DataApex
Clarity™
CHROMATOGRAPHY SOFTWARE

VICI VALCO VALVES AS AUTOSAMPLER

Clarity Control Module ENG

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Contents

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:

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.
WORK1 (capitals) indicates the name of the file and/or directory.
ACTIVE (capital italics) marks the state of the station or its part.
Chromatogram (blue underlined) marks clickable links referring to related chapters.

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.

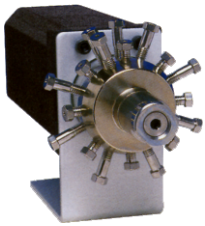

Fig. 1: VICI Valco multiposition valve

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:

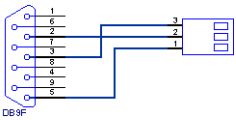

Fig. 2: Serial cable for VICI Valco valves direct control

The communication parameters are:

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

3.2 Clarity Configuration

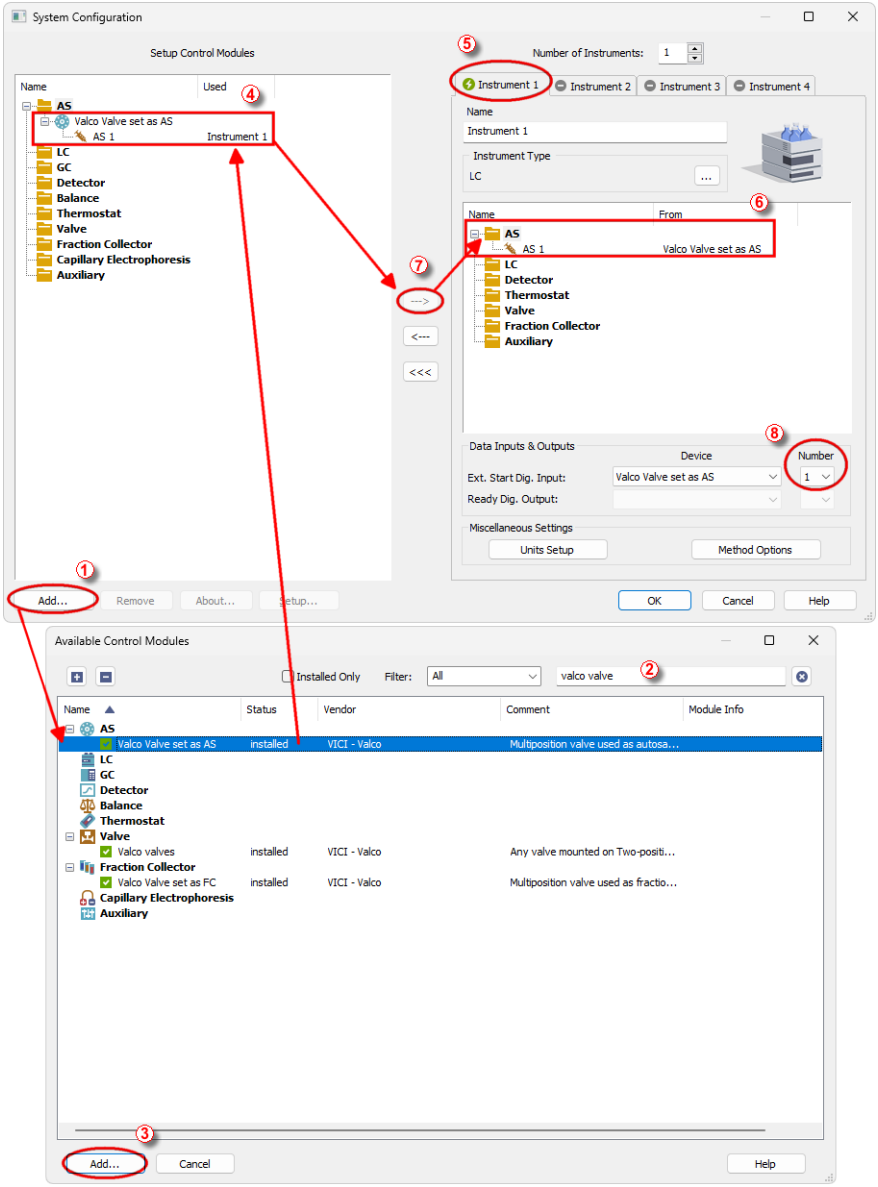

Fig. 3: System Configuration

- 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.

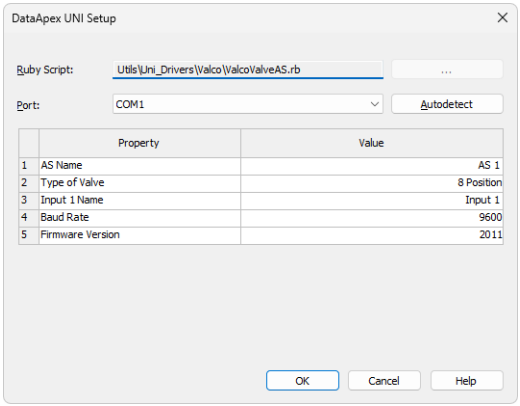

Fig. 4: DataApex UNI Setup

- 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**.

