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# *FAG FLUODXConnect User Manual*

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## Introduction

The FLUODXConnect Software is used to communicated with the FLUODX invisible inks colorimeter. The software is available for Windows Operating System, Windows 7, Windows 8.1, Windows 10 – 32bit or 64bit.

The FLUODXConnect software can communicated via USB to the FLUODX Device for data download and device configuration and IRDA for data upload. In order to use both communication technologies, there are needed two USB2.0 ports, one for USB connection, one to connect the IRDA Interface box.

## Installation

Download the most recent Software version from the Download Section of [www.fag.ch](http://www.fag.ch). Run the installer and follow the instructions. Once you get prompt for a password, insert the installation password. If you do not have the password on hand, contact your dealer . The installer will create an Icon on your desktop. Click the Icon to run the software.



### FLUO DX

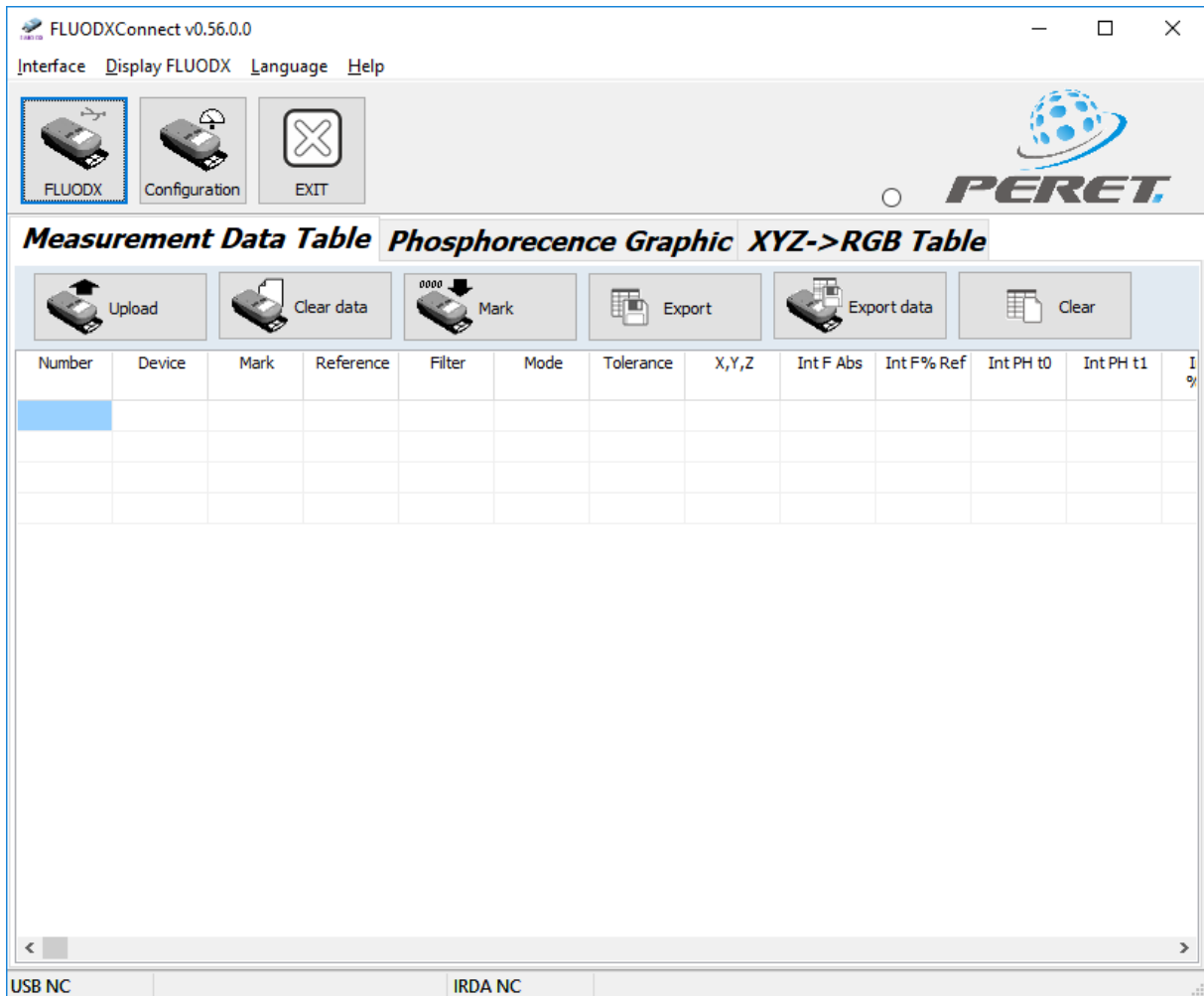
There will be installed two drivers which are located in the DRIVER sub directory of the installation folder. If the one of the driver installation fails, follow the instructions of the USBDriverInstallation.pdf document. The document is available for download using the following link: <http://www.peret.it/PDF/USBDriverInstallation.pdf>

Example error message that might arise: *you have to run the 64-bit version of dpinst.exe on this machine contact the vendor*

Both drivers are assigning COM ports to the FLUODX and the IRDA Interface box. The COM port assigned needs to be 1..7. If another COM port is assigned, modify the assignment using the Windows Control Panel.

