

MyVAP

Automatic LPG Vaporizer

User manual



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1. Introduction

For reasons of clarity, this manual does not contain all detailed information on all types of coupling. In addition, it cannot describe every possible case concerning installation, use and maintenance.

If you require additional information about this device or if you encounter problems that are not addressed in this manual, you can contact SRA Instruments for assistance.

The content of this manual is not part of any previous or existing agreement, commitment or legal status and does not change these. All the commitments of SRA INSTRUMENTS are contained in the respective sales contracts, which also contain the only and entire applicable warranty terms. These warranty conditions in the contract are neither extended nor limited by the content of this manual.

2. Safety instructions

Safety information:

A Liquefied Petroleum Gas can be hazardous. The following general warnings apply to the instrument as a whole. Specific warnings are provided throughout this document when a possibly hazardous operation is discussed.

2.1 For your protection

Warnings:

Warning: Shock hazard



Do not replace components while the power cable is plugged in. To avoid injuries, always turn off power before touching them or opening the chassis.

Warning: Hot surfaces



Several parts of MyVAP work at temperatures high enough to cause severe burns. These parts include, among others:

- The vaporization chamber
- The expansion volume
- The heated transfer line (optional)

You must be extremely careful to avoid touching these heated surfaces. The vaporizer can be maintained at a temperature which can reach 200°C. Do not use the instrument if the vaporizer is disassembled.



Warning: Electrostatic discharge is a threat to electronics



Electrostatic discharge (ESD) can damage the printed circuit boards of MyVAP. If you must hold an electronic card wear a grounded wrist strap and hold it only by its edges.

2.2 Conditions of use

This MyVAP Sample conditioner is used to vaporize automatically a LPG (C₃-C₄ type) and connect the outlet to an analyzer (mainly a Gas Chromatograph) for quantitative determination of the LPG composition.

This instrument requires a web browser.

For optimal display, use:

- Internet Explorer revision 10 or higher.
- Internet Explorer revision 10 or higher.

2.3 Electro statically sensitive device!

Before touching such components or modules:

- Switch off MyVAP.
- Discharge all static from yourself by touching a grounded object or by wearing an ESD wrist band.
- Only use tools which are free of static charges.
- Do not touch any pins or printed conductors. Only hold modules on their edges.



2.4 Exclusion from liability for external accessories

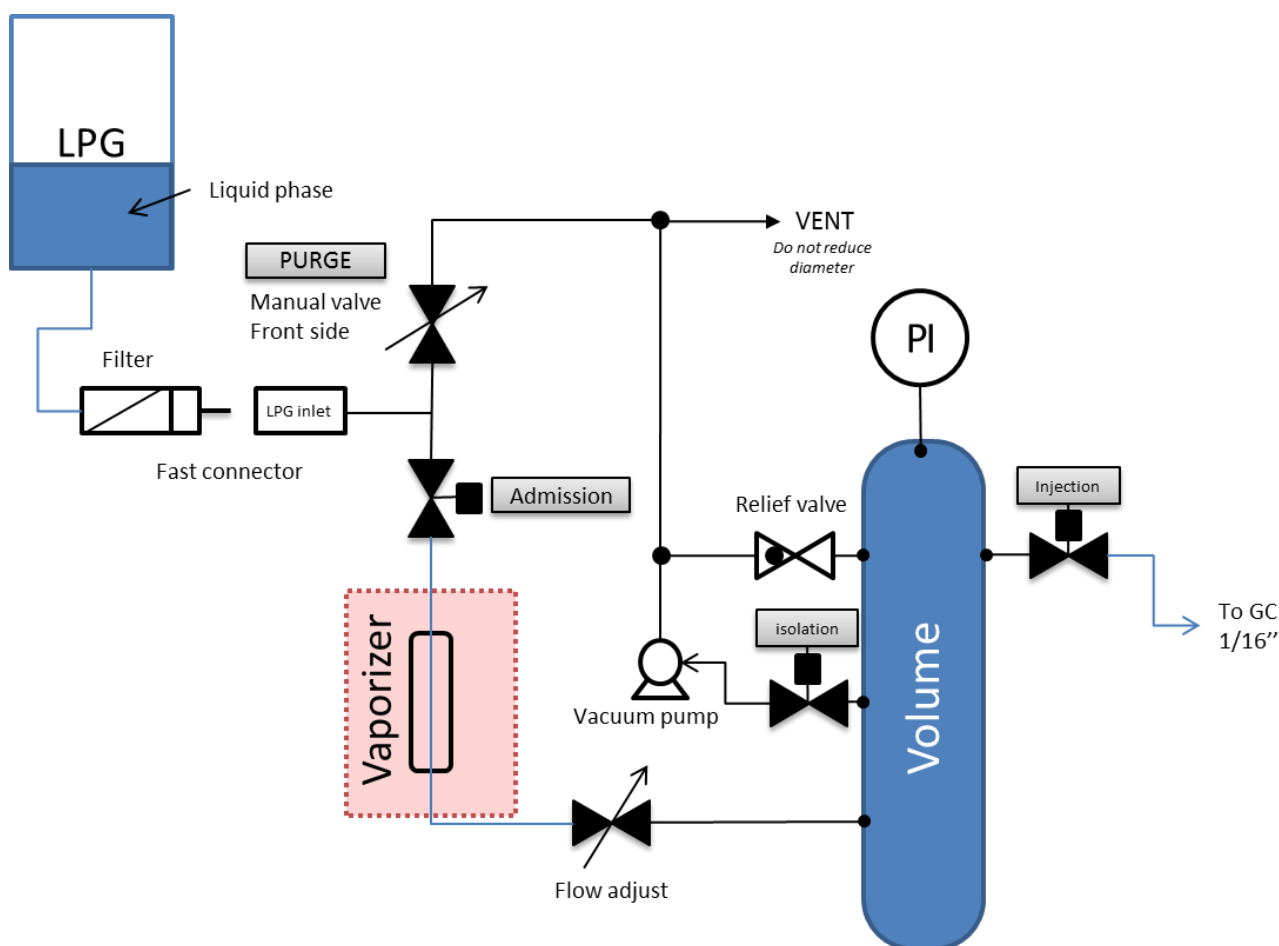
If you use or wish to connect accessories to your MyVap which we have not expressly recommended, please ask us to first confirm that the operational safety of the Vaporizer will not be influenced by these external accessories. Without this confirmation we will accept no liability for the operational safety.



3. Principle of operation

3.1 Fluidic schematics

MyVAP is a LPG vaporizer for C₃ or C₄ LPG mixtures. The fluidic diagram is the following:



MyVAP Self-check:

Directly after putting ON the device, MyVAP launches a self-check:

- Controlling the Pressure sensor at atmospheric pressure. This control is made by recompressing the chamber under vacuum opening the Sample out (to GC) valve. **Never connect the sample out to a restrictor or liquid**; vacuum could suck this liquid back to the MyVAP and damage it.
- Controlling the vacuum pump trying to reach the pressure lower limit.
- Heating the Vaporizer to the setpoint. The Volume zone is heated, but not critical.



If the Start-up test is failing - MyVAP blocks in critical error mode - re-start the self-test from the browser. If the problem persists, try powering down and up the instrument and check again. If this error remains, contact SRA Instruments.

Done by the operator:

- Check the main vent (1/4" on the back panel of the vaporizer is connected to a safe ventilated area).
- Connect the LPG Cylinder to the MyVAP inlet. Always use the inline filter provided with the instrument. Filtering the sample will prevent particles to enter the vaporizer and damage it.
- Open the purge valve to flush liquefied gas to the sample transfer line close to the vaporizer. It depends on the length of your transfer tube but 10-15 sec should be enough. Close the purge valve (clockwise).
- Check if your GC is ready to perform a run at the end of the MyVAP cycle. MyVAP will start the GC at the end of the cycle. Depending on your Agilent Chemstation version the GC need to be in "Prep run" and the injection source by "External device".
- Start the vaporizer sequence by pressing the front panel button or via the web interface on your computer.
- Then to switch for another LPG Cylinder, close your cylinder and open the purge valve to empty your line before any disconnection.

