Catalyst 5000 Family of Switches

THE CISCO CATALYST® 5000 FAMILY, WHICH INCLUDES THE CATALYST 5000 SERIES AND CATALYST 5500 SERIES, OFFERS A COMPLETE SET OF ENTERPRISE SWITCHING SOLUTIONS THAT DELIVER ROBUST AND COMPREHENSIVE SOLUTIONS FOR THE WIRING CLOSET, AS WELL AS SMALL- TO MEDIUM-SIZED CAMPUS BACKBONES.

The Cisco Catalyst 5000 Family builds on the award-winning architectures of the Catalyst 5000 and 5500 switches, the LightStream® 1010 ATM Platform, and the Catalyst 8500 Switching Routers, while integrating the Cisco IOS® routing technology. This combination of best-of-breed technologies creates a powerful solution for addressing customers' growing needs.

Delivering Bandwidth and Scalability

With full support for Fast EtherChannel® technology, Gigabit EtherChannel technology, Fiber Distributed Data Interface (FDDI), and Asynchronous Transfer Mode (ATM), the Catalyst 5000 Family is well positioned to meet campus bandwidth needs.

All Catalyst 5000 Family switches support NetFlow LAN switching as part of the architecture. This support will enable multilayer switching scalability in the campus intranet. NetFlow LAN switching on the Catalyst 5000 Family delivers the simplicity and speed of switching combined with the intelligence and scalability of routing.

The route switch module delivers integrated support for multiprotocol routing based on Cisco IOS in the Catalyst 5000 Family, while the NetFlow feature card option for Supervisor Engine III scales to multimillion-pps forwarding across the campus.

The media-independent architecture supports all legacy LAN and ATM switching technologies through a wide range of 10/100/1000 Ethernet, Fiber Distributed Data Interface (FDDI), Token Ring, and ATM switch modules.

The Cisco Catalyst 5000 Family features five modular chassis: Catalyst 5500, Catalyst 5509, Catalyst 5505, Catalyst 5000, and Catalyst 5002. All five chassis share the same set of interface modules and software features, providing scalability while maintaining interoperability and investment protection across all chassis.

Catalyst 5500 Overview

The Catalyst 5500 is the 13-slot member of the Catalyst 5500 Series, serving as a high-end, modular switching platform able to meet the requirements of today's demanding and fast-growing enterprise intranets.

At the same time, the Catalyst 5500 protects customers' investments in current Cisco products by seamlessly integrating existing Catalyst 5000, LightStream 1010 interface modules, or Catalyst 8500 interface modules and features into the Catalyst 5500 chassis. Depending on which modules are installed, the Catalyst 5500 can be used in backbone applications as a feature-rich, scalable 10/100/1000 Ethernet, FDDI, or ATM switch, or in wiring closet applications that support a wide array of switched Ethernet, Token Ring, and ATM modules. The ability to deliver densities starting with 12 ports to more than 500 ports on a single platform makes the Catalyst 5500 the most scalable platform in the industry today.

This scalable platform delivers a future-proof architecture that enables robust, high-capacity gigabit and ATM switching for the campus LAN. The integration of award-winning, industry-standard Cisco IOS routing for both LAN and WAN applications brings a comprehensive set of features and functionality into this high-end switching system.

Multilayer switching as part of the Catalyst 5500 architecture delivers the Layer 3 switching scalability required in the campus intranet. The Catalyst 5500 architecture can also support line cards from the Catalyst 8500 Series. Users can integrate the Catalyst 8510 switch route processor (SRP) or multiservice switch route processor (MSRP) and the line cards into the Catalyst 5500. This setup yields high-performance (up to six million pps) Layer 3 IP and Internetwork Packet Exchange (IPX®) packet switching within the Catalyst 5500 platform.

Figure 1 The Catalyst 5000 Family—Scalable Campus Intranet Solutions

The Catalyst 5500 supports high availability through hot-swapping of all system components, including Supervisor Engines, interface modules, power supplies, and fans. System redundancy is supported with redundant Supervisor Engines and power supplies, if required.

Catalyst 5500 System Components

The Catalyst 5500 is a 13-slot chassis that is rack-mountable using the rack-mount kit. All functional components, including power supplies, fan trays, supervisors, ATM switch processors (ASPs), and interface modules are accessible and hot-swappable from the network side of the chassis. This setup ensures ease of use in tight wiring closets.