### Run FLUODXConnect

Click the FLUODX Icon on your desktop to run the FLUODXConnect Software.



Select the Interface to connect to the FLUODX device

Connect to FLUODX USB Port

When starting the Software for the first time you need to select the COM ports your device is connected with. Connect the FLUODX using the USB Cable to the USB port of your computer. The driver normally is going to be installed automatically.

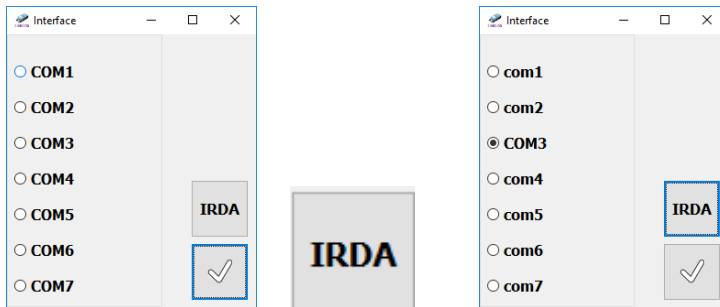
Select Interface/FLUODX USB from the main menu. You can select the COM port directly if known. If you do not know the COM port, click the Icon with the device to automatically search for the proper COM port.



Click the Check Icon to connect and to close the Window. The COM port will be automatically selected the next time the software is started.

### Connect to FLUODX IRDA Box

Select the Interface/FLUODX IRDA from the main menu. You can select the COM port directly if known. If you do not know the COM port click the IRDA Icon to automatically search for the proper COM port.



Click the Check Icon to connect and to close the Window. The COM port will be automatically selected the next time the software is started.

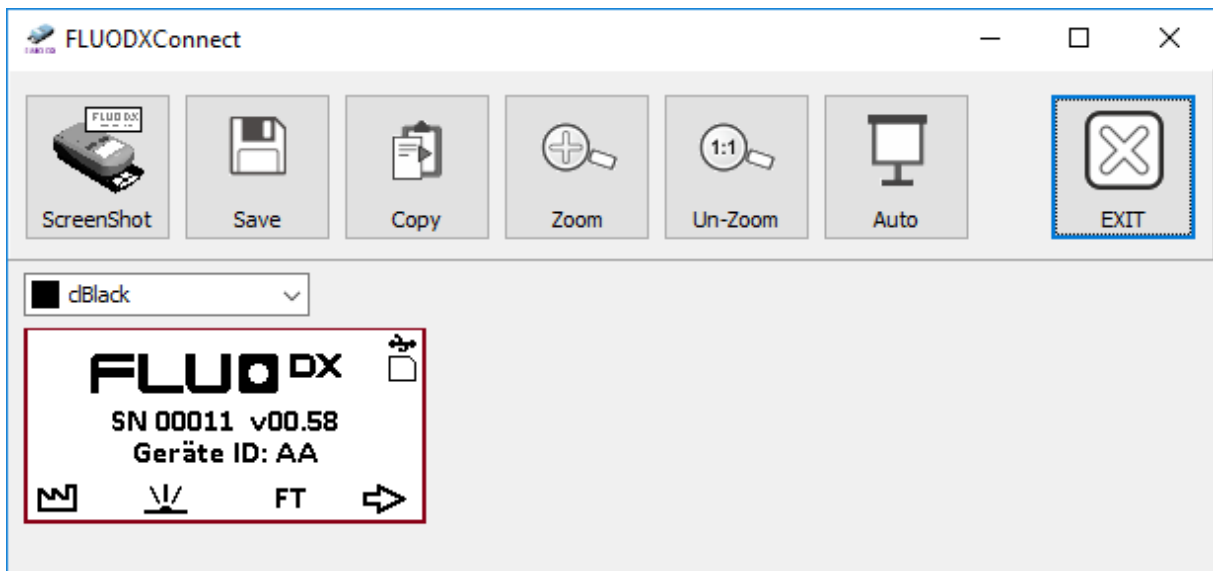
### Connect to the FLUODX for bi-directional communication

Finally click the Connect Button on the Main Screen to connect to the FLUODX via USB Port.



### Create Screenshot from the FLUODX Display

Select the Item 'Display FLUODX' from the main menu. The Software can be used to create reports based on screen shots, or to do trainings using this functions



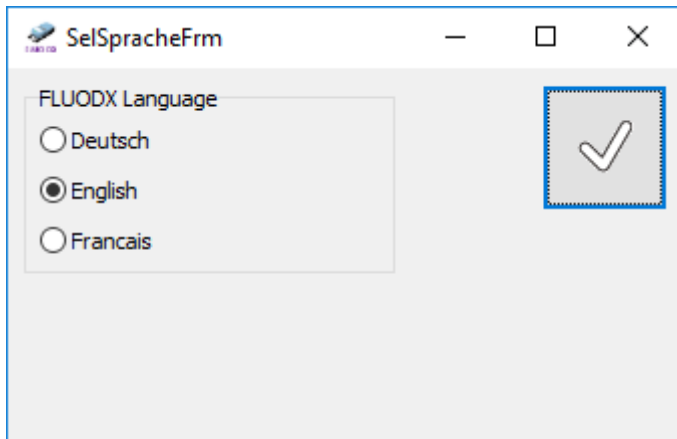
Click the screen shot Icon to upload the current screen of the device. The screen can be saved clicking the save Icon or copied to the Windows Clipboard. Once it is copied to the Clipboard it can be pasted in any other application that does support the past function for a Windows bitmap format. You can select the color of the frame as needed from the color box on top of the screen shot image.

