

## Instruction Manual

# SYL-2615 Wi-Fi BBQ Controller

Version 1.0 (April, 2017)



### Caution

- This controller is intended to control equipment under normal operating conditions. If failure or malfunction of the controller may lead to abnormal operating conditions that may result in personal injury or damage to the equipment or other property, devices (limit or safety controls) or systems (alarm or supervisory) intended to warn of or protect against failure or malfunction of the controller must be incorporated into and maintained as part of the control system.
- This controller carries a one (1) year warranty. This warranty is limited to the controller only.

## 1. Product Overview

This controller SYL-2615 is a Wi-Fi enabled dual-probe PID controller designed for charcoal smokers and grills. It not only monitors the pit and food temperature, it also controls the temperature. It will regulate a 12 VDC blower to stabilize the temperature in the charcoal smoker by either PWM or fan speed. It has built-in solid state relay that can drive a 12 VDC operated blower up to 60 CFM. It has a built-in buzzer that can be set for both low limit and high limit alarm.

Two RTD temperature probes are available on this controller. Probe 1 is for measuring the smoker temperature (Pit Temp). The controller regulates the power output of the controller based on the temperature difference between Probe 1 and the Pit set temperature. Probe 2 is for measuring the food temperature (Food Temp), which can be used to decide whether it is the time to change the set temperature for the pit, or to decide whether is food is done.

This controller can be set to single-step mode, or multi-step mode. In the single-step mode, the user only needs to set the target pit temperature; timer setting is not needed. In the multi-step mode, the user can program up to 3 cooking steps. Each cooking step can either end by time or end by food temperature. When the user is cooking food of small size of which the cooking time is known, or only to add the smoke flavor to the food, the user can simply use the timer to end a step. When the user is cooking food of large size of which the cooking time is unknown, it is better to set a target food temperature to end the step.

SYL-2615 has a build-in Wi-Fi module which allows its user to monitor the temperature and control the device from a smart phone or a tablet. Once the connection is set up, the user can access the data and change parameter settings even the user is miles away from the device. For details, please check the supplementary manual for details regarding the Wi-Fi function.

## 2. Specifications

**AC adaptor:** 100 V ~ 240 V, 50 / 60 Hz input. 12 VDC, 1 Amp output.

**Power consumption:** < 0.9 W (without blower).

**LCD display:** Black on white with backlight.

**Output for fan:** 12 VDC, 1 Amp \*.

**Control mode:** PID-PWM, PID-Fan Speed, Manual.

**Alarm:** High/low alarms for pit temperature. High alarm for food temperature.

**Sampling rate:** 2 samples/second.

**Accuracy:** 0.2% full scale.

**Display range:** -99°F ~ 930°F, or -99°C ~ 500°C.

**Sensor type:** PT1000 RTD, -99°F ~ 660°F (-99°C ~ 350°C).

**Wi-Fi module Wireless standards:** IEEE 802.11 b/g/n

**Security protocols:** 64/128 - bit WEP, WPA, WPA2, TKIP, AES.

**Dimensions:** 4.4" x 3.3" x 1.3" (113 x 83 x 33 mm).

Note \* Up to 3 Amp can be supplied if more powerful power adapter is used.

## 3. Front Panel and Connections



Figure 1. Controller SYL-2615.

- ① LCD display.
- ② Set key. Press momentarily to enter the cooking step settings. Press and hold about 2 seconds to enter the parameter settings.
- ③ Timer/Back key. Press it in main display will show the cook time. Press it in the parameter setting mode will return back to the upper level menu. When open lid detection stops the blower, press it will resume the blower normal function.
- ④ Down key. Decrease value, scroll down the menu, mute the buzzer.
- ⑤ Up key. Increase value, scroll up the menu, or mute the buzzer.
- ⑥ Wi-Fi status indicator. Solid ON: the controller is connected to the internet. Quick flashing: Wi-Fi module ready for configuration. Slow blinking: Wi-Fi module is initializing its connection to the router. Off: no Wi-Fi connection.
- ⑦ OUT indicator. In PID-PWM mode, it is synchronized with the output; in PID-FS and Manual mode, the flashing rate is only a representation of the output level.
- ⑧ Probe 1 input for Pit temperature.
- ⑨ Probe 2 input for Food temperature.
- ⑩ Power output for fan control.
- ⑪ Power input for controller (12 VDC).

