Manual
Software dVISION
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Content

Operation software dVISION

The program dVISION is the generalised operation software for all DACM based instruments. This technology ensures a unified data handling for various instrument types and configuration profiles. Changes made at the instrument by the customer will be present immediately in dVISION. All instrument- and customer specific configurations are packed into an extra software solution (d.CONFIG). By the way, instrument administration and routine operation are separated to avoid wrong settings and to keep the operation software as easy as possible.

System requirements

- Windows XP / VISTA / 7 / 8 (32/64 bit)
- Serial interface (RS232) or USB port
- Monitor with at least 1024 x 768 pixels
- Mouse

Instrument control panel

A communication path must be selected before any communication with the instrument can take place (see also chapter "Communication with the instrument"). The list-box at top of the panel contains all available ports. If a port is already occupied by another program (e.g. dCONFIG, dLIBRARY) it will not appear within the list. The port must be released at first by the other program. If more than one instrument is connected to several ports simultaneously, multiple opening of dVISION is possible. After the port has

been selected, the connection can be established by the button. If a modem or a Net-Monitors ZigBee adapter has been connected to the selected port, a dialog box appears to choose the dial number or the ZigBee end device. After a connection has been established successfully, the connection chain as well as the instrument identification appears in the

memo box below the button. The connection keeps valid until the

 button is clicked. Newer instruments support the "Card Reader" function which allows a faster data transfer from the instrument. The function assumes that the USB interface will be used and no sampling is carried out. The option needs to be selected from the menu of the instrument and the check box "Card Reader" must be set.

dVISIOn supports various languages which can be chosen by the list box at the bottom of the window. This item selects also the country specific formats for date/time and decimal separator. This should be considered if text files are exported which shall be processed later by Excel.

This button starts a predefined cycle. A dialog with a list box appears which contains the names of all available cycles (stored by configuration) of the connected instrument. After selecting one cycle from the list (click onto the desired cycle within the list), the measurement will be started.
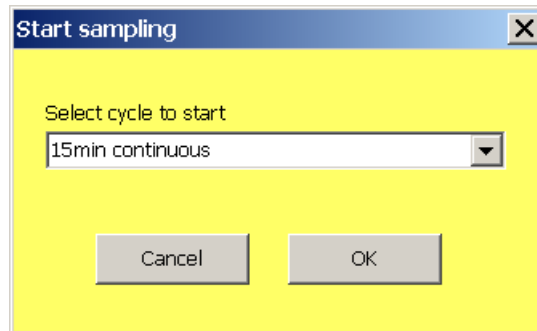
The running sampling cycle will be stopped by this button.

This button is used to read the recent measurement results from the instrument. At first, the software reads a list of all components which are available on the instrument. The upper list-box contains all available components (which can generate data) for the selection of the channel. The list-box below is used to select the kind of the transmitted result. Beside the recent sampling results ("Recent"), the results of the last saved data record are available. The entries Minimum and Maximum deliver the lowest and highest reading of a sensor over a sampling interval while "Average" returns the results calculated from the whole interval. If a component generates more than one result from the acquired interval data, the third list-box can be used to select one of the results.

If an available component has no data produced within the current cycle, the phrase 'no valid data' appears instead of the result. In addition to the results, the time stamp of the saved data record and, if available, the GPS coordinates are shown.

