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## 1. Connecting RESmart Device with Your Windows Computer

It is necessary to establish online communication between computer and RESmart-Device to realize data transmission in between when some operations are being performed.

Link the 9-pin plug on the back side of RESmart with the serial port of PC by a dedicated data cable. Power up RESmart and follow instructions given by the menus of the analysis software interface. Data interchange can be done in this way.

Operations such as “Create New Patient Archive”, “Download”, “Device Information”, “Device Time”, “Time Synchronization” and “User register” call for an online work of RESmart and PC.

## 2. RESmart Device Analysis System Startup

Double click the “RESmart 1.0 Beta” shortcut  on the desktop to launch the analysis software and the corresponding interface is shown below.



There is a menu bar on top of the screen where a tool palette with five frequently used buttons lies. The sub-window in the centre of the screen serves to display the data trend diagrams and statistical information of records. The status bar at the very bottom of the screen indicates present state of the software.

## 3. Creating A New Patient Archive

RESmart can record data such as pressure, snore, respiration, etc to form a data file which is stored in an embedded chip.

After the online connection of RESmart and PC, users can enter their personal information via PC and send it to RESmart device by serial communication. Data from RESmart can firstly be downloaded by PC and further combined with the corresponding user information to form a file.

The file has an extended name of “.USR”, which is also known as patient archive. The above series of procedures are called “create new patient archive”, which consists of RESmart registration and its data downloads.

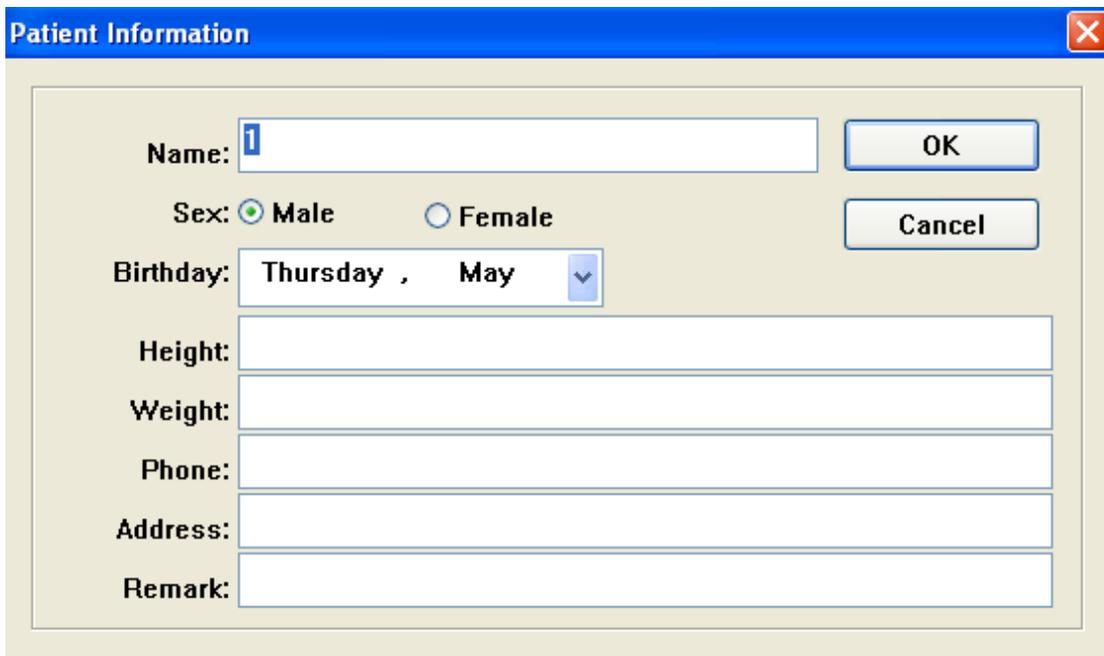
Patient archive takes 24 hours as a record period, that is to say, if any output is done from 12 o’clock at mid day to 12 o’clock of the next, this set of data are formed, or, no record is kept.

RESmart analysis software is able to reflect its therapeutic situation by patient archive statistical analysis.

