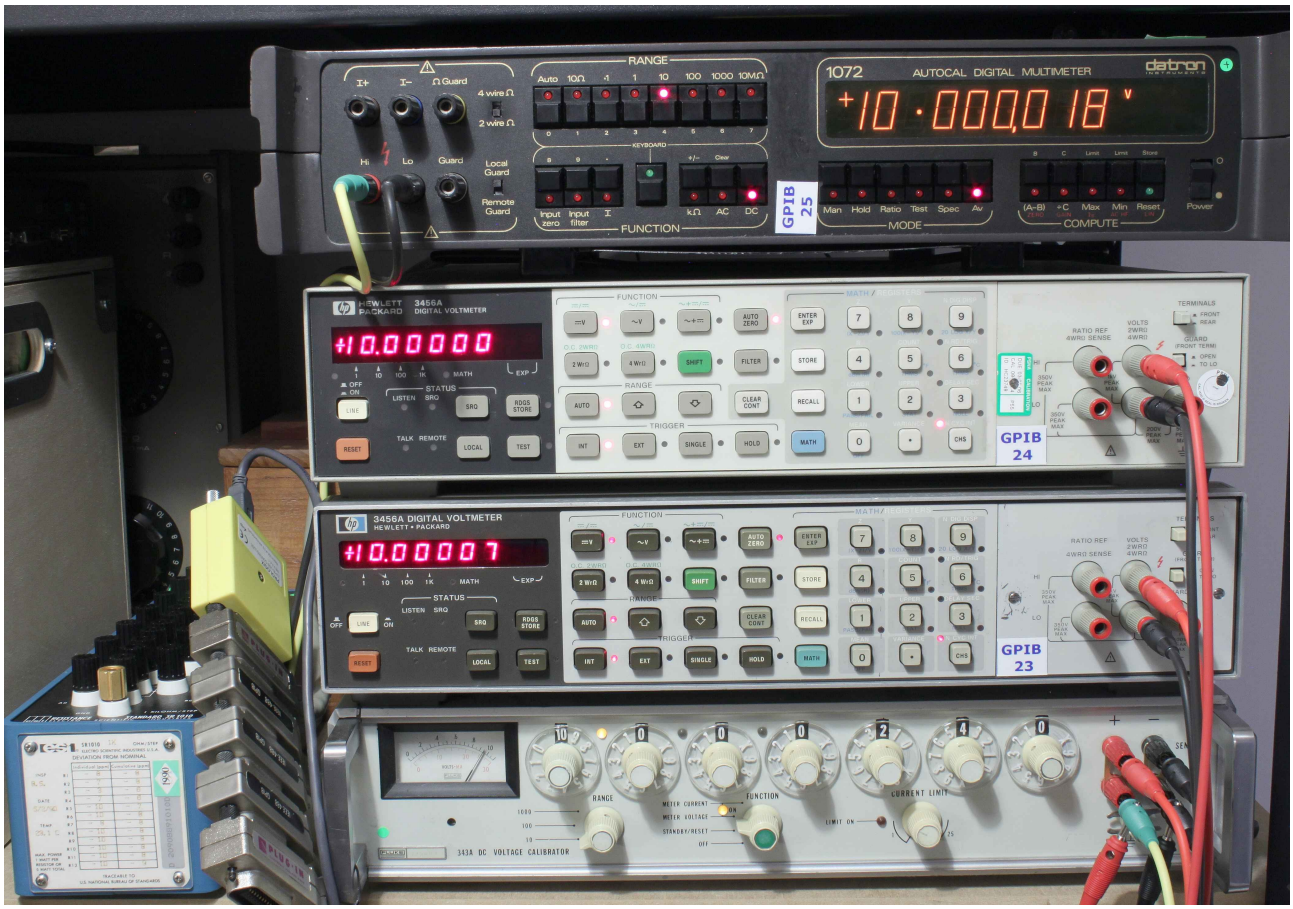


RF Scientific GPIB logger v1.0

User's manual v.1

Table of Contents

1. General information

RF Scientific GPIB logger v1.0 is a freeware application for gathering data from devices equipped with GPIB interface (there is a need to use Prologix GPIB to USB converter). The software can be used for data acquisition from up to 10 devices at the same time.