After selecting a channel (component → kind of reading → result index), the results can be read by pressing the UPDATE button. If the results shall be read periodically, the timer function can be used. A transfer interval must be selected from the list-box below the result display. After that, the "Auto" check-box needs to be checked. Finally, the function must be activated by clicking the UPDATE button.
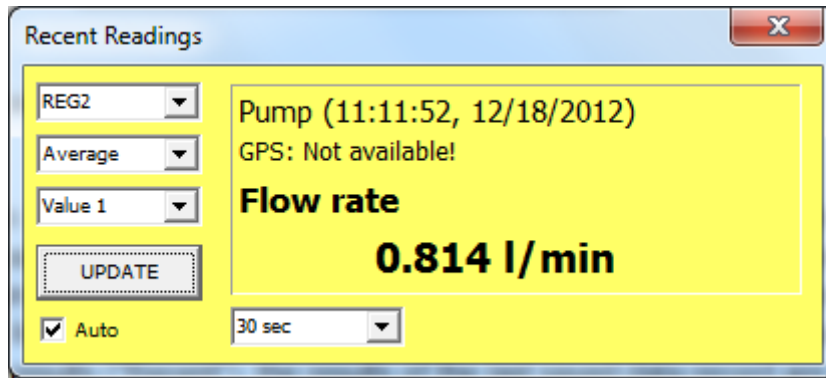
This button is used to transfer either the whole data or the data of a selectable period from the memory of the instrument to the PC. A dialog appears with date/time pickers to define begin and end of the desired period. After opening, the start time is pre-set to 1. 1. 2010 while the end time pickers contain the actual date/time of the computer. If you click to OK without modifying the pickers, all available data are read from the instrument. After completed transfer, the diagram view will be opened.

Use this button to set the real time clock of the instrument to the PC time.

A dialog with various settings will be opened. If "Automatic start" is checked, the instrument will start the measurement (if not just running) automatically at the predefined time. Note that the last selected cycle (selected by the instrument menu) will be used for
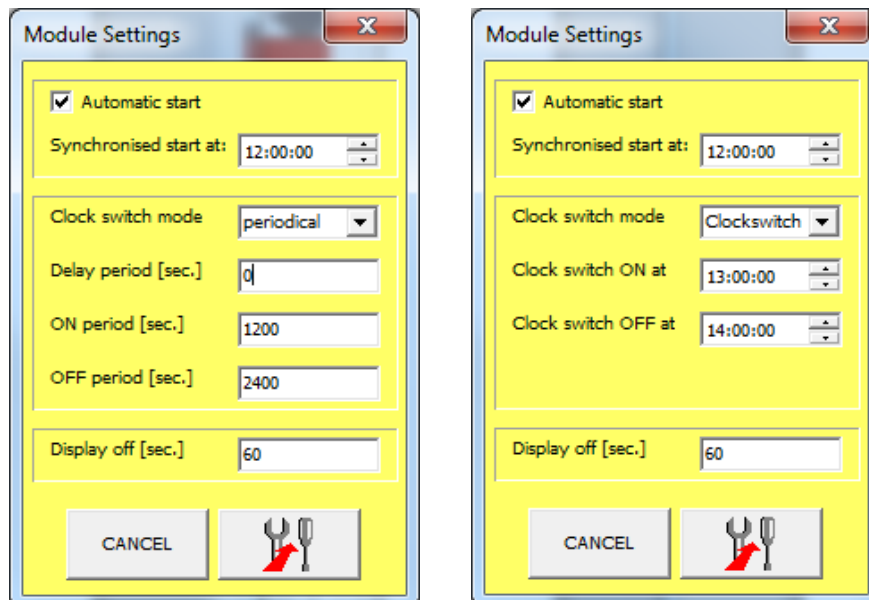
sampling.

The clock switch (switch output) can be used for the periodical supply of external sampling equipment or to limit the operation period of power-intensive communication devices. There are two different modes of operation implemented. The "clock switch" mode offers the

possibility to define two day-times where the switch daily either turns on or off. Using the "periodical" mode, two time intervals (on/off) can be defined which will be repeated as long as then sampling is in progress. The periodical timer will be started synchronously with the sampling cycle. A third period (delay) can be placed to shift the timer cycle for a desired time span related to the cycle start.

The 'Display off' period means the time from the last keystroke (touch screen) to the automatic display power down. Valid values are 1 to 255 Seconds.

This button clears the memory of the instrument.

RESET   This button is used to initialize the memory of the instrument. This function is required if the unit comes with a replaceable memory such as SD cards. After each card replacement, the newly inserted card must be initialized before using.

