

# IEEE 488/GPIB BUS INTERFACE

# 4892B

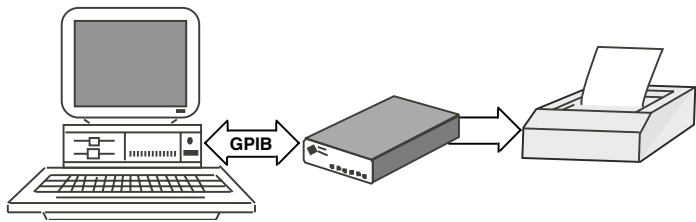
## GPIB ↔ PRINTER INTERFACE

### DESCRIPTION

The 4892B is a GPIB-to-Printer Interface that transparently transfers data from a GPIB bus to any printer or plotter with the industry standard 'Centronics' or IEEE-1284 Parallel Interface. The 4892B includes a 256K RAM that buffers up to 252,000 characters and a high > 600 kbytes/second transfer rate that minimizes data transfer time and free's the GPIB Controller for other tasks while the 4892B finishes the data transfer. Applications include replacing obsolete GPIB printers and plotters with newer parallel printers, driving a printer from a GPIB instrument or buffering print data from a GPIB controller.

### Programmability

The 4892B's parallel interface functions and GPIB Bus characteristics are programmed with SCPI commands from the GPIB Bus. The 4892B's configuration is stored in E<sup>2</sup>ROM so it can be changed as desired. Menu-driven



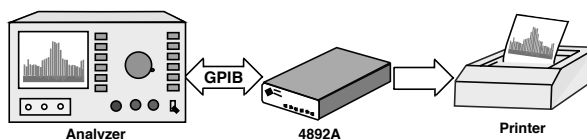
Printing from the GPIB Bus

programs are included with each 4892B to walk the first-time user through the configuration procedure. Alternately, the user can use an interactive control program like ICS's GPIBkybd program to configure the unit. The configuration programs are compatible with ICS, National Instruments or Measurement Computing's GPIB controller cards.

### Printing from an Instrument

Many analyzers, oscilloscopes and other complex instruments can directly drive a GPIB printer or plotter without the need for a GPIB Bus controller. In many cases

Plotting from a Spectrum Analyzer



4892B Printer Interface

their original GPIB printers and plotters are wearing out or are no longer serviceable. The 4892B easily interfaces these instruments' GPIB output to a modern laser or inkjet printer. The 4892B-printer combination makes an inexpensive plotter replacement. To reproduce graphical data and plots, the selected printer must have PCL5 or later firmware with HPGL capability to print the instrument's HPGL coded output. Plain text output works with any printer. Refer to ICS's Application Bulletin AB48-34 for a partial list of PCL/HPGL compatible instruments and printers.

### Special Functions

The 4892B can be configured to automatically generate a formfeed character when finished printing for printers that need a formfeed command to print. The 4892B can also be set to output the HPGL plot command

to the printer when starting to print to put the printer in the plot mode. A new IDLE command blocks printers idle timeouts and prevents the printer from ejecting the page before the test results have been printed.

### Accessories and 4892B Configuration

Each 4892B includes a printer cable, a Support CD-ROM, and an AC power adapter. Units are factory set to run from the GPIB bus at address 4. The 4892B's GPIB address and other configuration settings can be easily changed with the supplied configuration programs.

- Provides GPIB to Centronics or to 1284 Printer Interface. *Drives virtually all parallel printers.*
- Large 252 Kbyte buffer and high GPIB data transfer rate. *Speeds up GPIB data transfers and off loads PC.*
- Stores GPIB address and interface settings in E<sup>2</sup>ROM. *Configure unit without having to remove the cover.*
- IEEE-488.2, IEEE-1284 compatibility and SCPI commands. *Meets the latest programming specifications.*
- Includes 4892B to Printer Cable and Support CD *Nothing more to buy.*
- Includes menu-driven, configuration programs and ICS's interactive GPIBkybd program. *Easy configuration changes with most GPIB controllers.*
- 1U high, thin box design with optional rack mounting hardware kit. *Small unit saves space.*

CE Approved

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# 4892B : SPECIFICATIONS

## IEEE 488 Bus Interface

The 4892B's 488 Bus Interface meets IEEE STD 488.1-1987 and has the following capabilities.

