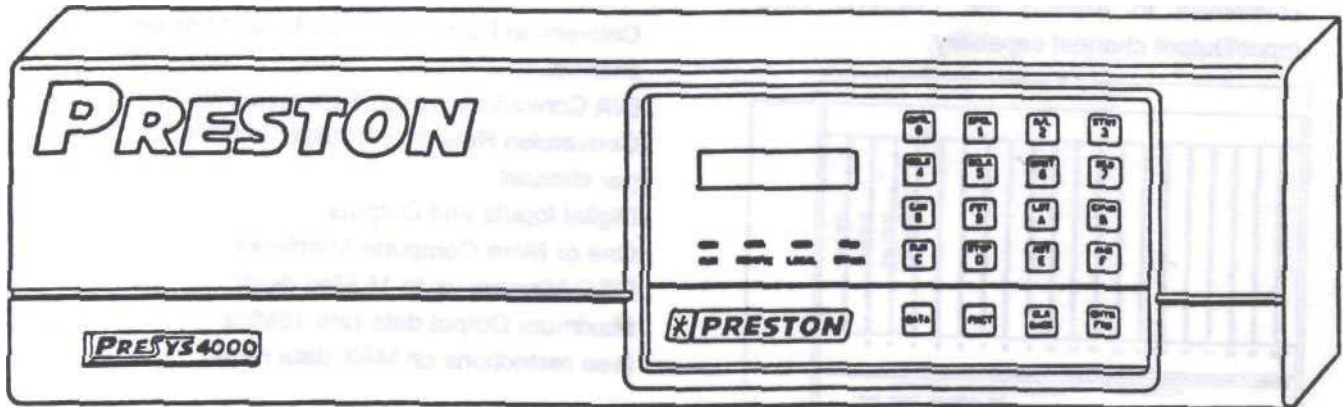Preston's newest data conversion system is organized as an "Analog and Digital, Input and Output" Data Processing Sub-System that combines multi channel A/D Conversion, D/A Conversion, Digital Input and Output multiplexing all in one easily interfaced instrumentation package.


PRESYS 4000 CONTROL PANEL

The PRESYS 4000 Concept - The basic system provides multi-channel A/D conversion and D/A conversion by utilizing ADC (and DAC) modules on a one per channel basis. System modules are packaged 1 to 6 channels per plug-in card. Models are available with resolution and accuracy from 12 to 16 bits and conversion rates up to 1 MHz/channel. The PRESYS 4000 data bus allows for overall system conversion rates up to 5MHz for normal computer interface operations and up to 10MHz under certain restricted operating Conditions. The 10MHz transfer rate is possible with specific computer interfaces that have this capability and with limited on board PRESYS 4000 interface FIFO buffer. A 10MHz transfer rate to the PRESYS 128K/1meg FIFO is also possible limited to the maximum data stored in the first level PRESYS 4000 FIFO. Simultaneous operation to the computer interface is restricted when using the 10MHz (FIFO only) data rate. Example: Burst transfer to the PRESYS 4000 FIFO (one megaword maximum) is possible at the 10MHz rate. After the burst is completed, data may man be transferred to the computer at any rate up to 5MHz.

The PRESYS 4000 System incorporates a unique analog and digital bus structure that allows combining analog inputs and outputs along with digital inputs and outputs into one flexible data conversion package. The PRESYS 4000 data channels offer optical isolation on most models as a optional feature.

Presys 4000 Systems provide easily configured Analog and Digital Data Acquisition; Analog and Digital data Output; all in one compact Instrumentation package. System interface options are offered for most micro, mini and super-mini computers and Array Processors with the possibility to interface one or more computers for control and/or simultaneous data Output.

