



YOUNGIN CHROMASS YL9140 FLD

Clarity Control Module

ENG

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Contents

1 YoungIn Chromass YL9140 FLD Control module	1
2 Requirements	2
3 Installation procedure	3
3.1 YoungIn Chromass YL9140 FLD communication	3
3.2 YL-Clarity Configuration	4
4 Using the control module	6
4.1 YL9140 FLD Setup - Common	6
4.2 FL Detector	8
4.2.1 YoungIn Chromass YL9140 FLD Setup - FL Detector	8
4.2.2 Method Setup - Acquisition - Detector Settings	9
4.2.3 Method Setup - Acquisition - Time Program	11
4.2.4 Device Monitor	13
4.2.5 Report Setup	15
5 Troubleshooting	16
5.1 YL9140 FLD Maintenance Software	16

To facilitate the orientation in the **YoungIn Chromass YL9140 FLD** manual and **YL-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 **YL-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 **YL-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 YoungIn Chromass YL9140 FLD Control module

This manual describes the setting of the **YoungIn Chromass YL9140 FLD** detector. The control module enables direct control of the instrument over the USB port.



Fig 1: YoungIn Chromass YL9140 FLD

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

2 Requirements

- **YL-Clarity** installation USB with **LC control** module (p/n A24) allowed.

Note: Cables are not part of the **YL-Clarity** Control Module. If you don't have the USB cable for connecting the Interface Board with the PC, you can order it as p/n SK06.

Caution: **USB-IF Board** supplied by the system manufacturer must be installed. This board is connected to the computer over the USB port.

3 Installation procedure

3.1 YoungIn Chromass YL9140 FLD communication

It is possible to control up to 4 **YoungIn Chromass YL9140 FLD** detectors configured on different Instruments of the same **YL- Clarity** Chromatography Station. Then it is necessary to set the switch on the first **USB-IF Board** to *Sys1* , the second one to the *Sys2* and so on. Consult the **USB-IF Board** manual.

