

Data Acquisition Program



dmeq

DataCenter Version 1.10

DataCenter User Manual

Data acquisition and processing software

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Thank you choosing dmq

And thank you for downloading the powerful dmq DataCenter software platform that is also freeware available to all dmq customers.

Company Statement

At dmq we develop, manufacture and distribute software and quality control instruments offering innovation and solutions that come as a direct result of listening to your needs as a user. We apply some of the latest technology available in the industry to build instruments that are robust, precise, and easy to operate; and develop software that is powerful and yet simple to use.

We are convinced that our products would not be complete without permanent technical and after sales support. So in addition to a great product and a great software platform, we offer:

- Quick answers to your inquiries.
- Unlimited access to technical information as well as application notes.
- Special offers for registered customers.
- Firmware and software upgrades at no charge.
- Attention to your inquiries and suggestions.

We hope that DataCenter will meet and exceed your software needs.

General information

About this manual

The information included in this manual applies to DataCenter software version 1.10 for Windows. DataCenter is a software platform shared by QS5 ultrasonic thickness gauges and QH5 rebound hardness testers.

Registered trademarks

dmq is a registered trademark of demeq S.R.L and its affiliate companies.

Important notice

The information contained in this manual is intended to educate users on the correct use of DataCenter data acquisition and processing software. Failure to read and understand this manual can lead to errors in the correct analysis and representation of the test results obtained with the unit. Decisions based on erroneous reports and measurement interpretations can lead to property damage, personal injury or even death. Demeq S.R.L assumes no responsibility as a result of the improper use of this software.

User training

Correct use of DataCenter software requires knowing at least all of the following:

- How to use a PC with a Windows operating system.
- Knowing the specific requirements for the test that you will be conducting and what information needs to be informed (reported).
- That the individual using the software has been trained on its use.

About the Software

Because of its complexity level software is never really completely error free. For this reason in software controlled instruments always make sure that the operations required for your application are in correct working order.

1 First Steps

1.1 Know DataCenter

DataCenter provides quick and easy access to all of tools in the program as well as to all relevant information right from the beginning. This chapter explains what is included in DataCenter.

1.1.1 Direct access buttons

Direct access buttons located on top of the screen allow quick access to the most important program features.

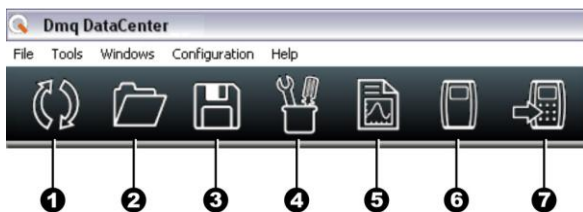


Figure 1.1: Direct access buttons

1. Connect / Disconnect unit
2. Open file in a drive
3. Save data in a file
4. Open program tools option
5. Open report generator
6. Open virtual unit (Lab Mode)
7. Open update manager

1.1.2 Permanently displayed information

On the top right portion of the screen information such as unit and alarms (as well as alarm colors) that are used to filter data in grids and graphics is permanently displayed.

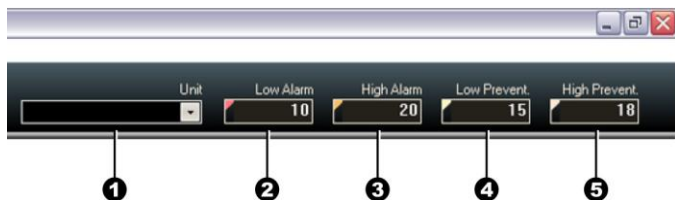


Figure 1.2: Permanent information

1. **Unit:** Lists all units in the instrument connected to DataCenter.
2. **Low Alarm:** Value set for the low alarm.
3. **High Alarm:** Value set for the high alarm.
4. **Low Prevent:** Value set as a “pre-alarm” prevention to reaching the low alarm value.
5. **High Prevent:** Value set as a “pre-alarm” prevention to reaching the high alarm value

1.1.3 Connection status bar

In the bottom portion of the screen a status bar indicates the connection status.



Figure 1.3: Connection status bar

1. Type of connection, Mode: USB or RS232
2. Instrument connection to DataCenter, With Connection or No Connection

1.2 Connect / Disconnect unit

To establish a connection between your unit and a PC the following must be done:

1. In the unit select the "Connect" option in (Connecting to PC with DataCenter) and the following screen will be displayed in your unit:



Figure 1.4: Connect screen in the electronic unit

2. Connect the USB cable to the PC as well as the unit.
3. Click the "Connect / Disconnect" icon in DataCenter.



Figure 1.5: Connect / Disconnect icon

4. While the connection is being established a window will appear showing the connection progress. Once a successful connection is established the same window will be automatically closed.

To disconnect the unit from the PC, click the "Connect / Disconnect" icon in DataCenter and wait for the unit to display the Memory menu (same menu where the "Connect" option is located). At this time you can unplug the USB cable.

