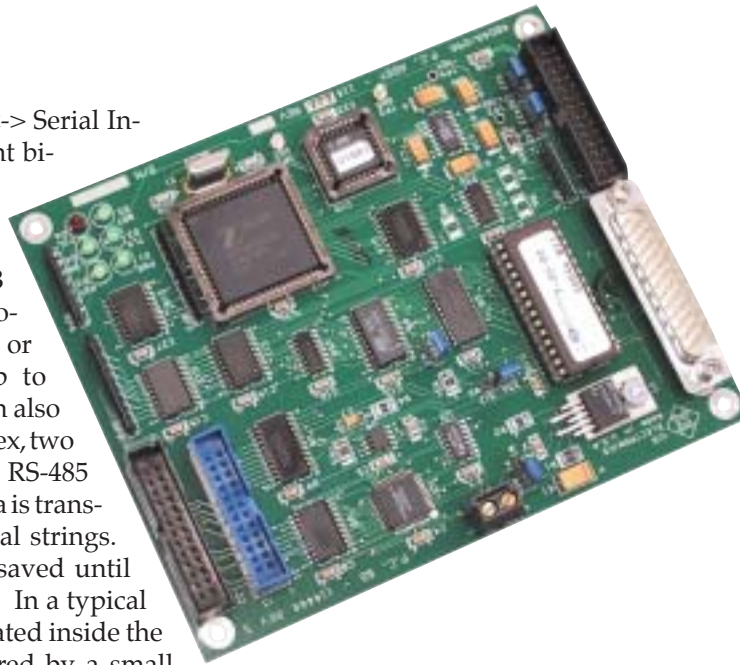# 4804A

GPIB<->SERIAL INTERFACE BOARD

DESCRIPTION

The Model 4804A GPIB <-> Serial Interface Board is a transparent bidirectional IEEE 488.2/ GPIB to Serial Interface that is used to adapt devices with serial interfaces to the GPIB or HP-IB bus. The 4804A provides user selected RS-232 or RS-422 signals at rates up to 38,4000 baud. The 4804A can also be programmed for half-duplex, two wire operation to control an RS-485 device or network. GPIB data is transparently converted into serial strings. Serial data is received and saved until read by the GPIB Controller. In a typical application, the 4804A is located inside the device chassis and is powered by a small amount of DC power from the host's power supply. The 4804A is a quick and easy way to add an IEEE-488.2 interface to any device with a RS-232 or RS-422/RS-485 serial interface.

Signal Connections

The 4804A has two ribbon connectors for GPIB signals. The 24-pin GPIB connector is designed for direct connection to a panel mounted GPIB ribbon connector. The 26-pin GPIB connector includes the external address input signals and mates with one of ICS's GPIB Connector/Switch Assemblies. These small, business card size assemblies mount a GPIB connector and an address switch on the rear of a chassis. Both cable assemblies area available from ICS. Refer to their separate data sheets.

The 4804A has two RS-232 and RS-422/ RS-485 Serial connectors. A 26-pin header connector accepts a flat-ribbon connector for connection to a user's PC board for compatibility with the original 4804. A new DB-25P connector mates with any DB-25S connector and makes an easy connection when only a couple of wires are needed. Pinouts on both connectors conform to EIA Specification RS-530 for direct connection to a standard 25-pin DB style connector or to the user's RS-232 interface.

Programmability

All of the 4804A's serial interface functions, GPIB bus characteristics and operating modes can be programmed or queried with SCPI commands from the GPIB interface. The configuration settings are then stored in a nonvolatile E^{2}PROM. The 4804A reverts to the stored settings each time it is powered-on or reset. The configuration disk contains a menu-driven PC program that walks the user through the configuration setup.

The 4804A provides three ways to change its GPIB address. First from the GPIB bus using the SCPI GPIB:ADDRess command. Address values are saved in the E^{2}PROM. Secondly from a rear panel rocker switch that is read at power turn-on time. Thirdly, over the serial interface with a special address message that saves the value in the E^{2}PROM.

OEM Configuration

In OEM applications, the OEM saves his IDN message, baud rate and other serial parameters in the 4804A's E^{2}PROM. The end user is only given instructions on how to change the GPIB address and to access the 4804A's 488.2 status registers via the GPIB bus.

- Provides user selectable single-ended RS-232 and balanced RS-422/RS-485 serial signals. *Matches any asynchronous serial interface.*

- Functionally identical to the Model 4894A GPIB<-> Serial Interface. *Provides a proven IEEE-488.2 device.*

- > 600 kbyte/sec GPIB transfer rate. *Reduces bus transfer time.*

- GPIB/Serial configurations stored in E^{2}PROM with SCPI commands. *Easy setup eliminates removing covers to set switches or check the configuration.*

- GPIB Address can be set by SCPI commands, by an external rocker switch or by a serial command. *User can select address setting method.*

- On board regulator for operation from 5 to 15 Vdc power. *Runs off of almost any power supply.*

- Designed for easy installation as an OEM product. *Not just a board without its enclosure.*

- Includes Test LEDs. *Provides visual indication of unit's operation and selftest status.*

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IEEE 488 Bus Interface

The 4804A's 488 Bus Interface meets IEEE STD 488.1-1987 and has the following capabilities as a GPIB-to-Serial converter:
   SH1, AH1, T5, L3, SR1, PP1, DC1
   RL0, DT0, C0 and E1/E2 drivers
Bus drivers incorporate power up/down protection to prevent glitching the bus during power turn-on.

