IX - Hottop Coffee Roaster KN-8828B-2K+

Automatic Coffee Roaster with Auto & Manual Control,
USB Computer Connectivity, and Dual Thermocouples

WARNING: Read and understand this owner's manual and *all* the safety precautions *before* using your Hottop Coffee Roaster!

WARNING: Never leave the roaster unattended during a roast!

The KN-8828B-2K+ combines over a decade of home coffee roaster development with advanced electronics. Dual thermocouples now monitor both environmental temperature and bean temperature, and the LED displays both in real time along with a lot of other useful information. The KN-8828B-2K+ allows easy roasting with just three button presses for new home roasters. It also allows complete manual control for those who have advanced their roasting experience. Beyond that, a USB interface gives the ability to watch and control the roaster from a computer using third party software which gives you the potential to visually comprehend the process with real-time graphs. The KN-8828B-2K+ allows three Roast Profiles to be saved for later use. Externally, compared to previous models, the only major difference is the user interface of the control panel. Let's start with the user interface and what it all means.

The user interface shown to the right will not actually appear. For educational purposes, this is a composite of all possible icons and data that the display is capable of showing. Let's take a look at what it all means:

INDIVIDUAL ICONS

ENTER - This prompts you to press the enter button. For example, at the two safety points in the programming this will illuminate to prompt you to press the "ENTER/SAVE" button to continue the roast.

AUTO - This is the preprogrammed Automatic roasting mode. When you just want to roast as easily and with as little user-input as possible, this is the mode to use.

MANUAL MODE - This gives you full control over the roast. You can select all parameters at any time during the roast.

CHAFF - A reminder that the roaster will not operate until you remove and empty the chaff tray, then replace it.

SAVE - At the end of each manual roast you will be prompted to "SAVE" the roast you just completed. You can ignore this if you wish, save it to the "Ad' location you just completed, or select a different "Ad' location. There are three of these memory areas (Ad1, Ad2, and Ad3).

USB - This is illuminated when the roaster is connected to a computer running software capable of interfacing with the roaster. When connected the control of the roaster transfers to the external application and all current display characters turn blue.

START - Indicates that the selected roasting program has begun its cycle. You are roasting!

BUTTONS

The KN-8828B-2K+ only has three buttons. The use of these is documented throughout the reminder of this section of the manual. A button is functional whenever it is illuminated as seen here:

DISPLAY DATA, ADJUSTMENTS, and CONTROL

TIME

The time display has multiple functions. When selecting a program with which to roast the display indicates the target time. Once a roast has begun, the TIME display will either count up the time from the "ADD BEANS" signal sounds or begin to count down from the target time to zero (which triggers bean eject).

During a roast, if the time control knob is rotated, the display will change and show the target time which can be changed during the roast.

At any time, if you press and hold the "ON/OFF - START" button for about five seconds the display will toggle between being a countdown timer or a count-up timer.

BEAN TEMPERATURE - (BT)

The KN-8828B-2K+ has two thermocouples in the roast chamber to sense temperature. Looking into the roast chamber, the sensor located at the five o'clock position is the bean sensor. The temperature of the beans is constantly displayed throughout the roast. This makes it simple to duplicate roasts. The contrasting color allows this temperature to be easily seen with just a glance at the display during the roast.

ENVIRONMENTAL TEMPERATURE - (ET)

The other sensor, located at about the eleven o'clock position in the roast chamber is the environmental temperature sensor. This monitors the temperature of the hot air in the chamber. It is very handy when you want to "drop in" (add beans) at a temperature higher than when the programmed "ADD BEANS" signal sounds and to watch the effect that changing the fan speed or the heating power has.

TARGET TEMPERATURE

Sets the temperature at which you want to roast to finish. Once the roaster achieves the set temperature it will eject the beans. This temperature is the BEAN TEMPERATURE which makes it particularly valuable when looking to replicate a previously-successful roast. Did you eject at 395 degrees F. last time and get a good roast? Set the target to that same temperature for the next roast. Adjustments can be made any time after the "Add Beans" signal" is given up to the time the beans are ejected.