3.2 YL-Clarity Configuration

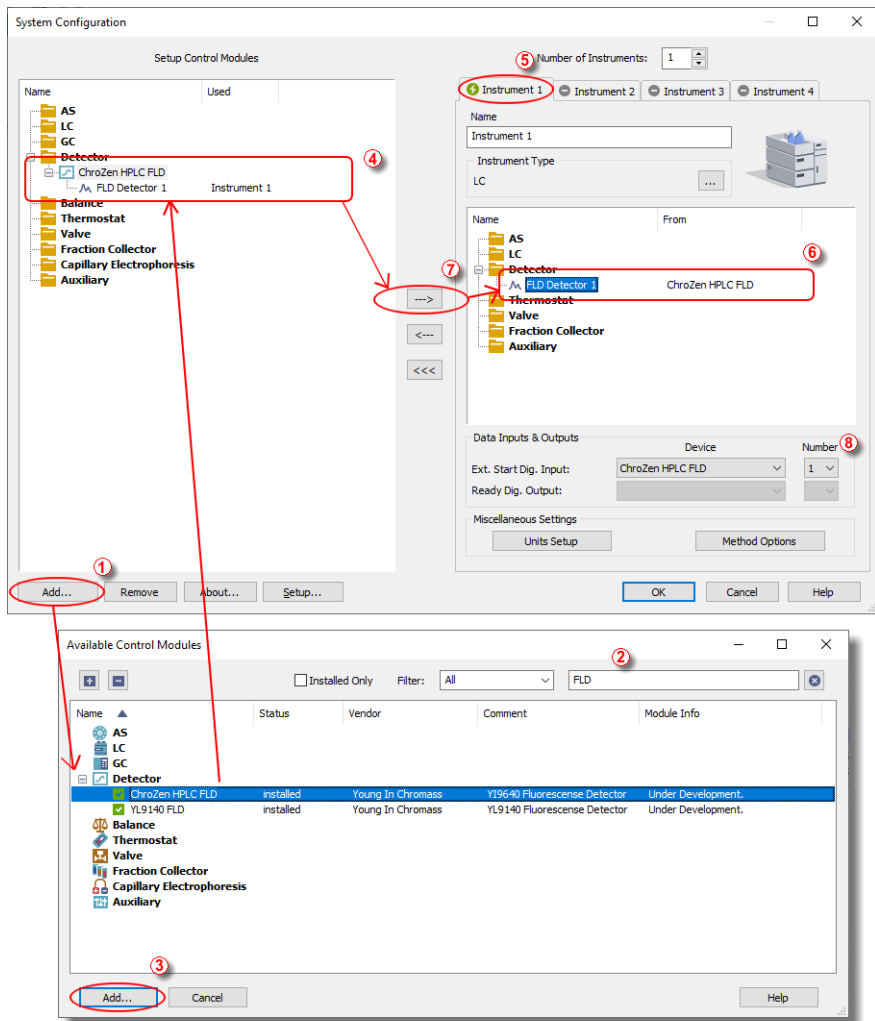


Fig 2: Adding YoungIn Chromass YL9140 FLD module

- Press the *Add* button ① in the **System Configuration** dialog to invoke the **Available Control Modules** dialog.
- You can use the filter ② to simplify the searching of the control module.

- Select the **YoungIn Chromass YL9140 FLD** and click the **Add** ③ button. The **YL9140 FLD Setup** dialog will appear.

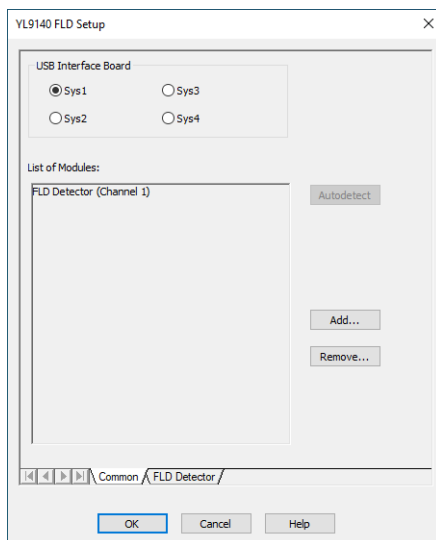




Fig 3: YoungIn Chromass YL9140 FLD Setup

- Select the corresponding *USB Interface Board* and click the *Autodetect* button to detect all modules including their *Serial* and *Program Numbers*. Alternatively you can click the *Add...* button and add the available modules manually. Each module will add its own tab to the **YoungIn Chromass YL9140 FLD Setup** dialog. It will be described in the manual later.
- After clicking the *OK* button, the **YoungIn Chromass YL9140 FLD** item ④ will appear in the *Setup Control Modules* list of the **System Configuration** dialog.
- Set the *Instrument Type* on the desired *Instrument* tab ⑤ to **LC**.
- Drag the LC chromatograph 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.
- Set the digital input nr. 1 to be used for starting the acquisition ⑧.
- If external contact (manual valve) is used then e-DIO cable needs to be used for starting of the **YoungIn Chromass YL9140 FLD** detector. With such setup the *Ext. Start Dig. Input* needs to be set to 'YL9140 FLD' *Device* and *Number* item to value '1'.

4 Using the control module

Several new tabs appear in the **Method Setup** dialog, based on the settings performed in the **YL9140 FLD Setup** dialog. These new tabs enable the setting of the **YoungIn Chromass YL9140 FLD** system operation program.

4.1 YL9140 FLD Setup - Common

The *Common* tab serves for configuration of the communication with the **YoungIn Chromass YL9140 FLD** system and for adding its modules you want to control.

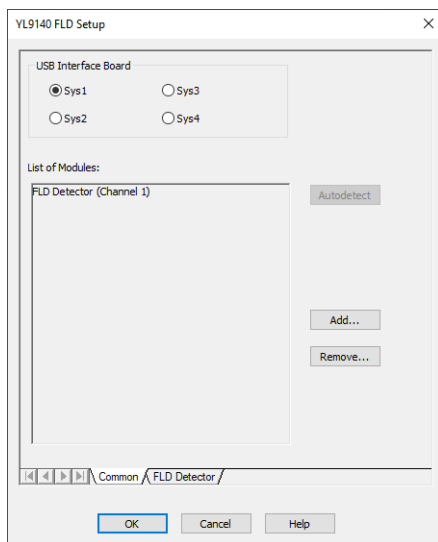


Fig 4: YL9140 FLD Setup - Common tab

USB Interface Board

Depending on the switch configured on the **USB-IF Board** in the **YoungIn Chromass YL9140 FLD** system, this option allows to select the matching *Sys1..4* setting.