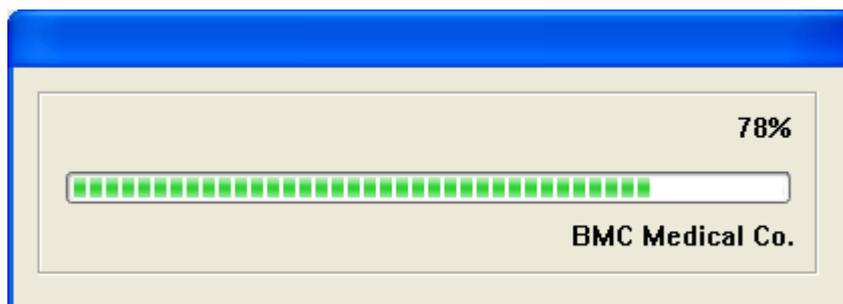
3.1 Click “file” on the menu bar and choose “create new patient archive” option from the pull-down menu. A dialog box comes up in the display window.



3.2 Link RESmart with PC as 1 mentioned and power up RESmart. Click “Yes” and a dialog box for user registration appears as follows.



Click “OK” after entering user information, which will then be written into RESmart device automatically. The sub-window below shows the writing course.

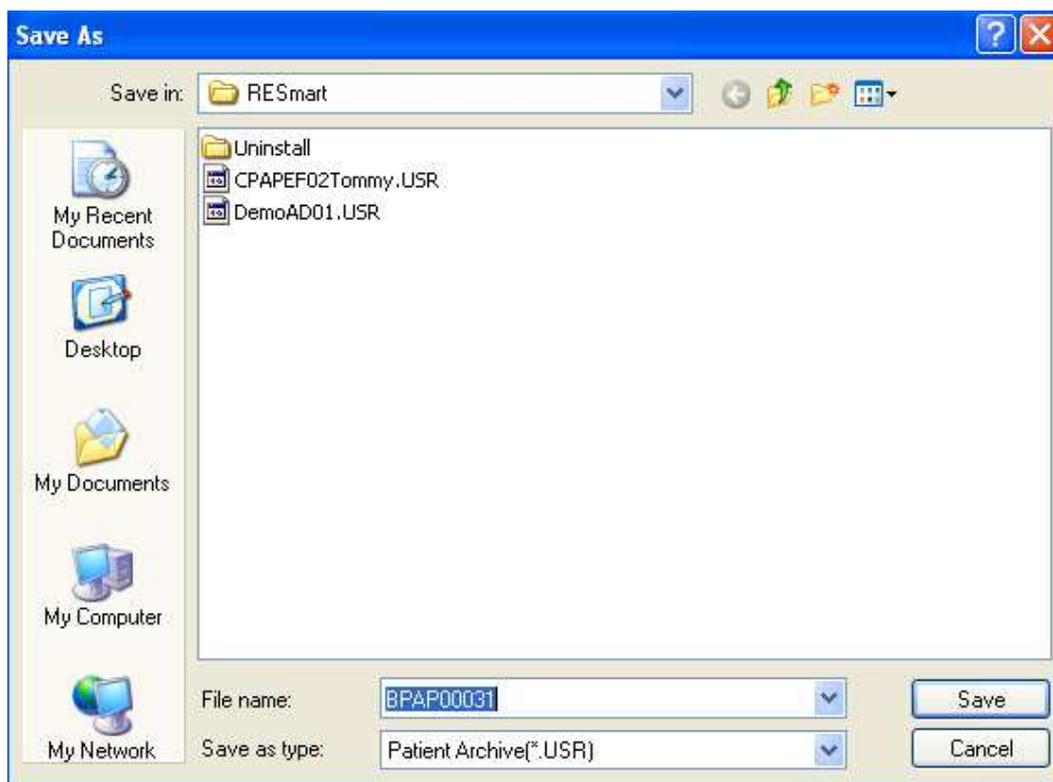


When the writing course is done, a dialog box shows up in the screen, indicating “User register is successful”. Click “OK” and another dialog box for saving the patient archive appears.



3.3 User designates a name to the file and its saving directory. (The analysis software forms a default file name according to RESmart device ID and its user information.) After clicking the “Save” button, the patient archive will be kept with the designated name and in the designated directory.

**RECOMMENDATION:** It is recommended that all the patient archives be kept in the given patient archive directory to facilitate the automatically matching search work. For setting the patient archive directory, please refer to the relevant part on “setting the options” in the later part.



Click “SAVE”. The analysis software can scan the therapy data in RESmart device automatically and keep them in patient archive.

With all the above steps done, patient archive has been created successfully. Analysis system can launch it automatically.

