Mission Statement:
To provide the best product at the best price and provide superior customer service for all your Smokin-It® needs
Innovative products
No retail mark ups or middleman

Smokin-It® Digital Model User Guide & Instructions

(for 3rd Generation models effective 4.20.19)

(Model #2D, #3D, #3.5D, #4D & #5D)

Model #2D

Digital Smokers Model #2D, #3D, #3.5D, #4D & #5D

Model #3D

Model #3.5D

Model #4D

Model #5D

Please note: ***It is recommended to take photos of what you are doing when working on your smoker***
Check our FAQ, 'For the Customer' and the Smokin-It customer forum (all on our website) for additional information
Please contact us at smokin.it.info@gmail.com if you have any questions or concerns

9.2020

Introduction

Thank you for purchasing the Smokin-It® Digital smoker. We sincerely appreciate your decision and trust our smoker will meet your expectations in both the quality of the result and the value of our product. While we understand you may be anxious to operate the smoker, please take a few minutes of your time reading through this manual and all instructions included.

SAFETY WARNINGS

- **Do not** place any objects on the top of controller surface which is used to vent excess heat during its operation
- The maximum electric current the controller can handle is 15 amps. For 120-volt AC in US and Canada, this limits the heater power to 1800 watts.
- If an abnormal display or noise is observed, turn the controller off, unplug the power cord and contact the manufacturer before using it again
- Clean the controller **only** when it is cool and unplugged
- **Do not** allow children to operate the controller
- Meat probe **must** be plugged in to the PID controller as well as what you are smoking to utilize food temperature programming options
- **Do not** let anything come in contact with the internal air temperature probe as it will cause incorrect readings
- **ALWAYS** secure and protect the smoker with a cover after each use
- **DO NOT** immerse the meat probe in any type of liquid as it will cause the probe to fail and is not covered by warranty

Specifications

Number of storable recipes	6
Number of steps in each recipe	6
Input voltage	100 to 240 VAC, 50/60 Hz
Output voltage	The same as the input
Maximum Current	15A for 120V AC, 12A for 240V AC, 5A for the smoke generator output
Controller Mode	PID, PI, PD or P
Output switching device	Built-in optically isolated solid-state relay with zero voltage crossing switching
Sensor type	PT1000 RTD sensor
Control probe dimension	4 mm diameter x 40 mm long.
Food internal temp probe dimension	4 mm diameter x 150 mm
Probe cable length	5 ft. (1.5 meter) (both probes)
Timer range	6 steps with 0.1 to 99.9 hours for each step
Temperature resolution	1 °C or 1 °F
Temperature display unit	Celsius or Fahrenheit
Temperature display range	-40-400 °C, or -40-750°F
Minimum Control Temperature	5 °C (9 °F) above ambient with smoker generator off, 22 °C (40 °F) above ambient with smoker generator on
Maximum Control Temperature	325 °F
Temperature accuracy	+/-3°C

**** DO NOT operate smoker above 325° ****

You can damage the box and increase the risk of fire

www.smokin-it.com

Thank you for purchasing the Smokin-It® Digital smoker. We sincerely appreciate your decision and trust our smoker will meet your expectations in both the quality of the result and the value of our product. While we are delighted you may be anxious to operate the smoker, please take a few minutes of your time reading through all instructions included.

- It is recommended to season your new smoker before the first use. This will improve your cooking experience and the desired taste of the food. Remove all packing materials from inside and outside of the smoker.
- Place two pieces of the sample wood into the wood box. Completely close the wood box lid and slide over the heating element (It will only slide back in the smoker one way).
- Remove the shelves, then close and latch the door of the smoker. It is recommended to cover the top of the wood box lid with aluminum foil and also the bottom of the smoker. Set the temperature control to 250° and let your smoker run for three to four hours completely empty.

PLEASE NOTE: ***Make sure the wood box lid is completely closed prior to smoker use***

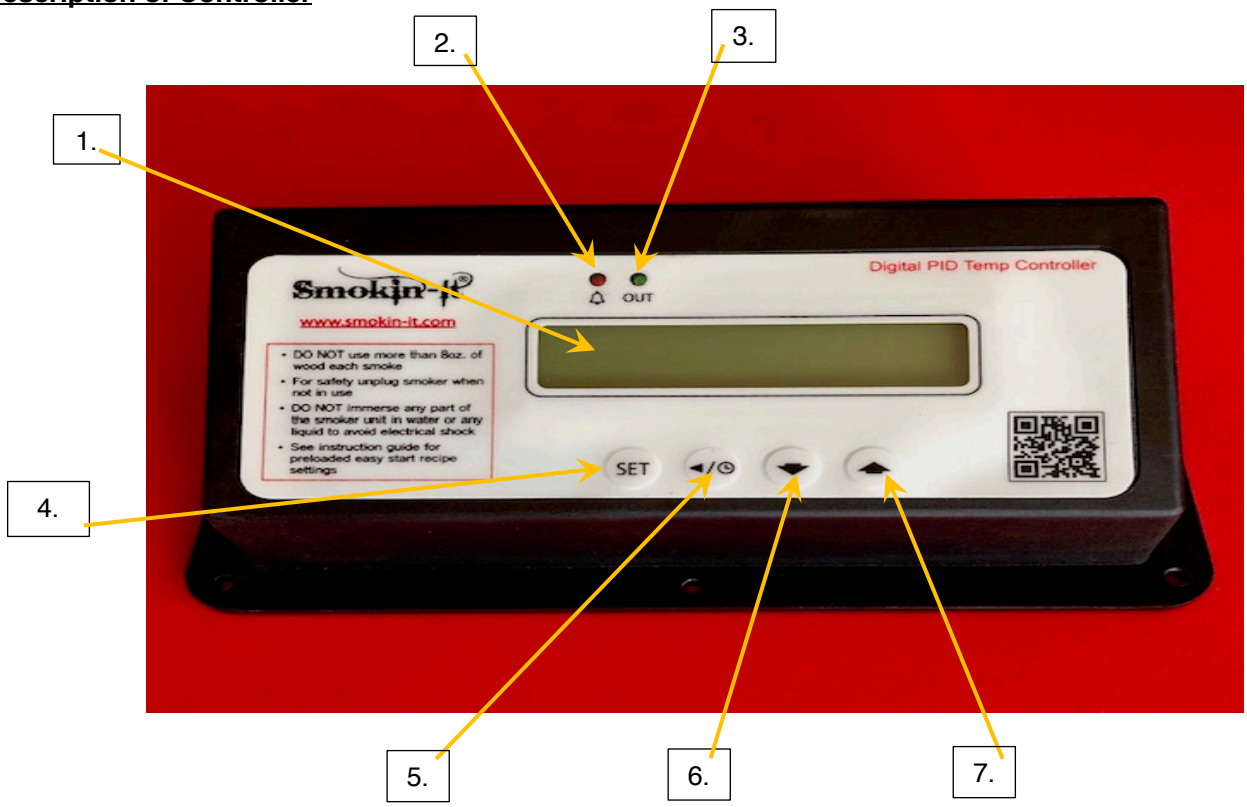
Never use the smoker without the wood box completely inserted into position over the heating element

