

VICI VALCO VALVES AS AUTOSAMPLER

Clarity Control Module

ENG

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To facilitate the orientation in the **VICI Valco Valves as Autosampler** manual and **Clarity** chromatography station, different fonts are used throughout the manual. Meanings of these fonts are:

Instrument (blue text) marks the name of the window to which the text refers.

Open File (italics) describes the commands and names of fields in **Clarity**, parameters that can be entered into them or a window or dialog name (when you already are in the topic describing the window).

WORK1 (capitals) indicates the name of the file and/or directory.

ACTIVE (capital italics) marks the state of the station or its part.

The bold text is sometimes also used for important parts of the text and the name of the **Clarity** station. Moreover, some sections are written in format other than normal text. These sections are formatted as follows:

Note: Notifies the reader of relevant information.

Caution: Warns the user of possibly dangerous or very important information.

■ Marks the problem statement or trouble question.

Description: Presents more detailed information on the problem, describes its causes, etc.

Solution: Marks the response to the question, presents a procedure how to remove it.

1 VICI Valco as Autosampler Control Module

This manual describes the setting of **VICI Valco** multiposition valve as an autosampler as long as it fits on one of the following actuators: **Multiposition Microelectric** actuator with RS232 or **Universal** actuator with RS232 or USB communication. The control module enables direct control of the instrument over serial line or USB port.

The multiposition valve is used to select a sample stream in process analyzers, the sample position is defined as a vial in sequence table. When sequence is started, the valve will be set to the position and after the set *Loop Fill Delay* the module digital input is activated to start Clarity run. After the set *Return to Home* delay time the valve is returned to *Home position* when it is specified.

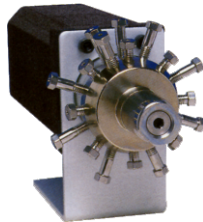


Fig 1: VICI Valco multiposition valve

Direct control means that the valve can be completely controlled from the **Clarity** environment. Instrument method, controlling the analysis conditions will be saved in the measured chromatograms.

The control is performed via the UNI Ruby control module and the script.

2 Requirements

- **Clarity** Installation USB with AS Control (p/n A26) module for autosamplers.
- Free serial COM (RS-232) port in the PC.

Note: Modern computers usually have only 1 (if any) serial port installed. To use more devices requiring the serial port, the **MultiCOM** adapter (p/n MC01) is available. Multiple **VICI Valco** valves still use only one serial port, but other directly controlled devices may use another serial ports.

- Serial cable (p/n SK17) provided by **DataApex** or from the valve's manufacturer (for more details see also chapter **Installation Procedure** on pg 3).

Note: Cables are not part of **Clarity** Control Module. It is strongly recommended to order required cables together with the Control Module.

- In case of USB communication, free USB port in the PC.

Note: When using USB port, USB-COM adapter drivers need to be installed. They are standard FTDI drivers available in ...\\Clarity\\BIN\\HW_DRIVERS\\FTDI folder. The configuration is same as when using RS-232 as the virtual COM port is created.

3 Installation Procedure

3.1 VICI Valco Valves Communication

The **VICI Valco** valves are controlled by serial communication. It uses special serial cable provided by the valves manufacturer (**VICI Valco** product number I-22697), but can also be ordered from **DataApex** (p/n SK17). On the computer side, it bears standard DB9F connector, on the valve's side there is special 3-pin connector. The wiring of the cable is shown on the picture:

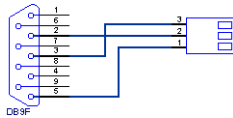


Fig 2: Serial cable for VICI Valco valves direct control

The communication parameters are:

Baud rate 9600, parity N, bits 8, stop bit 1.

