



SUPER-NUOVA Stirrers

SERIES 1333 and 1339
Operation Manual and Parts List

Model #	Voltage	Description
S133320-33	220-240	7x7
S133324	100	7x7
S133325	120	7x7
S133930-33	220-240	10x10
S133934	100	10x10
S133935	120	10x10

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Safety Information

Alert Signals



Warning

Warnings alert you to a possibility of personal injury.



Caution

Cautions alert you to a possibility of damage to the equipment.



Note

Notes alert you to pertinent facts and conditions.



Note

The SUPER-NUOVA stirrers are not explosion proof. If explosion proof models are required, contact customer service at 1-800-553-0039 for more information.



Warning

Refer servicing to qualified personnel.

Your Thermo Scientific SUPER-NUOVA stirrer has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

This manual contains important operating and safety information. The user must carefully read and understand the contents of this manual prior to the use of this equipment.

Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials — fire or explosion may result. This device contains components which may ignite such materials. Not rated for use in hazardous atmospheres.
2. These stirrers are not explosion proof. Fire or explosion may result. Unit contains components which may ignite such materials.
3. Keep top surface clean. Use a non-abrasive cleaner. Alkali spills, hydrofluoric acid spills or phosphoric acid spills may damage top and lead to thermal failure. Unplug unit and remove spills promptly. Do not immerse unit for cleaning.
4. Replace the top immediately if damaged by etching, scratching or chipping. A damaged top can break in use.
5. Do not use metal foil on stirrer which may block air flow. Overheating will result.

SAFETY INFORMATION

6. Do not remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard.
7. Use appropriate hand and eye protection when handling hazardous chemicals.
8. Gross weight of items placed on top of stirrers should not exceed 35 lbs. (15.9 kg.) on the 10" x 10" models and 25 lbs. (11.3 kg) on the 7" x 7" models.
9. Refer servicing to qualified personnel.

General Specifications

7" X 7"

Model Number	S133325	S133320-33	S133324
Overall Dimensions in. (cm)			
Width	8.2" (20.8 cm)	8.2" (20.8 cm)	8.2" (20.8 cm)
Height	3.8" (9.7 cm)	3.8" (9.7 cm)	3.8" (9.7 cm)
Depth	13.0" (33.0 cm)	13.0" (33.0 cm)	13.0" (33.0 cm)
Weight lbs (kg)	11.0 lbs (5.0 kg)	11.0 lbs (5.0 kg)	11.0 lbs (5.0 kg)
Top Plate			
Width	7.25" (18.4 cm)	7.25" (18.4 cm)	7.25" (18.4 cm)
Height	1.0" (2.5 cm)	1.0" (2.5 cm)	1.0" (2.5 cm)
Depth	7.25" (18.4 cm)	7.25" (18.4 cm)	7.25" (18.4 cm)
Electrical Ratings			
Volts	120	220-240	100
Amps	.41	.18	.42
Watts	25	25	25
Freq.	60	50/60	50/60
Phase	1	1	1

10" X 10"

Model Number	S133935	S133930-33	S133934
Overall Dimensions in. (cm)			
Width	11.3" (28.7 cm)	11.3" (28.7 cm)	11.3" (28.7 cm)
Height	4.0" (10.1 cm)	4.0" (10.1 cm)	4.0" (10.1 cm)
Depth	16.25" (41.2 cm)	16.25" (41.2 cm)	16.25" (41.2 cm)
Weight lbs (kg)	13.75 lbs (6.24 kg)	13.75 lbs (6.24 kg)	13.75 lbs (6.24 kg)
Top Plate			
Width	10.5" (26.7 cm)	10.5" (26.7 cm)	10.5" (26.7 cm)
Height	1.0" (2.5 cm)	1.0" (2.5 cm)	1.0" (2.5 cm)
Depth	10.5" (26.7 cm)	10.5" (26.7 cm)	10.5" (26.7 cm)
Electrical Ratings			
Volts	120	220-240	100
Amps	.41	.18	.42
Watts	25	25	25
Freq.	60	50/60	50/60
Phase	1	1	1

GENERAL SPECIFICATIONS

Stirring Speed Specifications

Speed Range 50 to 1200 RPM
(Maximum speed is dependent on the viscosity of the solution)

Stability of the stirring speed setpoint (600 ml of water in a 1000 ml glass flask above 200 rpm) $\pm 2.0\%$
Accuracy of the stirring setpoint (600 ml of water in a 1000 ml glass flask above 200 rpm) $\pm 2.0\%$

Top Plate Size	Max Recommended Beaker Size	Max Weight on Top Plate
7" x 7"	4 liters	25 lbs
10" x 10"	6 liters	35 lbs

Environmental Conditions

Operating:	0°C to 27°C; 20% to 80% relative humidity, non-condensing. Installation category II (overvoltage) in accordance with IEC 664. Pollution degree 2 in accordance with IEC 664. Altitude Limit: 2,000 meters.
Storage:	-25°C to 65°C 10% to 85% relative humidity

Declaration of Conformity

(for 220-240 volt, -33 CE models only)

We hereby declare under our sole responsibility that this product conforms with the technical requirements of the following standards:

EMC:	EN 61000-3-2 EN 61000-3-3 EN 61326-1	Limits for harmonic current emissions Limits for voltage fluctuations and flicker Electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
Safety:	EN 61010-1 EN 61010-2-051	Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: General Requirements Part II: Particular requirements for laboratory equipment for mixing and stirring

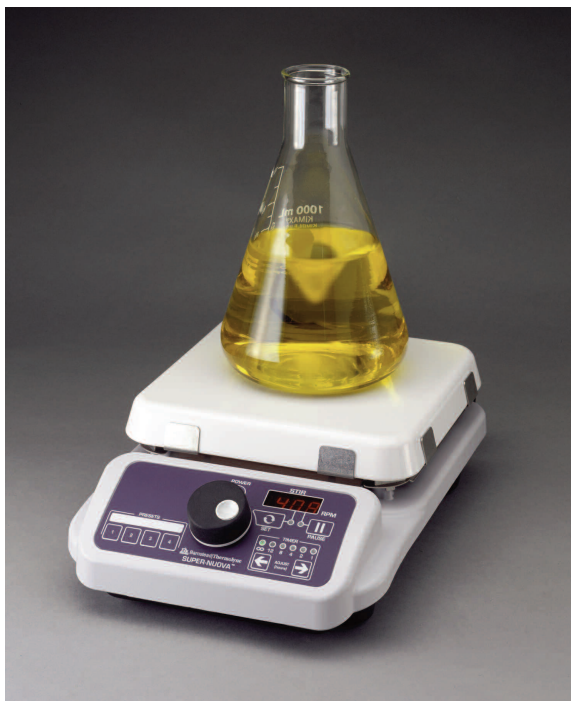
per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

Thermo Fisher Scientific
Robert-Bosch-Straße 1
63505 Langenselbold
Germany

Copies of the Declaration of Conformity are available upon request.

