



HS-NH8100

8 Port 10/100Mbps Fast Ethernet Switch

For Use with Concourse Home Wiring System

Installation & User Guide



WARNING: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer. Read the entire manual carefully

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1.0 INTRODUCTION

The HS-NH8100 8-port 10/100M Fast Ethernet Switch is designed for easy installation and high performance in a residential/home office network environment.

The HS-NH8100 is a perfect choice for a homeowner planning to upgrade to 100Mbps Fast Ethernet in the future. Homeowners can connect their current 10Mbps networkable devices now, and change NIC's (Network Interface Cards) and hubs anytime later without needing to change the HS-NH8100 or reconfigure the network.

The HS-NH8100 is expandable by cascading two or more together. As all ports support 100Mbps, the HS-NH8100 can be cascaded from any port and to any number of switches.

With its small, compact size, the HS-NH8100 can be installed where space is limited. Installation in a Concourse Home Wiring System cabinet requires optional mounting bracket, HS-HUB100-BRKT.

When used with Concourse module HS-DH800, an 8-channel data patch panel, installing the HS-NH8100 as part of your home network is as simple as running patch cords from one to the other.

1.1 Features

The HS-NH8100 is a managed 10/100 Fast Ethernet Switch that offers these key features:

- Uplink/MDI-II (media dependent interface) port for uplink to another switch, hub or repeater.
- Store and forward switching scheme capability. Complete frame checking and error frame filtering prevents transmission of error packages among segments.
- Auto-negotiation for any port. Auto sensing of speed (10/100Mbps) provides automatic and flexible solutions in network connections.
- Flow control for any port. Minimizes dropped packets by sending out collision signals when the receiving buffer of the port is full. Note: flow control is only available in half-duplex mode.
- 8K MAC address entries table per device.
- 256 KB RAM buffer per device.
- Network looped detecting.

2.0 UNPACKING AND INSTALLATION

This section provides unpacking and installation information.

2.1 Unpacking

Open the shipping cartons of the HS-NH8100 and carefully unpack the contents. The carton should contain:

- One HS-NH8100 8-port 10/100M Fast Ethernet Switch
- One external power adapter
- One Installation and User’s Guide

If any item is missing or damaged, contact your local distributor for repair or replacement.

2.2 Installation

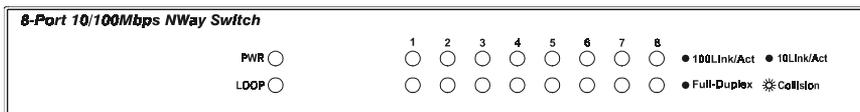
Installing the HS-NH8100 in a Concourse Cabinet

1. Attach the HS-NH8100 to the optional mounting plate HS-HUB100-BRKT as per instructions included with the mounting plate.
2. Choose a suitable mounting location for the HS-NH8100 inside the Concourse cabinet. We recommend the bottom left corner.
3. Align the two mounting tabs on the plate with the holes in wire raceway and insert.
4. Snap the module into place by pushing the opposite side towards the back of the cabinet.

3.0 IDENTIFYING EXTERNAL COMPONENTS

This section identifies the major features of the front and rear panels of the HS-NH8100.

3.1 Front Panel



Power Indicator (PWR)

This indicator lights green when the hub is receiving power, otherwise it is off.

Loop Detect (LOOP)

When this indicator lights amber, a loop has been detected, this indicates that the network needs to be re-configured.

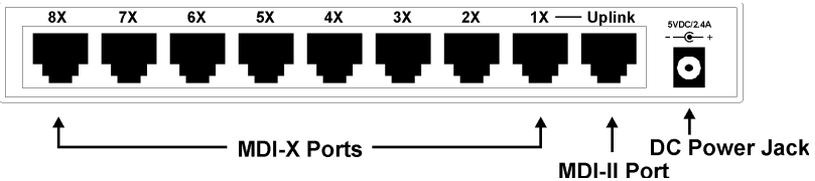
Full-Duplex/Collision (Full-Duplex/Collision)

This indicator lights green when a corresponding port is in full duplex (FDX) mode. Otherwise, it is blinking when collisions are occurring on the respective port.

100M Link/Activity, 10M Link/Activity (100M LINK/ACT(green), 10LINK/ACT(amber))

This indicator lights green when the port is connected to a 100Mbps Fast Ethernet station and blinks green when transmitting or receiving data on the 100Mbps network. This indicator lights amber when the port is connected to a 10Mbps Ethernet station and blinks amber when transmitting or receiving data on the 10Mbps network.

