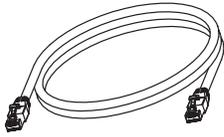
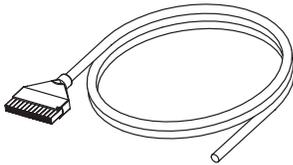


**Patch Cord**  
 (Reference PN 1435834-[ ])

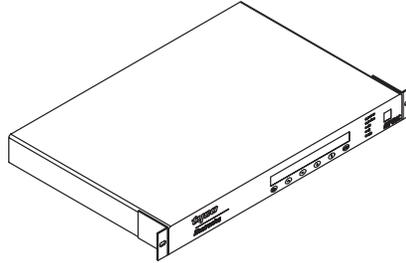


**Input/Output (I/O) Cable**  
 (Reference PN 1435488-[ ])



**Master, Link, and Stand-Alone Analyzers**

**1U Analyzer**  
 (Reference PN 1435370-[ ])



**6U Analyzer**  
 (Reference PN 1435371-[ ])

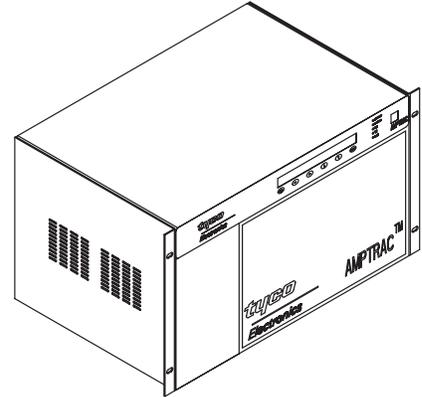


Figure 1

## 1. INTRODUCTION

This instruction sheet covers basic installation, connection, and testing procedures for AMP NETCONNECT AMPTRAC cable management system. The system monitors the network using enabled AMP NETCONNECT patch panels, a sensor pen, patch cords, I/O cables, link cables, and 1U and 6U analyzers (master, link, and stand-alone). Refer to Figure 1.

### NOTE

*Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.*

## 2. DESCRIPTION

For description of equipment and component features, design guidelines, how the system works, detailed software and hardware configurations, troubleshooting, and safety information, refer to the *AMPTRAC Hardware Manual* located on the AMP NETCONNECT website at [www.ampnetconnect.com](http://www.ampnetconnect.com).

## 3. HARDWARE INSTALLATION

### 3.1. Mount the Analyzer(s) to the Rack

Each analyzer is designed to be mounted onto a standard 483 mm [19 in.] Electronic Industries Alliance (EIA) rack or equipment cabinet.

### A. Environment Requirements

- To ensure long-term reliable operation of the analyzer(s), it is essential that the operating

(ambient air) temperature around the analyzer(s) is no higher than 30°C [86°F].

### CAUTION

*Improper placement of an analyzer, such as next to active equipment, and improper air flow management around the analyzer may cause the ambient air temperature near the analyzer to exceed the maximum limit. Analyzers exposed to a higher ambient air temperature than recommended may fail prematurely.*

- Airflow through the cabinet must be clean and direct with minimal obstruction.
- Cooled air must be provided to the base of the cabinet.
- A fan tray must be fitted at the top of the cabinet, and the side panels of the cabinet must be positioned to achieve an effective convection flow of air to the top fans.

### B. Spacing Requirements

- There must be a minimum of 75 mm [3 in.] between the front panel of the cabinet and the analyzer.
- Analyzers must NEVER be mounted directly above or below each other.
- ALWAYS maintain a minimum distance of 1U rack space between the analyzer and active equipment. ALWAYS maintain a minimum distance of 1U rack space between 1U analyzers and 2U rack space between 6U analyzers.

- ALWAYS maintain a minimum distance of 4U rack space between the analyzer and group of switches or large equipment chassis containing multiple switch modules dissipating 100 W or more.
- DO NOT mount the analyzer(s) in the same cabinet as a group of switches or equipment dissipating 100 W or more.