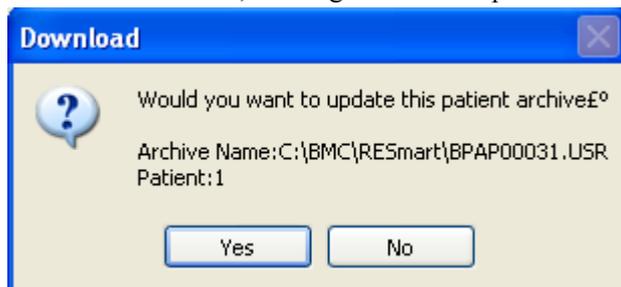
## 4. Data Download

RESmart device which has already created a patient archive in a PC, can upload its data to patient archive when new therapeutic data are recorded. And this process requires an online work between RESmart and PC.

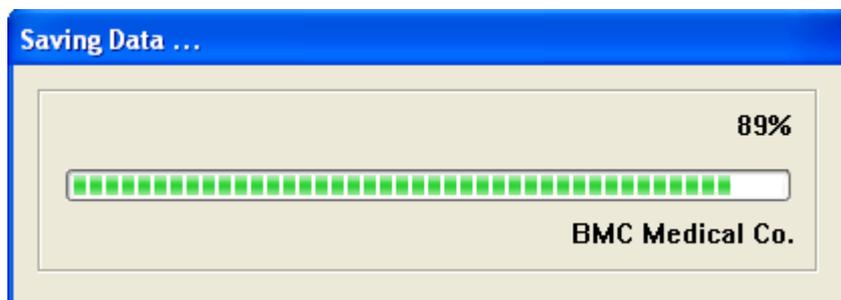
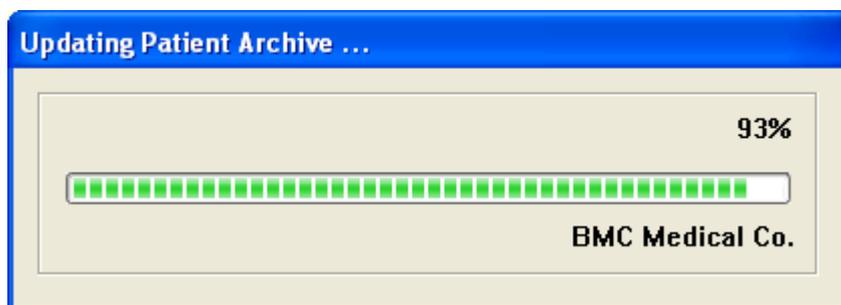
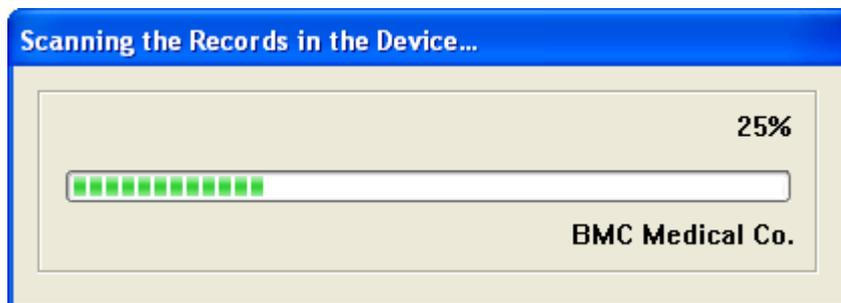
NOTICE: RESmart device must be registered with user information and the corresponding patient archive must be kept in the given directory in PC (patient archive directory), or data can not be downloaded.

