



## HP MSR30 Series

Data sheet

### Product overview

The HP MSR30 router series is a component of the HP FlexBranch solution, which is part of the HP FlexNetwork architecture. MSR30 series routers are ideal for medium to large enterprise branch and regional offices. They provide unmatched performance, integrated routing, switching, security, wireless, and voice services with a rich set of modular WAN/LAN connectivity options in a single device to reduce operating and capital costs and simplify complexity. HP MSR30 series routers are purpose-built routing platforms that deliver embedded applications, enhanced security, and performance acceleration, as well as support a wide range of flexible LAN, WAN, and voice interface options to enable remote users in branch locations to securely and reliably access enterprise applications and corporate resources.

### Key features

- Converged routing, switching, voice, security
- Embedded encryption, firewall, security features
- OAA with converged IP telephony solution
- Unified wired and wireless WAN/LAN
- Support for AC/DC power and PoE



## Features and benefits

### Quality of Service (QoS)

- **Traffic policing:** supports Committed Access Rate (CAR) and line rate
- **Congestion management:** supports FIFO, PQ, CQ, WFQ, CBQ, and RTPQ
- **Congestion avoidance:** Weighted Random Early Detection (WRED)/Random Early Detection (RED)
- **Other QoS technologies:** support traffic shaping, FR QoS, MPLS QoS, and MP QoS/LFI

### Management

- **Management interface control:** provides management access through modem port and terminal interface; provides access through terminal interface, telnet, or SSH
- **Industry-standard CLI with a hierarchical structure:** reduces training time and expenses, and increases productivity in multivendor installations
- **Management security:** multiple privilege levels with password protection restrict access to critical configuration commands; ACLs provide telnet and SNMP access; local and remote syslog capabilities allow logging of all access
- **SNMPv1, v2, and v3:** provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption
- **Remote monitoring (RMON):** uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group
- **FTP, TFTP, and SFTP support:** FTP allows bidirectional transfers over a TCP/IP network and is used for configuration updates; Trivial FTP is a simpler method using User Datagram Protocol (UDP)
- **Debug and sampler utility:** supports ping and traceroute for both IPv4 and IPv6
- **Network Time Protocol (NTP):** synchronizes timekeeping among distributed time servers and clients; keeps consistent timekeeping among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time

- **Info center:** provides a central information center for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules
- **Network Quality Analyzer (NQA):** analyzes network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays; allows network manager to determine overall network performance and diagnose and locate network congestion points or failures

### Connectivity

- **High-density port connectivity:** provides up to 10 interface module slots and up to 90 Fast Ethernet ports
- **Multiple WAN interfaces:** provide a traditional link with E3, T3, E1, T1, ADSL, ADSL2, ADSL2+, G.SHDSL, ATM, OC-3, POS, Serial, and ISDN/AM backup; provide high-density Ethernet access with WAN Fast Ethernet/Gigabit Ethernet, LAN 4-/9-/16-/24-port Fast Ethernet, and PoE; provide mobility access with 802.11b/g/n Wi-Fi and 3G
- **Ideal IP telephony solutions:** support FXO, FXS, T1, E1, and BRI in various densities; support SIP voice communications to VCX; provide Web browser-based administration, Smart Dial Routing, FXS and FXO 1:1 binding for all ports, Power to Escape to PSTN when IP failures occur, and Enhanced Local MSR Survivability
- **Flexible port selection:** provides a combination of fiber and copper interface modules, 100/1000BASE-X auto-speed selection, and 10/100/1000BASE-T auto-speed detection plus auto duplex and MDI/MDI-X
- **Packet storm protection:** protects against broadcast, multicast, or unicast storms with user-defined thresholds
- **Loopback:** supports internal loopback testing for maintenance purposes and an increase in availability; loopback detection protects against incorrect cabling or network configurations and can be enabled on a per-port or per-VLAN basis for added flexibility
- **3G access support:** provides 3G wireless access for primary or backup connectivity via a 3G SIC module certified on various cellular networks; optional carrier 3G USB modems are available

## Performance

- **Excellent forwarding performance:** provides forwarding performance from 220 Kpps to 360 Kpps; meets current and future bandwidth-intensive application demands of enterprise businesses
- **Powerful encryption capacity:** includes embedded hardware encryption accelerator to improve encryption performance
- **Flexible chassis selection:** offers a choice of more than five routers, meeting different requirements on enterprise branches

## Resiliency and high availability

- **Backup Center:** acts as a part of the management and backup function to provide backup for device interfaces; delivers reliability by switching traffic over to a backup interface when the primary one fails
- **External redundant power supply:** provides high reliability
- **Virtual Router Redundancy Protocol (VRRP):** allows groups of two routers to dynamically back each other up to create highly available routed environments; supports VRRP load balancing

## Layer 2 switching

- **Spanning Tree Protocol:** fully supports standard IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol
- **Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) protocol snooping:** effectively control and manage the flooding of multicast packets in a Layer 2 network
- **Port mirroring:** duplicates port traffic (ingress and egress) to a local or remote monitoring port
- **VLANs:** support up to 4,094 port or IEEE 802.1Q-based VLANs
- **sFlow:** allows traffic sampling

## Layer 3 services

- **Address Resolution Protocol (ARP):** determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- **User Datagram Protocol (UDP) helper:** redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP):** simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets

## Layer 3 routing

- **Static IPv4 routing:** provides simple, manually configured IPv4 routing
- **Routing Information Protocol:** uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection
- **Border Gateway Protocol 4 (BGP-4):** Exterior Gateway Protocol (EGP) with path vector protocol uses TCP for enhanced reliability for the route discovery process, reduces bandwidth consumption by advertising only incremental updates, and supports extensive policies for increased flexibility, as well as scales to very large networks
- **OSPF:** Interior Gateway Protocol (IGP) uses link-state protocol for faster convergence; supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Intermediate system to intermediate system (IS-IS):** Interior Gateway Protocol (IGP) uses path vector protocol, which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **Static IPv6 routing:** provides simple, manually configured IPv6 routing
- **Dual IP stack:** maintains separate stacks for IPv4 and IPv6 to ease transition from an IPv4-only network to an IPv6-only network design
- **Routing Information Protocol next generation (RIPng):** extends RIPv2 to support IPv6 addressing
- **OSPFv3:** provides OSPF support for IPv6

- **BGP+:** extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **IS-IS for IPv6:** extends IS-IS to support IPv6 addressing
- **IPv6 tunneling:** is an important element for the transition from IPv4 to IPv6; allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6to4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels
- **Multiprotocol Label Switching (MPLS):** uses BGP to advertise routes across Label Switched Paths (LSPs), but uses simple labels to forward packets from any Layer 2 or Layer 3 protocol, thus reducing complexity and increasing performance; supports graceful restart for reduced failure impact; supports LSP tunneling and multilevel stacks
- **Multiprotocol Label Switching (MPLS) Layer 3 VPN:** allows Layer 3 VPNs across a provider network; uses MP-BGP to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility; supports IPv6 MPLS VPN
- **Multiprotocol Label Switching (MPLS) Layer 2 VPN:** establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS Label Distribution Protocol (LDP); requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies
- **Policy routing:** allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies

## Security

- **Access control list (ACL):** supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times
- **TACACS+:** is an authentication tool using TCP with encryption of the full authentication request that provides additional security
- **Media access control (MAC) authentication:** provides simple authentication based on a user's MAC address; supports local or RADIUS-based authentication
- **Network login:** standard IEEE 802.1x allows authentication of multiple users per port
- **RADIUS:** eases security access administration by using a password authentication server
- **Network address translation (NAT):** supports one-to-one NAT, many-to-many NAT, and NAT control, enabling NAT-PT to support multiple connections; supports blacklist in NAT/NAT-PT, a limit on the number of connections, session logs, and multi-instances
- **Secure Shell (SSHv2):** uses external servers to securely login into a remote device or securely login into MSR from a remote location; with authentication and encryption, it protects against IP spoofing and plain text password interception; increases the security of SFTP transfers
- **Unicast Reverse Path Forwarding (URPF):** allows normal packets to be forwarded correctly, but discards the attaching packet due to lack of reverse path route or incorrect inbound interface; prevents source spoofing and distributed attacks
- **IPSec VPN:** supports DES, 3DES, AES 128/192/256 encryption, and MD5 and SHA-1 authentication
- **DVPN (Dynamic Virtual Private Network):** collects, maintains, and distributes dynamic public addresses through the VPN Address Management (VAM) protocol, making VPN establishment available between enterprise branches that use dynamic addresses to access the public network; compared to traditional VPN technologies, DVPN technology is more flexible and has richer features, such as NAT traversal of DVPN packets, AAA identity authentication, IPSec protection of data packets, and multiple VPN domains

## Convergence

- **Internet Group Management Protocol (IGMP):** is used by IP hosts to establish and maintain multicast groups; supports IGMPv1, v2, and v3; utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks
- **Protocol Independent Multicast (PIM):** is used for IPv4 and IPv6 multicast applications; supports PIM Dense Mode (PIM-DM), Sparse Mode (PIM-SM), and Source-Specific Mode (PIM-SSM)
- **Multicast Source Discovery Protocol (MSDP):** is used for inter-domain multicast applications, allowing multiple PIM-SM domains to interoperate
- **Multicast Border Gateway Protocol (MBGP):** allows multicast traffic to be forwarded across BGP networks and kept separate from unicast traffic

## Integration

- **Embedded NetStream:** local and global server load-balancing module improves traffic distribution using powerful scheduling algorithms, including Layer 4 to 7 services; monitors the health status of servers and firewalls
- **Embedded VPN firewall:** provides enhanced stateful packet inspection and filtering; delivers advanced VPN services with Triple DES (3DES) and Advanced Encryption Standard (AES) encryption at high performance and low latency, Web content filtering, and application prioritization and enhancement

## Additional information

- **OPEX savings:** a common operating system simplifies and streamlines deployment, management, and training, thereby cutting costs as well as reducing the chance for human errors associated with having to manage multiple operating systems across different platforms and network layers
- **High reliability:** provides a state-of-the-art unified code base
- **Faster time to market:** engineering efficiencies allow new and custom features to be brought rapidly to the market with better initial and ongoing stability
- **Green initiative support:** provides support for RoHS and WEEE regulations

## Product architecture

- **Ideal multiservice platform:** provides WAN router, Ethernet switch, wireless LAN, 3G WAN, firewall, VPN, and SIP/voice gateway all in one box
- **High-density voice interfaces:** provide flexible analog and digital voice interface options for easy integration within a wide range of deployments
- **Embedded service modules for security and voice:** embedded Voice Co-Processing Modules (VCPMs) and Voice Processing Modules (VPMs) accommodate digital signal processor (DSP) modules for voice packet processing; embedded hardware encryption modules, Standard Network Data Encryption (SNDE) cards, and Advanced Network Data Encryption (ANDE) cards do not occupy I/O slots
- **Open application architecture:** with open application architecture, MSR series routers provide unmatched application and services flexibility, and have the potential to deliver the functionality of multiple devices, creating capital and operational expense savings and lasting investment protection
- **USB interface:** uses USB memory disk to download and upload configuration files; supports external USB 3G modem for 3G WAN uplink
- **Flexible modular design:** includes multiple types of modules that meet different requirements, such as Smart Interface Cards (SICs), which are small and cost-effective modules; Multi-functional Interface Modules (MIMs), which are more high-density and affordable modules; Flexible Interface Cards (FICs), which provide high reliability and are hot-swappable; and double-width modules, which provide high density
- **SIP trunk:** the SIP trunk link can carry multiple concurrent calls, and the carrier authenticates only the link, rather than carrying each SIP call on this link

## Warranty and support

- **1-year warranty:** with advance replacement and 30-calendar-day delivery (available in most countries)
- **Electronic and telephone support:** limited electronic and telephone support is available from HP; to reach our support centers, refer to [www.hp.com/networking/contact-support](http://www.hp.com/networking/contact-support); for details on the duration of support provided with your product purchase, refer to [www.hp.com/networking/warrantysummary](http://www.hp.com/networking/warrantysummary)

- **Software releases:** to find software for your product, refer to [www.hp.com/networking/support](http://www.hp.com/networking/support); for details on the software releases available with your product purchase, refer to [www.hp.com/networking/warrantysummary](http://www.hp.com/networking/warrantysummary)