List of Modules

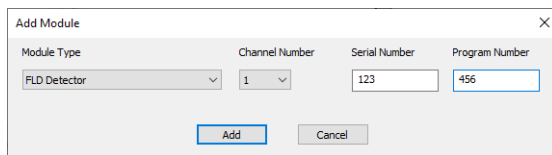
Displays the list of modules autodetected or manually added to the setup.

Autodetect

When used, this button automatically detects modules and their serial and program numbers installed in your **YoungIn Chromass YL9140 FLD** system and lists them in the *List of Modules* section.

Add...

Opens the **Add Module** dialog, which is used to select one of the YoungIn Chromass YL9140 FLD modules.



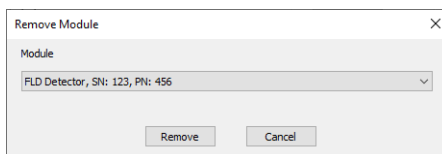
The screenshot shows the 'Add Module' dialog box. It has a title bar with a close button (X). The dialog contains four fields: 'Module Type' (a dropdown menu with 'FLD Detector' selected), 'Channel Number' (a dropdown menu with '1' selected), 'Serial Number' (a text input field with '123'), and 'Program Number' (a text input field with '456'). At the bottom, there are two buttons: 'Add' and 'Cancel'.

Fig 5: Add Module dialog

In the **Add Module** dialog, select the *Module Type* you want to add to the configuration. If requested, select *Channel Number* which is set in the YL9140 FLD system for the selected module. Enter also the *Serial Number* and *Program Number* and click the **Add** button. The module is then listed in the *List of Modules* and has its own tab in the lower part of the **YL9140 FLD Setup** dialog.

Remove...

Opens the **Remove Module** dialog, which is used to select the module you want to remove.



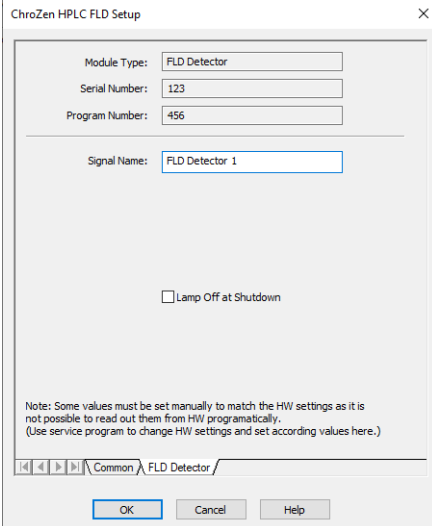
The screenshot shows the 'Remove Module' dialog box. It has a title bar with a close button (X). The dialog contains a single dropdown menu labeled 'Module' with the text 'FLD Detector, SN: 123, PN: 456' selected. At the bottom, there are two buttons: 'Remove' and 'Cancel'.

Fig 6: Remove Module dialog

4.2 FL Detector

The [Method Setup - Acquisition](#) tab and its sub-tabs serve for setting the FL Detector parameters configured in the [YL9140 FLD Setup - Fluorescence Detector](#) dialog.

4.2.1 YoungIn Chromass YL9140 FLD Setup - FL Detector



ChroZen HPLC FLD Setup

Module Type: FLD Detector

Serial Number: 123

Program Number: 456

Signal Name: FLD Detector 1

Lamp Off at Shutdown

Note: Some values must be set manually to match the HW settings as it is not possible to read out them from HW programatically.
(Use service program to change HW settings and set according values here.)

Common > FLD Detector /

OK Cancel Help

Fig 7: YL9140 FLD Setup - FL Detector

Module Type

Displays the *Module Type* you have added.

Serial Number

Displays the Serial number you have entered for the module.

Program Number

Displays the Program Number you have entered for the module.

Signal Name

Sets the name of the signal acquired by the detector.

Lamp Off at Shutdown

Sets whether the Lamp should be turned off on shutdown. Lamp could be turned on again by sending the method to the detector, in case it is set in the method.

