

MyVAP
Automatic LPG Vaporizer
User manual



Dear user,

Thank you for choosing this SRA Instruments product.

This manual contains all the necessary information for the correct use of your instrument. Should you need further information or if you encounter any problems, please contact our After Sales Service:

Hotline: +33 (0)4 78 44 22 09
E-mail : service@sra-instruments.com


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1. Introduction

For reasons of clarity, this manual does not contain all the detailed information and 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 sufficiently covered 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 automatically vaporize an 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 version 10 or higher.
- Chrome version 28 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.

2.5 Safety and regulatory information

This instrument and its accompanying documentation comply with the CE specifications and the safety requirements for electrical equipment for measurement, control, and laboratory use.

This device has been tested and found to comply with the limits required by regulations. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the user manual, it may cause harmful interference to radio communications.

NOTICE: This instrument has been tested per applicable requirements of EMC Directive as required to carry the European Union CE Mark. As such, this equipment may be susceptible to radiation/interference levels or frequencies, which are not within the tested limits.

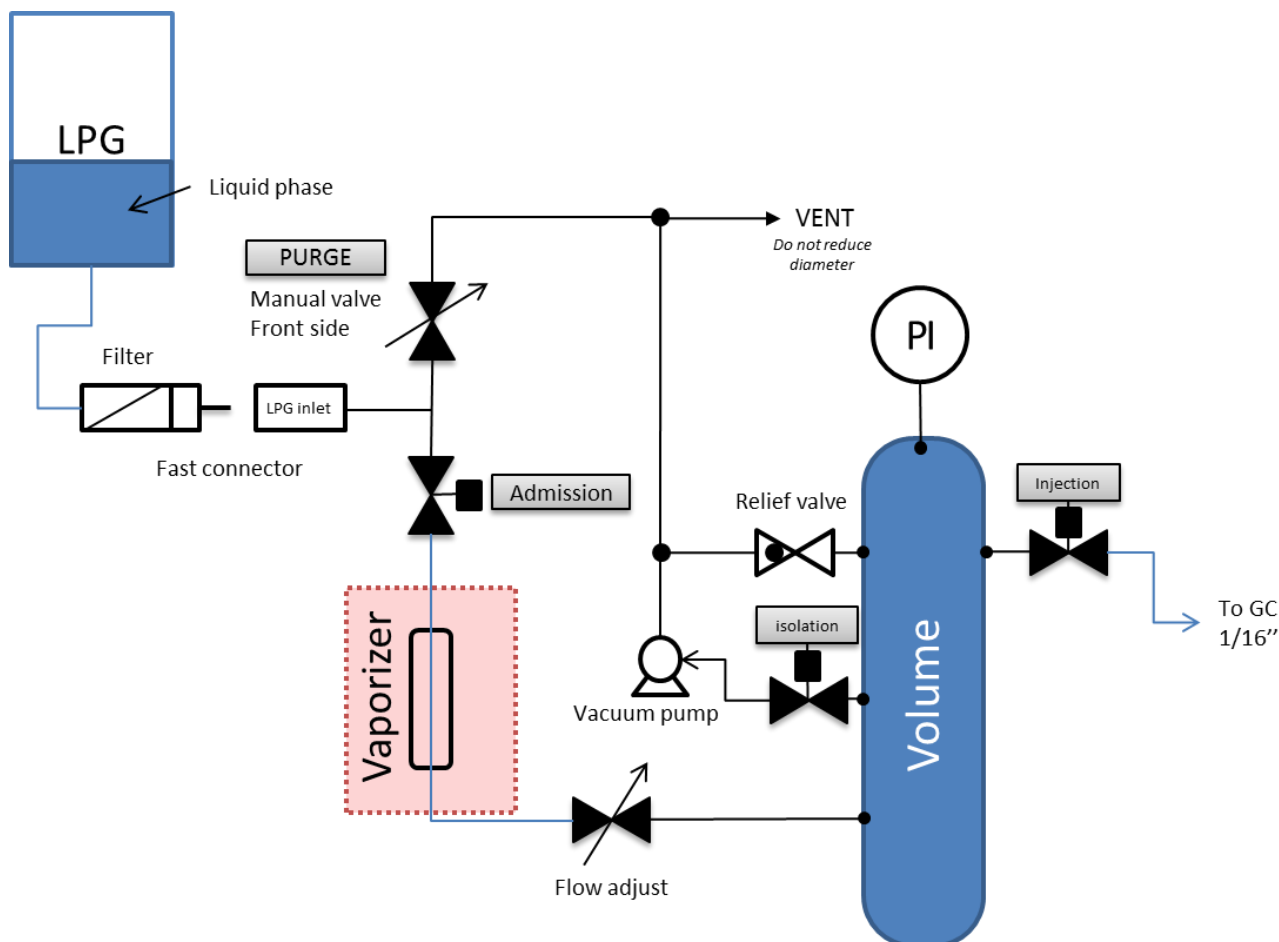


This symbol confirms that the MyVAP complies with the legislation for all aspects of electrical safety.

3. Principle of operation

3.1 Fluidic schematics

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



MyVAP self-test:

Directly after switching on the device, MyVAP launches a self-test:

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

If the startup test fails - MyVAP blocks in critical error mode - restart the self-test from the browser. If the problem persists, try to turn the instrument off/on and check again. If this error persists, contact SRA Instruments.

Done by the operator:

- Check that 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 in-line filter provided with the instrument. Filtering the sample will prevent particles to enter the vaporizer and damage it. MyVap has 2 filters. An in-line filter which is by default equipped with a 7 µm frit and an internal filter equipped with a 2 µm frit. These 2 filters are easily accessible and the frit must be changed as much as necessary. **MyVAP must never be used without its filters. Any use without a filter can damage the product and make it unusable (clogging).**
- Open the purge valve to flush the sample transfer line of the vaporizer with the liquefied gas. This depends on the length of your transfer tube, but 10-15 s should be enough. Close the purge valve (clockwise).
- Check if your GC is ready to perform an analysis at the end of the MyVAP cycle. MyVAP will start the GC at the end of the cycle. For an Agilent GC, depending on the version of your Agilent Chemstation, the GC must be in "Prep run" and the injection source by "External device".
- Start the vaporizer sequence by pressing the button on the front panel or via the web interface on your computer.
- Then to pass another LPG Cylinder, close your cylinder and open the purge valve to empty your line before any disconnection.

After the start, once the self-test has been performed, MyVAP performs the following sequence:

- Vacuum setting of the volume to the set point defined in the method.
- Opening of the inlet valve to vaporize LPG into the chamber. The vaporized gas will fill the chamber slowly. You can adjust the flow speed with the needle valve on the left side of MyVAP using a flat head screwdriver. We recommend about 30 to 45 seconds to fill the volume.
- Closing the inlet valve as soon as the maximum pressure is reached.
- Opening the injection valve to the GC to flush the gas sampling valve. The pressure is decreasing. MyVAP checks that the pressure decreases correctly to the value defined in the method. If this is not the case, the cycle will stop and enter a recovery sequence.

MyVAP performs the above sequence several times depending on the method settings.

During the last cycle (minimum 2 cycles required), MyVAP opens the injection valve to flush the GC gas sampling valve and then starts the GC at the end of the flushing process.

