



MagnumBlade

Compact PCI Hubs

10/100 Mbps & 100Mbps Hubs



User Manual

Magnum *Blade* 10/100Mbps cPCI Hubs User Manual

Part #: 84-00085 (08/01) Rev.C

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Important: Magnum Blade cPCI Hub contain no user serviceable parts.

Attempted service by unauthorized personnel shall render any and all warranties null and void. If problems are experienced with a Magnum Blade cPCI Hub, consult page 9, Troubleshooting, of this User Guide.

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Federal Communications Commission**Radio Frequency Interference Statement**

This equipment generates, uses and can radiate 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 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 required to correct the interference.

Ordering Information:**Magnum *Blade*****DS12 & DS12E 10/100Mbps CPCI Hubs****Magnum *Blade* DS12**

12-port Dual speeds 10/100 Mbps cPCI Hub with 12 RJ-45 ports, each auto sensing for 100Mbps operation. Occupies one 6U X 4HP slot, rear I/O, in a cPCI chassis. Stand alone operation, uses no cPCI Backplane connectors.

Magnum *Blade* DS12E

Same as DS12 but the speed is fixed at 100Mbps, no auto-negotiation.

GarrettCom, Inc. reserves the right to change specifications, performance characteristics and/or model offerings without notice.

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Revisions

Rev C 08/01: Change the logo structure and date to the current GarrettCom, Inc. manual standard. There are no changes to the content of the material at this time.

Rev B 09/00 : Change the company name to GarrettCom, Inc. (Formerly it was Garrett Communications). There are no changes to the content of the material at this time

Rev A 6/00 : This revision is the initial release of the Magnum Blade cPCI Hub user manual.

SPECIFICATIONS:**PERFORMANCE:****Data Rate:**

10/ 100Mbps (DS12)

100Mbps (DS12E)

Partitioning:

Enforced after 32 consecutive collisions

Auto-reconnect:

Occurs after one packet of error-free transmission

DS12 & DS12E:

Class II Repeater

MTBF:

287,864 hrs. @40°C

204,969 hrs. @55°C

PDV (100Mbps Path Delay Value):

80BT

Processing type:

Store and Forward

Auto-learning:

2K addresses

Packet buffers:

512KB

Latency (not including packet time):5 μ s (10 to 100Mbps and 100 to 10Mbps)**NETWORK STANDARDS:**

Ethernet V1.0/V2.0 IEEE 802.3: 10BASE-T,

IEEE 802.3u: 100BASE-TX

6U X 4HP Form Factor:**Note:** The unit is stand-alone; it does not plug into any cPCI backplane connectors**OPERATING ENVIRONMENT:**

Ambient Temperature: 25° to 130° F (-5° to 55°C)

Storage Temperature: -40°to 185°F (-40°to 85°C)

Ambient Relative Humidity: 5% to 95% (non-condensing)

NETWORK CABLE CONNECTORS:

All 12Ports are shielded RJ-45 female.

100Mbps: use Category 5 UTP/STP**10Mbps:** use Category 3, 4, 5 UTP**SWITCHES, MANUAL:**

MDI-X thumb operated slide up-link switch converts top-most port# 1 on hub from a regular (= position) user segment port to a cross-over (X position) up-link port for on-off connection to a central hub or switch, or another cascaded hub or switch.

POWER SUPPLY (EXTERNAL):**Power Input Voltage:** 12VDC**Power Consumption:** 6.5 Watts typical**Dimensions:**

10.3in H x 0.8in W x 3.3in D(262mm x 20mm x 84mm)

Weight:

0.5lb. (0.25 kg)

LED INDICATORS, Unit:**PWR:** Steady on when power applied.**COL:** Common collision indicator, for the 100Mbps and 10Mbps domain**LED INDICATORS PER RJ-45 PORT:****100:** Steady on when speed is 100Mbps**LK/RK:** Steady on when LINK is operational, flashing for receive activity**Agency Approvals**

UL listed (UL1950), cUL, CE

Emissions meet FCC Part 15 Class A

NEBS compliant, certifiable as part of a cPCI system**Warranty**

Three years, return to factory

Made in USA

INTRODUCTION

General Description

The Magnum *Blade* DS12 & DS12E compact cPCI Hubs are designed to I/O slot for a simple solution to cPCI Ethernet system problems. This eliminates the need for a hub in a separate box. The reliable Magnum *Blade* hubs provide efficient slot utilization in a 6U X 4HP-cPCI form factor with no cPCI Backplane connections used. They can be used in practically any cPCI system, without design modifications.

