NOVA100 series

FN-500
FN-800

Palm Top
Fast Ethernet Stackable Hub

EMFN5/800

Trademarks

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Table of Contents

1. Unpacking Information

Check List

Carefully unpack the package and check its contents against the checklist given below.

Checklist of 5/8-port 100Base-TX Fast Ethernet Hub

- NOVA100 5/8-port Palm-Top Fast Ethernet hub
- User's manual
- AC Power Adapter and Power Cord
- RS-232 Stackable cable
- Accessories

Please inform your dealer immediately for any wrong, missing, or damaged part if possible, retain the carton including the original packing materials, and use them against to repack the product in case there is a need to return it to us for repair.

Product Features

- Conforms to IEEE 802.3U 100Base-TX standard
- Provides LED indicators for monitoring overall hub condition and individual port status
- Automatic bad port partitioning to protect the network
- Two expansion connectors for stacking up to 5 hubs together, and confirming Class II specification
- For desktop or wall-mounted installation

2. General Description

About FN-500/ FN-800

This section describes the important parts of NOVA 100 5/8-port Fast Ethernet hub. It presents front panel and rear panel drawings of the product showing the LEDs, connectors, and switches.

FN-500: 5-port Palm-Top Fast Ethernet Stackable Hub
FN-800: 8-port Palm-Top Fast Ethernet Stackable Hub

Front Panel of FN-500/ FN-800

The following figure shows the front panel of FN-500/FN-800 100Base-TX Fast Ethernet hub.

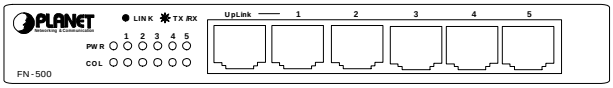

Figure 1. Front Panel of FN-500

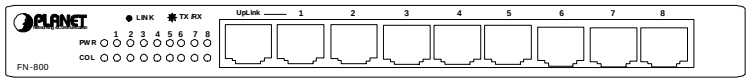

Figure 2. Front Panel of FN-800

There are 5/8 (five/eight) RJ-45 ports and one “Uplink” port on the front panel. Each port is labeled with a port number.

One special port labeled with “Uplink” is converted from

port#1. You can either use Port#1 or “Uplink” port. The “Uplink” port is used for connecting another hub through an ordinary straight-wired twisted-pair cable by running one end of straight cable to “Uplink” port and the other end to another hub’s station port.

On the front panel, there are several LED indicators for monitoring the device itself, and the network status. At a quick glance of the front panel, the user would be able to tell if the product is receiving power; if it is monitoring another hub or concentrator; or if a problem exists on the network.

LED Indications

The following describes the function of each LED indicator.

LEDs	Status	Descriptions
PWR (Power LED)	Steady Green	This LED light is located at the left side on the front panel. It will light up(ON) to show that the product is receiving power. Conversely, no light (OFF) means the product is not receiving power.
COL (Collision LED)	Blink Red	A “collision” in Ethernet, is when two end nodes transmit at the same time. The indicator lights up whenever there is a collision between a directly attached end node and any other node

LEDs	Status	Descriptions
LNK (Link LEDs)	Steady Green	Each RJ45 station port on the hub is assigned an LED light for monitoring port "Good Link and Activity". Each LED is normally OFF after the power on operation, but will light up steadily to show “Good Link”.
TX/RX (Activities LEDs)	Blink Green	Each LED is normally OFF after the power on operation and flash to show that transmit and receive signals are passing in and out the hub. The flashing rapidly increases with the network traffic.

Rear Panel

On the rear panel there are power DC jack, ID switch and two expansion connectors. The following describes the function of each connector and switch.

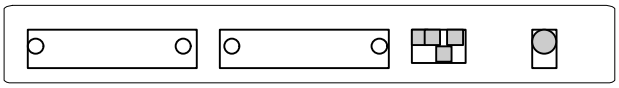

Figure 3 Rear panel of FN-500

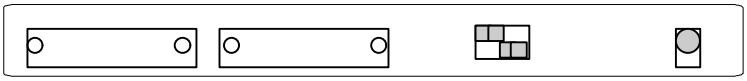

Figure 4 Rear panel of FN-800

DC Power Jack

The power cord should be plug into this socket. The DC jack accept DC power equal to 5 Volt , 2 Amp, minimum for FN-500 and 4 Amp. minimum for FN-800.

