Fast Facts

MS16 Stimulus Isolator

The Stimulus Isolator is available with 4(MS4) or 16(MS16) channels. This fast fact sheet provides basic reference information for this and related devices. See the System 3 Manual for more detailed information.

Overview. Fiber optics isolate the processor from the stimulator and a fiber optic cable carries digital control and stimulus signals to the stimulator. *See the RZ5 or RX7 fast facts for connection diagram.*

Stimulation Channels. Stimulation channels can be set to one of following three states:

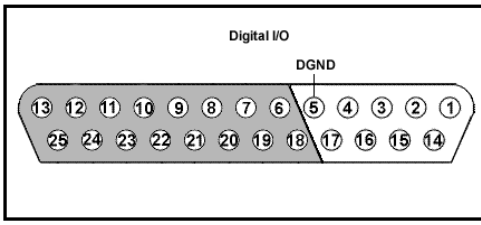
Stimulate: Channels in stimulate mode pass current to the electrodes.

Reference: Channels in reference mode become part of the return path for the signal. All channels in Reference mode use the same return path to analog ground on the stimulator. NOTE: Users can also set up a global reference that uses a ground wire. In this mode, all channels can be used for stimulation.

Open: The Open mode is the default mode for all channels. In the open mode, the channel is not part of the stimulation circuit. In this mode, a channel can be used to acquire neural signals.

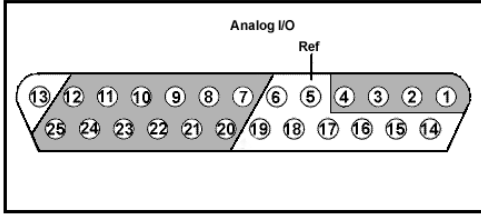
DB25 Connector Pinouts

Control Outputs



Pin	Bit	Pin	Pin
5	DGND		
6	1	18	0
7	3	19	2
8	5	20	4
9	7	21	6
10	9	22	8
11	11	23	10
12	13	24	12
13	15	25	14

Stim Outputs / ACC16 Stim Ele



Pin	Chan	Pin	Chan
1	1	11	13
2	2	12	15
3	3	20	6
4	4	21	8
5	Ref	22	10
7	5	23	12
8	7	24	14
9	9	25	16
10	11		

Status Lights

Sync:

lit — correctly connected to a base station

flash — not connected (flash once a second)

Stim Ref:

lit — configured to use a global reference

Battery:

lit — MS4/MS16 onboard battery is low (the battery voltage decreases rapidly once the battery low light is on)

High Voltage:

lit — if NC48 or HV250 battery pack is connected

flash — connected battery pack is low (flash once a second)

Control Output Lights

lit — indicated digital I/O channel is set high (or active)

Stim Lights

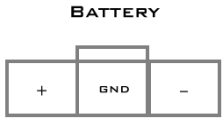
lit — indicated channel in use as a stimulus output

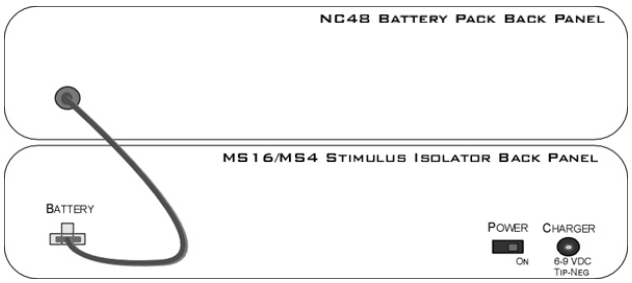
flash — a channel is selected as both stimulus and reference–NONE of the channels are used until corrected

