

Manual Software for PROPMEC (Version 4 2016)

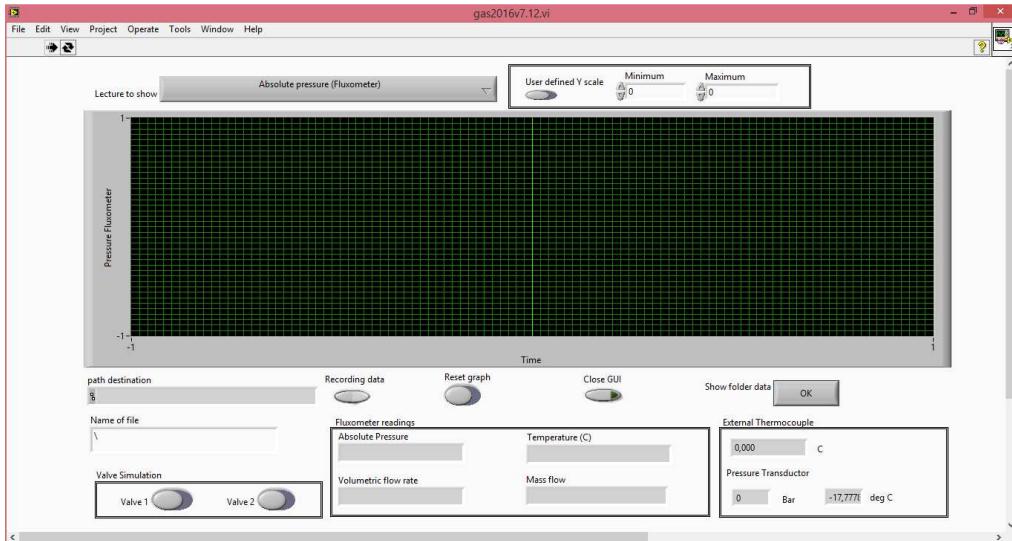
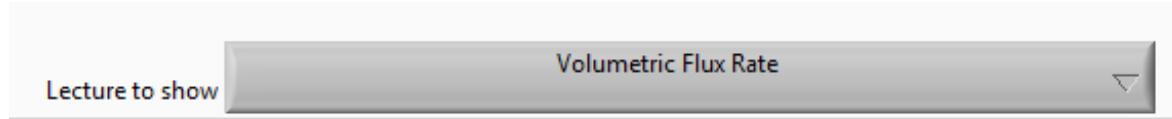


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1 SECTIONS OF GRAPHIC USER INTERFACE (GUI)

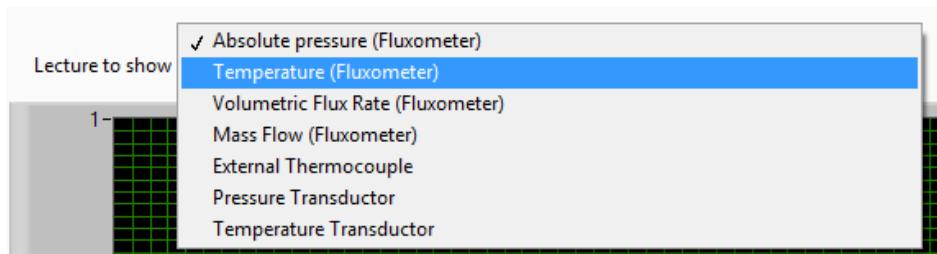
1.1 Selection of graph to show



The data obtained from the external equipment and sensors available for the graphical space (canvas) are:

- Absolute Pressure from fluxometer
- Temperature from fluxometer (*C)
- Volumetric flow rate from mass fluxometer
- Mass Flow from fluxometer
- Thermocouple lecture
- Pressure from transductor omegadyne
- Temperature from transductor omegadyne

allowing the user to select which one want to see. The active selection is marked by a ok sign and it alters the ylabel from the canvas



