DataApex
Clarity™
CHROMATOGRAPHY SOFTWARE

LABIO GC11-UV

Clarity Control Module   ENG

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Contents

To facilitate the orientation in the **Labio GC11-UV** 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 Labio GC11-UV Control module

This manual describes the setting of the **Labio GC11-UV** chromatograph. The control module enables direct control of the instrument over USB.

Fig 1: Labio GC11-UV Gas Chromatograph

2 Requirements

- **Clarity** Installation CD ROM with GC Control module (p/n A23) and PDA Extension (p/n A29).
- USB cables (A-A extension cable + A-B straight cable).

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

3 Installation Procedure

3.1 Clarity Configuration

Before configuring the Labio GC11-UV in Clarity, it is required to install the driver for the device.

Connect the Labio GC11-UV to free USB port on your computer, turn it on and wait until Windows recognises the device.

Open the Device Manager, where new "Unknown Device" should appears. Right-click on the item will allow you to open Update Driver Software… dialog. Then select "Browse my computer for driver software" and select C:\CLARITY\BIN\HW_DRIVERS\PHOTONCONTROLUSBDRIVERHS\WIN7 folder, which contains the appropriate driver. After installing the driver, new COM port should appear on your PC, which will be used for communication with Labio GC11-UV.
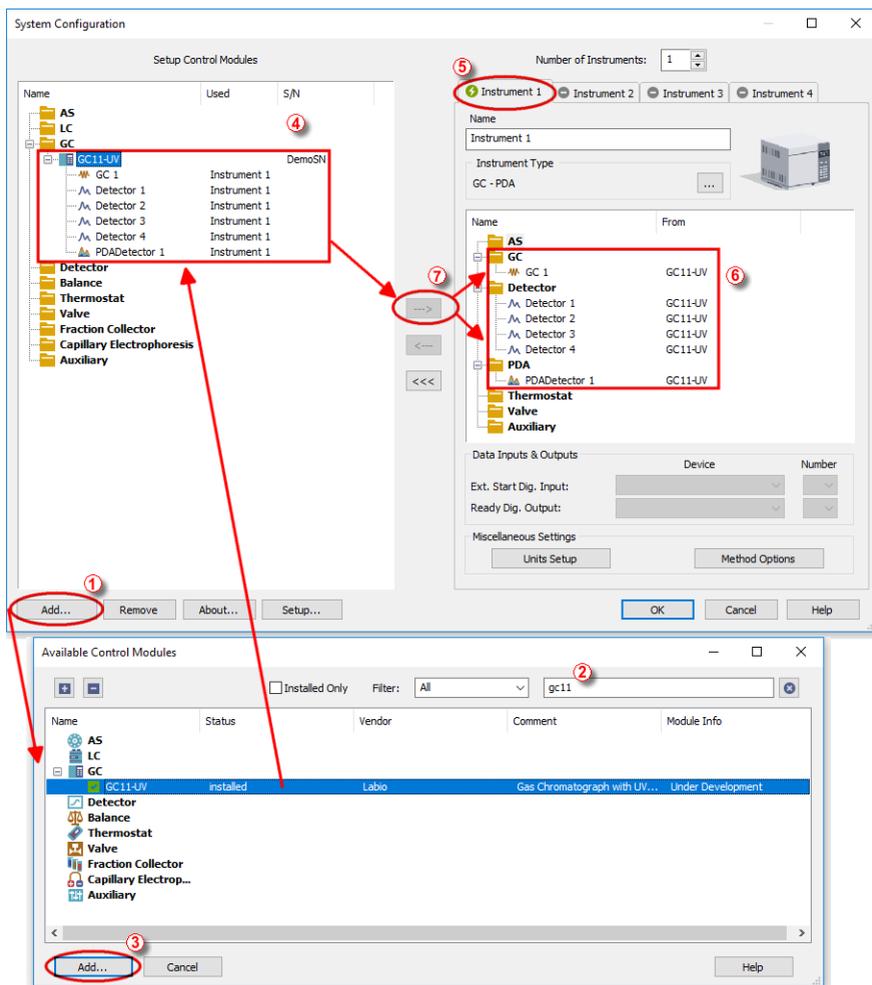
Fig 2: System Configuration

- In the System Configuration dialog press the *Add* button ① to invoke the Available Control Modules dialog.

