

Labnet Microtube Shaking Incubator

Instruction Manual

Catalog Numbers:

I-4001-HCS

I-4002-HCS

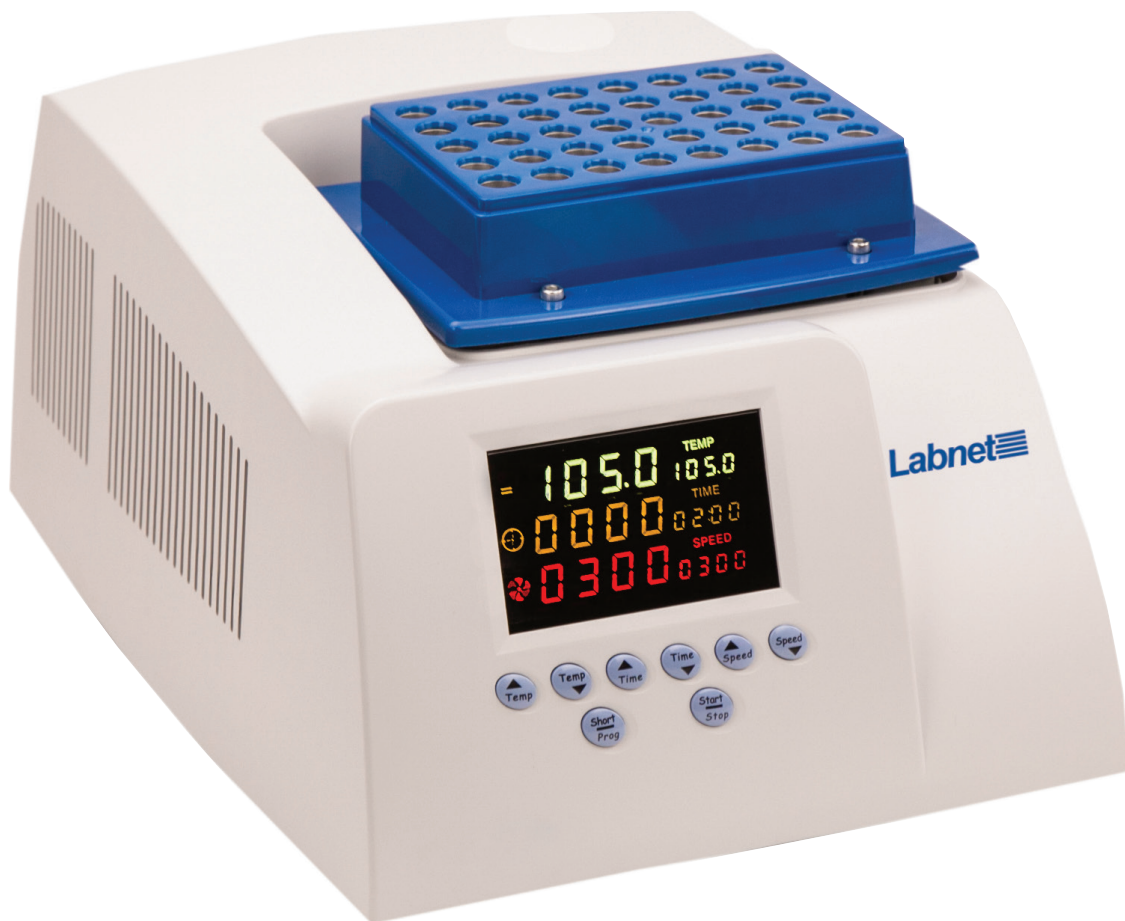


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1.0 Introduction

The Labnet Microtube Shaking Incubator has a microprocessor controlled cooling and heating capabilities. The incubator can be equipped with various block sizes to accommodate several tube sizes and microplates. It can perform a wide range of applications including, sample storage, storage and reaction of various kinds of enzyme, DNA amplification, pre-denaturation of electrophoresis, and serum solidification. The Labnet Microtube Shaking Incubator includes the following features:

- ▶ A vacuum fluorescent display (VFD) display with high-luminosity
- ▶ Temperature setting value and practical value displayed simultaneously
- ▶ Display setting time and practical time simultaneously
- ▶ Aluminum block protecting the sample from contamination
- ▶ Aluminum block that is easy to replace, clean, sterilize and suitable for different type of tubes
- ▶ Internal over-temperature protection improving reliability
- ▶ Warning function after running time ends
- ▶ Temperature calibration

2.0 Symbols and Conventions



CAUTION: This symbol refers you to important operating and maintenance (servicing) instructions within the product Instruction Manual. Failure to heed this information may present a risk of damage or injury to persons or equipment.



