

819 Injection Module User's Guide

819 Injection Module User's Guide

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Safety

Read this section before installing and operating the 819 Injection Module.






The 819 Injection Module is intended to be used in a laboratory environment by trained technical personnel.

For safe and correct use of this instrument, it is recommended that both operating and service personnel follow the instructions contained in this guide when installing, cleaning, and maintaining the instrument.

The following safety precautions must be observed during all phases of operation, service, and repair of the instrument. Failure to comply with these precautions or with specific warnings elsewhere in this user's guide violates safety standards of design, manufacture, and intended use of the instrument. Gilson assumes no liability for the customer's failure to comply with these requirements.



The injection module has been certified to UL, CSA, and CE Safety standards.

The following electronic and hazard symbols may appear on the instrument:

Symbol	Explanation
~	Alternating current Courant alternatif Wechselstrom
— — —	Direct current Courant continu Gleichstrom
	Protective conductor terminal Borne du conducteur de protection Schutzleiteranschluss
	Electrical power ON Sous tension Netzschalter ein
O	Electrical power OFF Hors tension Netzschalter aus
	Caution Attention Vorsicht
	Caution, risk of electric shock Attention, risque de choc électrique Vorsicht, Elektroschockgefahr
	Caution, hot surface Attention, surface chaude Vorsicht, heiße Oberfläche
	Fuse Fusible Sicherung

Safety

The following safety notices may appear in this document:

 WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, may result in serious injury
 CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury
NOTICE	NOTICE indicates a potentially hazardous situation which, if not avoided, may result in equipment damage

Voltage

Access to the rear panel is necessary. The injection module must be detached from all voltage sources before service, repair, or exchange of parts.

For normal operation, the instrument is to be grounded through the AC line cord provided. Failure to do so can result in a potential shock hazard that could result in serious personal injury.

Use only fuses with the rated current and of the specified type (fast acting, normal blow, time delay) as listed on the rear panel of the instrument.

The instrument must only be operated with the voltage specified on the rear panel label of the instrument using a grounded AC line cord.

Solvents

Observe safe laboratory practices when handling solvents. If dangerous liquids are used, adequate protection such as proper ventilation, safety glasses, etc., should be used.

Refer to the Material Safety Data Sheets for the solvents before use.

Replacement Parts

Be sure to use only replacement parts mentioned in [Chapter 4, Maintenance](#) and [Appendix A, Replacement Parts and Accessories](#). Do not repair or change parts which are not listed in this user's guide. If it is necessary to change parts not listed, please contact your Gilson-authorized representative.

This chapter provides information on the following topics:

- **Description**
- **Unpacking**
- **Customer Service**
- **Technical Specifications**

Description

The 819 Injection Module enables you to inject samples onto an HPLC system. It is used with a 215 Liquid Handler.

The 819 Injection Module is intended to be used in a laboratory environment by trained technical personnel.



Unpacking

The injection module is delivered with all major components already assembled. Keep the original container and packing material in case it must be returned to the factory.

The injection module and accessories are shipped in one container. Unpack the container and inspect for damage. Promptly report any damage to the carrier. Some carriers must receive concealed damage claims within seven days of delivery.

Standard Equipment

After the injection module and accessories have been unpacked, you should have the following:

- 819 Injection Module (part number 251511) with installed Rheodyne valve, injection loop, stainless steel waste tubing, injection port, and calibrated tubing
- power cords
- two thumbscrews
- drain tubing
- accessory package which includes GSIOC cable, 5/16"–1/4" wrench, two 10 mm wrenches, terminal block connector, fuses, and fuse drawers

Documentation

The following documents are included with the 819 Injection Module.

- 819 Injection Module Documentation CD
- Installation Qualification/Operational Qualification Procedures
- Declaration of Conformity

Accessories

Based on your configuration, you also received an injection valve, injection port, and sample loop, ordered separately.

Injection Valve**Part Number Description**

25051040	7010 valve assembly, Tefzel for 819
25051043	7010 valve assembly with MBB stator for 819
25051044	7010 valve assembly, Vespel, for 819

Injection Port**Part Number Description**

25051015	Injection port with PEEK calibrated tubing for 1.3 mm OD probes. Includes 1.3 mm injection port seal.
2954640	Injection port with stainless steel calibrated tubing for 1.5 mm OD probes. Includes 1.5 mm injection port seal.

Sample Loop**Part Number Description**

496020	5 µL sample loop, stainless steel
496021	10 µL sample loop, stainless steel
496022	20 µL sample loop, stainless steel
496023	50 µL sample loop, stainless steel
496024	100 µL sample loop, stainless steel
496025	200 µL sample loop, stainless steel
496026	500 µL sample loop, stainless steel
496027	1 mL sample loop, stainless steel
496028	2 mL sample loop, stainless steel
496029	5 mL sample loop, stainless steel
	10 mL sample loop, stainless steel (This loop is intended for use with pressures less than 1000 psi.)
49571876	When used on an 819 injection valve, the rack position in front of the 819 cannot be used.