**4. LCD Display Modes**

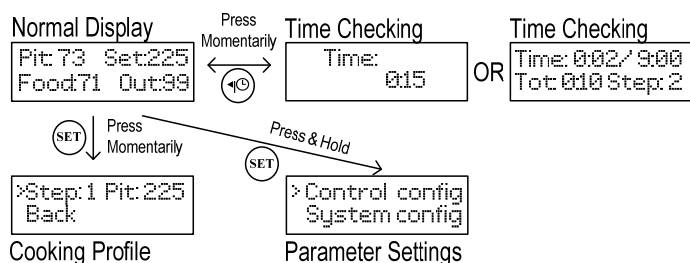


Figure 2. Switching between different display modes.

**4.1 Normal Display Mode**

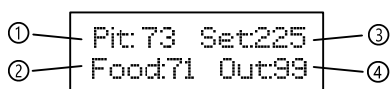


Figure 3. Information displayed on the LCD in the normal operating mode.

- ① Pit temperature
- ② Food temperature
- ③ Set value for pit temperature
- ④ Output power (percentage)

**4.2 Time-Checking Mode**



Figure 4. Using Timer/Back key to check cooking time in single-step mode (left) and in multi-step mode (right).

Press the Timer/Back key can tell you the current timer and step information. In single step mode, press timer key will show the total running time after your powered this controller up this time. In multi-step mode, pressing timer key will display more information, including the elapsed time for current step and total time for current step (first line); total elapsed time and current step number (second line).

This key has two more functions: a) Press it in the parameter setting mode will return back to the upper level menu. This provide a short cut to exit the current menu. b) Cancel the open lid detection. For details, please see Note 8 in section 6.2.2.

**4.3 Cooking Profile Programming Mode**

The controller's cooking profile can be either set to single-step mode (default) or set to multi-step mode. In the single-step mode, the controller will try to maintain the pit temperature at the set value of Step 1 as long as the controller is on. In the multi-step mode, up to 3 steps can be programmed. Each step has its own set temperature for pit probe, and its step-ending criterion. A

cooking step can either end by timer or by food temperature. For details, please check section 6.1.

**4.4 Parameter Setting Mode**

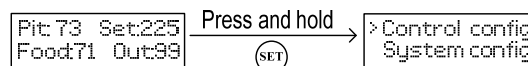


Figure 5. Access the menu of parameters using SET key.

**5. Getting Started**

Power on the controller by plugging the barrel connector from the 12 VDC adapter to the power input port ⑪. Connect the pit probe (probe 1) to socket ⑧, food probe (probe 2) to socket ⑨. Configure the Wi-Fi connection from your phone using AuberSmart app\*. After you have set up the controller and started fire in your smoker or grill, mount the blower to the smoker/grill, then plug the blower connector to the fan output port ⑩.

Note \*: Please check the supplementary manual for Wi-Fi configuration and how to use the AuberSmart app.

**6. Operation**

All cooking profile settings and control parameters can be accessed both from the device and from the AuberSmart app.

**6.1 Set the Cooking Profile**

The controller's cooking profile can be either set to single-step mode (default) or set to multi-step mode. In the single-step mode, the controller will try to maintain the pit temperature at the set value of Step 1 as long as the controller is on. In the multi-step mode, up to 3 steps can be programmed. Each step has its own set temperature for pit probe, and its step-ending criterion. A cooking step can either end by timer or by food temperature. To switch between single-step mode and multi-step mode, please check section 6.1.3.

