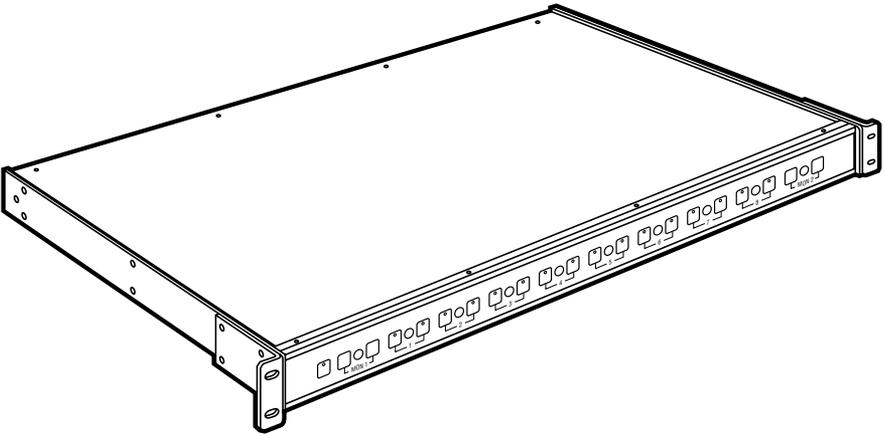




Monitor Access Unit



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**FEDERAL COMMUNICATIONS COMMISSION
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RADIO FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

NORMAS OFICIALES MEXICANAS (NOM) ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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CONTENTS

Chapter	Page
1. Specifications	8
2. Overview	11
2.1 Introduction	11
2.2 Front Panel	12
2.3 Rear Panel	13
2.4 Applications	14
3. Components	17
4. Installation	19
4.1 Checklist	19
4.2 Installing the Hardware	21
4.3 Installing the Software	29
5. Manual Operation	30
5.1 Connecting Test Devices	30
5.2 Disconnecting Test Devices	31
Appendix A: HDX250.DEF	32

1. Specifications

Table 1-1. Network Interfaces.

Model	Connectors	Networks	Switched Leads
TS760A	(8) RJ-45	Ethernet 10BASE-T and 100BASE-T, STP and UTP Token Ring.	All 8 leads.
TS761A	(16) RJ-45	Ethernet 10BASE-T and 100BASE-T, STP and UTP Token Ring.	All 8 leads.
TS765A	(8) DB15	RS-232, RS-422/RS-423 (RS-449), RS-530, V.10/V.11, V.35, and Ethernet AUI.	All 15 leads.
TS766A	(16) DB15	RS-232, RS-422/RS-423 (RS-449), RS-530, V.10/V.11, V.35, and Ethernet AUI.	All 15 leads.

Switches — Button for each monitor port, button for each network port, CONFIG1 DIP switches, CONFIG2 DIP switches

LEDs — ON, MON1 for each network port, MON2 for each network port

Connectors — TS760A: (8) RJ-45, TS761A: (16) RJ-45, TS765A: (8) DB15, TS766A: (16) DB15

Relays — Type: Sealed, latching; Contact material: Gold-clad silver, Initial contact resistance: 50 milliohms; Expected life: 10,000,000 operations

Network Control — ASCII character strings and VT100 terminal menus: Asynchronous; RS-232; 2400, 4800, 9600, or 19200 baud; No parity, 8 data bits, 1 stop bit, full duplex

Network General's Sniffer Server — Asynchronous; RS-232; 2400 baud; No parity, 8 data bits, 1 stop bit, full duplex

Table 1-2. COMM IN Pins (RJ-11).

Pin	Description	Dir.
1	Not Used	—
2	Master/Slave	In
3	Signal Ground	—
4	Receive Data	Out
5	Transmit Data	In
6	Not Used	—

Table 1-3. COMM OUT Pins (RJ-11).