1.3 DataCenter file types

DataCenter generates two types of files with data that is read from your unit:

- Files in dmq format
- Files in Excel format

Dmq files use an extension with the letters that correspond to the instrument connected to DataCenter at the time the files were generated. So for example if a QS5 gauge was connected to DataCenter, files with a .qs extension are generated.

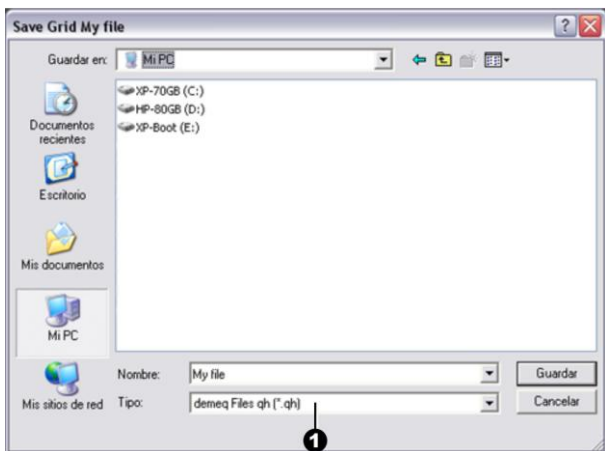


Figure 1.6: Save file

To select the type of file in which you want to save the information that you downloaded from you unit, click “Type” to display available file format options (See 1 in Figure 1.6).



Important

DataCenter does not allow you to simultaneously open files from different instruments. This is done in order to avoid possible file conversion inconsistencies.

2 Tools

The tools in DataCenter are represented by 4 categories where each one is represented by an icon as you can see below.

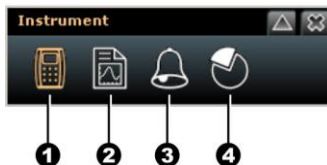


Figure 2.1: Tools categories

1. **Instrument:** Includes all of the tools related directly to the instrument that is connected to DataCenter.
2. **Reports:** Contains all of the tools needed for reporting.
3. **Alarms and Filters:** Access alarm settings and filters for values appearing in the grid.
4. **Statistics:** Includes statistical and error analysis indicators.

When a category is selected, the icon will turn orange. Each category contains tabs from which you can access more specific functions.

2.1 Instrument

Double-click on the Instruments icon and the following tabs will be displayed:

- **Files:** Displays files in the unit.
- **Configuration:** Displays the status of the instrument connected to DataCenter.
- **Update:** Opens the update manager.

2.1.1 Files

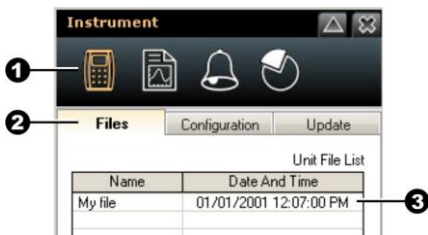
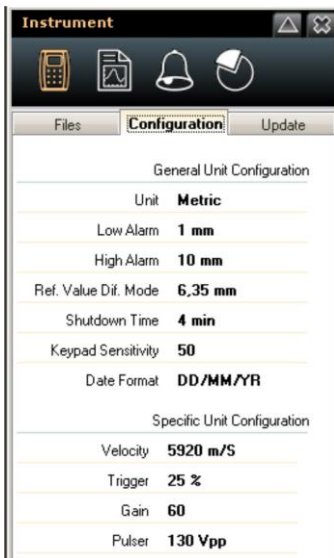


Figure 2.2: Files tab

1. Active Instrument category (icon turns orange)
2. **Files** tab
3. Unit File List (includes the Name, Data And Time, of files stored in the unit)

To open a file, double-click the file name and a grid will open containing all of the data in that file.

2.1.2 Configuration



The **Configuration** tab is divided in two sections:

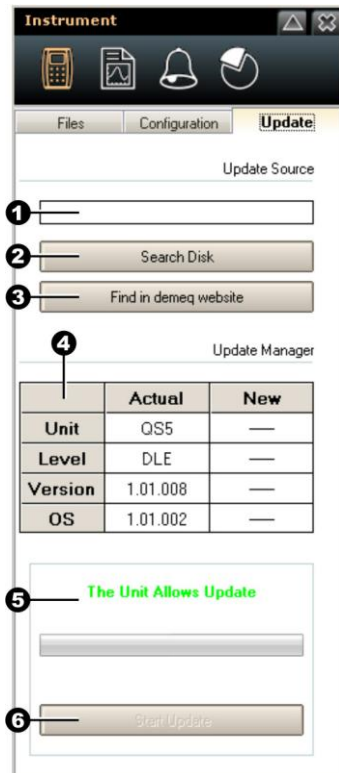
- General Unit Configuration
- Specific Unit Configuration

Figure 2.3: Configuration tab

The general unit configuration section displays the more basic unit settings such as Shutdown Time.

