DataApex
Clarity™
CHROMATOGRAPHY SOFTWARE

INTERLAB OMEGA
DETECTORS

Clarity Control Module   ENG

Author: MP

Contents

To facilitate the orientation in the **Interlab Omega Detectors** 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 Interlab Omega Detectors

This manual describes the setting of the Interlab Omega detectors.

Fig. 1: Interlab Omega detector

Direct control means that the detector can be completely controlled from the **Clarity** environment, including the digital data acquisition. That way, no A/D converter is needed. Instrument method controlling the analysis conditions will be saved in the measured chromatograms.

2 Requirements

- **Clarity** Installation with LC Control module (p/n A24).
- Free serial USB port in the PC.
- USB A-B cable (p/n SK06) in case of the USB connection. After connecting the instrument to the PC a virtual COM port is created in Windows.

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 Hardware - Wiring

Interlab Omega detectors are controlled via USB communication, it uses standard USB A-B cable.

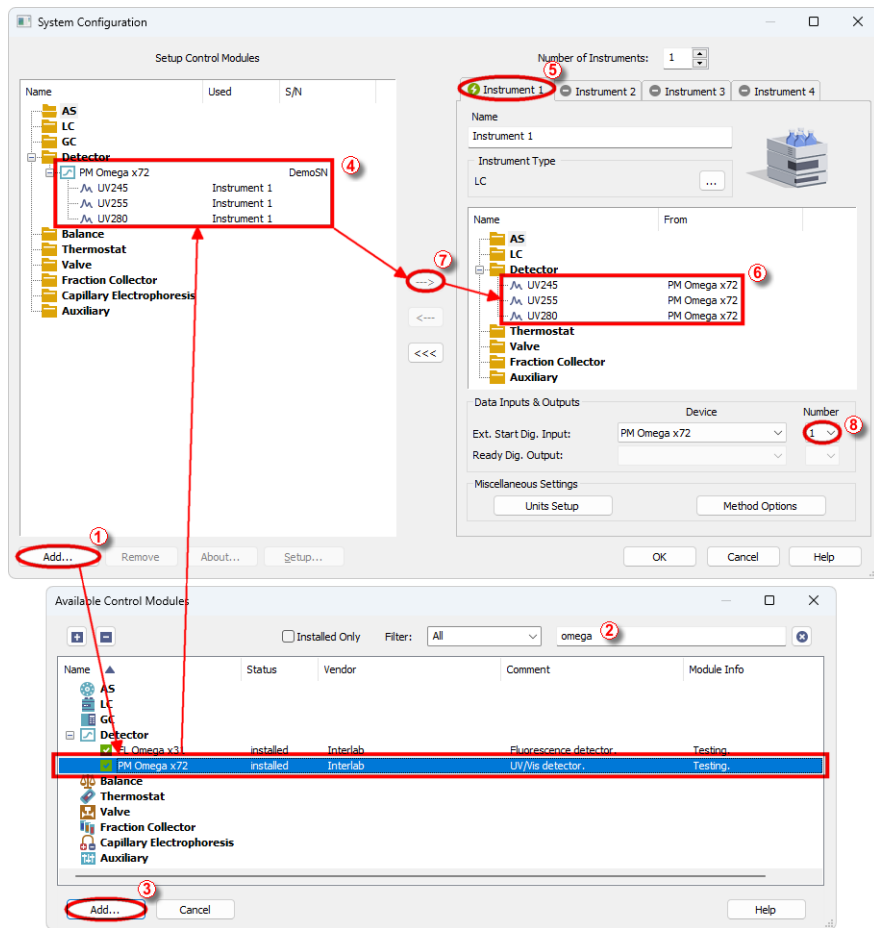## 3.2 Clarity Configuration - Interlab Omega UV-Vis Detector

Fig. 2: System Configuration - UV-Vis Detector

- Connect the **Interlab Omega UV-VIS detector** to the USB port of the computer and wait until Windows installs all required drivers. New COM port should manifest on the computer.
- 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. 2** 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 **PM Omega x72** and press the *Add* ③ button.