Pin	Description	Dir.
1	Not Used	—
2	Master/Slave	Out
3	Signal Ground	—
4	Receive Data	In
5	Transmit Data	Out
6	Not Used	—

MONITOR ACCESS UNIT

System Capacity — ASCII character strings and VT100 terminal menus: 64 daisy-chained units, with eight networks per unit; Network General's Sniffer Server: One unit, with eight or 16 networks

Operating Temperature — 32 to 104 °F (0 to 40 °C)

Operating Humidity — 0 to 95%, noncondensing

Power — 100-250 VAC, 56/60/440 Hz and 120-300 VDC 1A, automatically selected

Power Socket — IEC

Size — TS760A, TS765A: 1.75"H x 19"W x 11.4"D (4.5 x 48.3 x 28.9 cm);
TS761A, TS766A: 3.5"H x 19"W x 11.4"D (8.9 x 48.3 x 28.9 cm)

2. Overview

This manual tells you how to install and use the Monitor Access Unit with Network General Corporation's Distributed Sniffer Server System. If you are using a server system other than the Sniffer, call technical support for information on configuring and installing the Monitor Access Unit for use with your system.

This chapter introduces you to the Monitor Access Unit, describes the front and rear panels, and describes some applications of the Monitor Access Unit with Network General's Sniffer Server®.

2.1 Introduction

The Monitor Access Unit allows you to easily and quickly connect test equipment to networks. Each Monitor Access Unit provides one test device with access to 8 or 16 networks. Four models are available:

- Monitor Access Unit with 8 RJ-45 connectors (part number TS760A)
- Monitor Access Unit with 16 RJ-45 connectors (part number TS761A)
- Monitor Access Unit with 8 DB15 connectors (part number TS765A)
- Monitor Access Unit with 16 DB15 connectors (part number TS766A)

The Monitor Access Unit is designed to interface with Local Area Networks (LANs). It supports many types of networks, including the following:

- Ethernet: 10BASE-T, 100BASE-T, and AUI
- Token Ring: STP and UTP

This manual describes system operation with Network General Corporation's Distributed Sniffer Server System. For operation with other types of control, such as the VT100 menu interface and ASCII control strings, call for technical support.

This manual describes two model sizes: an 8 network port unit and a 16 network port unit. Both contain exactly the same functions. However, the 16 network port unit can connect to twice as many networks as the 8 network port unit.

MONITOR ACCESS UNIT

For connecting test devices to networks, the Monitor Access Unit uses sealed latching relays. The use of relays ensures that the units are protocol and speed transparent. For added reliability, the relays have gold-clad silver contacts. In the event of power failure, the latching relays remain in the last switched position.

This unit has been approved by Network General Corporation.

2.2 Front Panel

Figure 2-1 shows the front panel, which includes the following:

- A power ON LED. The power ON LED lights when there is power supplied to the unit.
- Monitor switches. The monitor switches (MON1 and MON2) allow you to connect or disconnect test equipment to or from networks. For operation with Network General's Sniffer Server, the monitor switches are disabled.
- Network switches. The network switches allow you to connect test equipment to networks. For operation with Network General's Sniffer Server, the network switches are disabled. LEDs indicate connections.

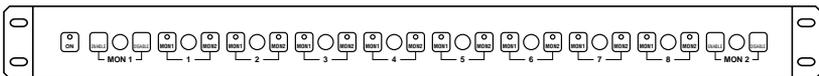


Figure 2-1. Front Panel.

NOTE

For use with Network General's Sniffer Server, the manual switches are disabled.

2.3 Rear Panel

Figure 2-2 shows various rear panels, all of which include the following:

- Monitor ports: MON1 IN, MON2 IN, MON1 OUT, and MON2 OUT.

The monitor ports allow you to connect test equipment to the unit.

- Network ports: 1 to 8 or 1 to 16.

The network ports allow you to connect networks to the unit.

- DIP switches.

For the 8-network port units, there are two blocks of DIP switches: CONFIG1 and CONFIG2. For the 16-network port units, there are four blocks of DIP switches: CONFIG1, CONFIG2, CONFIG3, and CONFIG4. These DIP switches allow you to configure the unit.

- COMM ports: COMM IN and COMM OUT. These ports allow you to connect a controlling device (the Distributed Sniffer Server) to the units.
- A chassis ground stud.
- A power socket.

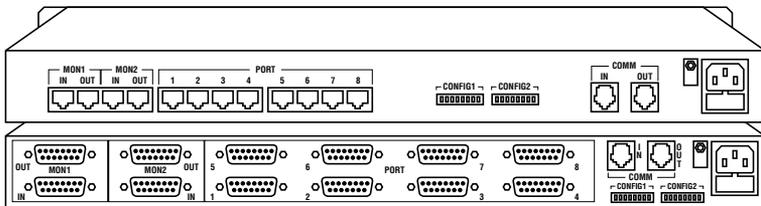


Figure 2-2. Rear view of the 8-network units, showing the different types of connectors (top to bottom): RJ-45 (Model TS760A) and DB15 (Model TS765A).

