Instructions

TRILUTION® LH v3.0 Service Pack 3

for GX-241 ASPEC™, VERITY® 4060 Single Syringe Pump, and VERITY® 4260 Dual Syringe Pump

TRILUTION® LH v3.0, with Service Pack 3 (part number 210630R30P3) installed, provides control of the GX-241 ASPEC™, VERITY® 4060 Single Syringe Pump, and VERITY® 4260 Dual Syringe Pump.

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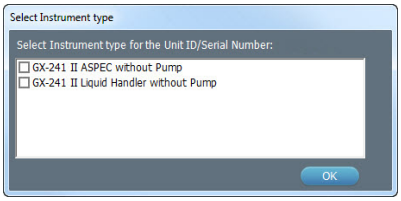
Method Setup

Configuration

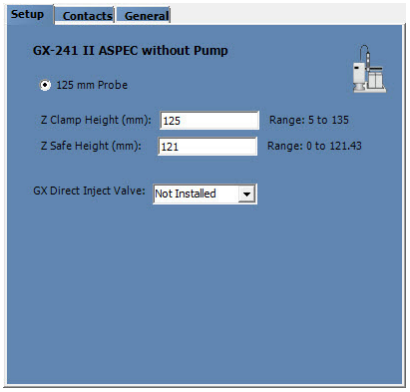
Instruments are added to TRILUTION® LH v3.0 after installation of Service Pack 3. These are the GX-241 II ASPEC without Pump, VERITY 4060 Syringe Pump, and VERITY 4260 Syringe Pump.

GX-241 II ASPEC without Pump

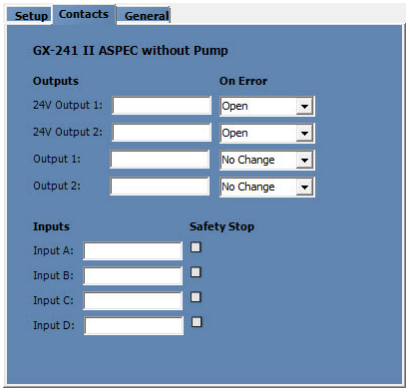


The GX-241 II ASPEC without Pump will be detected in a scan, which is the recommended way to add instruments to the configuration. When prompted, select GX-241 II ASPEC without Pump as the instrument type.

When adding the GX-241 II ASPEC without Pump to the configuration:



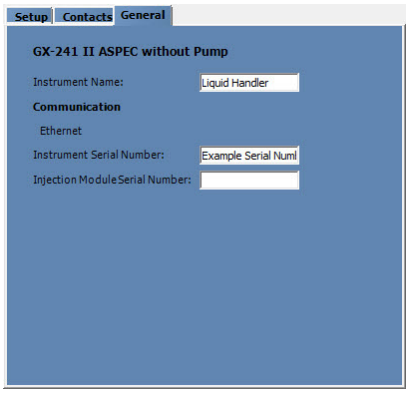
1. Enter the Z Clamp Height (mm), measured at the top of the mounting bracket on the vertical ruler on the Z-arm. The default is 125 mm. The acceptable range is 5 mm to 135 mm.
2. Enter the Z Safe Height (mm), which is the Z-height to which the probe will move before moving in the X or Y direction. The default is 121 mm. The range updates dynamically based on the Z Clamp Height setting. The top end of the range is always 3.57 mm less than the Z Clamp Height to account for the probe guide insert that extends below the Z-foot.
3. If a GX Direct Injection Module is installed, select 1/16" for the GX Direct Inject Valve option. The default selection is Not Installed.



4. On the Contacts tab, optionally name any contacts that will be used.

   Additionally, indicate whether each output contact should open, close, or remain in the same state on error. The default is Open for 24V outputs and No Change for outputs.