The Interlab Omega UV-Vis dialog will appear (see **Fig. 3** on pg. **6**.).
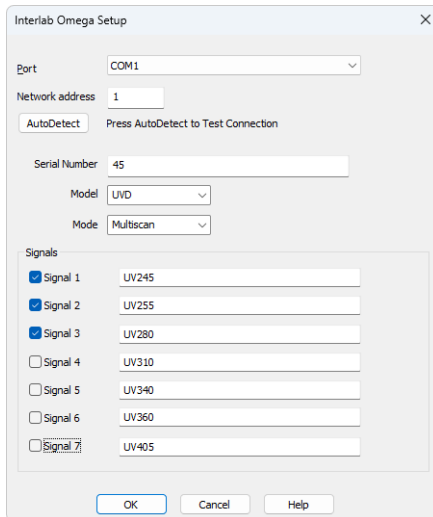
Fig. 3: Interlab Omega UV-Vis Setup

- Select the correct *Port* and press the *Autodetect* button. If the detector is connected correctly, the serial number will be displayed.
- Choose the mode and fill in the signal names.
- Press the *OK* button.

The **PM Omega x72** will appear in the *Setup Control Modules* list ④ of the *System Configuration* dialog.

- Drag and drop the **PM Omega x72** icon from the *Setup Control Modules* list ④ 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* to *PM Omega x72 Device* and appropriate *Number* ⑧ for external start of acquisition.

Note: The configuration dialog of the **Interlab Omega UV-VIS** detector (Interlab Omega UV-Vis) can be displayed any time by double-clicking on its icon or using the *Setup* button.

3.3 Clarity Configuration - Interlab Omega FLD Detector
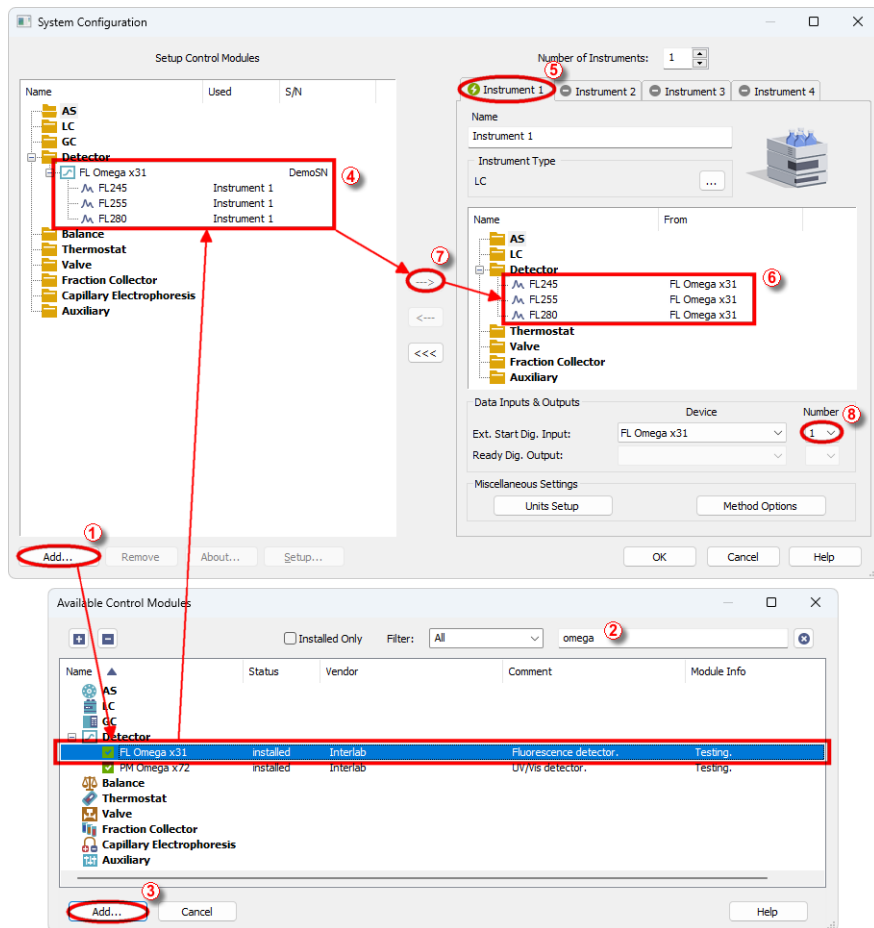

Fig. 4: System Configuration - FLD Detector

- Connect the **Interlab Omega FLD detector** to the USB port of the computer and wait until Windows installs all required drivers. New COM port should manifest on the computer.