FAN SPEED

Fan speed is adjustable is 10% steps which are displayed from 0 (off) to 10 (full speed). Adjustments can be made any time after the "Add Beans" signal" is given up to the time the beans are ejected.

HEAT

This is the level of energy sent to the heating element. It is adjustable in 1% increments from 0% (off) to 100%. Adjustments can be made any time after the "Add Beans" signal" until the time the beans are ejected.

EJECT

At any time during a roast, if the eject button is illuminated, one press will end the roast. The heating element is turned to 0%, the eject door opens, the beans are ejected from the roasting chamber, and after approximately ten seconds the bean cooling fan is set to 100% to cool the beans in the bean cooling tray.

HOTTOP KN-8828B-2K+ GENERAL SETTINGS & TIPS

ROTARY CONTROL KNOBS

The time, temp, fan, and heat settings are adjusted by the "infinite rotation" of their respective rotary control knobs located to the right of the display. They are speed sensitive and bi-directional. For example, a slow, ½ turn of the time knob may change the time about twenty seconds. A fast ½ turn will change it by around three minutes. Clockwise raises a setting, counter-clockwise lowers it.

PARAMETER RANGES

Target Temperature (read from BT probe) - 167F. to 412F.
Target Time - 10:00 to 25:00
Heating Element Power - 0% to 100% in 1% increments
Fan Speed - 0 to 100 in increments of 10

SAFETY POINTS

There are two safety point programmed into the KN-8828B-2K+. These are active in both auto and manual modes.

If the roast progresses quickly, the first may **occur at 356 F. BT.** The is dependent on the amount of time it take to get to 356, so this alert may not occur.

The second occurs at 395 F. BT if the roast is allowed to reach that temperature. When these events take place, the roaster emits beeping and the "ENTER" icon appears. In both cases you must press an illuminated button (other then eject) to continue the roast, otherwise the beans will eject automatically and the roaster will automatically go into cooling mode.

COLOR CHANGES

At 356 F. the BT display turns brown indicating that first crack is imminent and it is time to pay even closer attention to the roast as things will begin to happen quickly.

When changing any parameter during a roast, the display color of the parameter will change during the adjustment period giving you instant visual feedback as to whether you are using the correct rotary knob for the item you wish to adjust.

At the "ADD BEANS signal, the Bean Temperature display color turns from white to purple.

COUNT UP or COUNT DOWN TIMER

At any time, press and hold the "ON/OFF START" button for approximately five seconds and the "TIME" display will toggle between a count-up and a countdown timer. This can even be done while a roast is in progress.

CELSIUS or FAHRENHEIT

To change the temperature measurements from C to F, or from F to C:
1 - With machine unplugged, hold down ENTER/SAVE button
2 - Plug in roaster to mains power, continuing to hold button
3 - After a few seconds the screen shown to the left will appear. Rotate the TIME rotary knob to select C or F and press "ENTER" to save your selection.

CHANGING PARAMETERS

At any time during the roasting process, before the beans are ejected, you may adjust the following:

Target Temperature   Target Time   Heat   Fan Speed

ROASTING WITH HOTTOP KN-8828B-2K+ AUTO MODE
WARNING: Never leave the roaster unattended during a roast!

In "**AUTO**" mode the KN-8828B-2K controls the roast, adjusting the heat as well as the fan speed, but still allows you to adjust the roast parameters if you feel the need to do so. The Auto mode has been redesigned from previous models and we recommend using this mode for the first roast or two to get accustomed to the KN-8828B-2K+.

1 - SELECT AUTO MODE

Press **ON/OFF - START** until the "AUTO" icon is illuminated indicating that you are in **AUTO** mode. If the **ON/OFF** button is not illuminated press **ON/OFF** once again. The first to "wake it up," and the second to select it. The button will now be illuminated showing it is active and selectable.

2 - PRESS ENTER

Press **ENTER** and the target time and target temperature are now displayed. If at any time during the roast either of these parameters is achieved (that is, if the bean temperature reaches the target temperature, or the elapsed time reaches the target time), the roaster will automatically eject the beans. These may be adjusted before starting the roasting process or at any time during the roast. For your first roast, use the default settings seen here (18:00 and 402F.). The maximum parameters available are 25:00 and 412F.