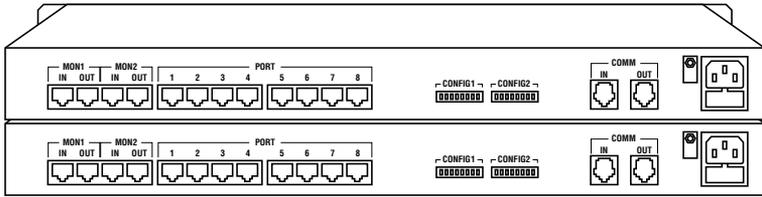


Figure 2-3. Rear view of the 16-network unit with RJ-45 connectors (Model TS761A).

2.4 Applications

1:8 Configuration (LAN)

In Figure 2-4, a Monitor Access Unit connects one Sniffer Server to any of eight networks. The Sniffer Server controls the Monitor Access Unit, connecting itself to the networks, and performs the testing operations.

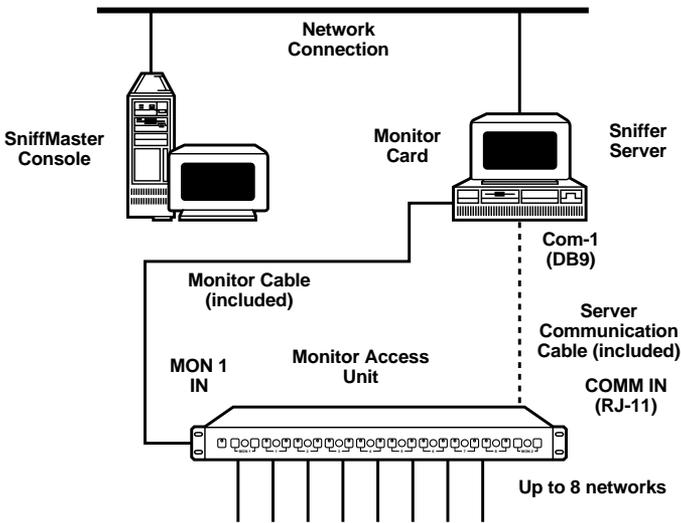


Figure 2-4. Sample Application, 1:8 Configuration.

You can use either of the following Monitor Access Units in this application:

Table 2-1. 1:8 Configuration for the Monitor Access Units.

Model Number	Type of network that you can connect...
TS760A	Any network that uses RJ-45 connectors: Ethernet 10BASE-T, Ethernet 100BASE-T, STP Token Ring, UTP Token Ring, etc.
TS765A	Any network that uses DB15 connectors: RS-232, RS-422, RS-423, RS-449, RS-530, V.10-V.11, V.35, Ethernet AUI, etc.

MONITOR ACCESS UNIT

1:16 Configuration (LAN)

In **Figure 2-5**, a Monitor Access Unit connects one Sniffer Server to any of 16 networks. The Sniffer Server controls the Monitor Access Unit, connecting itself to the networks, and performs the testing operations.

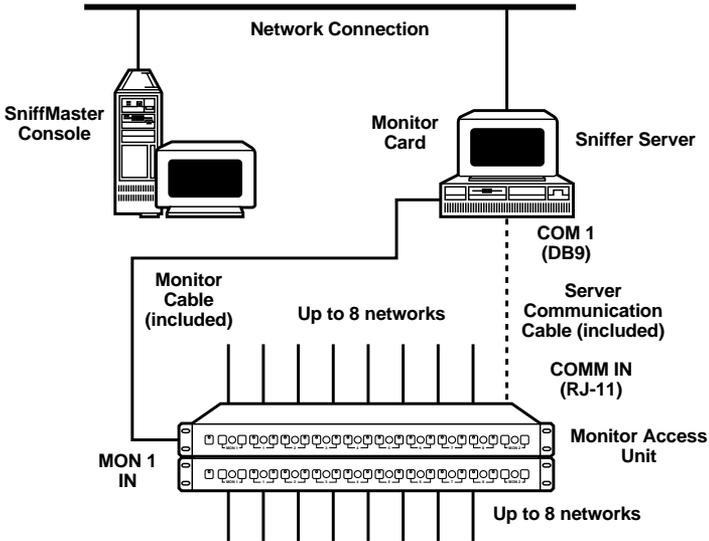


Figure 2-5. Sample Application, 1:16 Configuration.

