What's new in Condmaster®Nova 2010

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Introduction

About this document

This document provides an overview of new features in Condmaster Nova 2010.

NOTE 1: Depending on your measuring equipment and the contents of your Condmaster license, you may not be able to access all of the menu options, settings etc. described in this document.

NOTE 2: This is **not** a full-fledged user manual for Condmaster. The intent of this document is to provide a quick guide to the new functionality in Condmaster Nova 2010 to users already aquinted with previous versions of the software.

Who should read this document?

The intended audience for this document includes maintenance engineers, technicians and mechanics working with preventive maintenance. Managers and analysts may also find this information useful.

If you are an inexperienced Condmaster user, this document is not for you. It is aimed at users familiar with Condmaster, and its contents applies to the most common applications, setups, uses and problems.

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The SPM®HD measuring technique

SPM®HD is a further development of the original shock pulse method, True SPM®. It comes as a separate Condmaster module (article no. MOD190). At this point, SPM HD is available for measurement with the Intellinova system only. SPM HD can be used on any application, but is particularly well suited for bearing monitoring on low speed machinery.

Users accustomed to dBm/dBc measurement will find that SPM HD is as easy to use and does not require much input data. An SPM HD measurement yields the following results:

- *HDm*, a scalar value expressed in decibels, representing the highest value measured during the measuring cycle. HDm is the primary value to use to determine the severity of a bearing damage.
- *HDc*, a scalar value expressed in decibels and a measure of lubrication condition.
- Time signal, measured simultaneously with HDm and HDc.
- Spectrum

HDm and HDc are both suitable as the basis for alarm limit definition, regardless of machine type.

When measuring with SPM HD, the measuring cycle is based on number of revolutions rather than time. This maximizes the chances of capturing relevant signals in the course of one measuring cycle. By adjusting the sampling frequency to rpm, spectrums are clear and concise also when measuring cycles are long.

SPM HD vs. SPM dBm/dBc terminology

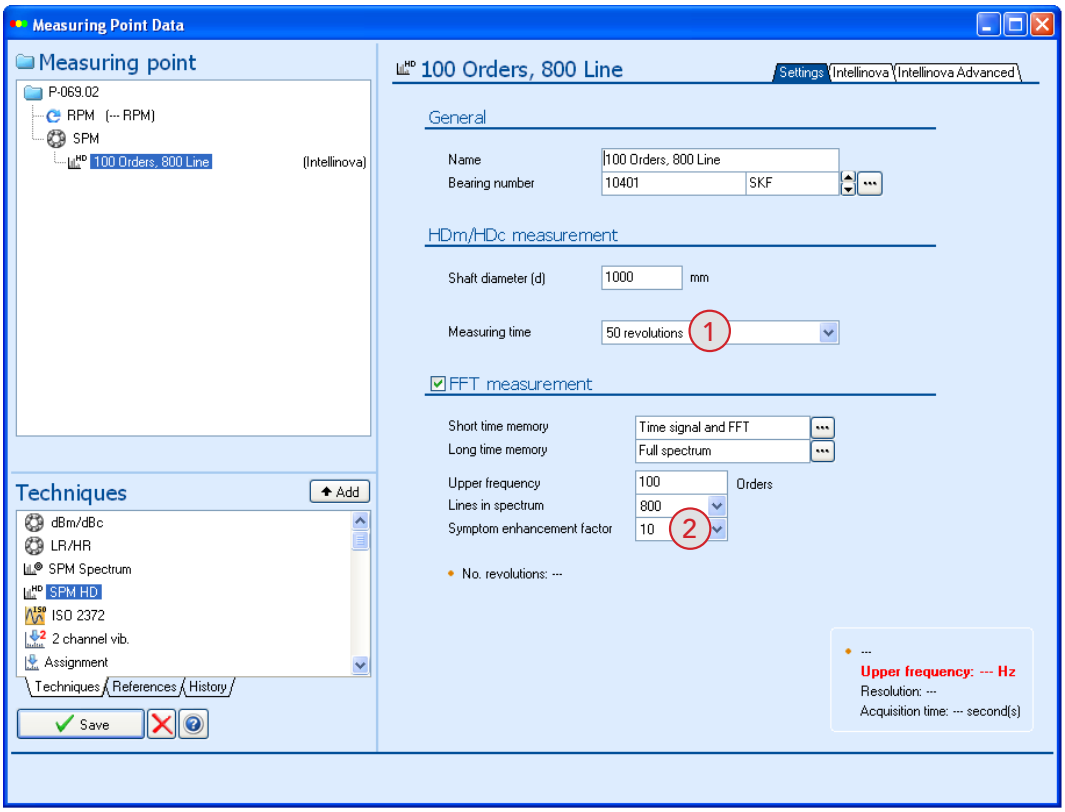
Below is an account of the correlation of the basic terms used in the two shock pulse methods.

SPM HD	SPM dBm/dBc	Comments
HDi	dBi	The purpose is normalization and elimination of RPM dependency. HDi covers from -15 to 40 on the dBsv scale, while dBi covers from -9 to 40. Measurement on machinery running at extremely high speeds will require manual RPM input.
HDc	dBc	HDc follows the same amplitude scale as dBc and corresponds to dBc at basically all speeds.
HDm	dBm	HDm follows the same amplitude scale as dBc and corresponds to dBm at speeds above 100 RPM.
HDsv	SD/SL	HDsv corresponds to SD/SL in spectrums. HDsv is a linear value proportional to the repetition frequency.
HDesv / HD^2esv	- - -	HDesv has no equivalent in traditional shock pulse measurement (dBm/dBc). This value is the result of applying a symptom enhancement factor to HDsv. In the time signal HDsv is squared and is therefore called HD^2esv.

Setting up SPM HD measurements in Condmaster

To measure with SPM HD, the measuring technique needs to be activated for Intellinova under **System** > **Measuring system**.

SPM HD measuring assignments are created in the **Measuring point data** form the same way as any other assignment:



The only **Measuring point data** settings which are particular to SPM HD measurement are:

- **Measuring time**: Depending on the rpm of your application, the **Measuring time** (1) setting has a significant impact on the length of a measuring cycle. Empirical studies have shown that in order to achieve reliable measurements of bearing condition, measurement should cover *at least* 10 shaft revolutions and preferrably 50 revolutions, which is the default setting. The time required to complete a measuring cycle can be calculated as 50 X (60/RPM).
- **Symptom enhancement factor**: The **Symptom enhancement factor** (2) is used to improve the signal-to-noise ratio. For applications with little electronic noise and few mechanical shock phenomena, this factor can be kept low (1 to 5). Where noise and random shocks are frequently occurring, it is recommended that the **Symptom enhancement factor** be set to at least 10. However, you should be aware that the higher this factor, the longer the measurement cycle.

  The Y axis unit in spectrum and time signal differs depending on whether or not symptom enhancement is used:

Y axis unit	*Symptom enhancement off*	*Symptom enhancement on*
In spectrum	HDsv	HDesv
In time signal	HDsv	HD^2esv

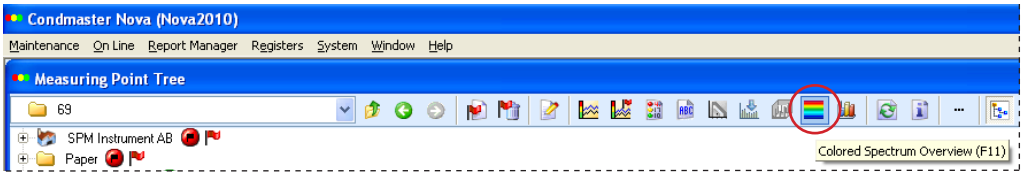
Colored Spectrum Overview

The **Colored Spectrum Overview** is a three-dimensional view of all spectrums under a particular measuring assignment. Its purpose is to simplify the process of identifying in spectrums the patterns and trends which indicate damages. In the Colored Spectrum Overview, signals which are always present in the machine are clearly distinguished from signals caused by developing damages. The Colored Spectrum Overview provides a very good overall picture of machine condition development.

Patterns and trends are easily detected in the overview, particularly in "noisy" spectrums. There is no need to predefine what symptoms should be highlighted; the overview displays all symptoms by default. Spectrums can be viewed in orders, Hz or CPM.

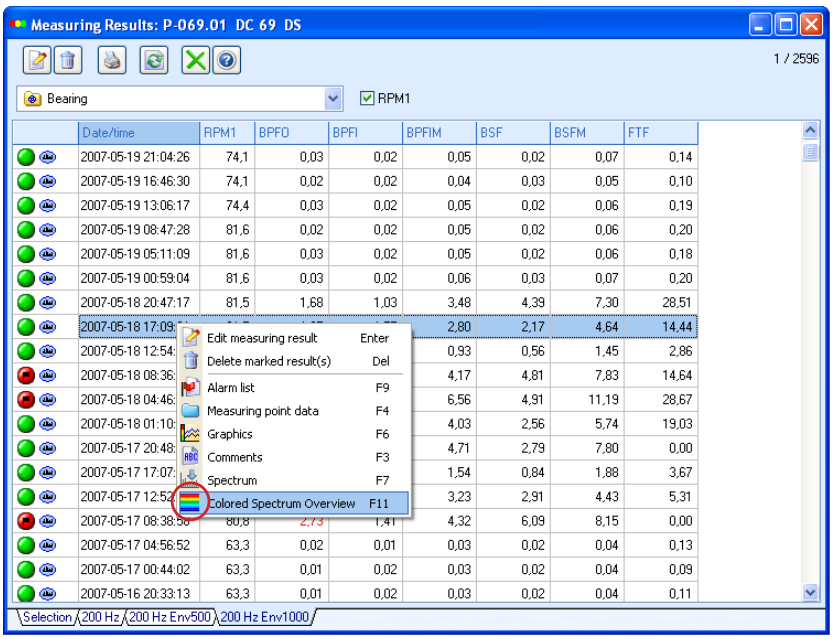
Where to find it

The Colored Spectrum Overview is accessible in several ways, one of which is the **Colored Spectrum Overview** button in the Condmaster menu bar:



The rainbow-colored icon symbolizing the Colored Spectrum Overview can also be found in the following places:

- Graphical Overview
- Measuring results (see example screen shot below)
- Graphic evaluation
- Spectrum
- Compare spectrum



Colored Spectrum Overview functionality

The **Colored Spectrum Overview** window is packed with information. Here's a brief description of the main elements (please see screen dump on opposite page):

A) **Tool bar**: The tool bar contains the following functions:

1) Go to previous / next measuring assignment
2) Select measuring assignment from a list (applicable only when a measuring point is marked in the Measuring Point Tree, rather than an individual measuring assignment).
3) Zoom back
4) Show / hide focus rectangle. Activate the focus rectangle (10) to zoom in on a particular area in he color spectrum. A magnification of the focused area is shown in the zoom window, to the right of the color spectrum (D). The size of the focus rectangle can be changed by pointing at the "extra" handle in the lower right corner of the rectangle and dragging to the desired rectangle size. Harmonics are always shown. Sidebands can be activated by the user.
5) Zoom in / out in the color scale to emphasize colors in the spectrum
6) Spectrum information field: when you hover the mouse over the color spectrum, or when the focus rectangle is activated, details about the spectrum currently pointed at (or in focus) is displayed here.
7) Show / hide RPM/symtom list, Zoom window and individual spectrum
8) Show / hide zoom window
9) Show / hide individual spectrum

B) **Color spectrum**: Occupying the major part of the **Colored Spectrum Overview** window, this is the collection of spectrums under the measuring assignment. Comments are shown below the graph as small, colored squares which can be clicked on the display or edit the comment. Click on 'X Orders', 'X Hz' or 'X CPM' on the Y axis (11) to toggle between them. Right click in the color spectrum for a popup menu with further options.

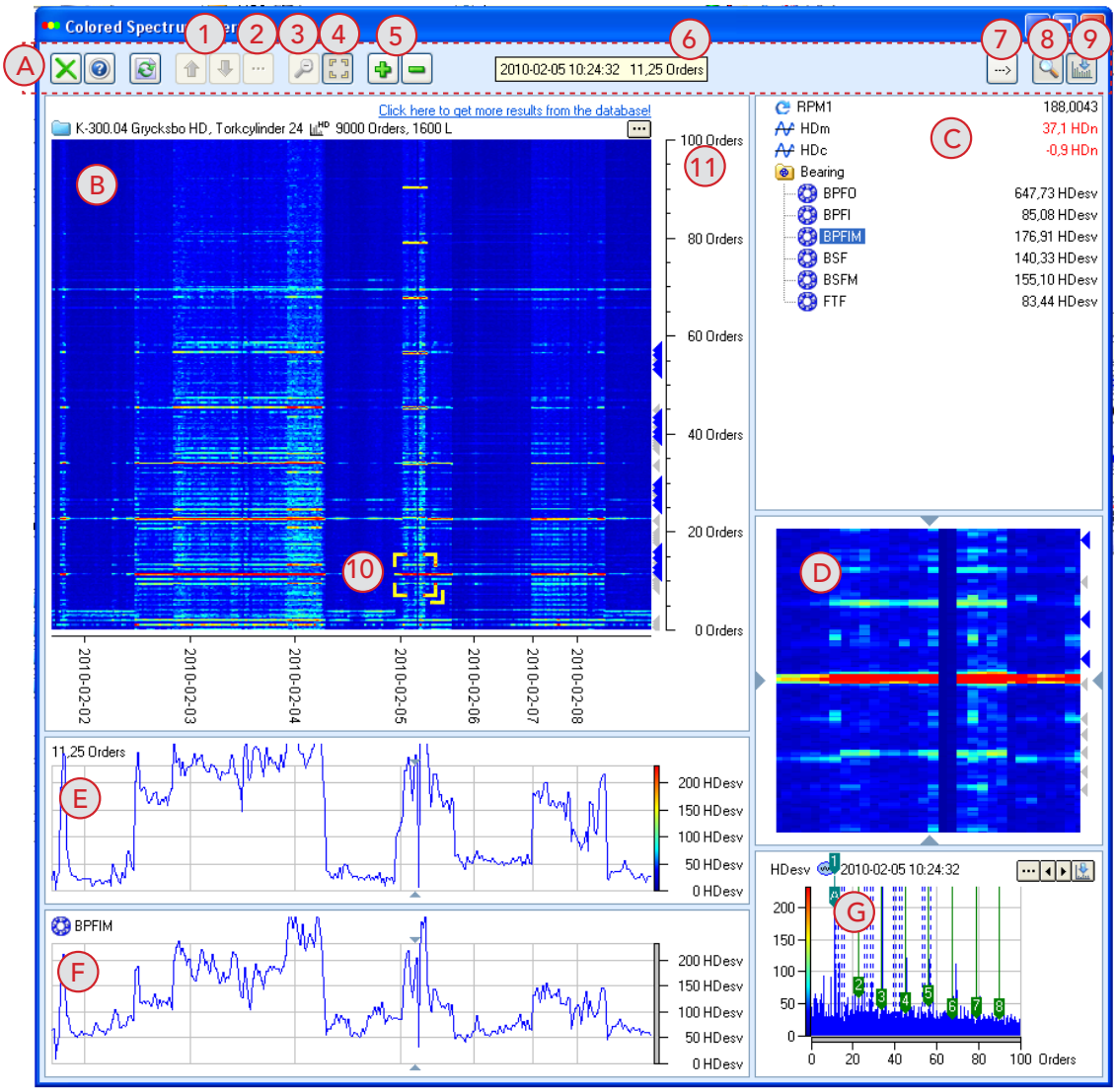
C) **RPM/symptom list**: This is a list of the symptoms etc. set up on the measuring point. Mark one to display RPM and symptom values (F) for the current measuring result. Matching symptoms for the current position in the color spectrum are indicated with red arrows in the list and in the color spectrum, or blue arrows for theoretical matches.

D) **Zoom window**: Shows a magnification of the spectrum currently pointed at (or in focus) in the color spectrum. The bluish grey arrows on each side indicate the highest value and its sidebands (if any).

E) **Line graph**: The trend curve of the spectrum currently pointed at (or in focus) is displayed immediately below the color spectrum. The current center position in the color spectrum is indicated with two bluish grey arrows.

F) **Symptom graph**: The trend curve of the RPM or symptom currently marked in the RPM/symptom list is displayed in the lowermost part of the **Colored Spectrum Overview** window.

G) **Individual spectrum**: In the lower right corner of the **Colored Spectrum Overview** window, the spectrum corresponding to the measuring result currently in focus is displayed. Under the '...' button, the display of theoretical lines can be turned on or off.


Colored Spectru
1
2
3
4
5
6
7
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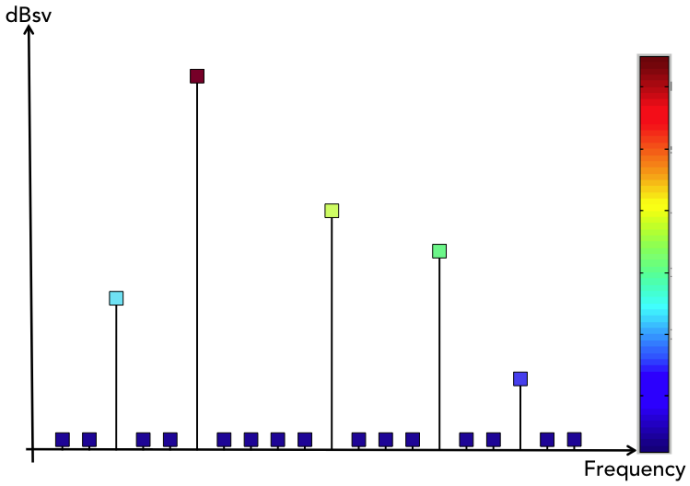
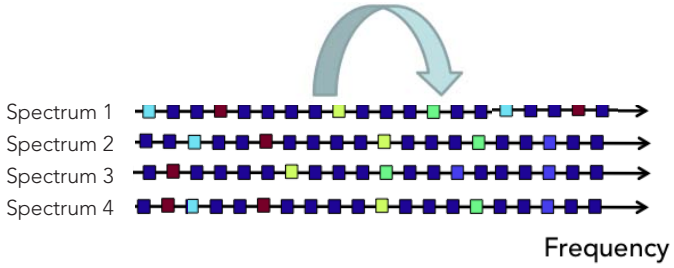
9
A
2010-02-05 10:24:32 11,25 Orders
Click here to get more results from the database!
K-300.04 Grycksbo HD, Torkcylinder 24
9000 Orders, 1600 L
B
100 Orders
11
80 Orders
60 Orders
40 Orders
20 Orders
0 Orders
10
2010-02-02
2010-02-03
2010-02-04
2010-02-05
2010-02-06
2010-02-07
2010-02-08
RPM1 188,0043
HDm 37,1 HDn
HDc -0,9 HDn
Bearing
C
BPFO 647,73 HDesv
BPFI 85,08 HDesv
BPFIM 176,91 HDesv
BSF 140,33 HDesv
BSFM 155,10 HDesv
FTF 83,44 HDesv
D
11,25 Orders
E
200 HDesv
150 HDesv
100 HDesv
50 HDesv
0 HDesv
BPFIM
F
HDesv
2010-02-05 10:24:32
G
0 20 40 60 80 100 Orders

How the colored spectrum overview is created

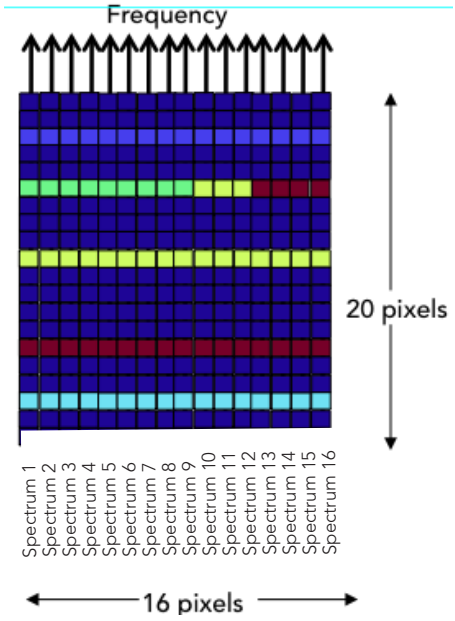
1. On all spectrums under the selected measuring assignment, amplitude is translated into a relative color scale:



2. The spectrums are "piled up" into a stack, then the whole lot is turned upwards and displayed from above:



3. The result can be thought of as a topographic map, only here the tightest contour (or altitude) lines correspond to the color red:



The Condition Manager

What used to be called the Criteria Guide in earlier Condmaster versions has had a complete makeover in order to allow greater flexibility in alarm configuration. The new **Condition Manager** is a general improvement applicable to EVAM, SPM Spectrum SL and SPM HD readings obtained with any SPM measuring device (flexible condition evaluation is not applicable to ISO2372/10816 measurement, where alarm limits are defined by the ISO standards).