Button to open a data file created by a DACM based instrument. The diagram window will be opened automatically.

The button saves the data transferred from the instrument as binary file (extension '*.dvb') at the hard disk. A file name containing the instrument information and the measurement period is suggested by the file save dialog. This feature helps for later locating of the saved data but it is possible to use any other filename.

The diagram view
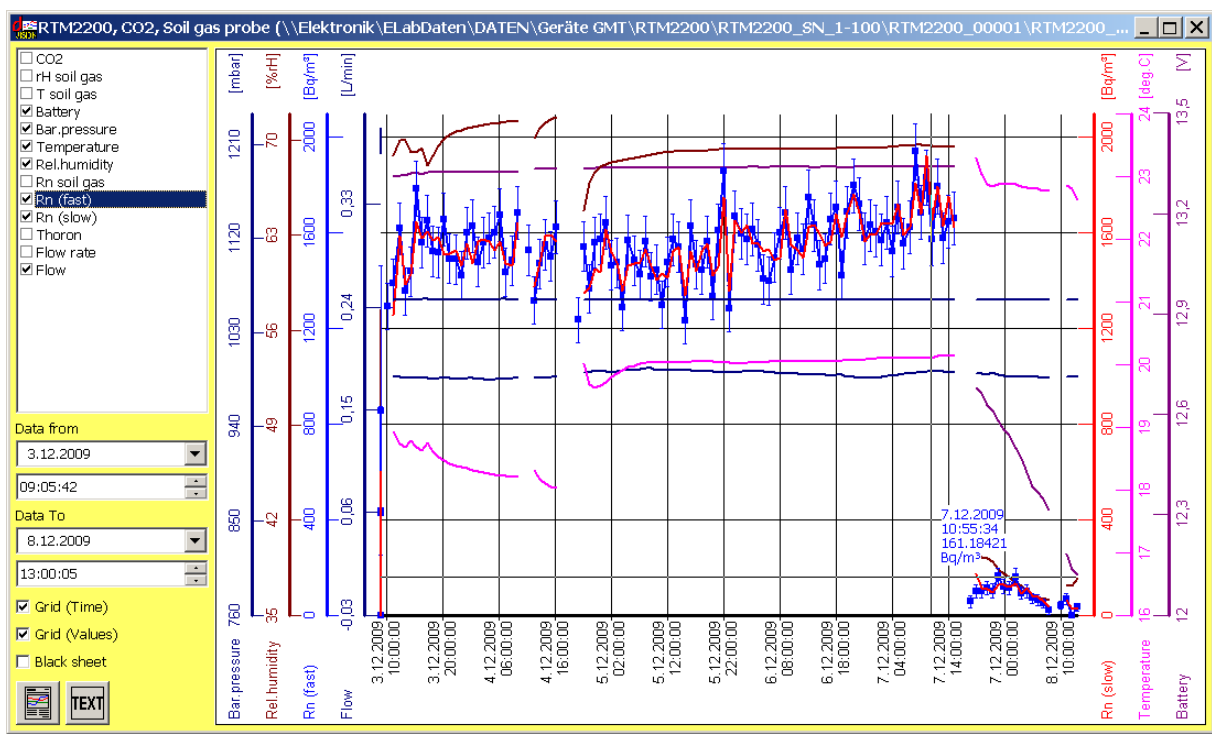
The diagram window contains all functions which are required for data visualisation and output. It is opened after reading data from an instrument or loading a data file. The track selection box in the left upper part of the window shows a list of all data tracks which have been acquired by the instrument. If the small box left beside the track name is checked, the time distribution is shown in the diagram, assumed that some data of the track is present within the selected measurement period.

A left button click onto a track name selects this track for the cursor output, the Y-axis grid and further operations. Double clicks above and below the graphic open a input line to enter a diagram title and a subtitle for later printouts.

