

# **PC connection to ED7 type IED via a front panel port (RS232, USB)**

## **Guideline**

Before use update (install) the following from the company's website (<http://dev.ekra.ru>, "SOFTWARE" section):

EKRASMS software package

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database for acquired Keys license

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driver for USB Driver connection (only when connecting via USB-port)

Parameters of PC COM-port used for communication with ED7 type IED (for reference):

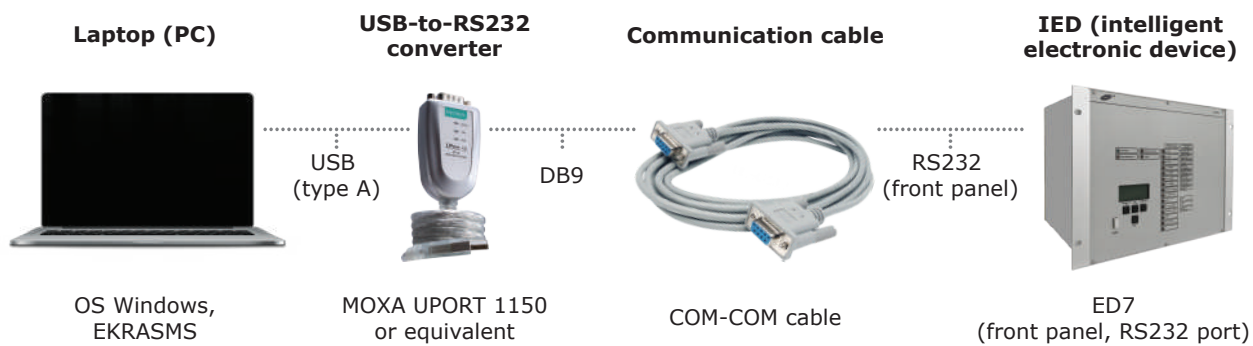
Nº	Parameter	Value
1	Data Bits	7
2	Parity	even
3	Stop Bits	2
4	Flow Control	none

1

Connect PC to IED

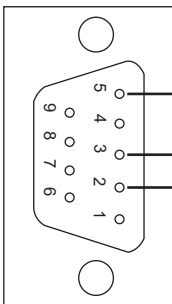
Connect PC (laptop) to IED via front panel port.

Connection scheme via RS232 port:

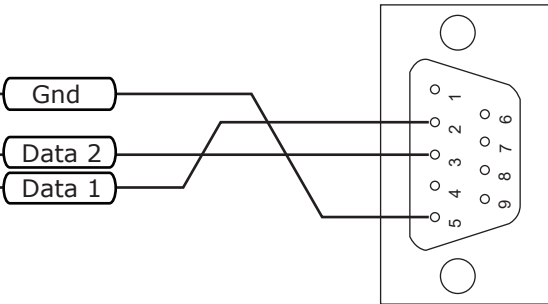


DB9 (female) (to USB-to-RS232 converter\PC)	Data	DB9 (male) (to RS232 port (female), ED7 IED)
2	DATA 1	2
3	DATA 2	3
5	Gnd	5

DB9 (female)



DB9 (male)



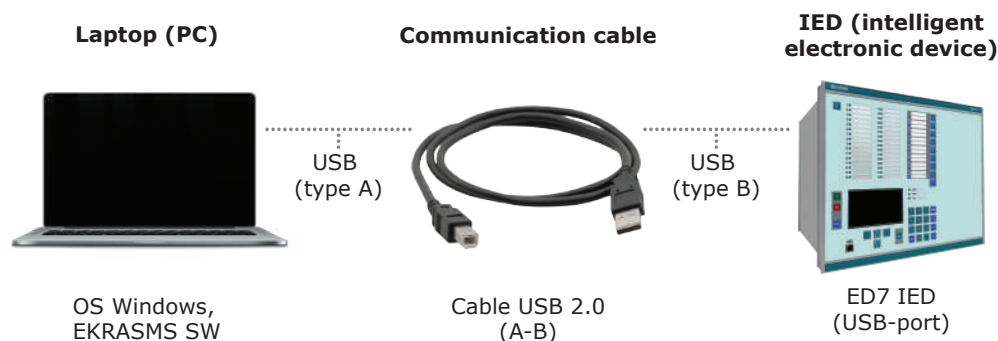
Disconnect the laptop from 220 VAC network and power it from the built-in battery. This way you will avoid possible communication problems due to absence of protective earthing in 220 VAC socket.