- Before loading the smoker with food, we recommend you cover the top of the wood box lid with aluminum foil and also the bottom of the smoker. You will find a small drain hole located in the bottom of the smoker, ***do not cover or block this drain hole.*** It is important to keep this drain hole open so drippings will drain out into the drip pan.
- You will need to attach the casters prior to sliding the drip pan in place under the smoker. You should remove the foil and replace with new foil after each use. Remove any grease or scale from the interior of your smoker on a regular basis to prevent flare-ups or fire.
- Regular cleaning of the removable shelves and side rails in a dishwasher is recommended.
- ***DO NOT*** pre-heat your smoker, as the green LED light ***only*** comes on when the heating element is on. It is normal to see the light cycle on and off during smoker use.
- ***DO NOT*** use an extension cord as it can compromise the performance of the smoker
- Be careful when you are emptying the wood box, it is extremely hot and could cause severe burns. Always douse the wood box with water after removing from the smoker to insure the ashes are completely out. Never place hot ashes in the trash as this could cause a fire.
- Our electric smokers have a pressure applied latch system to close and are extremely efficient. In most cases you will notice more smoke coming from the vent on top of the smoker in the first hour of use, this is normal. The amount of smoke will diminish the longer you are smoking.
- Once you have started the smoker ***DO NOT*** try to add more wood during the smoking process. ***NOTE:*** the wood box is extremely hot and can cause a serious burn if touched.
- As a rule…use *LESS* wood versus *MORE* when loading the wood box. Too much wood can cause your food to be over smoked, leaving it with a bitter or burnt taste. Yes, your new smoker is just this easy to use and enjoy!!
- Please note, green lite indicates heating element is on, red light indicates how much time has elapsed in right screen

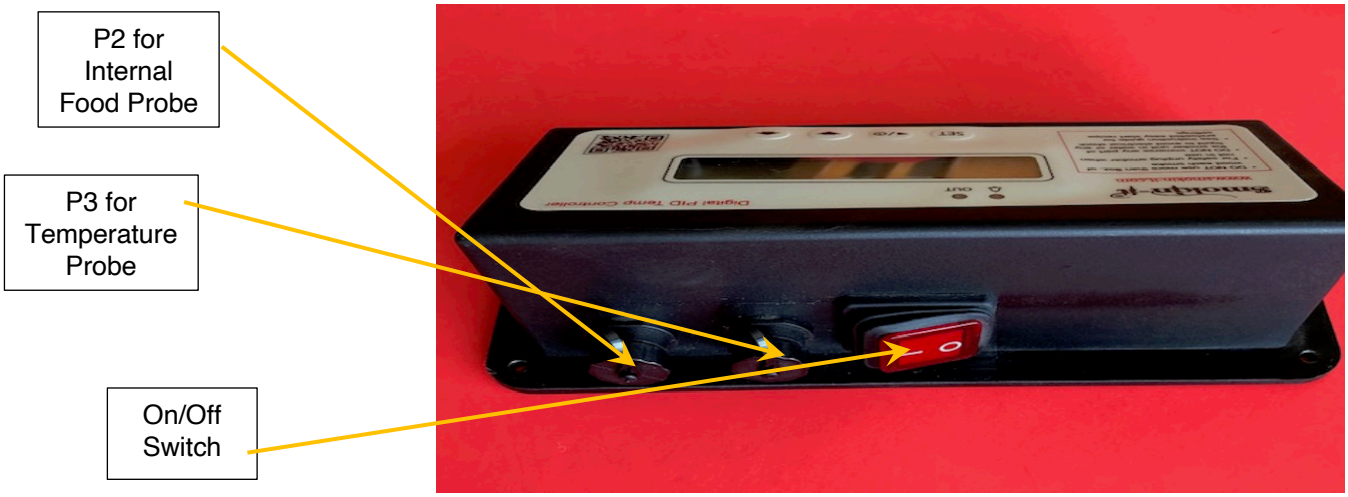
~The Smokin-It Team

Controller Operating Instructions

Description of Controller

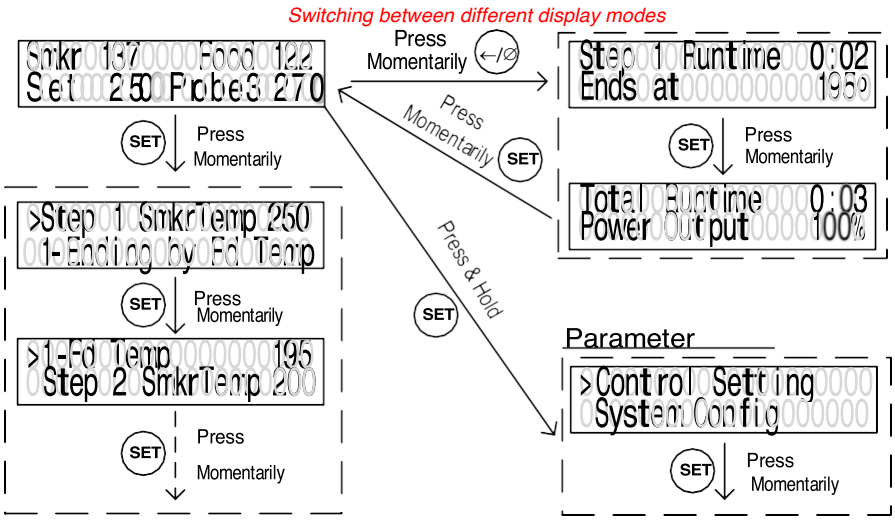


1. **LCD display window -** During normal display mode, it will display temperature readings from all probes and set temperature for smoker. When high or low limit alarm is triggered, this display will show alarm notification. In time checking mode, it will display time/step information. In cooking profile or parameter setting modes, it will display the step/parameter name and its value.
2. **Alarm status/smoke generator indicator -** This indicator has two functions. When this indicator is blinking, temperature alarm is triggered. The LCD display will flash the alarm notification at same time.
3. **Output status indicator -** This LED indicates the output status synchronized with heater. When this indicator is ON, the heater is powered. When it is OFF, the heater is off. When it is flashing, it means the heater is on and off intermittently to reduce the power output. It is synchronized with the power light on the smoker.
4. **SET Key -** Press momentarily to enter the cooking profile settings. Press and hold 2 seconds to enter parameter settings. This key can also be used to confirm the change of setting.
5. **Time/Back Key -** Pressing this key in normal operation mode will display time checking mode. Pressing this key in the parameter setting mode will return back to the upper level menu, or exit.
6. **Down Key -** Decrease value, scroll down the menu, or mute the buzzer
7. **Up Key -** Increase value, scroll up the menu, or mute the buzzer



Two temperature probes can be used with this controller. They need to be plugged in P2 and P3 sockets on the back of the red digital box. P2 socket is for internal food probe (Probe 2) and P3 socket is for temperature probe (Probe 3).