3.2 MyVAP views

3.2.1 Front panel



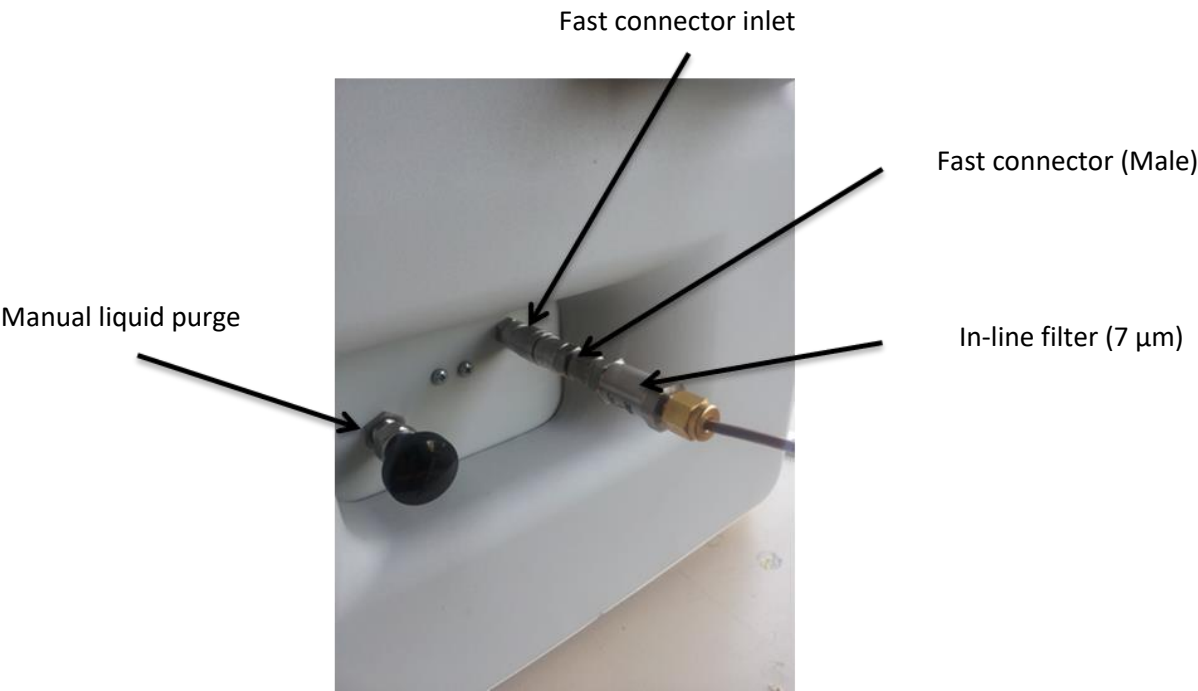
3.2.2 LED Status

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

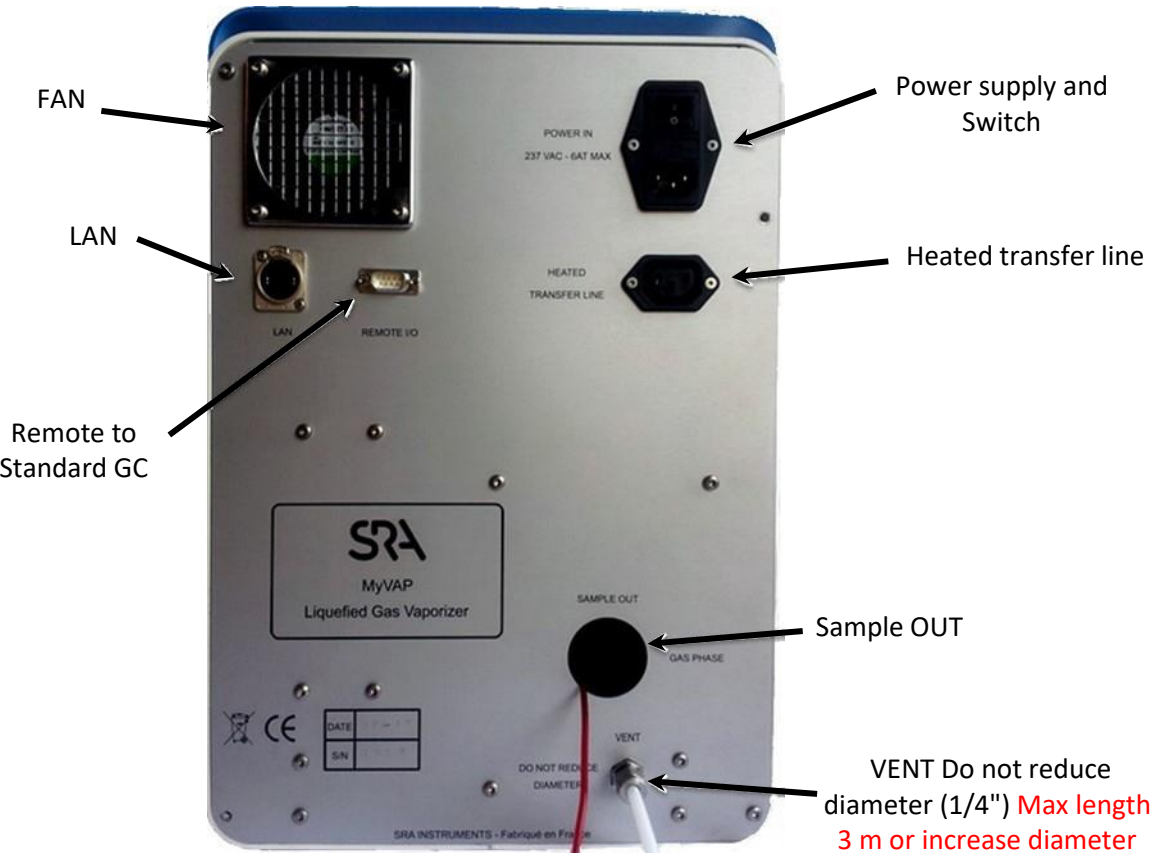
<i>off</i>	MyVAP is OFF
	GREEN: MyVAP is ready and idle MyVAP waits for Start and/or GC ready
	Blinking GREEN: MyVAP is running
	Blinking RED/GREEN: MyVAP is not ready or in self-check Start won't be of any use.
	Fast blinking: Cycle error (a physical parameter such as pressure didn't behave as expected).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

<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 panel



4. First Start

4.1 Tools and items needed for installation

4.1.1 Hardware

- 1/16" stainless steel tubing for sample gas connection to the analyzer
- 1/4" Swagelok nuts, and front and back ferrules for the vent connection
- 1/16" Swagelok nuts, and front and back ferrules
- 5/16" wrench
- 9/16" wrench
- 1/4" wrench
- Torx 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

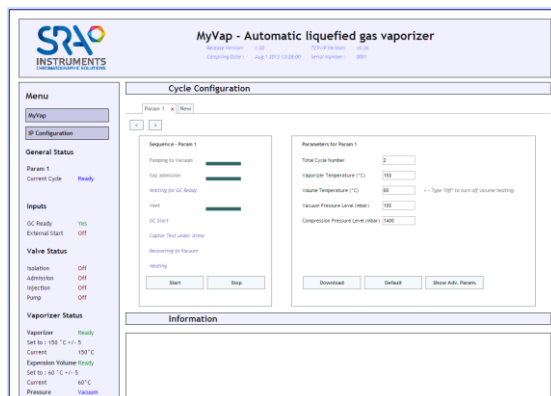
Your MyVAP requires a 220-240 VAC power supply.

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:

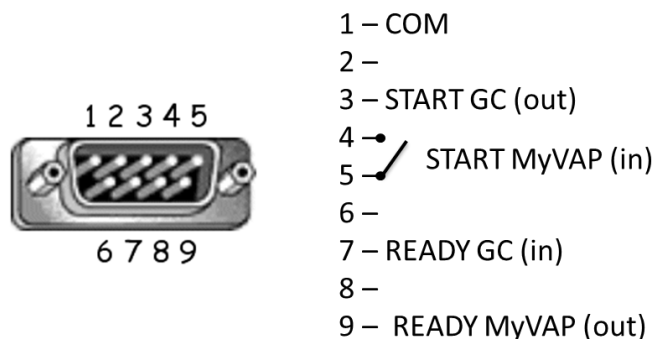


You control the entire MyVAP operative parameters through this web interface.

4.3 Remote cable

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

The connector broaching is as follows:



The DB9 connector is designed to be connected to an Agilent 7890 GC with a standard DB9 M/F straight cable. It allows to synchronize the MyVap and the GC :

- Reading the GC status (GC ready) before scavenging the gas to the sampling valve during the last cycle.
- Starting the GC (start).

At the factory, the Ready IN input is configured for a voltage signal (compatible with Agilent GCs). For a dry contact configuration, 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 outlet vent is located on the back panel (1/4") 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.