The specific unit configuration section includes settings such as Trigger (for a QS5 gauge) or impact device Angle (for a QH5 hardness tester).

2.1.3 Update



From the **Update** tab, new software versions (when available) can be downloaded to your instrument.

The update is divided in two sections:

- Update Source
- Update Manager

Figure 2.4: Update tab

Update Source section includes:

1. Update file: Load manually
2. Search Disk: Search PC hard disk for update file.
3. Find in dmq website: Search dmq website for update file.

Update Manger section includes:

4. Actual: Unit, license (level), software version and Operating System and New: after update file is loaded.
5. Update status indicator that displays any of the following messages:
 - No Unit Connected
 - The Unit Allows Update
 - Update NOT Suggested
6. Start Update command. If you want to cancel, simple exit the Update tab and continue working.

Update files always have an .upg extension.

You can only update your instrument software with newer versions of software that correspond to your instrument. A QH5 hardness tester cannot be updated with QS5 thickness gauge software.

Previous versions of software cannot be re-installed when a newer version is installed.

2.2 Reports

Directly related with the reports editor explained in Chapter 4 of this manual are the reporting tools explained herein that allow you to configure the aspect and content of the objects in the report as well as page properties for the report.

When you select the report category the following tabs are displayed:

- **Objects:** Displays properties for the objects that you selected for the report.
- **Page:** Displays page properties for the report.

2.2.1 Objects

When using DataCenter to create or edit reports, you are able to change the Objects included in the report.

Objects are explained in detail later on in this manual.

1. Active Reports category (icon turns orange)
2. Object Tab
3. Object Name
4. Associated Group

Additional fields displayed in the object tab vary according to type of object.

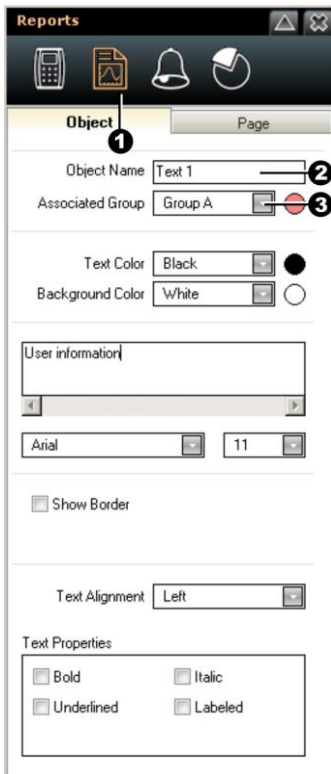
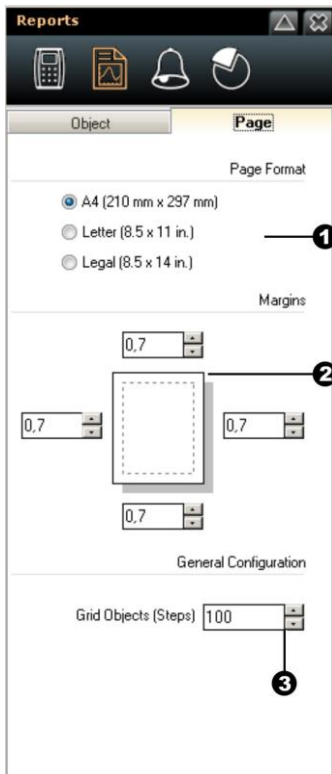


Figure 2.5: Object tab

2.2.2 Page



The page tab includes three sections:

1. Page Format
2. Margins
3. Grid Objects (Steps)

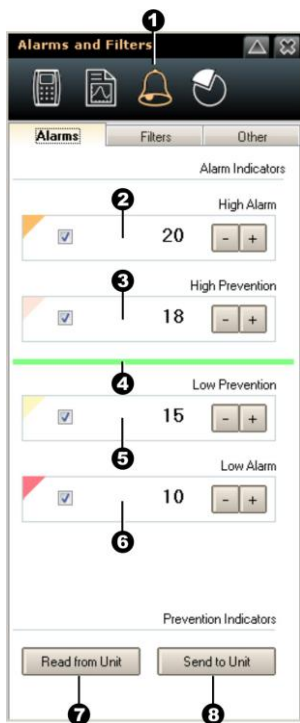
Changes made in this window will affect all of the pages in the report.

Figure 2.6: Page window

2.3 Alarms and Filters

Directly related with the grids and graphics explained in Chapter 3 of this manual are the tools corresponding to the alarms and filters that will assist you in easily seeing out of range values.

2.3.1 Alarms and filters



Double-click on the Alarms and Filters icon (1.) the icon will turn orange, to view all of the tabs included in this option.

