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1 Measurement Reports 2

1.1 Overview and Description

The Measurement Reports 2 is used within LIB 500 Applications for various types of time related reports, such as hourly, daily, weekly, monthly and yearly reports. The Measurement Reports 2 can be used for instance for:

- Reporting of energy (active, reactive)
- Reporting of current (e.g. bay level)
- Reporting of voltage (e.g. bay level)
- Reporting of frequency
- Reporting of temperature
- Reporting of district heating

Generally, the reports are time-related follow-ups of process, metered, entered or calculated data. All types of data can be illustrated as reports. All data for the reports are calculated and stored in real time. Report data is collected and calculated either cyclically or triggered by events. The most common method is to collect raw data from the process, and thereafter to refine it and store it in the report database.

The collection and calculation of report data can be initiated in the following ways:

- at predefined time intervals
- when a predefined event occurs
- as a result of a calculation
- based on a condition
- on the operator's request

1.2 Features/Options

The Measurement Reports 2 is based on a divided system structure and it consists of Report MMI, Report Base and Report Tool. Each component is independent from the others and provides a set of functions for installing, configuring, defining, and monitoring the user specific reports. The divided structure and independent components allow a dynamic and a wide variety of the use of reports.

The Measurement Reports 2 supports the following time related reports:

- Hourly report (time resolution: 3 minutes)
- Daily report (time resolution: 15 minutes)
- Daily report (time resolution: 30 minutes)
- Daily report (time resolution: 60 minutes)
- Weekly report (time resolution: 1 day)
- Monthly report (time resolution: 1 day)
- Yearly report (time resolution: 1 month)
- Quick report on daily bases (time resolution: according to a period cycle)

Each report picture is composed of a report base picture function and a number of report columns. The report base picture function includes all the common functionality (e.g. report header, type and unit) which are usable within the report pictures. The report columns constitute different types of data, e.g. points of time, measured, metered, manually entered or calculated values. All data values within the report can be presented either in a tabular (numerical) or in a graphical form as full-graphic curves. In maximum, a report picture can contain 11 columns per report page, including the time column.

Report Base includes a set of functions (e.g. database, data collection, calculation and storing methods) which provide an interface between the real time process and the report pictures. Within these functions the real time data from the process is collected, calculated and stored into the report database and then displayed in the report pictures with unequivocal means.

Report Tool includes a set of functions, which provide a report specific tools for installing and configuring the Report Base (e.g. the configuration of report object, calculation and database settings) and the Report MMI (the configuration of the report picture columns) when defining the user specific reports.

General features and options of the LIB 510 Measurement Reports 2 are:

- Improved architecture; Report MMI, Report Base and Report Tool
- Report presentations in a tabular (numerical) and in a graphical form
- Several report pages can be displayed within one report picture
- Special days supported through the Calendar Tool
- Configurable report objects
- Dynamic report object handling
- All types of process objects can be illustrated as reports
- Dynamic calculation operations enabled

- User specific definitions enabled
- Base period interval configurable: 15, 30 or 60 minutes
- History length for sampled and period values configurable
- Forecast period area on daily basis enabled
- Begin of day and begin of week configurable
- Application specific definitions enabled

2 General Description of Reports

2.1 Overview and Description

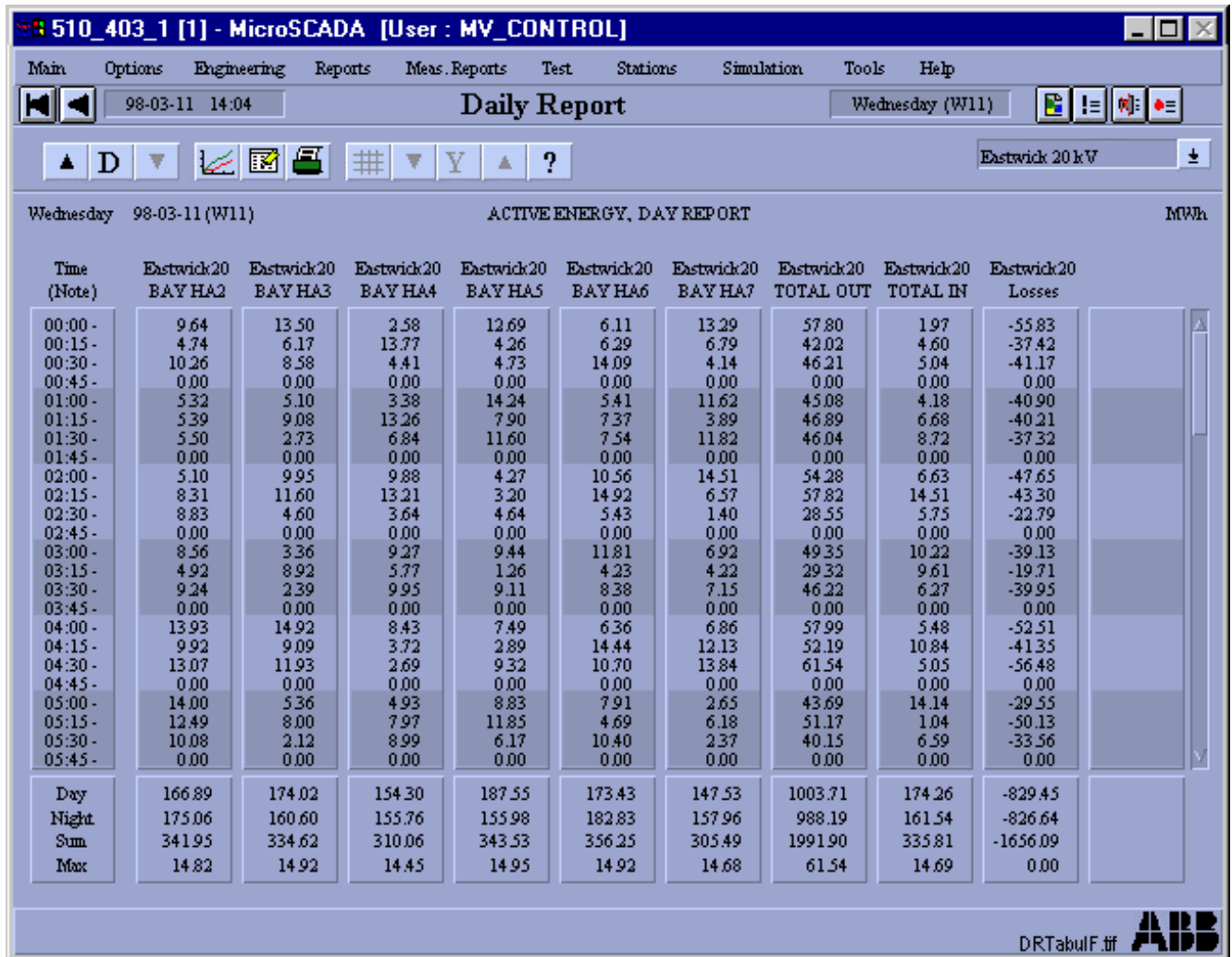


Figure 1. Example of Daily Report picture

Report MMI provides an user-friendly interface for data analysis and for showing values in a tabular (numerical) and in a graphical form. It can be used for example for monitoring measured, metered, entered or calculated values, showing the history of values, predicted future values, entering/correcting values etc.

