MSDA_XE

QUICK START

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1. Information about the software and this manual

The software MSDA_XE is a graphical software to control all types of TriOS sensors. Functions for graphical visualization and storing are integrated as well as tools for sensor settings, calibration and calculation of concentration values from UV spectra (LSA) or calculation of PAR / UV light. Sensors are identified by the software with device files and calibration settings and coefficients will be imported into the software automatically.

Spectral analysis and concentrations can be calculated during the measurement. Concentration values, spectra and timeseries can be exported in different formats.

All data will be stored in the currently used database or in separate external files. Different databases can be used with the software, which helps to organize huge data amounts of different sensors or different applications / missions.

The wizard of the software will help to install sensors and do some settings. If you use the software for the first time use this wizard.

This is not the software manual. This is a short manual to get a quick and easy start, if you don't want to use the wizard. For a better understanding this short manual contains many pictures and each sensor type (Radiometer, Fluorometer, Photometer) has a single chapter.

Beside the pictures, mouse entries or series of entries are marked in brackets. E.g.: [Desktop / Save as...] for saving the current desktop.

This quick start manual is based on the software version 8.7.000 or higher. If you use an older version it is possible, that some features are not included or are different. The newest software version is available from our website <u>www.trios.de</u>.

1.2 Administrator rights

For the installation of MSDA_XE, administrator rights are necessarily needed. In Windows Vista and Windows 7 you need write permission for the installation folder.

2. License strategy

MSDA_XE is freeware. As more and more functions were integrated in the software, a license strategy was build up. Licenses activate only the functions, which are needed by a certain sensor. When the software is started for the first time, no license is imported and only basic and general functions are available. After the import of device files the sensor specific functions will be activated. For example the import of a RAMSES device file will activate only the RAMSES specific functions and menus. By pressing [Options /



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Professional mode] more functions for professionals will be activated. Some very special functions can only be activated by additional licenses, which can be requested by the TriOS support team (<u>support@trios.de</u>).



The frontend of the software can also be customized. Individual desktops can be saved. This helps to configure the software for each sensor type or application. Build up a desktop according to your wishes and save it by pressing [Desktop / Save as...]. The saved file has the ending *.dsk. For an easy start, desktops for each device type are preconfigured and included in the software package. They can be opened by pressing [Desktop / Open Example].

The desktop consists of different windows. Most windows like chart, LSA or data table have an input selection. The principle behind this is the sender and receiver principle – like a radiostation and a radio.





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The user is able to customize the inputs. For example it is possible to run a LSA (Substance analysis) directly from a measuring ProPS as input, or with data from the DB Sender. Or the chart can show one graph from the DB Sender as input and one graph from the LSA as second input. If a process don't work correctly, please check the window inputs and links carefully as well as the activation status of the window.

Each sensor needs at least one file – the device file. Device files are the 'drivers' for the sensors. At the beginning of each sensor specific chapter the files and licenses, which have to be imported are listed.

2.1 How to import license keys

The control of the licenses is now done by the software and dependent on the imported device files. Nevertheless some special functions are blocked and can only be activated with additional licenses. Additional licenses can be requested by the support team of TriOS (<u>support@trios.de</u>). Blocked functions are marked in grey.

To import one of the license keys press [Options / Import license...]



In the following dialog search for the license you need and confirm with [open].



A message will show you, which functions and parts were imported now. It is possible to import more than one license at once. To deactivate a license delete or cut the appropriate *.lic file in the installation folder of the software (...\TriOS GmbH\msda_xe\...). The license key can be imported again later on.

2.2 How to import device files

Device files are necessary for the operation of the sensor. They contain sensor specific data and calibration coefficients.

They can be imported step by step with the wizard.

Or click [Import...] in the Device Manager and search in the following dialog for the *.ini of your sensor. These files have always the same syntax. The name consists of sensortype and sensornumber. Some examples:

- SAM_82XX.ini

for RAMSES radiometer

- MICROFLU_11XX.ini

for microFlu fluorometer

- ENVIROFLU_28XX.ini for enviroFlu-HC fluorometer
- PROPS_D0XX.ini
- VIPER_A0XX.ini
- for a ProPS photometer for a VIPER photometer

Confirm your choice by pressing [open]. The file(s) will be imported. If the powersupply is shut down, or the cable is not connected to the PC the device will be shown in the 'offline' section of the device manager. If the power supply is switched on, press [scan] and the sensor will change to 'online'.





A good approach for installing a sensor and starting the measurement would be:

- import the files
- open the needed windows (control window, DB Sender, etc.)
- make settings if necessary
- save the settings with [Desktop / Save as...]
- physically connect the sensor and the powersupply
- start the powersupply
- [Scan] for the sensor in the device manager and activate the measurement in the sensor control window
- if necessary do the settings for the COM ports (chapter 2.3)

Port Mana

Most of the settings can be done, while the sensor is offline / off.

2.3 How to activate the RS232 ports

Check the hardware settings of your PC at first. Spot which port is used for sensor connection and activate it in the hardware manager. Install the drivers, if you use a serial-to-USB adapter. After the installation of the driver, a restart of Windows or MSDA_XE might be needed. A restart of Windows will cause a new numbering of the USBports.

Seria I Network 😏 Refresh 🗙 Remove NOT available ports Available Connected Protocol Use it Name Settings 9600, 8, None, 1, Software COM1 • \checkmark xon/xoff) TriOS 9600, 8, None, 1, Software COM14 ✓ (xon/xoff) COM17 TriOS 9600, 8, None, 1, Software ~ (xon/xoff) TriOS 9600, 8, None, 1, Software COM19 (xon/xoff) COM1 😑 Useit TriOS Protocol (Device Type) 5 Sec. 💌 Query timeout Stop DSP 🔀 Close

In the software press [Options /

port manager...]. The port manager will be opened and show all available COM ports. Mark the channel you want to use and press [Use it] below.

For TriOS sensors the protocol of the COM port must be 'TriOS'.

