

# *“Get Stoked”*

Stoker Users Manual  
Ver .5 Software



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## 1. Precautions

The Stoker Blowers cannot provide more draft than if you left your draft door open. So using the Stoker is no more dangerous than using natural draft.

When you use the Stoker you are dealing with fire so you must take precautions. The Consumer Product Safety Commission reports that every year about 20 deaths and 400 injuries are treated resulting from carbon monoxide poisoning from charcoal grills. The following tips will help make your barbecue/smoker experience a safe one.

- Due to the production of carbon monoxide when charcoal is burned, barbecue / smokers should not be used inside homes, vehicles, tents, or campers, even if ventilation is provided. Carbon monoxide is odorless and colorless. You will not be alerted to the danger until it is too late.
- Make sure the barbecue / smoker is at least 10 feet away from your house, garage, or trees.
- Keep children away from the barbecue / smoker.
- Have a fire extinguisher; a garden hose attached to a water supply, or at least 4 gallons water close by in case of a fire.
- Use long handled barbecue tools and/or flame resistant mitts.
- Keep alcoholic beverages away from the barbecue / smoker.
- Remove the charcoal ashes from the barbecue / smoker and place them into a metal container with a tight fitting metal lid. Add and mix in water with the ashes, and set aside for several days. Dispose of the mixture in accordance with the local sanitation guidelines.



## 2. Introduction

Thank you for purchasing the Stoker from *Rock's Bar-B-Que*. The Stoker is a power assisted draft control system for your barbecue / smoker. The Stoker will allow you to control your barbecue / smoker like you would control your oven.

### **Basic System**

The Basic Stoker System consists of four components. The Stoker, Temperature Sensor, Blower, and Power Supply. The Stoker is a versatile electronic controller housed inside a rugged powder coated aluminum enclosure. The Temperature Sensor is a fast responding thermocouple housed inside a stainless steel tube. The Blower supplies the draft and comes in different sizes to fit different barbecue / smokers. The Power Supply is the “wall wart” type and powers all of the components.

### **How It Works**

A Temperature Sensor is placed inside your barbecue / smoker at the location where you want your target temperature maintained. A blower is installed so it blows air directly into the firebox. The Stoker measures and compares the Temperature Sensor measurement to the target temperature setting. When the measured temperature is lower than the target temperature the blower turns on. When the measured temperature goes above the target temperature the blower turns off. This cycle continues hundreds of times during your cook to maintain the target temperature.

### **Alarm Features**

The Stoker has alarms that you can configure for each Temperature Sensor. You can choose a “Fire Alarm” that gives you both a high alarm to make sure your fire is not getting to hot and a low alarm to make sure your fire is not going out.

### **Food Measurement Features**

The Stoker can also monitor the temperature of the food you are cooking and alarm you when it is done. The Stoker also features a “Setback” function to turn down the temperature of your barbecue / smoker when your food is done to prevent it from overcooking.

### **Controls Several Barbecues / Smokers**

The Stoker is capable of controlling several barbecues / smokers all at once. The Stoker has 5 device ports but can easily be expanded with a “Device Port Expander”. You need 2 device ports for each barbecue / smoker you want to control, one port for a Temperature Sensor and one port for a Blower.

