

Acceptance Test Procedure

And Results (ATP + ATR)

for

National Instruments

NI AT 232/485 4 Ports

Part Number: 182925C-01

Serial Number: A640A1

| # | Name | Date | signature |
|--|--------------|--------------|-----------|
| Written by | Dan Gilboa | 7 April 2013 | DG |
| Checked by | Dan Gilboa | 7 April 2013 | DG |
| Customer | | | |
| Order no. | | | |
| Tested Date | 7 April 2013 | | |
| Gilboa Engineering consulting LTD | | | |

Test Procedure

1. The following Assembly and Test procedure are conducts:
 - a. Verifying of the correct PN of NI AT 232 / 4 card
 - b. Written the exact part number (PN) and serial number (SN)
 - c. Visual inspection of the card.
 - d. Installing NI Serial Software (Version 1.5) and drivers on PC with windows XP Professional, and 2 available ISA slots.
 - e. Installing the NI card in the PC
 - f. Powering the PC.
 - g. Verifying correct installation of the cards (automatically by Windows XP or manually).
 - h. Verifying the recognition of the cards in the "Device manager"
 - i. Performing NI Serial Diagnostics Wizard test.
 - j. Performing HyperTerminal Test for each port.
 - k. Shutdown the PC, disconnect power, and disassembly the NI cards.

Acceptance Test Results

1. Visual identification of components

| # | Item | PN | Status | SN | Notes |
|---|-----------------|------------|--------|--------|----------------------|
| 1 | NI AT 232/485 4 | 182925C-01 | OK | A640A1 | Copied from the card |

2. Functional Tests

| # | Item | Test | Status | Notes |
|----|----------------|---|--------|---|
| 1. | Device Manager | Open Device Manager and verify appearance of the NI Serial Peripheral and 4 communication ports | PASS | N.I. AT-232/4 Communication port (COM7) N.I. AT-232/4 Communication port (COM8) N.I. AT-232/4 Communication port (COM9) N.I. AT-232/4 Communication port (COM10) |

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| # | Item | Test | Status | Notes |
|----|-----------------------|----------------------------------|--------|--------------------|
| 2. | | | | |
| 3. | NI Serial Diagnostics | Run NI Serial Diagnostics Wizard | PASS | All 4 ports are OK |

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| # | Item | Test | Status | Notes |
|----|--------------------|---|--------|--|
| 4. | | | | |
| 5. | Loopback test COM7 | Connect NI-Serial 232 Loopback test to COM7. Open the HyperTerminal application, and select COM7 Type: hjdklnm | PASS | Verify that in the HyperTerminal appears "hjdklnm" |
| 6. | | | | |
| 7. | Loopback test COM8 | Connect NI-Serial 232 Loopback test to COM8. Open the HyperTerminal application, and select COM8. | PASS | Verify that in the HyperTerminal appears "rtyuio" |

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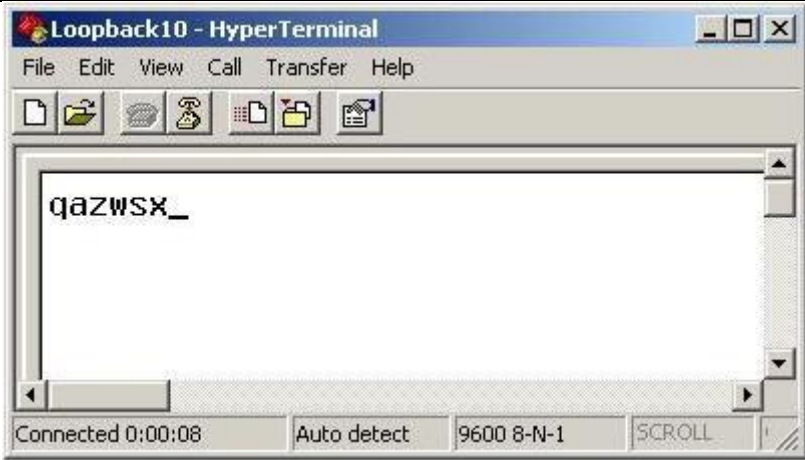
| # | Item | Test | Status | Notes |
|----|---------------------|--|--------|--|
| | | Type: rtyuio | | |
| 8. | | | | |
| 9. | Loopback test COM9 | Connect NI-Serial 232 Loopback test to COM9. Open the HyperTerminal application, and select COM9. Type: dfg hjkl | PASS | Verify that in the HyperTerminal appears "dfghjkl" |
| 10 | | | | |
| 11 | Loopback test COM10 | Connect NI-Serial 232 Loopback test to COM10. Open the HyperTerminal application, and select COM10. Type: qazwsx | PASS | Verify that in the HyperTerminal appears "qazwsx" |