2. Features

- freeware software working with Prologix 6.0 GPIB-USB converter
- provides data acquisition interface for equipment supporting GPIB bus
- supports readout for up to 10 devices simultaneously
- adjustable measurements interval
- user-friendly interface
- automatically generates log files, suitable for hassle-free import to MS Excel/Open Office Calc

Note: Freeware version **does not** support Group Executive Trigger (BUS Triggering)

3. System requirements

-operating system: Windows XP or newer

-40MB of free disk space for installation

4. Getting started

4.1 Drivers and configuration

Install USB driver as described in manual of Prologix converter:

> *' 1. Download drivers for FT245R chip from FTDI website (www.ftdichip.com)*
> *2. Connect Prologix GPIB-USB controller to a computer using USB A-B cable*
> *3. Install drivers according to instructions in www.ftdichip.com/Documents/InstallGuides.htm*
> *4. Plug controller directly, or using a GPIB cable, to the GPIB connector on the instrument '*

The link to driver is available also on prologix website: http://prologix.biz/

To ensure error-free operation during long periods of acquisition configure port properties as follows:

1. enter: My Computer->Properties->Device manager->Ports (COM 7 LPT)
2. enter properties of the port that Prologix is using
3. set port parameters as shown on Illustration 1
4. enter advanced port settings
5. change “bm options” and “timeouts” to be consistent with Illustration 2

