual Average Temp:
152°F

HERMS SETUP AND OPERATION TIPS

ADVANCED SETTINGS
MASH HEAT RATE: 1Deg
RIMS OFFSET: *see Mashing section below*

General Operation

It is important to be aware that when using a HERMS Coil during a mash the temperature readings taken in the HERMS kettle (typically the HLT) will be higher than the actual temperature in the mash. This difference varies depending on rate of flow, whirlpooling in the HERMS vessel, and temperature losses unique to the system. When using the RIMS Offset feature, the temperature displayed on the controller will always be the measured value from the temperature sensor minus the programmed RIMS Offset value in the advanced settings.

Heating the Strike Water

A unique feature of HERMS systems is that there are many different ways to achieve the heating of strike water. These different methods have unique pros and cons and varying equipment needs. Experimentation and practice with your particular system is the only way to truly fine tune strike water temperature for your mash.

Method 1 is to recirculate the mash strike water through the HERMS coil while heating the HLT.

Method 2 is to heat the HLT (where the HERMS coil is located) to the desired temperature, while heating the strike water in your boil kettle with a second controller. This method is faster due to using two heat sources.

Mashing

While mashing, the brewer must maintain a slightly higher temperature in the HLT than the desired mash temperature due to heat losses and inefficiency of the heat exchanger. Whirlpooling in the hot liquor tank significantly increases the heat exchanger efficiency thereby reducing ramping times. For more information about our Kettle Whirlpool Kit, visit https://www.blichmannengineering.com/whirlpool-kit.html.

The RIMS offset can be programmed to compensate for losses in the system. If whirlpooling in the HLT during the mash, the RIMS OFFSET should be programmed to 3°F. If not, this should be set to 5°F. The SET point should be programmed to the desired mash temperature. With experience these settings can be fine tuned.

For step mashing with a HERMS system, a mash heat rate of 1°F or lower is recommended over the default 2°F. This allows more ramping time between steps to allow the slower heating rate of the HERMS system to reach the next mash step.
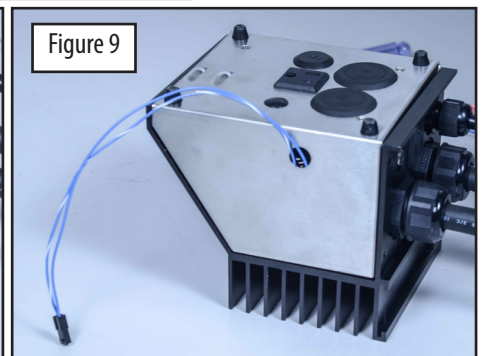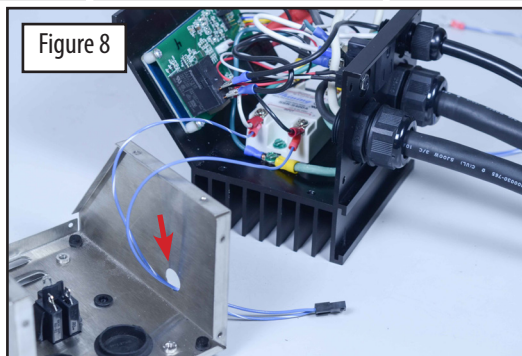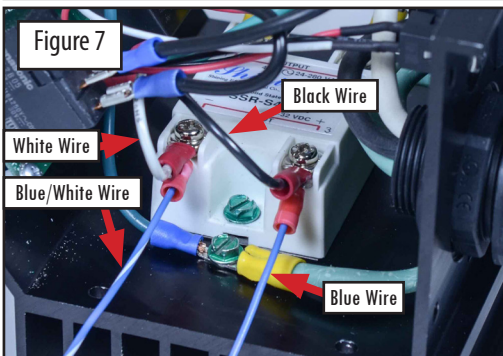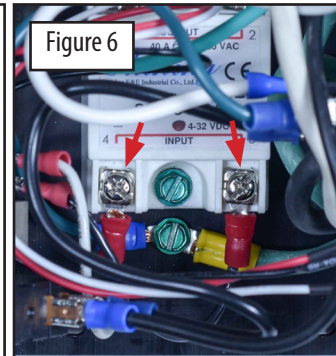