## Specifications



**HP MSR30-10 Router (JF816A)**



**HP MSR30-10 DC Router (JG184A)**



**HP MSR30-11 Router (JF800A)**

|  | HP MSR30-10 Router (JF816A)   | HP MSR30-10 DC Router (JG184A)  | HP MSR30-11 Router (JF800A)   |
|--|---|---|---|
| <b>Ports</b>                           | 2 SIC slots<br><br>1 MIM module slot<br><br>2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full  | 2 SIC slots<br><br>1 MIM module slot<br><br>2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full  | 2 SIC slots<br><br>1 MIM module slot<br><br>1 Serial port<br><br>2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full   |
| <b>Physical characteristics</b>        |   |   |   |
| Dimensions                             | 14.17(d) x 17.4(w) x 1.74(h) in. (36 x 44.2 x 4.42 cm) (1U height)  | 14.17(d) x 17.4(w) x 1.74(h) in. (36 x 44.2 x 4.42 cm) (1U height)  | 14.17(d) x 17.4(w) x 1.74(h) in. (36 x 44.2 x 4.42 cm) (1U height)  |
| Weight                                 | 10.58 lb. (4.8 kg)  | 10.58 lb. (4.8 kg)  | 10.14 lb. (4.6 kg)  |
| <b>Memory and processor</b>            |   |   |   |
| Processor                              | RISC @ 333 MHz, 256 MB DDR SDRAM, 256 MB flash  | RISC @ 333 MHz, 256 MB DDR SDRAM, 256 MB flash  | RISC @ 333 MHz, 256 MB DDR SDRAM, 32 MB flash   |
| <b>Mounting</b>                        | Mounts in an EIA-standard 19 in. telco rack   | Mounts in an EIA-standard 19 in. telco rack   | Mounts in an EIA-standard 19 in. telco rack   |
| <b>Performance</b>                     |   |   |   |
| Throughput                             | 220 Kpps (64-byte packets)  | 220 Kpps (64-byte packets)  | 220 Kpps (64-byte packets)  |
| Routing table size                     | 30000 entries   | 30000 entries   | 30000 entries   |
| <b>Environment</b>                     |   |   |   |
| Operating temperature                  | 32°F to 104°F (0°C to 40°C)   | 32°F to 104°F (0°C to 40°C)   | 32°F to 104°F (0°C to 40°C)   |
| Operating relative humidity            | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  |
| Nonoperating/Storage temperature       | -40°F to 158°F (-40°C to 70°C)  | -40°F to 158°F (-40°C to 70°C)  | -40°F to 158°F (-40°C to 70°C)  |
| Nonoperating/Storage relative humidity | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  |
| <b>Electrical characteristics</b>      |   |   |   |
| Maximum heat dissipation               | 113 BTU/hr (119.21 kJ/hr)   | 113 BTU/hr (119.21 kJ/hr)   | 113 BTU/hr (119.21 kJ/hr)   |
| Voltage                                | 100-120/200-240 VAC   |   | 100-120/200-240 VAC   |
| DC voltage                             |   | -48 to -60 VDC, rated   |   |
| Maximum power rating                   | 54 W  | 54 W  | 54 W  |
| Frequency                              | 50/60 Hz  |   | 50/60 Hz  |
| Notes                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   |
| <b>Safety</b>                          | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  |
| <b>Emissions</b>                       | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 |
| <b>Telecom</b>                         | FCC part 68   | FCC part 68   | FCC part 68   |
| <b>Management</b>                      | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   |
| <b>Notes</b>                           | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   |
| <b>Services</b>                        | 3-year, parts only, global next-day advance exchange (UX150E)<br><br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)   | 3-year, parts only, global next-day advance exchange (UX150E)<br><br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)   | 3-year, parts only, global next-day advance exchange (UX150E)<br><br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)   |

## Specifications (continued)

| HP MSR30-10 Router (JF816A)   | HP MSR30-10 DC Router (JG184A)  | HP MSR30-11 Router (JF800A)   |
|---|---|---|
| 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)  |
| 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)  |
| 3-year, 24x7 SW phone support, software updates (UX160E)  | 3-year, 24x7 SW phone support, software updates (UX160E)  | 3-year, 24x7 SW phone support, software updates (UX160E)  |
| 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)   | 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)   | 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)   |
| 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)  | 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)  | 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)  |
| 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)  | 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)  | 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)  |
| 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)   | 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)   | 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)   |
| 4-year, 24x7 SW phone support, software updates (UX161E)  | 4-year, 24x7 SW phone support, software updates (UX161E)  | 4-year, 24x7 SW phone support, software updates (UX161E)  |
| 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  | 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  | 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  |
| 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  | 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  | 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  |
| 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)   | 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)   | 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)   |
| 5-year, 24x7 SW phone support, software updates (UX162E)  | 5-year, 24x7 SW phone support, software updates (UX162E)  | 5-year, 24x7 SW phone support, software updates (UX162E)  |
| 3 Yr 6 hr Call-to-Repair Onsite (UX163E)  | 3 Yr 6 hr Call-to-Repair Onsite (UX163E)  | 3 Yr 6 hr Call-to-Repair Onsite (UX163E)  |
| 4 Yr 6 hr Call-to-Repair Onsite (UX164E)  | 4 Yr 6 hr Call-to-Repair Onsite (UX164E)  | 4 Yr 6 hr Call-to-Repair Onsite (UX164E)  |
| 5 Yr 6 hr Call-to-Repair Onsite (UX165E)  | 5 Yr 6 hr Call-to-Repair Onsite (UX165E)  | 5 Yr 6 hr Call-to-Repair Onsite (UX165E)  |
| 1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)  | 1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)  | 1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)  |
| 1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)  | 1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)  | 1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)  |
| 1-year, 24x7 software phone support, software updates (HR552E)  | 1-year, 24x7 software phone support, software updates (HR552E)  | 1-year, 24x7 software phone support, software updates (HR552E)  |
| 1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)  | 1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)  | 1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)  |
| Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office. | Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office. | Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office. |



## Specifications (continued)

|   | HP MSR30-10 Router (JF816A)   | HP MSR30-10 DC Router (JG184A)   | HP MSR30-11 Router (JF800A)   |
|---|---|--|---|
| <b>Standards and protocols</b><br>(applies to all products in series) | <p><b>BGP</b></p> <ul style="list-style-type: none"> <li>RFC 1163 Border Gateway Protocol (BGP)</li> <li>RFC 1267 Border Gateway Protocol 3 (BGP-3)</li> <li>RFC 1657 Definitions of Managed Objects for BGPv4</li> <li>RFC 1771 BGPv4</li> <li>RFC 1772 Application of the BGP</li> <li>RFC 1773 Experience with the BGP-4 Protocol</li> <li>RFC 1774 BGP-4 Protocol Analysis</li> <li>RFC 1965 BGP4 confederations</li> <li>RFC 1997 BGP Communities Attribute</li> <li>RFC 1998 PPP Gandalf FZA Compression Protocol</li> <li>RFC 2385 BGP Session Protection via TCP MD5</li> <li>RFC 2439 BGP Route Flap Damping</li> </ul> <p><b>Denial of service protection</b></p> <ul style="list-style-type: none"> <li>CPU DoS Protection</li> <li>Rate Limiting by ACLs</li> </ul> <p><b>Device management</b></p> <ul style="list-style-type: none"> <li>RFC 1305 NTPv3</li> <li>RFC 1945 Hypertext Transfer Protocol - HTTP/1.0</li> <li>RFC 2271 FrameWork</li> <li>RFC 2452 MIB for TCP6</li> <li>RFC 2454 MIB for UDP6</li> </ul> <p><b>General protocols</b></p> <ul style="list-style-type: none"> <li>IEEE 802.1D MAC Bridges</li> <li>IEEE 802.1p Priority</li> <li>IEEE 802.1Q VLANs</li> <li>IEEE 802.1s Multiple Spanning Trees</li> <li>IEEE 802.1w Rapid Reconfiguration of Spanning Tree</li> <li>RFC 768 UDP</li> <li>RFC 783 TFTP Protocol (revision 2)</li> <li>RFC 791 IP</li> <li>RFC 792 ICMP</li> <li>RFC 793 TCP</li> <li>RFC 826 ARP</li> <li>RFC 854 TELNET</li> <li>RFC 855 Telnet Option Specification</li> <li>RFC 856 TELNET</li> <li>RFC 858 Telnet Suppress Go Ahead Option</li> <li>RFC 894 IP over Ethernet</li> <li>RFC 925 Multi-LAN Address Resolution</li> <li>RFC 950 Internet Standard Subnetting Procedure</li> <li>RFC 959 File Transfer Protocol (FTP)</li> <li>RFC 1006 ISO transport services on top of the TCP: Version 3</li> <li>RFC 1027 Proxy ARP</li> <li>RFC 1034 Domain Concepts and Facilities</li> <li>RFC 1035 Domain Implementation and Specification</li> <li>RFC 1042 IP Datagrams</li> <li>RFC 1058 RIPv1</li> <li>RFC 1071 Computing the Internet Checksum</li> <li>RFC 1091 Telnet Terminal-Type Option</li> <li>RFC 1122 Host Requirements</li> <li>RFC 1141 Incremental updating of the Internet checksum</li> <li>RFC 1142 OSI IS-IS Intra-domain Routing Protocol</li> <li>RFC 1144 Compressing TCP/IP headers for low-speed serial links</li> <li>RFC 1195 OSI ISIS for IP and Dual Environments</li> <li>RFC 1256 ICMP Router Discovery Protocol (IRDP)</li> <li>RFC 1293 Inverse Address Resolution Protocol</li> <li>RFC 1315 Management Information Base for Frame Relay DTEs</li> <li>RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)</li> <li>RFC 1333 PPP Link Quality Monitoring</li> <li>RFC 1334 PPP Authentication Protocols (PAP)</li> <li>RFC 1349 Type of Service</li> <li>RFC 1350 TFTP Protocol (revision 2)</li> <li>RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)</li> <li>RFC 1381 SNMP MIB Extension for X.25 LAPB</li> </ul> | <ul style="list-style-type: none"> <li>RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol</li> <li>RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol</li> <li>RFC 1490 Multiprotocol Interconnect over Frame Relay</li> <li>RFC 1519 CIDR</li> <li>RFC 1534 DHCP/BOOTP Interoperation</li> <li>RFC 1542 Clarifications and Extensions for the Bootstrap Protocol</li> <li>RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)</li> <li>RFC 1577 Classical IP and ARP over ATM</li> <li>RFC 1613 Cisco Systems X.25 over TCP (XOT)</li> <li>RFC 1624 Incremental Internet Checksum</li> <li>RFC 1631 NAT</li> <li>RFC 1638 PPP Bridging Control Protocol (BCP)</li> <li>RFC 1661 The Point-to-Point Protocol (PPP)</li> <li>RFC 1662 PPP in HDLC-like Framing</li> <li>RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2</li> <li>RFC 1701 Generic Routing Encapsulation</li> <li>RFC 1702 Generic Routing Encapsulation over IPv4 networks</li> <li>RFC 1721 RIP-2 Analysis</li> <li>RFC 1722 RIP-2 Applicability</li> <li>RFC 1723 RIP v2</li> <li>RFC 1795 Data Link Switching: Switch-to-Switch Protocol A1W DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1</li> <li>RFC 1812 IPv4 Routing</li> <li>RFC 1829 The ESP DES-CBC Transform</li> <li>RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses</li> <li>RFC 1944 Benchmarking Methodology for Network Interconnect Devices</li> <li>RFC 1973 PPP in Frame Relay</li> <li>RFC 1974 PPP Stac LZS Compression Protocol</li> <li>RFC 1990 The PPP Multilink Protocol (MP)</li> <li>RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)</li> <li>RFC 2091 Trigger RIP</li> <li>RFC 2131 DHCP</li> <li>RFC 2132 DHCP Options and BOOTP Vendor Extensions</li> <li>RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements</li> <li>RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification</li> <li>RFC 2280 Routing Policy Specification Language (RPSL)</li> <li>RFC 2284 EAP over LAN</li> <li>RFC 2338 VRRP</li> <li>RFC 2364 PPP Over AAL5</li> <li>RFC 2374 An Aggregatable Global Unicast Address Format</li> <li>RFC 2451 The ESP CBC-Mode Cipher Algorithms</li> <li>RFC 2453 RIPv2</li> <li>RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols</li> <li>RFC 2511 Internet X.509 Certificate Request Message Format</li> <li>RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)</li> <li>RFC 2644 Directed Broadcast Control</li> <li>RFC 2661 L2TP</li> <li>RFC 2663 NAT Terminology and Considerations</li> <li>RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5</li> <li>RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)</li> <li>RFC 2702 Requirements for Traffic Engineering Over MPLS</li> <li>RFC 2747 RSVP Cryptographic Authentication</li> <li>RFC 2763 Dynamic Name-to-System ID mapping support</li> </ul> | <ul style="list-style-type: none"> <li>RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)</li> <li>RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)</li> <li>RFC 2784 Generic Routing Encapsulation (GRE)</li> <li>RFC 2787 Definitions of Managed Objects for VRRP</li> <li>RFC 2961 RSVP Refresh Overhead Reduction Extensions</li> <li>RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS</li> <li>RFC 2973 IS-IS Mesh Groups</li> <li>RFC 2993 Architectural Implications of NAT</li> <li>RFC 3022 Traditional IP Network Address Translator (Traditional NAT)</li> <li>RFC 3027 Protocol Complications with the IP Network Address Translator</li> <li>RFC 3031 Multiprotocol Label Switching Architecture</li> <li>RFC 3032 MPLS Label Stack Encoding</li> <li>RFC 3036 LDP Specification</li> <li>RFC 3046 DHCP Relay Agent Information Option</li> <li>RFC 3063 MPLS Loop Prevention Mechanism</li> <li>RFC 3065 Support AS confederation</li> <li>RFC 3137 OSPF Stub Router Advertisement</li> <li>RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels</li> <li>RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels</li> <li>RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)</li> <li>RFC 3214 LSP Modification Using CR-LDP</li> <li>RFC 3215 LDP State Machine</li> <li>RFC 3246 Expedited Forwarding PHB</li> <li>RFC 3268 Advanced Encryption Standard (AES) Ciphersuits for Transport Layer Security (TLS)</li> <li>RFC 3277 IS-IS Transient Blackhole Avoidance</li> <li>RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile</li> <li>RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile</li> <li>RFC 3392 Support BGP capabilities advertisement</li> <li>RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)</li> <li>RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering</li> <li>RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec</li> <li>RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers</li> <li>RFC 3784 ISIS TE support</li> <li>RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit</li> <li>RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management</li> <li>RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)</li> <li>RFC 3847 Restart signaling for IS-IS</li> </ul> <p><b>IP multicast</b></p> <ul style="list-style-type: none"> <li>RFC 1112 IGMP</li> <li>RFC 2236 IGMPv2</li> <li>RFC 2283 Multiprotocol Extensions for BGP-4</li> <li>RFC 2362 PIM Sparse Mode</li> <li>RFC 2934 Protocol Independent Multicast MIB for IPv4</li> <li>RFC 3376 IGMPv3</li> </ul> <p><b>IPv6</b></p> <ul style="list-style-type: none"> <li>RFC 1981 IPv6 Path MTU Discovery</li> <li>RFC 2080 RIPng for IPv6</li> <li>RFC 2292 Advanced Sockets API for IPv6</li> </ul> |