2.2 Features and Options

- Report header *
- Report type *
- Report unit *

- Report scale *
- Time column
- Report columns *
- Summary columns *
- Tabular presentation
- Graphical presentation
- Selecting a specific time from the history and future (if forecast period area enabled)
- Scrolling backward and forward in history and in future (if forecast period area enabled)
- Editing of period values *
- Tagging of manually entered values *
- Tracing of edited values via log file *
- Marking of values with status "unreliable", "manually entered" or "Error", in case of an erroneous status
- Note dialog
- Scaleable axis (in a graphical form)
- Scrolling in X and Y direction (in a graphical form)
- On/off switching of each curve (in a graphical form)
- On/off switching of grid (in a graphical form)
- Load-duration curves (in a graphical form)
- Report data saving to a file (ASCII and .CSV format)
- Printout option
- Multiple report pages *
- Report specific menu *
- Authorization support *
- Help files
- Quick reporting with preconfigurations (only within the Quick report)

The ones marked with * are options within the report picture configurable attributes by the user. (Please see LIB 510 4.0.3 Configuration Manual (1MRS751280-MEN), Measurement Reports 2 Configuration Manual, chapter 3.2 for details.)

3 Functional Description of Reports

All the reports can be presented in a tabular or in a graphical form as full-graphic curves. These two forms share the same report base, i.e. report data, and presentation mode, but otherwise these forms can be used independently. This chapter describes the functionality of the tabular and the graphical form picture.

All the functionality is described as it is in the daily reports, but the same functionality also applies to other standard reports. All exceptions are notified separately.

3.1 Tabular Form

3.1.1 General

In the tabular form of the report picture, up to ten measurements can be presented at the same time, each measurement shown in an individually configured report column. Measurements can be based on the measurements of the process (consisting of one or several process data objects), metered, manually entered or calculated values.

The tabular form contains:

- time column
- report columns
- summary columns

The default accuracy of report columns is two decimals, but it can also be individually configured column by column. A set of summary information, e.g. day energy, night energy, sum and maximum are presented for each report column. (**NOTE!** A set of summary information is dependent on the time relation of the report).

If a data registration has an uncertain or an obsolete status, the corresponding line is represented with the character "?". Manually entered values are indicated by the character "m". Erroneous status is indicated by an "Error" message. In case of a not sampled or an erroneous status the value is not shown.

If several report pages are enabled to be shown within the report picture, the current report page can be selected in the combo box in the upper right part of the picture.

Editing and entering values manually is possible only in the daily report within a period cycle. Editing or entering values will not change the time of registration. The color of the value depends on the time stamp of the value. Historical data is shown in black, current and predicted future data in white (if shown).

All the reports are also printable e.g. to the file in the ASCII or in the .CSV format (Excel compatible) or to the net printer. The tabular form also includes a multitude of tools which will be described later on in this chapter.

3.1.2

Tools Menu

The tabular form picture has a set of tools, which can be selected either in the tool bar or in the Tools menu. In the following, the functionality of these tools is shortly described.



Figure 2. The Daily report tabular form Toolbar

Time (Note)	Eastwick20 BAY HA2	Eastwick20 BAY HA3	Eastwick20 BAY HA4	Eastwick20 BAY HA5	Eastwick20 BAY HA6	Eastwick20 BAY HA7	TOTAL
00:00 -	10.43	10.44	11.58	12.49	7.83	3.96	56.2
00:15 -	7.36	14.82	6.79	3.55	5.58	1.22	39.3
00:30 -	4.78	11.61	9.55	5.43	7.89	8.99	48.2
00:45 -	0.00	0.00	0.00	0.00	0.00	0.00	0.0
01:00 -	13.63	14.18	12.69	1.28	4.93	9.43	56.1
01:15 -	4.58	5.35	1.79	11.49	5.22	14.37	42.8
01:30 -	5.59	5.08	13.19	5.03	12.43	8.37	49.7
01:45 -	0.00	0.00	0.00	0.00	0.00	0.00	0.0
02:00 -	3.49	8.38	7.36	9.54	2.91	2.82	34.2
02:15 -	10.25	14.10	13.84	2.21	13.63	11.78	65.8
02:30 -	11.58	14.95	10.78	1.33	1.36	7.68	47.7
02:45 -	0.00	0.00	0.00	0.00	0.00	0.00	0.0
03:00 -	13.00	2.77	9.84	1.97	5.95	10.33	43.8
03:15 -	4.05	12.39	4.20	3.69	6.45	14.18	44.9
03:30 -	3.01	13.16	1.71	14.23	1.81	7.23	41.1
03:45 -	0.00	0.00	0.00	0.00	0.00	0.00	0.0
04:00 -	7.70	2.93	3.01	6.36	10.04	7.86	37.8
04:15 -	12.63	9.82	14.97	14.29	7.11	10.06	68.8
04:30 -	11.49	1.54	4.78	6.00	7.32	11.83	42.97
04:45 -	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05:00 -	5.08	13.58	13.95	8.72	11.21	9.62	62.16
05:15 -	5.61	10.73	11.08	5.62	4.30	4.18	41.52
05:30 -	13.18	4.51	4.15	10.30	6.45	11.23	49.81
05:45 -	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Day	213.38	218.03	210.71	225.14	221.37	215.32	1303.94
Night	155.31	191.71	179.69	155.36	149.15	178.51	1009.73
Sum	368.69	409.73	390.40	380.50	370.52	393.83	2313.68
Max	14.31	14.95	14.97	14.83	14.88	14.92	68.88

Figure 3. The Daily report Tools menu for tabular form

Option	Explanation
Select Day...	Opens the Select Day dialog from which the desired day in the report can be selected.
Previous Day	Goes to the previous day in the report. If the previous day is out of the history area, the Previous Day option will be dimmed.
Next Day	Goes to the next day in the report. If the next day is out of the history area, the Next Day option will be dimmed.
Numeric/Trend	Switches the report picture to show the measurements in a graphical form. The tabular form can be returned by the corresponding button in the graphical form picture, so it is possible to toggle between the two forms.
Print to file (ASCII)...	With this option the current report day can be saved to an ASCII file, where the columns are tabulated in the same way as in the report picture.
Print to file (.CSV)...	With this option the current report day can be saved to an ASCII file. The default format of the file is .CSV, where the columns are separated by a semicolon (;). This file type can be read by a spreadsheet program, e.g. Microsoft Excel.
Print to printer...	With this tool the user can print the current report day to a net printer, which is configured as a VS Printer in MicroSCADA. This option will be dimmed, if the X monitor is used.
Show Leap Hour...	Opens the Show Leap Hour dialog in that specific day when the daylight saving time has been activated. Within the Show Leap Hour dialog the extra hour values can be seen and edited, if necessary.
Help...	Opens the Help dialog.

3.2 Graphical Form

3.2.1 General

In the graphical form of the report picture up to ten measurements can be presented as full-graphic curves on a two-dimensional coordinate system that consists of a horizontal time (X) axis and a vertical value (Y) axis. The curves can be scrolled in both X- and Y-directions and the parameters of the Y-axis can be changed. All curves can be temporarily hidden from the screen. The graphical form picture includes a multitude of tools which will be described later on in this chapter.