Selecting a measurement period

After loading data from the disk or the instrument, the chart shows the period from the first measurement to the last measurement stored in the memory.The date and time pickers below the track selection box show these time stamps. By editing the time stamps, the displayed measurement period can be defined. A click onto the "Data from" or "Data to" label re-sets the time stamps to the left or right limit.

Alternatively, a click with the left mouse button followed by a right button click into the diagram area can be used to select the desired period.

The diagram uses a continuous time scale. If there are longer gaps between short measurement periods, the diagram will show these long gaps without data.

Change display options for a track

The viewing properties of each track can be defined by the track display option dialog. The dialog is opened by a double mouse click onto the track name within the track selection box.

The memo field in the upper part shows the track origin. The value scale limits can be set manually if the "Auto scale" check box is cleared. To do that, enter the desired limits into the "Min." and "Max." edit lines. You can place the value axis either left or right beside the graphic. The color and the width of the line are selectable by radio-buttons. It is possible to show marking rectangles, error bars or minimum/ maximum curves in addition to the average results.
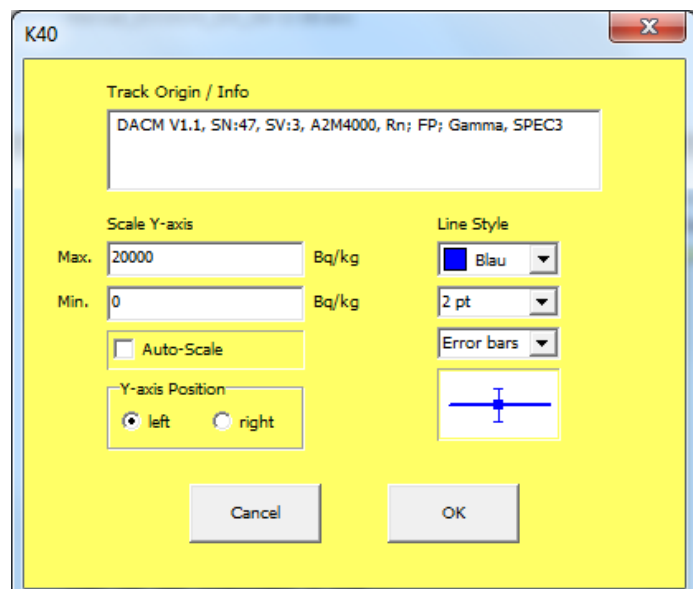
Displaying basic data of a selected time stamp

