



Instruction Manual  
Shaker, Extreme, SHEX1619DG

EN - English ..... 1



Revision 6  
2/13/2020

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### PACKAGE CONTENTS

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Extreme Shaker  
 Non-skid rubber mat  
 Power Cord  
 Instruction manual

### SERVICE INFORMATION

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If the troubleshooting section does not resolve or describe your problem, contact your authorized OHAUS service agent. For service assistance or technical support in the United States call toll-free 1-800-672-7722 ext. 7852 between 8:00 AM and 5:00 PM EST. An OHAUS product service specialist will be available to provide assistance. Outside the USA, please visit our web site, [www.ohaus.com](http://www.ohaus.com) to locate the Ohaus office nearest you.

Serial Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Supplier: \_\_\_\_\_

## INSTALLATION

Upon receiving the Ohaus Extreme Shaker, check to ensure that no damage has occurred during shipment. It is important that any damage that occurred in transport is detected at the time of unpacking. If you do find such damage the carrier must be notified immediately.

**DO NOT** lift the unit by the controller or power cord. After unpacking, place the shaker on a level bench, table, or surface away from explosive vapors. Ensure that the surface on which the unit is placed will withstand typical heat produced by the unit and place the unit a minimum of six (6) inches from vertical surfaces. Always place the unit on a sturdy work surface.

The Extreme Shaker is supplied with a power cord that is inserted into the IEC connector on the back of the unit first, then it can be plugged into a properly grounded outlet. The 120V unit plugs into a 120 volt, 50/60 Hz source. The 230V unit plugs into a 230 volt, 50/60 Hz source.

## MAINTENANCE & SERVICING

The Extreme Shaker is built for long, trouble-free, dependable service. No lubrication or other technical user maintenance is required. It needs no user maintenance beyond keeping the surfaces clean. However at least every three (3) months you should:

- Unplug the unit.
- Remove any accumulated dirt from the base and tray.
- Check all accessible items to make sure they are properly tightened.

The unit should be given the care normally required for any electrical appliance. Avoid wetting or unnecessary exposure to fumes. **DO NOT** use a cleaning agent or solvent on the front panel which is abrasive or harmful to plastics, nor one which is flammable. Always ensure the power is disconnected from the unit prior to any cleaning. If the unit ever requires service, contact your Ohaus representative.

## INTENDED USE

The Ohaus Extreme Shaker are intended for general laboratory use. Safety cannot be guaranteed if used outside of the intended use.

## ENVIRONMENTAL CONDITIONS

**Operating Conditions:** Indoor use only.

\*For use in CO<sub>2</sub> environments, incubators, or cold rooms.

Temperature (shaker): -10 to 60°C (14 to 140°F) maximum 100% relative humidity, condensing

Temperature (controller): -10 to 50°C (14 to 122°F) maximum 80% relative humidity, non-condensing

Altitude: 0 to 6,562 ft (2000 M) above sea level

Mains supply voltage: Fluctuations are not to exceed 10 percent of the nominal supply voltage.

**Non-Operating Storage:**

Temperature: -20 to 65°C (-4 to 149°F)

Humidity: maximum 80% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

**\*Avoid cold starts:** Unit is not designed to start after being in a cold room environment. Bring unit into cold room from a room temperature environment, operate and remove unit from cold room as soon as operation is complete.

## EQUIPMENT DISPOSAL




This equipment must not be disposed of with unsorted waste. It is your responsibility to correctly dispose of the equipment at life-cycle-end by handing it over to an authorized facility for separate collection and recycling. It is also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect the persons involved in the disposal and recycling of the equipment from health hazards.

For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment. By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.


## SAFETY INSTRUCTIONS

Please read the entire instruction manual before operating the Extreme Shaker.

 **WARNING! DO NOT** use the Extreme Shaker in a hazardous atmosphere or with hazardous materials for which the unit was not designed. Also, the user should be aware that the protection provided by the equipment may be impaired if used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

Always operate unit on a level surface for best performance and maximum safety.

