

# Model 4161A

## Dual Channel ADC, Display and Control Module



SIGNAL RECOVERY

### 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

### 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  $\pm 10$  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  $3\frac{1}{2}$  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 74) 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.

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

### APPLICATIONS

- ◆ Digitize outputs of Model 4121B Gated Integrator module
- ◆ Computer-controlled boxcar averager systems using 9650A Digital Delay Generator

### 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
ADC Inputs	BNC front-panel connectors, A and B
Input Impedance	1 M $\Omega$
Input Full-Scale	$\pm 10$ V
Accuracy	$\pm 5$ mV
Linearity	$\pm 5$ mV

#### ADC Trigger Inputs

BNC front-panel connectors, corresponding to channel A and channel B ADC inputs. Connectors are duplicated on rear panel  
TTL. Triggers on rising edge of applied positive logic TTL pulse

#### Trigger Thresholds

#### Digital Display Type

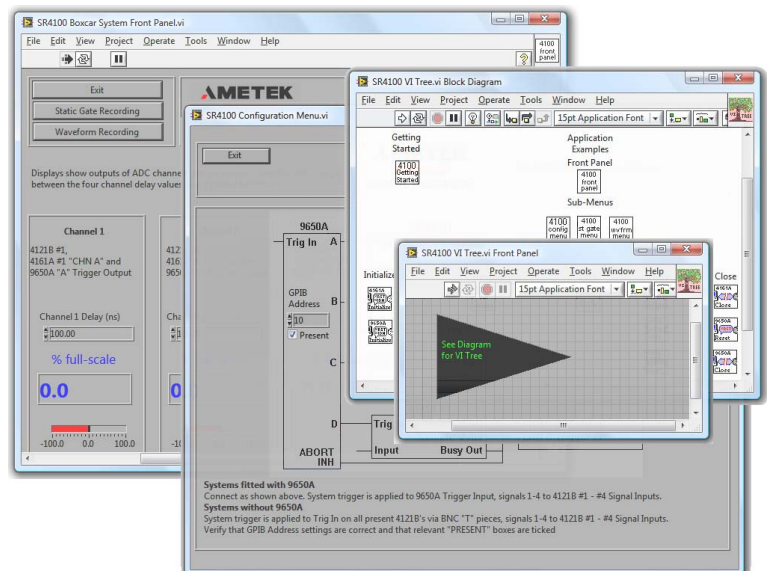
$3\frac{1}{2}$  digit LED display showing (Measured voltage / 20)

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 <a href="http://www.signalrecovery.com">www.signalrecovery.com</a>	<b>Analog Panel Meter Type</b>	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.
<b>Computer Interfaces</b>		<b>Output</b>		Input Impedance	10 kΩ
RS232	DIP switch selectable baud rate, terminator, character echo, parity and data bits.	Busy Out	Rear-panel BNC connector generating TTL signal which under computer control will:-	Full-scale sensitivity	±10 V
GPIB	DIP switch selectable address and terminator			<b>General</b>	
Status Indicators	Front panel LEDs indicate GPIB Talk, Listen, SRQ and Remote			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
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			Dimensions	
			1) Remain at logic 0 until a synchronized read command is issued by the computer.	Height	8¾" (222 mm)
			2) Go to logic 1, releasing external trigger hold-off circuitry (such as can be provided by an external delay generator)	Width	2¾" (70 mm)
			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.	Depth	9¾" (248 mm)
				Weight	2½lb (1.14 kg)

## LabVIEW Driver Software

A LabVIEW driver for these modules is available from the [www.signalrecovery.com](http://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 digital delay generator for use in waveform-recovery experiments.



## Why should you choose **SIGNAL RECOVERY** products?

### Model 4161A Dual Channel ADC

#### **SIGNAL RECOVERY** Product Features

- ◆ Two channel ADC
- ◆ Digital panel meter
- ◆ Analog panel meter
- ◆ Excellent LabVIEW driver

#### Benefit to you

- Includes hold off circuit to prevent triggering until software is ready to read resulting data
- Accurate display of output voltages
- Eases setting of baseline zeros
- Supports static gate experiments