WARNING: To avoid accidental bodily harming or burning be very careful touching the metal parts of the unit. It can be very hot after it is used at high temperatures. Allow the metal parts to cool down before handling.

3.0 Safety Information

During the operation, maintenance, or repair of the Labnet Microtube Shaking Incubator, the following safety measures should be taken. Otherwise, the safeguards provided by the Labnet Microtube Shaking Incubator are likely to be damaged, the rated safety level to be reduced, and the rated operation conditions to be affected. Labnet shall not be in any way responsible for the consequences resulting from operator's not observing the following requirements.

Grounding

AC power's grounding should be reliable to safeguard against an electric shock. The 3-pin plug supplied with the Labnet Microtube Shaking Incubator's power cable is a safety device that should be matched with a suitable grounded socket. Never allow the third ground pin to be floating. If the 3-pin plug cannot be inserted, it is recommended to ask an electrician to install an appropriate power socket.

Keeping Away from Electric Circuits

The operator should not open the Labnet Microtube Shaking Incubator without first consulting Service Department. Changing components or adjusting certain parameters inside the device must be performed by certificated professional maintenance personnel only. Do not change elements while the power is still on.

AC Power Considerations

Before turning on the power, always make sure that the mains voltage is within the range of required power supply ($\pm 10\%$ difference is allowed) and the rating current of the power socket meets the required specification as shown in below contents.

AC Power Line Considerations

As an accessory of the Labnet Microtube Shaking Incubator, the AC power supply should be the default device. Once it is damaged, the AC power line may not be repaired, but must be replaced by a new one. The power supply should be free of heavy objects during the Labnet Microtube Shaking Incubator's operation. Keep the power supply away from high traffic areas.

Connect the A.C. Power Line

While connecting or disconnecting the power line, user should insert the plug firmly to ensure good contact between the plug and socket. Pull the plug, but not the cable, when the plug needs to be disconnected from the mains.

Design Environments

The Labnet Microtube Shaking Incubator should be placed in a low-humidity, dustfree, well-ventilated room without caustic gas or powerful magnetic interference. The Labnet Microtube Shaking Incubator should not be operated in close proximity to water sources, such as pools and water pipes. Never cover or obstruct the openings of the Labnet Microtube Shaking Incubator, which are designed for ventilation and to prevent the device's interior from becoming too hot. When a single device is running, the shortest distance between its openings and the nearest object should be at least 20 inches (50 cm); when two devices or more are running simultaneously, the shortest distance is 40 inches (100 cm) among these machines. Do not place the device on a soft surface. Doing so will result in adverse ventilation near the device's bottom openings. Operating conditions that cause a high temperature environment will result in degraded performance or failure of Labnet Microtube Shaking Incubator. Additionally, the device should be protected against any kind of heat sources such as sunlight, ovens, or central heating equipment. If the Labnet Microtube Shaking Incubator will sit idle for extended periods of time, it is recommended to disconnect the power line from the mains and cover the device with a piece of soft cloth or plastic to prevent against dust.

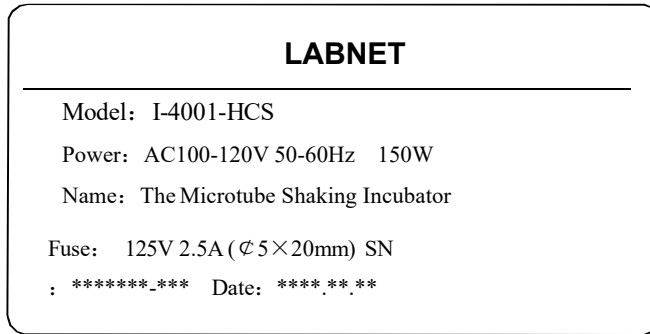


Once one of the following events occurs, the operator is advised to disconnect the power cable from the mains, and contact the distributor or ask a certified maintenance engineer for assistance.

