

BOARD LEVEL PRODUCTS

4804B

GPIB<->SERIAL INTERFACE BOARD

DESCRIPTION

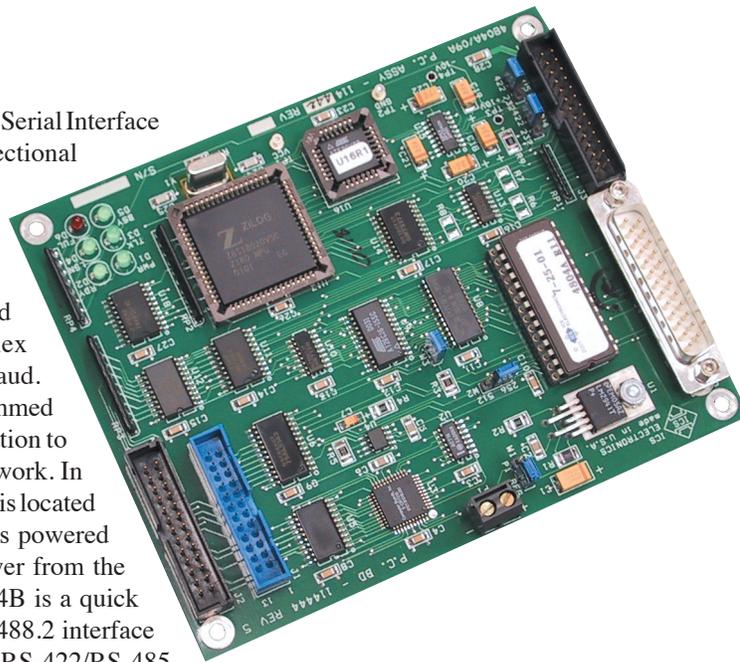
The Model 4804B GPIB <-> Serial Interface Board is a transparent bidirectional IEEE 488.2/GPIB to Serial Interface that is used to adapt devices with serial interfaces to the GPIB or HP-IB bus. The 4804B provides user selected RS-232 or RS-422 full-duplex signals at rates up to 38,4000 baud. The 4804B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

The 4804B operates in either of two modes. In the G-Mode it interfaces serial devices to the GPIB bus. In the S-Mode it can control a single GPIB device from a serial source.

Signal Connections

The 4804B has two GPIB flat-ribbon headers. The 24-pin header is designed for direct connection to a GPIB connector on the rear panel. In this case, the GPIB address is set by a SCPI command and saved in the 4804B's internal flash memory. The 26-pin header includes additional address switch signals and, when used with one of ICS's GPIB Connector/Switch Assemblies, lets a user mount a GPIB address switch and GPIB connector on the rear panel. The GPIB Connector/Switch Assemblies are small, business card size assemblies with a GPIB connector and an 8-bit address rocker switch. Both types of cable assemblies are available from ICS in various cable lengths and are described on their own data sheets.

The 4804B also has two serial connectors for the user selected RS-232 or RS-422/RS-485 signals. The signals are the same on both connectors. The 26-pin header accepts flat-ribbon cables for compatibility with the original 4804. The DB-25P connector mates with any DB-25S connector and makes an easy serial connection.



Programmability

All of the 4804B's serial interface functions, GPIB bus characteristics, a custom IDN message, serial settings and operating modes can be programmed or queried with SCPI commands from the GPIB interface. The configuration settings are then stored in a nonvolatile flash. The 4804B reverts to the stored settings each time it is powered-on or reset. The included Support CD contains a menu-driven PC program that walks the user through the configuration setup.

The 4804B's GPIB address can be changed with a SCPI command and stored internally, set with an external address switch or set by a command from its serial interface.

For OEM applications the end-user only needs directions on how to change the 4804B's GPIB address and how to query its status registers.

4804A/4804B Compatibility

In the G Mode, the 4804B uses the GPIB Device Trigger command to switch from Data to the Command sub-mode. The older Model 4804s and 4804As used an Listen-Unlisten escape sequence which is not recommended any longer with today's high-speed computers. All other functions and commands are identical with the 4804 and 4804A..

- Provides user selectable single-ended RS-232 and balanced RS-422/RS-485 serial signals.
Matches any asynchronous serial interface.
- Functions as a GPIB-to-Serial Interface (G-Mode) or as a Serial-to-GPIB Controller for a single device (S-Mode).
Versatile interface board.
- > 600 kbyte/sec GPIB transfer rate.
Reduces bus transfer time.
- GPIB/Serial configurations stored in flash
Easy setup eliminates removing covers to change 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 interface.
Not just a board without its enclosure.
- Includes Diagnostic LEDs.
Provides visual indication of unit's operation and selftest status.