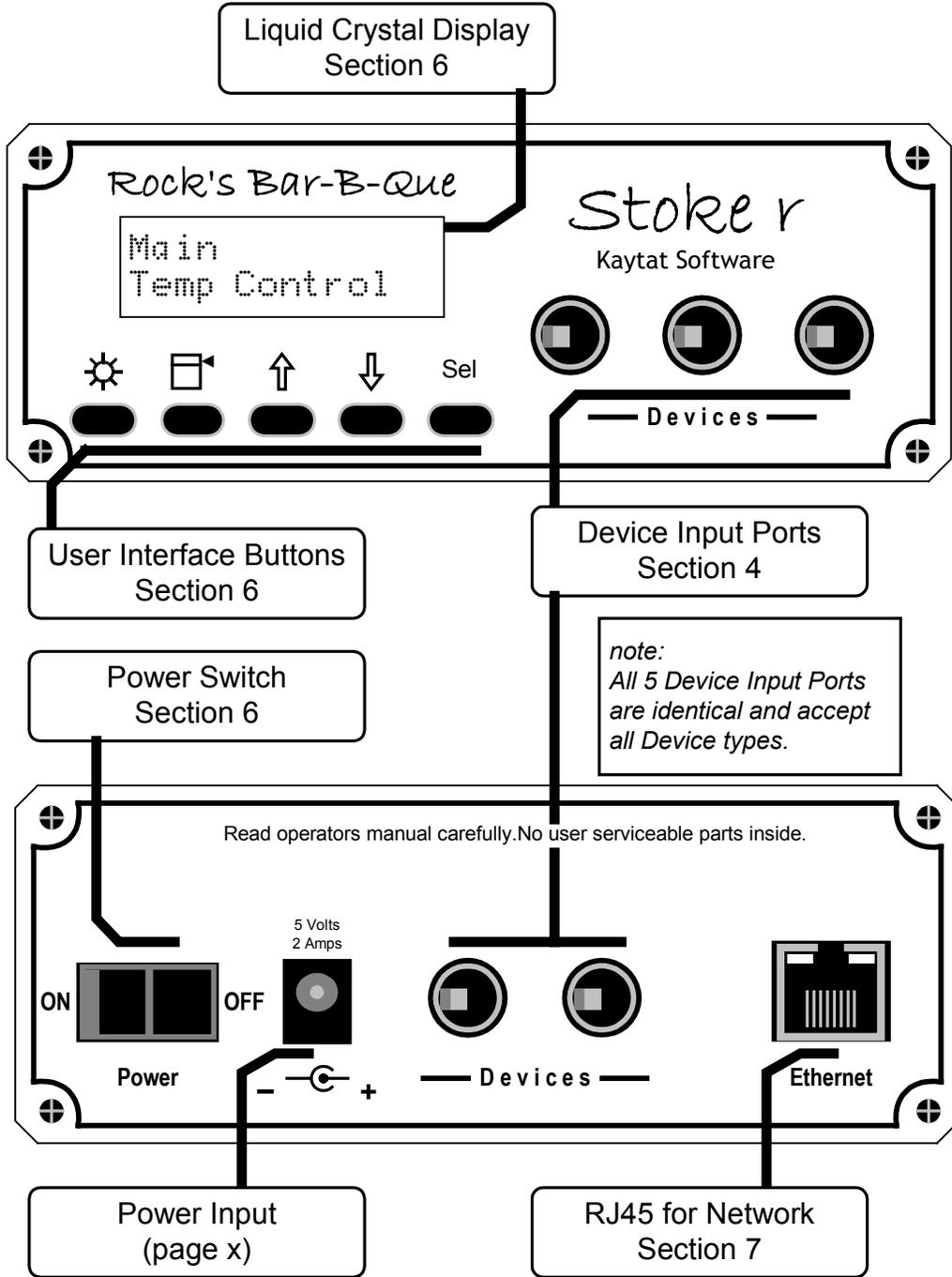
### **Built in Web Server**

Connect the Stoker to an Ethernet network and you can control your Stoker from anywhere you have network access. No special software is required. Use your web browser to monitor and control your Stoker.



### 3. First Look

#### Stoker Front Panel



#### Stoker Rear Panel



## 4. Devices

One of the most versatile features of the Stoker is the way the Temperature Sensors and Blowers interface to the Stoker. There are five device ports on each Stoker. Three ports on the front and, 2 ports on the back. All of the Device ports are identical and accept any device available for the Stoker.

