

ANSI X3.28 PRODUCTS

4894B-7

4804B-7

GPIB<->SERIAL ANSI X3.28 INTERFACES

DESCRIPTION

The Model 4894B-7 and 4804B-7 are both IEEE-488.2 compatible interfaces that are used to adapt serial devices that use the ANSI X3.28 protocol to the GPIB or HP-IB bus. Both interfaces provide RS-232 or RS-422/RS-485 signals at rates up to 57,600 baud. The Models 4894B-7 and 4804B-7 simplify the controlling of ANSI serial devices by automatically handling the ANSI protocol and eliminating the non-printable characters. The user can program with standard ASCII characters and sees an IEEE-488.2 compatible GPIB device with the normal GPIB command-response sequence. Typical applications are interfacing Temperature Controllers or similar serial devices with the ANSI X3.28 protocol to the GPIB Bus and replacing ICS's older 4814 GPIB to Serial Interface with a modern IEEE-488.2 interface.

ANSI Protocol Communication

The ANSI protocol is a packet type protocol that uses non-printable characters to frame the packets and generates a response for every command or query. Communication with an ANSI X3.28 device is initiated by a Device Clear followed by sending the 4894B-7 or 4804B-7 GPIB Interface a number that matches the Temperature Controller's internal address, which is typically 0. The GPIB Interface responds with 'OACK' if the serial communication link was successfully opened. The user's program can then set the chamber's temperature setpoint, alarms, etc. or query the current temperature or other parameters.

The Interface responds to every GPIB ANSI message with a value or with a status response. If the Interface did not receive a response from the serial device to an ANSI message or if the response was not the expected response, the Interface will respond with an error message when next addressed to talk.

The GPIB Interface's GPIB address and serial interface settings can be changed or queried with SCPI commands from the GPIB interface. OEM users can also set the unit's IDN message to identify the completed assembly as their own. The configuration settings are then stored in flash memory and can be locked to prevent accidental changes. The units revert to the stored settings each time they are powered-on or reset.

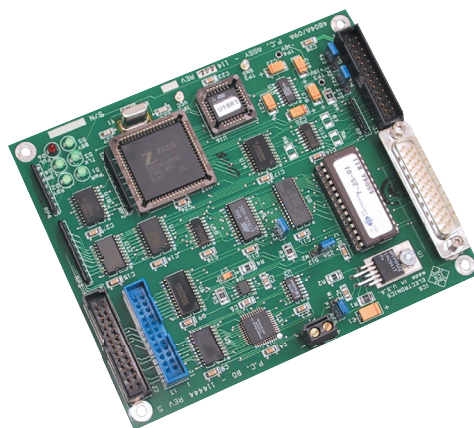


4894B-7 GPIB<->Serial Interface

The included Support CD-ROM contains a menu-driven utility program that walks the user through the configuration setup and an interactive GPIBkybd program for controlling GPIB devices. Example programs and optional LabView Drivers simplify integrating the Temperature Chamber or other ANSI device into the test program.

4894B-7

The Model 4894B-7 is a 4894B with a special firmware (program F30146) to handle the ANSI X3.28 protocol. The 4894B-7 is designed for stand-alone operation on a desktop or on top of a temperature chamber. The 4894B-7 is packaged in ICS's small metal Minibox™ case which provides RFI/EMI protection and uses an external power adapter to operate from AC power. Serial connections are made via a DB-25 connector on the 4894B's rear panel. The 4894B is an updated version of the 4894A and is RoHS compatible.



4804B-7 GPIB<->Serial Interface

4804B-7

The Model 4804B-7 is a 4804B with special firmware (F30145) to handle the ANSI X3.28 protocol. The Model 4804B-7 is a small PC board



- Adapts serial ANSI X3.28 devices to the GPIB Bus *Eliminates unprintable characters and simplifies protocol handling.*
- IEEE-488.2 compatible interfaces. *Responds to all IEEE-488.2 Common Commands.*
- GPIB/Serial configuration set with SCPI commands and stored in Flash. *Eliminates removing covers or setting switches to set or query a setting*
- User selectable single-ended RS-232 and balanced RS-422/RS-485 serial signals. *Matches any asynchronous serial interface.*
- Support includes example programs, LabView Drivers, and menu driven Configuration Programs. *Multiple programming options.*
- Replaces ICS's older 4814. *Smaller 4804B board provides added 488.2 functionality and firmware setup.*

7034 Commerce Circle
Pleasanton, CA 94588
Phone: 925.416.1000
Fax: 925.416.0105
Web: www.icselect.com

4804B cont'd

assembly that is designed to be mounted inside the chassis or enclosure with the serial device and can be powered by regulated or unregulated DC voltage. The 4804B-7's GPIB address can be set from the GPIB bus and saved in Flash or read from a rear panel rocker switch at power turn-on time. The 4804B is an updated 4804A with flash memory and RoHS components.

The 4804B has two ribbon connectors for GPIB signals. The 24-pin GPIB connector is designed for a flat-ribbon cable with 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 chassis rear panel. Refer to their separate data sheet for additional information.

The 4804B has two RS-232 and RS-422/RS-485 Serial connectors. A 26-pin header connector accepts a flat-ribbon cable that can plug into the serial device. A 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.