4.1 Click “Device” in the menu bar and choose “Download”.

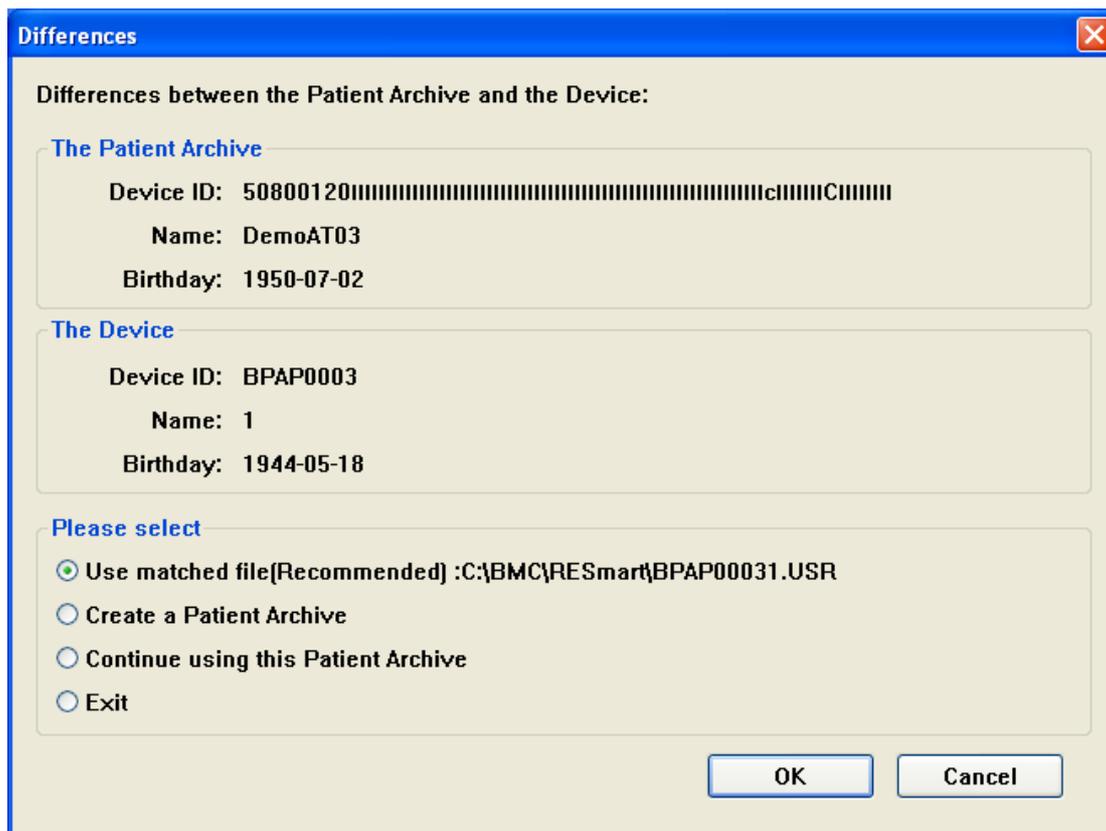
4.2 The analysis software can automatically read the device ID and the registered user information, which will be compared with the patient archive in patient archive directory. If the relevant information matches, a dialog box shows up.



Click “Yes” and the analysis software can automatically download data and update patient archive with the latest information.



4.3 If a mismatch occurs in the information comparison between RESmart device and patient archive, then another dialog box is popped up.



The option "Use a matched file" indicates that the analysis software has already found a matched file in the patient archive directory. Or this option is forbidden.

- 4.4 If no user information exists in the RESmart device, the analysis software prompts that data can not be downloaded until a new patient archive is created.
- 4.5 If there is no patient archive in patient archive directory associated with RESmart information, the analysis software prompts that a new patient archive should be created first and then data download can be performed.
- 4.6 Analysis software can open the patient archive automatically once upon download finish.

