

# Labnet Orbit™ Digital Shakers

## Instruction Manual

### Catalog Numbers:

S2020-P4-B

S2030-300-B

S2030-1000-B

S2040-1900

S2020-P4-B-230V

S2030-300-B-230V

S2030-1000-B-230V

S2040-1900-230V



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## 1.0 Introduction

The Labnet Orbit™ Digital Shakers are intended for shaking microliter plates, 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

- ▶ Always plug the unit into a properly grounded and fused outlet.
- ▶ Do not use the device near water sources. Take care so that water will not fall on the device, especially during cleaning procedures.
- ▶ Do not use the 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:** In the case that the device does not function properly even if you have exactly followed the instructions described in the User's Manual, contact Corning Customer Service. 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 inflammable or explosive samples or use the unit in an inflammable or explosive environment.**

## 3.0 Specifications

The casings of the Labnet Orbit P4, 300, and 1000 are made of plastic. Bottom cover and upper plate are made of steel plate varnished with high resistant polyurethane lacquer.

The housing of the Orbit 1900 is made from a high-grade cold rolled steel plate and painted with a highly resistant polyurethane lacquer.

### ▶ Labnet Orbit P4

Electric Power Supply

120V	120V ± 10%, 50/60Hz
230V	230V ± 10%, 50/60Hz
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 rpm (1,400 rpm, 120V version) 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	0.66 lbs. (0.3 kg)
Dimensions (W x L x H)	7.4 x 11.8 x 5.9 in. (18.8 x 30 x 15 cm)
Weight	9.5 lbs. (4.3 kg)
Ambient Operation Range	5°C to 40°C, up to 85% RH, non-condensing

### ► Labnet Orbit™ 300

#### Electric Power Supply

120V	120V ± 10%, 50/60Hz
230V	230V ± 10%, 50/60Hz
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 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	4.4 lbs. (2 kg)
Dimensions (W x L x H)	10.3 x 13.3 x 5.1 in. (26.2 x 33.7 x 13 cm)
Weight	12.35 lbs. (5.6 kg)
Ambient Operation Range	5°C to 40°C, up to 85% RH, non-condensing

### ► Labnet Orbit 1000

#### Electric Power Supply

120V	120V ± 10%, 50/60Hz
230V	230V ± 10%, 50/60Hz
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 20 to 300 rpm in 1 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	9 lbs. (4 kg)
Dimensions (W x L x H)	10.3 x 13.3 x 5.1 in. (26.2 x 33.7 x 13 cm)
Weight	16 lbs. (7.3 kg)
Ambient Operation Range	5°C to 40°C, up to 85% RH, non-condensing

### ► Labnet Orbit 1900

#### Electric Power Supply

120V	120V ± 10%, 50/60Hz
230V	230V ± 10%, 50/60Hz
Motor Power	50W
Fuse	
120V	2 x T 2A L 250V
230V	2 x T 1A L 250V
RPM Regulation	Digital, load independent, from 25 to 300 rpm in 1 rpm step
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	22 lbs. (10 kg)
Dimensions (W x L x H)	15.3 x 18.3 x 6.2 in. (39 x 46.5 x 16 cm)
Weight	68.35 lbs. (31 kg)
Ambient Operation Range	5°C to 40°C, up to 85% RH, non-condensing

**NOTE:** The supply cord shall be with PE conductor and cross section at least 3 x 1.00 mm<sup>2</sup> or 3 x 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 Labnet Orbit™ Digital Shakers is 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.



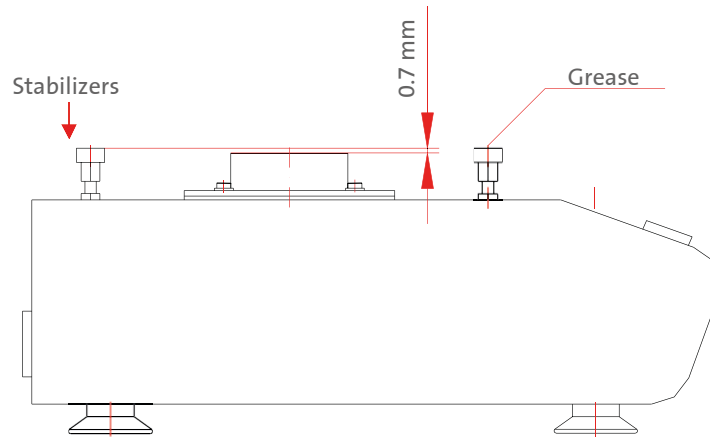
Be careful when you plug the cord to a grounded wall socket. Do not touch plug with wet hands. Do not pull the plug by the cord.