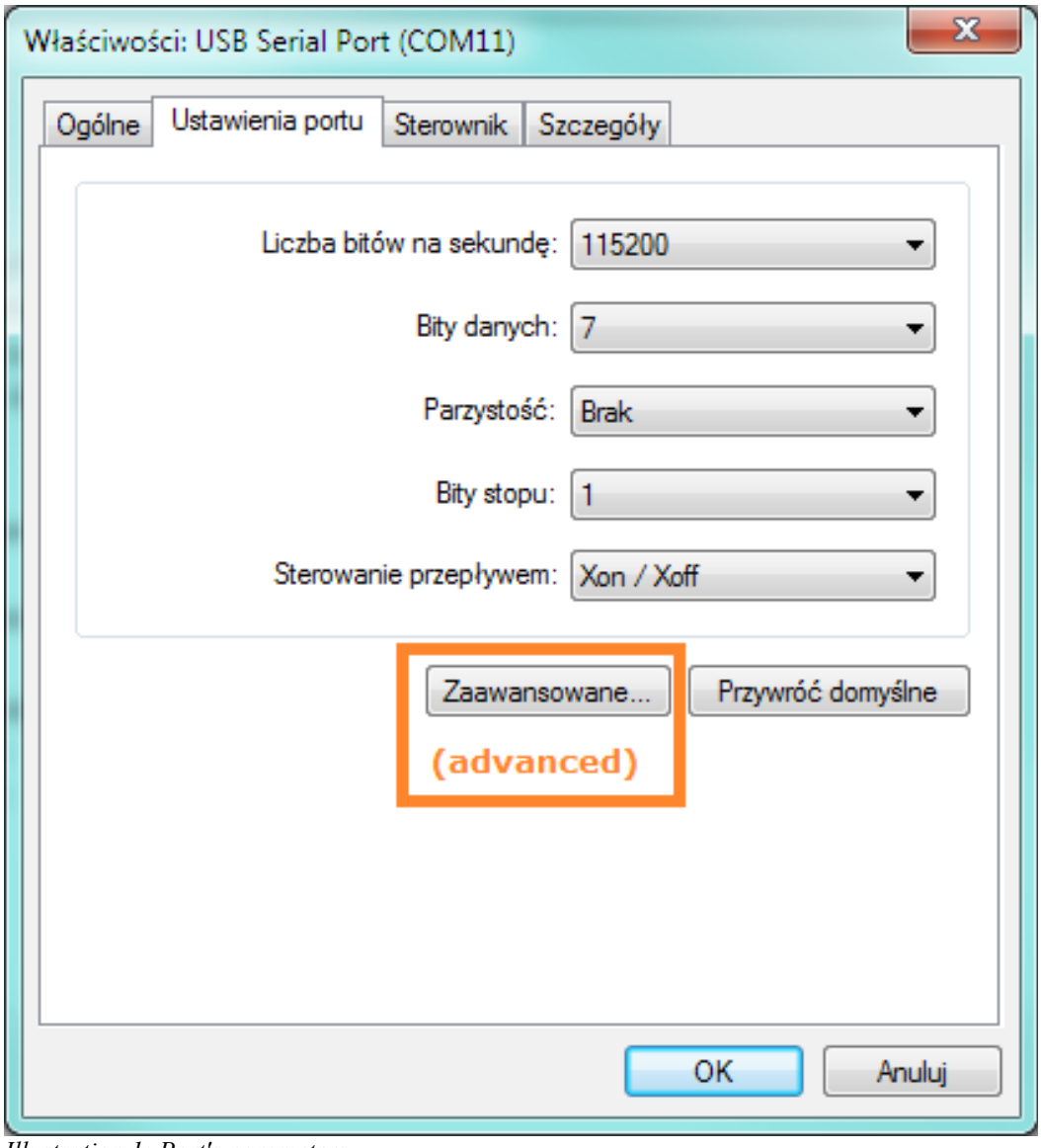


Illustration 1: Port's parameters

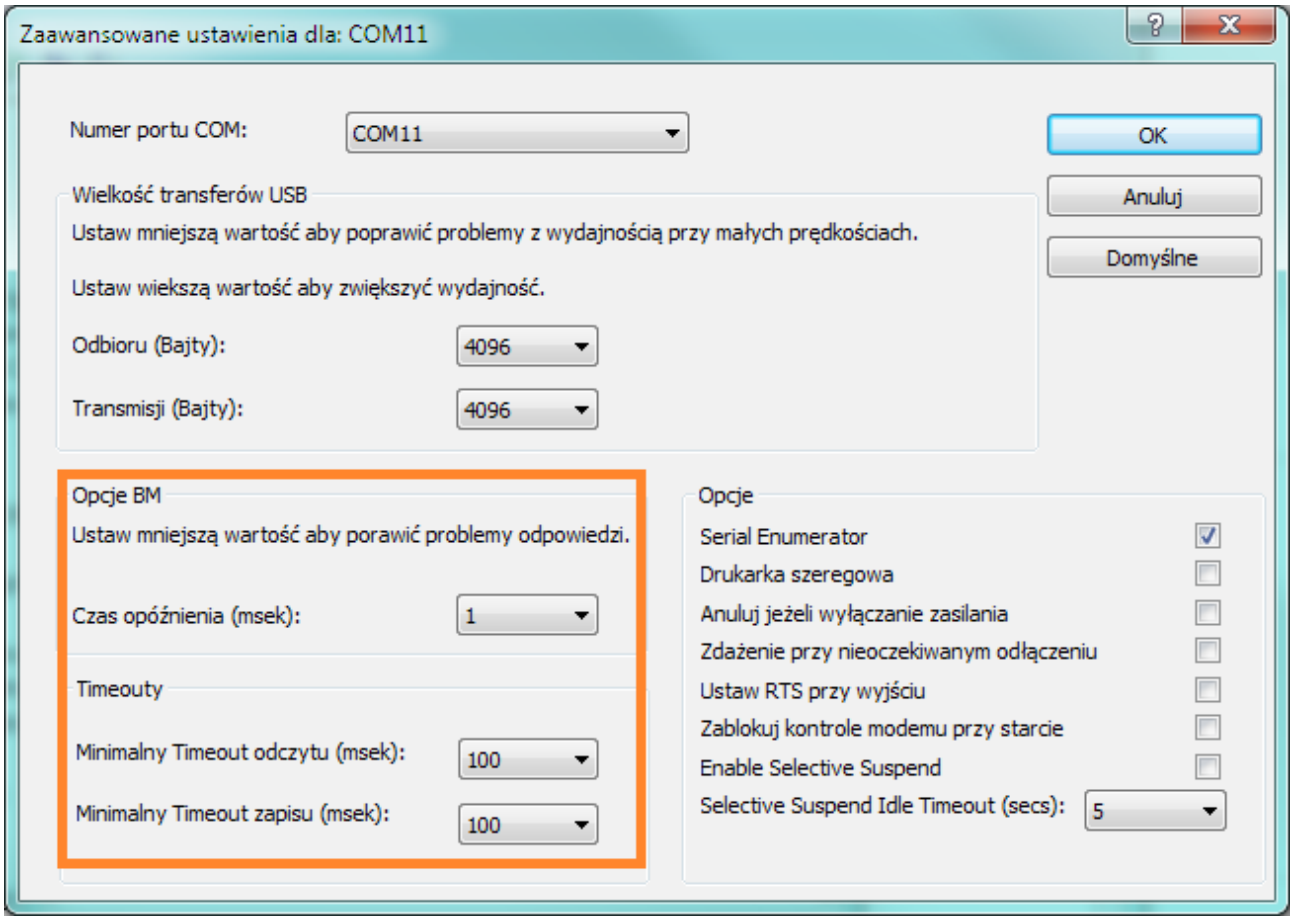


Illustration 2: BM options and timeouts

Now the system is ready to run RF Scientific GPIB logger application.

Click on downloaded file "rf_scientific_setup.exe" and follow installation messages.

Default destination folder is "C:\Program Files (x86)\RFScientific Data Logger".

Inside there are folders:

"configuration" - stores configurations of measurement systems

"logs"- stores acquired data as text files

"settings"- stores sets of commands used to configure the device to perform selected function and to trigger measurement.