Click the Zoom Icon to zoom the Screenshot image. Click the Un-Zoom Icon to display the screenshot in original size.

For training and presentation purpose the AUTO function can be used. Click this Icon to start an automatic upload on a regular frequency such as the auditorium can follow your operations with the device directly without the need to explicitly upload any screen separately.

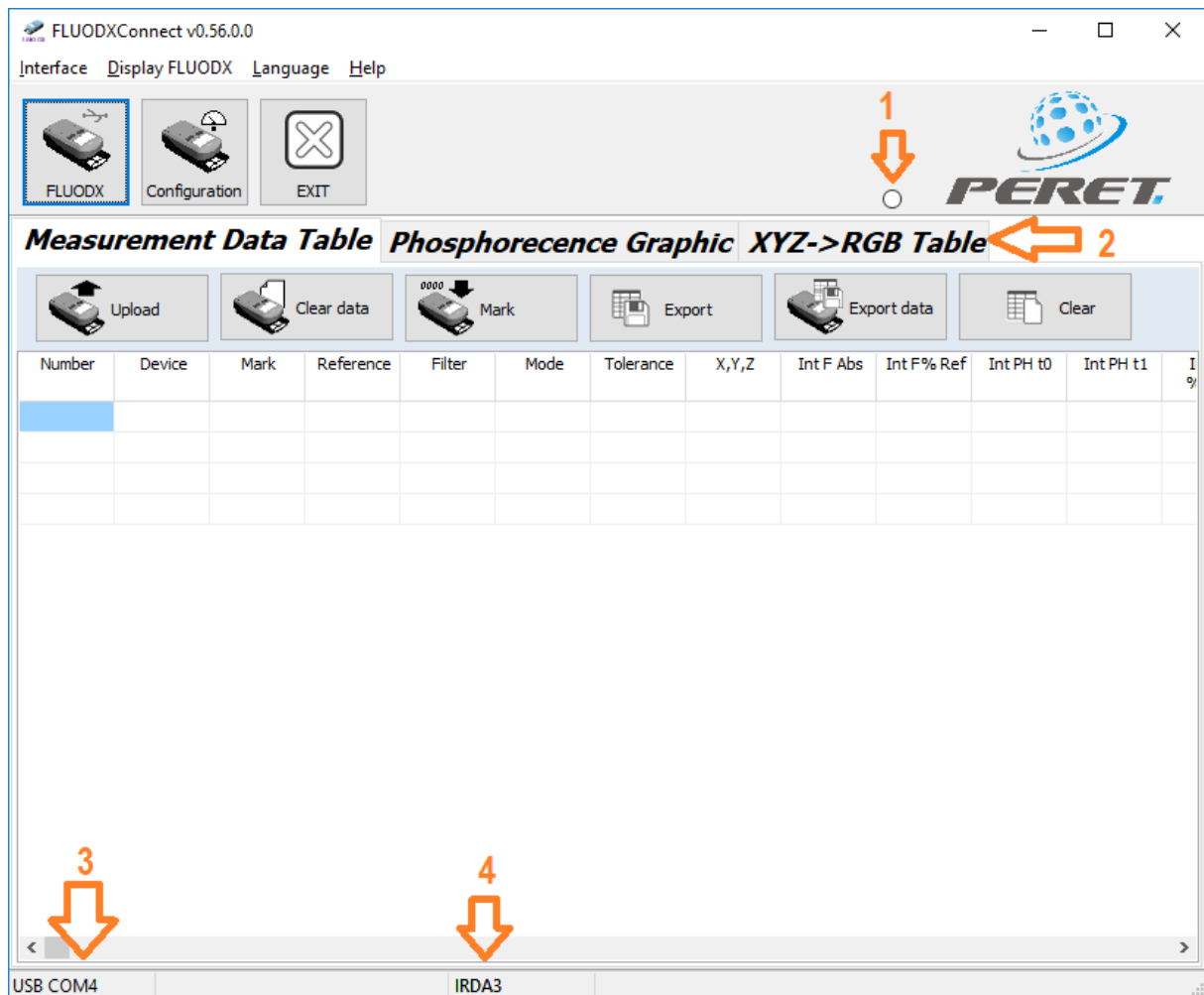
## Select the language of the Software

Click the Language Item from the Main menu to open the Language Window.



Select one of the available languages and click the Check Icon to close the Window.

