



Terminal Emulator software and Graphics Viewer for PM-11 Phytomonitor

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2007

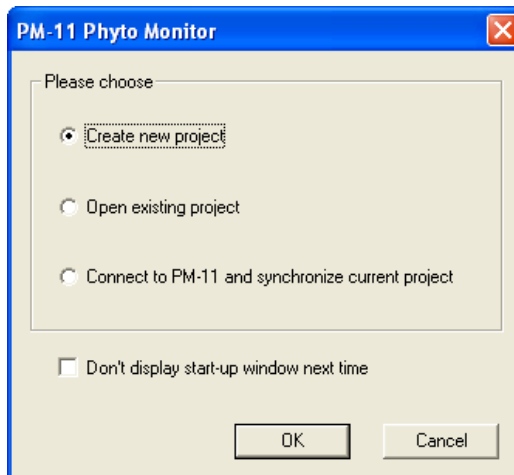
Terminal Emulator Software

Software installation

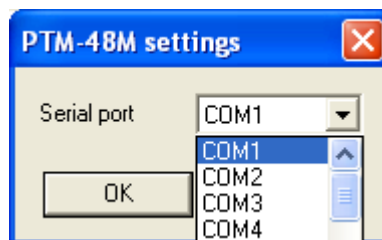
Insert the installation CD in your PC and follow on-screen instructions.

First start

1. Click the **PM-11 Phytomonitor** icon located on the Desktop of your computer screen. You will see the following prompt window:



- **Create new project** allows to create a completely new configuration of the data logging project.
 - **Open existing project** is used if you like to resume the data logging project created earlier. Do not choose this option in the first start.
 - **Connect to PM-11 and synchronize current project.** In most of cases the new PM-11 Phytomonitor is supplied with the factory configuration that meets the customer's order. You may try to choose this option to load the data logging project from the Phytomonitor's memory. Before that, please make sure that the PM-11 Phytomonitor is switched on and is connected to the PC communication port.
2. In the **PM-11/Link setup** menu, you have to specify a COM port where the PM-11 Phytomonitor is connected to.



How to configure the data logging project

1. Click the **Project descriptor button** or choose the appropriate option from the **Project** menu. You will see the following window:

The screenshot shows the 'Project descriptor' window with the following configuration:

- Project:** 20070807_1100
- First record:** (empty)
- Last record:** (empty)
- Timing:**
 - Measurement time interval: 720 sec
 - Exact measurement time
- RTH:**
 - Radiation: RTH/R PAR
 - Soil type: VWC - Rock Wool
- Sensors:**

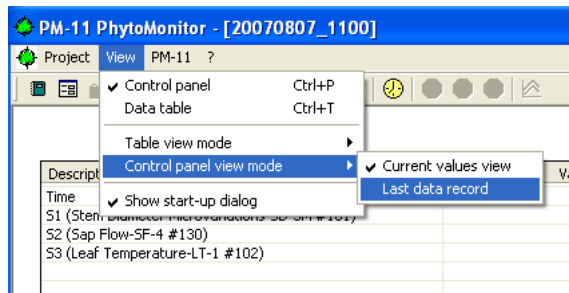
In #	Sensor	Notes
1	SD-5M #101	Plant # 23
2	SF-4 #130	Third leaf
3	LT-1 #102	Fourth leaf
4		
5		
6		
7		
8		

Buttons at the bottom: Clear All, Help, OK, Cancel.

- **Project name** shows either a specific name you gave to your project or automatically generated a name, which includes year, month, date and time of the project start.
- **Timing** determines the measurement time interval. You may enter any number in seconds. The minimal sampling time is 10 seconds. The recommended sampling time is 600 seconds for protected crops and 1800 seconds for open-field crops.
- **Exact measurement time.** It is recommended to select this option that initiate measurements in rounded time. For instance, if you choose the 600 s sampling time (i.e. 10 min) when it was 10:06, the measurements will be done in 10:10, 10:20, 10:30 etc. Case you uncheck this option, the measurement starts immediately and the measurement time will be 10:06, 10:16, 10:26, etc.
- **RTH** menu specifies some options for the RTH-11 Meter and SMTE (Soil moisture, temperature and EC sensor) if they are connected to the PM-11 Phytomonitor. The **Radiation** sensor shall be selected as RTH/R PAR. The **Soil type** determines the factory calibration for three available types of the soil: **Mineral soil**, **Potting soil**, and **Rockwool**. In case you would like to use your own calibration, please contact your dealer for requesting the appropriate instructions from the manufacturer.
- In the **Sensors** panel, you configure the analog inputs of your PM-11 Phytomonitor. Please choose the appropriate sensor for every input where the sensor is connected to. In the **Notes** field, you may type any comment that relates two every particular sensor.

How to view the data

- In the **View** menu, you may choose two options:
 - To view the **last (most recent) record** in the data base,
 - To see **current readings** of the sensors. The current readings are available only if the PM-11 Phytomonitor is on-line. The readings are updated every second on screen. No data are recorded in the data base.



