

## INSTRUCTION MANUAL

### Models:

6780-4 -- 120/100V

6781-4 -- 230V EU

6782-4 -- 230V UK

6780-NP – 120/100V

6781-NP – 230V EU

6782-NP – 230V UK



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## 1.0. GENERAL DESCRIPTION

### 1.1. DEFINITION

Corning LSE Digital Microplate and Orbital Shakers are intended for shaking microplates, tubes, bottles, flasks, dishes and other laboratory vessels. The shakers are driven by asynchronous motors, which enable silent operation and constant shaking speed independent of the load or power supply fluctuations.

### 1.2. PRINCIPLES OF OPERATION

Each shaker device consists of two main components:

- Motor with eccentric mechanism
- Control electronics

The motor drives the shaker's eccentric mechanics and generates shaking effect. The electronics control the motor RPM, TIME and keyboard functions.

## 2.0. TECHNICAL FEATURES

### 2.1. CONSTRUCTION

The shaker housing is made from a high-grade cold rolled steel plate and painted with a highly resistant polyurethane lacquer.

2.2. GENERAL SPECIFICATIONS: OPERATION RANGE: 4° C TO 65° C, 85% RH

### MODEL 6780-4, 6781-4 and 6782-4

POWER SUPPLY	230V $\pm$ 10% - 50Hz, 115V $\pm$ 10% - 50Hz/60Hz
MOTOR POWER	15W
FUSE	2 x 0.25A, 230V 2 x 1 A, 115V
RPM REGULATION	DIGITAL, load independent, from 100 to 1200 (1400 - 115V version) RPM in 10 RPM steps
SHAKER ORBIT	3 mm
TIMER	30 sec – 99 minutes 50 seconds in 10 second steps, under 10 minutes in 1 second steps, timer HOLD function
LOAD	max. 0.3 kg
DIMENSIONS W x L x H	170 mm x 275 mm x 130 mm
WEIGHT	4.3 kg

## MODEL 6780-NP, 6781-NP and 6782-NP

POWER SUPPLY	230V $\pm$ 10% - 50Hz, 115V $\pm$ 10% - 50Hz/60Hz
MOTOR POWER	15W
FUSE	2 x 0.25A 230V 2 x 1 A 115V
RPM REGULATION	DIGITAL, load independent, from 50 to 600 RPM in 10 RPM steps
SHAKER ORBIT	19 mm
TIMER	30 sec - 99minutes 50 seconds in 10 second steps, under 10 min. in 1 second steps, timer HOLD function
LOAD	max. 4 kg
DIMENSIONS W x L x H	255 mm x 312 mm x 130 mm
WEIGHT	7.1 kg

### 3.0. INSTALLATION

#### 3.1. UNPACKING

Before starting installation, carefully examine the shaker for damage or missing parts.

- Open the box and lift the device together with inner packing, out of the box.
- Remove the inner packing and check that the shaker has not been visibly damaged during transportation. Keep the packing material until you are sure that the shaker works properly.
- Check information on the rear data label and verify the correct electrical rating:
  - Model
  - Serial Number
  - Electrical rating

Should any kind of damage have occurred during transportation, immediately notify the carrier. The carrier is responsible for correcting damage caused in shipment.

#### 3.2. SELECTING A SUITABLE LOCATION

When selecting a location for the shaker, please consider following:

- Put the device on a smooth, horizontal and stable surface.
- Leave enough space around the device for normal air circulation, minimally 10 cm.
- Leave enough space around the device, so it can be easily controlled and maintained.
- Don't use the device in surroundings where there are major temperature and humidity fluctuations. Also avoid locations in direct sun light or places near devices that produce heat.
- Avoid locations with excessive vibrations.

#### 3.3. ATTACHING POWER CORD

Fit the main power cord, which is included in the package, into the power receptacle on the shaker. Connect the other end of the cord to a properly grounded wall outlet. To avoid interference from noise, surges and spikes, a dedicated line is preferred. If no such line is available, avoid lines to which powerful electric motors, refrigerators and similar devices are connected.