## The FLUODX Connect Main Screen



1. Whenever communication is in progress, the circle will be blinking. Do not disconnect the device while it is blinking. Additional communications requests will be ignored.
2. There are three different applications available on the main screen:
  - a. Measurement Data Table is used to upload measurements taken off line and stored in the FLUODX Device
  - b. Phosphorecence Graphic is used to perform a Phosphorescence reading and to upload Phophorescence Time curves directly after measurement
  - c. XYZ-RGB Table is used to perform a color measurement and to display the measured colors in RGB on the computer screen.
3. The USB Interface is connected to COM 4
4. The IRDA Interface is connected to COM 3

### Measurement Data Table



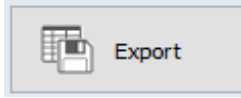
The FLUODX can store approx. 6000 single measurements of any type in its internal memory. Use the Measurement Data Table page to upload the data to the Host PC and to export the data to a file.



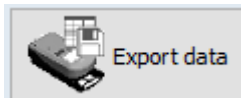
Click the Clear Data Icon to delete permanently all measurement data stored in the FLUODX device memory.



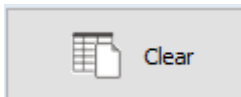
Measurement data is organized using a Mark. The mark is automatically incremented whenever the Save function is executed on the FLUODX Device. Click the Mark Icon to permanently reset the mark to 0000.



Once the data has been uploaded and is displayed in the table, this data can be exported to a tab-delimited text file.



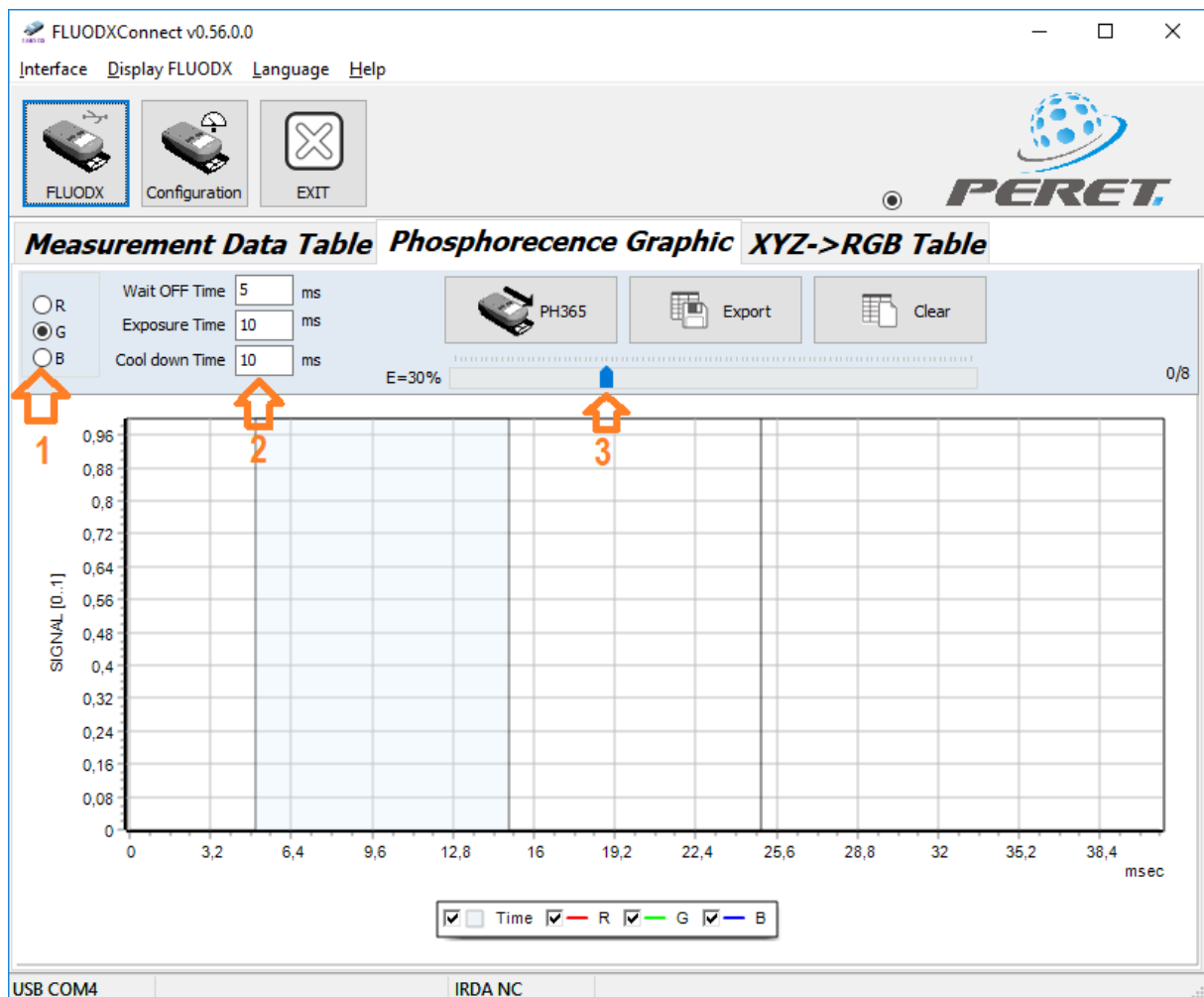
Click the Export data Icon to upload measurement data from the FLUODX to the Host PC and export that data to a tab-delimited text file in one operation.