### 4.4 Installing Shaker Platforms

#### ▶ Labnet Orbit P4

Unit comes with the platform already installed.

## ► Labnet Orbit™ 300



Before you attach the platform, make sure that the slide stabilizers are properly fastened, adjusted and lubricated with the included grease.

The flat mat platform has a circle cut-out in the rubber and screw holes in the center. Remove the cutout rubber circle and screw down the four screws onto the shaker. After attaching the platform, remove the non-adhesive backing paper on the rubber circle and paste it back into place.

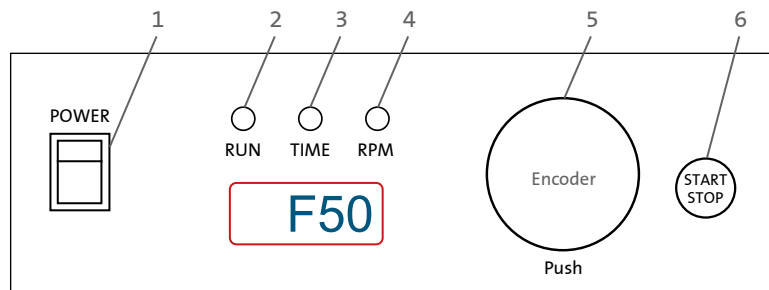
The grease which you use to lubricate the slide stabilizers is sufficient for 1,000 working hours (1 year). After that time you should remove the shaking platform and clean, adjust, and re-grease the slide stabilizers. If they are worn out, you should replace them with new stabilizers and set to appropriate height.

## ► Labnet Orbit 1000 and Orbit 1900

The Orbit 1000 and Orbit 1900 shakers have 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

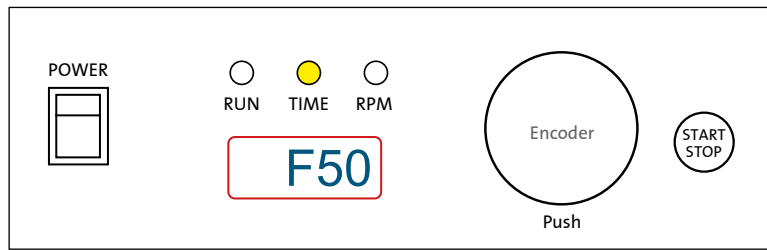
### 5.1. Control Panel



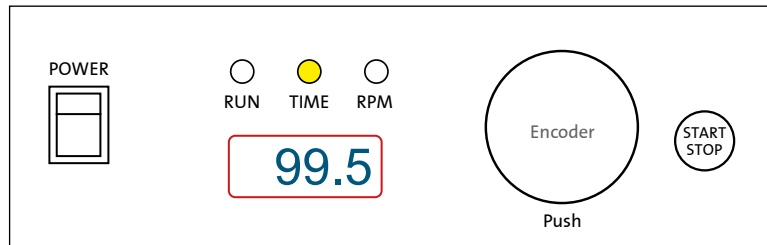
- 1. POWER switch:** Turns the shaker ON (power switch illuminates) or OFF
- 2. RUN green light:** Illuminates when the shaker is running
- 3. TIME yellow light:** Illuminates when the shaker is set on time
- 4. RPM yellow light:** Illuminates when the shaker is set on rpm
- 5. ENCODER:** By rotating 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 control panel. The Labnet Orbit™ Digital Shaker automatically detects supply frequency of 50 or 60Hz, and displays F50 or F60.

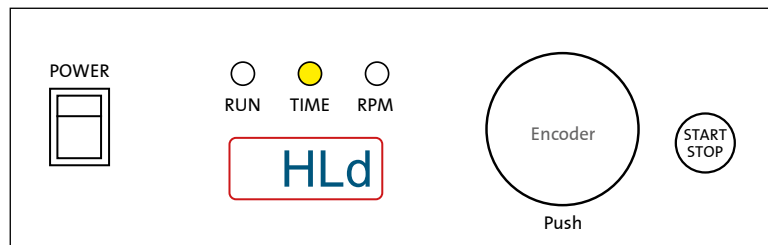


- Then the display switches to show the set time and illuminates the Time light.