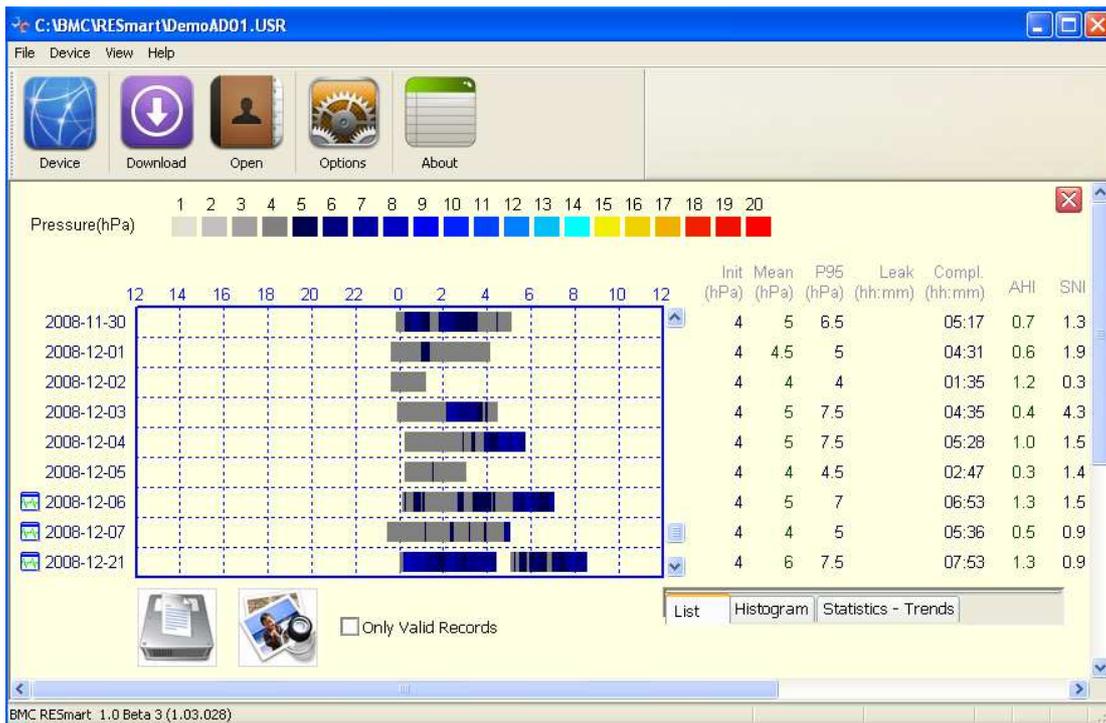
## 5. Opening Patient Archive

Data and statistical results can be accessed by direct opening the patient archive if the RESmart data have already been downloaded and kept in a PC.

- 5.1 Click "File" in the menu bar and choose "open patient archive" option from the pull-down menu. A dialog box with a file directory and file list shows up in the display screen. The target patient archive is usually included in the list.
- 5.2 Open the target file in patient archive directory.

## 6. Checking the Therapeutic Records

- 6.1 A new window demonstrating user's therapeutic records can be seen on the display screen after patient archive is open. See the following picture.



Date of recording is on the left side of the window.

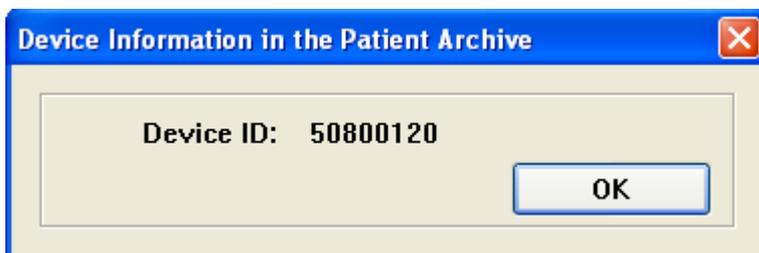
The middle part of the picture shows the variation of therapeutic pressure in the form of colorful bar.

The relevant therapeutic data are listed on the right side of the window.

6.2 The therapeutic records can be seen forth and backwards by dragging the scroll bar on the right.

6.3 The diagram of therapeutic trend on a certain day can be reached by double-clicking the corresponding therapeutic information line.

6.4 Information on RESmart in present file is available by clicking the RESmart icon



6.5 Information on the related registered user can be reached by clicking the registered user

information icon 

<b>Name:</b> DemoAT03	OK
<b>Sex:</b> Male	
<b>Birthday:</b> 1950-7-2	
<b>Height:</b> 170	
<b>Weight:</b> 80	
<b>Phone:</b>	
<b>Address:</b>	
<b>Remark:</b>	

6.6 Click “File” in the menu bar and choose “Print” to get the print output or “Print preview” to preview the therapeutic trend diagram.

6.7 Press “Shut down” button  in up right corner to close the therapeutic information file.

## 7. Checking the Diagrams of the Recorded Therapeutic Trends

The therapeutic trend window can be open by double-clicking the treatment information line in the therapeutic recording window thus therapeutic trend diagram can be observed.