2.4 How to work with the database

The software stores all measured data sets in the database and has several functions for organizing or exporting the data. The database can be started with [Database \ Data]. All data, also from different sensors are stored in one database. It is possible to change the database for each type of sensor of application. You will find an empty database in the

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program directory, which can be copied and renamed for other measurement sessions. The settings for the used database can be done in the menu: [Database / configuration].

| 8 | S D8 Sender | | | | | | | | | | | | | | | | | | | | | |
|-------|---|----------|--------------------|-----------------------------|------------------------|-------|----------|---|----------|--------------|---|----------|------------|----------|-------------|-----|---|-----------------|---|------------|--------------|------------|
| D ata | 1 | Filter 🕎 | 🔀 Layout 👗 🛗 | 1 🖩 🖻 🖻 | 5 | | | | | | | | | | | | | | | | | |
| | 3 Devi | ice 💌 | IDData | Comment | ▼ Date/Time | - | DataType | T | Comm 🛆 💌 | DataType_1 | - | Commen 💌 | DataType 💌 | Commei 💌 | MethodNam 💌 | - | • | ▼ MethodType ▼ | - | Mission 🔄 | 🖌 MissionS 💌 | |
| | PRO | PS_D021 | 1813_2009-02-27_10 | 48 aq_10mm- | path_D0 27.02.2009 10: | 48:12 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D021 | A۷ | 0 | 0 ProPS Control | | No Mission | 1 | 1 |
| ₽ | PRO | PS_D021 | 1813_2009-02-27_11 | 03- aq_5mm-p | ath_D02 27.02.2009 11: | 03:16 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D021 | Avı | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D021 | 1813_2009-02-27_11 | 15-: aq_2mm-p | ath_D02 27.02.2009 11: | 15:20 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D021 | Avı | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| - | PRO | PS_D021 | 1813_2009-02-27_11 | 21- aq_1mm-p | ath_D02 27.02.2009 11: | 21:36 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D021 | A٧ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| otoc | SAM | _8216 | 2131_2009-06-22_15 | 18-: | 22.06.2009 15: | 18:26 | SPECTRUM | | | RA₩ | | | LIGHT | | PROPS_D021 | A۷ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| ē. | L SAM_8216 2131_200306-22_15-184 22.06.2003 15:18:52 SPECTRUM RAW DARK PROPS_D021 Av 0 0 ProPS Control No Mission 1 | | | | | | | | | | | | | | | | | | | | | |
| | PRO | PS_D021 | 2131_2009-06-22_15 | 18-: | 22.06.2009 15: | 18:26 | SPECTRUM | | | CALIBRATED | | | SAMPLE | | PROPS_D021 | Avı | 0 | 0 ProPS Control | | No Mission | / 1 | 1 |
| _ | PRO | PS_D021 | 2131_2009-06-22_15 | 18-: | 22.06.2009 15: | 18:26 | SPECTRUM | | | Transmission | | | SAMPLE | | PROPS_D021 | A٧ | 0 | 0 ProPS Control | | No Mission | / 1 | 1 |
| | PRO | PS_D021 | 2131_2009-06-22_15 | 18-: | 22.06.2009 15: | 18:26 | SPECTRUM | | | Absorption | | | SAMPLE | | PROPS_D021 | A۷ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | SAM | _8216 | 2131_2009-06-22_15 | 19-: | 22.06.2009 15: | 19:37 | SPECTRUM | | | RAW . | | | LIGHT | | PROPS_D021 | Av | 0 | 0 ProPS Control | | No Mission | / 1 | 1 |
| | SAM | _8216 | 2131_2009-06-22_15 | 20-1 | 22.06.2009 15: | 20:00 | SPECTRUM | | | RAW | | | DARK | | PROPS_D021 | Avı | 0 | 0 ProPS Control | | No Mission | / 1 | 1 |
| | PRO | PS_D021 | 2131_2009-06-22_15 | 19- | 22.06.2009 15: | 19:37 | SPECTRUM | | | CALIBRATED | | | SAMPLE | | PROPS_D021 | A٧ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D021 | 2131_2009-06-22_15 | 19-: | 22.06.2009 15: | 19:37 | SPECTRUM | | | Transmission | | | SAMPLE | | PROPS_D021 | A۷ | 0 | 0 ProPS Control | | No Mission | / 1 | 1 |
| | PRO | PS_D021 | 2131_2009-06-22_15 | 19-: | 22.06.2009 15: | 19:37 | SPECTRUM | | | Absorption | | | SAMPLE | | PROPS_D021 | Avi | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D065 | 533B_2009-01-19_11 | -18- aq_10mm- | path_D0 19.01.2009 11: | 18:52 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D065 | Avı | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D065 | 533B_2009-01-19_11 | -33- aq_5mm-p- | ath_D06 19.01.2009 11: | 33:44 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D065 | A٧ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D065 | 533B_2009-01-19_11 | -42- aq_2mm-p- | ath_D06 19.01.2009 11: | 42:55 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D065 | A۷ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D065 | 533B_2009-01-19_12 | -04- aq_1mm-p | ath_D06 19.01.2009 12: | 04:01 | SPECTRUM | | | CALIBRATED | | | BASIS | | PROPS_D065 | Avı | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | SAM | _823b | 2131_2009-06-22_15 | 24- | 22.06.2009 15: | 24:11 | SPECTRUM | | | RA₩ | | | LIGHT | | PROPS_D065 | Avı | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | SAM | _823b | 2131_2009-06-22_15 | 24-: | 22.06.2009 15: | 24:34 | SPECTRUM | | | RA₩ | | | DARK | | PROPS_D065 | A۷ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D065 | 2131_2009-06-22_15 | -24- | 22.06.2009 15: | 24:11 | SPECTRUM | | | CALIBRATED | | | SAMPLE | | PROPS_D065 | A۷ | 0 | 0 ProPS Control | | No Mission | (1 | 1 |
| | PRO | PS_D065 | 2131_2009-06-22_15 | 24- | 22.06.2009 15: | 24:11 | SPECTRUM | | | Transmission | | | SAMPLE | | PROPS_D065 | Avı | 0 | 0 ProPS Control | | No Mission | (1 | 1 <u>-</u> |
| | | | | | | | | | | | | | | | | | | | | | | |
| | Selection: 0 D S & Commenta. | | | | | | | | | | | | | | | | | | | | | |
| Se | nd Sele | ection | STOP Delay | € 🕺 | | >>: | 🔊 Output | | 2 | | | | | | | | | | | | | |

In the first row of the database the columns can be sorted by devicetype, comments, Datatype, Date/Time and so on. This allows the user to select the needed data for the export or further analysis. The data can be sorted by clicking on the columns name. For example sorting by Date/Time: Click on [Date/Time].

| 🗄 Date/Time 🛛 4 | ▣ | ILData | • | Device | • | DataType | • | Comment | - |
|-----------------|---|--------|---|--------|---|----------|---|---------|---|
| | | | | | | | | | |

Clicking on the black arrows show the possible selection options. Data sets of a defined time area can be set by clicking on [Date/Time / (Custom...)].

| Date/Time | • | Custom F | ilter | | | | × |
|---------------------|----------|-------------|-----------|------|---|---------------------|--------|
| (All) | A | | | | | | |
| (Custom) | — | Show row | /s where: | | | | |
| 19.01.2009 11:18:52 | | Date/Tim | a | | | | |
| 19.01.2009 11:33:44 | | | 0 | | | | |
| 19.01.2009 11:42:55 | | is greater | r than | | - | 27.02.2009 11:00:00 | - |
| 19.01.2009 12:04:01 | | , | | | | <u> </u> | |
| 27.02.2009 10:48:12 | | | AND | O OR | | | |
| 27.02.2009 11:03:16 | | | | | | | |
| 27.02.2009 11:15:20 | | is less the | an | | - | 22.06.2009 08:00:00 | - |
| 27.02.2009 11:21:36 | | | | | | • | |
| 22.06.2009 15:18:26 | | | | | | | |
| 22.06.2009 15:18:52 | | | | | | OK | Consel |
| 22.06.2009 15:19:37 | | | | | | UK | Lancel |
| 22 DE 2009 15:20:00 | | | | | | | |

With more than one condition the selection can be specified. For instance in the following example with the data from microFlu_102B at 30.06.2009.