RIMS OFFSET: 0.0˚ F

HLT w/ HERMS
Actual Temp:
150˚F

Mash Tun
Actual Temp:
147˚F

RIMS OFFSET: 3.0˚ F

HLT w/ HERMS
Actual Temp:
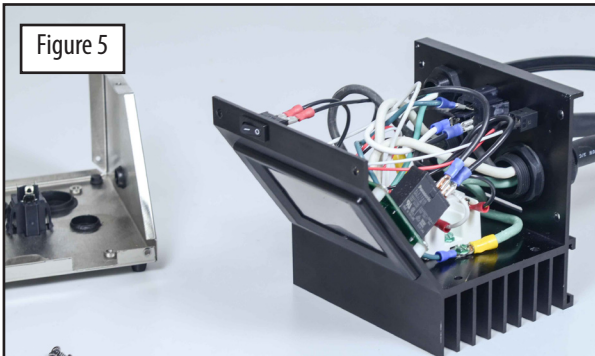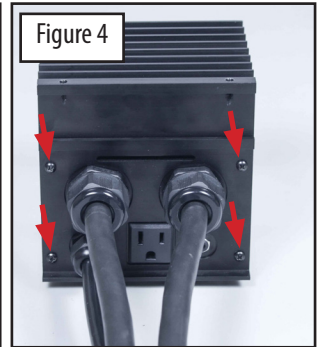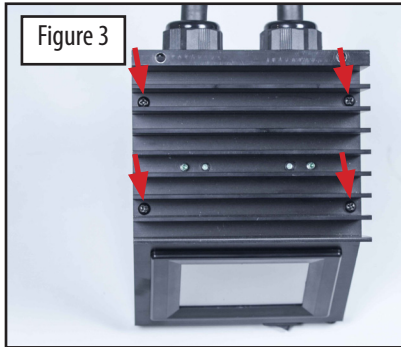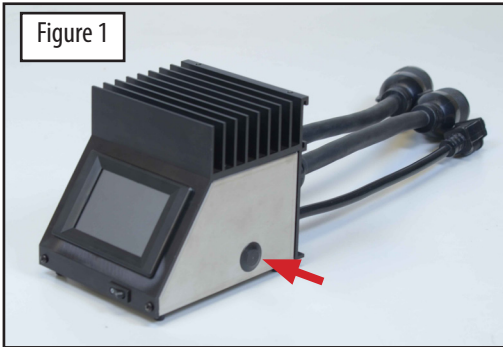**153˚F**