The Catalyst 5500 deploys two dedicated slots—slots 1 and 13. Slot 1 is dedicated for the Supervisor Engine that monitors all system components, and is responsible for all frame switching and forwarding functions in the switch. Supervisor Engine II or greater is required for operation of the Catalyst 5500. Slot 2 is a dual-purpose slot and can be used for either a redundant Supervisor Engine or any Catalyst 5000 interface module. Supervisor Engine III enables full access to the 3.6-Gbps fabric.

Slot 13 is the second dedicated slot and is reserved for the LS1010 ASP module or Catalyst 8510 SRP. The LS1010 ASP module is required only if the Catalyst 5500 is deployed as a high-capacity ATM backbone switch in the campus. The ASP module is responsible for ATM cell switching across the 5-Gbps fabric.

Unlike competitive products with cell-based backplanes, the Catalyst 5500 sets the standard by delivering best-of-class frame or cell switching on a single platform while allowing nonblocking throughput for both frame and cell fabrics.

All Catalyst 5500 Series interface modules can be used in slots 2 to 12, whereas LightStream 1010 or Catalyst 8500 modules can be used in slots 9 to 12. Slots 9 to 12 can accommodate a mix of frame and cell switch modules.

Environmental monitoring on the Catalyst 5500 ensures that the system alarm is generated if the temperature reaches a dangerous level. When the temperature reaches a critical level, the system shuts down gracefully.

All Supervisor Engines and ASP modules in a chassis share a single pool of Media Access Control (MAC) addresses to ensure minimum disruption upon a switching engine failure.

Only a single power supply is required for any module configuration in the switch, with the second power supply purely as a redundant load-sharing backup. Both AC and DC power supplies are supported.

Catalyst 5509 Overview

Cisco continues to develop and evolve the award-winning Catalyst 5500 Series with the introduction of a new chassis: the Catalyst 5509. The new Catalyst 5509 protects customers' Catalyst 5000 Family investments by seamlessly integrating all existing Catalyst 5000 Series interface modules and features into a new, high-performance chassis. The Catalyst 5509 provides dedicated switching for up to 384 users, making this chassis an ideal platform for wiring closet solutions. The Catalyst 5509 also supports high-density Gigabit Ethernet for switched intranet backbones and data centers that require multimillion-pps forwarding rates.

For Gigabit Ethernet backbone applications, the Catalyst 5509 supports up to 38 ports of Gigabit Ethernet, the highest port density available today for the Catalyst 5500 Series. This capability can be combined with Cisco Gigabit EtherChannel technology. Gigabit EtherChannel technology enables multiple Gigabit Ethernet links to be treated as one logical link, for up to 8 Gbps (full duplex) of device-to-device throughput. Used in such a configuration, the Catalyst 5509 creates an industry-leading Gigabit Ethernet backbone solution to meet the requirements of today's demanding and fast-growing enterprise intranets.

As a low-cost wiring closet solution, the Catalyst 5509 supports high-density, dedicated Token Ring or 10/100/1000 Ethernet switching. The Catalyst 5509 can support up to 384 dedicated switch ports with only a 15A circuit requirement, allowing for easy installation in most wiring closet environments. The Catalyst 5509 also supports all advanced Cisco features for the wiring closet, such as automatic protocol broadcast filtering to conserve valuable bandwidth, intelligent multicast forwarding to handle multimedia traffic, and load balancing over redundant links.

With its support for hot-swappable modules, power supplies, and fans, the Catalyst 5509 chassis delivers high availability for production networks. Dual-redundant switching engines, power supplies, and a passive backplane design ensure full system redundancy for mission-critical environments. Supervisor Engine II or higher can be used in a Catalyst 5509. The Catalyst 5509 chassis fits into a standard 19-inch rack, and all system components are accessible from the same side of the chassis. Only one power supply is required to run a fully configured system.

Catalyst 5505 Overview

The Catalyst 5505 is a high-performance, five-slot chassis for the evolving Catalyst 5500 Series. The Catalyst 5505 combines the size of the original Catalyst 5000 with the performance boost and added features of the Catalyst 5500. The Catalyst 5505 is ideal for high-performance wiring closet and data applications.

