*e*Blot™ L1

Protein Transfer System

Fast Wet Transfer System for Mini Gels

GenScript
Make Research Easy

Version 11172022

Table of Contents

Components and initial set up

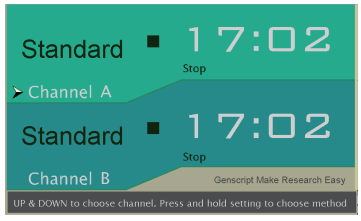
Important! Please check that all parts listed below are included with your package

*e*Blot™ L1 components

Components	Cat.No.	Quantity
*e*Blot™ L1	L00686	1
*e*Blot L1 transfer cassettes (installed)	L00742	2
Power Cord	-	1
Forceps	-	1
Small shovel (for cutting gels)	-	1
Stainless steel tray	-	1
Roller	L00746	1
Tube	-	3
Western blot container	L00745	1
Small two pass screw cap (blue/green/white)	L00741	3
5 L liquid container	-	3

Initial set up

Caution: To move the instrument after routine use, please empty the pipeline by pressing UP and SETTING keys simultaneously until beep. Repeat one more time.

Steps	Description
1	Place *e*Blot™ L1 on a leveled laboratory bench.
2	Keep the area around the device clear, especially at the back of the instrument, to ensure adequate ventilation.
3	Ensure that the power switch at the back of the instrument is OFF
4	Connect the inlet and outlet tubes from the instrument to the color-matched liquid container as below: • Transfer Buffer 1: Blue cap and inlet • Transfer Buffer 2 (ddH_2O): Green cap and inlet • Waste: Colorless/white cap and outlet
5	Connect the power cord to the power supply
6	Turn on the power switch at the back of the instrument. The machine will beep and start a self-test. After which the default screen/working interface will display (right). 
7	The instrument is ready to use.

Warranty

GenScript warrants that *e*Blot™ L1 Protein Transfer Device is free from defects in material and workmanship for a period of **one year** from the date of purchase or an accumulative working time of **10,000 minutes (Channel A+B)**, whichever comes first. If any defects occur during this warranty period GenScript will at its option, repair, replace, or refund the purchase price of the product at no charge to you.

Note: Damage caused by improper transportation, or any of the following actions are excluded:

- Improper operation.
- Repair or modification done by any other party than GenScript or an authorized agent
- Use of fittings or other spare parts supplied by any other party than GenScript.
- Damages caused by disasters.

For consultation and maintenance services, please contact GenScript's customer service and provide the following information.

Instrument model: _____

Instrument serial number: _____

Order number: _____

Date of purchase: _____

If sending the instrument to GenScript for repair (with GenScript's consent), please ensure proper packaging to avoid unnecessary damage during transportation.

1. Instrument Overview

1.1 Instrument Overview

*e*Blot™ L1 is a highly efficient wet protein transfer system, which uses a patented technology developed by GenScript. *e*Blot™ L1 combines the high stability and efficiency of the traditional wet transfer with the speed and convenience of the semi-dry transfer system. The device allows the efficient transfer of small, medium as well as large molecular weight proteins within 9-17 minutes.

*e*Blot™ L1 allows fast and efficient transfer of 1 or 2 mini gels at a time. The system comes with conveniently designed transfer stacks/consumables (sold separately). The setup takes less than 2 minutes and can be performed even with the sponge under a dry state (patent pending).

Embrace the brand new experiences that *e*Blot™ L1 brings you!

Features and Benefits

- Better transfer efficiency than wet transfer
- High transfer efficiency for large, medium and small proteins
- Fast transfer time of 9-17 minutes
- Easy to assemble, one button operation
- Customizable programs
- Transfer 1 or 2 mini gels at a time
- Long shelf life of consumables
- Highly compatible with different types of precast or homemade gels