The first tab is Alarms and it includes the following fields:

2. High Alarm
3. High Prevention
4. Number of Values Within Range
5. Low Prevention
6. Low Alarm
7. Read from Unit: Read the alarm values from the instrument connected to DataCenter
8. Send to Unit: Send the alarm values in DataCenter to the instrument

Figure 2.7: Alarms tab

Each of the options included in the alarms folder is preceded by a box with a checkmark. Check the box if you want the value to appear in the grid in DataCenter, or leave the box empty (unchecked) so that the value is not displayed in the grid.

To edit a value simply place the mouse over the value you want to edit and click the mouse so that the cursor appears over the selected value. Use the numbers on your keyboard, or click on the minus and plus buttons located to the right of the number to change the value.

If you want to change the color associated to a specific alarm type, click the color triangle located to the far left of the value and a color pallet will open so you can select the color in which the values will be displayed in the grid as well as in the graphic.

3 Grids and graphics

In DataCenter measurements are displayed in a grid so that the information that comes from the unit can be easily analyzed. Data can be represented in graphics and custom reports can also be created. This chapter explains the ways in which data is presented as well as the most important grid features.

3.1 Grid

3.1.1 Grid context

A grid screen looks like follows:

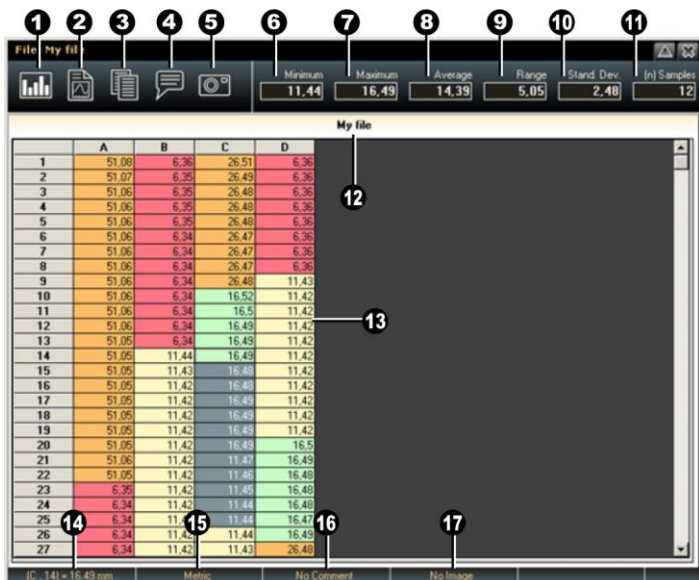


Figure 3.1: Grid screen

Icons:

1. Create graphic based on selected values.
2. Create quick report based on selected values.
3. Copy selected values.
4. Link comment to selected cell (See 3.1.3).
5. Link image to selected cell (See 3.1.4).

Statistics:

6. Minimum value as related to the selected values.
7. Maximum value as related to the selected values.
8. Average value as related to the selected values.
9. Value range as related to the selected values.
10. Standard deviation based on selected values.
11. Number of selected values.

Other:

12. File name of the open grid being viewed.
13. Grid.
14. Position and value of selected cell.
15. Cell unit.
16. Comment status for selected cell.
17. Image status for selected cell.

You can select a set of values in any of the following ways:

- To select an entire column click the first cell in the column (the top cell that includes a letter or letters).

- To select an entire row click the first cell in the row (the cell located to the far left that includes a number).
- To select the entire grid click the cell located on the top left portion of the screen that does not include either a number or a letter.
- To select a group of cells within the grid place the mouse over the first cell in the group that you want to create, and move the mouse to the right and downward while pressing the left button on your mouse. When you finish your selection simply release the mouse button.
- To select an individual cell simply click over the cell that you want to open.

3.1.2 Individual cell menu

When an individual cell has been selected and you click the right button of your mouse, the following menu will be displayed:



From this menu you can easily access the most commonly used individual cell functions.

Each menu option is described below.

Figure 3.2: Cell menu

New Grid Graphic: Create a new graphic based on the selected values.

Change Select, Area Unit: Allows you to change the unit in a selection of values. The new unit must have already been set in the main tools options (see figure 1.2, page 8) in DataCenter. Keep in mind that you cannot convert to units marked in red.

Delete/Restore Cell: Allows you to omit and recover a cell so that the value is included in statistics and graphics, or so that the value is omitted (will appear in the grid with a cross) and will not be included for statistics or in graphics. When a cell has been omitted it can be recovered.

See Cell History: Displays additional cell information (see section 3.1.3).

Add/Edit Comment: Access the comments editor linked to the cell you are in (see section 3.1.3).

Add/Edit Image: Allows you to add or to erase an image that is linked to the cell you are in (see section 3.1.4).

Copy Selection: Copy values that you can paste to a report.