For MOXA UPort 1150 converter in OS Windows | Device manager \ Multi-port serial adapters \ MOXA UPort 1150 in Properties menu in Ports Configurations tab select RS-232 under Interface parameter.

When using MOXA UPort 1150 converter, use COM-COM communication cable as an extension cable to connect to RS232 port. You can also use USB-extension cable and connect MOXA UPort 1150 converter directly to RS232 port, or use equivalents (USB-COM converters) with longer cable.

If a laptop (PC) is equipped with a COM-port, there is no need for USB-to-RS232 communication converters.

Connection scheme via USB-port:



Disconnect the laptop from 220 VAC network and power it from the built-in battery. This way you will avoid possible communication problems due to absence of protective earthing in 220 VAC socket.

## 2

### Setting IED communication parameters

Set (check) communication parameters of the port (RS232, USB) from the IED front panel.

IED menu:

MENU | Service parameters / Serial channel setup/... — IEDs with no IEC 61850 support (no LAN port on the rear panel),

MENU | Communication setup / Serial channel setup /... — IEDs with IEC 61850 support (with LAN port on the rear panel).


Communication parameters of the port (RS232, USB) on the front panel:

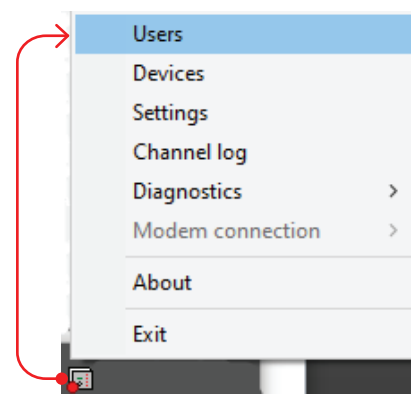
Submenu	Parameter	Description
RS232, USB address	(1...899)	IED address for communication via the port (1–899). In ED7 IEDs with RS232 port, the same address was set for all ports (RS232, TT1, and TTL2).
RS232, USB rate	115.2 Kbaud	Recommended baud rate for RS232, USB serial communication channel.
RS232, USB protocol	SPA-bus	SPA-bus communication protocol used by EKRASMS software. Use only this protocol.
COM2 connection	RS232 front panel, USB front panel	In software virtual COM2 port can be switched between: "RS232 (USB) front panel" and "TTL_2 rearpanel".

### 3

#### Communicate with IED (communication server).

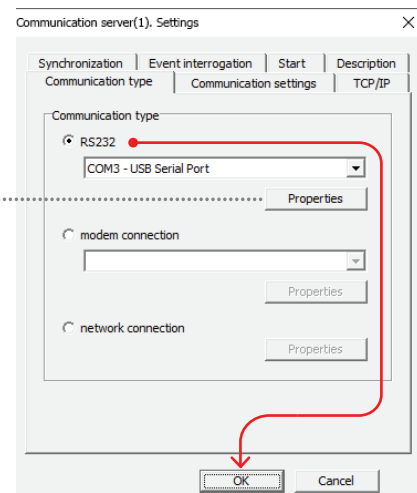
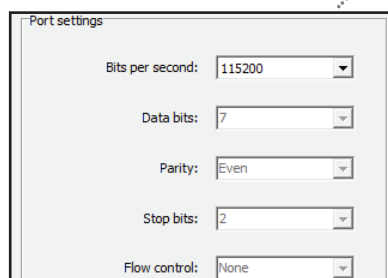
Start Communication server program on the PC (Start menu \ All Programs \ EKRA EKRASMS \ Communication server).

The program icon  will appear in the taskbar (next to the clock).

