

BRUCONTROL

Process Automation Made Personal

Model UF-1

UniFlex Brewing Control System

Updated July 21, 2020



Description

The UniFlex Control System is a turnkey, 30A, 240VAC, “plug-and-brew” controller for brewing or distillation applications. This is the first modular based control system of its kind, allowing for both user-definable options during order and a future-upgradeable architecture. For example, the controller can be made initially or later upgraded to include the following options: choice of power feed and plug(s), single or dual vessel power, single or dual pump/accessory power, integrated user I/O, proportional power control, DIN rail mount, internal cooling option, and plug-and-play temperature probes.

The UniFlex is built on a foundation of BruControl technology and integrates into the BruControl application’s ecosphere. The UniFlex’s core is an ESP32 micro-controller, which communicates with the BruControl application via Wi-Fi network. BruControl, along with UniFlex, UniCon, UniShield, or DIY-built control interfaces facilitates a continuous upgrade and integration path across the whole brewery including brewing, fermentation, refrigeration, dispensing, and cleaning. This means a brewery can be incrementally updated over time to include higher and more advanced degrees of control, monitoring, and automation.

IMPORTANT SAFETY INFORMATION

This section, and warnings noted by warning icons can lead to serious injury or death, equipment damage, or unexpected system performance if not followed. The user must read

these sections and understand them completely before use. Any questions or concerns must be directed to BruControl technical support before use.

⚠ Before using the UniFlex, the user must review both this Product Note and the BruControl User Manual in their entirety. Operating the UniFlex in any manner other than described in these documents or explicit guidance from BruControl Technical Support can result in property damage, injury, electrocution, or death.

⚠ The UniFlex 120VAC power (NEMA 5-15P plug) MUST be plugged into a 15A GFCI (Ground Fault Circuit Interrupt) protected receptacle. The UniFlex 240VAC power (NEMA 14-30P, 6-30P, 10-30P, or L6-30P plugs) MUST be plugged into a 30A GFCI (Ground Fault Circuit Interrupt) protected receptacle. Consult a certified licensed electrician familiar with National Electric Code and local building code standards to ensure the receptacle being used is appropriately equipped and suited for this application.

⚠ The operation of the UniFlex MUST fall within the specifications listed below. For example, exceeding the specified current limits may cause damage to the unit or associated equipment.

⚠ Do not use the UniFlex for any application other than its intended use for brewing or distillation. Always ensure the powered devices are properly set-up and prepared to receive power. For example, heating elements must be submerged in liquid. Failing to do so could result in damage of user's equipment, parts, materials, and/or processes, including but not limited to, damage, discoloration, corrosion, down time, equipment stoppages, process system failure, and/or damage to adjacent and/or area of use or storage locations.

⚠ The UniFlex must be located safely away from sources of heat or liquid. It must be mounted horizontally with the rubber feet down or vertically, with the power cords hanging down. It must be located in an area of adequate ventilation and the bottom vent ports must remain free of obstruction.

⚠ The UniFlex must only be connected to equipment or devices which are purpose-suited and have been installed by qualified personnel. Failing to do so may result in property damage, injury, electrocution, or death.

⚠ The UniFlex has no serviceable components inside. Opening the controller enclosure may render the unit inoperable and will void the warranty.

⚠ 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.

Specifications

- Power Input Supply Requirements
 - Single feed option: 240VAC, 30A via 4-conductor NEMA 14-30R receptacle (includes ground and neutral)
 - Dual feed option: 240VAC, 30A via 3-conductor NEMA 14-30R, 6-30R L6-30R or 10-30R receptacle (no neutrals) and 120VAC, 5A via NEMA 5-15R receptacle
 - Must be protected by 30A dual pole GFCI circuit breaker
- Power Input
 - Single feed option: NEMA 14-30P plug
 - Dual feed option: NEMA 14-30P, 6-30P, L6-30P, or 10-30P plug and NEMA 5-15P plug
 - 2m (6' / 72 inches) power cord length(s) included
- Vessel Power Output(s)
 - 240 VAC, 25 amps maximum (5500W heater) per output
 - Single vessel: 1x NEMA L6-30R receptacles on 230 mm (9 inches) pigtail
 - Dual vessel: 2x NEMA L6-30R receptacles on 230 mm (9 inches) pigtails
- Pump / Accessory Power Output(s)
 - 120VAC, 5 amps total, via NEMA 5-15R receptacle(s) on 230 mm (9 inches) pigtail(s)
 - Circuit breaker integrated in controller
 - Single receptacle is included, dual receptacle is optional
- Enclosure
 - Aluminum, with internal cooling fan (not splash proof)
 - Front panel includes Wi-Fi antenna, temperature probe receptacle(s), I/O connector, I/O power, power switch
 - Rear panel includes pass-through connectors for power and pump/accessory wires and circuit breaker
 - Rubber feet on bottom (optional DIN rail mounting kit)
 - Mounting: horizontal or vertical (power cords down)
 - Dimensions 290 x 170 x 100 mm (11.4 x 6.7 x 3.9 inches) L x W x H, excluding wires
- Temperature Probe(s)
 - 100 mm (4 inch) length, 6 mm (1/4 inch) diameter probe, with 3 m (10' / 120 inches) cord and right-angle plug
 - Universal probe design, allows for brewery integration via compression fittings (not included)
 - Probes are waterproof (can be submerged) and use shielded cable for noise reduction
 - 1-wire technology, allows for up to 10 probes simultaneously plugged in (requires separate adapter, not included)
 - 1 probe included with single vessel controller, 2 probes with dual vessel controller