ID Switch

This switch is for setting the address of each hub when stack two or more hubs together. Each hub should have one unique number. The switch has four positions (No.1 to 4), therefore, there are 16 possible combinations, except ***the setting of all positions at OFF is not allowed;*** i.e. 15 combinations only is accepted. For example, the settings from position No.1 to 4 are "off off on on", the corresponding ID number is "3".

Expansion Connectors

For FN-500/FN-800, there are two DB25 female connectors at rear panel . These two connectors have the same function then user can stack another hub by choosing any one of them. Therefore, if one is used for "stack up" , then the other is for "stack down". Any combination of 5/8 port hub is allowed only within the limitation of 5 hubs in one stack.

3. Installation

Hardware Installation

After selecting an appropriate 1ocation, you are ready to connect it. This section covers important rules regarding Fast Ethernet connections, and describes how to connect the hub to end nodes, another hub, and AC power.

General Rules

Before making any connections to the hub, note the following rules:

- All network connections to the hub must be made using Category 5 UTP or Type 1 STP cables. Do not use similar-looking Category 2 or 3 cables or "flat satin" telephone cords.

- No more than 100 meters (about 328 feet) of cabling may be used between the hub and an end node; no more than 5 meters (16.4 feet) may be used between two stacks. Each stack is composed up to 5 hubs maximum. Under this limitation, no more than 205 meters of cabling may be used between any two end nodes.

- To expand your network, you have three methods:

■ First -- you can connect the hub to another 100Base-TX Class II Fast Ethernet hub, but not to more than one, and not

to any other kind of hub through “Uplink” port. These two hubs can come from different suppliers.

- Second -- you can connect the hub to another hub by expansion connector. The function of expansion connector is defined by manufacture, therefore, different vendor supplied hubs can not be connected together.

- Third -- Two stacks can connect together by using method one, i.e. choosing one station port from the first stack and one “Uplink” port from another stack, and linking these two ports within **5 meters (16.4 feet)** length.

Connecting End Nodes

LAN end nodes such as single-user computers, servers, bridges, and routers must be connected to the 100Base-TX ports using straight-wired high-grade (Category 5 unshielded or Type 1 shielded) twisted-pair cabling.

- We recommend starting with the lower-numbered ports when connecting Ethernet LAN and the new hub does not have an “Uplink” port or switch, you will have to use “Uplink” port on the hub for the connection.

- We also recommend making sure the end node is turned off before plugging the cable in for the first time. If the plug does not fit well and the node's LAN board is loose, forcible insertion can momentarily break an internal contact and damage the end node.

Following are step-by-step instructions for connecting an end node to the hub using straight-wired twisted-pair cable.

1. Select a port on the hub
2. Plug one end of the cable into the node's RJ-45 port.
3. Plug the cable's other end into the selected RJ-45 port on the hub.

To test an end-node connection, connect the hub to power, then turn the hub and the end node on. The link indicator for the port should shine steadily. If it does not, check the cable and all connections.

Stacking two Hubs

Two hubs –FN-500 or FN-800 can be connected by using the attached expansion cable -- DB25 to DB25 cable. Please refer to the following steps for stacking.

1. Set a ID of the hub which is going to be stack. Make sure using different ID number of each hub.
2. Connect one end to any port of expansion connectors of hub.
3. Connect the other end to any expansion port of another hub. These two hubs are stacked together.
4. By repeating the same method, totally 5 hubs maximum. can be stacked to form a big “Stack”.

Please be noted that,
a) Use of other DB25-to-DB25 cable while stacking will affect the performance and cause emission problem.
b) Power on or Power off the “Stack” at the same time.

This kind of expansion won’t sacrifice any station port, but all the staked hubs would locate at the same place.