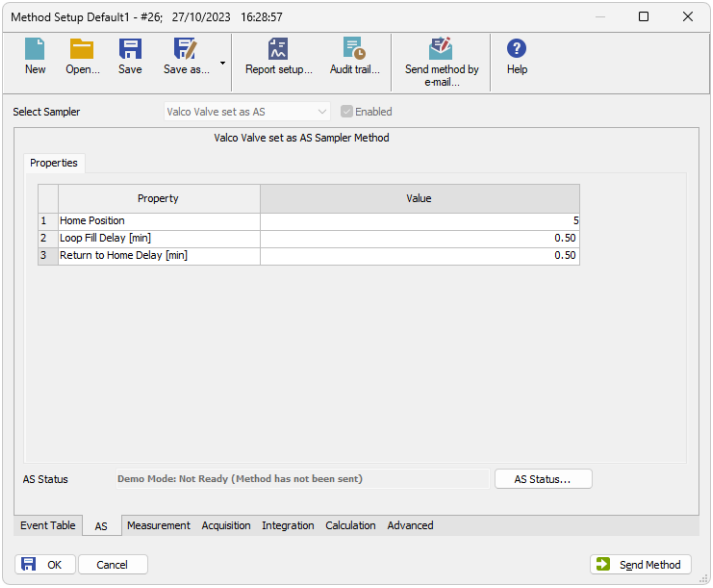

Fig. 5: Method Setup - AS

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

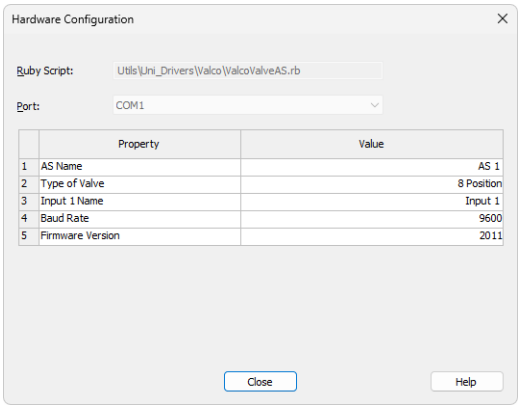

Fig. 6: DataApex UNI Setup

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.

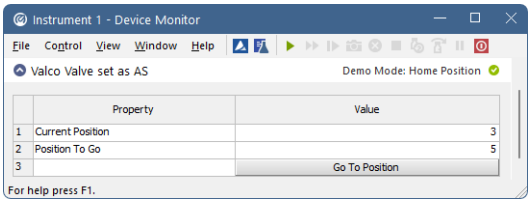

Fig. 7: Device Monitor

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.

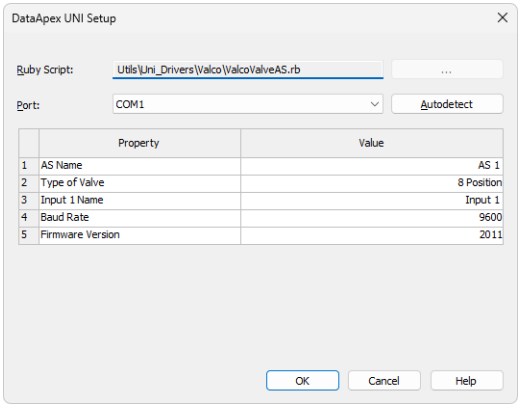

Fig. 8: DataApex UNI Setup

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 .

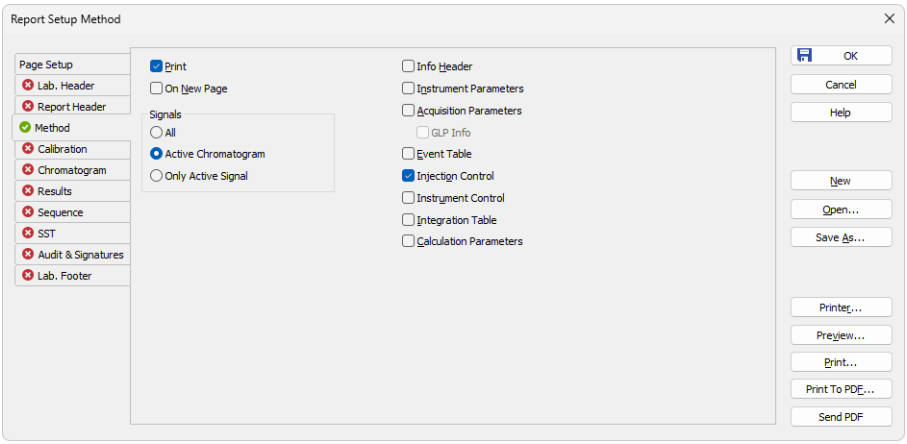

Fig. 9: Report Setup - Method

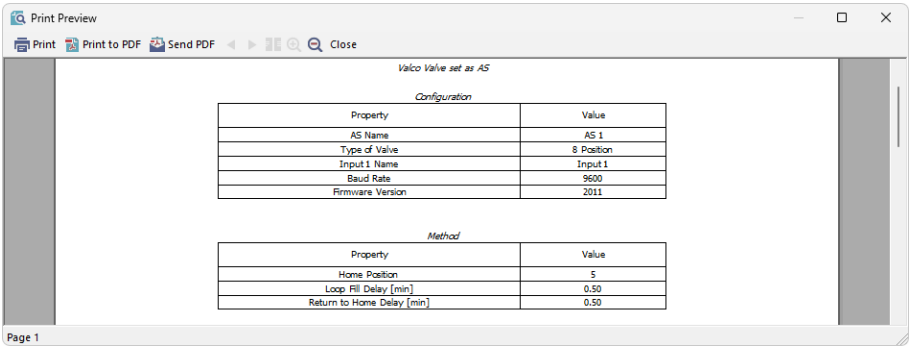

Fig. 10: Report Setup - Preview

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.