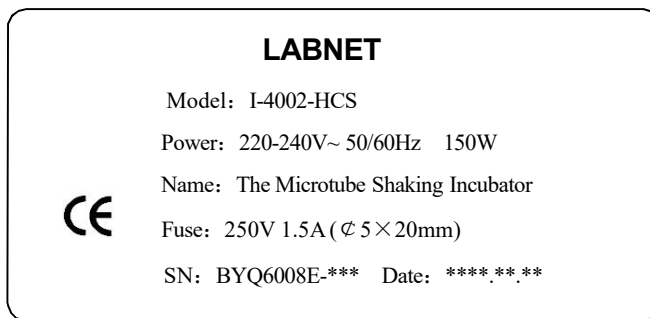
- ▶ Liquid enters into the device
- ▶ The device malfunctions, giving off an abnormal sound or odor
- ▶ The device falls onto the floor or the housing is damaged
- ▶ Significant changes in the device's performance

4.0 Product ID Labels

- ▶ For model I-4001-HCS



- ▶ For model I-4002-HCS



5.0 Package Contents

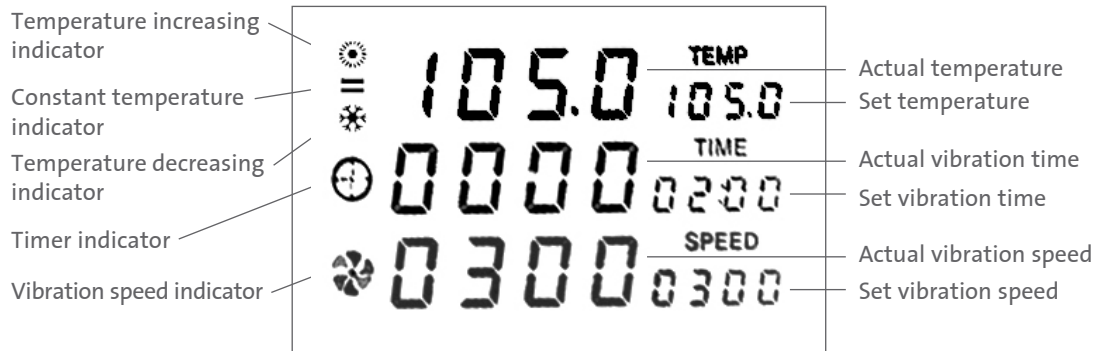
Description	Quantity
Labnet Microtube Shaking Incubator	1 each
Instruction Manual	1 each
Inner-Hexagon Round Head Screws	4 each
Spring Washer	4 each
T-Wrench	1 each
Rubber Gasket	1 each

6.0 Specifications

Operating conditions	10°C to 30°C, relative humidity ≤ 70%
Transportation and storage conditions	-20°C to 55°C, relative humidity ≤ 80%
Electrical	I-4001-HCS: AC100-120V, 50/60Hz, 150W I-4002-HCS: AC220-240V, 50/60Hz, 150W
Dimension (L × W × H)	12.9 × 6.5 × 9.8 in. (328 × 166 × 249 mm)
Weight	18.75 lbs. (8.5 kg)
Temperature control range	0°C to 105°C
Temperature range	Room temperature -14°C to 100°C
Timing range	1 min. to 99h. 59 min.
Cooling time	From room temperature to room temperature - 10°C: ≤ 8min From 100°C to room temperature +10°C: ≤ 15min
Heating time	≤ 12 min (from 20°C to 100°C)
Temperature accuracy	≤ ±0.5°C
Temperature uncertainty	≤ ±0.5°C
Heating rate	About 6°C/min. (from 20°C to 100°C)
Block temperature uniformity	≤ ±0.5°C
Mixing rate	300 to 1,500 rpm
Amplitude	3 mm

7.0 Equipment Overview





Button explanation



Temperature set up buttons

Press ▲ or ▼ to adjust the value and set the requested temperature. Keep pressing ▲ or ▼ may help to speed up the setting time.



Vibration time set up buttons

Press ▲ or ▼ to adjust the value and set the requested vibration time. Keep pressing ▲ or ▼ may help to speed up the setting time.



Vibration speed set up buttons

Press ▲ or ▼ to adjust the value and set the requested vibration speed.