- In the Data table View, you may see all records collected during the current data logging project:

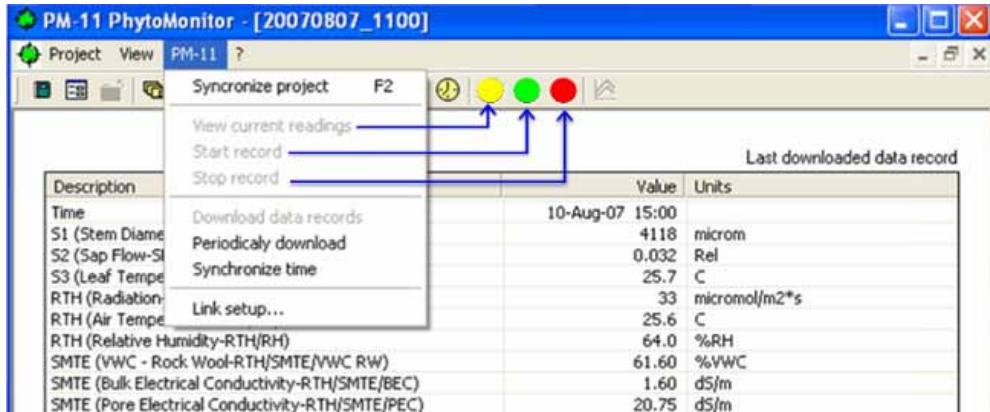
The screenshot shows the 'Data table' view of the PM-11 Phytomonitor software. The table displays the following data:

Time	S...	S3 (Leaf Temp...	RTH (Radiation...	RTH (Air Temp...	RTH (Rel...
07-Aug-07 11:57	057	22.7	16	24.4	
07-Aug-07 11:58	046	22.1	25	24.2	
07-Aug-07 11:59	072	22.5	18	23.6	
07-Aug-07 12:00	021	22.0	17	22.7	
07-Aug-07 12:01	021	21.8	17	21.6	
07-Aug-07 12:00	4134	-0.032	21.7	13	22.2
07-Aug-07 12:12	4130	-0.025	21.3	20	22.1
07-Aug-07 12:24	4131	-0.005	21.5	21	22.6
07-Aug-07 12:43	4131	0.332	23.4	31	24.2
07-Aug-07 12:44	4132	0.005	24.0	35	23.6
07-Aug-07 12:45	4132	0.008	23.2	37	22.8
07-Aug-07 12:46	4132	-0.012	23.2	40	22.8
07-Aug-07 12:47	4131	-0.025	22.9	42	22.4
07-Aug-07 12:48	4131	-0.007	23.4	48	22.0
07-Aug-07 12:49	4131	0.058	23.1	51	21.9
07-Aug-07 12:50	4131	0.025	22.8	56	22.0
07-Aug-07 12:51	4131	-0.046	23.3	54	22.5
07-Aug-07 12:52	4130	-0.018	22.9	64	22.3
07-Aug-07 12:53	4131	0.021	23.3	61	22.6
07-Aug-07 12:54	4131	0.023	23.4	66	22.3
07-Aug-07 12:55	4132	-0.022	23.4	62	22.7
07-Aug-07 12:56	4129	0.042	23.4	57	22.9
07-Aug-07 12:57	4132	0.029	23.8	61	24.2
07-Aug-07 12:58	4132	0.011	24.1	59	23.7
07-Aug-07 12:59	4129	0.026	24.0	63	24.7
07-Aug-07 13:00	4133	-0.004	24.1	67	23.7
07-Aug-07 13:01	4132	0.010	24.1	68	24.6
07-Aug-07 13:02	4133	-0.002	23.9	72	24.4
07-Aug-07 13:03	4132	-0.004	24.2	74	25.3
07-Aug-07 13:04	4130	0.030	25.1	78	25.1
07-Aug-07 13:05	4133	0.013	24.9	64	25.2
07-Aug-07 13:06	4130	-0.021	23.8	78	23.8

The status bar at the bottom indicates 'View project data as table', 'OFF-LINE', and 'NUM'.

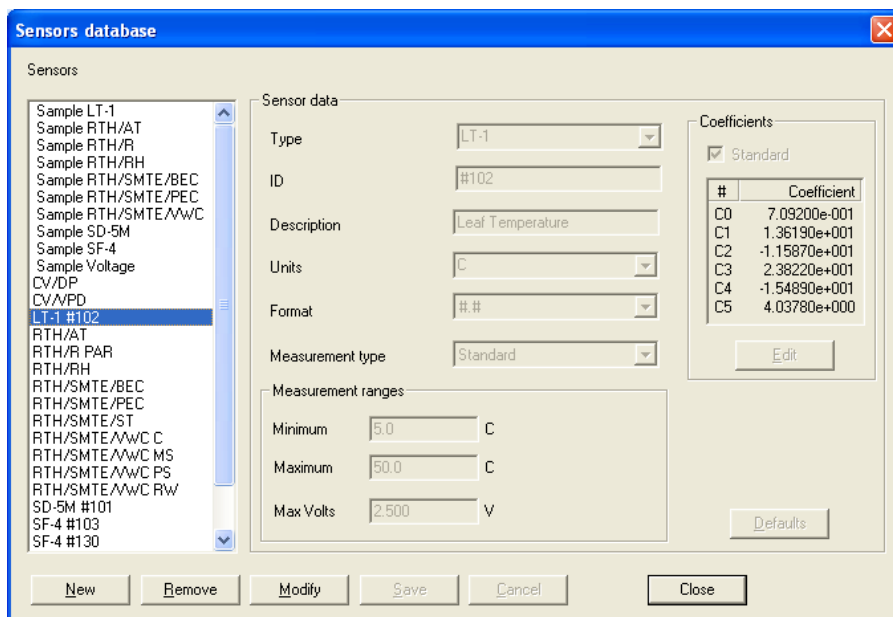
Start/Stop data logging

You may stop and resume the data logging session by using either appropriate commands in the PM-11 menu or colored buttons in the toolbar:



Sensors database

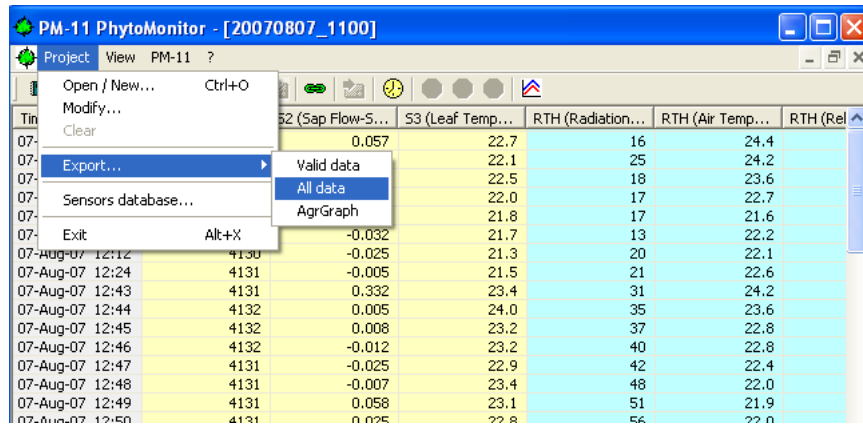
You may open the Sensors database from the **Project/Sensors database** command or by clicking the appropriate button in the toolbar.



- The window contains a list of sensors which includes so-called Sample sensors which may be used for reviewing characteristics of all sensors available from the manufacturer. Below Sample sensors, there is a list of actual sensors that can be connected to the Phytomonitor.
- When selecting any sensor in the list, you may see all the data that relates to that particular sensor.
- The user may enter a new sensor, and to modify allowable fields in the Sensor data.

Exporting the data in TXT or CSV format

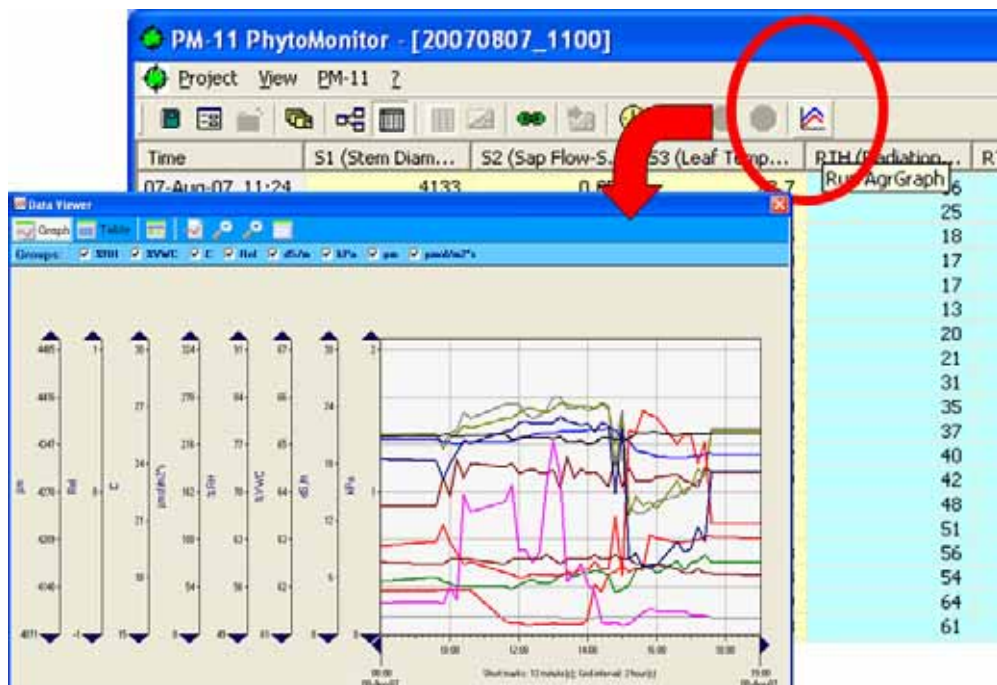
Please choose the Project/Export menu for converting the data base into the TXT or CSV files.



- Valid data means that only the data that was recognize by the program as valid is converted
- All data converts without exclusions.