**6.1.1 Single-Step Mode**

In this mode, you can only access and change the target pit temperature of Step 1 from the device. The controller will try to maintain the smoker temperature at the set temperature of Step 1 continuously as long as the controller is powered on. If this controller is powered off and turned back on again, it will resume operating in this mode. You can still view and change other settings in Cooking Profile from the app, but they don't apply to this mode.

To change the set temperature in single-step mode, press SET key once, it will show "Step: 1" and the current target pit temperature in the top line. A cursor ">" will be shown on the left indicating which line will be selected. Press SET key once, the current set temperature should start blinking. Use ▲ and ▼ keys to change the set temperature. When finished, press the SET again to confirm the change. That number will stop blinking. Press the Timer/Back key to exit the menu. Or use ▲ or ▼ key to scroll to "Back" and then press SET key to exit. The display will return to the normal display mode if no key is pressed in 14 seconds.

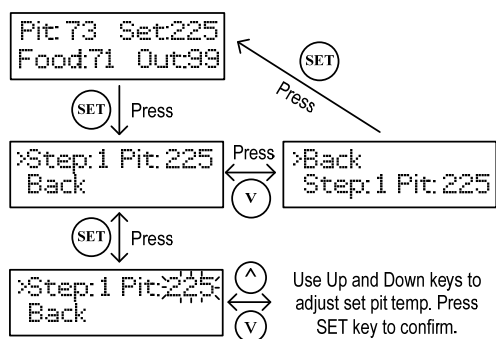


Figure 6. Change the set temperature in single-step mode.

3	160	Time	0:00	N/A
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In this example, a user set the pit temperature of Step 1 to 275°F, which is higher than normal smoking temperature, to speed up the “low and slow” cooking without compromising the moisture. Step 1 will end when the food temperature reaches 170°F. In Step 2, pit temperature will be lowered to 225°F and stay there for 6 hours. After that, the program ends because the Step 3 is set to end by time and the timer is set to “0:00”. The controller will stop its output when Step 2 is done, it will give beeping sound until the buzzer is muted or the power input has been reset.

**6.1.2 Multi-Step Mode**

A total of 3 steps can be programmed on this controller. Each program step comprises a target temperature of pit (shown as “Pit: XXX”) and an ending criterion setting “X-End”, where “X” is the step number. For example, “1-End” means the ending criterion of **Step 1**. The “ending criterion” is a new concept to people who never used our controller for electric smokers. It determines how does a cooking step is considered finished. Two options are available: time and food temperature. If you want **Step X** to end after a pre-set time period, set “X-End” to “Time”; if you want **Step X** to end when food temperature reaches a pre-set value, set “X-End” to “Fd Temp”.

After you set “X-End” to “Time”, you will need to set “X-Time”. Here, “X-Time” is defined as the time duration (in hh:mm format) of the current step. The timer will start counting even if the pit temperature has not yet reached the target pit temperature. So, please make sure that the step time is long enough. If the step time is too short, the controller may continue to the next step no matter what the actually pit temperature is. If you set “X-End” to “X-Fd Temp”, you will need to set “X-Fd Temp” to the desired food temperature (Probe 2).

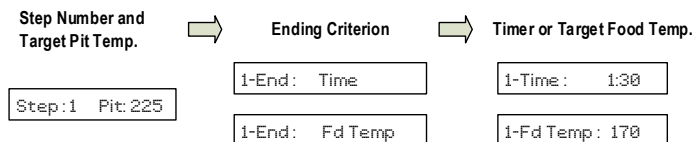


Figure 7. For each cooking step, set the target pit temperature, ending criterion, and timer or target food temperature.

From the AuberSmart app, you can still view and change both time and food temperature of each step, but only one setting is relevant to the current cooking step depending on the the X-End setting.

If “X-End” of a certain step is set to “Fd Temp” while the food probe is not plugged in, this step will never end. Pit probe should always be plugged in otherwise controller will stop sending power to the fan.

