



**Diagnostic Reagent Enhanced Automatic Mechanism**

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# **E-WAVE**

## **User Manual**

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# **1. Introduction**

E-WAVE, one of the DREAM E-FAMILY, is a device which can be used together with E-PURE and E-SPECTRO for automation of EIA test.

E-WAVE is a shaker used in Micro-plate-related diagnostic test.

Its main characteristic is that each plate can be controlled separately.

Heating to 30~50C is possible and it can be adjusted in 1C basis. The temperature can be shown in Celsius and Fahrenheit

5 stages of Shaking Speed are available.

If fast mixing is needed in short period, use Power-Mode Shaking. This allows mixing of solution in 2000RPM.

Temperature Sensor inside the device monitors inside temperature so that it can be kept in designated temperature. For safety reason, initially temperature sensor controls temperature. If temperature rises up to 55C due to malfunction of device, power supply to the plate will automatically cut off through bimetal.

When incubation is complete, bell will start to ring to alert user its completion.

Preheating Mode allows incubation to be started after reaching designated temperature.

## 2. Composition

### 2.1 Components

Please check the components before setting.

- |                             |         |
|-----------------------------|---------|
| 1. Body                     | : 1 Set |
| 2. AC POWER CABLE(100~240V) | : 1 ea  |
| 3. User Manual              | : 1 ea  |

### 2.2 Setting

1. Lay the machine on where you will use.  
The machine should be set on a flat surface where there is no vibration.
2. Check the exterior condition of the machine and voltage. Connect the AC power supply.

## 2.3 Specification

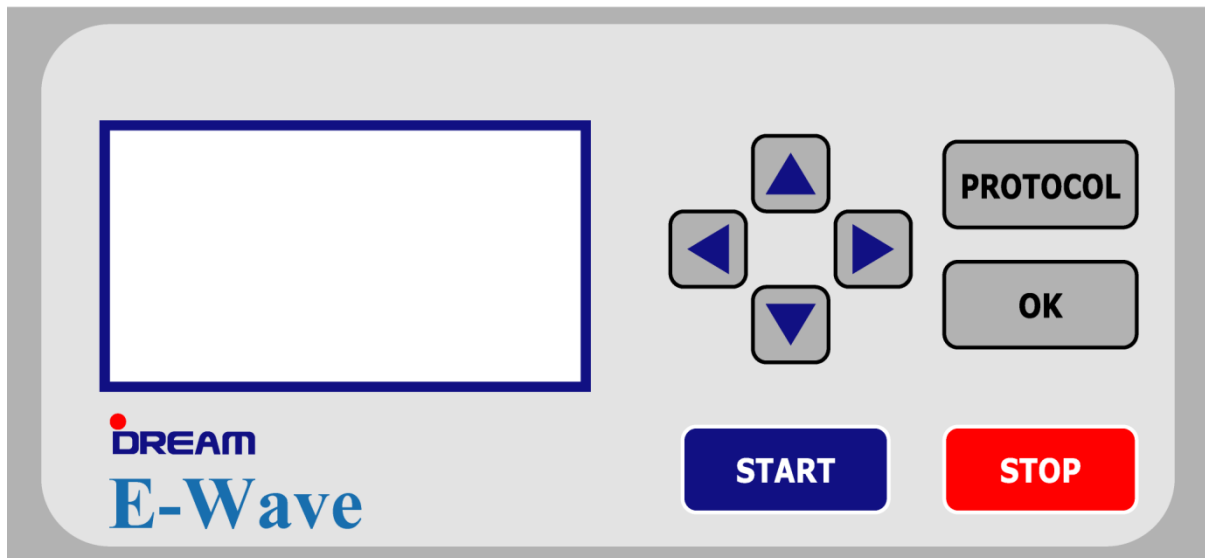
Specification	Description
Plate Deck	4 (each plate can be separately controlled)
Max Incubation Time	995 min
Heating Control	OFF(room temperature) ,30~50C <ul style="list-style-type: none"> <li>● Automatic cut off of power supply, if temperature rises to 55C</li> </ul>
Heating Speed	20-> 37C : 80 Sec 20-> 50C : 170 Sec
Heating Mode	1. Normal Mode -Shaking while heating up to designated temp. -Incubation Time count down as soon as pressing START button 2. Preheating Mode -Shaking after heating up to designated temp. - Incubation Time Count down after reaching designated temp
Temperature Unit	Fahrenheit / Celsius
Shaking Speed(RPM)	1~5 stages : 900~1200 RPM , Power Mode : 2100 RPM
Alarm	Alarms when incubation is complete
Control panel View	LCD
Heating Pipe	4
Temperature Sensor	4
Bimetal Switch	4
Power	100~240VAC 2.5A(50/60Hz)
Power Consumption	100W
Dimension	350(W)*430(D)*150(H) (Unit:mm)
Weight	10Kg

