APAR

User Manual
ARsoft-LOG

Version 3.x

1. Description

ARsoft-LOG (formerly WZ3) is application designed for archiving and visualization of measurement data from APAR recorders.

The application has the following features:

- import of recorded measurement results from text files into database,
- import of measurement files over the LAN from recorders equipped with an Ethernet interface.
- automatic ID identification of the device,
- verification of the checksum for each measurement to detect modifications in the original files recorded by the recorder,
- reports generated for any measurement points and selected time periods,
- automatic import of files over a LAN with a specified interval,
- export reports to CSV files,
- print graphical reports.

2. Hardware Requirements

- Operating System: Windows 7/8/10
- Processor and RAM in accordance with the recommendation of the manufacturer of the operating system
- Recommended minimum screen resolution: 1024x768

3. Installation

In order to install the application run "*Setup_ARsoft-LOG_x.x.exe*" (where *x.x* is the version number) and follow the instructions on the screen. The installation wizard will let you to choose a destination folder (by default it is "*C:\Program Files\ARsoft\LOG*"), data folder (default " *C:\Users\user_name\Documents \ARsoft\LOG*") and to create a shortcut in the Start Menu and on the desktop.

The current installer version may be downloaded from the following website: www.apar.pl/download/oprogramowanie.html.
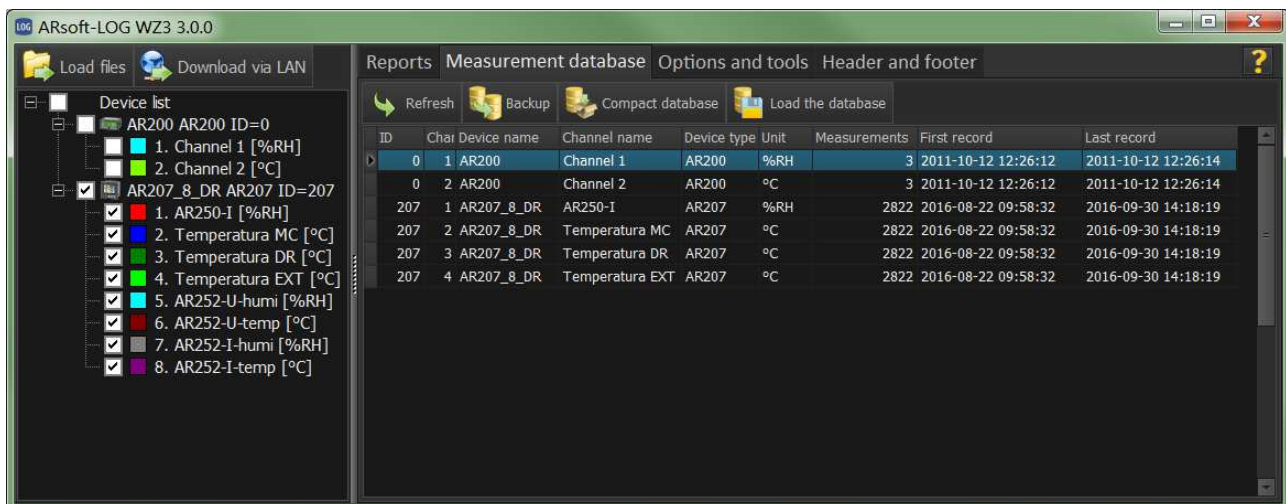
4. Devices and archive of records

4.1 Measurement database

Measurement data from APAR recorders are saved in CSV files, while ARsoft-LOG application archives the measurements in SQLite database. In order to add data to the database, you need to load the files from the devices into the program. Importing files to ARsoft-LOG may be performed by:

- downloading files directly from the device via USB,

- transferring files from the device to flash memory or SD card,

- downloading files directly from your device over a LAN (available only for recorders with Ethernet interfaces).

It is not possible to download files via the RS485 interface.