1.2 Instrument Specifications

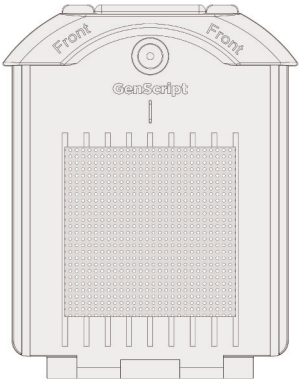
eBlot™ L1 Protein Transfer Device

Weight:	9.5 Kg
Dimensions:	410 mm (L) × 270 mm (W) × 260 mm (H)
Electrical Requirements:	100-120 V, 220-240 V, 50/60 Hz, 17 A
Build-in Features:	Digital display, light LED
Application:	For fast protein transfer of proteins from polyacrylamide gel to PVDF or nitrocellulose membrane
Materials:	ABS, PP, Stainless Steel, Plasticized Silicone
Operating Temperature:	15-40 ℃
Forceps:	Polycarbonate
Small Shovel:	Polycarbonate
Tray:	Stainless Steel
Roller:	Stainless Steel, PTFE

Avoid contact with acid, alkaline, acetone or any other reagents that might erode or damage the device.

eBlot L1 Transfer Cassette

Dimensions:	178 mm (L) × 130 mm (W) × 20 mm (H)
Membrane Dimension:	80 mm × 90 mm
Weight:	228 g
Materials:	ABS, Stainless Steel



1. Instrument Overview

1.3 Ordering Information

eBlot™ L1 (Cat. L00686) consumables

Order Separately

Component	Size/quantity	Cat.No.
eBlot L1 Transfer sandwich without membrane (with buffers for NC)	1 kit	L00724
eBlot L1 Transfer sandwich without membrane (with buffers for PVDF)	1 kit	L00726
Complete eBlot L1 Transfer sandwich (PVDF)	1 kit	L00727
PVDF Membranes	15 pack	L00735
NC Membranes	15 pack	L00732

L00724
Contents

Name	Size	Quantity	Cat.No.
eBlot L1 NC Membrane Transfer Buffer, 5X	1 L	2	L00730
eBlot L1 NC Membrane Equilibration Buffer, 10X	15 mL	2	L00731
eBlot L1 Transfer Sponge	15 pK	2	L00736

L00726
Contents

Name	Size	Quantity	Cat.No.
eBlot L1 PVDF Membrane Transfer Buffer, 5X	1 L	2	L00733
eBlot L1 PVDF Equilibration Buffer, 10X	15 mL	2	L00734
eBlot L1 Transfer Sponge	15 pK	2	L00736

L00727
Contents

Name	Size	Quantity	Cat.No.
eBlot L1 PVDF Membrane Transfer Buffer, 5X	1 L	2	L00733
eBlot L1 PVDF Membrane Equilibration Buffer, 10X	15 mL	2	L00734
eBlot L1 Transfer Sponge	15 pK	2	L00736
PVDF Membrane	15 pK	2	L00735

Instruments Accessory List (optional)

Component	Size	Cat.No.
☐ Liquid Container	5 L	L00661-5
	10 L	L00661-10
☐ Small Two Pass Screw Cap (Fit 5 L and 10 L containers)	-	L00741
☐ Transfer Cassette	2 pK	L00742
☐ Tube	10 m	L00662-10
	20 m	L00662-20
☐ WB Reaction Box	-	L00745
☐ Roller	-	L00746

1.4 Safety & Maintenance

To ensure the best quality, we recommend regular maintenance of the instrument.

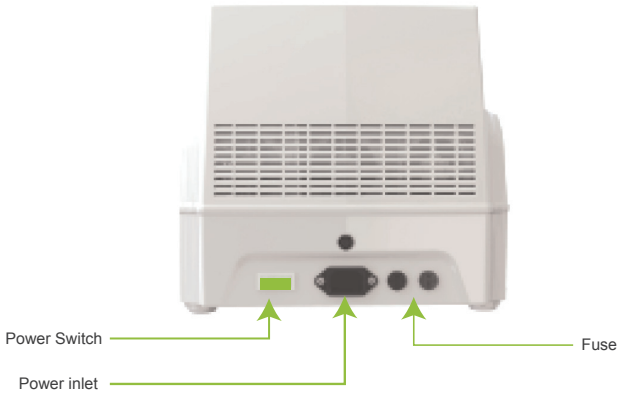
Component	Maintenance description
Transfer Cassettes	Rinse with distilled water and dry after each use.
Channel and Pipeline	Per 30 gel transfers, it is recommended to clean the channeland pipeline following the procedures below. 1. Press UP and SETTING keys simultaneously until beeps. The instrument will begin to empty the pipeline. 2. Prepare 1 L 0.1 M NaOH. 3. Set cleaning program. Method 4 is set as a cleaning program (user can also customize a method by setting the cycle number to 4, and setting running time of each cycle to 0 min). 4. Insert the inlet tube into the 0.1M NaOH. 5. Run the cleaning program in both Channel A and Channel B. 6. After Step 5 is done, press the UP and SETTING keys simultaneously until beeps to empty the pipeline. 7. Insert the inlet tube into tap water and run the cleaning program again. 8. After step 7, press the UP and SETTING keys simultaneously until beeps to empty the pipeline. 9. Connect the inlet tube back to the transfer solution container and change the program to the one that is normally used. The channel and pipeline is now cleaned.
Note	If the instrument is left unused for a long time: • Please press UP and SETTING keys simultaneously until beeps to empty the pipeline, and repeat one more time before turning off the machine and unplug the power supply. • Change the cap of the transfer buffer to sealed screw cap to prevent the solution from evaporating.
	Move the instrument: • Please press UP and SETTING keys simultaneously until beeps to empty the pipeline, and repeat one more time before turning off the machine and unplug the power supply. • Ensure that the instrument remains level during the moving process to prevent leakage of the solutions.