### 3. Appearance



## 4. How to Use

### 4.1 Control Panel

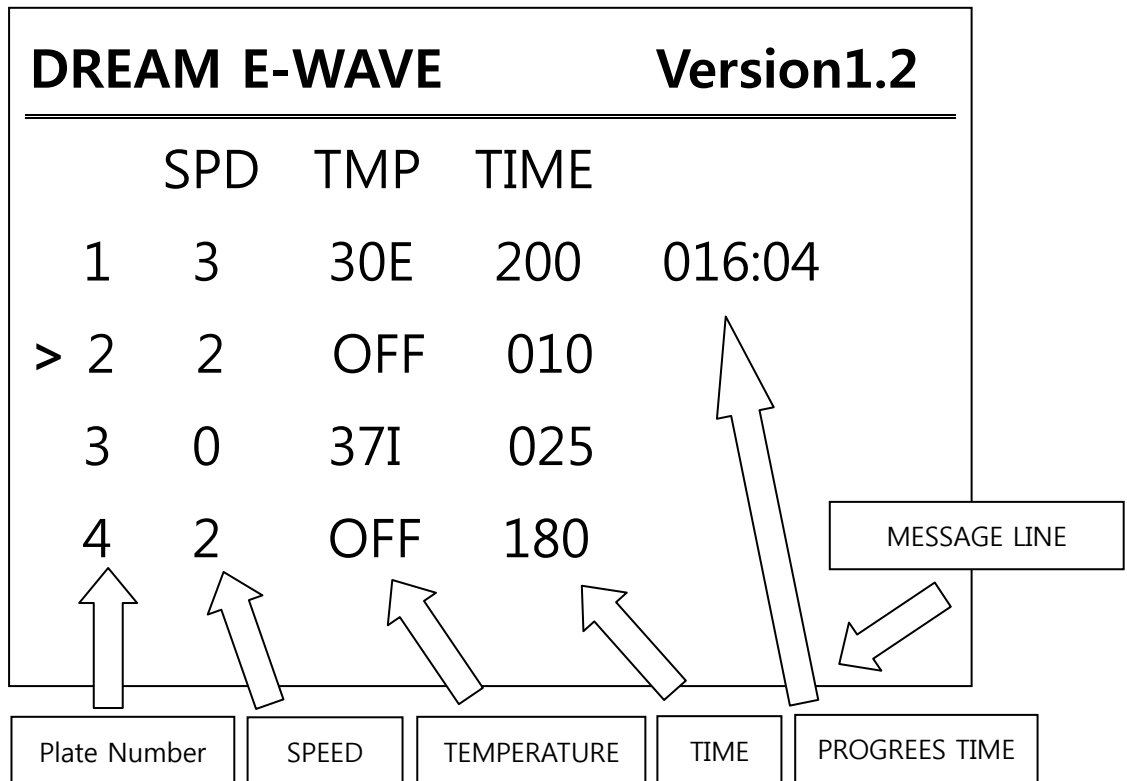


- 1) Arrow Button : UP/DOWN is used for PLATE or MENU selection  
RIGHT/LEFT is used to elevate/lower selected menu or item value
- 2) PROTOCOL : Set PROTOCOL of each plate
- 3) OK : Save modified PROTOCOL
- 4) START : Start incubation
- 5) STOP : Stop incubation