- Temperature range -55°C to +125°C (-67°F to +257°F)
- ±0.5°C (1°F) accuracy from -10°C to +85°C (14°F to 185°F)
- BruControl Interface
 - ESP32 based microcontroller with Wi-Fi and external antenna
 - Firmware software upgradeable over-the-air
- Solid State Relay Option
 - Standard (binary) SSR for duty-cycle type modulated control
 - Optional proportional SSR for step-less type modulated control
- Cooling configurations
 - External, passive heat sink option (required for proportional SSR)
 - Internal, active (fan cooled) option
- Power Switch
 - Latching, illuminated circular switch on front panel
 - Interlock design ensures vessel Power Outputs are disconnected from mains power
- Integrated Input/Output Option
 - 17 total I/O
 - 12 high current outputs (max limits: 12 amps total, 5 amps per bank, 2 amps per output)
 - 4 inputs (digital or 12-bit analog)
 - 1 analog output (0 – 5VDC)
 - I2C bus pins
 - Internal 12VDC power available, up to 1 amp maximum
 - Front panel connectors for I/O and external power (12 or 24 VDC)

Models

Base Models

| MODEL | DESCRIPTION |
|----------|---|
| UF-1-14S | Single Vessel, 30A with single feed power (NEMA 14-30P plug) |
| UF-1-14D | Single Vessel, 30A with dual feed power (NEMA 14-30P and 5-15P plugs) |
| UF-1-6D | Single Vessel, 30A with dual feed power (NEMA 6-30P and 5-15P plugs) |
| UF-1-L6D | Single Vessel, 30A with dual feed power (NEMA L6-30P and 5-15P plugs) |
| UF-1-10D | Single Vessel, 30A with dual feed power (NEMA 10-30P and 5-15P plugs) |

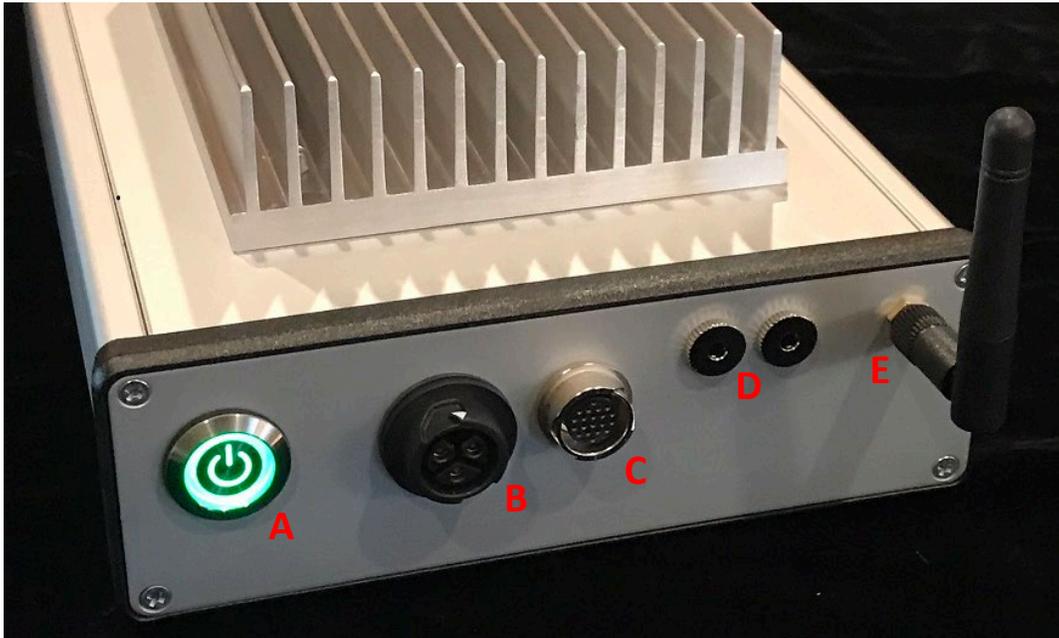
UniFlex Options

| OPTION | DESCRIPTION |
|-----------------------|---|
| Dual Vessel Power | Second L6-30R to power a second vessel heater (includes second temperature probe) |
| Dual Accessory Outlet | Second Pump / Accessory Outlet to power pump or other 120VAC accessory (5A max) |

