Thermo Scientific

Software for Pycnomatic

Operating Manual

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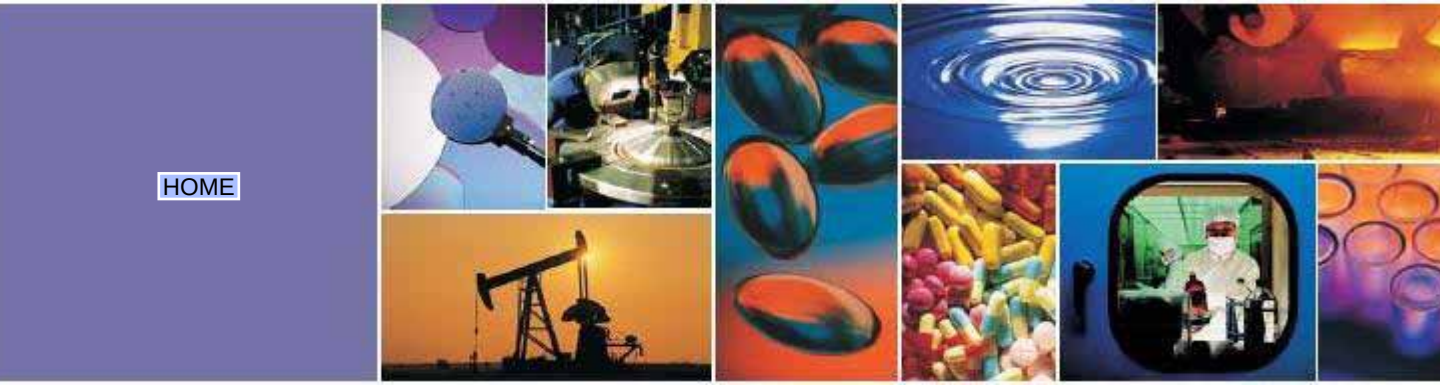

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Software for Pycnomatic

This manual contains the informations to install and operate with the software for Pycnomatic.

Chapter at a Glance...

Installation

To install the software operate as follows:

1. Insert the CD in the computer. If the function **auto read** of your computer is activated the installation will start automatically.

2. Follow the software indications. Otherwise open the CD using **Explorer** and double click on SETUP.

Firmware and Software Configuration

Before starting the software on the computer, the Pycnomatic firmware must be properly configured to send data to the computer through the serial communication port.

1. From the main screen on the Pycnomaticdisplay select “SERVICE”

2. Scroll the lines and locate the command “SEND RESULTS AT END”. Select “COM” or “COM+LPT”

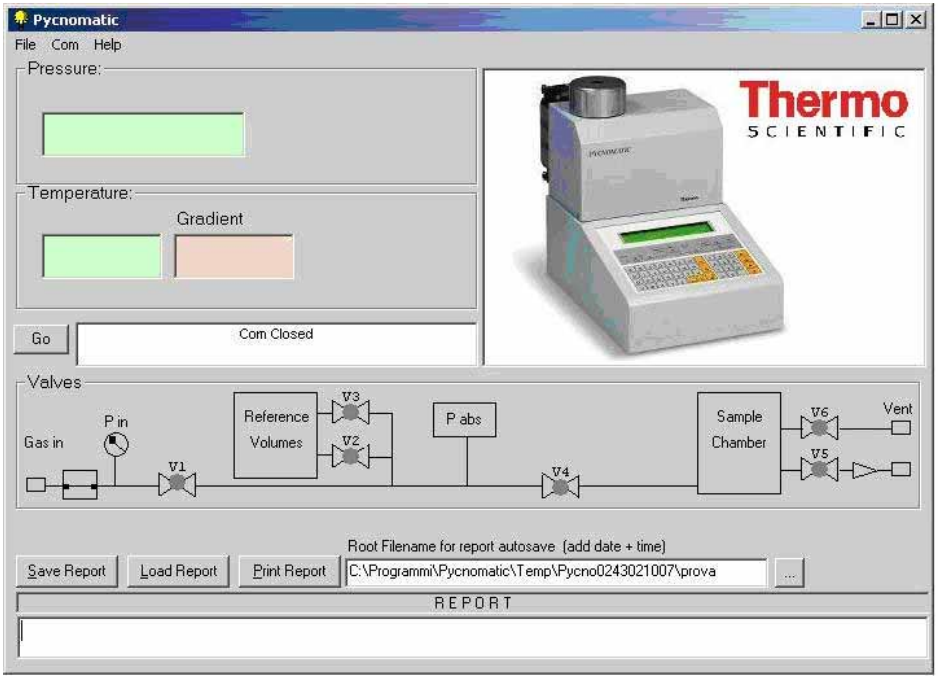
3. Locate the command “SEND DATA TO COM” and select “ON”