Introduction



Super Nuova Stirrer

Please read all the information in this manual before operating the unit.

Your SUPER-NUOVA stirrer is a stirring plate designed for laboratory procedures requiring precise control of stirring speed. Each SUPER-NUOVA model includes a digital display for monitoring stirring speed. The stirrer will accurately maintain stirring speeds from 50 rpm up to 1200 rpm. The 7" x 7" or 10" x 10" top plate on the SUPER-NUOVA units are solid ceramic, and are suitable for use with glass or metal vessel and sand baths.

Other features of the SUPER-NUOVA include a timer that can be used to shut off stirring. Specific stirring speed set-points may be set using the PRESETS buttons on the SUPER-NUOVA.

An RS232 port is available on the SUPER-NUOVA to output elapsed time and speed data. The data is printed once every second when the unit is powered on (displays on). See "RS232 Output" in the Operation section of this manual.

Your SUPER-NUOVA stirrer may be used for general purpose general laboratory mixing of solutions, including sample preparation, content analysis, solvent evaporations, digestions, media preparation and sterilization, titrations, and microscale chemistry applications.

General Usage

Do not use this product for anything other than its intended usage.

Unpacking and Installation



Warning

Use a properly grounded electrical outlet of correct voltage and current handling capacity.

Do not remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard. Not rated for use in hazardous atmospheres.

Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

If explosion proof models are required, contact customer service at 1-800-553-0039 for more information.

Do not use in highly corrosive atmospheres; corrosive fumes and spills may damage top and internal components, creating shock hazard.



Note

Some misalignment of the motor bearings in this product may have occurred during shipping. Prior to using this product, run the stirrer at maximum speed for ten minutes to realign the bearings.

Unpacking

Remove your SUPER-NUOVA stirrer from the carton. Inspect to ensure that the unit has not been damaged during shipment. If the unit appears to have sustained shipping damage contact the distributor from whom you purchased this product or Customer Service at:

North America: USA/Canada +1 866 984 3766 (866-9-THERMO) www.thermo.com

Europe: Austria +43 1 801 40 0, Belgium +32 2 482 30 30, France +33 2 2803 2180, Germany national toll free 08001-536 376, Germany international +49 6184 90 6940, Italy +39 02 02 95059 434-254-375, Netherlands +31 76 571 4440, Nordic/Baltic countries +358 9 329 100, Russia/CIS +7 (812) 703 42 15, Spain/Portugal +34 93 223 09 18, Switzerland +41 44 454 12 12, UK/Ireland +44 870 609 9203

Asia: China +86 21 6865 4588 or +86 10 8419 3588, India toll free 1800 22 8374, India +91 22 6716 2200, Japan +81 45 453 9220, Other Asian countries +852 2885 4613

Countries not listed: +49 6184 90 6940 or +33 2 2803 2180

Check for stir bar and thumbscrew prior to discarding packaging.

The following items are included in the shipment:

SUPER-NUOVA Stirrer

Stir Bar - ZSX65A

Adapter (100V models only) - CEX42

Knob - KBX106

Operator's Manual - LT1333X1

If any of these items are missing from the carton, contact customer service.

Installation

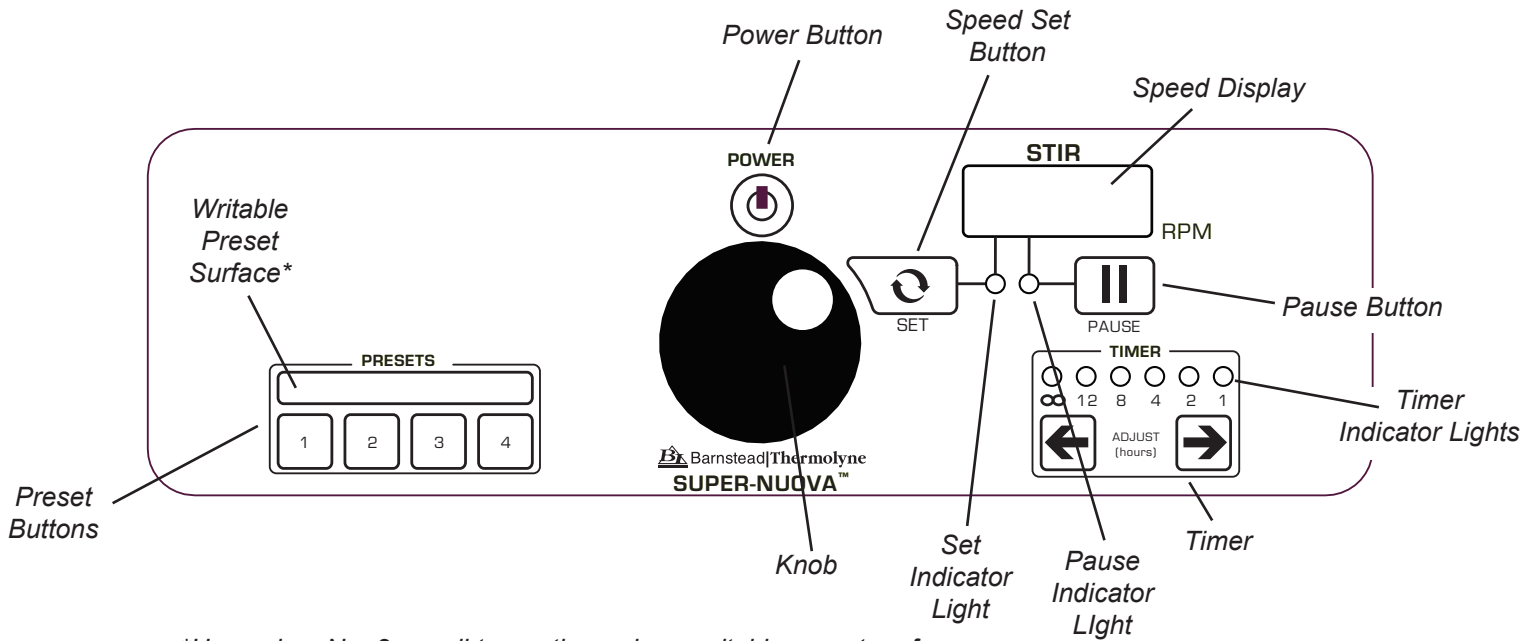
Set the unit on a flat stable surface at least 12" away from combustible materials, and plug the cordset into a properly grounded electrical outlet of correct voltage and current handling capacity.