**Take care when you plug the cord to a grounded wall socket. Do not touch plug with wet hands. Plug the cord to a grounded wall socket only with dry hand.**

### 3.4. ENVIRONMENTAL REQUIREMENTS

The Corning's digital shakers have been built for operating in both cold and heated laboratory environments and in high humidity environments as follows:

- At temperatures between 4°C and +65°C
- In humidity up to 85% (without condensation)

## 4.0. INSTALLATION OF SHAKER PLATFORMS

### 4.1. MODEL 6780-4, 6781-4 AND 6782-4

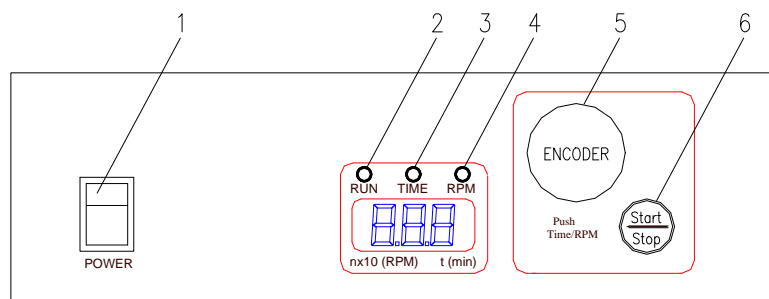
Each of these models comes with the platform and 4 screws. Using a screw driver, attach the platform firmly to the shaker base with the 4 included screws.

### 4.2. 6780-NP, 6781-NP AND 6782-NP.

The 6780-NP, 6781-NP and 6782-NP model shakers have available a variety of platforms to meet most shaking needs. These platforms mount to the shakers via four mounting platforms which easily plug into four rubber mount points on the top of the shaker.

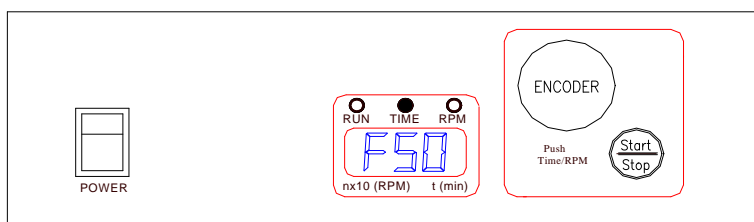
## 5.0. OPERATING INSTRUCTIONS

### 5.1. INTRODUCTION

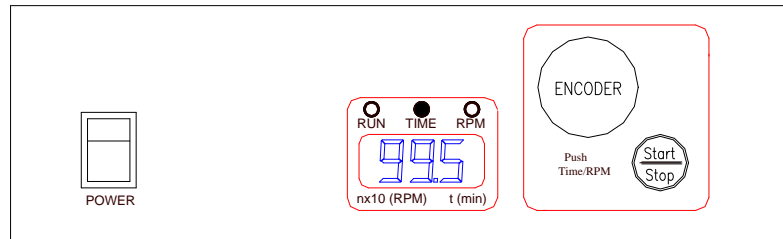


1. POWER switch – switches shaker ON (light on) or OFF.
2. RUN green signal light – lit when the shaker is running.
3. TIME yellow signal light – lit when the shaker is set on time.
4. RPM yellow signal light – lit when the shaker is set on rpm.
5. ENCODER – by rotating the encoder right (+) or left (-) you can change the set TIME or RPM. Push the encoder to switch between TIME and RPM set values.  
If you rotate the ENCODER knob quickly then values go up or down on display very quickly.
6. START/STOP button – press to START or STOP operation.

### 5.2. BASIC OPERATION



- Press the POWER switch on the control panel. The Corning Digital shaker automatically detects supply frequency of 50 Hz or 60Hz, and displays F50 or F60. Then the display switches to show the set time and illuminates the time light.

