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Find the *ICS Electronics 4860A* at our website: *Click HERE*

IEEE 488 BUS EXPANDER/ISOLATOR

4860A/4862A
BUS EXPANDERS

- Provides over 2000 V isolation between instruments and bus controller.
  Eliminates ground loops, noise and associated data errors.
- Allows more than 14 devices on the GPIB bus.
  Overcomes the bus drive limitation.
- Extends the bus length an additional 20 meters.
  Overcomes the bus length limitation.
- No false responses to the FindLstn Protocol
  Supports all IEEE 488.2 protocols.
- Invisible to the IEEE 488 Bus controller.
  Needs no bus address or special programming.
- Fast handshake rate.
  Doesn't slow your system.
- Front panel indicators show controller and talker locations.
  Visual operating status.
- Small metal case provides EMI/RFI protection
  Proven EMI/RFI Compliance.

CE *Approved*

DESCRIPTION

ICS's 4860A GPIB Isolated Bus Expander solves four of the most common problems encountered in GPIB systems - device loading, signal noise, ground loops and cable distance. ICS'S 4860A Expander complies with the IEEE-488.2 Standard and does not give false responses when GPIB Controllers or application execute the FindListener protocol.

The Model 4862A is a non-isolated lower cost Bus Expander for applications that do not require electrical isolation.

Bus Expansion

The 4860A and 4862A Bus Expanders allow a user to add more bus devices than the specification limit of 14 devices to be connected to an IEEE 488 Bus system. To increase the number of units in a system beyond 14 devices, one of the existing devices is replaced with a Model 4860A or 4862A Bus Expander which can then drive up to 14 additional devices as shown in the figure below. The Bus Expanders also drive an additional 20 meters of cable which extends the maximum cable length to 40 meters. Multiple Bus Expanders can be used to add even more devices to the system or extend the cable length.



4860A Bus Expander/Isolator

Electrical Isolation

The Model 4860A provides over 2000 volts of electrical isolation and increased common mode noise rejection between a group of instruments and the IEEE 488 Bus controller. This eliminates measurement problems caused by ground loops and reduces common-mode noise errors in both analog and digital systems.

No Programming Changes

The 4860A and 4862A are invisible to the bus controller and do not require any special programming. The user can freely use the FindLstn and other 488.2 protocols in his program. The System Controller is connected to the Expander's local Bus connector. The Controller-in-charge can be on either side of the Bus Expander. Controller location is automatically determined by logic in the 4860A and 4862A.

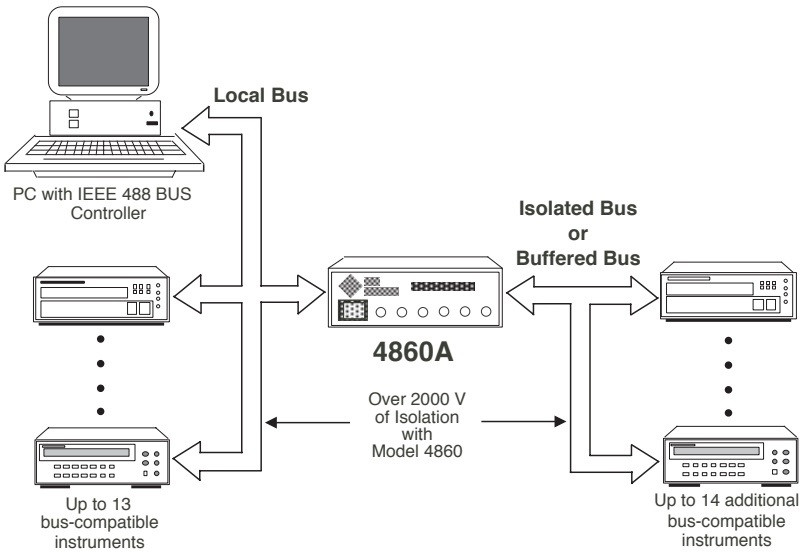


Figure 1 Bus Expander adds up to 13 new devices to a GPIB Bus System

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4860A/4862A: SPECIFICATIONS

IEEE 488 Buses

Two bus connectors, one for Local Bus and one for Isolated Bus. Shell and shield lines of isolated connector are floating.

IEEE 488.1 Compliance
All 16 lines on both bus connectors meet the electrical specifications of the IEEE Std 488.1-1987.
Iin (low state) is 0.25 mA at 0.4 Vdc
Iin (high state) is 40 mA at 0.4 Vdc
Vout (low state) is 0.5 Vdc at 48 mA
Vout (high state) is 2.6 Vdc minimum

Signal Pass-Through

Signal	Direction
IFC, REN	From local bus
All others	Bidirectional

Controller Location
System Controller - Main Bus
Controller-in-Charge - Either Bus

Configurable Settings

Local Bus	E1/E2 Drivers
Isolated Bus	E1/E2 Drivers

IEEE 488.2 Compliance
No false responses to FindLstn Protocol. Works with all 488.2 Protocols.

Front Panel Indicators

Three Local Bus indicators:

PWR	Indicates power on
DC	CIC on Local Bus
TE	Data direction to Local Bus

Three Isolated Bus Indicators:

PWR	Indicates isolated power on
DC	CIC on Isolated Bus
TE	Data direction to Isolated Bus

Transfer Timing
Signal Propagation
All - 80 ns typical, 180 ns maximum

Handshake Delay
600 ns typical (supports transfer rates > 670 Kbytes/sec.)

ATN Response
NRFD and NDAC asserted 600 ns after ATN to compensate for remote device delay.

Approvals/Certificates

EMI/RFI Meets Class A Part 15 of FCC Docket 20780 and EN55022 and EN 50082-2 specifications. CE approved.

UL/CSA Power Adapters meet UL 1950/IEC 950 and has CSA approval.

Physical

Size W x H x D
7.29 x 1.52 x 7.45 inches
(1185.2 x 38.6 x 189.2 mm)

Weight 3
3 lbs (1.4 kg)

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-488 Buses: 24-pin connectors with metric lock studs

Power
9 to 32 Vdc @ 5.5 VA nominal

Bus Isolation (4860A only)
> 2000 Vdc bus-to-bus or to chassis ground

Included Accessories

Instruction Manual
UL/CSA/VDE approved AC power Adapters provided for:
US - 115±10% Vac, 60 Hz (std.)
-U Europe/UK/Australia/China/Japan plugs, 100 to 240 Vac, 50/60 Hz

4862A BUS EXPANDER (BUFFERED): Specification differences from Model 4860A

Description

The Model 4862A Bus Expander is for those applications requiring only additional bus drive capability. Because the 4862A output signals are not isolated, some internal delay times are reduced to minimal values. All other performance features are identical to the Model 4860A.

Difference Specifications

Bus Isolation None

ORDERING INFORMATION

	Part Number
IEEE 488 Bus Expander/Isolator with 115 VAC adapter	4860A
IEEE 488 Bus Expander (non-isolated) with 115 VAC adapter	4862A
Model 4860A or 4862A with univesal 115/230 VAC adapter.	4860A-U
See separate data sheet for IEEE Bus Cables and Minibox Rack Mounting Kits	

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