



# OLED Controller for BISON Heaters

Product Number: 210

Firmware Version: 6.0

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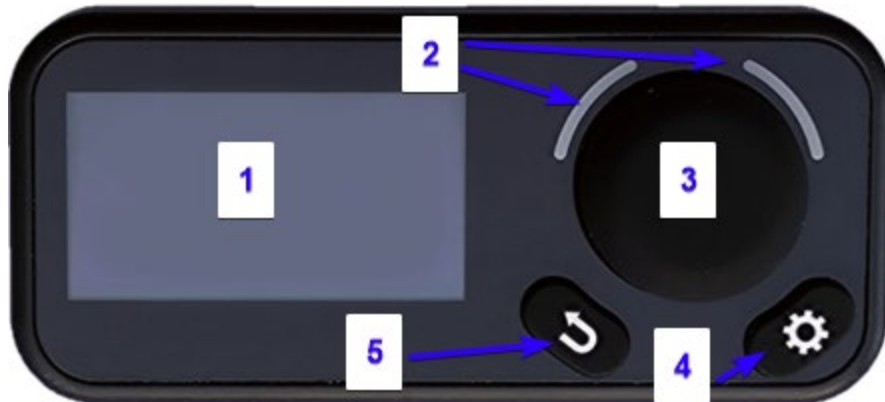
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## Description

This Controller is compatible with all BISON heaters.

## Controller Components

1. OLED Display
2. LED Indicators
3. Knob
4. Settings Button
5. Back Button



## LED Indicators

Indicator Status	Status
Solid Blue	Initializing
Flashing Blue	Disconnected
Solid Green	ON
Solid Red	Shutting Down
No light	OFF
Flashing Green	Fault Detected

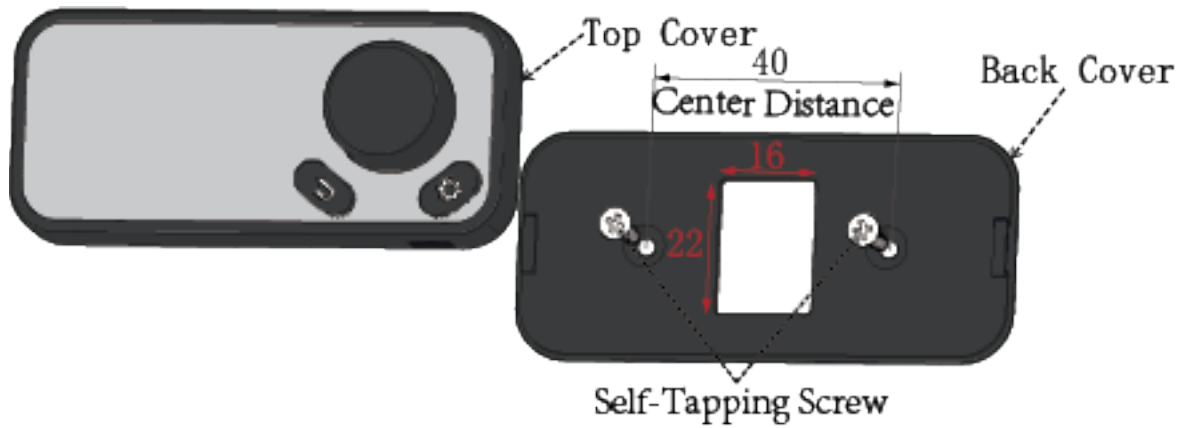
## Installation

### Caution:

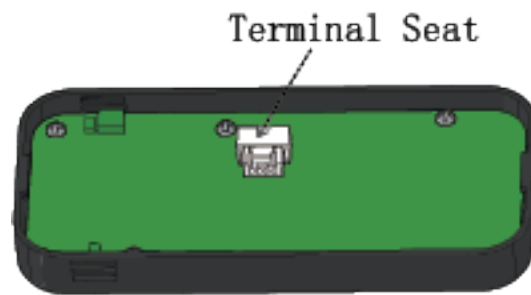
- Controller must be installed in a dry and liquid free environment.
- Controller cable must not be shortened.
- Power must not be connected to the heater's wire harness when installing the Controller.