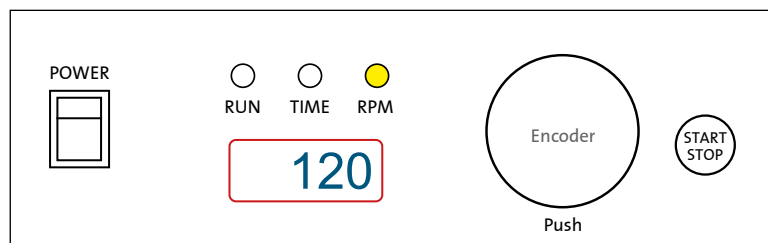


- Time signal light is on. By rotating the encoder knob right (+) or left (-) the set time can be selected from 30 sec. to 99 min. 50 sec.:
  - 99.5 = 99 min. 50 sec.
  - 9.59 = 9 min. 59 sec.
  - 0.30 = 30 sec.

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.

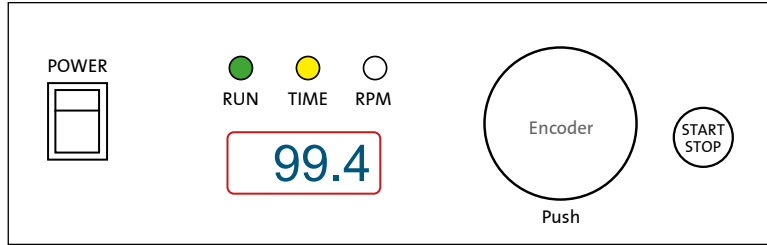


- Push the encoder knob to switch modes between time set mode and RPM set mode. RPM signal light is on. By rotating the encoder knob right (+) or left (-) the desired RPM can be selected:
  - 34 = 340 rpm
  - 120 = 1,200 rpm



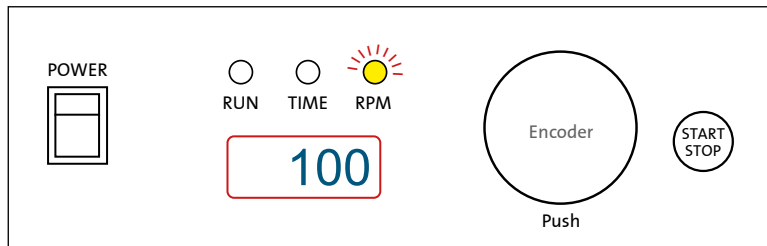
- ▶ Press START/STOP button to start operation. RUN and TIME signal lights. Shaker runs and counts down time from set value.

**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.

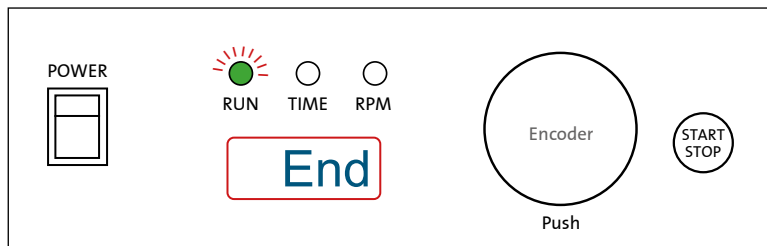


### Changing the RPM during shaking

- ▶ Push the encoder knob to put the shaker into RPM set mode (RPM signal light will be on).



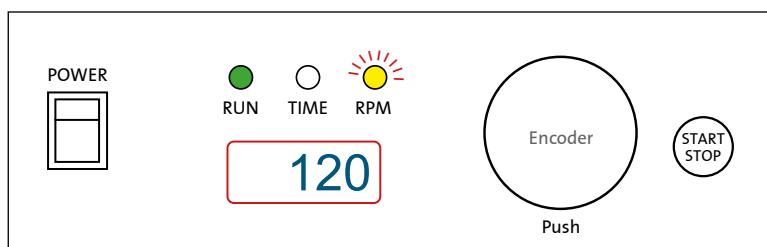
- ▶ Rotate the encoder knob right (+) or left (-) to set the desired value. In the meantime RPM signal light will flash.
- ▶ When you stop rotating the encoder knob the signal light for RPM will stop flashing after 2 sec.
- ▶ When the run time has elapsed or when you press the START/STOP button, End 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 (-). RPM signal light will then flash for 2 sec., and the display will show the set RPM and the light will stop flashing.