For convenience you can plug and unplug your devices with the Stoker powered up. You can let the Stoker get your fire going while you are in the house prepping the meat and inserting the Food Temperature Sensors. Then you take your meat outside and put on, and plug the Temperature Sensors in. In a second or so the Stoker recognizes the newly inserted Temperature Sensor and it is ready to use.

Caution: Plug only devices from *Rock's Bar-B-Que* into the Stoker

### Temperature Sensors

*Rock's Bar-B-Que* offers a variety of Temperature Sensors; pointed Temperature Sensors for inserting into food, Fire pit Temperature Sensors for Measuring your fire temperature, Special high Temperature Sensors. The Standard Temperature Sensors are housed inside a stainless steel closed end tube. The lead wire is made from Teflon. The Temperature Sensors have a special high temperature silicone rubber strain relief where the lead wire comes out of the tube. Care should be taken when cleaning not to pull off or damage the Strain relief. Do not submerge the plug end of the Temperature Sensors into water! The plug has electronics inside that can be damaged. All of the Temperature Sensors come standard four feet long. (Custom lengths available by special order)

#### Fire pit Temperature Sensors

When you measure the internal temperature of your barbecue / smoker you want to pay close attention to where you place your fire pit Temperature Sensor. The temperatures in your barbecue / smoker can vary greatly from one location to another. The most variance will occur in the vertical dimension.

Your Stoker came standard with a Temperature Sensor attachment clip. The clip has a high temperature silicone rubber sleeve that thermally isolates the tip of the Temperature Sensor from its mounting, so you get fast accurate measurements.

You want to place your fire pit Temperature Sensor at the same level of, and a couple inches away from the food you are cooking. Most of the time the optimum place for your attachment clip is on the grill that your food is on. Be careful to place the Temperature Sensor in a place so it is not touching anything and no juice from food your cooking drip on it.

#### Food Temperature Sensors

To monitor the internal temperature of your food while you cook, you will need a Food Temperature Sensor. *Rock's Bar-B-Que's* Food Temperature Sensors are made from food grade 304 stainless steel. They have a moderate point for easy insertion into food. Insert the Temperature Sensor into the food so the tip is in the thickest part of the food. You can set a Food Alarm so you are notified when your food is done.

