BME464L Project (Fall 2013, Palmeri)

Bispectral Index (BIS) Monitor

Clinical Problem

Bispectral index (BIS) monitors are used to monitor the depth of anesthesia through a complex analysis of brain electrical activity. While the use of BIS monitors is not universally accepted, they are becoming a more common anesthetic metric to monitor during surgical procedures. The Human Pharmacology Lab (Department of Anesthesiology, Duke University Medical Center) uses BIS monitors as part of a complex array of physiologic tests while physiologic stresses are placed on clinical study subjects. The Human Pharmacology Lab uses LabChart® (ADinstruments) to display and record all of their physiologic monitors, but the BIS monitor outputs an RS232 data stream (something that all of your are probably too young to remember being on almost every personal computer before USB cables) that cannot directly integrate into the LabChart hardware.

Project Objective

Design a device that converts and parses the BIS monitor RS232 output signal to a signal that can be read into the LabChart hardware. Time synchronization with the other LabChart monitors will also be critical.

Clinical Contact

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