Display Modes



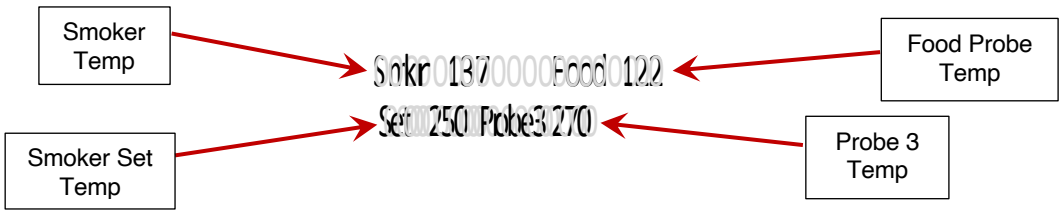
Four display modes are available:

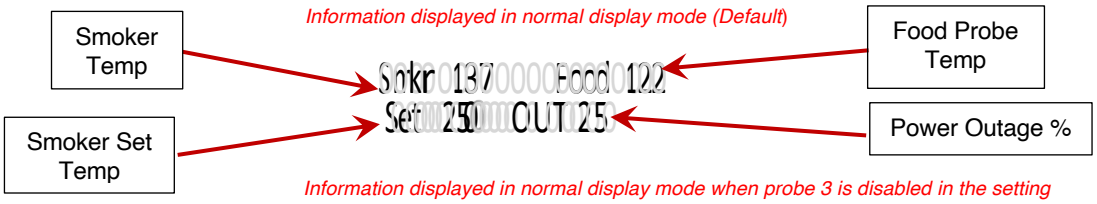
- Normal Display
- Time Checking
- Cooking Profile
- Parameter Setting

When you turn on the controller, it will show the initializing display for several seconds, it will display the controller's name and firmware version during this period. Then it will show the normal mode display.

Initializing display - Top line is for model number, bottom line is for firmware version

Normal Display Mode

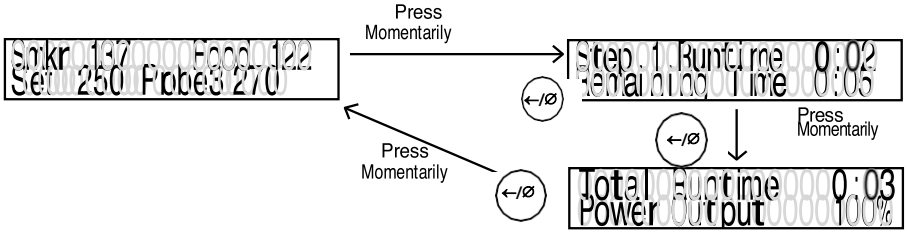




Time Checking Mode

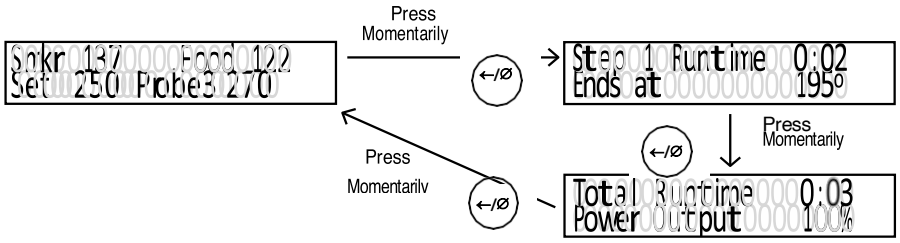
To check current running status (status check mode), press timer key. Press time key again to display more information or return back to normal display mode. There are three display possibilities:

Display #1 (if current step is ended by time) - In normal mode, press timer key to display the elapsed time for current step (top) and remaining time for current step (bottom). Press timer key again to display the total running time after you recently powered up the controller (top) and current power output percentage. Press timer key again to return to normal display mode.



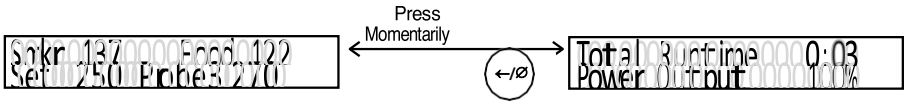
Time checking mode when current step is ended by time (multi-step mode)

Display #2 (if current step is ended by food temperature) - In normal mode, press timer to display the elapsed time for current step (top) and food probe ending temperature (bottom). Press timer key again to display the total running time after you recently powered up the controller (top), and current power output percentage. Press timer key again to return to normal display mode.



Time checking mode when current step is ended by food temperature (multi-step mode)

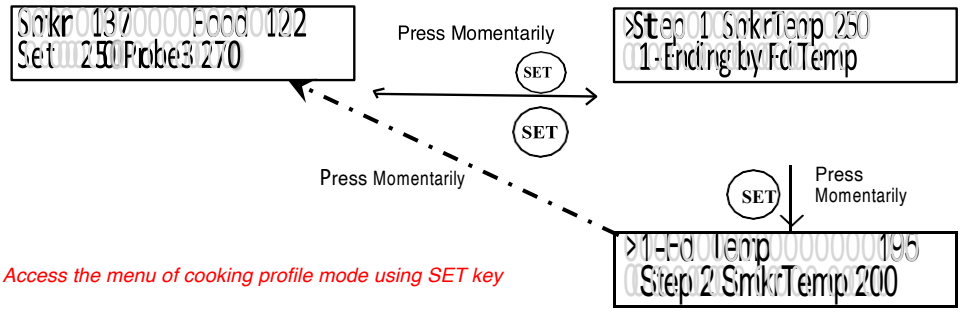
Display #3 (if single step mode) - Press timer key to display the total running time after you recently powered up the controller (top), and current power output percentage. Press timer key again to return to normal display mode.