**DO NOT** lift the unit by the tray.

 **CAUTION!** To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplug from the wall outlet. Disconnect unit from the power supply prior to maintenance and servicing.

Spills should be removed promptly. **DO NOT** immerse the unit for cleaning.

**DO NOT** operate the unit if it shows signs of electrical or mechanical damage.

The main supply power cord provided with this product is rated to safely handle the products electrical load under the stated environmental conditions. **DO NOT** replace the cord with an inadequately rated main supply cord.



Earth Ground - Protective Conductor Terminal







Alternating Current



Pinch Point - Keep fingers clear during operation.

## STANDARDS & REGULATIONS

Compliance to the following standards and regulations is indicated by the corresponding mark on the product.

Mark	Standards and Regulations
	OHAUS Corporation declares that the SHEX series shakers comply with directives 2011/65/EU, 2014/30/EU, 2014/35/EU and standards EN 50581, EN 61010-1, EN 61010-2-051, EN 61326-1. The full text of the EU declaration of conformity is available at the following internet address: <a href="http://www.ohaus.com/ce">www.ohaus.com/ce</a> .
	This product complies with directive 2012/19/EU. Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. For disposal instructions in Europe, refer to <a href="http://www.ohaus.com/weee">www.ohaus.com/weee</a> .
	EN 61326-1
	CAN/CSA C22.2 61010-1, CAN/CSA C22.2 61010-2-051 UL 61010-1, UL 61010-2-051

### Global Notice

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### Canada Notice

This Class A digital apparatus complies with Canadian ICES-003.

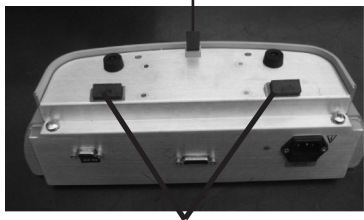
### FCC Notice

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. 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, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Ohaus Corporation could void the user's authority to operate the equipment.