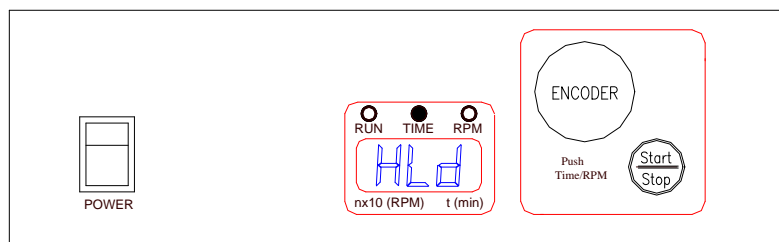


- Time signal light is on. By rotating the encoder right (+) or left (-) the set time can be selected from 30 sec to 99 min 50 sec :

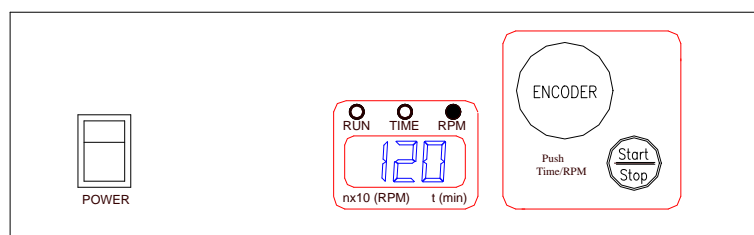
99.5  $\Rightarrow$  99 min 50 sec

9.59  $\Rightarrow$  9 min 59 sec

0.30  $\Rightarrow$  30 sec



- If you want to set the timer to hold – turn the knob left or right until HLD is displayed. You can reach the HLD function by setting to under 0.30 or above 99.5
- Push down on the encoder knob to switch modes between time set mode and RPM set mode.

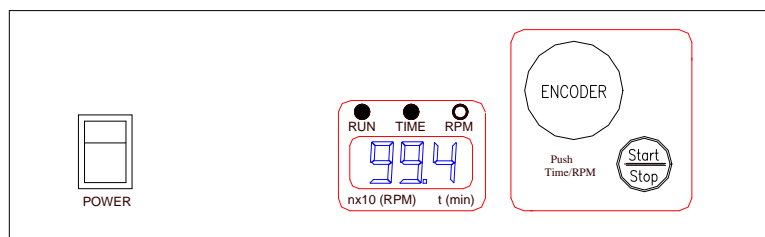


- RPM signal light is on. By rotating the encoder right (+) or left (-) the desired RPM can be selected :

34  $\Rightarrow$  340 Rpm

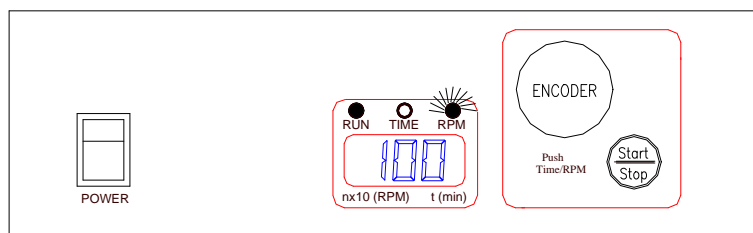
120  $\Rightarrow$  1200 Rpm

- Press START/STOP button to start operation

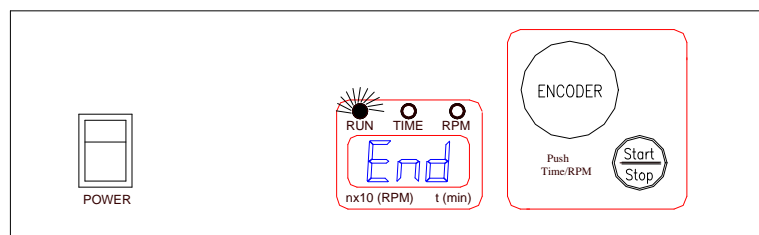


- RUN and TIME signal lights on. Shaker runs and counts down time from set value.

