
Clarity (Lite)


2.5 vs 2.4.4







ENG

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1 General

The main new features of Clarity 2.5 include:

- support for preparative chromatography (enhancements in Event table, Virtual Fraction collector, support for valve control)
- compatibility with Windows Vista (updated drivers for A/D cards and HW keys)
- support for signal units
- many other minor enhancements

1.1 System Configuration

Full version

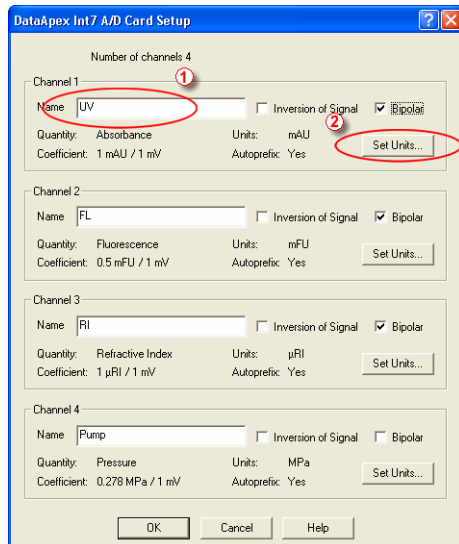


Fig. 1. Setting of Signal Names and Units

- Signal Names and Units are stored for individual signals according to the configuration of the detector. For DataApex A/D boards the signal units can be configured in the **Setup** dialog accessible from **System Configuration** dialog. To do so, name **1** the signal directly in the **Setup** dialog and press the **Set Units...** **2** button to change other signal parameters.

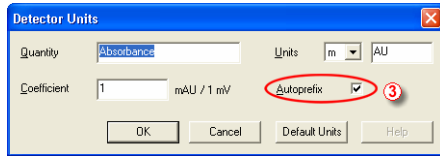


Fig. 2. Set Units dialog

When the unit prefix in graph window should be adjusted automatically, enter the units and prefix separately and check the **Autoprefix** **3** box. In tables, the entered units will be used.

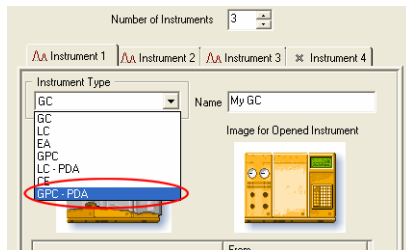


Fig. 3. GPC-PDA Instrument type

- New option GPC+PDA was added to the Instrument Type selection box in the System Configuration dialog to enable spectral detectors in GPC mode.

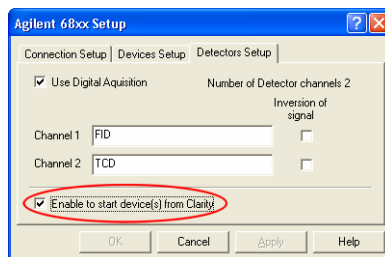


Fig. 4. Start device from Clarity option

- The option **Start device from Clarity** was implemented for selected detectors and GCs, which could be previously started only by external contact. The devices include **Agilent 1100** modules, **Agilent GC 68xx** and **5890**,

Duratec DDT3200 USB. This option should be checked only in case when the external start is not used, otherwise conflicts can occur.

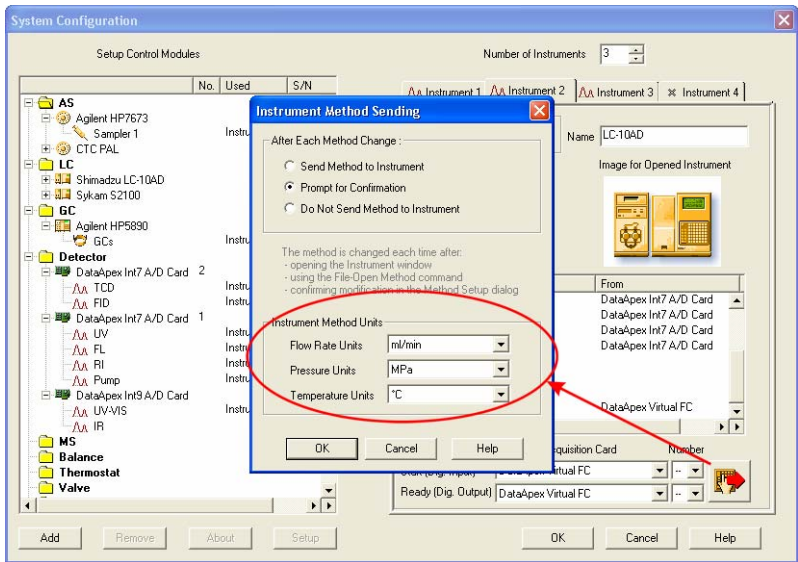


Fig. 5. Selection of Units for LC Flow and LC Pressure

- The selection of units for LC Flow and LC pressure was moved from the **Method Setup - LC Gradient** dialog to the **Instrument Method Sending** dialog section **Instrument Method Units** (accessible from **System Configuration** dialog). Option to select **Temperature Units** was added. Those settings affect gradient table, property pages of auxiliary pumps, LC monitor, monitors of auxiliary pumps and property pages of other controlled devices.