3.2 Clarity Configuration

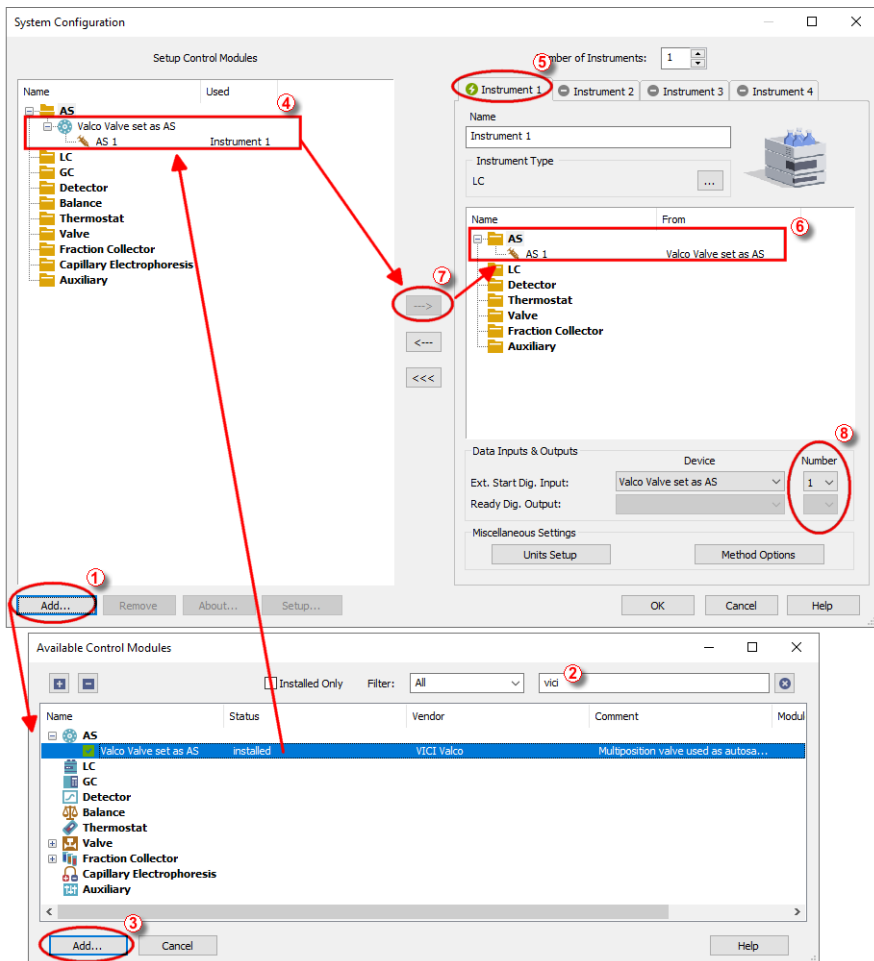



Fig 3: System Configuration

- Start the **Clarity** station by clicking on the  icon on the desktop.
- Invoke the **System Configuration** dialog accessible from the **Clarity** window using the *System - Configuration...* command.
- Press the **Add** button ① (see **Fig 3** on pg 4.) to invoke the **Available Control Modules** dialog.

- You can specify the searching filter ② to simplify the finding of the driver.
- Select the correct item and press the *Add* ③ button.

The **DataApex UNI Setup** dialog will appear.

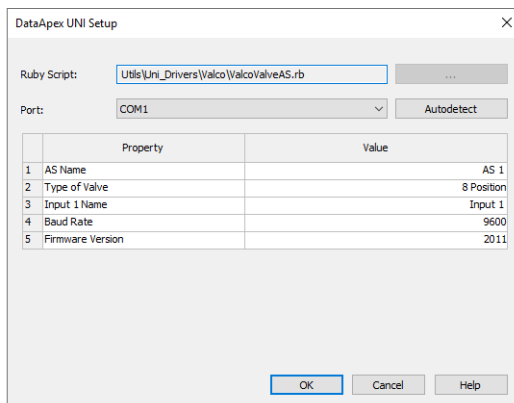


Fig 4: DataApex UNI Setup

- Set the correct communication *Port* and click on the *AutoDetect* button to establish communication with the device.
- You may fill in the custom *Device Name*.
- The **Valco Valve set as AS** item will appear in the *Setup Control Modules* list of the **System Configuration** dialog.
- Drag the appropriate item from the *Setup Control Modules* ④ list on the left side of the **System Configuration** dialog to the desired *Instrument* ⑤ tab on the right side ⑥ (or use the *-->* button ⑦ to do so).
- Set the *Ext. Start Dig. Input* and *Ready Dig. Output* numbers ⑧ for your acquisition card according to the wires being used for synchronization.

4 Using the Control Module

After adding and setting up the valve, new [AS](#) tab, which is used for setting the valve as autosampler, will appear in the [Method Setup](#) dialog. In the [Device Monitor](#) window a new section enabling the monitoring of the current valve state will be also created.

4.1 Method Setup - AS

The [Method Setup - AS](#) tab is used for setting the common parameters of the **VICI Valco Valves as Autosampler**.