**NOTE: YOU CANNOT MODIFY THE SET TIME DURING SHAKING, HOWEVER, YOU CAN STOP THE UNIT WITH THE START/STOP BUTTON AND THEN RESET THE TIME.**



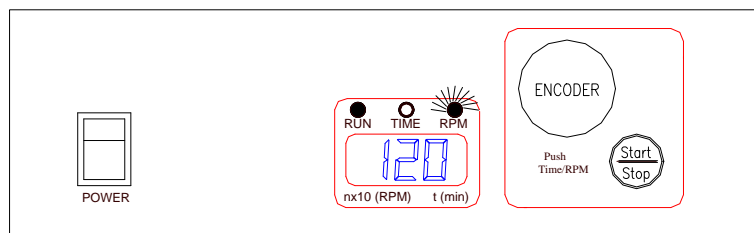
- If you want to change the RPM during shaking, push the encoder knob to put the shaker into RPM set mode (RPM signal light will be on). Rotate the encoder right (+) or left (-) to set the desired value. In the meantime, the RPM signal light will flash. When you stop rotating the encoder knob, the signal light for RPM will stop flashing after 2 seconds.



- When the run time has elapsed or when you press the START/STOP button, the display will show “End” and the RUN light will flash. When shaker completely stops the set speed and time will return to the last programmed values.

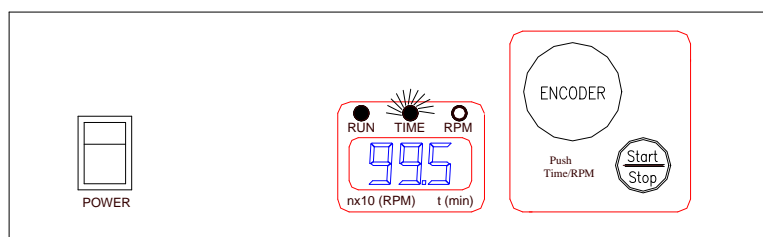


### 5.3. ADDITIONAL OPERATIONS



- Rotate the encoder knob ONE CLICK right (+) or left (-) to view the set value for RPM during the shaking. The RPM signal light will then flash for 2 seconds and the display will show the set RPM. The RPM and the light will stop flashing after 2 seconds.

**NOTE: Shaker must be in RPM mode – RPM signal light must be on.**



- Rotate the encoder knob ONE CLICK right (+) or left (-) to view the set value for TIME during the shaking. The TIME signal will light for 2 seconds and the display will show the set TIME. After 2 seconds the display will return to the count TIME and the signal light will stop flashing.

**NOTE: Shaker must be in TIME mode – TIME signal light must be on.**

### 6.0. GENERAL PRECAUTIONS

- Always plug the unit into a properly grounded and fused outlet.
- Do not use the device near water sources. Take care, that water will not fall on the device, especially during cleaning procedures.
- Do not use device in a caustic or explosive atmosphere.
- There are no user serviceable parts in the unit. Opening the unit may void the warranty. In case of a malfunction or liquid being spilled into the unit, unplug the device from its power outlet and contact Corning Customer Service.

**NOTE:**

If the device does not function properly, even if you have exactly followed the instructions described in the User's manual, contact Corning Customer Service at:

- 1.800.492.1110 (for toll-free calling within the U.S. and Canada)
- 1.978.442.2200 (outside the U.S.), or
- contact your local Corning support office listed in the back of this manual.

If the equipment is used in a manner not specified by this manual, the equipment may become unsafe to operate, could harm the user or the device, and may void the warranty.



Do not shake flammable or explosive samples or use the unit in a flammable or explosive environment.

## 7.0. TROUBLESHOOTING GUIDE

Problem	Explanation / Solution
POWER key does not light	Check the power source Check fuses
Shaker stalls – Message Er1	Power unit down, then restart
Display does not light	<b>Contact Corning Customer Service</b>
Message Er2 on display	
Message Er3 on display	
Message Er4 on display	

## 8.0. REGULAR MAINTENANCE

- With the exception of the occasional maintenance described in 4.0 of this manual, no scheduled maintenance is normally required. However, an experienced technician should regularly check the device operation at least once a year to make sure it is operating correctly.
- Regular cleaning of the housing is recommended.

