

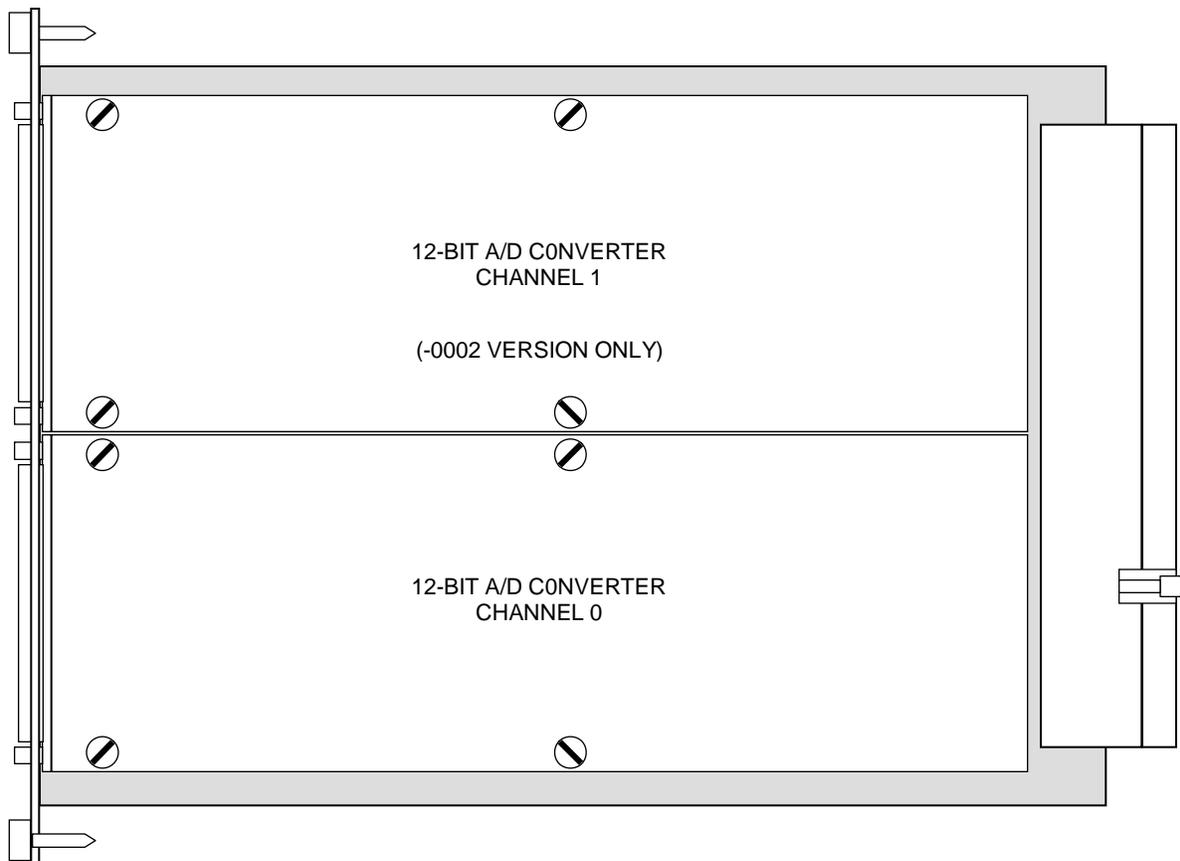
# PX452S PXI Aperture A/D

Assembly P/N 11029190

## DESCRIPTION

The PX452S is a one or two channel 12-bit A/D converter that will sample and selectively store differential analog signals together with a 31-bit time stamp at a rate up to 100KS/s. The 31-bit time tag allows almost six hours of uniquely time tagged data, at a resolution of 10  $\mu$ s, to be stored by the host. The module has the ability to convert and store all data at the specified sample rate or selectively store input values that exceed the range of the programmed aperture window. This technique provides extensive real-time data compression for transient type input signals.

The PX452S is an integration of one or two MA200 M-Modules and an AMi3002 PXI M-module carrier as shown below. One MA200 is used for the -0001 single channel version and two MA200's are used for the -0002 dual channel version. Each MA200 provides one channel of A/D conversion. The AMi3002 provides the electrical and mechanical interface to a PXI backplane and chassis. The MA200 modules are configured with AM102 programmable anti-aliasing filters.



## SOFTWARE CONFIGURATION AND CONTROL

A software driver for the PX452S is available for download on C&H's website. The driver uses the VISA I/O library and includes an interactive soft front panel that can be used to operate the PX452S. The driver provides a library of function calls for initializing, configuring, and operating the instrument. The library is provided in formats for most popular development environments as well as in a Windows DLL format.

Also available for download on C&H's website is the Interactive Mezzanine Control (IMC) software. IMC is a Windows application that provides low-level access to any mezzanine module on any one of C&H's carriers. IMC can be a very useful tool during software development and debug.