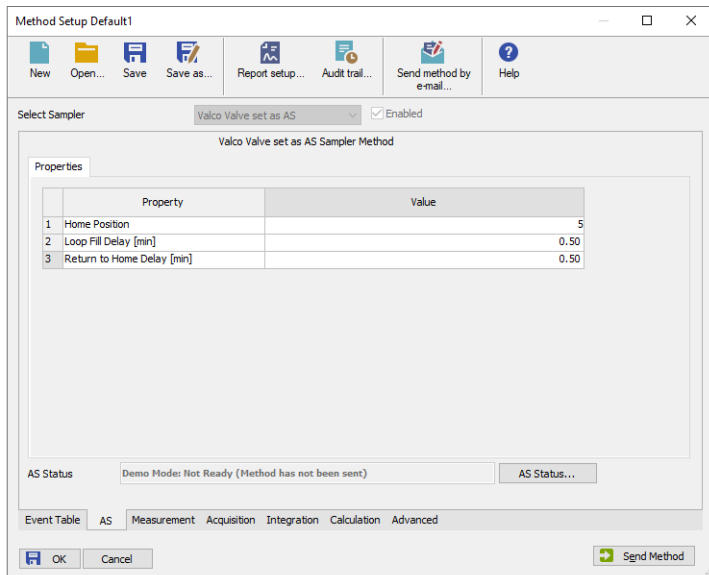


Fig 5: Method Setup - AS

Home Position

Determines valve position that will be used as the *Home Position*. If *Home Position* is set up, after perform injection it will move to this position. Set *None* if you do not wish to move to *Home Position* after performing injection.

Loop Fill Delay [min]

Determines the time [min.] between the turn of the valve and start of the analysis.

Return to Home Delay [min]

Determines the time [min.] from the start of the analysis to the turn of the valve to *Home Position* - only if *Home Position* is determined, otherwise it stays on the current valve position.

AS Status

When invoked, opens the [Hardware Configuration](#) dialog showing the information regarding the connected autosampler.

4.1.1 Hardware Configuration

Hardware Configuration


Ruby Script:

Port:

	Property	Value
1	AS Name	AS 1
2	Type of Valve	5 Position
3	Input 1 Name	Input 1
4	Baud Rate	9600
5	Firmware Version	2011

Fig 6: DataApex UNI Setup

4.2 Device Monitor

The window with the valve status can be invoked by the *Monitor - Device Monitor* command from the **Instrument** window or using the  *LC Monitor* icon.

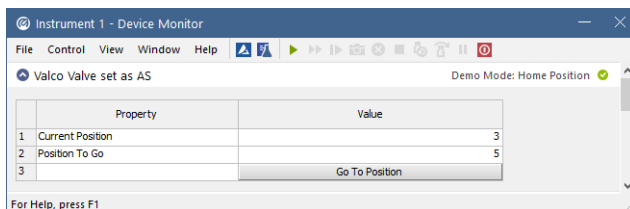


Fig 7: Device Monitor

Current Position

Shows current position of the multi-position valve.

Position To Go

Defines valve position where it will move upon pressing *Go To Position* button.

Go To Position

Upon pressing it will turn the multi-position valve to valve position defined by the *Position To Go* and that position will become the *Current Position*. The button is active only when analysis is not running.

4.3 DataApex UNI Setup

The **DataApex UNI Setup** dialog is invoked when adding the **Valco Valve set as AS** control module from the **Available Control Modules** in the "Clarity Configuration" on page 4.

It serves for configuration of the valve.

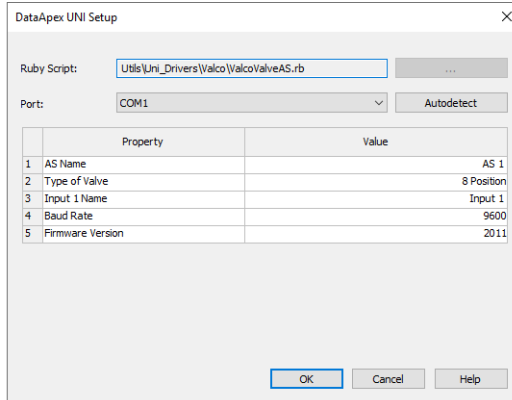


Fig 8: DataApex UNI Setup

Ruby Script

Displays the selected Ruby Script. The correct VALCOVALVEAS.RB script for the **VICI Valco Valves as Autosampler** can be found in the UTILS/UNI_DRIVERS/VALCO subdirectory of the **Clarity** installation folder (C:\CLARITY\BIN by default).

