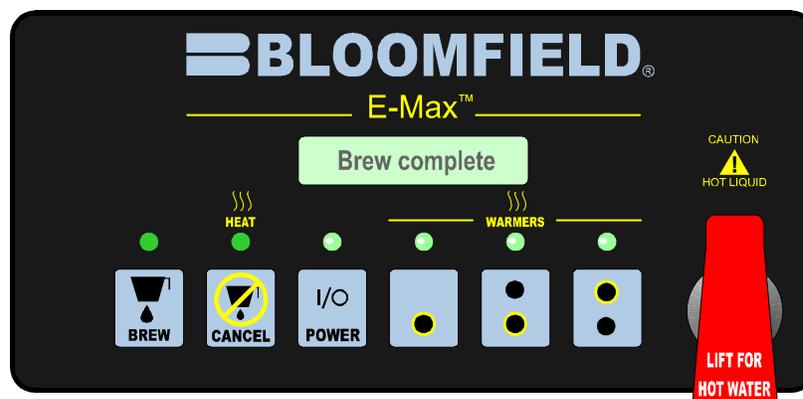
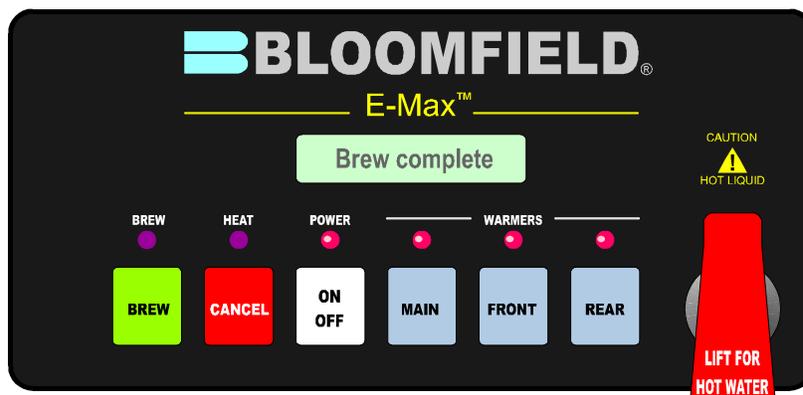


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## PROGRAMMING MANUAL for E-MAX™ COFFEE BREWERS



E-Max BREWERS are covered under  
U. S. Patents #5704275, 5862738 & 6,095,031.  
Other U.S. Patents and Canadian Patents Pending

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## APPLICATION

Proper setup is essential to achieving the optimum performance this appliance can provide.	This manual applies to the following E-Max™ brewers:
	Decanter Brewer Models
	2012 2015 2016 2072 2074 2075
	Airpot Brewer Models
	2082 2083 2088
This manual contains the information needed to perform operator level programming, and to setup initial program parameters for this appliance.	Thermal Brewer Models
	2080 2085 2086
Note: This manual also applies to those E-Max™ brewer model having suffix letters (e.g. 2074FRL).	Tea Brewer Models
	2030 2032

## PRECAUTIONS AND GENERAL INFORMATION



### **WARNING: Electric Shock Hazard**

All servicing requiring access to non-insulated components must be performed by qualified service personnel. Do not open any access panels which require the use of tools. Failure to heed this warning can result in electrical shock.



### **WARNING: Injury Hazard**

All installation procedures must be performed by qualified personnel with full knowledge of all applicable electrical and plumbing codes. Failure could result in property damage and personal injury.



### **WARNING Electric Shock Hazard**

Brewer must be properly grounded to prevent possible shock hazard. DO NOT assume a plumbing line will provide such a ground. Electrical shock will cause death or serious Injury.



### **WARNING: Burn Hazard**

This appliance dispenses very hot liquid. Serious bodily injury from scalding can occur from contact with dispensed liquids.

This appliance is intended for commercial use only.

This appliance is intended for use to brew beverage products for human consumption. No other use is recommended or authorized by the manufacturer or its agents.

This appliance is intended for use in commercial establishments, where all operators are familiar with the appliance use, limitations and associated hazards. Operating instructions and warnings in the corresponding Service Manual must be read and understood by all operators and users.

Except as noted, this piece of equipment is made in the USA and has American sizes on hardware. Please note: Metric hardware is used to mount the inlet (Fill) solenoid. All metric conversions are approximate and can vary in size.

Any trouble shooting, component views and parts lists included in this manual are for general reference, and are intended for use by qualified service personnel.

This manual should be considered a permanent part of this appliance. The manual must remain with the appliance if it is sold or moved to another location.



### **CAUTION: Equipment Electrical Damage**

DO NOT plug in or energize this appliance until all Installation Instructions are read and followed. Damage to the Brewer will occur if these instructions are not followed.



### **CAUTION: Burn Hazard**

To avoid splashing or overflowing hot liquids, ALWAYS use an empty decanter before starting the brew cycle. Failure to comply can cause serious burns.



### **CAUTION: Burn Hazard**

After a brew cycle, brew basket contents are HOT. Remove the brew basket and dispose of used grounds with care. Failure to comply can cause serious burns.



### **CAUTION: Burn Hazard**

Exposed surfaces of the appliance, brew basket and decanter may be HOT to the touch, and can cause serious burns.

## OPERATION

### OPERATING INSTRUCTIONS

#### IMPORTANT:

All E-Max™ brewers are tested and set at the factory. If programming adjustments are necessary, refer to the appropriate section of this manual.

#### To over-ride the Brew

**Wait mode**, press and hold the BREW key for 3 seconds when the brewer is in Brew Wait mode (i.e. when brew light is flashing). The brew will proceed immediately regardless of water temperature. This feature should only be used when testing water volume, otherwise the brew will proceed with the water below the precise brew temperature.

**Note:** the following safety features have been incorporated to prevent multiple unattended brews:

The brew key is disabled during a brew cycle. This minimizes the possibility of double brewing.

When the "Brew" light is on or flashing, repeated pressing of the BREW switch will be ignored, (there will be a beep each time it is pressed). A Brew will only be activated when the "Brew" light is off.

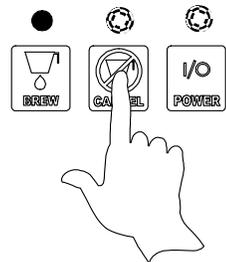
- 1. Energizing the Brewer:** When electricity has been connected to the unit, there will be a momentary flash of the power light. Turn the brewer on by pressing the POWER key. The brewer will start to fill the tank. With the proper water supply the tank should be filled in about 2½ minutes. Once filled, the heating element will come on until the proper tank temperature has been reached, (which will take about 20 minutes on 120-Volt models or about 12 minutes on 120/240 Volt models).



- 2. Brewing (Precise Temperature for Brewing™ — PTB™):** In the regular operating mode, the E-Max™ maintains the tank temperature within +/- 1°F of the brew temperature. Normally this will mean that a brew will be started as soon as the BREW key is pressed. However, there may be a slight delay if the BREW key is pressed immediately after a brew has been completed (notably on 120 volt models). If the tank temperature is below the brew temperature, the brew will be delayed, going into the "Brew Wait" mode, with the brew light flashing. As soon as the correct temperature is reached the brew will

commence with the brew light on continuously during the brew. When the brew begins the main warming station will be turned on automatically (if it is not already on). During the brew cycle, if the BREW key is pressed, it will be ignored. Only when the brew is complete can another brew be started.

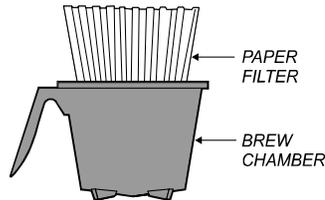
- 3. Brew Cancel:** To cancel a brew in progress, press the CANCEL KEY: two beeps will sound and the "Brew" light will go out. Water flowing to the brew chamber will be stopped immediately, but if there is already water in the brew chamber, it will take a few moments before this drips through as coffee.



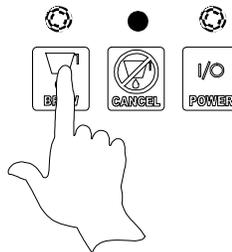
- 4. Normal Operation (Non Brewing):** When the unit is not brewing, the E-Max™ maintains the water temperature at the Precise Temperature for Brewing™ (PTB™). The heating element will cycle on and off automatically to maintain this temperature.
- 5. After Hours Mode:** If no brew is detected for a pre-selected length of time, the brewer will enter the After Hours mode. Temperature will be allowed to drop to save energy. Pressing the BREW KEY returns the brewer to normal operation.

USER'S GUIDE

1. Remove the **brew chamber** from under the spray head. Place one (1) genuine Bloomfield paper filter into the brew chamber. Add your choice of pre-measured ground coffee. Shake the brew chamber gently to level the coffee. Slide the brew chamber back into place.



2. Place an empty **decanter** under the brew chamber.
3. To begin the brew cycle, press BREW key. Hot water will start spraying over the coffee, and brewed coffee will start filling the decanter. When the coffee stops flowing from the brew chamber, the fresh coffee is ready to serve.



**NOTE:** Brewing will not begin until the Precise Temperature for Brewing™ has been reached. (See page 6)

4. At the end of the brew cycle, the view screen will read "Brew complete". After all dripping has stopped, remove the brew chamber from the brewer. Discard the used paper filter and grounds.

**Brew complete**



5. The brewer is now ready to begin another brewing cycle.



**WARNING:** Burn Hazard. This appliance dispenses very hot liquid. Serious bodily injury from scalding can occur from contact with dispensed liquids.