- 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. 4** on pg. **7**.) to invoke the *Available*

Control Modules dialog.

- You can specify the searching filter ② to simplify the finding of the driver.

- Select the **FL Omega x31** and press the *Add* ③ button.

The Interlab Omega FLD dialog will appear (see **Fig. 5** on pg. **9**.).
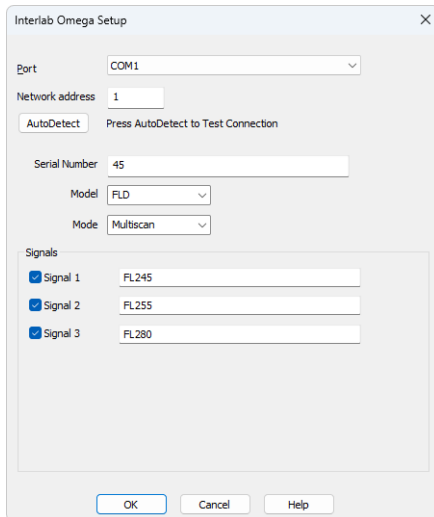
Fig. 5: Interlab Omega FLD Setup

- Select the correct *Port* and press the *Autodetect* button. If the detector is connected correctly, the serial number will be displayed.
- Choose the mode and fill in the signal names.

- Press the *OK* button.

The **FL Omega x31** will appear in the *Setup Control Modules* list ④ of the *System Configuration* dialog.

- Drag and drop the **FL Omega x31** icon from the *Setup Control Modules* list ④ 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* to *FL Omega x31 Device* and appropriate *Number* ⑧ for external start of acquisition.

. . . .

Note: The configuration dialog of the **Omega Interlab FLD** detector (Interlab Omega FLD) can be displayed any time by double-clicking on its icon or using the *Setup* button.

4 Using the control module - UV-Vis Detector

New [Acquisition](#) tab is created in the *Method Setup* dialog. If there are any other detectors configured on the instrument, then the **Interlab Omega UV-Vis** detector can be accessed by switching to the desired signal in the *Select Detector* section on the top of the dialog.

4.1 Interlab Omega UV-Vis Detector Setup

The *Interlab Omega UV-Vis Setup* dialog serves for the correct setting of the communication between **Clarity** and the detector.
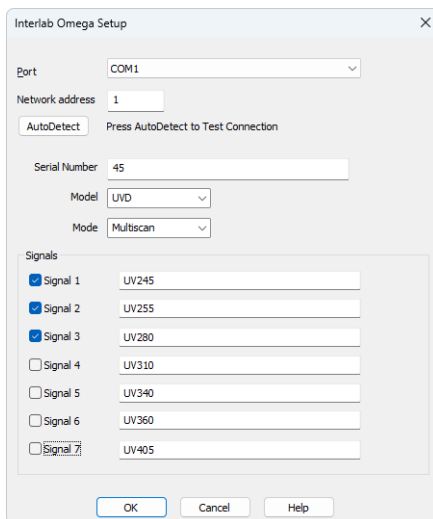

Fig. 6: Interlab Omega UV-Vis Setup

Port
  Selection of the communication port. Only COM ports with number in range 1 to 99 can be used.

Network address
  Sets the network address of particular detector.

Autodetect
  This button is used to test the connection to the **Interlab Omega** detector using the previously set *COM Port*. Obtained data about the detector are then displayed in the dialog. Be aware that clicking *Autodetect* results in resetting signal names to default values.

Serial Number
Displays the serial number of the detector. In case that autodetection was successful it is not necessary to set it manually.

Model
Sets the type of the detector.

Mode
Sets the scanning mode of the detector.

Signals
Enables to set the detector signals names. In *Multiscan* mode the names are prefilled automatically with wavelengths, in *Monoscan* mode it is suggested to fill in some neutral name (e.g. UV-Vis Signal), as the actual wavelength can be changed during the analysis.