4. Locate the command “SEND DEBUG TO COM” and select “ON”

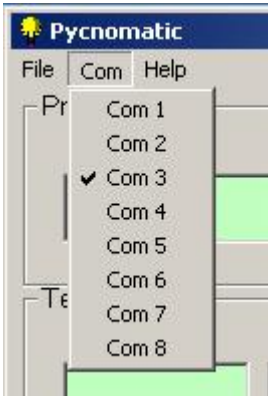
5. Connect the Pycnomatic to the computer using the cable given in the standard outfit to one of the available com ports on your PC.

6. Start the program by clicking on the relevant icon.

The main page of the software will be displayed:



7. Select the command “Com” from the main menu and click on the COM port to which the Pycnomatic is connected (in the example COM 3).



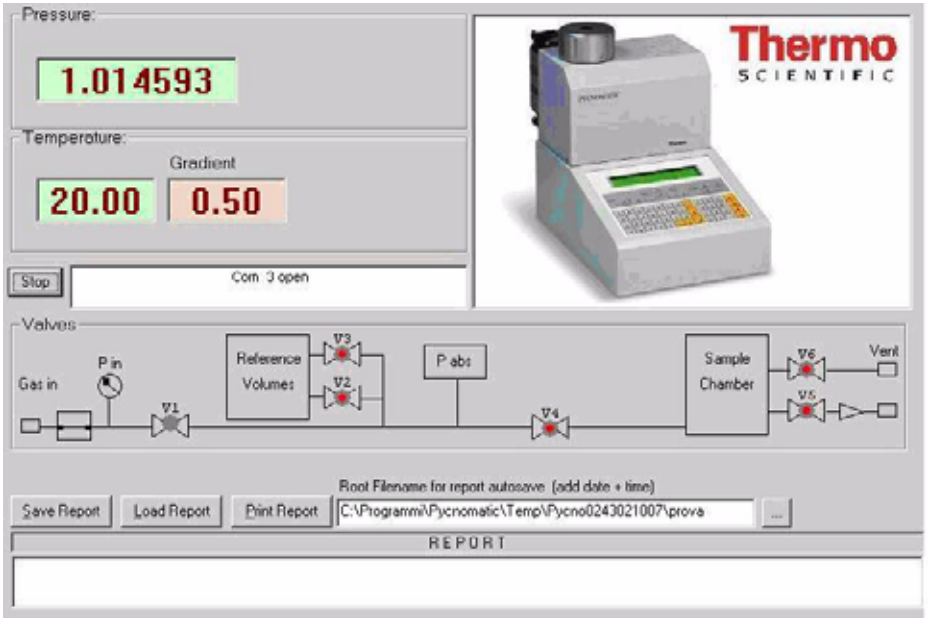
8. Locate the push button “GO” and click on it.

9. You will see the command line “Com # selected”.

Now the Pycnomatic is connected and it starts transmitting data to the computer

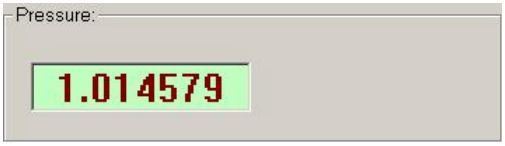
Software Description

If everything is properly set, you will see on the computer screen the following data:



Pressure Reading

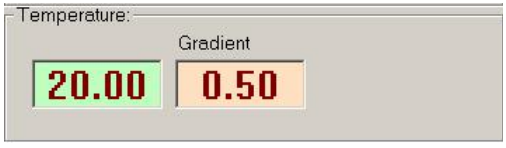
The current pressure measured by the Pycnomatic is displayed in the following screen.



The pressure units are the ones selected in the menu “SERVICE” of the Pycnomatic display. The units can be mbar or hPa (in the example mbar).

Temperature Reading

The averaged sample chamber temperature and the temperature maximum gradient are displayed in the following screen:



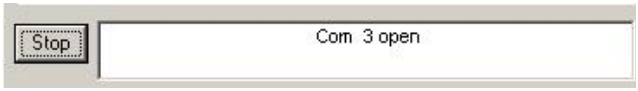
The temperature units are the ones selected in the menu “SERVICE” of the Pycnomatic display and can be chosen among Celsius or Fahrenheit degree (in the example Celsius).