Instant spot vibration button

Press it to start spot vibration. The running speed is the highest vibration speed. It is also a function button for temperature calibration.



Start/Stop button

Press this button to start or stop the mixing of the device (valid for only mixing).

8.0 Operation Guide

8.1 Before turning on power

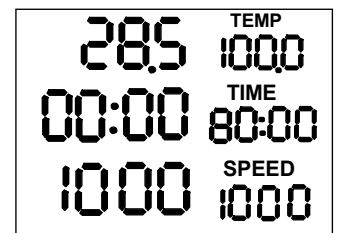
Check and confirm the following items first

- ▶ Unit is on stable and level surface
- ▶ The voltage is comply with the specification (see Section 5)
- ▶ The power plug is tightly plugged into the outlet
- ▶ The ground and module connection are reliable

8.2 Set up of temperature, vibration time, and vibration speed

- ▶ Approximately 5 seconds after the power is turned on, the monitor will display a temperature of 28.5°C, which is the instant temperature of the module.
- ▶ The display of **TEMP 100.0** is the set up temperature of last run, the display of **TIME 80:00** is the set up vibration time of last run, and the display of **SPEED 1000** is the vibration speed of last run.

At same time, the device will automatically heat or cool, to achieve the setting temp. point.



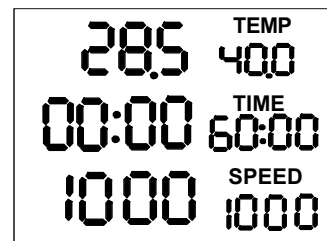
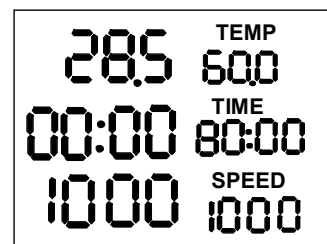
⚠ If the display is abnormal when the power is turned on, please shut down immediately and contact the supplier.

- ▶ The digits of the TEMP display may be reduced or increased by pressing **▲ Temp** or **▼ Temp** respectively. The digits of the TIME display may be reduced or increased by pressing **▲ Time** or **▼ Time** respectively.

Press the above mentioned buttons for more than 3 seconds to set up the exact value.

- ▶ If the temperature should be set at 40°C and the time should be set up at 60:00, then press the **▼ Temp** and not release to see the number reducing. When the number shows **40.0**, release the button, and it will be automatically saved in 3 seconds. Next press the **▼ Time** and not release to see the number reducing. When the number shows **60:00**, release the button, and it will be automatically saved in 3 seconds.
- ▶ Press **▲ Speed** or **▼ Speed** to set up for the speed. The number will increase or reduce at a rate of 50 rpm, release the button when the number reaches exact value, and it will be automatically saved in 3 seconds. When set up is done, press **Start/Stop** to start mixing.

⚠ After the setting value of temperature is saved successfully, the device will automatically heat or cool, to achieve the setting temp. point.



8.3 Pulse vibration

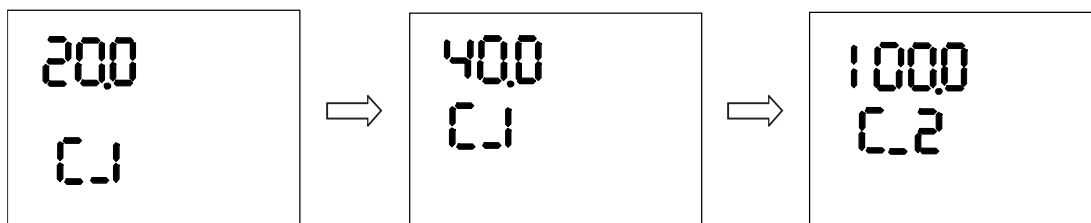
Press **Short/Prog** to start instant vibration or short term vibration. Press the button to start it and release the button to stop it. The running speed of pulse vibration is the highest vibration speed.

8.4 Correct temperature discrepancy

The temperature of the instrument has been calibrated before shipment. However, due to various conditions, there might be discrepancy between the actual temperature and displayed temperature. On such case, you may use the calibration button to correct the discrepancy.

