

FastHub 300 Series 100BaseT Repeaters

The Cisco FastHub® 300 series of 100BaseT hubs combines all the benefits of stackable hubs with unmatched configuration flexibility, affordability and integrated Cisco IOS™ technologies. These modular, Class II repeaters deliver 10 times the performance of 10BaseT hubs and provide a choice of modules for a combination of cost-effective 10BaseT and 100BaseT bridging, integrated management and port expansion for a highly scalable, manageable and resilient solution.

The FastHub 300 series repeaters, integral elements in Cisco's small- to medium-sized business and CiscoFusion end-to-end solutions, are ideal for creating enterprise power workgroups or an entire high-performance network for small- to medium-sized businesses.

FastHub 300 series hubs are ideal high-performance alternatives to 10BaseT hubs, delivering affordable 100-megabits per second (Mbps) performance to workgroups and server farms. The FastHub 316T is equipped with 16 100BaseTX ports for connecting your workstations and servers with inexpensive unshielded twisted-pair (UTP) wiring. The FastHub 316C has 15 100BaseTX ports and one 100BaseFX port for linking UTP devices to a fiber Fast Ethernet backbone.

Both hubs expand easily to 32 ports within a single unit by simply installing a 100BaseTX/16 port module in an expansion slot. The module is hot-swappable, so you can add users without powering down the network and disrupting existing users. And FastHubs scale even further. Up to four fully-configured FastHub 300 series hubs can be interconnected using an expansion cable to create a single, 128-port logical repeater. For the ultimate in expandability, the hub's unique Class II design lets you connect two of these 128-port stacks directly together, creating a 254-port collision domain. The design also lets you distribute and connect hubs in separate wiring closets, without requiring an intermediate switch, bridge, or router.

Figure 1 FastHub 300 Series Hubs Provide Affordable, Manageable 100-Mbps Performance



Each FastHub also has a second expansion slot for a hot-swappable Bridge Management Module (BMM) or Network Management Module (NMM). The BMM provides affordable connectivity to 10BaseT environments, extended cabling distances for 100BaseT networks, and integrated management in a single, flexible solution. While the NMM delivers integrated management on a per-port, per-hub, and per-stack basis.

A single NMM or BMM is all that's needed to manage an entire FastHub 300 series stack. Both modules deliver Simple Network Management Protocol (SNMP), Telnet, Remote Monitoring (RMON), and an out-of-band management console are all supported for comprehensive management and simplified troubleshooting. An extensive array of mode-selectable LEDs offers a convenient visual display of each port's status and the overall traffic load.

For management redundancy, a second BMM or NMM can be added to the stack. The optional 600-Watt Redundant Power System (RPS) is also available to keep the network up and running for your mission-critical applications.

Key Features/Benefits

Standards-Based 100-Mbps Performance

- 100-Mbps peak and aggregate throughput provide high-performance data transfers for workgroups, server farms and entire networks for small- to medium-sized businesses
- Compatibility with IEEE 802.3u standard guarantees interoperability with other 100BaseT products
- Extensive application-specific integrated circuit (ASIC) integration ensures exceptional performance, reliability, and affordability

Configuration Flexibility/Scalability

- Two 16-port base configuration options offers media flexibility:
 - 16 100BaseTX ports (FastHub 316T)
 - 15 100BaseTX ports and one 100BaseFX port (FastHub 316C)
- Two expansion slots let you add users, management and 10BaseT and 100BaseT bridging in a single hub. No other vendor offers this convenient, cost-effective configuration.
- Up to four fully configured FastHubs can be interconnected in a stack for a single 128-port logical repeater
- 100BaseT Class II repeater design allows:
 - Two FastHub stacks to be directly interconnected to create a single collision domain of up to 254 shared ports
 - Two hubs or stacks of hubs to be distributed in separate wiring closets and directly connected
- Hot-swap feature enables the addition or removal of users and FastHubs in the stack while fully powered
- Three modules deliver superior flexibility:
 - Cisco's FastHub 300 series BMM provides affordable connectivity to 10BaseT environments, extended cabling distances and integrated management in a single, flexible solution.
 - One bridged 10BaseT port provides a bridged connection from 100BaseT to 10BaseT environments allowing network configuration flexibility and preserving investment in 10BaseT equipment
 - One bridged 100BaseT port, 100BaseTX or 100BaseFX, provides a dedicated full-duplex 100 Mbps connection for high-performance LAN connectivity over extended cabling distances
 - Full- and half-duplex auto-negotiation detects the speed of the attached device and automatically configures the port without administrator intervention

- Spanning Tree Protocol support allows for redundancy between the 10BaseT port and the 100BaseT port in case the primary connection fails
- Per-port broadcast storm control prevents faulty end stations from degrading overall systems performance
- Back-pressure flow control on 10BaseT half-duplex connection prevents packet loss
- NMM for comprehensive management and simplified trouble shooting on a per-port, per-hub, and per-stack basis
- 16-port 100BaseTX expansion module for up to 32 ports in a single unit.

Management and Redundancy

- A single BMM or NMM can manage an entire FastHub 300 series stack, lowering cost and providing simplified management
- Two BMMs, NMMs or a combination of the two can be installed in a FastHub 300 stack providing management redundancy in case the primary module fails
- Simple Network Management Protocol (SNMP) and Telnet support for comprehensive in-band manageability, and a menu-based management console for in-depth, out-of-band manageability
- Embedded RMON software agent supports four RMON support for EtherHistory, EtherStats, Alerts, and Events enhances traffic management, monitoring, and analysis
- Manageable by CiscoWorks™ Windows and other SNMP-based management systems on a per-port, per-hub, per-bridge and per-stack basis
- Cisco Discovery Protocol (CDP) enables a CiscoView™ network management station to automatically discover the hub in a network topology
- Cisco Group Management Protocol (CGMP) and multicast address packet filtering enable the BM22
- M's bridged ports to selectively forward routed IP multicast traffic, reducing overall network traffic
- Works with Cisco 600-Watt RPS to ensure maximum uptime

Part of a Total Cisco Solution

- Part of the Cisco Fast Ethernet line of products, which includes switches, routers, and hubs
- Incorporates Cisco IOS technologies for guaranteed interoperability and integrated and consistent management across Cisco's small- to medium-sized business and CiscoFusion solutions.