## **Blowers**

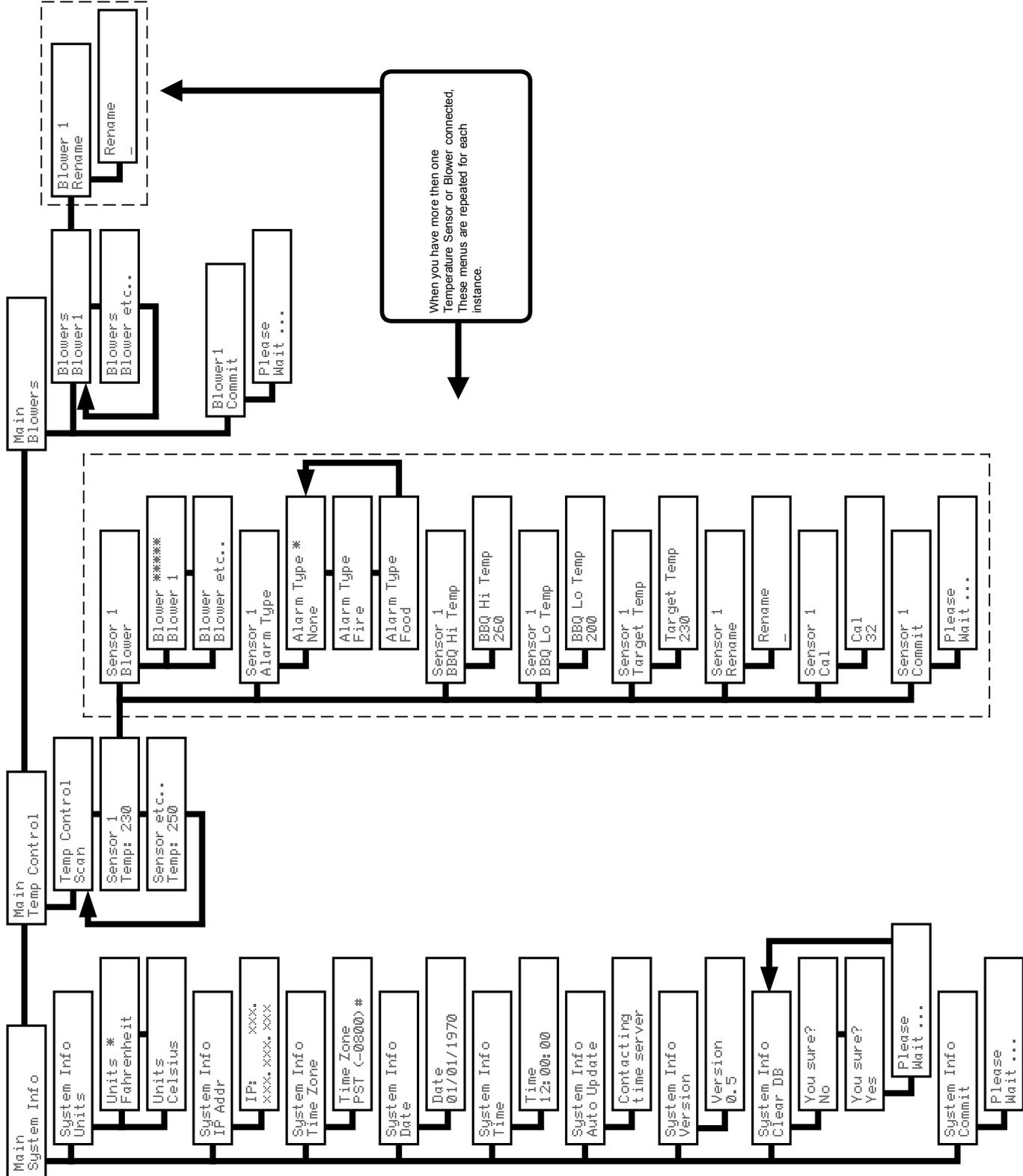
The Blower is what provides the draft to stoke your fire. You want to choose a blower that is the right size for your barbecue / smoker. If you choose a blower that is too big you will not have good fine control. The standard 5 Cubic feet / minute (CFM) Blower is a good choice for most backyard barbecue / smokers.

The 5-CFM Blower comes standard with a door that automatically opens and closes when the Blower cycles on and off. Since the Blower door automatically closes and seals off the natural draft you are able to maintain very low temperatures. The door has a special high temperature coating to help protect the Blower from the heat of the fire.

## **More Device Types to Come**

Currently the devices we offer are limited to Temperature Sensors and Blowers. In the future we will offer other devices like louder alarms possibly damper controls and some things we have not thought of yet!

## 5. Quick Reference Menu





## 6. Stoker User Interface

The first user interface required is turning the power on. The power switch is located on the rear panel of the Stoker. The Stoker has many tasks to do on power up. It takes about 10 seconds for the Stoker to complete a self-test and check for attached devices. About three seconds after the power is turned on the LED back light lights. About 7 seconds later the Stoker LCD will show the opening menu and you are ready to go.

To control the Stoker you use the five buttons on the front panel. The user interface is similar to what is used on many consumer electronic devices, like fax machines and computer monitors. At first it may seem a bit slow, however once you get used to it, you will find it easy to use. We recommend you plug it in, and play with it on your kitchen table for a few minutes to get familiar with the controls. Here is a brief description of the buttons.

-  **LED back light.** Turns LED back light on and off.
-  **Menu.** Takes you back to the previous menu
-  **Up Arrow.** Increments numbers and characters
-  **Down Arrow.** Decrements numbers and characters.
- Sel** **Select.** Selects the current menu item.