2. Instructions

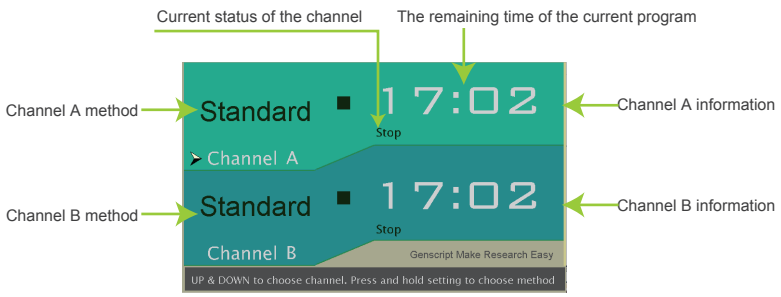
2.1 Instrument display and feature location

eBlot™ L1 protein transfer device
Device TOP View

eBlot™ L1 protein transfer device
Device Back View

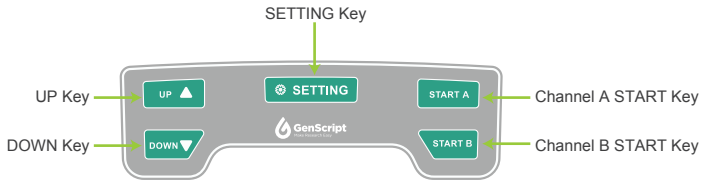


eBlot™ L1 protein transfer device
Device Display (Default Screen)



Note: In addition to the working interface, there are also method interface, parameter interface and engineering interface. See advanced instruction for details.

eBlot™ L1 protein transfer device
Device Keypad



Keypad function

Operation key	Interface	Function
UP	Working Interface	UP
	Method Interface	UP
	Parameters Interface	Increase cycle number / Increase reaction time
	Engineering Interface	Increase initial liquid inlet time / Increase the pipeline emptying time
DOWN	Working Interface	DOWN
	Method Interface	DOWN
	Parameters Interface	Reduce cycle number / Reduce reaction time
	Engineering Interface	Reduce initial liquid inlet time / Reduce the pipeline emptying time
SETTING	Working Interface	Long press to enter Method Interface
	Method Interface	Short press to select the highlighted program, and return to Working Interface
		Long press to enter the current Parameters interface
	Parameters Interface	Short press to move and highlight the next variable
		Long press to save, exit and use the selected program
	Engineering Interface	Short press to move and highlight the next variable
START A	Working Interface	Short press, Channel A starts to run program
		Long press, Channel A stops and is forced to empty
START B	Working Interface	Short press, Channel B starts to run program
		Long press, Channel B stops and is forced to empty

2. Instructions

2.1 Instrument display and feature location

Keypad function

Operation key	Interface	Function
	Working Interface	Press all together until beeps, display Engineering Interface
	Working Interface	Press all together until beeps, instrument starts emptying pipeline

2.2 General guidelines and Buffer Preparation

General guidelines for best results:

- Wear gloves at all time during transfer procedures to prevent contaminations of gels, membrane and filter paper.
- Use kits before the expiration data specified on the package.
- Some solutions may crystallized at low temperature. Please equilibrate at room temperature and ensure the reagent is fully dissolved before use.
- If left unused for an extended period of time, please empty the pipeline. And mix the reagent well before use the instrument again.