## SPECIFICATIONS

**Number of Channels:** 1 or 2

**A/D Resolution:** 12-Bit

**Conversion Rate:** 100KHz

**Integral Nonlinearity:**  $\pm 1$ LSB

### Input Specifications:

Full Scale Input Modes  $\pm 5$ V or  $\pm 10$ V diff.  
Unipolar/Bipolar  
OVP  $\pm 40$ V (min)  
Impedance 10M $\Omega$   
Hysteresis 25mV

### Input Common Mode:

Voltage Range  $\pm 13$ V (min)  
Rejection Ratio 70dB (DC-1KHz)

### Anti-Alias Filter:

Programmable 160Hz to 48KHz  
Filter Type 6<sup>th</sup> order butterworth  
Attenuation rate 120dB/decade

### Local Memory:

32K x 48 (31-bit timestamp)

### Sampling Strobe:

- Internal: 10KHz or 100KHz
- Front Panel: up to 100KHz
- Host carrier: up to 100KHz

### Interrupts:

- Data Stored
- FIFO Half-Full
- FIFO Full

### I/O Connector:

- 25-pin DSUB (female)

## ELECTRICAL

The electrical interface is compliant with the PXI bus specification Rev 2.1, cPCI Specification 2.0 R3.0, and PCI Specification 2.2 (slave only). The module supports both 5V and 3.3V signaling voltages (VIO). Five PXI compliant trigger lines are supported.

Power Requirements: (-0001/-0002)

+5V	500mA / 600mA
+12V	20mA / 40mA
-12V	20mA / 40mA

## MECHANICAL

To allow the use of two M-modules in a standard 3U cPCI (PXI) system, the module is slightly higher than the 3U standard. The card guide rails for the slot the module will be used in must be replaced with the special card guide rails supplied with the PX452S. The rails easily snap out using a flat screwdriver.

## ENVIRONMENTAL

Operating Temperature:	0°C to +50°C
Storage Temperature:	-40°C to +70°C
Humidity:	<95% without condensation

## DOCUMENTATION

This document discusses the general use of the PX452S integrated module. For full details on each of the individual modules used in the PX452S, please refer to the User Manual for that particular module.

<u>Document Description</u>	<u>Website</u>
MA200 User Manual	<a href="http://www.chtech.com">www.chtech.com</a> -> Support -> Product Manuals -> Measurement -> MA200
AM102 Description	<a href="http://www.chtech.com">www.chtech.com</a> -> Support -> Product Manuals -> Accessory -> AM102
i3002 User Manual	<a href="http://www.acq.nl">www.acq.nl</a> -> Products -> Carrier -> i3002-> Manual

The MA200 User Manual discusses several types of input accessory modules. The PX452S comes configured with the AM102 Anti-Aliasing Filter only. Use the description and specifications provided in the AM102 documentation for details on input conditioning.

## HARDWARE CONFIGURATION

The default MA203 Factory Switch Settings are:

External Clock Input Impedance:	High (>100K $\Omega$ )
External Clock Threshold Level:	TTL (0.8V)
External Run Impedance:	High (>100K $\Omega$ )
External Run Threshold Level:	TTL (0.8V)
A/D Polarity:	Bipolar
A/D Input Level:	20Vpp

## SYNCHRONIZATION

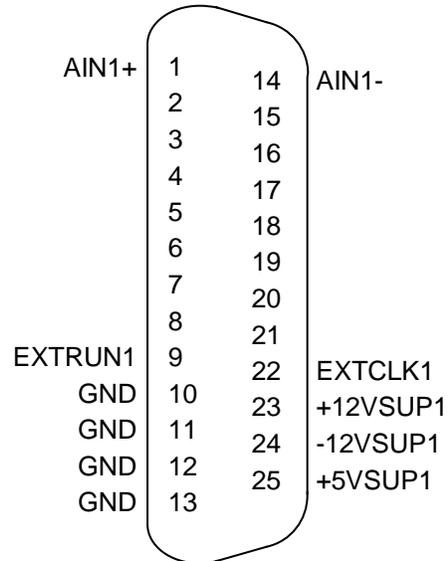
When using the two channel (-0002) version of the PX452S, the channels can be synchronized in couple of ways.

- a) If external clocking is used, then synchronization can be done by simply connecting the external signal to both the EXTCLK0 and EXTCLK1. To ensure proper impedance control, the input impedance of one MA200 should be switched to >100K $\Omega$  (high) and the other left on 50 $\Omega$ .
- b) If backplane trigger clocking is used, simply set both MA200's to trigger on the same backplane trigger and on the same edge.

## I/O CONNECTOR

Below is the signal list for the two connectors located on the front panel of the PX452S. For more details on each signal, refer to the MA200 User Manual.

### Top Connector (-0002 only)



### Bottom Connector