The Magnum *Blade* DS12 Dual speed cPCI hub has 12 RJ-45 ports, each 10/100Mbps auto-sensing. Each port can independently identify (via 802.3u auto sensing) and accept either 100Mbps or 10Mbps Ethernet signals, adapting to match the best speed of the connected device. There are two internal traffic domains in Magnum *Blade* hubs, one for the 100Mbps traffic and one for the 10Mbps traffic. The 100Mbps users share the 100Mbps domain's bandwidth and the 10Mbps users share the 10Mbps domain's bandwidth.

The Magnum *Blade* Model DS12E has 12 RJ-45 ports, fixed at 100Mbps speed. There is no auto-negotiation and no uncertainty about the operating speed accordingly.

Magnum *Blade* Hubs have an up-link switch at port # 1, located on the top-front to either connect to a user station or node (= position) or alternatively to be cascaded to another hub or switch (X position).

The Magnum *Blade* Hubs are in compliance with the IEEE 802.3u standards. The Magnum *Blade* Hubs are equipped with LEDs per port, providing for convenient monitoring of network operation. PWR LEDs indicates the power up of the unit and COL LEDs indicates the common collision at 10Mbps and 100MB. *LINK / RX* and 100LEDs on each port indicate each port is operational or receiving data, and is at 100Mbps speed when lit. The *PWR* LED indicates the power is applied to the unit and the *COL* LEDs indicates common collision at 10Mbps and 100MB respectively.

Magnum *Blade* DS12 Hub (Front Panel w/ LEDs)



Features

- Twelve Ethernet hub ports on a 6U X 4HP Form-Factor cPCI
- Uses Rear I/O slot in cPCI chassis, keeping Ethernet cabling in the rear area
- No cPCI backplane connections, “universal”, can be used in any cPCI system
- High reliability, over 30 years calculated MTBF
- Low EMI noise, better than Class B emissions
- Carrier Class, NEBS compliant, has been NEBS certified in cPCI systems
- One model for auto negotiating 10/100Mbps dual-speed ports, one for 100-only.
- Up-link switch for cascading, port #
- Global Collision status LED, indicates collisions for all ports / speeds on the hub
- Bridge between the two speed domains (Model DS12), has 2K node addresses and 512KB packet buffers, enables all connected users at both speeds to talk to each other
- Supports Category 5 (100Mb) and Category 3 (10 Mb) UTP / STP twisted-pair cabling
- Class II Repeater, 80 BT PDV at 100Mbps
- Auto-partitioning of ports receiving excessive collisions, removes network faults
- Complies with IEEE802.3u 10 Mb and 100MbEthernet specifications
- **Package Contents:**
 - One twelve-port dual-speed 10/100 Mbps Hub (Model DS12), or one Fast Ethernet 100Mbps-only Hub (Model DS12E)
 - Short power cable with male power connector for insertion into the power-input jack.
 - User manual (includes warranty card)
 - Two holding screws for mounting in a 6U X 4HP Rear I/O cPCI chassis slot

HARDWARE INSTALLATION

Installation Procedure

1. Connect power wires to a 12VDC source, generally available inside the Compact PCI box.
2. Insert the power plug to the power jack at the bottom inside position. This applies power to the unit. (It is low voltage, 12VDC, safe to handle when power is applied)
3. Carefully slide the DS12 hub into the Compact PCI I/O slot and screw it tightly through upper and lower screws (provided).
4. Connect a device to a RJ-45 hub port using twisted pair cabling. For unshielded twisted pair, note that the distance between the hub and the device cannot exceed 100 m, and that the longest UTP cable path through a 100Mb collision domain (max. of two Class II cascaded hubs) should not exceed 205 meters.
5. The LINK indicator will indicate if the connection is properly made, and if there is power on the device on the other end so that the segment is ready to operate.
6. Connect each applicable device in your network using the same process.
7. Use the up-link switch on Port # 1 to make a cascaded (X-position) connection.

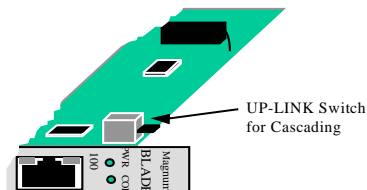
Note: To reliably operate your network at 100Mb/s, you must use Category 5 wiring. Category 3 or Category 4 wire may sometimes seem to work, but it will normally cause data loss and unreliable operation.

Stand-alone Configuration

In a simple stand-alone configuration, the up-link switch is in the "=" or upward position, and port # 1 (on the DS12 and DS12E) is used to connect to a user or other node.

Multi-level Configurations, Cascading

If you want to connect more than 12 ports together, use the up-link port to connect to another hub or switch. This is called "cascading". Simply connect the up-link port (port # 1) to any port on another hub or switch, with the up-link set to the crossover (X) position. Note that cascaded configurations should be compliant with Fast Ethernet collision domain specifications.



TROUBLESHOOTING

This section contains information to help solve problems. If either the Magnum *Blade* DS12 or DS12E cPCI hub is not functioning properly, check that the hub was set up according to the instructions in this manual.