3 - PRESS ENTER AGAIN

Press **ENTER** again and the roast begins preheating with "P h" flashing on the screen. The roaster is preheating to prepare for the roast. If the fans start up it could be because the roaster has been recently used and it has gone into its cooling mode first.

4 - THE ROAST BEGINS

The machine beeps at 167F. and the timer displays the count up or countdown time. The BT display turns purple. The roasting process has begun. This is the time to add the beans to the roaster.

5 - ADJUST PARAMETERS AS YOU GO

Use the HEAT and FAN knobs to adjust the fan speed and heating element power at any time you wish.

Use the TIME and TEMP knobs to adjust those target parameters at any time you wish.

Roasting with Hottop KN-8828B-2K+ **AUTO MODE** (cont.)

6 - BEAN TEMPERATURE DISPLAY TURNS BROWN

At 356F. is when the BT DISPLAY shows brown numerals it is sign that 1st crack is imminent. Although it is not necessary in Auto Mode, this is a time you may wish to adjust the fan speed up a bit and lower the heating element power.

7 - FIRST SAFETY POINT

Depending on the rate of bean temperature increase of the roast, at 356F. BT the first safety point *may* occur. If it does, the "ENTER" icon will be displayed and the machine will begin beeping. The beans will automatically eject unless you press the GREEN-illuminated **ENTER** button. This event will take place again at a BT of 395F if the roast reaches that temperature before it is ejected.

8 - END OF ROAST EJECTION

When you press the red **EJECT** button (or the roast is ended automatically by the programming) the beans will be dumped into the tray and the cooling fan starts about ten seconds later. The delay in cooling is a safety feature so that in the case of beans which are at or near the ignition point for any reason, the fan will not feed the fire with oxygen.

9 - COOLING

Once the beans are ejected the cooling cycle counts down. Note that the "START" icon is now gone. The beans are stirred and the bean cooling fan under the cooling tray forces cool air up through the beans. The roasting process is halted as near to the roast level you chose as possible.

10 - STORE

When the cooling cycle ends, the "Stor" text appears and the "SAVE icon is displayed. Choose an "Ad" area using the "TIME" rotary control in which to store that roast and press the illuminated **ENTER/SAVE** button, or simply hit the red **EJECT** button to finish without saving. Saving a roast program overwrites the existing the program in that memory area

11 - CHAFF

Either at the end of this roast or before beginning the next roast, the "CHAF" icon will be displayed and the word "ChAF will be on the screen. You must remove and empty the chaff tray before roasting again.

ROASTING WITH HOTTOP KN-8828B-2K+ MANUAL MODE

In "MANUAL" mode the KN-8828B-2K gives you full control over the roasting process. It allows you to adjust the level of the heat as well as the fan speed at any time. The display supplies you with the current fan and heat energy level as well as the bean temperature (BT) and roast chamber environment temperature (ET) in real time. Combined, these parameters give you the information you need to have excellent control over the entire process.

Manual mode greatly benefits from the ability to connect the KN-8828B-2K+ to a computer. With the fantastic control over the roaster and the ability to "see" the roast graphed in real time, the Hottop KN-8828B-2K+ Coffee Roaster rivals some commercial equipment! USB connectivity is discussed in the next section of this manual

WARNING: Never leave the roaster unattended during a roast!

1 - SELECT MANUAL MODE

Press **START** then rotate the "TIME" control knob until "MANUAL" icon and your choice of Ad1, Ad2, or AD3 appears, then press **ENTER**.

2 - SET TIME AND TEMPERATURE TARGETS

Rotate the "TIME" and TEMP" control knobs to set the target time and target temperature. Maximum parameters are 25:00 and 412F. Then press **ENTER**.

3 - PREHEAT MODE BEGINS

"P h" indicating that the machine is warming up for roasting by flashing , and the "START" arrow (as seen above) is illuminated showing that the program has has started.

4 - THE ROAST BEGINS

The machine beeps at 167F. and the timer displays the count up or countdown time. The BT display turns purple. The roasting process has begun. This is the time to add the beans to the roaster.