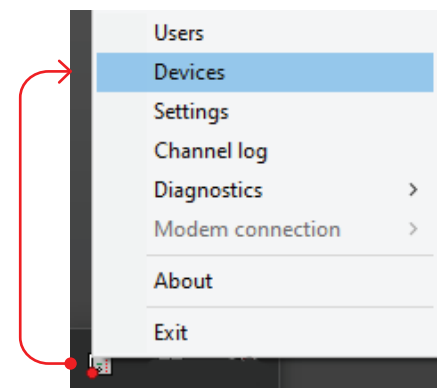


The first time you start the communication server, create a user profile. To do so, select "Users" item from the context menu of communication server, and set the user name, password and user rights.

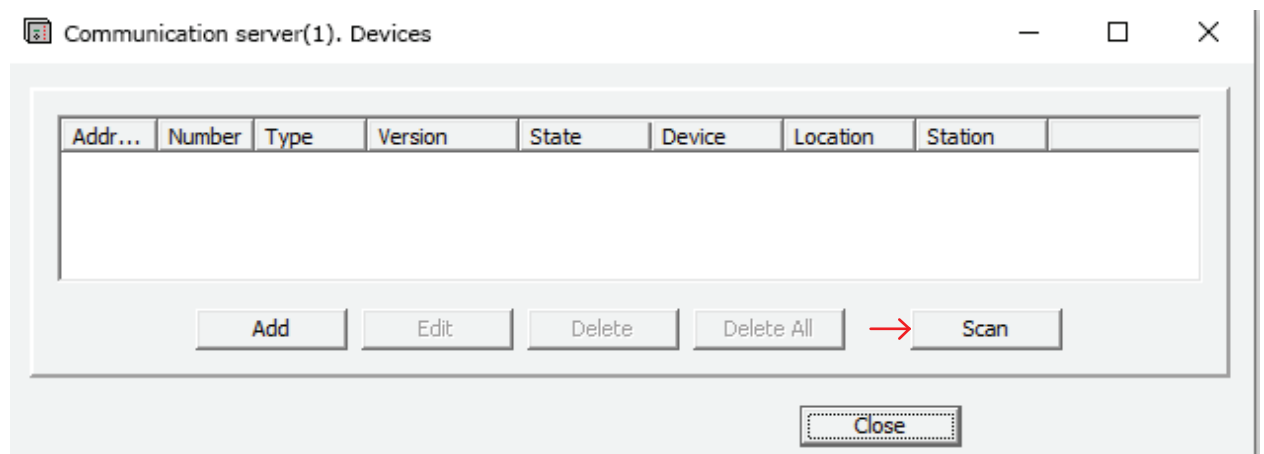
Open the context menu of communication server (by clicking right mouse button icon) and select "Settings" item. In the opened window select "RS232" communication type and COM port of the PC from the list, then check if properties comply with the settings shown on the picture below.



