APPENDIX A

Calibration

CALIBRATION

In data acquisition and control applications, it is important to ensure that all measurement devices are calibrated regularly in order to maintain accuracy. A calibration program, CALB.EXE, is provided on the PCL-813 software disk to assist your calibration work.

The minimum equipment required to perform a satisfactory calibration is a 4½ digit digital multimeter. In addition, a voltage calibrator or stable DC voltage source is required. A card-extender, such as the PC-LabCard Model PCL-757, is an inexpensive device that you will find greatly improves access to the board during calibration and will probably be useful for other applications.

Calibration is easily performed using the CALB.EXE program. This program will lead you through the calibration and set-up procedure with a variety of prompts and graphic displays directing you to the appropriate adjustments. Material in this section is brief and is intended for use in conjunction with the calibration program.

VR Assignments

The PCL-813 has four on-board VRs, which will allow you to make accurate calibration adjustments for each of the card's A/D functions. The location of each VR is indicated in Figure A-1. The function of each VR is listed below:

VR1	A/D Bipolar offset adjustment
VR2	A/D Bipolar full-scale adjustment
VR3	Programmable amplifier offset adjustment
VR4	A/D Unipolar full-scale adjustment

PCL-813 32 CH S.E ISOLATED A/D CARD
JP 100
VR4
VR1 VR2 V
TP 1
U 19
U 21
SW1
(A987 654)

VR Location

A/D Calibration

Because the PCL-813 supports a variety of A/D input ranges, accurate calibration for a certain A/D range may result in a small offset when the input range is altered. It is strongly suggested that you recalibrate whenever a different A/D range is selected.

Calibration Steps:

a. Bipolar Adjustment: (JP100 located at "B")

(1) Short the A/D input of Channel 0 to AGND. Adjust VR1 until the reading of the A/D conversion flickers between 2047 and 2048.

(2) Apply a voltage with a full-scale value corresponding to the specific A/D input range to A/D Channel 0. Adjust VR2 until the reading of the A/D conversion flickers between 4094 and 4095.

b. Unipolar Adjustment: (JP100 located at "U")

(1) Short the A/D input of channel 0 to AGND. Adjust VRI until the reading of the A/D conversion flickers between 0000 and 0001.

(2) Apply a voltage with a full-scale value corresponding to the specific A/D input range to A/D channel 0. Adjust VR4 until the reading of the A/D conversion flickers between 4094 and 4095.