If a data registration has an invalid or an erroneous status, the curves are drawn in magenta. In case of a not sampled or an erroneous status the curve is given a Y-coordinate corresponding to zero value. This is done to be able to draw continuous curves when some values cannot be read. Manually entered values are indicated in cyan colour.

If several report pages are enabled to be shown within the report picture, the current report page can be selected in the combo box in the upper right part of the picture.

3.2.2 Graphical Form Coordinates

The horizontal (X) axis of the graphical form coordinates represents the time of the measurement, and the vertical (Y) axis represents the value of the measurement. The X-axis is divided into intervals of hours. The time of every third interval point is labelled below the X-axis.

The Y-axis is divided into 20 intervals. The quarter point values of the Y-axis are marked on the left side of the Y-axis. It must be noted that the graphical form does not recognise any units or scales, only the values registered in the report database. To avoid confusion, trends with different units should not be shown at the same time.

When trends are brought to the graphical form, the axes are given the following parameters by default:

- the X-axis times are set to correspond with the current day of the report.
- the Y-axis maximum is set as the biggest registered value of the selected measurements added with approximately 5% of the Y-axis length.
- the Y-axis minimum is set as the smallest registered value of the selected trends.

3.2.3 Tools Menu

The graphical form picture has a set of tools, which can be selected either from the toolbar or from the Tools menu. In the following, the functionality of these tools is shortly described.



Figure 4. The Daily report graphical form Toolbar

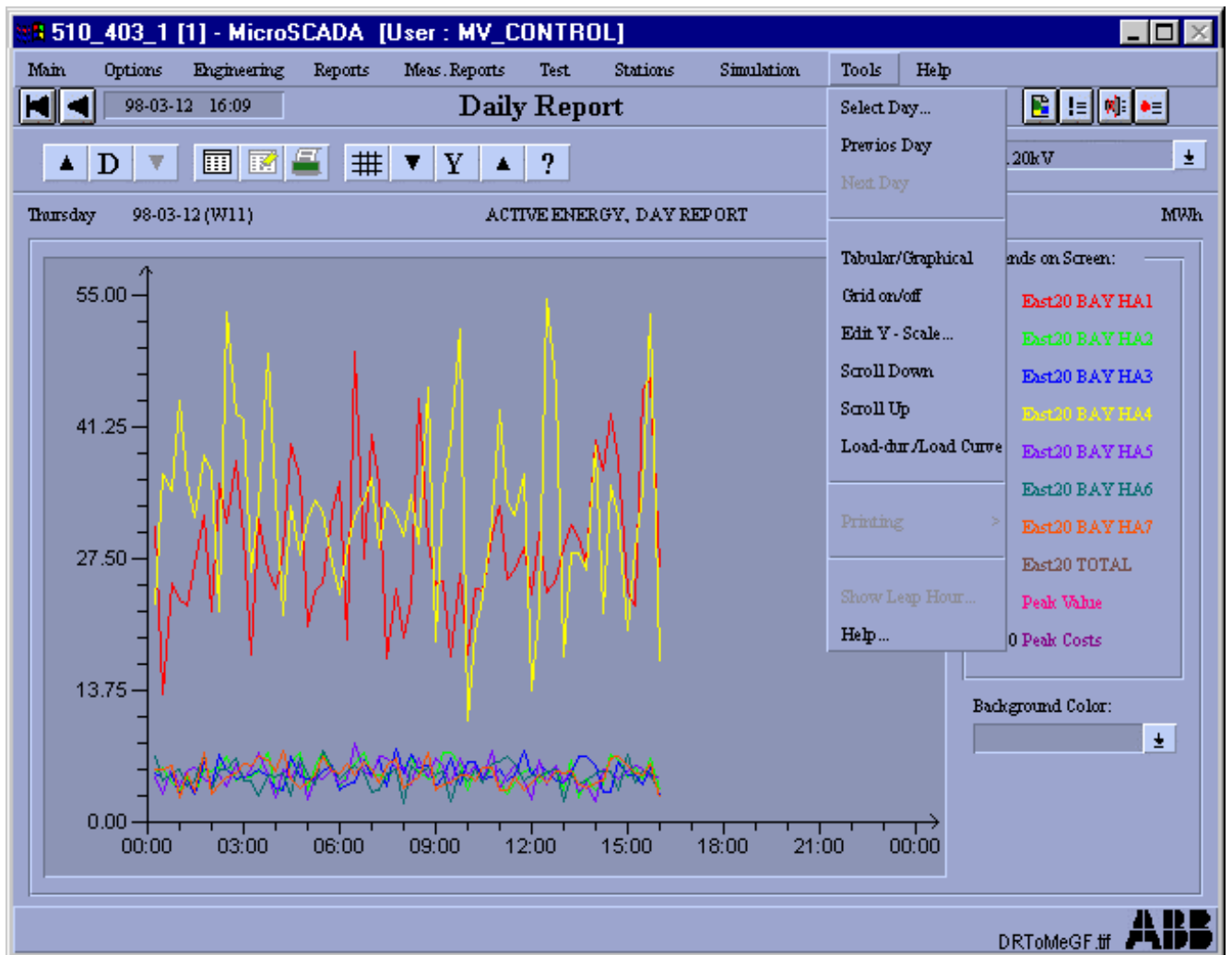


Figure 5. The Daily report Tools menu for graphical form


Option	Explanation
Select Day...	Opens the Select Day dialog from which the desired day in the report can be selected.
Previous Day	Goes to the previous day in the report. If the previous day is out of the history area, the Previous Day option will be dimmed.
Next Day	Goes to the next day in the report. If the next day is out of the history area, the Next Day option will be dimmed.
Tabular/Graphical	Switches the report picture to show the measurements in a graphical form. The tabular form can be returned by the corresponding button in the graphical form picture, so the two forms can be toggled.
Grid on/off	Shows or hides the grid. The curve values outside the grid area are cut regardless of whether the grid is shown or not.
Edit Y - Scale	Opens a dialog where the parameters of the Y-axis can be set.
Scroll Down	The curves can be scrolled vertically by the arrow buttons or by the corresponding Tools menu items. Scroll Down scrolls the curves one step (interval) down.
Scroll Up	The curves can be scrolled vertically by the arrow buttons or by the corresponding Tools menu items. Scroll Up scrolls the curves one step (interval) up.
Load-dur./ Load Curve	Switches the measurement curves to the load duration curves. The load curves can be returned by the corresponding button, so the two forms can be toggled.
Print to file (ASCII)...	With this option the current report day can be saved to an ASCII file, where the columns are tabulated in the same way as in the report picture.
Print to file (.CSV)...	With this option the current report day can be saved to an ASCII file. The default format of the file is .CSV, where the columns are separated by a semicolon (;). This file type can be read by a spreadsheet program, e.g. Microsoft Excel.
Print to printer...	With this tool the user can print the current report day to a net printer, which is configured as a VS Printer in MicroSCADA. This option will be dimmed, if the X monitor is used.
Show Leap Hour...	Opens the Show Leap Hour dialog in that specific day when the daylight saving time has been activated. Within the Show Leap Hour dialog the extra hour values can be seen and edited, if necessary.
Help...	Opens the Help dialog.