The Liquid Crystal Display (LCD) on the front of the Stoker gives the user visual feedback of the status of the Stoker. With the five buttons and the LCD you can control all of the functions of the Stoker.

### Main Menu

Pressing the  button cycles through the three Main menu options.

Main System Info	General system information and user preferences
Main Temp Control	Temperature measurements setup and control.
Main Blowers	Blower naming and renaming.

Pressing the  button cycles you back through the three Main menu options.

Tip: Each of the three Main Menu items has a “Commit” option as a sub menu. The Commit option saves any settings you have changed to non-volatile memory. As long as you have “committed” your changes you will not have to re enter them if power is lost.

## System Info Menu

The System Info menu is where you set the user preferences. Once you have set your preferences and stored them to memory you will seldom need to visit the System Info menu.

```
Main
System Info
```

From the Main menu press the Sel button to choose the System Info option

```
System Info
IP Addr
```

Press the  $\uparrow$   $\downarrow$  buttons to cycle through the System Info options. Press the Sel button to choose the option desired. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

```
System Info
etc...
```

## Units

```
System Info
Units
```

Press the Sel button to choose the Units menu. Press the  $\uparrow$   $\downarrow$  buttons to choose either. Fahrenheit or Celsius.

```
Units *****
Fahrenheit
```

Press the Sel button to select which unit to use. The \*\*\*\*\* are displayed in the window of the selected unit. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

```
Units
Celsius
```

## IP Addr

```
System Info
IP Addr
```

Press the Sel button to display the IP address that was assigned on power up. The Stoker must be connected to a DHCP Server for this function. See the "Network Connection" chapter for more information. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

```
IP:      192.
168. 0. 2
```

## Time Zone

```
System Info
Time Zone
```

Press the Sel button to select the Time Zone option. Press the  $\uparrow$   $\downarrow$  until the desired zone appears. Press the Sel button to select it. An \* will appear on the time zone selected.. Press the  $\square$   $\blacklozenge$  button to return to the previous menu. \*note requires your Stoker to be connected to a network with a timeserver

```
Time Zone *
PST (-0800) #
```

## Date

```
System Info
Date
```

Press the Sel button to select the Date option Press  $\uparrow$   $\downarrow$  the buttons to change the month. Move to day by pressing the Sel button. Press  $\uparrow$   $\downarrow$  the buttons to change the day Move to year by pressing the Sel button. Press  $\uparrow$   $\downarrow$  the buttons to change the year. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

```
Date
01/01/1970
```

## Time

```
System Info
Time
Time
12:00:00
```

Press the Sel button to select the Time option Press  $\uparrow$   
 $\downarrow$  the buttons to change the hour. Move to minutes by  
pressing the Sel button. Press  $\uparrow$  $\downarrow$  the buttons to  
change the minutes Move to seconds by pressing  
the Sel button. Press  $\uparrow$  $\downarrow$  the buttons to change the  
seconds. Press the  $\square$   $\blacklozenge$  button to return to the

previous menu.

## Auto Update

```
System Info
Auto Update
Contacting
time server
Success!
Failed
Unknown srvr
```

Press the Sel button to select the Auto Update option.  
Press the Sel button to have the Stoker get the time off  
of a network timeserver. If you get the Success  
screen you are connected to a timeserver and your  
time has been set automatically. If the Stoker  
could not locate a timeserver you will get the  
Failed screen and you will have to set the  
time through the Time input screen.