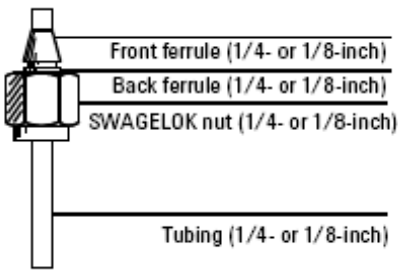
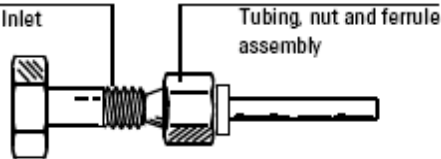
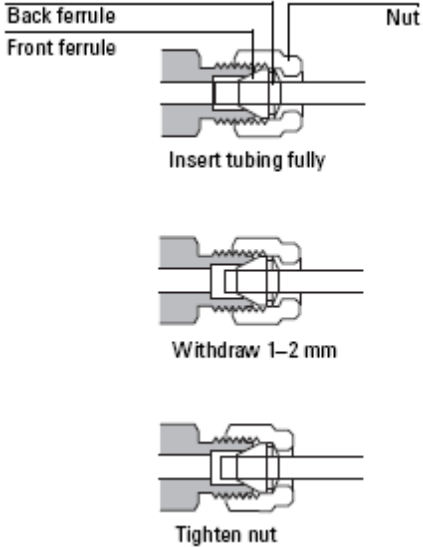
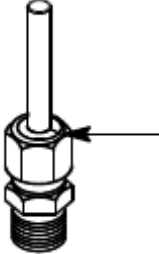
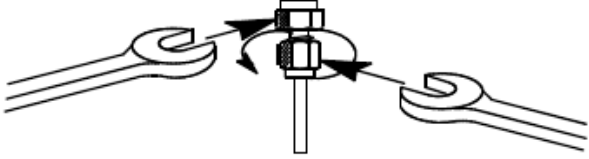
5.2.2 Connect the sample outlet to GC

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

- **Never add a stop valve between the output of the MyVAP and the GC. The vent of the GC gas sampling valve must remain at atmospheric pressure.**

5.2.3 Swagelok connections

The gas supply tubing is attached with Swagelok fittings. If you are not familiar with this type of fittings, review the following procedure. The procedure explains how to connect the tube to a fitting.

<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 position of the nut with a pencil.</p>	
<p>If you use 1/8-inch Swagelok® fittings, use 2 7/16" wrenches: hold the fitting tight with one wrench while tightening the 3/4 turn fitting with the other.</p> <p>If you use 1/4-inch fittings, use 2 9/16" wrenches. In this case, the tightening requires 1.25 turns.</p>	

5.3 Connect or change the sample tubing

If you need to change the sample tube or install a heated transfer line, you must open the MyVAP by the back panel. Follow the procedure defined in 11.2.

6. Method parameters

6.1 Web interface – Status

The web interface shows all the values of the status and method parameters.

Basic rules:

- MyVAP will always start a self-test after a power cycle.
- MyVAP will not start a vaporization sequence if the self-test has not been successful.
- MyVAP will never start a vaporization sequence if the heated zone of the vaporizer is not ready. The secondary heated zone (expansion volume) does not block the start and the sequence can be started even if the temperature of the expansion volume is not stabilized at the set temperature.
- If an error occurs during the sequence, MyVap will immediately stop the sequence and attempt to pump the expansion volume to the lower pressure set point. An error message will be displayed in the sequence status, general status and information area.

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

- S/N & FW REVISION**: Located at the top right, showing the instrument's serial number and firmware version.
- STATUS**: A sidebar on the left containing:
 - Vaporizer Status**: Vaporizer is **Ready**.
 - Current**: 79°C, Pressure: 624 mbar.
 - Sequ**: Current Cycle is **Running**.
 - Inputs**: GC Ready (Yes), External Start (Off).
 - Valve Status**: Isolation (Off), Admission (On), Injection (Off), Pump (Off).
- Cycle Configuration**: The main central area showing:
 - Method - Sequ**: 1.2 | 3.2
 - Current Sequence Status**: A progress bar for 'Waiting for GC Ready'.
 - Parameters for Sequ**: Includes Total Cycle Number (2), Repeat (3), Vaporizer Temperature (150°C), Volume Temperature (80°C), Vent Time (2m00s), Vent Pressure Loss (100 mbar), Injection Time (2m00s), Time to GC_Start (1m00s), and GC Cycle Time (30m00s).
- Information & Error Messages**: A bottom panel showing a log of messages, including warnings like 'No update while MyVap is busy'.

At the bottom of the interface, contact information for SRA Instruments is provided: 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 this zone is ready for the vaporization sequence. This zone is long to stabilize because of the low power and mass to heat. It is not necessary to heat if the LPG analysis doesn't require heavy hydrocarbons measurements.
Set to : 80 °C +/- 5	
Current 79° C	
Pressure	Pressure: shows the current pressure in the expansion chamber, in mbar.
Current 624 mbar	
Sequ	
Current Cycle Running	Cycle status: Ready, running, error. Indicates 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 start button from external control (remote GC).
External Start Off	
Valve Status	Valves status (Off = electro valve closed)
Isolation Off	<ul style="list-style-type: none"> Insulation: between the expansion volume and the vacuum pump. 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	<input type="text" value="2"/>	[2 to 99]
Vaporizer Temperature (°C)	<input type="text" value="175"/>	[100°C to 200°C]
Volume Temperature (°C)	<input type="text" value="80"/>	<-- Type "Off" to turn off volume heating.
Vacuum Pressure Level (mbar)	<input type="text" value="50"/>	
Compression Pressure Level (mbar)	<input type="text" value="1350"/>	

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

Save Method Default Mask Adv. Param.

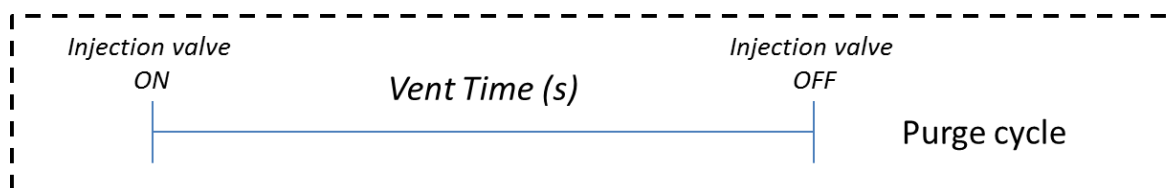
- Number of cycles before the injection. Increase the number of cycles to prevent a memory effect in case of different types of samples. More cycles will require more LPG sample. The minimum number of cycles is 2: one for the initial purge and the second for injection.
- Temperature of the vaporizer. With firmware version 1.24 and higher, 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 LPG analysis doesn't require heavy hydrocarbons measurements. With firmware version 1.24 and higher, the tolerance can be set in 3.b. To disable the volume heating, type 'Off' in 3 (point with the mouse for more information).
- Vacuum pressure level: the pump will empty the volume down to this pressure. A lower level will prevent a memory effect but will slightly increase the LPG consumed for the sequence.
- Compression pressure: when LPG is vaporized into the expansion chamber, the pressure will increase. The intake will be controlled by MyVAP until the pressure exceeds this limit. Increase this value if you need a larger volume to purge your transfer line and GC valve (+ the injection time).
- Check that the GC is ready before the injection step (last cycle). If this is not checked, MyVAP will start the remote analyzer without having checked if it was ready.
- See the diagram below.
- See the diagram below.
- In the case of a consecutive analysis, copy your GC cycle time: after the first vaporization, MyVAP will schedule a sequence whose injection step shall occur just after GC is ready. Make sure that the GC will always be ready by overestimating the GC cycle time, or by increasing **GC Ready Time-out** (if the vaporization takes a shorter time than expected: see diagram below).
- Number of consecutive analyses (and vaporizations) you perform. When performing more than one sequence, check the fields **<GC Cycle time>** and **<Wait for GC_Ready at Start>**.
- Vacuum timeout: time it takes MyVAP to try to reach the low pressure set point. After this time, if it is not possible to reach the set point, an error will occur and the sequence will stop. This error could reveal a vacuum pump problem or a leak in the system.
- Compression timeout: time it takes MyVAP to try to reach the high pressure set point. After this time, if it is not possible to reach the set point, the sequence stops 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 filters.
13. GC Ready Time-out is the maximum range during which MyVAP will wait until the GC is ready before injection. In case of exceeding this limit, MyVAP enters a recovery cycle..
 14. Vent pressure loss: to prevent the transfer line from being blocked and to ensure that the sample can properly flush the gas sampling valve, MyVAP will control that the pressure decreases during the venting or injection phase. The pressure may decrease more than this value, but a smaller decrease over time will stop the sequence and attempt recovery. Check that your transfer line is properly connected to the gas sampling valve and atmospheric pressure. Try to replace the tubing; if the error persists, contact SRA Instruments. A recovery cycle always tries to reach a vacuum pressure and then close all valves.
 15. See the diagram below.
 16. When the box is checked, MyVAP waits until the GC is ready at the beginning of each sequence. Stopping the sequence cancels the postponed cycle. If **<GC_cycle time>** is set, MyVAP will first delay the sequence, then wait until the GC is ready.