**CAUTION:** Burn Hazard

To avoid splashing or overflowing hot liquids, ALWAYS use an empty decanter before starting the brew cycle. Failure to comply can cause serious burns.



**CAUTION:** Burn Hazard

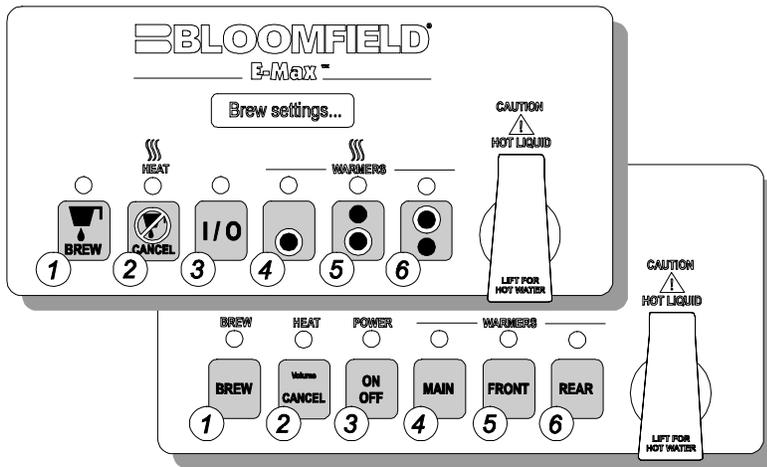
After a brew cycle, brew chamber contents are HOT. Remove the brew chamber and dispose of used filter and grounds with care. Failure to comply can cause serious burns.



**CAUTION:** Burn Hazard

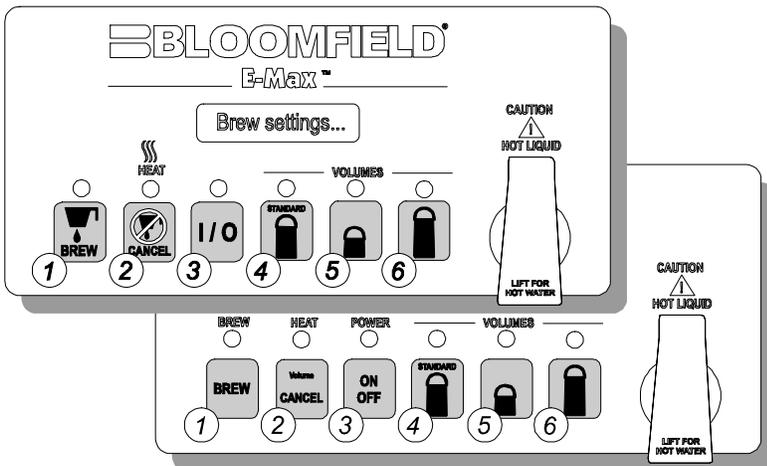
Exposed surfaces of the appliance, as well as brew chamber and decanter may be HOT to the touch, and can cause serious burns.

# PROGRAMMING - CONTROL PANEL CONFIGURATIONS



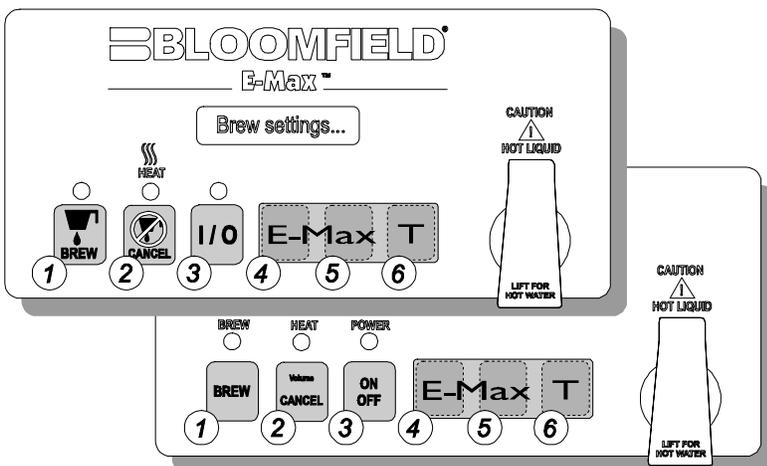
## DECANTER BREWERS

- |                |       |
|----------------|-------|
| 1 BREW         | Key 1 |
| 2 BREW CANCEL  | Key 2 |
| 3 POWER        | Key 3 |
| 4 MAIN WARMER  | Key 4 |
| 5 FRONT WARMER | Key 5 |
| 6 REAR WARMER  | Key 6 |



## AIRPOT & THERMAL BREWERS TEA BREWERS WITH VOLUME KEY

- |                   |       |
|-------------------|-------|
| 1 BREW            | Key 1 |
| 2 BREW CANCEL     | Key 2 |
| 3 POWER           | Key 3 |
| 4 STANDARD VOLUME | Key 4 |
| 5 SMALL VOLUME    | Key 5 |
| 6 LARGE VOLUME    | Key 6 |



## TEA BREWERS WITHOUT VOLUME KEY

- |                    |       |
|--------------------|-------|
| 1 BREW             | Key 1 |
| 2 BREW CANCEL      | Key 2 |
| 3 POWER            | Key 3 |
| 4 HIDDEN UNDER "E" | Key 4 |
| 5 HIDDEN UNDER "a" | Key 5 |
| 6 HIDDEN UNDER "T" | Key 6 |

### PROGRAMMING FEATURES AND OPTIONS

1. **View Water Temperature in Tank:** To view the water temperature on the screen, the brewer must be ON, and not brewing or in the filling mode. Press and hold the 4th key, and depress the 6th key. The actual water temperature will be displayed for 3 seconds.
2. **Daily Brew Count:** The brewer maintains a count of the number of completed brews for a 7-day period. To access the count, turn the brewer OFF by pressing the 3rd key. In the OFF mode, press and hold the 2nd (CANCEL) key for 3 seconds. The current day and brew count will be displayed. Depress the 3rd key repeatedly to view each preceding day. When all 7 days have been displayed a 7-day total will be displayed. If you wish to exit the daily brew count before viewing all of the days, press the 2nd key.
3. **ON/OFF – Non Automatic Timer:** To turn the brewer OFF, press the 3rd key (ON/OFF ): 2 beeps will be heard and the brewer will be turned OFF, indicated by all lights being off, (including any warmer plates on decanter brewers). To turn the brewer ON, press the 3rd key: 2 beeps will sound, all lights will flash once, then the “Power” light will remain on, (the “Heat” light may come on if water temperature is too low).
4. **ON/OFF – Automatic Timer Feature:** The factory programmed brewer has the automatic timer turned off. To set the automatic timer, refer to page 13, “Time Functions” Menu. If the Automatic Timer feature is programmed off, the brewer can be turned on and off by depressing the 3rd (ON/OFF) key, as noted above.
  - \* When the Automatic Timer feature is programmed ON, the brewer will turn on and off automatically, at a programmed time, Monday to Friday; with a separate on and off programmed time schedule for Saturday and Sunday.
  - \* Temporarily Overriding the Automatic ON/OFF function. While in the automatic timed OFF mode the brewer can be started by depressing the 3rd (ON/OFF) key. The brewer will remain ON until the automatic programmed off time, when it will turn OFF and resume normal automatic timed functioning. Similarly, if turned OFF during the automatic timed ON mode the brewer will remain OFF until the next programmed on time, when it will turn on and resume normal automatic timed functioning.
5. **Automatic Start-Up in Previous Mode:** If the brewer automatic timer is OFF (the factory setting) and power is disconnected, the brewer will start up when power is restored, in the mode it had been in prior to the power disconnection. If the brewer has the timer setting ON and power is disconnected, the brewer will start up in the mode that it should be in at the time the power is restored.
6. **Viewing Programmed Brew Volume:** (Airpot & Thermal Brewers Only) The brewer can have up to 4 different brew volumes. When a volume other than the standard, or first brew volume, is selected, the brewer will complete that volume and then automatically reset to the standard, or first brew volume. With the brewer ON, press and hold the 2nd key. The 1st, or standard, volume will be displayed for 3 seconds (i.e. **Volume #1 64 oz.**), followed by the day and time.
7. **Changing Brew Volume:** (Airpot & Thermal Brewers Only) As outlined above, display the current brew volume and, before the display changes to day and time, depress the 2nd key momentarily, (not for 3 seconds). The next programmed brew volume (e.g. **Volume#2 32 oz.**) will be displayed for 3 seconds, after which the display will return to the day and time. Repeatedly press the 2nd key while programmed volumes are shown to view all brew volumes. (If there is only one brew volume programmed, only that volume will be displayed.) The last brew volume displayed, before the LCD returns to the day and time, is the brew volume that the brewer will brew the next time the BREW switch is depressed. When a brew volume other than the 1st brew volume is selected, the brewer will complete the brew then return to the 1st or standard brew volume automatically.