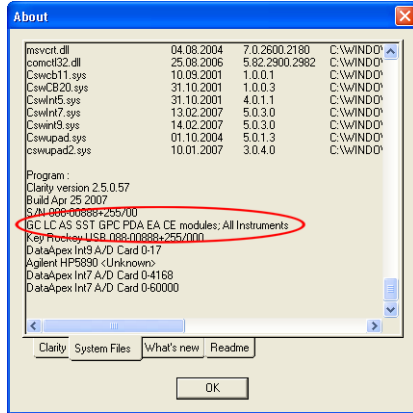


Fig. 6. The configuration of the Clarity Station

- The number of instruments and list of configured control modules is displayed in legible form in the SYSTEMINFO.TXT file and in the bottom of **About - System files** dialog under the S/N line.

1.2 User Accounts

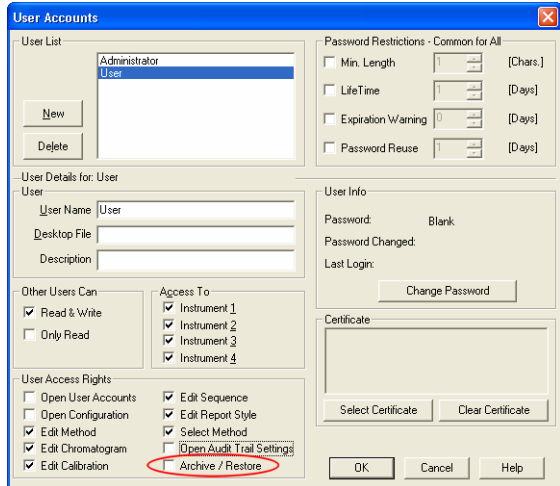


Fig. 7. Disabling the Archive/Restore option in the User Accounts dialog

- The access to **Archive/Restore** command for selected users can be restricted in the **User Access Rights** section of **User Accounts** dialog.

1.3 Digital Outputs

- The names for digital outputs on new A/D card (U-PAD2 and Net-PAD) and some other devices are settable in their respective **Setup configuration** windows - they could not be edited from **Digital Outputs** Window.

1.4 Sequence

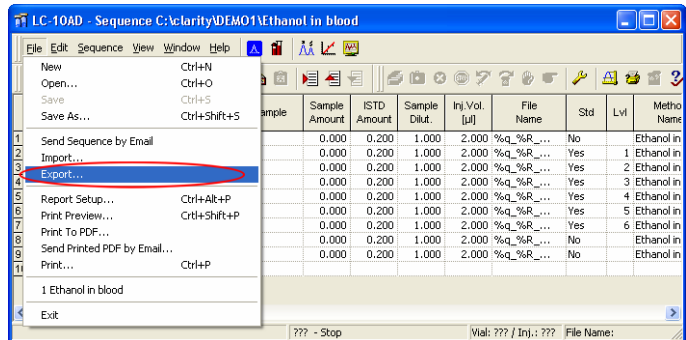


Fig. 8. Sequence export

- New command **File – Export** in the **Sequence** window enables the export of the sequence table to a text file (tab delimited format, first row contains column headers, hidden columns are not exported).
- For a first row in new Sequence the initial setting of **Method and Report Setup** the actually opened ones on the Instrument window are taken. The **Post Run** columns will be taken from the actual setting in the **PostRun Setting** dialog. For additional rows those settings are copied from previous line.

1.5 Method Setup

✓ Full version

- New A/D Converters INT9 and U-PAD2 now support higher sample rates 200 and 400 Hz.
- The signal units in the **Integration table** (in the **Integration** tab of **Chromatogram** and **Method Setup** windows) are displayed within the **Value** column.

Method Setup FC1 (MODIFIED)

Common for all detectors

Name	Type	Input				Output			
		Source	Input	Value	Units	Output Type	Output	Parameter	Store
1 Collect	Dig. Inp	DataApex Int7 A/D	1	Up	---	DataApex Int7 A	1	High	<input type="checkbox"/>
2 Waste	Dig. Inp	DataApex Int7 A/D	1	Down	---	DataApex Int7 A	1	High	<input type="checkbox"/>
3 Next	Dig. Inp	DataApex Int7 A/D	2	Up	---	DataApex Int7 A	2	Pulse	<input type="checkbox"/>
4 V1	Time >	---	---	0.500	min	Valve 1	Range 1.2	2	<input checked="" type="checkbox"/>
V2	Input >	LUV	---	0.200	mAU	Valve 1	Range 1.2	1	<input checked="" type="checkbox"/>
V3	Dig. Inp	DataApex Int7 A/D	1	Up	---	Valve 1	Range 1.2	1	<input checked="" type="checkbox"/>
V4	Time >	---	---	1.900	min	Valve 1	Range 1.2	1	<input checked="" type="checkbox"/>

Event Table | LC Gradient | Measurement | Acquisition | Valves | Integration | Calculation | Advanced

OK Cancel Apply Report Help

Fig. 9. Event Table

- Invalid **Event table** entries (lines marked in red) ① can be edited and must be corrected before saving the method.
- The units ② displayed in the **Event table** are the units selected in the **System Configuration** dialog while configuring detectors (A/D Cards).
- New column **Store** ③ was added to the **Event table**, enabling the selected events to be stored in the chromatogram and displayed in the **Data Acquisition** and **Chromatogram** windows.
- The selection of units for LC Flow and LC pressure was moved from the **Method Setup - LC Gradient** dialog to the **Instrument Method Sending** dialog section **Instrument Method Units** (accessible from **System Configuration** dialog).

