

Corning® LSE™ Digital Microplate and Orbital Shakers

CORNING

Instruction Manual

Catalog Numbers:

Microplate Shakers

- ▶ 6780-4, 120V
- ▶ 6781-4, 230V EU
- ▶ 6782-4, 230V UK

Orbital Shakers without Platform

- ▶ 6780-NP, 120V
- ▶ 6781-NP, 230V EU
- ▶ 6782-NP, 230V UK



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1.0 Overview

The 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.

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 Safety Precautions



Do not use the shaker near water. Ensure that water does not get on the device, particularly during cleaning.

- ▶ If the unit is used in a manner not specified in this manual, then the unit may become unsafe to operate and may void the warranty.
- ▶ This product must be connected to a grounded power outlet for safe functioning.
- ▶ Use only the power cord supplied with the product.
- ▶ The equipment will not restart if the main power source is interrupted.
- ▶ The equipment will restart in cases of mechanical interruption.
- ▶ Do not expose the shaker to aggressive vapors (e.g., organic solvents).
- ▶ Do not insert any objects into the shaker (such as a screwdriver or metal rods).
- ▶ Never operate the shaker without the platform securely attached.
- ▶ Hazardous samples should be shaken only in appropriate containment vessels.



Do not shake flammable or explosive samples.



The electrical warning symbol indicates the presence of a potential hazard which could result in electrical shock.



Do not put your fingers between the shaking platform and the housing. Danger of mechanical injury.

3.0 Technical Specifications

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

Microplate Shaker (Cat. Nos. 6780-4, 6781-4, 6782-4)

Electrical Requirements

120V	120V ± 10%, 50/60Hz
230V	230V ± 10%, 50Hz
Motor Power	15W
Fuse	
120V	2 x T 1A L 250V
230V	2 x T 0.25A L 250V
RPM Regulation	Digital, load independent, from 100 to 1,200 (1,400, 120V version) RPM in 10 RPM steps
Shaker Orbit	3 mm
Timer	30 sec. to 99 min. 50 sec. in 10-second steps (under 10 min. in 1-second steps), timer HOLD function
Maximum Load	0.6 lbs. (0.3 kg)
Dimensions (L x W x D)	6.6 x 10.98 x 6 in. (16.8 x 27.9 x 15.3 cm)
Weight	9.5 lbs. (4.3 kg)
Operating Conditions	5°C to 40°C, 85% RH, non-condensing

Orbital Shakers (Cat. Nos. 6780-NP, 6781-NP, 6782-NP)

Electrical Requirements

120V	120V ± 10%, 50/60Hz
230V	230V ± 10%, 50Hz
Motor Power	15W
Fuse	
120V	2 x T 1A L 250V
230V	2 x T 0.25A L 250V
RPM Regulation	Digital, load independent, from 50 to 600 RPM in 10 RPM steps
Shaker Orbit	19 mm
Timer	30 sec. to 99 min. 50 sec. in 10-second steps (under 10 min. in 1-second steps), timer HOLD function
Maximum Load	8.8 lbs. (4 kg)
Dimensions (L x W x D)	10.1 x 12.5 x 5 in. (25.6 x 31.8 x 12.7 cm)
Weight	16 lbs. (7.3 kg)
Operating Conditions	5°C to 40°C, 85% RH, non-condensing

NOTE: The supply cord shall be with PE conductor and cross section at least 3 x 1.0 mm² or AWG 18 (USA/Canada).

The unit can be connected to external installation with overcurrent protective device max. value 16A or 20A (USA/Canada). This device is intended for use in a basic electromagnetic environment (Basic, class B), and it is in compliance with IEC 61326-1:2020. The device may experience a restart during overvoltage events (surges) or voltage interruptions in mains power supply.

The Corning® LSE™ Digital Microplate and Orbital Shakers are designed to be safe when operated under the following conditions:

- ▶ Indoor use
- ▶ Altitude up to 2,000 meters
- ▶ Pollution Degree 2

4.0 Installation

4.1 Unpacking

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

- ▶ Open the box, and lift the device together with the 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 following are correct:
 - Model
 - Serial number
 - Electrical rating

Should any kind of damage have occurred during transportation, contact the carrier immediately. The carrier is responsible for shipping damage.