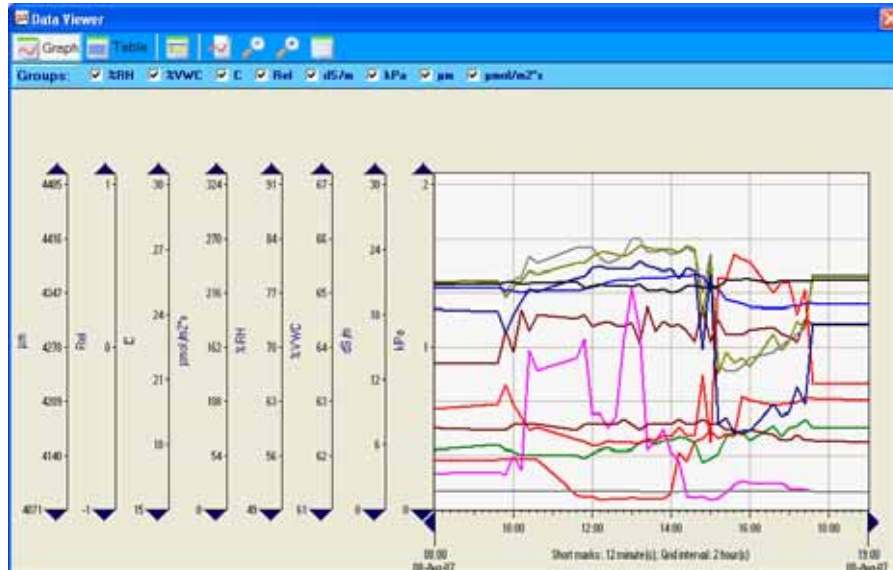
Data Viewer

1. Data Viewer is an optional add-in program for the Terminal Emulator software which comes with the PM-11 Phytomonitor and the PTM-48A Photosynthesis Monitor. The Data viewer may be started from the table view mode in the Terminal Emulator software.

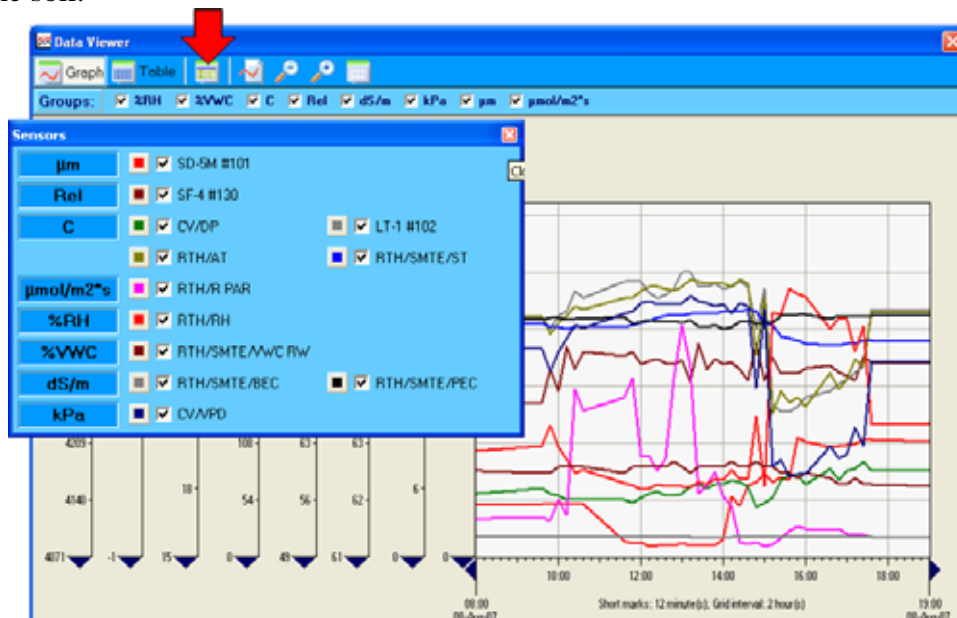


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- The Data Viewer opens in the graph mode. The Y-axes represent measurement units of sensors available in the data table. All sensors are grouped according to their measurement units. For instance, leaf temperature, air temperature and soil temperature curves have the same Y-axis labeled as “C”.

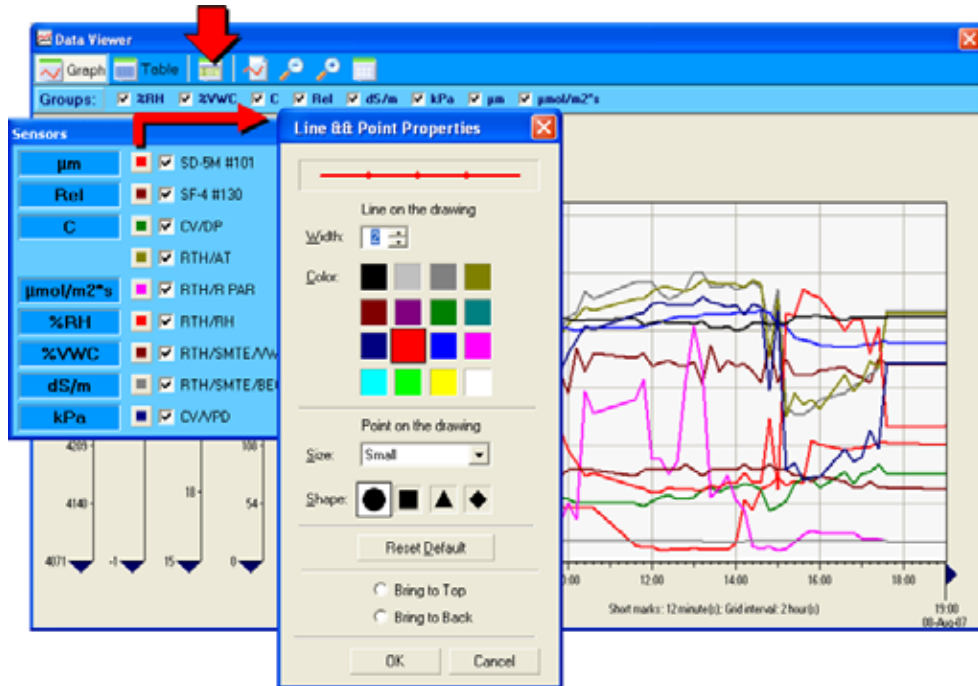


- By clicking a toggle button, you may see what sensors are connected to every particular scale. For instance, the “C” axis relates to the data of CV/DP (Dew point), LT-1#102 (Leaf temperature), RTH/AT (Air temperature), and RTH/SMTE/ST (Soil temperature). The “dS/m” scale shows the Bulk and Pore electrical conductivity of the soil.