### C. Recommendations

- Mount the analyzer(s) starting at the bottom of the rack.
- Mount the analyzer(s) on a rack containing passive patch panels.
- Avoid mounting the analyzer(s) on an overly congested rack of active equipment.
- Mount the analyzer(s) below active equipment.
- If an analyzer must be mounted on a rack above equipment dissipating 100 W or more, install a heat deflector or rack-mount fan directly under the analyzer.

### 3.2. Install the I/O Expansion Cards

**NOTE**

A 6U analyzers must not contain more than six I/O expansion cards. DO NOT install an I/O expansion card in Positions 00 and 02 (labeled on analyzer).

### 3.3. Plug In All Analyzers

It is essential that the 3-prong power cord (included with the analyzer(s) be used and that under no circumstance should the ground pin be disconnected or removed from the power cord. If a power adapter is being used, the continuity of the ground pin must be maintained.

**CAUTION**

The presence of a ground for every analyzer MUST be verified BEFORE performing any installation or troubleshooting procedure.

### 3.4. Connect and Power ON the Analyzers

1. Connect the link cable(s) from the link cable port of the link analyzer(s) (maximum of nine) to the link cable port(s) of the master analyzer in sequential order starting with Port 1. Refer to Figure 2.

**NOTE**

Link Cables 1435338-[ ] are available separately with a maximum length of 15.24 m [50 ft].

2. Power ON the stand-alone analyzer. Power ON the link analyzer(s), then power ON the master analyzer.

### Connecting Analyzers

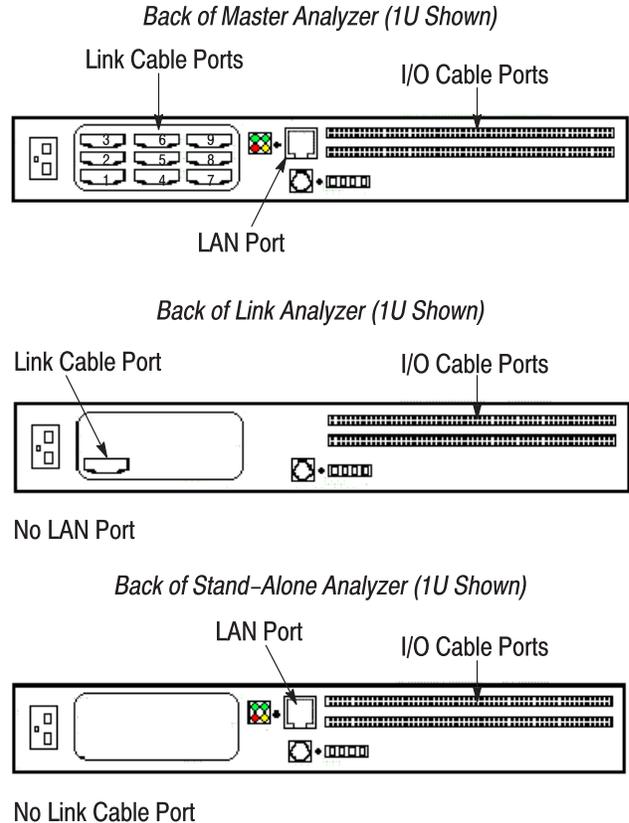


Figure 2

### 3.5. Run Initial Power Up Test

1. For the master analyzer and stand-alone analyzer, examine the light emitting diodes (LEDs) for the following (refer to Figure 3).