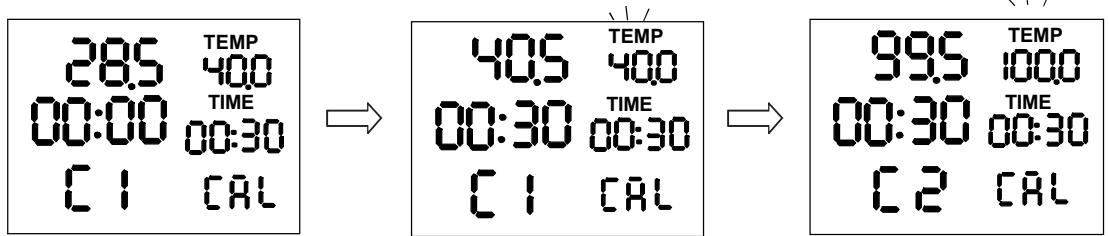
- ⚠ ▶ To ensure the accuracy of the temperature, please wait for at least 30 minutes after the instrument is set at a constant temperature, and then perform the calibration.
- ▶ Please use certified standard class two mercury thermometers to calibrate this instrument.
- ▶ Calibration point: Center hole of the module. Please fill the hole with paraffin oil and immerge the thermometer bulb in it.

The method of the temperature calibration of this instrument is two-point linear calibration. The calibration point may be set freely, and by setting the second calibration point the same as the first calibration point, you can adjust the calibration point to one temperature point. For two-point calibration, if set the two points at 40°C and 100°C, then other temperature points will be automatically adjusted per the linear relationship of the two calibration points.



- ▶ Press both **▼ Temp** and **▲ Temp** at the same time, and the display will show the set up value of last time (for example 20°C) and the cursor of the first calibration point, C_1.
- ▶ Press the temperature set up button **▼ Temp** or **▲ Temp** to set up the first calibration temperature such as 40°C.
- ▶ Perform the same operation again to set up the second calibration temperature such as 100°C.

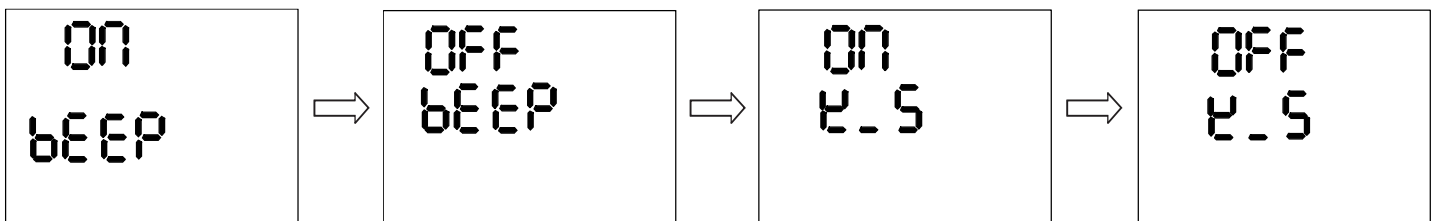
NOTE: When setting up the temperature points, an order of low temperature point first and high temperature after is recommended. If on the case high temperature point is set first and low temperature is set after, then when performing the following actual calibration, please follow the order of low temperature first and high temperature after.



- Press both **▼ Temp** and **▲ Temp** at the same time to start the calibration. The display will show 40.0 and the temperature of the instrument will automatically increase to 40°C. Once the temperature is kept constant, timing will start.
- 30 minutes later, press **Short/Prog** for one time, and the display will show the blink of **TEMP**. At this time, the display will show the actual temperature reading of the thermometer. For example, if the thermometer reads 40.5°C, you can adjust the temperature display to 40.5°C by pressing the temperature set up button. Next press **Short/Prog** for one time, and the display will show 100.0°C. Following the same instruction, when the temperature of the instrument increases to 100°C, wait for 30 minutes, input the calibrated value and press **Short/Prog** to save it.
- When the calibration of 40°C is done, press **Start/Stop** to exit. At this time the calibration of 40°C is ineffective. When the calibration is done for once at both 40°C and 100°C, check for the discrepancy between the two calibration points and the actual temperature points. It should be within 0.5°C. If it's more than 0.5°C, please follow the above instruction and recalibrate until the request is met.