3.1.3 History and comments tools

When you select the **See Cell History** or the **Add/Edit Comment** tools, the following editor tool will be displayed in the top portion of the grid:

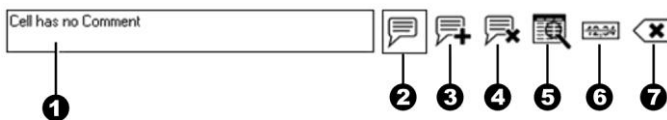


Figure 3.3: Cell History and Add/Edit Comments editor tools

1. Textbox: Shows the text that corresponds to the cell history or cell comments (comments can be edited).

Icons:

2. View comment icon.
3. Add comment icon.
4. Erase comment icon.
5. View history icon.
6. Omit cell (a line crosses the cell)
7. Close history and comments tools icon.

When selecting **See Cell History** and or **Add/Edit Comment**, your selection will be outlined indicating that the option is active.

3.1.4 Images

You can link images to a cell using a window that allows you to find, add and erase images. This window opens when you click the **Add/Erase Image** option in the cell menu.

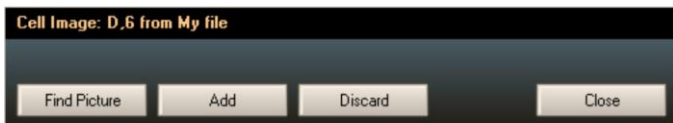


Figure 3.4: Add/Erase Image window

Find Picture: Find an image from a disk unit.

Add: Add selected image to a cell.

Discard: Erase an image linked to a cell.

Close: Close window.

3.2 Graphics

3.2.1 Graphics context

The graphics window looks like follows:

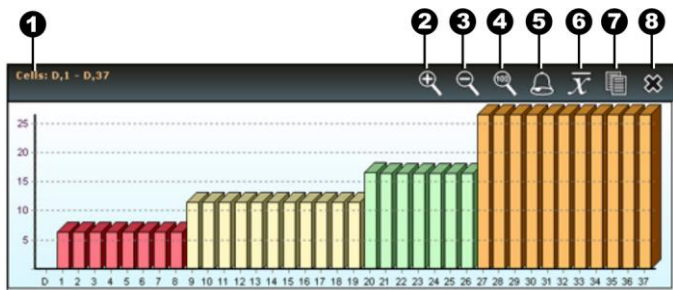


Figure 3.5: Graphics window

1. Graphic origin (file and cells from which graphic is generated).
Icons:
2. Zoom In icon.
3. Zoom Out icon.
4. Set to 100% icon.
5. Color by alarms icon.
6. Show average value (a line is displayed in the graphic).
7. Copy Paste icon (Copy Paste Graph to report).
8. Close graph icon.

3.2.2 Graphics menu

When you place the mouse over the graphic and click the right button the following menu is displayed:



From this menu you can easily access the most commonly used graphic functions.

Each menu option is described below.

Figure 3.6: Graphics menu

Zoom In: Enlarge graphic.

Zoom Out: Reduce graphic.

Set to 100%: Set graphic to 100% of the window.

Color by Alarms: Color values according to the alarm color settings.

Show Vertical Dividers: Prints vertical divisions in the graphic background.

Show Horizontal Dividers: Prints horizontal divisions in the graphic background.

Show Average: Shows a line representing the average graph value.

Show Alarms: Shows lines representing alarm limits.

Invert X Axis: Change the X axis origin.

Invert Y Axis: Change the Y axis origin.

Graphic Type: Choose from any of the following options;

- Bars
- Lineal
- Area
- Step Area

Use this Aspect by Default: Set configured aspects as the default for all graphics.

Copy Graph: Copy graph that you can paste to a report.

4 Reports editor

The reports editor in DataCenter is a flexible and powerful tool that allows you to create customized documents that are easy to read and understand.

4.1 Reports editor context

The reports editor window looks as follows:

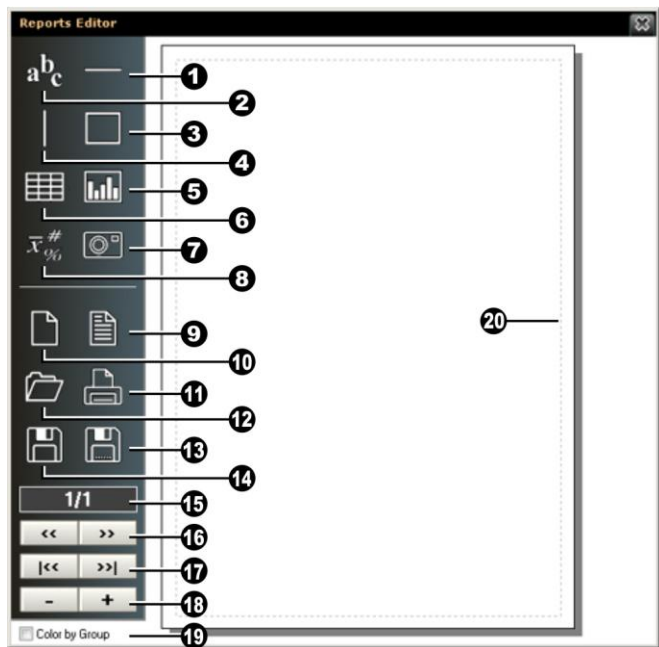


Figure 4.1: Reports editor window

Icons representing the tools used to add objects to the report:

1. Horizontal line.
2. Textbox.
3. Outside border.
4. Vertical line.
5. Graphic.
6. Grid.
7. Image.
8. Information textbox.

