



User Manual



Vibration Analyser Adash 4300 - VA3

Quick Start



Ref: 24112004 RS

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Before Switching On the Analyser

Ignoring any recommendations mentioned below may cause failure of the instrument.
Operating with a power higher than 24 V can cause an accident.

1. Connect into the ICP input only:

- ICP powered sensor
- AC voltage max. 12 V peak-peak
- DC voltage max. +/- 24 V.

If you are not sure, contact your dealer or directly our website.

2. Never connect the analyser to a line voltage 230 V (110 V).

3. Only use batteries with a nominal voltage of max. 1.5 V.

Warning!
Be careful of battery orientation!



Fig. Correct polarity of the supply cells

1. To supply the analyser the following can be used:

- **batteries** with a nominal voltage of **1.2 V**
- **alkaline cells** (not a different type) with a nominal voltage of **1.5 V**.

2. Do not combine various types of supply cells; always *mount four identical cells.*

3. Check the polarity of the mounted cells carefully. By inverting polarity of one cell, the supply cells would be damaged.

Procedure of Supply Cells Replacement

- Switch off the analyser by pressing the combination of the **START + ESC** keys.
- Release the screw of the supply cells cover.
- Replace the discharged cells by charged ones; **pay attention to the correct polarity of each cell.**
- Fix the cover and tighten the screw.
- Switch on the analyser by pressing the **START** key.
- Activate the **Instrument Info** screen from the **Main Menu** and check the condition of the installed batteries.

Indication of Weak Batteries (re-chargeables)

When you select the **Instrument info** from main menu, then information on the current condition of the batteries appears.

While the instrument is switched on, the battery condition is checked every 30 sec.

1. When a **warning** low battery level is detected (insufficient to enable correct and safe work with instrument), the yellow ERR light is on (on the top of keyboard). Finish your current measurement and then change the batteries.
2. When the **alert** low battery level is detected, all three lights on the top of the keyboard blink three times and instrument switches itself off. You have to change the batteries immediately. If the instrument switches itself off after switch-on, then you also have to change the batteries immediately.

Attention!

When the instrument is switched off for several minutes, weak batteries can be regenerated and for a limited time can seem to be in good condition.

Do not try repeatedly switching on, when the instrument itself switches off immediately! You may cause instrument failure and data in memory can be corrupted.

References

This user manual helps you to get familiar with basic features of Adash 4300 – VA3 instrument. The Vibration Analyser Adash 4300-VA3 - User manual is an integral part of this manual.

References:

[1] Vibration Analyser Adash 4300-VA3, User manual

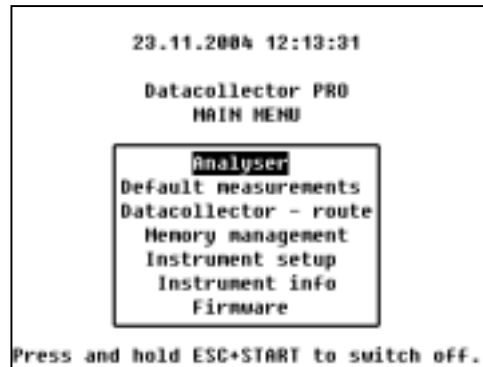
The basic manual is often mentioned in this one as **see [1]**.

We recommend reading of introductory chapters **References** and **Terminology** in the basic user manual [1] at first.

This manual is registered in the list of references as the [2] item.

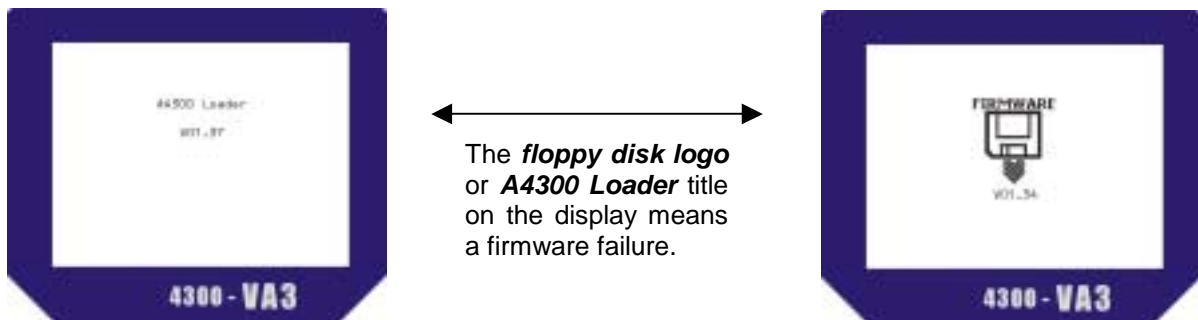
How to switch instrument on/off

1. Push the **START** button and the analyser **switches on**. The Logo and the base analyser information appear. The battery condition is checked too. The **main menu** appears in a few seconds.



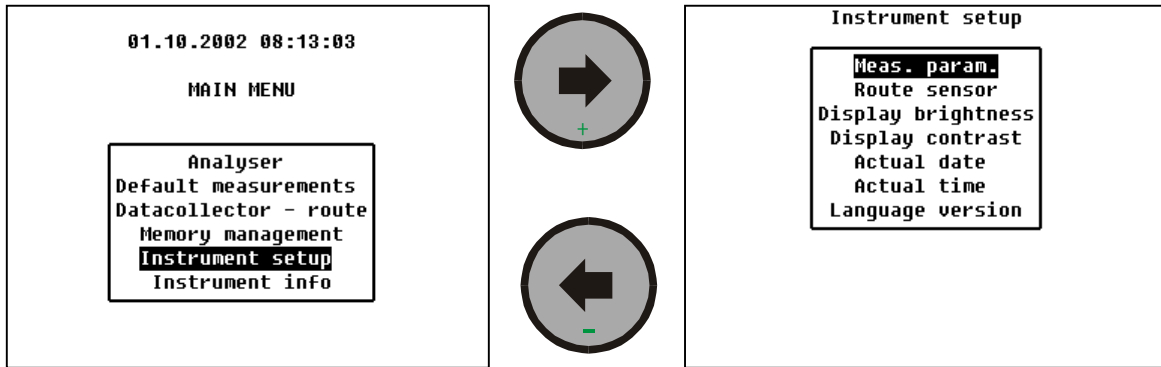
2. Push and hold the **ESC+START** buttons and the analyser **switches off**.

3. If the disc logo or A4300 Loader title appears after switching on, then the instrument is waiting for upload of firmware. Individual steps are described in [1], Instrument Firmware Update chapter.



How to select and to run menu item

1. Use the **arrow keys up/down** for selection of menu item.
2. Push the **Right arrow, ENTER** or **START** for function run.
3. Push the **Left arrow** or **ESC** for return back.



Location of Keys and Lights on the Instrument Keyboard



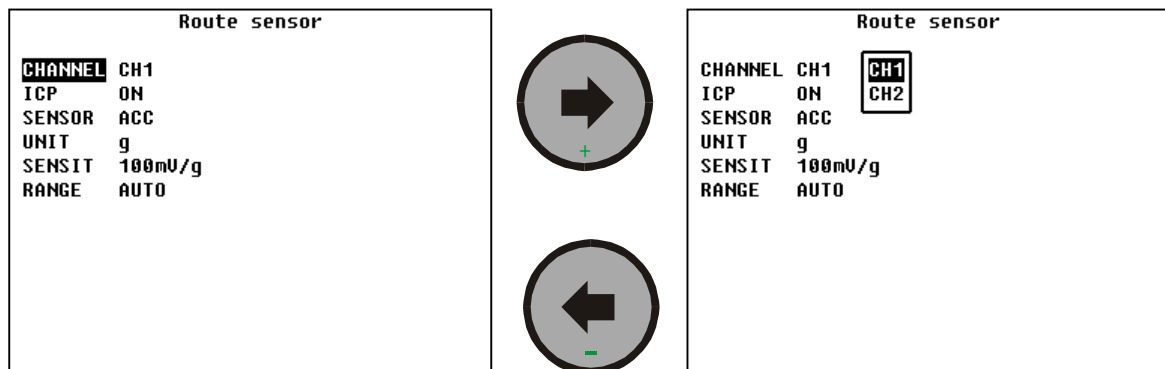
A keypad design (version 1)



B keypad design (version 2)

How to select and to modify setting screen item

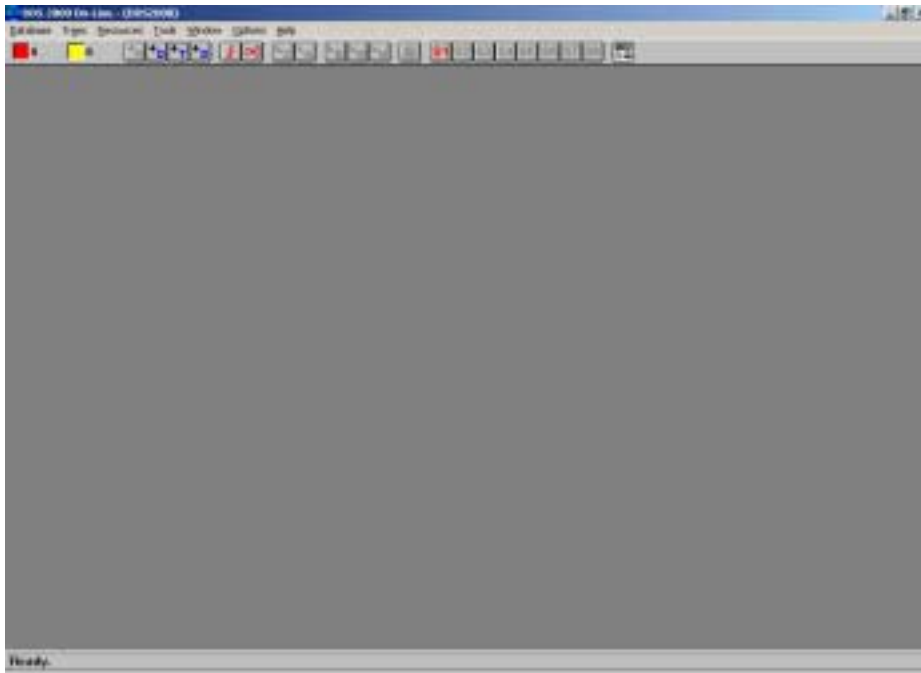
1. Use the **arrow keys up/down** for selection of screen item.
2. Push **Right arrow** or **ENTER** and a list of possible values will be displayed. At some places you may be required to manually enter a value or text.
3. Select or enter value.
4. Push **Left arrow** or **ESC** for return back. All defined values are stored in a buffer and will only be used until you switch off of instrument. If you wish to make a permanent change you must save it.
5. Push **Save** and **all configuration data** of instrument is saved to permanent memory.



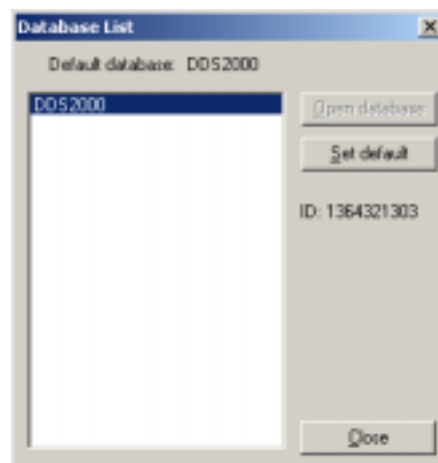
How to download a route from the computer to the instrument

Route preparation in DDS 2000 software

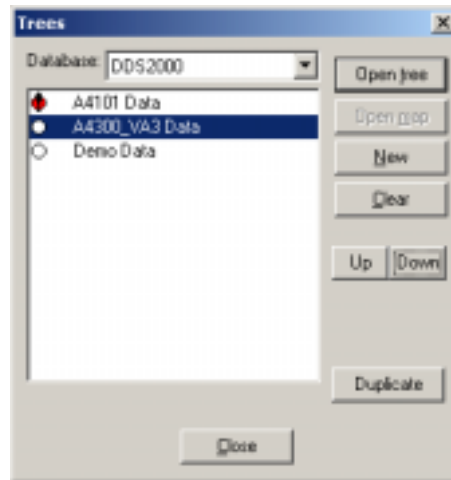
1. Run DDS2000 software system.