### Installation Steps:

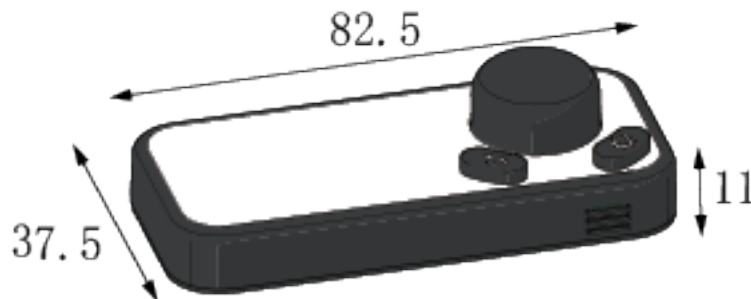
1. Clean the installation surface area to ensure that the surface is smooth and clean with no dust or water vapour.
2. Separate the back plate from the Controller.
3. Reserve a cutout for the Controller cable to go through the installation area.
4. Screw in the provided screws into the back plate as shown in Figure 1 below.
5. Connect the smaller end of the Controller cable to the terminal connector as shown in Figure 2 and pass through the other end of the cable through the reserved cutout in Step 3.
6. Assemble the Controller back together by pressing the Top Cover against the backplate as shown in Figure 3.



**Figure 1**  
(The dimensions are in millimeters and are not to scale)



**Figure 2**



**Figure 3**

## Getting Started

1. Connect power to the controller. Initializing screen will appear.



2. Display will go into the idle screen once initialization has finished.



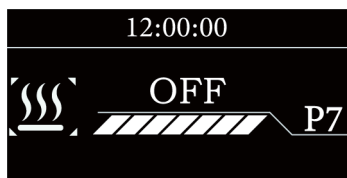
3. If Initialization has failed, the controller will display No Connection.



4. Press and Hold the knob button for 2 seconds to turn on the heater.



5. Press and Hold the knob button for another 2 seconds to turn off the heater.



## Operating Modes

There are three operating modes: Variable Heat Mode, Thermostat Mode, and Ventilation Mode.



Variable Heat Mode



Thermostat Mode



Ventilation Mode

### Variable Heat Mode

In Variable Heat Mode, User can adjust the heat intensity level with the knob ranging from P1 – P7.

(1 is minimum, 7 is maximum)



\*Note: Variable Heat Mode will only ignite the heater once during the ignition phase. Once the flame inside the combustion chamber has been established, the glow pin will not be used again.

### Thermostat Mode

In Thermostat Mode, User can set the temperature by adjusting the knob ranging from 5°C is minimum, 35°C is maximum. The heater will regulate the cabin temperature at the set temperature.



\*Note: In Thermostat Mode, flame will be stopped once the set temperature has been reached. Heater will reignite when the cabin temperature drops below the set temperature.

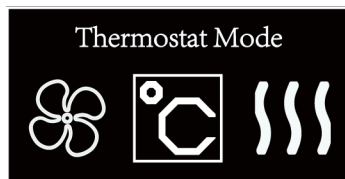
## Ventilation Mode



In Ventilation Mode, only the fan will spin, no heat will be outputted. User can change the intensity of the fan by turning the knob to change from P1—P7. (1 is minimum, 7 is maximum)

## Mode Selection

With the heater in Idle mode, Press the knob button once to display the modes selection menu. Turn the knob to select a different mode, Press the knob to confirm your selection.





## Heater States

### ON State



The heater is on and in Operation.

In this example, the heater is in Variable Heat Mode and set to P7.

### Shutting Down State



Heater is in its Shutdown phase ("OFF" is flashing).

Glow pin has been turned on to burn off any remaining fuel inside the combustion chamber to prevent carbon buildup.

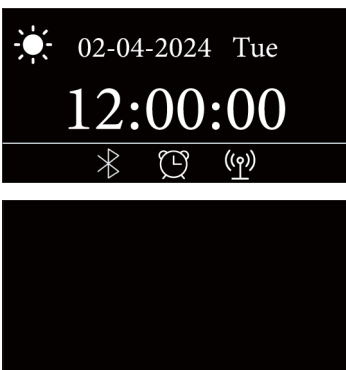
**\*\*Note: DO NOT turn off the main power to the heater. Doing so may permanently damage the heater's ECU and blower motor.**

### Shutdown State



The heater is in its OFF state. Fan and fuel pump should be inactive.

### Standby State



If no operation within 20 seconds, controller will display the current date and time. If standby mode is ON, the display will be turned off after another 20 seconds.

Standby mode is ON by default. To turn off Standby mode, press and hold the Settings button for 2 seconds.

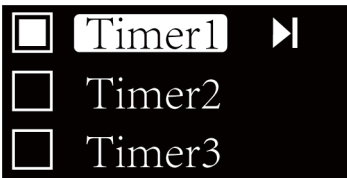
Press the Back button or the knob button on the controller to exit out of Standby.