**Cooking Profile Example 1**

Step	Pit	X-End (Ending)	X-Time (Timer)	X-Fd (Food)
1	275	Food temp	N/A	170
2	225	Time	6:00	N/A

**Cooking Profile Example 2**

Step	Pit	X-End (Ending)	X-Time (Timer)	X-Fd (Food)
1	200	time	1:30	N/A
2	225	Time	5:00	N/A
3	225	Time	0:00	N/A

In this program, the pit temperature of Step 1 is set at 200°F for 1 hour 30 minutes. Then, the pit temperature will be raised to 225°F in Step 2 for 5 hours. Step 3 will be skipped because its timer is set to 0:00. The entire cooking program ends when the Step 2 is finished.

A flow chart of how to enter the cooking profile described in the Example 1 is shown in Figure 8. To start program the cooking profile, press SET key shortly to enter the Cooking Profile Programming mode. The top line in the display shows the step number “Step: 1” and the current target of pit temperature “Pit: 225”. To enter or edit the profile:

- 1) Use ▲ or ▼ key to move the cursor “>” to the parameter you want to edit.
- 2) Press SET key, the value to be edited should start blinking.
- 3) Use ▲ or ▼ arrow key to edit the value.
- 4) Then press SET key again to save the change. That parameter value will stop blinking.
- 5) Use ▲ or ▼ key to go another parameter, repeat the previous operations till you have finished entering the cooking profile.

The temperature setting will not be saved if SET is not pressed. After programming the necessary steps for cooking, you can finish programming by pressing the Time/Back key to exit the menu. Or, you can use ▲ or ▼ key to go to “Back”, and press SET key to exit. The display can also return to the normal display mode if no key is pressed in about 15 seconds.

**6.1.3 Switch between single-step mode and multi-step mode**

To switch between single-step mode and multi-step mode, go to Parameter Setting mode by holding the SET key, and then go to “System Config” menu, find parameter “PRG”, then change it to “ON” (for multi-step mode) or “OFF” (for single-step mode). By default, the controller is set to single-step mode. Please see the flow chart in Figure 9 for how to access this parameter from the controller.

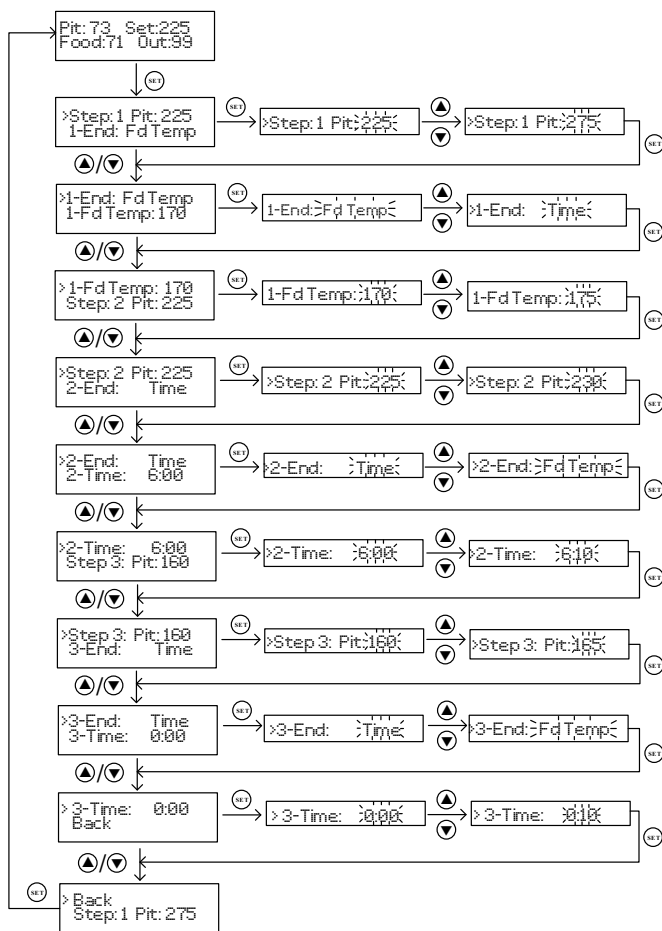


Figure 8. How to enter a cooking profile on SYL-2615 controller. The program shown in Example 1 is used in this flow chart as a demo.