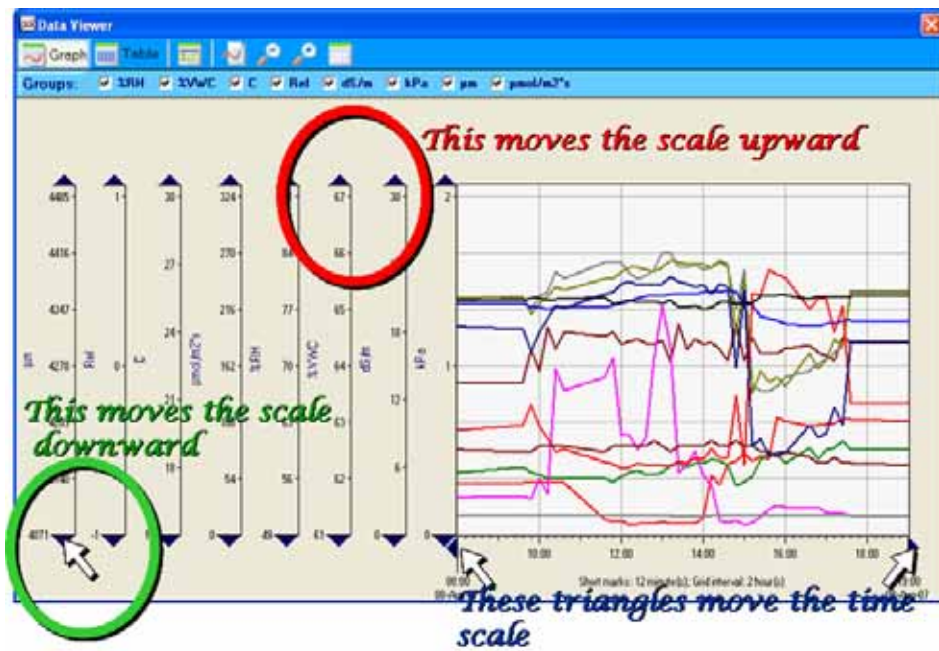


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- By clicking a small colored button near the name of the measured value, you may choose width, color and some other characteristics of any curve in the graph.

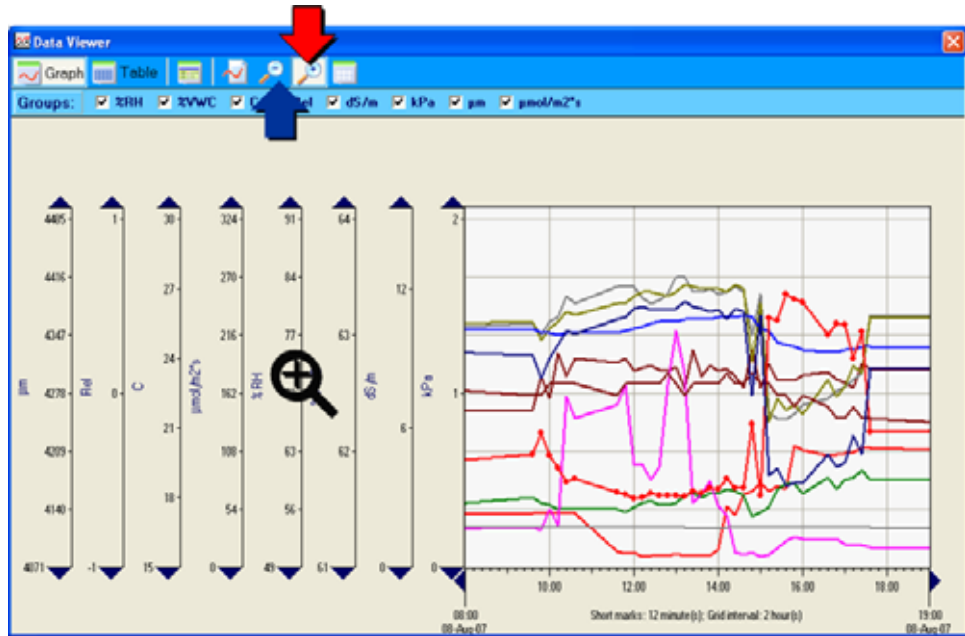


- Every axis has top and bottom black triangles. By pressing appropriate triangle, you may move the axes up or down. The time scale also ends with a pair of horizontal triangles which allow moving along the scale.