### 8.1. CLEANING

The housing of the Shaker Unit can be cleaned with special cleaners for polyurethane (plastic) surfaces. A damp (not wet) cloth is recommended.

**NOTE:**

Do not use any corrosive or abrasive cleaners (acetone, polish, etc.) because the shaker surface can be permanently damaged.



Before cleaning the device, unplug main cord from wall socket.

## 9.0. WARRANTY STATEMENT

Corning Incorporated (Corning) warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of purchase. CORNING DISCLAIMS ALL OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. Corning's sole obligation shall be to repair or replace, at its option, any product or part thereof that proves defective in material or workmanship within the warranty period, provided the purchaser notifies Corning of any such defect. Corning is not liable for any incidental or consequential damages, commercial loss or any other damages from the use of this product.

This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in the supplied instruction manual. This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover motor brushes, fuses, light bulbs, batteries or damage to paint or finish. Claims for transit damage should be filed with the transportation carrier.

In the event this product fails within the specified period of time because of a defect in material or workmanship, contact Corning's Customer Service at the following numbers: USA: 1-800-492-1110; Canada: 1-978-442-2200. For other regions of the world, please visit [www.corning.com/lifesciences](http://www.corning.com/lifesciences) or see the included instruction manual for a list of World Wide Support Offices.


Corning's Customer Service team will help arrange local service where available or coordinate a return authorization number and shipping instructions. Products received without proper authorization will be returned. All items returned for service should be sent postage prepaid in the original packaging or other suitable carton, padded to avoid damage. Corning will not be responsible for damage incurred by improper packaging. Corning may elect for onsite service for larger equipment.

Some states do not allow limitation on the length of implied warranties or the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights. You may have other rights which vary from state to state.

No individual may accept for, or on behalf of Corning, any other obligation of liability, or extend the period of this warranty.

10.0. DECLARATION OF CONFORMITY

**Declaration of Conformity**



Corning Life Sciences hereby confirms that the product

Corning LSE™ Digital Microplate and Orbital Shakers  
Models 6780-4, 6781-4, 6782-4, 6780-NP, 6781-NP, 6782-NP

Is in accordance with the following directives and standards:

2006/95/EC

2004/108/EC

2006/95/EC

2002/95/EC

2006/96/EC

Low Voltage Directive

EMC Directive

Machine Directive

RoHS

WEEE

EN 61010-1

EN 61010-2-051

EN ISO 12100-2

EN 55011

EN 55014-1

EN 55014-2

EN 55022


EN 61000-3-2

EN 61000-3-3

EN 61000-3-3

EN 6100-6-2

EN 61326-1



Michael Rosenblum  
Quality Manager

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to both Part 15 of the FCC Rules and the radio interference regulation of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, many cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference which case the user will be required to correct the interface at his own expense.

## 11.0. PRODUCT DISPOSAL



This symbol, if present on the product, indicates that the product was planned for use in a country complying with the Waste Electrical and Electronic Equipment EU Directive, 2002/96/ED. This symbol indicates that this equipment must not be disposed of with unsorted municipal waste. It is the product user's responsibility to correctly dispose of waste equipment by handing it over to an authorized facility for separate collection and recycling. It is the product user's responsibility to decontaminate waste equipment from biological, chemical, and/or radiological hazards prior to disposal. Additional information pertaining to the disposal of Corning per the WEEE Directive can be obtained at [www.corning.com/weee](http://www.corning.com/weee).

Please register your warranty online at  
<http://www.corning.com/lifesciences/warranty>

## CORNING

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**China**  
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f 86 21-5407-5899

**India**  
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**Japan**  
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f 81 3-3586 1291

**Korea**  
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f 82 2-796-9300

**Singapore**  
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f 65 6861-2913

**Taiwan**  
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f 886 2-2716-0339

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f 0800 918 636

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f 0800 101 2427

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f 31 20 659 76 73

**United Kingdom**  
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f 0800 279 1117

**All other European Countries**  
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F 31 (0) 20 659 7673

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f (55-11) 3167-0700

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f (52-81) 8313-8589

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