Buffer preparation

Please dilute the solutions below as instructed.

*e*Blot L1 PVDF Membrane Transfer Buffer, 5X (Cat. No. L00733)

*e*Blot L1 PVDF Membrane Equilibration Buffer, 10X (Cat. No. L00734)

*e*Blot L1 NC Membrane Transfer Buffer, 5X (Cat. No. L00730)

*e*Blot L1 NC Membrane Equilibration Buffer, 10X (Cat. No. L00731)

*e*Blot L1 PVDF Membrane Transfer Buffer, 5X (Cat. L00733)

Components	Volume
*e*Blot L1 PVDF Membrane Transfer Buffer, 5X	1000 ml
Isopropanol	500 ml
ddH_2O	3500 ml
Total	5000 ml

Mix well before use.

*e*Blot L1 PVDF Membrane Equilibration Buffer, 10X (Cat. No. L00734)

Components	Volume
*e*Blot L1 PVDF Membrane Equilibration Buffer, 10X	15 ml
ddH_2O	135 ml
Total	150 ml

Mix well before use.

*e*Blot L1 NC Membrane Transfer Buffer, 5X(Cat. No. L00730)

Components	Volume
*e*Blot L1 NC Membrane Transfer Buffer, 5X	1000 ml
Isopropanol	500 ml
ddH_2O	3500 ml
Total	5000 ml

Mix well before use.

*e*Blot L1 NC Membrane Equilibration Buffer, 10X (Cat. L00731)

Components	Volume
*e*Blot L1 NC Membrane Equilibration Buffer, 10X	15 ml
Isopropanol	60 ml
ddH_2O	75 ml
Total	150 ml

Mix well before use.

2. Instructions

2.3 Using the Pre-programmed transfer method

The pre-programmed transfer method uses 3 × 5 min transfer cycles and one 15 s cooling cycle with ddH_2O. This method is applicable for transferring of most proteins.

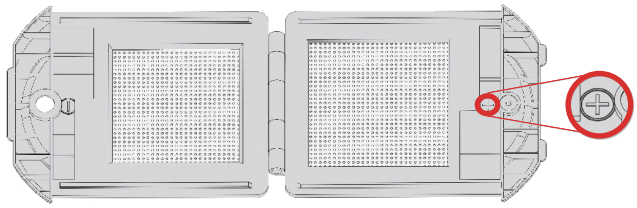
Transfer procedure

1. Put 10 ml equilibration buffer in the WB container.
   Note: If protein samples are in cell supernatants, please equilibrate the gels with 10% isopropanol/ethanol for 5-10min.

2. Put the membrane into the equilibration buffer.
   Note: If using PVDF membrane, please activate the membrane with 100% ethanol or methanol first before soaking it in the equilibration buffer.

3. After electrophoresis, carefully remove the gel from the cassette and place the gel in distilled water for 1 min.
   Note: If using precast gels from Thermo Fisher, please remove the lower thicker part of the gel.

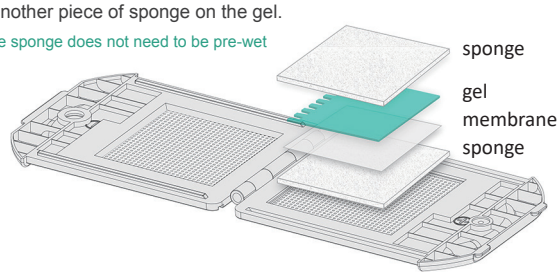
4. Open the transfer cassette and place it on the table.
   Note: The anode side of the transfer cassette is marked with "+"



5. Place one piece of sponge on the side marked with “+”
   Note: please place the sponge within the metal frame
   Note: the sponge does not need to be pre-wet

6. Take the membrane from the equilibration buffer and place it on top of the sponge.

7. Place the gel on top of the membrane (as shown in the picture) and use the roller remove any air bubbles.
8. Place another piece of sponge on the gel.
   Note: the sponge does not need to be pre-wet



9. Close the transfer cassette.

10. Pick a channel and insert the transfer cassette into the channel (as shown below, the assembled transfer cassette is inserted into channel B)

Note: please make sure the side marked “Front” is facing you while inserting the cassette into the channel.