You can use either of the following Monitor Access Units in this application:

Table 2-2. 1:16 Configuration for the Monitor Access Units.

Model Number	Type of network that you can connect...
TS761A	Any network that uses RJ-45 connectors: Ethernet 10BASE-T, Ethernet 100BASE-T, STP Token Ring, UTP Token Ring, etc.
TS766A	Any network that uses DB15 connectors: RS-232, RS-422, RS-423, RS-449, RS-530, V.10-11, V.35, Ethernet AUI, etc.

3. Components

This chapter lists the Monitor Access Unit components that are used when operating with Network General's Sniffer Server.

Table 3-1. Monitor Access Units.

Model	Connectors	Networks	Switched Leads
TS760A	(8) RJ-45	Ethernet 10BASE-T and 100BASE-T, STP and UTP Token Ring.	All 8 leads.
TS761A	(16) RJ-45	Ethernet 10BASE-T and 100BASE-T, STP and UTP Token Ring.	All 8 leads.
TS765A	(8) DB15	RS-232, RS-422/RS-423 (RS-449), RS-530, V.10/V.11, V.35, and Ethernet AUI.	All 15 leads.
TS766A	(16) DB15	RS-232, RS-422/RS-423 (RS-449), RS-530, V.10/V.11, V.35, and Ethernet AUI.	All 15 leads.

Table 3-2. Control Cable.

Model	Description
Included	Server Communication Cable, DB9/RJ-11, Server

Table 3-3. Monitor Cable.

Model	Description
Included	Monitor Cable

4. Installation

This chapter describes how to install the Monitor Access Unit for use in a system with Network General's Sniffer Server.

4.1 Checklist

The following items are included with your order. If any items are missing or damaged, please contact your sales representative.

TS760A and TS761A include:

- ❶ This user manual
- ❷ Server communication cable
- ❸ (2) Monitor cables
- ❹ Power cable
- ❺ Software

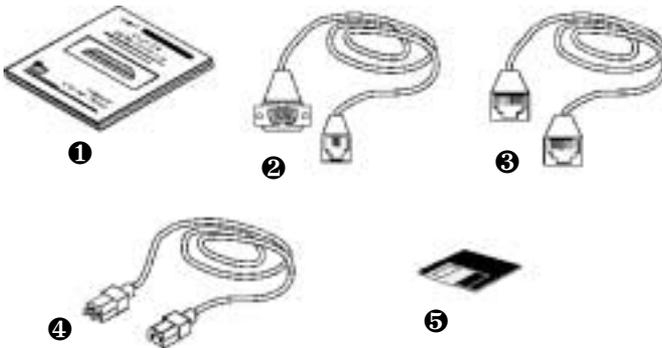


Figure 4-1. TS760A and TS761A Package Contents.

MONITOR ACCESS UNIT

TS765A and TS766A include:

- ❶ This user manual
- ❷ Server communication cable
- ❸ (2) Monitor cables
- ❹ Power cable
- ❺ Software

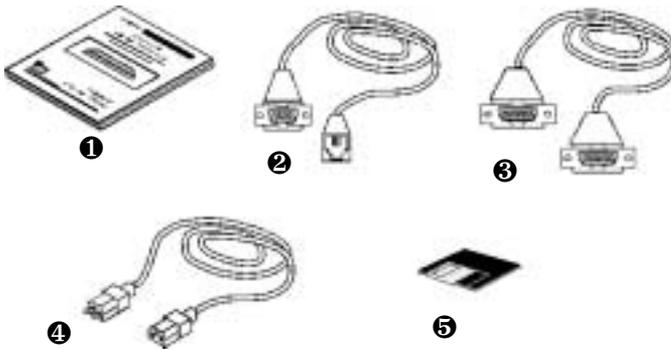


Figure 4-2. TS765A and TS766A Package Contents.