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| 81 | 🛢 DB Sender 💶 🗵 | | | | | | | | | | | |
|---|-------------------------|------|-------------|-----------|---------|---------------------|------------|-----------|----------|------------|---------|--|
| ata | 🕴 Filter 🔽 | 0 Z | Layout 🤻 | | # 🗐 원 🛛 | | | • | | | | |
| | E Device | • | IDData | | Comment | Date/Time | _ C | ataType 💌 | Comm 🛆 💌 | DataType_1 | | |
| | MICROFLU | 1028 | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:32 | İv | icroFlu | | | | |
| Ë | MICROFLU | 102B | 2131_2009-0 | 6-30_15-: | | 30.06.2009 15:37:33 | N | 1icroFlu | | | | |
| | MICROFLU | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:33 | N | 1icroFlu | | | | |
| - | MICROFLU | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:34 | N | 1icroFlu | | | | |
| toco | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:35 | N | 1icroFlu | | | | |
| 5 | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:36 | N | 1icroFlu | | | | |
| | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:38 | N | 1icroFlu | | | | |
| - | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:38 | N | 1icroFlu | | | | |
| | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15-: | | 30.06.2009 15:37:39 | N | 1icroFlu | | | | |
| | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15-: | | 30.06.2009 15:37:40 | N | 1icroFlu | | | | |
| | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15-: | | 30.06.2009 15:37:41 | N | 1icroFlu | | | | |
| | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15-: | | 30.06.2009 15:37:41 | N | 1icroFlu | | | | |
| | MICROFLU | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:42 | N | 1icroFlu | | | | |
| | MICROFLU | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:43 | N | 1icroFlu | | | | |
| | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:44 | N | 1icroFlu | | | _ | |
| | MICROFLU_ | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:45 | N | 1icroFlu | | | | |
| | MICROFLU | 102B | 2131_2009-0 | 6-30_15- | | 30.06.2009 15:37:45 | N | 1icroFlu | | | | |
| Image: Construction of the state of the | | | | | | | | | | | | |
| | Selection: 0 E Comments | | | | | | | | | | | |
| Ser | nd Selection | ST | OP De | lay 1 | € ≪ < < | | > >> | Output 🏢 | | | | |

Mark the wanted datasets by hand, or select all by pressing the red marked button.

| | 3 | Device 📃 | IDData 🗾 | Comment 💌 | Date/Time | • | DataType 💌 | Comm 🛆 💌 | DataType_1 | V | |
|--|---------------------------------|---------------|---------------------|-----------|---------------------|---|------------|----------|------------|----------|--|
| 5 | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:32 | | MicroFlu | | | | |
| i₽ | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:33 | | MicroFlu | | | | |
| | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:33 | | MicroFlu | | | | |
| - | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:34 | | MicroFlu | | | | |
| otoc | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:35 | | MicroFlu | | | | |
| Ę | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:36 | | MicroFlu | | | | |
| | ٠ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:38 | | MicroFlu | | | _ | |
| - | ٠ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:38 | | MicroFlu | | | _ | |
| | ٠ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:39 | | MicroFlu | | | _ | |
| | ٠ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:40 | | MicroFlu | | | | |
| | ٠ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:41 | | MicroFlu | | | | |
| | ٠ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:41 | | MicroFlu | | | | |
| | ٠ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:42 | | MicroFlu | | | | |
| | ۶ | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:43 | | MicroFlu | | | | |
| | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:44 | | MicroFlu | | | | |
| | | MICROFLU_102B | 2131_2009-06-30_15- | | 30.06.2009 15:37:45 | | MicroFlu | | | _ | |
| MICROFLU_1028 2131_2009-06-30_15- 30.06.2009 15:37:45 MicroFlu | | | | | | | | | | | |
| ▼ (Device equals MICROFLU_102B) and ((Date/Time is greater than 30.06.2009 11:40:00) and (Date/Time is less) ▼ Customize ₩ ▼ ▶ ▶ ■ ✓ ● | | | | | | | | | | | |
| | Selection: 8 🗐 🔄 😨 Comments 🔛 🐜 | | | | | | | | | | |

Data of the database can be exported in different file formats. At first mark the datasets you want to export and press on the export button.

Selection: 1 📃 🗐 🕵 😰 Comments... 🕅 🛃 🗲

You can select, if all the data should be stored in one file, or in one file for each dataset.



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| Export 3 record(s) | to file(s) | | | | × |
|---|--|-----------------------------|------------------------------|------------|---|
| 🖹 TriOS For | mat 📣 | MatLab Code | MatLab Serial Data | RAW Format | |
| This is the TriOS Use this format to | natural file forma archive the data | at. a or transfer data t | o an other database. | | |
| Single | Save a singl | e record or collec | t multiple records to one fi | le | |
| Кеу | Filename .da | t | | | |
| Number | | | | | |
| Mask | | | | | |
| Ok | Cancel | | | | |

For the export in a spreadsheet software, the internal data table can be used. Start a table:

| 1 | | |
|---|--------------------|--|
| | Send Selection | STOP 🗆 Delay 1 🛨 K < < « 🗶 🔊 🖓 Output 🔳 🧟 |
| | 22 record(s) sende | ed! DB loading 0.0780 sec - processing 0.4690 sec - total 0.5470 sec |

Make the settings for 'repeat 1. column' and 'Append new' as given below:

| ■Data Table | |
|--|---|
| DB Sender.AnyData 🛛 😁 🕒 | |
| [Data] | |
| Table Text Export Protocol | When a table is started directly from |
| 🔽 Header 🔽 Attributes 🔽 Data | the DBSender, the link is automatically |
| default 💌 Format | configured for the DBSender |
| never repeat 1, column 🗈 🔐 💽 Clear V Appending As default | |

Now select the data to be exported and click on [send selection] in the DB Sender.



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Simultaneous pressing of the [Ctrl]-key and [Send selection] will activate a fast data processing.