3.2 Rear Panel



DC Power Jack:

The supplied external 5VDC, 2.4A adapter provides power. As the HS-NH8100 does not have an On/Off power switch, plug the adapter into a 120VAC outlet to power up.

MDI-X Jacks:

Use these jacks to connect networkable computers and peripherals. These are MDI-X (Medium-Dependent Interface, Cross-wired) jacks, which means that you can use ordinary straight-through CAT5 UTP cables. If you need to connect another device with an MDI-X jack, such as a hub or Ethernet switch, you should use a CAT5 crossover cable, or make the connection using the MDI-II jack (described below).

Uplink Jack (MDI-II):

Use this jack to connect additional hubs/switches or network connections. This jack is an MDI-II (Medium-dependent Interface, straight-wired), allowing you to connect the HS-NH8100 to another device with a MDI-X port using an ordinary straight-through cable, making a crossover cable unnecessary.

4.0 CONNECTING THE HS-NH8100

This section describes how to connect your HS-NH8100 8-port 10/100M Fast Ethernet Switch.

4.1 HS-NH8100 to a Networkable PC

Using a CAT5 UTP straight-through cable, connect any of the eight MDI-X ports (1x - 8x) on the HS-NH8100 to the RJ-45 10/100Mbps jack on the networkable PC.

The LED indicators for the PC connection are dependent on the LAN card capabilities. If LED indicators do not light after making the proper connection, check the PC LAN card, the cable and all of the HS-NH8100 connections.

These are possible LED indications for a PC to HS-NH8100 connection:

- The “100LINK/ACT, 10LINK/ACT” LED indicator displays green for hookup to 100Mbps speed or amber for hookup to 10Mbps speed.
- The “Full-Duplex/Collision” LED indicator is dependent upon the LAN card capability for full duplex or half duplex. Green indicates duplex, flashing green indicates collision

4-2 HS-NH8100 to a Hub with an Uplink (MDI-II) Port

Using a CAT5 UTP straight-through cable, connect any of the eight MDI-X port (1x - 8x) on the HS-NH8100 to the uplink (MDI-II) port on the 10BASE-T or 100BASE-TX hub.

10BASE-T Hub - the HS-NH8100 LED indicators will light as indicated below:

Indicator	Activity
100LINK/Act (Green)	ON (Amber)
10LINK/Act (Amber)	
Full Duplex (Green)	OFF
Collision (Green Flashing)	

100BASE-TX Hub - the HS-NH8100 LED indicators will light as indicated below. :

Indicator	Activity
100LINK/Act (Amber)	
10LINK/Act (Green)	ON (Green)
Full Duplex (Green)	OFF
Collision (Green Flashing)	

4-3 HS-NH8100 to a Hub without Uplink (MDI-II) Port

If a hub is not equipped with an uplink (MDI-II) port, the connection may be made using either straight-through cable or crossover cable.

- **Straight-Through Cable**

Using a CAT5 UTP straight-through cable, connect the uplink (MDI-II) port on the HS-NH8100 to any port on the hub.

- **Crossover Cable**

Using a CAT5 UTP crossover cable, connect any (MDI-X) port on the HS-NH8100 to any port on the hub.

4-4 HS-NH8100 to Other Devices (switches, routers)

The HS-NH8100 may be connected to another switch or other devices such as routers or bridges using a CAT5 UTP straight-through or crossover cable.

- **Straight-Through Cable**

Using a CAT5 straight-through cable, connect the uplink (MDI-II) port on the HS-NH8100 to any of the 10Mbps or 100Mbps (MDI-X) ports on the other switch or device.

- **Crossover Cable**

Using a crossover cable, connect any (MDI-X) port of the Switch (Switch A) to any of the 10Mbps or 100Mbps (MDI-X) ports of the other switch (switch B) or other devices.

Indicator	Activity
100LINK/Act 10LINK/Act	ON (Green or Amber)
Full Duplex Collision	ON (Green or Flashing)

Notes:

The “100LINK/ACT,10LINK/ACT” LED indicator light green for hookup to 100Mbps speed or light amber for hookup to 10Mbps speed.

The “Full-Duplex/Collision” LED indicator depends upon LAN card capabilities for full-duplex or half-duplex.

4-5 Port Speed & Duplex Mode

After plugging the selected cable to a specific port, the system uses auto-negotiation to determine the transmission mode for any new twisted-pair connections:

If the attached device does not support auto-negotiation or has auto-negotiation disabled, an auto-sensing process is initiated to select the speed and set the duplex mode to half-duplex.