4.2 Installing the Hardware

To install the hardware, follow these steps:

1. Set the Unit Address DIP switches.

NOTE

If you change DIP switch settings, you must re-power the unit for the changes to take effect.

Set the unit address DIP switches for the type of configuration that you are installing.

If you are installing a 16-network unit, you must set the Unit Address DIP switches on both the top part of the unit and the bottom part of the unit.

Switches 1 through 6 of the CONFIG2 DIP switches set the unit address. These switches are on the rear of the unit. **Tables 4-1** and **4-2** give the DIP switch settings for each type of configuration. **Figure 4-3** tells you how to set an individual DIP switch.

Table 4-1. Switch Settings, Unit Address for 1:8 Configuration.

Unit	Config2 Switches							
	1	2	3	4	5	6	7	8
—	OFF	OFF	OFF	OFF	OFF	OFF	—	—

Table 4-2. Switch Settings, Unit Address for 1:16 Configuration.

Unit	Config2 Switches							
	1	2	3	4	5	6	7	8
TOP	OFF	OFF	OFF	OFF	OFF	OFF	—	—
BOTTOM	ON	OFF	OFF	OFF	OFF	OFF	—	—

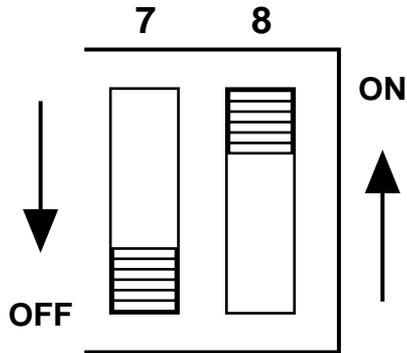


Figure 4-3. Setting an Individual DIP Switch.

To switch to the ON position, move the DIP switch toward the number labels on the unit. To switch to the OFF position, move the DIP switch away from the number labels.

2. Set the baud rate.

NOTE

If you change the DIP switch settings, you must re-power the unit for the changes to take effect.

The baud rate must be set to 2400. Switches 7 and 8 of CONFIG2 (and CONFIG 4) set the baud rate. These switches are on the rear of the unit. **Tables 4-3** gives the DIP switch settings. **Figure 4-3** shows you how to set an individual DIP switch.

Table 4-3. Baud Rate Switch Settings.

Baud Rate	Config2 Switches							
	1	2	3	4	5	6	7	8
2400	—	—	—	—	—	—	OFF	OFF

3. Set the monitor port identifiers.

NOTE

If you change the DIP switch settings, you must re-power the unit for the changes to take effect.

You must assign an identifier to each monitor port. Switches 1 through 6 of CONFIG1 set the monitor port identifiers. These switches are on the rear of the unit. **Table 4-4** gives the DIP-switch settings. **Figure 4-3** shows you how to set an individual DIP switch.

Table 4-4. Port Identifier Switch Settings.

Port IDs	Config1 Switches							
	1	2	3	4	5	6	7	8
1	ON	OFF	OFF	ON	OFF	OFF	—	—

4. Disable the front-panel buttons.

NOTE

If you change the DIP switch settings, you must re-power the unit for the changes to take effect.

You must disable the front-panel buttons. To disable the buttons, set Switch 7 to ON. This switch is on the rear of the unit. **Table 4-5** gives the DIP switch settings. **Figure 4-3** tells you how to set an individual DIP switch.

Table 4-5. Buttons Switch Settings.

Buttons	Config1 Switches							
	1	2	3	4	5	6	7	8
Disable	—	—	—	—	—	—	ON	—

5. Set the unit for Sniffer control.

NOTE

If you change the DIP switch settings, you must re-power the unit for the changes to take effect.

To set the unit for operation with Network General Corporation's Expert Sniffer Network Analyzer, set Switch 8 of the CONFIG1 DIP switch to ON. This switch is on the rear of the unit. **Table 4-6** gives the DIP-switch setting. **Figure 4-3** tells you how to set an individual DIP switch.

Table 4-6. Control Switch Settings.

Control	Config1 Switches							
	1	2	3	4	5	6	7	8
Sniffer	—	—	—	—	—	—	—	ON

6. Connect the communication ports.

The communication ports are on the rear of the unit. **Table 4-7** provides the COMM IN port pin configuration. **Table 4-8** provides the COMM OUT port pin configuration. **Figure 4-4** shows the location of the pins in the RJ-11 connector.