- Type "GC11" into the searching field on the top of the dialog ② for quick filtering out the desired instrument.
  - Select the **Labio GC11-UV** in the **GC** section and press the *Add* button.③
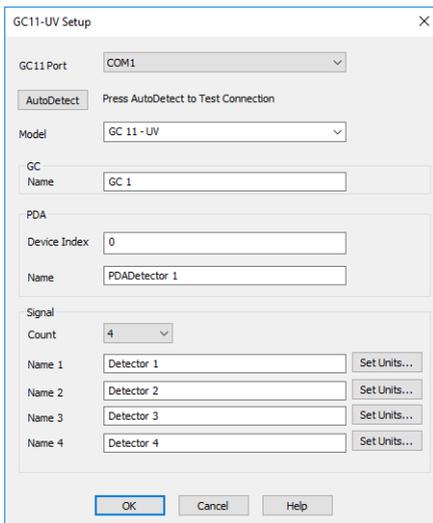 - The Labio GC11-UV Setup dialog will appear.

Fig 3: Labio GC11 Setup

- Select the COM port created in the previous step.
- Press the *Autodetect* button to read the settings from the instrument. Upon successful detection the serial number of the GC will be displayed.

- Press *OK*. The **Labio GC11-UV** item ④ will appear in the *Setup Control Modules* list of the System Configuration window.
- On the *Instrument*tab on the right side, change *Instrument Type* to *GC-PDA*.
- Drag the GC icon from the *Setup Control Modules* list on the left side to the desired *Instrument* tab ⑤ on the right side ⑥, or use the ⟶ button ⑦ to do so.
- Press *OK* to confirm the changes and close the System Configuration window.

4 Using the control module

New GC tab appears in the Method Setup dialog, enabling the setting of the GC control method. In PDA tab, parameters of spectra acquisition can be set.
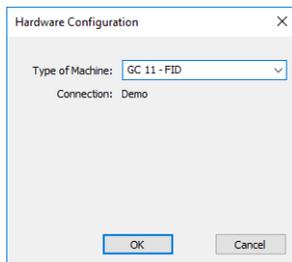
4.1 Hardware Configuration

Fig 4: Hardware Configuration

This dialog is invoked by pressing the *GC Status* button in the Device Monitor. Hardware Configuration dialog displays the type of the chromatograph, and port to which it is connected.
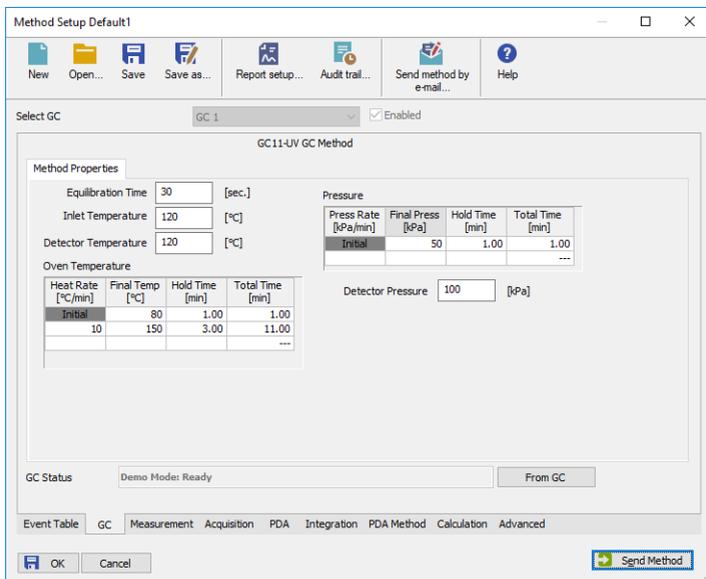
4.2 Method Setup - GC

Fig 5: Method Setup - GC - Column

This tab allows to set the parameters for a column configured in the Labio GC11- UV Setup dialog. Particular fields may vary, according to the column mode selected.

Equilibry time
Sets the time required for equilibration of the temperatures.

Inlet Temperature
Sets the temperature of the inlet.

Detector temperature
Sets the temperature of the detector cell.

Oven Temperature
Allows to edit the temperature ramp for the column oven (up to three rates and plateaus).

Pressure
Allows to edit the carrier gas pressure ramp for the column (one rate and plateau).

Detector Pressure
Sets the pressure for the detector.