After the start, MyVAP will progress automatically through the different steps:

- Empty the volume with the sampling pump under the method setpoint.
- Open the admission valve to vaporize LPG into the chamber. The vaporized gas will fill slowly the chamber. You can tune the flow speed with the needle valve on the left side of MyVAP using a flat head screwdriver. We do recommend approx. 30-45 sec to fill the volume.
- As soon as the Max pressure is reached, MyVAP closes the admission valve and opens the Injection valve to the GC to flush the Gas Sampling Valve. The pressure decrease. MyVAP checks that the pressure decreases properly of the preset value. If not, the cycle will stop and enter a recovery sequence.
- Then the cycle starts again to reach the number of cycle programmed in the method.
- **The last cycle** (minimum number of cycle is 2) MyVAP will open the Injection valve to the GC to flush the Gas Sampling Valve AND start the GC at the end of this period.

3.2 MyVAP view

3.2.1 Front side





3.2.2 Led Status

The LED on the front panel indicates the status of MyVAP :

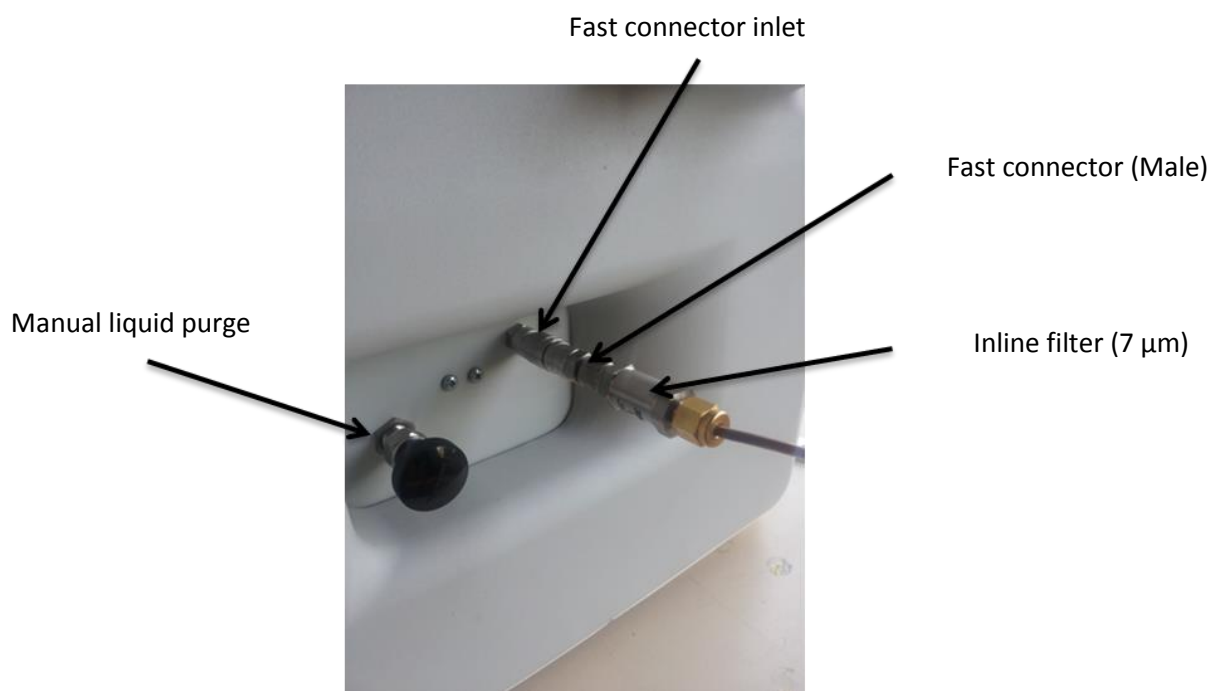
<i>off</i>	MyVAP is OFF
	GREEN: MyVAP is ready and idle MyVAP waits for Start and/or GC ready
	Blinking GREEN: MyVAP is running
	Blinking RED/GREEN: MyVAP is not ready or in self-check Start won't be of any use.
	Fast blinking: Cycle error (a physical parameter such as pressure didn't behave as expected). Check the webpage for more information.
	RED: MyVAP is frozen due to a software error. Physical reset is mandatory.

Previous version (S/N<1615) - On early versions of MyVap, there is only one LED (blue).

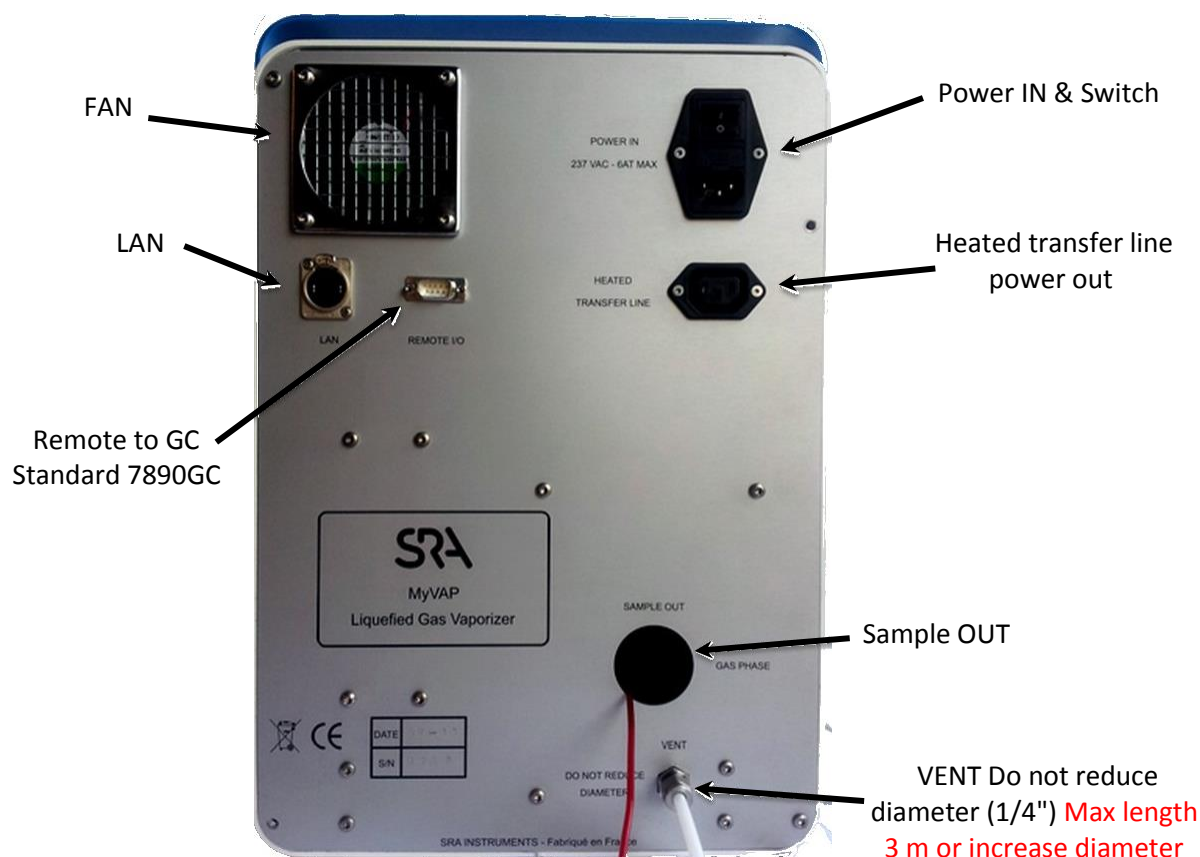
<i>off</i>	MyVAP is OFF
	ON: idle state & ready
	Slow blinking: Running /equilibrating
	Fast blinking: ERROR / Not ready