6.3 GC injection mode

6.3.1 Vent Time

After filling the expansion volume, MyVAP will open the sampling valve and release the vaporized gas to the GC analyzer.

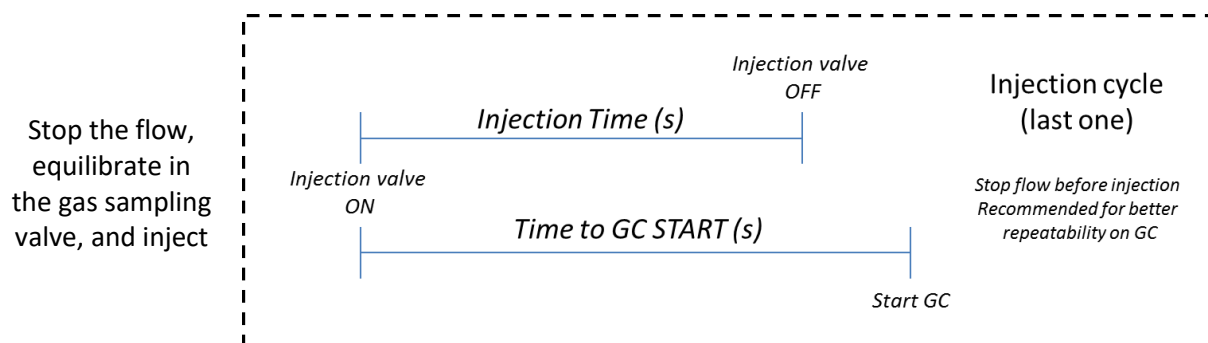


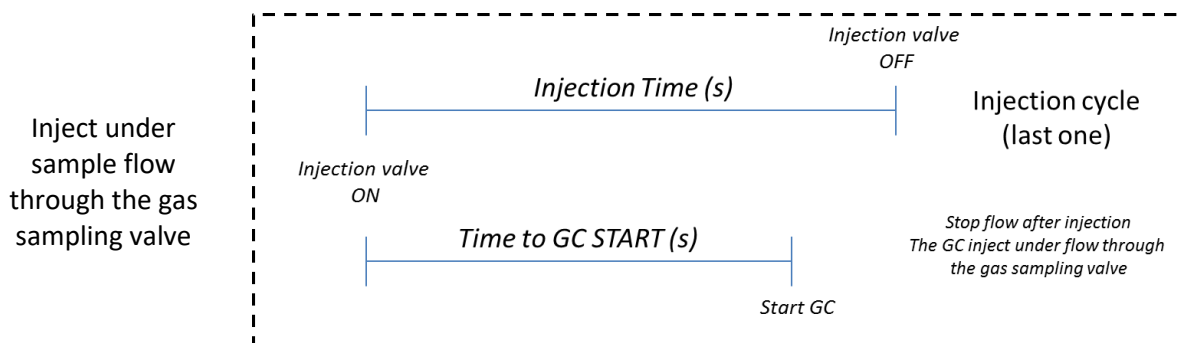
NB: the pressure decrease is tested during this step.

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

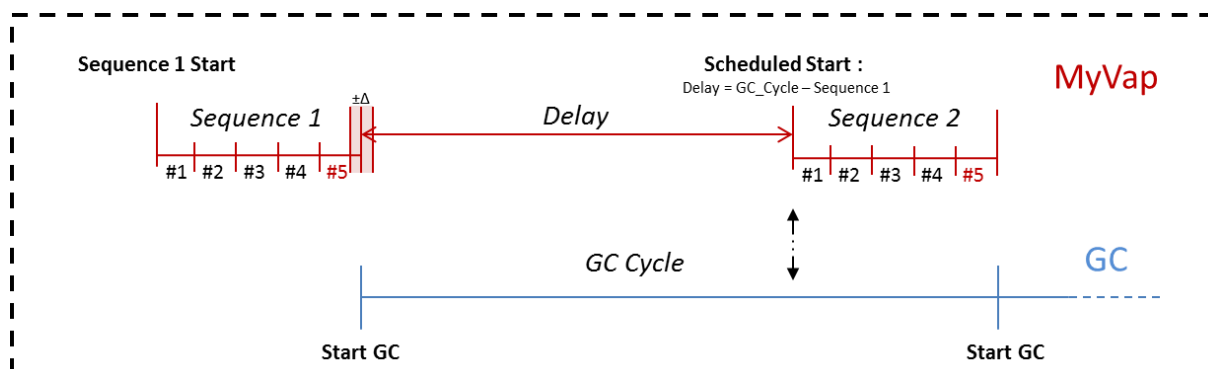
6.3.2 Injection Time

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

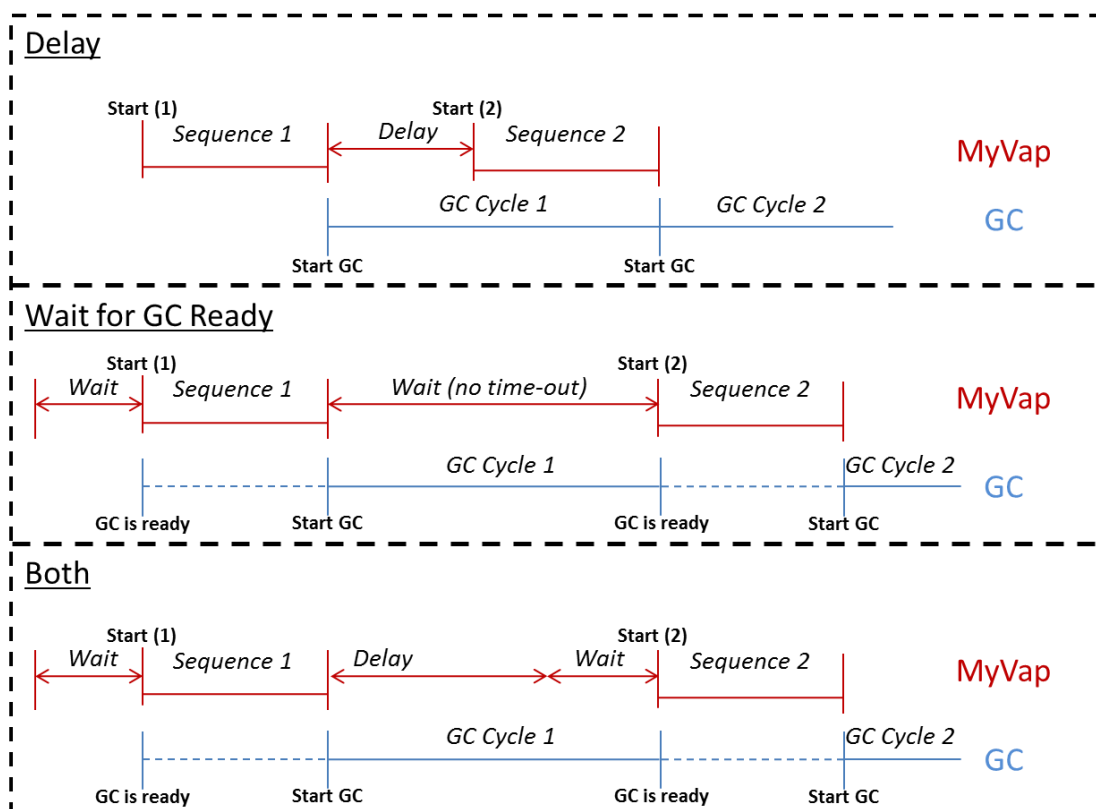




6.4 Repeat a sequence



When a GC cycle time is specified, the delay between sequences is estimated by assuming that each sequence lasts the same time ($\Delta \ll \text{Sequence}$ and $\Delta \ll \text{GC_cycle_time}$). By anticipating when the GC is ready again, we reduce the time lost between analyses, at the risk of entering a GC Ready Time-out where MyVAP would be too early. If a sequence is longer than GC_cycle_time, MyVAP runs continuously and the GC waits between runs. On the other hand, checking the box <Wait for GC Ready> ensures that a GC is present and ready before starting to prepare the LPG.