   To set up a Safety Stop, select the box next to the input name. When that input is presented with a contact closure, an error code 12 (Safety Stop Activated) appears on the instrument front panel display and the run stops.
5. On the General tab, optionally enter a different instrument name that will be used to identify the GX-241 II ASPEC without Pump in a task. (The default instrument name is Liquid Handler.)



6. Scanning for the instrument automatically populates the serial number field(s). If connecting to a different GX-241 II ASPEC without Pump or adding a GX Direct Injection Module, rescanning is recommended, but typing the serial number(s) is also an option.
   - The serial number for the GX-241 II ASPEC without Pump is located beneath the large, rectangular opening and towards the rear of the instrument.
   - The serial number for the GX Direct Injection Module is located on its right side.

VERITY 4060 Syringe Pump/VERITY 4260 Syringe Pump

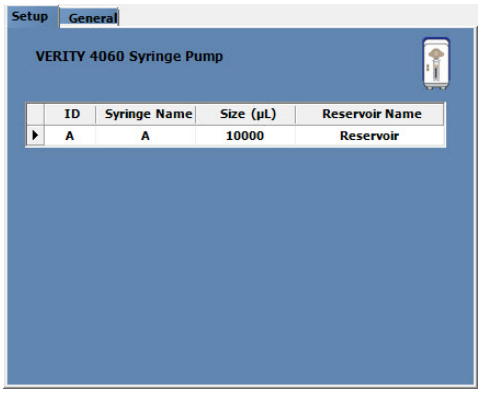
The VERITY 4060 Syringe Pump/VERITY 4260 Syringe Pump will be detected in a scan, which is the recommended way to add instruments to the configuration.

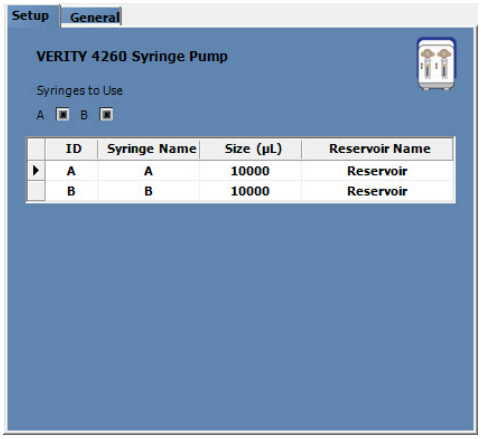
When adding the syringe pump to the configuration:

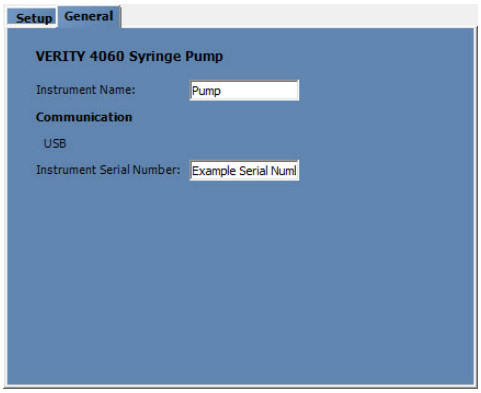
1. If adding a VERITY 4260 Syringe Pump, indicate the Syringes to Use. 'A' indicates that the left syringe will be used and 'B' indicates that the right syringe will be used. Select both 'A' and 'B' to indicate that both syringes will be used.
2. Optionally, enter a Syringe Name to identify each syringe.
3. For the Size, select the capacity of the installed syringe. Refer to the table below for the minimum and maximum flow rates for each syringe size.