3.2.3 Sample inlet and manifold



3.2.4 Back side



4. First Start

4.1 Tools and items needed for installation

4.1.1 Hardware

- 1/16-inch stainless steel tubing for sample gas connection to the analyzer
- 1/4-inch Swagelok nuts, and front and back ferrules for the Vent connection
- 1/16-inch Swagelok nuts, and front and back ferrules
- 5/16-inch wrench
- 9/16-inch wrench
- 1/4-inch wrench
- Tork T-20 screwdriver

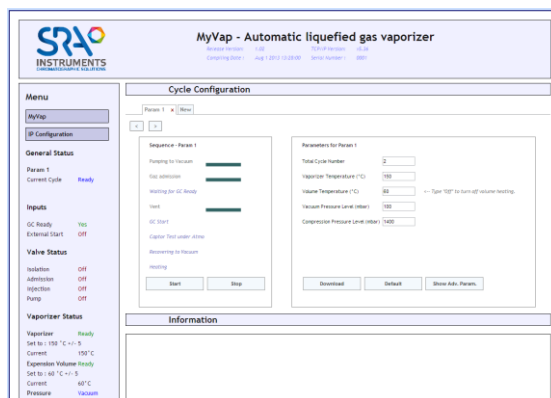
4.1.2 Other items

Electronic leak detector (optional). We recommend to do not use liquid leak detector that can pollute the tubes if liquid penetrates inside. This could damage the instrument.

4.2 Electrical connection

Your MyVAP requires 237 VAV power supply.

1. Connect the power supply cable
2. Connect your LAN cable to your computer (an intermediate router is recommended). The default IP configuration of MyVAP is :
 - IP = 10.1.1.113
 - SM = 255.255.255.0
 - GW = 10.1.1.1
3. If MyVAP is used in a network with DHCP, you need to fix your IP address in the same range to initialize the communication. IP address can be changed from the web interface at 10.1.1.113/SRA_IP_Config.htm.
Login: ipconfig Password: ipconfig
4. Start MyVAP
5. Start your web browser and go to : <http://10.1.1.113>
This page should be accessible:



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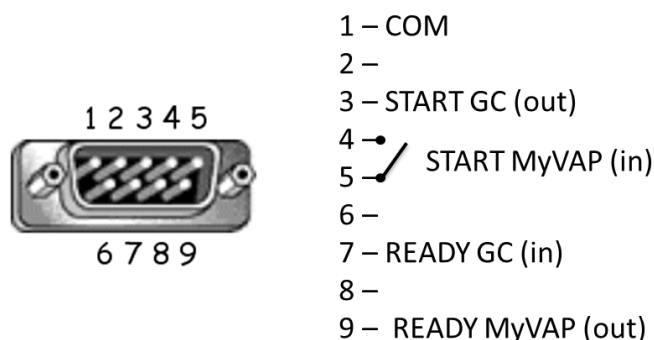


You control the entire MyVAP operative parameters through this web interface.

4.3 Remote cable

MyVap provides a REMOTE I/O connector on the back panel.

The pin out of the remote is the following:



The remote DB9 is designed to be cabled to an Agilent 7890GC with a standard DB9 M/F straight cable. It provides the connection to the GC to synchronize MyVap with the analyzer:

- MyVap reads the Ready State of the 7890GC before flushing the gas to the sampling valve during the last cycle.
- Starting the GC run by the remote start

From factory the remote input for Ready IN is configured for a voltage signal, compatible with Agilent 7890GC. For a dry contact configuration, please contact SRA Instruments.

4.4 Start the Self-Test

When MyVAP starts after a power failure, it's automatically performing a self-check:

- Controlling the Pressure sensor at atmospheric pressure. This control is made by recompressing the chamber under vacuum opening the Sample out (to GC) valve. **Never connect the sample out to a restrictor or liquid**; vacuum could suck this liquid back to the MyVAP and damage it.
- Controlling the vacuum pump trying to reach the pressure lower limit
- Heating the 2 heated zones (Vaporizer & Volume) to the setpoint.

If the Start-up test is failing - MyVAP blocks in critical error mode - try to power cycle the instrument and check again. If this error remains, contact SRA Instruments.

5. Installation

5.1 Compressed gas cylinder safety

- Securely fasten all compressed gas cylinders to an immovable structure or permanent wall. Store and handle compressed gases in accordance with relevant safety codes.
- Do not store gas cylinders in the path of heated oven exhausts or other sources of heat.



- To avoid possible eye injury, wear eye protection when using compressed gas.

5.2 Installation of fluids

5.2.1 Connect the vent

The main output vent is located on the back panel (1/4 bulkhead) of the vaporizer and must be connected to a safe ventilated area.

LPG will be vented by this exhaust!



Tubing

Do not use ordinary copper tubing which contains oils and contaminants.

Do not use plastic tubing for supplying inlet gases to MyVAP. Plastic tube can be used on the exhaust

Do not use pipe dope to seal the threads; it contains volatile materials that will contaminate the tubing.

Do not use liquid leak detector. It can contaminate the tubing with liquids. Prefer the electronic leak detector.

5.2.2 Connect the sample out to GC

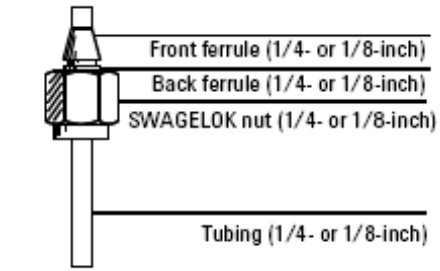
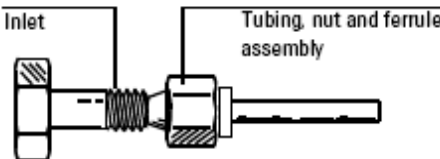
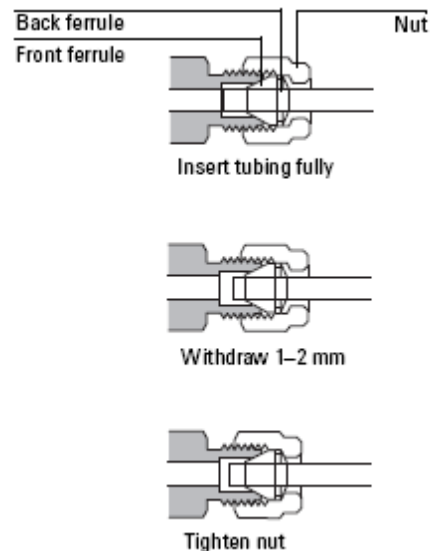
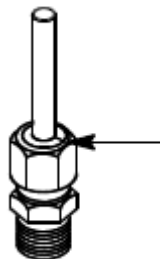
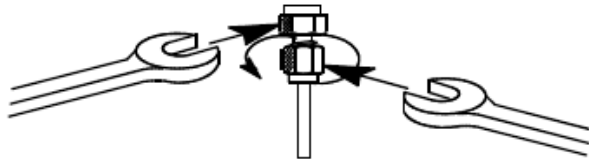
MyVAP is delivered with a 1*16 tubing connected to the sample out valve. This tube has to be connected to your GC gas sampling valve. We do recommend stainless steel (1/16"). Only use extremely clean gas lines. Clean them if necessary prior to assembly or use new tubing pre-cleaned.