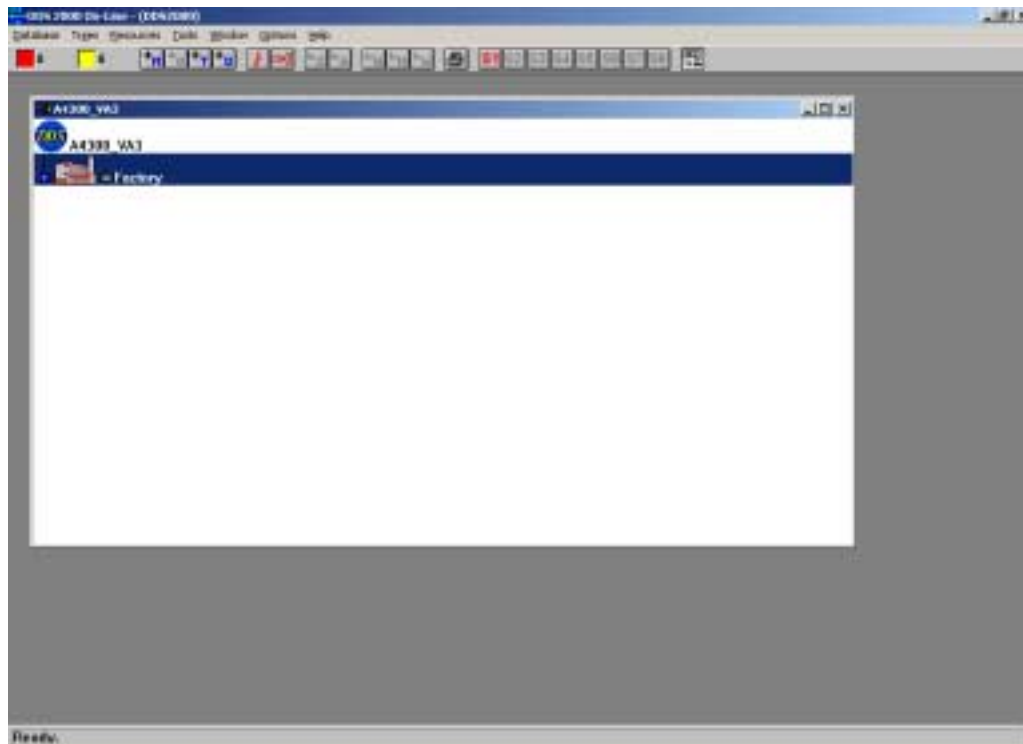
2. Select **Database /Select and open** item in main menu. The list of databases appears.
3. Select the database you require (for illustration only this manual refers to the DDS2000 database which includes demo data and it is installed with DDS2000 automatically) and click to **Open database** button (this database can be opened automatically with DDS2000 start, then this button is not active - grey, in this case only close **Database List** window).



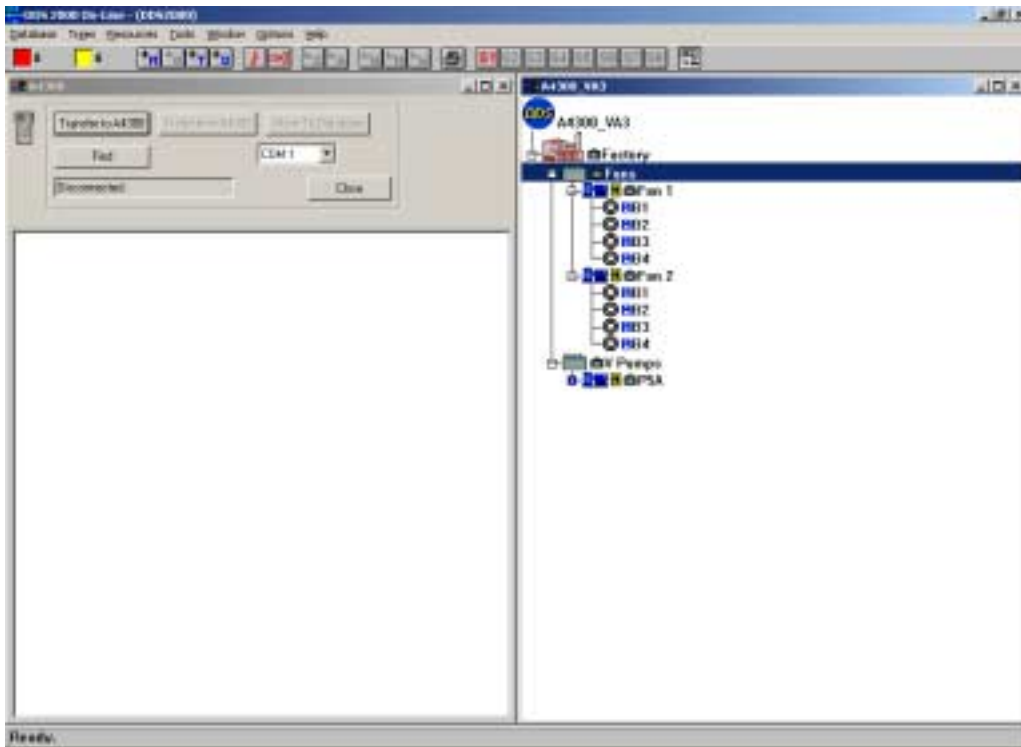
4. Select **Trees** item in main menu. The list of all trees in this database appears.



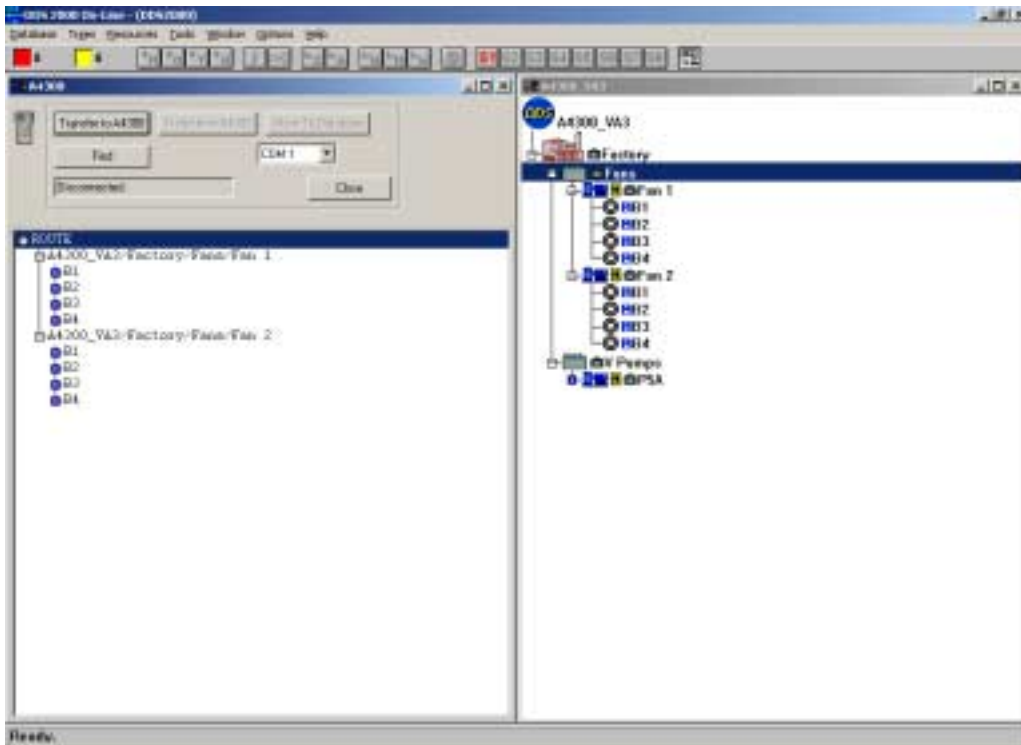
5. Select the tree you require for example the **A4300_VA3 Data** tree and click the **Open tree** button. A new window with the tree structure appears. By double clicking again you can open the next tree paths.



6. Select **Tools / Connect Instrument / A4300** item in main menu. A new empty transfer window for data with the instrument appears.

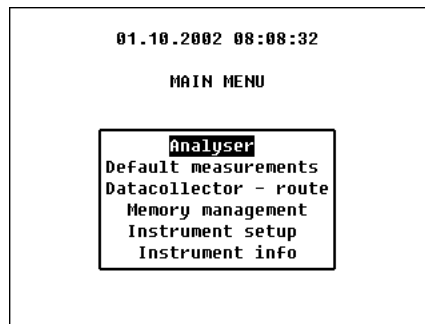


7. In the window on the right containing the data tree, open the tree to show those items which you want to measure in your route. By drag and drop move these items to the **A4300** window on the left of the screen. In this window the list of all measurement points appears. By double click or Enter button it is possible to open each item in the list to show all the sub-items. This is very similar to the DDS2000 tree.



Connection of the instrument to PC and route download

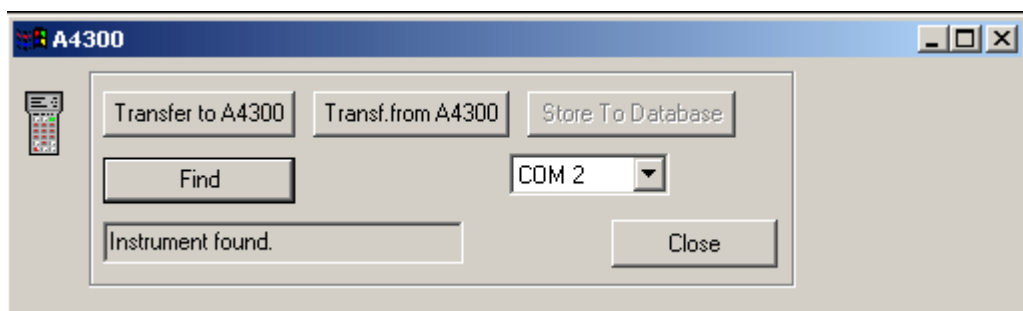
1. Switch on the instrument, the main menu appears.



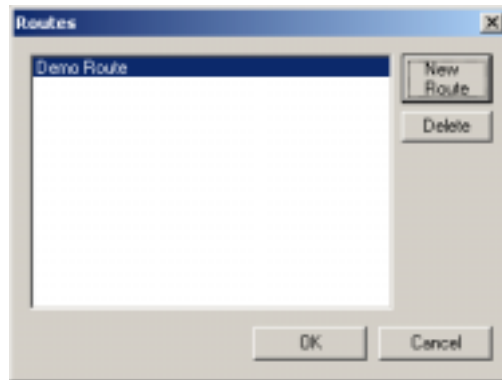
2. Connect the instrument via serial cable, which you receive with instrument. On the instrument use the connector RS232 on the bottom. On the computer use any free serial port.



3. In transfer window A4300 push **Find** button (ATTENTION - the instrument has to be in main menu!). When the connection is created, the **Instrument found** report appears. In the case of problems check the correct selection of COM port first and correct cable connection in both side.



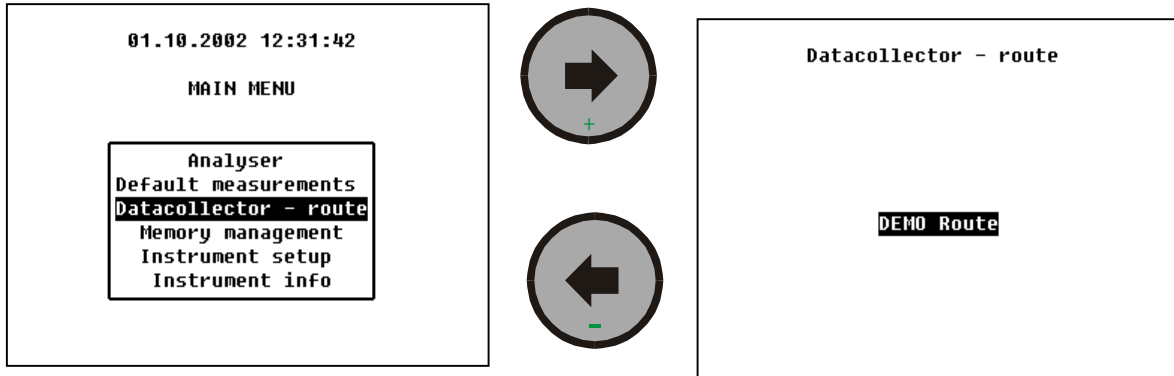
4. In transfer window A4300-VA3 click **Transfer to A4300** button. A new window with a list of routes in the instrument appears (instrument can include max. 30 routes). Click the **New route** button and enter the name.
Click the **OK** button, now the route is downloaded to the instrument. In case of success the **OK** report appears.