4.2 Main window overview

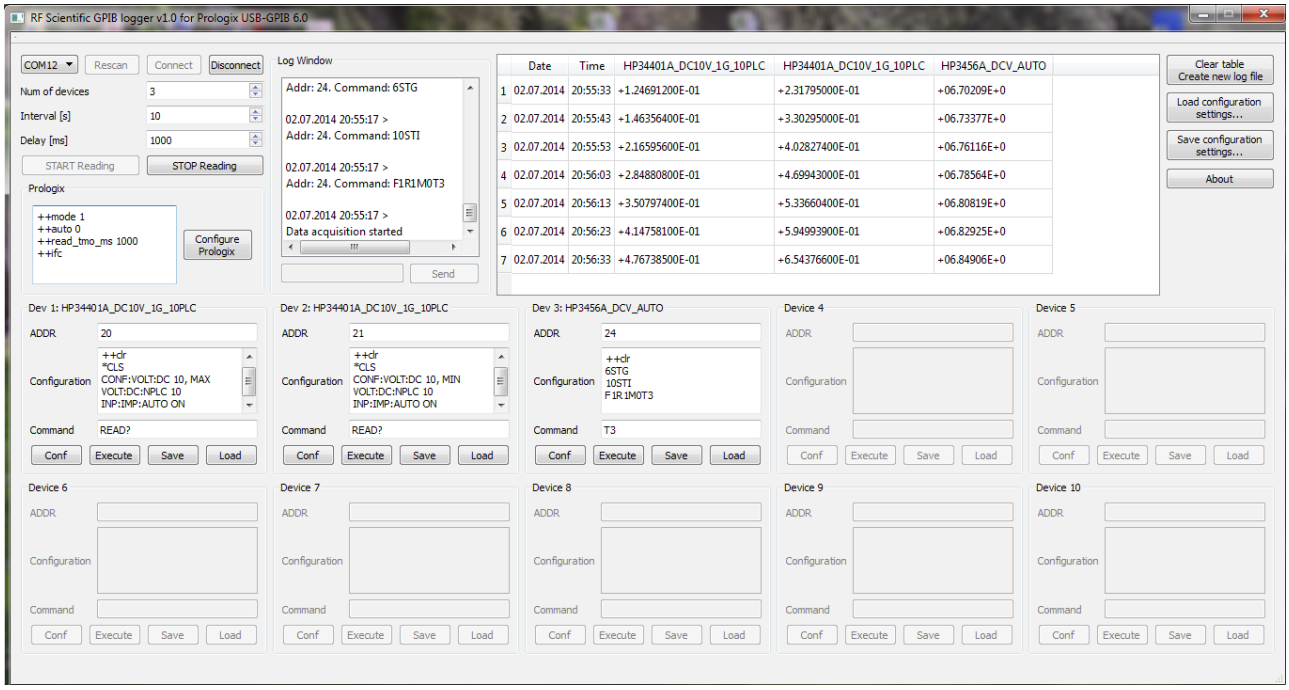


Illustration 3: Application at work (3 devices active; acquisition mode) / high resolution image/

4.3 How to connect with Prologix

After a startup, application will automatically find COM port(s) with Prologix converter(s). If startup search fails, user can use "Rescan" button to repeat scanning.

"Connect" and "Disconnect" buttons open and close selected serial port (respectively).

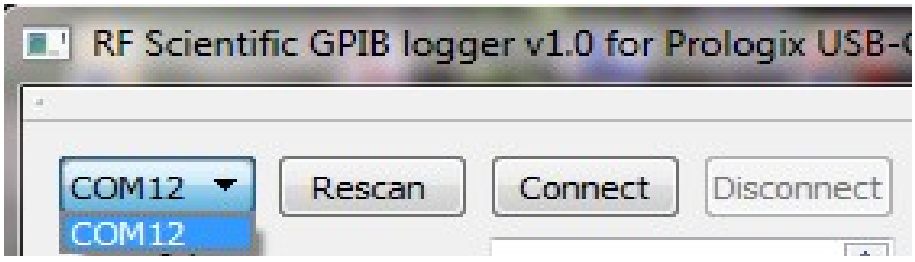


Illustration 4: Available ports list

4.4 How to setup acquisition parameters

- *Num of devices* - number of devices to communicate with (max. 10)
- *Interval* – interval in *seconds* between consecutive measurements
- *Delay* - time in *milliseconds* between sending polling command to a device and reading the data from Prologix internal buffer
- *Start reading* – starts data acquisition with established settings (num of devices, interval, delay)
- *Stop reading* – stops data acquisition

Illustration 5: Acquisition parameters setup

4.5 How to configure Prologix

There are two ways to provide prologix setup/commands:

1. entering commands separated with newline character (see example on Illustration 6: Prologix setup)
2. loading configuration file containing prologix commands

"Configure Prologix" buttons configures Prologix with current set of commands. Configuration is done automatically after pressing "START Reading" button.