Save	Save PID Settings	(Back), BGE, WSM22, WSM18, 4,5,6	Back	9
Recall	Recall PID Settings	(Back), BGE, WSM22, WSM18, 4,5,6	Back	9
Back	Back to main menu			

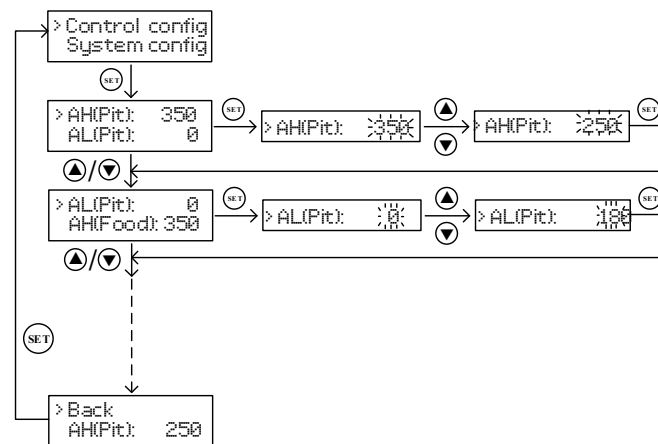


Figure 9. Access the parameters in Control Config menu.

### 6.2 Set Parameters

To access the parameters, press and hold SET key for about 2 seconds. Parameters are divided into two groups: "Control Config" and "System Config".

#### 6.2.1 Control Configurations

Parameters related control configurations during the smoking process are listed under "Control Config" menu. Details of each parameters are listed in Table 2. The flow chart in Figure 9 shows the operations of accessing and adjusting the parameters in "Control Config".

Table 2. Parameters in Control Config menu.

Name	Description	Range	Initial	Note
AH (Pit)	Pit High Alarm	0 ~ 999	80	1
AL (Pit)	Pit Low Alarm	0 ~ 999	0	2
AH (Food)	Food High Alarm	0 ~ 999	350	3
P	Proportional Constant	1 ~ 999	60	4
I	Integral Time	0 ~ 9999	1200	5
D	Derivative Time	0 ~ 999	60	6
T	Control Cycle Time	2 ~ 200	15	7
OL Switch	Open-Lid Detection	ON, OFF	ON	8

**Note 1. AH (Pit):** This is the high temperature alarm for pit temperature (Probe 1). When pit probe reading is higher than AH (Pit) value, the buzzer on the controller will go off and the LCD display will flash between the normal display and the alarm display showing in Figure 10. The alarm has 1° hysteresis. The user can mute the buzzer by pressing either the Up key or the Down key. Temperature must move out of the hysteresis zone to activate the alarm again. For example, if AH (Pit) is set to 290°F, the buzzer will go off when Probe 1 reads higher than 291°F, and the buzzer will stop when Probe 1 reads lower than 289°F. To disable AH (Pit) alarm, you can set it to a large number, such as 750°F.



Figure 10. The LCD display when AH (Pit) is triggered.

**Note 2. AL (Pit):** This is the low temperature alarm for pit temperature probe (Probe 1). When pit probe reading is lower than AL (Pit) value, the buzzer on the controller will go off and the LCD display will flash between the normal display and the alarm display showing in Figure 11. The alarm has 1° hysteresis. The user can mute the buzzer by pressing either the Up key or the Down key. Temperature must move out of the hysteresis zone to activate the alarm again. For example, if AL (Pit) is set to 180°F. The buzzer will go off when pit temperature drop to 179°F; it will stop when temperature rise above 181°F. The AL (Pit) alarm is suppressed when the controller is just powered up. It will be activated when the pit temperature has reached the target pit temperature. To

disable the AL (Pit) alarm, you can set it to a small number, such as 0°F (default).