Mash Tun
Actual Temp:
150˚F
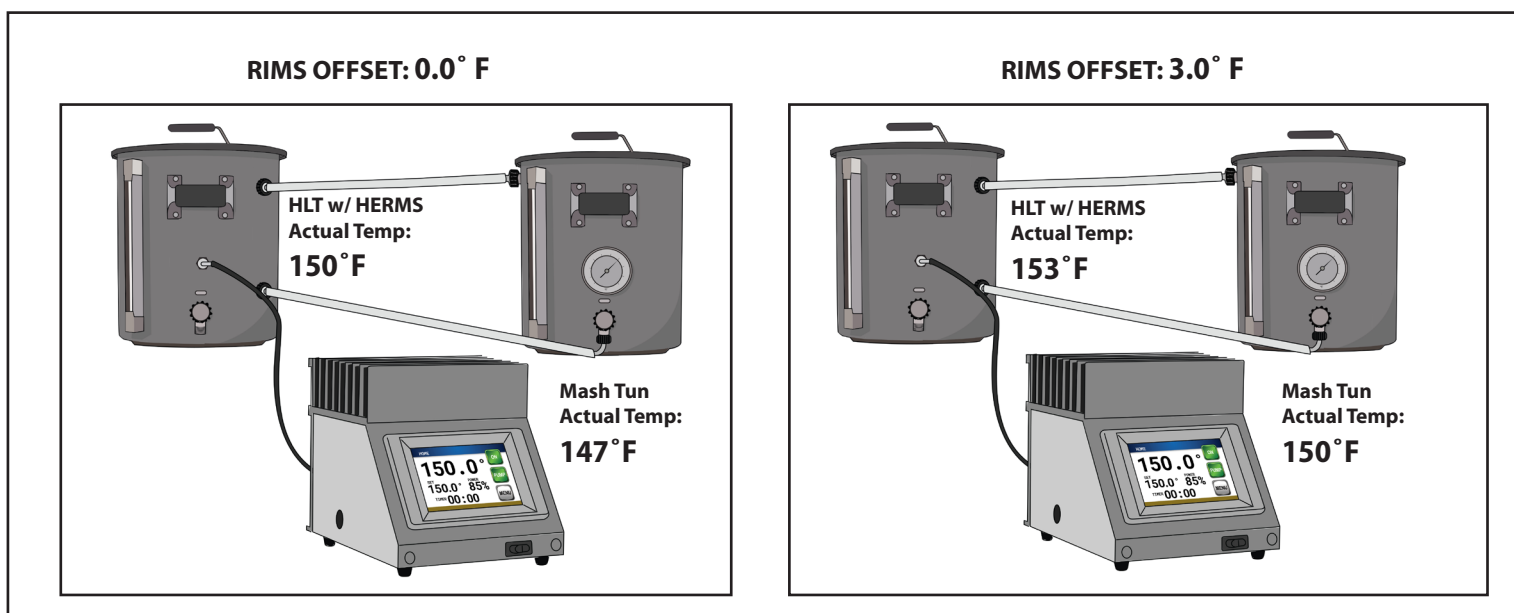
CONNECTING THE RELAY MODULE

BEFORE DISASSEMBLING THE BREWCOMMANDER™ READ EACH STEP THOROUGHLY.

The Relay Module is used to control multiple heating elements. The Relay Module will come with a jumper cable to wire between the relay module and the BrewCommander™ controller.

Step 1: To wire the relay module to the BrewCommander™ first remove the plug on either the left or right of the controller as shown in **Figure 1**.

Step 2: Remove the screws in the front (**Figure 2**) of the controller as well as the top (**Figure 3**) and back (**Figure 4**).

Step 3: Slowly and carefully remove the bottom housing being sure the housing does not catch on any wires (**Figure 5**).

Step 4: Locate the input terminals in the BrewCommander™ controller. Add the **blue/white** jumper to terminal 4(as shown in **Figure 6 & 7**). Add the **solid blue** jumper to terminal 3 (as shown in **Figure 6 & 7**).

Step 5: Run the jumper out the side of the bottom housing (as shown in **Figure 8**). Reattach the bottom housing to the controller with all the screws previously removed.


Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Jumper Cable

Figure 6

Figure 7

Black Wire

White Wire

Blue/White Wire

Blue Wire
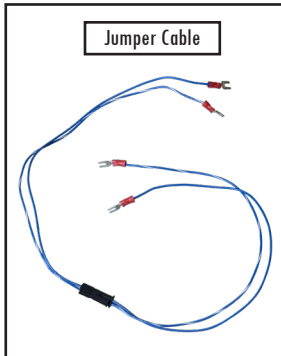
Figure 8

Figure 9

Step 6: Secure the other end of the jumper to the Relay Module by connecting the blue/white jumper to Terminal 4 and the solid blue jumper to Terminal 3 (as shown in **Figure 10**).

Step 7: Run the end of the jumpers through the hole in the side of the bottom housing (as shown in **Figure 11**).

Step 8: Connect the two jumper ends together (as shown in **Figure 12**).