Icons representing tools used to manage the report:

9. New report with basic information.
10. New blank report.
11. Print report.
12. Open report file.
13. Save report as.
14. Save report.

Tools used to manage pages:

15. Page indicator (actual / total).
16. Change page (next / previous).
17. Go to page / last page.
18. Delete / add page.
19. Color by Group.
20. Page margins.

4.2 Using objects in a report

Reports in DataCenter are made of objects that you can modify to create custom reports that are best suited for different customers and applications. In this chapter the use of objects is explained so that you can take advantage of all of the possibilities of using objects.

4.2.1 Creating objects

The menu located to the left of the Reports Editor screen includes icons that are used to create objects. When you click on these icons the corresponding object will appear in the reports page. The following image shows the icons (to the left) and the objects created by each one (to the right).

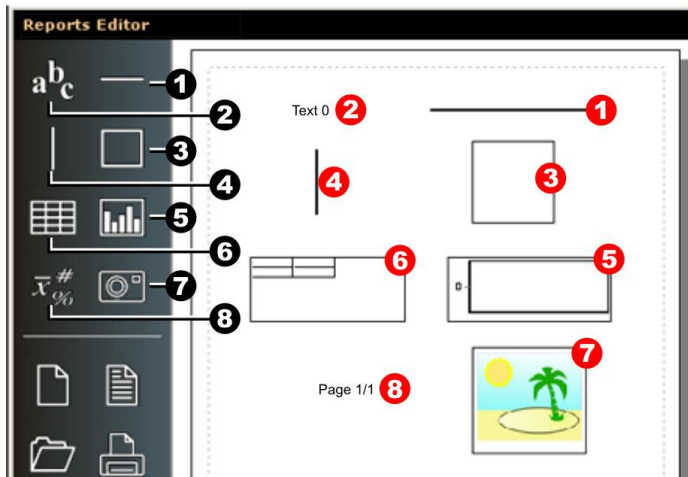


Figure 4.2: Objects icons and actual objects

The icons are in black numbers and the corresponding objects are in red numbers. Objects include:

1. Horizontal line.
2. Textbox.
3. Outside border.
4. Vertical line.
5. Graphic.
6. Grid.
7. Image.
8. Information textbox.

To select an object double-click on the icon and a window will open with all of the properties that correspond to that object.

Objects also have a default location and a dimension that can be changed using the tools and menus explained in the following sections.

4.2.2 Location and dimension of objects

To change the location of an object, use your mouse to place the cursor over the object, and click the left button to move the object. Hold the left button of your mouse while moving the object.

To change the size of an object, place the cursor on one of the edges of the object, and click the left button to resize the object. Hold the left button of your mouse while resizing the object. Place the cursor over the left or the right edge of the object to change the object width, or place the cursor over the top or bottom edge to change the object height.

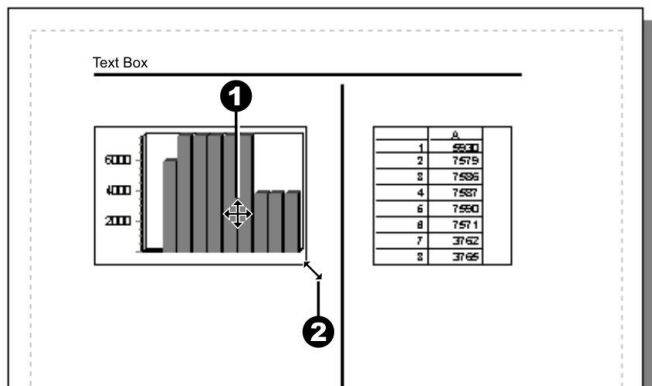


Figure 4.3: Changing the location and dimension of objects

4.2.3 Objects menu

When you click an object using the right mouse button the following menu is displayed:



From this menu you can easily access the most commonly used objects functions.

Each menu option is described below.

Figure 4.4: Objects menu

Delete Object: Erase selected object from report.

Duplicate Object: Create a duplicate of the selected object.

Copy Object: Select an object you want to copy.

Paste Object: Paste an object that was copied.

Paste Data: Paste data that was copied from the grid or from a graphic into an object.

Forward: Bring the selected object forward.

Backward: Send the selected object backward.

Keep in Following Pages: When this item is enabled, the same objects will be displayed in new pages that you create for the report.