7.1 The diagrams of therapeutic trends from top to bottom are

- diagram of therapeutic pressure trend,
- diagram of snoring level trend,

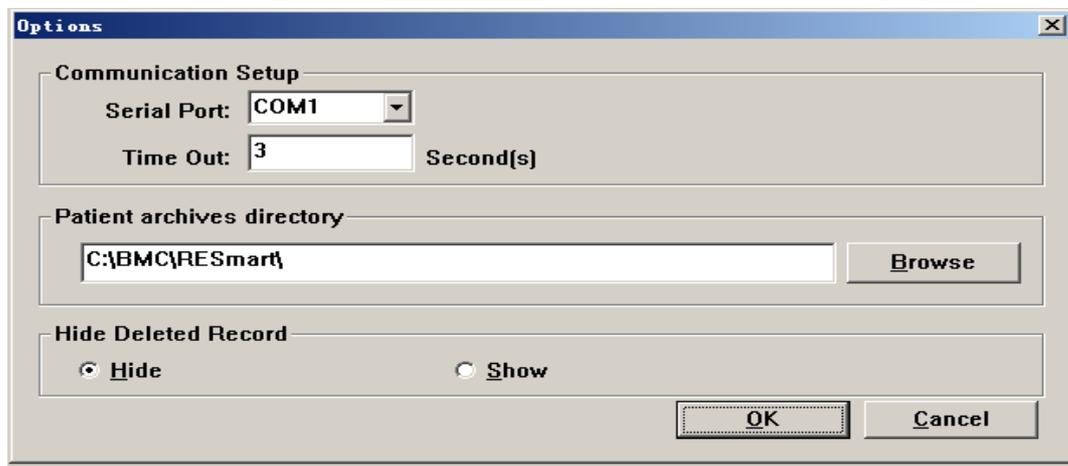
- diagram of respiratory event trend, respectively.
- 7.2 The analytical software can make the therapeutic pressure or snoring level information of corresponding time display beside the cursor while the computer mouse is moving throughout the diagram of therapeutic pressure trend or of snoring level.
- 7.3 Click “File” in the menu bar and choose “Print” to get the print output or “Print preview” to preview the therapeutic trend diagram.
- 7.4 Press “Shut down” button  in the up right corner to close the window of therapeutic trend diagram. And we return to the window of therapeutic information.

## 8. RESmart Device Controlling

- 8.1 Click “Device information” in “Device” menu to get the information on both the device and its registered user.
- 8.2 Click “Device time” in “Device” menu to display the time of RESmart’s clock.
- 8.3 Click “Device Synchronization” in “Device” menu to keep RESmart’s clock in accordance with that of a PC.
- 8.4 Click “User Register” in “Device” menu to modify information of its user.

## 9. Setting the Options

- 9.1 Click “Option” in “View” menu to open the option window.
- 9.2 Select the appropriate item in serial combo box.



- 9.3 A communication waiting time span can be set here and if no acknowledgement is received from RESmart within this period, the analytical software will report errors.
- 9.4 Press “Browse” button to set patient archive directory and then the analytical software is able to search for the patient archive that matches the present RESmart device.

## 10. Install the driver for transformation from USB to universal serial port

**This driver is required to be installed only when the software is intended to replay and analyze the recorder data.**

- 10.1 Make sure that the PC serial port works well.**
- 10.2 Plug the USB-serial port cable in the USB socket. System will detect it and the ‘found new hardware wizard’ appears to set the new device. Otherwise, follow step 2.8 to manually install the driver.**
- 10.3 Insert the CD of driver for transformation from USB to universal serial port, select ‘install from a list or specific location (Advanced)’ and then click ‘Next’.**
- 10.4 Set the options according to the following figure in the search and installation options page. Press ‘Browse’, and add the directory of the driver to the blank of ‘include this location in the search’. Click ‘Next’.**
- 10.5 The wizard continues with the installation after finding the driver.**



**Figure 10 Found new hardware wizard**

- 10.6 Press ‘Finish’ to quit the driver installation interface after installation.**
- 10.7 Right-click the shortcut ‘my computer’ on the desktop and enter the system properties interface, click ‘Device Manager’ in the ‘hardware’ page to check out whether the Prolific USB to Serial Comm Port (COMX) is seen under ‘port (COM & LPT)’. If so, it is suggested that the USB to serial port cable has been set to serial port COMX (COMX may be one of COM1, COM2, etc) and can work.**

**10.8 If ‘? USB-Serial Controller’ comes up in device manager, the installation is supposed not to be done or not correct and need to add the driver again.**

**10.9 Right click ‘? USB-Serial Controller’ and select ‘Update Driver’. Follow step 2.3 to install driver under the direction of the hardware update wizard of the pop-up window.**

## 11. Setting the Languages

Click “Language” in the “View” menu. The language used in this software can be set in the submenu.



## 12. Exiting

Press the “Shut down” button  in the up right corner to quit the RESmart analytical software.