Furthermore, users of the Intellinova online system can now use *machine operting conditions* such as power, flow or pressure as criteria to determine equipment running condition (for further information on the use of machine operating conditions in Intellinova, please see section '*Machine operating conditions*').

Alarm options

Over the years, Condmaster alarm options have evolved and by the Condmaster Nova 2008 version, they included:

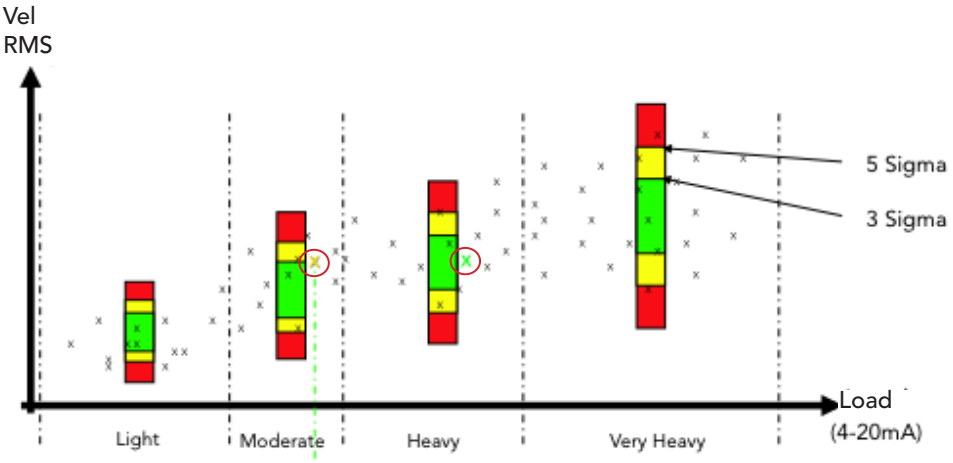
- *Level alarms*, i.e. an alert or alarm is triggered whenever a measured parameter reaches a certain, user defined threshold. This type of alarm is static and therefore works well on applications running with fixed speed and stable loads.
- *Moving average alarms*; essentially the same as above but the value triggering the alarm is a calculated average of a user defined number of measuring results rather than one individual reading. With moving average, alarms caused by sudden and random amplitude increases are avoided. The system calculates a mean value of *x* number of readings and calculates a new mean every time a new reading is registered. The higher the number of readings for mean calculation, the flatter the resulting curve will be. Moving average alarms are preferably used on applications subjected to randomly high readings from unexpected events.
- *Bands (single, multiple and octave)*: In a spectrum, the use of bands is an efficient way of isolating symptom frequencies from each other. The RMS value of all the amplitudes within a user defined frequency range are then added to each other, resulting in a bar graph of the energy contained in the different frequency bands (for more information on bands, please see document no. 71877, *What's new in Condmaster Nova 2008*).
- *Criteria Guide*, used to create alarm limits based on a statistical computation of multiple measuring results from machinery in good running condition.

All of these alarm options are available also in the 2010 Condmaster Nova version, but as mentioned above, the new Condition Manager replaces the former Criteria Guide.

Criteria Guide vs. Condition Manager

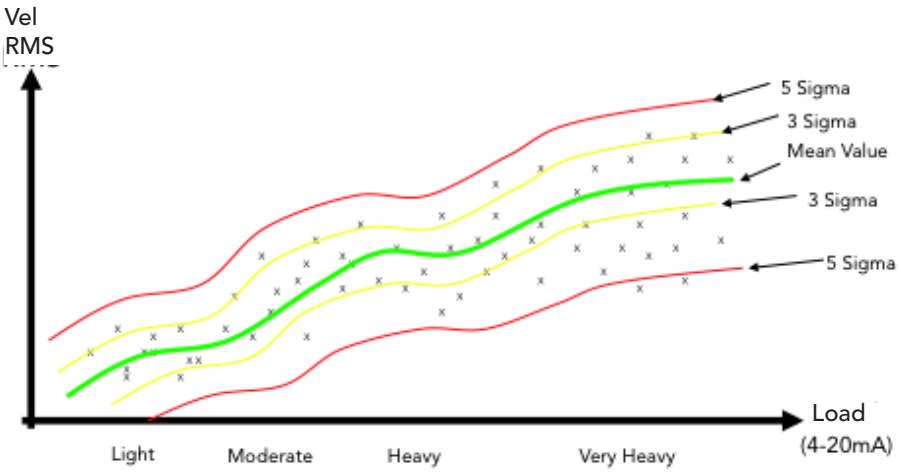
The difference between the Criteria Guide in Condmaster Nova 2008 (and older versions) and the new Condition Manager is significant.

In previous Condmaster versions, criteria calculation was made on the measuring point level, meaning all measuring results from the selected time period(s) were included in the computation. The user had no means of selecting a representative "subset" of readings on individual assignments, condition parameters or symptoms for inclusion in criteria calculation. The result was a "stairlike" evaluation of measuring results, where the same value might result in different condition evaluation depending on load, for example:



***Example**: A particular measuring result, measured under "moderate" conditions, might evaluate to yellow condition. Depending on the influence of load, the same value measured under "heavy" conditions might evaluate to green.*

In comparison, the Condition Manager gives the user full flexibility in terms of what to include in criteria calculation. Individual measuring results, condition parameters and/or symptoms can be easily selected from graphs and the result is an immediate graphical presentation. The Condition Manager yields a smoother "evaluation curve":



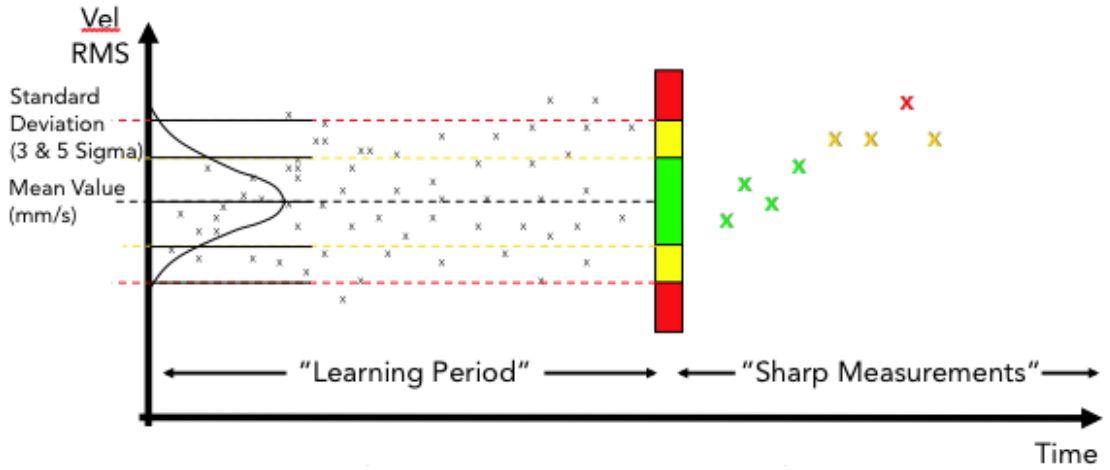
***Example**: The Condition Manager yields a smoother curve.*

The Condition Manager enables users to experiment freely in order to find the optimal alarm setup for any given application. This "learning phase" can continue until the criteria is saved. When it is saved, the criteria is activated and Condmaster starts to evaluate measuring results according to the criteria setup. If at some later time it turns out the alarm settings yield unsatisfactory results, you can always go back and edit the criteria.

What is a criteria?

A criteria is based on a specific, user selected set of measurement data. In order to obtain "representative" baseline readings on which to base condition statistics, this selection should be composed of readings from machinery in good running condition. The calculation of condition statistics is automatically made by Condmaster Nova, all you have to do is select a suitable set of readings to be included.

Condmaster calculates the mean value and standard deviation obtained from the selected set of readings. The readings should cover the whole range of normal operating conditions (speed, load, temperature, etc.) that affect the machine's vibration behaviour, because you will get a "bad condition" indication whenever a reading falls outside of the normal range, and this can either be due to abnormal machine vibration or too narrow a base.