For several component types it makes sense to present the originally acquired data forming the base for all calculated results. A typical example is the spectroscopy module where the display of the spectrum delivers a lot of additional information. To get this information, click with the left mouse button into the graphic while the <CTRL> button of the keypad is pressed. The selected time stamp is the next one right beside the position of the cursor. An additional window is opened showing the complete results for the selected data point and, if available, the basic data of the source component. In case of spectra components used for Gamma detectors, a number of tools for calibration and analysis with respect to the shown spectrum are offered. These features are accessible by the ⚒ button within the spectrum view. The description of the functionality is part of the user manual of the instrument.
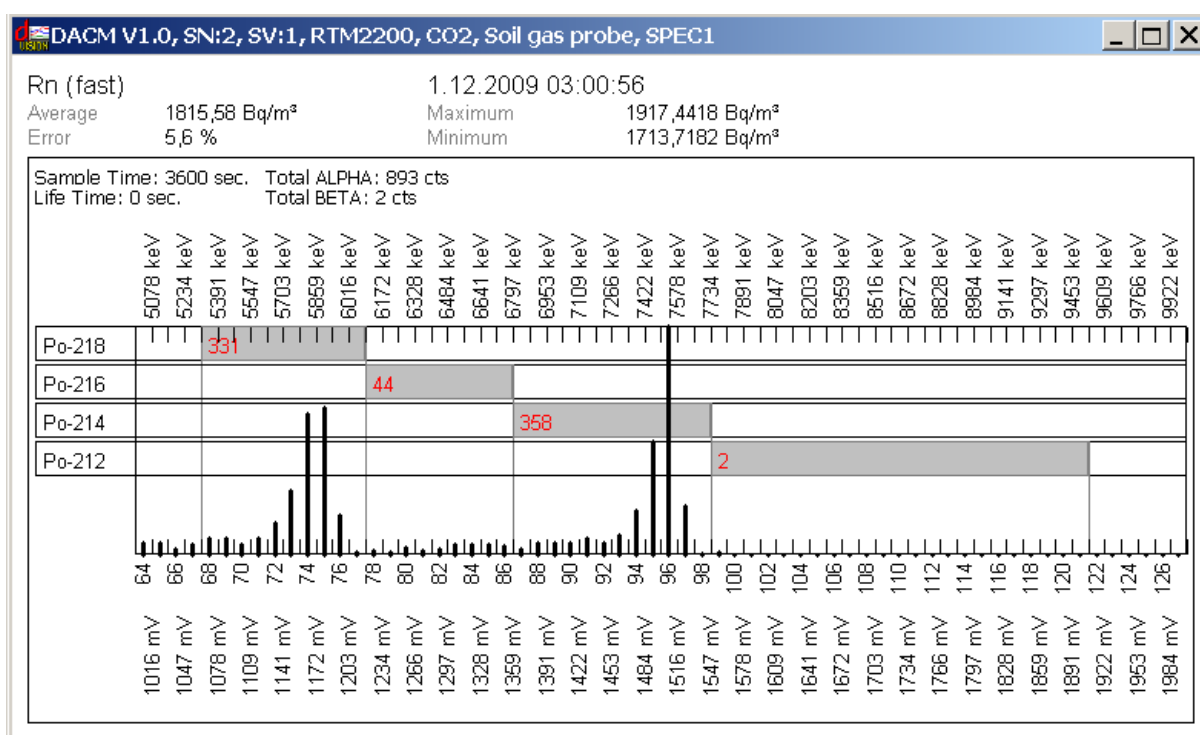

Graphical printout

The print function is always related to the actual diagram view. The selected time period, Y-axis scaling, track selection and applied line styles are used for printing.

Export data as text file

The text export function supports the output of EXCEL compatible ASCII files and GIS compatible KML files. After clicking the button, a dialog window appears to select the desired option.
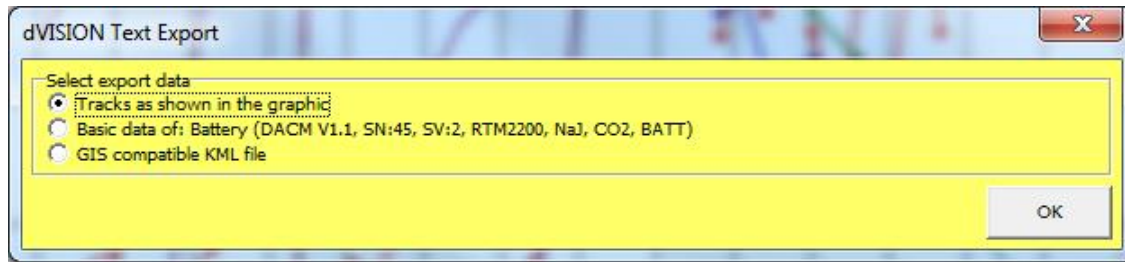
Selection 'Tracks as shown in the graphic'

Using this option, all data are exported as shown in the graphic. This concerns the time period as well as the selection of the tracks and track style options. If the options 'error bars' or 'Min/Max' have been selected, a number of additional columns for that information will be generated in the output file. Each row of the text file contains one data record. All items within a row are separated by tabulator-stops. This allows the user to open these files directly by Excel.

Selection 'Basic data of: ...'