Now the data can be copied or copied transponed to another software or saved as a txtfile.

| 🎹 Data Tal | ole | | | | | | | 믜스 |
|---------------|--------------|---------------|---------------|--------------|--------------|--------------|--------------|------------|
| DB Sender. | .AnyData | | | | | | œ | |
| Data] | | | | | | | | |
| Table Tex | t Export | Protocol | | | | | | |
| - Header 🖡 | Attributes | 🔽 Data | | | | | | |
| default | • | Format | | | | | | |
| [MicroFlu] | | | | | | | | |
| IDData | 2131_2009-0 | 2131_2009-0 | 2131_2009-0 | 2131_2009-0 | 2131_2009-0 | 2131_2009-0 | 2131_2009-0 | 2 |
| IDDevice | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | M |
| DateTime | 2009-06-30 | 12009-06-30 : | 2009-06-30 1 | 2009-06-30 1 | 2009-06-30 : | 2009-06-30 | 2009-06-30 : | 121 |
| IDDataType | MicroFlu | MicroFlu | MicroFlu | MicroFlu | MicroFlu | MicroFlu | MicroFlu | M |
| IDDataType: | | | | | | | | |
| IDDataType: | | | | | | | | |
| IDDataType: | - | | | | | | | |
| RecordType | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IDMethodTy | MicroFlu Con | MicroFlu Con | MicroFlu Conl | MicroFlu Con | MicroFlu Con | MicroFlu Con | MicroFlu Con | M |
| MethodName | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | MICROFLU_1 | M |
| Latitude | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Longitude | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 🔳 |
| • | | | | | | | | <u>ا</u> ا |
| never | repeat 1. | column | | | | | e # | • |
| 🗸 Append n | iew Set as | default | | | | | Clear #2 | 2 |
| | | | | | | | | |

Import data into a database:

Data with the *.dat format can be imported into an existing database. Click on the import button.

| Selection: | 8 📃 🗐 🕵 🎛 Comments 🔂 🚾 🛶 | |
|------------|--------------------------|--|

Select the *.dat file to be imported and confirm with [open].

2.5 How to work with the Chart / Diagram

The chart is the module to visualize data in timeseries or spectra. The chart can be started with [Views / Chart].



The window contains at first 1 chart. Different sub charts can be added to the window (marked with red arrow).

When the chart is not started directly from a sensor control window the chart has no input. A new input can be added with this button:



The following window will appear (depending on the used modules this window can look different):

| | MSDA_XE | | MSDA_XE general notes |
|---|--------------------|---|--------------------------|
| TriOS Optical Sensors | QUICK Start Manual | | 2010-12-06 |
| Choose Input | | _ | |
| ⊕ □ LSA [LSA] ⊕ □ DB Sender [DB Sender] ⊕ □ PROPS_D032 [ProPS Control |] | | |
| Object LSA Eurotion | | | |
| Name | | | |
| Description | | | |
| Script | | × | |

In this case three data inputs are possible. Using other sensors will show other input sources. As an example: to view the recalculated spectrum of the LSA this input has to be selected:

| 🖙 Choose Input | |
|--|---|
| Filter Plotting Data | • |
| LSA [LSA] Concentrations [LSAResults] - Calculated concentrations OkInput [Spectrum] - Spectra with good quality accepted for caculation Brokelnput [Spectrum] - Sprectra with bad quality dismiss for calculatan PreProSum [Spectrum] - Sum of all preprocessing spectra incl. factor path calibration PreproInput [Spectrum] - Input spectrum after preprocessing Recalculated [Spectrum] - Concentration weighted sum of the basis spectra f(%) ValueWLSeries [xySeries] - Amplitude(Wavelength) Recalculated[Spectrum] - Shows only used fit entries of "Recalculated" | • |
| Object LSA | |
| Function | |
| Name | |
| Description | |
| Script | × |
| Ok Cancel | |

Select LSA / Recalculated and double click in ValueWLSeries to select it as an input.

More than one input will cause an overlay of different graphs.

Double clicking on the x- or y-axis of the chart will open the configuration window of the chart:





MSDA_XE microFlu 2010-12-06

3. microFlu

Needed files:

- device file: MICROFLU_XXXX.ini

whereas XXXX stands for the sensor number.

The following steps can be performed, while the sensor is offline / off. Install the necessary files.

Mark the newly installed sensor and press [Control] to open the sensors control window.



The control window for microFlu will start. Without any further settings the sensor will measure in the continuous mode, which means, the sensor sends data as fast as possible. Every dataset will be stored in the database.

If you need a timeseries of the measurement press the little button in the upper right of the microFlu control window (in the picture above marked with a red square). A chart with the correct inputs for a timeseries will open.

Open the database by pressing [Database / Data].



MSDA_XE

microFlu

2010-12-06

| 8 | DB Sender | | | | | | |
|----------|--------------|--------------|-------------|--|------------|-----------|---------------|
| Data | 🚦 Filter Ϋ | 🛿 🌌 Layout 👫 | 8 8 8 | | | | |
| | ∃ Device | 💌 IDData | Comment | ▼ Date/Time | 💌 DataType | Comment_1 | △ 💌 DataType_ |
| Tips | | | | | | | |
| | | | | <no data="" displa<="" th="" to=""><th>h></th><th></th><th></th></no> | h> | | |
| Protocol | | | | | | | |
| | H H I F | | ** | | | | Þ |
| - | Selection: | 0 📃 🗐 🗄 | Comments | | | | |
| Se | nd Selection | STOP De | lay 1 🔹 K < | | > ≫ Output | ■ 🙎 | |

Read chapter 2.4 to learn how to work with the DB Sender.

Now the desktop should look like this or similar:



The measurement can start, if you activate the power supply and press [scan] in the device manager to search for the sensor. When the sensor is detected by the device manager the measurement will start immediately and the data will be stored in the database.

Changing the sample interval:

Press [Advanced options] in the microFlu control window:

| MG | MODA VE | | /ISDA_XE | |
|--|------------------|-------------|------------|-------------|
| MISDA_AE Ouick start manual | | r | nicroFlu | |
| Optical Sensors | art manual | 2 | 2010-12-06 | |
| MICROFLU_1199 | | | | |
| MICROFLU_1199 | | | | |
| Sample 🕒 Auto 📓 | | | | |
| 111 | | | | |
| 5.519 µg/l | | | | |
| Auto O Low O High | | | | |
| • [More] | | | | |
| Measurement finished | | | | |
| Sottings for the sample interval custo | m calibrations a | and storing | can bo d | long in the |

