



LA-T LED ANALYSER
EVALUATION KIT
INSTRUCTION MANUAL



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GENERAL INFORMATION

Application

LA-T LED Analyser is oriented for initial experiments with different substances and enables defining the absorption properties of the analysed sample in 1.3 – 2.3 μm spectral range.

Design

LA-T is formed in a single body that includes optical and electronic modules.

Optical module utilises a single pass transmittance scheme and includes:

- ✓ 8-element LED array with peak emission wavelengths about 1.3, 1.4, 1.6, 1.7, 1.9, 2.1, 2.2 and 2.3 μm ;
- ✓ Wideband photodiode with 2.4 μm cut-off wavelength.

Distance between the LED array and the photodiode is fixed and is about 15 mm (slit thickness is 7 mm).

Simple microscope slides can be used for liquid sample placing.

LEDs light up sequentially, photodiode detects the emission passing through the analysed sample and the obtained signal values are displayed on the main diagram of the program included in the Analyser set.

Electronic module enables:

- ✓ LED array power supply;
- ✓ detection and amplification of the photodiode signal;
- ✓ further signal conversion, processing and output to a PC via DAQ device through ZigBee wireless protocol.



LA-T Analyser

Features

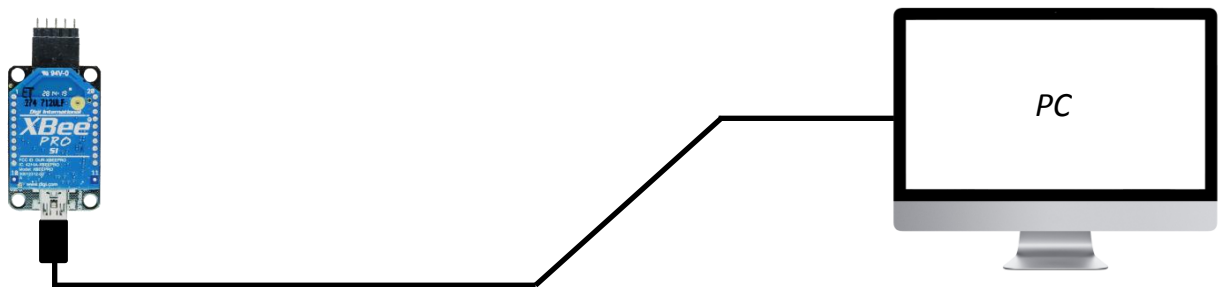
- ❖ 1.3 – 2.3 μm scanning spectral range;
- ❖ Battery power supply with up to 30 hours of autonomous operation;
- ❖ Wireless data transfer with ZigBee protocol;
- ❖ Included software for Windows OS.

Operation conditions

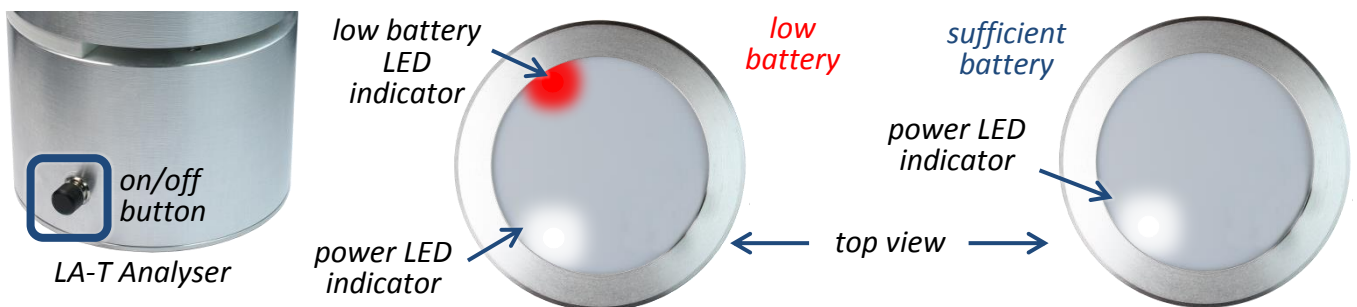
Indoor operation only. Ingress Protection Rating IP40.

OPERATION INSTRUCTIONS

1. Install the LED Analyser Software, following the installer instruction. After the installation there will be:
 - “LED Analyser v.5.0.” program;
 - “LED Analyser v.5.0.” folder in the “User Documents” folder (default path: C:\Users*username*\Documents\), which will contain configuration files (see p. 9) and user data files.
2. Connect the ZigBee adapter to a PC via USB port; Windows 7 OS will install ZigBee drivers automatically.

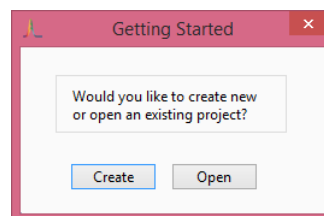


Note! Make sure that LA-T Analyser is charged pressing the on/off button. If it doesn't turn on, charge it using the charger (included).



