

Correct use of two DS7A or DS7AH stimulators in parallel to allow stimulation through the same electrodes using two different pulse types

If you are interested in examining interactions between two different stimulation pulses via the same stimulation site, it is possible to connect two DS7A or DS7AH stimulators in parallel and drive them with separate triggers. However, when connecting the DS7A or DS7AH in parallel, it is necessary to include certain components in the connection cables in order to ensure that BOTH intended stimulation pulses are given to the subject/patient.

The illustration below shows how the anodes (+ve) and cathodes (-ve) of the two stimulators should be linked. However, it is vitally important that two equivalent diodes (both 1A & 400V e.g. 1N4004) are placed between the anode connections of each stimulator and the patient. These diodes prevent current flowing back into the output circuitry of the inactive stimulator during stimulation with the other. If they were absent, there is a significant chance, depending upon interval between the pair of pulses, that the second pulse would not be passed to the patient, but would instead be "swallowed" by the stimulator which gave the first pulse. Finally, if either of your stimulators has a polarity reversal feature you should ensure that both stimulators are set to the same polarity before attempting to use them in the manner described in this application note.

Stimulator A: Set to 10mA, 200 μ s



Stimulator B: Set to 20mA, 100 μ s