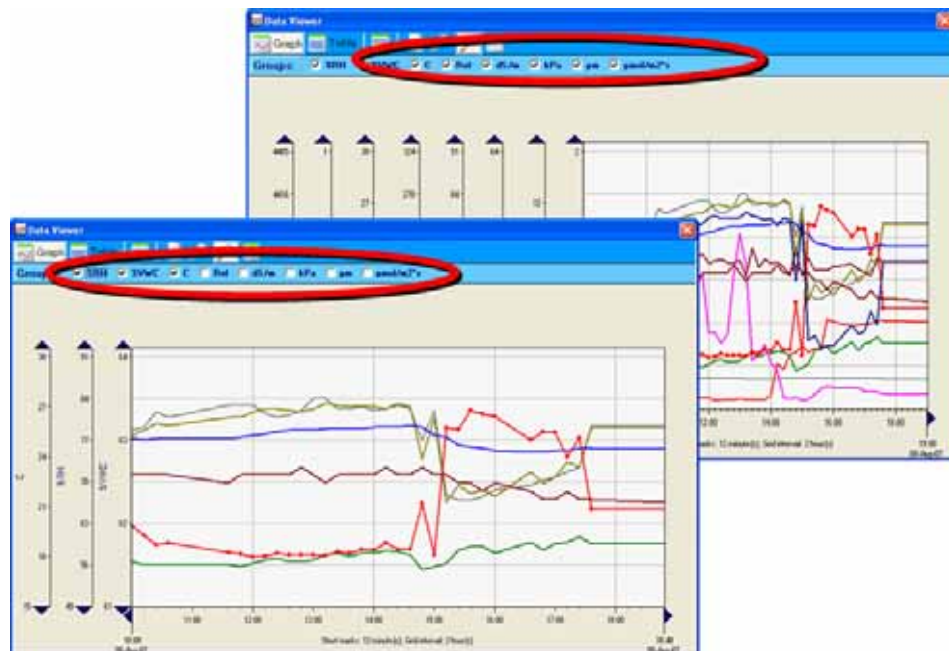


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- Any axis (including also the time scale) may be scaled up or down. By pressing a “zoom-in” button (red arrow), you call a zoom-in sign which may be placed at any axis to scale it up. To scale an axis down, please call a zoom-out sign by pressing a button indicated by the blue arrow.

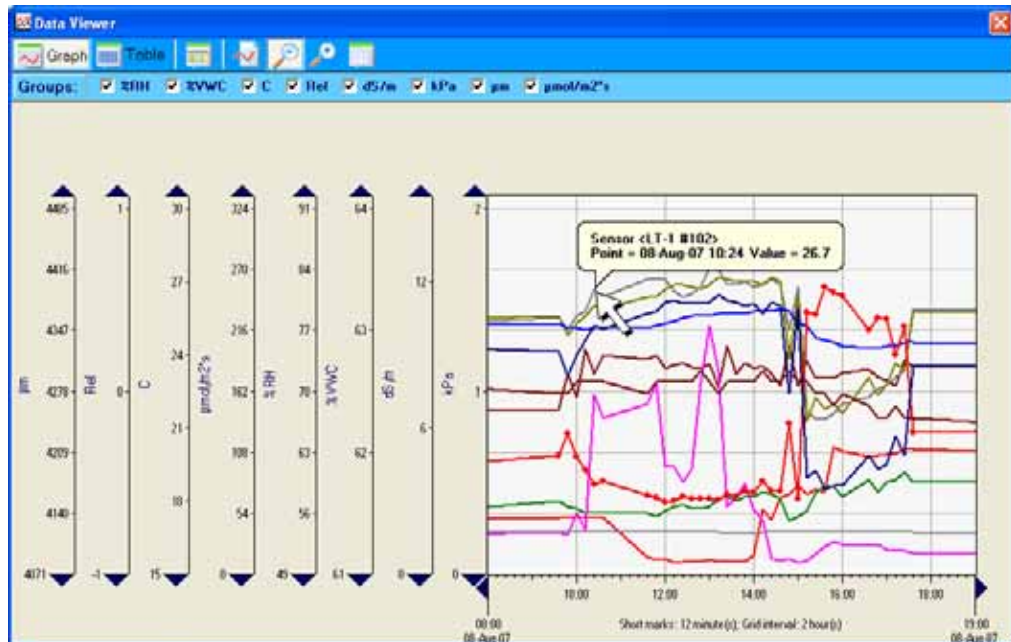


- Any axis and corresponding curves may be easily switched on and off by using a toolbar with the checkboxes. Less number of axes allows to increase the graph pane.