1.6 Data Acquisition

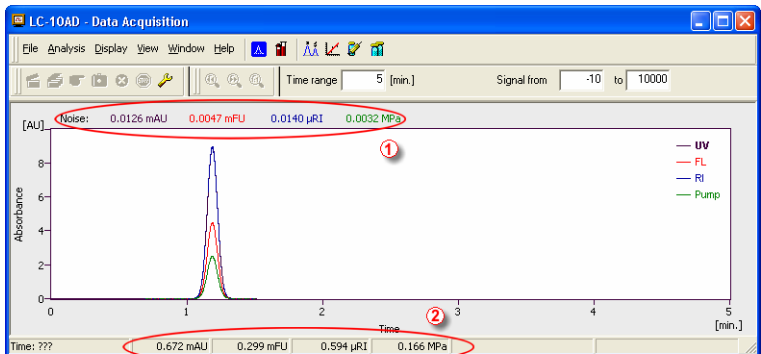


Fig. 10. Data Acquisition window organization

- Noise ① and drift are displayed in signal units.
- The Status Bar in **Data Acquisition** window was reorganized to display the configured signals with units ②.

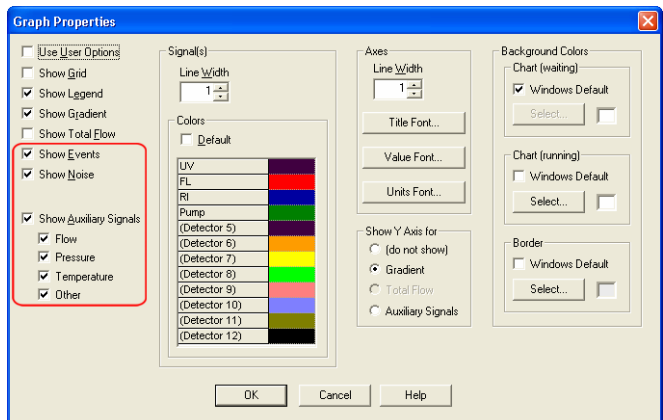


Fig. 11. Graph properties for Data Acquisition

- In **Graph properties** for **Data Acquisition** window new options were added to display events and auxiliary signals.

Note: *The display of Auxiliary Signals in the **Data Acquisition** window is not yet implemented in version 2.5.*

However, the Auxiliary Signals do display in the chromatogram window.

1.7 Chromatogram

- The Y axis (signal) displays the **Signal Name and Units** individually for each signal according to the detector used for acquisition.

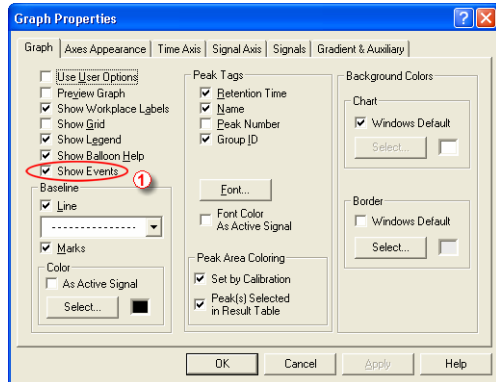


Fig. 12. Graph properties – Show Events

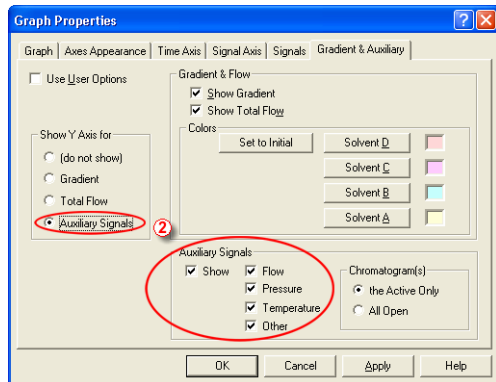


Fig. 13. Graph Properties – Auxiliary Signals

- Options for displaying the **Events** ① and **Auxiliary Signals** ② in the chromatogram were added to the **Graph Properties** dialog (accessed from **Chromatogram** window).

- The units in the **Offset** and **Scale** fields for Y axis were removed in the **Graph Properties** dialog.