## Specifications (continued)

|   | HP MSR30-10 Router (JF816A)   | HP MSR30-10 DC Router (JG184A)  | HP MSR30-11 Router (JF800A)  |
|---|---|---|--|
| <b>Standards and protocols</b><br>(applies to all products in series) | RFC 2461 IPv6 Neighbor Discovery<br>RFC 2462 IPv6 Stateless Address Auto-configuration<br>RFC 2463 ICMPv6<br>RFC 2464 Transmission of IPv6 over Ethernet Networks<br>RFC 2472 IP Version 6 over PPP<br>RFC 2473 Generic Packet Tunneling in IPv6<br>RFC 2529 Transmission of IPv6 Packets over IPv4<br>RFC 2545 Use of MP-BGP-4 for IPv6<br>RFC 2553 Basic Socket Interface Extensions for IPv6<br>RFC 2740 OSPFv3 for IPv6<br>RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers<br>RFC 3056 Connection of IPv6 Domains via IPv4 Clouds<br>RFC 3513 IPv6 Addressing Architecture<br>RFC 3596 DNS Extension for IPv6<br><br><b>MIBs</b><br>RFC 1213 MIB II<br>RFC 1229 Interface MIB Extensions<br>RFC 1286 Bridge MIB<br>RFC 1493 Bridge MIB<br>RFC 1573 SNMP MIB II<br>RFC 1724 RIPv2 MIB<br>RFC 1757 Remote Network Monitoring MIB<br>RFC 1850 OSPFv2 MIB<br>RFC 2011 SNMPv2 MIB for IP<br>RFC 2012 SNMPv2 MIB for TCP<br>RFC 2013 SNMPv2 MIB for UDP<br>RFC 2233 Interfaces MIB<br>RFC 2454 IPV6-UDP-MIB<br>RFC 2465 IPV6 MIB<br>RFC 2466 ICMPv6 MIB<br>RFC 2618 RADIUS Client MIB<br>RFC 2620 RADIUS Accounting MIB<br>RFC 2674 802.1p and IEEE 802.1Q Bridge MIB<br>RFC 2737 Entity MIB (Version 2)<br>RFC 2863 The Interfaces Group MIB<br>RFC 2933 IGMP MIB<br>RFC 3813 MPLS LSR MIB | <b>Network management</b><br>IEEE 802.1D (STP)<br>RFC 1155 Structure of Management Information<br>RFC 1157 SNMPv1<br>RFC 1905 SNMPv2 Protocol Operations<br>RFC 2272 SNMPv3 Management Protocol<br>RFC 2273 SNMPv3 Applications<br>RFC 2274 USM for SNMPv3<br>RFC 2275 VACM for SNMPv3<br>RFC 2575 SNMPv3 View-based Access Control Model (VACM)<br>RFC 3164 BSD syslog Protocol<br><br><b>OSPF</b><br>RFC 1245 OSPF protocol analysis<br>RFC 1246 Experience with OSPF<br>RFC 1587 OSPF NSSA<br>RFC 1765 OSPF Database Overflow<br>RFC 1850 OSPFv2 Management Information Base (MIB), traps<br>RFC 2328 OSPFv2<br>RFC 2370 OSPF Opaque LSA Option<br>RFC 3101 OSPF NSSA<br><br><b>QoS/CoS</b><br>IEEE 802.1P (CoS)<br>RFC 2474 DS Field in the IPv4 and IPv6 Headers<br>RFC 2475 DiffServ Architecture<br>RFC 2597 DiffServ Assured Forwarding (AF)<br>RFC 2598 DiffServ Expedited Forwarding (EF)<br>RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP<br><br><b>Security</b><br>IEEE 802.1X Port Based Network Access Control<br>RFC 1321 The MD5 Message-Digest Algorithm<br>RFC 2082 RIP-2 MD5 Authentication<br>RFC 2104 Keyed-Hashing for Message Authentication | RFC 2138 RADIUS Authentication<br>RFC 2209 RSVP-Message Processing<br>RFC 2246 Transport Layer Security (TLS)<br>RFC 2716 PPP EAP TLS Authentication Protocol<br>RFC 2865 RADIUS Authentication<br>RFC 2866 RADIUS Accounting<br>RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication<br><br><b>VPN</b><br>RFC 2403 - HMAC-MD5-96<br>RFC 2404 - HMAC-SHA1-96<br>RFC 2405 - DES-CBC Cipher algorithm<br>RFC 2547 BGP/MPLS VPNs<br>RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP<br>RFC 2842 Capabilities Advertisement with BGP-4<br>RFC 2858 Multiprotocol Extensions for BGP-4<br>RFC 2918 Route Refresh Capability for BGP-4<br>RFC 3107 Carrying Label Information in BGP-4<br><br><b>IPsec</b><br>RFC 1828 IP Authentication using Keyed MD5<br>RFC 2401 IP Security Architecture<br>RFC 2402 IP Authentication Header<br>RFC 2406 IP Encapsulating Security Payload<br>RFC 2407 - Domain of Interpretation<br>RFC 2410 - The NULL Encryption Algorithm and its use with IPsec<br>RFC 2411 IP Security Document Roadmap<br>RFC 2412 - OAKLEY<br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br><br><b>IKEv1</b><br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br>RFC 3748 - Extensible Authentication Protocol (EAP) |

## Specifications (continued)



**HP MSR30-11E Router (JG182A)**



**HP MSR30-11F Router (JG183A)**



**HP MSR30-16 Router (JF233A)**

|  |  |  |  |
|--|--|--|--|
| <b>Ports</b>                           | <p>2 SIC slots</p> <p>1 MIM module slot</p> <p>2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full</p> <p>24 RJ-45 autosensing 10/100 LAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full</p>   | <p>2 SIC slots</p> <p>1 MIM module slot</p> <p>2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full</p> <p>48 RJ-45 autosensing 10/100 LAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full</p>   | <p>4 SIC slots</p> <p>1 MIM module slot</p> <p>2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full</p>  |
| <b>Physical characteristics</b>        |  |  |  |
| Dimensions                             | 14.17(d) x 17.4(w) x 1.74(h) in. (36 x 44.2 x 4.42 cm) (1U height)   | 14.17(d) x 17.4(w) x 1.74(h) in. (36 x 44.2 x 4.42 cm) (1U height)   | 17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)  |
| Weight                                 | 9.92 lb. (4.5 kg)  | 10.58 lb. (4.8 kg)   | 13.23 lb. (6 kg)   |
| <b>Memory and processor</b>            |  |  |  |
| Processor                              | RISC @ 333 MHz, 256 MB DDR SDRAM, 256 MB flash   | RISC @ 333 MHz, 256 MB DDR SDRAM, 256 MB flash   | RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash   |
| <b>Mounting</b>                        | Mounts in an EIA-standard 19 in. telco rack  | Mounts in an EIA-standard 19 in. telco rack  | Mounts in an EIA-standard 19 in. telco rack  |
| <b>Performance</b>                     |  |  |  |
| Throughput                             | 220 Kpps (64-byte packets)   | 220 Kpps (64-byte packets)   | 240 Kpps (64-byte packets)   |
| Routing table size                     | 30000 entries  | 30000 entries  | 30000 entries  |
| <b>Environment</b>                     |  |  |  |
| Operating temperature                  | 32°F to 104°F (0°C to 40°C)  | 32°F to 104°F (0°C to 40°C)  | 32°F to 104°F (0°C to 40°C)  |
| Operating relative humidity            | 5% to 90%, noncondensing   | 5% to 90%, noncondensing   | 5% to 90%, noncondensing   |
| Nonoperating/Storage temperature       | -40°F to 158°F (-40°C to 70°C)   | -40°F to 158°F (-40°C to 70°C)   | -40°F to 158°F (-40°C to 70°C)   |
| Nonoperating/Storage relative humidity | 5% to 90%, noncondensing   | 5% to 90%, noncondensing   | 5% to 90%, noncondensing   |
| <b>Electrical characteristics</b>      |  |  |  |
| Maximum heat dissipation               | 113 BTU/hr (119.21 kJ/hr)  | 113 BTU/hr (119.21 kJ/hr)  | 341 BTU/hr (359.76 kJ/hr)  |
| Voltage                                | 100-120/200-240 VAC  | 100-120/200-240 VAC  | 100-120/200-240 VAC  |
| Maximum power rating                   | 54 W   | 54 W   | 100 W  |
| Frequency                              | 50/60 Hz   | 50/60 Hz   | 50/60 Hz   |
| Notes                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.  |
| <b>Safety</b>                          | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J   | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J   | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J   |
| <b>Emissions</b>                       | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 |
| <b>Telecom</b>                         | FCC part 68  | FCC part 68  | FCC part 68  |
| <b>Management</b>                      | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB  | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB  | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB  |
| <b>Notes</b>                           | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.  | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.  | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.  |
| <b>Services</b>                        | 3-year, parts only, global next-day advance exchange (UX150E)<br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)  | 3-year, parts only, global next-day advance exchange (UX150E)<br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)  | 3-year, parts only, global next-day advance exchange (UX150E)<br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)  |

## Specifications (continued)

| HP MSR30-11E Router (JG182A)  | HP MSR30-11F Router (JG183A)  | HP MSR30-16 Router (JF233A)   |
|---|---|---|
| 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)  |
| 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)  | 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)  |
| 3-year, 24x7 SW phone support, software updates (UX160E)  | 3-year, 24x7 SW phone support, software updates (UX160E)  | 3-year, 24x7 SW phone support, software updates (UX160E)  |
| 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)  | 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)  | 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)   |
| 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)  | 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)  | 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)  |
| 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)   | 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)   | 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)  |
| 4-year, 24x7 SW phone support, software updates (UX161E)  | 4-year, 24x7 SW phone support, software updates (UX161E)  | 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)   |
| 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  | 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  | 4-year, 24x7 SW phone support, software updates (UX161E)  |
| 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  | 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  | 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  |
| 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)   | 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)   | 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  |
| 5-year, 24x7 SW phone support, software updates (UX162E)  | 5-year, 24x7 SW phone support, software updates (UX162E)  | 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)   |
| 3 Yr 6 hr Call-to-Repair Onsite (UX163E)  | 3 Yr 6 hr Call-to-Repair Onsite (UX163E)  | 5-year, 24x7 SW phone support, software updates (UX162E)  |
| 4 Yr 6 hr Call-to-Repair Onsite (UX164E)  | 4 Yr 6 hr Call-to-Repair Onsite (UX164E)  | 3 Yr 6 hr Call-to-Repair Onsite (UX163E)  |
| 5 Yr 6 hr Call-to-Repair Onsite (UX165E)  | 5 Yr 6 hr Call-to-Repair Onsite (UX165E)  | 4 Yr 6 hr Call-to-Repair Onsite (UX164E)  |
| Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office. | Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office. | 5 Yr 6 hr Call-to-Repair Onsite (UX165E)  |
|   |   | 1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)  |
|   |   | 1-year, 6 hour Call-to-Repair Onsite for hardware (HR553E)  |
|   |   | 1-year, 24x7 software phone support, software updates (HR552E)  |
|   |   | 1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)  |
|   |   | Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office. |