- **Don't use a shut-off valve in the line to the chromatograph. The Gas sampling valve vent has to remain at atmospheric pressure.**

5.2.3 Swagelok connections

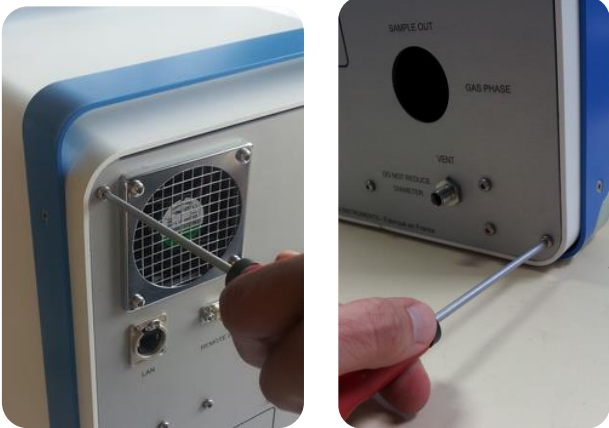

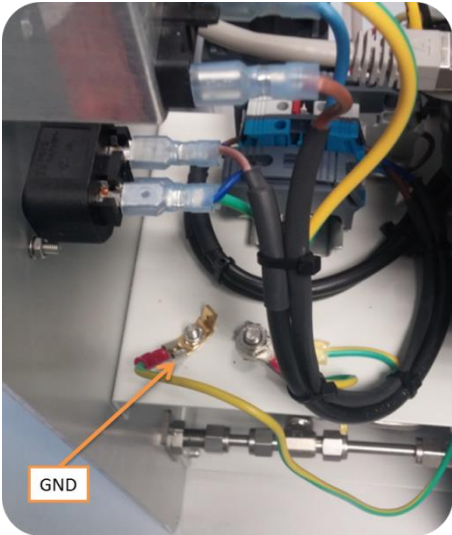
The gas supply tubing is attached with Swagelok fittings. If you are not familiar with making Swagelok connections, review the following procedure. The procedure explains how to connect tubing to a fitting, such as inlet and detector manifolds or the gas supply tank.




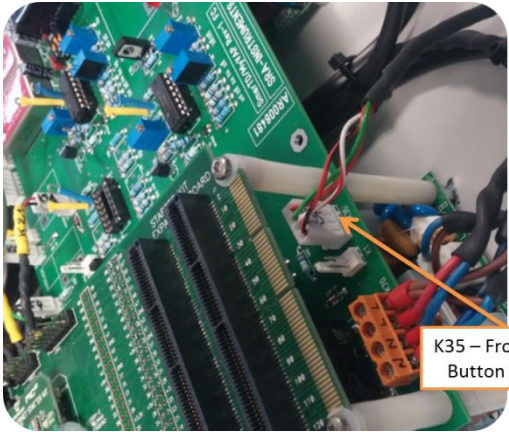
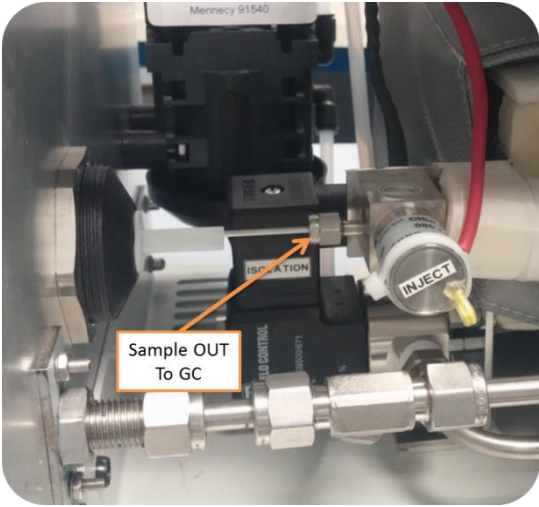
<p>Attach a 1/8-inch Swagelok nut, back ferrule, and front ferrule to the tubing.</p>	
<p>Make sure that the front ferrule is touching the inlet, and then slide the Swagelok nut over the ferrule and tighten it finger-tight.</p>	
<p>Push the tube fully into the female fitting, then withdraw it approximately 1–2 mm.</p>	
<p>Mark the Swagelok fitting with a pencil line.</p>	
<p>If you are using 1/8-inch Swagelok fittings, while holding the fitting steady with the other 7/16-inch wrench, tighten the fitting 3/4 of a turn.</p> <p>If you are using 1/4-inch fittings, tighten them 1 1/4 turn.</p>	

5.3 Connect or change the sample tubing

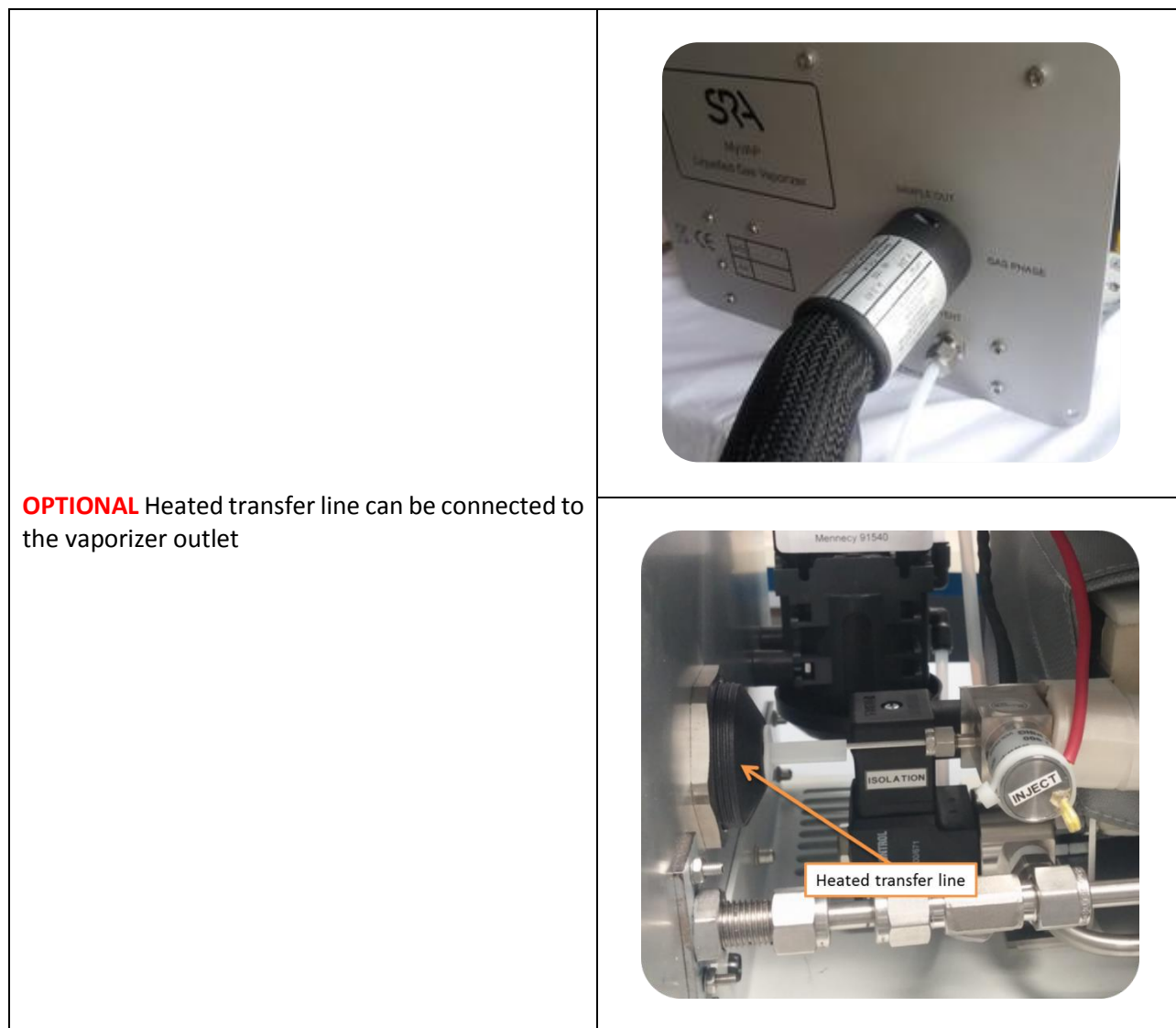
If you need to change the sample out tube or install a heated transfer line, you need to open the MyVAP by the back panel. Switch OFF the instrument and remove the power cord.