4.2 Method Setup - Acquisition - UV-Vis detector

The *Method Setup - Acquisition* tab is dedicated to setting and viewing parameters of the method. All parameters set on those sub-tabs are automatically sent to the **Interlab Omega UV-Vis** detector prior to each injection in the *ACTIVE* sequence and may be sent there manually by using the *Send Method* button in the lower part of this tab or in the *Single Analysis* dialog.
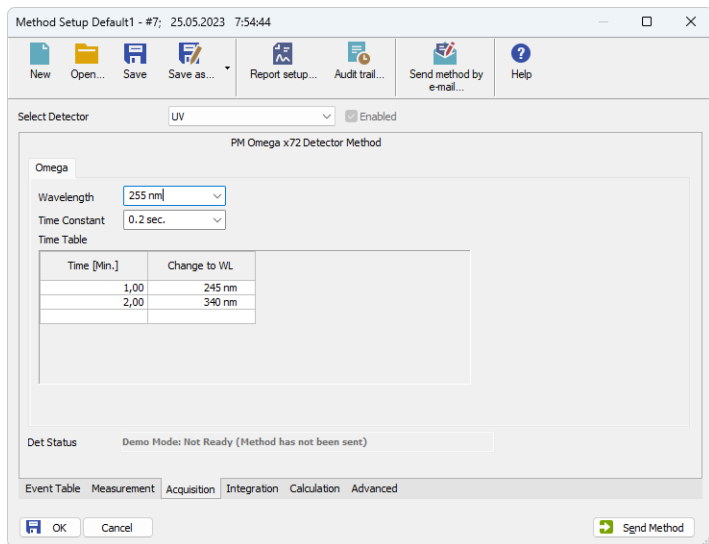

Fig. 7: Method Setup - Acquisition - UV Vis detector

Wavelength
Sets or displays the wavelength used for acquisition of this signal. In *Multiscan* mode this value cannot be changed.

Time Constant
Sets the time constant used for filtering this signal.

Time Table
Time Table serves for programming the changes of wavelength during the analysis. It is available only in *Monoscan* mode of the detector (see *Interlab Omega UV-Vis Setup*).

When a time event occurs, it is indicated in the chromatogram

Time [Min.]
Enter the time in which the wavelength changes. Time is entered in minutes and tenths of minute.

Change to WL
Select the wavelength to which it will switch at the specified time.

4.3 Device Monitor - UV-Vis Detector

The window with the detector status can be invoked by the *Monitor - Device Monitor* command from the *Instrument* window or using the 🎯 *LC Monitor* icon. It displays the actual signal values for all used wavelengths.
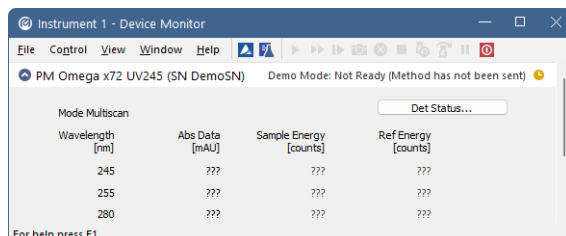

Fig. 8: Device Monitor UV-Vis Detector

Note: Sample and Reference Energy values out of correct working limits are highlighted in red.

Det Status…

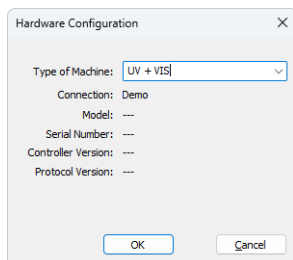Opens the *Hardware Configuration* dialogue, displaying detail information about the connected device.

Fig. 9: Hardware Configuration UV-Vis detector

5 Using the control module - FLD Detector

New Acquisition tab is created in the *Method Setup* dialog. If there are any other detectors configured on the instrument, then the **Interlab Omega FLD** detector can be accessed by switching to the desired signal in the *Select Detector* section on the top of the dialog.

5.1 Interlab Omega FLD Detector Setup

The *Interlab Omega FLD Setup* dialog serves for the correct setting of the communication between **Clarity** and the detector.
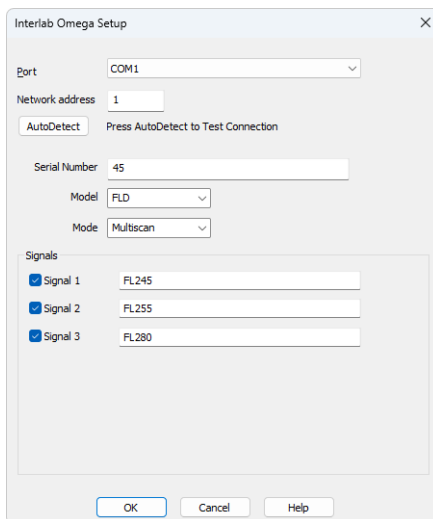

Fig. 10: Interlab Omega FLD Setup

Port
  Selection of the communication port. Only COM ports with number in range 1 to 99 can be used.