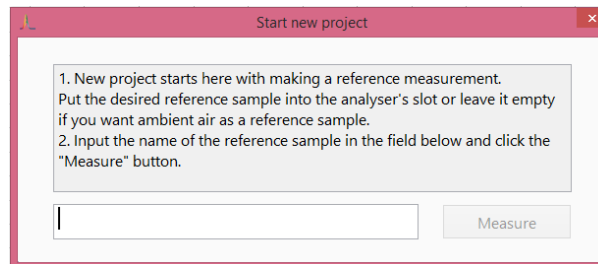
Note! In case the device has low battery charge red LED indicator during spectrum measurement process will glow; the device needs to be charged.

3. Run the installed program. It will ask if you prefer creating new (go to step 4) or opening an existing project (go to step 8).

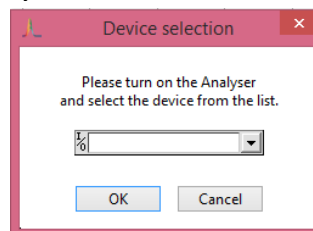


OPERATION INSTRUCTIONS

4. Create new project: the following dialog with instructions will appear:

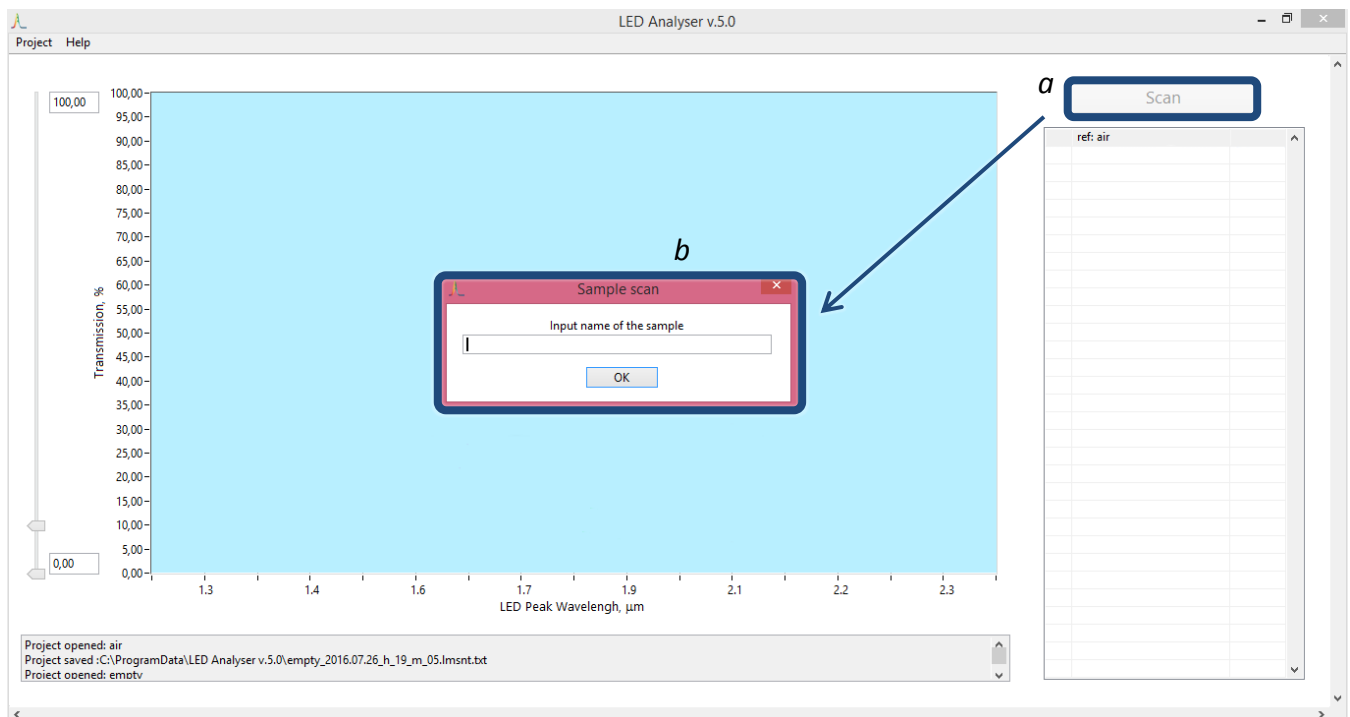


5. After entering the name of the project you will be asked to turn on the Analyser and select it from the device list. After selecting the device, the program will measure the reference spectrum and display it on the main screen as a blue field.



Note! You cannot change the reference spectrum within the created project.

6. Insert the cuvette with a sample into the Analyser slit and scan the spectrum by clicking the "Scan" button (a) in the program interface; blue LED indicator on the top of the LA-T device will blink. "Name the sample" window (b) will popup; insert the desired spectrum name.