## Scheduling Function (Timer)



In the Mode Selection screen, navigate to the Timer icon as shown to the left and press the knob button to confirm the selection.

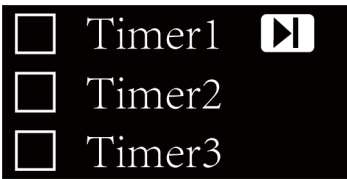
### Turn On/Off Timer



1. Highlight the word 'Timer1', 'Timer2', or 'Timer3' by turning the knob clockwise and counterclockwise.
2. Press the knob button to confirm enabling or disabling of the selected timer.

Note: Rotate the knob clockwise to go down the screen.

### Edit Timer

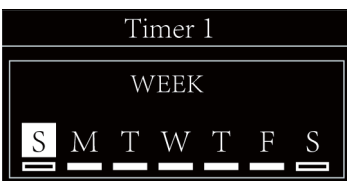


#### To edit settings inside each timer:

1. Highlight the arrow icon to the right of the word 'Timer1', 'Timer2', or 'Timer3'.
2. Press the knob button once to enter Timer settings

#### Select the day of the week:

1. Rotate the knob to choose which day of the week for this timer to be active.
2. Press the knob button once to select the day of the week.



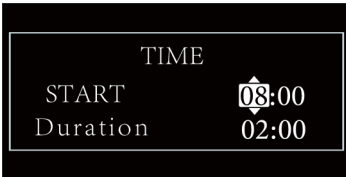
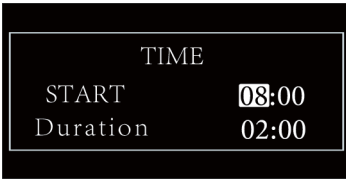
Solid bar → Day Selected.

Empty bar → Not Selected.

Note: Rotate the knob clockwise to go down the screen.

**To change the Hours and Minutes under Start time and**

**Duration:**



1. Highlight the Hour/Minute you'd like to modify.
2. Press the knob button once to select the hour/minute
3. Once you see up and down arrows on the hour/minute you've selected, rotate the knob to change values.

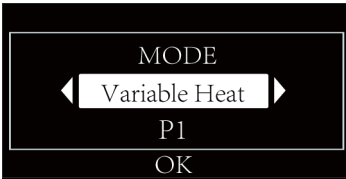
4. Duration needs to be at least 10 minutes

Hour: 0—23 hours

Minute: 0—59 minutes

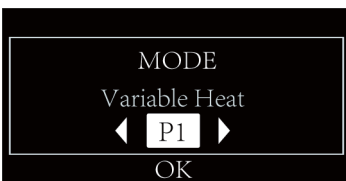
Note: Rotate the knob clockwise to go down the screen.

**To change mode inside a timer:**



1. Highlight 'Variable Heat'
2. Press the knob button once to enter mode selection
3. Rotate the knob clockwise or counterclockwise to select your desired mode.
4. Press the knob button once to confirm your mode selection.

**To change the Power Intensity/Temperature/Fan speed under Variable Heat/Thermostat/Ventilation modes:**



1. Highlight the value below the mode name.
2. Press the knob button once to edit value.
3. Rotate the knob clockwise or counterclockwise to change value.
4. Press the knob button once to confirm your change.

Rotate the knob clockwise to select 'OK' and press the knob button to finish editing this timer.

## Settings

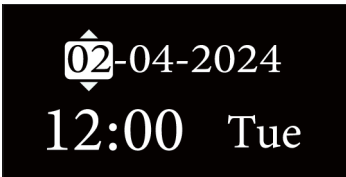
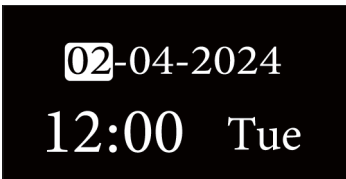
Press the “Setting” icon to enter the Settings menu. Turn the knob to select different sub-settings.

Press the knob to enter the sub-setting menu.

### Current Time Setting



Time Setting allows the user to set the current time and date.



Date Format: Day-Month-Year

Time Format: 24-hour

To change values:

1. Highlight the value you'd like to modify.
2. Press the knob button once to enter edit mode.
3. Rotate the knob to change to your desired value.
4. Press the knob button once to confirm your selection.

Note: Rotate the knob clockwise to go down the screen.