4.2.4 Object properties

Objects have properties that can be edited to change their aspect and content.

There are 2 properties that are common to all objects:

- Object name: Allows you to easily identify any given object.
- Group Objects (only objects that display data)

Group objects s explained in detail in section 4.2.5 of this manual.

The properties available for objects 1 to 8 (figure 4.2., page 33) are:

(1) Horizontal Line

- Line color.
- Line thickness (1 to 7).

(2) Textbox

- Text color.
- Background color.
- Text (text inside the report).
- Font (type and size).
- Show borders.
- Align text (left, right, center).
- General text properties (bold, underline, other).

(3) Outside Border

- Background color.
- Show border.

(4) Vertical Line

- Line color.
- Line thickness (1 to 7).

(5) Graphic

- Graphic line color.
- Background graphic color.
- Font (type and size)
- Show border (around graphic).

- Show border lines (when graphic is displayed as bars).
- Graphic properties (divisions, alarms, 3D mode, other).

(6) Grid

- Text color (cells).
- Background color (cells).
- Font (type and size).
- Show border (around grid).
- Tag grid.
- New origin (forces tags to begin in position "1").

(7) Image

(8) Information Textbox

- Text color.
- Background color.
- Text (shown before information).
- Font (type and size).
- Show border (around text).
- Show title (when this option is enabled, for example the word "Page" will appear before the actual page number).
- Pile values (when the information textbox has more than one value, values are displayed one on top of the other).

When pile values is enabled:

Low Alarm : 10.00

High Alarm : 25.00

When *pile values* is disabled:

Low Alarm : 10.00 – High Alarm : 25.00

- Type of information (page, date and time, alarms, statistics, absolute errors, percentage errors, data origin, comments).
- Visible information (allows you to choose the information that you want displayed in the textbox).

4.2.5 Group Objects

Objects such as grids, graphics and information textboxes that include data, can be grouped so the data displayed in all objects is organized. When you paste data into one of these objects, you will be pasting data into all of the objects within the group.

Group Objects example

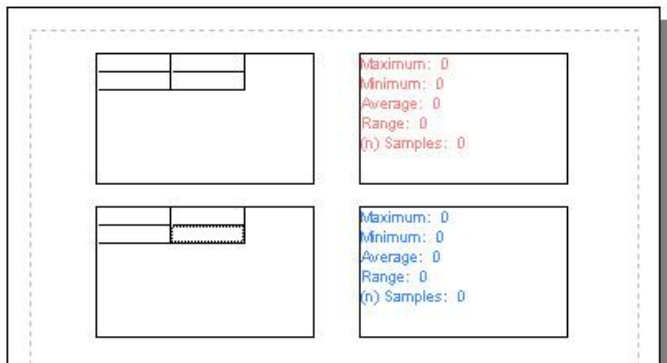


Figure 4.5: "Red" and "Blue" groups

Figure 4.5 shows 2 groups of objects: the “red” group (a grid and an information textbox in red) and the “blue” group (a grid with an information textbox in blue).

Observe that all objects are empty.

When you copy data from an open file and paste it into the “red” group, both objects (grid and information textbox) use the same data as you can see in figure 4.6 below.

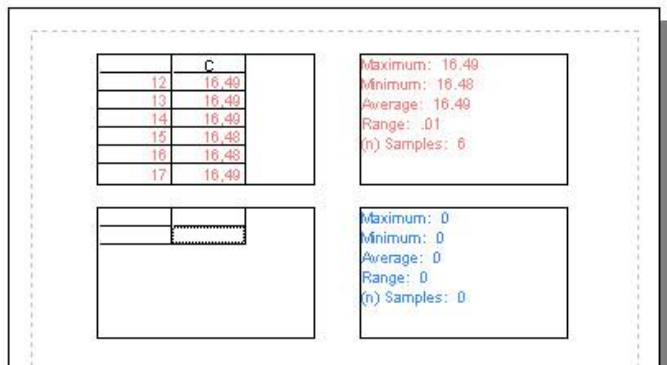


Figure 4.6: Data pasted into “Red” group

Observe that the “blue” group remains without change.

Now, if you copy additional data from an open file and paste into the “blue” group, the objects (grid and information textbox) will use the data that you pasted as you can see in figure 4.7.

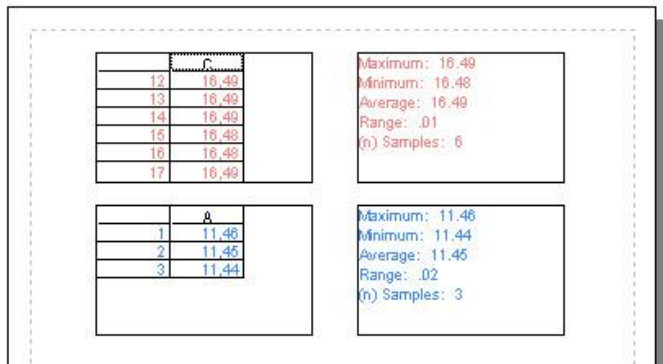


Figure 4.7: Data pasted into "Blue" group

So while the objects in the "blue" group have been updated with the recently pasted data, the data in the "red" group remained the same.