Port

Defines the communication port used, possible values dependent on the type of communication of the device and/or available ports in the PC.

Autodetect

It is used for verifying the device communication over the serial port selected above.

AS Name

Sets name for the multi-position valve.

Type of Valve

Sets the type of the multi-position valve. Range is between *1 Position* to *32 Position* valve.

Input 1 Name

This input may be used for the start synchronization in the sequence measurements.

Baud Rate

Sets the Baud Rate communication parameter for the **VICI Valco Valves as Autosampler**. Available values are *4800*, *9600* and *19200* baud.

Firmware Version

Sets the firmware version. Available version is either *2008* or *2011*. The firmware version *2008* is recommended for older valve types.

Note: If the error message *Command Get SN timeouted* appears, change the firmware version.

5 Report Setup

Configuration of the valve as well as settings performed in the "Method Setup - AS" on page 7 can also be printed.

The valve section on the method report can be enabled by checking the *Injection Control* checkbox on the **Method** tab of the **Report Setup** dialog

①.

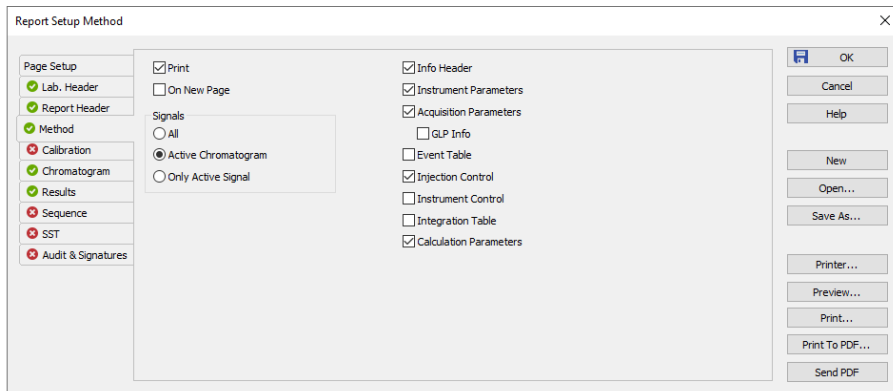


Fig 9: Report Setup - Method

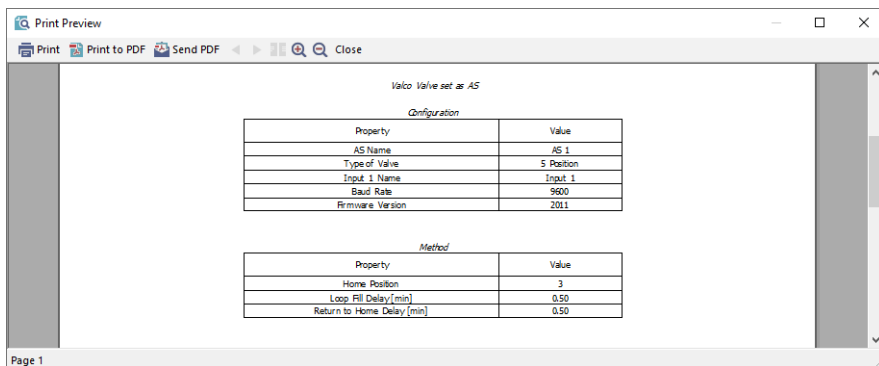


Fig 10: Report Setup - Preview

All of the parameters set in the **Method Setup - AS** dialog are reported, as well as the custom *Autosampler Name* and other parameters set in the **DataApex UNI Setup** dialog.

6 Troubleshooting

When the remedy for some problem cannot be discovered easily, the recording of communication between **Clarity** and the valves can significantly help the **DataApex** support to discover the cause of the problem.

The recording can be enabled by adding or amending the COMMDRV.INI file in the CFG subdirectory of the **Clarity** installation (C:\CLARITY\ by default). The file can be edited in any text editor (e.g. Notepad). Following section should be edited or added:

```
[COM1]
echo=on
textmode=on
filename=ViciValco_%D.txt
reset=off
```

Note: Instead of COM1 type the correct serial port used to communicate with the **VICI Valco Valves as Autosampler**. This port number is displayed when the *AS Status* button in the [Method Setup - AS](#) dialog is invoked.

Note: %D (or %d) in the filename parameter means that the log will be created separately for each day. The *reset=off* parameter disables deleting the content of the log each time the station is started during the same day.

The created *.TXT files will greatly help in diagnosis of unrecognized errors and problems in communication.