3.3 Functionality Detailed with Dialogs and Options


3.3.1 Scrolling Backward and Forward in the History

The measurement reports provide the means for browsing backward and forward in time - one hour, day, month or year at a time. Browsing interval is related to time relation of the report type. In addition, a distinct hour, day, month or year can be selected directly.


Scrolling Backward in Time

In order to browse backward one day at a time in the daily report, select the Previous Day button  from the Toolbar. The button is dimmed when it is not applicable. The Previous Day option is also available in the Tools menu. The maximum time for browsing backward in time is dependent on the length of history (See LIB 510 Configuration Manual (1MRS751280-MEN), Measurement Reports 2 Configuration Manual, ch. 3.2.3 for details). When the length of history is exceeded, the option for browsing backward is not available.

Scrolling Forward in Time

In order to browse forward one day at a time in the daily report, click the Next Day button  from the Daily report tabular form Toolbar. The button is dimmed when it is not applicable. The Next Day option is also available in the Tools menu. The maximum time for browsing forward in time is dependent on the time of the forecast period area. (See LIB 510 Configuration Manual (1MRS751280-MEN), Measurement Reports 2 Configuration Manual, chapters 3.2.3 and 4.2.2 for details) When the time of forecast period area is exceeded, the option for browsing forward is not available.

Selecting a Distinct Day

In order to select a distinct day, open the Select Day dialog by clicking the Select Day button  on the Toolbar or by selecting the Select Day option from the Tools menu. As the dialog is opened, the current day is shown as default. To select a distinct day in the history, give a desired day to the input field and press <Enter>. Confirm the selection by pressing the OK button. If the Cancel button is pressed, the day before the selection is preserved. When the given time is out of the history area or the given time is not properly given, an error dialog is presented and the day before the selection is preserved.

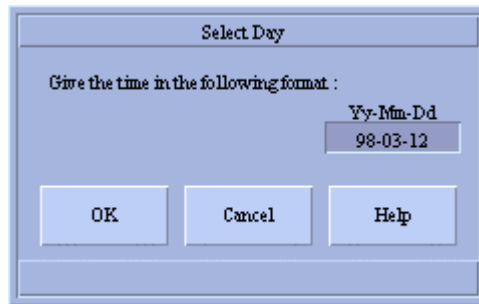


Figure 6. The Select Day dialog

3.3.2

Note Dialog

Note marks can be freely added and placed into the report pictures. When a specified period is clicked in the time column, a dialog is opened for displaying and writing a note for that specific period. The note dialog can be opened for every period in the report picture and all the notes are report picture specific. The opening of the note dialog requires at least Control (1) level user authorization.

The note can be written into the field by clicking it. Confirm changes by pressing the OK button. By pressing Cancel all changes are withdrawn. Selected note mark can be removed by pressing the Remove Note button. If another period is clicked while the note dialog is open, it is taken as "Cancel" and dialog is opened for that time period.

If a certain time period contains any note marks, an exclamation mark (!) is shown beside the time period in yellow.

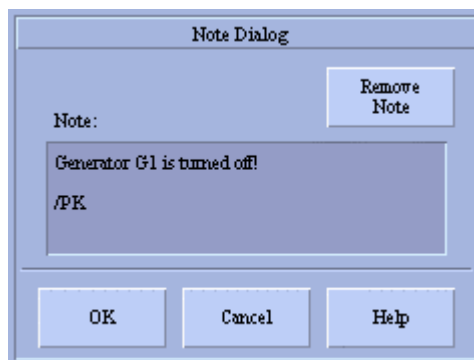


Figure 7. Example of the Note dialog

3.3.3 Editing of Period Values

Data included in the daily reports can be corrected or edited with the Edit Value dialog (see Figure 11), if the correction/editing mode is enabled. The corrected or edited values are stored into the report database, and other values (e.g. calculated) which are dependent on it are automatically recalculated using the new value.

Data included in the daily reports can be corrected or edited as follows:

- In order to edit one value at a time, select a post by clicking it in the report column. If editing is enabled in the current column, the colour of the values will be changed into brown and the Edit Value dialog will be opened (if not already open). Select the scrolling mode on, if you want to edit several values.
- In order to edit several values at a time, select an area to be edited. If editing is enabled in the current column, the color of the values will be changed into brown and the Edit Value dialog will be opened (if not already open).
- In order to copy one or several values, select a post or an area to be copied. Confirm the copy area by selecting More - Copy values.
- Enter a new value by first pressing the input field and then giving a new value by using the keyboard. Accept the new value by pressing <Enter>. Complete editing by pressing the OK button. If the Cancel button is selected instead of the OK button, the old value is preserved.
- If paste (More - Paste values) is used instead of a new value, copied values are copied to the selected area. The length of the selected area must be equal to the length of the copy area. Complete editing by pressing the OK button, by pressing Cancel all changes are withdrawn.

NOTE!

When the scrolling mode is on, the following value in the report is automatically selected for editing. This value can be edited or editing can be completed by first pressing <Esc> and then the Cancel button.

The editing of period values requires at least Control (1) level user authorization.