The PRESYS 4000 Chassis includes UPC controller, and the Input/Output backplane. There is also an expander chassis that can be configured with Bus/Address expansion electronics to expand the PRESYS 4000 Input/Output channel capability.
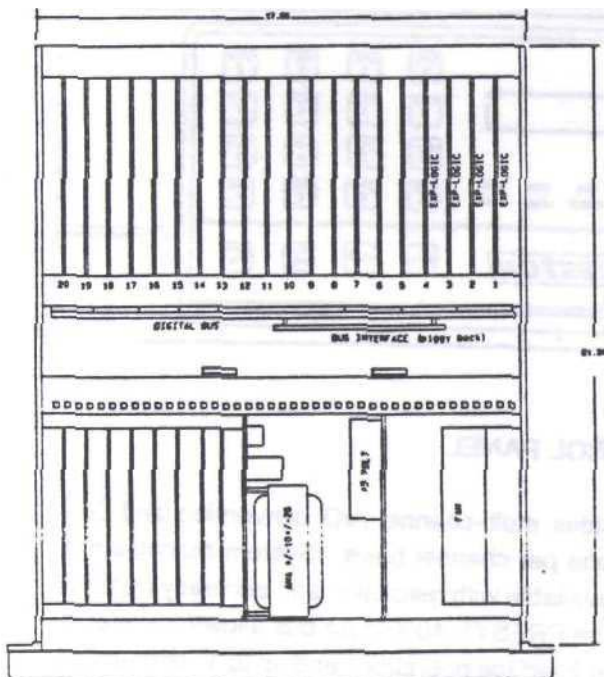
PRESYS 4000 Master Chassis

PRESYS 4000 FLEXIBILITY CONCEPT

The concept of PRESYS 4000 is similar to that of the PRESYS 1000 System and 2000 Systems. Presys 4000 offers a wide range of capability, easy to initially configure, and even easier to reconfigure for future expansion as the user's need evolves.

One of the most significant features of the PRESYS 4000 Sub-System is the ability to "time share" one PRESYS 4000 System among 2 or more users. PRESYS 4000 can be equipped with 2 or more independently designated computer interfaces for simultaneous data analysis of multiple testing applications. To get the whole story of this truly unique multi-user concept contact your nearest Preston Scientific sales representative or call (714)632-3700

SYSTEM PERFORMANCE

. A/D Conversion 12 to 16 Bit Resolution
  Conversion Rate from 100 kHz to 1MHz per
  channel.
. D/A Conversion 12 to 16 Bit Resolution
  Conversion Rate from 100 kHz to 500 kHz
  per channel.
. Digital Inputs and Outputs
. One or More Computer Interfaces
. FIFO Memory up to 16 Meg deep
. Maximum Output data rate 10MHz
  (see restrictions on MAX data rate)

SYSTEM FLEXIBILITY

Interchangeable Analog and Digital Modules including all of these functions...
. A/D Converters
. D/A Converters
. Simultaneous Multi-Channel Sampling
. Digital Input (16 Line discrete/channel...up to
  64 bits per Card Slot)
. Digital Output (16 Line discrete/channel...up to
  64 bits per Card slot)
. Computer Interfaces (DEC, HP, DG, VME, PC,
  SCSI, IEEE, RS232 and others)
. Two or more simultaneous computer
  interfaces
. Automatic Serf Testing Modes
. Master-Slave Configurations

The PRESYS 4000 front panel has a hex pad to provide the ability to select hex, decimal, or octal display and local/remote control. The display is LCD type with alpha-numeric capability. There is a front panel indication of remote or local operation RUN or ERROR conditions. In addition to displaying data in hex and decimal (counts) the output of converted analog data can be displayed in volts. Binary display of output data is not available.

Interfacing to PRESYS 4000 will be very similar (and fully compatible with) Preston's famous GM-System interface. The main virtue of PRESYS 4000 system is to allow much easier integration of a variety of ADC and DAC per channels modules with a choice of computer interfaces, expanded FIFO's, etc. plus the ability to easily reconfigure those systems by adding or exchanging either Input or Output modules.

PRESYS 4000 like the PRESYS 1000 Systems can be totally reconfigured in a matter of minutes, Change interfaces, add input or output channels, even add expansion chassis all in less than 45 minutes.

This data sheet covers only the beginning of the PRESYS 4000 story... more comes later in updates and supplements to this product overview description.
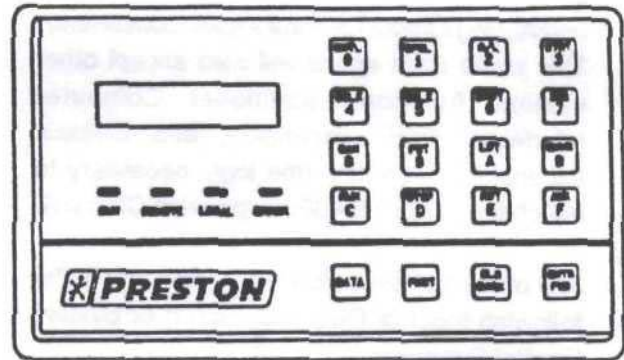
PRESYS 4000 Basic Chassis has space for 16* card modules which contain either Analog Input Channels, Digital Input Channels and/or Digital and Analog Output Channels (D/A Converters). This same Card space will also accept other system functions...additional Computer Interfaces, FIFO expansion, and Chassis expansion electronics (the logic necessary to attach the PRESYS 4000 Expansion Chassis).