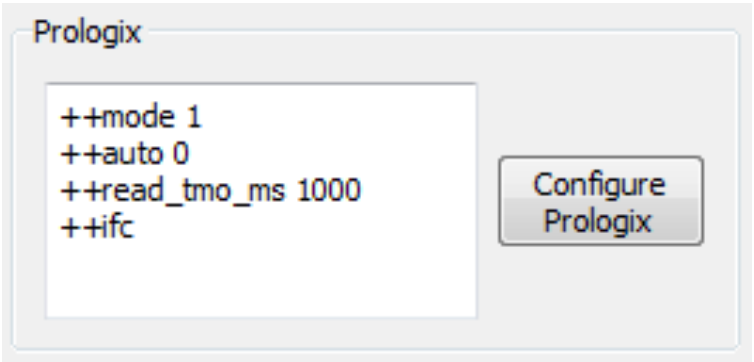


Illustration 6: Prologix setup

4.6 How to configure a device

In order to establish communication with a device following parameters shall be provided:

- address: the unique GPIB address of the connected instrument (0...30)
- configuration: a sequence of commands which sets proper function and range (preparation for measurement)
- command: a command which triggers the measurement and puts the result into the output buffer

„Conf" button configures device with current set of commands,

„Execute" - executes command provided in „Command" field („++read eoi" is sent after command provided).

4.7 How to send commands and read answers

Serial port communication interface. "Send" button sends command provided and displays answer (if applicable).

4.8 How to save / load system configuration

- Clear table/Create new log file – self explanatory button – clears table (removes all rows)
- Load configuration settings... - loads selected configuration file
- Save configuration settings... - saves current settings to a file
- About – useful information about the application

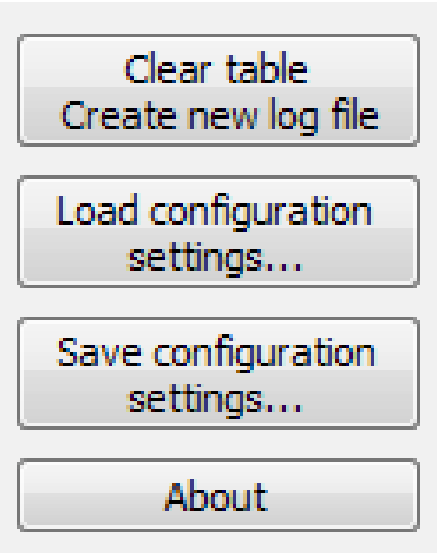


Illustration 7: Buttons

4.9 Configuration file format (example)

```
Prologix
++mode 1
++auto 0
++read_tmo_ms 1000
++ifc
Num of devices
1
Interval
10
Delay
2000
Device name
HP34401A_DC10V_1G_10PLC
Address
21
Configuration
++clr
*CLS
CONF:VOLT:DC 10, MAX
VOLT:DC:NPLC 10
INP:IMP:AUTO ON
Command
READ?
```

5. Results

The results are also stored in a text file named after date and hour of quitting acquisition eg. "Data_Logger_2014.10.05 11.41.03.txt".

The file has simple structure and can be viewed using Notepad.

It can also be imported to MS Excel or Open Office Calc to create charts from collected data.