Network address
  Sets the network address of particular detector.

Autodetect
  This button is used to test the connection to the **Interlab Omega** detector using the previously set *COM Port*. Obtained data about the detector are then displayed in the dialog. Be aware that clicking *Autodetect* results in resetting signal names to default values.

Serial Number

Displays the serial number of the detector. In case that autodetection was successful it is not necessary to set it manually.

Model

Sets the type of the detector.

Mode

Sets the scanning mode of the detector.

Signals

Enables to set the detector signals names. In *Multiscan* mode the names are prefilled automatically with wavelengths, in *Monoscan* mode it is suggested to fill in some neutral name (e.g. FL Signal), as the actual wavelength can be changed during the analysis.

5.2 Method Setup - Acquisition - FLD detector

The *Method Setup - Acquisition* tab is dedicated to setting and viewing parameters of the method. All parameters set on those sub-tabs are automatically sent to the **Interlab Omega FLD** detector prior to each injection in the *ACTIVE* sequence and may be sent there manually by using the *Send Method* button in the lower part of this tab or in the *Single Analysis* dialog.
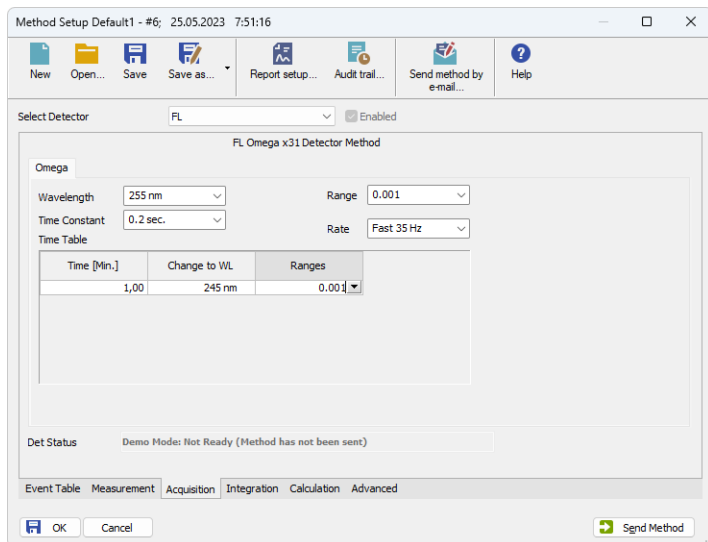

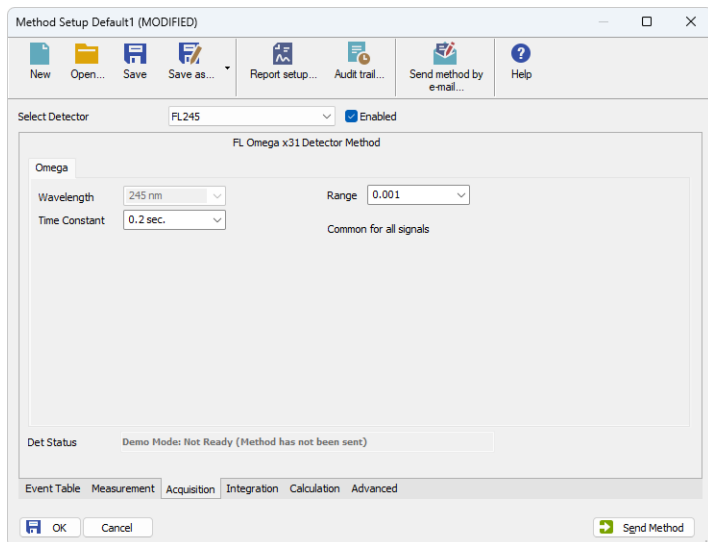*Fig. 11: Method Setup - Acquisition - FLD detector - Monoscan Mode*

Fig. 12: Method Setup - Acquisition - FLD detector - Multiscan Mode

Wavelength
Sets or displays the wavelength used for excitation of the selected detector signal. In *Multiscan* mode this value cannot be changed.

Time Constant
Sets the time constant used for filtering this signal.

Range
Sets the range for the selected detector signal.