The temperature is the average temperature calculated in the middle of the sample chamber.

The gradient is the temperature difference between the two sides of the sample chamber.

Status line

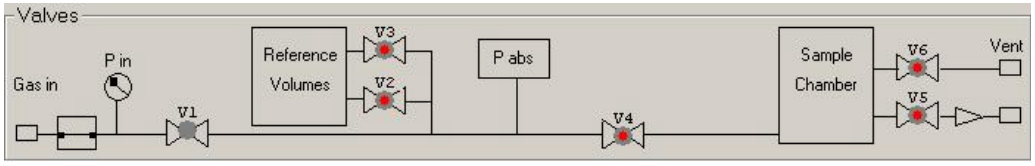
The status line displays all the operation done by the Pycnomatic or the commends given by the operator by using the instrument keypad.



To stop the communication with the instrument click on the button “STOP”.

Synoptic Display

The synoptic display roughly represents the instrument diagram showing the opening and closing of the valves.



Each LED (Light Emitting Diode) on synoptic display indicates the relevant valve operating status.

- When the LED is On means that the relevant valve is open.
- When the LED is Off means that the relevant valve is close.

Reporting

This part of the software screen is relevant to the results and calibration report.

At the end of each experiment/calibration, a complete report is displayed in this page.

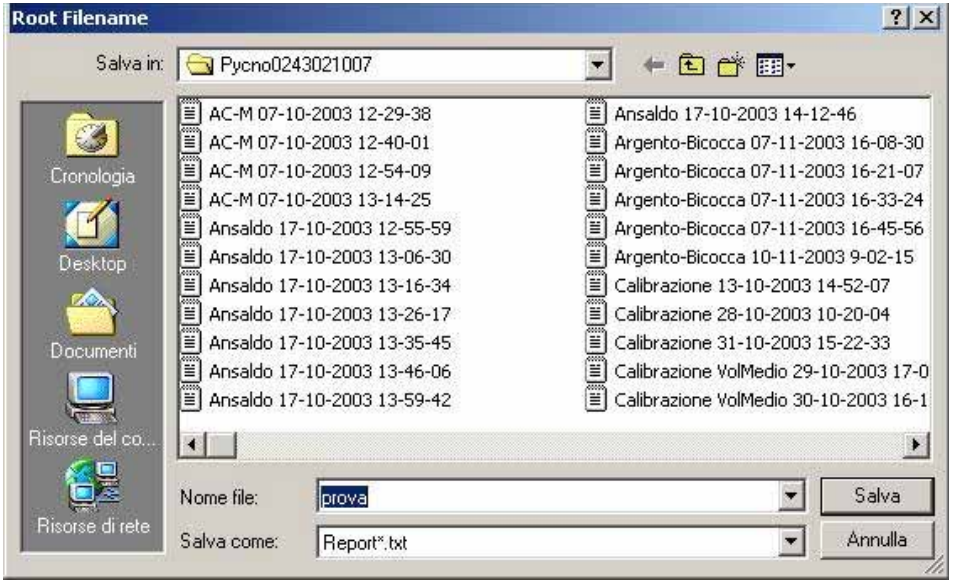
The report can be automatically saved on the hard drive (see *Report Generation* paragraph).

Report Generation

The Pycnomatic software permits to save automatically the results and parameters report on your PC hard disk by assigning a semi-automatic file name.

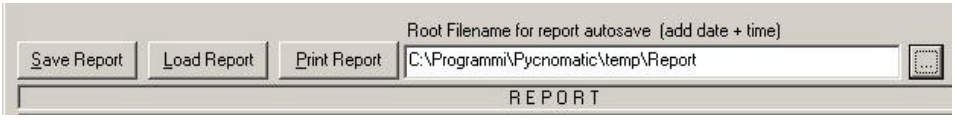
The files are in text format (.txt) and they can be edited and printed by any software (i.e. Word, Excel or Block Notes).