Replacing 4814 Boards

4814 and older 4804A Boards can be replaced by ordering the following items:

- 1 - 4804B-7 with F30145 firmware.
- 1 - 114439-L Flat-ribbon GPIB Cable. L is the cable length in cm from the rear panel to where the board will be mounted. Stocked lengths are 30, 45, 60 and 90 cm.
- 1 - 125050 wall-mounted AC to DC power adapter or any 5 to 15 Vdc power supply with 0.5 A capacity.

ANSI Error Messages

Table 1 lists the error messages that the interfaces generate when they detect a problem with the serial messages from the ANSI device.

TABLE 1 ANSI Error Messages

Error-TMO	No serial response
Error-No STX	STX start of message character not received
Error-No ETX	ETX end of message character not received.
Error-Undefined resp	Unrecognized

IEEE 488 Bus Interface

The 4894B-7's and 4804B-7'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, PPI, 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 STB 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
- MAV

Buffers

- GPIB Listen 2 Kbytes
- GPIB Talk 2 Kbytes
- Serial TX 256 bytes
- Serial RX 256 bytes

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

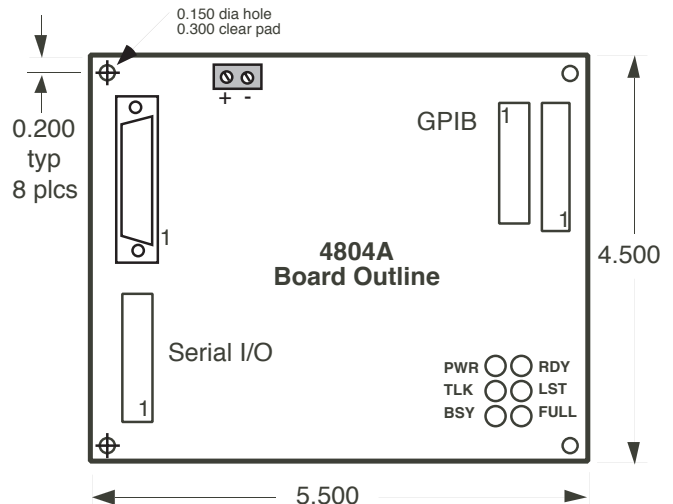
Data Transfer Protocol

Hardware handshake always enabled.

SCPI Commands

The 4894B-7 and 4804B-7 conforms to the SCPI 1994.0 Specification and uses SCPI commands to select:

- GPIB Bus Address
- External Address (4804 only)
- Baud Rate
- Parity Select
- 7/8 data bits
- 1/2 stop bits
- RS485 Enable
- Timeout
- IDN Message
- Lock Settings



4894B-7/4804B-7: SPECIFICATIONS

Indicators

4894B-7 indicators are on the front panel. The 4804B-7 has LED indicators on the PC board.

PWR	Indicates power on
RDY	Unit has passed self test
TALK	Unit has recognized its Talk Address
LSTN	Unit has recognized its Listen address
BUSY	Unit is receiving serial data
FULL	An internal data buffer is full

4894B-7 Physical

Size	7.45"L x 5.57"W x 1.52"H (18.92cmL x 14.15cmW x 3.86cmH)
Weight	3lbs. (1.4kg.) including adapter
Connectors	
GPIB:	Amphenol 57-20240 with metric lock studs
Serial:	DB-25S with lock studs
Temperature	
Operating	-10 °C to +55 °C
Storage	-20 °C to + 70 °C
Humidity	0-90% RH without condensation
Shock/Vibration	Normal handling only
Construction	All metal case
Power	9 to 32 Vdc @ 3.5 VA

4894B-7 Included Accessories

Instruction Manual
 Support CD-ROM with sample and configuration programs.
 UL/CSA/VDE approved AC power adapters provided for:
 US - 115 ± 10% Vac, 60 Hz (std)
 Europe - 230 ±10% Vac, 50/60 Hz
 UK - 230 ±10% Vac, 60 Hz
 Japan - 100 ±10% Vac, 50/60 Hz

4804B-7 Physical

Size	5.5"L x 4.5"W x 0.5"H inches (139.7mmL x 114.3mmW x 12.7mmH)
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.
Temperature	
Operation	-10 °C to +70 °C
Storage	-20 °C to +85 °C
Humidity	0-90% RH without condensation
Shock/Vibration	Normal handling only
Construction	Fiberglass PC Board Assy
Power	Regulated +5 Vdc or Unregulated +5.5 to +15 Vdc @ 300 mA (typ)

4804B-7 Included Accessories

Instruction Manual
 Support CD-ROM with sample and configuration programs.

Available Accessories

GPIB Flat Ribbon Cable, 90 cm max., P/N 114439-90.
 GPIB Connector/Address Switch Assembly with flat ribbon cable, 90 cm max., P/N 113640-90 or P/N 113642-90.
 Serial cable, 4894B to Watlow, 5 feet long with tined leads. P/N 115119
 LabView Driver Library for 4814B type GPIB to ANSI X3.28 interfaces, P/N 123167

ORDERING INFORMATION

	Part Number
GPIB - Serial Interface in Minibox case (includes 115 VAC Adapter, Manual and Configuration Disk) For 230 VAC adapter, add suffix to specify country/plug style) -U(Universal)	4894B-7 w/F30146
Rack Mounting Kits (holds one or two units)	Single - 114710, Dual - 114711
GPIB - Serial Interface Board (includes Manual and Configuration Disk)	4804B-7 w/F30145
GPIB Connector/Address Switch Assemblies and GPIB Flat Ribbon Cables	see separate data sheet
LabView Driver Library for 4814 type GPIB to ANSI x3.28 Interfaces	Contact Support