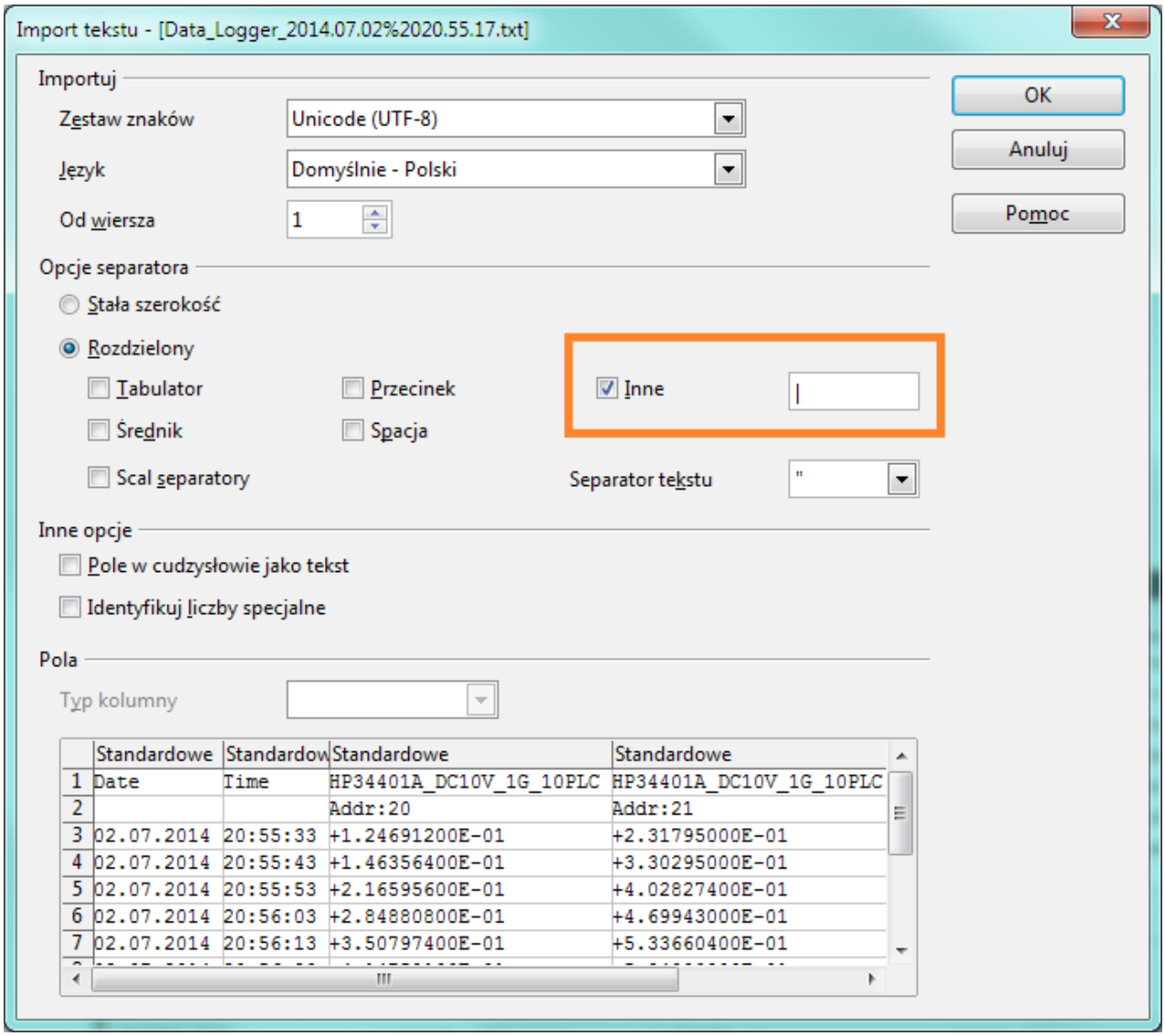
5.1 Table of results

	Date	Time	HP34401A_DC10V_1G_10PLC	HP34401A_DC10V_1G_10PLC	HP3456A_DCV_AUTO
1	02.07.2014	20:55:33	+1.24691200E-01	+2.31795000E-01	+06.70209E+0
2	02.07.2014	20:55:43	+1.46356400E-01	+3.30295000E-01	+06.73377E+0
3	02.07.2014	20:55:53	+2.16595600E-01	+4.02827400E-01	+06.76116E+0
4	02.07.2014	20:56:03	+2.84880800E-01	+4.69943000E-01	+06.78564E+0
5	02.07.2014	20:56:13	+3.50797400E-01	+5.33660400E-01	+06.80819E+0
6	02.07.2014	20:56:23	+4.14758100E-01	+5.94993900E-01	+06.82925E+0
7	02.07.2014	20:56:33	+4.76738500E-01	+6.54376600E-01	+06.84906E+0

Illustration 8: Table with data

5.2 How to import the log file (Open Office example)

It is important to set text separator to "|" when importing to spreadsheet program.
Sometimes it might be necessary to use option "find and change" to change dots into commas or to convert result format into numbers.



	Standardowe	Standardow	Standardowe	Standardowe
1	Date	Time	HP34401A_DC10V_1G_10PLC	HP34401A_DC10V_1G_10PLC
2			Addr:20	Addr:21
3	02.07.2014	20:55:33	+1.24691200E-01	+2.31795000E-01
4	02.07.2014	20:55:43	+1.46356400E-01	+3.30295000E-01
5	02.07.2014	20:55:53	+2.16595600E-01	+4.02827400E-01
6	02.07.2014	20:56:03	+2.84880800E-01	+4.69943000E-01
7	02.07.2014	20:56:13	+3.50797400E-01	+5.33660400E-01

Illustration 9: Open Office data import (use separator: |)

5.3 Imported file

	A	B	C	D	E
1	Date	Time	HP34401A_DC10V_1G_10PLC	HP34401A_DC10V_1G_10PLC	HP3456A_DCV_AUTO
2			Addr:20	Addr:21	Addr:24
3	02.07.2014	20:55:33	0,1246912	0,2317950	6,7020900
4	02.07.2014	20:55:43	0,1463564	0,3302950	6,7337700
5	02.07.2014	20:55:53	0,2165956	0,4028274	6,7611600
6	02.07.2014	20:56:03	0,2848808	0,4699430	6,7856400
7	02.07.2014	20:56:13	0,3507974	0,5336604	6,8081900
8	02.07.2014	20:56:23	0,4147581	0,5949939	6,8292500
9	02.07.2014	20:56:33	0,4767385	0,6543766	6,8490600
10	02.07.2014	20:56:43	0,5370128	0,7123040	6,8678400
11	02.07.2014	20:56:53	0,5953620	0,7688891	6,8857100
12	02.07.2014	20:57:03	0,6519161	0,8245586	6,9028100
13	02.07.2014	20:57:13	0,7063237	0,8791644	6,9192300
14	02.07.2014	20:57:23	0,7587125	0,9329825	6,9350300

Illustration 10: Imported data example (measurement results converted into numbers)

5.4 Displaying results

Use spreadsheet's "create chart" function to display the data.