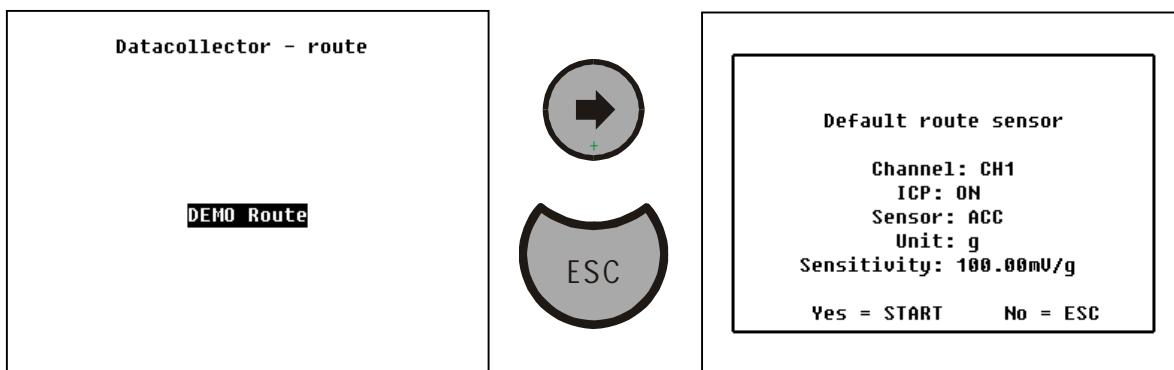
5. Disconnect the cable and now you can take route measurements with the A4300-VA3.

How to measure in route mode

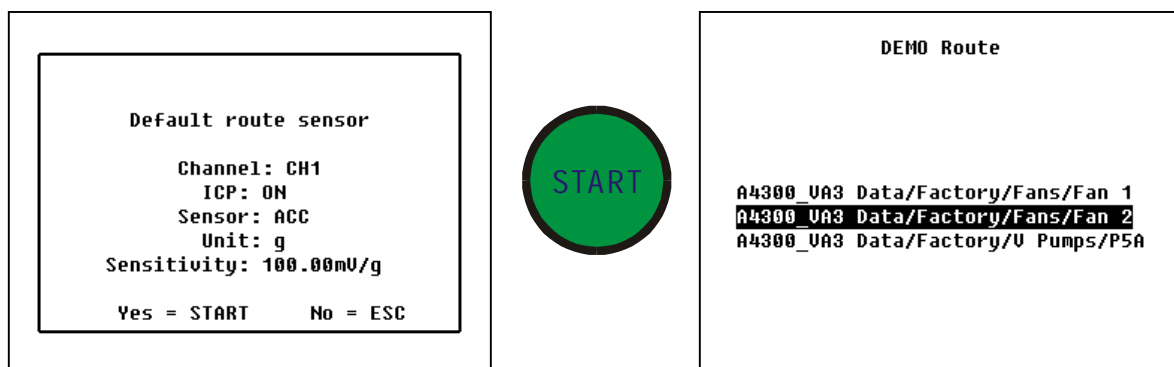
1. Select Datacollector-route item and open it. The list of routes in instrument memory appears on the display (e.g. DEMO Route).



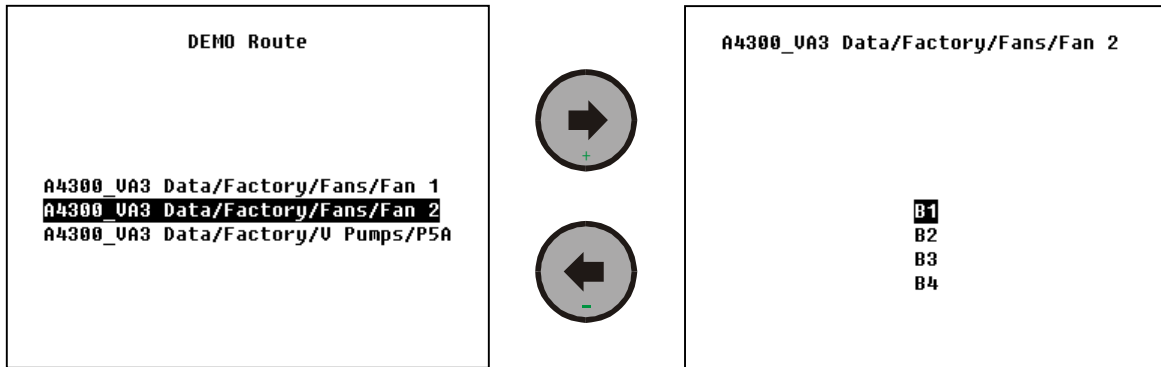
2. Select by arrows the required route and open it by pushing **Right arrow**. The information about default route sensor (set in the instrument for a route) appears.



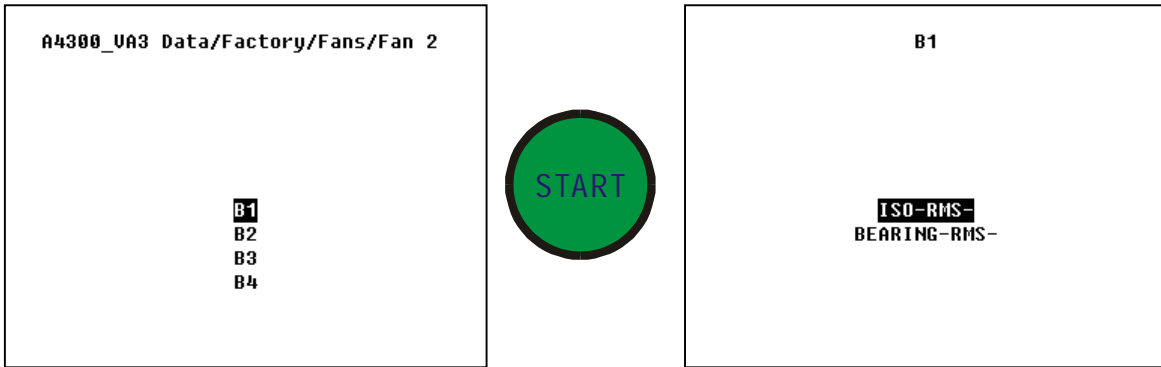
3. Push **START** and the list of machines in the route appears.



4. By **Up/Down arrows** select required machine and open it by pushing **Right arrow**. The list of measurement points appears.



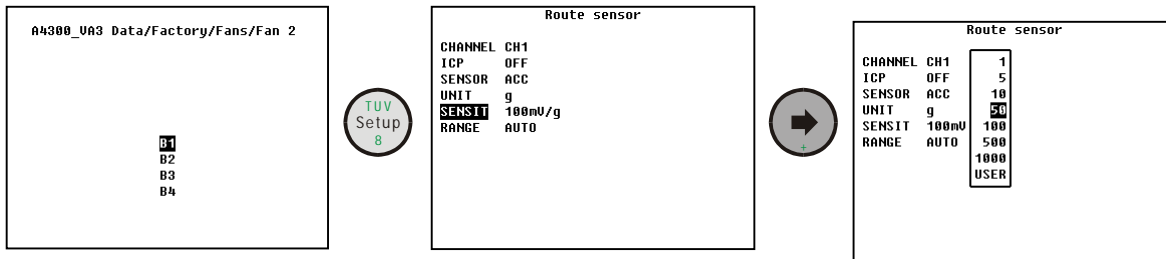
5. By **Up/Down arrows** select required point, connect your sensor to the appropriate location and by pushing **START** run the measurements which are defined for this point. The list of all measurements is displayed and the pointer indicates the current measurement.



6. When all measurements are finished, the individual results appear step by step.

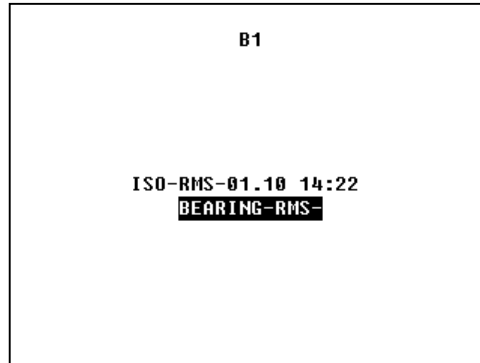
How to change route sensor parameters

Push **Setup** in some route display and the **Route sensor** menu appears. Now select required item and change the set value (e.g. sensitivity from 100 mV/g to 50 mV/g).



How to recognise that measurement has been done

A measurement which is not yet done, does not show a time stamp in the list (e.g. ISO is done, Bearing is not).

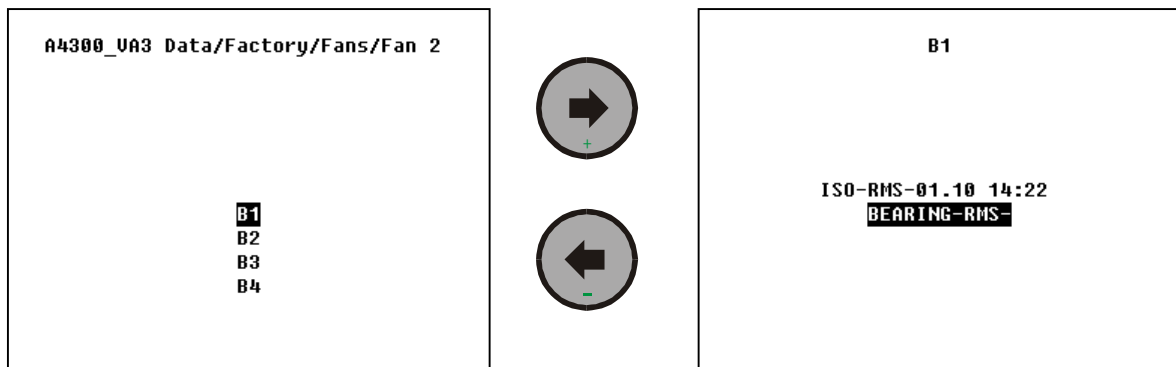


How to repeat the measurement

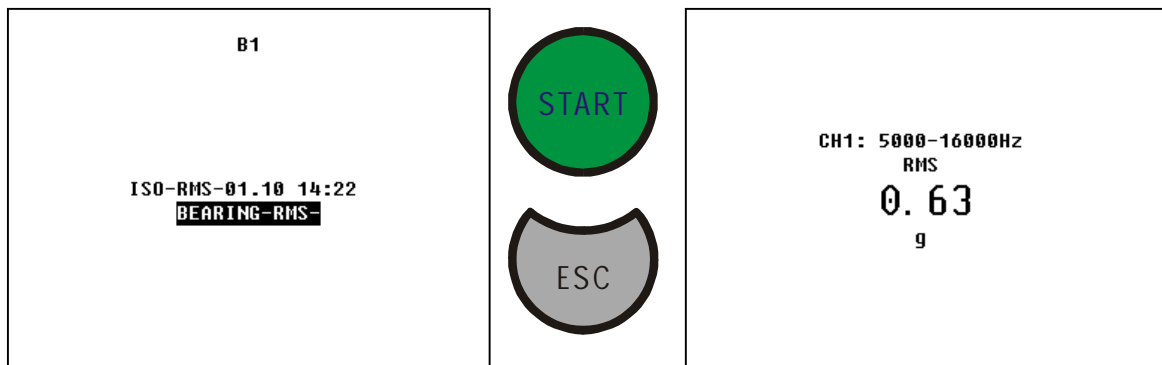
It is an important feature of the VA3 that all measurements associated with one measurement point are measured in one go. It is also possible to make each individual measurement alone.

The new measurement erases the old value.

1. Select required point and push **Right arrow** (pushing START starts series measurement). The list of measurements appears.



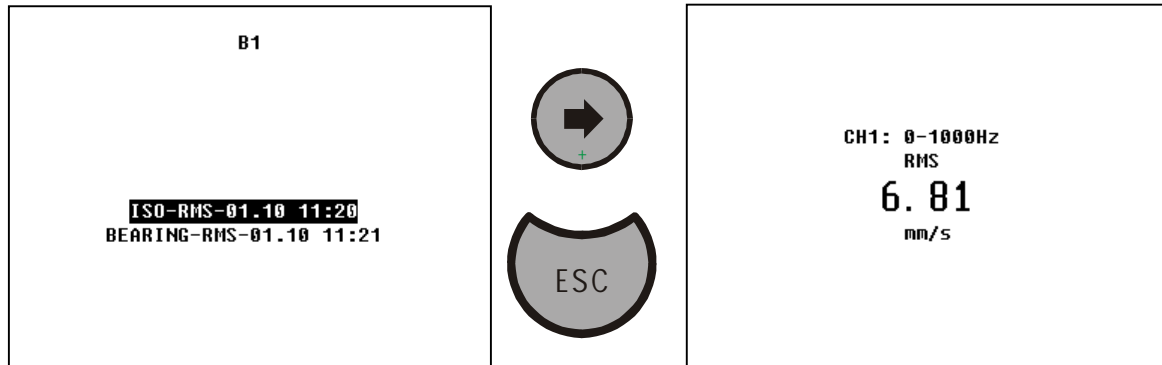
2. Select required measurement and push **START**.



3. Push **ESC** or **Left arrow** for return.

How to see measured data

1. In the list of measurements select required item.
2. If the time stamp is not displayed, then no data exists.
3. Where a time stamp is displayed open a new screen by pressing the **Right arrow**, where the measured value or graph is displayed.