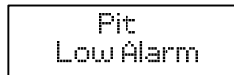


Figure 11. The LCD display when **AL (Pit)** is triggered.

**Note 3. AH (Food):** This is the high temperature alarm for the food probe (Probe 2). When food probe reading is higher than **AH (Food)** value, the buzzer on the controller will go off and the LCD display will flash between the normal display and the alarm display showing in Figure 12. The alarm has 1° hysteresis. The user can mute the buzzer by pressing either the Up key or the Down key. For example, if **AH (Food)** is set to 130°F, the buzzer will go off when Probe 2 reads 131°F, and the buzzer will stop when Probe 2 reads 129°F or lower. To disable **AH (Food)** alarm, you can set it to a large number, such as 999°F.

When smoking multiple pieces of meat of different sizes or thickness, you can put the probe in the thinnest piece first. Set the **AH (Food)** alarm to the temperature when meat is ready. It will let you know when it is done. Then, you can move the probe to the second thinnest pieces and so on. To use this feature, you can set the ending criterion to time. If you prefer to set the ending criterion to food temperature, then the Food Temp should be set to higher than the **AH (Food)**.



Figure 12. The LCD display when **AH (Food)** is triggered.

**Note 4. P:** Proportional Constant. The unit is 1 degree. This parameter control the output of the controller based on the difference between the measured and set temperature. Larger the P number means the weaker the action (lower gain). If **P** = 7, the proportional band is 7 degree. When the sensor temperature is 7 degrees below the proportional band (10 degrees below the setting), the controller will have 100% output. When the temperature is 5 degree below the set point, the output is 71%. When the temperature is equal to the setting, the controller will have 0% output (assuming integral and derivative functions are turned off). This constant also affects both integral and derivative action. Smaller **P** values will make the both integral and derivative action stronger. Please note the value of the **P** is temperature unit sensitive. If you found an optimized **P** value when operating the controller in Fahrenheit, you need to divide the **P** by 1.8 when changing the temperature unit to Celsius.

**Note 5. I:** Integral Time. The unit is in seconds. This parameter controls the output of controller based on the difference between the measured and set temperature integrated with time. For example, if **I** = 1000, it means if the temperature difference between the pit temperature and set temperature stays constant, the output will be doubled after 1000 seconds. Integral action is used to eliminate temperature offset. Larger number means slower action.

**Note 6. d:** Derivative Time. The unit is in seconds. Derivative action contributes the output power based on the rate of temperature change. Derivative action can be used to minimize the temperature overshoot by responding its rate of change. The larger the number is, the stronger the

action will be. For example, when the door of oven is opened, the temperature will drop at very high rate. The derivative action change the controller output based on the rate of change rather than the net amount of change. This will allow the controller to act sooner. It will turn the heater to full power before the temperature drops too much.

**Note 7. T:** Control Cycle Time. The unit is second. This unit determines how long for the controller to calculate each action. It is only meaningful in the PWM mode. e.g. if **T** is set to 15 seconds, when controller decide the output should be 10%, it will turn on the heater 1.5 second for every 15 seconds. This parameter is set to 15 seconds by default.

**Note 8. OL Switch:** Open-Lid Detection Switch. This parameter works as an on/off switch to enable or disable the Open-Lid Detection function. When **OL Switch** is set to "on", the Open-Lid Detection function is enabled; otherwise, disabled.

When the lid or dome of a smoker is opened during smoking, the pit temperature will drop quickly. The derivative function (**d**) of the PID controller will force the blower to run, probably at the maximum speed, in order to stop the trend of temperature-dropping. This action would blow up ashes, blow the flame stronger, and cause a big temperature overshoot after the lid is closed. The open-lid detection function is designed to prevent these problems.

