

Application Note

Remote Control of the PRS-370 via GPIB

Summary

The IET Labs PRS-370 was designed to be able to be a controller on the GPIB bus so it can control Precision DMMs such as the Keysight 3458A or Fluke 8588A.

The PRS-370 can as well be controlled via a PC via the GPIB bus.

When the PRS-370 is turned on the GPIB interface checks the bus to see if there is a controller. If a controller is found, then the GPIB interface switches to slave mode so it can be controlled via a PC.

When using a National Instruments GPIB-USB-HS Adapter or other similar adapter, the adapter does not assert that it is a controller until communication is initiated.

This causes the PRS-370 to not see the GPIB adapter on the bus and the PRS-370 stays in controller mode.

This application note details how to address this.

Detail

When controlling the PRS-370 via a PC, you must ensure the IEEE-488 interface asserts control of the SIC/ATN or REN line prior to turning the PRS-370 on.

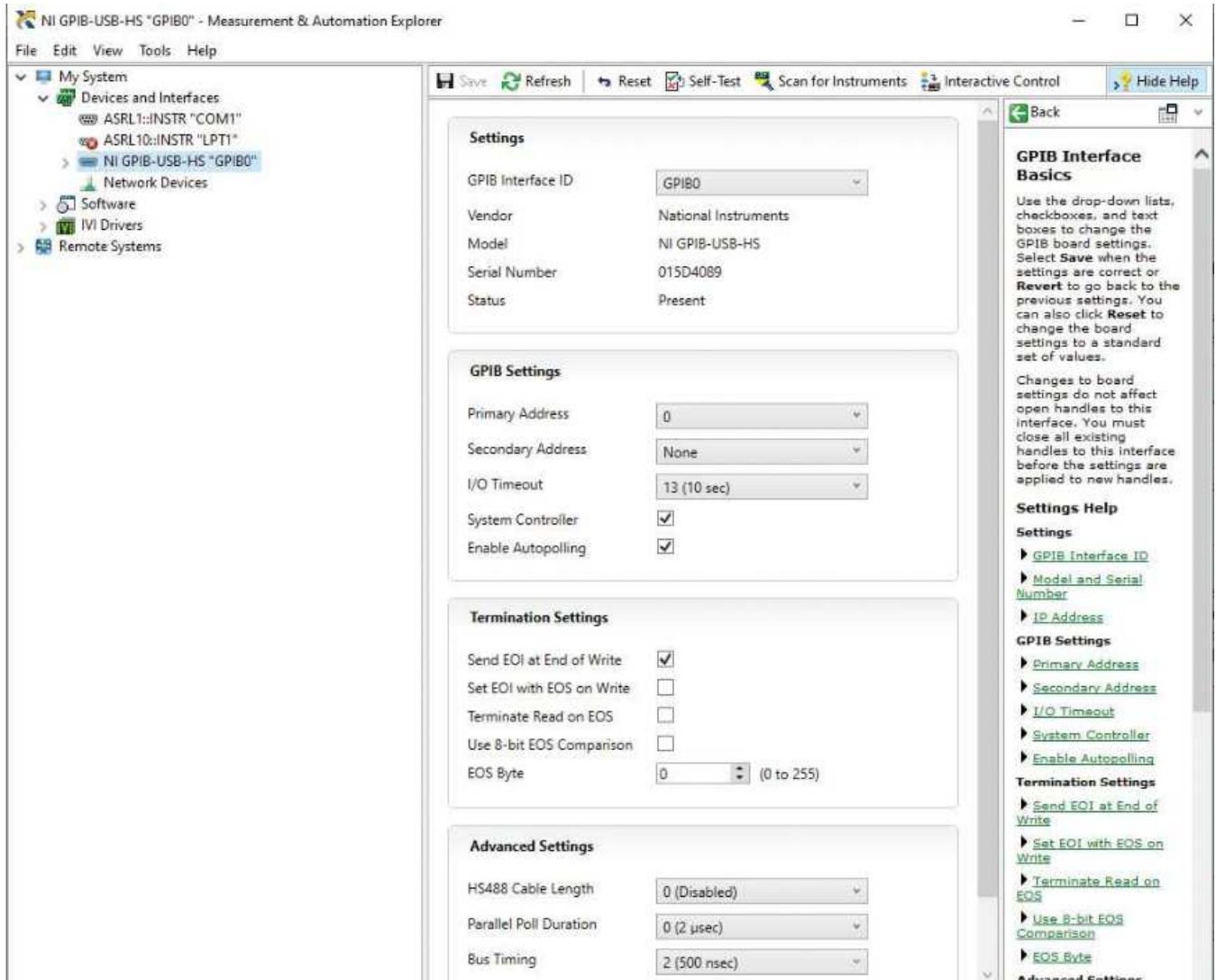
This can be done in NI-Max or programmatically by following this example.