11. Press START B to start the program. The timer of the corresponding channel starts to count down.

12. The instrument beeps as the program count down to 0.

13. Press the START B button again, and “Start B” button stops flashing. The screen returns to its original display.

14. Take out the cassette, and discard the gel and sponges. Rinse the membrane in water and proceed to the next process.

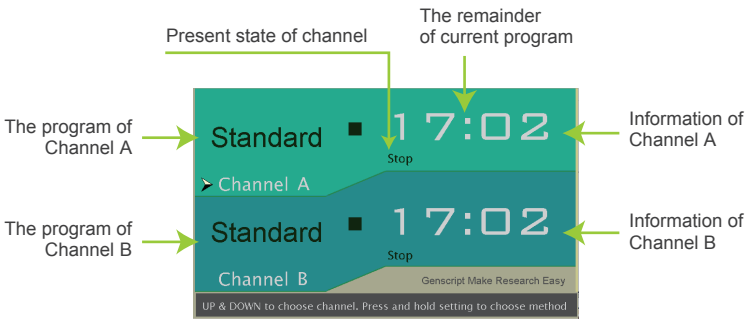
2. Instructions

2.4 Advanced Instruction

The instrument has four interfaces: Working Interface, Method Interface, Parameters Interface, and Engineering Interface. The working interface is for routine operation. The other three interfaces are for customize methods and system usage check.

2.4.1 Working interface/ Default screen

After turning on the power, the instrument enters the Working Interface as illustrated below:



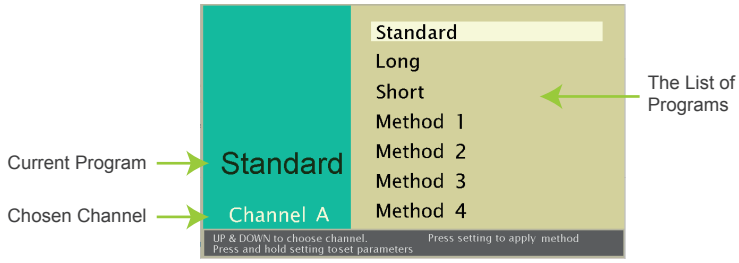
The meanings of state icon

Icons	Meanings	Description
	Working	The channel program is running
	Stops	The channel program stops
	Waiting	The channel is waiting
	Finished	The channel program has finished
 Flashing	Channel Emptying	The channel is emptying its pipeline
	Waiting for Channel to empty the pipeline	The channel is waiting for another channel to empty the pipeline

Icons	Meanings	Description
 Two alternate display	Insufficient Solution and Waiting	Press START after replacing the solution to empty the channel and to continue
 Two channel alternate display	Pipeline Emptying	Emptying the solution in the pipeline

2.4.2 Method interface/ Select method

*e*Blot L1 has 7 methods: default method named “Transfer” and 6 other methods, all of which can be customized. Follow the instruction below to customize any method.



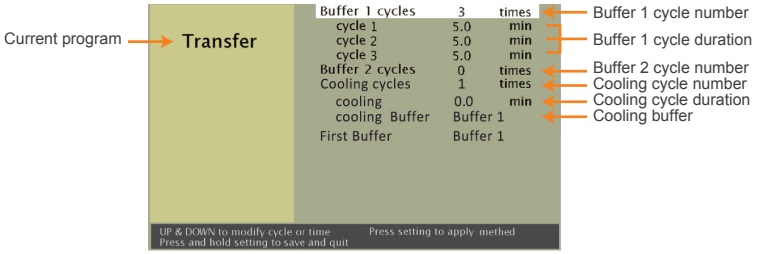
1. Press UP or DOWN to select channel A or B (highlighted)
2. Press SETTING until beeps to enter the method interface
3. Select a method or switch between methods by pressing UP or DOWN
4. When finishing selection, short press SETTING and return to the default screen.
5. The channel will now use the method chosen

2. Instructions

2.4 Advanced Instruction

2.4.3 Parameter interface/ Customize methods

In this interface, you could customize the number of the cycles for each buffer, as well as the duration for each cycle and the duration for the cooling cycle.