## Specifications (continued)

|   | HP MSR30-11E Router (JG182A)   | HP MSR30-11F Router (JG183A)   | HP MSR30-16 Router (JF233A)  |
|---|--|--|--|
| <b>Standards and protocols</b><br>(applies to all products in series) | <b>BGP</b><br>RFC 1163 Border Gateway Protocol (BGP)<br>RFC 1267 Border Gateway Protocol 3 (BGP-3)<br>RFC 1657 Definitions of Managed Objects for BGPv4<br>RFC 1771 BGPv4<br>RFC 1772 Application of the BGP<br>RFC 1773 Experience with the BGP-4 Protocol<br>RFC 1774 BGP-4 Protocol Analysis<br>RFC 1965 BGP4 confederations<br>RFC 1997 BGP Communities Attribute<br>RFC 1998 PPP Gandalf FZA Compression Protocol<br>RFC 2385 BGP Session Protection via TCP MD5<br>RFC 2439 BGP Route Flap Damping<br><br><b>Denial of service protection</b><br>CPU DoS Protection<br>Rate Limiting by ACLs<br><br><b>Device management</b><br>RFC 1305 NTPv3<br>RFC 1945 Hypertext Transfer Protocol - HTTP/1.0<br>RFC 2271 FrameWork<br>RFC 2452 MIB for TCP6<br>RFC 2454 MIB for UDP6<br><br><b>General protocols</b><br>IEEE 802.1D MAC Bridges<br>IEEE 802.1p Priority<br>IEEE 802.1Q VLANs<br>IEEE 802.1s Multiple Spanning Trees<br>IEEE 802.1w Rapid Reconfiguration of Spanning Tree<br>RFC 768 UDP<br>RFC 783 TFTP Protocol (revision 2)<br>RFC 791 IP<br>RFC 792 ICMP<br>RFC 793 TCP<br>RFC 826 ARP<br>RFC 854 TELNET<br>RFC 855 Telnet Option Specification<br>RFC 856 TELNET<br>RFC 858 Telnet Suppress Go Ahead Option<br>RFC 894 IP over Ethernet<br>RFC 925 Multi-LAN Address Resolution<br>RFC 950 Internet Standard Subnetting Procedure<br>RFC 959 File Transfer Protocol (FTP)<br>RFC 1006 ISO transport services on top of the TCP: Version 3<br>RFC 1027 Proxy ARP<br>RFC 1034 Domain Concepts and Facilities<br>RFC 1035 Domain Implementation and Specification<br>RFC 1042 IP Datagrams<br>RFC 1058 RIPv1<br>RFC 1071 Computing the Internet Checksum<br>RFC 1091 Telnet Terminal-Type Option<br>RFC 1122 Host Requirements<br>RFC 1141 Incremental updating of the Internet checksum<br>RFC 1142 OSI IS-IS Intra-domain Routing Protocol<br>RFC 1144 Compressing TCP/IP headers for low-speed serial links<br>RFC 1195 OSI ISIS for IP and Dual Environments<br>RFC 1256 ICMP Router Discovery Protocol (IRDP)<br>RFC 1293 Inverse Address Resolution Protocol<br>RFC 1315 Management Information Base for Frame Relay DTEs<br>RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)<br>RFC 1333 PPP Link Quality Monitoring<br>RFC 1334 PPP Authentication Protocols (PAP)<br>RFC 1349 Type of Service<br>RFC 1350 TFTP Protocol (revision 2)<br>RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)<br>RFC 1381 SNMP MIB Extension for X.25 LAPB | RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol<br>RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol<br>RFC 1490 Multiprotocol Interconnect over Frame Relay<br>RFC 1519 CIDR<br>RFC 1534 DHCP/BOOTP Interoperation<br>RFC 1542 Clarifications and Extensions for the Bootstrap Protocol<br>RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)<br>RFC 1577 Classical IP and ARP over ATM<br>RFC 1613 Cisco Systems X.25 over TCP (XOT)<br>RFC 1624 Incremental Internet Checksum<br>RFC 1631 NAT<br>RFC 1638 PPP Bridging Control Protocol (BCP)<br>RFC 1661 The Point-to-Point Protocol (PPP)<br>RFC 1662 PPP in HDLC-like Framing<br>RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2<br>RFC 1701 Generic Routing Encapsulation<br>RFC 1702 Generic Routing Encapsulation over IPv4 networks<br>RFC 1721 RIP-2 Analysis<br>RFC 1722 RIP-2 Applicability<br>RFC 1723 RIP v2<br>RFC 1795 Data Link Switching: Switch-to-Switch Protocol A1W DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1<br>RFC 1812 IPv4 Routing<br>RFC 1829 The ESP DES-CBC Transform<br>RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses<br>RFC 1944 Benchmarking Methodology for Network Interconnect Devices<br>RFC 1973 PPP in Frame Relay<br>RFC 1974 PPP Stac LZS Compression Protocol<br>RFC 1990 The PPP Multilink Protocol (MP)<br>RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)<br>RFC 2091 Trigger RIP<br>RFC 2131 DHCP<br>RFC 2132 DHCP Options and BOOTP Vendor Extensions<br>RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements<br>RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification<br>RFC 2280 Routing Policy Specification Language (RPSL)<br>RFC 2284 EAP over LAN<br>RFC 2338 VRRP<br>RFC 2364 PPP Over AAL5<br>RFC 2374 An Aggregatable Global Unicast Address Format<br>RFC 2451 The ESP CBC-Mode Cipher Algorithms<br>RFC 2453 RIPv2<br>RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols<br>RFC 2511 Internet X.509 Certificate Request Message Format<br>RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)<br>RFC 2644 Directed Broadcast Control<br>RFC 2661 L2TP<br>RFC 2663 NAT Terminology and Considerations<br>RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5<br>RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)<br>RFC 2702 Requirements for Traffic Engineering Over MPLS<br>RFC 2747 RSVP Cryptographic Authentication<br>RFC 2763 Dynamic Name-to-System ID mapping support | RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)<br>RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)<br>RFC 2784 Generic Routing Encapsulation (GRE)<br>RFC 2787 Definitions of Managed Objects for VRRP<br>RFC 2961 RSVP Refresh Overhead Reduction Extensions<br>RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS<br>RFC 2973 IS-IS Mesh Groups<br>RFC 2993 Architectural Implications of NAT<br>RFC 3022 Traditional IP Network Address Translator (Traditional NAT)<br>RFC 3027 Protocol Complications with the IP Network Address Translator<br>RFC 3031 Multiprotocol Label Switching Architecture<br>RFC 3032 MPLS Label Stack Encoding<br>RFC 3036 LDP Specification<br>RFC 3046 DHCP Relay Agent Information Option<br>RFC 3063 MPLS Loop Prevention Mechanism<br>RFC 3065 Support AS confederation<br>RFC 3137 OSPF Stub Router Advertisement<br>RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels<br>RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels<br>RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)<br>RFC 3214 LSP Modification Using CR-LDP<br>RFC 3215 LDP State Machine<br>RFC 3246 Expedited Forwarding PHB<br>RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)<br>RFC 3277 IS-IS Transient Blackhole Avoidance<br>RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile<br>RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile<br>RFC 3392 Support BGP capabilities advertisement<br>RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)<br>RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering<br>RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec<br>RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers<br>RFC 3784 ISIS TE support<br>RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit<br>RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management<br>RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)<br>RFC 3847 Restart signaling for IS-IS<br><br><b>IP multicast</b><br>RFC 1112 IGMP<br>RFC 2236 IGMPv2<br>RFC 2283 Multiprotocol Extensions for BGP-4<br>RFC 2362 PIM Sparse Mode<br>RFC 2934 Protocol Independent Multicast MIB for IPv4<br>RFC 3376 IGMPv3<br><br><b>IPv6</b><br>RFC 1981 IPv6 Path MTU Discovery<br>RFC 2080 RIPng for IPv6<br>RFC 2292 Advanced Sockets API for IPv6 |

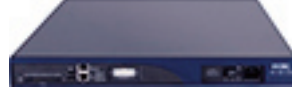
## Specifications (continued)

|   | HP MSR30-11E Router (JG182A)  | HP MSR30-11F Router (JG183A)  | HP MSR30-16 Router (JF233A)  |
|---|---|---|--|
| <b>Standards and protocols</b><br>(applies to all products in series) | RFC 2461 IPv6 Neighbor Discovery<br>RFC 2462 IPv6 Stateless Address Auto-configuration<br>RFC 2463 ICMPv6<br>RFC 2464 Transmission of IPv6 over Ethernet Networks<br>RFC 2472 IP Version 6 over PPP<br>RFC 2473 Generic Packet Tunneling in IPv6<br>RFC 2529 Transmission of IPv6 Packets over IPv4<br>RFC 2545 Use of MP-BGP-4 for IPv6<br>RFC 2553 Basic Socket Interface Extensions for IPv6<br>RFC 2740 OSPFv3 for IPv6<br>RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers<br>RFC 3056 Connection of IPv6 Domains via IPv4 Clouds<br>RFC 3513 IPv6 Addressing Architecture<br>RFC 3596 DNS Extension for IPv6<br><br><b>MIBs</b><br>RFC 1213 MIB II<br>RFC 1229 Interface MIB Extensions<br>RFC 1286 Bridge MIB<br>RFC 1493 Bridge MIB<br>RFC 1573 SNMP MIB II<br>RFC 1724 RIPv2 MIB<br>RFC 1757 Remote Network Monitoring MIB<br>RFC 1850 OSPFv2 MIB<br>RFC 2011 SNMPv2 MIB for IP<br>RFC 2012 SNMPv2 MIB for TCP<br>RFC 2013 SNMPv2 MIB for UDP<br>RFC 2233 Interfaces MIB<br>RFC 2454 IPv6-UDP-MIB<br>RFC 2465 IPv6 MIB<br>RFC 2466 ICMPv6 MIB<br>RFC 2618 RADIUS Client MIB<br>RFC 2620 RADIUS Accounting MIB<br>RFC 2674 802.1p and IEEE 802.1Q Bridge MIB<br>RFC 2737 Entity MIB (Version 2)<br>RFC 2863 The Interfaces Group MIB<br>RFC 2933 IGMP MIB<br>RFC 3813 MPLS LSR MIB | <b>Network management</b><br>IEEE 802.1D (STP)<br>RFC 1155 Structure of Management Information<br>RFC 1157 SNMPv1<br>RFC 1905 SNMPv2 Protocol Operations<br>RFC 2272 SNMPv3 Management Protocol<br>RFC 2273 SNMPv3 Applications<br>RFC 2274 USM for SNMPv3<br>RFC 2275 VACM for SNMPv3<br>RFC 2575 SNMPv3 View-based Access Control Model (VACM)<br>RFC 3164 BSD syslog Protocol<br><br><b>OSPF</b><br>RFC 1245 OSPF protocol analysis<br>RFC 1246 Experience with OSPF<br>RFC 1587 OSPF NSSA<br>RFC 1765 OSPF Database Overflow<br>RFC 1850 OSPFv2 Management Information Base (MIB), traps<br>RFC 2328 OSPFv2<br>RFC 2370 OSPF Opaque LSA Option<br>RFC 3101 OSPF NSSA<br><br><b>QoS/CoS</b><br>IEEE 802.1P (CoS)<br>RFC 2474 DS Field in the IPv4 and IPv6 Headers<br>RFC 2475 DiffServ Architecture<br>RFC 2597 DiffServ Assured Forwarding (AF)<br>RFC 2598 DiffServ Expedited Forwarding (EF)<br>RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP<br><br><b>Security</b><br>IEEE 802.1X Port Based Network Access Control<br>RFC 1321 The MD5 Message-Digest Algorithm<br>RFC 2082 RIP-2 MD5 Authentication<br>RFC 2104 Keyed-Hashing for Message Authentication | RFC 2138 RADIUS Authentication<br>RFC 2209 RSVP-Message Processing<br>RFC 2246 Transport Layer Security (TLS)<br>RFC 2716 PPP EAP TLS Authentication Protocol<br>RFC 2865 RADIUS Authentication<br>RFC 2866 RADIUS Accounting<br>RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication<br><br><b>VPN</b><br>RFC 2403 - HMAC-MD5-96<br>RFC 2404 - HMAC-SHA1-96<br>RFC 2405 - DES-CBC Cipher algorithm<br>RFC 2547 BGP/MPLS VPNs<br>RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP<br>RFC 2842 Capabilities Advertisement with BGP-4<br>RFC 2858 Multiprotocol Extensions for BGP-4<br>RFC 2918 Route Refresh Capability for BGP-4<br>RFC 3107 Carrying Label Information in BGP-4<br><br><b>IPsec</b><br>RFC 1828 IP Authentication using Keyed MD5<br>RFC 2401 IP Security Architecture<br>RFC 2402 IP Authentication Header<br>RFC 2406 IP Encapsulating Security Payload<br>RFC 2407 - Domain of Interpretation<br>RFC 2410 - The NULL Encryption Algorithm and its use with IPsec<br>RFC 2411 IP Security Document Roadmap<br>RFC 2412 - OAKLEY<br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br><br><b>IKEv1</b><br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br>RFC 3748 - Extensible Authentication Protocol (EAP) |

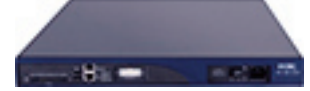
## Specifications (continued)



**HP MSR30-16 PoE Router (JF234A)**



**HP MSR30-20 Router (JF284A)**



**HP MSR30-20 PoE Router (JF802A)**

|  |  |   |  |
|--|--|---|--|
| <b>Ports</b>                           | 4 SIC slots<br><br>1 MIM module slot<br><br>2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full   | 4 SIC slots<br><br>2 MIM module slots<br><br>2 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only  | 4 SIC slots<br><br>2 MIM module slots<br><br>2 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only   |
| <b>Physical characteristics</b>        |  |   |  |
| Dimensions                             | 17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)  | 17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)   | 17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)  |
| Weight                                 | 13.23 lb. (6 kg)   | 15.21 lb. (6.9 kg)  | 15.21 lb. (6.9 kg)   |
| <b>Memory and processor</b>            |  |   |  |
| Processor                              | RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash   | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash  | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash   |
| <b>Mounting</b>                        | Mounts in an EIA-standard 19 in. telco rack  | Mounts in an EIA-standard 19 in. telco rack   | Mounts in an EIA-standard 19 in. telco rack  |
| <b>Performance</b>                     |  |   |  |
| Throughput                             | 240 Kpps (64-byte packets)   | 300 Kpps (64-byte packets)  | 300 Kpps (64-byte packets)   |
| Routing table size                     | 30000 entries  | 30000 entries   | 30000 entries  |
| <b>Environment</b>                     |  |   |  |
| Operating temperature                  | 32°F to 104°F (0°C to 40°C)  | 32°F to 104°F (0°C to 40°C)   | 32°F to 104°F (0°C to 40°C)  |
| Operating relative humidity            | 5% to 90%, noncondensing   | 5% to 90%, noncondensing  | 5% to 90%, noncondensing   |
| Nonoperating/Storage temperature       | -40°F to 158°F (-40°C to 70°C)   | -40°F to 158°F (-40°C to 70°C)  | -40°F to 158°F (-40°C to 70°C)   |
| Nonoperating/Storage relative humidity | 5% to 90%, noncondensing   | 5% to 90%, noncondensing  | 5% to 90%, noncondensing   |
| <b>Electrical characteristics</b>      |  |   |  |
| Maximum heat dissipation               | 341 BTU/hr (359.76 kJ/hr)  | 426 BTU/hr (449.43 kJ/hr)   | 426 BTU/hr (449.43 kJ/hr)  |
| Voltage                                | 100-120/200-240 VAC  | 100-120/200-240 VAC   | 100-120/200-240 VAC  |
| Maximum power rating                   | 100 W  | 125 W   | 125 W  |
| PoE power                              | 150 W  |   | 150 W  |
| Frequency                              | 50/60 Hz   | 50/60 Hz  | 50/60 Hz   |
| Notes                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). |
| <b>Safety</b>                          | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J   | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J   |
| <b>Emissions</b>                       | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001  | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001  |
| <b>Telecom</b>                         | FCC part 68  | FCC part 68   | FCC part 68  |
| <b>Management</b>                      | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB  | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB  |
| <b>Notes</b>                           | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.  | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.  |

## Specifications (continued)

|                 | HP MSR30-16 PoE Router (JF234A)  | HP MSR30-20 Router (JF284A)  | HP MSR30-20 PoE Router (JF802A)  |
|-----------------|--|--|--|
| <b>Services</b> | <p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)</p> <p>1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)</p> <p>1-year, 24x7 software phone support, software updates (HR552E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p> | <p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)</p> <p>1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)</p> <p>1-year, 24x7 software phone support, software updates (HR552E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p> | <p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)</p> <p>1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)</p> <p>1-year, 24x7 software phone support, software updates (HR552E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p> |