1.2 Range of canvas



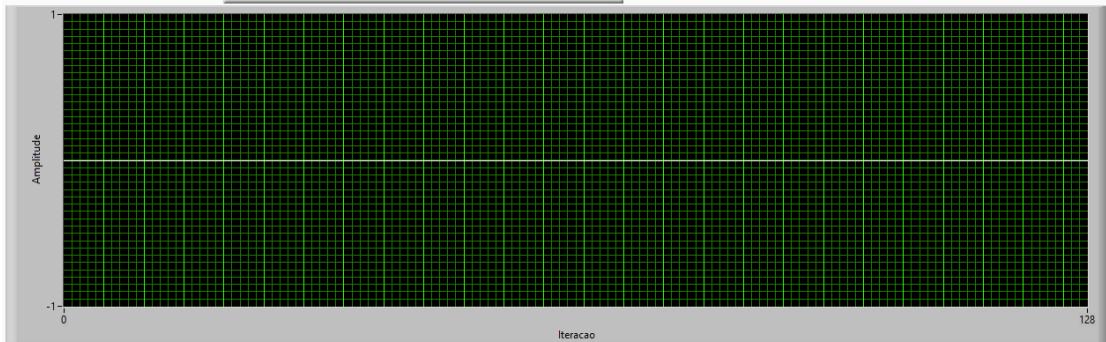
For lectures with a known range (maximum and/or minimum) the GUI has a section to select if the presentation range should be automatic or user defined

In case the selection were “**User defined yscale**”, the selector becomes red colored and the values introduced in the textboxes are applied to the graphic



Otherwise, the picture range is automatically updated according to the lectures obtained.

1.3 Canvas



Correspond to the active grid shown above; it is always active and dynamically updated. If the user changes one lecture to show another is advisable to reset the canvas with the corresponding button located below (described at the section buttons). Its ylabel is updated by the selection made in the “LECTURE TO SHOW” section.

1.4 Destination of files



In order to maintain a structure hierarchy (for default) the data file are directed to storage to the same folder than the application. The anterior space is read-only.

1.5 Selection of name of file



In order to help the user to keep records of his work, the gui has one section to write down the name of the desired destination of the file.

The default destination is the same directory where the present software was situated; the resulting file is compatible with any lectors of files of type csv and includes the lecture of pressure, temperature, volumetric flow rate and mass flow.

RECOMMENDATION: The text included should not include any especial character as “\?*;,”.

1.6 External servo valve



The software is linked to a external module NI9474 (8 channel digital output module) in charge to control two servo valves, consider as type open-close.

The buttons presented above are the user control to them, when one is active it is colored with red



1.7 Buttons

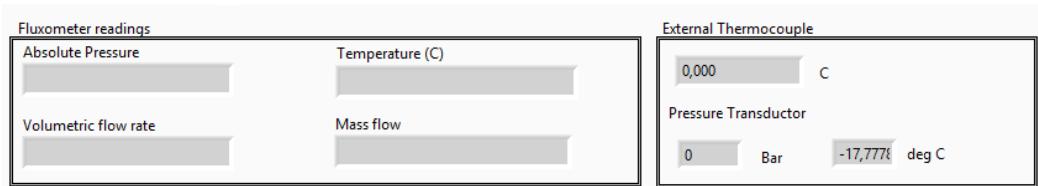


There are four buttons considered:

- a) Recording data: defines when to begin to save the acquired data to the file assigned by the user, the writing process works while the button is colored in red.
- b) Reset graph: when the user has already select one graph to show but want to change it, the selection of this allows the transition and clears the canvas. The button should be colored by green while the reset is active; the released made the canvas show the new data.
- c) Close GUI: allow the user to close the GUI and stops every action.
- d) Show folder data: In case the user wants to see the folder containing the recording data, it gives immediate access to it.

RECOMMENDATION: if the recording is active (indicated by the red button "recording data" don't open the current saving file, it could originated the loss of data.

1.8 Lectures



It shows two sections grouped in squares, in the first one appears the lectures obtained by the fluxometer and the second section contains the lecture from the NI module associated to the external thermocouple and the two lectures obtained from the omegadyne transductor (pressure and temperature)

2 HOW TO USE

The present version is specially made for PROMEC at UFRJ and its computational infrastructure, so the communication parameters are already defined (communication port, handshake protocol and baud rate).

2.1 Running

At the bar appears one set of symbols



The second one from left (■) allows the user to have the software active and the registration of the lectures from fluxometer.