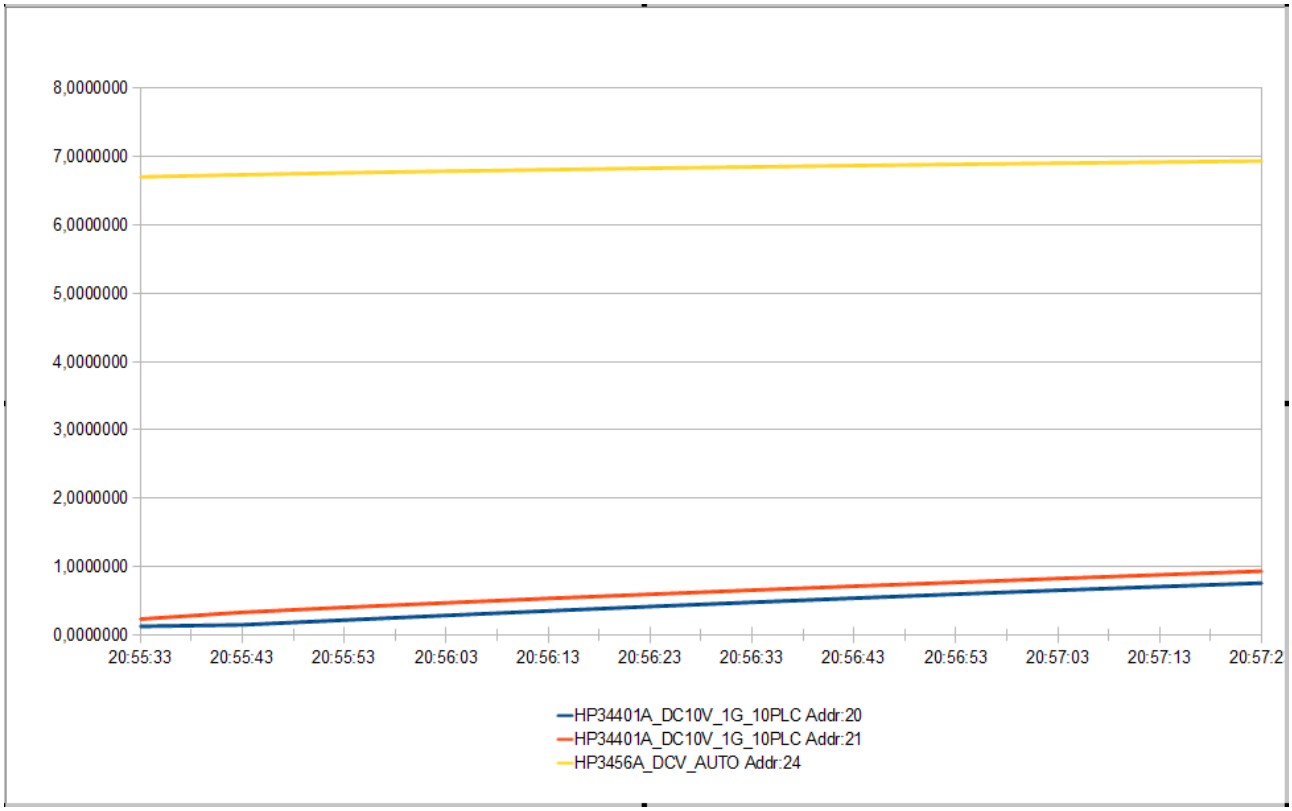


Illustration 11: Plotted data

6. Example for HP 34401A owners

-proceed all tasks described in chapter 4.1 Drivers and configuration

-now the software is installed and the PC is properly configured

-connect Prologix converter to the multimeter and to the PC via USB

-run the ***RF Scientific GPIB logger*** software

-click ***Connect*** button

-click ***Load configuration settings…***

-select file ***34401A_example_configuration_setup.txt***

-click ***START Reading***

From that moment, the logger will perform measurement every 10s.

The results will be displayed in the main window and also to the file typically located in **C:\Program Files (x86)\RFScientific Data Logger\logs**

7. Sharing setup files

The users are encouraged to share configuration files created for various devices. (info@rfscientific.eu).