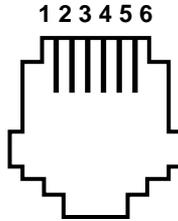


Figure 4-4. RJ-11 Connector.

Table 4-7. COMM IN Pins (RJ-11).

Pin	Description	Dir.
1	Not Used	—
2	Master/Slave	IN
3	Signal Ground	—
4	Receive Data	OUT
5	Transmit Data	IN
6	Not Used	—

MONITOR ACCESS UNIT

Connect the COMM IN port to the Sniffer Server via the included Control Cable. **Table 4-9** describes the cable, indicating the pins that must be connected.

Table 4-8. COMM OUT Pins (RJ-11).

Pin	Description	Dir.
1	Not Used	—
2	Master/Slave	OUT
3	Signal Ground	—
4	Receive Data	IN
5	Transmit Data	OUT
6	Not Used	—

Table 4-9. Control Cable, Sniffer-to-Unit (included).

Sniffer COM 1 DB9 female	Unit COMM IN RJ-11
5 -----	-3
2 -----	-4
3 -----	-5

Table 4-10. Communication Cable, Unit-to-Unit (included).

Unit COMM OUT RJ-11	Unit COMM IN RJ-11
2 -----	-2
3 -----	-3
4 -----	-4
5 -----	-5

MONITOR ACCESS UNIT

7. Connect the test equipment lines.

Connect the test equipment lines to the monitor ports. The monitor ports are on the rear of the unit.

8. Connect networks.

Connect the networks to the network ports. The network ports are on the rear of the unit.

9. Connect the power supply. Plug the power cord into both the unit and an AC power source. The power socket is on the rear of the unit.

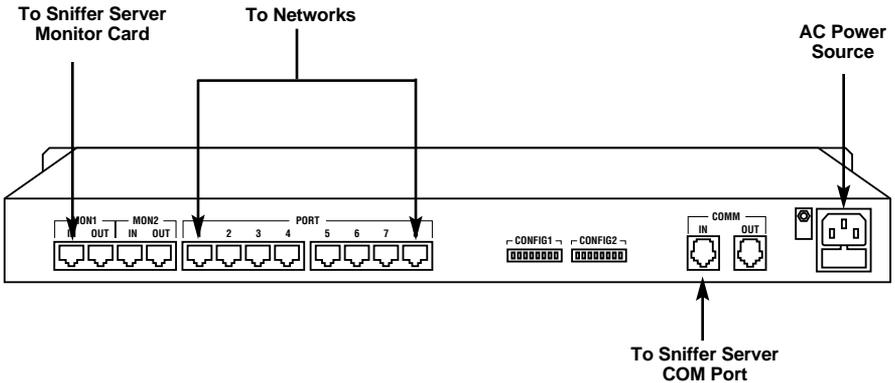


Figure 4-5. Rear of the Monitor Access Unit, Showing Connections to Ports.

4.3 Installing the Software

To install the software, follow these steps:

NOTE

For detailed information on the following, please see the Distributed Sniffer Server System documentation:

- How to transfer files to a Sniffer Server.
- How to configure switch and enable segments on a Sniffer Server.

1. Create the following directory on the Distributed Sniffer Server (DSS):

C:\CONFIG\SWITCH\HADAX

2. Copy the following files to the directory that you created in step 1:

- HDX250.EXE—The executable file that the Sniffer Server uses to control the Monitor Access Unit.
- HDS250.DEF—The definition file that describes the various Monitor Access Unit configurations and tells the Sniffer Server how to operate for each configuration (for more information, see **Appendix A**).
- PARENT.EXE—An executable file that allows advanced users to troubleshoot how the Monitor Access Unit and the executable file operate together.

5. Manual Operation

This chapter describes how to manually operate the Monitor Access Unit for testing purposes. In particular, it describes the operations that you can perform:

- Connecting a test device to a network.
- Disconnecting a test device from a network.

NOTE

Manual operation is disabled when the Monitor Access Unit is configured for use with Network General's Sniffer Server.

5.1 Connecting Test Devices

NOTE

If you are using the Monitor Access Switch with Network General's Sniffer Server, you cannot manually connect a test device to a network.