Time checking mode when single step mode

Cooking Profile Programming Mode

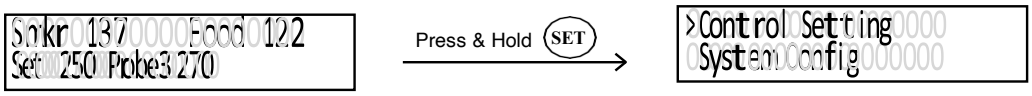
Press SET key to enter cooking profile mode



Access the menu of cooking profile mode using SET key

Parameter Setting Mode

Press and hold SET key for about 2 seconds to enter parameter setting mode



Access the menu of parameter setting mode using SET key

Controller Operation

All cooking profile settings and control parameters can be accessed both from the device and from Smokin-It® app

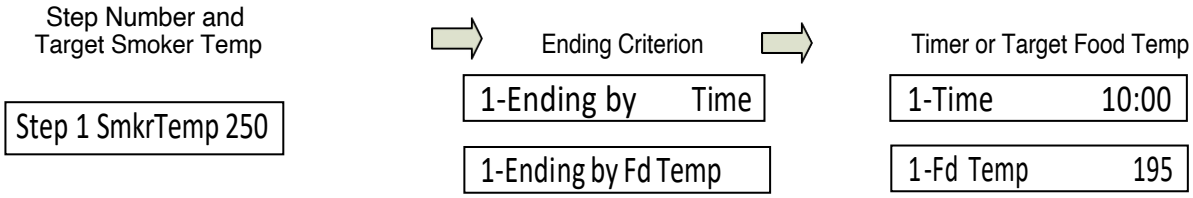
Set the Cooking Profile

The controllers cooking profile can be either set to multi-step mode (default) or single-step mode. In the multi-step mode, up to six steps can be programmed. Each step has its own set temperature for smoker probe (Probe 1), and its step-ending criterion. A cooking step can end by timer or by food internal temperature (Probe 2). In the single-step mode, the controller will maintain the smoker temperature at the set value of Step 1 ("Step 1 SmkrTemp") as long as the controller is on.

Multi-Step Mode

A total of six steps can be programmed on the controller. Each program step comprises of a target temperature of smoker (shown as "SmkrTemp: XXX") and an ending criterion setting "X-Ending", where "X" is the step number. For example, "1-Ending" means the ending criterion of Step 1. This determines how a cooking step is considered finished. Two options are available: time and food internal temperature (Probe 2). If you want Step X to be ended after a pre-set time period, set "X-Ending" by "Time"; if you want Step X to be ended when food internal temperature reaches a pre-set value, set "X-Ending" to "Fd Temp".

After you set "X-Ending" to "Time", you will need to set "X-Time". "X-Time" is defined as the time duration (in hh:mm format) of the current step. The timer will start counting even if the smoker temperature has not yet reached the target temperature. Make sure 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 actual smoker temperature is. If you set "X-Ending" to "X-Fd Temp", you will need to set "X-Fd Temp" to the desired food temperature (Probe 2), but only one setting is relevant to the current cooking step depending on the X-Ending setting (either X-Time or X-Fd Temp).



For each cooking step, set the target smoker temperature, ending criterion, and timer or target food temperature

If "X-Ending" of a certain step is set to "Fd Temp" while the food probe (Probe 2) is not plugged in, this step will never end. Smoker probe (Probe 1) should always be plugged in, otherwise the controller will stop sending power to the heater as protection. When all of the "X-Ending" are set to time, the controller can operate with only the smoker probe (Probe 1) plugged in. *Note:* user can also use the Smokin-It®app to view and change both time and food temperature of each step.

Cooking Profile Example

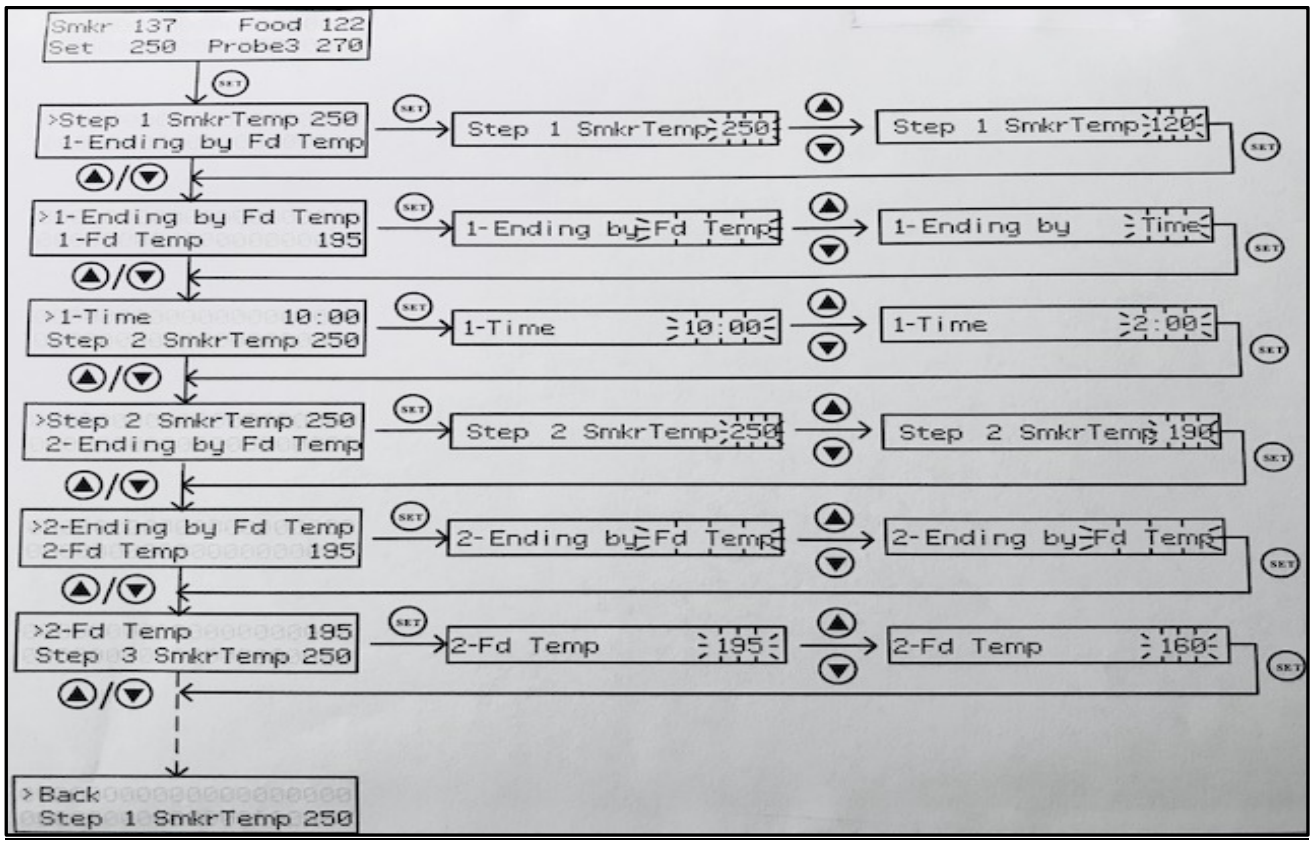
Step Number	Smoker Temp. (SmkrTemp)	X-Ending (Ending)	Time/ Fd Temp
1	120	Time	2:00
2	190	Fd Temp	160
3	130	Time	20:00
4	0	Time	0:0
5	0	Time	0:0
6	0	Time	0:0