## PROGRAMMING - OPERATOR LEVEL (continued)

### 8. Clock

- A. Time – Battery Backup.** The E-Max™ has a battery backup system which will maintain the proper time during power failures, or when the brewer is unplugged (even for very prolonged periods of time). Normally there will not be a need to set the time except for Daylight Saving Time changes, or moving the brewer to different time zones.
- B. Changing Day and Time:** To change time, turn the E-Max™ off. Press the 2nd key twice followed by the 1st key twice to access the time change mode, (i.e. press CANCEL, CANCEL, BREW, BREW). In the time change mode the screen will read “Day:” followed by the current day setting. Use the 6th key to advance the day, or the 5th key to reverse. When day has been properly set, press the 3rd key. The screen will now read “Time:” with the set time on the screen, the hour and am or pm flashing. Use the 5th key to go back or the 6th key to advance the hour, making sure that the am or pm is correct. When the hour and am/pm is correctly set, press the 3rd key, and the screen will read “Time:” with the set time on the screen, minutes flashing. As previously use the 5th or 6th keys to adjust the minutes, and press the 3rd key when complete. The E-Max will return to the off mode. (Changing time can also be done in the regular programming mode. Consult the *E-Max™ Programming Manual*)
- C. After Hours™:** Consult *page 13 “Time Functions”* to set the After Hours™ mode. The factory programming has the After Hours™ mode turned OFF. The After Hours™ can be programmed to come on from 1 to 6 hours after the last brew. When the E-Max™ goes into the After Hours™ mode, any warmer plates left on will be turned off (on decanter brewers), the water in the tank will be allowed to drop from the normal brewing temperature and will re heat less frequently – this feature saves energy and extend component life. *While in the After Hours mode, the power light will flash continuously.* When the BREW switch is pressed the E-Max™ automatically reverts back to normal operation, heating the water to the Precise Temperature for Brewing™ (PTB™), before starting the brew. (The power light will be on continuously and the Brew light will flash until the correct water temperature is reached.)

**9. Countdown Quality Timer™:** The E-Max™ factory programming has the Countdown Quality Timer™ turned OFF. Consult *page 13 “Time Functions”* to activate the Countdown Quality Timer™ feature:

This feature offers independent Countdown Quality Timers for each warmer plate. The count down timer can be set from 20 to 360 minutes (in 5-minute increments). When a warmer plate is turned on (or, for the main warmer, as soon as a brew is complete,) the countdown time begins. At the end of the selected time there will be two beeps and the warmer plate light will flash continuously until reset. While the light is flashing the heating element for the warmer plate remains on. Push the warmer plate switch to turn the warmer off, and switching it again will re-start the countdown time.

**10. Pulse or Pre-Infusion Volume Options:** To set these features, refer to *page 19, “Brew Settings Menu”*. If a particular brew volume has utilized the pulse or pre-infusion option, that volume will be displayed with an asterisk (\*) after the volume. As an example “**Volume#2 64oz\***” would indicate that the second programmed brew volume has utilized the pulse or pre-infusion program options.

**11. Keypadlock™:** This feature is OFF in the standard factory settings. To set the feature refer to *page 14, “Machine Settings Menu”*. If the Keypadlock™ feature is activated, there will be no response by the brewer when the keys are depressed (except for the beep after a key is pressed). To temporarily “unlock” the keypad, press and hold the CANCEL key for 6 seconds. A beep will be heard indicating the keypad is now “unlocked”, — a brew can be initiated, warmer plates turned on or off, etc. The keypad will remain unlocked until the brew is completed, then automatically return to keypadlock™ mode. If a brew is not initiated 60 seconds after “unlocking”, the system will time out and return to the “locked” position.

## PROGRAMMING - OPERATOR LEVEL (continued)

- 12. View Filter Statistics:** To view filter statistics, turn the brewer off. Press and hold the 1st key (Brew), and depress the 3rd (ON/OFF) key. Total water volume will be displayed (TotalVol.). Press the 3rd key to view the Filter Life (FltrLife:). Press the 3rd key to view the percentage of the filter that has been used. (If the filter option is used, the filter life volume needs to be entered in the program – see page 14, Service & Counters Menu.)
- 13. Diagnostic Messages – Programmed Safety Features:** When the E-Max™ senses a problem, it will automatically turn off all elements and valves, flash lights, display the message “**Call For Service**” and display one of the messages below. (Additionally: a service phone number may appear if it has been programmed into the system.)
- \* To reset the brewer it can be re-energized (or press and hold the 2nd key for 3 seconds for all faults except the Valve Fault, which must be reset by re-energizing). The brewer will try to re-start, but if the same problem persists, the appropriate error message will appear again. Consult the Trouble Shooting section to determine how to solve the problem.
  - A. “Probe/Heater Error”:** Overheating Detection (1): If the heating element is on for 5 minutes and the temperature does not change by +2°F (1°C) in the five minute period, the unit will go into the Over Temperature Mode *with all lights flashing*. When in this mode the brewer turns off the heating elements, the solenoid valves are turned off; the switches disabled; (and all lights flashing continuously). The LCD display will read “**Probe/Heater Error**”, followed by the message “**Call for Service**”, and then the service phone number (if it has been entered into memory). To reset press and hold the 2nd key for 3 seconds, or re-energize the brewer. (Possible causes of problem: high limit needs to be re-set; defective high limit, element, triac, water level probe or control board.)
  - B. “Overheat Error”:** Overheating Detection (2): If the E-Max™ senses a temperature over the Maximum Temperature set in the program (factory set at 208°F or 98°C) it will go into the over temperature mode as above with all lights flashing, except the LCD will read “**overheat error**”, and “**Call for Service**”. To reset press and hold the 2nd key for 3 seconds, or re-energize the brewer. (Possible cause of problem is a defective triac, temperature probe or related wiring and connections.)
  - C. “No Water Sensed” — Time-Out — Inlet Valve:** When filling for the first time, the inlet valve will remain open for 4¼ minutes, (the screen will read “**filling...**”). If water is not detected at the end of this time the E-Max™ will shut down with the message “**no water sensed**”. The valves and all elements are turned off, and the Brew and Power light flash alternately with the Heat light, until the brewer is reset. To reset press and hold the 2nd key for 3 seconds, or re-energize the brewer. (Possible causes of the problem are: no incoming water; slow flow of incoming water (i.e. less than 45 oz/minute); sensor not reading (check for placement, connections or lime scale).
  - D. “No Water Sensed” — Time-Out – Brew Valve:** During the brew the inlet solenoid valve cycles on intermittently to maintain the proper level in the tank. If the valve is open for 60 seconds without water being detected at the proper level, the brewer will go into the same error mode as above (“**no water sensed**”). To reset press and hold the 2nd key for 3 seconds, or re-energize the brewer. (Possible causes of the problem are: no incoming water; slow flow of incoming water, sensor not reading, etc.).
  - E. Keyswitch Locked:** If a key switch is depressed for 10 seconds this error message will occur. Lights will flash alternately and the brewer will turn off all valves and elements. Press and hold the 2nd key for 3 seconds to reset the brewer (or re-energize the brewer). If the problem re-occurs this indicates a defective switch on the key pad.
  - F. “Valve Fault”- Faulty Valve Detection:** When an electric or switching problem is detected with either the inlet or brew valve the brewer turns off all elements and valves and displays “**valve fault...**”. All of the lights will be turned on. Before re-setting the brewer the valves must be checked to determine the problem. The brewer must be re-energized to re-set, (pressing the 2nd key for 3 seconds will not reset a valve fault).

## PROGRAMMING - ADVANCED

### ACCESS THE PROGRAMMING MODE

1. Turn the brewer off with the ON/OFF Key.
2. Press and hold the 4th and 6th Keys (from the left) for 3 seconds, until the LCD reads "BREW SETTINGS".

On Decanter brewers the 4th key is MAIN and the 6th key is REAR.

On Thermal/Airpot brewers, and on Tea brewers with volume keys, the 4th key is STANDARD Volume and the 6th key is Large Volume.

On Tea brewers without volume keys, the 4th key is hidden under the "E", and the 6th key is hidden under the "T" in *E-Max T*.

The LCD will show "BREW SETTINGS" indicating that you are at the first menu item as outlined on page 12,

Once in the programming mode the keys on the front panel can be used to perform the functions outlined.

KEY # From Left	KEY NAME (by Brewer Type)			PROGRAM FUNCTION
	♦ DECANTER	♦ THERMAL ♦ AIRPOT ♦ TEA With Volume Keys	♦ TEA Without Volume Keys	
1	BREW	BREW	BREW	<b>MENU</b> Advance to next menu
2	CANCEL	CANCEL	CANCEL	<b>EXIT</b> Programming mode
3	ON/OFF	ON/OFF	ON/OFF	<b>ITEM</b> Select & Advance to next item
4	MAIN	STANDARD	"E"	(Used for Pulse/Pre- infusion only)
5	FRONT	SMALL	"a"	<b>DECREASE (-)</b> Value
6	REAR	LARGE	"T"	<b>INCREASE (+)</b> Value

## PROGRAMMING - ADVANCED (continued)

1. Advance through all of the Menus and wraparound to the first MENU again, by continually depressing the 1st key – BREW (MENU).
2. To review Items in a specific Menu, press the 3rd key – ON/OFF (ITEM) at the requested Menu to begin reviewing all or some of the ITEMS in that MENU:

If you do not need to review the ITEMS in the MENU, press the 1st key – BREW (MENU) to advance to the next MENU or press the 2nd key – CANCEL (EXIT) to exit programming.

You must review/modify ITEMS in the sequence outlined in the table within each MENU, by pressing the 3rd key – ON/OFF (ITEM). If you need to go back to an ITEM, advance through the menus by pressing the 1st key – BREW (MENU) until you get back to the appropriate MENU, then press 3rd key – ON/OFF (ITEM) to get to the required ITEM.