Files can be found at: http://rfscientific.eu/rf-scientific-gpib-logger-v10

8. Disclaimer

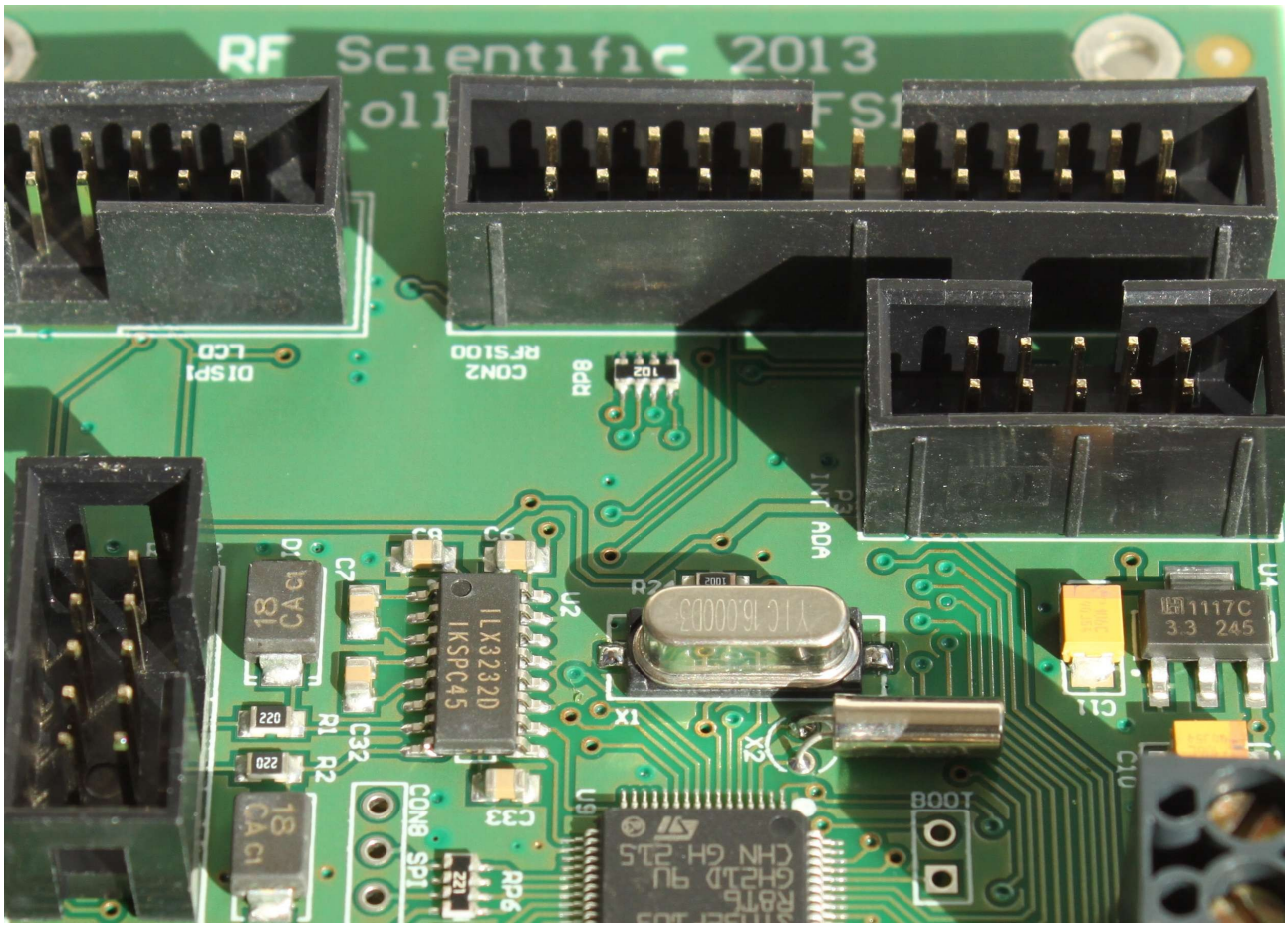
9. Donations

RF Scientific GPIB logger is a FREE software, but if you feel that you would like to support this project here you can find the details to do so:

PAYPAL:

user: bartlomiej-radzik@wp.pl
identifier: 4KR7KKZMVZCBA

Data for Bank transfer:
RF Scientific Bartlomiej Radzik
ul. Rydygiera 15A lok.83
01-793 Warsaw, Poland
IBAN NO: PL 82 1140 2004 0000 3802 7257 7225
BIC code: BREXPLPWMBK
Bank : BRE Bank S.A.



RF Scientific. Design engineering, prototyping, manufacturing of electronic devices.

RF Scientific Bartlomiej Radzik
ul. Rydygiera 15A lok.83
01-793 Warsaw
Poland
tel. (+48) 796-45-80-40
e-mail: info@rfscientific.eu
web site: www.rfscientific.eu