Theory of Operation
190253-613 Rev A
for
Easy Wireless EEG Recorder
(190253-200)

The purpose of this document to explain how the Easy Wireless EEG functions and provide insights into the reasons that certain features are included in the design.

Reference Documents

190253-940 Easy Wireless EEG Recorder Block Diagram

General Function

The Digital Signal Processor (DSP) PCB is the central controller for the Easy Wireless EEG System. The basic function of the DSP PCB is to receive serial data from the attached modules via the EasyNet interface, store the data by writing to compact flash and send the data back to a host PC if a wired or wireless Ethernet connection exists.

EasyNet is a Cadwell proprietary interface bus based on the CAN (Controller Area Network) protocol. All modules communicate with the DSP via the EasyNet. These modules acquire physiological data such as electroencephalogram (EEG) data, SaO_2 (oxygen saturation) data and/or body position data from a patient. The modules convert the analog signals to into digital data and transmit that data to the DSP.

Patient data is always stored on the compact flash. If a connection with a host PC exists, data is also sent to the host PC. The Easy Wireless EEG Recorder can connect to a host PC via wired Ethernet or through an 802.11b/g wireless router or access point. Patient data stored on the compact flash can be downloaded to the PC via a wired Ethernet connection.

The Power Supply/Battery Charger PCB controls the power to the DSP PCB and charges the Li-Ion battery pack. The Easy Wireless EEG Recorder can be powered solely from the battery pack or from the Power/Com module. The Power/Com module contains a medical grade universal input switching power supply. The battery pack is charged, if needed, when the Easy Wireless EEG Recorder is connected to the Power/Com module.