On the front:

- power LED is ON
- LAN LED is ON (if IP address is not configured)

On the back:

- green and red LEDs (at the left) toggle and flicker
- green LED (at the top, right) permanently lights after the IP address is configured

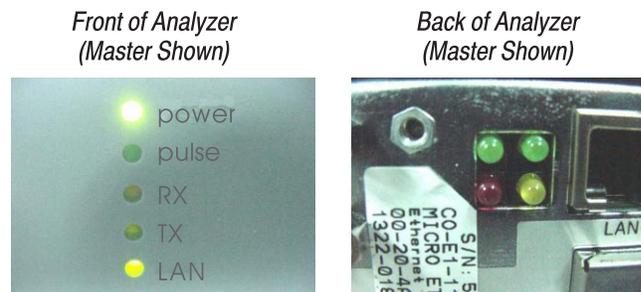


Figure 3

2. For the link analyzer, examine the LEDs on the front for the following:
  - power LED is ON
  - LCD displays the same message as the LCD of the master analyzer
3. DO NOT proceed to the next step until this test is successful.

### 3.6. Run the Port Loop-Back Test

The Port Loop-Back Test checks the functionality of the I/O expansion cards and tests for shorts between ports of all analyzers.

1. Make sure that all factory-installed loop-back connectors are connected to their respective ports on the I/O expansion card under test.
2. Power cycle the analyzer, then press the INFO button.
3. When the Debug Menu becomes available, the LCD will display: “Press Up/Down for Menu, Enter to Select.” Press ENTER to select “**Selection #2.**”
4. Press the LEFT or RIGHT arrow button to select the chassis (analyzer) that contains the I/O expansion card, then press ENTER. Press the UP or DOWN arrow button to select the I/O expansion card or press the RIGHT arrow button until “Scan All” displays. Press ENTER.
  - if testing individual I/O expansion cards, after “Card Pass” is displayed, select the next I/O expansion card, and repeat Step 4
  - if failure occurs, disconnect the loop-back connectors, then re-connect them ensuring that they are fully seated
5. Press the LEFT arrow button to “quit” the test.
6. DO NOT proceed to the next step until this test is successful.

### 3.7. Install a Sensor Strip onto the Patch Panels or LAN Electronics

1. Install a retro-fit sensor strip onto all AMP NETCONNECT SL series and 110Connect patch panels without a sensor strip, according to “Installing Sensor Strip Patch Panel Retrofit Kits” of the *AMPTRAC Hardware Manual*.
2. Install a printed circuit (pc) board sensor strip onto all other patch panels or LAN electronics as follows (refer to Figure 4):

**NOTE**

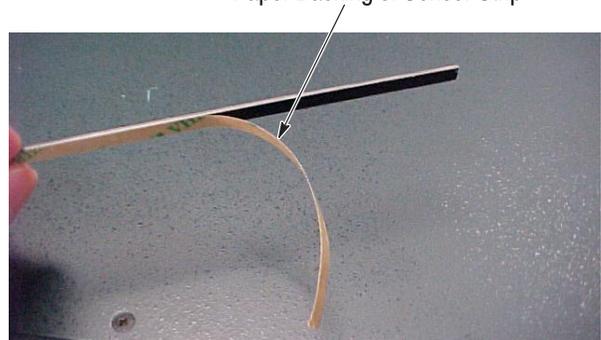
For instruction on installing a flex-style sensor strip, refer to the *AMPTRAC Hardware Manual*.

- a. Using an alcohol wipe, thoroughly clean the surface of the area for placement of the sensor strip.