When the smoker's lid or dome is opened, this function will detect the sudden temperature drop and stops the blower. After the lid is closed and the pit temperature is recovered by the residual heat stored in the smoker, the blower will resume running. However, after 7 minutes, if the temperature still hasn't been recovered yet, the controller will resume sending its output to the blower. This open-lid detection function is inactive when you starting the fire at the beginning. It will be activated after the pit temperature less than 5 degree lower than the set temperature. Sometimes the open-lid detection might be triggered accidentally by a temperature drop not related to lid-opening during smoking. In that case, you can cancel this activation by pressing the Time/Back key on the controller, or tap the "X" (Cancel) symbol appeared near the "Open-Lid Detection" on the SYL-2615 device info page from the AuberSmart app. In situations where the open-lid detection is activated by actual lid-opening action, we recommend you not to cancel this function to avoid getting a pit temperature overshoot. The controller can take care of this issue and minimize the disturbance. But if you are cooking at a higher temperature range (> 300°F), the pit temperature many not be able to recover by itself. In this case, cancel the activation.

**Note 9. Save & Recall:** This controller allows the user to save and recall up to 7 sets of the P, I, D, and Control Mode settings. The user can tune the settings for cooking at different conditions (e.g., different smokers/grills, different ambient temperature, or cooking temperature) and save them for future use. Three sets of settings for 18.5" Big Green Egg, 22.5" Weber Smoky Mountain, and 18.5" Weber Smoky Mountain has been pre-saved on the controller as "BGE", "WSM22", and "WSM18" respectively. Another 3 sets of settings named as "4", "5", and "6" are available for custom tuned parameter settings. Please see Table 3 for the name and the values of each group of settings.

To save the tuned the PID parameters and Control Mode, go to "Save", press SET key, use ▲ or ▼ key to find the desired group name, then press SET again to save the settings.

To recall a saved set of PID parameters and Control Mode, go to “Recall”, press SET key, use ▲ or ▼ key to find the desired group name, then press SET again to load the settings as the current PID and Control Mode settings.

**Table 3. Saved PID Settings.**

Group #	Group Name	P	I	D	Mode
1	BGE	45	1200	75	PID-PWM
2	WSM22	45	1200	75	PID-FS
3	WSM18	45	1400	100	PID-FS
4	4	45	1200	75	PID-FS
5	5	45	1200	75	PID-FS
6	6	45	1200	75	PID-FS

**6.2.2 System Configurations**

Parameters related device configurations which are not often used during the smoking process are listed under “System Config” menu. Details of each parameters are listed in Table 4. The flow chart in Figure 13 shows the operations of accessing and adjusting the parameters in “System Config”.

**Table 4. Parameters in System Config menu.**

Name	Description	Range	Initial	Note
PRG	Multi-Step Program	ON, OFF	ON	10
MODE	Control Mode	Manual, PID-PWM, PID-FS	PID-PWM	11
FMRV	Fan Minimum Running Voltage	3.0 V ~ 11.0 V	4.0	12
OUTH	Output High Limit	0 ~ 100 (%)	100	13
C-F	Temp Unit (°C or °F)	C, F	F	14
PB1	Sensor 1 offset	-99 ~ 100	0	15
PB2	Sensor 2 offset	-99 ~ 100	0	16
PSD	Device Access Password	100 ~ 999	666	17
Reset	Factory Reset	Yes, No	No	18
Back				

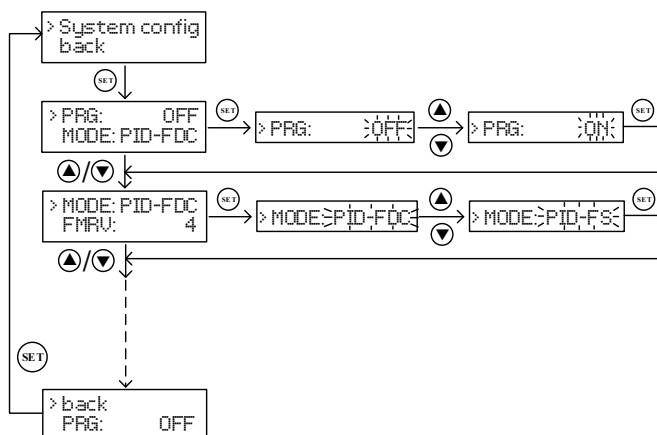


Figure 13. Access the parameters in System Config menu.

