4896

GPIB ⟷ QUAD SERIAL INTERFACE

- Provides four RS-232 (single-ended and RS-422/RS-485 (balanced) serial interfaces.
  One unit connects 4 serial devices to a GPIB bus.

- High speed, 115.2 K baud channels include 60 K byte buffers.
  Large data buffers in each channel.

- > 600 K byte/second GPIB data transfer rate.
  Minimizes GPIB Bus time.

- SCPI commands set and query non-volatile serial channel configurations.
  Configure the unit without having to remove the cover or remember cryptic commands.

- LCD display shows Bus activity, buffer status, serial interface signals and channel settings.
  Built in status display and diagnostic aid.

- Includes a menu-driven PC compatible configuration program.
  Steps user through configuration choices.

- New 1 U high, metal case has CE approval
  Small size with full EMI/RFI protection.

DESCRIPTION

The 4896 is a GPIB to Quad Serial interface with four independent serial channels. Each serial channel provides full duplex operation at rates up to 115.2 K baud. Large 60 K byte buffers are assigned to each channel to buffer the data. High speed DMA transfers move the data between the buffers and the GPIB interface at rates >600 Kbytes per second. This high data transfer rate coupled with large buffers in each channel minimizes GPIB transfer time. A front panel LCD display provides a visual indication of buffer status and diagnostic information. Typical applications are adding serial channels to test stations or driving a mix of serial devices from a GPIB bus.

488.2 and SCPI Commands

The 4896 complies with the IEEE 488.2 Standard and uses SCPI commands to set each channels' operating configuration. Service requests (SRQs) can be individually enabled on a per channel basis, for message or character detection, on RX buffer 'full', or on TX buffer empty. This ability to flexibly enable service requests on any channel lets the user tailor the 4896's performance to his exact needs.

Serial Channels

Each serial channel is an asynchronous DTE interface that can be configured for single-ended RS-232 or differential RS-422/RS-485 signals. Baud rate, character format, parity generation/detection, stop bits and data handshaking are independently set for each channel. All settings are stored in Flash memory to avoid loss when power is turned off. Data handshaking can be done with control lines or by enabling X-on/X-off flow control protocol. Other

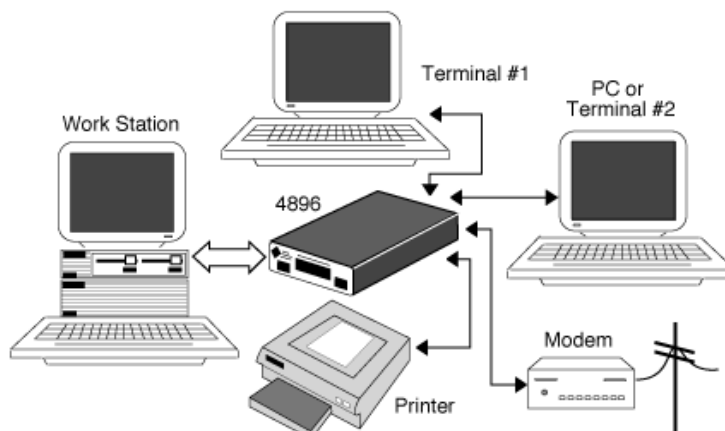**The 4896 adds four serial channels to computers with GPIB interfaces.**

4896 Quad Serial Interface

SCPI commands control interface signal states, internal loopback and external echo functions.

Each serial channel is designed for full or half-duplex, bidirectional operation. Buffer capacity is split 32 K/28 K between transmit and receive functions. Where the majority of traffic is one way, such as for printing or plotting, the user can change the buffer weighting to use 52 K bytes to buffer or spool out large blocks of data. This feature can reduce the number of bus accesses by up to 50% and further off load the bus controller.

LCD Display

The 4896's front panel LCD display shows buffer status, 4896 activity, serial interface signals, self test errors etc. At power turn-on, the display shows self test passed or test errors and finally the unit's GPIB bus address. During normal operation, the display shows GPIB activity and data in the TX and RX buffers. A front panel push button lets the user change the display to show buffer assignments, channel set up, serial interface signals, and GPIB bus status to diagnose program or serial interface problems.