| | |
|-------------------------------|--|
| Integrated I/O | Integrated user input/output bus with 17 I/O points to connect accessories such as flowmeters, valves, volume sensors, pH sensors, etc. |
| Proportional Control | Proportional SSR which modulates power to vessels (rather than binary ON/OFF type SSR) |
| DIN Rail Mount Kit | Replaces enclosure base's rubber feet with DIN rail mounting clips, allowing for mounting to dual DIN rails (vertically or horizontally) |
| BruControl Advanced License | Discounted BruControl software application (with UniFlex purchase) for multiple/network interface integration |
| Additional Temperature Probes | Plug and play, waterproof, 10' temperature probes (up to 10 per UniFlex) |

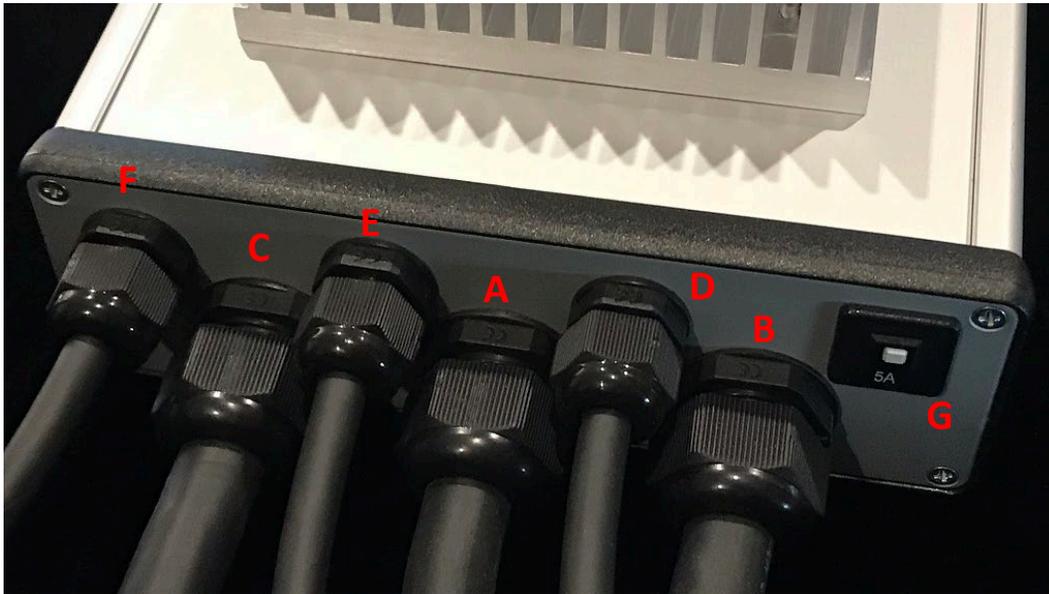
UniFlex Components

Front Panel



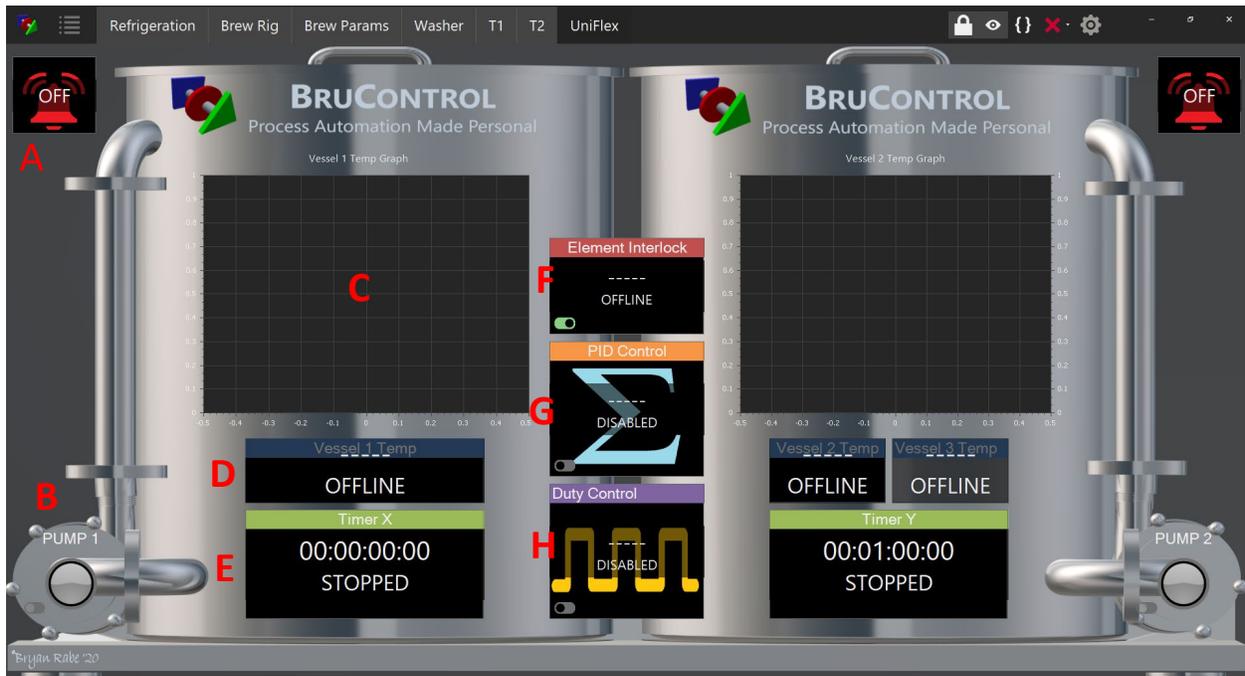
- A – Power Button
- B – Output Power Connector (option)
- C – I/O Connector (option)
- D – Temperature Probe Jack(s)
- E – Wi-Fi Antenna jack & antenna

Rear Panel



- A – 240VAC Power Input
- B – Vessel Power Output #1
- C – Vessel Power Output #2 (option)
- D – 120VAC Power Input (excluded on NEMA 14-30P single feed units)
- E – Pump/Accessory/Pump Power Output #1
- F – Pump/Accessory/Pump Power Output #2 (option)
- G – 5 A Circuit Breaker for 120VAC Power Input

BruControl Workspace



Note that each item in a BruControl Workspace is called an Element (e.g. Alarm Element, Temperature Probe Device Element, etc.) and these represent either functions (e.g. Alarms) or devices (Temperature Probes). These should not be confused with heating elements.

- A – Alarm(s)
- B – Accessory/Pump(s)
- C – Vessel Temperature Graph(s)
- D – Vessel Temperature Device(s)
- E – Timer(s)
- F – Element Interlock (if dual vessel equipped)
- G – PID Control
- H – Duty Control

Initial Set Up

Unpacking

1. Carefully unpack the UniFlex, taking precautions not to place any undue stress on the cables by torquing, pushing, or pulling on the cords or plugs. Place the UniFlex on a horizontal, flat surface with rubber feet facing down, and ensure nothing underneath interferes with the vents on the bottom side. See below for DIN rail based installations.