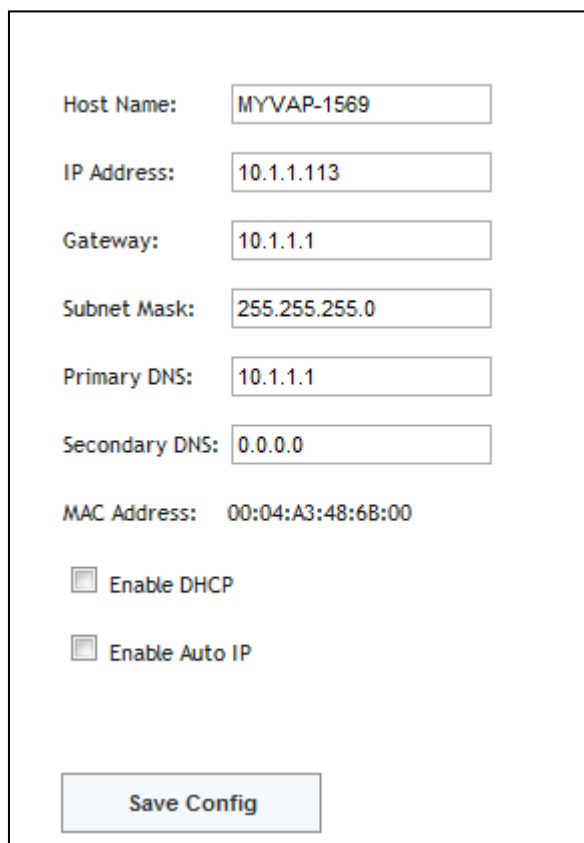


7. Changing the IP address

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 configuration is an advanced function, a password will be required.

USER ipconfig

PASSWORD ipconfig



Host Name: MYVAP-1569

IP Address: 10.1.1.113

Gateway: 10.1.1.1

Subnet Mask: 255.255.255.0

Primary DNS: 10.1.1.1

Secondary DNS: 0.0.0.0

MAC Address: 00:04:A3:48:6B:00

☐ Enable DHCP

☐ Enable Auto IP

Save Config

You will stay logged in until you close the browser and click on the 'logout' link. Before integration into your network, define a valid fixed address or host name for your DHCP server. In case of problems, contact your IT specialist. Saving the IP configuration will reboot the device.

8. The SRA Embedded Web interface

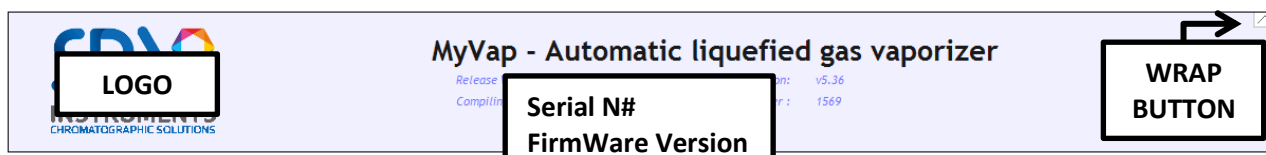
The SRA Embedded Web Interface (*SEW Interface*) is a generic set of webpages with a structure established on several devices since January 2011. The same design has been followed to help users getting familiar on our products.

8.1 Web server architecture

The server consists of 2 to 3 html pages. Up to 5 clients can connect to it at any time.

8.1.1 Header and footer

The header displays useful information: firmware version and serial number. Please note them for any call to our after-sales service. In the upper right corner, there is a 'Wrap Button', which reduces the header and footer.



8.1.2 Formatting the time entry

With time entries, a default unit is always specified (s, m, h). However, you can choose to force your own unit by typing:

25 s 14 h 32 m

You can also combine the units intuitively:

1 h 25 m 25 m 14 s 28

Be careful, however:

1h25 is 1 hour 25 seconds.

A comma or a dot is followed by a 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 view and change parameters (click on the tab).

Deleted. If the tab is the last remaining tab, the default parameters are restored (click on the red cross of the tab).

Created with the default parameters (click on 'New').

Organized inside another tab: the right and left arrows move the current tab.

Renamed: double-clicking on a tab transforms it into a text field. Type your new name and then ENTER.

8.2 Error, information, and warning

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

- Error (a critical operation occurred, MyVAP can no longer operate under good conditions, and an intervention may be required.)
- 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 an analysis, in order to avoid any 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-test ended with an error, a new one was 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 delay error occurred during the chained sequences. <1.2|3.6> indicates that the timeout occurred during the second cycle of the first sequence on a program 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 the configuration when the power is turned on. The MAC address of the IP protocol device is also threatened.

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

Shows that 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"

Shows 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. Unlike compression or GC Ready waiting, there is no recovery after a vacuum time out (the recovery consists in a vacuum pumping).

8.2.3 Important 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":

The non-volatile external memory is correct.

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

You have entered an invalid value in the form.

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

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

"Booting Sequences in Normal mode":

On the contrary, the switch is activated, normal start, previous parameters are loaded.

"Booting Sequences in Init mode":

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

"No previous IP config":

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

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

The pump may not operate below 500 mbar. If a step requires a vacuum, we consider the value of 500 mbar to be sufficient. In practice, this only happens in the first cycle of the first sequence of an experiment. Also, the pumping always keeps the vacuum below 150 mbar.

"Not waiting for postponed start anymore":

A "stop" was issued while MyVAP waited for a GC Ready or delay to restart a sequence. Even if this event occurs, the MyVAP is once again inactive.

"Stopping Cycle: Temperature out of boundaries":

The temperature of the vaporizer dropped during a sequence. MyVAP enters a recovery cycle.

"GC Start Ok":

Indicates that a start has been sent to the GC (not on the start window).

9. Technical data

9.1 Power supply

External Power Supply = 220-240 VAC, 50 to 60 Hz
Power consumption, max. 6 A /220 VAC

9.2 Dimensions and weights

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

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

9.4 Recycling



Do not throw away this equipment. Contact a competent recycling organism.

10. Maintenance

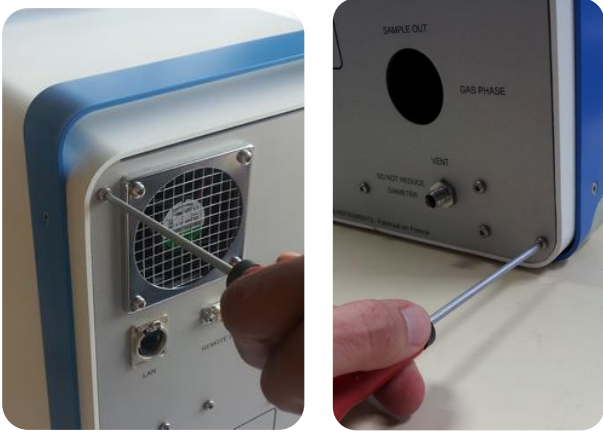

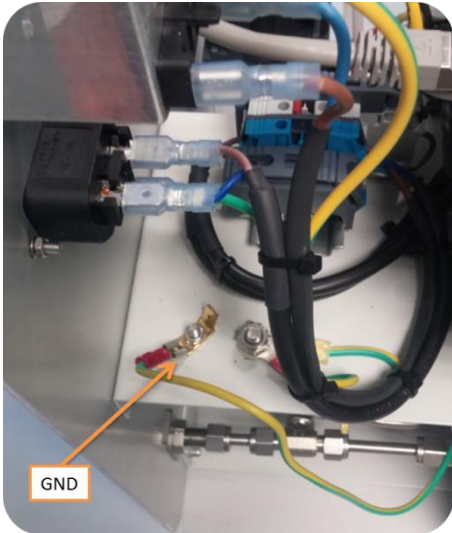
The main problems that can occur on the MyVAP are the following.