Customer Service

Gilson, Inc. and its worldwide network of authorized representatives provide customers with the following types of assistance: sales, technical support, applications, and instrument repair.

If you need assistance, please contact your Gilson-authorized representative. Specific contact information can be found at www.gilson.com. To help us serve you quickly and efficiently, please refer to **Before Calling Us** on page 5-4.

Technical Specifications

Please be aware of the following before operating the 819 Injection Module.

NOTICE

Changes or modifications to this unit not expressly approved by Gilson could void your factory-authorized warranty.

This instrument complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This instrument may not cause harmful interference, and (2) this instrument must accept any interference received, including interference that may cause undesired operation.

Shielded cables must be used with this unit to ensure compliance with the FCC Class A limits.

<i>Technical Specification</i>	<i>Definition</i>
Available Sample Loops	5 µL, 10 µL, 20 µL, 50 µL, 100 µL, 200 µL, 500 µL, 1 mL, 2 mL, 5 mL, and 10 mL
Available Valve	Rheodyne 7010
Contact Control	One contact closure output and one contact closure input
Dimensions (W x D x H)	19 x 20 x 10 cm (7.5 x 8 x 4 in)
Environmental Conditions	Indoor use Altitude: up to 2000 m Temperature range: 5°–40°C Air pressure: 75–105 kPa Humidity: Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C
Front Panel	LOAD and INJECT LED lights
Injection Carryover	<0.1% Contact Gilson Customer Service to learn what methods and conditions were used to obtain this value.
Injection Reproducibility	<0.9% CV with total loop filling method Contact Gilson Customer Service to learn what methods and conditions were used to obtain this value.
Liquid Contact Materials	316L stainless steel, 304 stainless steel, FEP, PEEK, and Vespel or Tefzel
Power Requirements	Frequency: 50/60 Hz Voltage: 100–240V (Universal Input) Current rating: 1.0A for 100–120V or 0.5A for 220–240V
Safety Approvals/ EMC Compliance	Certified to UL, CSA, CE, and C-Tick Safety and EMC standards.
Software Control	Gilson TRILUTION® Software
Valve Switching Speed	Less than 500 milliseconds
Weight	3.6 kg (8 lbs.) with installed valve

This chapter takes you through the steps for setting up your 819 Injection Module. This includes:

- **Placement on the 215 Liquid Handler**
- **Rear Panel Connections**
- **Plumbing Connections**
- **Z-Arm Height Adjustment**



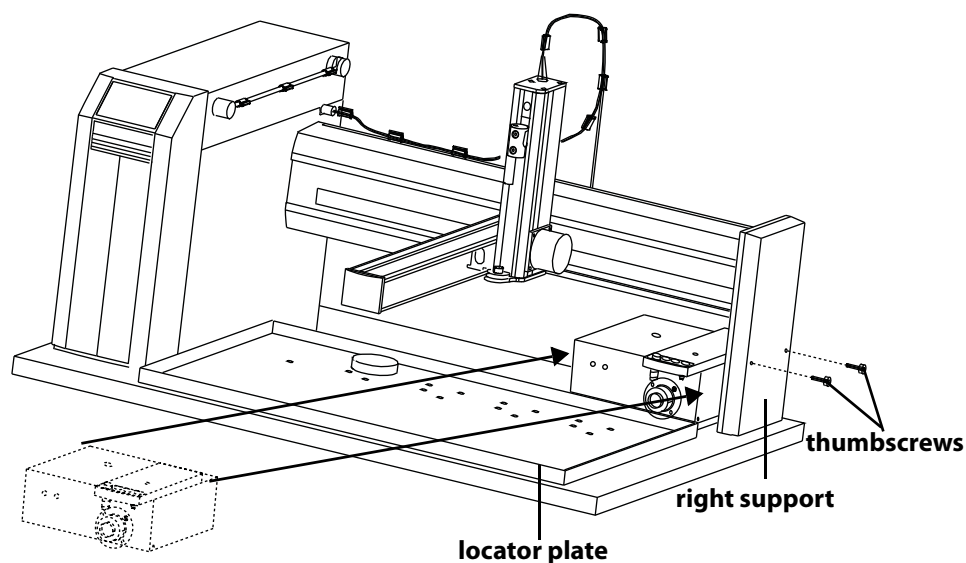
819 Injection Module installed on the 215 Liquid Handler

Placement on the 215 Liquid Handler

The 819 Injection Module is installed on the 215 Liquid Handler.