4-6 Using the HS-DH800 with the HS-NH8100

The HS-NH8100 may be installed as part of a network using the HS-DH800 8-channel patch panel using CAT5 UTP patch cords.

Note:

The connections for the devices described above apply when using the HS-DH800.

Refer to the Installation Instructions included with the HS-DH800 for further information on the installation and use of this Concourse module.

APPENDIX A - TECHNICAL SPECIFICATIONS

General	
Standards	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet ANSI/IEEE Std. 802.3 NWay Auto-negotiation
Protocol	CSMA/CD
Data Transfer Rate	Ethernet: 10Mbps Fast Ethernet: 100Mbps
Topology	Star
Network Cables	10BASE-T: CAT5 UTP (100 m), EIA/TIA- 568 100-ohm STP (100 m) 100BASE-TX: CAT5 UTP (100 m), EIA/TIA-568 100-ohm STP (100 m)
Number of Ports	8 x 10/100Mbps ports
Uplink Port	MDI-II RJ-45 shared with port * 1, share with port 1

Performance	
Transmission Method:	Store-and-forward
RAM Buffer:	256KBytes per device
Filtering Address Table:	8K entries per device
Packet Filtering/Forwarding Rate:	10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps
MAC Address Learning:	Automatic update

Physical and Environmental	
AC Input	120VAC
DC Input	5VDC/2.4A
Power Consumption	12 watts (maximum)
Temperature	Operating: 0° ~ 50° C, (32° ~ 122°F) Storage: - 10° ~ 70° C, (14° ~ 158°F)
Humidity	Operating: 10% ~ 90% RH, non-condensing Storage: 5% ~ 90% RH, non-condensing
Dimensions	171 x 98 x 29 mm (W x L x D) 6 ¾" x 3 7/8" x 1 1/8" (W x L x D)
EMI:	FCC Class B, CE Mark B, VCCI-II

APPENDIX B - RJ-45 PIN SPECIFICATION

When connecting your HS-NH8100 8-port 10/100M Fast Ethernet Switch to another switch, a bridge or a hub, a CAT5 crossover cable may be necessary depending on your connection choice (as described earlier). Please check the Installation Instructions included with these products for matching cable pin assignments.

The following table and diagrams show the standard RJ-45 plug/jack pin assignments for switch-to-network adapter card connections.

Contact	Media Direct Interface Signal
1	TX + (transmit)
2	TX - (transmit)
3	Rx + (receive)
4	Not used
5	Not used
6	Rx - (receive)
7	Not used
8	Not used

Figure 1
Standard RJ-45
Jack and Plug
Configuration

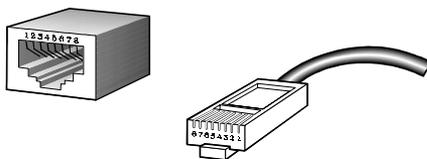


Figure 2
Straight-
through
Cable

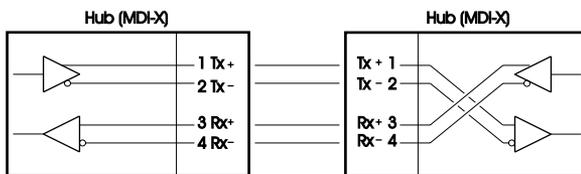
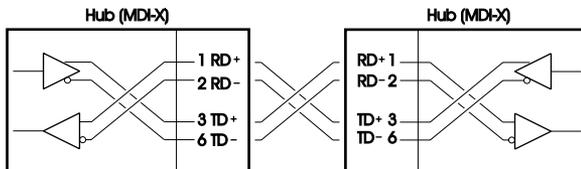


Figure 3
Crossover
Cable



Warranty

Digital Security Controls Ltd. warrants that for a period of 12 months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use and that in fulfillment of any breach of such warranty, Digital Security Controls Ltd. shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Digital Security Controls Ltd. such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Digital Security Controls Ltd. Digital Security Controls Ltd. neither assumes, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

In no event shall Digital Security Controls Ltd. be liable for any direct, indirect or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

WARNING: Digital Security Controls Ltd. recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

IMPORTANT INFORMATION: Changes or modifications not expressly approved by Digital Security Controls Ltd. could void the user's authority to operate this equipment.

FCC Warning

CAUTION: Changes or modifications not expressly approved by Digital Security Controls Ltd. could void your authority to use this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the Instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- increase the separation between the equipment and receiver
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/ TV technician for help.

The user may find the following booklet prepared by the FCC useful: "How to Identify and Resolve Radio/Television Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington D. C. 20402, Stock # 004-000-00345-4.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

VCCI Mark Warning

注意

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