2. Carefully unpack the temperature probe(s), taking precautions not to place any undue stress on the cables.
3. Carefully unpack the accessory kit and screw the Wi-Fi rubber antenna onto the gold threaded male plug in the upper-right of the front panel. Fold the antenna so it is vertical.
4. Plug in the UniFlex power.
 - a. If single-feed (14-30P only), then plug this plug into an appropriate 30A GFCI-backed receptacle. If dual-feed, then plug the NEMA 5-15P plug into an appropriate 15 amp, 120VAC receptacle. Do not plug in any vessel or accessory power devices yet.

Network Set-up

5. The UniFlex ships with Wi-Fi SSID and password set to “default”. Follow steps 5 – 9 below to change these parameters and connect the UniFlex to the Wi-Fi network for communication with BruControl.
6. Locate the 3.5mm network Setup Dongle plug in the accessory kit and gently place it straight into the temperature probe jack. Do not force it, twist it, or plug it in on an angle.
7. Power-on the UniFlex via the Power Button. Ensure the button glows green and the fan(s) are heard spinning.

8. After a few seconds, using a Wi-Fi enabled laptop, phone, or tablet, browse for a Wi-Fi access point which begins with “BruControl_” using a Wi-Fi enabled laptop, phone, or tablet. Connect to this access point and provide password “BruControl” if requested.
9. Open the laptop, phone, or tablet’s internet browser, and enter <http://192.168.10.1>. An “Interface Wi-Fi Config” configuration page will appear to enter the parameters of the network BruControl and the UniFlex will communicate through. Note this must be completed within 3 minutes of power-up, else the UniFlex will return to normal operation.
 - a. Enter the SSID and password of the Wi-Fi network.
 - b. If using a static IP address, enter the IP, GW (gateway), and SN (subnet) addresses into the appropriate fields, using xxx.xxx.xxx.xxx notation.
 - c. Conversely, if using a server-assigned IP address via DHCP, leave IP, GW, and SN fields blank.
 - d. Save the settings and ensure they are accurately reported back with a “Settings Saved” message.
10. Power off the UniFlex via the Power Button. Ensure the button ceases to glow and the fans go silent. Gently remove the setup dongle plug and store it for future use.