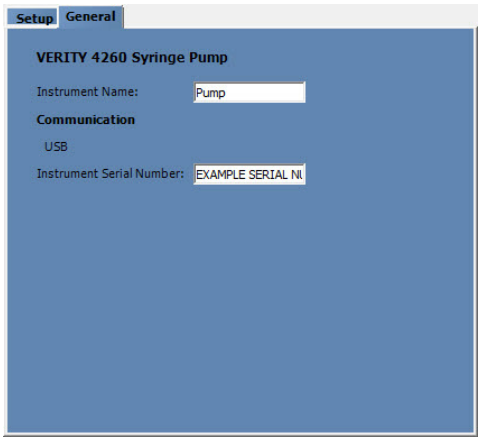
Syringe Size (µL)	*Min*	*Max*
	mL/min	
100	0.001	4
250	0.001	10
500	0.01	20
1000	0.01	40
5000	0.1	100
10000	0.1	100
25000	0.1	100

4. Optionally, enter a Reservoir Name for each syringe. This is a unique name used to identify the liquid that is flowing through the associated syringe.
5. On the General tab, optionally enter a different pump name that will be used to identify the syringe pump in a task. (The default pump name is Pump.)
6. Scanning for the pump automatically populates the serial number field and is recommended, but typing the serial number is also an option. The serial number is located on the right side of the syringe pump.



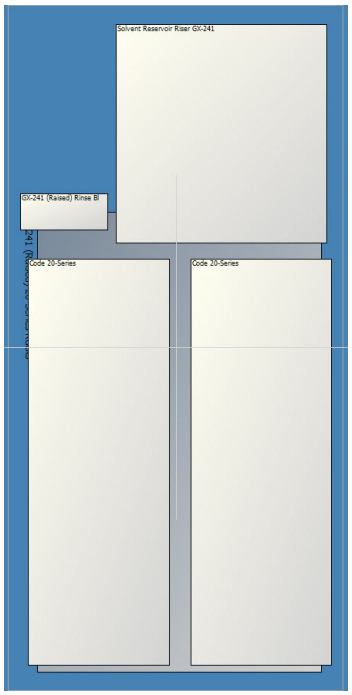
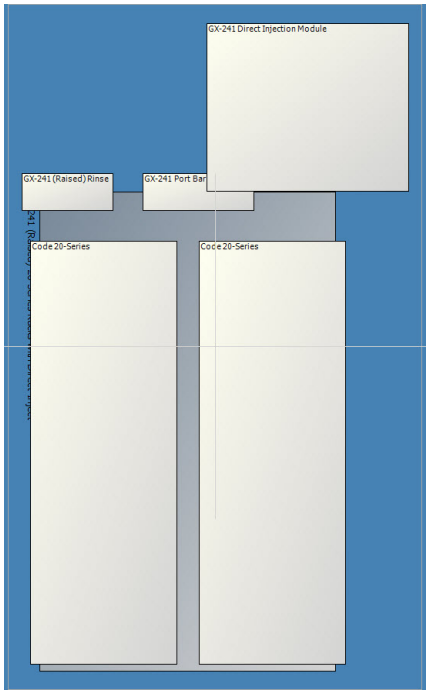






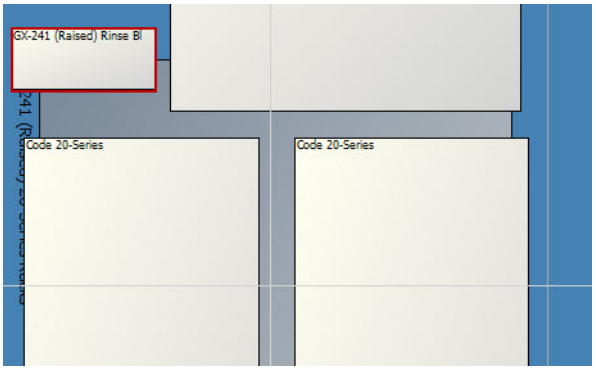
Bed Layout

Several bed layout elements are added to TRILUTION® LH v3.0 after installation of Service Pack 3.