By default, the database is located in the user folder "*My Documents*", by default it is *C:\Users\user_name\Documents\ARsoft\LOG*. You can preview the database in tab *Measurement database* by pressing *Refresh* button. The application allows you to make a copy of the database anywhere and select a database (you can use multiple databases). You may also use features allowing you to organize the archive - delete loaded measurements or devices.

4.2 List of devices

Measurement data in the database is assigned to devices and their individual channels. New devices are added to the list automatically at the first file import from the device, and they are recognized by the ID number, and for that reason to uniquely distinguish the devices **before the recording,** make sure that each device has a unique ID. When attempting to load files from different recorders with different channel number but with the same ID, an import error message will be displayed. When adding a device, it may be assigned with an individual name and each measurement channel may be also assigned with a name, unit of measure and colour to be shown in the graph. Channel names for multichannel universal recorders may be downloaded from a text file stored in the internal memory of the recorder or via LAN.
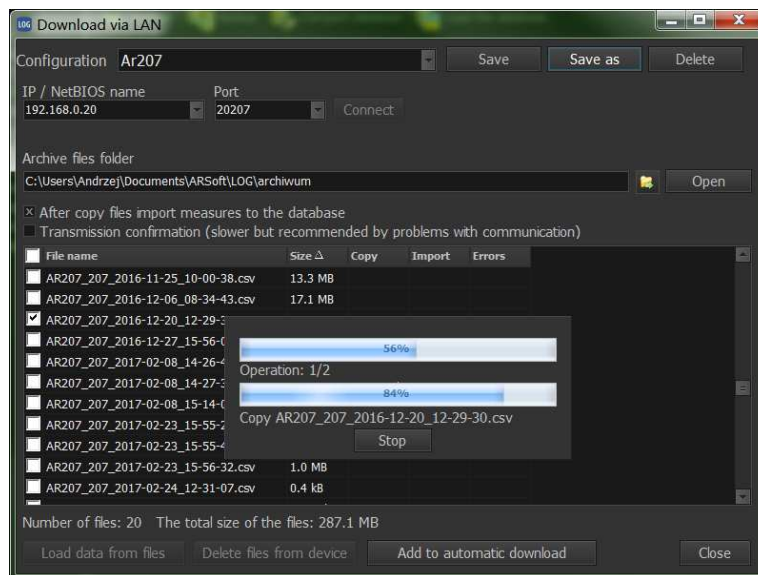
Added devices may be edited or deleted by selecting them in the list and displaying the menu by the right-click or by using the menu in tab *Options and Tools*.

4.3 Loading files from disk

After selecting *Load File* menu, the file selection window will be shown. Once the file selection is approved, the program validates its content and search for information on the ID of the device where the file was created. When a device with the recognised ID is found in the database, the data is automatically loaded and information about the number of imported records is displayed and about any potential error lines. The error also occurs when the file was created on a device with a different number of channels than the device saved in the database. If the data import from a device with ID detected in the file is performed for the first time, a window will appear asking the user to assign a name to the device, to all of its measurement channels, and the units of measure for each channel.

4.3 Downloading files via LAN

When you select *Download via LAN* menu, the following window will be shown. It allows you to copy files from the recorder to the local disk, automatically import data to the database when copying is completed, and adding a device to the list of cyclic data download.

In order to establish communication, enter the IP address (or Netbios name) and the UDP port, then press *Connect*. With more recorders you can save the connection configuration for each device and then select it from the list. You can also select the folder where the downloaded files will be locally archived.

When communication is established, a list of files from the recorder will be displayed. The listed files may be copied or deleted. Older recorders (AR200, AR205, AR206, AR406) copy or delete all files, there is no option of selecting individual files. The new recorders have the option of selecting files for deleting or copying.

4.4 Device Editing Tools ('Options and Tools' tab)

- *Edit device data* – displays edit window of the currently selected device or its channels in the device list; when several devices are selected, their windows are displayed in the corresponding order.

- *Delete selected devices* – deletes the currently selected device(s) The measurements from the database are also deleted.