UNPACKING AND INSTALLATION



Cord retention clip

RS232 Port Connections



*Use only a No. 2 pencil to gently mark up writable preset surface.

Principles of Operation

Each SUPER-NUOVA unit utilizes the latest microprocessor technology to deliver the most reliable, accurately controlled, ceramic top stirrer on the market.

The electronic stirring speed control will maintain the speed setpoint when the unit is loaded. The motor is combined with a powerful magnet to provide exceptional magnetic coupling with a stir bar.

The timer feature on the SUPER-NUOVA can be programmed to turn off the stirring. See “Setting the Timer” section of this manual.

Operation



Warning

These stirrers are not explosion proof. Fire or explosion may result. Unit contains components which may ignite such materials.

Use appropriate hand and eye protection when handling hazardous chemicals.

Power Button

The SUPER-NUOVA unit has a power button located on the front control panel. The unit may be powered on by pressing the power button or ANY button on the control panel. When the unit is turned on, there will be three beeps, the unit will initialize and then “OFF” will be displayed on the “STIR” display screen until a stirring speed is entered. To turn off power to the unit, press the power button.

Setting the Stirring Speed

The SUPER-NUOVA stirrer has an electronic feedback speed control which will maintain a precise speed setpoint from 50 rpm through 1200 rpm. Stirring speed stability is 1.5% at speeds greater than 200 rpm. (Maximum speed is dependent on viscosity of the solution.) The SUPER-NUOVA stirrers are equipped with a strong magnet and high torque motor which will draw a vortex in fluids up to 700 cp.

To set the stirring speed, press “SET” key located under the STIR display. Use the knob in the center of the console to select a speed. Turn the knob clockwise to increase the speed or counterclockwise to decrease the speed. When desired speed has been reached, press the “SET” key under the STIR display or wait a moment and the unit will beep indicating that it has been set. The SET indicator light will be lit when in SET mode.

Once the unit begins stirring, the display will register ACTUAL speed until the setpoint has been reached. To check the setpoint, press “SET” under the STIR display and your setpoint will be displayed again for a few seconds. The display will automatically return to indicating actual speed. To stop the stirring action without changing your setpoint press the PAUSE button once. The PAUSE indicator will be lit and the word PAUSE will scroll across the display. To resume stirring at the set speed, press the PAUSE button again.

To turn stirring off, press “SET” under the STIR display and turn the knob counterclockwise until the display reads “OFF.” Alternatively, the stirring can be turned off by pressing and holding the “SET” STIR key until a beep is heard (approximately 3 seconds.)



Note

The knob does not function unless one of the “SET” buttons is pushed first to activate it.

Using Preset Programs

The SUPER-NUOVA stirrer features the option of presetting 4 setpoints into its memory. To program a preset, adjust the stir feature to your desired setpoints. Press and hold one of the presets and the unit will beep indicating those setpoints have been stored in memory. The presets will be held in memory, even if the unit is unplugged, until you choose to override it with another preset.

To activate one of the presets, quickly press the corresponding number and the stir feature will automatically adjust itself.

It may be helpful to set one of the presets at "OFF." This way, the stirring can be shut off quickly.

No. 2 pencil may be used to gently mark up writable preset surface.

Setting the Timer

The timer function on the SUPER-NUOVA can be set to shut off stirring. The timer can be set for a desired number of hours (1, 2, 4, 8 or 12) or for a non-specific period of time (Infinity symbol). To set the timer, use the right and left arrows until the light above the number corresponds to the desired time.

If at any time you wish to reset the timer, press the right or left arrow keys until the indicator light corresponds to your desired time. The unit will beep indicating it has been reset.

One minute before shutdown, the unit will beep three times and flash the 1 hour light. The unit will beep three more times to indicate it has timed out.

Power Interruption Protection

If an interruption in power supplied to the SUPER-NUOVA occurs, the unit will continue to operate normally, *as long as the interruption is no longer than 5 seconds*. If the interruption is longer than 5 seconds, the unit's power will be off once the facility power is restored.

RS232 Output

An RS232 port is available on the SUPER-NUOVA to output elapsed time and speed data. The data is printed once every second when the unit is powered on (displays on). A comma separates each piece of data so that it may easily be imported into a spreadsheet as CSV (Comma Separated Values). The actual data stream sent every second consists of: Elapsed Time, Stirring Setpoint and Actual Stirring Speed.

Elapsed time is a 1 second counter that rolls over to zero again every 12 hours (43,200 seconds). The speeds are given in RPM. When the unit is first powered on (displays turn on) a header will print indicating the columns.

In order to communicate with the SUPER-NUOVA, the computer connected to it needs to be set with the following parameters:

- BITS PER SECOND: 57,600
- DATA BITS: 8
- PARITY: NONE
- STOP BITS: 1
- FLOW CONTROL: NONE

Also, the first time a unit is plugged in, a paragraph of diagnostics information will be sent via RS232 and can be viewed with a terminal program. An example of the data that is sent is:

```
Software Version: 1.00  
Stir Hours: 0  
Heat Hours: 0  
Calibration Set Point: 70  
Calibration Offset: 0.0
```

Since there is no heating feature on this unit, Heat Hours will remain at 0. Stir Hours and Heat Hours are kept internally in 1 minute increments and displayed to the nearest hour. The Calibration Set Point and Calibration Offset will also read 0.

Using HyperTerminal w/RS232

With HyperTerminal you can store the RS232 output data of a SUPER-NUOVA on a PC. NOTE: Other terminal programs that capture RS232 data can be used as well.

In order to follow this procedure, you must have:

- Microsoft Windows 95, or greater with HyperTerminal installed (it is available from the Windows installation CD if not installed already).
- A PC that has an available 9 pin DB-9 RS232 connector.
- WHX18 (Accessory) – PC to stirrer communications cable – Connect it from the back of the stirrer to the communications port desired.