Click the Clear Icon to delete the data in the table. This will not delete any data stored in the FLUODX device.

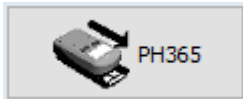
## Phosphorescence Graphic

Select the Phosphorescence Page to measure Phosphorescence Behavior of a printed sample.

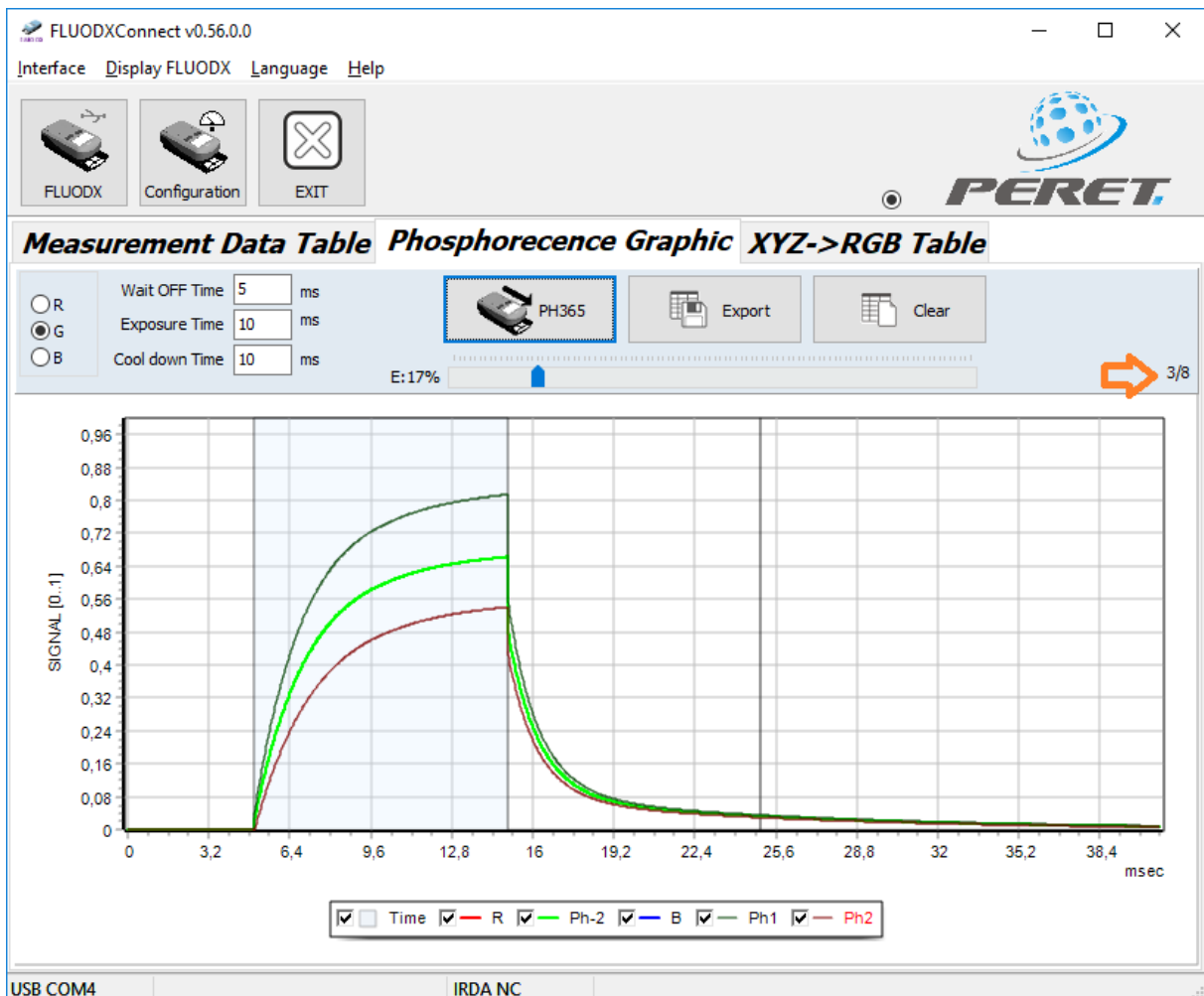


1. Select the color channel with the highest intensity of the sample to be measured

2. Select the timing for the phosphorescence measurement. The summary of Exposure time + Cool down time might not exceed 600ms
3. Select the intensity of the UV Illumination power. Exposure Time and LED Power Intensity are having an impact on the max. Fluorescence signal that might be reached. If you get an Overflow Error you can reduce the Exposure Time or the UV Illumination power. The modification of either one does not have the same effect on measurement results.



