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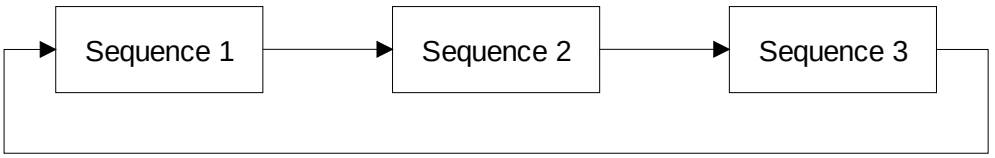
PSC-ETH Application Note : A491_1

Linking sequences

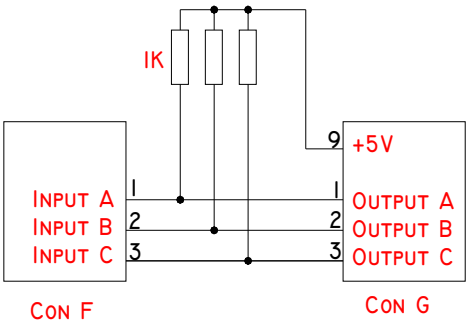
Introduction:

A power supply with a built-in or external ethernet controller PSC-ETH can be used as arbitrary waveform generator and / or to control processes. In some cases the need may arise to have more sequence steps or to run several processes after each other, which are stored in different sequences. Linking sequences can satisfy the requirements. But this is not possible using the internal programming language only. This application note shows how to workaround.



Workaround using hardware:

The idea behind linking is to use a user output that changes the level of a user input. This triggers the next sequence. This involves a bit of hardware. Of course this is only possible if the PSC-ETH has the user in- and outputs available.
Up to 6 sequences can be linked (because 6 user outputs are available). The circuit diagram below shows the hardware which is necessary to link 3 sequences.



How to program:

To enable external triggering, the sequence names must include the user input assignment (refer to paragraph 6.4 of the PSC-ETH manual). In this case sequence 1 is triggered by Input **A**, sequence 2 by Input **B** and sequence 3 by Input **C**. All sequences should finish (**F**) completely and hold (**H**) the last settings of current and voltage. So the names will be:
Sequence1+AFH, Sequence2+BFH and Sequence3+CFH.

Sample Listing:

See the listings of the 3 sequences below. The actual processes or waveforms are not programmed, because this application note focuses on the linking possibilities only.
Note that step 51 of each sequence triggers the next sequence by generating a rising edge on one of the user inputs. (user outputs are open collector, so OB=0 results in a rising edge due to the pull-up resistor of 1K).

Sequence1+AFH:		Sequence2+BFH:		Sequence3+CFH:	
1	OB=1	1	OA=1	1	OA=1
2	OC=1	2	OC=1	2	OB=1
3	.....	3	.....	3	.....
49	.....	49	.....	49	.....
50	OA=1	50	OB=1	50	OC=1
51	OB=0	51	OC=0	51	OA=0
52	END	52	END	52	END

The timing diagram below shows the related step number of Sequence 1. Note that Sequence 1 will start first after power-on (Input A has highest priority, then B, C etc.).