CE *Approved*

Work Station / 4896 / Terminal #1 / PC or Terminal #2 / Modem / Printer

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IEEE 488 Bus Interface

The 4896's 488 Bus interface meets IEEE STD 488.1-1987, is HP-IB compatible and has the following capabilities:

SH1, AH1, TE6, LE4, SR1, PP0, DC1, RL0, DT0, C0 and E2 drivers.

Address Capability

Primary addresses	0-30
Secondary addresses	1 to 4 for data,
	11 to 14 for control

SRQ Generation

SRQs are generated if the unit is not a talker, if SRQs are enabled and the Enabled ESR or Status bit occurred.

488.2 Compliance

IEEE-488.2 compliant with the following Common Commands:

*CLS, *ESE, *ESE?, *ESR?, *IDN?, *OPC, *OPC?, *RCL, *RST, *SAV, *SRE, *SRE?, *STB, TST? and *WAI.

Buffers

60 K bytes per channel user assignable from 8 to 52 K in 4 K steps
Default assignments:

TX Buffer	32 K
RX Buffer	28 K

SCPI Commands

Used to set and query all programmable functions. The 4896 conforms to SCPI 1995.0 Specification.

Table 1 Programmable Functions

GPIB Bus Address
Xon/Xoff Protocol Select
7/8 Bits/Character Select
1/2 Stop Bits Select
Odd/Even/None Parity Select
Parity Check Enable /Disable
Baud Rate Select
EOM character Select
EOI Enable/Disable
Add Character Select, Enable
TX Buffer Select
Display Select*
Display/Create Message*
Echo Enable/Disable*
Loop Back Enable/Disable*
Transmit Enable/Disable*
485 Half Duplex
RTS/DTR Control

*not a stored function

Serial Interface

Provides RS-232C single ended or RS-485 (RS-422) differential signals on a DE-9P connector. RS-232 pin assignments match a PC COM port RS-422/485 pin assignments are listed in Table 3. The 4896 is a DTE device.

Baud Rates 300, 600, 1.2K, 2.4K, 4.8K, 9.6K, 19.2K, 38.4K, 57.6K, 76.8K and 115.2K
Max. four channel rate - 160 K baud.

Data Character Formats

Data bits	7 or 8 bits
Parity	odd, even, or none
Stop bits	1 or 2

Data Transfer Protocols

Hardware handshake always enabled. X-on /X-off handshake enabled or disabled by a separate command.

Full-duplex or half-duplex operation with transmitter tristated when not transmitting.

Individual control of RTS and DTR signals.

Table 2 RS-232C Signals

Pin #	Signal
1	Data Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Rdy
5	Ground
6	Data Set Rdy
7	Request-to-Send/TX CLK
8	Clear-to-Send/RX CLK

Table 3 RS-422/485 Signals

Pin #	Signal
2/1	Receive Data
3/4	Transmit Data
5	Ground
7/9	Request-to-Send/TX CLK
8/6	Clear-to-Send/RX CLK

Front Panel Display

A 2 x 16 character LCD display that shows 4896 activity, buffer status, self test errors and user selected diagnostic messages.

Displays are:

Self Test in progress
Self Test passed
GPIB Bus Address
GPIB Bus/Buffer Status*
Serial Interface Signals
Channel Configuration
Buffer Usage
Self test error codes
Current SCPI commands and response
User created message
*Default display

Physical

Size

7.45" L x 7.29" W x 1.52" H
(18.92 cmL x 18.52 cmW x 3.86 cmH)

Weight 3 lbs. (1.4 kg.)

Temperature

Operating	-10° C to +55° C
Storage	-20° C to + 70° C

Humidity 0-90% RH no condensation

Connectors

GPIB	GPIB 24 pin ribbon with metric studs.
Serial	DE-9

Construction All metal case shields RFI

Power 9 to 32 Vdc @ 7 VA

Included Accessories

Instruction Manual
3.5" Configuration Program Disk
UL/CSA/VDE approved AC power supply provided for:
US - 115±10% Vac, 60 Hz (std)
-U option - Universal power supply, 100-230±10% Vac, 50/60 Hz with UK, Europe, Australia, China and Japan style plugs.

ORDERING INFORMATION

	Part Number
GPIB - Quad Serial Interface with 115 VAC power adapter	4896
GPIB - Quad Serial Interface with 100-230 VAC universal power adapter	4896-U
GPIB Accessary Cables	See separate data sheet
Rack Mounting Kits (holds 1 or 2 units)	Single - 114212, Dual - 114213