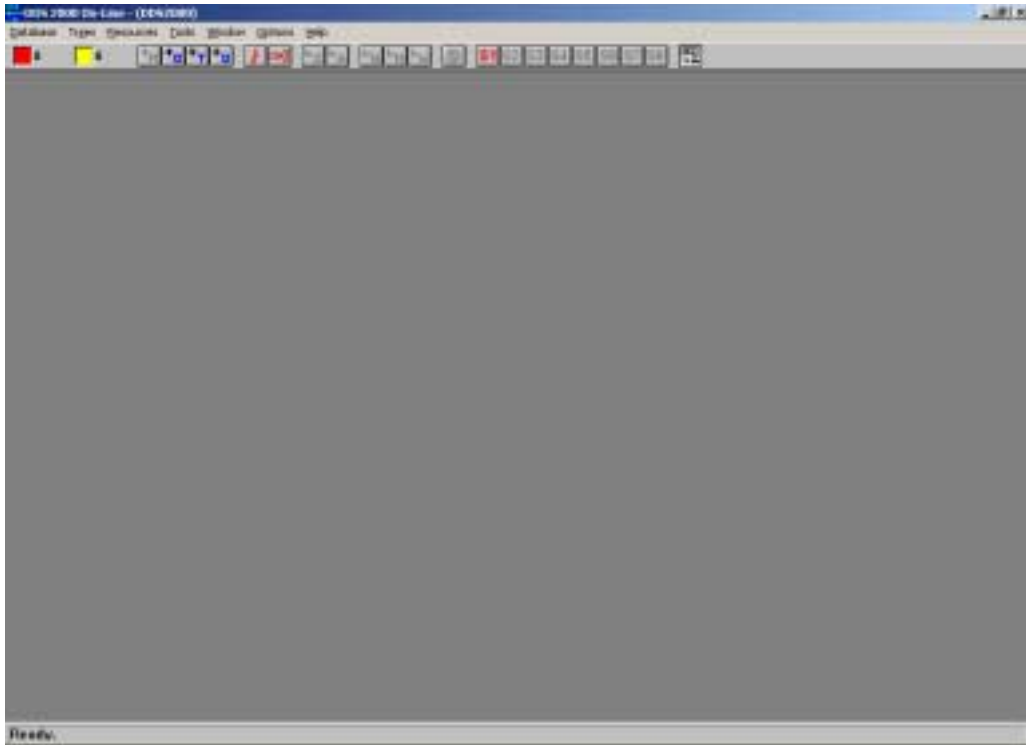


4. Return by pushing **ESC** or **Left arrow**.

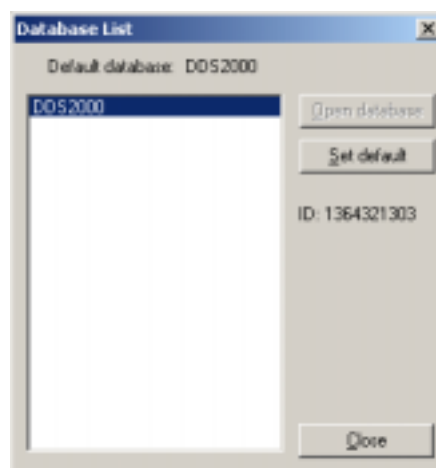
How to upload data from instrument to PC

Preparation of DDS2000 software for data upload

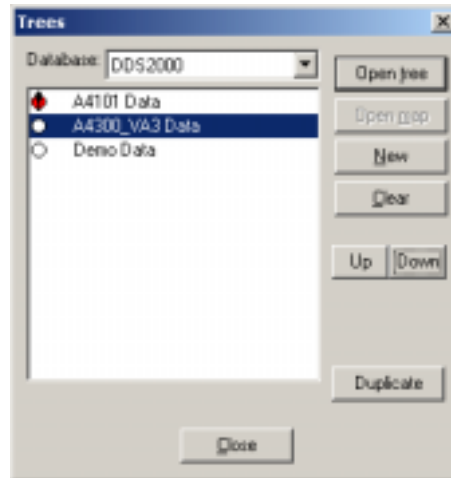
1. Run the DDS2000 software.



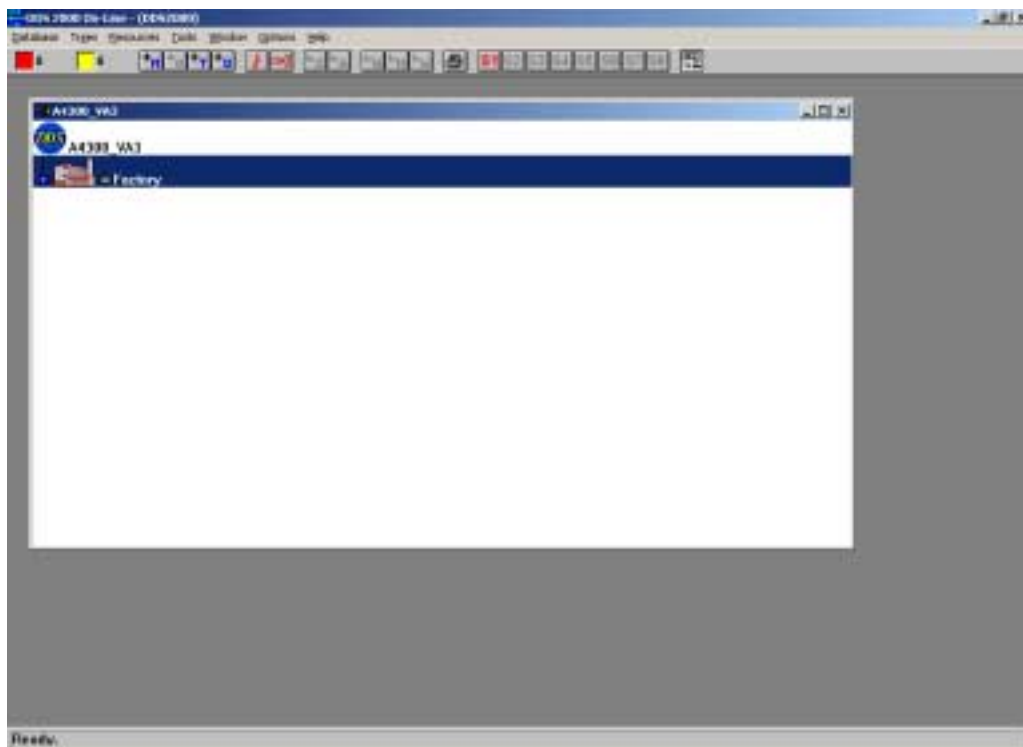
2. Select **Database / Select and Open** item in main menu. The list of databases appears.



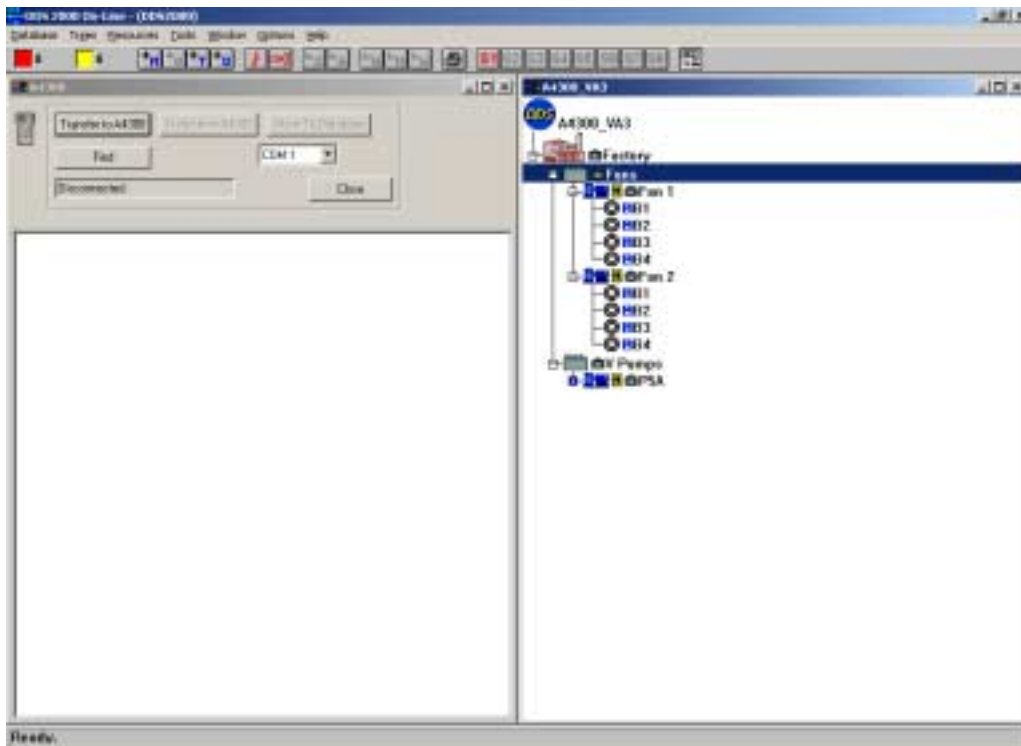
3. Select the database you require and click the **Open database** button.
4. Select **Trees** item in main menu. The list of all available trees in this database appears.



5. Select the required tree and click the **Open Tree** button. The new window with tree structure appears.

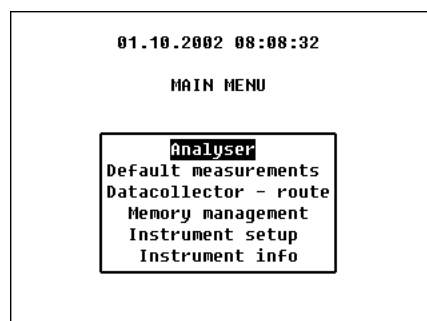


6. Select **Tools / Connect Instrument / A4300** item in main menu. A new empty transfer window appears.



Connection of the instrument to PC and route upload

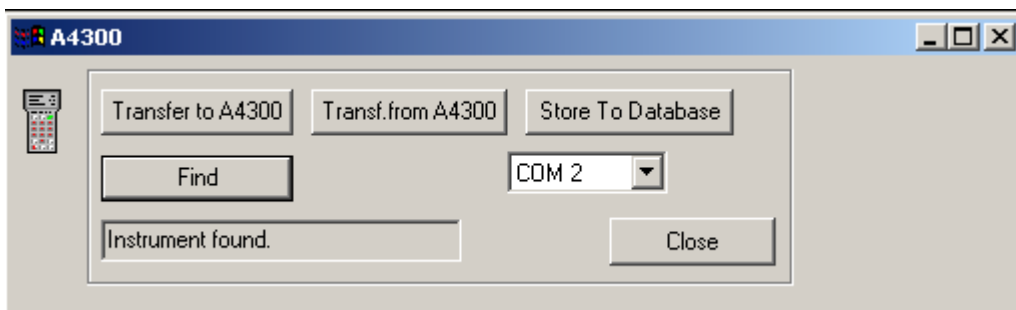
1. Switch on the instrument, the main menu appears.



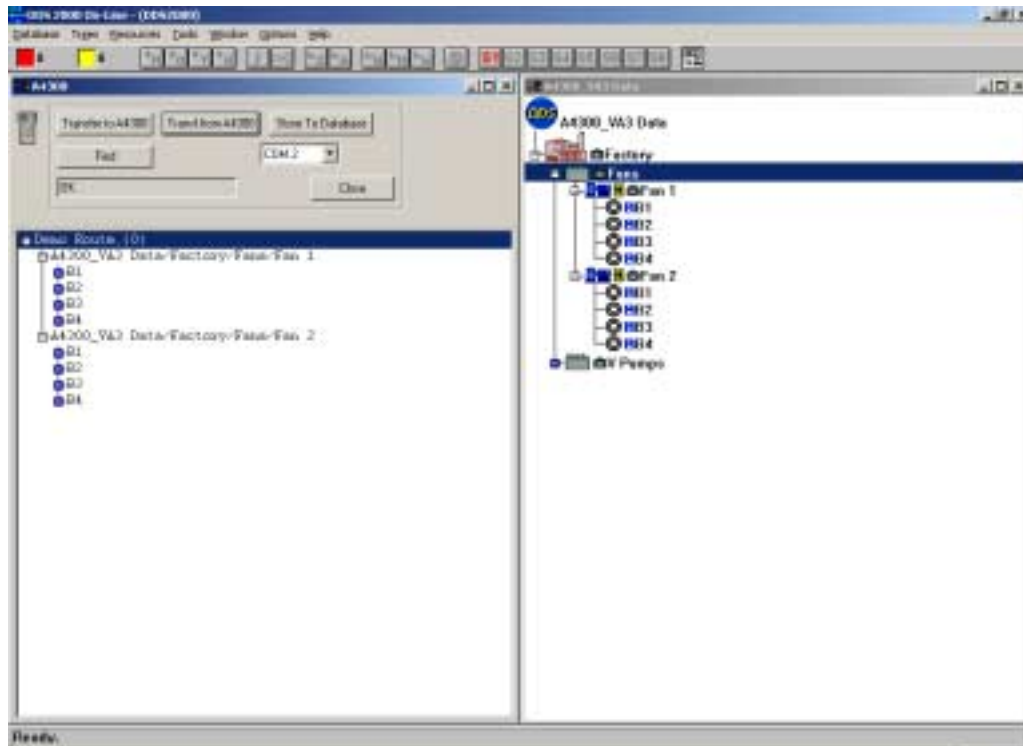
2. Connect the instrument via serial cable, which you receive with instrument. On the instrument use the connector RS232 on the bottom. On the computer use any free serial port.