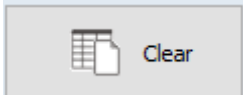
Position the FLUODX on a sample and move the FLUODX in front measurement position. Keep it in measurement position until the measurement result is displayed. Click the PH365 Icon to perform a phosphorescence reading. The reading will take some time as the entire signal curve will be downloaded to the PC. At the end of the successful measurement the curve will be displayed.



There can be measured up to 8 samples. The number of measured samples is displayed in the right top corner above the diagram.



Click the Export Icon to export the measurement data to a tab delimited text file.

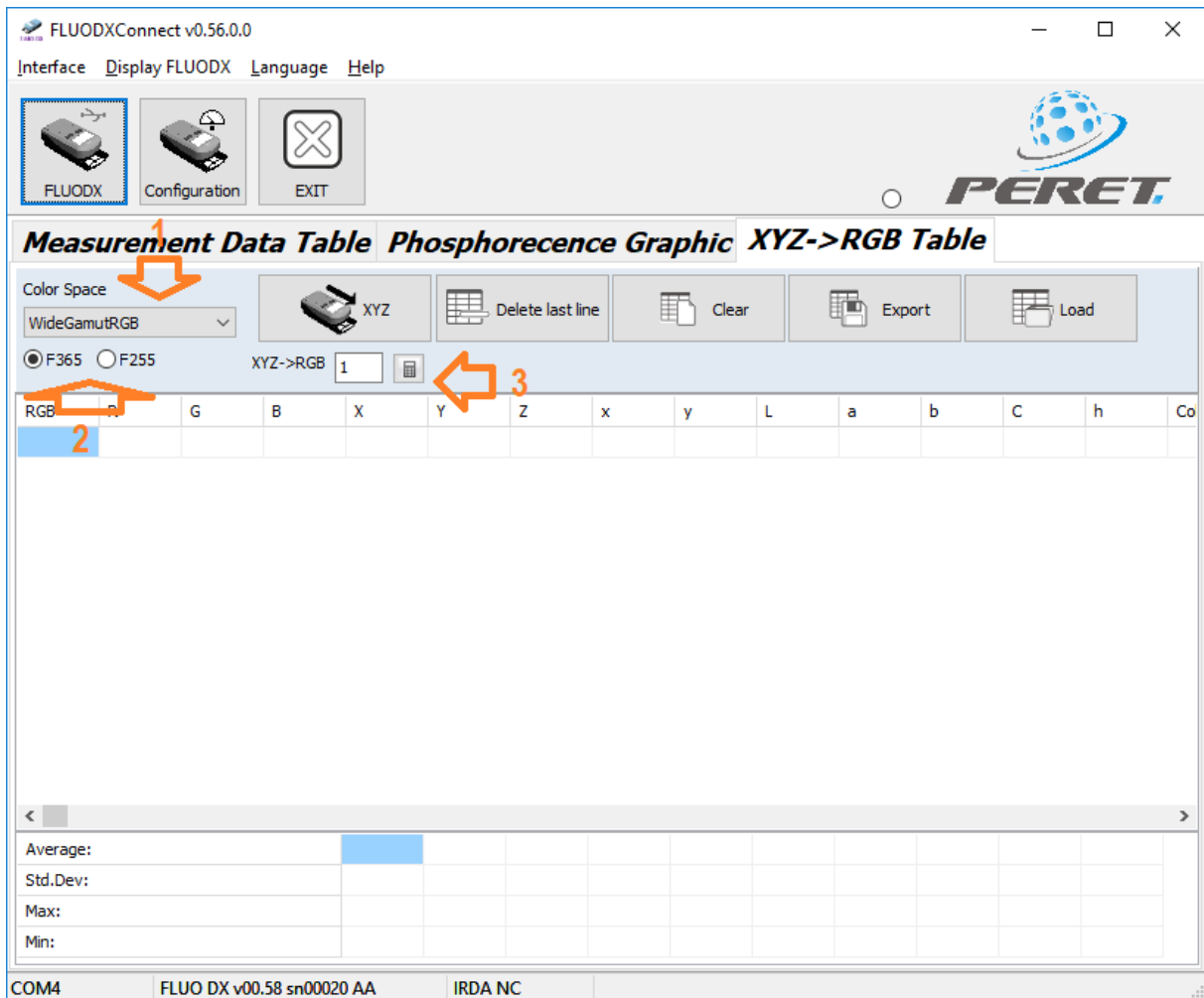


Click the Clear Icon to clear the graph.



## XYZ->RGB Table measurement

Select the XYZ->RGB Table Page of the Main Window to measure color and simulate visual appearance under UV light of a measured fluorescent sample.