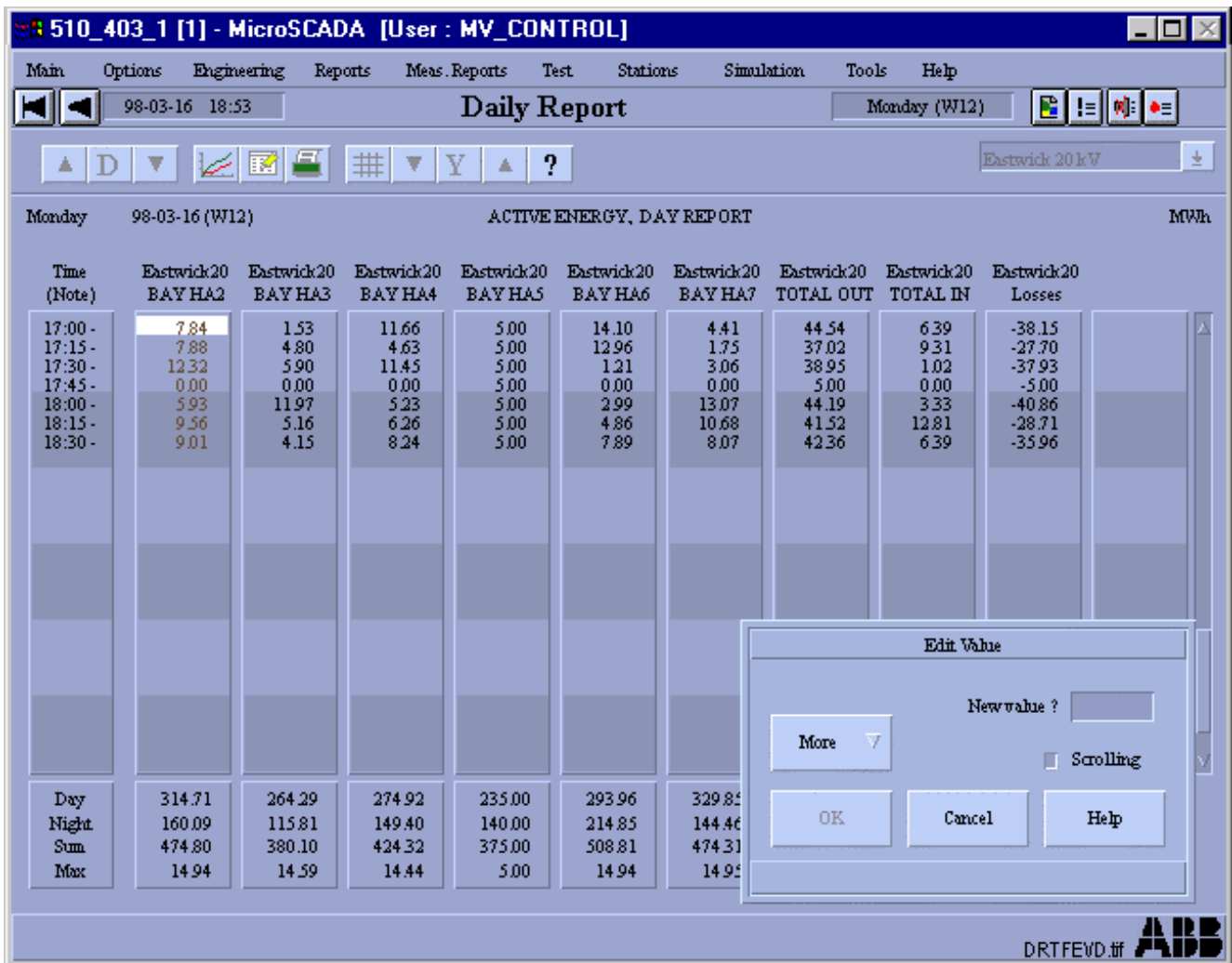


Figure 8. The editing of period values in the Daily report

If the tracing of edited values is enabled in the selected column, all the edit information will be written into a log file at the same time when corrected or edited values are stored into the report database. In order to view the log file, select More - Show log file. (**NOTE!** This option is not available if the X-monitor is used).

The following edit information will be written into a log file:

- Date and time
- Report object name (LN)
- Report object comment (CM)
- Edited time period
- Old value and status
- New value
- User name

The log file can consist of up to 1000 edited events. When the number of the edited events is exceeded, the report alarm object will be activated, the exceeded log file will be renamed (default path: /apl/<apl.name>/reports/fmu_edit.old), and a new log file will be generated.

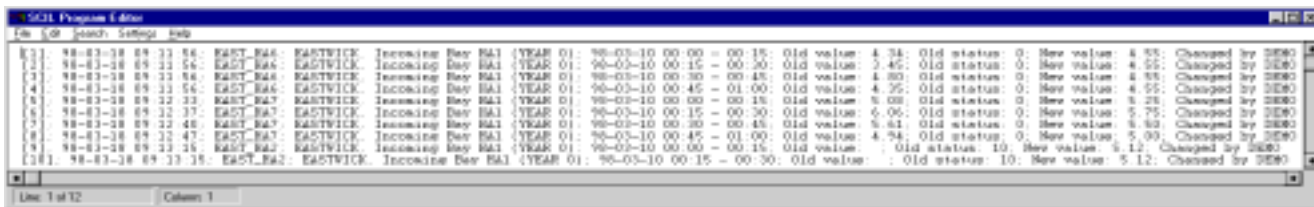


Figure 9. Example of the log file.

3.3.4 Save to a File

By using the Save Report Page To File dialog the current report page can be saved to an ASCII file, where the columns are tabulated in the same way as in the report picture or to a .CSV file, where the columns are separated by a semicolon (;) by default (configurable). The file type of .CSV can be read by a spreadsheet program, e.g. Microsoft Excel.

The default format of the file is ASCII (.CSV format can be selected from the Tools menu). The existing file names are shown on the list and the directory (which is configurable) is shown under the list. The name of the file to be saved must be entered into the field above the list before the file can be saved. The maximum length of the name is ten (10) characters. Selecting any name from the list with the mouse sets the selected name to the name field where it can be edited or the existing file can be overwritten.

Under the directory name there is a pair of radio buttons for selecting the Save option. If the Over button is set, the current report page is saved to a specified file and all existing data is overwritten. If the Append button is set, the current report page is appended to a specified file.

The OK button saves the report page to a file, the Cancel button only closes this dialog.

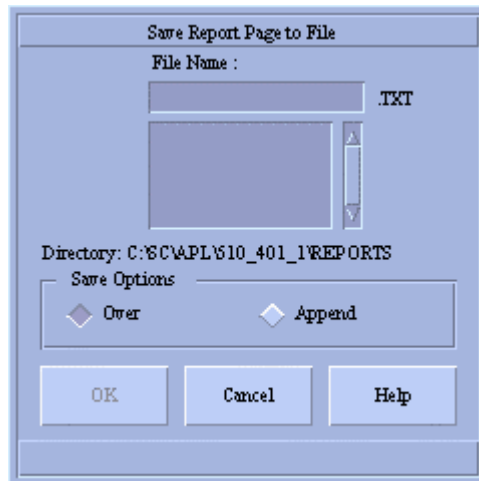


Figure 10. The Save Report Page to File dialog

3.3.5

Summer Time - Normal Time

If Daylight saving from the Application Settings is set in use, the system time will be automatically changed from normal time to summer time and vice versa. The change of time is taken into account in the LIB 510 Measurement Reports as follows:

- In the autumn, the report values of the extra hour are automatically moved to the highest index or indexes (dependent on the base period) of the data object. The extra hour is taken into account when e.g. the day sums are calculated.
- In the Daily reports the daylight saving note will be shown in the information bar in that specific day when the daylight saving time has been activated. The extra hour values can also be seen and corrected in that specific day by selecting the Show Leap Hour option in the Tools menu.

In the spring, the values of the hour in question will be unlogged.

NOTE!

When using the reports, it is recommended to define the point of time change few minutes past an even hour (i.e. execution delay time for period values is exceeded) in order to enable calculation update for period values before the time settings. It is also recommended that the time settings will take place before the next period cycle routines have been executed.

3.4

Settings in Graphical Form

3.5

Edit Y-Axis Parameters

The Edit Y-axis Parameters dialog is opened by clicking the **Y** button on the Daily report graphical form toolbar. With the Edit Y-axis Parameters dialog the user can edit the Y-axis parameters of the report when the graphical form is presented. These parameters include the Y-axis minimum and maximum.

The Y-axis minimum and maximum can be set either by entering new values into the fields or by setting the values stepwise with the arrow buttons beside each field. These buttons increase or decrease the value by 10 %. If the entered value is invalid, the old value is returned into the field.

By pressing the OK button the changes are applied to the graphical picture, by pressing the Cancel button all changes are withdrawn.

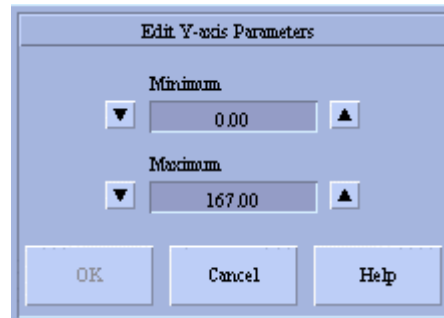


Figure 11. The Edit Y-axis Parameters dialog

3.5.1

Background Colours

The background colour of the graphical drawing area (which is configurable) can be selected from the combo box in the lower right part of the picture. When black is selected for the background colour, the axis and the grid are drawn in white.