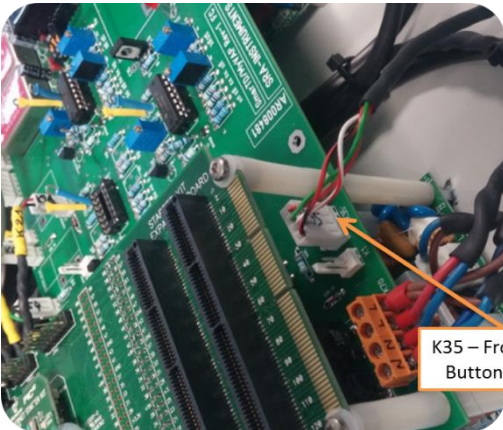
Problem	Solution
Impossible to connect to the MyVap web page	Check the Ethernet cable and network configuration of your PC. Reset the MyVAP to its factory settings using the procedure 11.6. The default IP is then 10.1.1.1.113.
The expansion volume does not reach the desired pressure: the LPG does not fill the volume	Change the filter(s). See procedure 11.5 (external filter change) and 11.4 (internal filter change). If the problem is still not solved, the vaporizer may be clogged. To change it follow procedure 11.7.
The expansion volume exceeds the maximum pressure value and reaches a pressure of about 2800 mbar (opening of the protection valve)	The inlet valve may be blocked open. It must be cleaned: procedure 11.8. If the valve is indeed dirty and clogged, it is very likely that the filters have not been used. It is imperative to use the filters when operating the MyVAP.
The vaporizer does not heat up	The vaporizer is equipped with a thermal fuse that prevents overheating. This fuse may be damaged. To check it, follow procedure 11.3. In case of failure on this fuse the complete vaporizer must be changed (procedure 11.7). The HS vaporizer must be returned to SRA for fuse replacement.

11. Procedure

11.1 Opening MyVAP

Turn off the instrument and remove the power cord.

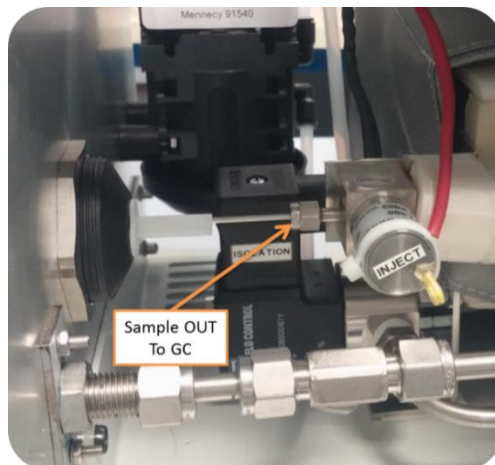
<p>Remove the 4 screws (Torx T20) on the back panel. Slide the chassis out of the MyVAP envelope. Be careful with cables that are short.</p>	
<p>Keep the 4 screws.</p>	
<p>Remove the grounded cable.</p>	

<p>Slide the chassis slowly.</p>	
<p>To fully open the chassis, the front panel button cable must be disconnected from the main board.</p>	

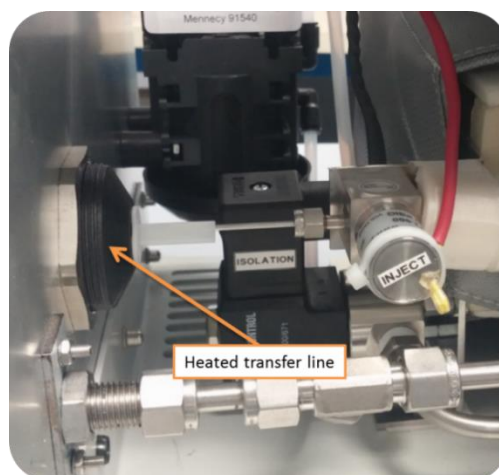
11.2 Connection/exchange of the sample transfer line

Follow procedure 11.1 (opening MyVAP).

Connect the 1/16" tubing to the sample outlet valve.



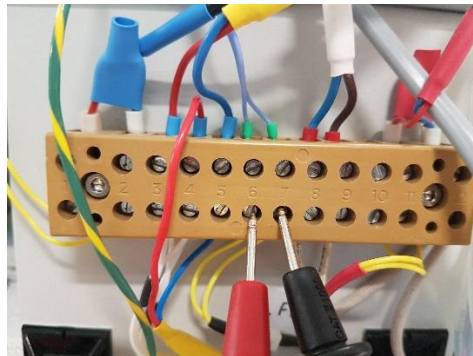
OPTIONAL The heated transfer line can be connected to the vaporizer outlet.



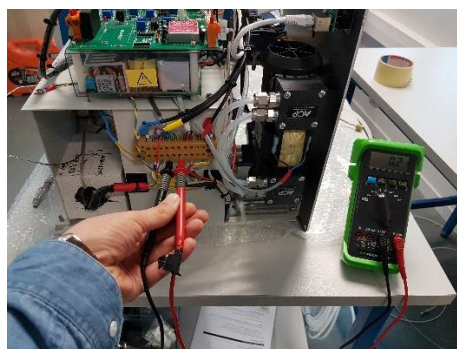
11.3 Checking the value of the thermal fuse

Follow procedure 11.1 (opening MyVAP)

- Using an Ohmmeter, measure the resistance value between terminals 6 and 7.





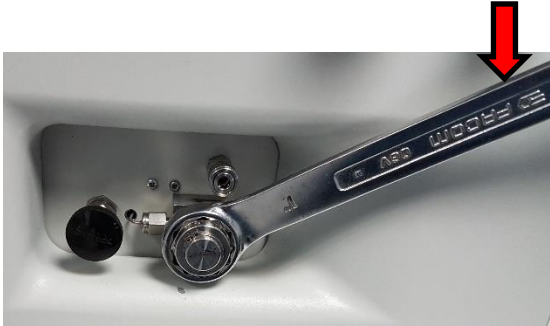
- If the value is less than 2 Ohms, the fuse is intact.
- If the value is higher than 100 Ohms, contact SRA. The fuse is probably damaged. The vaporizer block must be changed.



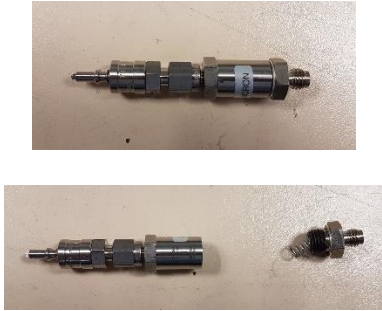

11.4 Changing the internal filter

- Using the 1-inch wrench provided, unscrew the 2 μ m filter. Position the wrench as shown in the picture and press to unscrew.



<ul style="list-style-type: none"> - Remove the 2 μm frit with pliers. 	
<ul style="list-style-type: none"> - Replace the frit. Also replace the seal if necessary. 	
<ul style="list-style-type: none"> - Mount the whole assembly. Position the wrench as shown in the picture and press to screw in the filter. 	

11.5 Changing the external filter

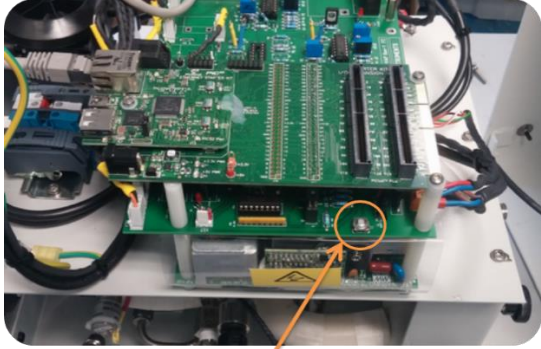
<ul style="list-style-type: none"> - Unscrew the filter. 	
<ul style="list-style-type: none"> - Remove the frit and replace it (default value 7 µm). 	

11.6 Restoring factory settings

Restoring the factory settings will allow you to reset the MyVAP to the values set when it left the factory. All modifications made after leaving the factory will be lost, in particular

- Configured methods
- IP address (reset to 10.1.1.1.113)

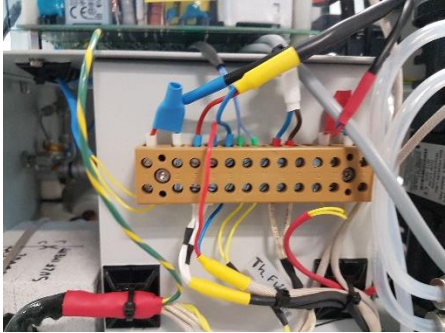
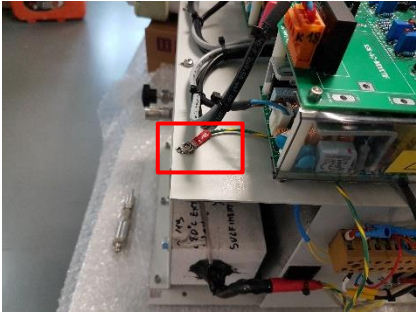
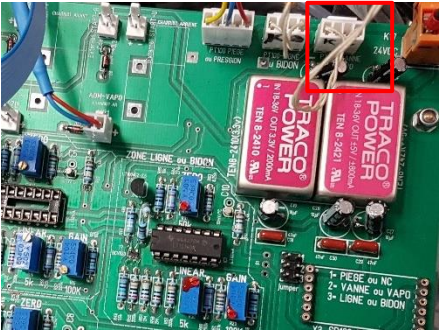
Follow procedure 11.1 (opening MyVAP).