## Version

```
System Info
Version
Version
0.5
```

Press the Sel button to display the Software version  
that is currently installed and running on the Stoker..  
Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

## Clear DB

```
System Info
Clear DB
You sure?
No
You sure?
Yes
Please
Wait ...
```

Press the Sel button to clear the database. Be careful  
when using this function. Before clearing the Database  
make sure all off the Temperature Sensor  
calibration numbers have been recorded. The  
Temperature Sensors that came with your Stoker  
are recorded in Appendix A. If you have  
purchased new Temperature Sensors record them.  
Press the  $\downarrow$  to select "Yes" then press the Sel.  
button to clear the database. Press the  $\square$   $\blacklozenge$  button  
to return to the previous menu

## Commit

```
System Info
Commit
Please
Wait ...
```

Press the Sel button to choose the commit option.  
"Please wait..." flashes on the LCD. When the LCD  
returns to the Commit menu the System Info  
settings have been saved. The settings will be  
stored in non-volatile memory. Press the  $\square$   $\blacklozenge$   
button to return to the previous menu.

## Temp Control Menu

The Temperature Control menu is where you select a Temperature Sensor. You must have a Temperature Sensor plugged in to your Stoker or you will not get a Sensor Menu. After you select a Temperature Sensor you can select a Blower, set the Target Temperature and configure the Alarms.

### Temperature Sensor Selection Menu

```
Main
Temp Control
Temp Control
Scan
Sensor 1
Temp: 230
Sensor 2
Temp: 250
Sensor 3
Temp: 200
Sensor etc..
Temp: etc..
```

From the Main Menu Press the Sel button to choose the Temp Control option. Press the Sel button again to Automatically scan through all of the Temperature Sensors connected. Press the  $\uparrow$   $\downarrow$  buttons to scroll through the Sensors manually. Press the  $\square$   $\blacklozenge$  button to return to the previous menu  
\*note: Your Temperature Sensors were identified at the factory as "Sensor 1", "Sensor 2" etc.... This manual refers to your Temperature Sensors as "Sensor 1", "Sensor 2" etc... If you have renamed your Temperature Sensors the "New Name" would be displayed instead of "Sensor 1" etc...

### Temperature Sensor Settings Menu

```
Sensor 1
Temp: 230
Sensor 1
Blower
Sensor 1
etc...
```

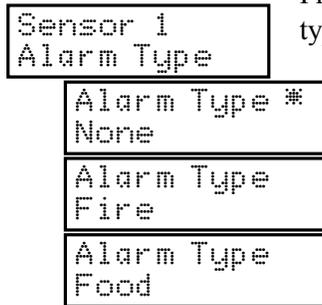
Press the Sel button to select the Temperature Sensor Settings Menu. Press the  $\uparrow$   $\downarrow$  buttons to cycle through the Temperature Sensor options. Press the Sel button to select the option displayed. Press the  $\square$   $\blacklozenge$  button to return to the previous menu

### Blower

```
Sensor 1
Blower
Blower
Blower 1
Blower *****
Blower 1
```

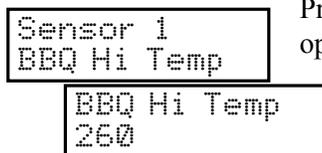
Press the Sel button to display the available Blowers. Press the  $\uparrow$   $\downarrow$  buttons until the desired Blower is displayed. Press the Sel button to select the Blower. The \*\*\*\*\* indicate the Blower is selected. Press the Sel button again to deselect the blower. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

## Alarm Type



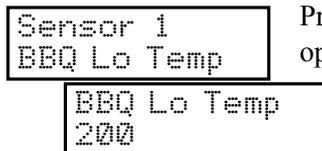
Press the Sel button to display the available alarm types. Press the  $\uparrow$   $\downarrow$  buttons until the desired alarm is displayed. Press the Sel button to select the displayed alarm type. The \* indicates witch alarm option is selected. Only one alarm type per sensor is allowed. The Fire alarm is a high and low alarm for monitoring the fire. The Food alarm is a high only alarm for monitoring food. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.  
\*note: press any button to silence alarms.