Figure 12. The trend background color

4 Functional Description of Quick Report

4.1 Overview

In addition to standard time related reports, the Measurement Reports 2 also includes the Quick report on daily bases. The Quick report is basically a report browser which is able to show all the report objects defined within the report application in the same report picture. The objects to be shown at a time can be selected through a report basket or from the report page list (the combo box in the upper right part of the picture) where all the preconfigurations are shown, provided that one has been saved.

When exiting from the Quick report, the current setup is saved as user specific. Next time when the user opens up the Quick report, the last set-up is shown by default. The last setup is marked with the character * on the report page list.

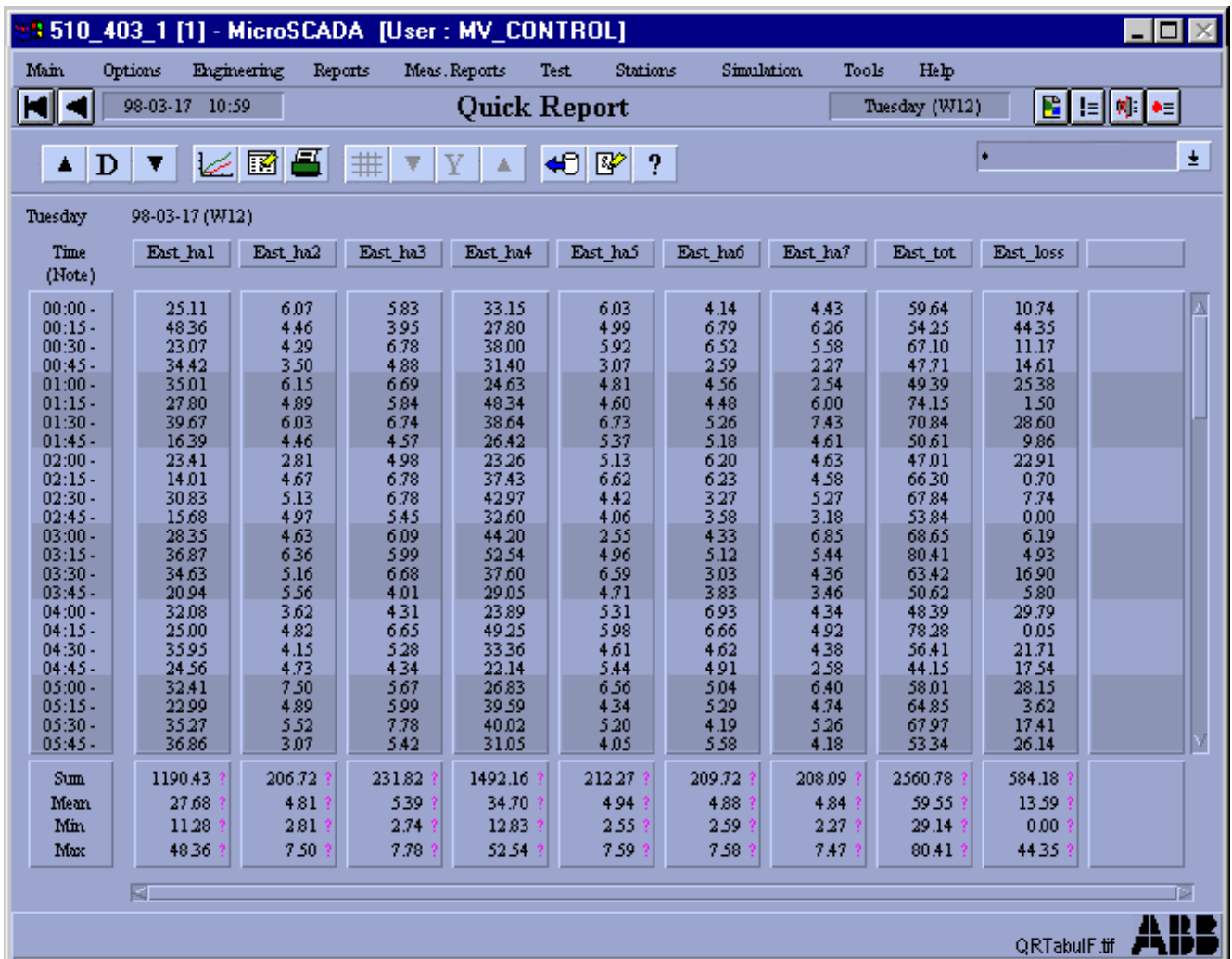


Figure 13. Example of the Quick report

This chapter describes the functionality of the Quick report picture. Generally, the Quick report picture is like a standard daily report, it includes the same functionality and options as the standard daily report, but it also has some added functions and options. The Quick report can also be used without a predefined picture function installation.

4.2 Tabular Form

4.2.1 General

In the tabular form of the Quick report picture, all the selected report objects are shown in the report picture by the selection order. Up to ten objects can be displayed on the screen at the same time. If the selection consists of more than ten objects, the objects shown on the screen can be selected with the help of the vertical scroll bar.

The report column title is the same as the logical name of the report object. If the title bar is clicked with the mouse, the Comment Text dialog is opened. The dialog shows the comment of the report object and also its type and unit. The default accuracy of the report columns is two decimals. A set of summary information (sum, mean, min and max) is presented for each report column.

If a data registration has an uncertain or an obsolete status, the corresponding line is represented with the character "?". Manually entered values are indicated with the character "m". An erroneous status is indicated with an "Error" message. In case of a not sampled or an erroneous status the value is not shown.

Editing and entering values manually is also possible for the following report object types (by default):

- Measured objects (MS, MM, MN, MX and MP) *
- Entered objects (EN)
- Gauge (meter) objects (GA) *

The tracing of edited values is also enabled for the report object types marked with *. The report object types were explained in more detail in LIB 510 Configuration Manual (1MRS751280-MEN), Measurement Reports Configuration Manual, ch. 3.3.1.

Editing or entering values will not change the time of registration. The colour of the value depends on the time stamp of the value. Historical data is shown as black, current and predicted future data as white (if shown).

All the reports are also printable e.g. to the file in the ASCII or in the .CSV format (Excel compatible) format or to the net printer.

4.2.2 Tools Menu



Figure 14. The Quick report tabular form Toolbar

The screenshot shows the MicroSCADA Quick Report window for user MV_CONTROL on 98-03-17 at 11:44. The main window displays a table of data for Tuesday, 98-03-17 (W12). The table has columns for Time (Note), East_ha1, East_ha2, East_ha3, East_ha4, East_ha5, East_ha6, East_ha7, and st_loss. A Tools menu is open, listing options such as Select Day..., Previous Day, Next Day, Tabular/Graphical, Grid on/off, Edit Y - Scale..., Scroll Down, Scroll Up, Load-cur/Load Curve, Printing, Report Basket..., Preconfigurations..., Show Leap Hour..., and Help... The table data is as follows:

Time (Note)	East_ha1	East_ha2	East_ha3	East_ha4	East_ha5	East_ha6	East_ha7	st_loss
00:00 -	25.11	6.07	5.83	33.15	6.03	4.14	4.4	
00:15 -	48.36	4.46	3.95	27.80	4.99	6.79	6.2	10.74
00:30 -	23.07	4.29	6.78	38.00	5.92	6.52	5.2	44.35
00:45 -	34.42	3.50	4.88	31.40	3.07	2.59	2.2	11.17
01:00 -	35.01	6.15	6.69	24.63	4.81	4.56	2.2	14.61
01:15 -	27.80	4.89	5.84	48.34	4.60	4.48	6.1	25.38
01:30 -	39.67	6.03	6.74	38.64	6.73	5.26	7.4	1.50
01:45 -	16.39	4.46	4.57	26.42	5.37	5.18	4.4	28.60
02:00 -	23.41	2.81	4.98	23.26	5.13	6.20	4.4	9.86
02:15 -	14.01	4.67	6.78	37.43	6.62	6.23	4.2	22.91
02:30 -	30.83	5.13	6.78	42.97	4.42	3.27	5.2	0.70
02:45 -	15.68	4.97	5.45	32.60	4.06	3.58	3.1	7.74
03:00 -	28.35	4.63	6.09	44.20	2.55	4.33	6.8	0.00
03:15 -	36.87	6.36	5.99	52.54	4.96	5.12	5.4	6.19
03:30 -	34.63	5.16	6.68	37.60	6.59	3.03	4.2	4.93
03:45 -	20.94	5.56	4.01	29.05	4.71	3.83	3.4	16.90
04:00 -	32.08	3.62	4.31	23.89	5.31	6.93	4.2	5.80
04:15 -	25.00	4.82	6.65	49.25	5.98	6.66	4.4	29.79
04:30 -	35.95	4.15	5.28	33.36	4.61	4.62	4.2	0.05
04:45 -	24.56	4.73	4.34	22.14	5.44	4.91	2.2	21.71
05:00 -	32.41	7.50	5.67	26.83	6.56	5.04	6.4	17.54
05:15 -	22.99	4.89	5.99	39.59	4.34	5.29	4.2	28.15
05:30 -	35.27	5.52	7.78	40.02	5.20	4.19	5.2	3.62
05:45 -	36.86	3.07	5.42	31.05	4.05	5.58	4.18	17.41
Sum	1291.98	220.12	247.46	1595.02	227.53	229.97	224.40	2744.50
Mean	28.09	4.79	5.38	34.67	4.95	5.00	4.88	59.66
Min	11.28	2.81	2.74	12.83	2.55	2.59	2.27	29.14
Max	48.36	7.50	7.78	52.54	7.59	8.05	7.47	80.41
								653.25
								14.20
								0.00
								44.35

Figure 15. The Quick report Tools menu for tabular form

Option	Explanation
Select Day...	Opens the Select Day dialog from which desired day in the report can be selected.
Previous Day	Goes to the previous day in the report. If the previous day is out of the history area, the Previous Day option will be dimmed.
Next Day	Goes to the next day in the report. If the next day is out of the history area, the Next Day option will be dimmed.
Numeric/Trend	Switches the report picture to show the measurements in a graphical form. The tabular form can be returned by the corresponding button in the graphical form picture, so the two forms can be toggled.
Print to file (ASCII)...	With this option the current report day can be saved to an ASCII file, where the columns are tabulated in the same way as in the report picture.
Print to file (.CSV)...	With this option the current report day can be saved to an ASCII file. The default format of the file is .CSV, where the columns are separated by a semicolon (;). This file type can be read by a spreadsheet program, e.g. Microsoft Excel.
Print to printer...	With this tool the user can print the current report day to a net printer, which is configured as a VS Printer in MicroSCADA. This option will be dimmed, if the X monitor is used.
Report Basket...	Opens the Report Basket dialog from which the report objects can be selected to be shown in the Quick report picture.
Preconfigurations...	Opens the Save Preconfiguration dialog by which the current Quick report setup can be saved.
Show Leap Hour...	Opens the Show Leap Hour dialog in that specific day when the daylight saving time has been activated. Within the Show Leap Hour dialog the extra hour values can be seen and edited, if necessary.
Help...	Opens the Help dialog.

4.3

Graphical Form

4.3.1

General

In the graphical form of the Quick report picture, all the report objects shown on the screen can be presented as full-graphic curves on a two-dimensional coordinate system that consists of a horizontal time (X) axis and a vertical value (Y) axis. The curves can be scrolled in both X- and Y-directions and the parameters of the Y-axis can be changed. All curves can be temporarily hidden from the screen.

Otherwise the functionality and options are as in the standard reports which were described in chapter 1