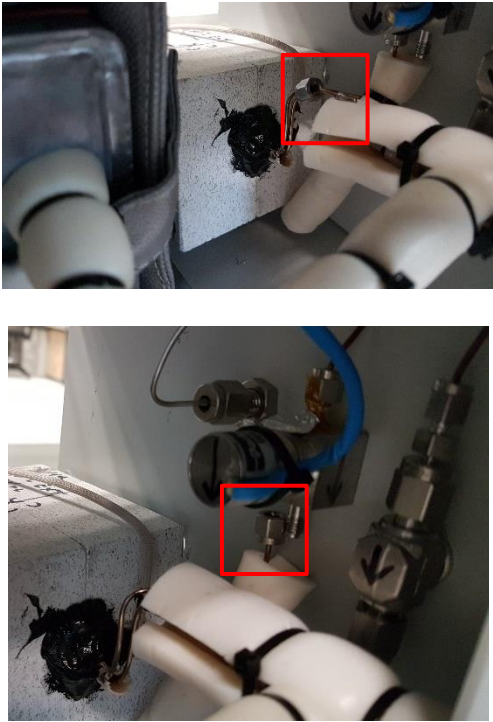

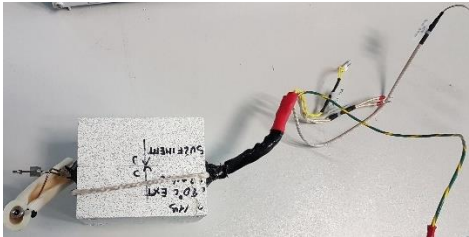
<ul style="list-style-type: none"> - Press the reset button for 10-20 seconds while turning on the MyVAP. You can release the button when you hear the first click of the valve or later the vacuum pump. MyVAP will reset the IP address to factory settings: 10.1.1.1.113 	 <p>Reset switch</p>
<ul style="list-style-type: none"> - Switch off MyVAP and close the chassis - After turning on MyVAP, you can access the IP Configuration page (see section 7, 'Changing the IP address') 	

11.7 Replacing the internal vaporizer

Follow procedure 11.1 (opening MyVAP).

Caution: Incorrect handling can damage the MyVap. Follow the procedure below only if you have been authorized by SRA Instruments.

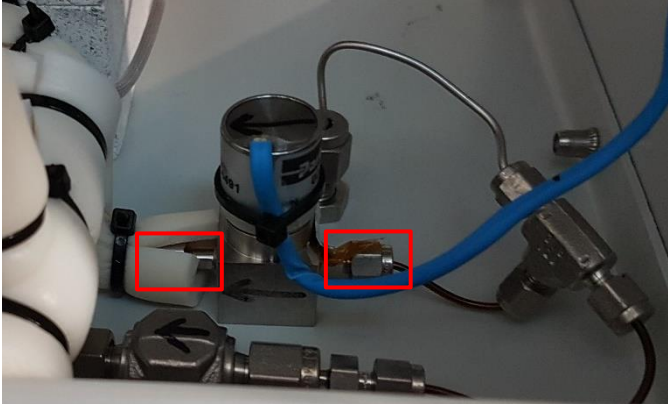

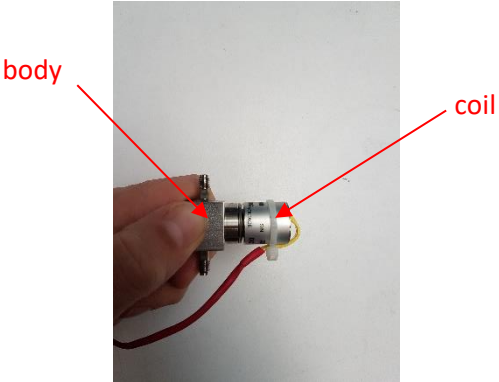
<p>Disconnect the vaporizer electrically:</p> <ul style="list-style-type: none"> - Unscrew terminals 6-7 (fuse) and 8-9 (heating) 	
<ul style="list-style-type: none"> - Unscrew the grounding screw 	
<ul style="list-style-type: none"> - Remove the K6 connector 	



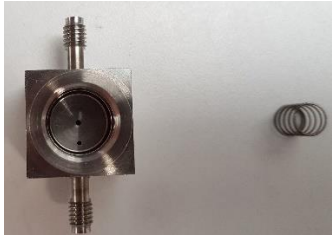

<ul style="list-style-type: none"> - Remove the plastic clamps covering the tubes if necessary to access the tube nuts - Unscrew the 2 nuts on the inlet / outlet tubes of the vaporizer 	
<ul style="list-style-type: none"> - Remove the 2 fixing screws from the vaporizer and remove it 	
<ul style="list-style-type: none"> - Insert the spare part into the MyVAP. Some plastic clamps are provided with the spare part to allow the thermal insulators to be replaced on the tubes 	

11.8 Cleaning the inlet valve

Follow procedure 11.1 (opening MyVAP).

Caution: Incorrect handling can damage the MyVAP. Follow the procedure below only if you have been authorized by SRA Instruments.

<ul style="list-style-type: none"> - Disconnect the inlet and outlet of the inlet valve (photo) - Use the supplied 3.2 x 5.5 mm wrench to hold the fixed part of the valve during the loosening process 	
<ul style="list-style-type: none"> - Unscrew the 2 fixing screws on the front panel 	
<ul style="list-style-type: none"> - Remove the valve 	

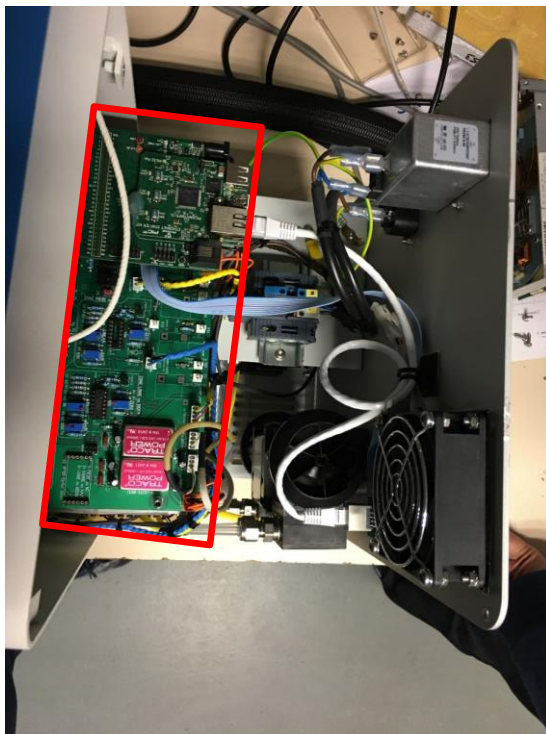
<ul style="list-style-type: none"> - Unscrew the cylindrical part (coil) by hand 	
<ul style="list-style-type: none"> - Remove the different parts to keep only the body 	
<ul style="list-style-type: none"> - Cleanse the body with compressed air 	
<ul style="list-style-type: none"> - Reassemble the valve: <ul style="list-style-type: none"> o Place the 3 washers on the body o Place the larger diameter spring o Position the needle and its spring o Screw the coil onto the assembly 	
<ul style="list-style-type: none"> - Reassemble the valve in the MyVAP 	