To Setup HyperTerminal:

1. From the START menu of Windows, select ACCESSORIES, COMMUNICATIONS, HYPERTERMINAL
2. Type in a name (example: SuperNuova) that you would like to refer to the connection by in the NAME box. You may also select an icon if you would like. Then select OK.
3. Select the RS232 port that you plan to use to connect to the stirrer (typically Com 1 or Com 2). Then select OK.
4. Under port settings, select the following:
 - BITS PER SECOND: 57,600
 - DATA BITS: 8
 - PARITY: NONE
 - STOP BITS: 1
 - FLOW CONTROL: NONE

Then Select OK.

5. Select FILE, SAVE AS, and save this setup wherever you would like it to be located (if you would like it on the Desktop, select Desktop) and select SAVE. You will be able to run HyperTerminal with this setup in the future by just double-clicking the icon if you put it on the Desktop.
6. The setup of HyperTerminal is now complete, you can view the past data, but the program will only allow you to see the past 500 lines in its buffer. To capture data permanently follow the Capture with HyperTerminal Instructions below.

To Capture Data With HyperTerminal

1. Start HyperTerminal by double-clicking on the Icon created in the Setup Procedure above.
2. Select TRANSFER, CAPTURE TEXT. Select the Folder and File name you would like to use to refer back to this data (example: C:\SuperNuova\ Test1.txt). It is important to use the txt extension so that when you double-click on the file at a later date, it will automatically open in a text viewing program, or it use the csv extension and it can be opened in a spreadsheet such as Excel.
3. The stirrer can be operated and the data will be stored (it is still viewable on-screen) to the file that was setup in the previous step.
4. The data file must be closed at the end of the day (or the end of the capturing session) by selecting TRANSFER, CAPTURE TEXT, STOP. The data file must be closed before shutting down the computer also.
5. The program may be exited by selecting FILE, EXIT. Select YES to the question "ARE YOU SURE YOU WANT TO DISCONNECT NOW?".

Service and Calibration

Service Menu

The Service Menu has many features that will allow a user to customize their unit.

A table of the features available in the Service Menu is given below. The features are given in order of their appearance in the Service Menu when rotating the center knob in a clockwise rotation. The Feature column is the name of the feature, the Display column is the designation of that feature as shown on the display of the unit, the Availability column gives which type of unit the feature is applicable (HP = hot plate, S = stirrer, and SP = stirring hot plate or stir plate), and the last column gives a brief description of the purpose of the feature. PLEASE NOTE THAT SOME OF THE FEATURES THAT APPEAR ON THE DISPLAY MAY NOT APPLY TO A STIRRING ONLY MODEL.

Feature	Display	Availability	Brief Description
Over-temperature Set Point	OSP	HP, SP	Allow the user to see the setting of the Over Temperature Protection control.
Temperature Probe Calibration	CAL	HP, SP	Allows calibration of the temperature probe and associated circuitry.
Thermometer Mode	Prb	HP, SP	Allows the probe circuit to be used as a thermometer while still allowing independent use of the stirring control (if so equipped).
Timer Shutdown	End	HP, S, SP	When the timer elapses, a choice of what should turn off is selectable between heating, stirring, or both. Default is heating only on SP and HP; stirring only on S.
Probe Temperature Limit	PL	HP, SP	Allows the user to limit the maximum temperature of the heating set point when the probe is attached to 250° C or allow it to be unlimited. Default is 250° C.
Probe Response	Pr	HP, SP	Sets the minimum time required for the probe temperature to rise before signaling an error (E03). This is adjustable from 3 to 20 minutes in 1 minute increments. The default is 3 minutes.
Set Point Limit	SL	HP, SP	The maximum temperature can be limited to below the OSP, or can be unlimited. Unlimited can allow the OTP circuit to automatically disconnect relay power if the OSP setting is exceeded. The default is to be limited by the OSP.
Error Disable	Err	HP, S, SP	All errors except E12 (locked rotor) can be disabled if they are presenting problems with the operation of a unit. Care must be exercised when changing the default – All errors enabled.
Factory Defaults	dEF	HP, S, SP	All settings listed in this table will be reset to the default factory setting. Useful in troubleshooting.
Model Selection	SEL	HP, S, SP	Allows the unit to be configured as a hotplate, stirrer, or stirplate. Then size of unit is selectable – 7” or 10” unit. The default is 7” stirplate.
Flash Upgrade	FLS	HP, S, SP	If a new version of firmware is obtained, it can be loaded into the hotplate using this menu. All options will be set to factory defaults when complete.



Note

For most routines, the POWER key can be used to return to a previous menu if desired. Also, many of the options can be checked to see how the unit is configured by selecting the feature and observing which menu item is displayed. The unit will always display the current configuration first.

Timer Shutdown - End

This feature is available for all units, but not all sub-menu options will be applicable. The purpose of this feature is to control what is turned off when the timer elapses. The default is heating off for hot plates and stir plates, and stirring off for stirrers.

To modify/view the Timer Shutdown follow the instructions given below:

1. Plug the unit into the appropriate power, but do not turn it on (display should be blank), enter the Service Menu by pressing and holding the POWER key. After about 3 seconds a single beep will be heard and you may remove your finger from the POWER key. The display will change to **OSP**.
2. Rotate the center knob until the display reads **End**. Press the SET key under the display to accept, and the display will change to H (Heating off), H S (Heating and Stirring Off), or S (Stirring Off). Rotate the center knob to change the display to the method of choice and press the SET key under either display again.
3. The unit will return to the previous menu. Select another feature to change, or press the POWER key again to return to the off mode.

Error Disable - Err

This feature is available for all units, but not all sub-menu options will be applicable since some errors relate to heating or stirring only. The purpose of this feature is to enable or disable a particular error from being detected and displayed. All errors except E12 (locked rotor – stirring control) are able to be disabled. A general option is also available to re-enable all errors at once. When disabling errors though they must be done one at a time.

To modify/view the Error Disable menu follow the instructions given below:

1. Plug the unit into the appropriate power, but do not turn it on (display should be blank), enter the Service Menu by pressing and holding the POWER key. After about 3 seconds a single beep will be heard and you may remove your finger from the POWER key. The display will change to **OSP**.
2. Rotate the center knob until the display reads **Err**. Press the SET key under the display to accept, and the display will change to **CLr** (re-enable all disabled errors). Rotate the center knob to change the display to the error number of choice and press the SET key under the display again.
3. The display will now indicate either **On** (the error detection is enabled), or **OFF** (the error detection is disabled). Rotate the center knob to change the display if desired and press the SET key under the display.
4. The unit will return to the previous menu. Select another error to change, or press the POWER key to return to the root Service Menu. Pressing the POWER key one more time will turn the unit off.