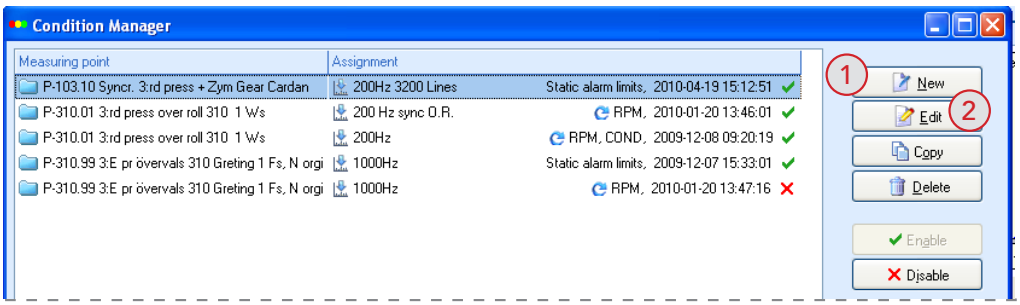


Criterias are used to define alarm limits based on running and/or operating condition. This is also known as flexible condition evaluation, meaning that current operating conditions determine whether or not a measurement value merits an alert (yellow condition) or alarm (red condition). A high vibration reading taken under certain operating conditions may not necessarily mean the same as an identical result when operating conditions are different. Because it allows the setup of variable evaluation schemes, flexible condition evaluation is useful for applications such as wind turbines or extruders, which run under variable operating conditions.

The result of criteria calculation is a non-dimensional **COND no.** (condition number) for each condition parameter (VEL, ACC, DISP, Crest etc.) and symptom (unbalance, BPFO, gear mesh etc.). COND no. = 0 (zero) represents the mean value of the readings selected. Criterias are handled individually for each symptom and therefore can provide more precise alarm limits for every symptom. Selection of measuring results to include in the calculation of criteria is done using click-and-drag directly in various graphs.

Creating and editing criteria

The Condition Manager is accessed via **Maintenance** > **Condition Manager** in the Condmaster menu bar, or via the **Alarm limit guide** in the **Measuring Point data** form. The main **Condition Manager** window lists all existing criteria:



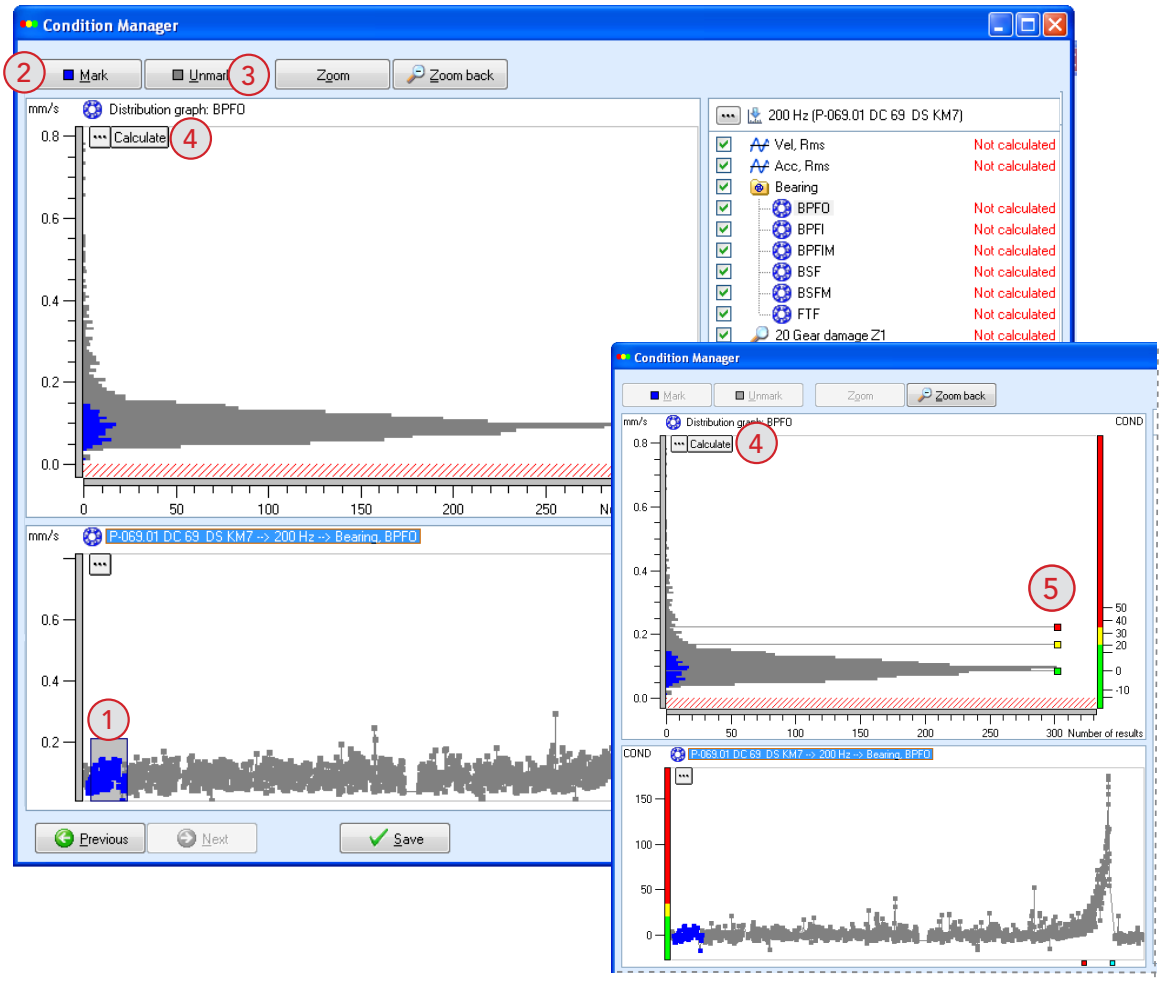
1. Click the **NEW** button (1), or mark an existing criteria and click **EDIT** (2).
2. The Condition Manager displays the Measuring Point tree. Select a measuring assignment on which to base the criteria. Note that only one measuring assignment can be selected here; however, in the final step of the guide, more measuring results from the same and other measuring assignments can be added for the sake of improving statistics.
3. Select a **Criteria type**. Criteria may be one of two types:
   - **Static** criteria means that alarm limits will remain the same regardless of operating condition. For static criteria, the result of the statistical computation is a *normal distribution graph* (also known as a bell curve; turn the page for an example), which is a bar graph summarizing groups of measuring results representing the amount of variation in the readings. It visually represents the amount of variation in your selection of measuring results and allows you to see how many readings fall within a certain range. It will help you determine whether a particular reading fits into the bigger picture.
   - Criteria type **RPM** (or a process parameter i Intellinova) means alarm limits will vary with operating condition, i.e. the present value of its controlling parameter (power, speed, flow, pressure etc.). Selecting a process parameter results in a combined graph, with symptom units on the Y axis and RPM or process parameters on the X axis.
4. Now select what alarm limits are to be included in the criteria.
5. Select an alarm limit type:
   - **COND** means the result is a COND value where 0 represents the average of all measuring results included in the criteria. Alarm limits will be fixed to +21 for upper alerts (yellow) and +35 for upper alarms (red). The lower limits will be fixed to -21 for alerts (yellow) and -35 for alarms (red).
   - **Symptom value** represents the actual value of the alarm limit, e.g. 1.22 mm/sec for upper alert.
6. In the final step of the Criteria Manager, all measuring results belonging to the measuring assignment are shown. This is where you should *be careful to make a representative selection of results* to base your criteria on. Use click-and-drag in any of the graphs to select measuring results, then click the **MARK** button in the upper left corner of the form.
7. To calculate the criteria, click the **CALCULATE** button.

Please see the following pages for a description of the functionality in the graphs.

Distribution graph example

Below is an example of the final step of the Condition Manager. In the previous steps of the guide, the following settings were made:

- Criteria type = **Static**
- Alarm limits = **Upper alarm**, **Upper alert**
- Alarm limit type = **Symptom value**



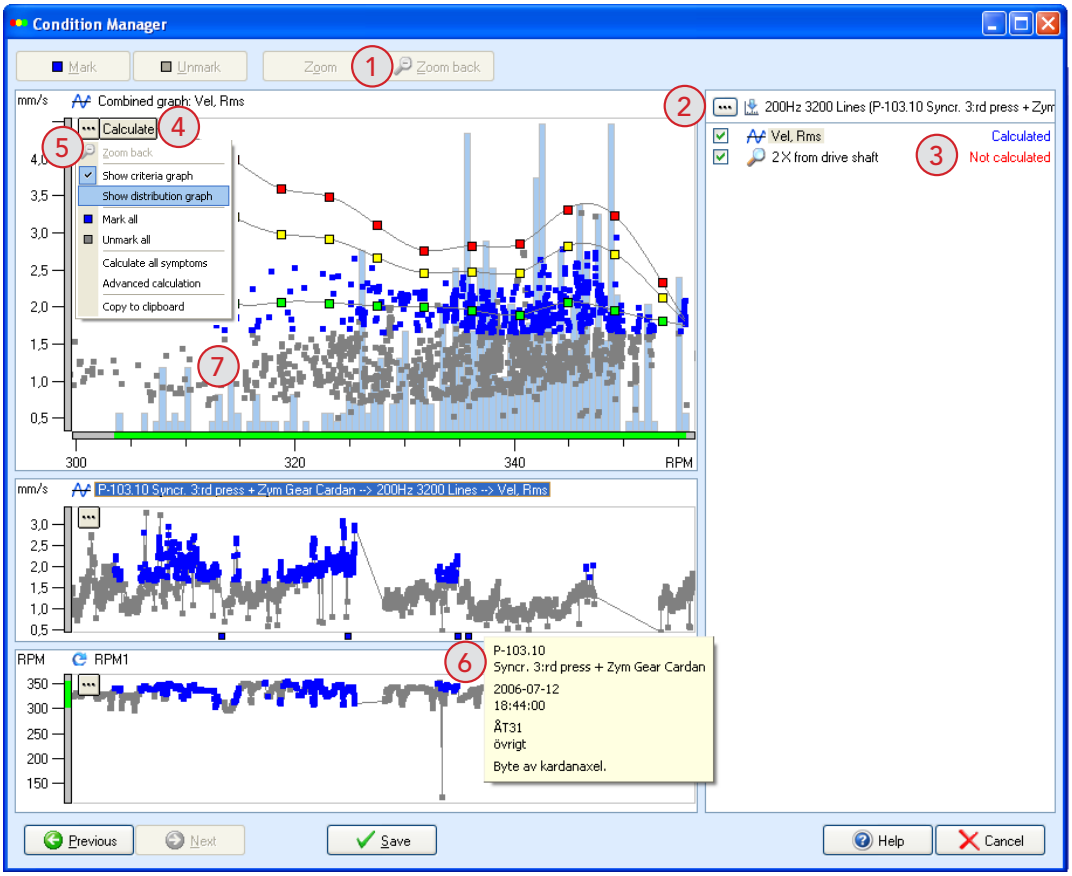
As a result of selecting the **Static** criteria type, the graph is a distribution graph. In this example, a number of measuring results have been selected by the user through a click-and-drag operation in the lower graph. The selected measuring results are represented by the grey, rectangular area (1). These results will be included in the statistical criteria computation, but the computation itself is yet to be done.