1. Press UP or DOWN to select a channel (highlighted)
2. Press SETTING until beeps
3. Select the method to edit or switch between methods by pressing UP or DOWN
4. Once you choose a method, press SETTING until beeps to enter the parameter interface of that particular method
5. When cycle number is highlighted, press UP or DOWN to change the cycle number.
6. Short Press SETTING to highlight and switch between different variables.
7. When a particular cycle is highlighted, press UP or DOWN to change its cycle time with increment or decrement of 0.5 minutes.
8. When all parameters are set, press SETTING until beeps to save the setting and return to the default screen. The channel will use the program that has just been saved.

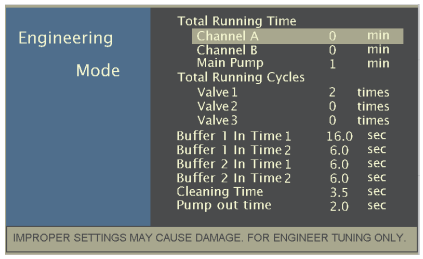
Tips on customizing the transfer program

Following are some tips on optimizing the transfer program with your specific needs. Please test and identify the best program based on your specific target and experiment conditions.

- The maximum cycle numbers for each method/program is 4. The duration of each cycle can be set between 0-9 minutes, with 0.5 minute's increment or decrement.
- We recommend the default program (3*5 minutes cycles) if you use gradient gels, especially for GenScript gels. If you use precast gels from Bio-Rad (4-15%) and Thermo Fisher (4-12%) gels, program of 2*5 minutes cycles might provide better results.
- For homemade gels with 1.5 mm thickness, we recommend 4*5 minutes cycles.
- If you work with small molecular weight proteins and need a quick blotting, or your target protein is very abundant, you can use 1*9 minutes program.

2.4.4 Engineering interface/ System usage check

This interface is to check the accumulated usage time for the pump and valves. The solution inlet time and pipeline emptying time could also be edited.



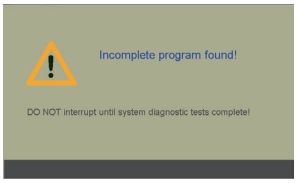
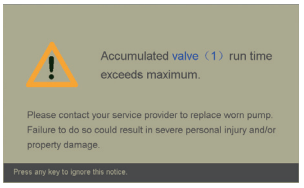
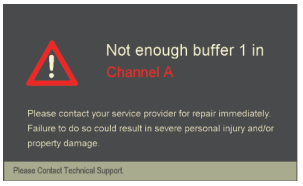
1. Press DOWN and SETTING at the same time until beeps to enter the interface.
2. Short press SETTINGS to highlight and switch between different parameters to view
3. To edit solution inlet time and pipeline emptying time, highlight the parameter and press UP or DOWN to change the time.

   Note: It's not recommended to change the buffer inlet time and pipeline empty time unless instructed by GenScript service representative.

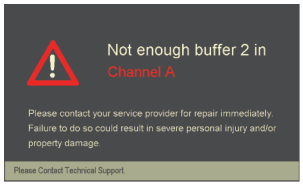
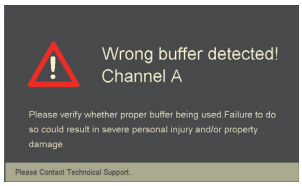
4. Press SETTING until beeps to exit the interface and return to the default screen

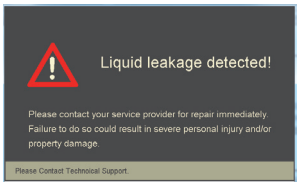
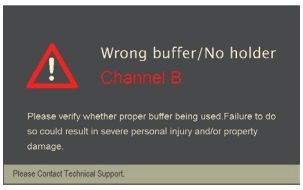
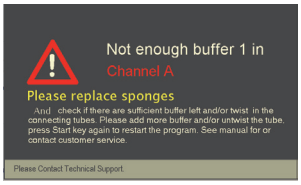
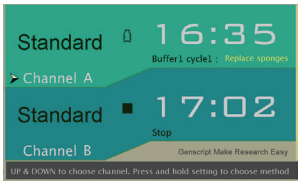
   Note: Channel, pump and valves have certain lifetime. The instrument will show a reminder when the set value is reached (see chart). Please contact customer service for maintenance and further instruction.