3. In transfer window A4300 push **Find** button (ATTENTION - the instrument has to be in main menu!). When the connection is created, the **Instrument found** report appears. In the case of problems check the correct selection of COM port first and correct cable connection in both side.



4. In transfer window A4300-VA3 click **Transfer from A4300** button. Select your route from the list of routes in the instrument. Click the **OK** button, now the route is uploaded to the computer.



5. Click to the **Store To Database** button. All measured data will be saved to relevant data cells.

IMPORTANT: IF YOU DO NOT PRESS STORE TO DATABASE BUT SIMPLY CLOSE THE SCREEN THE DATA WILL NOT BE STORED TO THE DATABASE AND YOU MUST REPEAT THE UNLOADING PROCESS.

6. Disconnect the cable and now you can make next data acquisition in DDS2000 software.

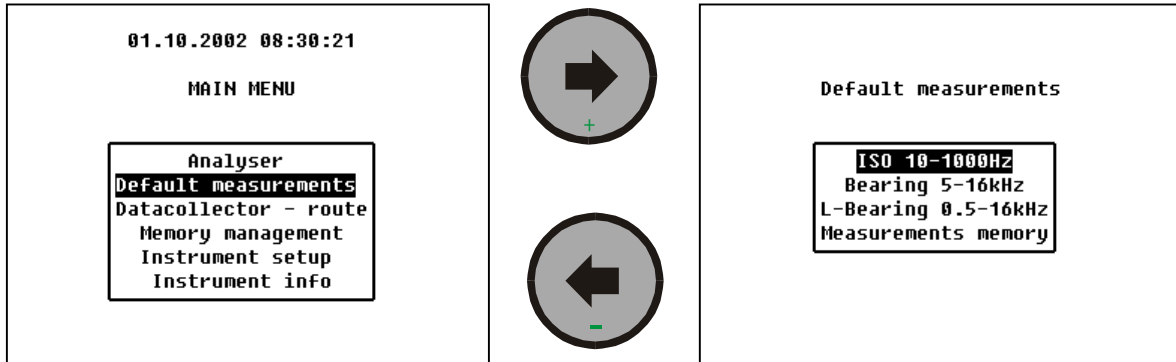
How to connect vibration sensor

1. The analyser has a connector on its upper side for the connection of the **vibration sensor** with the **ICP supply**. Connected sensor to this input is labelled **CH1** (channel 1) in all menus.
2. The connector on left side is also determined for the connection of the **vibration sensor** with the **ICP supply**. Connected sensor to this input is labelled **CH2** (channel 2) in all menus.
3. The default would be to connect sensor via supplied cable to upper input (CH1). All the following descriptions will be assume this configuration.



Do first simple measurement

1. Select by arrows the **Default Measurements** item in main menu. Push Right arrow. The list of possible measurements appears.



2. Push **Right arrow** (or **START**) for running of ISO 10-1000 measurement (RMS velocity in 10-1000Hz frequency band).

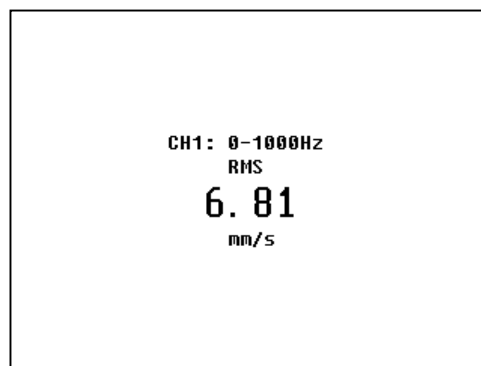
3. The bar at the bottom of the screen indicates:

- ICP accelerometer power is switched on
- the VA3 is waiting for stability of the signal .

The **Meas** light on the keyboard top lights **yellow** and indicates preparation of measurement.

4. When the signal is stable, the **Meas** lights **green** and the measurement is running.

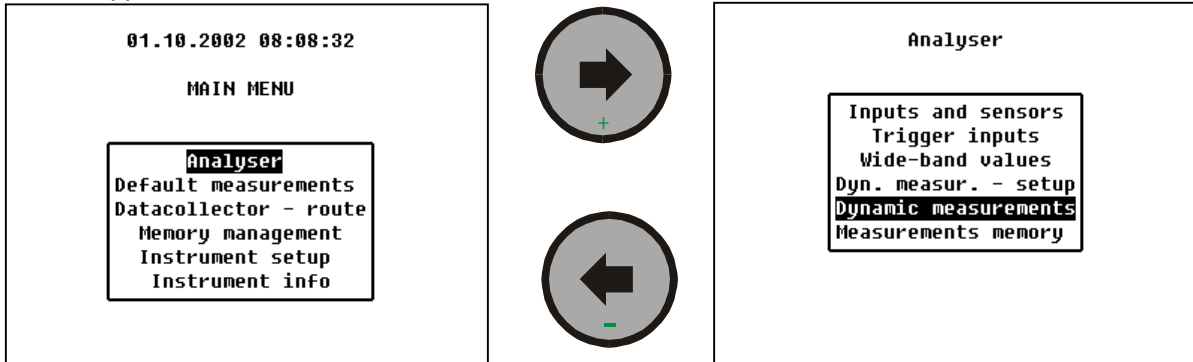
5. Measured value is continuously displayed.



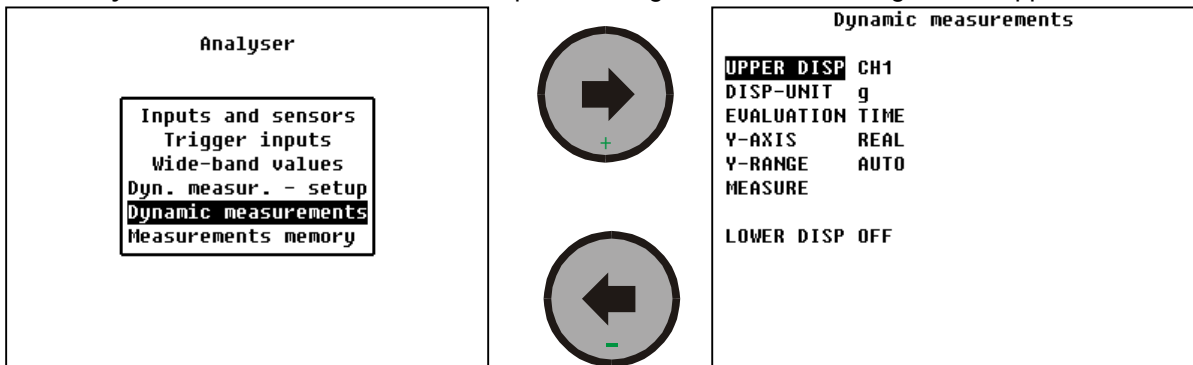
6. Finish the measurement by pushing and holding the **ESC** button.

Measure your first spectrum

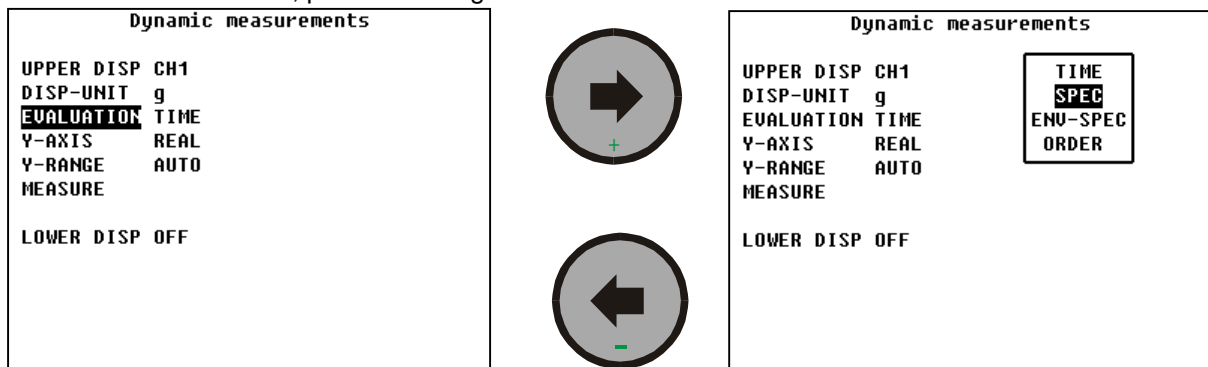
1. Select by arrows the **Analyser** item in main menu. Push the Right arrow. The list of possible functions appears.




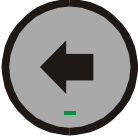
2. Select **Dynamic measurements** item and push the Right arrow. The setting screen appears.




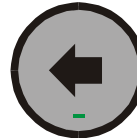
3. Different data evaluation can be set (e.g. Time signal [TIME] from acceleration [g] from channel 1). Select **EVALUATION** item, push arrow Right and select **SPEC**.




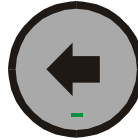
4. Push **Setup** button, the setting screen **Spectrum** appears.

<p style="text-align: center;">Dynamic measurements</p> <p>UPPER DISP CH1 DISP-UNIT g EVALUATION SPEC Y-AXIS LIN-MAG Y-RANGE AUTO MEASURE</p> <p>LOWER DISP OFF</p>	 	<p style="text-align: center;">Spectrum</p> <p>BASE-BAND 100Hz (fs=256Hz) LINES 100(Δ=1.0Hz) WINDOW HANNING TRIGGER FREERUN TRIG-MODE SINGLE AVERAGING OFF AVER-NMB 2</p>
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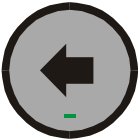
5. Select **BASE-BAND** item and set frequency range (e.g. 3200 Hz).

<p style="text-align: center;">Spectrum</p> <p>BASE-BAND 100Hz (fs=256Hz) LINES 100(Δ=1.0Hz) WINDOW HANNING TRIGGER FREERUN TRIG-MODE SINGLE AVERAGING OFF AVER-NMB 2</p>	 	<p style="text-align: center;">Spectrum</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">BASE-BAND 100Hz (fs=256)</td> <td style="border: 1px solid black; text-align: center;">100</td> </tr> <tr> <td>LINES 100(Δ=1.0Hz)</td> <td style="border: 1px solid black; text-align: center;">200</td> </tr> <tr> <td>WINDOW HANNING</td> <td style="border: 1px solid black; text-align: center;">400</td> </tr> <tr> <td>TRIGGER FREERUN</td> <td style="border: 1px solid black; text-align: center;">800</td> </tr> <tr> <td>TRIG-MODE SINGLE</td> <td style="border: 1px solid black; text-align: center;">1600</td> </tr> <tr> <td>AVERAGING OFF</td> <td style="border: 1px solid black; text-align: center;">3200</td> </tr> <tr> <td>AVER-NMB 2</td> <td style="border: 1px solid black; text-align: center;">6400</td> </tr> <tr> <td></td> <td style="border: 1px solid black; text-align: center;">12800</td> </tr> <tr> <td></td> <td style="border: 1px solid black; text-align: center;">19200</td> </tr> <tr> <td></td> <td style="border: 1px solid black; text-align: center;">USER</td> </tr> </table>	BASE-BAND 100Hz (fs=256)	100	LINES 100(Δ=1.0Hz)	200	WINDOW HANNING	400	TRIGGER FREERUN	800	TRIG-MODE SINGLE	1600	AVERAGING OFF	3200	AVER-NMB 2	6400		12800		19200		USER
BASE-BAND 100Hz (fs=256)	100																					
LINES 100(Δ=1.0Hz)	200																					
WINDOW HANNING	400																					
TRIGGER FREERUN	800																					
TRIG-MODE SINGLE	1600																					
AVERAGING OFF	3200																					
AVER-NMB 2	6400																					
	12800																					
	19200																					
	USER																					