To assign a filename click on the button  and select the folder and a filename:

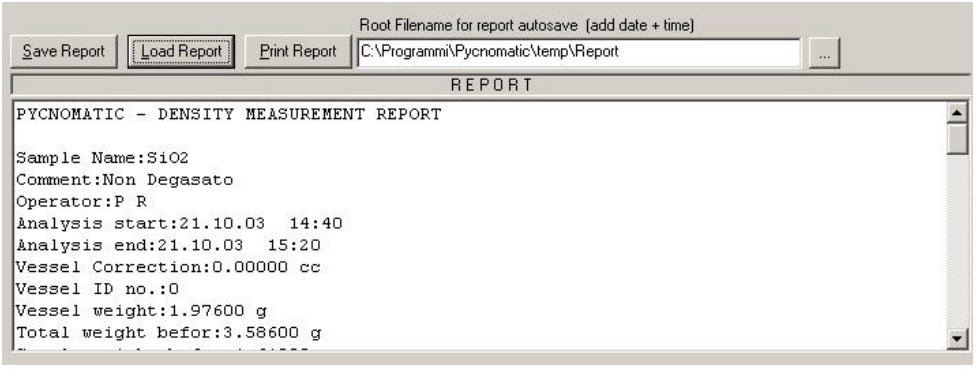


Once the filename has been selected the software will automatically add the date and time of the experiment. This function helps to distinguish different files relevant to multiple repeated tests on the same sample.

Even in case the filename and folder are not selected by the user the auto-save function is still active and the files will be anyway automatically saved in a temporary folder with the filename “Report + DATE + TIME.txt”



At the end of each experiment/calibration, the relevant report will be always displayed in the bottom page of the software.



When a report is displayed in the above page it is possible to save or print it using the relevant buttons.

Report Format

The report is a text file with sample, analytical parameters and results separated by a COLON (:) symbol while pressure data are separated by TAB symbol.

```
PYCNOMATIC - DENSITY MEASUREMENT REPORT
Sample Name:SiO2
Comment:No Degasato
Operator:P R
Analysis start:21.10.03  14:40
Analysis end:21.10.03  15:20
Vessel Correction:0.00000 cc
Vessel ID no.:0
Vessel weight:1.97600 g
Total weight befor:3.58600 g
Sample weight befor:1.61000 g
Total weight after:3.58600 g
Sample weight after:1.61000 g
Weight difference:0.00000 g

ANALYTICAL PARAMETERS
Reference:I
Reduction:Small
Reference volume:20.93123 cc
Cell volume:7.51734 cc
Filler volume:0.00000 cc
Repeated analyses no.:5
Flow cleaning time:0 sec
Number of cleaning cycles:3
Sample cleaning time:10 sec
Atm stabilization time:25 sec
Restriction delta pressure:250.000 kPa
Equilibrium delta pressure:0.010 kPa
Equilibrium delta time:10 sec
Standard deviation %:0.200 %
No. of good measurements:3
No. of max. measurements:100
High Percision:Yes
Temperature set:20.00 °C
```

RESULTS

Average Sample Volume:0.71286 cc
Volume Standard Deviation:0.00015 cc
% Standard Deviation on Volume:0.02119 %

Average Sample Density:2.25850 g/cc
Density Standard Deviation:0.00048 g/cc
% Standard Deviation on Density:0.02119 %

Average Sample Density after:2.25850 g/cc

MEASUREMENT RAW DATA

Patmh kPa	Prh kPa	Pch kPa	Temp °C	Volume cc	Aver.Vol cc	Aver.Dev. cc
99.446	200.796	175.909	19.99	0.70470	0.70470	0.00000
99.444	200.763	175.900	19.99	0.71067	0.70769	0.00422
99.443	200.769	175.918	19.99	0.71567	0.71035	0.00549
99.443	200.744	175.869	19.99	0.70458	0.71030	0.00555
99.434	200.765	175.910	19.99	0.71471	0.71165	0.00614
99.435	200.687	175.846	19.99	0.71267	0.71065	0.00536
99.438	200.812	175.930	19.99	0.70862	0.71200	0.00310
99.434	200.767	175.916	19.99	0.71611	0.71247	0.00375
99.436	200.721	175.859	19.99	0.70810	0.71094	0.00448
99.438	200.768	175.889	19.99	0.70569	0.70997	0.00545
99.441	200.765	175.915	19.99	0.71579	0.70986	0.00527
99.444	200.781	175.928	19.99	0.71568	0.71238	0.00580
99.445	200.825	175.909	19.99	0.69678	0.70941	0.01094
99.451	200.591	175.778	19.99	0.71289	0.70845	0.01020
99.454	200.679	175.846	19.99	0.71300	0.70756	0.00934
99.452	200.596	175.782	19.99	0.71270	0.71286	0.00015