This program will control the temperature of the smoker at 120°F for two hours. Then, change the temperature to 190°F. It will stay at 190°F until internal temperature of the meat reaches 160°F. Then, the controller will drop the temperature to 130°F for 20 hours. If you change set temperature in step 3 (Step 3 SmkrTemp) to zero and time for step 3 to zero, when food internal temperature reaches 160°F, the controller will shut off the heater and stop the program. It will give a beeping sound until the buzzer is muted or the power input has been reset.

To start program the cooking profile, press SET key to enter the cooking profile programming mode. The top line in the display shows the step number “Step: 1” and the current target of smoker temperature “SmkrTemp 250”. To enter or edit the profile:

- Use ▲ or ▼ key to move the cursor “ >” to the parameter you want to edit
- Press SET key, the value to be edited should start blinking
- Use ▲ or ▼ arrow key to edit the value
- Then press SET key again to save the change that parameter will stop blinking
- Use ▲ or ▼ key to go another parameter, repeat the previous operations till you have finished entering all the cooking steps

Note: New settings will NOT be saved if SET key 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 within 15 seconds.

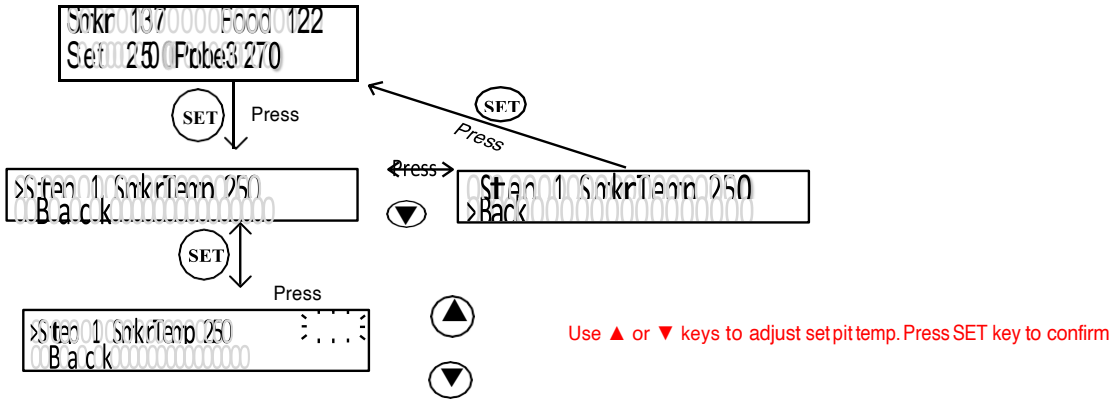


The example program above shows how to enter a cooking profile

Single-Step Mode

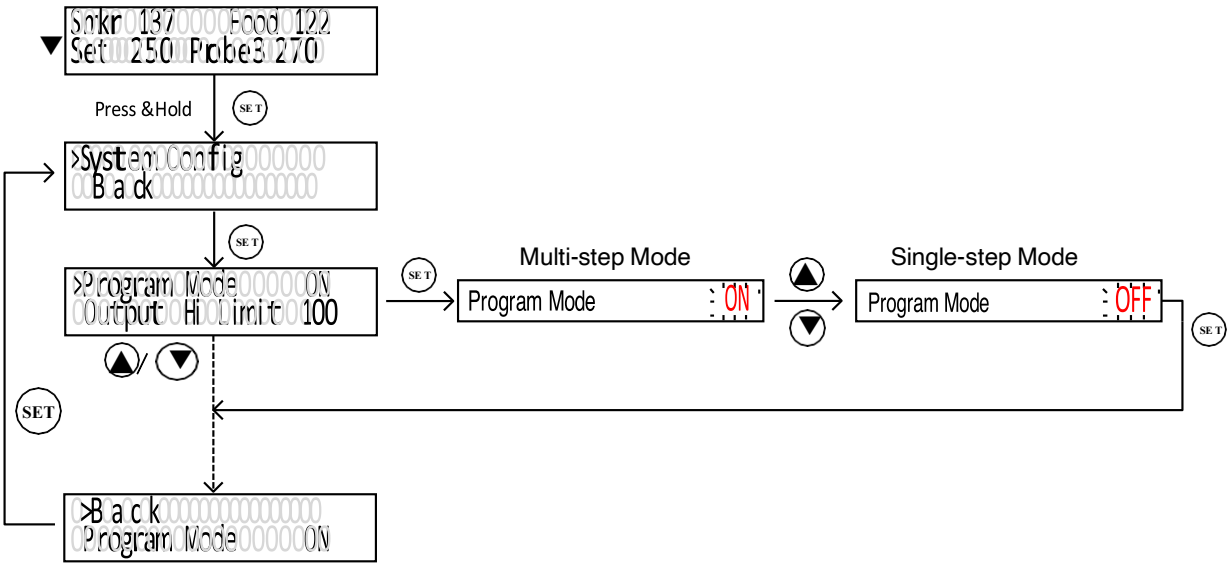
In single-step mode, you can only access and change the target smoker temperature of Step 1 from the device. The controller will try to maintain the smoker temperature at the set temperature (SmkrTemp) of Step 1 continuously as long as the controller is powered on. If this controller is powered off and turned back on again, it will resume operating in this mode. You can view and change settings in other steps in cooking profile on the Smokin-It® app, but do not apply to this mode.

To change the set temperature in single-step mode, press the SET key once, it will show “Step: 1” and the current target smoker temperature in the top line. A curser “ >” will be shown on the left indicating which line will be selected. Press the 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. The number will stop blinking. Press the Timer/Back key to exit the menu. Or use ▲ or ▼ key to scroll to “Back” and then press the SET key to exit. The display will return to the normal display mode if no key is pressed within 15 seconds.