1. In the lower graph, multiple "areas" of measuring results can be selected using click-and-drag. For each selection of results, click the **MARK** button in the upper left corner of the window (2). The selection of readings then turns blue in both graphs.
2. To delete unwanted measuring results from the computation, click and drag, then click the **UNMARK** button (3).
3. When you're done selecting measuring results, click the **CALCULATE** button in the upper left corner of the upper graph (4). Following this action, a green-yellow-red evaluation scale is automatically displayed in both graphs (5, see inset), showing what readings are considered to fall under "good operating condition".

Combined graph example

Here is another example, this time with the following settings:

- Criteria type = **RPM** (process parameter)
- Alarm limits = **Upper alarm**, **Upper alert**
- Alarm limit type = **COND**



Condition guide functions

Once the criteria calculation has been done, there are a number of practical functions to help you work with the criteria:

- Zooming: Click-and-drag to mark an area in the graph(s), then click the **ZOOM** / **ZOOM BACK** buttons (1).
- Adding more measuring results: click the '...' button (2) to add measuring results from other measuring assignments.
- Viewing single symptoms or condition parameters: Tick the checkboxes for symptoms or condition parameters (3) to view them individually.
- Calculate criteria for individual symptoms or condition parameters: Tick the checkboxes for symptoms or condition parameters (3), then click **CALCULATE** (4). Use **Calculate all symptoms** on the '...' popup menu (5) to include all of them.
- Viewing comments: Click the small squares at the bottom of the graphs (6) to display comments made on the measuring point (if any).
- Moving alarm limits manually: position the cursor on any of the green, yellow or red squares (7). The cursor turns into a two-way arrow and the alarm limit can be moved up or down.

Report Manager

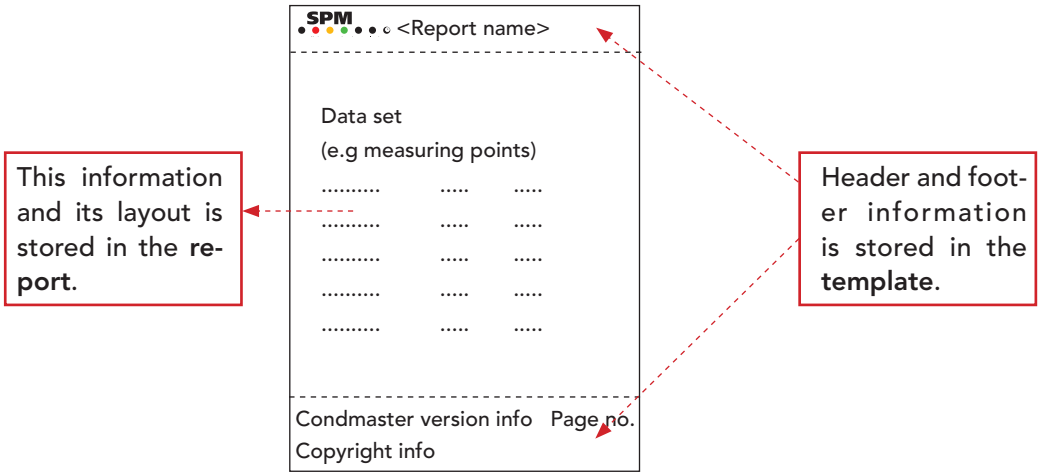
Condmaster Nova 2010 comes with a new function called the **Report Manager**. This function provides a number of standard reports of database items such as components, measuring points, measuring rounds, alarm list etc.

The **Report Manager** is accessed via the **Report Manager** menu in the Condmaster menu bar:

The reports can be previewed on screen, printed, saved as pdf, exported and imported. Most reports also offer sort order and other options.

Understanding how reports are composed

Each report is composed of a template and a collection of database items:



It is important to understand the difference between a template and a report, and the relationship between the two.

The standard SPM templates contain a page header, printed only on the first page of every report, and a footer, which is copied onto every report page. That's all.

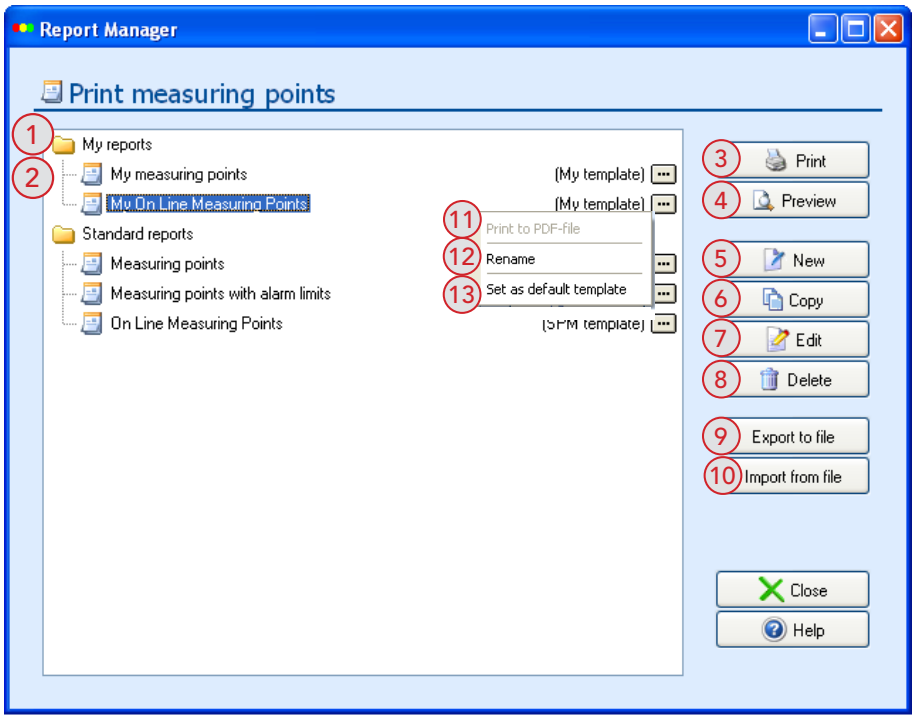
The "bulk" of a report on the other hand is a set of data, collected from the Condmaster database and laid out according to the individual report design. Depending on the type of report and the amount of data in your database, this bulk of information can range from a few rows to many pages.

Every time a particular report is generated, *the template is merged with the current bulk of data*. This means there must be a "connection" between the default template and every individual report. For all standard reports, this connection has been set up by SPM. However, if you want to make changes to a standard SPM template or report, you need to make a new connection yourself (see section '*Customzing the standard templates*').

Report Manager functions

Each menu option displays the **Report Manager** window (see screen dump below), where a tree structure in turn presents the reports available to you. Two file folders are always present in the tree:

- **My reports** (1): Under this folder, you'll find any reports you have created yourself.
- **Standard reports** (2): Reports developed by SPM are found under this folder. They come with the system and cannot be edited, deleted or renamed.



PRINT (3): Send report straight to printer without preview (not applicable to templates)

PREVIEW (4): Preview report on screen before printing (not applicable to templates)

NEW (5): Create a new report from scratch in the report generator tool. The new report will be saved under **My reports** for the database item selected (Components, Measuring rounds etc.)

COPY (6): Open a copy of the current report in the report generator tool, where you can edit the copy and save it *under a new name* under **My reports**

EDIT (7):	Open the current report in the report generator tool so you can edit and save it *under the same name* (this option is available only for **My reports**)
DELETE (8):	Delete the current report (this option is available only for **My reports**)
EXPORT TO FILE (9):	Export the current report (in FastReport file format)
IMPORT FROM FILE (10):	Import a report (in FastReport file format) and save it under **My reports**

Functions under the '**...**' button:

Print to PDF file (11): Create a copy of the current report in pdf format (not applicable to templates)

Rename (12): Rename the current report (applicable to **My reports** only)

Set as default template (13): Select this template to be the default template for all reports (applicable to templates under **My reports** only)

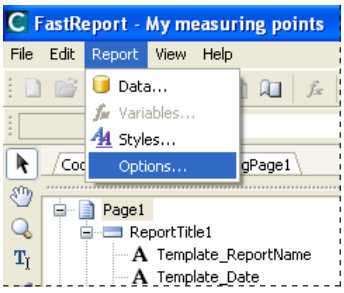
Customizing the standard templates

The standard templates delivered with Condmaster contain the SPM logotype and a report name assigned by SPM. If you prefer your own logotype or any other change to a report header or footer, follow these steps:

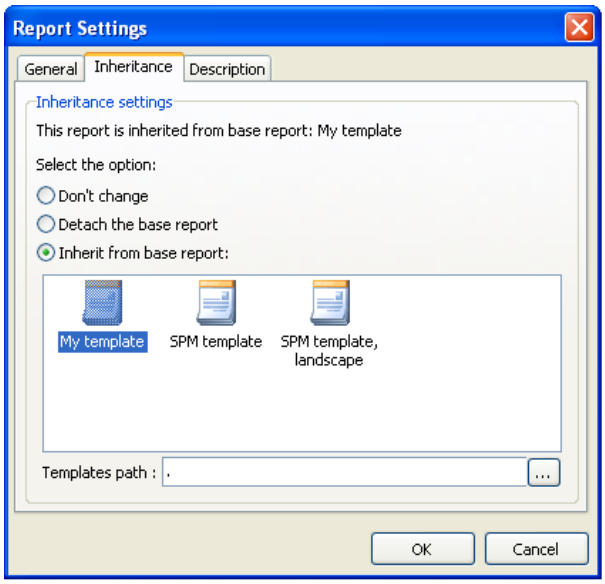
1. In the **Report Manager** menu, select **Templates**.
2. Mark a standard template and click **COPY**. The report generator tool, FastReport, opens inside Condmaster. For more information about FastReport, please see section '*Designing your own reports*'.
3. Make your changes in FastReport.
4. Click the **SAVE** button in the FastReport tool bar. You are prompted to enter a name for the new template. When you have done so, close FastReport. The new template is now found under **Templates** > **My Reports**.
5. Mark the new template, click the '**...**' button and select **Set as default template**.