Ref Lights

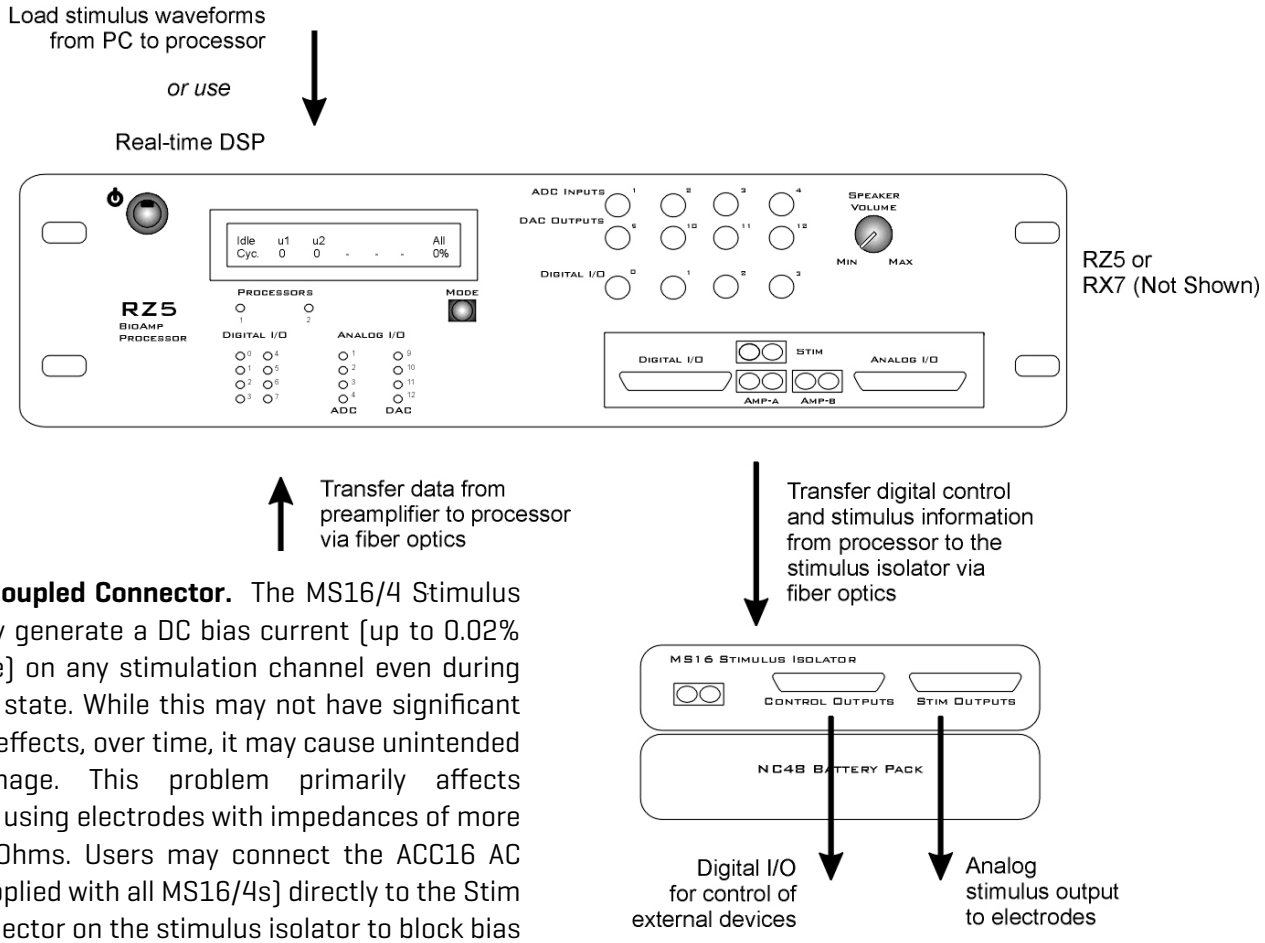
lit — indicated channel in use as reference

High Voltage Input. The stimulator uses the NC48 Rechargeable Battery Pack or the HV250 High Voltage Battery Pack for stimulation. The battery pack should be connected to the Battery connection on the back panel, as shown in the diagram to the right.

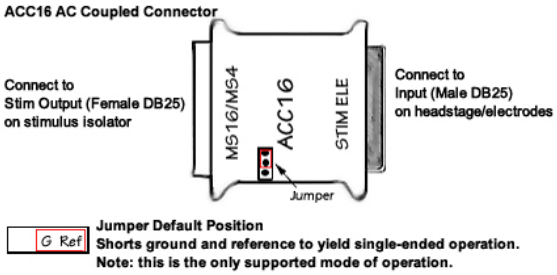




Functional Design of the MicroStimulator System



ACC16 AC Coupled Connector. The MS16/4 Stimulus Isolator may generate a DC bias current (up to 0.02% of full range) on any stimulation channel even during a quiescent state. While this may not have significant short-term effects, over time, it may cause unintended tissue damage. This problem primarily affects researchers using electrodes with impedances of more than 100 kOhms. Users may connect the ACC16 AC coupler (supplied with all MS16/4s) directly to the Stim Output connector on the stimulus isolator to block bias on the Stim Output lines.



The ACC16 STIM ELE output matches the pinout of the MS16/MS4 Stim Output connector. See the System 3 Manual for more information on using the ACC16 .

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