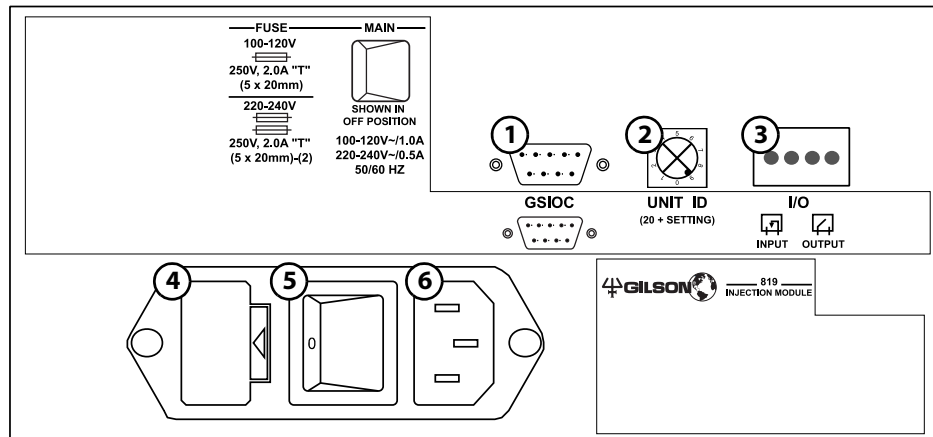
Note: If the injection module is being installed on the liquid handler along with two Gilson 818 AutoMix modules, refer to the 819 Injection Module Installation appendix in the 818 AutoMix User's Guide for placement information.

- 1 Using a Phillips screwdriver, remove the two labeled shipping screws from the injection port plate on the top of the injection module. Store the screws in case the module must be returned to the factory.
- 2 Place the module behind the last rack position on the locator plate, next to right support of the liquid handler.
- 3 Secure the module into place using the two thumbscrews, supplied in the accessory package.
- 4 Remove the tape securing the stainless steel waste tubing.



Rear Panel Connections

Refer to the diagram below when making the connections described in this section.



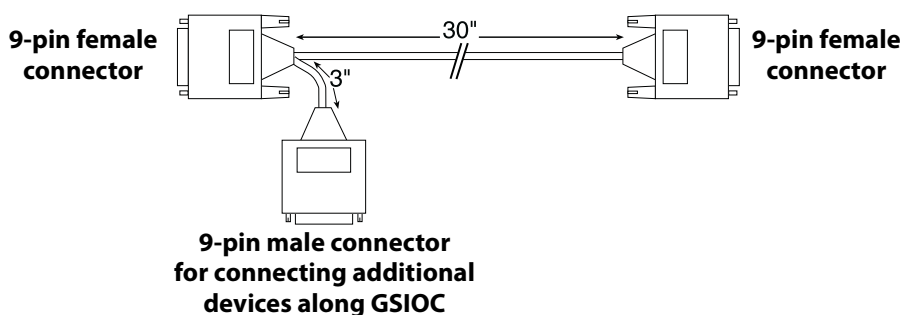
- 1 Gilson Serial Input/Output Channel (GSIOC) port
- 2 Unit ID selector
- 3 Input/Output (I/O) port
- 4 Fuse drawer
- 5 Power switch
- 6 Power receptacle

GSIOC Port

Use the GSIOC port to connect the injection module to the 215 Liquid Handler. The injection module is set by default for connection via the GSIOC to a Gilson system that is controlled by Gilson software.

- 1 Locate the GSIOC cable in the accessory package.
- 2 Connect one of the female connectors to the GSIOC port of the injection module. Tighten the retaining screws.
- 3 Connect the other female connector to the GSIOC port of the 215 Liquid Handler.

Note: If the liquid handler and the injection module are part of a Gilson HPLC system, use the male connector to connect additional devices along the GSIOC.



Input/Output Port

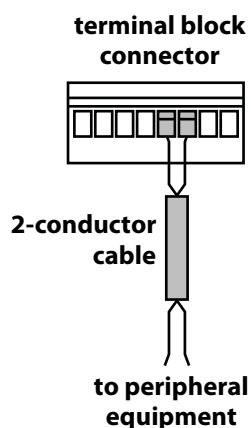
You can use the input and output contacts found on the rear panel of the 819 Injection Module to receive signals from and send signals to other devices. Refer to the diagram on [page 2-3](#) for the location of the input/output port.

The 819 Injection Module has one contact input.

<i>Input</i>	<i>Action</i>
open to close	valve to INJECT position
close to open	valve to LOAD position

The module has one contact output. The contact is closed when the valve reaches the INJECT position. The contact is opened when the valve reaches the LOAD position. While the valve is moving, the contact remains in the previous state. When using contact input control, if input equals output, motion is finished.

<i>Contact In</i>	<i>Contact Out</i>	<i>State</i>
open	open	LOAD position
open	closed	Moving to LOAD position
close	open	Moving to INJECT position
close	closed	INJECT position



Making Connections

To make connections, you need the following:

- 2-conductor cable (22–30 gauge for each wire)

You can purchase a 6-foot piece of suitable cable (part number 709910206) from Gilson.