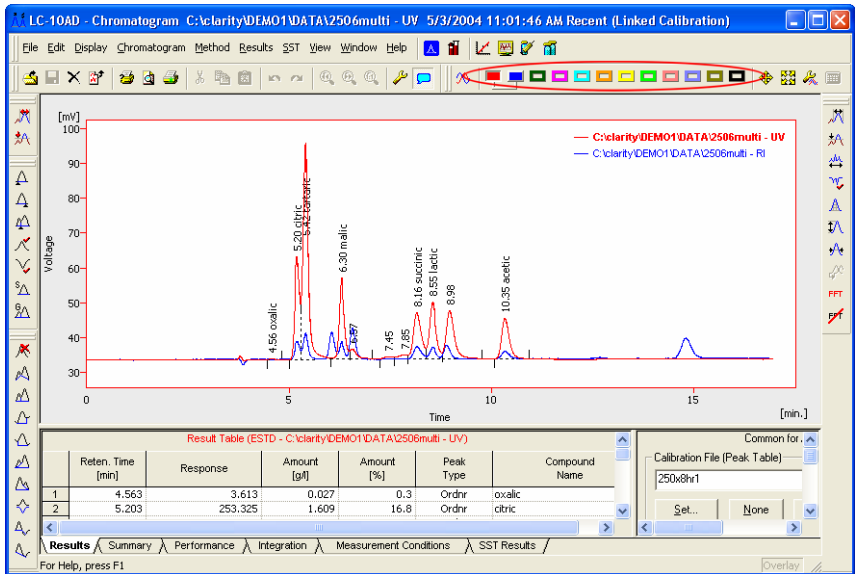


Fig. 14. Chromatogram Toggle Buttons

- In **Chromatogram** window, the number of **Toggle buttons** on the toolbar for active signal selection was increased to 12.
- The maximum zoom level was increased, the time axis can now display intervals down to **0.0001 MIN.**

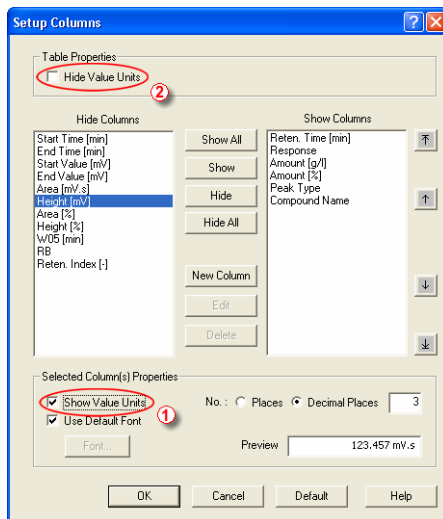


Fig. 15. Setting the visibility of Value Units

- The Value Units in the **Chromatogram - Result** and **Summary** dialogs in the table columns can be displayed by setting the **Show Value Units** ① checkbox manually for each column in the **Setup Columns** dialog. The display of units in all columns (for example for export) can be disabled using the **Hide Value Units** ② command.
- New **Symmetry/Tailing** column was added to the **Column Performance Table** that is in the **Chromatogram - Performance** dialog. The column is hidden by default.

1.8 Calibration

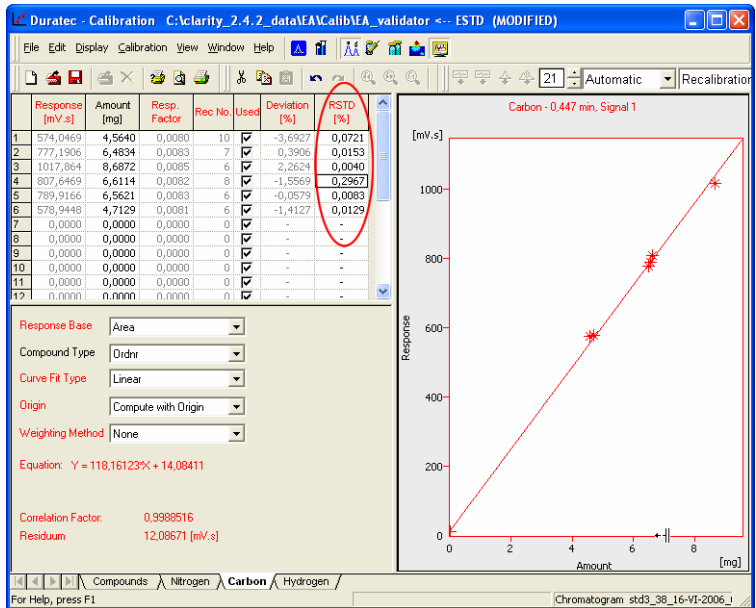


Fig. 16. RSTD% column in the Calibration window

- New **RSTD%** column was added to the **Calibration - <Compound name>** tab. It displays the relative standard deviation of averaged points used during recalibration of the respective concentration level. It is hidden by default.

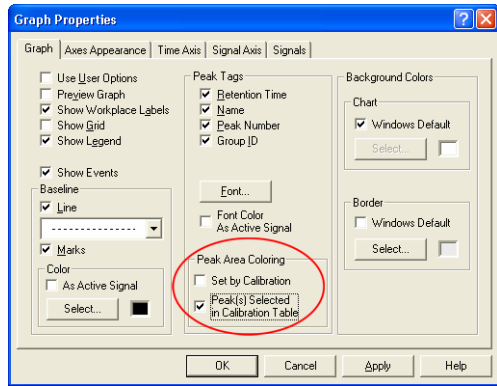


Fig. 17. Peak Area Coloring in the Calibration

- The checkboxes for setting of **Peak Area Coloring** in Graph Properties dialogs were renamed.

Note: To see the colored peaks in the **Calibration** window the calibration standard must have the current calibration linked to it (this can be done in the **Chromatogram - Results** dialog).

- The signal units in the Calibration are set according to the last chromatogram (calibration standard) used for calibration or recalibration.
- New calibration level 21 (Blank) was added to the **Calibration** table. The amount is fixed to zero on this level and the respective response is used for calculation of the calibration curve.

Note: On the other levels, zero in response or amount columns excludes the level from calculation.