Step 9: Attach the DIN rail (**Figure 13**) to the back of both the BrewCommander™ and the Relay Module (as shown in **Figure 14**). Push the excess jumper cable into both controller and slide them together to ensure jumper wires are inside the enclosure not jammed between them.

Step 10: Secure the set screws on the DIN rail to hold both controllers in place (as shown in **Figure 15**).

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15
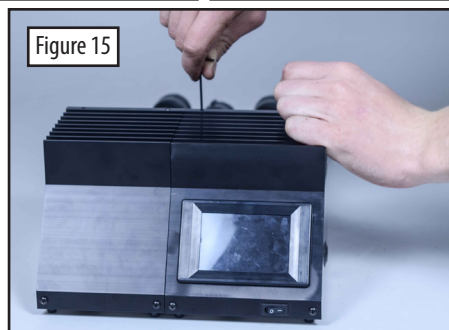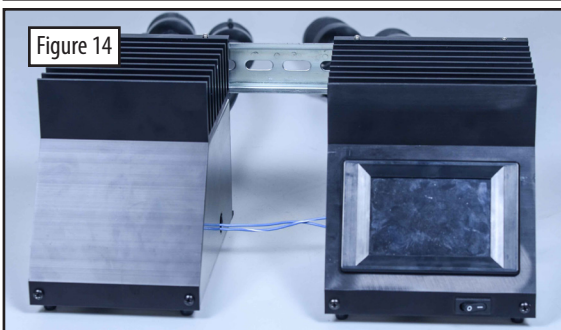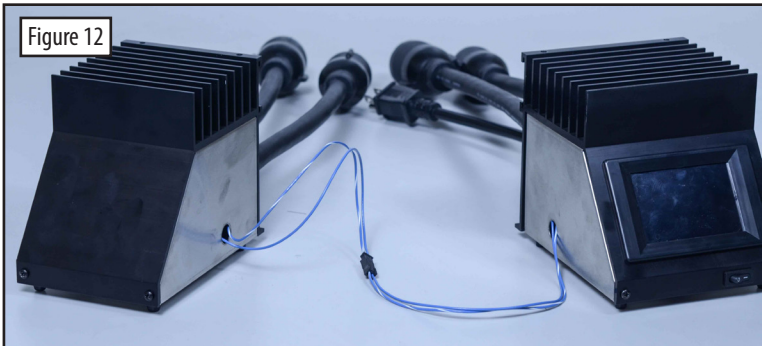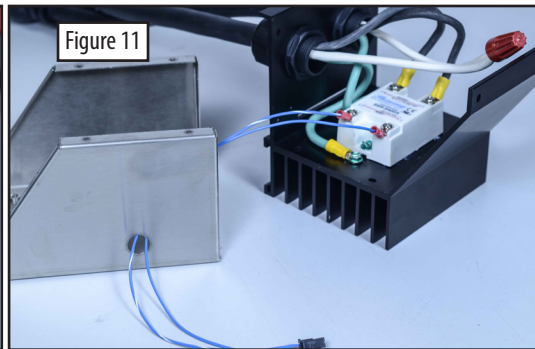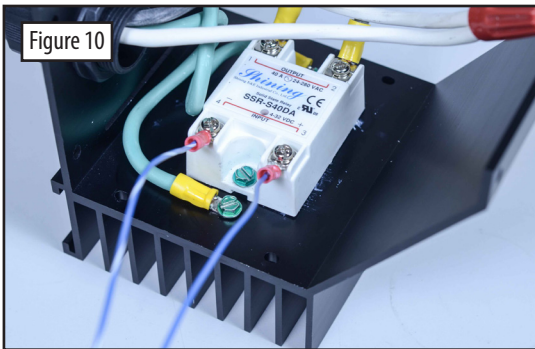
NOTE: The BrewCommander™ can be wired out the bottom. For wiring the bottom of the controller, please visit our website at blichmannengineering.com to view our video.