- wire insulation stripper
- small-blade screwdriver

To prepare and make connections with the 2-conductor cable:

- 1 Cut the cable into pieces of appropriate length.
- 2 Strip about 0.25 cm of insulation from each end of the cable.
- 3 Locate the terminal block connector in the accessory package.
- 4 Insert each wire into the appropriate terminal on the connector. Push the wire all the way in; then tighten its corresponding pin screw.
- 5 Connect the terminal block connector to the injection module. Push the terminal connector in as far as it will go. It is designed to fit snugly into its receptacle.
- 6 Connect the opposite ends of the wires to the other device. Be sure to match ground connections.
- 7 Label each cable to identify the purpose of the connection.

Unit ID Selection

The unit ID is set to 29. The unit ID identifies the 819 Injection Module to Gilson software packages that can issue GSIOC commands to Gilson instruments. There is no need to change the unit ID unless it is the same as that assigned to another Gilson instrument connected along the GSIOC.

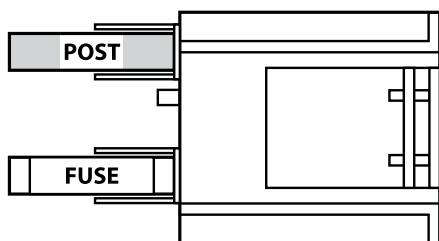
To change the unit ID:

- 1 Gently insert a small flat blade screwdriver into the Unit ID selector on the rear panel and turn it.
- 2 Align the white dot with one of the indicated numbers. The unit ID is 20 plus the selected number.

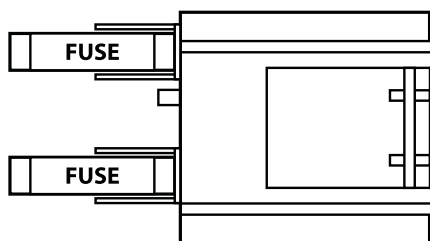
Fuse Installation

To install the fuses in the 819 Injection Module:

- 1 Locate the accessory package containing the fuse drawer appropriate for your line voltage.
- 2 Locate the accessory package containing the fuses.
- 3 Install the fuse(s) into the fuse drawer. The fuse drawer for 100/120V accepts one fuse. The fuse drawer for 220/240V accepts two fuses.
- 4 Insert the fuse drawer into its receptacle in the module.



fuse installation for 100/120 voltage



fuse installation for 220/240 voltage

Power Cord Connection

Locate the appropriate power cord for your line voltage.

Use the power cord to connect the injection module to a power source.

Plumbing Connections

Drain and Waste Tubing

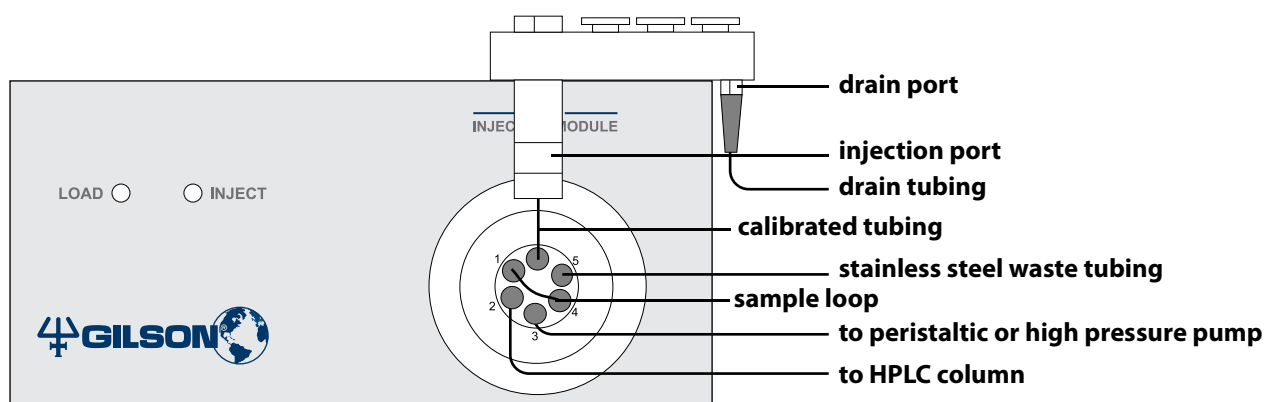
Connect one end of the supplied drain tubing to the drain connector of the injection port plate. Place the other end into a waste receptacle.

Place the free end of the stainless steel waste tubing into a waste receptacle. Make sure that the outlet is lower than the waste port of the valve.

Column and Pump Tubing

Connect the tubing from your HPLC column to port 2 of the injection valve.

Connect the tubing from your peristaltic or high pressure pump to port 3 of the injection valve.