3. To Increase, Decrease, or Change settings when in the programming mode press the 5th (“-“) or 6th (“+“) keys. Suggestion: If the key is pressed and held, the changes to a value will advance faster.
4. To change a value, such as brew temperature, navigate to the Brew Temperature ITEM in the Brew Settings MENU. Increase or decrease the setting using the 5th or 6th key. Press the 3rd key – ON/OFF (ITEM) to commit the change and advance to the next Item. To advance to the next MENU press the 1st key – BREW (MENU), or exit programming by pressing the 2nd key – CANCEL (EXIT).
5. To Exit Programming, you can press CANCEL (EXIT) at any time. While in the programming mode, if no entries are made for 2 minutes the E-Max will automatically exit programming.
6. To re-enter programming, ensure brewer is off, then press and hold the 4th and 6th keys for 3 seconds, until “Brew Settings” appears on the screen.

### TIPS FOR NAVIGATING IN THE PROGRAMMING MODE:

# PROGRAMMING - TABLE

Menu	Item	Description	Factory Settings & Defaults		
			Range	TEA BREWER	
<b>1. BREW SETTINGS</b> <i>Program Key: ON/OFF (3)</i>  (To access Program Table: Turn brewer OFF, press & hold 4 <sup>th</sup> & 6 <sup>th</sup> keys for 3 seconds until "Brew Settings" appears.  On Tea Brewer without Volume Keys: 4th & 6th keys are hidden under the "E" and "T" on the "E-Max T" label.)	Water Temp.:	Actual water temperature is displayed (*F or °C).	No Default	No Default	
	Brew Temp.:	Brew Temperature. (Must be 5°F below Max Temp - Increase Max Temp in Machine Settings if necessary)	185°F - 205°F 85°C - 96°C	200°F	
	Brew Vol. 1:	Brew Volume 1. Volume in oz. Or L which will be displayed on LCD	0 - 128 oz. (Tea 1-6 Gal.) 0 - 3.84 L (Tea 22.73L)	64 oz. ** (Thermal 74 oz.)	3 Gal.
	Pulse Brew: Initial Valve Pulse Delay Pulse Valve	Pulse Brew. To access Pulse Brewing Settings, terminate Brew Vol with 4 <sup>th</sup> key. This allows entry of Initial Valve Time, Pulse Delay and Pulse Valve, followed by Total Valve (below).		Pulse OFF all volumes	Pulse OFF all volumes
	Total Valve:	Total Valve Time. Number of seconds brew valve is open.	0 - 600	172**sec (Thermal 205)	319 sec
	TEA BREWER SETTINGS ONLY - E-MAX T				
	ByPassDelay	By Pass Delay. Number of seconds after brew starts to open By Pass Valve.	0 - 600		20 sec
	ByPassValve	By Pass Valve Time. Number of seconds By Pass Valve open.	0 - 600		319 sec
	DripOutTime:	Brew Complete. Number of seconds after brew valve turned off for all coffee or tea to drip out.	0 - 200	60 sec	60 sec
	Brew Vol.2:	2 <sup>nd</sup> , 3 <sup>rd</sup> & 4 <sup>th</sup> Brew Volume Settings Follow	0 - 128 oz. (0-6 Gal.)	0 sec	0 sec
<b>2. TIME FUNCTIONS</b>	After-Hours:	After Hours mode off (0), or with delayed hours (1 to 6 hours)	0 (off)/ 1 -6 hours	0 - OFF	
	Quality Time:	Countdown Quality Timer. Off (0) or On (20 - 120)	0, 20 - 120	0 - OFF	
	Timer:	To activate the Automatic Timer feature	ON - OFF	OFF	OFF
	Wkday on-Hr	Set Hour/Minute for Brewer to turn on and off on weekdays.	00:00 AM/PM	07:00A	07:00A
	Wkday on-Min		00:00 AM/PM	07:00A	07:00A
	Wkday off-Hr		00:00 AM/PM	07:00P	07:00P
	Wkday off-Min		00:00 AM/PM	07:00P	07:00P
	Wkend on-Hr	Set Hour/Minute for Brewer to turn on and off on weekends.	00:00 AM/PM	07:00A	07:00A
	Wkend on-Min	(Set On & Off to the same time to force brewer to remain off for the entire weekend.)	00:00 AM/PM	07:00A	07:00A
	Wkend off-Hr		00:00 AM/PM	07:00P	07:00P
	Wkend off-Min		00:00 AM/PM	07:00P	07:00P
	Day:	Set Day	Mon - Sun	No Default	No Default
	Time: -- Hour	Set Hour & AM/PM	1 - 12 AM/PM	No Default	No Default
Time: -- Min	Set Minute	0 - 60	No Default	No Default	

## PROGRAMMING - TABLE (continued)

Menu	Item	Description	Range	Factory Settings & Defaults
3. SERVICE & COUNT(ERS)	Program Key: ON/OFF (3)		KEY #5 -- KEY #6 +	DECANTER & THERMAL TEA BREWER
	TotalVol:	Displays total volume of water in Gallons or Litres	000000 G/L	No Default
	BrewCycs:	Total number of brew cycles performed.	000000	No Default
	FltrLife:	Filter Life. "0" to disable. 100 gal. increments.	0 -- 10000	No Default
4. MACHINE SETTINGS	ResetTotals:	Resets volume and cycles to zero.	No Default	No Default
	Srv:	Service phone number displayed in error mode.	CallForService	No Default
	Temp.Unit:	Temperature Unit. Choose temperature in °F or °C	F or C	°F
	Vol.Unit:	Volume Unit. Choose volume in oz or L	Oz or L	Oz
	KeyPadLock:	Locks Keypad. When "ON", hold CANCEL 8 secretary. To unlock.	On or Off	Off
	MaxWtTemp.:	Maximum Water Temperature. Must be 5° over Brew Temp.	195 - 210	208°
	Mode:	Brewer Mode. In decanter mode, 3 right keys control warmer plates	Thermal or Decanter	No Default ** (Factory set to Decanter or Thermal
	Therm?:	In thermal mode, 3 right keys will be volume selectors TEA-BREWERS DO NOT HAVE THIS SETTING		
	Brew Wait:	Delay Brew until Precise Brew Temp is reached.	Y or N	Y
	Load Defaults:	To re-load factory settings.	Y or N	Y
5. FACTORY SETTINGS <small>(Hidden Menu - to access, go to Machine Settings, then press &amp; hold 4<sup>th</sup> &amp; 6<sup>th</sup> keys for 3 seconds until "Factory Settings" is displayed.)</small>	InflRate:	Inflow Rate. Expressed in gallons per minute. Required in calculating total volume of water in Service & Counters menu	0.00 - 1.00 G/M	No Default 0.60 GPM
	Calibration:	To access, depress 4 <sup>th</sup> key. Enables calibration of probe to independent thermometer. (Displays current temperature +/- correction value.)	+/- 6 °F	No Default +4°F
	TotalVol:	Independent volume total -- not resettable	000000	No Default
	BrewCycs:	Independent cycles counter -- not resettable	000000	No Default
	InletValvTime:	Inlet valve cycle time. Number of seconds inlet valve is ON after water drops below level sensing probe. See details on "Adjusting Inlet Valve Time - Determining Pressure & Flow".	1 - 30	No Default 3 sec
	Valve Delay:	Time delay after water goes below probe to open valve. (Factory set to "0")	0 - 10	0 sec
	Timer Status	If Timer is ON: 1 = Manual OFF prevails over Timer 2 = Timer prevails over ON/OFF (This is the Factory Setting)	1 or 2	2 sec

\*\* Note: Thermal / Airpots are set for:  
 1. "Brew Volume #1" of 74 oz.  
 2. "Total Valve Time" of 205 seconds  
 3. "Mode" is set to Thermal  
 4. On Tea Brewers without Volume Controls, the 4th and 6th keys are hidden under the "E" and "T" in E-Max T.  
 If the Defaults are reloaded, the values in these three fields will be reset to the decanter values 9 i.e. 64 oz., 172 seconds and Decanter).  
 If Thermal values are required, go into the programming mode and change these three fields.

## PROGRAMMING - PROCEDURES

### Brew Settings

The brew temperature cannot be set any higher than 5°F below the Maximum Water Temperature, which is factory set at 208°F. This means maximum brew temperature will be 203°F.

Displayed "Brew Volume" shows a calculated value only. The "Valve Time" setting controls actual volume.

- **"Water Temp:"** is actual water temperature in the tank.
- **"Brew Temp:"** is desired brew temperature. Temperature +/-1°F will be maintained in the tank. Adjust by pressing 5th or 6th keys (on Tea Brewers without Volume Keys: the "a" and "T"). If a temperature higher than 203°F is required, first increase the Maximum Water Temperature in Machine settings (maximum is 210°F, factory setting is 208°F), then increase brew temperature. Maximum brew temperature is 205°F if Maximum Water Temperature is increased to 210°F.
- **"Brew Vol#1:"**. This number will be displayed on the LCD when volumes are being changed.
- **Pulse Brew.** To access the pulse or pre-infusion programs, terminate Brew Vol with the 4th key. See Pulse Brew details outlined on page **xx**.
- **"Total Valve:"**. This is the number of seconds the brew valve will remain open, and determines total water volume. The dump valve will allow 1 ounce of water about every 3 seconds, using the new style spray head. The following will assist in programming volumes: (If the old style spray head is used, the dump valve will allow 1 ounce of water about every 2.1 seconds.)

### TEA BREWERS ONLY

- **"ByPassDelay:" – By Pass Delay Time.** This is the number of seconds after the brew has started to delay before allowing the cold water to begin mixing with the hot tea.
- **"ByPassValve:" – By Pass Valve Time.** After the By Pass Delay, this is the number of seconds which the bypass valve will be turned on. (Outflow rate for the bypass valve is approximately .87 seconds per ounce.)