## BBQ High Temp



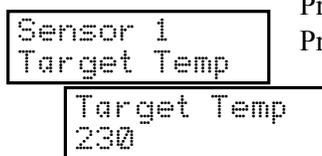
Press the Sel button to select the BBQ High Temp option. Press the  $\uparrow$   $\downarrow$  buttons to set to the desired alarm temperature. This alarm helps indicate when your fire is to hot. Press the  $\square$   $\blacklozenge$  button to return to the previous menu. \*note: You only get this Menu if you have selected the Fire Alarm option

## BBQ Low Temp



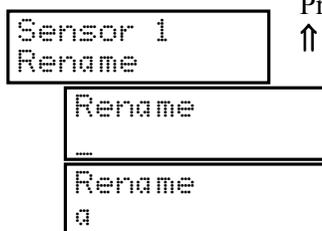
Press the Sel button to select the BBQ Lo Temp option. Press the  $\uparrow$   $\downarrow$  buttons to set to the desired alarm temperature. This alarm helps indicate your fire is going out. Press the  $\square$   $\blacklozenge$  button to return to the previous menu. \*note: You only get this Menu if you have selected the Fire Alarm option

## Target Temp



Press the Sel button to select the Target Temp option. Press the  $\uparrow$   $\downarrow$  buttons to set to the desired target temperature. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

## Rename



Press the Sel button to select the Rename option Press  $\uparrow$   $\downarrow$  the buttons to select a character. Move to the next characters by pressing the Sel button. Move to the previous character by pressing the  $\square$   $\blacklozenge$  button. When you have completed setting all 12 characters press the Sel button to get back to the rename menu. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

## Cal

```
Sensor 1  
Cal
```

```
Cal  
32
```

Press the Sel button to select the Cal option. Press the ↑↓ buttons to set to the desired Calibration number.

Press the □♦ button to return to the previous menu. The Stoker Temperature Sensors are calibrated at the factory. The calibration numbers

are recorded in the back of this manual for all of the Sensors that were shipped with this Stoker. If you purchase another Sensor it will come with a calibration number. It is a good idea to record the new Sensor and calibration number in the back of this manual. You can contact the factory to get calibration numbers for all sensors manufactured.

## Commit

```
Sensor 1  
Commit
```

```
Please  
Wait ...
```

Press the Sel button to select the commit option.

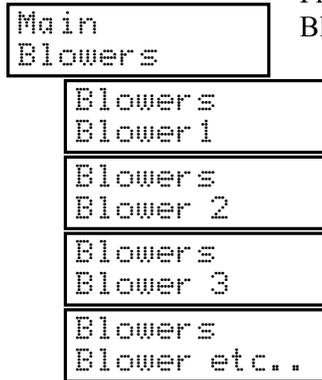
“Please wait...” flashes on the LCD. When the LCD returns to the Commit menu the Temperature settings

have been saved. The settings will be stored in non-volatile memory. Press the □♦ button to return to the previous menu.

## Blowers Menu

The Blowers Menu is where you name and rename your blowers and store the names in memory.

### Blower Select Menu

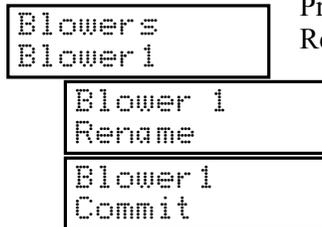


From the Main Menu Press the Sel button to select the Blowers option.

Press the  $\uparrow$   $\downarrow$  buttons to cycle through the Blowers that are connected. Press the Sel button to select the Blower. Press the  $\square$   $\blacklozenge$  button to return to the previous menu

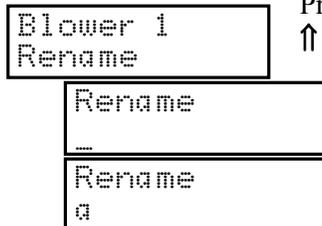
\*note: Your Blowers were identified at the factory as "Blower 1", "Blower 2" etc... This manual refers to your Blowers as : "Blower 1", "Blower 2" etc... If you have renamed your Blowers the "New Name" would be displayed instead of "Blower 1" etc...