4.2.2 Method Setup - Acquisition - Detector Settings

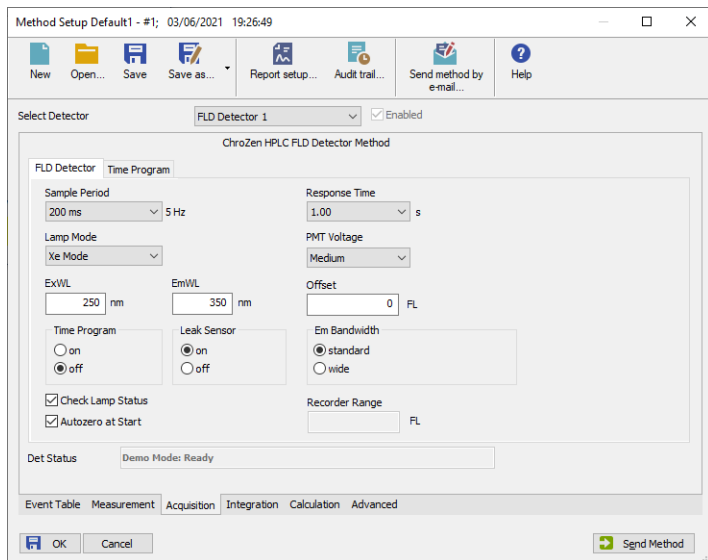


Fig 8: Method Setup - Acquisition - Detector Settings

Sample Period

Sets the period time in ms. Valid values are 10, 20, 50, 100, 200, 400, 800, 1600 and 3200 ms.

Note: If lower values are selected (e.g. 10 ms) lower filtering Response Time should be used (e.g. 0,01 s), otherwise the resulting chromatogram will not be smooth.

Lamp Mode

Sets the mode of the lamp. With *None* option set lamp is turned off.

ExWL

Sets the excitation wavelength of the detector.

EmWL

Sets the emission wavelength the detector is measuring on.

Time Program

Sets whether the Time Program is turned on/off.

Leak Sensor

Allows to set the leak sensor *on/off*.

Check Lamp Status

If Checked, the status of the lamp will be detected before run.

Autozero at Start

Sets if the Autozero is performed at the start of the acquisition.

Response Time

Defines the Time Constant of the detector's filter.

PMT Voltage

Sets the voltage of the photomultiplier.

Offset

Sets the offset of the signal output.

Em Bandwidth

Sets the bandwidth of the emission filter.

Recorder Range

Sets the Recorder Range. Active only with *Analog Output Board* installed.

4.2.3 Method Setup - Acquisition - Time Program

Time Program allows to set the detector wavelength parameter defined on previous tab based on the analysis time. It is available in *Single WL* mode only. This tab is active only when *Time Program* is turned on Detector tab. In order to modify wavelength for desired time by the *Time Program*, the table has to contain a row defining time when wavelength is about to switch to new one and successive row (with the same wavelength as on previous row) defining time interval for use of newly set wavelength. When a last row of the table is reached the time program is finished and initial conditions are set according to wavelength defined in the method tab. If *Time Program* is longer then *Autostop* time of the method the *Instrument* will in switch to *Control* after elapsing *Autostop* time.

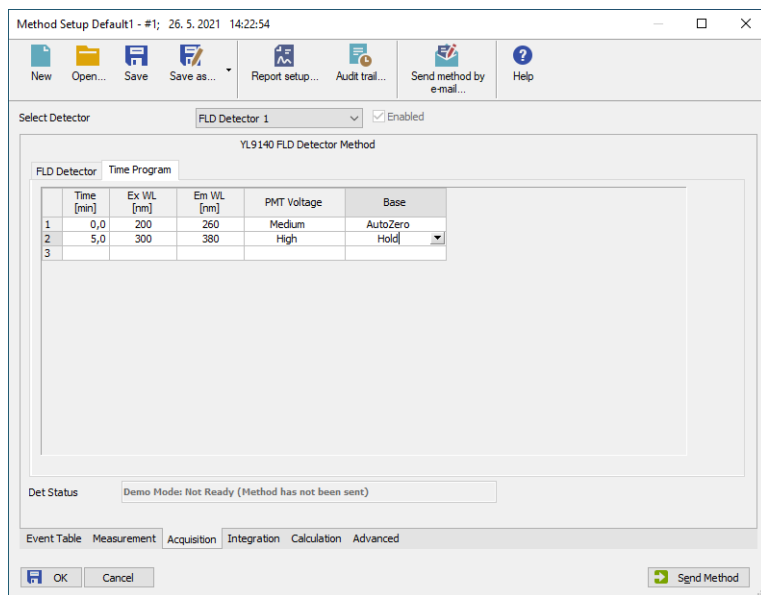


Fig 9: Method Setup - Acquisition - Time Program

The wavelength settings defined on the [Detector Settings](#) sub-tab can be changed during the analysis by events programmed in the **Time Table**.