Any of the 16* Card slots will accept any of the following Input or Output Channels or System Control Functions...

S&H/ADC 1-4 channels/module, Digital Inputs 16-64 Bits/Module, Digital Outputs 16-64 Bits/Module, Analog Outputs (DAC) 1-6 Channels/Module, FIFO Buffer 128K to 1 Meg/Module, Computer Interface 1 or 2 Modules/Interface, and Bus Expansion 2 to 4 Modules/Chassis.
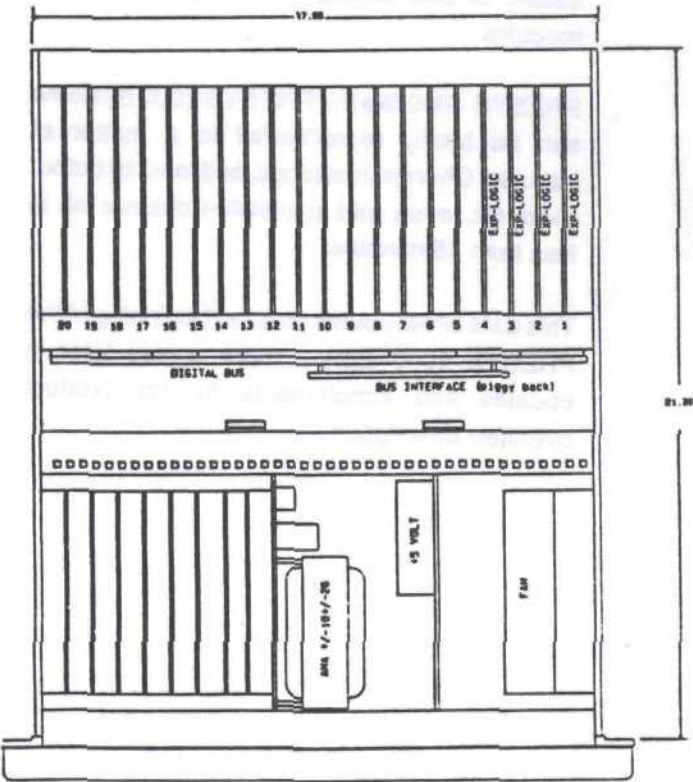
* limited to 15 card slots on configurations which include both the computer interface and the PRESYS 4000 128K/1Meg FIFO card.

PRESYS 4000 Expansion Chassis has 16 Card slots available to accept either Analog Input Channels, Digital Input Channels and/or Digital and Analog Output Channels. Any of these 16 Card Slots will accept any of the input or output channels as previously defined. There are 4 additional Card slots that are dedicated to service bus expansion needs for attaching the PRESYS 4000 Expansion Chassis to the PRESYS 4000 Basic System Chassis or daisey-chained to other PRESYS 4000 Expansion Chassis.

The PRESYS 4000 Basic Chassis is 5.22 inches high and mounts in standard 19 inch cabinets. Chassis depth is 23.5 inches including mating connectors. Cooling is provided to the chassis by drawing air in from the top and back while exhausting air out the side Air circulation is maintained by 1 small

AC fan. A center plentum allows for improved air circulation. The wiring of the system comprise mostly power and ground with 3 or 4 header cable interconnections, thus eliminating special custom inter-module wiring.

The basic control electronics is configured PLD modules and E-PROMS mounted printed circuit cards. The PRESYS 4000 UPC control system is identical to the PRESYS 1000 system. Detailed information on the control system describing a variety of I/O control features will be found In Preston's very informative PRESYS 1000 -16 page brochure. In particular refer to pages 9 through 14 of PRESYS 1000 brochure.

PRESYS EXPANSION CHASSIS