Z-Arm Height Adjustment

Follow instructions in **Chapter 2, Installation** in the 215 Liquid Handler's User's Guide to install the Z-arm and adjust the Z-height. Use the Z-height adjustment tool that was shipped with the Z-arm of the liquid handler.

In addition, to ensure that the Z-arm is adjusted for use with the injection port, run the 215 Injection Z-Height Utility.

215 Injection Z-Height Utility

The 215 Injection Z-Height Utility is provided on the 215 Utility Programs CD-ROM supplied with your 215 Liquid Handler.

- 1 Start the 215 Injection Z-Height Utility.
- 2 Select the location of the injection module in the Location of Injection Module field.
- 3 To position the probe over the injection port, click **Move to Injection Port**. If the probe does not stop above the injection port, select a different option button in the Location of Injection Port Plate area and click **Move to Injection Port** again.
- 4 To see if the probe's Z height is aligned correctly, slide a small piece of paper between the probe's tip and the injection port. The probe is aligned if the top of the paper catches the tip of the probe when you position the paper between the probe and the injection port.
- 5 If the probe is not aligned, click on  or  to move the probe.
- 6 When the probe is aligned, click **Update** to store the new alignment into the liquid handler's memory.
- 7 Click **Done** to close the 215 Injection Z-Height Utility.

Note: If the probe requires adjustment along the X- or Y-axis, use the 215 Setup Utility (Adjust XY tab).



**Z-height
adjustment tool**

Both TRILUTION® LC Software and TRILUTION® LH Software provide programmed control of the 819 Injection Module.

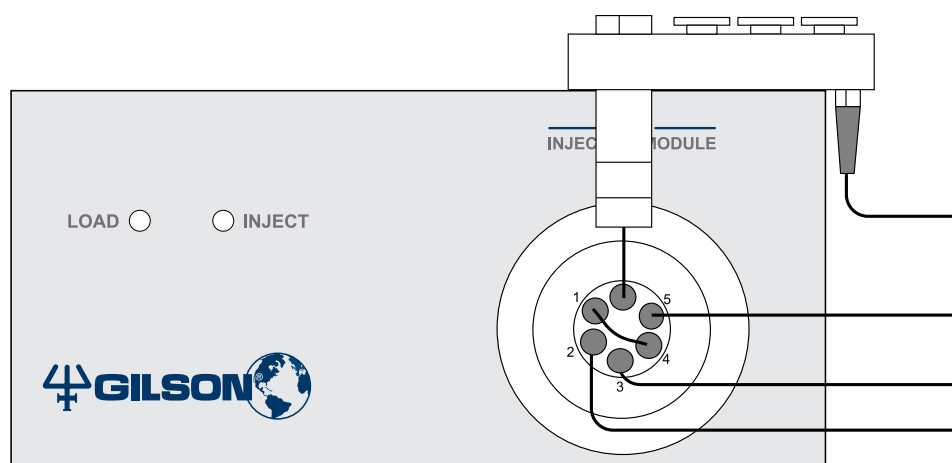
This chapter provides the following information:

- A description of the **Front Panel** of the injection module
- How to **Start Up** the injection module

Front Panel

The front panel of the injection module contains a LOAD LED and an INJECT LED. These LEDs identify the position of the injection valve:

LOAD LED	INJECT LED	Condition
On	Off	Valve at LOAD position
Off	On	Valve at INJECT position
Off	Off	Valve is turning
Blinking	Blinking	Valve error



Start Up

To get the injection module ready for injections, turn on power to the module using the power switch located on the rear panel. Refer to the rear panel diagram on [page 2-3](#) if necessary.

To obtain optimum performance and maximum life from the injection module, it is important to keep the instrument well-maintained.

The 819 Injection Module is intended to be used in a laboratory environment by trained technical personnel.

This chapter contains the following information to help you maintain your injection module:

- **Helpful Hints**
- **Replacing Parts**

Helpful Hints

In order to keep your injection module at peak performance, Gilson recommends that you do the following:

- Flush the injection port, valve, and tubing daily with distilled or deionized water.
- Check periodically to ensure that all fittings are tight.
- Wipe up all spills immediately.

Replacing Parts

Replacing Tubing

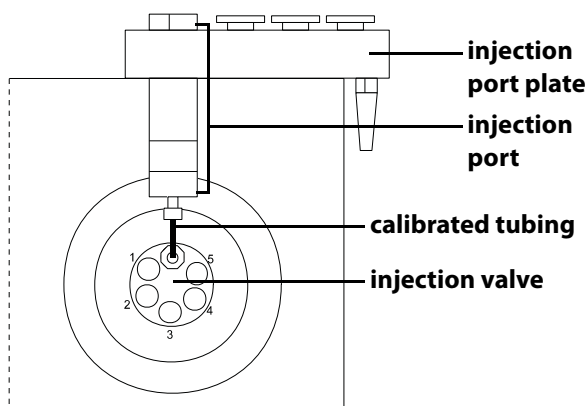
It is important to keep all tubing clean and free of crimps. Tubing that has become dirty, blocked, or crimped can result in poor accuracy and precision.

