External IEEE488.2 (GPIB) / LAN Option 4001-002
User's Manual

Introduction

Features

- Compatible with all IEEE-488.2 (GPIB) and 100/10 Ethernet systems.
- Operates in GPIB Device or Controller.
- Automatically configured by Cryo-con instruments.
- Field install at any time.
- High speed. Does not sacrifice GPIB performance.
- Electrically isolated to eliminate the ground loops and noise pickup.
- Very low noise connection to the instrument.
- Works with existing Cryo-con LabView™ drivers and utility software.
- Does not sacrifice the LAN interface.

Applications

The Cryo-con IEEE-488.2 (GPIB) option is a GPIB-to-Ethernet converter that will operate in either a Device or Controller mode. It is completely transparent to the GPIB system and offers high speed, multiple device support, electrical isolation and very low noise.

In it's **Device** mode, the converter's Ethernet interface plugs into the Ethernet port of any enabled Cryo-con instrument. The converter is completely configured by the instrument and can easily be changed from the front panel. Operation is invisible to the user compared to the internal GPIB circuitry used in older instruments. To the system controller, the interface appears as any other GPIB device. New Cryo-con instruments do not implement internal GPIB circuits because the older technology used by these systems is very susceptible to ground-loop currents and electrical noise pickup. The external option approach is functionally equivalent, but provides the electrical isolation and low noise characteristics of modern Ethernet based systems.

In it's **Controller** mode, the converter's 100/10 Ethernet port plugs into your computer allows it to act as a GPIB system controller. It can be plugged directly into an instrument or act as a controller for up to the 31 devices that the GPIB specification allows. Communication with your computer is via TCP/IP, allowing easy interface with data acquisition programs including LabView. Since the Cryo-con Model 32 series controllers do not have an Ethernet interface, the converter is a simple and inexpensive way to add full featured 100/10 Ethernet TCP/IP support.

Ordering Information

Part Number	Description
4001-002	External IEEE-488.2 (GPIB) for Cryo-con instruments with an Ethernet port.
4001-003	External Ethernet option for Cryo-con instruments with a GPIB port.

Technical Assistance

Troubleshooting guides and user's manuals are available on our web page at http://www.cryocon.com.

Technical assistance may be also be obtained by contacting Cryo-con as follows:

Cryogenic Control Systems, Inc.
PO Box 7012
Rancho Santa Fe, CA 92067-7012

Telephone: (858) 756-3900x100 FAX: (858) 759-3515
e-mail: cctechsupport@cryocon.com

Returning Equipment

If an instrument must be returned to Cryo-con for repair or recalibration, a Return Material Authorization (RMA) number must first be obtained from the factory. This may be done by Telephone, FAX or e-mail.

When requesting an RMA, please provide the following information:

1. Instrument model and serial number.
2. User contact information.
3. Return shipping address.
4. If the return is for service, please provide a description of the malfunction.

If possible, the original packing material should be retained for reshipment. If not available, consult factory for packing assistance.

Cryo-con's shipping address is:

Cryogenic Control Systems, Inc.
17279 La Brisa
Rancho Santa Fe, CA 92067-7012

Supplied Items

Confirm that you have received the following items with your controller. If anything is missing, contact Cryogenic Control Systems, Inc. directly.

- Prologix.biz GPIB to Ethernet Controller module.
- Power supply for controller. Universal AC input, 8-15VDC output at 200mA.
- This User's Manual.
- Cryo-con software CD.
- Short Cat 5 Ethernet cable
- Cat 5 Crossover coupler

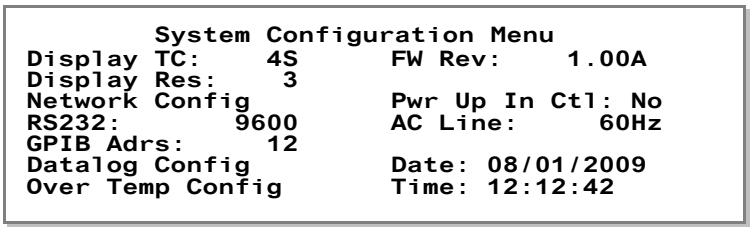
Configuring the Device Mode

In the device mode, the GPIB option connects to the Ethernet port of a Cryo-con instrument and functions to give the instrument a GPIB interface.

The converter module is set at the factory to have an IP of 192.168.1.52 and a port assignment of 1234. The IP may be changed by using the netfinder.exe program provided. Using the default IP will allow easy connection to the Ethernet port of a Cryo-con instrument that also uses the factory default IP of 192.168.1.5.

Connection of the GPIB module to an instrument is done with a Category 5 Crossover LAN cable. When connected, the instrument will configure the GPIB module for communication as a GPIB device.

The only configuration parameter for the optional GPIB interface is to set the address. This is done by using the **System Functions Menu**. Once the external GPIB interface is connected to the controller's LAN port, configuration is performed by the instrument.



Note that each device on the GPIB interface must have a unique address. Set the instrument's address to any value between 1 and 31. The address is set to 12 when the unit is shipped from the factory.

The GPIB interface does not use a termination character, or EOS. Rather, it uses the EOI hardware handshake method to signal the end of a line. Therefore, the host must be configured to talk to the instrument using EOI and no EOS.

Primary Address:	1-31
Secondary Address:	None
Timeout	2S
Terminate Read on EOS	NO
Set EOI with EOS on Writes	YES
EOS byte	N/A

GPIB Device Configuration

Configuring the Controller Mode

The controller mode is used to convert an instrument's GPIB port to an Ethernet LAN port.

First, connect the GPIB module's GPIB connector to the GPIB connector of the target instrument and then connect the module's Ethernet port to your LAN.

Using the netfinder.exe program provided, locate the GPIB module's IP address. The default is 192.168.1.52. The netfinder program will allow you to change this to any desired address.

GPIB configuration is easily done using a TCP communication program such as HyperTerminal. Open the module using it's IP address and a port number of 1234.

You can verify connection to the module by sending the following query:

```
++addr
```

This will respond with the current GPIB address.

To configure the default GPIB for Cryo-con instruments, send the following commands:

```
++addr 12
++eoi 1
++eos 3
++eot_enable 0
++mode 1
++read eoi
++read_tmo_ms 3000
++savecfg 1
```

In the above, the GPIB address is set to 12, but it may be any address between 1 and 31. Other parameters must NOT change. Please refer to the Prologix.biz user's manual for complete documentation.

Configuration only needs to be done once since it is saved in non-volatile memory.

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