8.5 Buzzer set up

- Upon failure's occurrence or ending, the instrument will buzz. You may disable it if you do not need this function. However, the default setting is to have it on.
- This instrument has keyboard beep. Once the button is pressed, it will beep once. You may disable it if you do not need this function. However, the default setting is to have it on.



- Press both **▲ Speed** and **▼ Speed** at the same time, and the display will show **BEEP**.
- Press **Short/Prog** for once and change **ON** to **OFF**.
- Press **▲ Speed** and **▼ Speed** at the same time to save the setting, and buzz will be disabled upon failure's occurrence or ending. The display will then show the keyboard beep status. If the display will show **ON K_S**. Press **Short/Prog** once and change **ON** to **OFF**.
- Then press both **▲ Speed** and **▼ Speed** at the same time to save the setting, and keyboard beep will be disabled. If you want to exit during set up, you may press **Start/Stop** and the setting will be ineffective.

9.0 Troubleshooting and Repair

Problem	Probable Cause	Remedy
No display shown in the monitor when the power is on.	Power is not connected.	Check the power and connect it.
	Fuse has burned out.	Change the fuse: BYQ15412A000020: 125V, 2.5A Φ 5x20 BYQ15411A500170: 250V, 1.5A Φ 5x20
	Switch is broken.	Change the switch.
	Others.	Contact the supplier of manufacturer.
During run, the housing shakes abnormally and makes abnormal noise.	Use improper block	Change the block. (Contact supplier or manufacturer to make sure whether the block is suitable.)
	Unit is placed on uneven surface	Place unit on even, stable surface
	Round feet badly worn	Change round feet.
	Others	Contact supplier or manufacturer.
Bad temperature uniformity of block.	Improper installation of block.	Re-install the block.
	Bad cooling components.	Contact supplier or manufacturer.
The system no longer operates after changing block.	Bad grounding of machine.	Check power cable to insure reliable grounding; Do remember to turn off the power when changing block.
Serious discrepancy between the actual temperature and displayed temperature.	Broken sensor or bad contact.	Contact the supplier or manufacturer.
The cooling of the module drastically slows down or the temperature cannot reach below room temperature.	Thermoelectric cooling module is broken.	Contact the supplier or manufacturer.
	Fan is broken or does not work.	
The module is neither able to heat nor cool.	Temperature sensor is broken.	Contact the supplier or manufacturer.
	Thermoelectric cooling module is broken.	
Vibration stops.	Drive is broken.	Contact the supplier or manufacturer.
	Motor is broken.	
	Fuse has burned out.	Change the fuse. BYQ15412A000020: 125V, 2.5A Φ 5x20 BYQ15411A500170: 250V, 1.5A Φ 5x20

User shall not open the cover of this instrument when under warranty. If housing does need to be opened to perform certain repair per the above instruction, please contact the supplier or manufacturer.

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

10.0 Spare Parts and Accessories

Spare Parts

Cat. No.	Description	Quantity
BYQ121L00000020	L socket head wrench	1
BYQ900800000070	Cushioning balls for foot	1
BYQ15411A500170	Fuse used for 230V model (250V, 1.5A Φ 5x20 mm)	1
BYQ15412A000020	Fuse used for 120V model (125V, 2.5A Φ 5x20 mm)	1

Accessories

Cat. No.	Description	Quantity
I-4000-A	Block A, 40 x 1.5 mL	1
I-4000-B	Block B, 54 x 0.5 mL	1
I-4000-C	Block C, 96 x 0.2 mL	1
I-4000-D	Block D, 24 x 15 mm	1
I-4000-E	Block E, water bath (ID: 115 x 73 x 38 mm) (not suggested to use when mixing function is on)	1
I-4000-G	Block G, 26 x 0.5 mL and 24 x 1.5 mL	1
I-4000-H	Block H, 40 x 2.0 mL	1
I-4000-J	Block J, 96-well ELISA plate	1

11.0 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, 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 _____

12.0 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.

To request certificates, please contact us at www.labnetlink.com.

Warranty/Disclaimer: Unless otherwise specified, all products are for research use only. Not intended for use in diagnostic or therapeutic procedures. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications.

For additional product or technical information, visit www.corning.com/lifesciences or call 800.492.1110. Outside the United States, call +1.978.442.2200 or contact your local Corning sales office.

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