4.2 Selecting the Location

- ▶ Put the device on a horizontal, leveled, and stable surface.
- ▶ Leave enough space around the device for normal air circulation (4 in./10 cm minimum).
- ▶ Leave enough space around the device for easy access and maintenance.
- ▶ Do not use the device in surroundings where there are major temperature and humidity fluctuations. Also avoid locations in direct sunlight or places near devices that produce heat.
- ▶ Avoid locations with excessive vibrations.

4.3 Attaching the 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.



Be careful when you plug the cord to a grounded wall socket. Do not touch plug with wet hands. Do not pull the plug by the cord.

4.4 Installing Shakers Platforms

► Microplate Shaker (Cat. Nos. 6780-4, 6781-4, 6782-4)

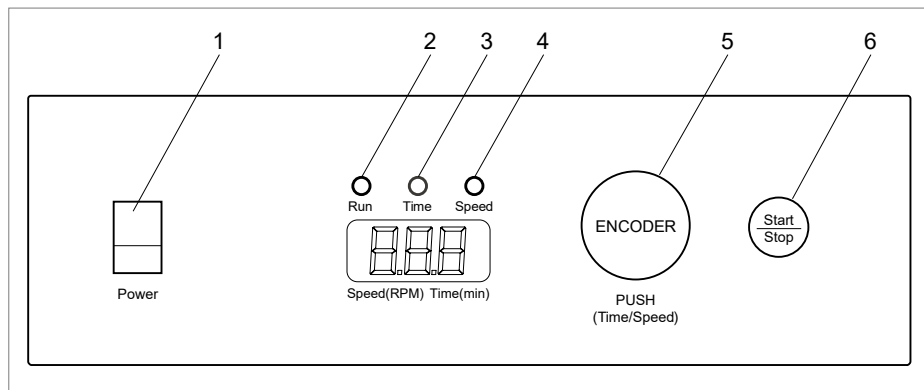
Each of these models comes with the platform and 4 screws. Using a screwdriver, attach the platform firmly to the shaker base with the 4 included screws.

► Orbital Shakers (Cat. Nos. 6780-NP, 6781-NP, 6782-NP)

Models 6780-NP, 6781-NP and 6782-NP orbital shakers have a variety of platforms to meet most shaking needs (sold separately). 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 Controls



1. POWER switch: Turns the shaker ON (power switch illuminates) or OFF

2. RUN green light: Illuminates when the shaker is running

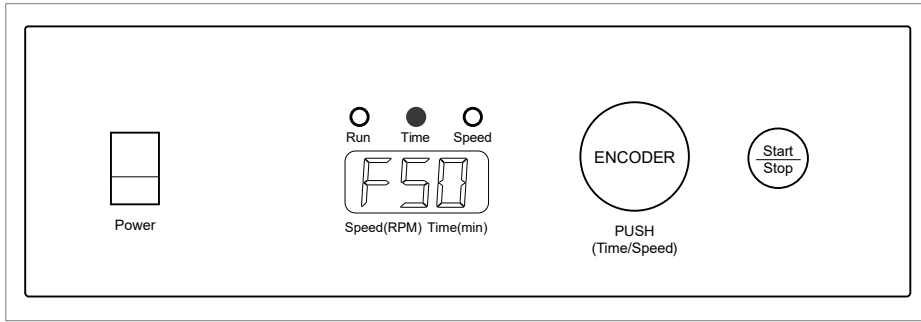
3. TIME yellow light: Illuminates when the shaker is set on time