Water Volume	New Style Sprayhead (12 Smaller Holes) Valve Time Setting	Old Style Sprayhead (Flat – 12 Larger Holes) Valve Time Setting
32 oz.	88 seconds	68 seconds
64 oz	177 seconds	135 seconds
74 oz (2.2L)	205 seconds	156 seconds
85 oz (2.5L)	236 seconds	179 seconds

- **"DripOutTime:"** - This is the number of seconds after the dump valve is closed that is required until all of the water flows through the brew basket. Generally, 60 seconds is required for decanter and airpot/thermal brewers. If heavier weights of coffee or tea are used, this number may need to be increased.
- **Additional brew volumes #2 through #4** can also be programmed if required. If the Brew Vol# is left at "0" the program will advance to the next Brew Vol# without going through the Valve Time and Drip Out Time details.

## PROGRAMMING - PROCEDURES (continued)

- **“After Hours™:”** can be turned off by setting to “0”. If this feature is desired, use the 5th or 6th key to select the number of hours of delay after last brew before After Hours™ is activated.
- **“Quality Time:” – Countdown Quality Timer™.** This can be turned off by setting to “0”, or set from 20 minutes to 120 minutes, 5 minute increments using the 5th and 6th keys:  
**Decanter Brewers:** If the Quality Timer is activated, each warmer plate will count down from the programmed time when the warmer plate is turned on. Once the count down time is reached, the appropriate warmer plate LED will flash, and the warmer plate will remain on. Depress the warmer plate switch to turn the warmer plate off. When the warmer plate switch is turned on, the countdown timer will be re-activated.  
**Airpot/Thermal Brewers & Tea Brewers with Volume Keys:** If the Quality Timer is activated, the volume LED will flash when the countdown time has been reached if another brew has not been started before the time expires.  
**Tea Brewers without Volume Keys:** No Countdown Quality Timer feature available on these models.
- **“Timer:”** When setting times, make sure that the **AM** or **PM** is set properly to activate the timer at the right time. Set the time for on/off as required. The sequence of settings is as follows:  
    Wkday on: Weekday on HOUR & AM/PM  
    Wkday on: Weekday on MINUTE  
    Wkday off: Weekday off HOUR & AM/PM  
    Wkday off: Weekday off MINUTE  
Weekend settings are similar to the above.  
When using the automatic timer be sure to allow 20-30 minutes for the E-Max™ to reach proper temperature from the time it is turned on.
- **Weekend “OFF” Setting.** To set the brewer to turn off for the weekend, set the start and stop time at the same time (i.e. factory setting has weekend time on and off at 7:00 am that will turn it off for the weekend.)
- **“Day:”** Set the day by using the 5th and 6th keys.
- **“Time:”** Set Hour. Hour and pm/am will flash, allowing the proper hour to be set.
- **“Time.”** Set Minute. Minutes will flash on this setting, allowing proper hour to be set.

### Time Functions

After Hours™ is an energy saving mode. When After Hours™ is activated, the E-Max™ will allow the water temperature to drop by 20°F before reheating, and in the case of Decanter Brewers, will turn off any warmer plates that are turned on.

Coffee loses freshness as it sits on the warmer. The Countdown Quality Timer™ provides a visual indication that previously brewed coffee has expired.

The timer will turn the E-Max™ off at the end of the day, and turn it back on so that the brew water will be hot and ready for the first brew of the morning.

Time for the E-Max™ is maintained with a battery backup system that will last up to 20 years. This system also handles power fluctuations by maintaining time settings during power outages. The E-Max™ battery backup system maintains the proper time except while in the Time Functions menu. If a prolonged period of time is spent in this menu, it will be necessary to adjust the time before ending programming.

The day and time can be set without going into the programming mode. See “Changing Day and Time” in the Operator Level section of this manual.

## PROGRAMMING - PROCEDURES (continued)

### Service & Counters

- **“TotalVol:” – Total Volume.** Indicates total water volume processed by the brewer.
- **“Brew Cycls:” – Brew Cycles.** Displays total number of brew cycles since last reset.
- **“FltrLife:” – Filter Life.** If a filter is used input the number of gallons of capacity, the indicator reports in increments of 100 gallons.
- **“Reset Totals:”.** To clear out totals for volume and brew cycles.
- **“Srv” – Service Number.** Displays the service phone that will display when a diagnostic message is on the LCD. Can only be loaded with the PC upload/download program.

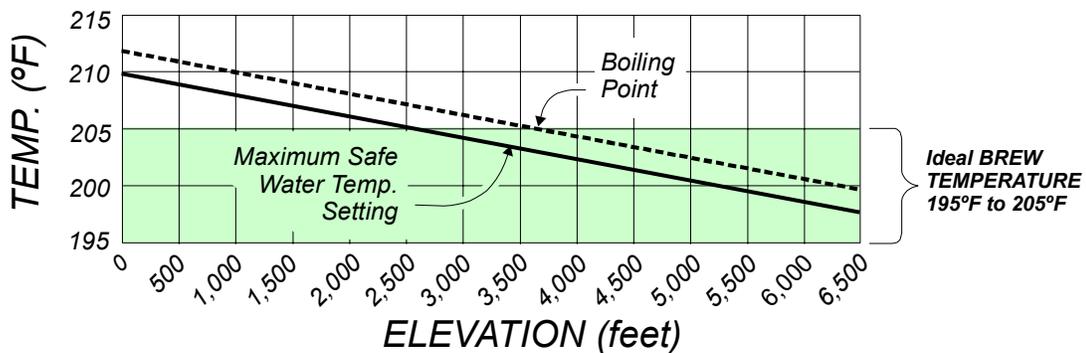
### Machine Settings

Below are the boiling points for selected North American locations, and the recommended Maximum Water Temperature settings for the E-Max™:

- **“Temp. Unit:” – Temperature Unit.** Set to “F” for °F and “C” for °C.
- **“Vol. Unit:” – Volume Unit.** Set to either “oz” for ounces or “L” for liters. (For Tea Brewers this is set to gallons.)
- **“KeyPadLock:”** Turn to “On” or “Off”. If “On” the keypad switches can only be activated by pressing and holding the CANCEL key for 6 seconds. Then the keypad will be active until a brew has been completed. Or if a brew is not started the keypad will revert to the locked mode after 60 seconds.
- **“MaxWt.Temp:” – Maximum Water Temperature.** The maximum water temperature is factory set at 208°F degrees, but can be adjusted up as high as 210°F. The brew temperature cannot be set any closer than 5° below the maximum temperature. Maximum temperature should be set at least 2°F degrees below the boiling point. The E-Max™ will go into the “overheat error” if the water temperature in the tank is sensed to be at or above the Maximum Water Temperature level. Therefore in higher altitude locations, adjust the Maximum Water Temperature down. See temperature charts, page 15.
- **“Mode:” – Operating Mode.** Set this to operate as “Decanter” or “Thermal”.  
  
In “Decanter” mode, the 3 keys on the right operate as warmer plate switches.  
  
In “Thermal” the 3 keys on the right operate as volume selection switches.  
  
Tea Brewers are pre-set to tea brewer mode.

## PROGRAMMING - PROCEDURES (continued)

- **“Brew Wait:”** The Precise Temperature for Brewing™ feature can be overridden by setting Brew Wait to “N” for No. By doing this, the E-Max™ will start a brew whenever the brew switch is depressed. There will be no delay to heat to the proper temperature. *This setting is not the recommended.* The Brew Wait is factory set at “Y” for yes. In this mode the E-Max™ will only start a brew at the Precise Brew Temperature.
  
- **“Load Defaults?”** Reloading of default settings will reset many of the programmed settings to those outlined in the programming table. In the table those items with “No Default” noted in the Default column would not be reset when defaults are re-loaded. Where a value is noted, this would be the re-loaded value if defaults are loaded. Re-loading of defaults should be used only if major programming problems have occurred and it is necessary to return to factory settings.



**CHART 1 - Boiling and Brew Temperature by Altitude**

LOCATION	ELEVATION	BOILING POINT	MAX WATER TEMP SETTING
Colorado Springs, CO	6,012 ft.	200°F	198°F
Denver, CO	5,280 ft.	202°F	200°F
Reno, NV	4,491 ft.	204°F	202°F
Salt Lake City, UT	4,266 ft.	204°F	202°F
El Paso, TX	3,762 ft.	205°F	203°F
Calgary, AB	3,428 ft.	205°F	203°F
Rapid City, SD	3,231 ft.	206°F	204°F
Los Angeles, CA	0 ft.	212°F	210°F
New York, NY	0 ft.	212°F	210°F

**CHART 2 - Boiling and Brew Temperatures for Selected Locations**

## PROGRAMMING - PROCEDURES (continued)

### Factory Settings

The factory settings menu can only be accessed by going into the programming mode:

Press and hold the 4th and 6th keys for 3 seconds until the LCD reads "BREW SETTINGS".

Then, press the 1st key until the LCD reads "MACHINE SETTINGS"; then,

Press and hold the 4th and 6th keys for three seconds until the LCD reads "FACTORY SETTINGS".

Only qualified personnel should make changes to these settings.