Replace tubing as needed. See [Appendix A, Replacement Parts and Accessories](#) for part numbers for replacement tubing.

To replace the calibrated tubing:

- 1 Disconnect the calibrated tubing from the injection port. To fully remove the fitting, do the following:

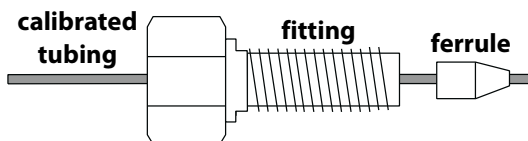
- a) Loosen the two thumbscrews that secure the injection module to the liquid handler. See diagram on [page 2-2](#) if necessary.



- b) Lift and tilt the injection port plate from the top of the injection module with one hand while loosening the fitting with the other hand.

- 2 Disconnect the calibrated tubing from the injection valve.

- 3 Install the fittings and ferrules on the replacement tubing.

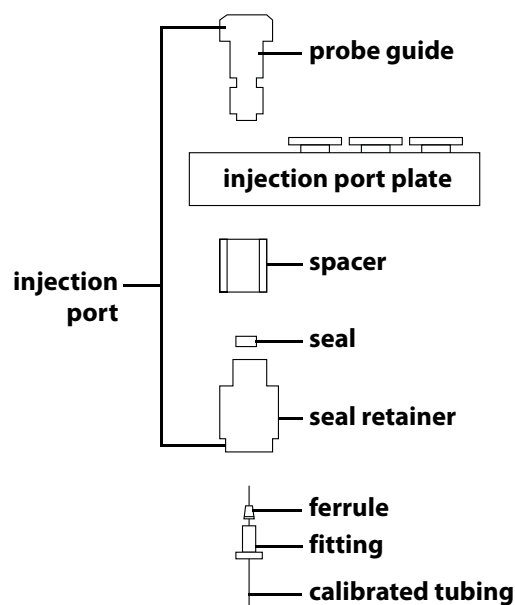


- 4 Connect one end of the replacement tubing to the injection valve and finger tighten. When secure, turn the fitting 1/4 turn with a 1/4" wrench, supplied with the injection module.
- 5 Connect the other end to the bottom of the injection port. You may need to lift and tilt the injection plate for better access to the injection port. Finger tighten the fitting. When secure, turn the fitting 1/4 turn with the 1/4" wrench.
- 6 If necessary, reinstall the injection port plate onto the injection module, making sure the plate is seated on the pins on the top of the module.
- 7 Secure the module into place using the two thumbscrews.

Replacing the Injection Port Seal

To replace the injection port seal:

- 1 Disconnect the calibrated tubing from the injection port. To fully remove the fitting, do the following:
 - a) Loosen the two thumbscrews that secure the injection module to the liquid handler. See diagram on [page 2-2](#) if necessary.
 - b) Lift and tilt the injection port plate from the top of the injection module with one hand while loosening the fitting with the other hand.
- 2 Using the 10 mm wrenches, remove the seal retainer piece from the injection port. Refer to the diagram. It shows the components of a disassembled injection port: probe guide, spacer, seal, and seal retainer. It also shows the injection port plate, calibrated tubing, its fitting, and ferrule.
- 3 To remove the seal from the top of the seal retainer, insert a #6 wood screw into the seal then pull. Discard the old seal.
- 4 Using your fingers, push the replacement seal into place in the seal retainer.
- 5 Before reconnecting the seal retainer, ensure that the probe guide and spacer are secure in the injection port plate. Use the 10 mm wrenches if necessary.
- 6 Finger tighten the seal retainer to the spacer. When secure, use a 10 mm wrench and turn the spacer 1/4 turn.
- 7 Connect the calibrated tubing to the bottom of the injection port. You may need to lift and tilt the injection port plate for better access to the injection port. Finger tighten the fitting. When secure, turn the fitting 1/4 turn with the 1/4" wrench.
- 8 If necessary, reinstall the injection port plate onto the injection module, making sure the plate is seated on the pins on the top of the module.
- 9 Secure the injection module into place using the two thumbscrews.



Replacing Injection Valve Components

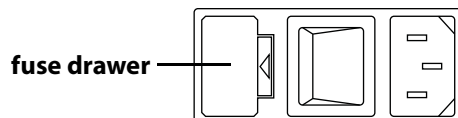
For part numbers for replacement valve parts, see [Appendix A, Replacement Parts and Accessories](#). Procedures for performing valve maintenance are supplied with replacement parts.

Replacing a Fuse

A blown fuse may indicate the existence of another problem in the instrument. If the replacement fuses blow, do not try others. Contact your local representative or Gilson. See [Before Calling Us](#) on page 5-4.

To change a fuse, follow these steps.