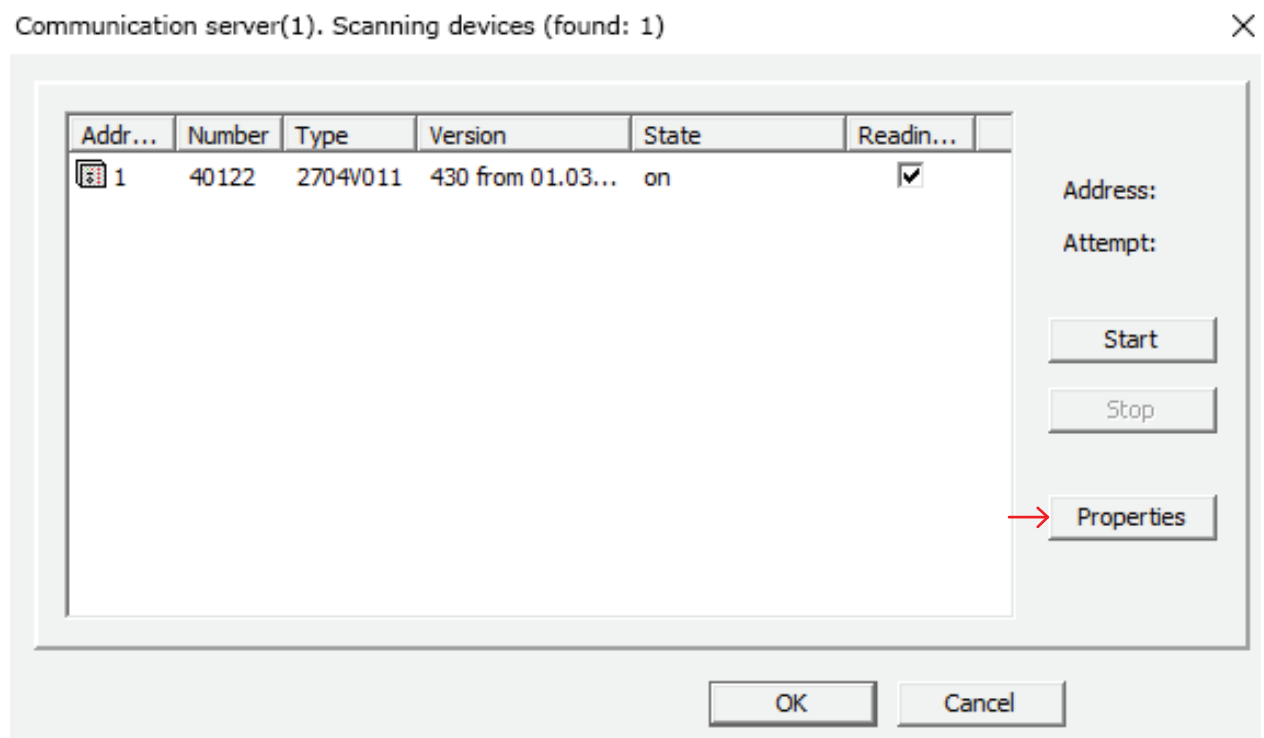
Next from communication server menu select "Devices" item.



In "Communication server. Devices" press "Scan".



In the next window "Communication server. Scanning devices" set scanning parameters by clicking "Properties".

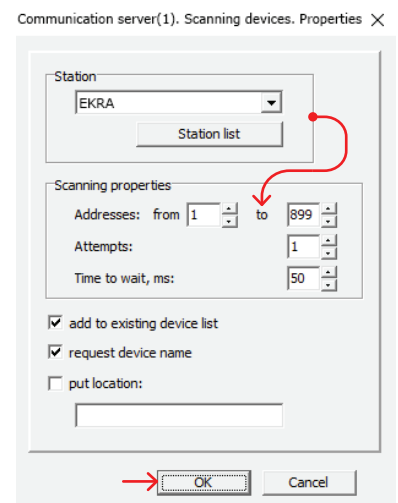


From the list of stations, select the name of the station to be used for work.

Also set the range of IED addresses. If communication is established with one IED, you can specify its address in both fields.

The first time you start the program, add the station profile. To do that, click "Station list" and add the station, while specifying the following: facility name and its short name (in English).

After setting all the scanning parameters, close the window by clicking "OK".