Factory Defaults - deF

This feature is available for all units and is designed to restore the control to the default factory settings. NOTE: The Model Selection feature will need to be re-visited after resetting the factory defaults (see Model Selection below).

To reset to the Factory Defaults follow the instructions given below:

1. Plug the unit into the appropriate power, but do not turn it on (display should be blank), enter the Service Menu by pressing and holding the POWER key. After about 3 seconds a single beep will be heard and you may remove your finger from the POWER key. The display will change to **OSP**.
2. Rotate the center knob until the display reads **dEF**. Press the SET key to accept, and the display will change to no. Rotate the center knob to change the display to **yES** and press the SET key.
3. The unit has now been returned to the factory default settings. The unit will return to the previous menu. Select another feature to change, or press the POWER key again to return to the off mode.

Model Selection - SEL

This feature is available for all units to select the type and size, but should only be used by the factory.

To modify/view the Model Selection follow the instructions given below:

1. Plug the unit into the appropriate power, but do not turn it on (display should be blank), enter the Service Menu by pressing and holding the POWER key. After about 3 seconds a single beep will be heard and you may remove your finger from the POWER key. The display will change to **OSP**.

2. Rotate the center knob until the display reads **SEL**. Press the SET key under the display to accept, and the display will change to **SP** (Stir Plate), **HP** (Hot Plate), or **S** (Stirrer). Rotate the center knob to change the display to the type of unit required and press the SET key under the display again.
3. The display will now change to **7** (7" top), or **10** (10" top). Rotate the center knob to change the display to the size of unit required and press the SET key under the display again.
4. The unit will return to the root Service Menu. Select another feature to change, or press the POWER key again to return to the off mode.

Flash Upgrade - FLS

This feature is available for all units and is designed to allow a firmware upgrade via RS232 port to be applied without exchanging controls. NOTE: Special software and an RS232 cable are required to complete this procedure. Complete instruction will be included with the firmware upgrade.

General Cleaning Instructions

Keep top surface clean. Use a non-abrasive cleaner. Alkali spills, hydrofluoric acid spills or phosphoric acid spills may damage top and lead to thermal failure. Unplug unit and remove spills promptly. Do not immerse unit for cleaning. Wipe exterior housing with lightly dampened cloth containing mild soap solution.

Troubleshooting

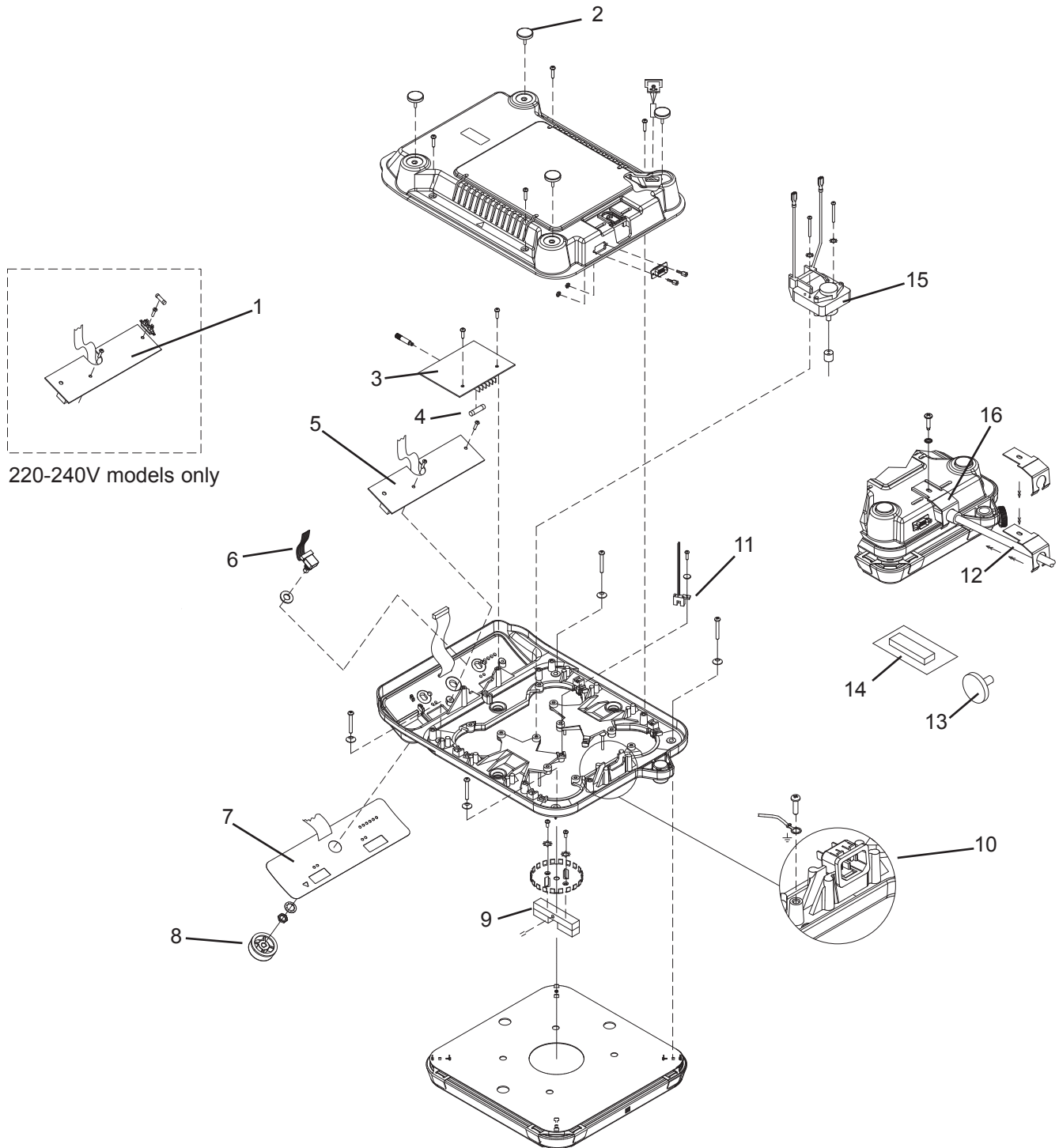
Error Codes

Displayed Message	Intended to Detect	Cause	Solution
E11	AC power not properly detected.	Failure in AC power detection (zero cross) circuit.	Replace Control Board.
E12	Locked rotor in stirring control.	Locked rotor condition. Failure in motor. Failure in motor optocoupler/triac circuit. Failure in motor optical encoder/encoder wheel.	Free locked rotor. Replace motor. Replace Control Board. Replace motor optical encoder.
E21	Corrupted data flash memory.	Checksum failure during data flash recovery.	Contact Customer Service or see footnote below.
Blank Display with continuous beep.	Corrupted program memory.	Checksum failure during unit initialization.	Replace Control Board. Reprogram Control Board.