Temperature Probe Setup

11. Plug the temp probe(s) into the temperature probe jack on the UniFlex front panel. If using one probe, plug it in directly. If using multiple probes, use the 6-port splitter and plug it into the jack, then plug the temperature probes into the splitter.
12. Carefully un-wind the temperature probe cables and route them toward their installation locations. Ensure the cables are kept routed away from heat and other power cables to reduce the possibility of noise creating aberrant signals.
13. Insert the temperature probes ends into their respective vessel compression fittings. Insert the probe as far as practical for the mounting location, ensuring the tip does not contact any fitting or vessel wall. Gently tighten the fittings to ensure a good seal.

BruControl Installation

14. Download and install the BruControl application via the license Authorization email included with the UniFlex purchase. Follow the directions included there, including the SQL database installation steps. Alternatively, [download here](#).
15. Make a folder on the installation computer: “C:\BruControl\”
16. Copy the “UniFlex_images” file there and unzip the contents into this location. There will be should have six image files there now, which can be moved later if desired.
17. Copy the three configuration files, “UniFlex_single.brucfg”, “UniFlex_dual.brucfg”, and “UniFlex_3V.brucfg” into the same folder as the BruControl application files.
18. Run BruControl (brucontrol.exe), then Activate the license via Settings (gear icon)... License.
19. Also via Settings, select “UniFlex_single”, “UniFlex_dual”, or “UniFlex_3V” as the configuration, consistent with the controller and brewery types. The background and

images should be displayed. These configurations are pre-created examples – these may be modified as desired.

20. For UniFlex software configurations which do not match the physical configurations, the different Device Elements will need to be added or removed (for example, a dual-vessel with a single pump/accessory output).

UniFlex Connection to BruControl

21. Review the BruControl User Manual to understand how the application works.
22. If using a server-assigned IP address (via DHCP), identify the UniFlex's IP address. Do this by logging into the router/server and review the DHCP assignment or Wi-Fi clients list. The UniFlex device will be noted with a prefix of "esspressif". Alternatively, use an app such as 'Fing' to identify the UniFlex IP address on the network.
23. Edit the interface in BruControl's Settings (gear icon). Change the IP address to match the UniFlex's IP address above. The Status should change from a red X to a green checkmark, indicating the UniFlex is connected to BruControl.

UniFlex Power & Accessories

24. Ensure the UniFlex is powered down via the Power Button.
25. Plug in vessel device(s) (e.g. vessel heating elements). These will have L6-30P locking plugs and will connect to the UniFlex L6-30R vessel power output receptacle(s). Be sure to fully insert and turn the plug into the receptacle to ensure it is locked and properly connected. When looking at the back of the UniFlex, the pigtail cable for vessel power output #1 is on the right is #1 and #2 (if dual vessel equipped) is on the left.
26. Plug in accessory device(s) (e.g. pumps). These will have 5-15P plugs and will connect to the UniFlex 5-15R accessory power output receptacle(s). Be sure to fully insert the plug into the receptacle to ensure it is properly connected. When looking at the back of the UniFlex, the pigtail cable for accessory power output #1 is on the right is #1 and #2 (if dual accessory equipped) is on the left.

Initial Testing

27. Prior to connecting and testing vessel devices (Mash Tun, Hot Liquor Tank, Boil Kettle RIMs tube, etc.), it is highly recommended to fill all vessels with water. This will ensure that activation of the heating elements does not incur damage.
28. Power on the UniFlex and ensure that BruControl reports it as connected.
29. Enable the UniFlex Device Elements to test functionality. First, enable the Vessel Temperature Device Element(s). They should report a temperature(s).
 - a. The temperature probes index on startup. The first time a system is used, or when probes are changed, the indexing may change.
 - b. The user should temporarily touch the tip of each probe to heat it slightly, then identify which Vessel Temp Device Element in the Workspace is responding. If the incorrect Element is responding, the desired Element's index number should be changed to the one which actually showed the temperature response. For example, if Vessel 1 has an index of 0 and Vessel 2 has an index of 1, and the

probe inside Vessel 1 causes the reading of Vessel 2 to respond, Vessel 1's index should be changed to 1.