   At this point, your changes do not affect any of the reports, i.e. when you print or preview them, they will still have the standard SPM header and footer. To have your template changes reflect on the reports, you need to make a copy of a given report, then make a new connection between that report and your new template. Follow these steps:

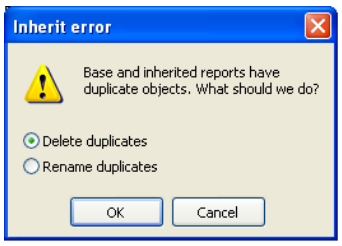
6. In the **Report Manager** menu, select a database item for printout (Components, Measuring points, Comments, etc.).
7. Select an individual report in the **Report Manager** window. For a standard report, click **COPY**. For a report in the **My reports** folder, click **EDIT**. FastReport opens within Condmaster and displays the design of the report.
8. In the FastReport menu bar, select **Report** > **Options**:



9. The **Report settings** window is displayed. Click on the **Inheritance** tab:



10. Among the option buttons, select **Inherit from base report**, then mark the template you created earlier. Click **OK**.
11. When FastReport displays the following warning message, select **Delete duplicates** and click **OK**:



12. Save the report. If it is a copy of a standard report (see under 7) above), you are prompted to give it a new name.
13. Close FastReport.
14. Preview the report to verify that your new template is in fact applied to this report.

Repeat steps 6-13 above for every report where you want your new template applied.

Designing your own reports

The Report Manager uses a report generator tool named FastReport. This is an add-on component which opens inside Condmaster, making it look like an integral part of the Condmaster program. FastReport has the capability to generate reports containing graphs, spectrums and time signals as well as orbit graphs.

FastReport is a complex product requiring a certain level of programming skills and understanding. Along with the Condmaster installation comes a separate user manual for the FastReport software. Please take advantage of that and other FastReport support options if you need to design customized reports.

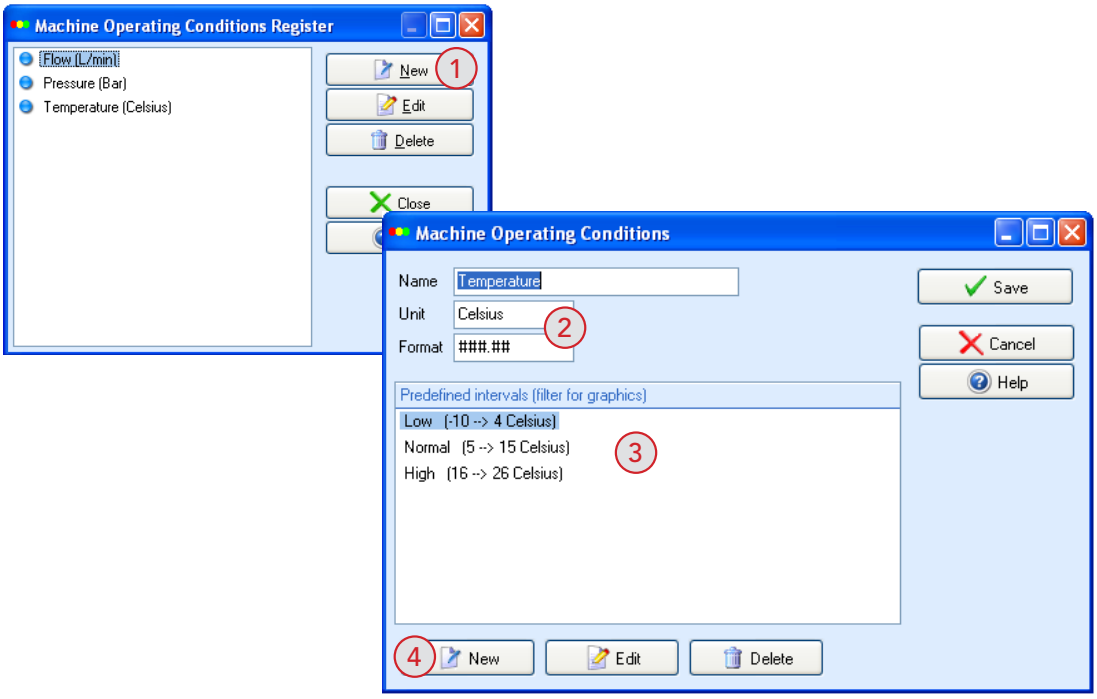
Machine operating conditions

In Condmaster Nova 2010, Intellinova users can measure machine operating conditions such as power, speed, pressure, flow etc. in connection with vibration measurement. Based on these readings, alarm limits can be set in the Condition Manager (see page 13). Machine operating conditions can be measured through the Intellinova analog monitoring unit, connected to a temperature or pressure gauge, for example, or via the RPM input. They can also be imported via OPC.

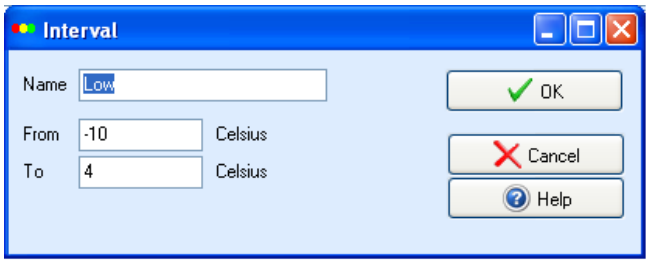
Throughout Condmaster, a light blue "dot" icon symbolizes machine operating conditions: 

To start using machine operating conditions, follow these steps:

1. Define the new operating condition under **Registers** > **Machine Operating Conditions** > **NEW** button (1):



2. Name the operating condition and input a unit of measurement and a format (2).
3. **Predefined intervals (filter for graphics)** (3) is an optional setting. Any intervals input here can be used in graphics to filter out results you don't want to see at a given time. Click the **NEW** button(4) to enter intervals for graphical filtering:

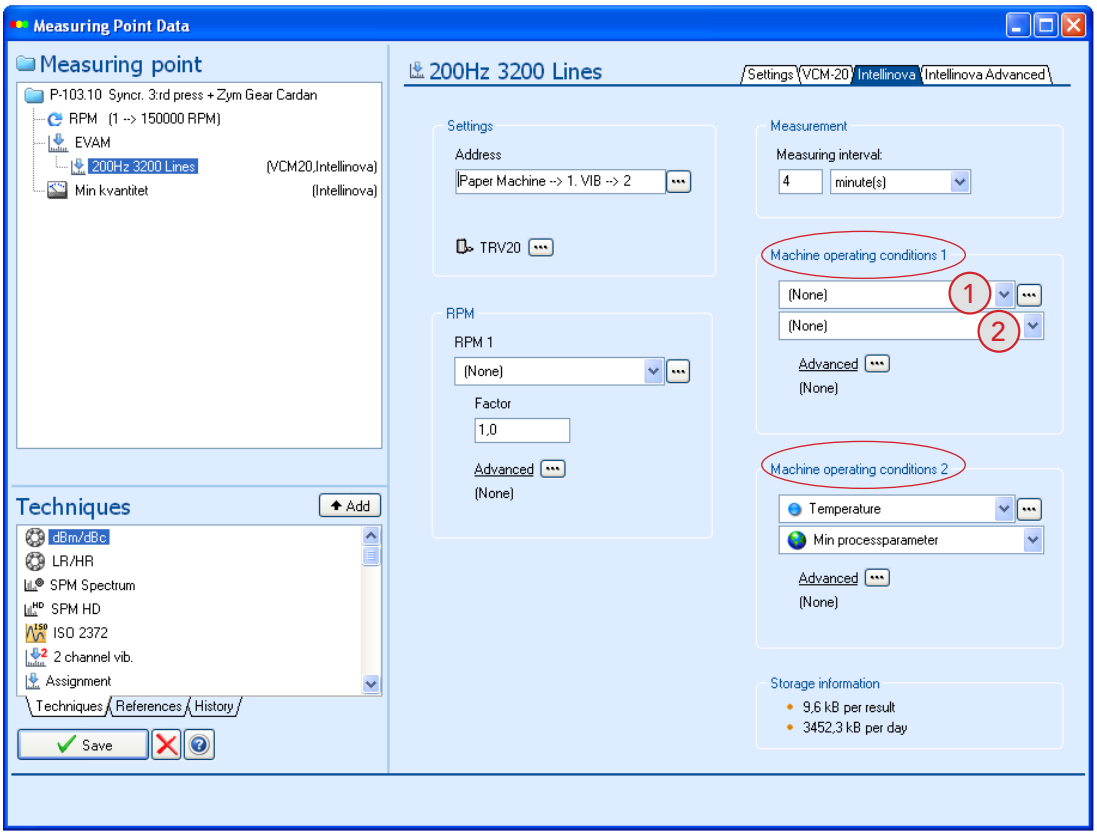


4. Each machine operating condition needs to be "associated" with a measured value. Your next move is therefore to set up how this particular value is measured. The alternatives are:

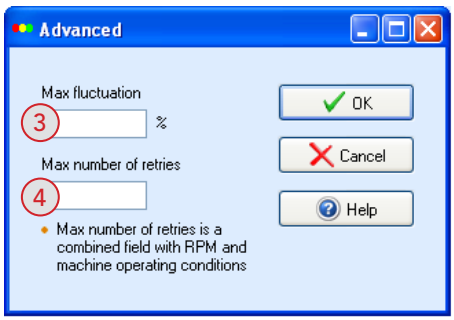
A) as a global value (under **Online** > **Intellinova System Overview** > **Global values** tab) and/or

B) as a **User defined** measuring assignment on a measuring point.