Errors E11 and E12 are stirring errors. Error Handler will lock out stirring functions if stirring error is detected. Pressing the POWER button or unplugging the unit will clear Error E12. Unplugging the unit will clear Error E11. Error E21 is a data flash memory error and can be corrected by following the steps below:

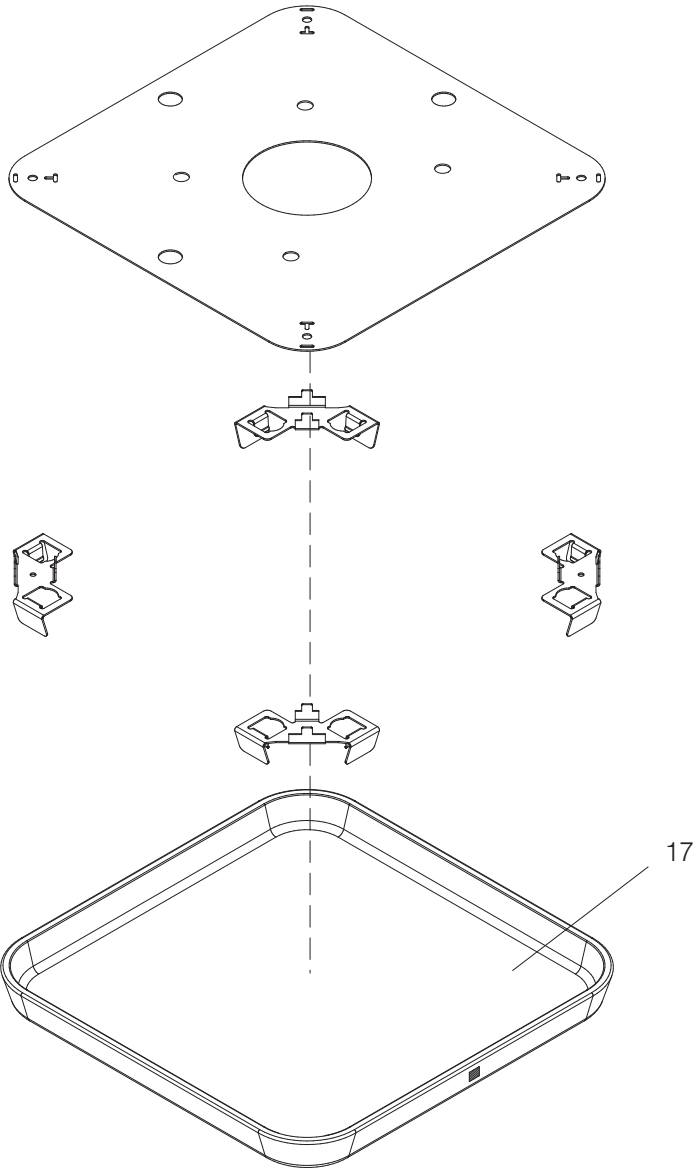
- Press any key to clear the error, this re-initializes data flash memory.
- At the 'SEL' menu, press the SET HEAT or SET STIR key.
- Using the encoder knob, select your unit's model type (if your unit model number starts with SP, select 'SP', etc) and press either the SET HEAT or SET STIR key.
- Using the encoder knob, select your unit's top size (either 7 or 10 inch) and press either the SET HEAT or SET STIR key.
- Press the POWER key to exit the special functions menu.
- Note that it may be necessary to recalibrate the unit and/or re-enter custom settings as the unit has been reset to factory default.
- The unit can now be started normally using the POWER key.