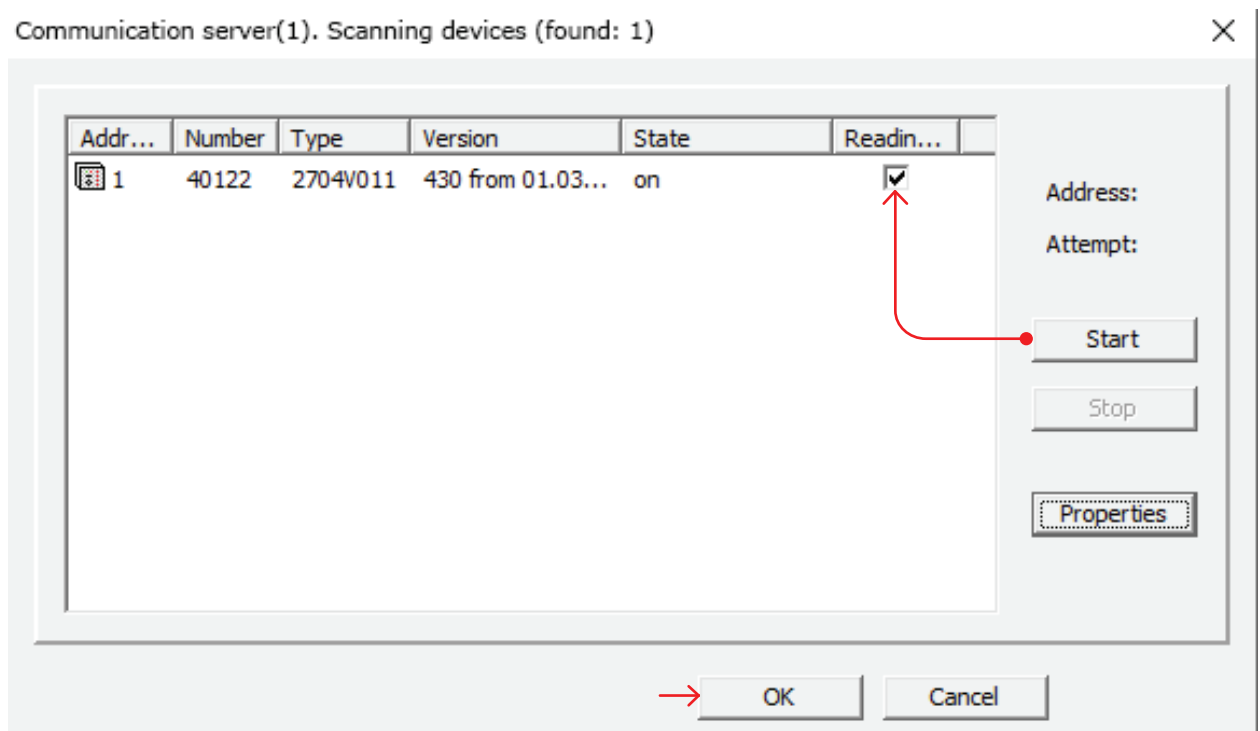


In window "Communication server. Scanning devices", click "Start". The program will scan the specified address range and display the list of detected ED7 type IEDs.

Mark IEDs in "Read" column, to read configuration files, and click "OK". Wait while the program is reading the device configuration. When the reading is completed, the current window will close automatically.

The detected list of IEDs will be displayed in window "Communication server. Devices".

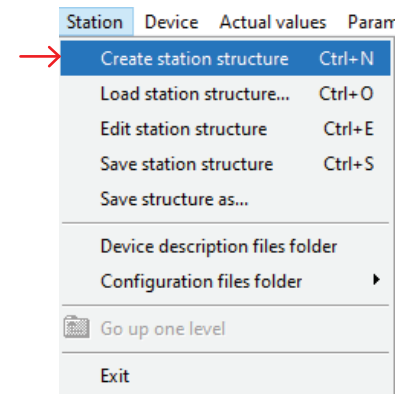
Close this window by clicking "Close". Otherwise setup of communication server will be incomplete and the further work will be impossible.