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 "Program Mode", then change it to "ON" (for multi-step mode) or "OFF" (for single-step mode). *By default, the controller is set to multi-step mode "ON".* The flow chart below shows how to access this parameter from the controller.



How to switch between programmable mode and single-step mode

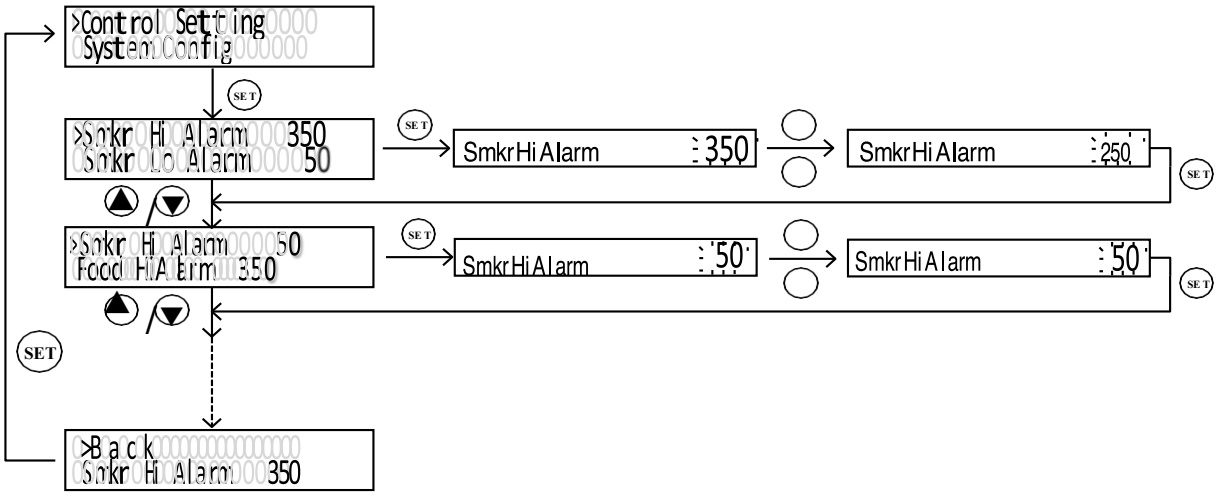
Controller Parameter Setup

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

Control Configurations

Parameters related to control configurations during the smoking process are listed under "Control Config" menu. *Error! Reference source not found* shows the list of these parameters, their range and initial set value.

Name	Description	Range	Initial	Note
Smkr Hi Alarm	Cabinet Probe High Alarm (Probe 1)	0 - 750	325	1
Smkr Lo Alarm	Cabinet Probe Low Alarm (Probe 1)	0 - 750	50	2
Food Hi Alarm	Food Probe High Alarm (Probe 2)	0-650	350	3
Probe3 Hi Alarm	Probe 3 High Alarm	0 - 650	300	4
Relay Action	Smoke Generator Relay Setting	0 . 63	0	5
P (Proportional)	Proportional Constant	1 - 999	7	6
I (Integral)	Integral Time	0 - 9999	600	7
D (Derivative)	Derivative Time	0 - 999	150	8
T (Cycle Time)	Control Cycle Time	2 - 200	2	9
Auto-tune	Auto-tune	ON, OFF	OFF	10
Save Recipe	Save Recipe Settings	Back, B1, B2, C1, C2, F1, F2	Back	11
Recall Recipe	Recall Recipe Settings	Back, B1, B2, C1, C2, F1, F2	Back	11
Back	Back to Upper Level Menu			



Smkr Hi Alarm - is the high temperature alarm for the smoker temperature (Probe 1). When smoker probe reading is higher than Smkr Hi Alarm, the buzzer on the controller will go off and the LCD display will flash between normal display and alarm display. The alarm has 1°F hysteresis. You can mute the buzzer by pressing the Up or Down key. Temperature must move out of the hysteresis zone to activate the alarm again. For example, if Smkr Hi Alarm 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 Smkr Hi Alarm, set it to a large number, such as 750°F.

The LCD display when Smkr Hi Alarm is triggered

Smkr Lo Alarm - is the low temperature alarm for smoker temperature probe (Probe 1). When the smoker probe reading is lower than Smkr Lo Alarm, the buzzer on the controller will go off and the LCD display will flash between normal display and alarm display. The alarm has 1°F hysteresis. You can mute the buzzer by pressing the Up or Down key. Temperature must move out of the hysteresis zone to activate the alarm again. For example, if Smkr Lo Alarm is set to 180°F the buzzer will go off when smoker temperature drops to 179°F; it will stop when the temperature rises above 181°F. The Smkr Lo Alarm is suppressed when the controller is powered up. It is activated when the smoker temperature has reached the target smoker temperature. To disable the Smkr Lo Alarm, set it to a small number, 0°F (default).

The LCD display when Smkr Lo Alarm is triggered

Food Hi Alarm - is the high temperature alarm for the food internal probe (Probe 2). When the food probe reading is higher than Food Hi Alarm, the buzzer on the controller will go off and the LCD display will flash between normal display and alarm display. The alarm has 1°F hysteresis. You can mute the buzzer by pressing the Up or Dow key. For example, if Food Hi Alarm 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 Food Hi Alarm, set it to a large number, such as 650°F.

When smoking multiple pieces of meat of different sizes or thickness, you can put the probe in the thinnest piece first. Set the Food Hi 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 Food Hi Alarm.

The LCD display when Food Hi Alarm is triggered

Probe3 Hi Alarm - is the high temperature alarm for Probe 3. When food Probe 3 reading is higher than Probe 3 Hi Alarm, the buzzer on the controller will go off and the LCD display will flash between normal display and alarm display. The alarm has 1°F hysteresis. You can mute the buzzer by pressing the Up or Down key. For example, if Probe3 Hi Alarm is set to

The LCD display when Probe3 Hi Alarm is triggered

130°F, the buzzer will go off when Probe 3 reads 131°F, and the buzzer will stop when Probe 3 reads 129°F or lower. To disable Probe3 Hi Alarm, set it to a large number, such as 650°F.

P - Proportional Constant - unit is 1°F. This parameter controls 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°F. When the sensor temperature is 7°F below the proportional band (10°F below the setting), the controller will have 100% output. When the temperature is 5°F 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 both integral and derivative action stronger. The value of P is temperature unit sensitive. If you found an optimized P value when operating the controller in Fahrenheit, to use in Celsius, that optimized P value needs to be divided by 1.8. The controller will automatically convert the current P value if you change the temperature display unit.