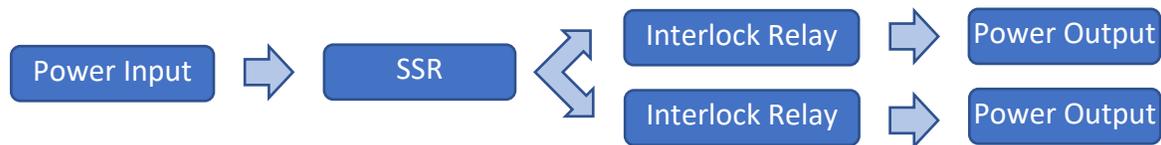
30. Enable the 'Element Interlock' Device Element. A click sound from the relay(s) inside should be heard. Selecting it to switch elements (if equipped) should result in two concurrent click sounds.
31. Enable the Pump (accessory) Device Element(s) and select them to turn them ON. The connected accessory(s) should run appropriately.
32. If the Vessel Power devices (heating elements) are in a condition they can be powered (e.g. under liquid), enable the Duty Cycle Device Element and set its output to 100% to check that they are functioning properly. Do this for both outputs if equipped by changing the Element Interlock from one vessel to the other.

Operation

The BruControl application and the UniFlex are two components in a functioning BruControl integration and operate like all BruControl systems. Therefore it is critical that the user review the BruControl User Manual (brucontrol.com/build/user-manual/) in its entirety before operating the UniFlex. The operation instructions to follow assume awareness and understanding of the User Manual content and will not be repeated here for consistency.

Power Flow & Control

For the Vessel Power Outputs, the 240VAC power routes through the UniFlex as follows:



This power flow requires both the SSR (Solid State Relay) and Interlock Relay to be ON in order for the output to be powered. Note: For single vessel configurations, only one Interlock Relay and Power Output Receptacle are included.

⚠ For dual vessel configurations, BOTH Interlock Relays MUST NEVER be ON at the same time. In the pre-defined configurations provided, the “Dual Throw” function of the Interlock Relays and a safety script are implemented to prevent this from occurring. If, however a manual configuration is created or used by a user, failure to ensure that only one Interlock Relay is ON will create a current overload, possibly causing damage to the UniFlex or supporting circuitry.

The SSR is controlled both by the PID Control and by the Duty Control. PID Control uses a PID (Proportional Integral Derivative) algorithm to achieve and maintain a set temperature by comparing it to the actual temperature. Its output varies from cycle to cycle, creating a net power output from 0 to 100%. It uses an input temperature to reference the actual temperature, which is selectable from the various temperature probes established. The Duty Control (aka Manual Mode) also generates a net power output from 0 to 100%, but this output is set by the user and fixed.

When the PID or Duty Controls are enabled, the other automatically becomes disabled. When a user enables and uses the PID control, they must make sure the Input control reference is correct. For example, if the goal is to heat Mash water to a target temperature, the input temperature probe must be in the mash tun, otherwise the mash heater will continue heating indefinitely.

Brewing Sequence

⚠ Prior to completing an actual brewing sequence, a simulated brewing session should be conducted with water to ensure proper operation and understanding of the system.

When brewing manually, the user changes the Elements' properties on the Workspace as needed. For example, if the user wants to set a Timer, they interact with a Timer Element by setting or resetting a time, stopping or starting the Timer, etc. When brewing automatically, the user runs a Script, which makes changes according to its conditions and definitions.

Here is an example brew day with the UniFlex, using a two-vessel no-sparge, direct heat system with counterflow chiller:

1. Power on the UniFlex and ensure all probes are reading correctly.
2. Fill Vessel 1 (Mash Tun) with water to the appropriate level and modify it with salts as desired.
3. Enable Pump 1 and turn it ON to start recirculation.
4. Enable the Element Interlock and ensure it is ON (“#1 ENABLED”). Enable the PID Control and set it to strike temperature of 161 degrees F. Start Timer X.
5. After strike temp is reached, turn PID Control OFF, turn Pump 1 OFF and dough in.
6. Restart Pump 1 and reset Timer X. Set Timer X to issue Alarm 1 when it reaches 1 hour. Set PID Control to 152 degrees F. Monitor for stuck mash, adjust the pump rate as needed, and check for pH in 10 minutes. Add acid or base if needed. Monitor the temperature graph.
7. Once the timer reaches an hour and Alarm 1 sounds, turn off the Alarm, turn PID Control OFF, turn Pump 1 OFF, and arrange the tubing to drain from the Mash Tun to Vessel 2 (Boil Kettle). Turn Pump 1 ON and begin the transfer.
8. Once the wort in the Boil Kettle covers the heating element, change Element Interlock to be OFF (“#2 ENABLED”). Enable Duty Control and set it to 100% to begin heating the wort in the Boil Kettle. Turn Pump 1 OFF when done transferring.
9. When the temperature in the Boil Kettle reaches 210 degrees F, turn the Duty Control power down to ~75% and monitor for boiling. Once it starts simmering, turn the Duty Control power down again to ~60%.
10. Set Timer Y for 1 hour countdown and to issue Alarm 2 when it reaches 10 minutes.
11. Add hops/adjuncts per recipe schedule along the way. When Alarm 2 sounds, turn it off and connect the chiller, recirculating back to the boil kettle. Enable and turn on Pump 2. Increase the Duty Control back to 100% to re-establish the boil, then reduce it again.

