Model 4161A

Dual Channel ADC, Display and Control Module

FEATURES

- **Dual Channel 12-bit ADC with digital display**

- **RS232 and GPIB interfaces with GPIB status indicator**

- **Simple computer command set**

- **ADC trigger inputs**

- **Trigger hold-off output**

- **Independent analog panel meter**

- **2-wide NIM module**

APPLICATIONS

- **Digitize outputs of Model 4121B Gated Integrator module**

- **Computer-controlled boxcar averager systems using 9650A Digital Delay Generator**

DESCRIPTION

The model 4161A is a dual channel, analog to digital converter (ADC) module which will measure one or two analog voltages, display the result on a digital panel meter, and allow it to be read by an external computer connected to the module's RS232 or GPIB interface.

The module has two signal input channels, A and B, each with a full-scale sensitivity of ±10 V DC. On receipt of a trigger command at the appropriate channel the input voltage is digitized to a 5 mV resolution. A computer coupled to the module can determine the value of the input voltage by sending a simple ASCII command. The 3½ digit panel meter on the 4161A can be switched to monitor either of the signal channels.

The model 4161A is primarily intended to act as the interface between one or two model 4121B gated integrator modules (page 72) and a controlling computer. In multiple 4121B systems more than one 4161A can be used to digitize the data from several gated integrators, with all the results being read via the GPIB interface. When used with such systems incorporating, in addition, the model 9650A Digital Delay Generator, the 4161A's Busy Out trigger hold-off output can be used to allow the computer to control the overall rate of data acquisition, by preventing new data points being acquired until the previous ones have been processed.

An edge-indicating analog panel meter is also incorporated into the module which is especially useful during the setup of boxcar systems.

Specifications

General
Two-channel ADC mounted in NIM enclosure with signal and trigger inputs and with trigger holdoff output. RS232 and GPIB (IEEE488) control. Separate analog edge-indicating panel meter.

Input

Channels	Two	Trigger Thresholds	TTL. Triggers on rising edge of applied positive logic TTL pulse
ADC Inputs	BNC front-panel connectors, A and B		
Input Impedance	1 MΩ		
Input Full-Scale	±10 V		
Accuracy	±5 mV	**Digital Display**	
Linearity	±5 mV	Type	3½ digit LED display showing (Measured voltage / 20)

ADC Trigger Inputs — BNC front-panel connectors, corresponding to channel A and channel B ADC inputs. Connectors are duplicated on rear panel

Display Selection	Switch selects channel A or channel B	Software	A LabVIEW driver software suitable for version 4.01 and later of LabVIEW is available by download from our website at **www.signalrecovery.com**	**Analog Panel Meter** Type	Edge-indicating meter monitoring the voltage at the associated front-panel analog input BNC connector. This meter is completely independent of the analog to digital converter functions.

Computer Interfaces

RS232 — DIP switch selectable baud rate, terminator, character echo, parity and data bits.

GPIB — DIP switch selectable address and terminator

Status Indicators — Front panel LEDs indicate GPIB Talk, Listen, SRQ and Remote

Command Set

Twelve mnemonic type commands allowing both asynchronous and synchronous readings. Digitized voltages are reported back to the computer in integer format, with ±2048 corresponding to an input voltage of ±10.24 V

Output

Busy Out

Rear-panel BNC connector generating TTL signal which under computer control will:-

1) Remain at logic 0 until a synchronized read command is issued by the computer.

2) Go to logic 1, releasing external trigger hold-off circuitry (such as can be provided by the *SIGNAL RECOVERY* model 9650A)

3) Return to logic 0 on receipt of a trigger signal at either the A or B ADC trigger inputs, and remain there while the measured value(s) are transferred back to the computer and thereafter until the next synchronized read command.

Input Impedance — 10 kΩ
Full-scale sensitivity — ±10 V

General

Power Requirements

+24 V at 50 mA;
-24 V at 50 mA
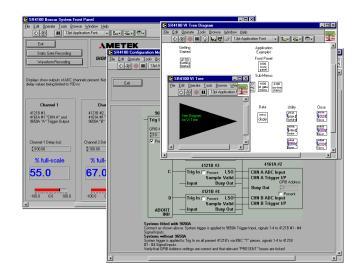+12 V at 600 mA;
-12 V at 30 mA
+6 V at 550 mA;
-6 V at 10 mA

Dimensions
Height — 8¾" (222 mm)
Width — 2¾" (70 mm)
Depth — 9¾" (248 mm)
Weight — 2½lb (1.14 kg)

LabVIEW Driver Software

A LabVIEW driver for these modules available from the **www.signalrecovery.com** website, offering example VIs for all their controls and outputs, as well as the usual Getting Started and Utility VIs. It also includes example soft-front panels built using these VIs, demonstrating how you can incorporate them in more complex LabVIEW programs.

Graphic display windows allow data curves to be plotted as a function of time, and the driver supports the model 9650A for use in waveform-recovery experiments.

Why should you choose *SIGNAL RECOVERY* products?

Model 4161A Dual Channel ADC

SIGNAL RECOVERY Product Features	Benefit to you
◆ Two channel ADC	Includes hold off circuit to prevent triggering until software is ready to read resulting data
◆ Digital panel meter	Accurate display of output voltages
◆ Analog panel meter	Eases setting of baseline zeros
◆ Excellent LabVIEW driver	Supports 9650A DDG (page 79) for complete boxcar experiments, both static gate and waveform recovery