6. Select and set **LINES** item (e.g. 800 spectrum lines).

<p style="text-align: center;">Spectrum</p> <p>BASE-BAND 3200Hz (fs=8192Hz) LINES 100(Δ=32Hz) WINDOW HANNING TRIGGER FREERUN TRIG-MODE SINGLE AVERAGING OFF AVER-NMB 2</p>	 	<p style="text-align: center;">Spectrum</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">BASE-BAND 3200Hz (fs=81</td> <td style="border: 1px solid black; text-align: center;">100</td> </tr> <tr> <td>LINES 100(Δ=32Hz)</td> <td style="border: 1px solid black; text-align: center;">200</td> </tr> <tr> <td>WINDOW HANNING</td> <td style="border: 1px solid black; text-align: center;">400</td> </tr> <tr> <td>TRIGGER FREERUN</td> <td style="border: 1px solid black; text-align: center;">800</td> </tr> <tr> <td>TRIG-MODE SINGLE</td> <td style="border: 1px solid black; text-align: center;">1600</td> </tr> <tr> <td>AVERAGING OFF</td> <td></td> </tr> <tr> <td>AVER-NMB 2</td> <td></td> </tr> </table>	BASE-BAND 3200Hz (fs=81	100	LINES 100(Δ=32Hz)	200	WINDOW HANNING	400	TRIGGER FREERUN	800	TRIG-MODE SINGLE	1600	AVERAGING OFF		AVER-NMB 2	
BASE-BAND 3200Hz (fs=81	100															
LINES 100(Δ=32Hz)	200															
WINDOW HANNING	400															
TRIGGER FREERUN	800															
TRIG-MODE SINGLE	1600															
AVERAGING OFF																
AVER-NMB 2																

7. Escape from setting screen by Left arrow to the **Dynamic measurements** screen.

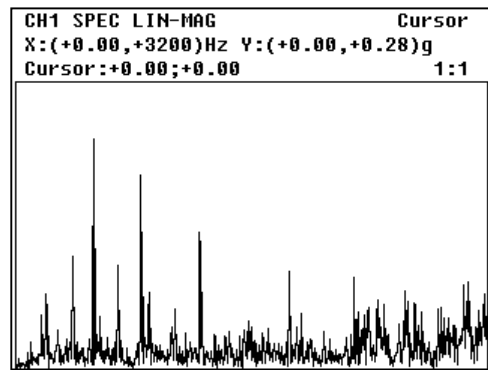
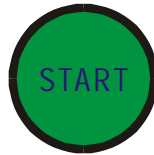
<p style="text-align: center;">Spectrum</p> <p>BASE-BAND 3200Hz (fs=8192Hz) LINES 800(Δ=4.0Hz) WINDOW HANNING TRIGGER FREERUN TRIG-MODE SINGLE AVERAGING OFF AVER-NMB 2</p>		<p style="text-align: center;">Dynamic measurements</p> <p>UPPER DISP CH1 DISP-UNIT g EVALUATION SPEC Y-AXIS LIN-MAG Y-RANGE AUTO MEASURE</p> <p>LOWER DISP OFF</p>
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8. Push **START** button for measurement. The measured spectrum appears.

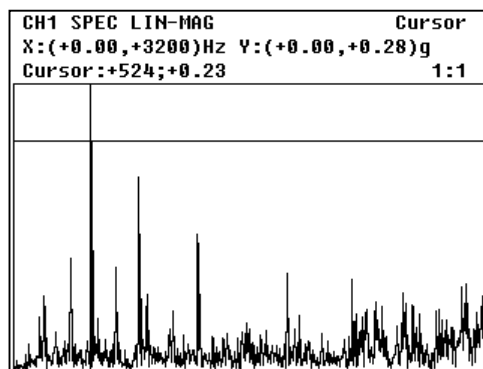
```

Dynamic measurements
UPPER DISP CH1
DISP-UNIT g
EVALUATION SPEC
Y-AXIS LIN-MAG
Y-RANGE AUTO
MEASURE

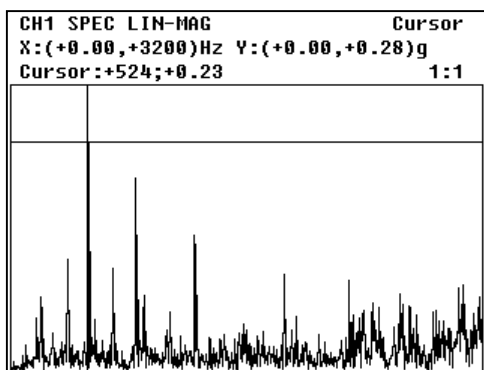
LOWER DISP OFF
    
```



9. Use Right/ Left arrows for cursor cross movement. You will see the frequency and amplitude values changing at the top of the screen (e.g. 524 Hz and amplitude 0.23 g on Figure).



10. Return back by means of **ESC** button.



```

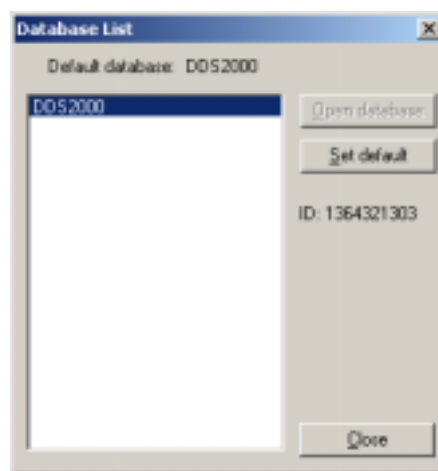
Dynamic measurements
UPPER DISP CH1
DISP-UNIT g
EVALUATION SPEC
Y-AXIS LIN-MAG
Y-RANGE AUTO
MEASURE

LOWER DISP OFF
    
```

How to create DDS2000 tree item

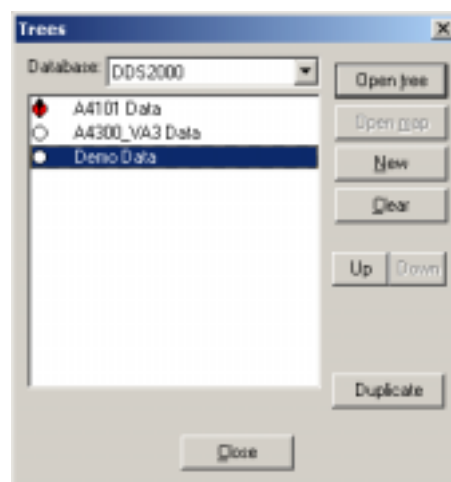
Preparation of DDS2000

1. Run DDS2000 software system.
2. Select **Database /Select and open** item in main menu. The list of databases appears.
3. Select the database you require (for illustration only this manual refers to the DDS2000 database which includes demo data and it is installed with DDS2000 automatically) and click to **Open database** button (this database can be opened automatically with DDS2000 start, then this button is not active - grey, in this case only close **Database List** window).

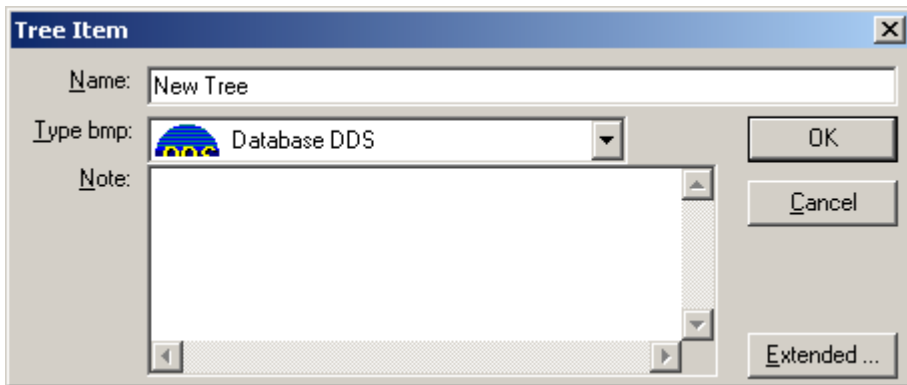


New tree creation

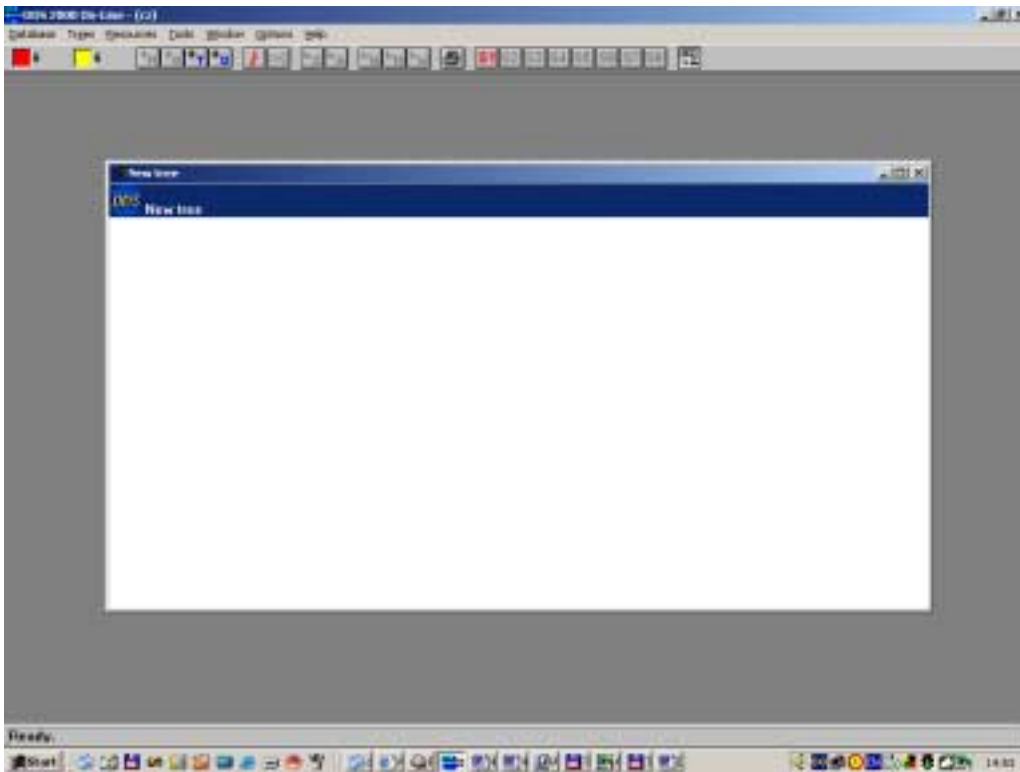
4. Select **Trees** item in main menu. The list of all trees in this database appears.



5. Click the **New** button and in new window dialog enter new name of tree.

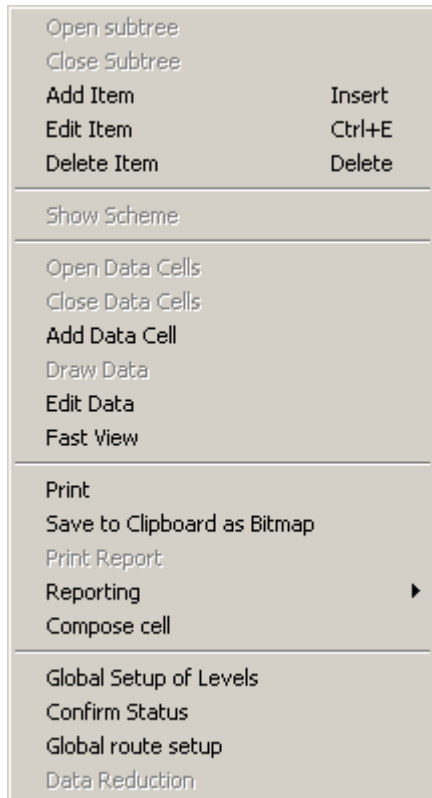


6. In the **Tree Item** window click **OK** and the new tree is done. Also the parent item with the same name is created (**New tree**).