4.3.2

Tools Menu

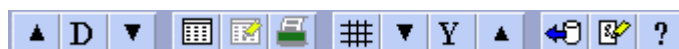


Figure 16. The Quick report graphical form Toolbar

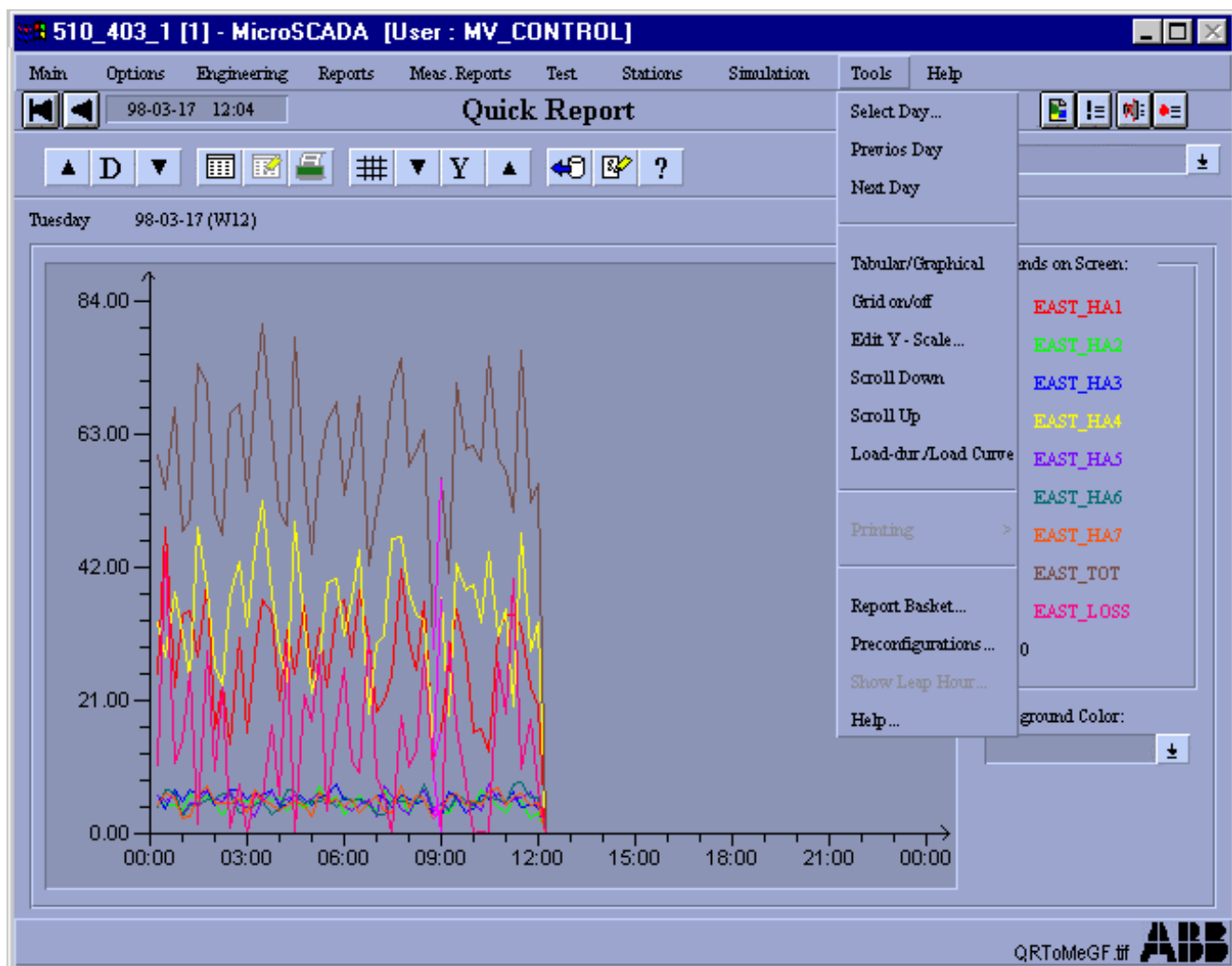


Figure 17. The Quick report Tools menu for graphical form

Option	Explanation
Select Day...	Opens the Select Day dialog from which desired day in the report can be selected.
Previous Day	Moves to the previous day in the report. If the previous day is out of the history area, the Previous Day option will be dimmed.
Next Day	Moves to the next day in the report. If the next day is out of the history area, the Next Day option will be dimmed.
Tabular/Graphical	Switches the report picture to show the measurements in a graphical form. The tabular form can be returned by the corresponding button in the graphical form picture, so the two forms can be toggled.
Grid on/off	Shows or hides the grid. The curve values outside the grid area are cut regardless of whether the grid is shown or not.
Edit Y - Scale	Opens a dialog where the parameters of the Y-axis can be set.
Scroll Down	The curves can be scrolled vertically by the arrow buttons or by the corresponding Tools menu items. Scroll Down scrolls the curves one step (interval) down.
Scroll Up	The curves can be scrolled vertically by the arrow buttons or by the corresponding Tools menu items. Scroll Up scrolls the curves one step (interval) up.
Load-dur./ Load Curve	Switches the measurement curves to the load duration curves. The load curves can be returned by the corresponding button, so the two forms can be toggled.
Print to file (ASCII)...	With this option the current report day can be saved to an ASCII file, where the columns are tabulated in the same way as in the report picture.
Print to file (.CSV)...	With this option the current report day can be saved to an ASCII file. The default format of the file is .CSV, where the columns are separated by a semicolon (;). This file type can be read by a spreadsheet program, e.g. Microsoft Excel.
Print to printer...	With this tool the user can print the current report day to a net printer, which is configured as a VS Printer in MicroSCADA. This option will be dimmed, if the X monitor is used.
Report Basket...	Opens the Report Basket dialog from which the report objects can be selected to be shown in the Quick report picture.
Preconfigurations...	Opens the Save Preconfiguration dialog by which the current Quick report set-up can be saved.
Show Leap Hour...	Opens the Show Leap Hour dialog in that specific day when the daylight saving time has been activated. Within the Show Leap Hour dialog the extra hour values can be seen and edited, if necessary.
Help...	Opens the Help dialog.

4.4

Functionality Detailed with Dialogs and Options

In this chapter, all the additional functionality compared to the standard time related reports are described. Otherwise all the functions described in chapter 1 apply to the Quick report.

4.4.1 Report Basket

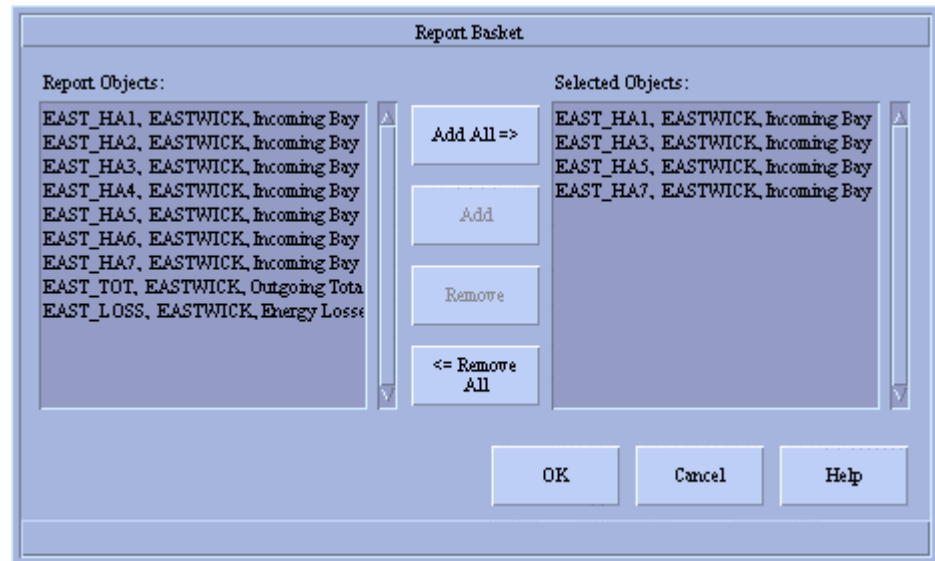


Figure 18. The Report basket

The report basket is the link between the report objects defined within the report application and the Quick report picture. With the report basket dialog the user can select report objects from the report database to be shown in the Quick report picture.

The basket main dialog has two lists: the Report Objects list to the left contains all the report objects, if the history of period values is stored, defined within the report application. The Selected Objects list to the right contains the report objects that are currently selected and shown in the Quick report. On both these lists, each report object is presented on a separate line containing the logical name of the report object and the comment of the report object.

The buttons on the dialog work as follows:

Button	Explanation
Add All	Adds all objects from the Report Objects list to the Selected Objects list. If duplicates (objects that already are in the Selected Objects list) are found, an information dialog is shown.
Add	Adds the selected objects from the Report Objects list to the Selected Objects list. If duplicates are found, an information dialog is shown.
Remove	Removes selected objects from the Selected Objects list.
Remove All	Removes all objects from the Selected Objects list.
OK/Cancel	OK applies changes and shows the selected objects in the Quick report picture. Cancel withdraws all changes.

Adding or removing a report requires at least Control (1) level user authorization.

4.4.2 Preconfigurations

All the selected report objects that are currently shown in the Quick report picture can also be saved as a named preconfiguration. The saved preconfiguration can be selected to be shown in the Quick report picture by selecting the preconfiguration in the report page list.



Figure 35. The Save Preconfiguration dialog

The existing preconfigurations are shown on the list. The name of the configuration (max. 20 characters) is entered to the field above the list. A name must be entered before the preconfiguration can be saved. When the preconfiguration is opened, its name is set as the report page title.

In order to delete any of the existing preconfiguration, select a preconfiguration from the list to be deleted and click the Delete button. To rename a preconfiguration, select one from the list and click the Rename button. This opens a new dialog where the new preconfiguration name can be entered. To select the existing preconfiguration name to the input field, select one from the list and click the Select button.

The OK button saves the preconfiguration, Cancel withdraws all changes. Saving, deleting or renaming a preconfiguration requires at least Control (1) level user authorization.

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