SSH-4

User's Guide

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New Contact Information

Keithley Instruments, Inc.
28775 Aurora Road
Cleveland, OH 44139

Technical Support: 1-888-KEITHLEY
Monday – Friday 8:00 a.m. to 5:00 p.m (EST)
Fax: (440) 248-6168

Visit our website at http://www.keithley.com

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1.0 INTRODUCTION

SSH-4 SIMULTANEOUS SAMPLE & HOLD MODULE

The SSH-4 is a 4-channel, simultaneous sample & hold front-end for use with the PC-compatible DAS-20 and VMEbus-compatible VMECAI-16 and VMEAI-16 analog input modules. It permits simultaneous sampling of 4 input signals, after which the signals may be MUXed to the analog board one at a time. The SSH-4 is configured as 4 bipolar, differentially measured inputs with DIP switch-selectable gains of 1, 10, 100, 200, 300, 500, 600, 700, and 800. Maximum voltage input is ±10 VDC. Output from the SSH-4 is jumper-selectable as any 4 of 16 single-ended or 4 of 8 differential channels. Potentiometer adjustments for input and output offset (IOS, OOS) make calibration a fast, easy procedure. The signal acquisition period may be reconfigured for your specific application. Data collection is triggered via a Sample and Hold pulse (TTL) of at least 10 ms duration.

Two 50-pin headers allow easy daisy-chain expansion when more than 4 channels must be collected simultaneously as well as for connection to the DAS-20, VMEAI-16, or VMECAI-16 (use cable #CACC-2000). The SSH-4 draws a maximum of 125 mA @ 5 VDC from the bus supplies. A single DC-to-DC converter for ±15 VDC assures full-scale coverage of all input ranges.

FEATURES

> *4 differential, bipolar analog inputs
> *Nine DIP switch-selectable gains
> *On-board DC-to-DC converter
> *Simple calibration procedure
> *Choice of output configurations
> *Pin-compatible with DAS-20, VMEAI-16, and VMECAI-16

1.1 SSH-4 Functional Block Diagram

4.0 Periodic Calibration/Adjustments

The SSH-4 has been precalibrated and fully tested prior to shipment. However, periodic readjustment may be required due to component aging, etc. The frequency of adjustment varies widely depending upon the SSH-4 operating environment. A dust-free, air-conditioned, laboratory environment may require SSH-4 adjustment once each year or two, whereas SSH-4 usage on a shop floor or where large temperature gradients are prevalent may mean more frequent adjustments. A good rule of thumb is "if you think it needs adjustment, it probably does." Adjusting the SSH-4 is quite easy with only two trim pots per channel. It is good to bear in mind that the quality of any measurement is a direct reflection of the care and precision taken during readjustment.

The two adjustments are Input Offset Adjustment (IOS) and Output Offset Adjustment (OOS). No special tools or instruments are required. All adjustments should be done using the gain settings that you would normally use for your application. Adjustments may be made by monitoring a single channel while turning the relevant trim pot.

4.1 Input Offset and Output Offset Adjustments

1)   Set the signal gain to X1.
2)   Connect the "+", "-", and "G" terminals together for each channels.
3)   Monitor each channel via software and adjust the OOS pots for best 0.
4)   Set the gain for each channel to what you would normally use.
5)   Monitor each channel while turning the IOS pots for best 0 reading.
6)   Monitor each channel while turning the OOS pots for best 0.
7)   Recheck the IOS (adjust as necessary) for best 0 reading.