To connect a test device to a network, simultaneously press the monitor switch and the network switch. When you connect a test device to a network, the appropriate LED will light up.

For example, if you press the MON1 switch together with the 4 switch, the test device at MON1 is connected to the network at 4 and the appropriate LED lights up (see **Figure 5-1**).

NOTE

Before the unit connects the ports, it terminates any connections at the MON1 and 4 ports.

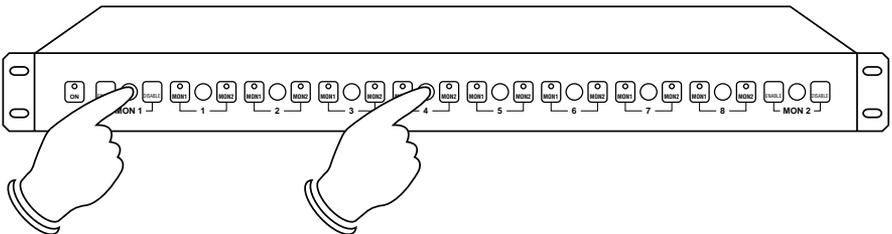


Figure 5-1. Connecting a Test Device to a Network.

5.2 Disconnecting Test Devices

NOTE

If you are using the Monitor Access Switch with Network General's Sniffer Server, you cannot manually disconnect a test device from a network.

To disconnect a test device from a network, press the appropriate monitor switch. The LED, indicating connection, will no longer light.

For example, if you want to disconnect the test device at MON1, press the monitor switch at MON1 (see **Figure 5-2**). The appropriate LED will no longer light.

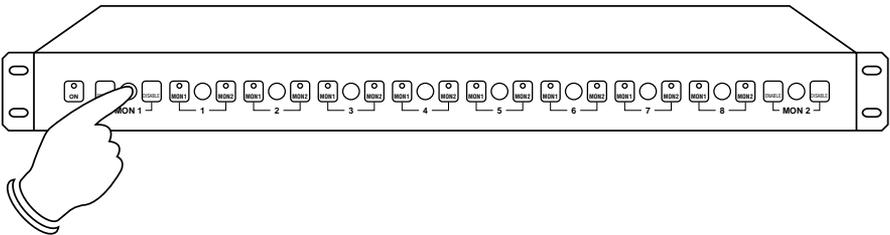


Figure 5-2. Disconnecting a Test Device from a Network.

Appendix A: HDX250.DEF

This appendix describes the DEF files necessary for the Monitor Access Unit to work with Network General's Sniffer Server. There is one such file:

CAUTION

Do not change the settings in this file. If you do, the Sniffer Server and the Monitor Access Unit will not operate correctly.

This file specifies the possible Monitor Access Unit configurations and defines the settings for those configurations. It follows the format that is specified by Network General for definition files that are compatible with the Distributed Sniffer Server System (DSS).

The file consists of 14 sections, one for each possible configuration. The sections are as follows:

- [Hadax Monitor Access Unit Ethernet 1x8]
- [Hadax Monitor Access Unit Token Ring 1x8]
- [Hadax Monitor Access Unit WAN 1x8]
- [Hadax Monitor Access Unit Token Ring 1x16]
- [Hadax Monitor Access Unit WAN 1x16]
- [Hadax Monitor Access Unit Ethernet 1x16]
- [Hadax Monitor Access Unit Token Ring 2x8]
- [Hadax Monitor Access Unit WAN 2x8]
- [Hadax Monitor Access Unit Ethernet 2x8]
- [Hadax Monitor Access Unit Token Ring 2x16]
- [Hadax Monitor Access Unit WAN 2x16]
- [Hadax Monitor Access Unit Ethernet 2x16]

Each of these section names appears on the Sniffer Server user interface. When an operator chooses one of the available configurations, the Sniffer Server uses the settings in that section.

Each section consists of the following four lines:

- **Network**, which specifies the type of networks and the number of networks that are connected to the Monitor Access Unit.
- **Offline**, which indicates whether or not operators can disconnect a Monitor port from a Network port.
- **Commons**, which specifies the number of Sniffer Servers that are connected to the Monitor Access Unit.
- **Exe**, which specifies the executable file to use when controlling the Monitor Access Unit.



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