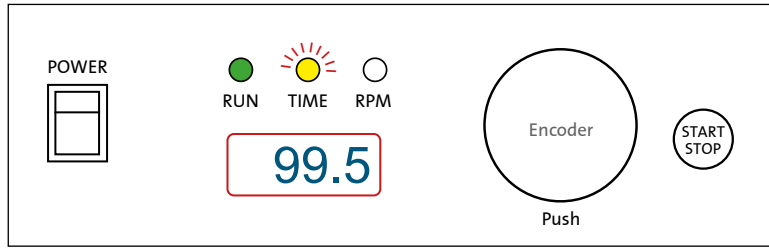
**NOTE:** Shaker must be in RPM mode – RPM signal light must be on.



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



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



## 6.0 Troubleshooting

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

Should you have a question about the operation of the Labnet Orbit™ Digital Shakers or if service is required, contact your Corning representative. Do not send in a unit for service without first calling to obtain a repair authorization number. Should the unit require return to Corning for service, it should be properly packed to avoid damage. Any damage resulting from improper packaging shall be the responsibility of the user.

## 7.0 Maintenance and Cleaning



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

- ▶ 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.

## 8.0 Accessories

### Labnet Orbit™ 300

Cat. No.	Description	Qty/Pk
S2030-10	Platform for four microplates	1
S2030-12	Platform with non-slip rubber mat	1
S2030-13	Spring loaded platform for flasks, bottles, or tube racks	1

### Labnet Orbit 1000

Cat. No.	Description	Qty/Pk
S2031-12	Flat platform with non-slip rubber mat (30 x 30 cm)	1
S2032-12D	Two stacked platforms with non-slip rubber mat (30 x 30 cm)	1
S2031-13	Spring loaded platform for flasks, bottles, or tube racks	1
S2031-18	Flask clamp platform (clamps sold separately)	1

### Labnet Orbit 1900

Cat. No.	Description	Qty/Pk
S2040-12	Flat platform with non-slip mat (40 x 50 cm)	1
S2040-15	Universal bar clamp platform for holding a variety of containers	1
S2040-18	Flask clamp platform (clamps sold separately)	1

### Clamps for Erlenmeyer Flasks

Cat. No.	Description	Qty/Pk
S2040-25	Clamp for 25 mL Erlenmeyer flask <ul style="list-style-type: none"> <li>▶ Orbit 1000 (max. 16)</li> <li>▶ Orbit 1900 (max. 28)</li> </ul>	1
S2040-50	Clamp for 50 mL Erlenmeyer flask <ul style="list-style-type: none"> <li>▶ Orbit 1000 (max. 16)</li> <li>▶ Orbit 1900 (max. 28)</li> </ul>	1
S2040-85	Clamp for 125 mL Erlenmeyer flask <ul style="list-style-type: none"> <li>▶ Orbit 1000 (max. 16)</li> <li>▶ Orbit 1900 (max. 28)</li> </ul>	1
S2040-99	Clamp for 250 mL Erlenmeyer flask <ul style="list-style-type: none"> <li>▶ Orbit 1000 (max. 9)</li> <li>▶ Orbit 1900 (max. 20)</li> </ul>	1
S2040-09	Clamp for 500 mL Erlenmeyer flask <ul style="list-style-type: none"> <li>▶ Orbit 1000 (max. 5)</li> <li>▶ Orbit 1900 (max. 10)</li> </ul>	1
S2040-01	Clamp for 1L Erlenmeyer flask <ul style="list-style-type: none"> <li>▶ Orbit 1000 (max. 4)</li> <li>▶ Orbit 1900 (max. 6)</li> </ul>	1
S2040-02	Clamp for 2L Erlenmeyer flask <ul style="list-style-type: none"> <li>▶ Orbit 1900 (max. 5)</li> </ul>	1

## 9.0 Limited Warranty

Corning Incorporated (Corning) warrants that this product will be free from defects in material and workmanship for a period of one (1) year 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](http://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 \_\_\_\_\_

## 10.0 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](http://www.corning.com/weee).

To request certificates, please contact us at [www.labnetlink.com](http://www.labnetlink.com).

**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](http://www.corning.com/resources).

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