4. RPM yellow light: Illuminates when the shaker is set on rpm

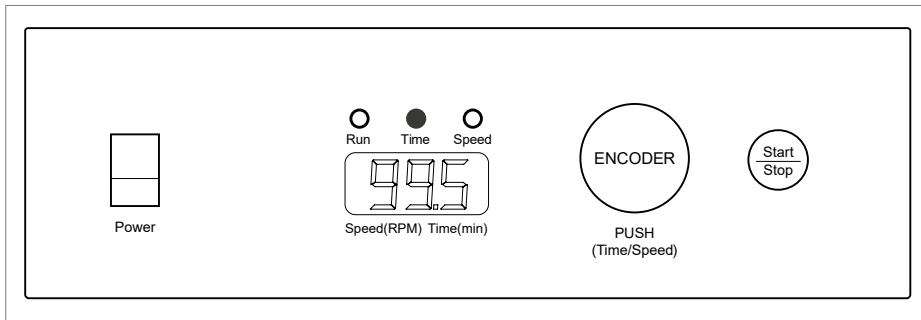
5. ENCODER: By rotating the encoder knob right (+) or left (-) you can change the set TIME or RPM. Push the encoder knob to switch between TIME and RPM set values. If you rotate the encoder knob fast, the values go up or down on the display very quickly

6. START/STOP button: START or STOP operation

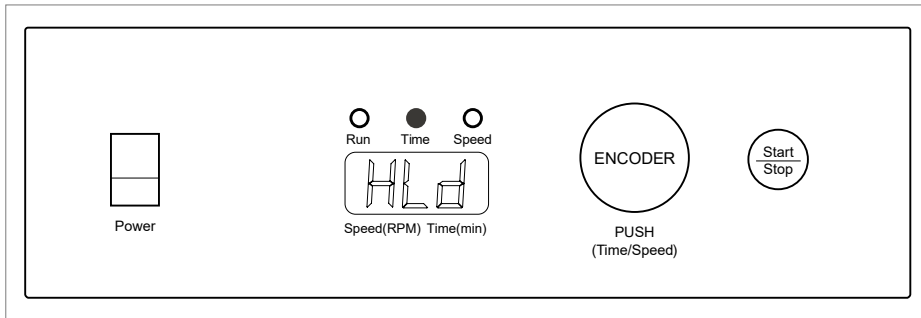
5.2 Basic Operation



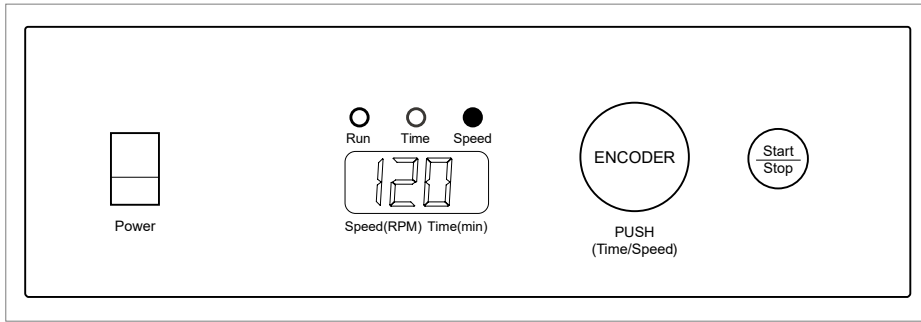
- ▶ Press the POWER switch on the control panel. The shaker automatically detects supply frequency of 50 or 60Hz, and displays F50 or F60. Then the display switches to show the set TIME and illuminates the TIME light.



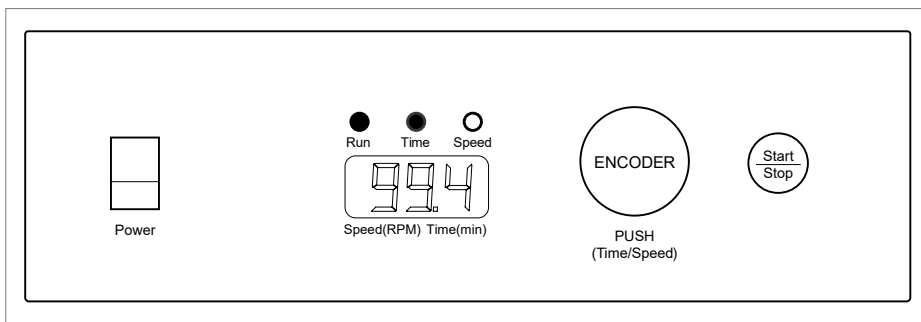
- ▶ TIME signal light is on. By rotating the encoder knob right (+) or left (-) the set time can be selected from 30 seconds to 99 minutes 50 seconds:
 - 99.5 = 99 minutes 50 seconds
 - 9.59 = 9 minutes 59 seconds
 - 0.30 = 30 seconds



- ▶ 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 the encoder knob to switch modes between TIME set mode and RPM set mode.