Time [min.]

Sets the time of the wavelength change in min.

Ex WL

Sets the excitation wavelength which will be set in the defined time.

Em WL

Sets the emission wavelength which will be set in the defined time.


PMT Voltage

Sets PMT Voltage which will be set in the defined time.

Base

Choose the *AutoZero* if you want to reset the Detector to zero or *Hold* if you want to keep the current value.

4.2.4 Device Monitor

The **Device Monitor** window can be invoked by the *Monitor - Device Monitor* command from the **Instrument** window or using the Device Monitor  icon. It displays the actual wavelengths retrieved from the detector. Also allows to perform the *Zero Detector* action and switch the Xe Lamp off.

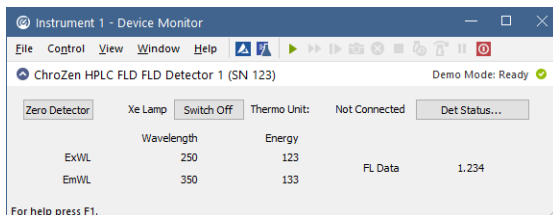


Fig 10: Device Monitor - FL Detector

It is possible to control the detector operation during the analysis in the **Device Monitor** window.

Zero Detector

Sets the response of the detector to 0.

Switch On (Off)

Turns the *Xe Lamp* on/off.

Wavelength and Energy

Current wavelength and energy retrieved from the detector.

FL Data

Displays actual value of detector signal.

Thermo Unit Not Connected/ Off

Indicates whether Thermo Unit is connected or not.

Det Status...

Opens the Status window showing the information about the detector.

Fig 11: YL9140 FLD Setup - FL Detector

Lamp Off at Shutdown

Turns the lamp off after shutdown.

Lamp Maintenance

Opens the **UV Detector: Lamp Maintenance** window displaying the information about the lamps.

	Hours	Count	Changed Date	
Xe Lamp	100	50	01/01/2000	Reset
Hg Lamp	0	0	01/01/2000	Reset

Fig 12: Lamp Maintenance

Reset

Enable to reset the lamp counter in case lamp has been changed.

4.2.5 Report Setup

All detector settings accessible on the [Method Setup - Acquisition](#) tab (including sub-tabs) are reported if the *Instrument Control* parameter on the [Method](#) tab of the [Report Setup](#) dialog is checked.

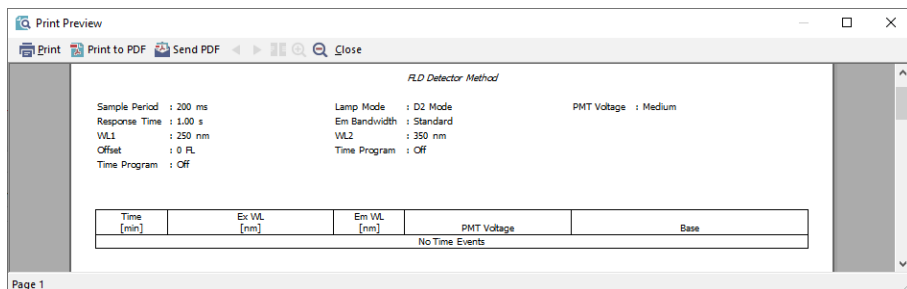


Fig 13: Report - FL Detector

This section also includes the **Time Table** from the [Method Setup - Acquisition - Time Program](#) tab.

5 Troubleshooting

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

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

```
echo=on
textmode=on
filename=Comm_YL9140 FLD_%D.txt
reset=off
```

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

Note: In case your system uses other USB Interface Board than Sys 1, you should change the number in the section header to the proper value.

5.1 YL9140 FLD Maintenance Software

For service purposes or setting of the *Gas Leak Sensor* install the **YL9140 FLD Maintenance Software** located in C:\YL-CLARITY\HW_DRIVERS\YL9140FLD_DDK_KIT\TOOLS. This application can be also used for evaluation of communication troubles between **YL-Clarity** and **YL9140 FLD** system.