I - Integral Time - 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 smoker 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. Assuming the difference between measured and set temperature is 2°F and remain unchanged, the output will increase continuously with time until it reaches 100%. When temperature fluctuates regularly (system oscillating), increase the integral time. Decrease it if the controller is taking too long to eliminate the temperature offset. When I = 0, the system becomes a PID controller.

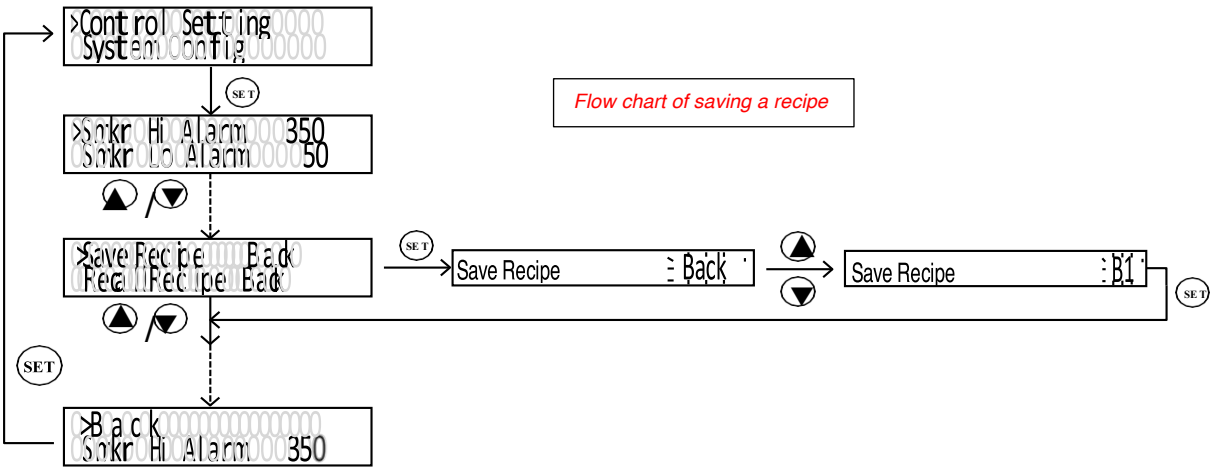
D - Derivative Time - unit is in seconds. Derivative action contributes to the output power based on the rate of temperature change. Derivative action can be used to minimize the temperature overshoot by responding its rate of change. The larger the number is, the stronger the action will be. For example, when the smoker door is opened, the temperature will drop at very high rate. The derivative action changes the controller output based on the rate of change rather than the net amount of change. This will allow the controller to act sooner and will turn the heater to full power before the temperature drops too much.

T - Control Cycle Time - unit determines how long for the controller to calculate each action. If T is set to 10 seconds, when controller decide the output should be 10%, it will turn on the heater 1 second for every 10 seconds. This parameter should be set at 2 seconds for heating with an electric heater.

Auto-tune - parameter can be used to initialize the auto-tune process. Set Auto-tune to ON then press SET key to confirm. Once exit (in normal display mode), the display will flash alternately between normal display and auto-tune notification *(Auto-tuning Please wait…)* which indicates auto-tuning is in progress. When the display stops flashing, the auto-tuning process is finished. The newly calculated PID parameters are set and are used for the system. The new parameters will store in the memory even if the power is off. To cancel the current auto-tuning process, set this parameter to OFF.

Save and Recall Recipes - the controller can save six recipes (programs). Each recipe file can have up to six steps (C-1 to C-6). We have pre-named these six pieces of recipe files as B1 (beef), B2, C1 (chicken), C2, F1 (fish), F2. The recipe files are all the same except their names, you can store your recipe to any of them. The recipes can be stored in the memory of the controller even when powered off. You can override the existing recipe with a new one.

Save a Recipe - after a recipe has been entered, you can save the current program as a recipe for future use.
Go to Parameter Setting mode by holding the SET key, and then go to “Control Setting” menu, find parameter “Save Recipe”, press SET key again so you can change its value. If you press ▲ or ▼ key repeatedly, you will see “Back”, “B1”, “B2”, “C1”, “C2”, “F1”, “F2” one by one. Locate the recipe you want to save to, then press SET key to confirm.



Flow chart of saving a recipe

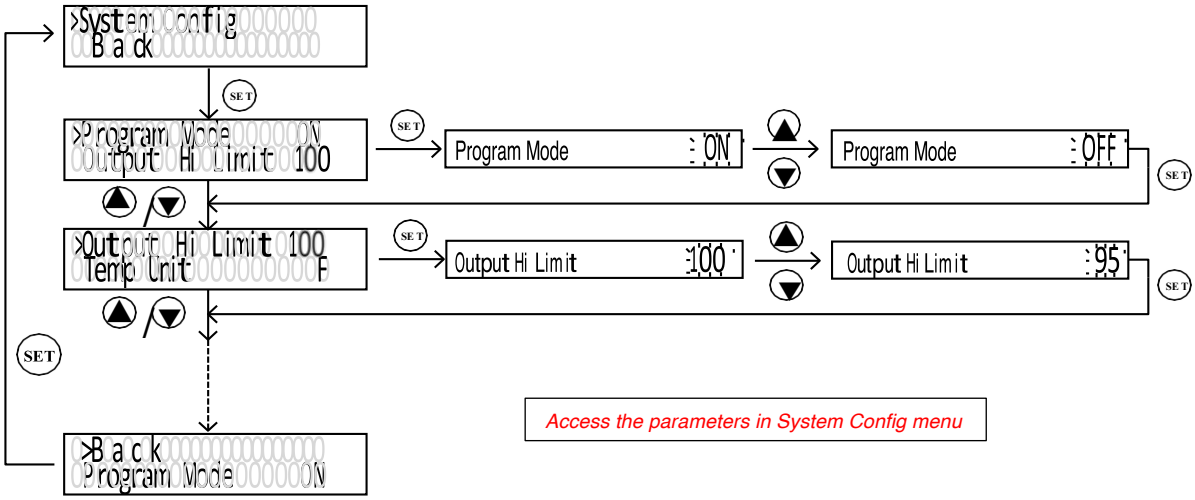
Recall a Recipe - You can recall your previous saved recipe to your current program. *Note:* your current program will be overwritten. *Please write your current program down if it is important to you.*
Go to Parameter Setting mode by holding the SET key, and then go to “Control Setting” menu, find parameter “Save Recipe”, press SET key again so you can change its value. If you press ▲ or ▼ key repeatedly, you will see “Back”, “B1”, “B2”, “C1”, “C2”, “F1”, “F2” one by one. Locate the recipe you want to save to, then press SET key to confirm.