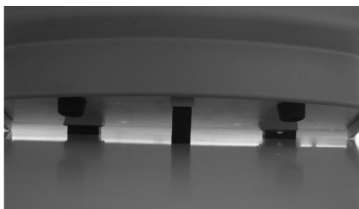
## SPECIFICATIONS



Removable magnet  
included in bag

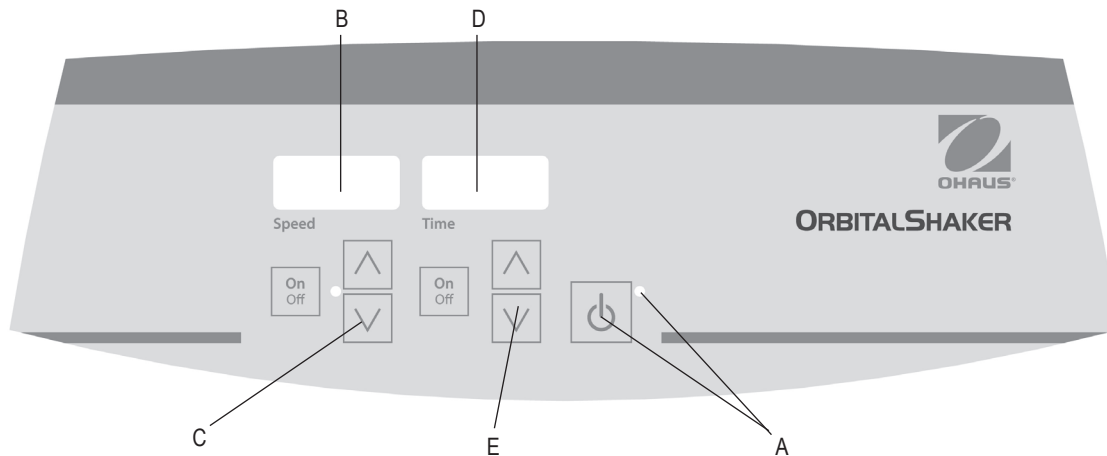


Permanently attached magnets



Proper mounting technique

<b>Overall dimensions (L x W x H):</b>	Shaker:	11.5 x 13.9 x 5.8" (29.2 x 35.3 x 14.7cm)
	Remote:	5.8 x 13.9 x 4.3" (14.7 x 35.3 x 10.9cm)
<b>Electrical (50/60 Hz):</b>	120 volts:	0.5 amps, 30 watts
	230 volts:	0.3 amps, 30 watts
<b>Orbit:</b>		19mm (0.75")
<b>Timer:</b>		1 second to 160 hours
<b>Fuse:</b>		5mm x 20mm, 5 amp quick acting, 250V
<b>Speed Range:</b>		15 to 500 rpm
<b>Speed Accuracy:</b>	Above 100 rpm:	± 1% of set speed
	Below 100 rpm:	± 1 rpm
<b>Capacity:</b>		~ 35lbs (16kg) at 75rpm
		~ 5lbs (2.3kg) at 500rpm
<b>Controls:</b>		See page 5
<b>Tray Dimensions:</b>		11 x 13" (27.9 x 33cm)
<b>Ship weight:</b>		49lbs (22.2kg)



## CONTROL PANEL - EXTREME SHAKER

The front panel of the Extreme Shaker contains all the controls and displays needed to operate the unit.

**A. Standby button/standby indicator light:** The standby indicator light will illuminate when the unit is plugged in. The unit will be in standby mode. Press the standby button to start the speed and time functions. The standby indicator light will shut off. Press the standby button again and the unit will once again be in standby mode.

**B. Speed display:** Displays the speed of the shaker.

**C. Up/down arrows:** For set-point control. On/off button starts/stops shaking function.

**D. Time display:** Displays accumulated time (continuous mode) or how much time is remaining (timed mode). The display range is from 0 to 9,999 minutes in one (1) second increments. The display will indicate minutes and seconds until the timer reaches 99 minutes and 59 seconds (99:59), then the display will automatically display minutes up to 9,999.

**E. Up/down arrows for setpoint control.** On/off button starts/stops the timer function.

## OPERATING INSTRUCTIONS

The Extreme Shaker has been designed for the speed and time functions to work independently of one another. The speed can be re-set without re-setting the timer and the timer can be stopped and started without interrupting the shaking function.

### 1. Getting ready:

- a. Place the controller in the desired location. If securing to an incubator door, attach enclosed magnet standoff controller feet, ensuring a strong magnetic attraction over entire magnet surface. Magnetically mount controller to incubator door or other ferrous surface. See photos on page 4 for more details.
- b. Connect the cable from the shaker base to the controller.
- c. Plug the cord into a properly grounded outlet. The standby indicator light will illuminate, verifying power to the shaker.
- d. Press the standby button to move the unit from standby mode. The standby indicator light will turn off and the speed and time displays will illuminate, displaying the previously used settings.

### 2. Setting speed:

- a. Press the up/down arrow below the speed display until you reach the desired speed. When you release the button, the display will blink off and then on indicating the new set speed has been accepted.
- b. Press the on/off button to start the shaking function. The indicator light below the speed display will illuminate and blink until the set-point is reached. Once the set-point is reached the light will stop blinking and remain lit until shaking has ceased. The microprocessor controlled ramping feature slowly increases speed until the set-point is reached which helps to avoid splashing, and provides excellent low end control.
- c. Speed adjustments can be made without interrupting shaking by using the up/down arrows below the speed display. After the change has been made and you release the button, the display will blink off and then on indicating the new set speed has been accepted.
- d. To stop the shaking function press the on/off button below the speed display. The speed indicator light will turn off.