Blichmann Engineering Product Warranty

A. Limited Warranty

1. Blichmann Engineering warrants to the original purchaser that this product will be free from manufacturing defects in material and workmanship for a period of one (1) year from the date of purchase by the customer. Proof of purchase is required. Blichmann Engineering's obligation to repair or replace defective materials or workmanship is the sole obligation of Blichmann Engineering under this limited warranty.

2. This product is for home use only. The limited warranty covers only those defects that arise as a result of normal use of the product and does not cover any other problems, including, but not limited to, those that arise as a result of:

    a. Improper maintenance or modification;
    b. Damage due to incorrect voltage or improper wiring by customer;
    c. Operation outside of the product's specifications;
    d. Carelessness or neglect to operate the product in accordance with instructions provided with the product;
    e. Damaging the tamper label on the product;
    f. Damage by over-tightening the fasteners;
    g. Failure to follow cleaning and / or maintenance procedures; or
    h. Exceeding published operational temperatures.

3. Blichmann Engineering reserves the right to request delivery of the defective component for inspection before processing the warranty claim. If Blichmann Engineering receives, during the applicable warranty period, notice of a defect in any component that is covered by the warranty, Blichmann Engineering shall either repair or replace the defective component with a new or rebuilt component at Blichmann Engineering's option.

4. Blichmann Engineering must be notified within seven (7) days of the delivery date of any shipping damage. Customer is responsible for shipping damage outside of this time period. Approval for return must be provided by Blichmann Engineering prior to any return. Customer is responsible for keeping all original packaging material for warranty returns. Blichmann Engineering is not responsible for damage from improperly packaged warranty returns, and these repair costs will be the sole responsibility of the customer. Shipping costs for warrantee returns are covered only for the contiguous United States.

5. Blichmann Engineering's limited warranty is valid in any country where the product is distributed.

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B. Limitations of Warranty

1. Any implied warranty that is found to arise by way of state or federal law, including any implied warranty of merchantability or any implied warranty of fitness, is limited in duration to the terms of this limited warranty and is limited in scope of coverage to this warranty. Blichmann Engineering disclaims any express or implied warranty, including any implied warranty of fitness for a particular purpose or merchantability, on items excluded from coverage as set forth in this limited warranty.

2. Blichmann Engineering makes no warranty of any nature beyond that contained in this limited warranty. No one has authority to enlarge, amend, or modify this limited warranty, and Blichmann Engineering does not authorize anyone to create any other obligation for it regarding this product.

3. Blichmann Engineering is not responsible for any representation, promise, or warranty made by any independent dealer or other person beyond what is expressly stated in this limited warranty. Any selling or servicing dealer is not Blichmann Engineering's agent, but an independent entity.

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C. Limitations of Liability

1. The remedies provided in this warranty are the customer's sole and exclusive remedies.

2. Except for the obligations specifically set forth in this warranty, in no event shall Blichmann Engineering be liable for direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory and whether or not advised of the possibility of such damages.

3. This warranty does not cover, and in no event shall Blichmann Engineering be liable for, travel, lodging, or any other expense incurred due to manufacturing defects in material and workmanship, or any other reason.

4. Any performance of repairs after the warranty coverage period has expired or performance of repairs regarding anything excluded from coverage after this limited warranty shall be considered good-will repairs and they will not alter the terms of this limited warranty, or extend any warranty coverage period.

5. Venue for any legal proceedings relating to or arising out of this warranty shall be in Tippecanoe County, Indiana, United States, which courts will have exclusive jurisdiction.

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D. Local Law

1. This warranty gives the customer specific legal rights. The customer may also have other rights that vary from state to state in the United States or other countries.

2. To the extent that this warranty is inconsistent with local law, it shall be deemed modified, only to the extent necessary to be consistent with such local law.

This product uses FDA and/or NSF approved food grade materials anywhere the product touches the beverage.
Warning: This product contains or may contain chemical(s) known to the State of California to cause cancer, birth defects, or other reproductive harm.