Note: The **Ignore Origin** option is recommended for the **Origin** when the blank response is to be included in calibration curve calculation.

1.9 Report Setup

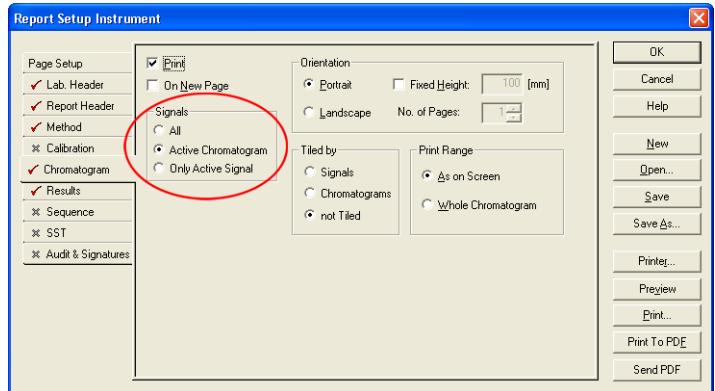


Fig. 18. Report Setup – Chromatogram tab

- New option for printing **All / Active Chromatogram / Only Active Signal** was added to the **Report Setup - Chromatogram** dialog.

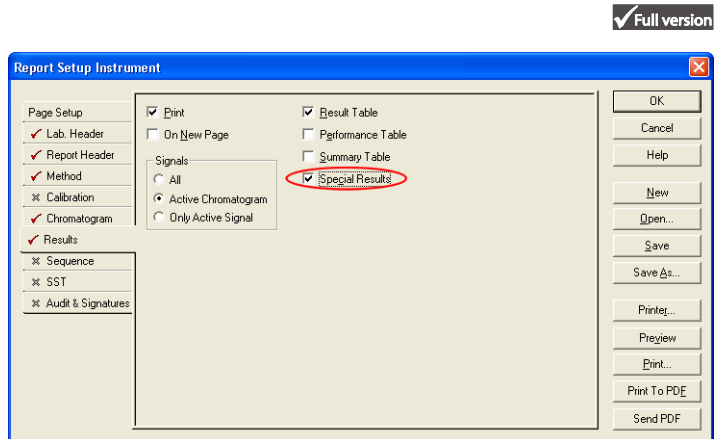


Fig. 19. Report Setup – Results tab

- New **Special Results** checkbox for printing of result tables generated by Control modules, such as Fraction Collectors etc., was added to the **Report Setup – Results** tab.

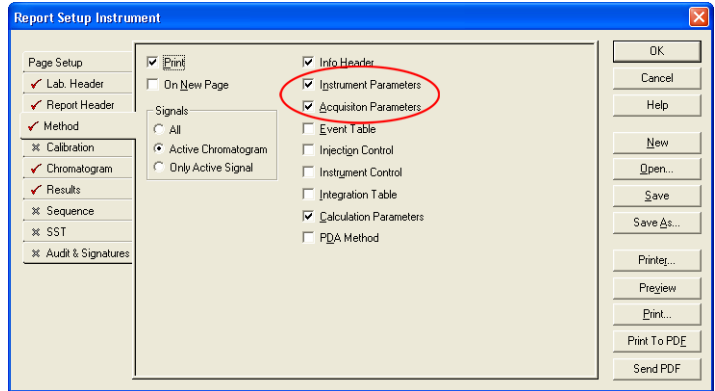


Fig. 20. Report Setup – Method tab

- The **Parameters** checkbox in the **Report Setup - Method** dialog was divided to **Instrument Parameters** and **Acquisition Parameters**, thus these sections can be selected for printing separately.

1.10 Import and Export

- Data are exported in selected units, scaling of units is not used (mV, V, ...).
- Imported Data will not be parsed to recognize scaled units (mV, V, ...).

Text File: V:\DATA_external\NCE_koval_06052006\04122034.asc

Import From Line: | Import To Line: |

Separator: ; <SEMICOLON> Decimal Separator: . <DOT>

Analyst: System

Sample ID: 0.01

Sample: |

Sample Date: 20.12.2004

Amount: 0

Dilution: 1

ISTD Amount: 0

Injection Volume: 0

Imported Data: Signal Only Number of Detectors: 3

Sample Rate (Hz)	Signal Units	Autoscale	Signal Name	Time Units	Y Multiplier	Data Size
8	mV	<input checked="" type="checkbox"/>	AU	min	1e-006	4440
8	mV	<input checked="" type="checkbox"/>	KV	min	1e-006	4440
8	mV	<input checked="" type="checkbox"/>	µA	min	1e-006	4440

Save as Chromatogram: c:\clarity\Work1\DATA\04122034.PRM Load Defaults

OK Cancel Help

Fig. 21. Import Text File window

- The **Import Chromatogram** dialog (for *.ASC, *.TXT and *.CHR files) was modified to enable import of chromatograms with up to 12 signals and to define **Signal Units**, **Autoscale** and **Signal Name** ① parameters during import.
- The user set parameters **Input from line**, **Input to line**, **Separator** and **Decimal Separator** ② will be applied to all simultaneously imported chromatograms.
- The autodetection of data format was improved.

1.11 Audit Trail Full version

- The **Chromatogram Audit Trail** now records the **Start Acquisition** event. The sending of a method to selected devices and events from Event table will also be recorded.