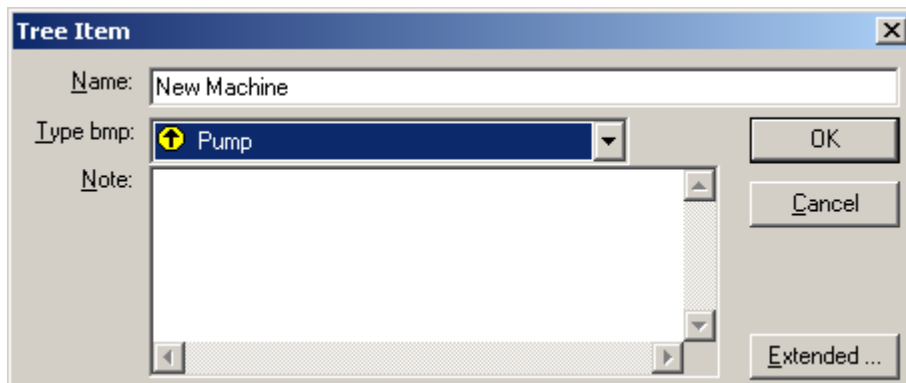


Creating new tree items

7. Click the **Right** button of your mouse on an item in a tree structure and the following menu appears:

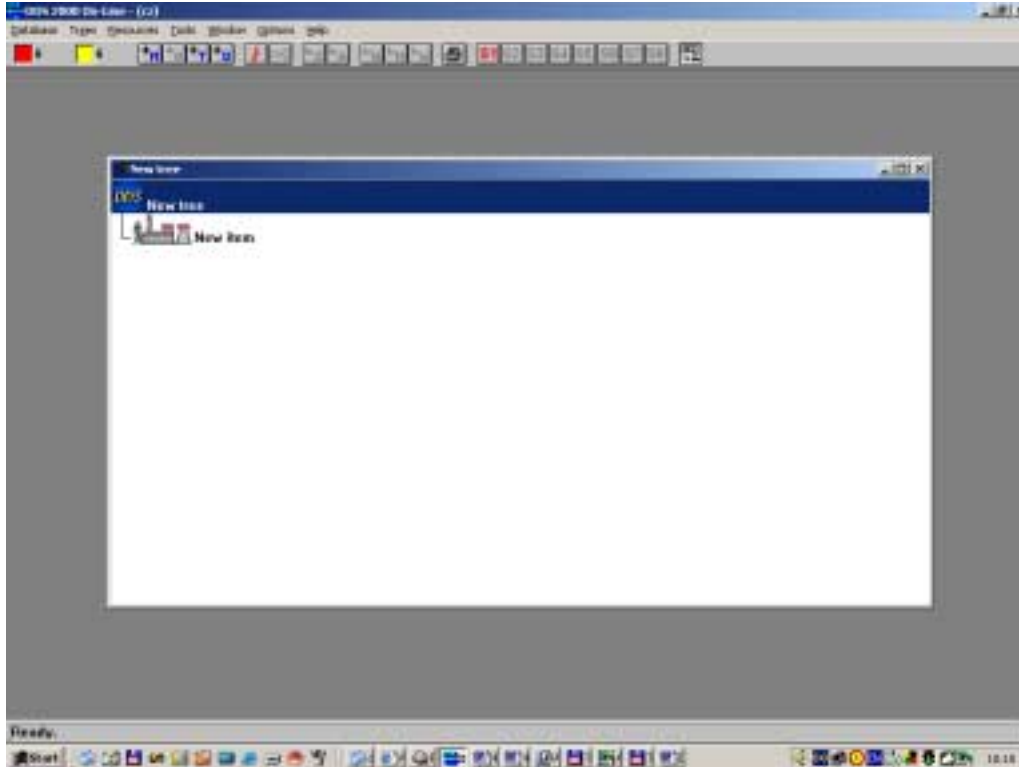


8. Select **Add Item** and a new window for creation of the item appears.



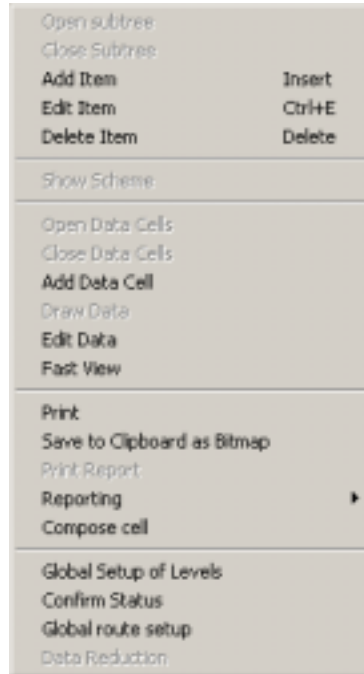
9. Enter a name for the item, select the bitmap (option) and click **OK**. The new item is created under its parent active item. By repeating this process you can develop a complete tree with required structure. The number of levels is not limited.

You can simply create new structure by means of copying existing items either from another tree or even from another database. For a detailed description please refer to the DDS2000 guide.

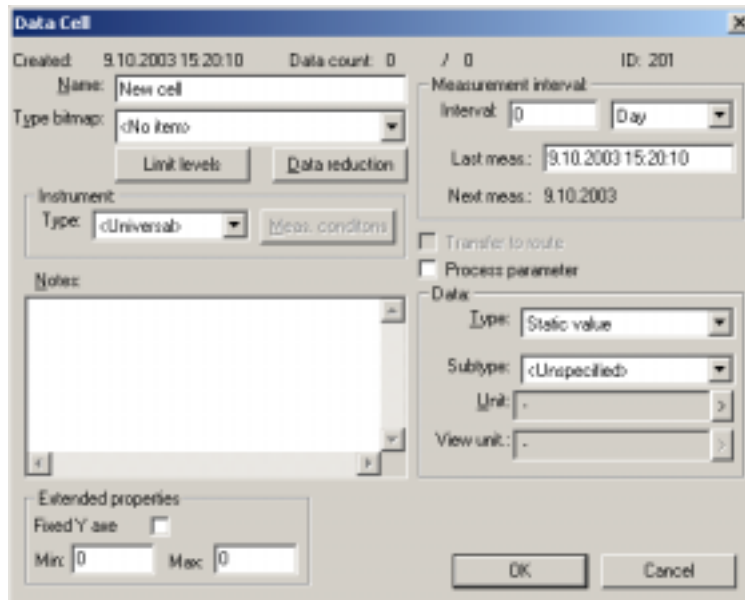


Data cell creation

10. The tree structure is used to define the logical layout of the database and allows you to manage and define a structure. Measurements can take place at any level in the tree. Measured data are saved into data cells. Open the window with the tree. Move your mouse over the item into which you want save data. Click **Right** button of mouse and the next menu appears.



8. Select **Add Data Cell** function. A new window with configuration parameters appears.



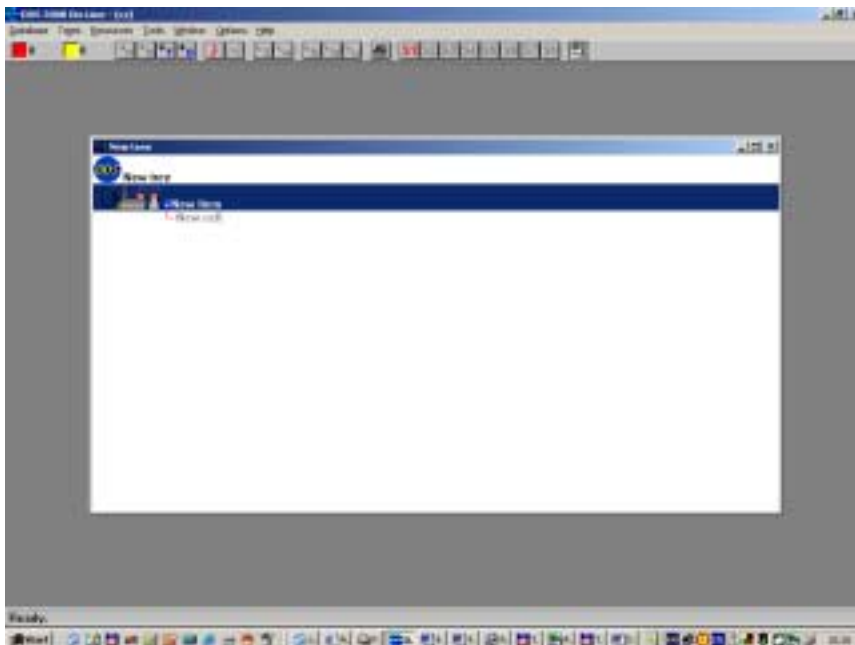
9. Enter new name, select instrument type **A4300**, select Data type **Static value** or **ABS spec** or **Time**, depending upon whether you wish to add an overall trend measurement or a new spectrum measurement.

The screenshot shows the 'Data Cell' configuration window. At the top, it displays 'Created: 14.10.2003 11:26:58', 'Data count: 0 / 0', and 'ID: 580'. The 'Name' field contains 'New Cell'. The 'Type bitmap' is set to 'Trends'. Below this are 'Link levels' and 'Data reduction' buttons. The 'Instrument' section shows 'Type: A4300' and a 'Meas. conditions' button. A 'Notes' text area is empty. On the right, the 'Measurement interval' is set to '7' with a 'Day' dropdown. 'Last meas.' is '14.10.2003 11:26:58' and 'Next meas.' is '21.10.2003'. There are checkboxes for 'Transfer to route' (checked) and 'Process parameter' (unchecked). The 'Data' section has 'Type: Static value', 'Subtype: ISO', 'Unit: mm/s', and 'View unit: -'. At the bottom, there are 'Extended properties' with a 'Fixed Y axis' checkbox and 'Min: 0' and 'Max: 0' input fields. 'OK' and 'Cancel' buttons are at the bottom right.

If you select **Static value** there are several standard sub-types which are pre-defined for use in the VA3 such as ISO velocity. These sub-types will automatically set the correct measurement unit required.

If you select **ABS Spec** or **Time** the **Meas conditions** button will become active. Click on this button and a further set-up screen appears where you can set up frequency range, number of lines, number of averages, etc for spectrum measurement or the sample time and frequency window for time waveforms are defined.

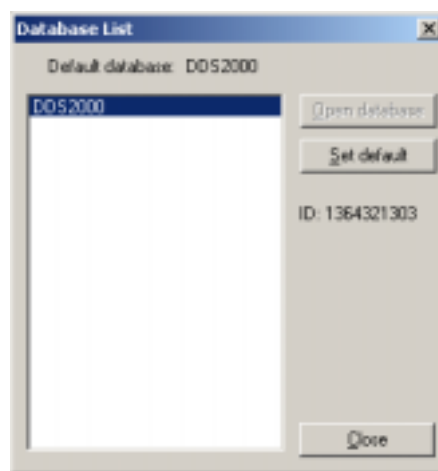
10. Now click to button **OK** and the new data cell will be created. For a more detailed description read in DDS2000 guide.



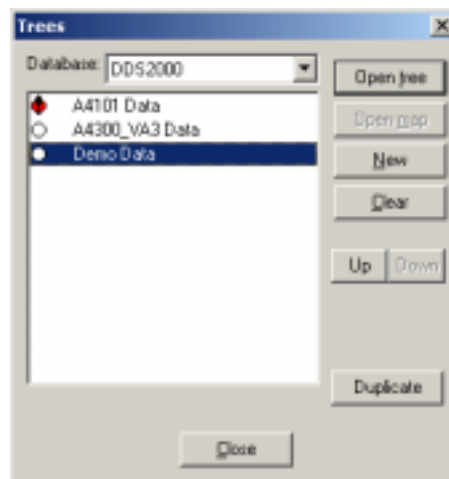
How to look at data

Preparation of DDS2000

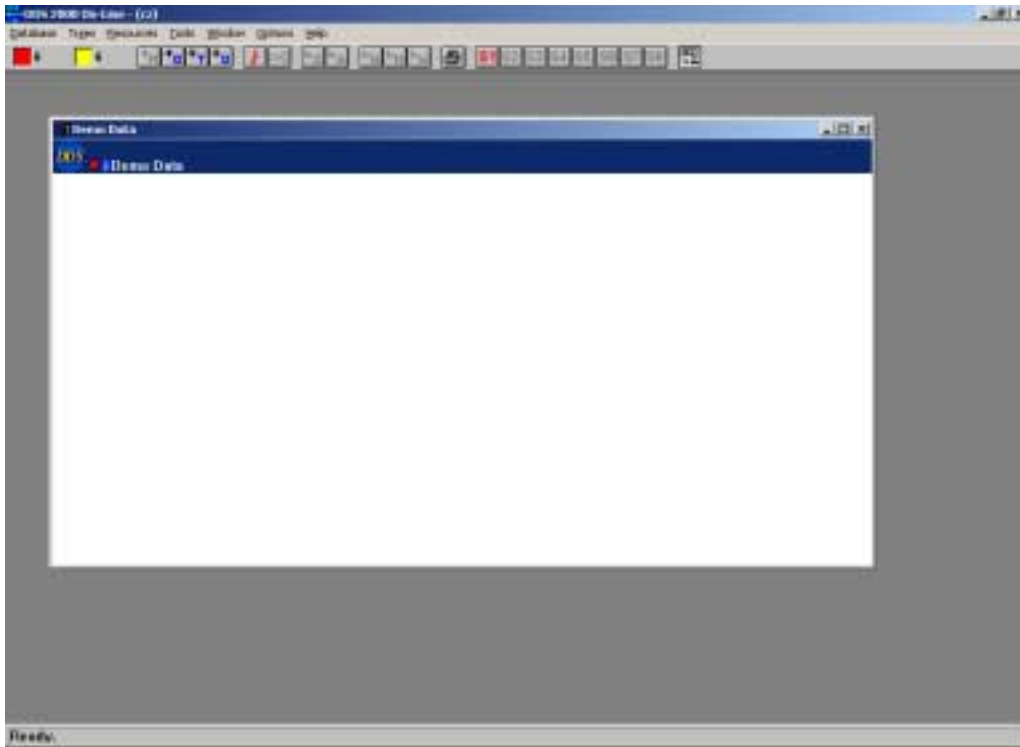
1. Run DDS2000 software system.
2. Select **Database /Select and open** item in main menu. The list of databases appears.
3. Select the database you require (for illustration only this manual refers to the DDS2000 database which includes demo data and is installed with DDS2000 automatically) and click to **Open database** button (this database can be opened automatically with DDS2000 start, then this button is not active - grey, in this case only close **Database List** window).