Address Capability
Primary addresses 0-30.

SRQ Generation
SRQs are generated per the IEEE-488.2 specification if the unit is not addressed to talk, if SRQs are enabled and if an enabled ESR or SBR register bit occurs for:
> GPIB Buffer full
> GPIB Buffer empty
> Serial Buffer not empty
> Serial Message received
> Serial Buffer full
> Command error
> Serial error
> Execution error
> Query error
> Power on

Buffers
GPIB Input	2 Kbytes
Serial Input	2 Kbytes

GPIB Input Transfer Rate
>600 Kb/s

488.2 Common Commands
*CLS, *ESE, *ESE?, *ESR?, *IDN?, *OPC, *OPC?, *RST, *SAV, *SRE, *SRE?, *STB, *TST?, AND *WAI.

Serial Interface

Serial signals conform to EIA Specifications for RS-232 single or RS-485 (RS-422) differential signals.

Baud Rates:	300, 600, 1.2K, 2.4K, 4.8K, 9.6K, 19.2K and 38.4K baud
Data Bits	7 or 8 bits
Parity	Odd, even or none
Stop Bits	1 or 2

Data Transfer Protocol
Hardware handshake always enabled. X-on/X-off enabled by SCSI command.

SCSI Commands
The 4804A conforms to the SCPI 1994.0 Specification and uses SCPI commands to select:
> 488.2/CV mode
> GPIB /Serial mode
> GPIB Bus Address
> SRQ Enable/Disable
> Direction swap selection
> (Serial mode only)
> 7/8 data bits
> 1/2 stop bits
> Xon/Xoff protocol enable
> Odd/even parity
> Parity enable/disable
> Baud rate select

Physical

Size, L x W x H
139.7 x 114.3 x 12.7 mm
(5.5 x 4.5 x 0.5 inches)

Connectors
GPIB:	24-pin 3M 2524 male conn..
GPIB/Addr:	26-pin 3M 2526 male connector
Serial:	26-pin 3M 2526 male conn.
	DB-25P male conn.

Test LEDs
PWR, RDY, TALK, LSTN, BUSY and BUFFER FULL

Temperature
Operation	-10° C to +70° C
Storage	-20° C to +85° C

Humidity
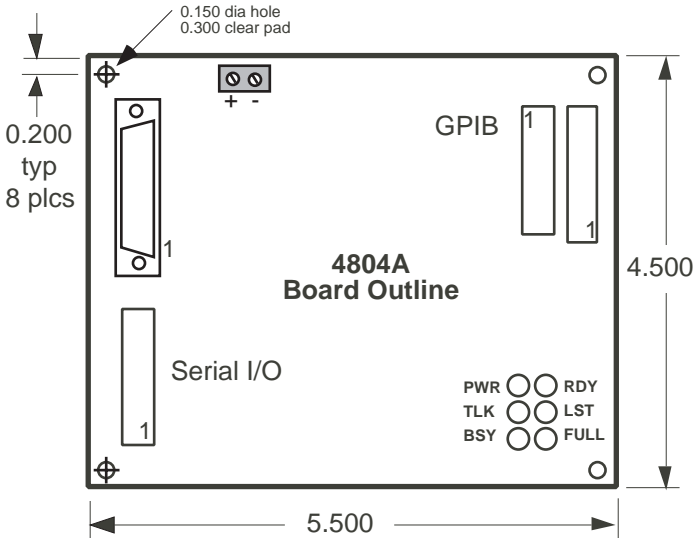0-90% RH without condensation

Power   Regulated +5 Vdc or Unregulated +5.5 to +15 Vdc 300 mA (typical)

Included Accessories

Instruction Manual
Configuration Disk with sample programs

Available Accessories

GPIB flat ribbon cable, 90 cm max.,
     P/N 114439-90.
GPIB Connector/Addr Sw Assy with flat ribbon cable, 90 cm max.,
     P/N 113640-90 or 113642-90.

0.150 dia hole
0.300 clear pad

0.200 typ 8 plcs

GPIB

4804A Board Outline

4.500

Serial I/O

| PWR ○○ RDY |
| TLK ○○ LST |
| BSY ○○ FULL |

5.500

ORDERING INFORMATION

	Part Number
GPIB - Serial Interface Board (includes Manual and Configuration Disk)	4804A
GPIB - Serial Interface Board (Board only)	114442
4804A Starter Kit with 4804A Board, 488-PCIlt GPIB Controller, Cables, Manuals and CD-ROM	114448
GPIB Connector/Address Switch Assemblies and GPIB Flat Ribbon Cables	see separate data sheet

Specifications subject to change without notice.