2 Control modules



2.1 Auxiliary signals

- The **Event Table** events can now also react to Auxiliary Signal level changes. Auxiliary signals from controlled modules (pressure, flow, temperature, etc.) can be displayed in chromatograms.

2.2 Device Monitor window

- The **Device Monitor** menu item and icon was added to **Data Acquisition**, **Chromatogram**, **Calibration** and **Sequence** windows.

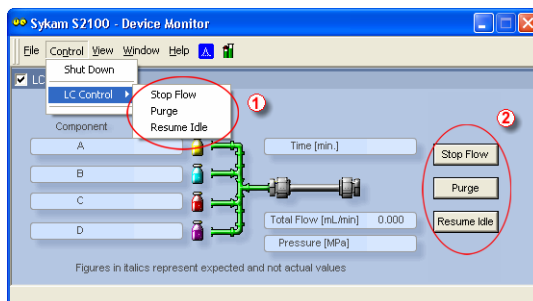


Fig. 22. *Device Monitor – direct control of the pump*

- In the **Control** menu of the **Device Monitor** window, the commands for direct control of pump were renamed to **Stop Flow**, **Purge** and **Resume Idle** ①. They were moved to the **LC Control** submenu and added to the **LC Monitor** pane ② as buttons.

2.3 Upgrades to current Control modules

- **LC Control: Agilent 1100 binary pump** now supports optional solvent selection valves – valve A and B with possible states 1 and 2.
- **GC Control: Shimadzu GC-14/GC17** - the auxiliary zones can be named in the **Setup** dialog accessible from the **System Configuration** dialog.

- **Hardware:** New driver for **DataApex Net-PAD**. For correct operation, it is necessary to remove the **Net-PAD** from **System Configuration** and then add it back again.
- New drivers for **INT7** and **INT9** are compatible with 32bit Windows Vista systems.
- Selected pump control modules can be configured as auxiliary pumps. Those pumps can be added to Clarity Instrument and controlled using the **Event Table** (in addition to the quaternary gradient controlled by the **LC Gradient** table). For auxiliary pumps, the flow is changed stepwise (not interpolated between time points).

2.4 New control modules added

- **Sykam S2100** pump control module
- **Sykam S5200** autosampler control module
- **Sykam S3400** post column reaction module
- **VICI-Valco** and **Upchurch valves** control modules
- **DataApex Virtual FC** control module enables the control of any fraction collector using the **Collect/waste** and **Next fraction** digital inputs.

2.4.1 Fraction Collector module

- Fraction Collector, a new type of control module, is supported. The Fraction Collector module is available for **LC**, **GPC**, **LC-PDA**, **CE** and **GPC-PDA** Instrument types.
- **DataApex Virtual FC** control module is also supplied, enabling the control of most fraction collectors using their digital inputs for **Next Fraction** and **Collect/Waste** events.

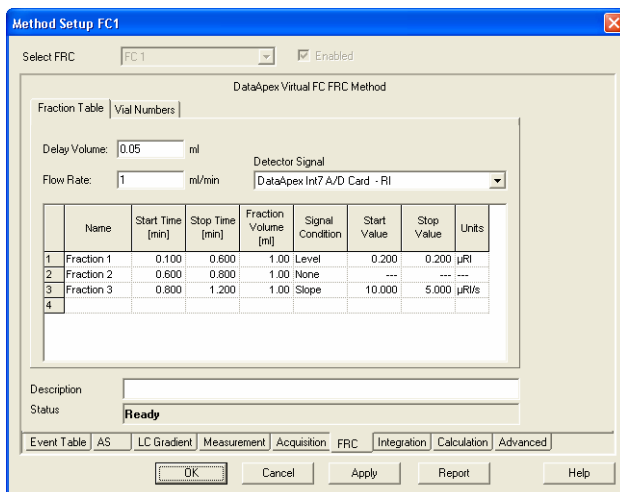


Fig. 23. Method Setup – Fraction Collector Fraction Table

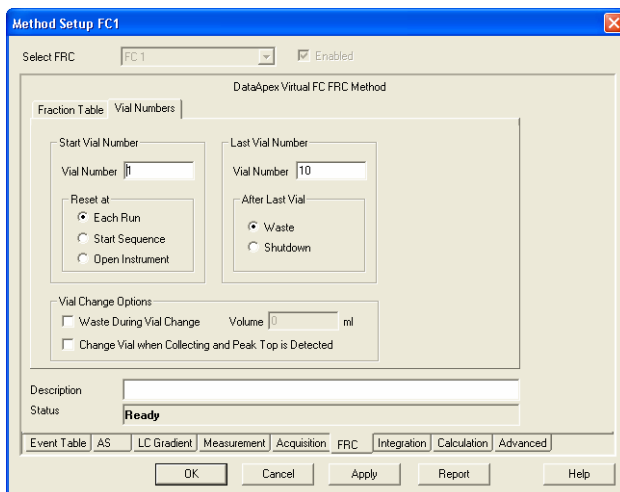


Fig. 24. Method Setup – Fraction Collector Vial Numbers

- When configured, a new **FRC** tab in the **Method Setup** window will appear, enabling the setting of the FC conditions – the delay between detector and the collector, selection of the

detector signal, number of available fractions, mode of collection and other options.