### G-Mode: ( GPIB to Parallel)

SH1, AH1, T6, L3, SR1, PP0, DC1, RL0, DT0, C0 and E1/E2 drivers

### P-Mode: (Parallel to GPIB)

SH1, AH1, C1, C2, C3 and C28.

Bus drivers incorporate powerup/down protection to prevent sending invalid data to the bus.

## Address Capability

Primary addresses 0-30 and listen-only

## SRQ Generation

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

### in ICS 488.2 Mode:

GPIB Buffer empty  
GPIB Buffer full  
Enabled ESR bit occurred

### in PRL Emulation Mode:

GPIB buffer empty

## Escape Sequence

In G-Mode the 4892B powers up in the transparent Data sub-mode. A Device Trigger is used to switch from Data to Command sub-mode. SCPI SYST:OPER DATA command is used to switch back to the Data sub-mode. 4892A units used a Listen-Unlisten escape sequence to switch from Data to Command sub-mode.

## 488.2 Common Commands

\*CLS, \*ESE, \*ESE?, \*ESR?, \*IDN?, \*OPC, \*OPC?, \*RCL, \*RST, \*SAV, \*SRE, \*SRE?, \*STB and \*WAL.

## Buffers and Data Transfer Rates

Data Buffer 252,000 bytes

Data Transfer Rates:

GPIB -> Buffer > 600 Kbytes/sec.  
Buffer -> Ptr 5 Kbytes/sec.

## Parallel Interface

The 4892B's parallel interface conforms to the Centronics and IEEE-1284 Standard specifications for Compatibility Mode and Level 1 Drivers. Data is transferred as 8-bit bytes.

**Table 2 Parallel Signals and Directions**

Pin #	Signal	G Mode	P Mode
1	Strobe	Out	In
2	Data 1	Out	In
3	Data 2	Out	In
4	Data 3	Out	In
5	Data 4	Out	In
6	Data 5	Out	In
7	Data 6	Out	In
8	Data 7	Out	In
9	Data 8	Out	In
10	Ack	In	Out
11	Busy	In	Out
12	PE	-	Out
13,14	open	-	-
31	- Init	Out	In
32	- Fault	-	Out
16	Gnd		

### Logic Levels (Data)

Logic 1 +3.5 to +5Vdc @ 16ma  
Logic 0 0 to +0.5Vdc @ 16ma

### Data Direction

Determined by controlling port selection

**Table 1 Programmable Functions**

ICS 488.2/NI-PRL Emulation
GPIB/Parallel Control Mode
Parallel Mode subfunctions
GPIB Bus Address
Listen Only Mode
Formfeed 3 sec after print buffer empty
HPGL Plot Command at print start
IDLE chars to prevent printer auto formfeed
SRQ Enable/Disable
SRQ on Buffer Empty
ESR Register Enable bits
STB Register Enable bits
Operational Register Enable bits

## Front Panel Indicators

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 parallel data (Parallel BUSY Signal)
FULL	Internal data buffer is full

## Physical

Size	W x H x D 5.57 x 1.52 x 7.45 inches (141.5 x 38.6 x 189.2 mm)
Weight	3 lbs (1.4 kg) incl adapter
Temperature	-10°C to +55°C Operating -40°C to +70°C Storage
Humidity	0-90% RH no condensation
Construction	All metal case

## Connectors

IEEE bus - Std 24 pin w/metric studs  
Printer - DB-25S female w/lock studs

## Power

9 to 32 Vdc @ 2 VA

## Included Accessories

Instruction Manual  
4892B-to-Printer Cable, 6 feet long  
Support CD-ROM.  
UL/CSA/VDE approved AC power adapters provided for:  
US - 115±10% Vac, 60 Hz (std)  
-E = Europe - 230±10% Vac, 50/60 Hz  
-B = UK - 230±10% Vac, 60 Hz  
-A = Australia - 230±10% Vac, 60 Hz

## ORDERING INFORMATION

	Part Number
GPIB - Printer Interface with 115 VAC adapter	4892B
GPIB - Printer Interface with 115 VAC adapter. Factory set to Listen-only or other settings	4892B-6
GPIB - Printer Interface with 230 VAC adapter	(Specify country/plug style) -E(Europe), -B(UK), -A(Australia)
GPIB Accessory Cables and Rack Mounting Kits	See separate data sheet