Post Run (Flow or Pressure)
Sets the flow or pressure rate of a carrier gas after finishing the gradient. Active in *Pressure Ramp* or *Flow Ramp* mode only.

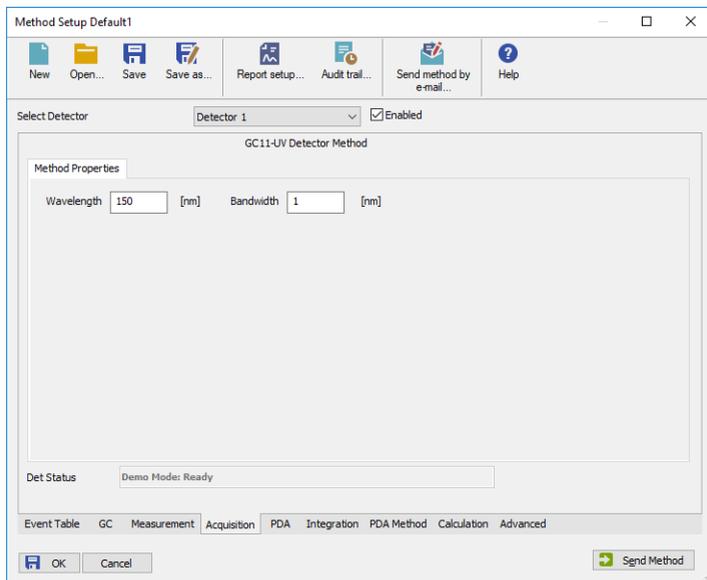# 4.3 Method Setup - Acquisition

Fig 6: Method Setup - Acquisition

Each detector allows to set its parameters on the appropriate tab. To switch to another detector, use the *Select Detector* field in the upper left corner of the Method Setup - Acquisition dialog.

Wavelength
Sets the wavelength used for this particular signal.

Bandwidth
Sets the bandwidth used for this particular signal.
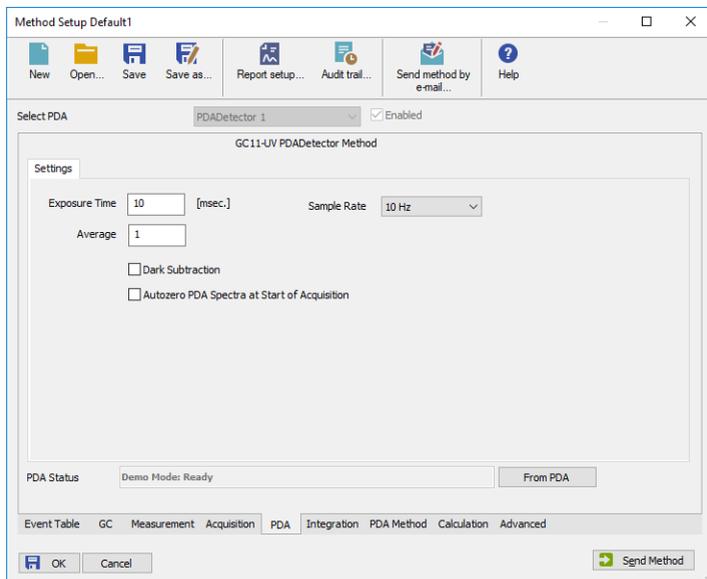
4.4 Method Setup - PDA

Fig 7: Method Setup - PDA

This tab allows to set the parameters for acquisition of the spectra.

Exposure Time

Sets the exposure time of the photometric detector. Excessive value can cause detector saturation.

Average

Sets the number of the spectra which are averaged by the camera into one. Accetable values are 0..16 (0 or 1 means no spectra are averaged).

Sample Rate

Sets the sample rate of spectra acquisition. When *Exposure Time* multiplied by number of averaged spectra exceeds the interval given by the *Sample Rate*, missing spectra are replicated.

Dark Subtraction

When checked, Labio GC11-UV subtracts dark current values from the actual ones.