5 - ADJUST PARAMETERS AS YOU GO

Use the heat and fan knobs to adjust the fan speed and heating element power at any time you wish.

Use the TIME and TEMP knobs to adjust those target parameters at any time you wish.

(continued)

6 - BEAN TEMPERATURE DISPLAY TURNS BROWN

At 356F. is when the BT DISPLAY shows brown numerals it is sign that 1st crack is imminent. This is a time you may wish to adjust the fan speed up and lower the heating element power. As you become more proficient with the KN-8828B-2K+, you will want to predict this point and lower the heat and raise fan speed. Lowering them at around 340 to 345F. would be a good place to start.

7 - FIRST SAFETY POINT

Depending on the rate of bean temperature increase of the roast, at 356F. BT the first safety point *may* occur. If it does, the "ENTER" icon will be displayed and the machine will begin beeping. The beans will automatically eject unless you press the GREEN-illuminated ENTER button. This event will take place again at a BT of 395F if the roast reaches that temperature before it is ejected.

8 - END OF ROAST EJECTION

When you press the red EJECT button (or the roast is ended automatically by the programming) the beans will be dumped into the tray and the cooling fan starts about ten seconds later. The delay in cooling is a safety feature so that in the case of beans which are at or near the ignition point for any reason, the fan will not feed the fire with oxygen.

9 - COOLING

Once the beans are ejected the cooling cycle counts down. Note that the "START" icon is now gone. The beans are stirred and the bean cooling fan under the cooling tray forces cool air up through the beans. The roasting process is halted as near to the roast level you chose as possible.

10 - STORE

When the cooling cycle ends, the "Stor" text appears and the "SAVE icon is displayed. Choose an "Ad" area in which to store that roast and press the illuminated ENTER/SAVE button, or simply hit the red EJECT button to discard the changes. Saving a roast program overwrites the existing the program in that memory area.

11 - CHAFF

The "CHAF" icon is now displayed and the word "ChAF will be on the screen. You must remove and empty the chaff tray before roasting again.

USB CONNECTION

Along the right side of the Control Panel, adjacent to the "rotary controls," you will find a USB port that allows the KN-8828B-2K+ to be connected to a computer. This allows the information about the roast to be used by computer software and for software to have the potential to control the Hottop.

NOTE: All software for use with the KN-8828B-2K+ is created by third party entities, and while Hottop may work with these entities by supplying communication protocols and other technical information, Hottop does not create nor distribute these software applications. Questions about these applications must be directed to the company which created or distributed the application in question. Hottop denies any and all responsibility for any damage(s) or injury(s) which are a result of using such applications.

USB ROASTING

WARNING: Never leave the roaster unattended during a roast!

Check the Hottop USA website homepage for a link to USB information including links to software and other related resources as they become available.

USB EMERGENCIES

WARNING: If you plan on using the USB connection it is important to read the following information!

When the roaster is being controlled by, or is connected to a computer, there can be situations that bypass or hinder the normal safety programming or operation of the Hottop roaster. If there is an event such as unresponsive behavior, runaway temperature increase, or a total shutdown of the roaster (such as from a crashed program, disconnected USB cable, or even a temporary electrical blackout, here is what to do:

EMERGENCY USB FAILURE RECOVERY INSTRUCTIONS

1. Disconnect the USB cable.
2. Press the **ON/OFF** button repeatedly until it is illuminated.
3. Press **ENTER/SAVE** TWICE to enter **AUTO** mode.
4. Immediately press "**EJECT**" to allow the roaster to eject the beans from roast chamber.

It is important to always have a spray bottle filled with water handy for emergencies. In rare and extreme instances when a fire occurs, two or three pumps of mist from a pump spray bottle can quickly extinguish a fire when the beans are ejected. Water expands 1700 times when it turns to steam and takes with it a lot of thermal energy when it does so.

If the fire starts inside the roast chamber, disconnect the roaster from the mains outlet, then with gloves on, remove the bean loading chute cover, spray three or four shots of water-mist into the roast chamber, then immediately replace the loading chute cover. Repeat as necessary until fire is extinguished.