**Note 10. PRG:** Multi-step program switch. By default, this controller is set to single-step mode “OFF”. To enable multi-step mode, please change parameter PRG to “ON”. For details regarding multi-step mode, please check section 6.1.2

**Note 11. MODE:** Control mode. This controller has three operating modes: time-proportional control (PID-PWM), fan-speed control (PID-FS) and manual control (Manual). For time-proportional control, it will regulate the on/off time interval of the blower to stabilize the temperature in the charcoal smoker (same as SYL-1615 or other standard PID controllers). For fan-speed control, it will employ PID control algorithm to decide the output voltage to adjust fan speed. For manual mode, user can manually adjust the fan speed (output voltage).

**Note 12. FMRV:** Fan minimum running voltage. This parameter is only used when controller is running under fan-speed control mode. Due to the variation in the friction of bearings in blowers, the minimum voltage to overcome the kinetic friction is not the same between different models and when the bearing getting old. The default FMRV setting is 4.0 V. This setting is fine for all blowers sold by Auber. Usually you don't need to change this parameter when you are using the controller on metal wall smokers (such as WSMs). If the output graph shows zero but the temperature stays above setting for more than 20 minutes, the fan might not stop when controller output shows zero. You can change to manual mode, and set the output to 1%. Reduce the FMRV until the blower is barely running.

**Note 13. OUTH:** Output High Limit. The value is in percentage. This parameter limits the maximum output power that can be sent to fan.

**Note 14. C-F:** Temperature unit. You can set the display either Celsius (°C) or Fahrenheit (°F).

**Note 15. PB1/PB2:** Calibration offset. The parameter is used to make the input offset to compensate the error produced by sensor. e.g. if the temperature displays of Pit temperature is 2.0°C in ice water mixture, set PB1 = -2.0 will make the display to shown 0.0 degree. PB1 is for pit temperature (Probe 1). PB2 is for food temperature (Probe 2).

**Note 16. PSD:** Device access password. This parameter is used to lock the access to parameter settings on AuberSmart app.

**Note 17. Reset:** Factory reset. WARNING! This function will restore all the parameters (including all the stored PID settings in the memory) back to the factory default values. This setting does not affect the WiFi configuration.

**7. Mount the Controller**

The operating environment temperature for the meter is from 0 - 100°F (or, -20°C ~ 50°C). The meter should be placed away from high heat to protect the plastic housing and electronics. The case is splash-proof. It is not water-proof. It cannot be immersed in the water. It should be fine to operate under light rain for a short time if the controller is mounted in an upright position. The user can cover the controller by a transparent waterproof case.

Two mounting screws holds with metric M4 thread are available on the back of the case (Figure 14). The M4 screws should not be screwed into the hold more than 3/8" or 9 mm, otherwise they will push against the plastic case, create cracks, or damage the case. Mount the controller to a place that is

away from the heat from the smoker. Avoid exposing the controller under directly sunshine during hot summer.

Smartphone magnetic mount can be used to hold the controller as shown Figure 15. It is easy to mount and remove. Some magnetic mounts have weaker magnets. In that case, keep the controller no more than 45 degree tilted from the horizontal position. Otherwise, the magnet may not be strong enough to hold the weight of the controller and the cable.



Figure 14. Two M4 screw holes on the back of the controller.



Figure 15. Holding the controller by smartphone magnetic mounting stands. This type of stand has double-sided tape at the bottom. The tape may not stick to the weathered wood. Epoxy was used to hold the stand in this picture.

## 8. FAQ

### 8.1 Probe reading showing “-H-“.

This is the input error message. It appears when the sensor is not connected or when the sensor has become defective.

### 8.2 What if one step is set to end by food temperature while the food probe is not plugged in?

If “X-End” of a certain step is set to “Fd Temp” while the food probe is not plugged in, this step will never end.

(End)

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