FastHub 300 Series Technical Specifications

Indicators

- Per-port LEDs indicate Link Integrity, Receive Activity, and Enabled/Disabled status
- Per-hub Utilization Meter and Collision LEDs gauge network load
- Hub ID, Hub status, and RPS status LEDs

Cabling Requirements

- 100BaseTX ports:
 - Integrated 100BaseTX media interface for use with two-pair Category 5 UTP cabling
 - Standard RJ-45 connectors
- 100BaseFX port:
 - Integrated 100BaseFX media interface for use with 62.5 125- or 50/125-micron multimode optical fiber
 - Standard SC connector

Hub Interconnection Guidelines

- Stack guidelines (to create a single logical repeater):
 - Connection via special expansion connectors on rear of unit and Cisco Expansion Cable (WS-C316-CAB-EXP)
 - Maximum of four base units per stack
 - Maximum distance between units is 15 in.
- Cascading guidelines (to create separate logical repeaters):
 - Connection via 100BaseT uplink ports
 - Uplink port (16) to non-uplink (crossed-over) port on second hub requires straight-through cabling
 - Non-uplink ports (1x-16x) on second hub requires crossover cable
 - Only one 100BaseT connection allowed between two repeaters or repeater stacks
 - Maximum of two repeaters can be connected in this manner

Configuration Guidelines

- Maximum cable distance between any two end stations with one FastHub 300 repeater in the path:
 - 1043 ft (318 m) using a combination of UTP and fiber cable
- Maximum cable distance between any two end stations with two repeaters in the path:
 - 731 ft (223 m) with two FastHub 300 series repeaters using UTP wiring only
 - 774 ft (236 m) with two FastHub 300 series repeaters using a combination of UTP and fiber cable

- 702 ft (214 m) with one FastHub 300 series repeater and one third-party 100BaseT Class II repeater using UTP wiring only
 - 741 ft (226 m) with one FastHub 300 series repeater and one third-party 100BaseT Class II repeater using a combination of UTP and fiber cable
- Maximum cable distance between 100BaseTX port and an end node:
 - 328 ft (100 m) using UTP wiring

Network Management Support

- SNMP Management Information Base (MIB) II, SNMP MIB extensions, Ethernet interface MIB, Repeater MIB, and RS-232 MIB
- Manageable under CiscoWorks Windows and other SNMP management systems
- IP address assignment via Dynamic Host Configuration Protocol (DHCP) or Bootstrap Protocol (BOOTP)
- RMON MIB, (EtherStats, EtherHistory, Alarms, Thresholds)
- VT100-based Telnet console and out-of-band management console

Dimensions and Weight (H x W x D)

- 3.43 in x 17.75 in x 12 in (8.7 cm x 45.1 cm x 30.5 cm)
- 15 lb (6.8kg)

Environmental Conditions and Power Requirements

- Operating temperature: 23 to 113F (-5 to 45C)
- Operating relative humidity: 10 to 85% noncondensing
- Operating altitude: Up to 3000 m
- Power consumption: 80W
- Input voltage: 90 to 250V, 50 to 60 Hz

Safety Certifications

- UL 1950
- CE
- CSA 950
- EN 60950
- IEC 950

Electromagnetic Emissions Certifications

- VCCI II
- EN 55022B
- CE Marking
- FCC Class B

BMM Technical Specifications

Indicators

- Per-port LEDs indicate Link Integrity, Receive Activity, and Enabled/Disabled status
- Module status LEDs indicates module operating status

Cabling Requirements

- 10BaseT port:
 - Integrated 10BaseT media interface for use with two-pair Category 3, 4, or 5 UTP cabling
 - Standard RJ-45 connector
- 100BaseTX port:
 - Integrated 100BaseTX media interface for use with two-pair Category 5 UTP cabling
 - Standard RJ-45 connector
- 100BaseFX port:
 - Integrated 100BaseFX media interface for use with 62.5 125- or 50/125-micron multimode optical fiber
 - Standard SC connector

Configuration Guidelines

- Maximum cable distance between the BMM and an attached device:

	Half-Duplex Capability Enabled	Full-Duplex Capability Enabled
10BaseT Port	328 ft (100 m) using UTP wiring	328 ft (100 m) using UTP wiring
100BaseTX Port	328 ft (100 m) using UTP wiring	328 ft (100 m) using UTP wiring
100BaseFX Port	1,352 ft (412 m) using fiber optic cabling	6,562 ft (2 km) using fiber optic cabling

To Order:

Product	Description	Model Number
FastHub 316T	16-port 100BaseTX base unit	WS-C316T
FastHub 316C	16-port 100BaseFX base unit	WS-C316C
100BaseTX/16	16-port 100BaseTX repeater module	WS-X3116
BMM-100BaseTX	Bridge management module 100BaseTX	WS-C316-BMM-T
BMM-100BaseFX	Bridge management module 100BaseFX	WS-C316-BMM-C
NMM	Network management module	WS-C316-NMM
Expansion Cable	Hub stacking cable	WS-C316-CAB-EXP

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