Settings for the sample interval, custom calibrations and storing can be done in the advanced options menu. Following window will appear:

| FMICROFLU_1199 | Switching raster measurement on / off. |
|---|--|
| MICROFLU_1199 🔤 🙆 | Configuration for raster or interval at [automatic |
| Sample 🕒 Auto | measurements] |
| <u> </u> | |
| 5.372 µg/l | |
| Auto Low High More] | Switching continuous measurement on / off. |
| Device internal configuration] | |
| | |
| Write as startup configuration in EPROM | |
| E Custom Calibration | Settings for the sample interval. Continuous |
| P Activate | mode has to be deactivated. Switch on: [Auto] |
| g Offset 0 | must be green. |
| Factor 1 | |
| Unit µg/l | |
| [Storing] | |
| Save to [patabase] | |
| [Automatic Measurements] | |
| Configure Raster Mode: Every | |
| | |
| | |
| Measurement finished | |

| MSDA | | XF | MSDA_XE |
|---|---------------------------------|---|--|
| | Quick start | _∧∟ r manual | microFlu |
| TriOS Optical Sensors | | | 2010-12-06 |
| Automatic Measurements Raster Mode: Every 16 On enabling the first action will 10T be | :00 min performed instantly. | Measurement start prior one is finished | ed immediately after the |
| O Burst mode | . Example for a 15 minutes r | Trigger by external e.g.: [Extras / Time | source er] |
| OExternal ∽ OInterval ──────────────────────────────────── | | Interval measurem immediately | ent, which starts |
| O Cycle O Daily | | Raster measureme e.g.: 9:00, 9:15, 9:3 | ent. Starts at even times. 30, 9:45, 10:00, |
| □ Restrict 00:80:00 - | 23:59:59 | Programmable time | e schedule |
| Repetitions 1 | 4 + + | Repetitive program | I mable time schedule |
| Ok Cancel | 🖻 🔲 🖳 | | |

Settings for automatic measurements can be done in the menu shown above. Interval means a measurement is triggered every 15:00 minutes. The interval starts immediately. Raster means, the measurement is triggered at "even" times. If 15 min is set at 8:55 o'clock, the first measurement will start at 9:00, the next at 9:15, 9:30 and so on. Burst mode means the measurement is triggered as fast as possible. In this case the burst mode is the same as continuous mode.

| TriOS Optical Sensors | MSDA_XE Quick start manual | MSDA_XE microFlu 2010-12-06 |
|---|-------------------------------|-----------------------------------|
| MICROFLU_1199 MICROFLU_1199 Sample Auto III C. Auto Auto Auto C. More] C. More] C. More II52 Scaling AutoC. SolidCAL Measurement finished | LICA MidCa | |
| Imeasurement finished | | |

In the tab [Calibration] the device check with the SolidCAL solid secondary standard can be started.

Exporting the data:

Read chapter 2.4 how to export the data of microFlu from the chart of database.

For further instructions read the microFlu or MSDA_XE manual.



MSDA_XE enviroFlu-HC 2010-12-06

4. enviroFlu-HC

Needed files:

- device file: ENVIROFLU_XXXX.ini

whereas XXXX stands for the sensor number.

Install the necessary files and license keys. The operation of enviroFlu is nearly similar to the operation of microFlu. Mark the enviroFlu instead of the microFlu in the device manager and press [Control..]



This will start the enviroFlu control. The settings and the sensor behaviour is similar to the microFlu.

Read chapter 3 for more information of the operation of TriOS fluorometers.

Exporting the data:

Read chapter 2.4 how to export the data of enviroFlu.

For further instructions read the enviroFlu or MSDA_XE manual.



MSDA_XE ProPS 2010-12-06

5. ProPS

Needed files:

- device file: PROPS_XXXX_all.ini

whereas XXXX stands for the sensor number

- water basis (e.g. "20081031_water basis_10-5-2-1_D065.dat")

The following steps can be performed, while the sensor is offline / off. Import the device file for the ProPS and the license keys.

Mark the newly installed sensor (in this case D065) in the device manager and press [Control] to open the sensors control window.



In the ProPS control window open a chart for the measured absorption spectra.



Open the [Advanced Options] by clicking on the small blue arrow at the bottom of the ProPS Control window.

| | MODA VE | MSDA_XE |
|--|--------------------|------------|
| | MISDA_AE | ProPS |
| TriOS Optical Sensors | QUICK Start manual | 2010-12-06 |
| PROPS_D048 PROPS_D048 Sample Auto Comment I More] Mage (Measurement) Pathlength 10 (Automatic Measurements) Configure Raster Mode: (Storing) Save to [Database] | | |

The setting of pathlength must fit with the actual physical pathlength of the sensor. Choose 1, 2, 5 or 10mm for ProPS WW or 10, 20, 40 or 60mm for ProPS CW. Read the ProPS manual carefully how to change the optical pathlength of ProPS CW / WW.

| | | MSDA_XE |
|-----------------------------|--|------------------------------|
| | NIJUA_AE | ProPS |
| TriOS Optical Sensors | Quick Start Manual | 2010-12-06 |
| Go to the tab [Zero setting | The second secon | square Following dialog will |
| | | |





Click on the import button and search in the following dialog for the fitting water basis file (e.g. "20081031_water basis_10-5-2-1_D048.dat") and confirm your selection.

| E | Choose datase | t | | | | | | | | | × |
|---|-------------------|---------------|-------------|----------|--------|--------------|------------|------------|-------|---------|----|
| | Filter 🕎 🗸 | Z | Layout 👖 | 123 m | | Ъ | | | | | |
| : | Date/Time | - | IDData | - | Device | - | Comment | : | - | DataTyp | e |
| ▶ | 09.11.2007 10:11: | 53 | 3AAC_2007-1 | 11-09_1 | PROPS_ | _D048 | aquadest_1 | 10mm-path | _D048 | SPECTR | UM |
| | 09.11.2007 10:25: | 46 | 3AAC_2007-1 | 11-09_1 | PROPS_ | D048 | aquadest_! | 5mm-path_l | D048 | SPECTR | UM |
| | 09.11.2007 10:33: | 29 | 3AAC_2007-1 | 11-09_1 | PROPS_ | D048 | aquadest_3 | 2mm-path_l | D048 | SPECTR | υм |
| | 09.11.2007 10:43: | 05 | 3AAC_2007-1 | 11-09_1 | PROPS_ | D048 | aquadest_1 | 1mm-path_I | D048 | SPECTR | UM |
| | | | | | | | | | | | |
| Ŀ | | | ₩₩₩ | | | | | | | | |
| S | election: 1 | 1 📃 Cancel | | Com | ments | * 8 - | | | | | |

A water basis is available for each possible pathlength. The pathlength is marked in the Comment, e.g. aq_10mm-path_D048... is the waterbasis for sensor D048 with a pathlength of 10mm. Choose the fitting water basis and confirm with [Ok]. The water basis, the setting for the pathlength in mm and the actual pathlength of the sensor have to be the same!

| Pro | PROPS_DO |)48 | _ 🗆 × |
|---------------|----------------------|------------------------|-------|
| P | ROPS_DO |)48 | - |
| 5 | Sample | 🕒 Auto | |
| Co | mment 📘 | | |
| • | [More] | | |
| Advanced | (Blank Ref aquade | erence] st_10mm-pat | 8 |
| Zero settings | Zero line (Lamp) | Measu | ıre |
| Protocol | Lifetime | ??? | |



MSDA_XE ProPS 2010-12-06

Open the database by pressing [Database / Data].