3. **Setting time to zero (0:00) and continuous mode:** Accumulated time.
  - a. Press and hold the on/off button below the time display. After three (3) seconds, the display will indicate the previous set time.
  - b. Simultaneously press both the up and the down arrows, the display will indicate zero (0:00). The unit time is now set to zero (0:00) minutes. Alternately, you can use the up/down arrows to get to zero (0:00).
  - c. Press the on/off button below the time display. The display will indicate accumulated time. The up/down arrows will become inactive. To stop timer, press the on/off button again. **IMPORTANT:** This will **NOT** interrupt the shaking function. Press the on/off button below the speed display to interrupt the shaking function.
  - d. To reset, press and hold the on/off button below the time display. After three (3) seconds the display will indicate the previous set time, which was zero (0:00).
4. **Setting timed mode:** Programmed time.
  - a. Press the up/down arrows below the time display until you reach the desired time.
  - b. Start this function by pressing the on/off button below the time display. The unit will run for the selected time, the up/down arrows will become inactive while the timer is running. The unit will stop shaking when time display reaches zero (0:00). Four (4) audible beeps will indicate the count down function is complete. The time display will default back to the set time. To repeat for the same time, simply depress the on/off button again.
  - c. To interrupt an automatic timing cycle before it is completed, press the on/off button below the time display. The display will flash off and on to indicate the time function is on "hold". **IMPORTANT:** This will **NOT** interrupt the shaking function. Press the on/off button below the speed display to interrupt the shaking function. Restart the timer by pressing the on/off button below the time display. Unit will continue counting down to zero (0:00). When the display reaches zero (0:00), you will hear the four (4) audible beeps that indicate the count down function is complete and the shaking function will cease.

## OPERATING INSTRUCTIONS CONT'D

### 5. Turning unit off:

- a. To turn the unit off, press the standby button. The speed and time displays will be blank, the standby indicator light will illuminate. The Extreme Shaker should be kept in standby mode when not in use. To completely cut off power to the unit, disconnect the power cord from the unit or unplug from the wall outlet.

### OPERATING TIPS

Centering your sample and even weight distribution on the tray helps with balance and stability. As a safety feature, a built-in program will shut power off to the motor if the tray is prevented from rotating, or the unit is overloaded beyond its recommended weight capacity. The shaker will automatically restart after a power interruption. Built-in memory maintains the last used speed and time settings during a power interruption.

### BEEPER PREFERENCE

To silence beeper operation (except for error codes), with the unit in standby mode, press and hold the time on/off button and press the standby button. To restore normal beeper operation, remove AC power to unit for ten (10) seconds and then restore.

### CALIBRATION PROCEDURE

This procedure is used to self calibrate the Extreme Shaker. The tray should be free of any samples, vessels, and accessories prior to calibrating.

1. Turn unit on. Speed and time displays will be illuminated.
2. Press and hold the standby button and momentarily press the speed on/off button. The speed display should read "CAL".
3. The unit will run for approximately one (1) minute and automatically calibrate.

### RS-232 SERIAL PORT

RS-232 serial port provides two-way communications for data logging and unit control. If you need additional details, please contact your local Ohaus representative or visit [ohaus.com](http://ohaus.com).

## TROUBLESHOOTING

Problem	Cause	Solution
Unit will not run	<ul style="list-style-type: none"> <li>- Mechanical obstruction</li> <li>- Motor obstruction</li> <li>- Loose thumbscrews on remote cable connector</li> </ul>	Add or replace fuse as necessary. Tighten thumbscrews on remote cable connector are tightened with a screw driver. Do not hand-tighten. If problem persists, please contact your Ohaus representative for repair.
Unit is excessively noisy	<ul style="list-style-type: none"> <li>- Sensor fan misaligned</li> <li>- Motor misaligned</li> </ul>	Ensure that tray is secured tightly. If problem persists, please contact your Ohaus representative for repair.
Unit not shaking at proper speed		Perform speed calibration test on page 7. If problem persists, please contact your Ohaus representative for repair.
E3	<ul style="list-style-type: none"> <li>- Mechanical obstruction</li> <li>- Drive system failure</li> <li>- Ceased bearing</li> <li>- Drive belt broken</li> <li>- Loose thumbscrews on remote cable connector</li> </ul>	Remove mechanical obstruction. If problem persists, the reason may be the drive system and should not be addressed by the end user. Tighten thumbscrews on remote cable connector are tightened with a screw driver. Do not hand-tighten. Contact your Ohaus representative for repair.