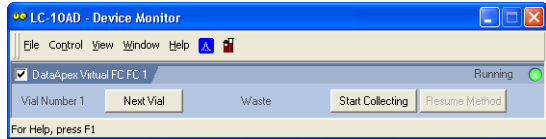


Fig. 25. Direct control from device monitor

- In the **Device Monitor** dialog the status and direct control buttons are available – they are functional only during a run (contrary to most other control modules).

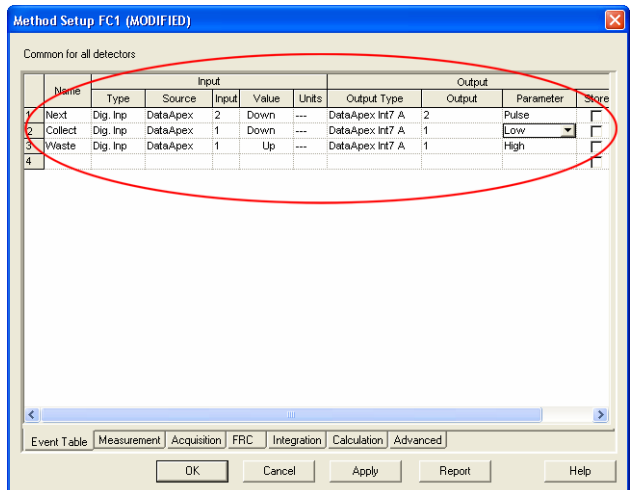


Fig. 26. Setting of digital inputs and outputs

- The **Virtual FC** module digital outputs and inputs must be mapped to physical digital outputs and inputs available on the A/D boards or other devices configured on the Instrument using the **Event table** in the **Method Setup** dialog. The event contacts of the controlled fraction collector should be connected to those outputs/inputs.

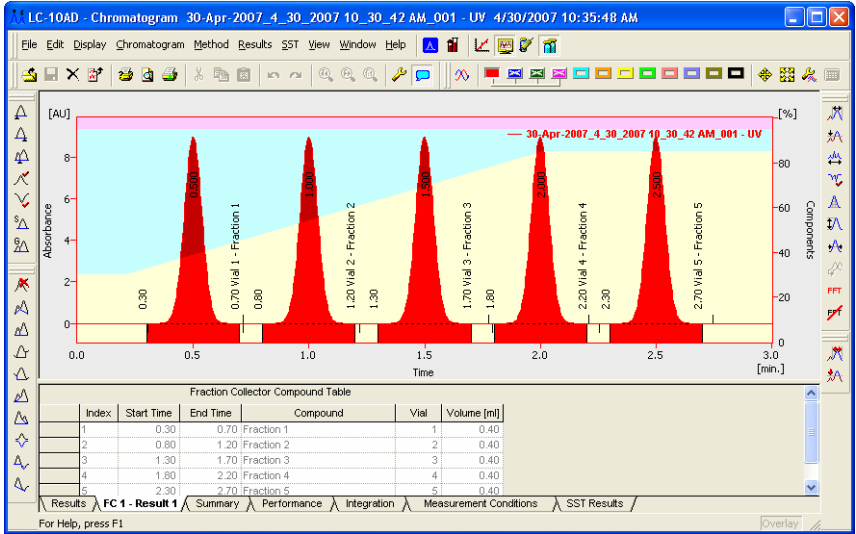


Fig. 27. Fraction Collector events

- The events produced by Fraction Collector can be displayed in the chromatogram. These events are also stored in the **Chromatogram Audit Trail**.

2.4.2 Valve control module

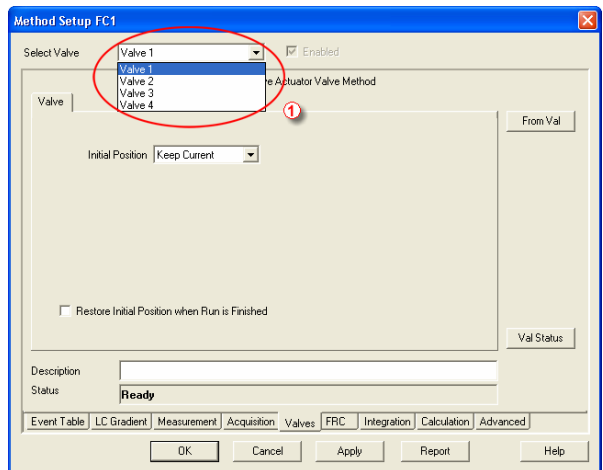


Fig. 28. Method Setup - Valve

- New type of control module - Valves – is now supported. The control module is available for all Clarity Instrument types. After configuration, a new **Valves** tab will appear in the **Method Setup** dialog for each configured module. In case the module supports the simultaneous control of several valves on common communication line, you can select between them using the listbox ① in the tab header area (as shown on **Fig. 28**). The tab allows for the initial valve settings, when the instrument method is sent to devices.