The desktop may look like this or similar:

| MSDA_XE: ProP5.dsk - 'C:\Programme\TriO5 GmbH\msda_xe 8.7.000\M5DA_XE\db\data.mdb' - Mission: No Mission (1) | _ 🗆 🗵 |
|--|------------------|
| Desktop Devices Processing Yiews Extras Tools Database Options Windows Help | |
| DB Sender [DB Sender] Sender] O Longitude UUU UUUUUU'E Laittude UU UUUUUU'N Alittude Um Time 206:53 | |
| Device Manager Trace PROPS_D048 Chait UB Sender | |
| PROPS_D048 _ X @ Chart | |
| BOn-line Scall PROPS_D048 🖸 🗅 🖈 🗆 🔊 🖓 🗐 1 2 3 📱 | 30 🚍 🍯 🖌 🔲 🚘 👘 💿 |
| Chart 1 PR0PS_0048. Pbsorption Chart 1 PR0PS_0048. Pbsorption | |
| | |
| C GFS-NMEA Properties | |
| | |
| Export Export P [Measurement] | |
| Import g Pathlength 10 rmm | |
| Average 1 | |
| | < |
| OProtiling inactive | |
| PROPS D048 Check Device | |
| ₹ [Automatic Measurements] | |
| Configure Raster | |
| Biological Mode: | |
| Save In Inc. 1 2 | |
| | |
| V Raw V Transmission | 0 571 |
| | ŭ |
| Chart 1 Left Axis - Minimum Part - [invalid] of [invalid] | |
| B DB Sender | |
| Filter 👽 🗸 🖾 Layout 其 🎬 📰 🖫 | Chart |
| | Chart |
| B Date/ lime ▼ IDData ▼ Device ▼ Lommen ▼ Data 1 ype ▼ Lommen ▼ | |
| 17.11.2010 08:46:21 1b34_2010-11-17_08-NICROFLU_1199 MicroFlu | |
| 5 17.11.2010 08:46:22 1b34_2010-11-17_08 MAROFLU_1199 MicroFlu | ProPS control |
| 17.11.2010 08.46:24 1b34_2010-11.17_08-MICPOFLU_1199 MicroFlu | |
| 3 111.2010 08.46:25 1534_2010-11-17_08 MICRONU_1199 MicroNu 3 11.11.2010 08.46:20 14.04.2010 11.17_08 MICRONU_1199 MicroNu | |
| 8 17.11.2010 06.46.29 103-2010 117_00 michored 1135 michor | |
| 8 17 11 2010 0848 31 11524 2010 1117 09 MICEDELL 11 0 MicroEli | DD Candar |
| | DD Sender |
| Selection: U B S B Comments M M | |
| Send Selection STOP 🗖 Delay 1 🔮 🔣 🔇 🗸 🔣 📉 🔪 🖂 🔠 🧱 🔬 | |
| | Doution manager |
| | Device manager |
| | |

If you are satisfied with the window array and the settings, save the desktop.

Start the powersupply and press [scan] in the device manager.

| ٦D | evice Manager | | |
|-----------|--|---|--|
| Tree List | □ On-line □ COM1 □ Off-line □ DSP □ GPS-NMEA □ MICROFLU □ PROPS □ PROPS_D048 - Labor | Scan Control Properties Export Import | |
| PRO | PS_D048 | | |



The detected device will be listed in the device manager:

| |)evice Manager | |
|--------|--|------------|
| | ⊡·On-line ⊟·COM1 | 😋 Scan |
| Tree | © 0: PROPS_D048 - Laborgerät SAM_81FD | Control |
| 🔰 List | ⊡ Off-line | Properties |
| _ | | Export |
| | | Import |
| | | |
| | | |
| PRC | PS_D048 | |

If the sensor is detected, a single measurement can be started with the ProPS control window by pressing [Sample] or a raster / interval measurement can be started with



Settings for the sample interval and storing can be performed in the advanced options menu. Press [Configure] to launch the configuration menu.

| | | MSDA_XE |
|--|--|------------|
| | WISDA_XE Quick start manual | ProPS |
| TriOS Optical Sensors | QUICK Start Manual | 2010-12-06 |
| Automatic Measurements | | x |
| Raster Mode: Eve | ery 15:00 min | |
| On enabling the first action w It waits until the current time r So you get only events at "ev | vill NOT be performed instantly. matches in a hourly natural raster. ven'' times. Example for a 15 minutes raster: 0:00 - 0:15 - 0:30 - 0:45 - 1 | :00 |
| O Burst mode | | |
| ⊖ External | | |
| ⊖ Interval | | |
| ⊙ Raster 15 min | | |
| 🔿 Cycle | | |
| 🔿 Daily | | |
| ☐ Restrict 00:00: | 00 ਦ – 23:59:59 ਦ | |
| Repetitions 1 | 4 ÷ 1 | |
| Ok Cancel | 🗃 🗐 🙀 | |

Interval means a measurement is triggered every 15:00 minutes. The interval starts immediately. Raster means, the measurement is triggered at "even" times. If 15 min is set at 8:55 o'clock, the first measurement will start at 9:00, the next at 9:15, 9:30 and so on. An interval or raster of 15 minutes is recommended to save lamp lifetime of ProPS.

Measured spectra can be exported for example with a table (read chapter 2.4).

Please refer to the ProPS or MSDA_XE manual for more information.



6. RAMSES

Needed files:

- device file: SAM_XXXX_all.ini or SAMIP_XXXX_all.ini whereas XXXX stands for the sensor number
- calibration files:
 - Back_SAM_XXXX.dat
 - o Cal_SAM_XXXX.dat (calibration for application in air)
 - CalAQ_SAM_XXXX.dat calibration for water application)

The following steps can be performed, while the sensor is offline / off. Install the necessary files and license keys.

Mark the newly installed sensor in the device manager and press [Control] to open the sensors control window.



The RAMSES control window will open.

| M SAM_8009 | -OX |
|---------------|-----|
| SAM_8009 | |
| Sample 🕒 Auto | . 🧟 |
| Comment | |
| ▼ [More] | |
| | |

Open the [Advanced options].

| MODA | MSDA_XE |
|--|--|
| | |
| TriOS Optical Sensors | 2010-12-06 |
| SAM_8009 | Start single sample |
| Sample Auto | Open chart with RAMSES control as input |
| ▲ [More] | Calibration settings |
| [Measurement] Integrationtime automatic ▼ [Storing] Save to [Database] | Integration time. Recommended: automatic |
| P Raw ✓ Calibrated P [Automatic Measurements] O Castionne Raster Mode: Every 15:00 min | Storing settings |
| B [Output] [] Raw | Settings for the sample interval Switch on: [Auto] must be green. |

To integrate the calibration and back ground files open the tab [Calibration]



Click on the marked buttons to load the calibration or background files. Following dialog for selecting the files will appear.