5. Next, you'll need to make the actual "association" between the named operating condition and the measured value. Select the measuring point where the machine operating condition is to be used and open the **Measuring point data** form:



6. On each measuring assignment, two machine operating conditions may be used. In the upper dropdown list under **Machine operating condition 1**, select an operating condition (1).
7. In the lower dropdown list (2), select the origin of the measured value, i.e. a global value or a user defined measurement.
8. Under the **Advanced** '...' button, further settings can be made:



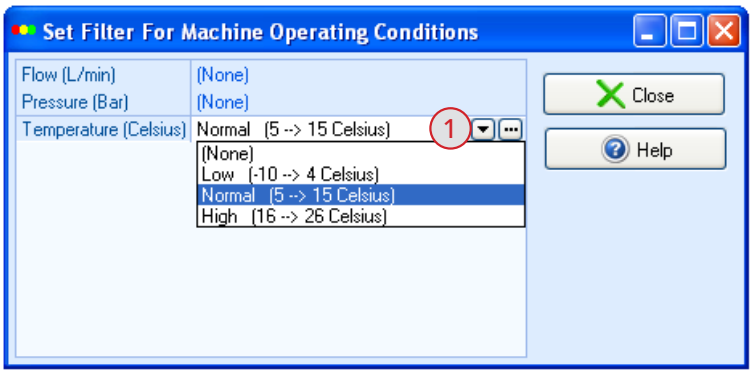
Max fluctuation (3) represents the maximum fluctuation of the measured value allowed during the measurement time. If it varies more than the percent input here, the measurement is considered failed. **Max number of retries** (4) is the number of times the Commander Unit will try to measure before measurement is considered failed.

Setting graphical filters for machine operating conditions

If **Predefined intervals** have been set up in the **Machine operating conditions** register (see page 23), you can use them to filter out what you want to see in the Condmaster graphics. The filters will apply to **Graphical evaluation**, **Spectrum** and **Compare spectrum**. However, from each of these Condmaster functions, other filter settings can be made.

1. Click on the '...' button in the Condmaster menu bar and select **Set filter for machine operating conditions**:

2. In the dropdown list of the operating condition you wish to filter on (1), select an interval. Note that only one interval can be selected per operating condition. Readings falling into the selected interval will be displayed in graphics; all others will be left out.



3. Under the '...' button, other predefined intervals can be selected. A new and temporary interval, not defined in the **Machine operating conditions** register, can also be input here.

The blue **Machine operating conditions** icon (see page 23) is available in **Graphical evaluation**, **Spectrum** and **Compare spectrum**, so filter settings can be changed from there.

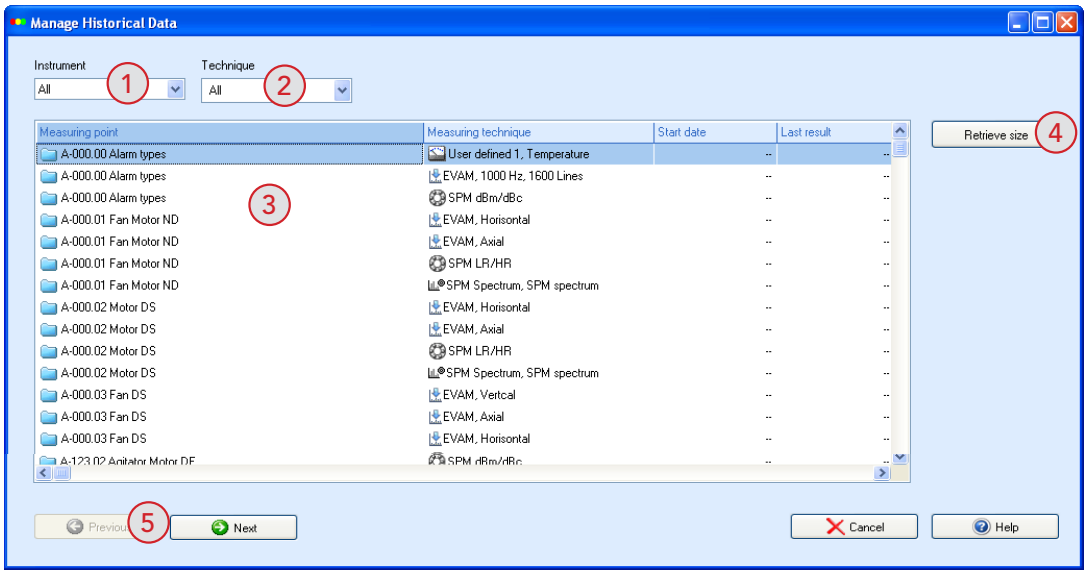
Managing historical data

At some point in time, it may become necessary to decrease the amount of data in the Condmaster database. The **Manage historical data** function has been developed to allow the system administrator to delete data from the database in a controlled manner. The function offers the possibility to select instrument(s), measuring technique(s) and, finally, what measuring points should be deleted.

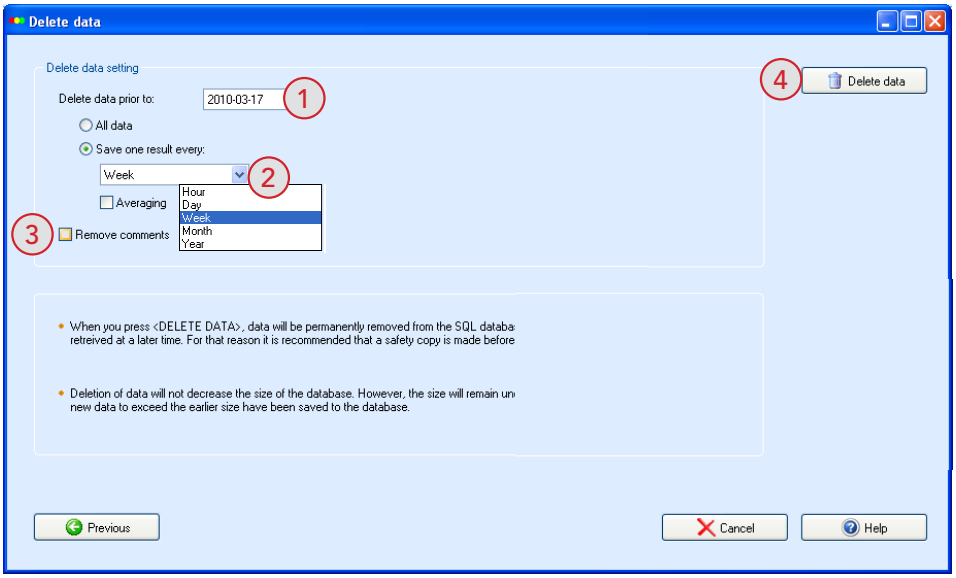
NOTE: The removal of data from the database via this function is permanent. The data cannot be retreived at a later time. *We therefore strongly recommend that a safety copy be made first*. It should also be noted that using this function does not in fact decrease the size of the database. Its size will remain unchanged until enough new data to exceed it earlier size have been saved to tha database.

To delete information from the database, follow these steps:

1. Under the **System** option in the menu bar, select **Database maintenance** > **Manage historical data**. The **Manage Historical Data** guide is displayed:



2. In the **Instrument** (1) and **Technique** (2) dropdown lists, select instrument(s) and measuring technique(s) eligible for deletion.
3. In the resulting list (3), select one or more measuring points. Holding down the <SHIFT> key on your keyboard, adjacent rows may be selected. Click-and-drag may also be used to select multiple rows.
4. Click the **RETRIEVE SIZE** button (4) to update the list with more information about the measuring results.
5. Click the **NEXT** button (5) to go to the next page of the **Manage Historical data** guide (screen shot overleaf):



6. Enter a **Delete data prior to** date (1).
7. Next, decide whether to delete all data older than that date, or have Condmaster **Save 1 measuring result every** hour, day, week, month or year (2) and remove the rest. If you opt to save measuring results, you can also select to have them averaged. However, averaging can only be done with ISO2372 measuring results and results from user defined measuring assignments.
8. Tick the **Remove comments** checkbox (3) to have all comments made prior to the date set up. Left unticked, no comments will be removed.
9. Click the **DELETE DATA** button (4) to start deleting your selection of data.