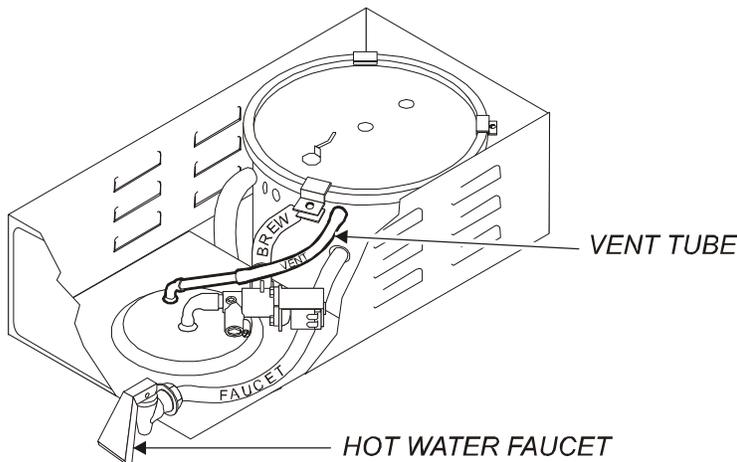
*Timer Status 1:* If set to "1" the timer will automatically turn the machine on and off, until the "OFF" key is used to turn it off. The machine will then remain off until it is manually turned on. Timer status 1 should only be used in circumstances where the machine will not get turned off accidentally. (Manual OFF overrides Timer)

*Timer Status 2:* (Factory Setting.) If set to "2" the timer will automatically turn the machine on and off. If the brewer is turned off manually it will remain off until the next scheduled on time; or if it is turned on manually it will remain on until the next scheduled off time. (Timer overrides manual ON/OFF).

- **"InflRate:" – Inflow Rate.** The inflow rate is factory set at 0.70 gallons per minute. This value is required to calculate the water volume. Generally the 0.70 setting will be quite accurate unless there is unusually low or high water pressure and volume, in which case the Inflow Rate can be changed.
- **"Calibration"**. To access the calibration program press the 4th key when "Calibration" is on the screen. The probe is factory set and should not need resetting, unless the controller board or probe is changed. See Calibration Instructions following the Factory Settings menu items for detailed instructions.
- **"TotalVol:" – Total Volume.** Total water volume is stored in the Factory Settings menu as well as in the Service & Counters menu. This total is not re-settable.
- **"BrewCycs:" – Brew Cycles.** Total brew cycles is stored in the Factory Settings menu as well as in the Service & Counters menu. This total is not re-settable.
- **"InletValvTime:" – Inlet Valve Time.** The inlet valve time is important to gaining proper brew volume in varying water pressure and flow conditions. When the water in the tank drops below the liquid level sensor, the inlet valve will come on and fill to the sensor (which will take a few seconds due to meniscus) then continue filling for the number of seconds programmed for the INLET VALVE TIME. The factory setting is 3 seconds that will cover most conditions. However, if water pressure and flow is low increase the value to 6 or 7 seconds. Conversely if pressure and flow are high decrease the setting to 1 or 2 seconds. See Adjusting "Inlet Valve Time – Determining Pressure and Flow" below for more details on how to get the proper setting for specific water conditions.
- **"Valve Delay"**. The valve delay time is the amount of time to delay turning on the inlet valve after water has dropped below the liquid level sensor. Factory setting for this is "0" seconds.
- **"Timer Status"**. If the timer (in the Time Functions Menu) is on, this setting can be used in two different ways.

## PROGRAMMING - PROCEDURES (continued)

1. Remove the top cover of the brewer. Identify and locate the vent, or overflow tube.
2. Access the programming mode, go to Factory Settings and then to "InletValvTime:" setting. Set to 25 seconds, press 3rd key to register change in memory, then 2nd key to exit programming mode.
3. Turn brewer on.
4. Place empty decanter (or airpot/thermal server) under the brew basket.
5. Place empty decanter or other vessel under the faucet and begin drawing water from the faucet.



6. When the inlet valve comes on, stop drawing water from the faucet, and count the number of seconds before the water reaches the vent or overflow tube. (The tubing is clear enough that water will be visible when it starts to go into the vent tube – count the number of seconds to when water is first visible at the tube, not when the tube has filled.) Note the number of seconds the valve was on until water becomes visible at the vent tube.
7. The Inlet Valve Time should be  $\frac{1}{3}$  to  $\frac{1}{2}$  of the number of seconds in #6 above. As an example, if it took 12 seconds before water was visible at the vent tube, then the Inlet Valve Time should be set between 4 and 6 seconds.
8. Repeat the above if necessary to confirm initial findings.
9. Turn brewer off, enter programming, then factory settings, and set "InletValvTime" to proper time. Press 3rd key to register change in memory, then 2nd key to exit programming mode.

### Adjust Inlet Valve Time

### Determining Pressure and Flow

NOTE: The following procedure must be performed by a qualified technician!

This adjustment will *help maintain consistent volume in situations where water pressure and flow is exceptionally high or low*. This technique also helps in determining the actual pressure and flow.

IMPORTANT: DO NOT adjust the inlet valve time if water pressure at this location fluctuates high to low.

## PROGRAMMING - PROCEDURES (continued)

### Calibration

The probe has been factory calibrated. If a controller board is changed it is recommended that the previous calibration be checked and entered on the new board. However this may not always be possible, or if a new probe is used, calibration should be completed as follows:

1. Turn brewer on and allow to heat to proper temperature, and the heat light will go out.
2. Turn brewer off.
3. Access the programming mode, go to *Factory Settings*, go to *Calibration* and press the 4th key to access calibration.
4. Using an accurate thermometer, determine the actual tank temperature by measuring the temperature of the water coming out of the faucet. It is important to run the water over the thermostat long enough to get a proper reading. (An alternate method of establishing water temperature is to remove the top cover of the brewer, then pull out the level sensor. Insert the thermometer into the brewer. Allow time for the thermometer temperature to stabilize.)
5. Once the actual tank temperature has been established, look at the values on the screen. As an example, it may read "199F Corr. + 0" This would indicate that the water temperature in the tank is 199°F with no correction (or calibration) of the probe. If the actual temperature according to the thermostat was:  
  
HIGHER by 3°F (i.e. 202°F in this example), press the 6th key 3 times until the screen reads as follows: "202F Corr. + 3".  
  
LOWER by 3°F (i.e. 196°F in this example), press the 5th key 3 times until the screen reads as follows: "196F Corr. - 3".
6. Make sure the temperature on the left of the screen agrees with the actual temperature of the water determined with the accurate thermostat. Once this has been completed the E-Max™ will maintain the calibrated setting.
7. Once calibrated press the 3rd key to continue in the Factory Settings menu, press the 1st key to return to Brew Settings menu, or press the 2nd key to exit programming.

1. Pre-infuse (or Pre-soak) the Bed of Coffee or Tea.  
The brew valve can be opened for a short period of time to allow the bed of coffee or tea to be pre-infused. After a delay while the pre-soaking is taking place, the brew valve can be opened to start and complete the brew.
2. Extend Contact Time With the Coffee.  
The brew valve can be programmed to “pulse” by opening and closing for programmed periods during the brew. This capability will allow for longer contact with the coffee or tea if higher extraction rates are required.
3. Prevent Brew Basket Overflow (or Flooding).  
The pulse feature allows the delivery time of the water to be extended. Overflow problems can also be experienced if particularly fine grind coffee is used. The E-Max™ can be programmed to extend the delivery of the water over a longer period of time, thus preventing any overflow problems.

### Applications

1. Select the Brew Volume that will be using the “pulse” brew feature. (i.e. go to selected volume — BrewVol1, 2, 3 or 4 in the Brew Settings menus.)
2. With the selected volume on the screen (BrewVolX:), change volume if necessary (must not be “0”) and press the 4th key to go to the Pulse Programming options (as opposed to pressing the 3rd key which would bypass Pulse Programming).
3. The first three menu items below will appear in this order (followed by “Total Valve” and “Drip Out Time” which are used for both the pulse and regular brewing mode):
  - Init Vlv Time: Initial Valve Time (seconds) to open before pulse cycle(s) begin.
  - Pulse Delay: Number of seconds valve is closed beginning pulse cycle(s).
  - Pulse Valve On: Number of seconds valve is open during pulse cycle(s).
  - Total Valve: Total number of seconds valve is to be open (pulse + initial).
  - Drip Out Time: Time after valve is closed before brew is complete and all water has dripped out as coffee or tea.

### Access the Pulse Feature

## PULSE BREW AND PRE-INFUSION (continued)

### Pulse Feature Operation

The pulse feature will be activated if it has been accessed as above, and values have been programmed into the 3 pulse brew items. When the pulse brew begins, the brew valve will be opened for the number of seconds programmed for "Initial Valve Time" (Init Vlv Time). The valve will then close for the number of seconds in "Pulse Delay", then open for the number of seconds in "Pulse Valve On". The pulse cycle (Pulse Delay plus Pulse Valve) will be *repeated continuously until the brew valve has been opened for the "Total Valve" Time*. The E-Max™ will calculate the number of seconds for the full brew and display it on the LCD to begin the brew and it will also calculate how many pulse cycles are required to complete the brew. (If a final partial "Pulse Valve On" is required this will also be calculated automatically.)