At the moment the user interact with the button the GUI began to show the data, allowing the user to select which one to graph and the moment since it should be saved.

After finished the acquisition and recording of data; through the button “**show folder data**” an user can jump to the folder containing the data.

2.2 Change of information to graph

As was commented in section 1.1, the user can select between seven (7) different data for showing, using the mouse one user can select the new data to show and the canvas information (yscale label and data will be updated)

2.3 Change of range of graph

The GUI includes one button to select if the range of the graph is automatically updated or user defined, through this control the user defines the property and the information included in the textbox will be associated to the graph or not.

2.4 Recording data

The user interaction with the section “**Name of file**” defines the denomination of the logfile, located at the same location that the application on use. The record of data is activated by the button “**recording data**” and signalized as active through the red coloration of the button.

2.5 Reset of data graph

While the button “**Reset graph**” is green colored every data for the canvas should be zeroed, the graph will be active again with the release of the button.

2.6 Close of application

The user can close the application using the button “**close GUI**”

2.7 Control of servo valves

The software controls a NI modulo 9474 activating (2) two servo valves type open-close, the GUI presents a user control explained at section 1.6.

3 RECOMMENDATIONS

One important recommendation before the interaction with the recording button is to previously write the selected name for the file when the data should be saved.
Keeping in mind not to include special character at the field.

Another important recommendation related with the recording and access to data, if the recording is still active please do not to open the current active file.

4 TROUBLESHOOTING

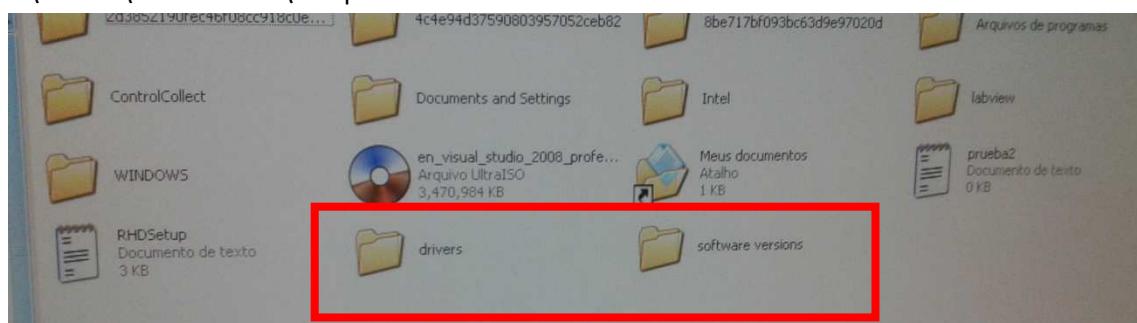
My software does not show some data: there are several possible reasons:

1 the equipment is not sending any data: check the data communication cable and the power alimentation of the equipment.

2 The communication port(s) are already used for other process or is not the right one (it happens specially in machines different to the actual used with the hardware infrastructure, at the actual machine the default assigned communication port for fluxometer is COM1, and COM5 for the omegadyne transductor): one solution is to make several reboots until the communication port finally closes.

3 The previous possibilities are already checked but nothing happens, then one of the driver communication's at the host machine is lacking (it could be corrupted or deleted for any other software), the right solution is reinstallation of the file contained at the following directory

C:\drivers\NI-VISA5.0.3\setup



After the installation the computer should be rebooted and the acquisition should be working properly.

5 COMPONENTS

Component	Hardware	Brand	Software	Brand
Computer station	Intel Pentium dual CPU e220 2.2 Ghz RAM 0.99 Gb HDD 75 GB (free 30%) Cd lector (non active)	Intel	Microsoft windows xp professional version 2002 service pack 3 Drivers configuration incomplete	Microsoft
Flow sensor	Flow controller FMA-1601A-V2 serial number 80109	Omega		
Pressure acquisition	PX409-USB	Omegadyne		
NI chassis	NI Module cdaq-9174	National Instrument	NIDAQmx 15.5	National Instrument
Temperature acquisition	NI Module NI9211 (4 channel thermocouple input mode)	National Instrument		National Instrument
Control Servo valves	NI module NI9474 (8 channel digital output module)	National Instrument		National Instrument