Bed Layout Element Type	*Bed Layout Element Name*	*Image*
Template	GX-241 (Raised) 20-Series Racks	
Footprint for Rinse Station	GX-241 (Raised) Rinse Block	
Rinse Station	GX-241 Rinse Block (Tall)	
Footprint for Reservoir Riser	Solvent Reservoir Riser GX-241	
Reservoir Riser	Solvent Reservoir Riser GX-241	
Footprint for Reservoir Rack	Solvent Reservoir Rack GX-241	
Reservoir Rack	Solvent Reservoir Rack GX-241	
Footprint for Reservoir	Solvent Reservoir GX-241	
Reservoir	GX-241 Solvent Reservoir	
Reservoir Wells	GX-241 Solvent Reservoir Well	
Template	GX-241 (Raised) 20-Series Racks with Direct Inject	
Footprint for Rinse Station	GX-241 (Raised) Rinse Block	
Rinse Station	GX-241 Rinse Block (Tall)	

Rinse Locations

Rinse locations are assigned to zones in the bed layout. Inside and outside rinse zones are then chosen in the task.

Bed Layout Tray (Template)			
GX-241 (Raised) 20-Series Racks GX-241 (Raised) 20-Series Racks with Direct Inject			
	 **GX-241 (Raised) Rinse Block (Footprint)**		
		 **GX-241 Rinse Block (Tall) (Rack)**	
		 **Inside Rinse/Drain Location**	 **Outside Rinse Locations**

Control

Tasks

Most Liquid Handling, SPE, Tweaks, and Auxiliary Tasks can be used with the ASPEC™ systems. Refer to the task descriptions in the *TRILUTION® LH v3.0 Software User's Guide* for more information.

A new task is provided in TRILUTION® LH v3.0 with Service Pack 3:

GX-241 Solenoid Air Push

This task performs an air push by passing pressurized gas through the DEC. The mobile rack can be positioned over the drain position or over the collect position. This task is for use with the GX-241 II ASPEC without Pump.

Error Handling

Optionally, use error handling to check the status of the instrument. Run a stop method to shut down the system if an error is encountered.

GX-241 II ASPEC without Pump

Parameter Descriptions	
Error	***Description***
Bed Location Error	This error results when a zone or well referenced in a task or sample list does not exist in the bed layout.
Instrument Error	This error results when any scheduled command fails to execute or if the software loses communication with an instrument.
Contact Error	This error results when an error input or output contact is activated. The valid mathematical operator is == and the valid values are Open and Closed.
Wait Time	This error results when an input contact does not occur within the length of time set on this screen. If the wait time is set to zero (0), the system waits indefinitely for the input contact. The valid mathematical operator is greater than or equal to.

VERITY 4060 Syringe Pump/VERITY 4260 Syringe Pump

Parameter Descriptions	
Error	***Description***
Instrument Error	This error results when any scheduled command fails to execute or if the software loses communication with an instrument.
Pressure	This error results when the back pressure on the syringe is outside of the range set using the value and a mathematical operator. When this error is encountered, a command (Halt Syringes) is sent and the syringe stops.

Manual Control

In addition to application runs, the software also provides manual control for Gilson instruments in the configuration. Manual control is useful for preparing a system for a run.

Note: Before running the system in manual mode, be sure that the instruments in the system are turned on and the appropriate connections are made as described in each user's guide.

Manual control is accessed by clicking the Manual Control tab in the Application Builder.

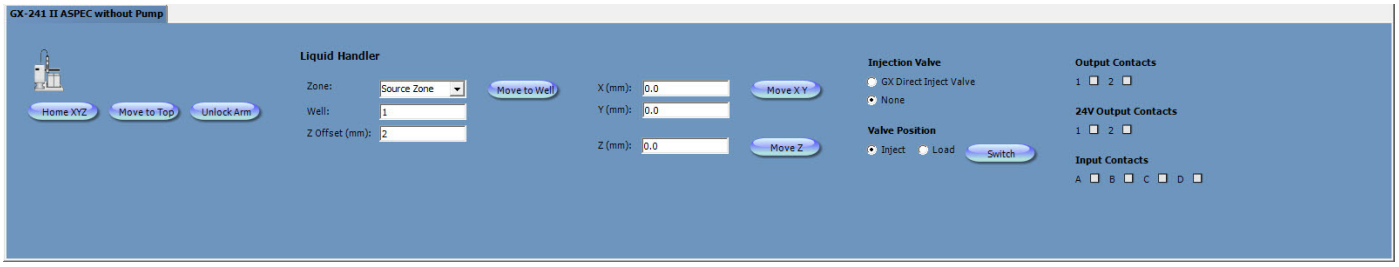
For manual control to occur, TRILUTION LH needs the configuration and bed layout information set in the method.