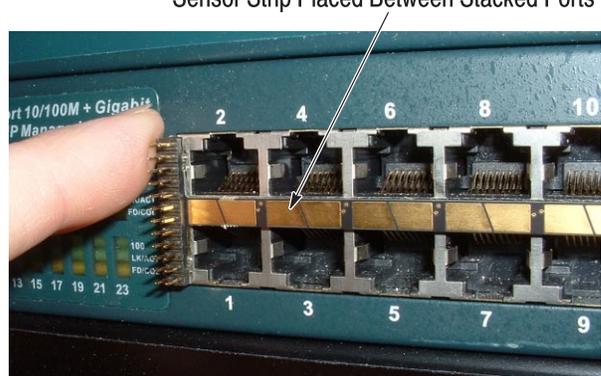
**Detail A**



**Detail B**



**Detail C**



**Detail D**

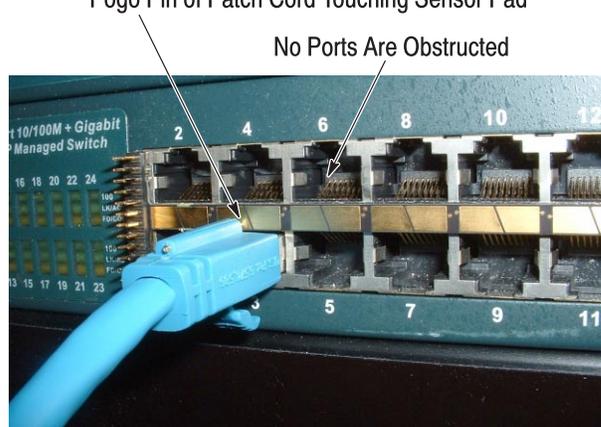


Figure 4

**NOTE**

The sensor strip should be placed above or below the ports, depending upon the orientation of the ports; and for stacked ports, the sensor strip should be placed between the ports.

To ensure proper placement of the sensor strip, keep in mind that, when a patch cord is connected to the patch panel, the entire pogo pin (located opposite of the connector latch) must touch the sensor pad.

- b. Remove the paper backing from the sensor strip.
- c. Attach the sensor strip to the appropriate area. DO NOT press into place at this time.
- d. Connect a patch cord to a port, and verify the following:
  - the entire pogo pin of the patch cord touches the sensor pad
  - no ports are obstructed by the sensor strip

If these conditions are met, disconnect the patch cord, and firmly press the sensor strip into position.
- e. Using an alcohol wipe, thoroughly clean the sensor strip.

**NOTE**

It is recommended to allow the adhesive of the sensor strip to bond for several hours before connecting the I/O cables.

**3.8. Connect the I/O Cables to the Analyzer**

**NOTE**

Analyzers and I/O expansion cards should be checked for proper operation using the Initial Power Up Test (Paragraph 3.5) and Port Loop-Back Test (Paragraph 3.6) BEFORE connecting any I/O cables.

- 1. Disconnect the factory-installed loop-back connectors from all I/O ports of the analyzer.
- 2. Connect all I/O cables to the the analyzer(s) (if using the optional single-pad sensor strip for monitoring the LAN port of the stand-alone or master analyzer, the single pad will connect to Pins 0 and 1).

**NOTE**

It is recommended that all I/O cables have the same orientation when connected. Because the I/O connectors do not have a polarization feature, use the embossed triangle (Pin 1 identifier) on the I/O connector for orientation. See Figure 5.

- 3. Support the I/O cables exiting the analyzer using a horizontal support bar.
- 4. Check the I/O cable for the following:
  - the minimum bend radius must be four times the diameter of the cable

Embossed Triangle (Pin 1 Identifier)



Figure 5

— the first bend of the cable must not occur within 76.2 mm [3 in.] of the port

**3.9. Connect the I/O Cables to the Patch Panels and LAN Electronics**

- 1. Connect the I/O cables to the sensor strip(s) of the patch panels and the LAN electronics.
- 2. Support the I/O cable for the pc board sensor strip either directly above or below the connection. DO NOT route the cable to the side for direct placement into the vertical cable management, instead support the cable in the horizontal cable management, then route it to the side for placement into the vertical cable management.

**NOTE**

The I/O cable for the pc board sensor strip should be supported to prevent stress on the pins of the sensor strip.

**NOTE**

Refer to the instructions included with the AMP NETCONNECT patch panel for the termination procedure for discrete wire.

**3.10. Run the Port Diagnostic Test**

The Port Diagnostic Test checks the I/O expansion cards for shorts in the I/O cable and sensor strip of the patch panel.