## Establish communication with IED (monitoring program).

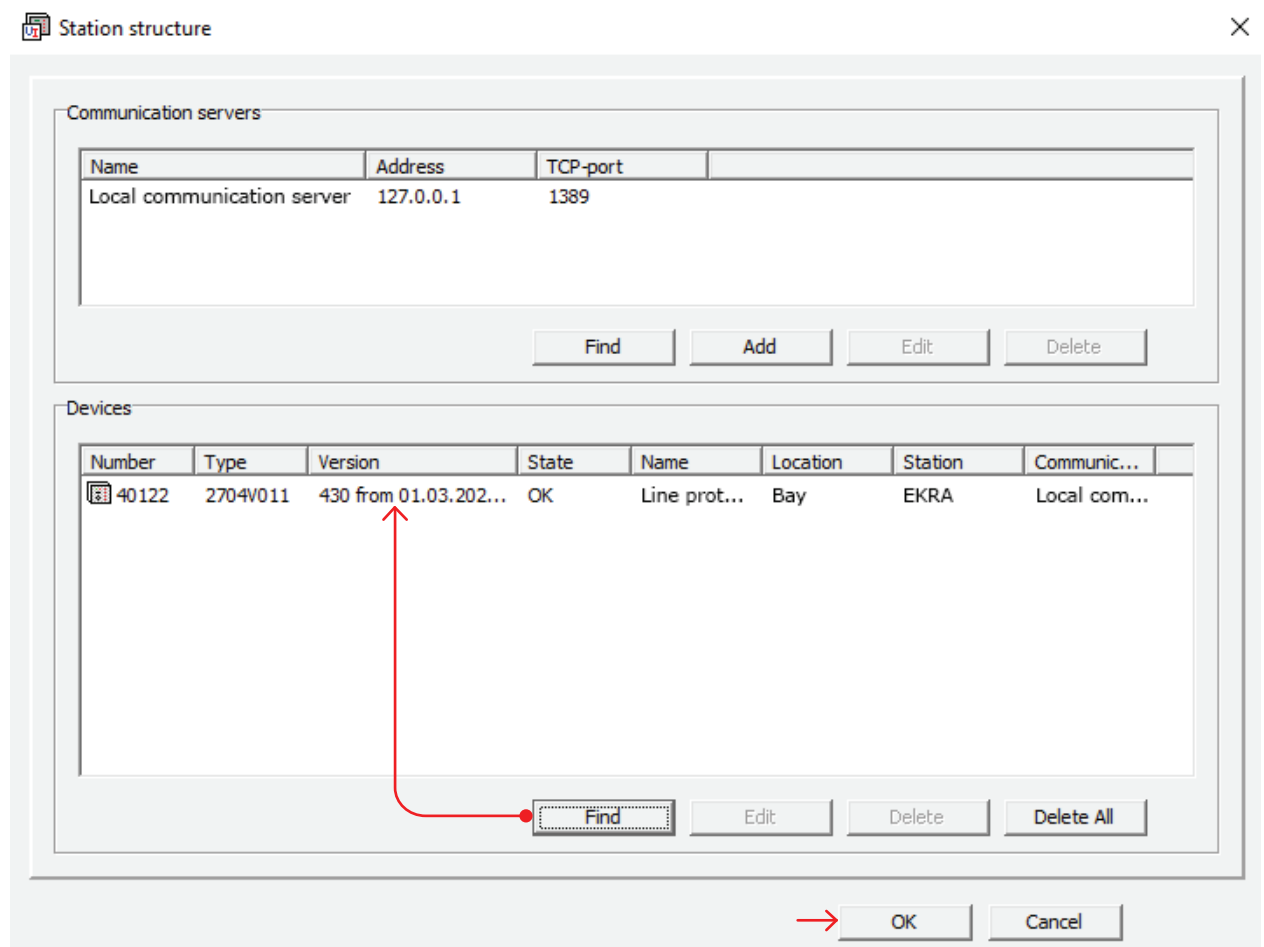
Launch the "Monitoring program" on PC (Start menu \ All programs \ EKRA EKRASMS \ Monitoring program).

Create the station structure in the program (Monitoring program | Station menu / Create station structure).



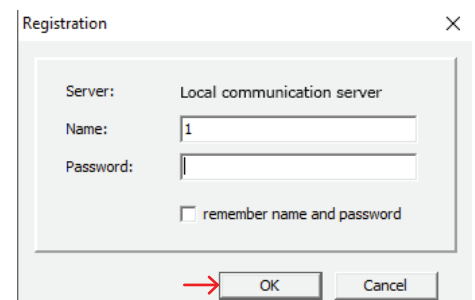
In the opened window "Station structure", click "Find" button.

After the monitoring program identifies the devices from communication server list, click "OK".



Select IED in monitoring program. The program will prompt the user to register. To do so, specify the user profile name and password. Click "OK".

Next the program calculates the IED parameters (settings).



IED is ready for further use.