If the DS12 or DS12E cPCI hub does not connect to the network,

- Check the Link / Activity LED lights on the ports. The Link LED on each port in use should be ON, which indicates that the physical wiring connection is made on both ends of the wire and that power is ON for the devices at both ends.

If the Link / Activity LED light is not ON, check all connections at the adapter or node, and at the hub.

- Try another port on the hub.
- Turn off the power of the hub, after a while re-power the hub.
- Make sure that the cable is installed properly.

The RJ-45 cable must be securely attached. If the problem persists, try a different cable.

Other Important Tips

- Make sure the network adapter cards installed in the workstations and cable connections are in good working condition. Also, make sure adapter drivers are loaded.
- If you are using the up-link port, confirm that the up-link port is in the correct position:

This up-link switch is **“front”** for the up-link setting; **“back”** for regular (node) setting. The up-link switch enables cascading when the switch is set to the crossover (X, or front) position. Alternately, when the switch is set to the normal straight through (=, or back) position, the port operates as a normal node-connection port.

GarrettCom Limited Warranty

GarrettCom, Inc.

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Email: support@garrettcom.com

HARDWARE: GarrettCom, Inc. (GCI) warrants to the original purchaser that each of its products, and all components thereof, will be free from defects in materials and/or workmanship for three years from the original date of purchase. Any warranty hereunder is extended to the original purchaser and is not assignable.

In the event of malfunction or other indication of product failure attributable directly to faulty workmanship and/or materials, GCI will, at its option, repair or replace the defective products or components at no additional charge as set forth herein. Repair or replacement product will be furnished on an exchange basis and will be either reconditioned or new at the option of GCI. All replacement parts become the property of GCI.

This limited warranty does not include service to repair damage to the product resulting from accident, disaster, misuse, neglect, or modification of the product.

Service under this warranty may be obtained by returning the product to GCI, *and only after receiving authorization by GCI by issuance of a Return Material Authorization (RMA) number*, with shipping charges prepaid, in the original shipping container or like container, and with proof of date of purchase included with the returned product. The RMA number **MUST** be marked clearly visible on the outside of the shipping container. Any material returned without such RMA markings shall be rejected and returned to sender unopened. There shall be no warranty for either parts or labor after the expiration date of three years from the original date of purchase.

Products will be returned to the purchaser after repair or replacement has been completed and by the carrier and method of delivery chosen by GCI. If the purchaser desires some other specific form of conveyance, then the purchaser shall bear the cost of the return shipment.

GCI MAKES NO EXPRESS OR IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY. IN NO EVENT SHALL GCI BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, COST, OR EXPENSES ARISING OUT OF OR IN CONNECTION WITH THE USE OF PERFORMANCE OF THE PRODUCT DELIVERED HEREUNDER.

Governing Law: This Limited Warranty shall be governed by the laws of the United States. Rev. 1997

SAVE FOR YOUR RECORDS

For expeditious repairs, please record the following information and have it available when consulting GCI for warranty service:

DATE OF PURCHASE	_____
PLACE OF PURCHASE	_____
PURCHASED FROM	_____
PRODUCT NAME or MODEL	_____
SERIAL NUMBER (OR GCI INVOICE NUMBER)	_____

GARRETTCOM WARRANTY REGISTRATION CARD

Important: Read the attached Warranty Statement card, then complete and return immediately.
Please complete this form and return within 10 days of purchase to validate the warranty.

PLEASE PRINT OR TYPE BELOW

Date: _____

COMPANY _____

PURCHASED FROM _____

NAME/TITLE _____

PHONE NUMBER _____

ADDRESS _____

CITY/STATE _____

(OF INSTALL. _____

COUNTRY _____

SITE) _____

PURCHASE DATE _____

PHONE _____

PRODUCT _____

Signature

SERIAL NUMBER _____

Comments about product or its condition at the time of sale _____

===== **SURVEY** =====**ETHERNET (100Mb) NETWORK MEDIA USED AT THIS SITE:**

UNSHIELDED TWISTED PAIR SHIELDED TWISTED PAIR FIBER OPTIC, SC__ or ST__
COMMENTS _____

WHO DID THE INSTALLATION FOR THIS PRODUCT? SELF TECHNICAL
STAFF CONTRACTOR OTHER: _____

NETWORK PROTOCOLS AT THIS SITE:

ETHERNET FAST ETHERNET GIGABIT ETHERNET _____ OTHER: _____

COMMENTS _____

CLIENT/SERVER PEER-TO-PEER OTHER NOS: _____

DO YOU USE NETWORK MANAGEMENT? YES NO

IF YES, WHAT PRODUCT?

COMMENTS _____

What new product features would you like to see from GCI? _____

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