Do the following to set which method information will be used for manual control:

1. Open the Application Builder.
2. Add a method to the sample list.
3. Select the Manual Control tab.
4. Select a method from the drop-down list of methods.
5. Click **Go**. The instruments will initialize.

GX-241 II ASPEC without Pump

NOTICE	**TRILUTION LH does not validate any values or check for safe movement in manual control. Verify entries before clicking any buttons.**



GX-241 II ASPEC without Pump Manual Control

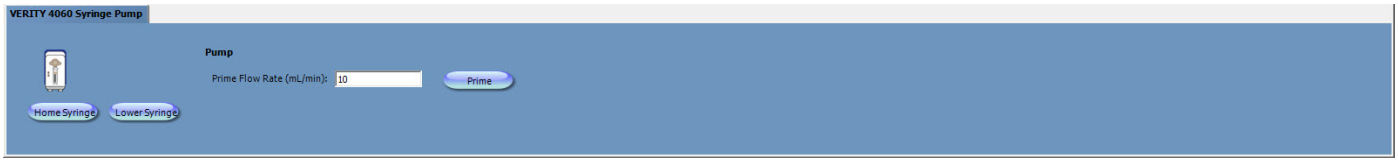
Property Name	*Brief Description*	*Default Value*	*Use*
Buttons			
Home XYZ	Moves probe to the home position.		
Move to Top	Positions the probe at the Z Safe Height specified in the Configuration.		

GX-241 II ASPEC without Pump Manual Control

Property Name	*Brief Description*	*Default Value*	*Use*
Unlock Arm	Unpowers the X, Y, and Z motors.		
Lock Arm	Powers all motors and moves the probe to the home position.		
Liquid Handler			
Zone	The zone to move to.		Click **Move to Well.**
Well	Enter the well number in the zone.	1	
Z Offset	Enter a positive value to move up from the Tube Bottom.	2 mm	
X	Enter a number to move to a position to the right of the home position.	0.0 mm	Click **Move XY.**
Y	Enter a number to move to a position forward of the home position.	0.0 mm	
Z	Enter a number to move to an absolute Z value.	0.0 mm	Click **Move Z**.
Injection Valve	Indicate whether a GX Direct Inject Valve is installed	None	
Valve Position	Rotates the valve to the selected position.	Inject	Click **Switch**.
Output Contacts			
1 2	A filled box indicates that the circuit is closed (on). An empty box indicates that the circuit is open (off).		Toggle the contacts open/ closed (off/on) by selecting and clearing the boxes.
24V Output Contacts			
1 2	A filled box indicates that the circuit is closed (on). An empty box indicates that the circuit is open (off).		Toggle the contacts open/ closed (off/on) by selecting and clearing the boxes.
Input Contacts			
A B C D	A filled box indicates that the circuit is closed. An empty box indicates that the circuit is open.		Monitor status.