## Specifications (continued)

|   | HP MSR30-16 PoE Router (JF234A)   | HP MSR30-20 Router (JF284A)  | HP MSR30-20 PoE Router (JF802A)  |
|---|---|--|--|
| <b>Standards and protocols</b><br>(applies to all products in series) | <p><b>BGP</b></p> <ul style="list-style-type: none"> <li>RFC 1163 Border Gateway Protocol (BGP)</li> <li>RFC 1267 Border Gateway Protocol 3 (BGP-3)</li> <li>RFC 1657 Definitions of Managed Objects for BGPv4</li> <li>RFC 1771 BGPv4</li> <li>RFC 1772 Application of the BGP</li> <li>RFC 1773 Experience with the BGP-4 Protocol</li> <li>RFC 1774 BGP-4 Protocol Analysis</li> <li>RFC 1965 BGP4 confederations</li> <li>RFC 1997 BGP Communities Attribute</li> <li>RFC 1998 PPP Gandalf FZA Compression Protocol</li> <li>RFC 2385 BGP Session Protection via TCP MD5</li> <li>RFC 2439 BGP Route Flap Damping</li> </ul> <p><b>Denial of service protection</b></p> <ul style="list-style-type: none"> <li>CPU DoS Protection</li> <li>Rate Limiting by ACLs</li> </ul> <p><b>Device management</b></p> <ul style="list-style-type: none"> <li>RFC 1305 NTPv3</li> <li>RFC 1945 Hypertext Transfer Protocol - HTTP/1.0</li> <li>RFC 2271 FrameWork</li> <li>RFC 2452 MIB for TCP6</li> <li>RFC 2454 MIB for UDP6</li> </ul> <p><b>General protocols</b></p> <ul style="list-style-type: none"> <li>IEEE 802.1D MAC Bridges</li> <li>IEEE 802.1p Priority</li> <li>IEEE 802.1Q VLANs</li> <li>IEEE 802.1s Multiple Spanning Trees</li> <li>IEEE 802.1w Rapid Reconfiguration of Spanning Tree</li> <li>RFC 768 UDP</li> <li>RFC 783 TFTP Protocol (revision 2)</li> <li>RFC 791 IP</li> <li>RFC 792 ICMP</li> <li>RFC 793 TCP</li> <li>RFC 826 ARP</li> <li>RFC 854 TELNET</li> <li>RFC 855 Telnet Option Specification</li> <li>RFC 856 TELNET</li> <li>RFC 858 Telnet Suppress Go Ahead Option</li> <li>RFC 894 IP over Ethernet</li> <li>RFC 925 Multi-LAN Address Resolution</li> <li>RFC 950 Internet Standard Subnetting Procedure</li> <li>RFC 959 File Transfer Protocol (FTP)</li> <li>RFC 1006 ISO transport services on top of the TCP: Version 3</li> <li>RFC 1027 Proxy ARP</li> <li>RFC 1034 Domain Concepts and Facilities</li> <li>RFC 1035 Domain Implementation and Specification</li> <li>RFC 1042 IP Datagrams</li> <li>RFC 1058 RIPv1</li> <li>RFC 1071 Computing the Internet Checksum</li> <li>RFC 1091 Telnet Terminal-Type Option</li> <li>RFC 1122 Host Requirements</li> <li>RFC 1141 Incremental updating of the Internet checksum</li> <li>RFC 1142 OSI IS-IS Intra-domain Routing Protocol</li> <li>RFC 1144 Compressing TCP/IP headers for low-speed serial links</li> <li>RFC 1195 OSI ISIS for IP and Dual Environments</li> <li>RFC 1256 ICMP Router Discovery Protocol (IRDP)</li> <li>RFC 1293 Inverse Address Resolution Protocol</li> <li>RFC 1315 Management Information Base for Frame Relay DTEs</li> <li>RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)</li> <li>RFC 1333 PPP Link Quality Monitoring</li> <li>RFC 1334 PPP Authentication Protocols (PAP)</li> <li>RFC 1349 Type of Service</li> <li>RFC 1350 TFTP Protocol (revision 2)</li> <li>RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)</li> <li>RFC 1381 SNMP MIB Extension for X.25 LAPB</li> </ul> | <ul style="list-style-type: none"> <li>RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol</li> <li>RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol</li> <li>RFC 1490 Multiprotocol Interconnect over Frame Relay</li> <li>RFC 1519 CIDR</li> <li>RFC 1534 DHCP/BOOTP Interoperation</li> <li>RFC 1542 Clarifications and Extensions for the Bootstrap Protocol</li> <li>RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)</li> <li>RFC 1577 Classical IP and ARP over ATM</li> <li>RFC 1613 Cisco Systems X.25 over TCP (XOT)</li> <li>RFC 1624 Incremental Internet Checksum</li> <li>RFC 1631 NAT</li> <li>RFC 1638 PPP Bridging Control Protocol (BCP)</li> <li>RFC 1661 The Point-to-Point Protocol (PPP)</li> <li>RFC 1662 PPP in HDLC-like Framing</li> <li>RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2</li> <li>RFC 1701 Generic Routing Encapsulation</li> <li>RFC 1702 Generic Routing Encapsulation over IPv4 networks</li> <li>RFC 1721 RIP-2 Analysis</li> <li>RFC 1722 RIP-2 Applicability</li> <li>RFC 1723 RIP v2</li> <li>RFC 1795 Data Link Switching: Switch-to-Switch Protocol A1W DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1</li> <li>RFC 1812 IPv4 Routing</li> <li>RFC 1829 The ESP DES-CBC Transform</li> <li>RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses</li> <li>RFC 1944 Benchmarking Methodology for Network Interconnect Devices</li> <li>RFC 1973 PPP in Frame Relay</li> <li>RFC 1974 PPP Stac LZS Compression Protocol</li> <li>RFC 1990 The PPP Multilink Protocol (MP)</li> <li>RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)</li> <li>RFC 2091 Trigger RIP</li> <li>RFC 2131 DHCP</li> <li>RFC 2132 DHCP Options and BOOTP Vendor Extensions</li> <li>RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements</li> <li>RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification</li> <li>RFC 2280 Routing Policy Specification Language (RPSL)</li> <li>RFC 2284 EAP over LAN</li> <li>RFC 2338 VRRP</li> <li>RFC 2364 PPP Over AAL5</li> <li>RFC 2374 An Aggregatable Global Unicast Address Format</li> <li>RFC 2451 The ESP CBC-Mode Cipher Algorithms</li> <li>RFC 2453 RIPv2</li> <li>RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols</li> <li>RFC 2511 Internet X.509 Certificate Request Message Format</li> <li>RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)</li> <li>RFC 2644 Directed Broadcast Control</li> <li>RFC 2661 L2TP</li> <li>RFC 2663 NAT Terminology and Considerations</li> <li>RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5</li> <li>RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)</li> <li>RFC 2702 Requirements for Traffic Engineering Over MPLS</li> <li>RFC 2747 RSVP Cryptographic Authentication</li> <li>RFC 2763 Dynamic Name-to-System ID mapping support</li> </ul> | <ul style="list-style-type: none"> <li>RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)</li> <li>RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)</li> <li>RFC 2784 Generic Routing Encapsulation (GRE)</li> <li>RFC 2787 Definitions of Managed Objects for VRRP</li> <li>RFC 2961 RSVP Refresh Overhead Reduction Extensions</li> <li>RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS</li> <li>RFC 2973 IS-IS Mesh Groups</li> <li>RFC 2993 Architectural Implications of NAT</li> <li>RFC 3022 Traditional IP Network Address Translator (Traditional NAT)</li> <li>RFC 3027 Protocol Complications with the IP Network Address Translator</li> <li>RFC 3031 Multiprotocol Label Switching Architecture</li> <li>RFC 3032 MPLS Label Stack Encoding</li> <li>RFC 3036 LDP Specification</li> <li>RFC 3046 DHCP Relay Agent Information Option</li> <li>RFC 3063 MPLS Loop Prevention Mechanism</li> <li>RFC 3065 Support AS confederation</li> <li>RFC 3137 OSPF Stub Router Advertisement</li> <li>RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels</li> <li>RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels</li> <li>RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)</li> <li>RFC 3214 LSP Modification Using CR-LDP</li> <li>RFC 3215 LDP State Machine</li> <li>RFC 3246 Expedited Forwarding PHB</li> <li>RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)</li> <li>RFC 3277 IS-IS Transient Blackhole Avoidance</li> <li>RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile</li> <li>RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile</li> <li>RFC 3392 Support BGP capabilities advertisement</li> <li>RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)</li> <li>RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering</li> <li>RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec</li> <li>RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers</li> <li>RFC 3784 ISIS TE support</li> <li>RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit</li> <li>RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management</li> <li>RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)</li> <li>RFC 3847 Restart signaling for IS-IS</li> </ul> <p><b>IP multicast</b></p> <ul style="list-style-type: none"> <li>RFC 1112 IGMP</li> <li>RFC 2236 IGMPv2</li> <li>RFC 2283 Multiprotocol Extensions for BGP-4</li> <li>RFC 2362 PIM Sparse Mode</li> <li>RFC 2934 Protocol Independent Multicast MIB for IPv4</li> <li>RFC 3376 IGMPv3</li> </ul> <p><b>IPv6</b></p> <ul style="list-style-type: none"> <li>RFC 1981 IPv6 Path MTU Discovery</li> <li>RFC 2080 RIPng for IPv6</li> <li>RFC 2292 Advanced Sockets API for IPv6</li> </ul> |

## Specifications (continued)

|   | HP MSR30-16 PoE Router (JF234A)   | HP MSR30-20 Router (JF284A)   | HP MSR30-20 PoE Router (JF802A)  |
|---|---|---|--|
| <b>Standards and protocols</b><br>(applies to all products in series) | RFC 2461 IPv6 Neighbor Discovery<br>RFC 2462 IPv6 Stateless Address Auto-configuration<br>RFC 2463 ICMPv6<br>RFC 2464 Transmission of IPv6 over Ethernet Networks<br>RFC 2472 IP Version 6 over PPP<br>RFC 2473 Generic Packet Tunneling in IPv6<br>RFC 2529 Transmission of IPv6 Packets over IPv4<br>RFC 2545 Use of MP-BGP-4 for IPv6<br>RFC 2553 Basic Socket Interface Extensions for IPv6<br>RFC 2740 OSPFv3 for IPv6<br>RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers<br>RFC 3056 Connection of IPv6 Domains via IPv4 Clouds<br>RFC 3513 IPv6 Addressing Architecture<br>RFC 3596 DNS Extension for IPv6<br><br><b>MIBs</b><br>RFC 1213 MIB II<br>RFC 1229 Interface MIB Extensions<br>RFC 1286 Bridge MIB<br>RFC 1493 Bridge MIB<br>RFC 1573 SNMP MIB II<br>RFC 1724 RIPv2 MIB<br>RFC 1757 Remote Network Monitoring MIB<br>RFC 1850 OSPFv2 MIB<br>RFC 2011 SNMPv2 MIB for IP<br>RFC 2012 SNMPv2 MIB for TCP<br>RFC 2013 SNMPv2 MIB for UDP<br>RFC 2233 Interfaces MIB<br>RFC 2454 IPV6-UDP-MIB<br>RFC 2465 IPV6 MIB<br>RFC 2466 ICMPv6 MIB<br>RFC 2618 RADIUS Client MIB<br>RFC 2620 RADIUS Accounting MIB<br>RFC 2674 802.1p and IEEE 802.1Q Bridge MIB<br>RFC 2737 Entity MIB (Version 2)<br>RFC 2863 The Interfaces Group MIB<br>RFC 2933 IGMP MIB<br>RFC 3813 MPLS LSR MIB | <b>Network management</b><br>IEEE 802.1D (STP)<br>RFC 1155 Structure of Management Information<br>RFC 1157 SNMPv1<br>RFC 1905 SNMPv2 Protocol Operations<br>RFC 2272 SNMPv3 Management Protocol<br>RFC 2273 SNMPv3 Applications<br>RFC 2274 USM for SNMPv3<br>RFC 2275 VACM for SNMPv3<br>RFC 2575 SNMPv3 View-based Access Control Model (VACM)<br>RFC 3164 BSD syslog Protocol<br><br><b>OSPF</b><br>RFC 1245 OSPF protocol analysis<br>RFC 1246 Experience with OSPF<br>RFC 1587 OSPF NSSA<br>RFC 1765 OSPF Database Overflow<br>RFC 1850 OSPFv2 Management Information Base (MIB), traps<br>RFC 2328 OSPFv2<br>RFC 2370 OSPF Opaque LSA Option<br>RFC 3101 OSPF NSSA<br><br><b>QoS/CoS</b><br>IEEE 802.1P (CoS)<br>RFC 2474 DS Field in the IPv4 and IPv6 Headers<br>RFC 2475 DiffServ Architecture<br>RFC 2597 DiffServ Assured Forwarding (AF)<br>RFC 2598 DiffServ Expedited Forwarding (EF)<br>RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP<br><br><b>Security</b><br>IEEE 802.1X Port Based Network Access Control<br>RFC 1321 The MD5 Message-Digest Algorithm<br>RFC 2082 RIP-2 MD5 Authentication<br>RFC 2104 Keyed-Hashing for Message Authentication | RFC 2138 RADIUS Authentication<br>RFC 2209 RSVP-Message Processing<br>RFC 2246 Transport Layer Security (TLS)<br>RFC 2716 PPP EAP TLS Authentication Protocol<br>RFC 2865 RADIUS Authentication<br>RFC 2866 RADIUS Accounting<br>RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication<br><br><b>VPN</b><br>RFC 2403 - HMAC-MD5-96<br>RFC 2404 - HMAC-SHA1-96<br>RFC 2405 - DES-CBC Cipher algorithm<br>RFC 2547 BGP/MPLS VPNs<br>RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP<br>RFC 2842 Capabilities Advertisement with BGP-4<br>RFC 2858 Multiprotocol Extensions for BGP-4<br>RFC 2918 Route Refresh Capability for BGP-4<br>RFC 3107 Carrying Label Information in BGP-4<br><br><b>IPsec</b><br>RFC 1828 IP Authentication using Keyed MD5<br>RFC 2401 IP Security Architecture<br>RFC 2402 IP Authentication Header<br>RFC 2406 IP Encapsulating Security Payload<br>RFC 2407 - Domain of Interpretation<br>RFC 2410 - The NULL Encryption Algorithm and its use with IPsec<br>RFC 2411 IP Security Document Roadmap<br>RFC 2412 - OAKLEY<br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br><br><b>IKEv1</b><br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br>RFC 3748 - Extensible Authentication Protocol (EAP) |

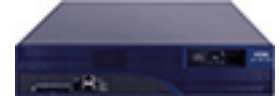
## Specifications (continued)