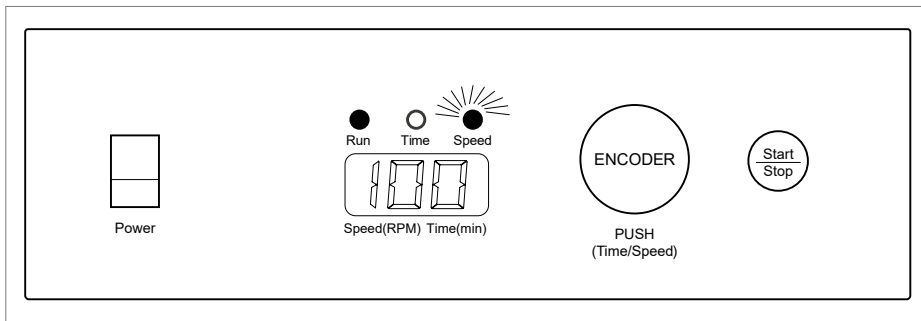


- ▶ RPM signal light is on. By rotating the encoder knob right (+) or left (-) the desired RPM can be selected:
 - 34 = 340 rpm
 - 120 = 1,200 rpm
- ▶ Press the START/STOP button to start operation.

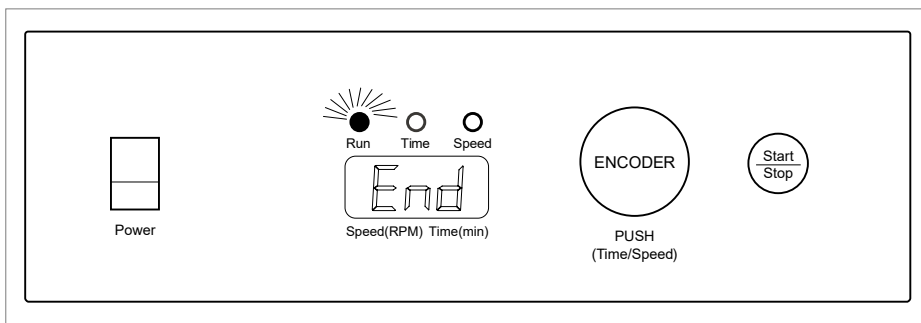


- ▶ RUN and TIME signal lights are on. The shaker runs and counts down the time from the set value.

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.

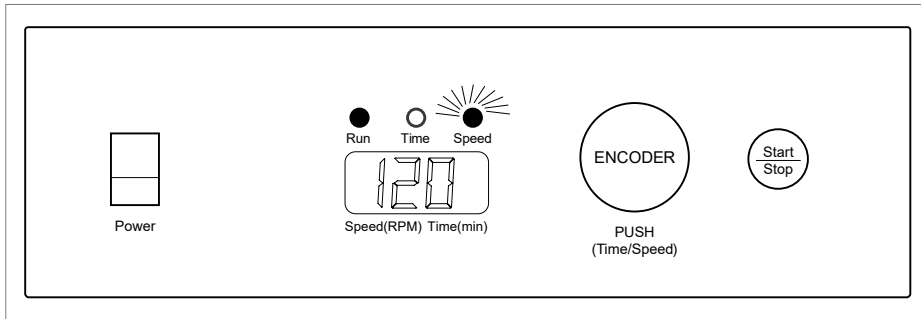


- ▶ If you want to change the RPM during shaking, push the encoder knob to put the shaker into RPM set mode (RPM signal light will be on). Rotate the encoder knob right (+) or left (-) to set the desired value. In the meantime RPM signal light will flash. When you stop rotating the encoder knob, the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