1. Select the color space you would like to use. Use WideGamutRGB as default.
2. Select the UV Illumination
3. Select a brightness Factor to adjust the RGB color to visual brightness impression. Click the calculator icon to recalculate the RGB Values and to calculate the statistics

FLUODXConnect v0.56.0.0

Interface Display FLUODX Language Help

FLUODX Configuration EXIT

PERET

**Measurement Data Table Phosphorecence Graphic XYZ->RGB Table**

Color Space  
WideGamutRGB

XYZ

Delete last line Clear Export Load

F365  F255 XYZ->RGB 1

RGB	R	G	B	X	Y	Z	x	y	L	a	b	C	h	Co
	255	19	26	155,03	92,83	34,01	0,55	0,33	97,16	98,01	46,28	108,39	25,27	rec
	255	73	207	184,05	132,75	212,49	0,35	0,25	111,49	70,73	-54,32	89,18	322,48	ma
	12	84	248	82,86	82,80	247,20	0,20	0,20	92,93	5,86	-100,50	100,67	273,33	blu
	72	255	255	213,07	297,40	289,99	0,27	0,37	150,82	-67,77	-16,44	69,74	193,64	tur
	77	255	93	186,43	289,87	133,28	0,31	0,48	149,40	-90,01	50,52	103,22	150,70	lim
	255	255	80	245,60	273,12	113,83	0,39	0,43	146,15	-16,06	56,93	59,16	105,75	yel
	255	255	203	258,78	282,91	232,10	0,33	0,37	148,06	-12,31	0,56	12,32	177,39	gre

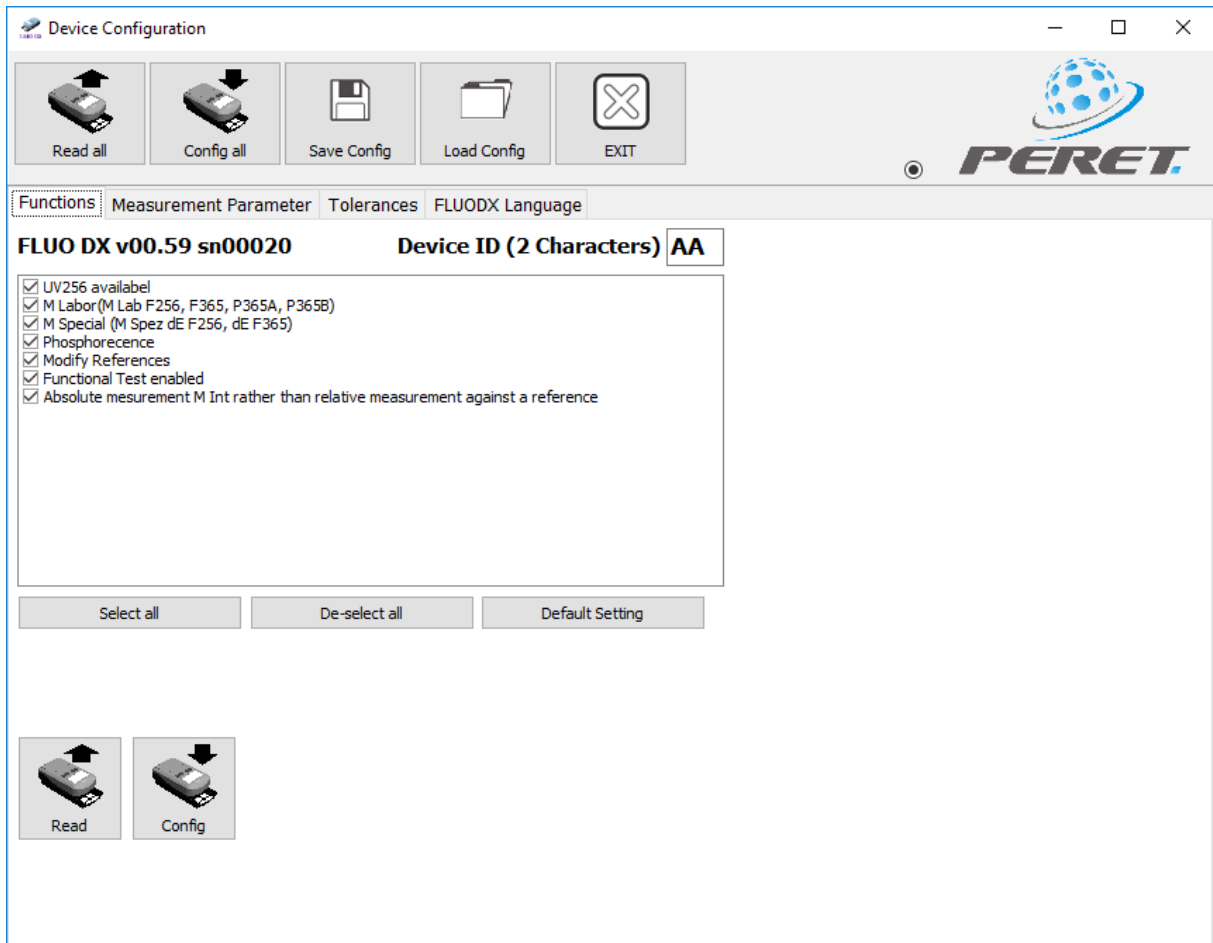
Average: Std.Dev: Max: Min:

COM4 FLUO DX v0.58 sn00020 AA IRDA NC

## FLUODX Device Configuration



Click the Configuration Icon to open the configuration Window



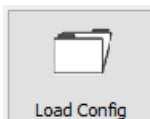
Download the current configuration from the connected FLUODX to the tables of the software.