RoHS Compliant



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4804B: ORDERING GUIDE

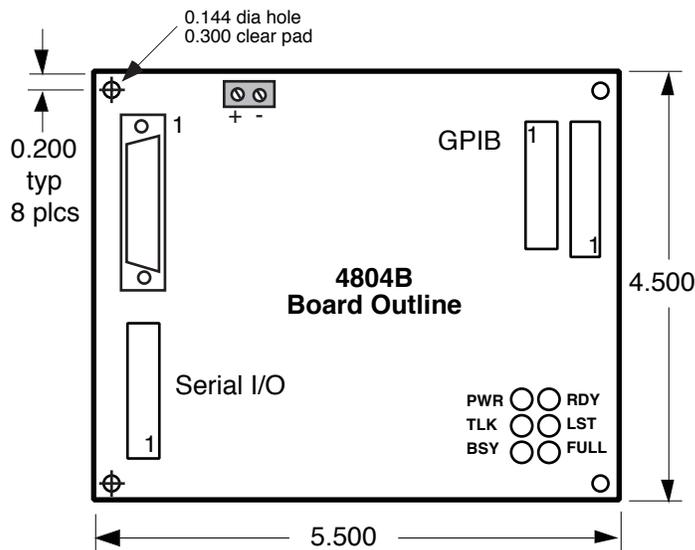
Start with the 4804B board and then pick your accessory items.

Part Selection	Qty	Part Number
Standard 4804B board	(1)	4804B
Select a GPIB Connector/Address Switch Assembly - Horizontal style or Select a GPIB Flat ribbon Interface Cable with metric studs	(1)	113640-L
	(1)	113642-L
Select a GPIB Flat ribbon Interface Cable with metric studs	(1)	114439-L
Select an optional mating serial connector and hood - DB-25S connector DB Hood	(1)	902000
	(1)	902008

Notes:

-L is the cable length in cm. You can order any length from 10 to 90 cm.

Standard stocked lengths are: 30, 45, 60 and 90 cm. Select an appropriate length as it is best to not have extra cable coiled up in the chassis to minimize EMI pickup. See the GPIB Connector/Address Switch Assembly data sheet for more details.



4804B Outline Dimensions

4804B: SPECIFICATIONS

IEEE 488 Bus Interface

The 4804B's 488 Bus interface meets IEEE STD 488.1-1987 and has the following capabilities:

G Mode: SH1, AH1, T6, L3, SR1, PP0, DC1, RL0, DT1, C0 and E1/E2 drivers.

S Mode: SH1, AH1, T3, L2, SR0, PP0, DC0, RL0, DT0, C0 and E1/E2 drivers.

GPIB Addresses: 0-30 primary addresses

SRQ Generation

SRQs are generated if the unit is not addressed to talk, if SRQs are enabled and one of the following occurs:

488.2 Mode: Any combination of enabled ESR, STB, Operational or Questionable register bit(s). Includes data in Rx buffer, Rx message received, Rx buffer full, GPIB buffer empty and GPIB buffer full.

NI-CV Emulation Mode: GPIB buffer empty and data in serial buffer only.

Escape Sequence

In G mode the 4804B powers up in the transparent Data sub-mode. Device Trigger is used to switch from Data to Command sub-mode to query or configure the board. The SCPI SYST: OPER DATA command is used to switch back to the Data sub-mode.

488.2 Common Commands

*CLS, *ESE, *ESE?, *ESR?, *IDN?, *OPC, *OPC?, *RST, *SRE, *STB, *TST?, TST?, *PRE, *PRE?, *PCB, *SRE? and *WAI

Buffers

GPIB Input Buffer	2048 bytes
Serial Input Buffer	2048 bytes
Data Transfer Rate	> 600 Kbytes/sec.

4804/4804A Compatibility

In the G-Mode, the 4804B uses the GPIB Device Trigger command to switch from Data to the Command sub-mode. The older Model 4804s and 4804As used an Listen-Unlisten escape sequence which is not recommended for use with high-speed computers. All other functions and commands are identical.

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 SCPI command.

SCSI Commands

The 4804B 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 conn.
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

See the Ordering Guide on page 2 for a complete list of accessory items.

GPIB flat ribbon cable, 90 cm max.,
P/N 114439-90.

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

ORDERING INFORMATION

	Part Number
GPIB - Serial Interface Board (includes Manual and Configuration Disk)	4804B
GPIB - Serial Interface Board (Board only)	115562
GPIB Connector/Address Switch Assemblies	see separate data sheet
GPIB Flat Ribbon Cable with GPIB Connector and Metric Studs for rear panel mounting	114439-L