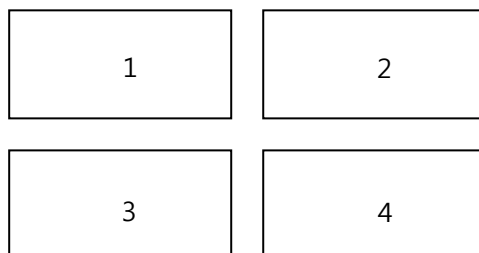
## 4.2 How to Operate

### 4.2.1 Main View

#### 4.2.1.1 Screen Composition



1) Plate Number : Order is appointed from left to right.



2) Speed : 0~5 levels are available

LEVEL0	Stationary State Non-shaking Mode Used to incubate with temperature only
LEVEL1	1900 RPM



LEVEL2	1950RPM
LEVEL3	2000RPM
LEVEL4	2100RPM
LEVEL5	2200RPM

3) Temperature :

Select room temperature or 30~50C Heating

Deck Temperature shows temperature which is set up

The following table shows correlation of Deck Temperature and Micro-plate Temperature

Deck Temperature	Micro-plate Temperature
35	Room temperature
40	33
45	35
47	36
50	37

If temperature is set up to 37C, heating will be kept until solution inside plate on the deck becomes 37C

Incubation time can be in two different mode.

1. include time needed to raise temperature to designated temperature
2. do not include time needed to raise temperature to designated temperature.

Start incubation when designated temperature is reached.

I/E written on the right side of temperature allow users to select the above.

4) TIME :

INCUBATION TIME. Contolled in 1 minute basis.

5) PROGRESS TIME :

Shows time left from the start of plate incubation

If 37C Heating is selected, time will be shown after 2 minutes of pre-heating time.

6) MESSAGE LINE

Message in the table below will be displayed if user controls the buttons incorrectly.

Message will disappear after 2 seconds

MESSAGE

PLATE WORKING	When user press PROTOCOL button whie plate is being incubated
PX RPM ERROR	When RPM of Xth Plate is more than 5% lower/higher This message appears when speed of motor is not controlled due to motor failure

#### 4.2.1.2 Start and Stop

Use UP/DOWN button to select plate which should be started/stopped. Press start or stop button.

#### 4.2.2 Modifying PROTOCOL

Use UP/DOWN button to select plate.

Press PROTOCOL button.

Screen below will appear.

Select item by clicking UP/DOWN button and modify values by clicking LEFT/RIGHT button.

When set-up is done, click OK button to save PROTOCOL.

For HEATING TIME, choose if you want to include time needed to raise temperature to designated temperature or not.

DREAM E-WAVE		Version1.2	
[[ PLATE 1 ]]			
SPEED	:	0	(0~5)
TEMPERATURE	:	37C	
HEATING TIME	:	INCLUDE	
TIME	:	20 min	

## 5. Warning

### 5.1 During Setting

1. Avoid hot and humid place. Install the device in a place with good ventilation.
2. Install the device in a horizontal flat, non-vibrating place. Keep the space between wall and device at least 30 cm.
3. For safety reason, avoid flammable material and place with danger of explosion
4. Please check rated voltage. Connect according to relevant rated voltage.
5. Do not install the device in a place with high voltage regulation (Allowed voltage regulation:  $\pm 5\%$ )
6. Must use ground socket

### 5.2 During Usage

1. Do not use the device in a place with room temperature of less than 2°C, more than 40°C or humidity of more than 80%. Device might operate abnormally in this condition.
2. Do not use power plug with a moist hand to avoid electric shock.
3. If odd odor or smoke appears, cut off the main power supply and contact the person in charge.
4. Do not take off plate from the deck during shaking process. If you need to take it off, stop the device first

### 5.3 Others

1. Use a neutral detergent to wipe the device. Do not use solvent, paint thinner or other chemical solution.
2. Only service engineer approved by Shin Jin Medics is allowed to fix, repair and change parts.

● If not,

1. This product can be damaged or will not work correctly.
2. Also, it can cause safety problems like electric shock or fires.