Rate
Sets the acquisition rate of detector signal. This option is available only in *Monoscan* mode of the FLD detector.

Time Table
Time Table serves for programming the changes of excitation wavelengths during the analysis. It is available only in *Monoscan*mode of the FLD detector.

When a time event occurs, it is indicated in the chromatogram

> **Time [Min.]**
> Enter the time in which the wavelength changes. Time is entered in minutes and tenths of minute.

> **Change to WL**
> Select the wavelength to which it will switch at the specified time.

> **Ranges**
> Select the range to which it will switch at the specified time.

5.3 Device Monitor - FLD Detector

The window with the detector status can be invoked by the *Monitor - Device Monitor* command from the *Instrument* window or using the 🞋 *LC Monitor* icon. It displays the actual signal values for all used wavelengths.
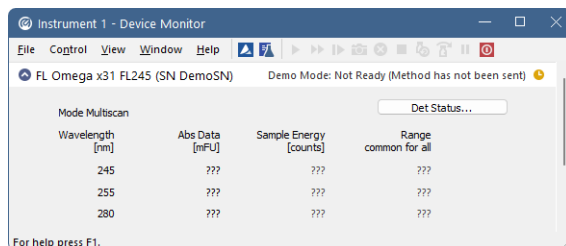

Fig. 13: Device Monitor FLD Detector

Note: Sample and Reference Energy values out of correct working limits are highlighted in red.

Det Status…
Opens the *Hardware Configuration* dialogue, displaying detail information about the connected device.
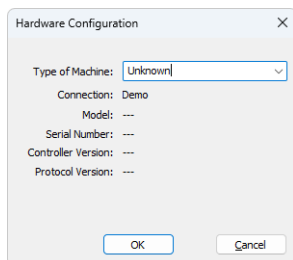

Fig. 14: Hardware Configuration FLD detector

6 Report Setup - Interlab Omega Detectors

All of the detector settings accessible on the Method Setup - Acquisition tab for the given signal are reported. To do so, the *Instrument Control* parameter on the *Method* tab of the *Report Setup* dialog must be checked.
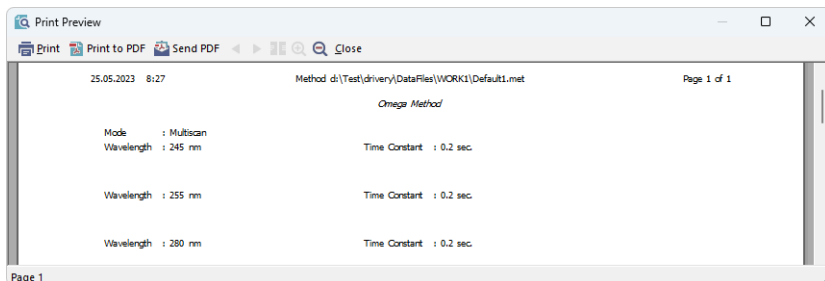
6.1 Report Setup - UV-Vis Detector

Fig. 15: Print Preview of the Report Setup - UV Vis Detector

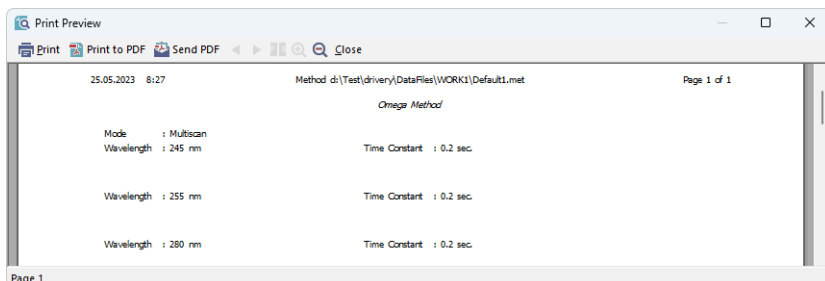## 6.2 Report Setup - FLD Detector

Fig. 16: Print Preview of the Report Setup - FLD Detector

7 Troubleshooting

When the remedy for some problem cannot be discovered easily, the recording of communication between **Clarity** and the detector 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=Omega_Comm_%D.txt
reset=off
```

Note: Instead of COM1 type the correct serial port used to communicate with the **Interlab Omega** detector. This port number is displayed when the *Det Status* button in the Device Monitor 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.