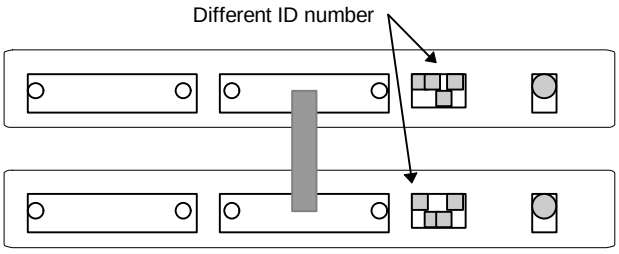

Figure 5. Stacking two FN-500/ FN-800 together

Hub to Hub connection, through Uplink port

You can connect the hub to another 100Base-TX Class II Fast Ethernet hub using a twisted-pair cable. Never connect the hub to any other kind of hub, or to more than one 100Base-TX Class II hub.
Make the connection as follows:

1. Make sure "Uplink" port on the hub is free.
2. Plug one end of the cable into "Uplink" port on the hub.
3. Plug the cable's other end into the available port (except "Uplink" port) on the second hub.

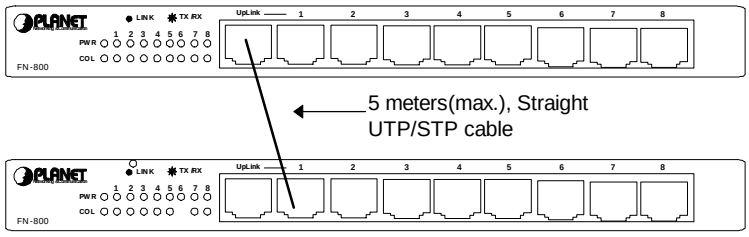

Figure 6. Hub to Hub cascade through UpLink port

Connecting the Hub to AC Power

After making network connections as described in the preceding sections, you are ready to plug the hub in and turn it on.

The hub can run on DC power with 5 Volt, 2A(FN-500) or 4A (FN-800). The external power supply attached is specialized for FN-500/FN-800 Fast Ethernet hub. The input voltage is from 90 to 240 volts AC and any frequency from 50 to 60 hertz. Adjustment to the power source is automatic; there is no switch to set. The output voltage is 5 volt at 2A or 4A. The center pole of output jack is polarity "+", outside pole's polarity "-".

Before plugging the hub in, make sure the power cord (1) is long enough to reach an AC wall outlet of an approved type, (2) has plugs that match both the hub's power inlet and the type of wall outlet you will use, and (3) conforms to safety regulations in your area.

In most parts of the world you must use a three-conductor power cord with an integral three-prong grounding plug.

If the supplied power cord does not meet all three requirements given above, contact your computer equipment dealer and obtain one that does. Do not use an extension cord or multi-socket adapter; do not attempt to use a cord designed for any other kind of power inlet or wall outlet; do not use a cord that fails to meet safety standards in your part of the world.

4. Troubleshooting

Symptom:	Link indicator remains off
Causes:	Workstation's network adapter, cable or hub port is defective
Solution:	The most common cause is a defective network adapter or cable connection. Check the corresponding cable connections, or the workstation's network adapter for possible defects. Verify that the correct cable type is being used. (Note that crossover cable is only required if you cascade hubs via RJ45 station ports, i.e. an uplink port is not used.) Replace the defective cable or adapter. Some network adapter's link indicator need to be initialized by software driver. Therefore, if no driver is pre-loaded , the hub's link indicator will remain off even the connection completed.

Appendix

Product Specification

Transmission Technique	: Baseband
Topology	: Star
Access Method	: CSMA/CD
Transmission Rate	: 100 Mbps
Cable types	: Category 5 unshielded, or Type 1 shielded, 100-Mbps twisted-pair cabling
Connectors Supported	: Five/Eight 100Base-TX ports with RJ-45 ports and one “Uplink” port -- converted from port No.1
Power Supply	: Input --100 to 240 Volts AC, 50~60 Hz (auto-sensing) Output – 5 Volt DC, 2-4 Amp
Power consumption	: 20 watts maximum
Emission	: FCC Rules, Part 15, Subpart B, Class A EN 55022 (CISPR 22: 1985), Class A
Dimensions (WxHxD)	: FN-500 -- 164 x 27 x 132 mm (6.46" x 1.06" x 5.19") FN-800 -- 220 x 27 x 132 mm (8.66" x 1.06" x 5.19")
Temperature	: 0 to 45 degrees Celsius (Operating) 0 to 60 degrees Ce1sius (Storage)
Humidity	: 0% to 95% (non-condensing)