12. Once Timer Y reaches zero, disable Duty Control to cease heating and initiate flush water to begin chilling. Monitor Vessel 2 (Boil Kettle) temp to reach transfer temperature.
13. Turn Pump 2 OFF, connect the tubing to the fermenter, and Turn Pump 2 ON to initiate transfer.
14. Once done transferring (or running a clean cycle) disable all Device Elements prior to powering off the UniFlex.

Firmware Updates

The UniFlex contains a micro-controller which runs BruControl specific firmware. This firmware can be updated as new versions are published. New versions will add new functionality and/or remedy bugs. Firmware and the installation tool can be downloaded from brucontrol.com/download/firmware/.

The firmware is installed via OTA (Over-the-Air), therefore the UniFlex needs to be connected to the Wi-Fi network prior to updating. BruControl should be closed or disconnected from the UniFlex interface prior to updating the firmware.

Integrated I/O

The Integrated I/O option includes two connectors on the front panel: the I/O Connector and the output driver Power Connector for it. The mating connectors for these two are included in the accessory kit. The I/O Connector is a 20-pin connector that provides connections to the 17 I/O (12 high current driver outputs, 1 analog output of 0-5V range, and 4 inputs which are digital or analog) and 2 I2C pins. The remaining pin, #20, is ground. The user should connect these pins to appropriate devices (for example, valves, flow meters, sensors, etc.). The pin mapping of these is provided in the Interface Wiring Map (below). The user should consult the User Manual to understand how the Interface Wiring Map translates to Device Elements in BruControl.

The Power Connector contains 3 pins: Power In, Power Out, and Ground. By default, the Power Connector mate power in and power out pins are jumpered (connected). This takes the internal 12V (up to 1A) supply power and redirects it back to the output driver channels. Therefore, the Power Connector mate must be installed for any of the 12 high current driver output channels to work correctly. The combined current output of all 12 channels ON when using the internal supply power must not exceed this 1A limit.

Should the user need a higher current supply or prefer to power the output drivers with a different voltage, this jumper needs to be disconnected, and output driver pin would be connected to a discrete power supply. Voltage supplied can range from 5V to 24 VDC. This does not affect the other channels such as the analog output or the inputs. The limits per high current driver output pin are listed in the specifications above and must not be exceeded.

Note: The mating I/O and Power Connectors require wires soldered to their pins. This should only be conducted by someone with adequate experience / skills soldering fine-pitch

electronics. Solder flux is highly recommended to ensure adequate bonding of wires in the connector solder cups.

The I/O Connector pins and associated signals are as follows:

| I/O Connector Pin | Signal | BruControl Port |
|-------------------|----------------------------------|-----------------|
| 1 | GPIO 36 (36) | 36 |
| 2 | GPIO 39 | 39 |
| 3 | GPIO 22 / SCL | N/A |
| 4 | Driver output on GPIO 3 | 3 |
| 5 | Driver output on GPIO 18 | 18 |
| 6 | Driver output on GPIO 16 | 16 |
| 7 | Driver output on GPIO 0 | 0 |
| 8 | Driver output on GPIO 15 | 15 |
| 9 | Driver output on GPIO 14 | 14 |
| 10 | Analog output, 0-5VDC on GPIO 32 | 32 |
| 11 | GPIO 34 | 34 |
| 12 | GPIO 35 | 35 |
| 13 | GPIO 21 / SDA | N/A |
| 14 | Driver output on GPIO 23 | 23 |
| 15 | Driver output on GPIO 19 | 19 |
| 16 | Driver output on GPIO 17 | 17 |
| 17 | Driver output on GPIO 4 | 4 |
| 18 | Driver output on GPIO 23 | 2 |
| 19 | Driver output on GPIO 25 | 25 |
| 20 | Ground | N/A |

Please see the [BruControl Interface Wiring Map](#) for the UniFlex pin/port specific functions and limits per pin.