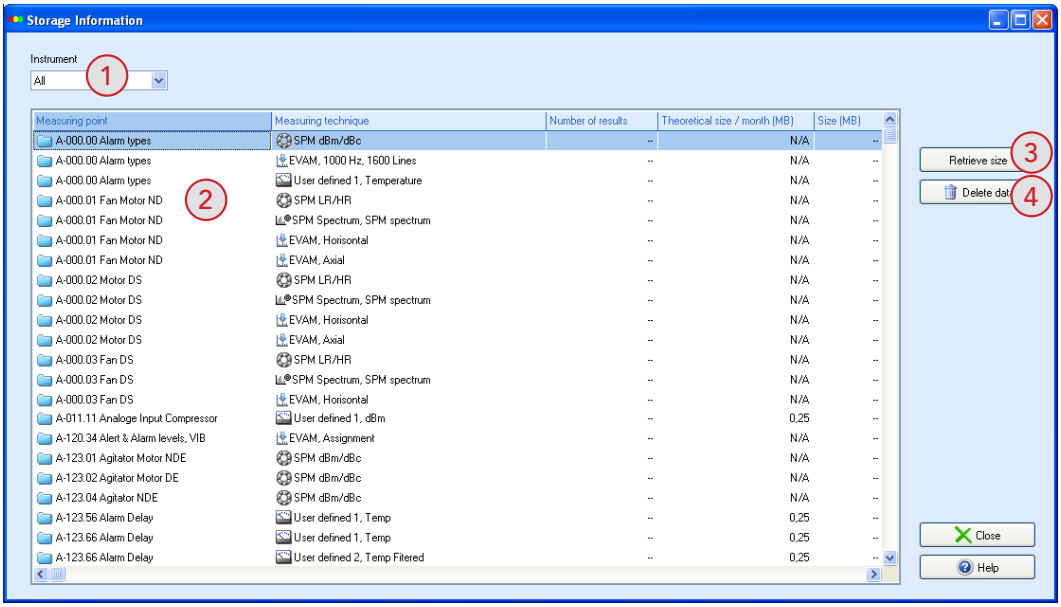
Storage information

Storage information is a new function which delivers information about the amount of space occupied by a certain measuring point or measuring technique in the Condmaster database. This is a convenient way for the system administrator to find out whether it is reasonable to continue measuring according to the current setup of measuring assigments. In case the database needs to be made smaller for performance reasons, for example, this function will tell what consumes the most memory space.

Under **System** in the Condmaster menu bar, a complete overview of the storage required by all measuring points and techniques is available (see below), while storage information for individual Intellinova measuring points is also available in the **Measuring point data** form (see page 29).

To view storage information for all measuring points and techniques,follow these steps:

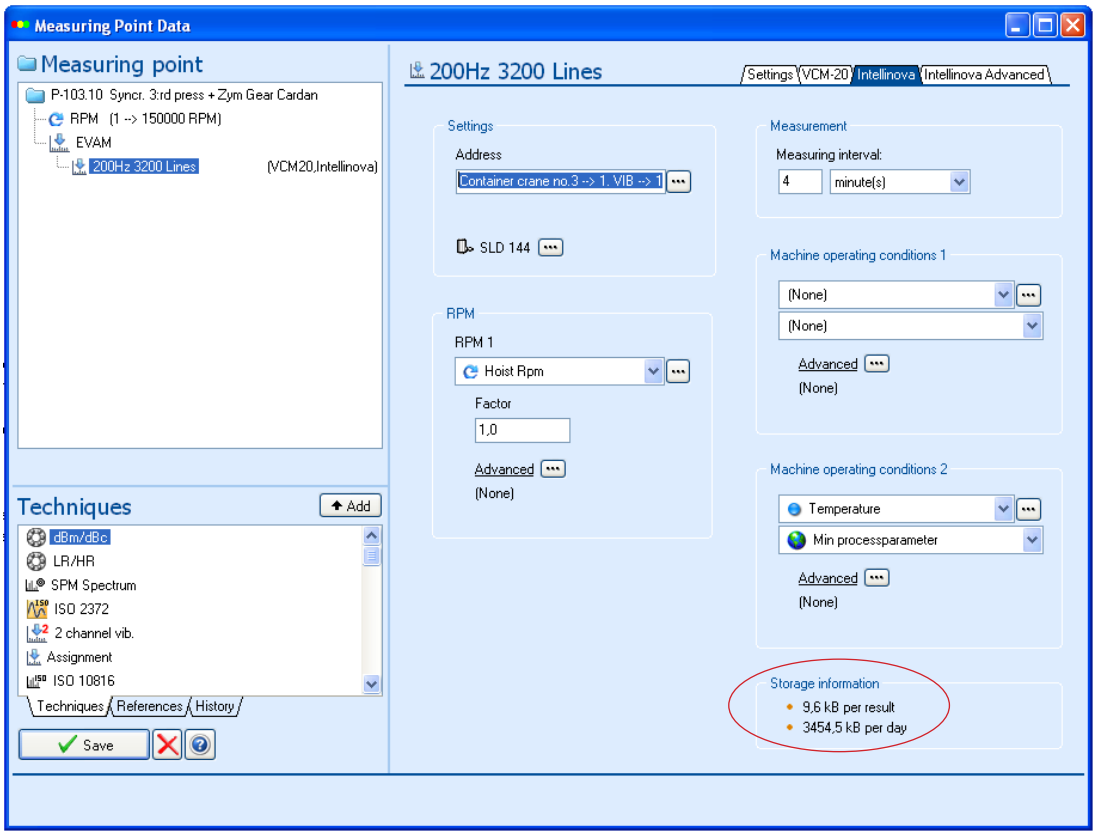
1. Under **System** > **Database maintenance**, select **Storage information**.
2. In the **Storage information** window, select **All** or a specific instrument in the **Instrument** dropdown list (1):



3. In the resulting list (2), each measuring technique set up on a measuring point is accounted for on a separate row. Hence, a single measuring point can appear on several rows.
4. Select one or more measuring points in the list. Holding down the <SHIFT> key on your keyboard, adjacent rows may be selected. Click-and-drag may also be used to select multiple rows.
5. Click the **RETRIEVE SIZE** button (3) to update the list with the number of measuring results and their actual size in Mb (Megabytes) per measuring point. For Intellinova measuring points, the theoretical size is also displayed (not applicable to other measuring devices). The theoretical size is a computation based on the configurations made on the measuring assignments in terms of the number of lines in spectrum, settings for short and long time memory, measuring intervals etc. Please note that measurement conditions and triggers are not included in this computation.
6. If there is a need to decrease the size of the database, you can click the **DELETE DATA** button, in which case the **Manage historical data** form is opened. For information on this function, please see page 26.

Storage information in Measuring point data

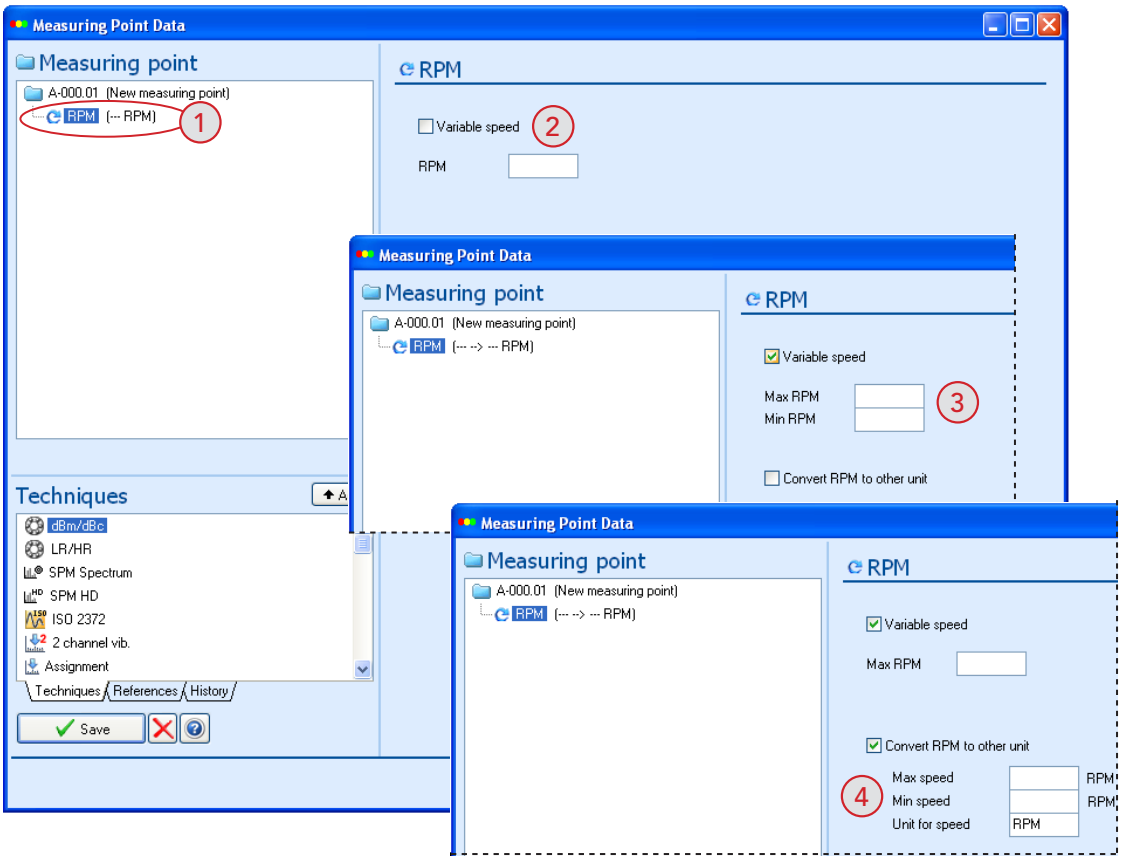
For Intellinova measuring points, the theoretical memory usage can also be seen in the **Measuring point data** form:



Again, the theoretical size is based on settings made on the measuring assignment. It represents the amount of space required *providing all measurements are in fact carried out according to the setup*. If for some reason they are not, it will obviously reflect on the memory usage.

General RPM settings for the measuring point

RPM settings are usually the same for all measuring assignments on a particular measuring point. To facilitate the configuration of RPM settings, they are now set only once per measuring point, rather than on each individual assignment. Now, when a measuring point is created, RPM automatically shows up as a "measuring technique" in its own right (1):



By default, only the **Variable speed** checkbox and an **RPM** field (2) are displayed in the form. If the **Variable speed** checkbox is ticked, **Min RPM** and **Max RPM** can be input (3). Furthermore, RPM can be converted to another, user defined unit by ticking the **Convert RPM to other unit** checkbox (4).

Order tracking for Intellinova

The **Order tracking** function for vibration analysis on variable speed applications was introduced in Condmaster Nova 2008 for the portable instrument Leonova Infinity. In Condmaster Nova 2010 order tracking is also implemented for the Intellinova online system.

New installation software

For the 2010 edition of Condmaster Nova, the installation procedure has been made easier. For more information, please see document no. 71917, Installing Condmaster Nova 2010.