

PSU Sequencer V2.00

Introduction

The software supports the EL302P, EX355P, EL320P-USB and EX355P-USB power supplies and provides a method of generating sequences of output voltages with a corresponding current limit. These sequences may be entered manually from within the software or imported from data created in Excel.

The power supplies are controlled via the RS232 or USB connection. In the case of the EL302P and EX355P the baud rate must be configured for 9600 from the front panel selector switches. For the EL302P-USB and EX355P-USB there is no baud rate selection required.

For USB instruments it is essential that USB driver is installed prior to running PSU Sequencer as this creates the virtual COM port required. This driver and installation instructions can be found in the USB Driver folder of the Product CD supplied with the instrument.

The first time the software is run it will default to expect to be controlling an EL302P/EL302P-USB. If this is not the case and an EX355P/EX355P-USB is being used then this may be changed on the "Instrument" menu.

Note - This software will work with all EL302P,EL302P-USB, EX355P and EX355P-USB firmware revisions. However, on initial installation it expects the PSU to be fitted with V1.12 or later firmware. If the unit is fitted with earlier firmware then the PSU Sequencer software will have to be reconfigured. This can be done by clicking the "Comms" menu item and selecting "Configure". The Communication Configuration window will open which has a check box that by default is selected for V1.12 or later firmware. Clearing this box will allow the Sequencer software to function with earlier revisions. This setting is stored when the software is closed and used again when the software is reloaded.

If an older version of PSU Sequencer v1.xx is installed on the PC it should be uninstalled prior to installation of v2.00 or later.

Main Screen

This is the main display and shows the status of any connected PSU and controls any sequence currently loaded.

Buttons

Start:- Begins the current sequence either in manually stepped mode or in a timed, auto-stepping mode.

Stop:- Terminates any running sequence in either manual or auto mode.

VSet:- Clicking this brings up a small window which allows a voltage setting to be sent to the connected PSU. It can be used when the program is "idle" and not running a sequence or during a manually stepped sequence. It is not active during a timed auto sequence. A voltage value is typed into the text field and is sent to the PSU when the Send button is clicked. Any illegal value is rejected.

ISet:- This behaves as the VSet button but allows preset current limit to be entered.

ON/OFF:- Toggles the PSU DC output on and off. There is a LED to the left of this which is red when the DC output is on.

"+" and "-" :- These control the manual stepping of the sequence. Each click of the "+" button advances the sequence to the next step. On the final step of the sequence, a further click of this button returns the program to the idle mode. In auto mode these buttons are inactive.

Auto DC ON:- This automatically turns the DC output of the PSU sequencer on when a sequence is started. If this box is unchecked then the sequence will still run correctly but will use whatever the DC output status happens to be at the time.

Auto DC OFF:- Automatically turns the DC output off after a sequence has completed.

Sequence Control

A sequence may be either run in manual or auto mode. In manual mode, the step of the sequence must be manually advanced by clicking on the "+" button. The sequence will remain at each step indefinitely until either the "+" or "-" buttons are clicked or the sequence is terminated by the Stop button. A sequence may also step through automatically at a rate determined by the value entered in the box next to the Auto radio button. The fastest step speed is 100ms.

For both auto and manual modes a loop count may be specified. With this option checked, the sequence will run through each step and then repeat by the specified count. With the box unchecked, the sequence will run through once regardless of the value entered.

Menu Items

File

New:- Clears the currently loaded sequence and creates a default single step sequence. If there is unsaved sequence data a prompt will appear allowing it to be saved to disk.

Load:- Previously saved sequence data can be loaded from disk. The loaded sequences are PSU specific and identify themselves as for either EL302P or EX355P, automatically making the PSU selection.

Import csv:- Allows sequences to be created in Excel and imported. This makes the creation of long complex sequences much simpler compared to the manual method of entry from within the PSU Sequencer software. All values in the imported data are tested to check if they exceed the limits of the selected PSU model and are rounded to 2 decimal places. Any illegal values are flagged in the Comment column in the sequence editor. Illegal values are defaulted to either 0.00V or 0.01A.

Save:- Saves the current sequence data to disk. The saved file contains an identifier so that when it is reloaded it automatically selects the correct PSU model type.

Sequence

Show Editor:- Displays the sequence editor window. The functionality of this is described below.

Instrument

EL302P:- This configures the software to expect the EL302P or EL302P-U PSU. When this menu item is selected, any existing sequence data is checked to test if the values are legal for the EL302P. If not then selection cannot be made and any illegal values are highlighted in the sequence editor.

EX355P:- This configures the software to expect the EL355P or ESX355P-U PSU. A similar test is made to the EL302P selection although no illegal values are possible due to the EX355P having a higher maximum output voltage and current limit.

Comms

Configure:- This allows a serial port to be selected. The COM port selection box shows any free COM port which can be selected.

Baud:- This is fixed at 9600 and cannot be changed.

Suspend/Resume:- Clicking this button will stop RS232 communications to the connected PSU to enable manual adjustments to be made. Clicking this again will resume the communication.

Test:- This sends the *idn? query to the selected COM port which should return an identification message showing the PSU model (and its firmware revision) that is connected to the selected COM port. This is provided as a quick means of checking the serial link.

Firmware :- This checkbox allows the sequencer software to be configured for firmware revisions prior to V1.12

About

About:- Displays version number and copyright information.

Sequence Editor

The sequence editor is where sequence data is created and edited. The menu items are duplicates of the main program window menus. By default the editor shows a single step sequence. To change a voltage or current limit value, the appropriate cell is selected and a numerical value entered. Any illegal values are rejected. The maximum value allowable is determined by the PSU model selected. The Comment column can have any text freely entered. The text entered here will appear on the main form while a sequence is running in the space between the "+" and "-" stepping buttons.

Buttons

Add:- This adds a new default line to the end of the sequence regardless of which cell is currently selected.

Delete:- This removes the line that is currently selected.

Insert:- Inserts a default line at the current position.

Copy:- Works like insert but copies the current values into the new line as opposed to inserting default values.