This shows how data that is copied into one object that is part of a group, is automatically copied (and therefore affects) all of the other objects within that group.

Considerations and limitations when using groups

- Groups are not global meaning that if you are building a report that includes more than one page, the data that you paste into the "red" group in the first page will not affect the red group in the foregoing pages of the report. Groups work only on individual pages.

- Just like with grid and information objects, when copying a graphic object that is part of the group, data from the graphic object will affect the grid and information objects. But when copying data into the grid or the information objects (where a graphic object is also part of the group), data in the graphic object will not be updated.
- To color groups of objects, enable the “Color by Group” option located in the bottom left corner of the reports editor.

4.2.6 Page properties

In the **Page** tab located in the report tools screen (figure 2.6 in page 20) you can configure the report pages.

Changes done in this window will affect all of the pages in the report.

Page properties include:

- Page format (A4, letter and legal).
- Set margins (for each border).
- Objects grid (set a grid size in which objects will be moved and consider that a lower value represents finer movement).

5 Configuration

To access all configuration options click **Configuration** in the main menu and then click the **DataCenter Configuration** button. From this window you can set all of options explained below.

5.1 Select language and type of connection

To select the language and type of connection click the **Preferences** tab.

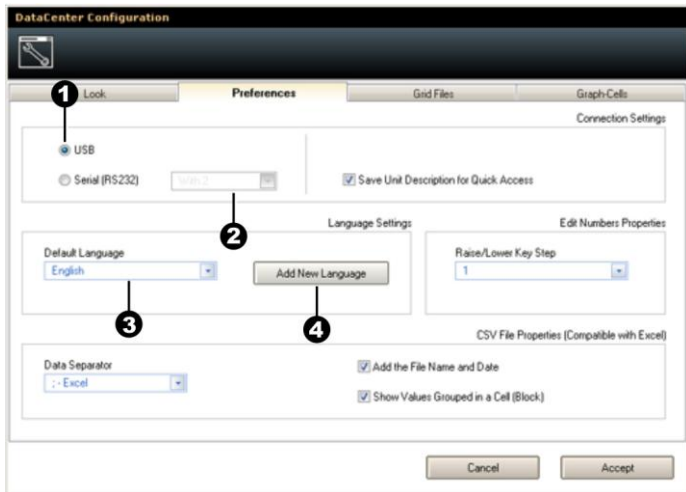


Figure 5.1: Preferences tab

1. Select type of connection (USB / RS232).
2. Set the COM port number (only in RS232 mode).

3. Select DataCenter language (list of available languages).
4. Add new language.

The **Add New Language** option allows you to install new languages in DataCenter. After a new language is added it will appear in the language list.

5.2 Select Colors

Click the **Colors** tab to change color configurations in DataCenter.

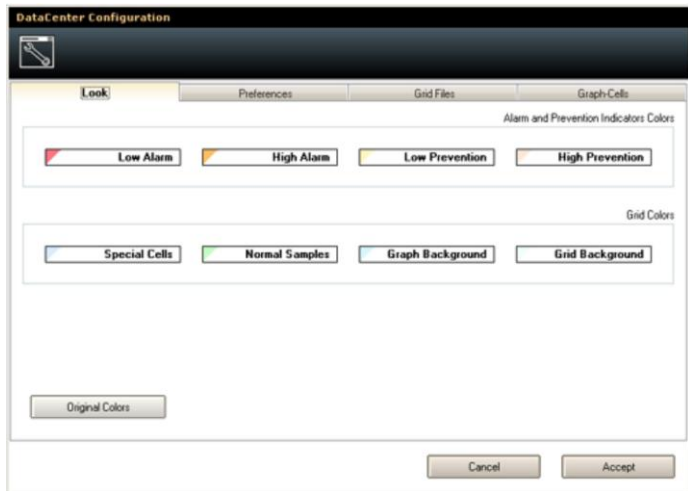


Figure 5.2: Colors tab

To change the color in any given field, click the left button of your mouse over the field and a color pallet will be displayed. To select a new color, simply click on the color of your choice.

To return to the color defaults for DataCenter, click on the **Original Colors** option.

Our website: www.demeq.com

Our website is a powerful customer support tool where you will find the latest information as it relates to DataCenter including:

- Application notes
- Manuals
- Updates

Software updates

Software updates from dmq are available at <http://www.demeq.com/Download.html> Make sure to check regularly and remember that updates from dmq are offered at no charge.

Technical support

Our service department is committed to providing prompt and courteous service. Should you encounter any issues with DataCenter software please send us a detailed description of your problem to www.demeq.com/form_Support.html