Connect the IEEE cable between the PC and PRS-370. Ensure the PRS-370 is OFF.

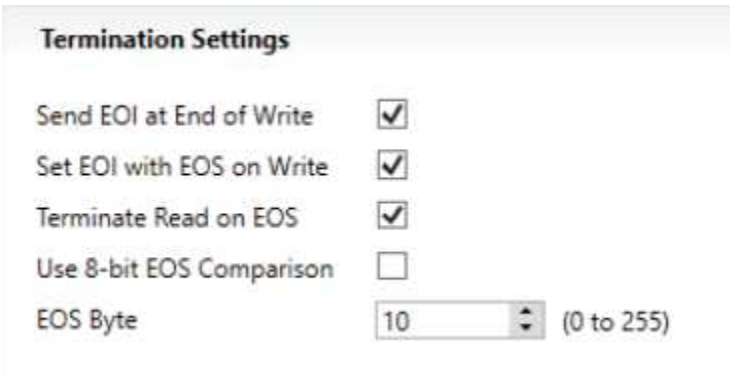
Open NI-MAX, expand devices and interfaces, and select NI GPIB-USB-HS”GPIB0” or GPIB interface being used. See screenshot below



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Set the terminations settings as shown in the screenshot below:



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Click on Interactive Control button in NI-Max Measurement and Automation Explorer.

The interactive control window will open as shown below.



Type the following into the Interactive Control Window:

“IBFIND GPIB0” and press the enter key

“IBSIC” and press the enter key

In the screenshot below you can see the commands and the response from the GPIB-USB-HS adapter including that the GPIB adapter is not Controller-in-Charge (CIC) and the ATN line is asserted.



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```
GPIB Interactive Control - gpib0
Interactive Control
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Type 'help' for help or 'q' to quit.

GPIB0: ibfind gpib0
gpib0: ibsic
[0130] ( cmpl cic atn )
gpib0:
```

Turn the PRS-370 on. The PRS-370 must complete the boot process with main screen shown prior to continuing.

Close the interactive control window.

From NI-Max Measurement and Automation Explorer, click on scan for instruments.

The PRS-370 will be found at its assigned address. The default address is 4.

Ensure all commands are terminated with a line feed “\n”.

Again please remember that, IBFIND GPIB0 and SIC must be sent to the interface prior to turning on the PRS-370.

National Instruments GPIB Interface does not asserting ATN until communication occurs over the bus or the SIC command has been sent. It should also be noted that if



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Interface Clear IFC is sent the ATN line will no longer be asserted on the GPIB interface.

This example is for NI-MAX; however, the same can be accomplished in LabVIEW, other languages such as Visual Basic using the legacy 488 or 488.1 commands.

Use 488 commands when using MET/CAL rather than 488.2 commands.

The terminator CRLF should also be used with MET/CAL as shown below:

```
1.001 IEEE SOURCE:DATA 20.1 [13][10]
```

Conclusion

This application note shows that the PRS-370 can be switched into slave mode on GPIB bus using simple commands.

It is also possible to use a GPIB adapter to connect pin 17 (REN) on the GPIB bus to pin 24. This will assert the REN line and cause the PRS-370s to go into slave mode as well. Please contact IET Labs for more information on this adapter if needed.