<p>Remove the 4 screws (torx T20) on the back side. Slide the chassis out of the MyVAP envelope. Take care of the short cables.</p>	
<p>Keep the 4 screws.</p>	
<p>Remove the ground cable</p>	



<p>Slide the chassis slowly. Short cable of the front panel led button have to be disconnected to remove the chassis totally</p>	
<p>To open totally the chassis, short cables of the front panel led button have to be disconnected from the main board</p>	
<p>Connect the 1/16 tube on the Sample out valve</p>	





6. Method parameters

6.1 Web interface – Status

The web interface shows all values from status and method parameters.

Basic rules:

- MyVAP will always start a self-check after a power cycle.
- MyVAP will not start a vaporization sequence if the initial self-check is not passed.
- MyVAP will never start a vaporization sequence if the vaporizer heated zone is not READY. The secondary heated zone (expansion volume) is not blocking the start and the sequence can be started even if the expansion volume temperature is not equilibrated.



- If any error occurs during the sequence, the vaporizer will stop immediately the sequence and try to pump the expansion volume down to the lower pressure setpoint. We do recommend checking the vent connection, the LPG connection and power cycle the instrument after this kind of problem. An error message will be displayed in the sequence status, the general status, and the information box.

The screenshot displays the MyVAP software interface with several key sections highlighted by red boxes:

- S/N & FW REVISION**: Located at the top right of the interface.
- STATUS**: A panel on the left side showing real-time data:
 - Current: 79 °C
 - Pressure: 624 mbar
 - Sequ: Running
 - Inputs: GC Ready (Yes), External Start (Off)
 - Valve Status: Isolation (Off), Admission (On), Injection (Off), Pump (Off)
- ACTUAL SEQUENCE STATUS**: A central panel showing the sequence progress with a bar chart for 'Pumping to Vacuum' and 'Gas admission'.
- METHOD PARAMETERS**: A panel on the right side for configuring sequence parameters:
 - Total Cycle Number: 2, Repeat: 3
 - Vaporizer Temperature (°C): 150 [100 °C to 200 °C]
 - Volume Temperature (°C): 80 <-- Type "Off" to turn off volume heating.
 - Vent Time (s): 2m00s, Vent Pressure Loss (mbar): 100
 - Injection Time (s): 2m00s, Time to GC_Start (s): 1m00s
 - GC Cycle Time (m): 30m00s, Wait for GC_Ready (at start): []
- INFORMATION & ERROR MESSAGES**: A panel at the bottom showing a log of messages:
 - [64] INFO : Current Sequence up to date
 - [65] INFO : Sequence loaded in memory
 - [66] INFO
 - [67] WARNING
 - [68] INFO
 - [69] WARNING
 - [70] WARNING
 - [71] WARNING : No update while MyVap is busy.

At the bottom of the interface, contact information for SRA Instruments is provided:

SRA Instruments 150, rue des Sources | 69280 Marcy l'Etoile | France
 Tel. +33 04 7844 2947 | Fax +33 04 7844 2962 | Info@sra-instruments.com | www.sra-instruments.com
 Siege Social: 150, rue des Sources , 69280 Marcy l'Etoile



Status zone:

This zone shows the status of the vaporizer:

Vaporizer Status	Vaporizer Status
Vaporizer Ready	Temperature of the vaporizer. This zone must be ready before a vaporization sequence starts.
Set to : 150 °C +/- 5	
Current 147° C	
Expansion Volume Ready	Temperature of the expansion volume. It is not mandatory that the zone is ready. This zone is long to stabilize because of the low power and mass to heat. It is not necessary to heat if the analysis of LPG doesn't require heavy hydrocarbons measurements.
Set to : 80 °C +/- 5	
Current 79° C	
Pressure	Pressure: shows the actual pressure inside the expansion chamber, in mbar.
Current 624 mbar	
Sequ	
Current Cycle Running	Cycle status: Ready, running, error. Shows the state of the cycle. Contextual information is also displayed.
...	
...	
Inputs	Inputs :
GC Ready Yes	<ul style="list-style-type: none"> GC Ready: is the connected GC ready for an injection? External Start: front panel button or remote start input state.
External Start Off	
Valve Status	Valves status
Isolation Off	<ul style="list-style-type: none"> Insulation = electrovalve on the vacuum pump inlet Admission : LPG inlet Injection : Vaporized LPG to GC (sample out) Pump : vacuum pump state
Admission On	
Injection Off	
Pump Off	

6.2 Method

The basic parameters are:

Parameters for Param 1

Total Cycle Number [2 to 99]

Vaporizer Temperature (°C) [100°C to 200°C]

Volume Temperature (°C) <-- Type "Off" to turn off volume heating.

Vacuum Pressure Level (mbar)

Compression Pressure Level (mbar)

Download Default Show Adv. Param.

To access to the advanced parameters,
click on
show Adv.Param.



Parameters for Param 1					
1	Total Cycle Number	2	Repeat 1	10	
2	Vaporizer Temperature (°C)	150	Vaporizer Tolerance (°C)	5	2.b
3	Volume Temperature (°C)	80	Volume Tolerance (°C)	5	3.b
4	Vacuum Pressure Level (mbar)	50	Vacuum Time-Out (s)	3m00s	11
5	Compression Pressure Level (mbar)	1400	Compression Time-Out (s)	2m00s	12
6	Check GC Ready at injection	<input checked="" type="checkbox"/>	GC Ready Time-Out(s)	3m00s	13
7	Vent Time (s)	2m00s	Vent Pressure Loss (mbar)	100	14
8	Injection Time (s)	2m00s	Time to GC_Start (s)	1m00s	15
9	GC Cycle Time (m)	0	Wait for GC_Ready (at start)	<input type="checkbox"/>	16
<div>Save Method</div> <div>Default</div> <div>Mask Adv. Param.</div>					

- Number of cycles before the injection. Increase the number of cycles to prevent memory effect in case of different nature of samples. More cycles will require more LPG sample. The minimum of cycles is 2: one for initial purging and the second to inject.
- Temperature of the vaporizer. With firmware version 1.24 and superior, the tolerance can be set in 2.b.
- Temperature of the expansion volume; the heating of this zone is optional. It is not necessary to heat if the analysis of LPG doesn't require heavy hydrocarbons measurements. With firmware version 1.24 and superior, the tolerance can be set in 3.b. To disable volume heating, type 'Off' in 3 (hover mouse for more information).
- Vacuum pressure level: the pump will empty the volume down to this pressure. A lower level will prevent for memory effect but will increase a little bit the LPG consumed for the sequence.
- Compression pressure: when LPG is vaporized into the expansion chamber, the pressure will increase. The admission will be controlled by MyVAP until the pressure exceeds this limit. Increase this value if you need higher volume to purge your transfer line and GC valve (+ the injection time).
- Check GC ready before the injection step (last cycle). If not checked, MyVAP will start the analyzer by remote with not control of ready state.
- See the diagram below.
- See the diagram below.
- In the case of chained analysis, copy your GC cycle time: After the first Vaporization, MyVap will schedule a sequence whose injection step shall occur just after GC get ready. Make sure the GC will always be ready by overestimating GC Cycle time, or by increasing **GC Ready Time-out** (would the vaporization take a shorter time than expected: see diagram below).
- Repeat is the number of consecutives analysis (and vaporizations) you're performing. When doing more than one sequence, check the **<GC Cycle time>** and **<Wait for GC_Ready at Start>** fields.