**CAUTION**

Patch cords MUST NOT be connected when running this test; otherwise, the test will fail.

- 1. Press the INFO button under the LCD.
- 2. When the Debug Menu becomes available, the LCD will display: "Press Up/Down for Menu, Enter to Select." Press ENTER to select "**Selection #1.**"
- 3. Press the LEFT or RIGHT arrow button to select the chassis (analyzer) that contains the I/O expansion card, then press ENTER. Press the UP or DOWN arrow button to select the I/O expansion card or press the RIGHT arrow button until "Scan All" displays. Press ENTER.
- 4. Press the LEFT arrow button to "quit" the test.

5. DO NOT proceed to the next step until this test is successful.

### 3.11. Run the System Pen Test

The System Pen Test checks continuity from each sensor pad back to the analyzer.

1. Press the INFO button under the LCD.
2. When the Debug Menu becomes available, the LCD will display: "Press Up/Down for Menu, Enter to Select." Press ENTER to select "**Selection #4.**"
3. While holding down the button on the sensor pen, touch the sensor pen to the sensor pad for each port, and verify the following:
  - the green light on the pen lights (indicates that there is continuity back to the analyzer)
  - the port identity for the analyzer will display: "Pen:Chassis:Card:Port"
  - the port identity displayed on the LCD is in the proper sequence
4. Press the UP arrow button to "quit" the test.
5. DO NOT proceed to the next step until this test is successful.

### 3.12. Connect the Patch Cords

- ONLY use AMPTRAC patch cords between enabled ports.
- the minimum bend radius of the patch cord must be four times the diameter of the cable
- the first bend of the patch cord must not occur within 50.8 mm [2 in.] of the port (see Figure 6)

**Checking Cable Bend Radius of Patch Cord**

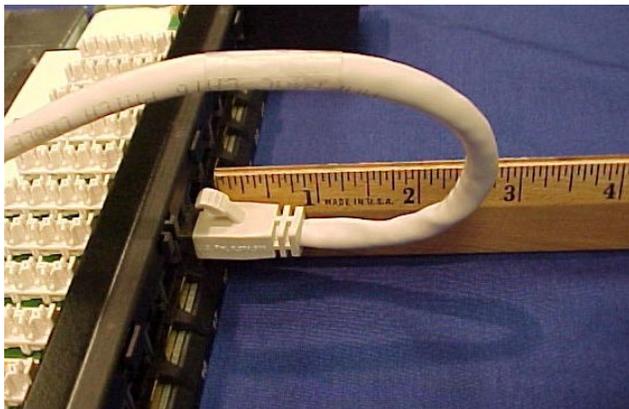


Figure 6

### 3.13. Run the Field Test

The Field Test checks the internal functionality of the I/O expansion cards. This test can be performed with or without installed patch cords.

1. Press the INFO button under the LCD.
2. When the Debug Menu becomes available, the LCD will display: "Press Up/Down for Menu, Enter to Select." Press ENTER to select "**Selection #3.**"
3. Press the LEFT or RIGHT arrow button to select the chassis (analyzer) that contains the I/O expansion card, then press ENTER. Press the UP or DOWN arrow button to select the I/O expansion card or press the RIGHT arrow button until "Scan All" displays. Press ENTER.

**NOTE**

*If a patch cord is connected between an enabled port with a sensor pad and a grounded (metal) enabled device without a sensor pad, the port will short to ground and cause a port error. A port error may be an indication of a grounding problem. If this occurs, replace the AMPTRAC patch cord with a standard patch cord or isolate the pin from the ground panel using a non-conductive material.*

4. Press the LEFT arrow button to "quit" the test.

## 4. FIRMWARE INSTALLATION

### 4.1. Install the Firmware UpClient Software

1. If an agent is connected to the analyzer to be upgraded, disconnect the agent.
2. Verify that the analyzer is connected to the system and that it is powered on.
3. Using the LCD, put the analyzer in the upgrade firmware mode.
4. Locate the UpClient.exe application on the installation software.
5. Copy the UpClient2.008 folder to the computer (C:\UpClient2.008).
6. Open the command window (Start/Run/comd).
7. Navigate to the UpClient directory (cd UpClient).
8. Type: UpClient, and type the IP address and analyzer serial number using the following format. For example:  
 UpClient(space)192.16.5.4.(space)A04001234000
9. Press ENTER.