- *Delete all* – deletes all devices and measurements from the database.
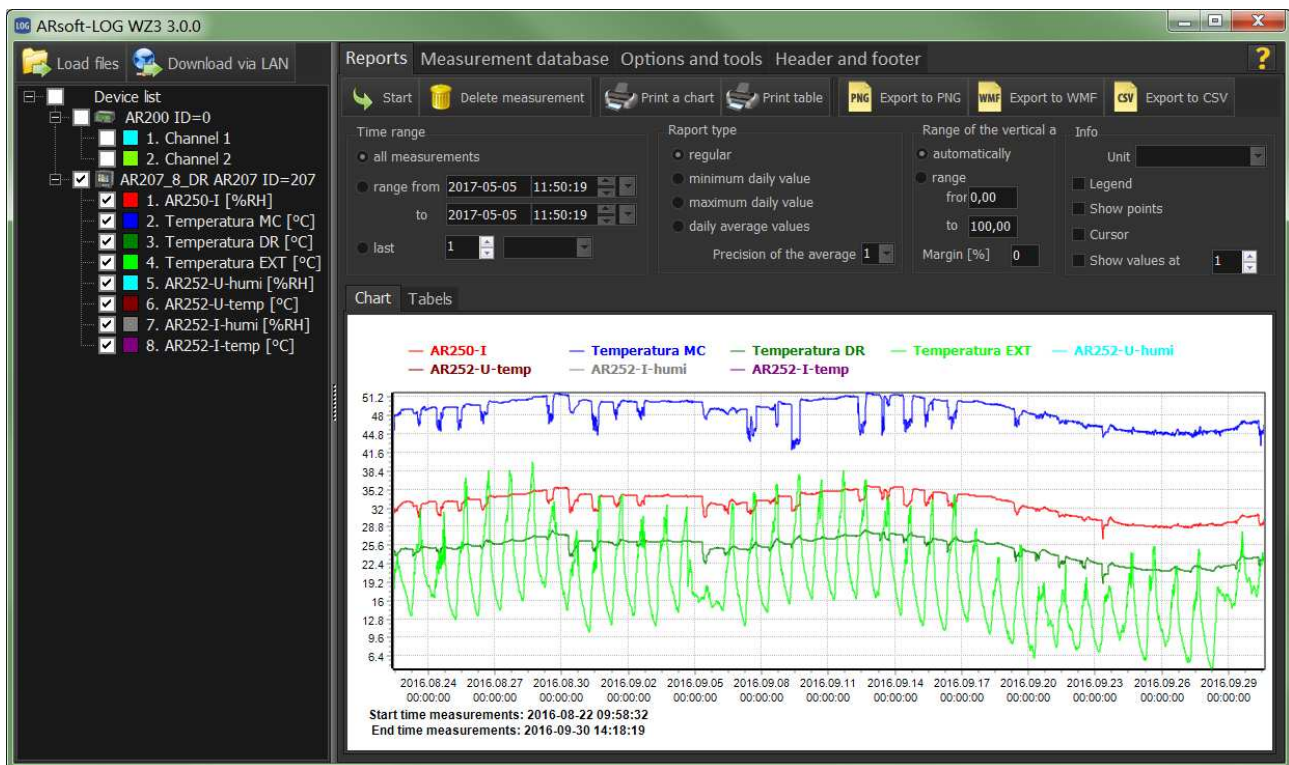
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5. Reports

Graphical and tabular presentation of archived measurements is available in *Reports* tab. Before preparing a report, select the measurement channels in the list of devices for the report and then in then in report options select the time period for which you want to prepare the report. There are three ways to select the time period:

- select a date range from-to,
- select a past time period from the current date,
- when no time limitation is selected, all measurements are displayed for the selected channels.

After clicking '*Generate Report*', a graph is displayed with tabs including tables with measurement results for individual points and optionally a summary table (the option available in *Options and Tools* tab)

Other features in the *Reports* tab:

- preparing a standard report or for a report containing minimum, maximum or average daily data,
- printing or exporting graphs to PNG and WMF graphic files (the current view is printed or exported),
- export tabular data to CSV files (separate file for each table).