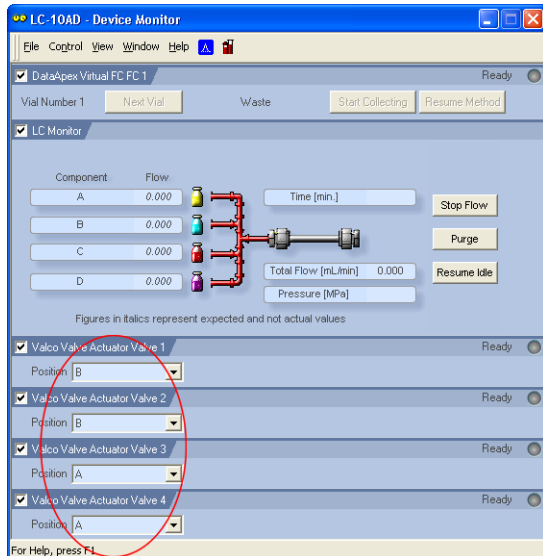


Fig. 29. Valves in the Device Monitor

- Each configured valve displays its current state in the **Device Monitor** and allows the user to set the desired position (this option is disabled during run).

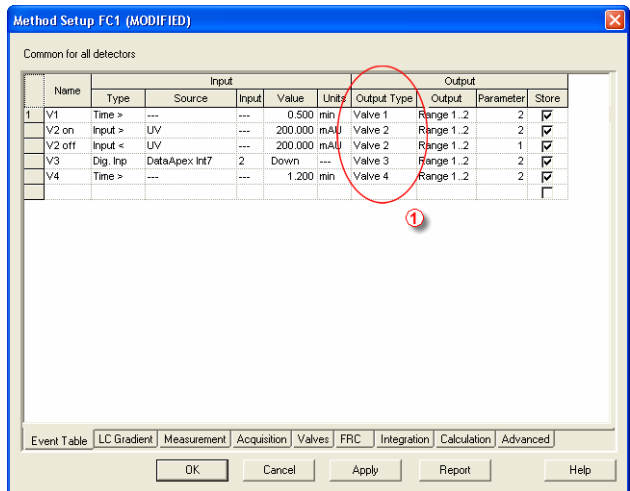


Fig. 30. Controlling the valves via Event Table

- The control of the valves is set in the **Event table**, the configured valves are offered as **Output devices** ①.

3 Extensions



3.1 PDA

- All PDA graphs now enable to constrain the displayed values by setting fixed ranges on any of the axes. Constraining the Z axis will change the color mapping in 3D graph and ISO plot (e.g. to prevent spikes from depreciating the color mapping).
- The 3D graph now contains guiding lines to help you with the orientation in the graph.

Note: *If there is **Zoom** applied to the graph, no change will be visible after the modification of the fixed range on any axis. It is necessary to **Unzoom** for any effects to show up.*

4 Known problems

4.1 Sentinel HW key installation

- The **Sentinel HW key** drivers are not installed automatically. They need to be installed manually, using the SENTINEL PROTECTION INSTALLER 7.3.2.EXE installation program. It is located in the HW_DRIVERS\SENTINEL subfolder on the installation CD. Alternatively, it can be downloaded from the producer web pages <http://www.safenet-inc.com/support/tech/sentinel.asp>, key type is **Sentinel SuperPro**.
- For new installation, use the **Custom** option during installation and disable the installation of **Sentinel Protection Server** and **Sentinel Keys Server**.
- For already installed keys, run the **Installer** with the **Remove option** first (the requested computer restart is not necessary) and then again with the custom options as above.

4.2 Knauer modules

- The control modules for **Knauer HPLC components** do not support some of the the new properties of **Clarity 2.5** (especially the signal units). Thus, no units will be displayed for chromatogram signals measured by **Knauer** detectors. New version of the **Knauer** control modules is planned for end of 2007.

4.3 Windows Vista

- **Clarity** is not supported on 64 bit PC's (both Windows XP and Vista).
- When installed to C:\PROGRAM FILES with **User Account Control (UAC)** active, the access to data and system files may be restricted and the **Clarity** might fail to operate correctly.
- Excessive number of warning messages needs to be confirmed during installation.

4.4 U-PAD2 under Windows 2000

- Due to the driver problem the computer crash (restart) may occur, when the **U-PAD2** is disconnected during analysis. This bug is not yet fixed in the last driver version. This problem is not occurring under **Windows XP** or **Vista**.

5 Fixed bugs

- **Calibration**: When the **Calibration** mode was set at certain calibration level which wasn't created in the used calibration file, the first free level was calibrated instead of the specified one during the calibration from **Sequence** or **Single Analysis** windows.
- **Chromatogram**: While saving the modified chromatogram in the **Mathematical Operations** dialog, the **Differentiate** command performing the derivation caused the raw data to be stored, thus any reintegration led to the loss of the derivation.
- **Chromatogram**: **Global Peak Width** and **Global Threshold** parameters were not properly imported when opening **CSW32** chromatograms.
- **Report**: The print of audit trail table formerly ignored the formatting on screen.
- **Chromatogram**: The actualization of file list in **File - Open** dialog after manually setting a path.
- **LC: Agilent 1100** - the run time in detectors is controlled by the Autostop time set in the **Method Setup - Measurement** dialog.
- **Sequence** and **Single Analysis**: Tooltips on **Run Sequence** and **Run Single** icons provide additional information, such as "why it is inactive".
- **Audit Trail**: The message "Password has been cleared" was incorrectly recorded in **Audit Trail** upon password change in **User Accounts** dialog.
- **Measurement**: The **Ctrl** + **Enter** shortcut now enables to create new line in the **Note** field of **Method Setup** dialog.