### Language Setting

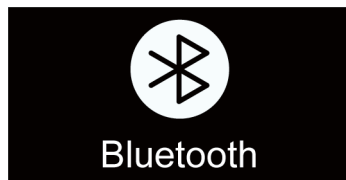


Language Setting allows the user to change the language of the controller between Chinese and English.

Use the knob to select your language and press the knob to confirm selection.

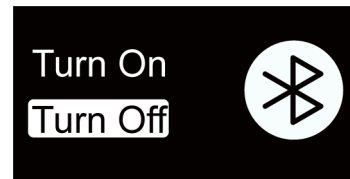
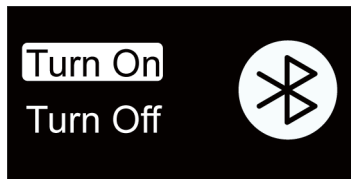


### Bluetooth Setting

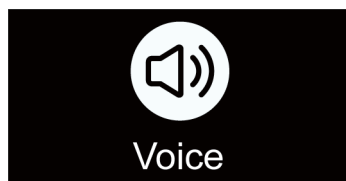


Bluetooth Setting enables or disables the Bluetooth function on the controller.

Use the knob to select ON or OFF and press the knob to confirm selection.

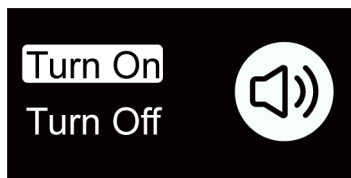


### Sound Setting



Sound Setting controls the beeping sound of the controller.

Use the knob to select ON or OFF and press the knob to confirm selection.



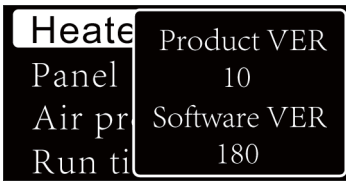
## Heater Information



The heater information menu stores the heater ECU Software Version, Controller Software Version, Atmospheric Pressure and Ambient Temperature, Heater Run Time and Ignition times, and Monitor Mode.

Use the knob to select a sub-menu and press the knob to confirm selection.

### ECU Software Version



This sub-menu displays the ECU product version and the ECU software version.

This information is often used for troubleshooting and diagnostic purposes.

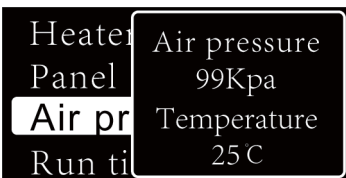
### Controller Software Version



This sub-menu displays the Controller product version and the Controller software version.

This information is often used for troubleshooting and diagnostic purposes.

### Atmospheric Pressure & Ambient Temperature



This sub-menu displays the atmospheric pressure and the ambient temperature of where the Controller is located.

## Heater Run Time

Heater	Run time
Panel	40h 20m
Air pr	Ignition times
Run t	110

This sub-menu displays the Heater Run Time and the Ignition times of the heater.

Heater Run Time is used for warranty purposes.

Ignition times is how many times has the glow pin turned on, and how many times has the heater entered ignition phase.

If Heater Run Time is low and Ignition times is high, most likely the heater experienced short cycling.

## Fuel Priming Function

To access the Fuel Priming Function,

1. Navigate to the [Heater Run Time](#) screen that is under “Settings” -> “Information” -> “Heater Run Time”.
2. Hold down the <Back> button and the <Settings> Button until you see the following screen.



Press the Knob once to activate Fuel Priming Function.

Fuel Priming Function will activate the fuel pump for 90 seconds, sucking and pumping fuel into the fuel lines on either side of the fuel pump. It should also eliminate as many air bubbles in the fuel line as possible.



Once activated you will see a countdown of 90 seconds on the display. Once the countdown of 90 seconds finishes, the fuel pump will stop pumping.

You can exit the Fuel Priming Function before the end of the 90 seconds by pressing once on the Back Button.

You may need to activate the fuel priming function more than once if you have a long fuel line installed.



## Troubleshooting



If you see “Disconnect” on the display, then it means the Controller has been disconnected from the heater.

Troubleshooting Steps:

1. Try unplugging and re-plugging the Controller Cable to remedy this issue.
2. Replace the Controller Cable.
3. Replace the Controller



When a fault displays on the screen, please refer to the [BISON Fault Code Table](#) for more details in resolving the fault.

Press and hold the knob for 2 seconds to exit the fault screen.



\*Note: After dismissing the fault screen, only proceed to restart the heater after it has completely shut off.