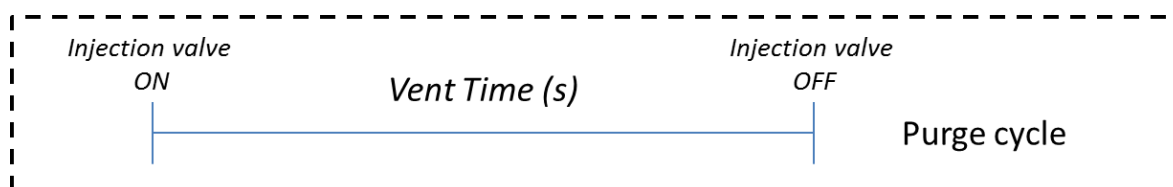


11. Vacuum timeout: time MyVAP tries to reach the low pressure setpoint. After this time, if it is not possible to go to the low setpoint, an error will occur and the sequence will stop. This error could reveal a vacuum pump problem or a leakage in the system.
12. Compression timeout: time MyVAP tries to reach the high pressure setpoint. After this time, if it is not possible to reach the setpoint, the sequence will stop and the system tries a recovery sequence. If this error occurs, check if your LPG sample is open and properly connected (liquid phase) to MyVAP inlet. Check the admission valve is ON. Change the inline filter.
13. GC Ready Time-out is the maximum span MyVap will wait for the GC to get ready just before injecting. In case of a Time-out, MyVap enters a recovery cycle.
14. Vent pressure loss : to prevent the transfer line to be blocked and in order that the sample can flush properly through the gas sampling valve, MyVAP will control that the pressure decreases during the venting or injection phase. The pressure can decrease more than this value but a lower decrease in the duration period will stop the sequence and try a recovery. Check your transfer line is connected properly to the gas sampling valve and to atmospheric pressure. Try to replace the tubing if the error remains, contact SRA Instruments. A recovery cycle always tries to reach vacuum pressure, then to close all valves.
15. See the diagram below.
16. With this box checked, MyVap waits for GC_Ready at the beginning of each sequence. Stopping the sequence cancels the postponed cycle. If a **<GC_cycle time>** is set, MyVap will first delay the sequence, and then wait for the GC Ready.

6.3 GC injection mode

6.3.1 Vent Time

After having filled the expansion volume, MyVAP will open the sample out valve and flush the vaporized gas to the GC analyzer



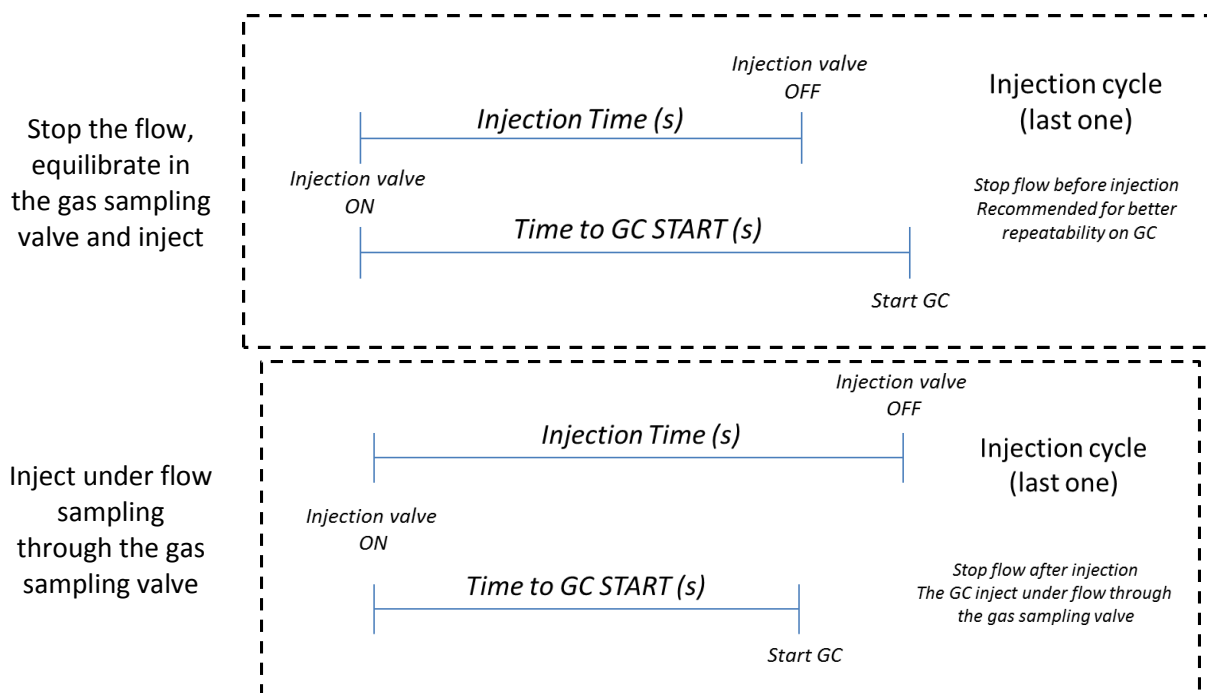
NB: the pressure decrease is tested during this step.

This will occur in all cycles except the last one of the sequence.

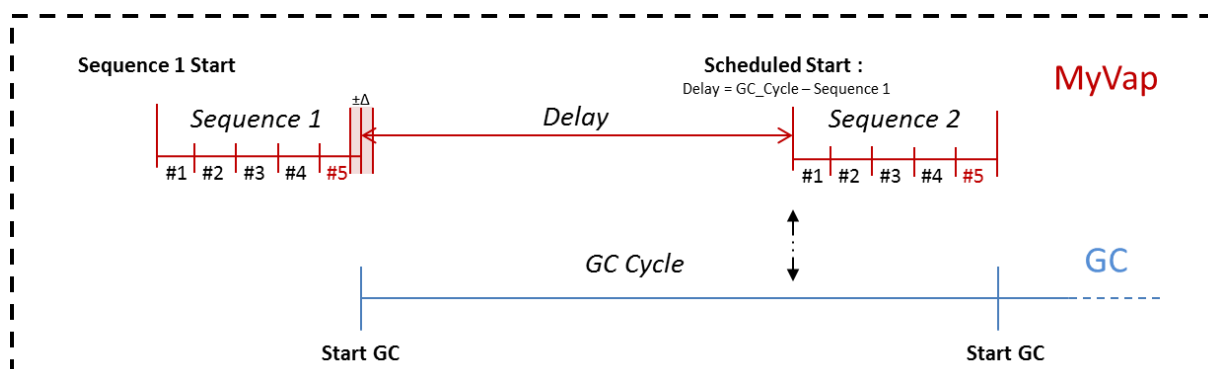
6.3.2 Injection Time

For the last cycle, MyVAP will start the GC analysis. You can set when you want to start the GC. There are 2 possibilities:



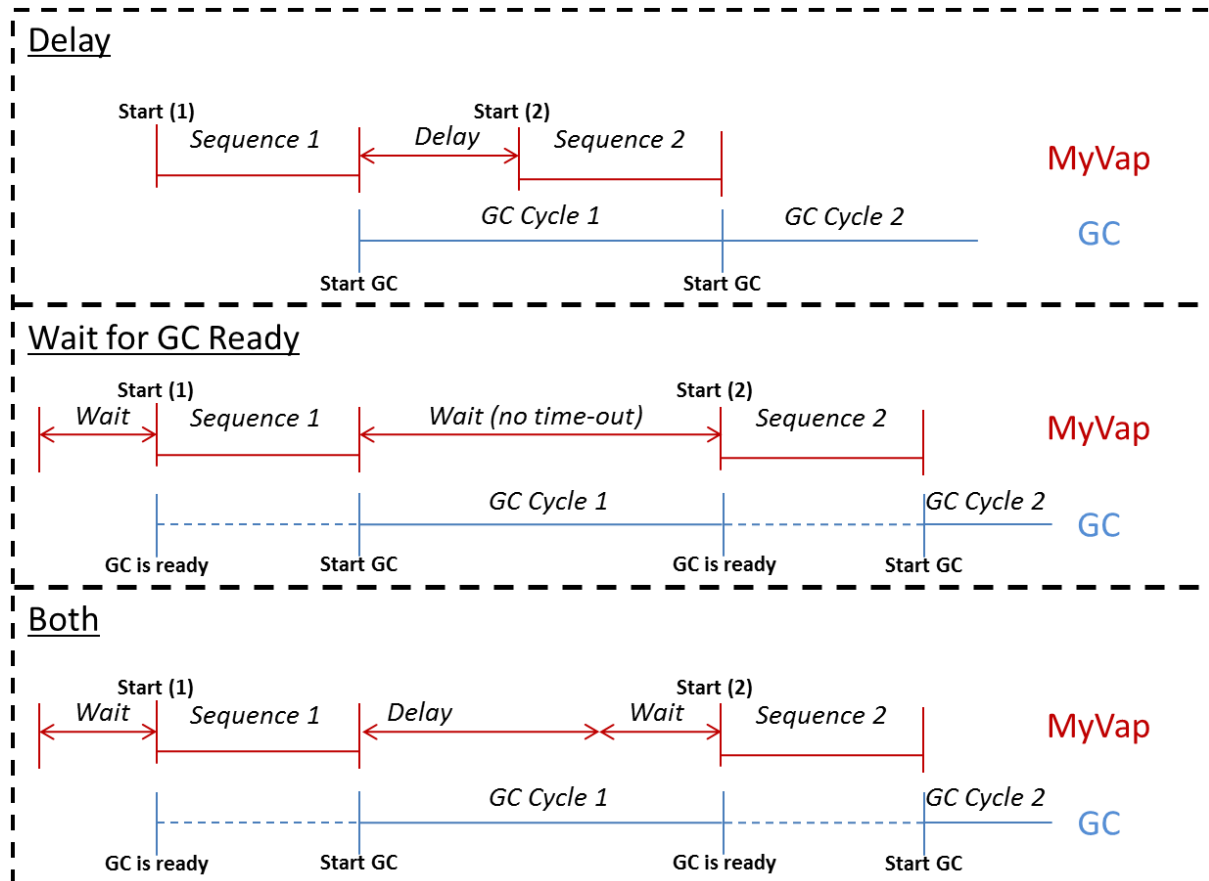


6.4 Repeat a sequence



When a GC Cycle Time is specified, the delay between sequences is estimated by assuming each sequence lasts the same time ($\Delta \ll \text{Sequence}$ and $\Delta \ll \text{GC_Cycle_Time}$). By anticipating when the GC gets back ready, we reduce the time lost between analyses, at the risk of entering a GC Ready Time-out would MyVap be too much in advance. If a sequence is longer than GC_Cycle Time, MyVap runs continuously and the GC waits between runs. On the other hand, the <Wait for GC Ready> checkbox ensures a GC is present and ready before starting to prepare LPG.





7. Communicate with MyVAP

7.1 Change IP address

Access the IpConfig Page by typing 10.1.1.113\SRA_IP_Config.htm in your browser, or via the Menu tab (IP configuration). Changing the IP config is an advanced function, a password will be required.

USER ipconfig
PASSWORD ipconfig



Host Name:	<input type="text" value="MYVAP-1569"/>
IP Address:	<input type="text" value="10.1.1.113"/>
Gateway:	<input type="text" value="10.1.1.1"/>
Subnet Mask:	<input type="text" value="255.255.255.0"/>
Primary DNS:	<input type="text" value="10.1.1.1"/>
Secondary DNS:	<input type="text" value="0.0.0.0"/>
MAC Address:	00:04:A3:48:6B:00
<input type="checkbox"/> Enable DHCP	
<input type="checkbox"/> Enable Auto IP	
<input type="button" value="Save Config"/>	

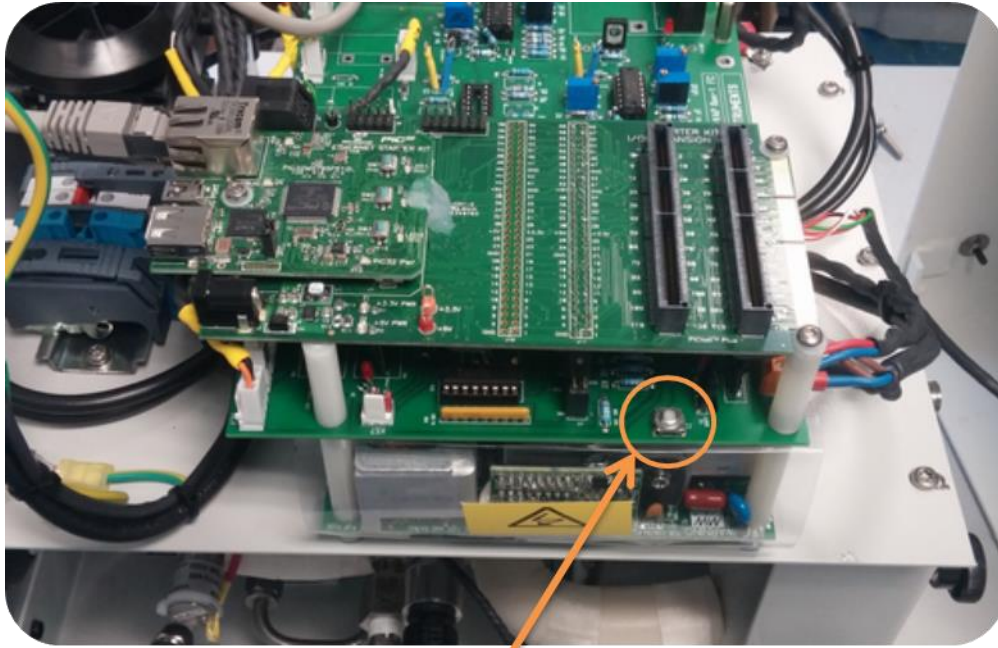
You will stay logged-in until you close the browser AND click on the 'logout' link.
Before integration to your network, set either a valid fixed address or a HostName for your DHCP server. In case of problem, contact your local IT. Saving IP Config will reboot the device.

7.2 Reset Procedure (no communication)

If no communication is possible with MyVAP, you can reset the IP address configuration to the factory settings. All methods will be lost after the reset. To reset MyVAP:

- Open the chassis removing the 4 screws
- Press the reset jumper for 10-20 sec while switching ON the MyVAP. You can release the switch when you listen to the first click of the valve or later the vacuum pump. MyVAP will re-initialize the IP address to the factory settings: 10.1.1.113





Reset switch

- Switch off MyVAP. Put the jumper again.
- Connect the front panel led & button connector
- Fix the ground line again
- Slide the chassis inside the cover,
- Close the chassis and start again.
- After switching ON MyVAP you can go to the IP Configuration page (see 6.1, change IP Config) and change the Host Name of your MyVAP by MyVAP-[Serial Number]

8. The SRA Embedded Web interface

The SRA Embedded Web Interface (SEW Interface) is a generic set of webpages with a structure established on several devices since January 2011. The same design has been followed to help users getting familiar on our products.

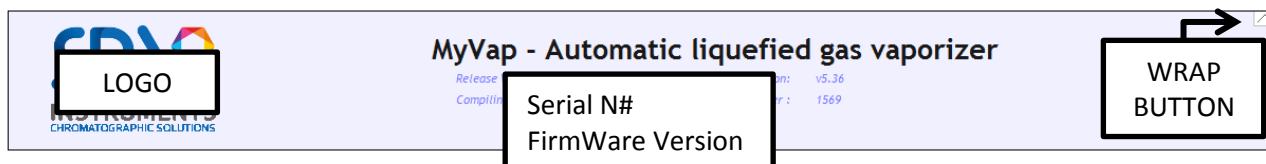
8.1 Web Server Architecture

The server consists of 2 to 3 html pages: at least one for control of the device, and one for IP config. A page can be dedicated to advanced parameters (not the case on MyVap). The menu on the left margin enables navigation between pages. The main page is also located at the root of the server's arborescence, and will be returned when the IP address is typed in the url of your browser. Up to 5 clients can connect at any time.