11.9 Modification according to the type of μ GC or GC used

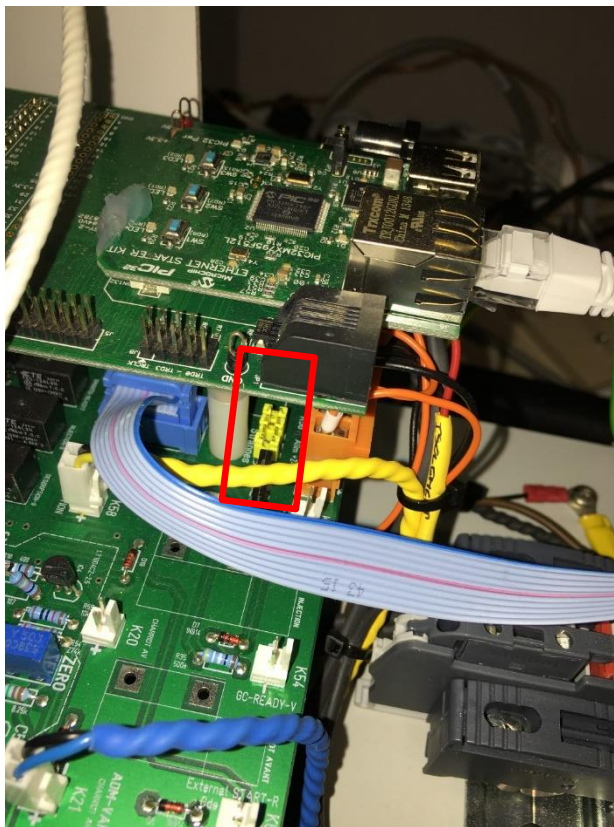
On an electronic board, yellow jumpers allow you to work with different devices (μ GC and GC). However, the configuration of these jumpers must be adapted according to the instrument you wish to use (μ GC 490, μ GC 3000, GC Agilent).

Follow procedure 11.1 (opening MyVAP).

- The rear part of the MyVAP must be carefully removed until access to the electronic card is possible.

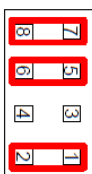


- Using pliers, remove or replace **one** of the three jumpers on the card.

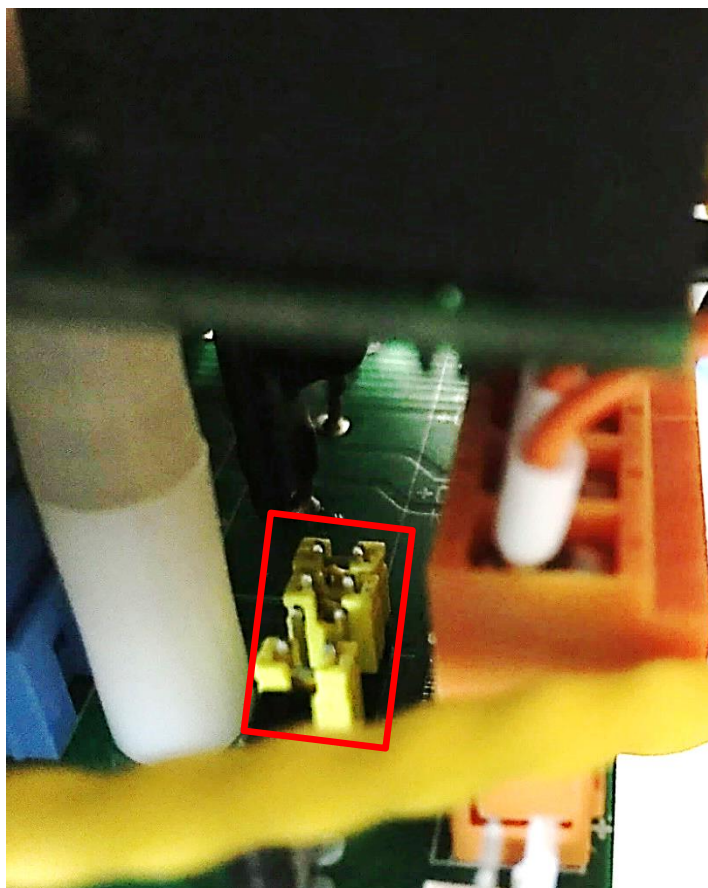


Configuration for μ GC 3000 and GC Agilent:
all three jumpers are present

1-2 0V COM SUR COM RELAIS START
3-4 NC
5-6 0V COM SUR 1 DE DB9
7-8 READY MYVAP OUT



STRAP K101

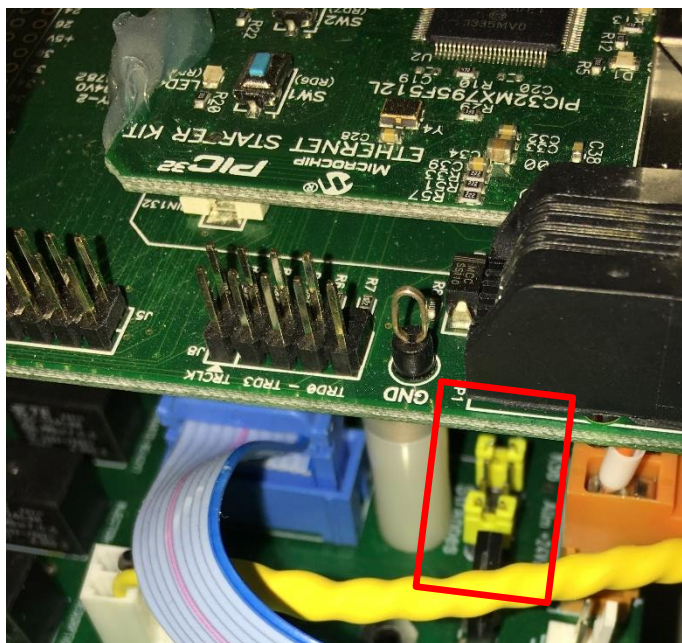


Configuration for μ GC 490: only two
jumpers are present

1-2 0V COM SUR COM RELAIS START
3-4 NC
5-6 0V COM SUR 1 DE DB9
7-8 READY MYVAP OUT




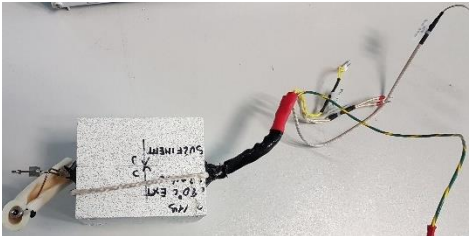
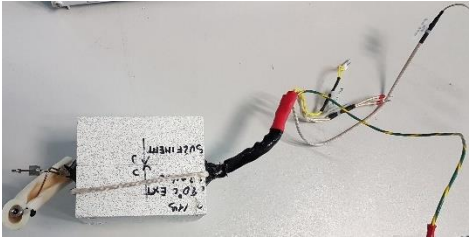


STRAP K101




- Keep carefully the jumper removed in case it needs to be put back in for another configuration.
- Gently close the MyVAP, paying attention to the different cables that may be present between the metal sheets.
- Fix the back plate with the 4 Torx screws using a T20 screwdriver.

12. Spare parts






The following parts can be ordered at SRA instruments.

SRA Reference	Description	Photo
AR003913 + AR008597	7 µm in-line filter and quick male fitting	
AR013200	Vaporizer block version 110 V	
AR013170	Vaporizer block version 230 V	
AR018271	2 µm internal spare frit for internal filter	
AR003782	7 µm internal spare frit for external filter	

AR003872	Seal for external filter (7 µm)	
AR018272	Seal for internal filter (2 µm)	
AR007129	Inlet or injection valve	

13. Accessories (ship kit)

MyVAP is delivered with:

Description	Photo	Check before shipment
User Manual	-	
In line filter and quick-connect male fitting		
2 µm spare frit		
7 µm spare frit		
Seal for 2 µm internal filter		
Seal for 7 µm internal filter		
Power cable		
LAN cable		

Connection cable for GC		
1/16 sample transfer line with nuts and ferrules OR Optional heated transfer line		
1 inch flat wrench for removing the 2 µm filter		
Nut + ferrule 1/16" (sample outlet)		
Nut + ferrule 1/4" (vent)		
Tubing 1/4" PFA 3 m		

14. EU declaration of conformity

We,



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>	A photograph of the MyVAP Automatic LPG Vaporizer, a small, light-colored rectangular device with a vertical tube and a needle-like component attached to the top.
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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

- NF EN 61010-1:2010+A1:2019 "Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements"
- NF EN IEC 61010-2-081:2020 "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 purposes"

2/ Directive 2014/30/EU – Electromagnetic compatibility

- NF EN IEC 61326-1:2021 "Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements"
- NF-EN 61000-4-2:2009 "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 January 2023

Legal representative,
Armando MILIAZZA