**HP MSR30-20 DC Router (JF235A)**



**HP MSR30-40 Router (JF229A)**



**HP MSR30-40 PoE Router (JF803A)**

|  |   |   |  |
|--|---|---|--|
| <b>Ports</b>                           | 4 SIC slots<br><br>2 MIM module slots<br><br>2 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only  | 4 SIC slots<br><br>4 MIM module slots<br><br>2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)<br><br>2 fixed Gigabit Ethernet SFP ports  | 4 SIC slots<br><br>4 MIM module slots<br><br>2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)<br><br>2 fixed Gigabit Ethernet SFP ports   |
| <b>Physical characteristics</b>        |   |   |  |
| Dimensions                             | 17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)   | 16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)   | 16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)  |
| Weight                                 | 15.21 lb. (6.9 kg)  | 26.23 lb. (11.9 kg)   | 26.23 lb. (11.9 kg)  |
| <b>Memory and processor</b>            |   |   |  |
| Processor                              | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash  | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash  | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash   |
| <b>Mounting</b>                        | Mounts in an EIA-standard 19 in. telco rack   | Mounts in an EIA-standard 19 in. telco rack   | Mounts in an EIA-standard 19 in. telco rack  |
| <b>Performance</b>                     |   |   |  |
| Throughput                             | 300 Kpps (64-byte packets)  | 360 Kpps (64-byte packets)  | 360 Kpps (64-byte packets)   |
| Routing table size                     | 30000 entries   | 30000 entries   | 30000 entries  |
| <b>Environment</b>                     |   |   |  |
| Operating temperature                  | 32°F to 104°F (0°C to 40°C)   | 32°F to 104°F (0°C to 40°C)   | 32°F to 104°F (0°C to 40°C)  |
| Operating relative humidity            | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  | 5% to 90%, noncondensing   |
| Nonoperating/Storage temperature       | -40°F to 158°F (-40°C to 70°C)  | -40°F to 158°F (-40°C to 70°C)  | -40°F to 158°F (-40°C to 70°C)   |
| Nonoperating/Storage relative humidity | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  | 5% to 90%, noncondensing   |
| <b>Electrical characteristics</b>      |   |   |  |
| Maximum heat dissipation               | 426 BTU/hr (449.43 kJ/hr)   | 717 BTU/hr (756.44 kJ/hr)   | 717 BTU/hr (756.44 kJ/hr)  |
| Voltage                                |   | 100-120/200-240 VAC   | 100-120/200-240 VAC  |
| DC voltage                             | -48 to -60 VDC, rated   |   |  |
| Maximum power rating                   | 125 W   | 210 W   | 210 W  |
| PoE power                              |   |   | 375 W  |
| Frequency                              |   | 50/60 Hz  | 50/60 Hz   |
| Notes                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). |
| <b>Safety</b>                          | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J   |
| <b>Emissions</b>                       | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001 | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001  |
| <b>Telecom</b>                         | FCC part 68   | FCC part 68   | FCC part 68  |
| <b>Management</b>                      | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB  |
| <b>Notes</b>                           | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.  |

## Specifications (continued)

|                 | HP MSR30-20 DC Router (JF235A)  | HP MSR30-40 Router (JF229A)   | HP MSR30-40 PoE Router (JF803A)   |
|-----------------|---|---|---|
| <b>Services</b> | <p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p><br><p>1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)</p> <p>1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)</p> <p>1-year, 24x7 software phone support, software updates (HR552E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p> | <p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p> | <p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p><br><p>1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)</p> <p>1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)</p> <p>1-year, 24x7 software phone support, software updates (HR552E)</p> <p>1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p> |

## Specifications (continued)

|   | HP MSR30-20 DC Router (JF235A)  | HP MSR30-40 Router (JF229A)  | HP MSR30-40 PoE Router (JF803A)  |
|---|---|--|--|
| <b>Standards and protocols</b><br>(applies to all products in series) | <p><b>BGP</b></p> <ul style="list-style-type: none"> <li>RFC 1163 Border Gateway Protocol (BGP)</li> <li>RFC 1267 Border Gateway Protocol 3 (BGP-3)</li> <li>RFC 1657 Definitions of Managed Objects for BGPv4</li> <li>RFC 1771 BGPv4</li> <li>RFC 1772 Application of the BGP</li> <li>RFC 1773 Experience with the BGP-4 Protocol</li> <li>RFC 1774 BGP-4 Protocol Analysis</li> <li>RFC 1965 BGP4 confederations</li> <li>RFC 1997 BGP Communities Attribute</li> <li>RFC 1998 PPP Gandalf FZA Compression Protocol</li> <li>RFC 2385 BGP Session Protection via TCP MD5</li> <li>RFC 2439 BGP Route Flap Damping</li> </ul> <p><b>Denial of service protection</b></p> <ul style="list-style-type: none"> <li>CPU DoS Protection</li> <li>Rate Limiting by ACLs</li> </ul> <p><b>Device management</b></p> <ul style="list-style-type: none"> <li>RFC 1305 NTPv3</li> <li>RFC 1945 Hypertext Transfer Protocol - HTTP/1.0</li> <li>RFC 2271 FrameWork</li> <li>RFC 2452 MIB for TCP6</li> <li>RFC 2454 MIB for UDP6</li> </ul> <p><b>General protocols</b></p> <ul style="list-style-type: none"> <li>IEEE 802.1D MAC Bridges</li> <li>IEEE 802.1p Priority</li> <li>IEEE 802.1Q VLANs</li> <li>IEEE 802.1s Multiple Spanning Trees</li> <li>IEEE 802.1w Rapid Reconfiguration of Spanning Tree</li> <li>RFC 768 UDP</li> <li>RFC 783 TFTP Protocol (revision 2)</li> <li>RFC 791 IP</li> <li>RFC 792 ICMP</li> <li>RFC 793 TCP</li> <li>RFC 826 ARP</li> <li>RFC 854 TELNET</li> <li>RFC 855 Telnet Option Specification</li> <li>RFC 856 TELNET</li> <li>RFC 858 Telnet Suppress Go Ahead Option</li> <li>RFC 894 IP over Ethernet</li> <li>RFC 925 Multi-LAN Address Resolution</li> <li>RFC 950 Internet Standard Subnetting Procedure</li> <li>RFC 959 File Transfer Protocol (FTP)</li> <li>RFC 1006 ISO transport services on top of the TCP: Version 3</li> <li>RFC 1027 Proxy ARP</li> <li>RFC 1034 Domain Concepts and Facilities</li> <li>RFC 1035 Domain Implementation and Specification</li> <li>RFC 1042 IP Datagrams</li> <li>RFC 1058 RIPv1</li> <li>RFC 1071 Computing the Internet Checksum</li> <li>RFC 1091 Telnet Terminal-Type Option</li> <li>RFC 1122 Host Requirements</li> <li>RFC 1141 Incremental updating of the Internet checksum</li> <li>RFC 1142 OSI IS-IS Intra-domain Routing Protocol</li> <li>RFC 1144 Compressing TCP/IP headers for low-speed serial links</li> <li>RFC 1195 OSI ISIS for IP and Dual Environments</li> <li>RFC 1256 ICMP Router Discovery Protocol (IRDP)</li> <li>RFC 1293 Inverse Address Resolution Protocol</li> <li>RFC 1315 Management Information Base for Frame Relay DTEs</li> <li>RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)</li> <li>RFC 1333 PPP Link Quality Monitoring</li> <li>RFC 1334 PPP Authentication Protocols (PAP)</li> <li>RFC 1349 Type of Service</li> <li>RFC 1350 TFTP Protocol (revision 2)</li> <li>RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)</li> <li>RFC 1381 SNMP MIB Extension for X.25 LAPB</li> </ul> | <ul style="list-style-type: none"> <li>RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol</li> <li>RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol</li> <li>RFC 1490 Multiprotocol Interconnect over Frame Relay</li> <li>RFC 1519 CIDR</li> <li>RFC 1534 DHCP/BOOTP Interoperation</li> <li>RFC 1542 Clarifications and Extensions for the Bootstrap Protocol</li> <li>RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)</li> <li>RFC 1577 Classical IP and ARP over ATM</li> <li>RFC 1613 Cisco Systems X.25 over TCP (XOT)</li> <li>RFC 1624 Incremental Internet Checksum</li> <li>RFC 1631 NAT</li> <li>RFC 1638 PPP Bridging Control Protocol (BCP)</li> <li>RFC 1661 The Point-to-Point Protocol (PPP)</li> <li>RFC 1662 PPP in HDLC-like Framing</li> <li>RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2</li> <li>RFC 1701 Generic Routing Encapsulation</li> <li>RFC 1702 Generic Routing Encapsulation over IPv4 networks</li> <li>RFC 1721 RIP-2 Analysis</li> <li>RFC 1722 RIP-2 Applicability</li> <li>RFC 1723 RIP v2</li> <li>RFC 1795 Data Link Switching: Switch-to-Switch Protocol A1W DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1</li> <li>RFC 1812 IPv4 Routing</li> <li>RFC 1829 The ESP DES-CBC Transform</li> <li>RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses</li> <li>RFC 1944 Benchmarking Methodology for Network Interconnect Devices</li> <li>RFC 1973 PPP in Frame Relay</li> <li>RFC 1974 PPP Stac LZS Compression Protocol</li> <li>RFC 1990 The PPP Multilink Protocol (MP)</li> <li>RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)</li> <li>RFC 2091 Trigger RIP</li> <li>RFC 2131 DHCP</li> <li>RFC 2132 DHCP Options and BOOTP Vendor Extensions</li> <li>RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements</li> <li>RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification</li> <li>RFC 2280 Routing Policy Specification Language (RPSL)</li> <li>RFC 2284 EAP over LAN</li> <li>RFC 2338 VRRP</li> <li>RFC 2364 PPP Over AAL5</li> <li>RFC 2374 An Aggregatable Global Unicast Address Format</li> <li>RFC 2451 The ESP CBC-Mode Cipher Algorithms</li> <li>RFC 2453 RIPv2</li> <li>RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols</li> <li>RFC 2511 Internet X.509 Certificate Request Message Format</li> <li>RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)</li> <li>RFC 2644 Directed Broadcast Control</li> <li>RFC 2661 L2TP</li> <li>RFC 2663 NAT Terminology and Considerations</li> <li>RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5</li> <li>RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)</li> <li>RFC 2702 Requirements for Traffic Engineering Over MPLS</li> <li>RFC 2747 RSVP Cryptographic Authentication</li> <li>RFC 2763 Dynamic Name-to-System ID mapping support</li> </ul> | <ul style="list-style-type: none"> <li>RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)</li> <li>RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)</li> <li>RFC 2784 Generic Routing Encapsulation (GRE)</li> <li>RFC 2787 Definitions of Managed Objects for VRRP</li> <li>RFC 2961 RSVP Refresh Overhead Reduction Extensions</li> <li>RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS</li> <li>RFC 2973 IS-IS Mesh Groups</li> <li>RFC 2993 Architectural Implications of NAT</li> <li>RFC 3022 Traditional IP Network Address Translator (Traditional NAT)</li> <li>RFC 3027 Protocol Complications with the IP Network Address Translator</li> <li>RFC 3031 Multiprotocol Label Switching Architecture</li> <li>RFC 3032 MPLS Label Stack Encoding</li> <li>RFC 3036 LDP Specification</li> <li>RFC 3046 DHCP Relay Agent Information Option</li> <li>RFC 3063 MPLS Loop Prevention Mechanism</li> <li>RFC 3065 Support AS confederation</li> <li>RFC 3137 OSPF Stub Router Advertisement</li> <li>RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels</li> <li>RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels</li> <li>RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)</li> <li>RFC 3214 LSP Modification Using CR-LDP</li> <li>RFC 3215 LDP State Machine</li> <li>RFC 3246 Expedited Forwarding PHB</li> <li>RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)</li> <li>RFC 3277 IS-IS Transient Blackhole Avoidance</li> <li>RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile</li> <li>RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile</li> <li>RFC 3392 Support BGP capabilities advertisement</li> <li>RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)</li> <li>RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering</li> <li>RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec</li> <li>RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers</li> <li>RFC 3784 ISIS TE support</li> <li>RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit</li> <li>RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management</li> <li>RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)</li> <li>RFC 3847 Restart signaling for IS-IS</li> </ul> <p><b>IP multicast</b></p> <ul style="list-style-type: none"> <li>RFC 1112 IGMP</li> <li>RFC 2236 IGMPv2</li> <li>RFC 2283 Multiprotocol Extensions for BGP-4</li> <li>RFC 2362 PIM Sparse Mode</li> <li>RFC 2934 Protocol Independent Multicast MIB for IPv4</li> <li>RFC 3376 IGMPv3</li> </ul> <p><b>IPv6</b></p> <ul style="list-style-type: none"> <li>RFC 1981 IPv6 Path MTU Discovery</li> <li>RFC 2080 RIPng for IPv6</li> <li>RFC 2292 Advanced Sockets API for IPv6</li> </ul> |