The Catalyst 5505 protects customers' Catalyst 5000 Family investments by seamlessly integrating existing Catalyst 5000 interface modules and features into a high-performance chassis. Customers who desire a performance boost for existing Catalyst 5000 chassis can redeploy all Catalyst 5000 Family line cards in the five-slot Catalyst 5505. Supervisor Engines II or III can also be used in a Catalyst 5505. The Catalyst 5505 can be configured for backbone applications with feature-rich, scalable Fast Ethernet, ATM, and FDDI, as well as optional redundant Supervisor Engines and power supplies. In the wiring closet, switched Ethernet, desktop 10/100, Token Ring, and ATM modules provide high-performance connectivity.

The Catalyst 5505 supports up to 194 switched Ethernet ports at a multimillion-pps forwarding rate. For even higher densities, the nine-slot Catalyst 5509 or the 13-slot Catalyst 5500 can be deployed. The original five-slot Catalyst 5000 is appropriate for lower-cost wiring closet solutions that don't require the performance of a Catalyst 5505.

Catalyst 5002 Overview

The Catalyst 5002 is a fully modular, two-slot Catalyst 5000 Series member, using the same architecture and software as the Catalyst 5000. The switch can deliver more than one million pps throughput across a 1.2-Gbps media-independent backplane that supports Ethernet, Fast Ethernet, FDDI, Token Ring, and ATM.

The Catalyst 5002 can be configured with any current or future Catalyst 5000 Family modules. Slot 1 is reserved for Supervisor Engine I, II, or III. The second slot accepts any Catalyst 5000 line card, enabling flexible solutions for a variety of applications. High-density switched Ethernet and group switched Ethernet modules meet today's wiring closet requirements. Fast Ethernet solutions for workgroups and server farms include 10/100BaseTX and group switching. For the campus backbone, 10BaseFL and 100BaseFX provide connections in the riser and across the campus. An ATM LANE module turns the Catalyst 5002 into a compact, high-performance LANE server.

The Catalyst 5002 chassis fits into a standard 19-inch rack, and all system components are accessible from the same side of the chassis. The chassis includes dual load sharing and redundant power supplies. A single supply can support any configuration, making the system highly reliable.

The Catalyst 5002 complements Catalyst 5000 and 5500 Series switches, letting users benefit from common hardware, software, and spares from the data center to the network periphery. The Catalyst 5002 accepts any Catalyst 5000 Family supervisor module and one interface module, enabling flexible solutions.

Table1 Catalyst 5000 Family Port Density

Catalyst 5002, 5000, 5500, 5505, 5509 Switching Modules	Number of Interfaces Supported per Module	Maximum Number of Interfaces
Group Switched 10BaseT Ethernet	48	528
Switched 10BaseT Ethernet (RJ-21)	48	528
Switched 10BaseT Ethernet (RJ-45)	48	264
Switched 10BaseFL Ethernet	12	132
Group Switched 100BaseTX Ethernet	24	264
Switched 10/100BaseTX	24	266
CDDI/FDDI	1	4
ATM Uplink DS-3/OC-3/OC-12	1 (dual PHY)	7 (14 dual PHY)
Gigabit Ethernet	9/3/2	38
Token Ring	16	176
Switched 100BaseFX	12	132

Table 2 Catalyst 5500 ATM Switch Modules

Catalyst 5500 Switching Modules	Number of Interfaces Supported per Module	Maximum Number of Interfaces
ATM OC-3, 155-Mbps Multimode Fiber (Catalyst 5500 only)	4	32
ATM OC-3, 155-Mbps Single-Mode Fiber (Catalyst 5500 only)	4	32
ATM OC-3, 155-Mbps Unshielded Twisted-Pair, Category 5 (UTP-5) (Catalyst 5500 only)	4	32
ATM OC-12, 622-Mbps Single-Mode Fiber (Catalyst 5500 only)	1	8
DS3 (Catalyst 5500 only)	2/4	16/32
E-3 (Catalyst 5500 only)	2	16
T1/E1 ATM Trunk (Catalyst 5500 only)	4	32
T1/E1 Circuit Emulation (Catalyst 5500 only)	4	32
25-Mbps ATM (Catalyst 5500 only)	12	96

Intranet Services

The Catalyst 5000 Family switches are ideally suited for building large campus intranets by delivering a full set of intranet services as part of the solution in order to deliver the application integrity required by large intranets. These services enable timely and quality delivery of applications to the desktop in the corporate intranet.