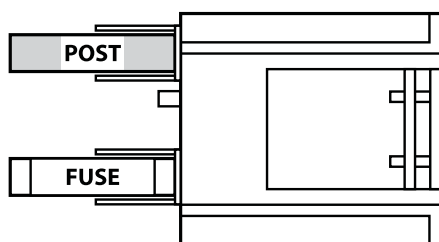
- 1 Disconnect the power cord from the power outlet and from the rear panel receptacle.
- 2 Locate the fuse drawer on the rear panel.
- 3 Insert a small screwdriver into the notch located to the right of the fuse drawer.



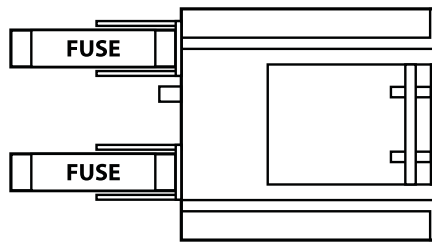
- 4 Twist the screwdriver to open and remove the fuse drawer. The fuse drawer contains one fuse for a 100/120 voltage selection. It contains two fuses for a 220/240 voltage selection.
- 5 Remove the old fuse(s) and insert the new fuse(s).

The type of fuse used for both 100/120 and 220/240 voltage selections is a 2A "T" Slo-Blo fuse (5 x 20 mm size), part number 6730204007.

- 6 Insert the fuse drawer into its receptacle in the module.



fuse installation for 100/120 voltage



fuse installation for 220/240 voltage

Transporting the Injection Module

When moving the injection module to another location or when sending it back to the factory, reinstall the shipping screws into the injection valve plate on top of the module.

This chapter provides information about the following topics:

- **Electrical** and **Mechanical** Troubleshooting
- **Repair and Return Policies**

Electrical

Input Functions Not Operating

- Make sure connections into terminal block connector are secure.
- Make sure terminal block connector is secure in input/output port.
- Check connections for proper pin assignments.
- Be sure pins from external devices are assigned correctly.
- Check polarity of input. Inputs should be a contact closure. If not, it must be TTL level (logic 0 activates).
- Confirm that source supplying input to injection module is working.

Output Functions Not Operating

- Make sure connections into terminal block connector are secure.
- Make sure terminal block connector is secure in the input/output port.
- Check connections for proper pin assignments.
- Output from injection module should be compatible with device to which it is interfaced. Outputs are contact closures.

Unit Not Operational

- Make sure power is turned on.
- Check power cord connections.
- Try different outlet.
- Check fuse(s); replace if necessary.
- Check all module connections and make sure that the unit is plugged in.

Unit Blows Fuses

- Contact your Gilson-authorized representative.

LEDs Flashing On Front Panel

- Check that a valve is installed.
- Contact your Gilson-authorized representative.

Mechanical

Bubbling Liquid From Injection Port

- Check to see if calibrated tubing is plugged.
- Check Z-arm/probe height. Refer to [Z-Arm Height Adjustment](#) on page 2-9 for more information.
- Replace injection port seal. Refer to [Replacing the Injection Port Seal](#) on page 4-4 for more information.

Bubbling Liquid From Waste Port or Injection Port

- Replace injection valve's rotor seal. See instructions supplied with the replacement seal.

Repair and Return Policies

Before Calling Us

Gilson-authorized representatives will be able to serve you more efficiently if you have the following information:

- the serial number and model number of the instruments involved. The serial number is located on the right side of the injection module.
- the installation procedure you used
- list of concise symptoms
- list of operating procedures and conditions you were using when the problem arose
- list of other devices connected to the module and a description of those connections
- list of other electrical connections in the room

Warranty Repair

Units covered under warranty will be repaired and returned to you at no charge. If you have any questions about applicability, please contact your local distributor.

Non-Warranty Repair

For out-of-warranty repairs, contact your local distributor. A Customer Service representative will discuss service options with you and can assist in making arrangements to return the equipment, if necessary.

Rebuilt Exchange

For some units, rebuilt exchange components are available. Contact your local distributor for details.

Return Procedure

Contact your local distributor's Customer Service Department to obtain authorization before returning any Gilson equipment. To return a piece of equipment:

- Carefully pack the unit to prevent damage in transit. Check with your distributor regarding proper method of shipment. No responsibility is assumed by Gilson or your distributor for damage caused by improperly packaged instruments. Indicate the authorization on the carton and on the packing slip.
- Always insure for the replacement value of the unit.
- Include a description of symptoms, your name, address, phone number, and purchase order to cover repair costs, return and shipping charges, if your institution requires it.