System Configurations

Parameters related to device configurations which are not often used during the smoking process are listed under “System Config” menu. Details of each parameters are listed below.

Name	Description	Range	Initial	Note
Program Mode	Multi-Step Program	ON, OFF	ON	12
Output Hi Limit	Output High Limit %	0 - 100	100	13
Temp Unit	Temp Unit (°C or °F)	C, F	F	14
Smkr Probe Offset	Smoker Probe (Probe 1) Offset	-9 - 99	0	15
Fd Probe Offset	Food Internal Probe (Probe 2) Offset	-9 - 99	0	15
Probe3 Offset	Probe 3 Offset	-9 - 99	0	15
Probe3 Enabled	Probe 3 Readout Option	Yes, No	Yes	16
Step End Alarm	Step Ending Alarm	ON, OFF	ON	17
Backlight Level	LCD Backlight Level	0 - 10	10	18
Dwell Time	Data Logging Sampling Interval (App)	1min - 5min	1min	19
nFlt	Power Line Digital Filter	Auto, A, B	Auto	22
Password	Device Access Password (App)	100 - 999	777	20
Factory Reset	Factory Reset	Yes, No	No	21
Back	Back to Upper Level Menu			

Parameters in System Config menu



Program Mode - Multi-step program switch. By default, this controller is set to multi-step mode, and this parameter is set to “ON”. If you want to change it to single-step mode, please change this parameter to “OFF”.

Output Hi Limit - It is expressed as a percentage value. This function will allow you to control the maximum output power delivered by the heater. For example, if you set Output Hi Limit = 50 and your heater is 1000 watts, the output will use 50% of the 1000 watts as the full output. It thinks the 1000W heater as a 500W heater. When the PID algorithm determines 50% output value, the actual power output will be 250 watts. This function can be used in two situations:

- When you have a powerful heater and use a small pot of water to cook at very low temperature, for example, a 1400 watts heater with a one litter (1 qt) pot of water at 130°F. The heater is too powerful for the small water volume. The moment it is on, it releases too much energy to cause the temperature to overshoot. It is still possible to stabilize the temperature with proper PID parameters, it is much easier to control if you limit the maximum output to 25%. An optimized temperature control system should consume about 25% of the heater power at set temperature (steady state). For example, if you found out only 50 watts of energy is needed to maintain the temperature at 60°C (141°F), you should use only a 200 watts heater for this job. Too much power will make the system over react too quickly. Too little power will make the system too slow in response. By using the out function, you can make the 1400 watts heater to act as a 200 watts heater for stable temperature control.

▪ When the smoker consumes more power than the controller can handle, for example, if you have a 12A, 120V AC heater and your cooker contains more than 38 Liter (10 Gallon) of water. It might take more than 90 minutes of full power heating for controller to heat up the pot. A long time of full power operation might cause the controller to overheat. You can set the output to 80%. It will prevent the controller from overheating by staying a full power too long.

Temp Unit - You can set the display either Celsius (°C) or Fahrenheit (°F)

Probe calibration offsets - These parameters are used to make the input offset to compensate the error produced by sensor. If the temperature display of smoker probe (Probe 1) is 2°C in ice water mixture, set Smkr Probe Offset = -2 will make the display to shown 0°. Three offset parameters are available for three probes. Smkr Probe Offset is for smoker probe (Probe 1); Fd Probe Offset is for food internal probe (Probe 2); Probe3 Offset is for Probe 3.

Probe3 Enabled - Probe 3 Readout Option, when this option is set to “Yes”, right bottom parameter in normal display mode will show the temperature of Probe 3. When this option is set to “No”, that location will show the current power output percentage instead.

Step End Alarm - Step ending alarm setting, when Step End Alarm is set to “ON”, the buzzer will beep four times when each step is finished. It is useful to notify you the cooking step is finished. You can turn it off if no buzzer sound is wanted at the finish of each step.

Backlight Level - LCD backlight level setting, the higher the value, the brighter the LCD display. Zero is lowest brightness. Ten is highest brightness.

Dwell Time - Data Logging Sampling Interval. This parameter controls the temperature sampling interval, which will be used for data export function and plot display on Smokin-It® app. The controller will store five data traces in total: SV, Probe 1 reading (smoker), Probe 2 reading (food probe), Probe 3 reading and the output power percentage. Each trace can store up to 300 data points. The temperature plot of the Smokin-It® app has two scales. One can display the latest 300 data points and other can display the latest 120 data points. The default setting of dwell time is one minute per sample. At this setting, 300 minutes (or 5 hours) of data points can be stored. You can display the plot in either five hours or two hours. The dwell time can be set in the range of 1-5 minutes.

Dwell Time Option	Maximum Logging Time	Plot Display Option
1-minute	5-hour	2-hour/5-hour
2-minute	10-hour	4-hour/10-hour
3-minute	15-hour	6-hour/15-hour
4-minute	20-hour	8-hour/20-hour
5-minute	25-hour	10-hour/25-hour

Available options for Dwell Time

Factory Reset - This function will restore all the parameters (including all the stored recipe settings in the memory) back to the factory default values.

nFlt - Power line digital filter. This filter is for rejecting the power line interference. There are three settings: “Auto” for auto-detect mode (default), “A” for 50 Hertz interferences and “B” for 60 Hertz interferences. If you encounter fast fluctuating temperature reading issue, you can change this setting to “A” or “B” manually.

When Should the Controller be Tuned?

If the PID parameters provided are not working for you, use the auto-tuning function to let the controller determine the PID parameters automatically. Auto-tuning function can automatically optimize the PID parameters. The auto-tuning function will heat up your smoker, then let it cool down. It will repeat this heat/cool cycle several times. Based on the response time, the controller will calculate and set the PID parameters for your smoker.

To activate auto-tuning, enter Control Config menu, go to parameter "Auto-tune" and set it to ON then exit the menu. The display will flash alternately between normal display and auto-tune notification *(Auto-tuning please wait…),* which indicates auto-tuning is in progress. When the display stops flashing, the auto-tuning is finished, the newly calculated PID parameters are set. Duration of auto-tuning depends on how fast the system is responding to the heating/cooling cycle.

You should always write down your old PID parameters, before letting the controller to perform auto-tuning. This way if something goes wrong, you can always go back to your old PID parameters. You can use factory reset feature to reset all the parameters.