Basic data (or background data) mean the binary basic results of the data sources as generated by the hardware. For some data sources, it is helpful to have access to these values. The file format depends on the type of data source (component type) and contains all information which is required to calculate the final result from the basic data.

This feature is only implemented for more complex data sources like the spectroscopy module.

Selection 'GIS compatible KML file'

If this option has been chosen, a KML file will be generated. This format is supported by nearly all available GIS software solutions. Files of this type can be opened directly by Google Earth. It is supposed that the instrument was able to record the GPS coordinates. Data points without valid coordinates will be skipped from the file. Each sampling point is shown as a position mark within the map. The user can define which result is used for the label beside the position mark. The corresponding track must be selected in the list-box before exporting the data. The results of all other tracks which are visible in the diagram can be displayed by a click onto the position mark.
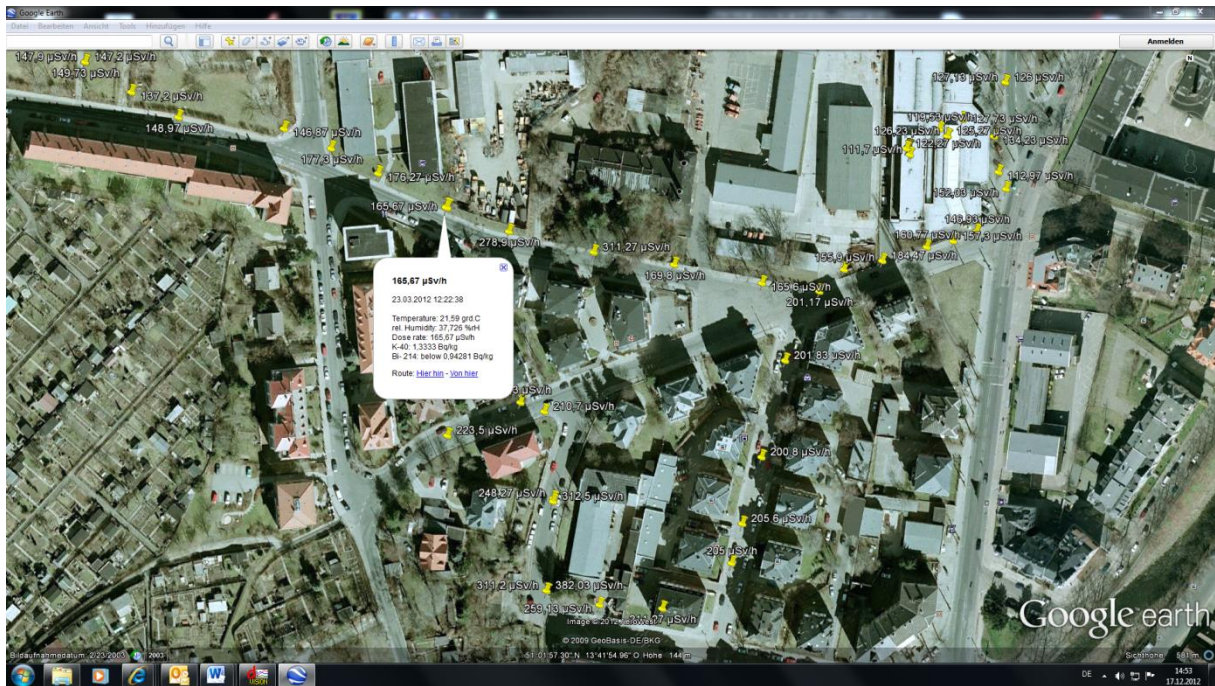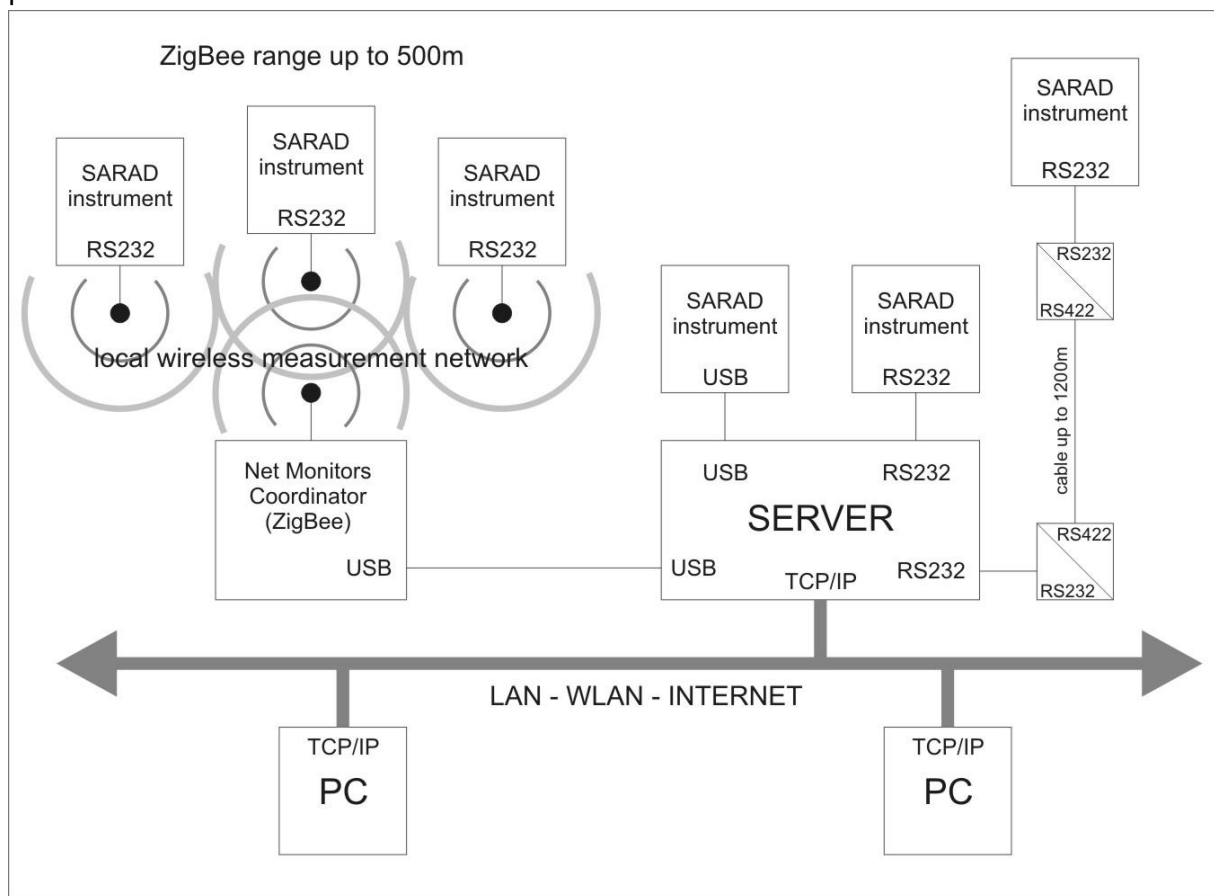
Communication with the instrument

In parallel with the direct connection by cable through RS232 or USB interface, the software offers various communication paths for remote control over far distances. These are:

- Connection via modem (analogous/ISDN/GSM/GPRS)
- Connection via the ZigBee based local wireless network "NetMonitors"
- Connection via internet protocol (TCP/IP) using available network infrastructure

Various combinations like TCP/IP with a local Net-Monitors instrumentation network are possible.

The operational software for DACM based instruments contains a complete solution for TCP/IP based communication with the most of SARAD instruments. The Implementation is very easy and does not require special skills in the IT field. If the available network structure of an organisation shall be used, the assistance of the responsible network administrator may be required.

A detailed description of the communication via internet gives the application note "Internet based monitoring networks for SARAD instruments". You will find the application note at the installation CD or at the SARAD website.