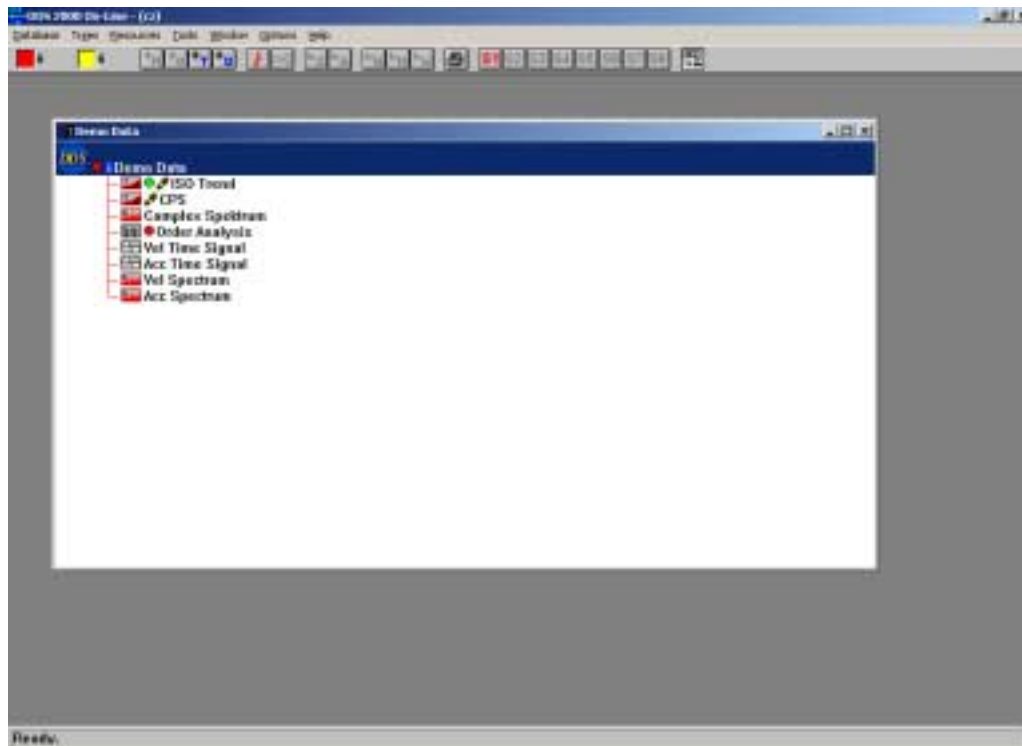
4. Select **Trees** item in main menu. The list of all trees in this database appears.




5. Select the tree you require (for example the **Demo Data** tree) and click the **Open tree** button. A new window with the tree structure appears.

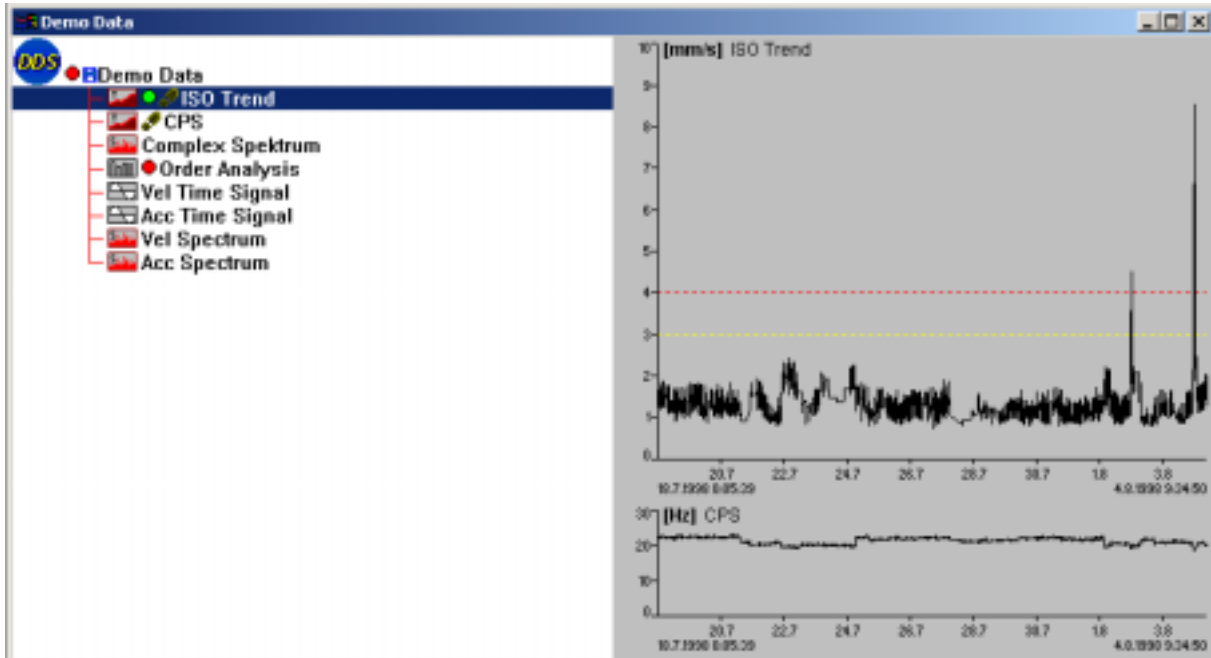


6. By double click open the structure with data.



Fast view

1. Highlight one item (tree item or data cell)
2. Click the  in **Tool bar** or **Space** button on keyboard. The related data appears (text information, graph, value, bitmap).

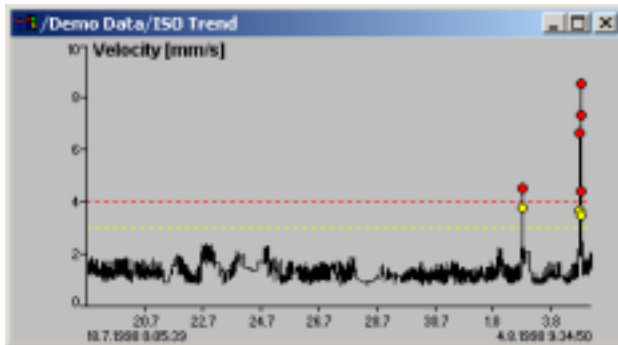


3. Change the active item by mouse or arrows.

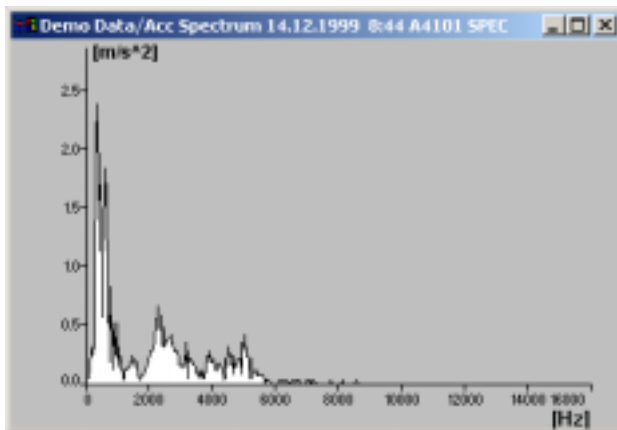
Graph chart

1. Highlight required data cell by mouse. By double click open new window with graphics representation of data. The base graphics data types are:

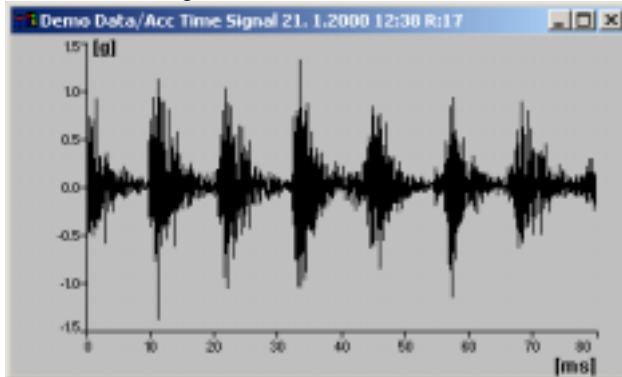
- Trend



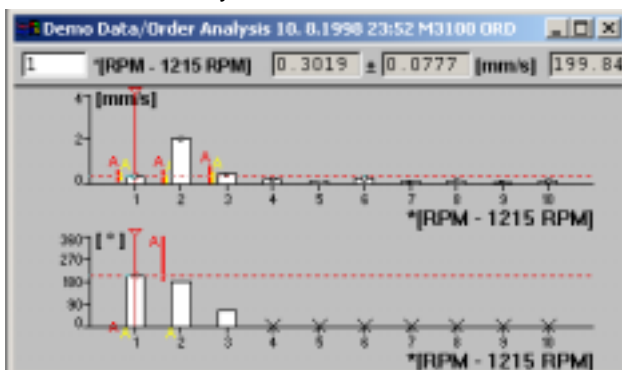
- Spectrum



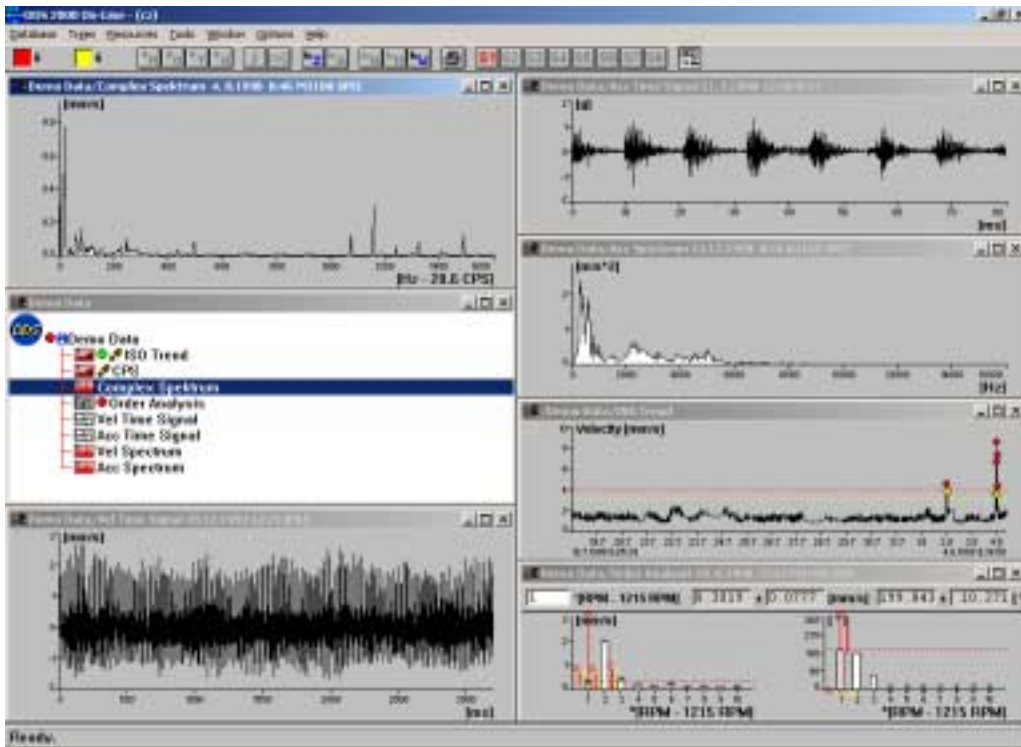
- Time signal



- Order analysis



2. When you open several data windows and then use Tiles function, the similar window organisation appears. Number of graphs is not limited.



3. Move the mouse cursor to any graph. Click the **Right** button. The menu with all possible functions appears. See DDS2000 manual for detailed description of each function.

- Cursors ▶
- X axis ▶
- Y axis ▶
- Grid ▶
- Zoom / Move ▶
- Marks ▶
- Quantity ▶
- Derivation/Integration ▶
- View Unit ▶
- View format ▶
- Displayed Signal Type ▶
- Cascade specification ▶
- Info ▶
- Draw Band Graph B
- View Reference Spectrum
- Records Selection
- Print
- Save to Clipboard as Bitmap