Efficient intranet multimedia and multicast support through Protocol Independent Multicast (PIM), Internet Group Management Protocol (IGMP), and the Cisco Group Management Protocol (CGMP) delivers end-to-end, scalable bandwidth for multimedia and multicast applications.

QoS on every desktop will be supported by mapping Resource Reservation Protocol (RSVP) to Catalyst 5000 Family priority queues, ensuring timely delivery of time-sensitive intranet applications.

Network resilience is achieved through a combination of device, link, and network service redundancy supported on the Catalyst 5000 Family. Device redundancy is provided with support for redundant switch engines, power supplies, and route switch modules. Link redundancy is implemented on the Cisco dual-physical sublayer (PHY) ATM modules, integrated in Fast EtherChannel or Gigabit EtherChannel technology, and supported on all virtual LAN (VLAN) trunk links. Network service redundancy is achieved through ATM Simple Server Redundancy Protocol (SSRP), Hot Standby Router Protocol (HSRP), and support for Spanning-Tree Protocol on a per-VLAN basis.

Security in the intranet is supported with secure port filtering, enabling individual ports to allow access only to certain workstations. TACACS+ prevents unauthorized access to the switch in secure environments.

Mobility or moves, adds, and changes in the intranet are supported using Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS), along with dynamic VLAN services and distributed NetFlow LAN switching for optimal, scalable performance, regardless of location.

Intranet Management

The Catalyst 5000 Family delivers a comprehensive set of management tools to provide the required visibility and control in the network.

Managed with CiscoWorks for Switched Internetworks (CWSI), Catalyst family switches can be configured and managed to deliver end-to-end device, VLAN, traffic, ATM, and policy management.

Policy management is achieved through a combination of intelligent, embedded agents on the switches and CWSI, a powerful network management application. CWSI will provide policy management for all Cisco network services, including QoS, multicast, security, network resiliency, and mobility of users. Policy management is implemented using the Cisco Virtual Membership Policy Server (VMPS). VMPS is present on all Catalyst 5000 Family switches and delivers the database information required to implement policies for all Cisco network services.

Intelligent, embedded agents on all Catalyst 5000 Family switches include support for Cisco Discovery Protocol (CDP)—delivering network topology discovery and mapping, and Cisco Virtual Trunking Protocol (VTP)—supporting dynamic VLANs and dynamic trunk configuration across all switches. Embedded intelligent Remote Monitoring (RMON) agents on every port deliver powerful traffic monitoring and control—RMON groups supported include statistics, history, events, host, and alarms groups.

Enhanced Switched Port Analyzer (SPAN) functionality enables the user to mirror traffic on any port or VLAN to another Ethernet or Fast Ethernet port for analysis by a sniffer or RMON SwitchProbe® product.

Support for local, out-of-band management is delivered through a terminal or modem attached to the EIA/TIA-232 interface; remote in-band management is available as a Simple Network Management Protocol (SNMP), Telnet client, BOOTP, and Trivial File Transfer Protocol (TFTP).

Quality of Service

The Catalyst 5500 Series supports the most advanced traffic management, congestion control, and ATM signaling and routing capabilities. For frame switching, the Catalyst 5500 Series implements active congestion control and extensive buffering mechanisms to ensure timely delivery of packets without packet loss, even in severely congested situations. QoS across the frame switching fabric is implemented using a three-level priority scheme. The Catalyst 5500 Series supports three levels of priority on the switching backplane; two levels are user-defined. Each interface can be set as either high priority or low priority (default is low). The Catalyst 5500 Series maintains the third priority group above the user's high priority for ports with buffers nearing overflow or extended time periods off the switching backplane. The bus arbitration logic maintains separate logical queues for each priority class and guarantees that high-priority queues are served first, reducing latency caused by buffering delays. This feature is ideal for such time-sensitive traffic as voice or video.

With the NetFlow Feature Card II, the Catalyst 5000 Family supports key wiring closet QoS features such as application recognition, traffic classification, and admission control. These advanced features are an important element in the Cisco end-to-end CiscoAssure architecture, which lets users deploy network-wide QoS through a user-friendly graphical user interface. Once packets are classified at the edge of the network, they can be serviced appropriately by devices at the core of the network, such as the Catalyst 6000 Family of LAN switches or the Catalyst 8500 Family of switch routers.

