PC ControLAB 3:

Remote Lab instructions

V1

EIT ENGINEERING INSTITUTE OF TECHNOLOGY

Instructions
Basics

Getting Started
- Logon to Electromeet (Follow the How to Connect to Remote Labs_Electromeet_HTML5_Remote_Lab instructions document)
- The software is installed on **Remote Lab 1, 2, 4, 6, Profibus Lab**

Software used:
•   PC-ControLAB 3
•   All the above is installed on the Remote Lab computer

PC ControLAB 3
On the remote lab:
Access PC ControLAB 3 by going to
"Start" ->
"All Programs" ->
"PC-ControLAB 3" ->
"PC-ControLAB 3"

RUNNING THE PROGRAM

Open **PC-ControLAB**

You can select the specific "model" or "process" to run by selecting (in the top toolbar):
Process | Select Model |
Then browse to the **Desktop/PC Practicals/**

You can change the Control Strategy by going to:
Control | Control Strategy | -> FEEDBACK, ETC.

Example of loading a model and initializing control:

Step 1: Start the program in MS Windows by running PC-ControLab
Step 2: Open the project file for IDC Flow 1.mdl which is a pre-configured flow control loop with first order lag and dead time.

- Click on | Process | Select Model.

- Select the file location "Desktop/PC-Practicals" and then subfolder "Ex-1" Highlight "IDC Flow 1.mdl "and press Open.

- Set the Horizontal grid scale to "Seconds" (under View).

NB: Most exercises in this workshop use the SECONDS scale. This has to be selected at the start of each exercise

- Set the LOAD value to 65% on screen by pressing STEP INCR

- Set the controller mode to Manual

- Use the OUT key to set the OUT value = 30%

You should now have a display on screen that simply indicates the output value to the control valve is steady at 30% and the PV is steady at 105 m^3/hr
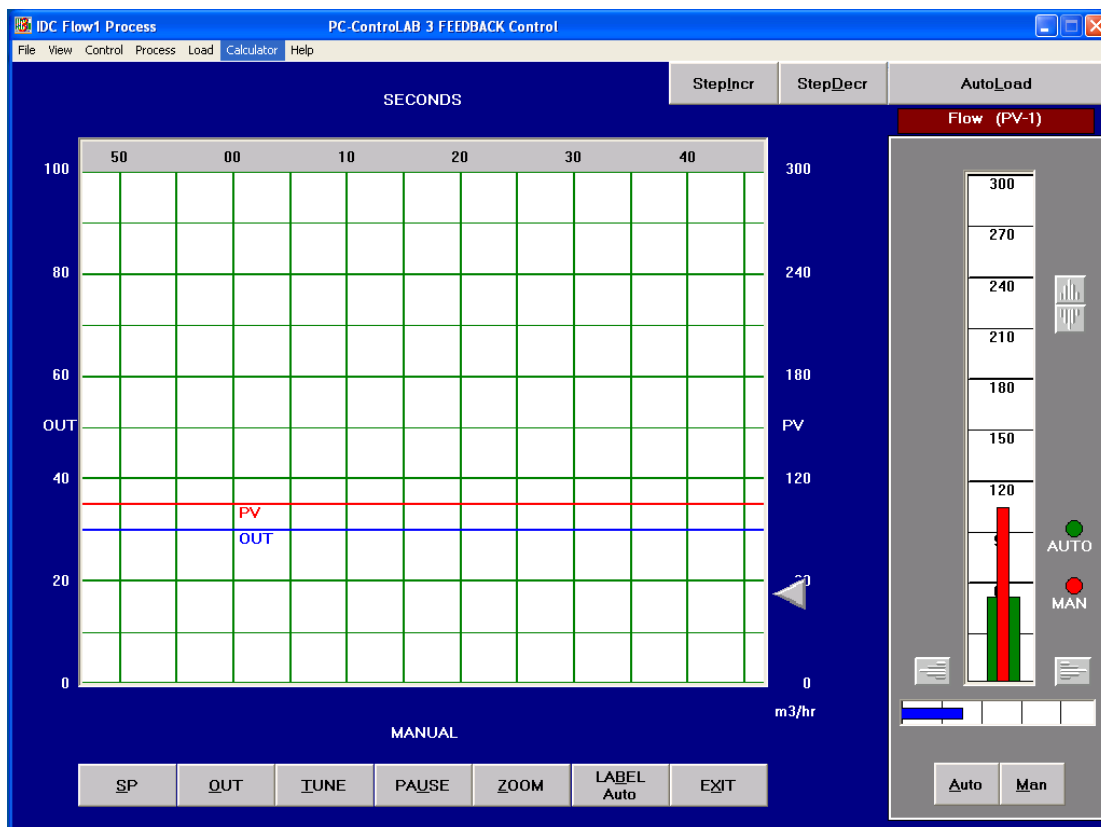
This display gives a general idea of the process and displays the major variables PV (process variable scaled 0 to 300 m3/hr) and OP (controller output signal to flow control valve scaled in range 0 to 100%). The SP (set point) is shown as an arrow on the right of the trend screen and as a red bar on the controller faceplate.

Note that the operating data with PV, SP and OP appears in a box on the left side whenever you press the "OUT" button. PV data appears in a similar box whenever you press the "PAUSE" button. The trend record screen must be set to a scale in seconds to suit the process model we are going to test.

Keep the control mode in MANUAL with OP=30% and when PV is steady press PAUSE. Then, press OUT and change the value of the output to 60% and press OK. Now press the RUN button to see the response develop on the trend display.

If you are more familiar with using Proportional Band, rather than Gain, for tuning controllers, or if you are more familiar with tuning the reset (integral) mode in Repeats per Minute, rather than Minutes per Repeat, then:

Press **Tune** then select the **Options** tab to set up the program to match the system you use:

Display GAIN as:	Display RESET as:
GAIN	Mins/Repeat
PROP BAND	Repeats/Min

Press **Tune** then select the **Options** tab. Select Reset Action OFF.