3. Troubleshooting and FAQs

Problems	Description	Solution
Starting-up (Q1~Q2)	Q1 	The instrument detected there is an incomplete program from the latest working session. System is performing a diagnostic test. Please DO NOT press any key to interrupt and wait for the system to return to the working interface.
	Q2 	The accessory highlighted in the blue part may include PUMP, valve (2) valve (3), channel A, channel B The lifetime of the part highlighted in blue has reached its recommended maximum lifetime. Users are advised to contact GenScript to replace the corresponding components. Return to the default screen by pressing any button.
During Operation (Q3~Q8)	Q3 	Not enough buffer1 in Channel A. Possible Causes and Solutions: 1. Not enough solution or the end of the tube is above the solution. Please add more Buffer 1. 2. There are twists in the tubes which block solution from being pumped in. Please check and untwist the tubes. 3. The ends of the tubes form a seal with the bottom of the container. Please shorten the tube or make a slope cut at the end of the tube. 4. Automatic adjustment due to pressure changes. No special actions required. Take the steps as instructed. Press any key to return to the working interface. Press START A to continue the process. If the red part in the display panel is Channel B, press START B to continue the process.

3. Troubleshooting and FAQs

Problems	Description	Solution
	Q4 	Not enough buffer2 (ddH_2O) in Channel A. Possible Causes and Solutions: 1. Not enough solution or the opening of the tube is above the solution. Please add more corresponding solution. 2. There are twists in the tubes which block solution from being pumped in. Please untwist the tubes. 3. The ends of the tubes form a seal with the bottom of the container. Please shorten the tube or make a slope cut at the end of the tube. 4. Automatic adjustment due to pressure changes. No special actions required. Take the steps as instructed. Press any keys to return to the working interface. Press START A to continue the process. If the red part in the display panel is Channel B, press START B to continue the process.
	Q5 	Each channel has its own current protection, this warning means the current in the channel is overloaded. Causes and solutions: 1. High concentration of the solution. This could be that the concentrated solutions are not diluted properly. 2. The channel is running without a gel holder inserted or the gel holder is not fully inserted into the chamber. The machine will empty the corresponding solutions from the channel. Press SETTING to return to the working interface.

Problems	Description	Solution
	Q6 	There are leakage detectors placed in the machine. The warning means there is leakage in the machine. For your safety, please power off the machine and contact GenScript immediately. Do not try to remove or use the machine before the problem is solved.
	Q7 	Each channel has its own current protection, this warning means the current in the channel is overloaded. Causes and solutions: 1. High concentration of the solution. This could be that the concentrated solutions are not diluted properly. 2. The channel is running without a gel holder inserted or the gel holder is not fully inserted into the chamber. The machine will empty the corresponding solutions from the channel. Press SETTING to return to the working interface.
	Q8  	This warning occurs after the first liquid inlet with insufficient buffer solution,indicating sponge in Channel A needs replacing. Causes and solutions: Replace the sponges to continue.
Other device related issues, FAQs. (Q9~Q10)	Q9 Machine repeatedly gives "Not enough solutions" warnings.	Please check the tubes to see if there are twists or the tube end form a seal with the bottom of the container. If not, please enter the "engineering interface" to change the initiating time. Call customer service if necessary.

3. Troubleshooting and FAQs

Problems	Description	Solution
	Q10 Channel A and Channel B have different running time/ shorter or longer running time even they use the same program or parameters.	1. Channel A and B have independent detectors to check the pumping process, so the running time between the two channels may be different. 2. The pumping time is determined by the reagent level in the reaction chamber and will be different between each run. The machine automatically calculate an estimated running time based on previous run. If the actual pumping time is shorter than the previous run, machine will count down faster and result in a shorter running time than estimated. 3. If the actual pumping time is longer than the previous run, machine will count down slower and result in a longer running time than estimated.

4. Technical Support

Visit the GenScript web site at www.genscript.com for:

1. Technical resources, including manuals, vector maps and sequences, application notes, MSDSs, FAQs, formulations, citations, handbooks, etc.
2. Complete technical support contact information
3. Access to the GenScript Online Catalog
4. Additional product information and special offers

For more information or technical assistance, call, write, fax, or email.

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