As an intranet service, the Catalyst 5500 Series also supports efficient intranet multimedia and multicast support through the use of Protocol Independent Multicast (PIM), Internet Group Management Protocol (IGMP), and Cisco Group Management Protocol (CGMP), delivering end-to-end, scalable bandwidth for multimedia and multicast applications.

In addition to ATM Forum-compliant available bit rate (ABR) congestion control, the Catalyst 5500 supports all the mechanisms required to deliver QoS on demand—all ATM traffic classes and ATM adaptation layer (AAL) types, traffic policing, multiple levels of priority, intelligent packet discard, connection admission control, and traffic pacing. All these capabilities are supported on the field-replaceable feature card on the ASP module, allowing for easy upgrading as and when newer mechanisms are standardized or required. The Catalyst 5500 also supports the User-Network Interface (UNI) 3.1 signaling protocol and the Interim Local Management Interface (ILMI) protocol, required for full support of both signaled and permanent ATM connections. Soft permanent virtual circuit (PVC) support facilitates PVC setup by using signaling protocols across the network, while virtual path (VP) tunneling enables signaling across public networks.

In order to extend ATM signaling support across large-scale, multivendor, multiswitch ATM internetworks, the Catalyst 5500 also supports the ATM Forum Private Network-to-Network Interface (PNNI) protocols, supplementing support also for the earlier Interim-Interswitch Signaling Protocol (IISP). The IISP protocol is part of the default software image on the switch; the PNNI functionality must be ordered separately. These routing protocols allow for ATM connections to be set up across large networks while also supporting QoS on demand. Additional ATM routing capabilities allow for load balancing across parallel, redundant links, increasing system reliability, while ATM access lists enable firewalls on ATM signaling, safeguarding networks from unauthorized access.

Summary

The Catalyst 5000 Family brings new levels of scalability, flexibility, and functionality to the network. With the wide range of modules and comprehensive set of software services available, the Catalyst 5000 Family effectively meets all requirements of the new corporate intranet.

Specifications for the Catalyst 5000 Family

Standard Networking Protocols

- IEEE 802.1Q, 802.1p, 802.3x
- Ethernet: IEEE 802.3, 10BaseT, 10BaseFL
- Fast Ethernet: IEEE 802.3u, 100BaseTX, 100BaseFX
- Gigabit Ethernet: IEEE 802.3z Fiber Distributed Data Interface (FDDI)
- FDDI: ISO 9314-1 FDDI (PHY) standard; ISO 9314-3 FDDI physical medium dependent (PMD) standard; Copper Distributed Data Interface (CDDI) transaction processing (TP)-PMD standard; ANSI FDDI X3T9.5 Station Management (SMT) 7.3
- ATM: ATM Forum—3.1 User-Network Interface (UNI) specification, Q.2931 signaling protocols, LAN Emulation (LANE) v.1.0 Lane User-to-Network Interface (LUNI) v.2.0., Multiprotocol over ATM (MPOA)

Network Management

CWSI Campus, a graphical user interface (GUI) based product for managing Catalyst and LightStream switches, includes the following applications:

- CiscoView device configuration software
- VlanDirector™ software
- TrafficDirector™ software
- AtmDirector™ software

Other supported network management products, protocols and interfaces include:

- Resource Manager Essentials
- Netsys technologies
- Cisco Discovery Protocol
- VLAN Trunking Protocol (VTP)
- SNMP agent V.1 (RFCs 1155-1157)
- SNMPv2c
- Cisco WorkGroup Management Information Base (MIB)
- Ethernet MIB (RFC 1643)
- Ethernet repeater MIB (RFC 1516)
- SNMP MIB II (RFC 1213)
- Remote Monitoring (RMON) (RFC 1757)
- Interface table (RFC 1573)
- Bridge MIB (RFC 1493)
- Interim Local Management Interface (ILMI) MIB
- FDDI MIB (RFC 1512)
- AToM MIB (RFC 1695)
- ATM RMON
- LAN Emulation Client (LEC) MIB (ATM Forum LANE v. 1.0)
- Cisco LAN Emulation Configuration Server (LECS), LAN Emulation Server/broadcast and unknown server (LES/BUS) MIB
- PNNI MIB
- LECS, LES, BUS, MIB
- SMT 7.3 (RFC 1285)
- Enhanced SPAN
- Port snooping and connection steering
- Text-based command-line interface based on familiar router interface
- Standard Cisco IOS security capabilities: passwords and TACACS+
- Telnet, Trivial File Transfer Protocol (TFTP), BOOTP, LEC, RFC 1577 classical IP over ATM client, for management access

