IDC manual

First Section: Electrical Specifications and Electromagnetic Compatibility Requirements

Electrical Specifications:

Product application voltage and frequency: 120VAC / 60HZ
Rating Power: 1300 W
Application voltage range: 85-144 VAC
Caution: Improper use of wrong voltage may cause certain damage to electrical panel.
Pots Compatibility: 430 single-sided pot; 430 double-sided pot; 304 single-sided
Operating frequency of induction cooker is 19.7 KHZ-23.3 KHZ

Second Section: Function Description

A. Functional Details:

About button pressing and displaying

1) Stand-by mode:

Once power is connected, buzzer will beep once (lasting 1 second) and all the lights, indicators and digital tubes will be flashing for 1 second; under this condition, the induction cooktop is in stand-by mode (digital tubes will be displaying: “0”)

2) Working mode:

While induction cooktop is stand-by, press either temperature or time to start functional data input, and then **START** button to make it start functioning; the temperature setting is default as **Max/Sear** temperature, digital tube displaying: SEAr and temperature indicator LED6 is on. Default time is 2 hours.

Default	-	-	Start: **Sear** 02:00
	Temperature	Time (01:00)	Start
	-	Time(00:10)	Start: HIGH
	Temperature	-	Start as 02:00

Default display is temperature, pressing **TIME** shows time, by pressing **TIME** one more time, timing can be changed; by pressing any temperature, temperature level will be shown as the current one and change temperature by selecting other temperature button.

IDC Cooktop will start working once pot is detected, without any pot, no heat will be created; but **E1** will be displayed on the screen, buzzer will beep every 2 seconds until detecting pot. But if no pot has been detected after 1 minute, IDC cooktop will be returned

to standby mode automatically.

By pressing **Pause/Clear** any time during operation, the cooking may be paused and by pressing this button again, IDC cooktop will be returned to standby mode and lose the program.

3) Digital tubes and indicators displaying instruction:

Digital tubes showing temperature 100℉－425℉, SEAr and time setting;

No.1 Temperature setting is divided into 33 options: From 100℉ to 425℉ and Sear, each 10℉ is one unit (Temperature sensor range can only reach to 250 ℃ / 482℉).

100℉-170℉	600W	LOW	Between LED 1+2	100℉	LED:1
180℉-270℉	600W	MED.LOW	Between LED 2+3	175℉	LED:2
280℉-370℉	800w	MED	Between LED 3+4	275℉	LED: 3
380℉-420℉	1000w	MED.HIGH	Between LED 4+5	375℉	LED: 4
425℉	1200w	HIGH	Between LED 5+6	425℉	LED: 5
450℉	1350W	MAX/SEAR	LED 6	SEAr	LED: 6

Above temperature is based on the oil temperature of the middle center of ultimate cookware.

Temperature Display: First time touch will display default figure, if last digit is ‘5’ numbered, while there is no 5 unit in the list, then by pressing ‘+’ or ‘-’ cannot be showing any 5 unit, rather each unit is set as 10.

No.2 Time displaying range: 99 hours and 99 minutes；Once time has been confirmed, the maximum display will be 99:59. When the total time is over 99:99 by pressing **TIME,** then **FULL** shall be displayed.

During the cooking when pressing **PAUSE/CLEAR** button to pause cooking, ‘F’ blinks in case of temperature mode and ‘:’ blinks in case of time mode to indicate that the induction cooktop is under pause condition.

In Pause mode only fan is working for 1 minute and then fan stops one minute later. If there is no action, automatically IDC returns to standby mode after 45 minutes without pressing PAUSE/CLEAR button again.

To stop the cooking press PAUSE/CLEAR button again.

4) Button Pressing Description

11 Buttons are: **PROG, TIME, START, +, -, LOW, MED LOW, MED, MED.HIGH, HIGH**,

SEAR and **PAUSE / CLEAR** (12 buttons in total)

a) Temperature Selection: by selecting different power options during operation, related temperature range will also be selected.

b) '+' button: Under Timing / Temperature mode, each time pressing '+' button will add 1/10 minutes/hour; Temperature will be add by 10ºF

c) '-' button: Under Timing / Temperature mode, each time pressing '-' button will minus 1/10 minutes/hour; Temperature will be minus by 10ºF.

When temperature is somewhere between two powers, the temperature will return to gear power by pressing any power gear.

5) Function Description

a) Mode 1:

Under stand-by mode, press **START** button, buzzer beep once, fan start working, and default as **MAX/SEAR** power function. LED 6 indicator is on, power rated as 1,350W, digital tube displaying 'SEAr' Default time is '02:00', induction cooktop is entering to operation mode.

Press '+' or '-'to change temperature settings, by pressing each time, one power gear will be added or reduced. (Either pressing '+'or'- ', buzzer will beep once), up to the maximum of 425 F

(1) Time setting

Default time is 00:00; First digit 0 from right hand side will start blinking; By pressing the TIME button, digits can be shifted from right to left each time. Users can input time by pressing '+' or '-' button and lastly press **TIME** button again to confirm the timing (Alternatively MCU will automatically lock the set time after 5 seconds). If '00:00 is displayed, that means no input has been made, then program will be cancelled after 5 seconds.