### Water Outflow (Delivery) Rates

The outflow rate of water from the spray head is required to calculate valve time for different volumes. Spray head outflow rates are based on the standard 64-ounce coffee brew requiring 156 seconds of the brew valve being open. This is an outflow rate of 0.410 ounces per second. To calculate Total Valve time the ounces required should be divided by 0.410 oz/second. Each brewer may have a slightly different flow rate based on whether the brewer is level, scale build up on lines, etc. Minor adjustments may be required to get precise volume. Examples of different volumes and valve times are as follows:

#### Decanter and Airpot/Thermal Brewers

Volume in Ounces	Total Valve Time	
32	88	Half of Standard Glass Decanter
64	177	Standard Decanter - ½ gal. brew
74	205	Airpot 2.2 Liters
85	236	Thermal Server 2.5 Liter

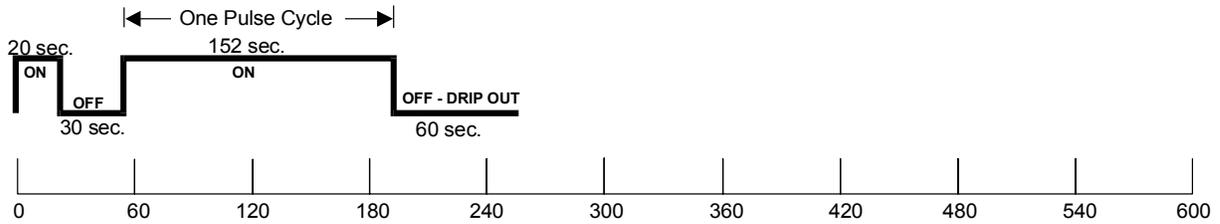
#### Tea Brewer

Brew Volume	Brew Valve	Bypass Valve	Total Ounce
3 Gal.	128 oz / 319 sec	256 oz / 319 sec	384
5 Gal.	212 oz / 529 sec	428 oz / 529 sec	640

## PULSE BREW AND PRE-INFUSION (continued)

Pulse Feature Examples DECANTER, THERMAL and AIRPOT MODELS

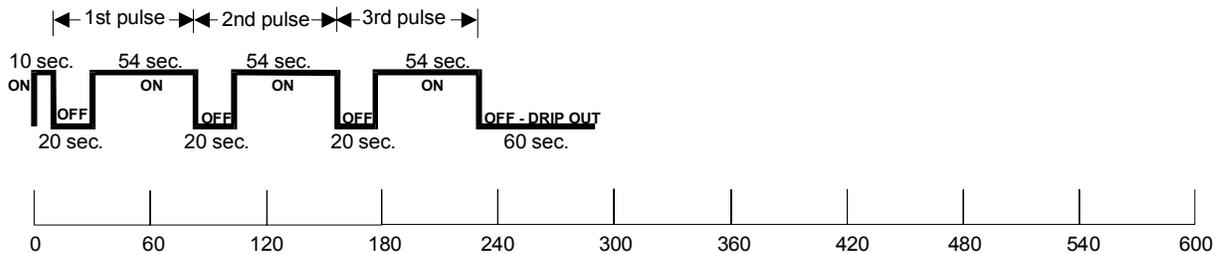
### #1 PRE-INFUSION



1. Pre-Infuse Standard 64 oz. Brew. Total valve time of 172 seconds required for 64 oz.
  - Init Vlv Time: 20
  - Pulse Delay: 30
  - Pulse Valve On: 152
  - Total Valve: 172

<b>Total Valve</b>	<b>172</b>
<b>Total Delay</b>	<b>30</b>
<b>Drip Out</b>	<b>60</b>
<hr/>	
<b>Total Brew</b>	<b>262</b>

### #2 EXTENDED CONTACT TIME

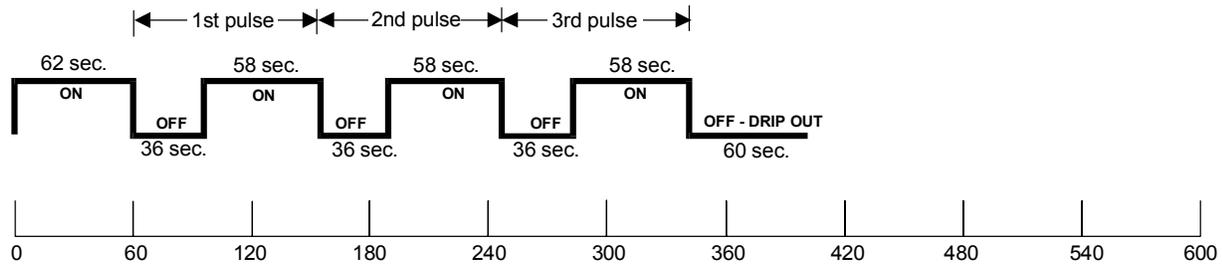


2. Extend Contact Time on Standard 64 oz. Brew. Total valve time of 172 seconds required for 64oz. Extend contact time by 60 seconds by introducing 3 pulse cycles, each with a 20 second delay.
  - Init Vlv Time: 10
  - Pulse Delay: 20
  - Pulse Valve On: 54
  - Total Valve: 172

<b>Total Valve</b>	<b>172</b>
<b>Total Delay</b>	<b>60</b>
<b>Drip Out</b>	<b>60</b>
<hr/>	
<b>Total Brew</b>	<b>292</b>

## PULSE BREW AND PRE-INFUSION (continued)

### #3 PREVENT BREW BASKET OVERFLOW



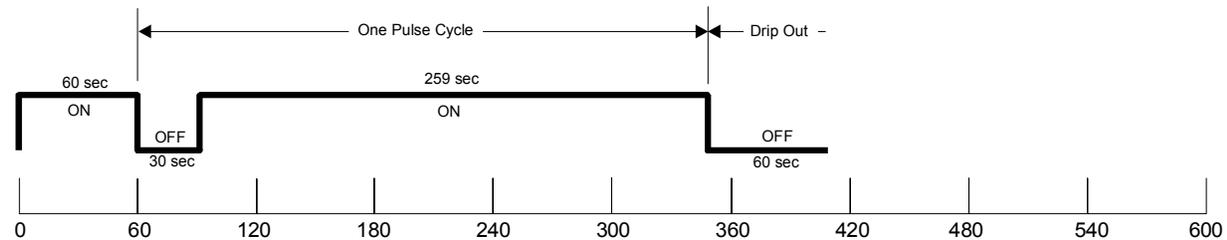
Prevent Brew Basket Overflow on 85 oz. Brew, 4 oz. of Ground Coffee. Total valve time of 236 seconds required for 85 oz. of water. Extend the delivery over a longer period of time, say 5 $\frac{3}{4}$  minutes, (or 344 seconds), to prevent overflow of brew basket, by having 3 valve delay period. Initial Valve time is arbitrarily set at 62 seconds. Program the delay required (i.e.  $344 - 236 = 108$  seconds) over 3 pulse cycles, each with a delay of  $(108 \div 3) 36$  seconds. To calculate the Pulse Valve time: Total Valve Time minus Initial Valve Time divided by 3 pulse cycles:  $236 - 62 \div 3 = 58$  seconds.

- Init Vlv Time: 62
- Pulse Delay: 36
- Pulse Valve On: 58
- Total Valve: 236

<b>Total Valve</b>	<b>236</b>
<b>Total Delay</b>	<b>108</b>
<b>Drip Out</b>	<b>60</b>
<hr/>	
<b>Total Brew</b>	<b>404</b>

## Pulse Feature Examples TEA BREWERS:

### #1 PRE-INFUSION



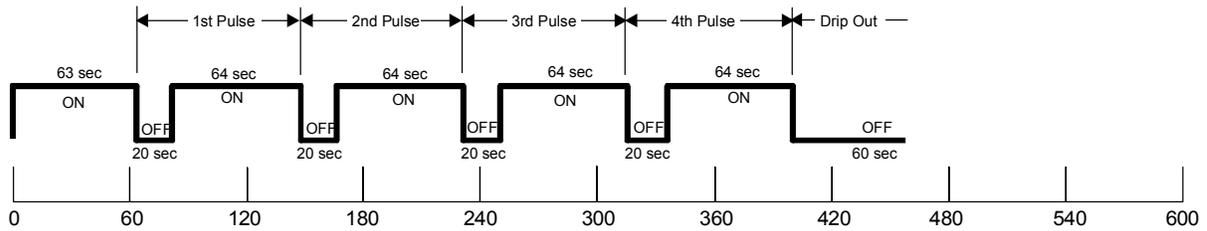
1. Pre-Infuse Standard 3 gal. Brew. Total valve time of 319 seconds required for 128 oz. of water.

- Init Vlv Time: 60
- Pulse Delay: 30
- Pulse Valve On: 259
- Total Valve: 319
- Bypass Delay: 20
- Bypass Valve: 319

<b>Total Valve:</b>	<b>319</b>
<b>Total Delay</b>	<b>30</b>
<b>Drip Out</b>	<b>60</b>
<hr/>	
<b>Total Brew</b>	<b>409</b>

## PULSE BREW AND PRE-INFUSION (continued)

### #2 EXTENDED CONTACT TIME

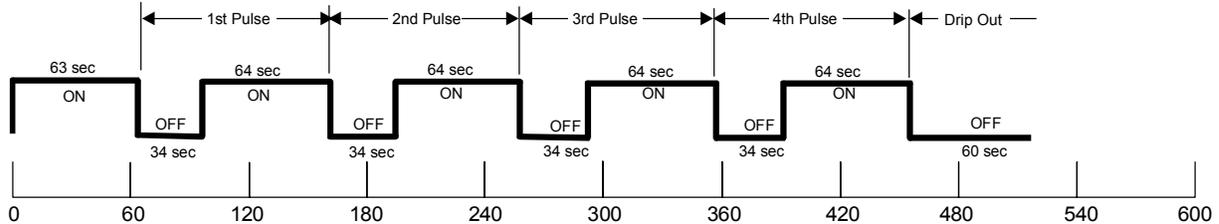


2. Extend Contact Time on Standard 3 gal. Brew. Total valve time of 319 seconds required for 128 oz. of water.

Extend contact time by 65 seconds by introducing 4 pulse cycles, each with a 20 second delay.