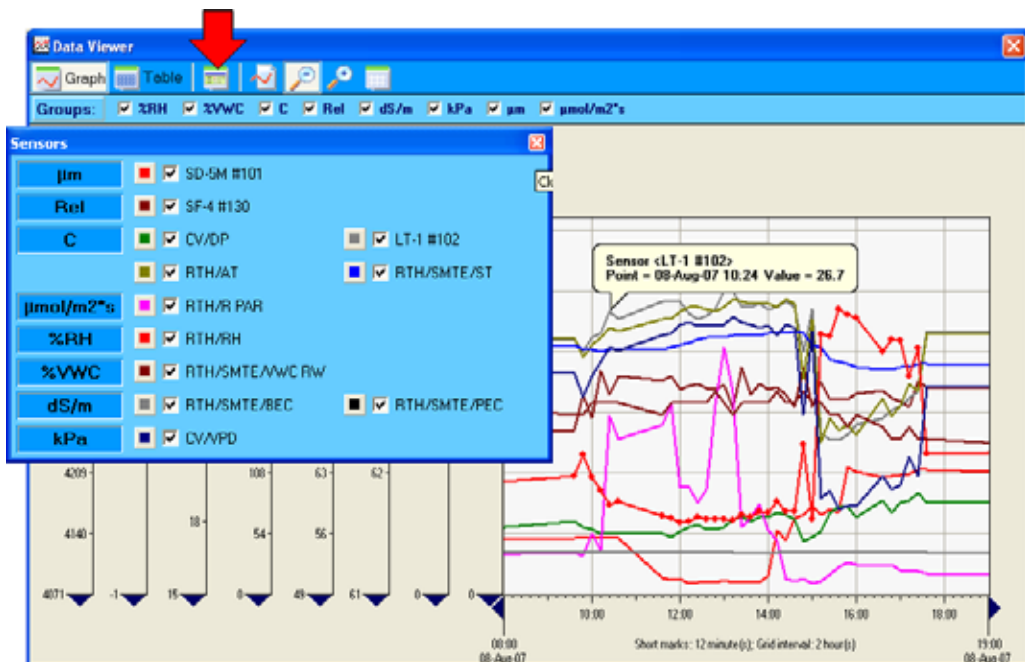


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- There are two ways to recognize the data source of each curve. By pointing a curve, you open a callout with all information about the data source and the pointed value. In the example below, the callout shows that the upper curve belongs to the LT-1 leaf temperature sensor #102, and the point value is 26.7 °C at 10:24 on August 8, 2007.

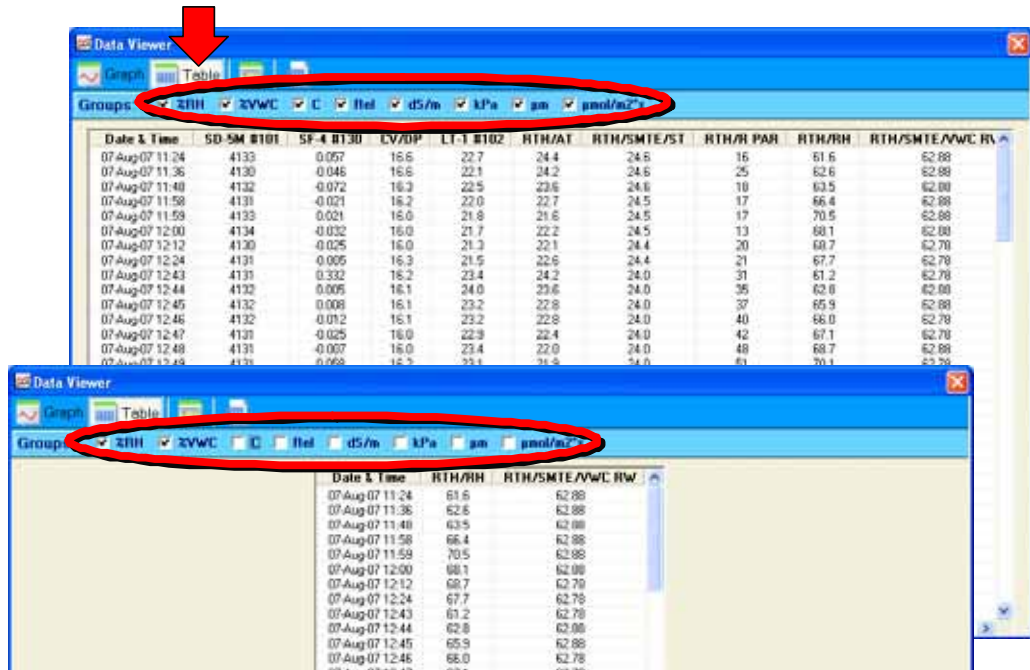


- Another way to identify the curve is to open the sensors panel with the colored buttons and appropriate sensors' names.

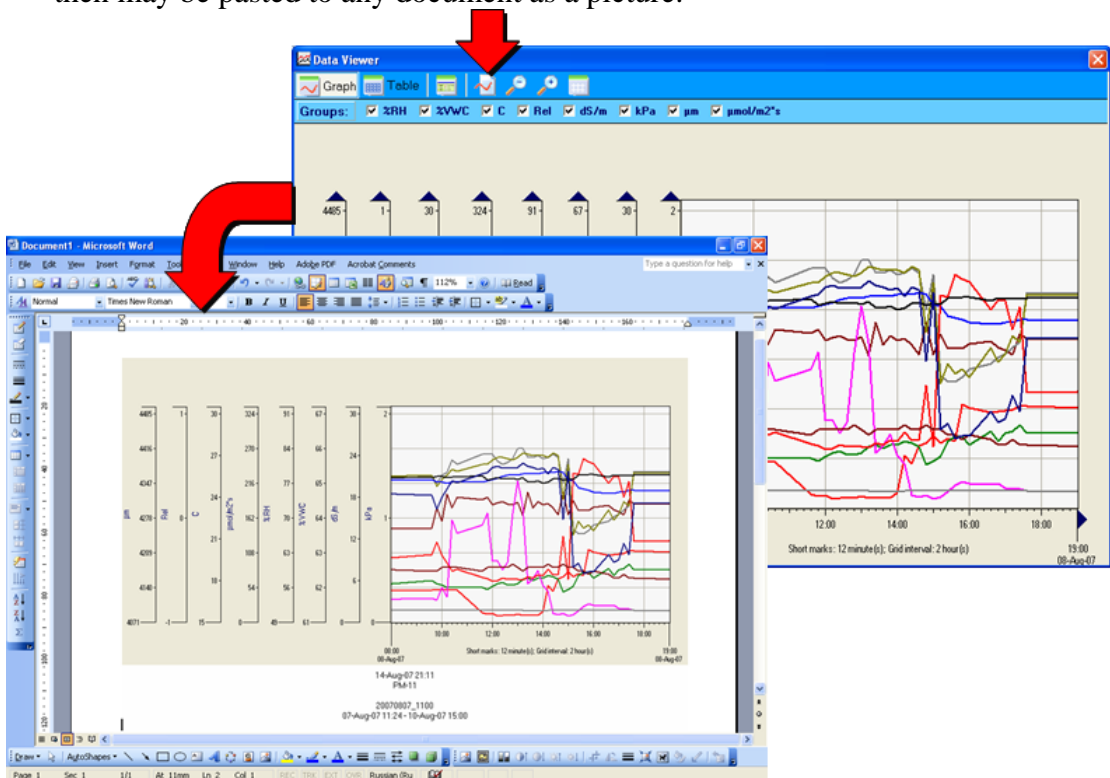


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10. The “Table” button opens a source data table. You may choose a set of viewed values by selecting checkboxes in the appropriate toolbar.