**NOTE**

*The upgrade takes one or two minutes. When the upgrade is complete, the LCD will display: "Upgrade Succeeded!"*

10. Locate the Logs.txt file in the UpClient directory.

11. Electronically mail (email) the Logs.txt file to **support@itracs.com**. iTRACS Support will authenticate the analyzer according to the information in the file, then send an authentication notice by email.
12. *After* the upgrade is performed, copy the Logs.txt file to a disk, then remove the file from the UpClient folder.

#### 4.2. Create the Firmware File

A unique Firmware file must be created for each analyzer before it can communicate with the iTRACS software.

- a Firmware folder is created when the Firmware UpClient software is installed

Proceed as follows:

**NOTE** *Information for each analyzer must be documented on the iTRACS Firmware Download Site BEFORE downloading any firmware file.*

1. Go to: **http://firmware.itracs.com**.
2. Click on: iTRACS (latest revision) Firmware Download Site
3. Enter the requested information.

#### A. Download the Firmware File

**NOTE** *ALL Firmware files must be downloaded BEFORE any license files can be downloaded.*

1. Right click on: Firmware.dat (the firmware link that was generated).
2. Select: Save Target As.
3. Click on: Save In (drop-down window).
4. Type: C:\Program Files\iTRACS Corp\iTRACS 7\Firmware
- the Firmware file(s) for each analyzer must be installed in the Firmware folder within the iTRACS Corp\iTRACS 7 folder
5. Click on: Save As Type.  
Select: All Files.
6. Click on: Save.
7. Click on: Close.
8. To download another Firmware file for another analyzer, click on: Stage 1.
9. After all Firmware files are downloaded, click on: Stage 3.
- always keep a copy of the Firmware files in a folder outside of the iTRACS Corp folder

#### B. Download the License File

**NOTE** *The License file MUST be downloaded after ALL Firmware files have been downloaded.*

1. Right click on: License.dat (the license file that was generated).
2. Select: Save Target As.
3. Click on: Save In (drop-down window).
4. Type: C:\Program Files\iTRACS Corp\iTRACS 7\Firmware
5. Click on: Save.
6. Click on: Close (to close the Download Complete window).
7. Click on: X (to close the Firmware Download site).
8. Save the License folder under the Firmware folder.
- the License folder must be saved *before* the Firmware can be installed onto the analyzer

#### 4.3. Load the Firmware onto the Analyzer(s)

The unique Firmware file created for each analyzer must be loaded onto the analyzer. Proceed as follows:

1. Activate the iTRACS database on the server computer.
2. Power ON all analyzers requiring Firmware.
3. From the Main Menu, select: File, Configure, Agents.
4. Select the agent that contains the analyzer(s) requiring Firmware.
5. Click on: Configure.
6. From the Configure Analyzer Agent window, click on: Add.
7. Type the IP address and analyzer description. Select the type of link class, and click: Close.
8. From the Configure Analyzer Agent window, highlight the analyzer service, and click: Reset.
9. After the program confirms the reset, click: OK. Click: Yes (the Firmware will automatically update any new analyzer).

#### 5. ORDERING INFORMATION

Order items through your representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (038-035)  
 TYCO ELECTRONICS CORPORATION  
 PO BOX 3608  
 HARRISBURG PA 17105-3608

#### 6. REVISION SUMMARY

Per EC 0990-0498-05:

- Initial release of instruction sheet