Temperature Probe Design

The temperature probes included with the UniFlex are of universal design, permitting installation into vessels, fittings, RIMs tubes, etc. via thermowells or compression fittings. The probe diameter is 6 mm (1/4 inch), so appropriate compression

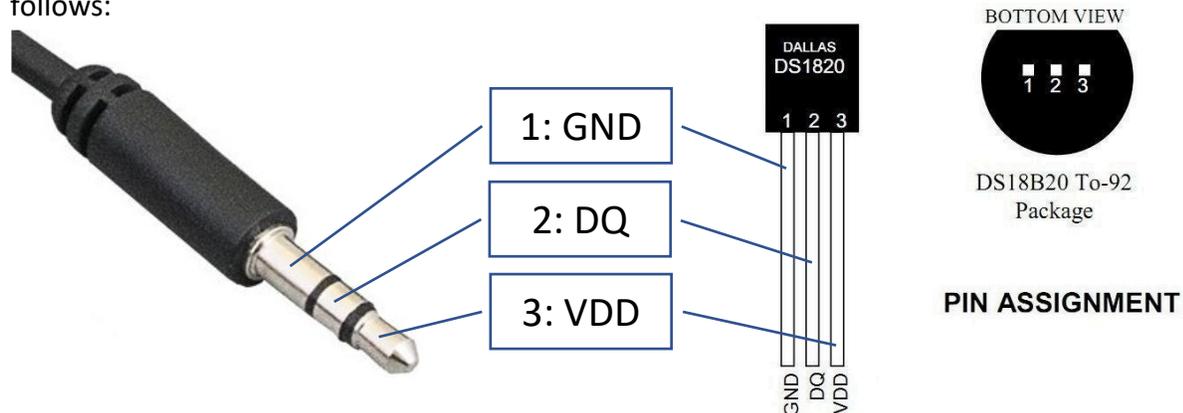
The temperature sensor is a 1-wire DS18B20, which operates on a bus-type communication system. This allows the UniFlex user to plug in multiple probes (up to 10) as needed for the application. Multiple probes can be plugged into the Temperature Probe Jack via universal 3.5mm splitters (headphone style). A 6-port splitter is included with dual-vessel configurations.

The probes are waterproof and may be submerged, however the wire jacket is made of PVC and is not food compatible, therefore should not make contact with any food products.

When inserting a probe plug into the Temperature Probe Jack on the front panel of the UniFlex, it is important that the plug is inserted straight and slowly. If any resistance is met, it should be retracted and tried again.

As noted above in Initial Set-Up, the probes are indexed during initial power-up of the UniFlex, therefore the temperature probes are not hot-swappable. Probes should therefore not be plugged or unplugged while the UniFlex is powered on.

It is highly recommended that additional temperature probes be purchased from BruControl. While not recommended, if a user needs to purchase a different probe, the connections are as follows:



⚠ Inserting probes which are not provided or qualified by BruControl may cause damage to the UniFlex as the VDD output is not fused.

DIN Rail Mounting

The DIN Rail Mount option provides the ability to mount the UniFlex to dual 35mm DIN rails. This prevents the UniFlex from being accidentally moved and facilitates vertical mounting if desired.

⚠ The UniFlex may be mounted horizontally, with the DIN rail clips facing down, or vertically, with the pigtail power cords hanging down. Do not mount the unit in any other orientation.

The DIN Rail Mount option replaces the four-standard rubber-feet with DIN rail clips. Two 200mm lengths of DIN rails are also included. To use, mount the DIN rails in parallel, 164mm apart, center-to-center. Then press the UniFlex with DIN rail clips down until all four click in place. To remove, firmly and slowly pull up on the UniFlex main body lifting on one row of clips at a time until they disengage.

Troubleshooting

Warranty

A. Limited Warranty

1. BruControl LLC 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. BruControl LLC's obligation to repair or replace defective materials or workmanship is the sole obligation of BruControl LLC 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. BruControl LLC reserves the right to request delivery of the defective component for inspection before processing the warranty claim. If BruControl LLC receives, during the applicable warranty period, notice of a defect in any component that is covered by the warranty, BruControl LLC shall either repair or replace the defective component with a new or rebuilt component at BruControl LLC's option.
4. BruControl 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 BruControl LLC prior to any return. Customer is responsible for keeping all original packaging material for warranty returns. BruControl LLC 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. BruControl LLC's limited warranty is valid in any country where the product is distributed.

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. BruControl LLC 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. BruControl LLC 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 BruControl LLC does not authorize anyone to create any other obligation for it regarding this product.
3. BruControl LLC 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 BruControl LLC's agent, but an independent entity.

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 BruControl LLC 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 BruControl LLC 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 Palm Beach County, Florida, United States, which courts will have exclusive jurisdiction.

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.

Contact BruControl at info@brucontrol.com with any questions or concerns.