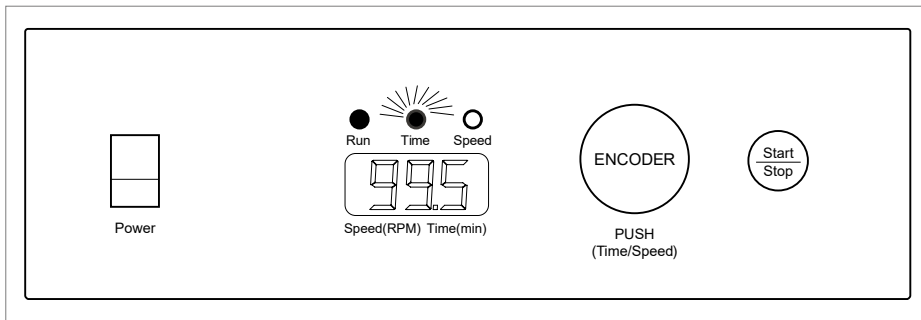
- ▶ When the run time has elapsed or when you press the START/STOP button, End will show on the display and the RUN light will flash. When the shaker completely stops the set speed and time will return to the last programmed values.

5.3 Additional Operations



- ▶ If you want to view the set value for RPM during shaking, rotate the encoder knob for ONE CLICK right (+) or left (-). The RPM signal light will flash for 2 seconds, and the display will show the set RPM. After 2 seconds the RPM and the signal light will stop flashing.

NOTE: The shaker must be in RPM mode – RPM signal light must be on.



- ▶ If you want to view the set value for TIME during shaking, rotate the encoder knob ONE CLICK right (+) or left (-). The TIME signal light will flash 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: The shaker must be in the TIME mode – the TIME signal light must be on.

6.0 Troubleshooting

Problem	Solution
POWER key does not light	<ul style="list-style-type: none"> ▶ Check the power source. ▶ Check fuses.
Shaker stalls – Message Er1	Power the unit down, then restart.
Display does not light Message Er2 on display Message Er3 on display Message Er4 on display	Contact Corning Customer Service.

Should you have a question about the operation of the Corning® LSE™ Digital Microplate and Orbital Shakers or if service is required, please contact Corning Customer Service at 800.492.1110 or 978.442.2200.

7.0 Maintenance and Cleaning

- ▶ With the exception of the occasional maintenance described in Section 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.
- ▶ The housing of the shaker can be cleaned with special cleaners for polyurethane (plastic) surfaces. A damp (not wet) cloth is recommended.

NOTE: Do not use any aggressive or abrasive cleaners (acetone, nitro, polish, etc.) because its surface can be permanently damaged.



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

8.0 Limited Warranty

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 Customer Service at: USA/Canada 1.800.492.1110, outside the U.S. +1.978.442.2200, visit www.corning.com/lifesciences, or contact your local support office.

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.

For your reference, make a note of the serial and model number, date of purchase, and supplier here.

Serial No. _____ Date Purchased _____

Model No. _____ Supplier _____

9.0 Equipment Disposal



According to Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), this product is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste.

Consequently, the buyer shall follow the instructions for reuse and recycling of waste electronic and electrical equipment (WEEE) provided with the products and available at www.corning.com/weee.

Warranty/Disclaimer: Unless otherwise specified, all products are for research use or general laboratory use only.* Not intended for use in diagnostic or therapeutic procedures. Not for use in humans. These products are not intended to mitigate the presence of microorganisms on surfaces or in the environment, where such organisms can be deleterious to humans or the environment. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications. *For a listing of US medical devices, regulatory classifications or specific information on claims, visit www.corning.com/resources.

Corning's products are not specifically designed and tested for diagnostic testing. Many Corning products, though not specific for diagnostic testing, can be used in the workflow and preparation of the test at the customers discretion. Customers may use these products to support their claims. We cannot make any claims or statements that our products are approved for diagnostic testing either directly or indirectly. The customer is responsible for any testing, validation, and/or regulatory submissions that may be required to support the safety and efficacy of their intended application.

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