### Blower Rename Menu



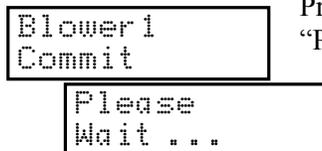
Press the  $\uparrow$   $\downarrow$  buttons to cycle through the Blower Rename options. Press the Sel button to select the option desired. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.

### Rename



Press the Sel button to select the Rename option Press  $\uparrow$   $\downarrow$  the buttons to select a character. Move to the next characters by pressing the Sel button. Move to the previous character by pressing the  $\square$   $\blacklozenge$  button. When you have completed setting all 12 characters press the Sel button to get back to the rename menu. Press the  $\square$   $\blacklozenge$  button to return to the previous menu

### Commit



Press the Sel button to select the commit option. "Please wait..." flashes on the LCD. When the LCD returns to the Commit menu the Blower has been renamed. Then new name will be stored in non-volatile memory. Press the  $\square$   $\blacklozenge$  button to return to the previous menu.



## 7. Network Connection

You can connect your Stoker to a “DHCP Server” and monitor and control the Stoker with your PC and Web Browser. The DHCP server/client is the most common configuration for home networks. If you have a Broadband connection (Cable Modem or DSL) you probably have a DHCP server/client network.

Your Stoker connects to your network the same place your PC connects. Some cable modems and DSL adapters have built in routers (several jacks). If there is only one RJ45 jack where your computer is plugged in you will need to add a router. A router will expand your ports so you can connect your Stoker. Connect the router according to the router manufactures directions.

The cable modem or DSL adapter acts as the DHCP Server. When your PC connects to your network it requests an IP Address from the DHCP server. This identifies your computer on the network This is transparent to the user.

The Stoker connects to your network the same way your PC does. When the Stoker powers up it request an IP Address from the DHCP server. The IP Address that was assigned to the Stoker can be found in the System Info Menu. on the Stoker

```
System Info
IP Addr
```

```
IP:      192.
168.0.2
```

Press the Sel button to display the IP address that was assigned on power up. Press the  ♦ button to return to the previous menu.

To access your Stoker, launch your web browser and type the IP Address into URL Address field in this case <http://192.168.0.2> and the Stoker will serve a Web Page.



## **8. Wireless connection**

You can turn your Stoker into a wireless 802.11x system by adding a Wireless Bridge They are available from many companies from \$60 -\$80 or so.

Follow the directions of the Wireless Bridge. Manufacture for installation.

## **9. Data Collection**

You can get the all of the raw data that the Stoker measures by Telneting into the Ethernet port. When you Telnet into the Stoker you can get control of the SW that is running on it. You stop the application and restart it and the Stoker will start to spit out all of the raw data that it is measuring. You will get a stream of data that you can capture and analyze.

This feature is not yet supported. It will be supported with a later date.



## 10. Maintenance and Care

### **Stoker Electronics.**

The Stoker control box is not waterproof and should be kept as dry as possible. You can clean it with a damp cloth. Avoid getting water into the connector holes.

### **Temperature Sensors**

The plug end of the Temperature Sensors has electronics inside and should not get wet. If it gets wet or soiled wipe it off with a damp cloth and dry it thoroughly. The probe end can be cleaned with dish soap and warm water.

### **Blowers**

The blowers are not waterproof and should be kept as dry as possible. Clean the blower with a damp cloth and dry thoroughly. The connector end of the Blower has electronics inside and should be kept dry.



## 11. Frequently Asked Questions

- Q: How come the Stoker won't remember my custom names?  
A: After entering a custom name, you must use the commit menu to make Stoker remember.
- Q: How come there are no High and Lo alarm Menus?  
A: You must select the "Fire" alarm in the Alarm Type menu first.

## 12. Temperature Sensor Records

	Temp Sensor Serial Number	Temperature Sensor Name	Cal #
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			