Unit End-of-Life



When a unit reaches the end of its useful life, refer to www.gilson.com for directions and information on the end-of-life policy. This is in accordance with the European Union Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Replacement Parts and Accessories

A

<i>Part Number</i>	<i>Description</i>
---------------------------	---------------------------

251511	819 Injection Module
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Injection Valves and Valve Replacement Parts

<i>Part Number</i>	<i>Description</i>
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25051040	Rheodyne 7010 stainless steel injection valve with gear assembly for 819 Injection Module (order sample loop separately)
25051043	7010 injection valve with make-before-break stator assembly and gear assembly for 819 Injection Module (order sample loop separately)
49601040	Stator for Rheodyne 7010 valve includes 2 long bushings, 2 short bushings, 4 ferrules
49601039	Rotor seal (Vespel) for Rheodyne 7010 valve
49601071	Rotor seal (Tefzel) for Rheodyne 7010TI valve
49601015	Isolation seal for Rheodyne 7010 valve
49601038	Shaft assembly for Rheodyne 7010 valve
27073013	Gear set for Rheodyne 7010 valve and valve motor
496010	Rheodyne 7010 stainless steel injection valve without valve gear assembly or mounting collar
49600016	Large bore Vespel rotor seal 7000L
49601017	Make-before-break stator for Rheodyne 7010 valve
49601069	Large bore stator for Rheodyne 7000/7010/7030/7040 valves
4960108	Rheodyne 7010 valve with make-before-break stator

Injection Ports

Part Number	Description
2954640	Injection port with stainless steel calibrated tubing for 1.5 mm OD probes; includes 1.5 mm injection port seal (part number 2954674)
25051015	Injection port with PEEK calibrated tubing for 1.3 mm OD probes; includes 1.3 mm injection port seal (part number 250510153)
2954674	Injection port seal for 1.5 mm outer diameter probe tip injector port
250510153	Injection port seal for 1.3 mm outer diameter probe tip injection port

Sample Loops

Part Number	Description
496020	5 µL sample loop, stainless steel
496021	10 µL sample loop, stainless steel
496022	20 µL sample loop, stainless steel
496023	50 µL sample loop, stainless steel
496024	100 µL sample loop, stainless steel
496025	200 µL sample loop, stainless steel
496026	500 µL sample loop, stainless steel
496027	1 mL sample loop, stainless steel
496028	2 mL sample loop, stainless steel
496029	5 mL sample loop, stainless steel
	10 mL sample loop, stainless steel (This loop is intended for use with pressures less than 1000 psi.)
49571876	When used on an 819 injection valve, the rack position in front of the 819 cannot be used.

Tubing and Fittings

Part Number	Description
499410522	Calibrated tubing, PEEK, 52 x 1.6 x 0.25 mm ID, fitted with hexagonal nuts and ferrules
2707288	Calibrated tubing, PEEK, 85 x 1.6 x 0.25 mm ID
4961047	Rheodyne fittings for 7010 valve; includes 2 long bushings, 2 short bushings, 4 ferrules
470321803	Tygon drain tubing for injection port plate; per foot
49051501	Drain tubing fitting for injection port plate
25051016	Calibrated tubing, stainless steel, 70 x 0.8 mm ID; with fittings
490410654	Upchurch P-654 extra long PEEK adapter; 1/4"-28 to 10-32
49931062	Calibrated tubing, stainless steel, 70 x 1.6 x 0.25 mm ID with hexagonal nuts and ferrules
49942107	0.8 mm ID Teflon tubing for injection port to other instrument. 10 feet plus 2 end fittings
49944107	0.3 mm ID Teflon tubing for injection port to other instrument. 10 feet plus 2 end fittings

Cables, Fuses, and I/O Accessories

Part Number	Description
638304512	Terminal block connector, 4-pin
709910206	2-conductor interconnect wire, 6', for making contact connections
6730204007	Replacement fuse; 2 amp (250V) T-type fuse, 5 mm x 20 mm
36078143	Shielded GSIOC cable, 30"

Miscellaneous

Part Number	Description
25051094	125 mm Z-height adjustment tool. Use this tool to adjust a 125 mm Z-arm for use with the 819 Injection Module; no Gilson 818 AutoMix is installed on the liquid handler
25051095	175 mm Z-height adjustment tool. Use this tool to adjust a 175 mm Z-arm for use with the 819 Injection Module. Or, use this tool to adjust a 125 mm Z-drive when a Gilson 818 AutoMix is installed along with the injection module on the liquid handler
250455191	819 locator plate. Required to install 819 Injection Module when two 818 Automix modules are installed on 215 Liquid Handler, or to install two 819 Injection Modules
250510751	Injection port plate. Includes plate with mounting screws, drain tubing, fitting and Z-height adjustment tool
2954698	Caps, natural PE, for tabless 1 ml column, 1000/pkg
2954709	Transfer port accessory set for 1 port. Includes one polyamide molded transfer port, PTFE inlet tubing (1000 x 3 x 2 mm ID) with filter, PE disposable sealing caps and instruction leaflet
2954714	Replacement transfer port; does not include inlet tubing, extra sealing caps or instruction leaflet