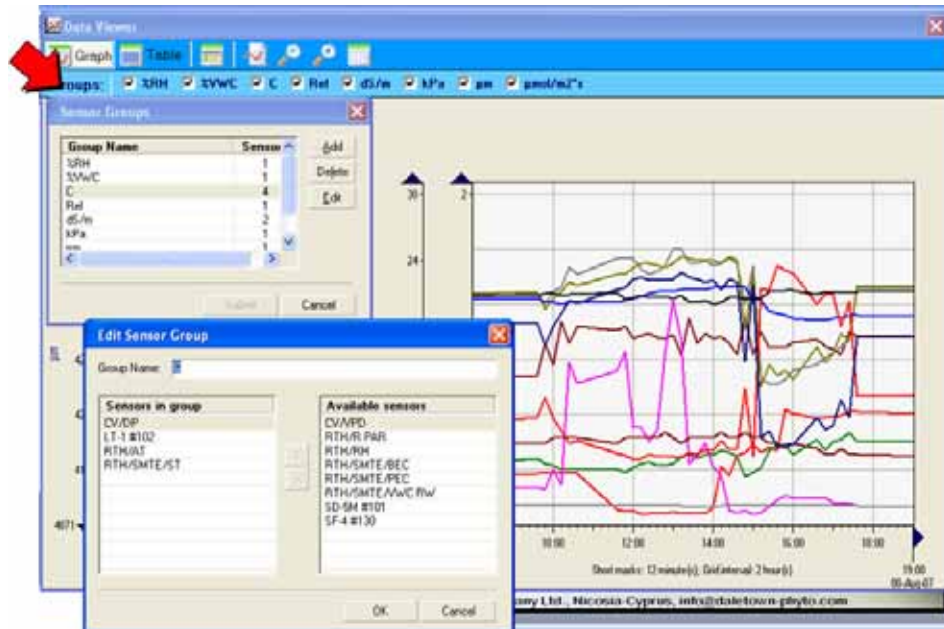


11. The current graph may be copied to clipboard by clicking the appropriate button, and then may be pasted to any document as a picture.

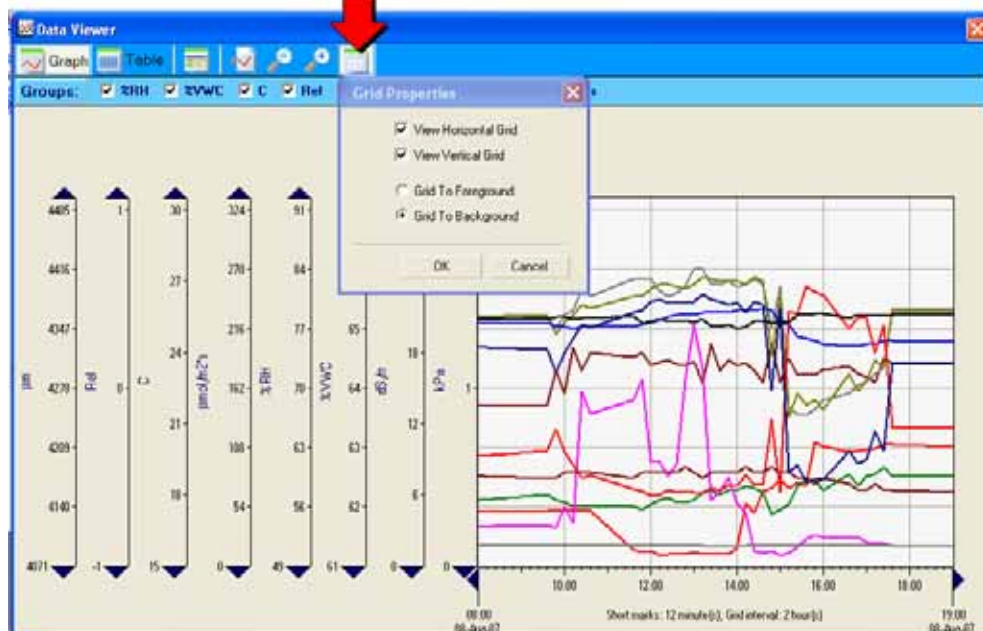


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12. By clicking the “Groups” button, you may view and edit the groups which include values of the same measurement unit. In the example below, you may see that the “C” group consists of 4 sensors (or values): CV/DP (Dew point), LT-1 #102 (Leaf temperature), RTH/AT (Air temperature), and RTH/SMTE/ST (Soil Temperature).



13. The “Grid Properties” button allows to switch the grids on and off and also move the grid either to foreground or to background.



For enquires and assistance please contact the manufacturer at

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