Supervisor Engine Indicators and Interfaces

- System status: green (operational)/red (faulty)
- Switch load: 1 to 100 percent aggregate switching usage
- Link good: green (good)/orange (disabled)/off (not connected)
- 100-Mbps Fast Ethernet: green (100 Mbps)
- Power supply status: green (on)/red (faulty)/off (not present)
- Fan status: green (on)/red (faulty)
- Auxiliary port (Supervisor Engine III only)
- RJ-45 (female) data terminal equipment (DTE)

Supervisor Console

- Supervisor Engine I, II: DB-25 (female) data communications equipment (DCE)
- Supervisor Engine III: RJ-45 (female) DCE

Environmental Conditions

- Operating temperature: 32 to 104˚F (0 to 40˚C)
- Storage temperature: -40 to 167˚F (-40 to 75˚C)
- Relative humidity: 10% to 90%, noncondensing
- Operating altitude: -60 to 4000 m
- Mean time between failures (MTBF): seven years for system configuration

Safety Certifications

- UL 1950
- EN 60950
- CSA-C22.2 No. 950
- IEC 950

Electromagnetic Emissions Certifications

- FCC 15J Class A
- VCCI CE II
- CE Mark
- EN 55022 Class B
- CISPR 22 Class B

Additional Catalyst 5500 Specifications

Signaling and Routing

- UNI 3.1
- ILMI
- PNNI Phase 1, IISP
- Soft permanent virtual circuit/permanent virtual path (PVC/PVP) support
- ATM access lists and firewalls
- Crankback
- "Plug-and-play" mode with PNNI image
- Redundant link support with load balancing or best-fit selection

Traffic Management

- Single, dual-mode leaky bucket traffic policing
- Per-port traffic pacing
- Multiple, configurable per connection, port, and switch thresholds
- Multiple priority classes
- All ATM connection types and ATM adaption layers (AALs)
- Connection admission control
- Cell loss priority (CLP) tagging and discard
- Intelligent packet discard
- Available bit rate support: Explicit Forward Congestion Indication (EFCI) marking mode and relative rate marking mode

Physical Specifications

	Catalyst 5500	Catalyst 5000/5505	Catalyst 5002	Catalyst 5509
Physical Specifications	• Dimensions (H x W x D): 25.25 x 17.3 x 18.25 in. (64.14 x 43.9 x 46.36 cm) • Minimum weight: 70 lb/31.7 kg • Maximum weight: 160 lb/72.5 kg • Mounting: 19-in. rack-compatible (rack and cable guide hardware included) • 23-in. center rack-mount available on request	• Dimensions (H x W x D): 10.4 x 17.21 x 18.14 in. (26.2 x 42.5 x 44.5 cm) • Minimum weight: 43 lb/19.5 kg • Maximum weight: 84 lb/39 kg • Mounting: 19-in. rack-compatible (rack and cable guide hardware included) • 23-in. center rack-mount available on request	• Dimensions (H x W x D): 5.75 x 17 x 18 in. (14.6 x 43.2 x 45.7 cm) • Weight: 35 lb/15.9 kg • Mounting: 19-in. rack-compatible (rack and cable guide hardware included)	• Dimensions (H x W x D): 20 x 17.25x18.4 in. (50.8 x 43.1 x 46.0 cm) • Minimum weight: 55 lb (24.9 kg) • Maximum weight: 150 lb (67.9 kg) • Mounting: 19-in. rack-compatible (rack and cable guide hardware included) • 23- in. center rack-mount available on request
Power Requirements	• 16A @ 115 VAC 60 Hz • KVA rating: 1.84 KVA • 8.0A @ 230 VAC 50 Hz • Power consumption: 1100W	• 8.0A @ 100 VAC 60 Hz • KVA rating: 8 KVA • 4.0A @ 200 VAC 50 Hz • Power consumption: 376W	• 5.0A @ 100 VAC 60 Hz • KVA rating: 0.5 KVA • 2.5A @ 200 VAC 50 Hz • Power consumption: 250W	• 120A @ 100 VAC 60 Hz • KVA rating: 1.3 KVA • 6.0A @ 200 VAC 50 Hz • Power consumption: 1081W

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