MSDA_XE RAMSES 2010-12-06

| S Choose dataset Filter Sor → Z Layout K H H E B | _ 🗆 × |
|---|----------|
| 🗄 Date/Time 💌 IDData 💌 Device 🔍 Comment | DataType |
| <no data="" display="" to=""></no> | |
| Image: Margin and Margin an | |

Select all three files (Back_, Cal_ and CalAQ_) and confirm with [open].

| Öffnen | | | | | ? × |
|-------------------------|------------------|--------------------|-----------------|-----------------|-----------|
| Suchen in: | 20090420 | | • | + 🗈 💣 🎟 | • |
| | MSDA Protocol | | | | |
| Zuletzt verwendete D | Back_SAM_826 | 58.dat | | | |
| Desktop | | 268.dat | | | |
|) Eigene Dateien | | | | | |
| Arbeitsplatz | | | | | |
| S | | if L | | | |
| Netzwerkumgeb | Dateiname: | "Back_SAM_8268. | dat'' "Cal_SAM_ | 8268.dat'' '' 💌 | Öffnen |
| , ang | Dateityp: | Data files (*.dat) | | • | Abbrechen |

| Tr | OS | | |
|----|--------|-----------|--|
| 12 | Optica | I Sensors | |

MSDA_XE RAMSES 2010-12-06

| 🛢 Choose dataset | | | | <u> </u> |
|-----------------------|------------------------|------------------|---------------|----------|
| 🚦 Filter 💆 🕶 🛃 | | 38 | | |
| 🗄 Date/Time 🔻 I | DData 🔻 Device 🔻 | Dat 🔻 DataType 💌 | Comme 💌 C 💌 💌 | ▼▼∟▼ |
| 30.07.2003 14:57:26 2 | .003-07-30_15 SAM_8009 | BACK SPECTRUM | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | C . | | Þ |
| Selection: 1 | | ts 🛌 🄜 | | |
| Ok Canc | el | | | |
| | | | | |

Select the file with the datatype 'BACK' for the background. Choose the calibration file for air or for water application depending of the usage. Choose the other one for the alternative calibration.

| SAM_8009 | |
|-----------------|---|
| SAM_8009 | |
| Sample 🕒 Auto 🤮 | ← |
| Comment | |
| ▼ [More] | |
| | |

To visualize the data of the sensor press on the marked button.



MSDA_XE RAMSES 2010-12-06

| 🛃 Cł | hart_2 | _ | |
|------------|------------------------------------|-------------------|------------|
| | 🛠 🗖 🔊 🔎 🔍 📳 📴 🔳 1 2 3 | 3) 듣 30 🚍 🚑 👻 🔛 🚅 | \bigcirc |
| | Chart 1 SAM_8009.RAW | | ן ו |
| | | | |
| | | | |
| | Chart 2 SAM_8009.Calibrated | | |
| | | | |
| | | | |
| | | | |
| | | 0 | |
| _ | | × | |
| <u> </u> | Chart 1 | eries - empty | |
| + | Chart 2 | | |
| <u>×</u> | MINING SAM_8009. Calibrated - Valu | ewLSeries - empty | |
| Chort | + 1 | | |
| 📌 Chart |] t 1 | | |

This window will appear. The input for the data is automatically set to the RAMSES control showing RAW and calibrated spectra. It is also possible to change the inputs to DB Sender, which enables the user to view data, which are stored before in the database. Open the DB Sender by pressing [Database / Data].

| 8 | DB Sender | | | | | | | | | <u>- 🗆 ×</u> |
|----------|-------------|-----------------------|-----------------------------|-----------------------|---------------------------|------------------------------------|----------------------------|--------------|--------------|--------------|
| Data | Filter | 🛛 🖉 🔀 Layout 🕌 | | | | | | | | |
| | ∃ Device | 💌 IDData | Comment | ▼ Date/Time | 💌 DataType | Comment_1 | ∠ ■ DataType_1 | Comment_2 | 💌 DataType_2 | Comment_3 |
| Tips | | | | | | | | | | |
| Protocol | | | | | | <no data="" display="" to=""></no> | | | | |
| | | levice equals PROPS_F | 1032) and (DataTupe -1 | equals óbsorption) ar | nd (Date/Time is greater) | than 01 07 2009 11:4 | in 00) and (Comment 2 is r | oot blank) 🔽 | | Customize |
| | | | | | | | | | | |
| | Selection: | | S R Comments | 2 10 | | | | | | |
| Se | nd Selectio | on STOP 🗹 De | elay 0,2 🔹 | | Output | Ⅲ 🗟 | | | | |
| | 4 4009/ 3 | unt processing: -2000 | 07.04.12-10-00- #0174 | 2000 07 04 42 40 1 | 00.000 500 | | | | | |

The measured spectra will be saved automatically in the database.



MSDA_XE RAMSES

2010-12-06

| MSDA_XE: Default ProPS 2.dsk - 'C:\Programme\ Desktop Devices Processing Views Extras I | TriOS GmbH\msda_xe 8.7.000\MSDA_XE\db\r ools Data <u>b</u> ase <u>O</u> ptions <u>W</u> indows <u>H</u> elp | data.mdb' - Mission: No Mission (1) | |
|--|--|--|--|
| DB Sender [DB Sender] Charge Longitude | 000° 00.0000' E Latitude 00° 00.0000' N Altitu | de 0 m Time 10:22:38 | |
| C) Device Manager SAM_8 Device Manager X Double On-line COM1 Scan Off-line Scan Off-line Off-line B SPS-NMEA Properties MICROFLU Properties SAM_8009 SAM_8009 | 0003 Chart_2 2015AM_8009 Image: Sample Sample Auto Comment Image: Sample Measurement] Integrationtime Save to [Database] V Raw Calbrated Q [Automatic Measurements] Resurements Configure Resurements Configure | Chart 2 Chart 1 SH 2009.000 Chart 2 SH 6009.001 brated | |
| S DB Sender S Filter ∀y J Layout ¥ 102 best S | | Chart 1 AM_8009,RAW - ValueWLSe | ies - empty MLSeries - empty Chart |
| Image: Second | ■ ■ | Comment_ DataType_ Comment_ D | RAMSES control |
| 17.11.2010 08.46:24 1b34_200 11-17_08.46:24_ 17.11.2010 08.46:28 1b34_2010 1-17_08.46:24_ 17.11.2010 08.46:28 1b34_2010 1-17_08.46:28_ 18.11.2010 08.46:28 1b34_2010 1-17_08.46:28_ 18.11.2010 08.46:28 1b34_2010 1-17_08.46:28_ 19.11.2010 08.46:28 1b34_2010 1-17_08.46:28_ 19.11.2010 08.46:28 1b34_2010 1-17_08.46:28_ 10.11.2010 08.46:28 1b34_2010 1-17_08.46:28_ 10.11.2010 08.46:28 1b34_2010 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ 10.11.2010 08.46:28 10.11.17_08.46:28_ 1-17_08.46:28_ | 469_044 MICROFLU 1199 MicroFlu 000_045 MICROFLU 1199 MicroFlu | | Device Manager |
| Send Selection STOP Delay 1 | | | DBSender / Database |

If you are satisfied with the settings and the window array save the desktop with [Desktop / Save..].