8.1.1 Header and footer

The header display useful information: Firmware version and serial number. Note them down for any call to our assistance. In the upper right corner is a 'Wrap Button', which reduce the header and footer to gain space on small screens. You can also, with any good browser, zoom out your page to fit your screen with CTRL and +, -, or 0.





When the header and footer are wrapped, the button enables to get them back.

8.1.2 Time input formatting

With times inputs, a default unit is always specified (s,m,h). You can however choose to force your own unit by typing:

25 s 14 h 32 m

You can also combine units intuitively:

1 h 25 m 25 m 14 s 28

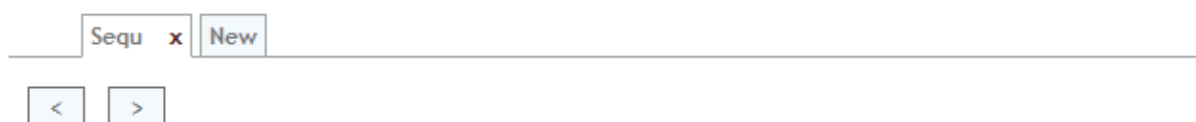
Be careful nevertheless:

1h25 is 1 hour 25 seconds.

A coma or point is followed by decimal fraction down to 1/1000 (even if the default unit is m or h).

8.1.3 Tabs

The SEW enables different methods organized with tabs.



Each tab can be:

Selected, to watch and change parameters. (Click on the designed tab).

Deleted. If the tab is the last one standing, default parameters are restored. (Click on the red cross of the tab).

Created with default parameters (Click on 'New').

Organized within other tab: the right and left arrow move the current tab.

Renamed: double click on a tab turns in into a text field. Type your new name and ENTER.

8.2 Error, information and warning

Information is displayed in the corresponding window. Each message is timed (if your network enables an access to a NTS server), and given a number (to set apart repeated message). Each message has a type:

- Error (a critical operation occurred, MyVap can no longer work in good conditions, and an intervention might be needed.)
- Warning (an unexpected operation has been recorded, the user shall be careful but the system is not compromised)
- Information (everything is ok).



```
[64] INFO      : Current Sequence up to date
[65] INFO      : Sequence successfully loaded on EEPROM
[66] INFO      : Current method updated at cycle start
[67] WARNING    : No update while MyVap is busy.
[68] INFO      : End Of Method 1.1 | 3.2
[69] WARNING    : No update while MyVap is busy.
[70] WARNING    : No update while MyVap is busy.
[71] WARNING    : No update while MyVap is busy.
```

8.2.1 Warnings

"Tab reset due to general error 1." & "Tab reset due to general error 2.":

An unexpected error occurred while manipulating sequence tabs. The disposition is reset.

"No update while MyVap is busy.", "No start while running", "MyVap is in process and can't be updated" and "Current Method is running and can't be updated":

Several operations are forbidden during a run, in order to avoid troubleshooting.

"Delete Impossible: reset to default setting", "Maximum sequence number", "Move is not possible":

An impossible operation occurred while editing tabs.

"Retrying Self-Check.":

The first self-check ended in error, a new one has been set with a start (the start didn't start a sequence).

"GC Ready Time-Out at 1.2|3.6", "Pressure didn't drop enough from compression at 1.2 | 3.6", "Compression Time-Out at 1.2|3.6".

A time-out error occurred during chained sequences. <1.2|3.6> indicates the time-out occurred during the second cycle of the first sequence on a schedule of 3 sequences of 6 cycles each.

8.2.2 Errors

"EEPROM Failure. Changes won't be reloaded at power-on-reset.", "EEPROM down", "EEPROM not available":

The non-volatile external memory is down. This is a hardware problem. It is no longer possible to store and load configuration at power-on-reset. The device's MAC Address from the IP protocol is also in jeopardy.

"Vaporizer has encountered a critical error. Restart your vaporizer":

Shows MyVap is in error mode and can't start a sequence.

"Pressure Sensor Failure.", "Didn't get to required temperature.", "Self-test cycle failed.", "Recovery cycle failed."

Show an error during the self-check.

"Vacuum Time-Out at 2.1|4.3":

MyVap didn't reach vacuum pressure on the first cycle of the 2nd sequence. Contrary to compression or wait for GC Ready, there is no recovery after a vacuum time out (the recovery consists in a vacuum pumping).

8.2.3 Significant information

"Cycle Initialized", "Current Sequence up to date":

When you start or stop a sequence, the running parameters are updated from the different methods available.



"Sequence successfully loaded on EEPROM":

External non-volatile memory is all right.

"#PARAMETER must be between #VALUE and #VALUE."

You entered an invalid value in the formulary.

"Bootling Sequences in Reset mode" (at power on reset):

The reset jumper is out (hardware), the system has been set to factory settings.

"Bootling Sequences in Normal mode":

On the contrary, the jumper is on, normal start, previous parameters are loaded.

"Bootling Sequences in Init mode":

This is a normal starting, but the external memory is empty, missing, or corrupted.

"No previous IP config":

The IP config is set by default. The IP address is 10.1.1.113.

"Pressure too low. Pumping step by-passed":

The pump can fail to activate under 500 mBar. If a step requires vacuum, we consider the value of 500 mBar is enough. Practically, this occurs only in the first cycle of the first sequence of an experiment. Also, pumping always keeps the vacuum lower than 150 mBar.

"Not waiting for postponed start anymore."

A 'stop' issued while MyVap waited for a GC_Ready or a delay, in order to restart a sequence. Even if this event occurs, the MyVap is idle again.

"Stopping Cycle: Temperature out of boundaries."

The temperature of the vaporizer dropped to low during a sequence. MyVap enters a recovery cycle.

"GC Start Ok.":

Indicates a start has been send to the GC (doesn't figure on the run window).

9. Technical data

9.1 Power supply

External Power Supply = 237 VAC, 50 to 60 Hz

Power consumption, max. 6 A /220 VAC

9.2 Dimensions and weights

- H 450; D 430; W 300mm
- 15Kg








9.3 Gas

Designed for LPG vaporization only C₃ or C₄ type
CE Safety valve 30 PSI

Max inlet pressure = 50 bars
For LPG ONLY

10. Accessories (ship kit)

MyVap is delivered with:

Description	Photo	Check before shipment
User Manual	-	
In line filter and quick-connect male fitting		
Power cable		
LAN cable		
Remote cable for Agilent 7890GC		
1/16 sample transfer line with nuts and ferules OR Optional heated transfer line		

Date:

Controlled by:

SRA INSTRUMENTS
210 rue des Sources
69280 Marcy l'Etoile
FRANCE

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SA à Directoire et Conseil de
surveillance au capital de 150.000 €
RCS Lyon B 342 068 731
APE 4669B
SIRET: 342 068 731 00054
Code TVA FR 40342068731



11. EU declaration of conformity


We,



INSTRUMENTS
CHROMATOGRAPHIC SOLUTIONS

SRA Instruments
210 Rue des Sources
69280 MARCY L'ETOILE
FRANCE

As a manufacturer, declare under our sole responsibility that the instrument type

<p>MyVAP</p> <p>Automatic LPG Vaporizer</p>	
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to which this declaration relates, meets the Essential Health and Safety Requirements applicable to it and which are defined by the following Directives and subsequent additions and / or changes:

1/ Directive 2014/35/EU, Annex I

2/ Directive 2014/30/EU, Annex I

Compliance with the above requirements has been ensured by applying the following standards:

1/ Directive 2014/35/EU – Low voltage

- EN 61010-1:2010 "Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements"
- EN 61010-2-081:2015 "Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other"

2/ Directive 2014/30/EU – Electromagnetic compatibility

- EN 61326-1:2013 "Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements"
- NF-EN 61000-4-2:2009-06 "Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test"

In accordance with the above-mentioned directives (Module A), the above-mentioned equipment is subject, regarding design and production aspects, to *internal production control*: **E FAB 10**

Marcy l'Etoile, 20 December 2017

Legal representative,
Luigi COBELLI

LUIGI COBELLI


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