· Init Vlv Time: 63	
· Pulse Delay: 20	
· Pulse Valve On: 64	Total Valve 319
· Total Valve: 319	Total Delay 80
· Bypass Delay 20	Drip Out 60
· Bypass Valve 319	<hr style="border: 1px solid black;"/>
	Total Brew 459

### #3 PREVENT BREW BASKET OVERFLOW



3. Prevent Brew Basket Overflow. Total valve time of 319 seconds required for 128 oz. of water.

Extend the delivery over a longer period of time, say 8 minutes to prevent overflow of brew basket, by having 4 valve delay periods. Initial Valve time is arbitrarily set at 65 seconds. Program the delay required 136 seconds over 4 pulse cycles, each with a delay of 34 seconds. To calculate the Pulse Valve time: Total Valve Time minus Initial Valve Time divided by 4 pulse cycles.

· Init Vlv Time: 63	
· Pulse Delay: 34	
· Pulse Valve On: 64	Total Valve 319
· Total Valve: 319	Total Delay 136
· Bypass Delay 20	Drip Out 60
· Bypass Valve 319	<hr style="border: 1px solid black;"/>
	Total Brew 515

## TEST PROGRAM – E-Max™

**Instructions for testing these system components:**

- A) **Electronic Board Software (Firmware) Revision**
- B) **Data Revision**
- C) **RTC (real time clock)**
- D) **Keypad switches**
- E) **LED's**
- F) **Inlet valve**
- G) **Dump (Brew) valve**
- H) **By Pass Valve (Tea Brewers only)**
- I) **Warmer plates (Decanter Brewers only)**
- J) **Water level probe**
- K) **Temperature probe**

**Entering Test Program Mode:**

Make sure to have power to the system. Turn the brewer off. In the Off mode, hold down the 4th key, then the 3rd key (ON/OFF). Keep holding both keys down for approximately 3 seconds.

**Exiting Test Program Mode:**

To exit the Test Program press the 2nd key (Cancel) at any time, except during the key switch tests, numbers 4 through 9 below. Or - complete the full test and the E-Max will return to the off mode.

**Test Program Mode Details:**

Switch Test:

If a key or switch toggle is not detected within the times allowed then the "Switch Error" message will be displayed followed by two beeps. If an error occurs with the correct key pressed then the switch or board has failed the test.

1. **Software (Firmware) Revision** will be displayed (i.e. MFW275 Rev3.4). Press ON/OFF to advance.
2. **Data revision** will be displayed – i.e. Data Rev2.1. Press ON/OFF to advance.
3. **RTC - Real Time Clock** time will be displayed (24 hour version) i.e. HH:MM:SS. Verify that the time is changing in seconds to confirm RTC proper functioning. Press ON/OFF to advance.
4. **Switch Test 1.** Press 1st switch. 30 seconds allowed to press 1st switch.
5. **Switch Test 2.** Press 2nd switch. 5 seconds allowed to press switches 2 through 6
6. **Switch Test 3.** Press 3rd switch.
7. **Switch Test 4.** Press 4th switch.
8. **Switch Test 5.** Press 5th switch.
9. **Switch Test 6.** Press 6th switch.
10. **LED's** will be tested individually, beginning with the first on the left and proceeding through all six LED's in one-second intervals. Screen will read "Testing LED's". When all lights have been tested press ON/OFF to advance.
11. **Inlet Off.** Press ON/OFF to turn inlet valve on and the screen will read "Inlet On". Then press ON/OFF again to turn inlet valve off and proceed to next item.
12. **Dump Valve Off.** As above press ON/OFF to first turn valve on then again to turn it off and proceed to next item.

## TEST PROGRAM – E-Max™ (continued)

13. **By Pass Valve Off.** Press ON/OFF to first turn valve on then again to turn it off and proceed to next item.
14. **Heater Off.** Press ON/OFF to turn tank heating element on, then press ON/OFF to turn it off and proceed to next item.

### Tea Brewers Only

- 
13. **WP1 Off.** Press ON/OFF to turn warming plate 1 (Main) element on. Press ON/OFF to turn it off and proceed to next item. (If brewer is set to Thermal the warmer plate tests will be by- passed.)
  14. **WP2 Off.** Press ON/OFF to turn warming plate 2 (Front) element on. Press ON/OFF to turn it off and proceed to next item.
  15. **WP3 Off.** Press ON/OFF to turn warming plate 3 (Rear) element on. Press ON/OFF to turn it off and proceed to next item.

### Decanter Brewers Only

16. **Probe Test**  
Screen reads *Probes XXX XXX*
  - The **left number** determines whether the **WATER-sensing probe** is in contact with water. A number of “0” (or close to 0) means that water is in contact with the probe, while a number of 255 (or close to 255) means water is not in contact with the probe.
  - The **right number** represents what the **TEMPERATURE-sensing probe** reads. The table below is an approximate correlation between the value and the temperature the probe is sensing. (Note a number less than 10 would indicate the probe is not properly connected to the board, while a number higher than 155 indicate a defective probe.)

Right Number	Approx. Water Temp.
≤ 10	Probe not connected
20	74°F
25	83°F
30	92°F
↓	↓
120	181°F
125	186°F
130	191°F
135	196°F
140	201°F
≥ 155	Defective Probe

Press ON/OFF to proceed to next item.

17. **Test Done.** Indicates completion, press ON/OFF to reset controller. The controller should restart with the message “BLOOMFIELD”, then return to the off mode.

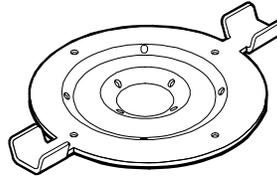
## ADDENDUM

### Extract from SERVICE BULLETIN 600.023

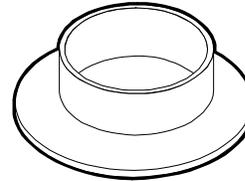
**SUBJECT:** Brewer Spray Disk and Gasket Application

- A. An revised spray disk (p/n 82727) and associated hat-shaped gasket (p/n 82215) comprise the latest in a series of ongoing improvements for:**

*E-Max™* Coffee Brewers  
*E-Max T™* Tea Brewers.



82727  
EMBOSSSED SPRAY HEAD  
12 HOLES



82215  
HAT-SHAPED GASKET  
1-1/2" (4 cm) HOLE

The hat-shaped gasket *must* be used with the new spray disk on *E-Max™* and *E-Max T™*

- B. and C.** (Omitted - refer to other equipment applications)
- D.** All current production Bloomfield Brewers incorporate the embossed spray disk.
- E.** The revised embossed spray disk has a different outflow rate than either the flat spray disk or old-style embossed spray disk. When replacing a flat spray disk or old-style embossed spray disk with an revised embossed spray disk, the back-pressure of the spray head will be changed.

Note the altered flow rates for *E-Max™* when the new spray head is installed:

**Before** – Embossed spray disk and flat band gasket

**Now** – Revised embossed spray disk and hat-shaped gasket

Gallons	<b>BEFORE</b>		<b>NOW</b>	
	Time	Flow Rate	Time	Flow Rate
½ Gal.	190 sec.	.33 oz/sec	156 sec	.41 oz/sec

- F.** Cleaning of tubing, elbows, strainers and spray disks have the potential to alter basic calibration settings of the brewer. Whenever the brewer has been disassembled, or when parts are changed, cleaned or adjusted, be sure to check all timed functions and reset as required for an optimal brew.

**NOTES**

RECORD SETTINGS

Model:

Serial No.

SETTING

DATES

Brew Temp (°)				
Brew Vol 1 ( <i>volume</i> )				
Initial Valve ( <i>sec.</i> )				
Pulse Delay ( <i>sec.</i> )				
Pulse Valve ( <i>sec.</i> )				
Total Valve ( <i>sec.</i> )				
Brew Vol 2 ( <i>volume</i> )				
Initial Valve ( <i>sec.</i> )				
Pulse Delay ( <i>sec.</i> )				
Pulse Valve ( <i>sec.</i> )				
Total Valve ( <i>sec.</i> )				
Brew Vol 2 ( <i>volume</i> )				
Initial Valve ( <i>sec.</i> )				
Pulse Delay ( <i>sec.</i> )				
Pulse Valve ( <i>sec.</i> )				
Total Valve ( <i>sec.</i> )				
Bypass Delay (E-Max-T™)				
Bypass Valve (E-Max-T™)				
After Hours ( <i>0 to 6 hr</i> )				
QualityTime				
Timer				
Weekday ON ( <i>hr : min</i> )				
Weekday OFF ( <i>hr : min</i> )				
Weekend ON ( <i>hr : min</i> )				
Weekend OFF ( <i>hr : min</i> )				
Temp Unit (°F or °C)				
Volume Unit (oz or L)				
Max WaterTemp (°)				
Mode ( <i>Decant or Therm</i> )				
Brew Wait (Y or N)				
InflowRate ( <i>gpm</i> )				
Calibration ( $\pm$ ° <i>Offset</i> )				
Inlet ValveTime ( <i>sec.</i> )				
Valve Delay ( <i>sec.</i> )				
Timer Status ( <i>1 or 2</i> )				

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