To change time during operation, press the **TIME** button once in time mode and twice in temperature mode. Digital tube will flash and users are able to change the time by pressing '+' or '-' button.

Also, users are able to see the remaining time by pressing the TIME button during operation under temperature mode.

(2) Temperature setting

By pressing any power buttons, setting temperature shall be shown and temperature can be adjusted by pressing '+' or '-' button.

b) Mode 2: Program Mode

Under stand-by condition, pressing **PROG** button, digital tube displaying: **Pro**, power has

to be set first by pressing any **POWER** button. Power changing is the same as Mode 1;. Once temperature has been set then press **TIME** button, press '+' or '-' to change the time. At this time, by pressing any **POWER** button, first stage will be saved and memorized. Therefore entering the second stage, application method is the same as stage one. After stages has been set, then press **START** button to active those programs. Available from 2 stages to maximum 10 stages and consider the delay as one stage.

If the process has not been saved, then press **PAUSE/CLEAR** button to exist. If it has been saved, then application will follow the saved instruction to start the task.

Example: **PROG->POWER->TIME->POWER->TIME->START** 2 STAGES

During cooking time and temperature at current stage can be changed by same inputting method, and stage can work continuously from one to another (1 to 10)

MCU will follow stage one to start functioning, timing is working in count-down format; When timing task is finished (reach to '0'), buzzer will beep 3 times and induction cooker will back to stand-by mode.

If the digital tube is displaying temperature, and users want to check time, press the **TIME** button, then time display can be obtained.

For Program mode, power has to be set first and then time setting.

In addition, while cooking, always shows temperature as default.

PROG -> Temperature Time -> **START** one stage is saved

Also PROG -> Temperature TIME Temperature TIME Temperature Time -> 3 stages are saved

c) Appointment Mode

Under program mode, when the stages has been saved, by pressing **PROG** button one more time, then enter **TIME**, delayed cooking (Appointment mode) can be obtained or by pressing **PROG - > TEMPERATURE** before stage cooking**.**

TIME displaying '00:00', enter relevant time for the delayed cooking. Maximum time would be '99:99'. During appointment mode, when the total timing reaches to 99:99 limit, induction cooker will be displaying 'FULL', no more stages can be entered

During program mode, for safety reason, if the temperature was shooting up over the limit (20 F), 'E8' will be displayed as over temperature, IDC cooktop

will be under waiting by mode (waiting for user's order), by pressing any button apart from PAUSE/CLEAR, and the temperature is cooling, IDC cooktop will continue to work.

d) Coffee steaming mode:

1. 'PROG' -> 'TIME' - > PROG -> TIME -> POWER -> TIME -> POWER

10:00 03:00 400F 01:00 175 F

Delayed 10:00 cooking, working as 400F for 3 hours, during 3 hours, if the temperature is shooting up over 20 F limit, induction cooker restart as 175 F for 1:00 after the temperature have been cooling down.

2. PROG -> TIME -> POWER -> TIME - > POWER -> PROG -> TIME

Same working mode as above

Program can only by activated in these two ways

So basically:

1. PROG+TIME+PROG+TIME+POWER+TIME+POWER+START
2. PROG+TIME+POWER+TIME+POWER+PROG+TIME+START

B. Protection Function:

1. Passing current protection: when the current loading on the circuit is Over, then power will be cut off in order to protect the circuit.
2. Passing voltage protection: when the input voltage is over, then major components will be protected by the resistor(s) from any damages.
3. IGBT over-heating protection: when IGBT temperature is exceeding 110℃, Any operation will be stopped and alarm (beeping) will be raised.
4. When electrical waves exist, any operation will be stopped for 2 seconds, heat will be created again after 2 seconds.
5. Heat releasing: Fan will work for another 60 seconds after shut off,
6. If there is no pot on IDC within 1 minute, then automatically shut off.

C. Self-Testing Function:

If abnormal condition or error arises on the circuit, it will be detected by the IC and inform users by beeping alert, heat source will be isolated, indicator code showing:

1. No Pot / Wrong Pot: E1
2. IGBT sensor Open or Short circuit: E2
3. Low voltage 85V: E3
4. High voltage 144V: E4

5. NTC short circuit: E5
6. NTC open circuit: E6
7. IGBT over-heating (110℃) E7
8. When temperature is regulated, in order to avoid dry pot, when the senor tested that the temperature is 20 F higher than Sear; E8 will be displayed.

When error E2, E5, E6, E7 and E8 exist, only re-connection of the power is able to correct the error (error sign will be disappeared).

If any error exists, the buzzer will beep.

When E3 (E4) error exists, if the voltage could be back to normal ranges, I.E minimum voltage +10V (about 95V), maximum voltage -10V (Below 134V), then it will carry on working; otherwise, error sign will keep displaying.

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