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| # | Item | Test | Status | Notes |
|----|--|------|--------|-------|
| 12 |  | | | |

Checked by: Dan Gilboa dan@gilboa-ltd.com

Date: 07 April 2013

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Appendix - Card Picture



Appendix – NI DB-9 and RJ50 (10P10C) RS232 Loopback adapter

The DE-9 connector is the most common serial connector. This connector is found on National Instrument's one and two port serial interfaces.

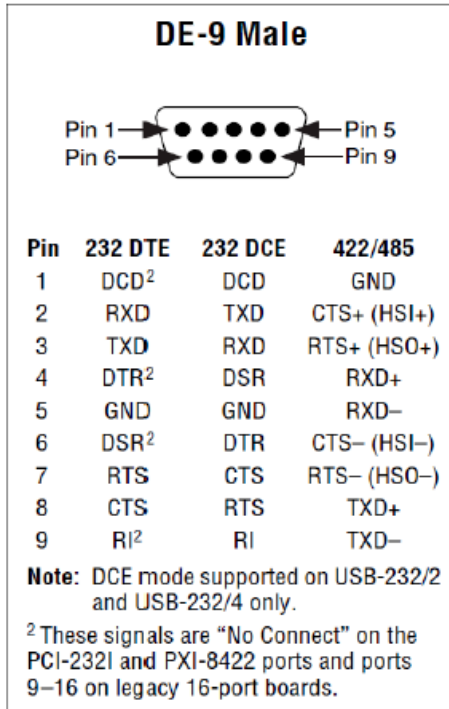


Figure 1: Pinout diagram for DE-9 Connector

To perform a loopback test with no hardware flow control, you will need to connect pins 2 and 3 for RS-232 and pins 4 to 8 and 5 to 9 for RS-422/485. These connections can be seen in red below (figure 2 for RS-232)

When using hardware flow control, you will need to connect pins 4 to 6 and 7 to 8 for RS-232. Pins 7 and 8 are used for RTS/CTS hardware flow control where pins 4 and 6 are used for DTR/DSR hardware flow control.

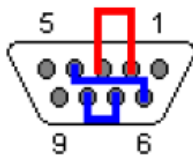


Figure 2: RS-232 female DE-9 plug with connections required for loopback test

10P10C (RJ50) Connector

This connector is most commonly found on National Instrument's 4 port serial interfaces. The National Instrument 4 port serial interfaces come with 4 10P10C to DE-9 male converter cables.

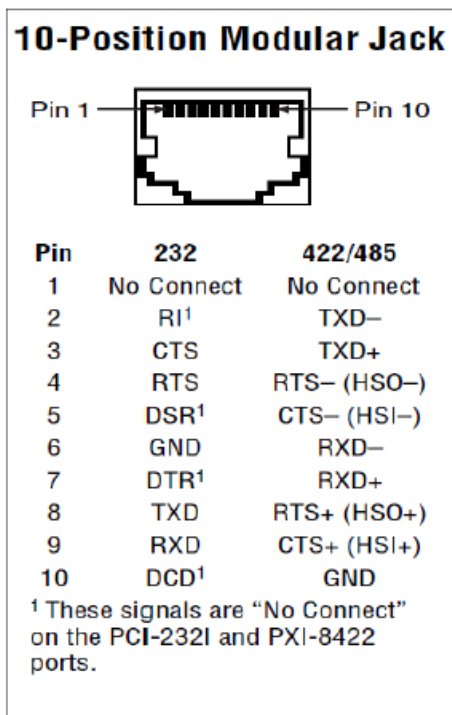


Figure 3: Pinout diagram for RJ50 Connector

To perform a loopback test with no hardware flow control, you will need to connect pins 9 and 8 for RS-232 and pins 7 to 3 and 6 to 2 for RS-422/485.

When using hardware flow control, you will need to connect pins 7 to 5 and 4 to 3 for RS-232. Pins 4 and 3 are used for RTS/CTS hardware flow control where pins 7 and 5 are used for DTR/DSR hardware flow control.