Start the power supply and press [scan] in the device manager.



When the sensor is detected a measurement can be started within the control window.

| | | MSDA_XE |
|---|--------------------|----------------------------|
| | WISDA_XE | RAMSES |
| TriOS Optical Sensors | QUICK Start Manual | 2010-12-06 |
| SAM_8009 SAM_8009 Sample Auto Comment I (More] M (Measurement) Integrationtime automatic (Storing) Save to [Database] Save to [Database] Kaster Mode: Configure Raster Mode: Configure Calibrate A single measurement car | Every 15:00 min | automatic measurement or a |

A single measurement can be started with [Sample] and an automatic measurement or an interval measurement can be configured in the submenu [Automatic Measurements / Configure].

| Automatic Measurements | | | | | |
|---|--|--|--|--|--|
| Raster Mode: Every 15:00 min | | | | | |
| On enabling the first action will NOT be performed instantly. It waits until the current time matches in a hourly natural raster. So you get only events at "even" times. Example for a 15 minutes raster: 0:00 - 0:15 - 0:30 - 0:45 - 1:00 | | | | | |
| O Burst mode | | | | | |
| ⊖ External | | | | | |
| O Interval | | | | | |
| Raster 15 min | | | | | |
| O Cycle | | | | | |
| O Daily | | | | | |
| | | | | | |
| □ Restrict 00:00:00 🚔 - 23:59:59 🚔 | | | | | |
| Repetitions 1 | | | | | |
| 0k Cancel 🗃 🗐 | | | | | |

Settings for automatic measurements can be done in the menu shown above. Interval means a measurement is triggered every 15:00 minutes. The interval starts immediately. Raster means, the measurement is triggered at "even" times. If 15 min is set at 8:55 o'clock, the first measurement will start at 9:00, the next at 9:15, 9:30 and so on. Burst



MSDA_XE RAMSES

2010-12-06

mode means a new measurement is triggered immediately, when the previous measurement is finished.

Automatic measurements can be activated by pressing _____, to switch it to green:

🕒 Auto

If you use a RAMSES with inclination and pressure sensor (SAMIP) the settings are nearly the same.

The control window of the SAMIP looks like this:



To adjust the sensor to the actual barometric pressure, the pressure sensor can be calibrated to zero in the tab [Calibration].

| | MSDA XE | MSDA_XE |
|---|----------------------|------------|
| TriOS Optical Sensors Quick start manual | | 2010-12-06 |
| SAMIP_4077 Sample Auto | | |
| Comment III Pressure unknown 10 Inclination unknown de X/Y unknown de | 10 hPa agrees | |
| [More] [Pressure] Calibrate [Calibration / Background] Background Calibration Select | | |
| | <u> </u> | |

Measured spectra can be exported for example with a table (read chapter 2.4).

Additional settings and options for RAMSES



Setting µEinstein as default unit:



Following window will appear:

| Spectrum Calibratio | | |
|-------------------------------|---|-----------|
| Please choose | æ | \bullet |
| [Options] | | |
| | | |

Choose the Raw spectra of your RAMSES as input...



... and open the [Advanced options] of the Spectrum Calibration.

Activate [Save to database] and add a comment.



In the advanced options open the tab [Additional]:

| | | MSDA_XE |
|------------------------------------|--------------------|------------|
| | | RAMSES |
| TriOS Optical Sensors | Ruick Start manual | 2010-12-06 |
| Optical Sensors | | 2010-12-00 |
| Calibration Data | | |
| [Additional Amplitude Calibration] | | |
| Wavelength Manipulating] | | |
| Raster 1 nm | | |
| Minimum 0 nm | | |
| Maximum 2000 nm | | |
| | | |

 \dots select the devices' ini file and calibration files and activate the unit µEinstein.

Calculation UV-A, UV-B and PAR

Press [Processing / Spectrum / UV-A UV-B PAR]:

| MSDA_XE: Default ProP5.dsk - C:\Programme\TriO5 GmbH\msda_xe\db\data.mg | | | | | | | |
|---|------------|---------------|----------------|-------------------|---------------|-------------|--------|
| Des <u>k</u> top <u>D</u> evices | Processing | <u>Y</u> iews | <u>E</u> xtras | Data <u>b</u> ase | <u>T</u> ools | Options | Wind |
| SAMIP 5046 (SAMI | Spectru | n 🕨 | Cali | ibration | | | Ē. |
| | Absorpt | ion 🕨 | Abs | orption | | | |
| Device Manager | | UV- | A UV-B PAR | | | - | |
| | | Sing | gie Spectrum (| aicuiati | on | - H | |
| " | | | Dou | uble Spectrum | Calculat | ion | ¢ r |
| Diff-line | | | Sub | stance Conce | ntration | s Generator | |

Following window will appear:

| UV- | ₩U¥-A U¥-B PAR | | |
|--------|----------------|--------|-----|
| DB S | ender.Ar | nySpec | o 🖷 |
| UV-B | 0 | W/m² | |
| UV-A | 0 | W/m² | |
| PAR | 0 | W/m² | |
| 🝷 [Mor | re] | | |
| | | | - |

Choose the any spectra of your RAMSES as input (from the DBSender or directly from the RAMSES control)...



SAMIP_5046 [SAMIP Control]
 Controller for a SAM (Ramses device)...
 RAW [Spectrum]
 Uncalibrated spectrum in pixel and counts
 Calibrated [Spectrum]
 Calibrated [Spectrum]

... and activate the window. In the [Advanced options] the wavelength ranges as well as the output unit can be configured:

| UV-A UV-B PAR | | |
|---|--|---------|
| DB Sender.AnyS | pec | 📼 💽 ┥ — |
| UV-B 0 UV-A 0 PAR 0 | W/m ² W/m ² W/m ² | |
| Protocial UV-B 280 UV-A 320 PAR 400 □ µEins | - 320 nm - 360 nm - 700 nm tein | _ |

The results of a batch measurement can be saved directly in a linked Data Table with the corresponding input: [UV-A UV-B PAR.Results].

| ■Data Table | 1 |
|------------------------------|---|
| UV-A UV-B PAR.Results 🛛 🗐 📀 | |
| [Data] | |
| Table Text Export Protocol | |
| 🔽 Header 🔽 Attributes 🔽 Data | |
| default 💌 Format | |
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| | l |
| Clear Appending As default | |
| | |



MSDA_XE contact 2010-12-06

7. Contact information

We are always working to improve our products and software. Please check our website for updates.

You have found an error in this document / software, or you would like to see some additional features enabled in a future version?

Feel free to contact us at: <u>support@trios.de</u>

Our website:

www.trios.de

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