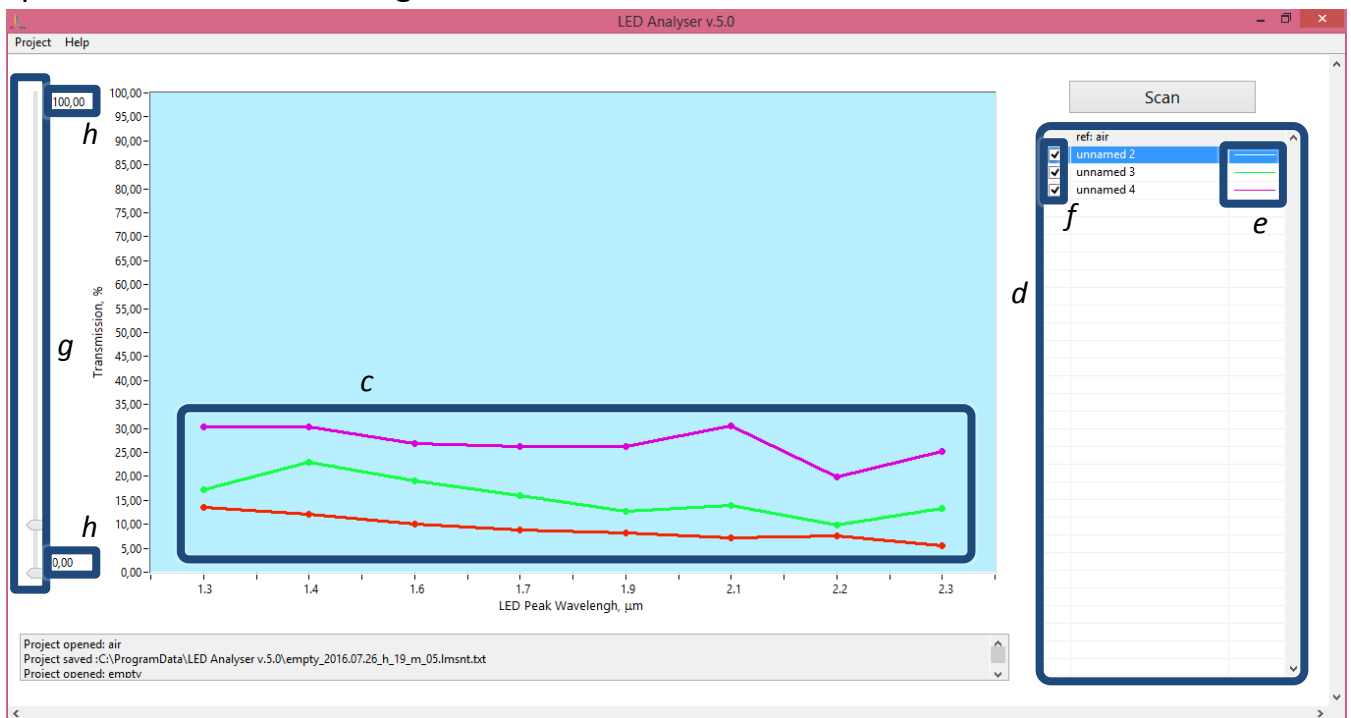


Every measured spectrum will be displayed on:

- the main diagram as an array of points interconnected with lines (c);
- the list on the right side of the main screen (d).

OPERATION INSTRUCTIONS

The list on the right side of the main screen is adjustable: you may change positions of the samples in the list dragging them, and delete the spectra clicking on them and using “Del” key. You may customise width, style and colour of the lines depicted on the diagram clicking the appropriate sample line in the list of samples (e). By checking/unchecking the checkbox (f) of a sample you can add/remove the appropriate spectrum on the main diagram.



7. Scale adjustment of the main diagram is performed either by sliders (g) or numeric boxes (h) within the 0-1000% scale range.

8. If you have an already existing project, you may choose “Open” option in the starting menu. In this case you will be asked to choose the file from the list of projects.

Note! You cannot change the reference spectrum in the previously created projects.

9. You may export your projects using “Projects” menu of the main menu tab. There are two ways of export:

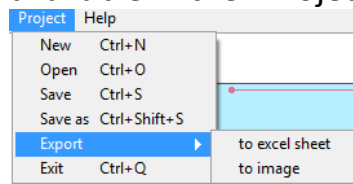
- as an excel sheet (with all the measured data presented in numeric form):

	A	B	C	D	E	F	G	H	I
1	LED, mkm	1,3	1,4	1,6	1,7	1,9	2,1	2,2	2,3
2	air	492,05	493,03	472,29	491,35	492,83	488,27	483,37	504,1
3	1	80,299	79,942	77,586	74,617	75,208	75,722	76,308	64,261
4	2	62,429	64,74	61,56	55,81	57,592	58,853	59,296	43,099
5	3	45,587	49,216	45,785	38,472	40,941	42,358	43,031	25,253
6	4	20,325	22,919	20,326	14,651	16,237	17,818	18,206	8,332
7	5	4,878	5,265	4,444	2,442	2,825	3,467	3,31	0,992

- as image (prints the screen in its current view, in accordance with set scale and spectra shown on the main diagram; saved in .png format).

OPERATION INSTRUCTIONS

10. The main options are also available in the “Projects” menu of the main menu tab:



- create new project;
- open existing project;
- save current project;
- save current project as;
- export current project to excel sheet/to image.