Autozero PDA Spectra at Start of Acquisition

When checked, performs Autozero on the start of the acquisition. That means that detector acquire one spectrum on the start of the acquisition and this spectrum is then subtracted from all the following ones.
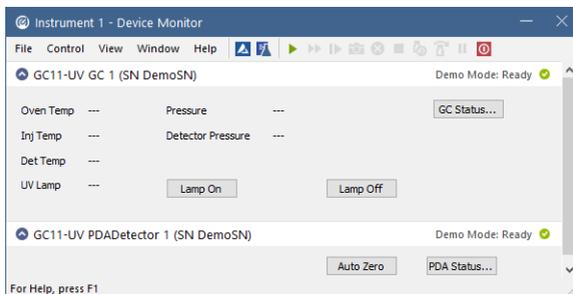
4.5 Device Monitor

Fig 8: Labio GC11-UV Device Monitor

The Monitor window for the **Labio GC11-UV** chromatograph displays all set and actual temperatures in each temperature zone and the column oven. It also displays gas pressures for all important parts of the GC. An non-equilibrated values are displayed in red letters.

GC Status…
Opens the Hardware Configuration window.

Lamp On
Turns on the lamp of the detector. Besides this, lamp is automatically turned on upon Instrument opening.

Lamp Off
Turns off the lamp of the detector.

Autozero
Performs the autozeroing of the detector.

PDA Status…
Opens the Hardware Configuration window.

4.6 Labio GC11-UV Setup

Labio GC11- UV Setup dialog (accessible through the System Configuration dialog) allows to view and manually set the hardware configuration of the chromatograph.

Fig 9: Labio GC11-UV Setup - Connection

GC11 Port
  Select the COM port with **Labio GC11-UV** chromatograph connected.

Autodetect
  Press this button to perform check of the communication and automatic detection of chromatograph model. Upon successful detection the serial number of the GC will be displayed.

Model
  Selects the model of the chromatograph.

GC Name
  Sets the name of the chromatograph used in Clarity.

Device Index
  Enter the index of the detector (in case more detectors are used).

PDA Name
  Sets the name of the PDA detector used in Clarity.

Signal Count
  Selects the number of signals used in Clarity.

Name 1 .. Name 4
  Sets the name of the each signal (detector) used in Clarity.

Set Units…
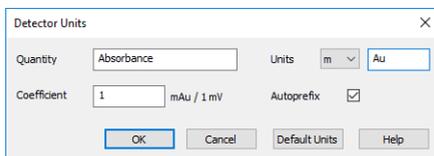Sets the units for particular signal used in Clarity.

Fig 10: Labio GC11-UV Setup - Detector Units

Quantity
Fills in a name of quantity.

Units
Fills in the acronym of used quantity and sets its prefix.

Coefficient
Sets the coefficient between values sent by chromatograph and quantity used in Clarity.

Autoprefix
Sets the pressure units used for setting the pressure of a carrier gas. After changing the units the values in the methods will be converted automatically.
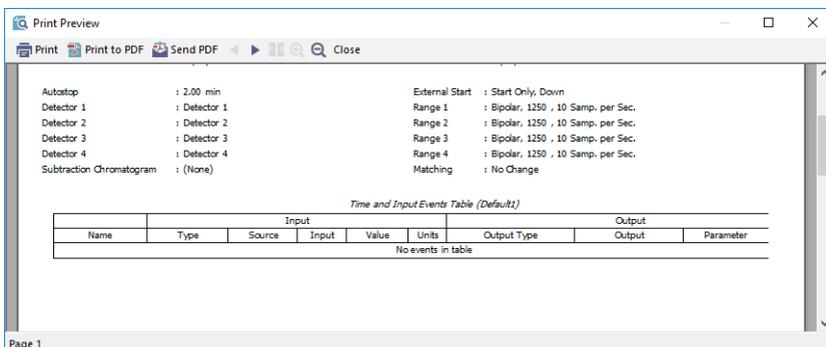
5 Report Setup

Fig 11: Labio GC11-UV - report preview

All chromatograph-specific settings (e.g. temperatures set to particular temperature zones) are reported as a part of the data displayed by the use of *Instrument Control* checkbox of the Report Setup - Method dialog.

6 Troubleshooting

When the remedy for some problem cannot be discovered easily, the recording of communication between **Clarity** and the GC 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 **Clarity** installation directory (C:\CLARITY\CFG 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=LabioGC11.txt; %D or %d could be used to include a
current date (recommended in combination with the Reset=Off option
 reset=off
```

Note: Instead of COM1 type the correct serial port used to communicate with the **Labio GC11-UV** detector. This port number is displayed when the Hardware Configuration dialog is invoked.

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