APPLICATION NOTE

CAS DATALOGGERS

# Clinical Studies Use Data Logger For Skin Temperature Monitor

## Grant SQ2010 Supports The Study Of Pain Relief

CAS DataLoggers provided the portable data logging solution that would serve as a skin temperature monitor for a promising medical research application. The logger serves as an economical way to back up and support clinical studies in a variety of areas including pain relief. The aim of the study into pain relief was to investigate the effect of interferential current frequencies upon cutaneous blood flow in humans using Laser Doppler Flowmetry (LDF) to accurately define the exact physiological mechanisms involved. Owing to the critical nature of these clinical studies, strict control is needed over all the measurements taken. Therefore, the project demanded a device capable of high speed and accuracy which was compatible with several temperature sensor types.

## Installation

CAS DataLoggers supplied the research team with a Grant Squirrel SQ2010 Portable Data Logger, a flexible data logger which is also suitable for bench-based and fixed installations. The versatile Squirrel 2010 is able to fulfill many routine data logging needs as well as this more demanding application, capable of recording up to 10 readings per second on one channel.

## Usage

In this application, nerve conductivity, blood flow, skin temperature and constant ambient air temperature are all measured and analyzed. Each variance from standard levels indicates whether or not pain inducement or relief is working effectively. Any variance in air temperature means that the test has to be scrapped and restarted, so these measurements were especially critical.

The SQ2010 monitors all these readings, providing all the data the health professional requires while also warning of any variances of ambient air temperature. This type of instrumentation gives the researchers confidence that the data will not be flawed. Without the Squirrel SQ2010, it would be virtually impossible to monitor all these different readings in this convenient way—the team would have to retrieve multiple individual loggers, bring it to a PC for downloading, and then return to do the same for every measurement.


The Grant data logger's 4 integral push buttons and large graphical display enable simple operation and configuration. Using its universal inputs, the SQ2010 general purpose data logger will measure inputs from a wide range of sensors using up to 8 analog inputs for thermocouples, thermistors, voltage, current, 4 to 20mA, and resistance. The logger also features 8 digital channels and 2 alarm outputs. All measurements are taken at a high-precision 0.1% accuracy using 24-bit A to D conversion. With a light weight, it can be battery or mains operated, and up to 1.8 million readings of data can be stored. USB connectivity with a PC enables quick downloading of data, with Ethernet or RS232 communications options also available. The data logger can operate in standalone mode and offers extended battery life for unattended logging.

## Benefits

Free SquirrelView software is included with the logger and performs setup, downloading and data exporting. The research team also uses SquirrelView to generate reports for clear presentation of all the data.

The team's medical application's needs were especially well met following installation of the SQ2010 universal data logger. The portable and compact Squirrel records all the necessary data at high speed and precision, connecting to outputs from an extensive range of sensors to form the lab's single data acquisition solution.

For further information on the Grant Squirrel SQ2010 Portable Data Logger, a skin temperature monitor, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.