Graph Options tab allows you to edit the graphical appearance of a graph based on a report. Editions of the graph also apply to its print-out, i.e. the graph is printed, taking into account zooming and selected options, as shown on the screen.

The range of values on horizontal axis may be set in three ways:

- *Range* - manually entered range 'from-to',
- *Scale to thresholds* – the range will be limited to threshold values from *Reports tab*
- *Automatic* – the graph will be scaled to the minimum and maximum values.

Additionally, the range may be extended upwards and downwards by a margin of %.

Within the range of the set values, it is possible to zoom and scroll the graph:

- Zoom - you may magnify the selected area by left-click and moving the mouse pointer from left to right,
- Scroll - right-click and move the mouse pointer to scroll the graph,

- double left-click restores the original size of the graph.

It is possible to display additional information on the graph:
- *Show points* – each single measurement is marked with a point,
- *Show values* – for each measurement a frame is displayed with measurement value,
- *Unit* – displaying a unit for vertical axis,
- *Cursor* – allows you to see the exact values of a point selected by the mouse,
- *Legend* – preview the zoom option of the graph,
- *Header and Footer* – you may organise the header and footer basing on the fully editable template available in *Header and Footer tab*.

6. Cyclic data download

The program allows cyclical data download over the LAN and launches reports for selected devices according to a fixed schedule. Adding devices to the schedule is possible in 'Download via LAN' window, after connecting to the device and downloading at least one file (it is necessary to add the device to the database). Button 'Show schedule' displays up a window with a schedule allowing you to: select devices for downloading, remove devices from the schedule, and select a download interval. The 'Start Download' button starts the procedure of cyclic download. During the cyclic download, all other program features are not available.

7. File verification

Files with measurements recorded using APAR equipment are secured with a checksum that enables detection of external modification or file corruption. ARsoft-LOG allows you to validate and detect the amount of changes in the original file. It is also possible to detect deleted measurements from a file. Upon verification, a report window showing the number of erroneous lines is displayed, and if the relevant import option is selected, a detailed *.log file is saved, including erroneous / modified records and error type.

The function is available at *Options and Tools* tab or it is started automatically when importing files.
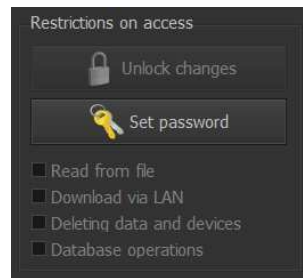
Checksum verification options (*Options and Tools tab):*
- *Verify file* – a tool for verifying the correctness of the checksum in a single file. After pressing and selecting a file, the verification report is generated. Data is not added to the database.
- *Verify file when loading* – when loading files, measurements checksums will be checked automatically each time,
- *Save log on verification* – after verification, 'crc_raport.log' file is saved in the program data folder, containing information about the date of the verification, lines with a wrong format, errors in the measurement order and incorrect (modified) checksum,
- *Show log after loading* – once created, 'crc_raport.log' file will be opened in the browser set as default for *.log files,
- *Do not import erroneous'*– when loading, measurements with incorrect checksum or wrong format will be ignored.

8. Access restrictions

Access Restriction tool provides password protection for functions using database, e.g. loading of measurement results, deleting measurements and points, copying database or downloading over a LAN. In order to use the restrictions you must first set a new password. After setting the password, button *Unlock changes* will be activated. After pressing it and entering the password, you can select the functions to be locked. When you restart the program, the selected functions will be inactive; to re-activate them use *Unlock changes.*

Uninstalling the program and reinstalling it removes the restrictions, so to ensure complete data protection, the program user should not have administrator rights.

9. Header and Footer

ARSoft-LOG allows you to add any headers and footers to your reports. You have the option of saving multiple templates and selecting them by edition in tab *Header and Footer*.