VERITY 4060 Syringe Pump

NOTICE	**TRILUTION LH does not validate any values or check for safe movement in manual control. Verify entries before clicking any buttons.**



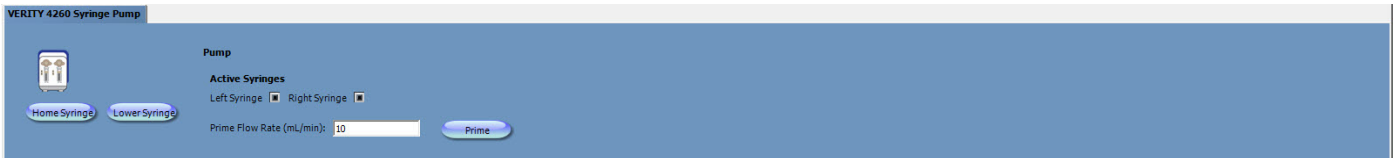
VERITY 4060 Syringe Pump Manual Control

Property Name	*Brief Description*	*Default Value*	*Use*
Prime Flow Rate	The speed at which the reservoir fluid moves into and out of the syringe.	10 mL/min	Click **Prime** to start or **Stop Prime** to end.
Buttons			
Home Syringe	Homes the syringe and sends the piston to the upper position and the valve to the probe position.		
Lower Syringe	Lowers the piston operating rod 25% of a full stroke.		Used when replacing a syringe.
Raise Syringe	Homes the syringe and sends the piston to the upper position and the valve to the probe position.		

VERITY 4060 Syringe Pump Manual Control

VERITY 4260 Syringe Pump

NOTICE	**TRILUTION LH does not validate any values or check for safe movement in manual control. Verify entries before clicking any buttons.**



VERITY 4260 Syringe Pump Manual Control

Property Name	*Brief Description*	*Default Value*	*Use*
Active Syringes	The syringes that will be used.	Left Syringe, Right Syringe	
Prime Flow Rate	The speed at which the reservoir fluid moves into and out of the syringes.	10 mL/min	Click **Prime** to start or **Stop Prime** to end.
Buttons			
Home Syringe	Homes the active syringe(s), which sends the piston to the upper position and the valve(s) to the probe position		
Lower Syringe	Lowers the piston operating rod for the active syringe(s) 25% of a full stroke.		Used when replacing a syringe.
Raise Syringe	Homes the active syringe(s), which sends the piston to the upper position and the valve(s) to the probe position.		

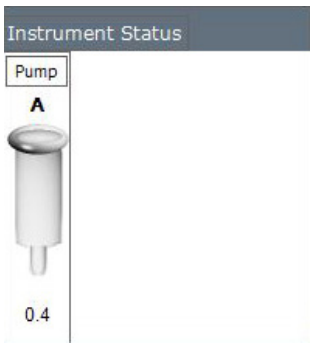
VERITY 4260 Syringe Pump Manual Control

Application

During an application run, it is possible to monitor various aspects of the run.

Instrument Status

The Instrument Status display is used to monitor the pressure of the VERITY 4060 Syringe Pump or VERITY 4260 Syringe Pump during the run.



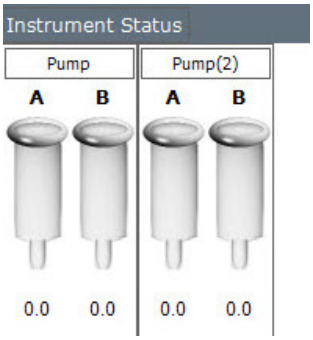
View the Log File

Neither the VERITY 4060 Syringe Pump nor the VERITY 4260 Syringe Pump has a front panel display to display an error code if an error is encountered.

To obtain the error code and message, view the log file produced during the run in TRILUTION® LH:

To display the log file produced during a run:

1. Access the Run Results by clicking **Liquid Handling | Utilities | Run Results** or by clicking **Results** in the Application window.
2. Locate the run for which you want to view the log.
3. Click **View Log** or right-click on the Run and then select **View Log**. The file appears in a text editor box. Optionally, add comments, change the font, and/or print the log file. To save any changes, select **File | Save As...** (NOT Save).



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If you need assistance, please contact your local Gilson representative. Specific contact information can be found at **www.gilson.com**.