Exploded Views

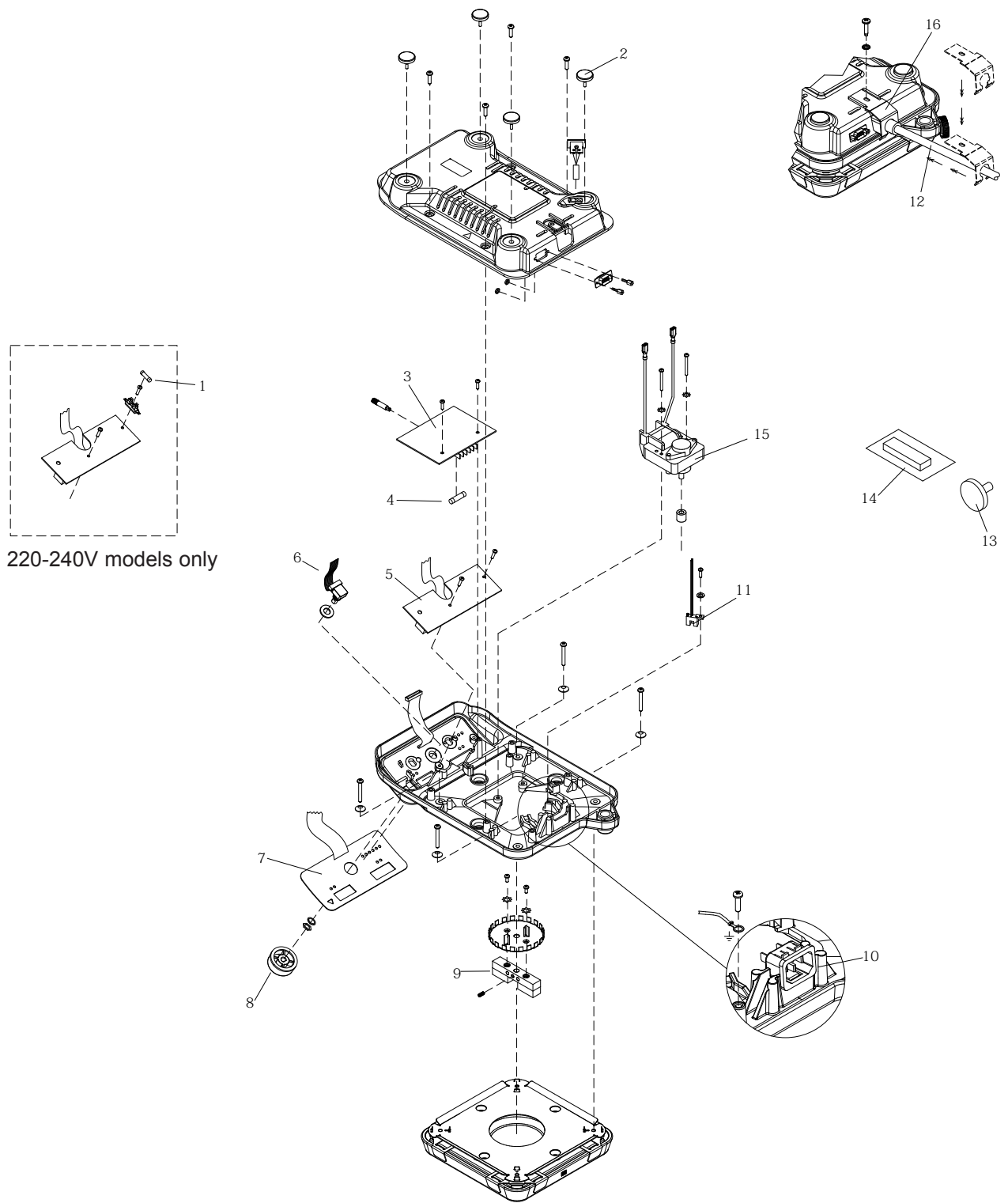


10x10 Stirrer - Exploded View

EXPLODED VIEWS



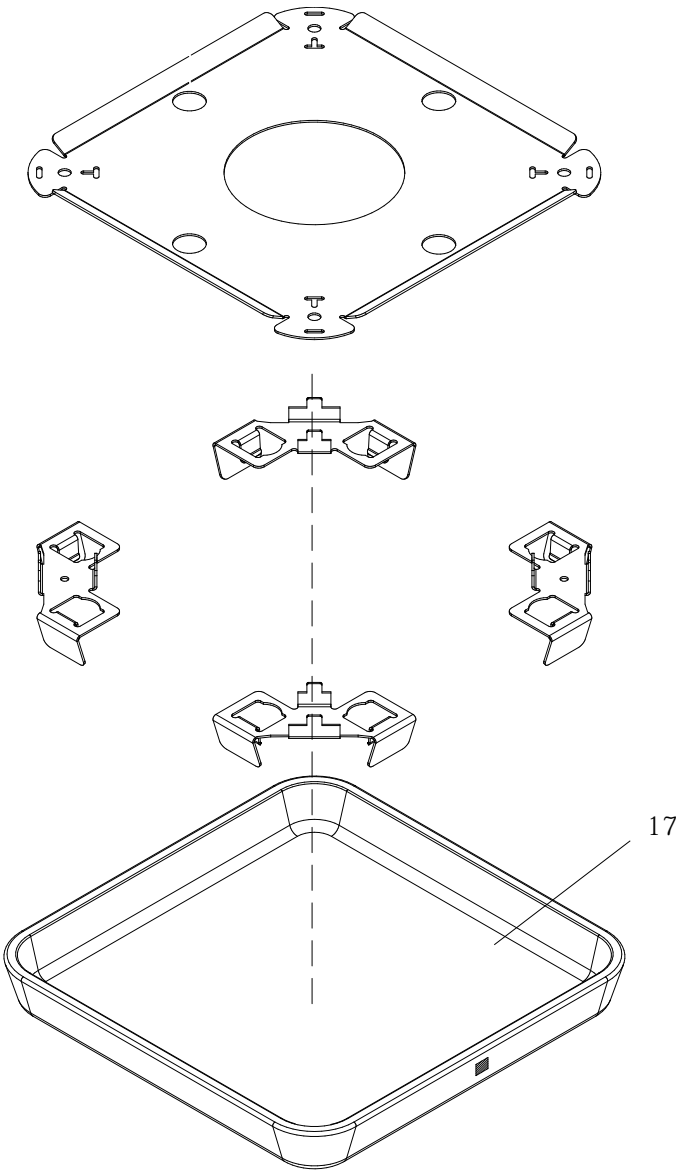
10x10 Stirrer- Top Assembly



220-240V models only

7x7 Stirrer - Exploded View

EXPLODED VIEWS

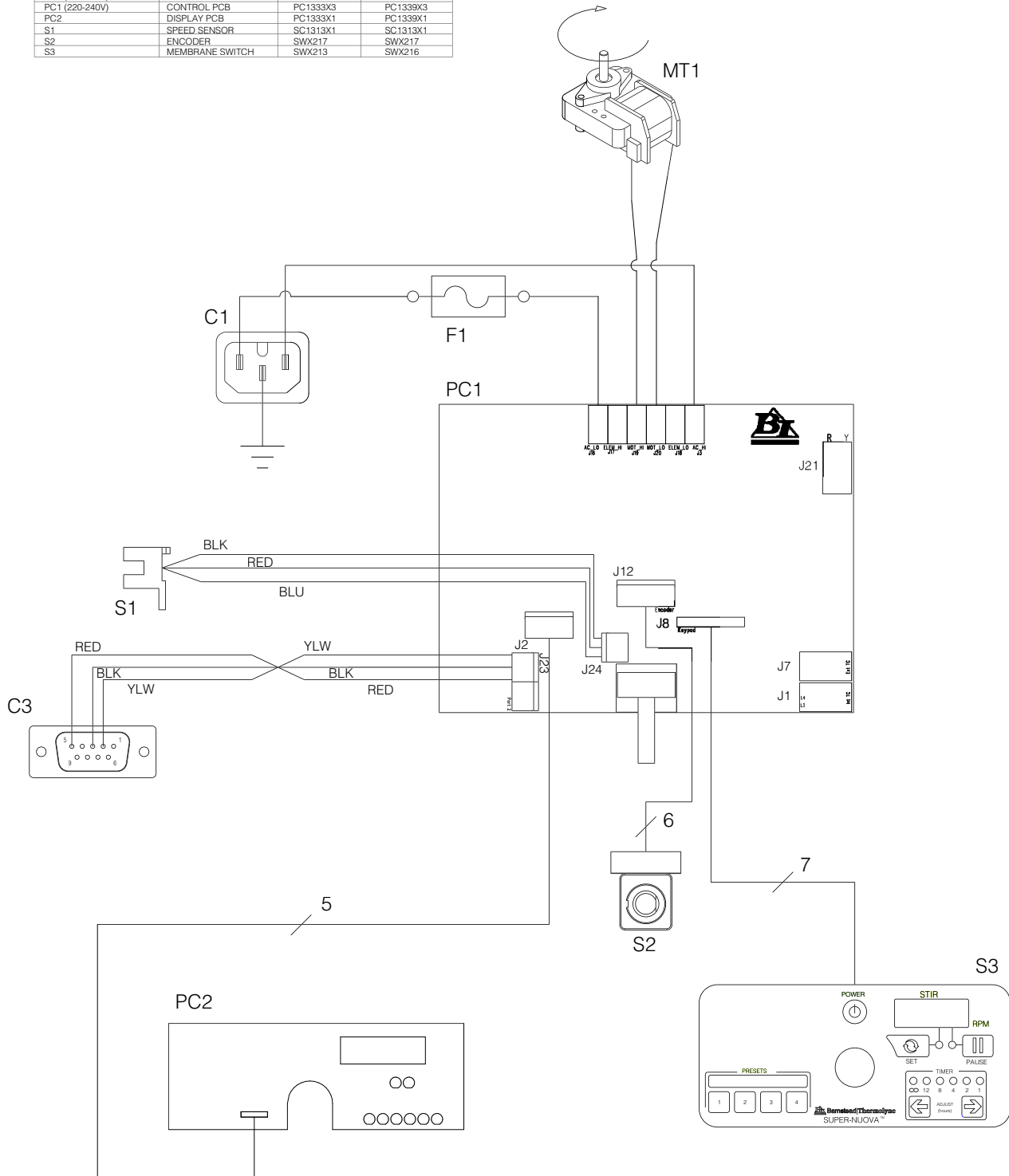


7x7 Stirrer- Top Assembly

Wiring Diagram

COMPONENT CHART

REF.	DESCRIPTION	(7x7)	(10x10)
C1	INLET	CEX373	CEX373
C3	RS232	WH1318X1	WH1318X1
F1 (220-240V ONLY)	FUSE	261575	261575
MT1 (100-120V)	MOTOR	MT1318X1	MT1338X1
MT1 (220-240V)	MOTOR	MT1318X2	MT1338X2
PC1 (100-120V)	CONTROL PCB	PC1333X2	PC1339X2
PC1 (220-240V)	CONTROL PCB	PC1333X3	PC1339X3
PC2	DISPLAY PCB	PC1333X1	PC1338X1
S1	SPEED SENSOR	SC1313X1	SC1313X1
S2	ENCODER	SWX217	SWX217
S3	MEMBRANE SWITCH	SWX213	SWX216



Replacement Parts List

Key	7x7 Part No.	10x10 Part No.	Description
1	261575	261575	PC Board Fuse - 220-240V
2	FTX34	FTX34	Foot (4)
3	PC1333X2	PC1339X2	Control Board - 100V, 120V
3	PC1333X3	PC1339X3	Control Board - 220-240V
4	266058	266058	PC Board Fuse - 100V, 120V
4	261575	261575	PC Board Fuse - 220-240V
5	PC1333X1	PC1339X1	Display Board
6	SWX217	SWX217	Encoder
7	SWX213	SWX216	Membrane Switch
8	KBX105	KBX105	Knob
9	MGX24	MGX24	Magnet
10	CEX373	CEX373	Power Entry Module
11	SC1313X1	SC1313X1	Speed Sensor
12	CRX106	CRX106	Cord Set - 100 V, 120V
12	CRX104	CRX104	Cord Set - 220-240V
13	KBX106	KBX106	Knob
14	ZSX65A	ZSX65A	Stir Bar
15	MT1318X1	MT1338X1	Motor - 120V, 100V
15	MT1318X2	MT1338X2	Motor - 220-240V
16	BC1313X1	BC1313X1	Retaining Clip - 100V, 120V
16	BC1313X2	BC1313X2	Retaining Clip - 220-240V
17	710-0117	719-0073	Ceramic Top

Accessories

Part No.	Description
711S	Non-Mercury Thermometer 20 to 100°C Range - 76 mm immersion
647-1S	Non-Mercury Thermometer 0 to 110°C Range - 35 mm immersion
1007-3BLS	Non-Mercury Thermometer -1 to 201°C Range - 76 mm immersion
615-3SC	Mercury Teflon Coated Thermometer -10 to 200°C Range - 76 mm immersion
260CW-3BLS	Non-Mercury Thermometer -10°C to 260°C Range - 76 mm immersion
ERT605	Waterproof Digital Thermometer -50 to 280°C
7077	Thermometer Clamp
7068	90° Clamp Holder
1000-2	12" Aluminum Rod
7078	Large Clamp
7079	Small Clamp (up to 1/2")
WHX18	RS232 cable

NOTE: Thermometers are N.I.S.T. traceable, however, they do not come with N.I.S.T. certificates. To obtain a certificate before ordering, call Customer Service at:

North America: USA/Canada +1 866 984 3766 (866-9-THERMO) www.thermo.com