Upload the configuration of all tables on any page of the configuration Window to the connected FLUODX. The configuration of the FLUODX is permanently updated.



Save the current configuration to a file



Load a configuration from a file.



Any of the configuration pages offers in addition the possibility to just download or upload the configuration settings of the current configuration Page.

## Function settings

Select the functions according to your needs, set a two characters Device ID and click the Config button below the functions list to configure the FLOUDX.

**FLUO DX v00.59 sn00020**

**Device ID (2 Characters) AA**

- UV256 availabel
- M Labor (M Lab F256, F365, P365A, P365B)
- M Special (M Spez dE F256, dE F365)
- Phosphorecence
- Modify References
- Functional Test enabled
- Absolute measurement M Int rather than relative measurement against a reference

## Measurement parameters

Select the time settings for the measurement modes, the filter and the UV LED Power. In case of Fluorescence measurement, the UV LED Power can be set to 0.0. In this case the optimum power will be detected automatically by the FLUODX.

Functions	Measurement Parameter	Tolerances	FLUODX Language
Phosphorecence parameter			
M Int	PH365A	PH365B	
Wait OFF Time (1..30ms)	5,000	5,000	
Exposure Time (1..600ms)	50,000	50,000	
Cool down Time (0,025..1500ms)	1,000	1,000	
Filter (R,G,B) Absolute	G	G	
Light intensity (0.1%..100%)	20,0	20,0	
M Lab			
M Int	PH365A	PH365B	
Wait OFF Time (1..30ms)	5,000	5,000	
Exposure Time (1..600ms)	50,000	50,000	
Cool down Time (0,025..1500ms)	1,000	1,000	
Phosphorecence AK 1 (21..50%)	50	50	
Phosphorecence AK 2 (1..20%)	20	20	
Tau intervall min (0,025..10ms)	0,400	0,400	
Tau intervall max (0,1..10ms)	1,200	1,200	
Filter (R,G,B) Absolute	G	G	
Light intensity (0.1%..100%)	20,0	20,0	
Fluorescence parameter			
M Int	F256	F365	
Filter (R,G,B,K)	RGB	RGB	
Light intensity (0.1%..100%)	0,0	0,0	

Write the configuration to the FLUODX by clicking the config button.

## Phosphorecence Parameter

- The *Wait OFF Time* is the minimum Time delay the device is waiting after the measurement process has started before switching the UV Light source on. During this time the dark measurement reference is taken.
- The *Exposure Time* is the time where the UV Light source is on. The charging behavior of the phosphorescent sample is measured with a 40kHz sample rate.
- The *Cool down Time* is the time between UV Light switch off and the measurement value expressed as PHInd or Ph365.
- The *AK1* value defines a fixed % Signal level. The time required after UV Light off to reach this level is measured.
- The *AK2* value defines a second fixed % Signal level. The time required after UV Light off to reach this level is measured.

- *Filter*: Phosphorescence can be measured only for one filter R,G,B. The filter has to be pre-selected in this configuration Window. In case of reference relative measurements, the filter can be selected before measuring the reference.
- Phosphorescence is depending on the UV light energy it is exposed to. The *Light Intensity* value is a percentage of the maximum available light intensity that can be emitted. If Light intensity is low, an underflow error message can arise. If light intensity is high, an overflow error message can arise.

### Flourescence Parameter

- Filter: The filter for MInt measurements is determined when measuring the reference. If no reference is available or the FLUODX used the filter K = R+G+B as default. In absolute mode the filter can be selected out of the filters configured in the configuration Window. You can configure the device to offer just one filter, or all filters RGBK
- The UV Light intensity for the measurement can be preset. A setting of 0.0 results in an automatic detection of the best light intensity for the sample that's going to be measured.

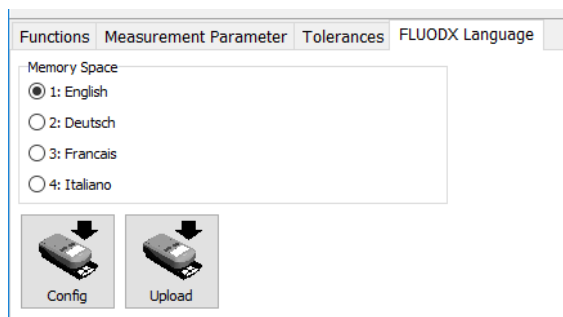
### Tolerances

For the MInt measurement modes you can set tolerances. The tolerance window is used to draw upper and lower tolerance frame in bar diagrams and to display the statistics.

Function	Value [%]
M Int F256 (5..50)	15
M Int F365 (5..50)	15
M Int P365A (5..50)	15
M Int P365B (5..50)	15

### Device Language Setting

The Language Page enables you to configure the language of the Device. There are 4 languages permanently stored and listed in the Window. Select one of the languages and click the Config button to set the FLUODX device language properly.



Any language can be replaced by a new language. Select the language you would like to replace. Click the Upload icon. You will be prompted to select a language file on your computer. The new language file will be uploaded to the device and replace permanently the selected one.