Europe: Austria +43 1 801 40 0, Belgium +32 2 482 30 30, France +33 2 2803 2180, Germany national toll free 08001-536 376, Germany international +49 6184 90 6940, Italy +39 02 02 95059 434-254-375, Netherlands +31 76 571 4440, Nordic/Baltic countries +358 9 329 100, Russia/CIS +7 (812) 703 42 15, Spain/Portugal +34 93 223 09 18, Switzerland +41 44 454 12 12, UK/Ireland +44 870 609 9203

Asia: China +86 21 6865 4588 or +86 10 8419 3588, India toll free 1800 22 8374, India +91 22 6716 2200, Japan +81 45 453 9220, Other Asian countries +852 2885 4613

Countries not listed: +49 6184 90 6940 or +33 2 2803 2180

Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the Thermo Scientific dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at:

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Prior to returning any materials, please contact our Customer Service Department for a "Return Materials Authorization" number (RMA). Material returned without an RMA number will be refused.

Two Year Limited Warranty

This Thermo Scientific product is warranted to be free of defects in materials and workmanship for two (2) years from the first to occur of (i) the date the product is sold by the manufacturer or (ii) the date the product is purchased by the original retail customer (the "Commencement Date"). Except as expressly stated above, the MANUFACTURER MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

An authorized representative of the manufacturer must perform all warranty inspections. In the event of a defect covered by the warranty, we shall, as our sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold within the continental United States or Canada, the manufacturer shall provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

The warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than the manufacturer or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of Thermo Scientific products.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, the manufacturer will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to the factory, it shall be sent prepaid and a prior written authorization from the manufacturer assigning a Return Materials Number to the product or part shall be obtained.

IN NO EVENT SHALL THE MANUFACTURER BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

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