## Specifications (continued)

|   | HP MSR30-20 DC Router (JF235A)  | HP MSR30-40 Router (JF229A)   | HP MSR30-40 PoE Router (JF803A)  |
|---|---|---|--|
| <b>Standards and protocols</b><br>(applies to all products in series) | RFC 2461 IPv6 Neighbor Discovery<br>RFC 2462 IPv6 Stateless Address Auto-configuration<br>RFC 2463 ICMPv6<br>RFC 2464 Transmission of IPv6 over Ethernet Networks<br>RFC 2472 IP Version 6 over PPP<br>RFC 2473 Generic Packet Tunneling in IPv6<br>RFC 2529 Transmission of IPv6 Packets over IPv4<br>RFC 2545 Use of MP-BGP-4 for IPv6<br>RFC 2553 Basic Socket Interface Extensions for IPv6<br>RFC 2740 OSPFv3 for IPv6<br>RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers<br>RFC 3056 Connection of IPv6 Domains via IPv4 Clouds<br>RFC 3513 IPv6 Addressing Architecture<br>RFC 3596 DNS Extension for IPv6<br><br><b>MIBs</b><br>RFC 1213 MIB II<br>RFC 1229 Interface MIB Extensions<br>RFC 1286 Bridge MIB<br>RFC 1493 Bridge MIB<br>RFC 1573 SNMP MIB II<br>RFC 1724 RIPv2 MIB<br>RFC 1757 Remote Network Monitoring MIB<br>RFC 1850 OSPFv2 MIB<br>RFC 2011 SNMPv2 MIB for IP<br>RFC 2012 SNMPv2 MIB for TCP<br>RFC 2013 SNMPv2 MIB for UDP<br>RFC 2233 Interfaces MIB<br>RFC 2454 IPV6-UDP-MIB<br>RFC 2465 IPV6 MIB<br>RFC 2466 ICMPv6 MIB<br>RFC 2618 RADIUS Client MIB<br>RFC 2620 RADIUS Accounting MIB<br>RFC 2674 802.1p and IEEE 802.1Q Bridge MIB<br>RFC 2737 Entity MIB (Version 2)<br>RFC 2863 The Interfaces Group MIB<br>RFC 2933 IGMP MIB<br>RFC 3813 MPLS LSR MIB | <b>Network management</b><br>IEEE 802.1D (STP)<br>RFC 1155 Structure of Management Information<br>RFC 1157 SNMPv1<br>RFC 1905 SNMPv2 Protocol Operations<br>RFC 2272 SNMPv3 Management Protocol<br>RFC 2273 SNMPv3 Applications<br>RFC 2274 USM for SNMPv3<br>RFC 2275 VACM for SNMPv3<br>RFC 2575 SNMPv3 View-based Access Control Model (VACM)<br>RFC 3164 BSD syslog Protocol<br><br><b>OSPF</b><br>RFC 1245 OSPF protocol analysis<br>RFC 1246 Experience with OSPF<br>RFC 1587 OSPF NSSA<br>RFC 1765 OSPF Database Overflow<br>RFC 1850 OSPFv2 Management Information Base (MIB), traps<br>RFC 2328 OSPFv2<br>RFC 2370 OSPF Opaque LSA Option<br>RFC 3101 OSPF NSSA<br><br><b>QoS/CoS</b><br>IEEE 802.1P (CoS)<br>RFC 2474 DS Field in the IPv4 and IPv6 Headers<br>RFC 2475 DiffServ Architecture<br>RFC 2597 DiffServ Assured Forwarding (AF)<br>RFC 2598 DiffServ Expedited Forwarding (EF)<br>RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP<br><br><b>Security</b><br>IEEE 802.1X Port Based Network Access Control<br>RFC 1321 The MD5 Message-Digest Algorithm<br>RFC 2082 RIP-2 MD5 Authentication<br>RFC 2104 Keyed-Hashing for Message Authentication | RFC 2138 RADIUS Authentication<br>RFC 2209 RSVP-Message Processing<br>RFC 2246 Transport Layer Security (TLS)<br>RFC 2716 PPP EAP TLS Authentication Protocol<br>RFC 2865 RADIUS Authentication<br>RFC 2866 RADIUS Accounting<br>RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication<br><br><b>VPN</b><br>RFC 2403 - HMAC-MD5-96<br>RFC 2404 - HMAC-SHA1-96<br>RFC 2405 - DES-CBC Cipher algorithm<br>RFC 2547 BGP/MPLS VPNs<br>RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP<br>RFC 2842 Capabilities Advertisement with BGP-4<br>RFC 2858 Multiprotocol Extensions for BGP-4<br>RFC 2918 Route Refresh Capability for BGP-4<br>RFC 3107 Carrying Label Information in BGP-4<br><br><b>IPsec</b><br>RFC 1828 IP Authentication using Keyed MD5<br>RFC 2401 IP Security Architecture<br>RFC 2402 IP Authentication Header<br>RFC 2406 IP Encapsulating Security Payload<br>RFC 2407 - Domain of Interpretation<br>RFC 2410 - The NULL Encryption Algorithm and its use with IPsec<br>RFC 2411 IP Security Document Roadmap<br>RFC 2412 - OAKLEY<br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br><br><b>IKEv1</b><br>RFC 2865 - Remote Authentication Dial In User Service (RADIUS)<br>RFC 3748 - Extensible Authentication Protocol (EAP) |

## Specifications (continued)



**HP MSR30-40 DC Router (JF287A)**



**HP MSR30-60 Router (JF230A)**

|  |   |   |
|--|---|---|
| <b>Ports</b>                           | 4 SIC slots<br>4 MIM module slots<br>2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)<br>2 fixed Gigabit Ethernet SFP ports  | 4 SIC slots<br>6 MIM module slots<br>2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)<br>2 fixed Gigabit Ethernet SFP ports  |
| <b>Physical characteristics</b>        |   |   |
| Dimensions                             | 16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)   | 16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)  |
| Weight                                 | 26.23 lb. (11.9 kg)   | 29.98 lb. (13.6 kg)   |
| <b>Memory and processor</b>            |   |   |
| Processor                              | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash  | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash  |
| <b>Mounting</b>                        | Mounts in an EIA-standard 19 in. telco rack   | Mounts in an EIA-standard 19 in. telco rack   |
| <b>Performance</b>                     |   |   |
| Throughput                             | 360 Kpps (64-byte packets)  | 360 Kpps (64-byte packets)  |
| Routing table size                     | 30000 entries   | 30000 entries   |
| <b>Environment</b>                     |   |   |
| Operating temperature                  | 32°F to 104°F (0°C to 40°C)   | 32°F to 104°F (0°C to 40°C)   |
| Operating relative humidity            | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  |
| Nonoperating/Storage temperature       | -40°F to 158°F (-40°C to 70°C)  | -40°F to 158°F (-40°C to 70°C)  |
| Nonoperating/Storage relative humidity | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  |
| <b>Electrical characteristics</b>      |   |   |
| Maximum heat dissipation               | 717 BTU/hr (756.44 kJ/hr)   | 717 BTU/hr (756.44 kJ/hr)   |
| Voltage                                |   | 100-120/200-240 VAC   |
| DC voltage                             | -48 to -60 VDC, rated   |   |
| Maximum power rating                   | 210 W   | 210 W   |
| Frequency                              |   | 50/60 Hz  |
| Notes                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   |
| <b>Safety</b>                          | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  |
| <b>Emissions</b>                       | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001   | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001   |
| <b>Telecom</b>                         | FCC part 68   | FCC part 68   |
| <b>Management</b>                      | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   |
| <b>Notes</b>                           | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   |
| <b>Services</b>                        | 3-year, parts only, global next-day advance exchange (UX150E)<br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)<br>3-year, 24x7 SW phone support, software updates (UX160E)<br>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)<br>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)<br>4-year, 24x7 SW phone support, software updates (UX161E)<br>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)<br>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) | 3-year, parts only, global next-day advance exchange (UX150E)<br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)<br>3-year, 24x7 SW phone support, software updates (UX160E)<br>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)<br>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)<br>4-year, 24x7 SW phone support, software updates (UX161E)<br>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)<br>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) |

## Specifications (continued)

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**HP MSR30-40 DC Router (JF287A)**

5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)

5-year, 24x7 SW phone support, software updates (UX162E)

3 Yr 6 hr Call-to-Repair Onsite (UX163E)

4 Yr 6 hr Call-to-Repair Onsite (UX164E)

5 Yr 6 hr Call-to-Repair Onsite (UX165E)

1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)

1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)

1-year, 24x7 software phone support, software updates (HR552E)

1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)

Refer to the HP website at [www.hp.com/networking/services](http://www.hp.com/networking/services) for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

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**HP MSR30-60 Router (JF230A)**

5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)

5-year, 24x7 SW phone support, software updates (UX162E)

3 Yr 6 hr Call-to-Repair Onsite (UX163E)

4 Yr 6 hr Call-to-Repair Onsite (UX164E)

5 Yr 6 hr Call-to-Repair Onsite (UX165E)

1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)

1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)

1-year, 24x7 software phone support, software updates (HR552E)

1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)

Refer to the HP website at [www.hp.com/networking/services](http://www.hp.com/networking/services) for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

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## Specifications (continued)

### HP MSR30-40 DC Router (JF287A)

#### Standards and protocols (applies to all products in series)

#### BGP

RFC 1163 Border Gateway Protocol (BGP)  
 RFC 1267 Border Gateway Protocol 3 (BGP-3)  
 RFC 1657 Definitions of Managed Objects for BGPv4  
 RFC 1771 BGPv4  
 RFC 1772 Application of the BGP  
 RFC 1773 Experience with the BGP-4 Protocol  
 RFC 1774 BGP-4 Protocol Analysis  
 RFC 1965 BGP4 confederations  
 RFC 1997 BGP Communities Attribute  
 RFC 1998 PPP Gandalf FZA Compression Protocol  
 RFC 2385 BGP Session Protection via TCP MD5  
 RFC 2439 BGP Route Flap Damping

#### Denial of service protection

CPU DoS Protection  
 Rate Limiting by ACLs

#### Device management

RFC 1305 NTPv3  
 RFC 1945 Hypertext Transfer Protocol - HTTP/1.0  
 RFC 2271 FrameWork  
 RFC 2452 MIB for TCP6  
 RFC 2454 MIB for UDP6

#### General protocols

IEEE 802.1D MAC Bridges  
 IEEE 802.1p Priority  
 IEEE 802.1Q VLANs  
 IEEE 802.1s Multiple Spanning Trees  
 IEEE 802.1w Rapid Reconfiguration of Spanning Tree  
 RFC 768 UDP  
 RFC 783 TFTP Protocol (revision 2)  
 RFC 791 IP  
 RFC 792 ICMP  
 RFC 793 TCP  
 RFC 826 ARP  
 RFC 854 TELNET  
 RFC 855 Telnet Option Specification  
 RFC 856 TELNET  
 RFC 858 Telnet Suppress Go Ahead Option  
 RFC 894 IP over Ethernet  
 RFC 925 Multi-LAN Address Resolution  
 RFC 950 Internet Standard Subnetting Procedure  
 RFC 959 File Transfer Protocol (FTP)  
 RFC 1006 ISO transport services on top of the TCP: Version 3  
 RFC 1027 Proxy ARP  
 RFC 1034 Domain Concepts and Facilities  
 RFC 1035 Domain Implementation and Specification  
 RFC 1042 IP Datagrams  
 RFC 1058 RIPv1  
 RFC 1071 Computing the Internet Checksum  
 RFC 1091 Telnet Terminal-Type Option  
 RFC 1122 Host Requirements  
 RFC 1141 Incremental updating of the Internet checksum  
 RFC 1142 OSI IS-IS Intra-domain Routing Protocol  
 RFC 1144 Compressing TCP/IP headers for low-speed serial links  
 RFC 1195 OSI ISIS for IP and Dual Environments  
 RFC 1256 ICMP Router Discovery Protocol (IRDP)  
 RFC 1293 Inverse Address Resolution Protocol  
 RFC 1315 Management Information Base for Frame Relay DTEs  
 RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)  
 RFC 1333 PPP Link Quality Monitoring  
 RFC 1334 PPP Authentication Protocols (PAP)  
 RFC 1349 Type of Service  
 RFC 1350 TFTP Protocol (revision 2)  
 RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)  
 RFC 1381 SNMP MIB Extension for X.25 LAPB

### HP MSR30-60 Router (JF230A)

RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol  
 RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol  
 RFC 1490 Multiprotocol Interconnect over Frame Relay  
 RFC 1519 CIDR  
 RFC 1534 DHCP/BOOTP Interoperation  
 RFC 1542 Clarifications and Extensions for the Bootstrap Protocol  
 RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)  
 RFC 1577 Classical IP and ARP over ATM  
 RFC 1613 Cisco Systems X.25 over TCP (XOT)  
 RFC 1624 Incremental Internet Checksum  
 RFC 1631 NAT  
 RFC 1638 PPP Bridging Control Protocol (BCP)  
 RFC 1661 The Point-to-Point Protocol (PPP)  
 RFC 1662 PPP in HDLC-like Framing  
 RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2  
 RFC 1701 Generic Routing Encapsulation  
 RFC 1702 Generic Routing Encapsulation over IPv4 networks  
 RFC 1721 RIP-2 Analysis  
 RFC 1722 RIP-2 Applicability  
 RFC 1723 RIP v2  
 RFC 1795 Data Link Switching: Switch-to-Switch Protocol A1W DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1  
 RFC 1812 IPv4 Routing  
 RFC 1829 The ESP DES-CBC Transform  
 RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses  
 RFC 1944 Benchmarking Methodology for Network Interconnect Devices  
 RFC 1973 PPP in Frame Relay  
 RFC 1974 PPP Stac LZS Compression Protocol  
 RFC 1990 The PPP Multilink Protocol (MP)  
 RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)  
 RFC 2091 Trigger RIP  
 RFC 2131 DHCP  
 RFC 2132 DHCP Options and BOOTP Vendor Extensions  
 RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements  
 RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification  
 RFC 2280 Routing Policy Specification Language (RPSL)  
 RFC 2284 EAP over LAN  
 RFC 2338 VRRP  
 RFC 2364 PPP Over AAL5  
 RFC 2374 An Aggregatable Global Unicast Address Format  
 RFC 2451 The ESP CBC-Mode Cipher Algorithms  
 RFC 2453 RIPv2  
 RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols  
 RFC 2511 Internet X.509 Certificate Request Message Format  
 RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)  
 RFC 2644 Directed Broadcast Control  
 RFC 2661 L2TP  
 RFC 2663 NAT Terminology and Considerations  
 RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5  
 RFC 2694 DNS extensions to Network Address Translators (DNS\_ALG)  
 RFC 2702 Requirements for Traffic Engineering Over MPLS  
 RFC 2747 RSVP Cryptographic Authentication  
 RFC 2763 Dynamic Name-to-System ID mapping support

RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)  
 RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)  
 RFC 2784 Generic Routing Encapsulation (GRE)  
 RFC 2787 Definitions of Managed Objects for VRRP  
 RFC 2961 RSVP Refresh Overhead Reduction Extensions  
 RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS  
 RFC 2973 IS-IS Mesh Groups  
 RFC 2993 Architectural Implications of NAT  
 RFC 3022 Traditional IP Network Address Translator (Traditional NAT)  
 RFC 3027 Protocol Complications with the IP Network Address Translator  
 RFC 3031 Multiprotocol Label Switching Architecture  
 RFC 3032 MPLS Label Stack Encoding  
 RFC 3036 LDP Specification  
 RFC 3046 DHCP Relay Agent Information Option  
 RFC 3063 MPLS Loop Prevention Mechanism  
 RFC 3065 Support AS confederation  
 RFC 3137 OSPF Stub Router Advertisement  
 RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels  
 RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels  
 RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)  
 RFC 3214 LSP Modification Using CR-LDP  
 RFC 3215 LDP State Machine  
 RFC 3246 Expedited Forwarding PHB  
 RFC 3268 Advanced Encryption Standard (AES) Ciphersuits for Transport Layer Security (TLS)  
 RFC 3277 IS-IS Transient Blackhole Avoidance  
 RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile  
 RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile  
 RFC 3392 Support BGP capabilities advertisement  
 RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)  
 RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering  
 RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec  
 RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers  
 RFC 3784 ISIS TE support  
 RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit  
 RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management  
 RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)  
 RFC 3847 Restart signaling for IS-IS

#### IP multicast

RFC 1112 IGMP  
 RFC 2236 IGMPv2  
 RFC 2283 Multiprotocol Extensions for BGP-4  
 RFC 2362 PIM Sparse Mode  
 RFC 2934 Protocol Independent Multicast MIB for IPv4  
 RFC 3376 IGMPv3

#### IPv6

RFC 1981 IPv6 Path MTU Discovery  
 RFC 2080 RIPng for IPv6  
 RFC 2292 Advanced Sockets API for IPv6

## Specifications (continued)

### HP MSR30-40 DC Router (JF287A)

#### Standards and protocols (applies to all products in series)

RFC 2461 IPv6 Neighbor Discovery  
 RFC 2462 IPv6 Stateless Address Auto-configuration  
 RFC 2463 ICMPv6  
 RFC 2464 Transmission of IPv6 over Ethernet Networks  
 RFC 2472 IP Version 6 over PPP  
 RFC 2473 Generic Packet Tunneling in IPv6  
 RFC 2529 Transmission of IPv6 Packets over IPv4  
 RFC 2545 Use of MP-BGP-4 for IPv6  
 RFC 2553 Basic Socket Interface Extensions for IPv6  
 RFC 2740 OSPFv3 for IPv6  
 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers  
 RFC 3056 Connection of IPv6 Domains via IPv4 Clouds  
 RFC 3513 IPv6 Addressing Architecture  
 RFC 3596 DNS Extension for IPv6

#### MIBs

RFC 1213 MIB II  
 RFC 1229 Interface MIB Extensions  
 RFC 1286 Bridge MIB  
 RFC 1493 Bridge MIB  
 RFC 1573 SNMP MIB II  
 RFC 1724 RIPv2 MIB  
 RFC 1757 Remote Network Monitoring MIB  
 RFC 1850 OSPFv2 MIB  
 RFC 2011 SNMPv2 MIB for IP  
 RFC 2012 SNMPv2 MIB for TCP  
 RFC 2013 SNMPv2 MIB for UDP  
 RFC 2233 Interfaces MIB  
 RFC 2454 IPV6-UDP-MIB  
 RFC 2465 IPV6 MIB  
 RFC 2466 ICMPv6 MIB  
 RFC 2618 RADIUS Client MIB  
 RFC 2620 RADIUS Accounting MIB  
 RFC 2674 802.1p and IEEE 802.1Q Bridge MIB  
 RFC 2737 Entity MIB (Version 2)  
 RFC 2863 The Interfaces Group MIB  
 RFC 2933 IGMP MIB  
 RFC 3813 MPLS LSR MIB

### HP MSR30-60 Router (JF230A)

#### Network management

IEEE 802.1D (STP)  
 RFC 1155 Structure of Management Information  
 RFC 1157 SNMPv1  
 RFC 1905 SNMPv2 Protocol Operations  
 RFC 2272 SNMPv3 Management Protocol  
 RFC 2273 SNMPv3 Applications  
 RFC 2274 USM for SNMPv3  
 RFC 2275 VACM for SNMPv3  
 RFC 2575 SNMPv3 View-based Access Control Model (VACM)  
 RFC 3164 BSD syslog Protocol

#### OSPF

RFC 1245 OSPF protocol analysis  
 RFC 1246 Experience with OSPF  
 RFC 1587 OSPF NSSA  
 RFC 1765 OSPF Database Overflow  
 RFC 1850 OSPFv2 Management Information Base (MIB), traps  
 RFC 2328 OSPFv2  
 RFC 2370 OSPF Opaque LSA Option  
 RFC 3101 OSPF NSSA

#### QoS/CoS

IEEE 802.1P (CoS)  
 RFC 2474 DS Field in the IPv4 and IPv6 Headers  
 RFC 2475 DiffServ Architecture  
 RFC 2597 DiffServ Assured Forwarding (AF)  
 RFC 2598 DiffServ Expedited Forwarding (EF)  
 RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP

#### Security

IEEE 802.1X Port Based Network Access Control  
 RFC 1321 The MD5 Message-Digest Algorithm  
 RFC 2082 RIP-2 MD5 Authentication  
 RFC 2104 Keyed-Hashing for Message Authentication

RFC 2138 RADIUS Authentication  
 RFC 2209 RSVP-Message Processing  
 RFC 2246 Transport Layer Security (TLS)  
 RFC 2716 PPP EAP TLS Authentication Protocol  
 RFC 2865 RADIUS Authentication  
 RFC 2866 RADIUS Accounting  
 RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication

#### VPN

RFC 2403 - HMAC-MD5-96  
 RFC 2404 - HMAC-SHA1-96  
 RFC 2405 - DES-CBC Cipher algorithm  
 RFC 2547 BGP/MPLS VPNs  
 RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP  
 RFC 2842 Capabilities Advertisement with BGP-4  
 RFC 2858 Multiprotocol Extensions for BGP-4  
 RFC 2918 Route Refresh Capability for BGP-4  
 RFC 3107 Carrying Label Information in BGP-4

#### IPsec

RFC 1828 IP Authentication using Keyed MD5  
 RFC 2401 IP Security Architecture  
 RFC 2402 IP Authentication Header  
 RFC 2406 IP Encapsulating Security Payload  
 RFC 2407 - Domain of Interpretation  
 RFC 2410 - The NULL Encryption Algorithm and its use with IPsec  
 RFC 2411 IP Security Document Roadmap  
 RFC 2412 - OAKLEY  
 RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

#### IKEv1

RFC 2865 - Remote Authentication Dial In User Service (RADIUS)  
 RFC 3748 - Extensible Authentication Protocol (EAP)

## Specifications (continued)



**HP MSR30-60 PoE Router (JF804A)**



**HP MSR30-60 DC Router (JF801A)**

|  |   |   |
|--|---|---|
| <b>Ports</b>                           | 4 SIC slots<br>6 MIM module slots<br>2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)<br>2 fixed Gigabit Ethernet SFP ports  | 4 SIC slots<br>6 MIM module slots<br>2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)<br>2 fixed Gigabit Ethernet SFP ports  |
| <b>Physical characteristics</b>        |   |   |
| Dimensions                             | 16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)  | 16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)  |
| Weight                                 | 29.98 lb. (13.6 kg)   | 29.98 lb. (13.6 kg)   |
| <b>Memory and processor</b>            |   |   |
| Processor                              | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash  | RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash  |
| <b>Mounting</b>                        | Mounts in an EIA-standard 19 in. telco rack   | Mounts in an EIA-standard 19 in. telco rack   |
| <b>Performance</b>                     |   |   |
| Throughput                             | 360 Kpps (64-byte packets)  | 360 Kpps (64-byte packets)  |
| Routing table size                     | 30000 entries   | 30000 entries   |
| <b>Environment</b>                     |   |   |
| Operating temperature                  | 32°F to 104°F (0°C to 40°C)   | 32°F to 104°F (0°C to 40°C)   |
| Operating relative humidity            | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  |
| Nonoperating/Storage temperature       | -40°F to 158°F (-40°C to 70°C)  | -40°F to 158°F (-40°C to 70°C)  |
| Nonoperating/Storage relative humidity | 5% to 90%, noncondensing  | 5% to 90%, noncondensing  |
| <b>Electrical characteristics</b>      |   |   |
| Maximum heat dissipation               | 717 BTU/hr (756.44 kJ/hr)   | 717 BTU/hr (756.44 kJ/hr)   |
| Voltage                                | 100-120/200-240 VAC   |   |
| DC voltage                             |   | -48 to -60 VDC, rated   |
| Maximum power rating                   | 210 W   | 210 W   |
| PoE power                              | 375 W   |   |
| Frequency                              | 50/60 Hz  |   |
| Notes                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.<br>PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).   | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.   |
| <b>Safety</b>                          | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  | UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J  |
| <b>Emissions</b>                       | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001   | EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001   |
| <b>Telecom</b>                         | FCC part 68   | FCC part 68   |
| <b>Management</b>                      | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   | IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB   |
| <b>Notes</b>                           | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   | The HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A) is not approved for use in the same chassis as a Wi-Fi interface (802.11b/g, 802.11b/g/n, etc.) in the European Union.   |
| <b>Services</b>                        | 3-year, parts only, global next-day advance exchange (UX150E)<br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)<br>3-year, 24x7 SW phone support, software updates (UX160E)<br>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)<br>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) | 3-year, parts only, global next-day advance exchange (UX150E)<br>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)<br>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)<br>3-year, 24x7 SW phone support, software updates (UX160E)<br>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR549E)<br>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)<br>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) |

## Specifications (continued)

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**HP MSR30-60 PoE Router (JF804A)**

4-year, 24x7 SW phone support, software updates (UX161E)  
5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  
5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)  
5-year, 24x7 SW phone support, software updates (UX162E)  
3 Yr 6 hr Call-to-Repair Onsite (UX163E)  
4 Yr 6 hr Call-to-Repair Onsite (UX164E)  
5 Yr 6 hr Call-to-Repair Onsite (UX165E)  
1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)  
1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)  
1-year, 24x7 software phone support, software updates (HR552E)  
1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)  
Refer to the HP website at [www.hp.com/networking/services](http://www.hp.com/networking/services) for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

**HP MSR30-60 DC Router (JF801A)**

4-year, 24x7 SW phone support, software updates (UX161E)  
5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)  
5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)  
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)  
5-year, 24x7 SW phone support, software updates (UX162E)  
3 Yr 6 hr Call-to-Repair Onsite (UX163E)  
4 Yr 6 hr Call-to-Repair Onsite (UX164E)  
5 Yr 6 hr Call-to-Repair Onsite (UX165E)  
1-year, 4-hour onsite, 24x7 coverage for hardware (HR550E)  
1-year, 6 hour Call-To-Repair Onsite for hardware (HR553E)  
1-year, 24x7 software phone support, software updates (HR552E)  
1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR551E)  
Refer to the HP website at [www.hp.com/networking/services](http://www.hp.com/networking/services) for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

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## Specifications (continued)

### HP MSR30-60 PoE Router (JF804A)

#### Standards and protocols (applies to all products in series)

#### BGP

RFC 1163 Border Gateway Protocol (BGP)  
 RFC 1267 Border Gateway Protocol 3 (BGP-3)  
 RFC 1657 Definitions of Managed Objects for BGPv4  
 RFC 1771 BGPv4  
 RFC 1772 Application of the BGP  
 RFC 1773 Experience with the BGP-4 Protocol  
 RFC 1774 BGP-4 Protocol Analysis  
 RFC 1965 BGP4 confederations  
 RFC 1997 BGP Communities Attribute  
 RFC 1998 PPP Gandalf FZA Compression Protocol  
 RFC 2385 BGP Session Protection via TCP MD5  
 RFC 2439 BGP Route Flap Damping

#### Denial of service protection

CPU DoS Protection  
 Rate Limiting by ACLs

#### Device management

RFC 1305 NTPv3  
 RFC 1945 Hypertext Transfer Protocol - HTTP/1.0  
 RFC 2271 FrameWork  
 RFC 2452 MIB for TCP6  
 RFC 2454 MIB for UDP6

#### General protocols

IEEE 802.1D MAC Bridges  
 IEEE 802.1p Priority  
 IEEE 802.1Q VLANs  
 IEEE 802.1s Multiple Spanning Trees  
 IEEE 802.1w Rapid Reconfiguration of Spanning Tree  
 RFC 768 UDP  
 RFC 783 TFTP Protocol (revision 2)  
 RFC 791 IP  
 RFC 792 ICMP  
 RFC 793 TCP  
 RFC 826 ARP  
 RFC 854 TELNET  
 RFC 855 Telnet Option Specification  
 RFC 856 TELNET  
 RFC 858 Telnet Suppress Go Ahead Option  
 RFC 894 IP over Ethernet  
 RFC 925 Multi-LAN Address Resolution  
 RFC 950 Internet Standard Subnetting Procedure  
 RFC 959 File Transfer Protocol (FTP)  
 RFC 1006 ISO transport services on top of the TCP: Version 3  
 RFC 1027 Proxy ARP  
 RFC 1034 Domain Concepts and Facilities  
 RFC 1035 Domain Implementation and Specification  
 RFC 1042 IP Datagrams  
 RFC 1058 RIPv1  
 RFC 1071 Computing the Internet Checksum  
 RFC 1091 Telnet Terminal-Type Option  
 RFC 1122 Host Requirements  
 RFC 1141 Incremental updating of the Internet checksum  
 RFC 1142 OSI IS-IS Intra-domain Routing Protocol  
 RFC 1144 Compressing TCP/IP headers for low-speed serial links  
 RFC 1195 OSI ISIS for IP and Dual Environments  
 RFC 1256 ICMP Router Discovery Protocol (IRDP)  
 RFC 1293 Inverse Address Resolution Protocol  
 RFC 1315 Management Information Base for Frame Relay DTEs  
 RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)  
 RFC 1333 PPP Link Quality Monitoring  
 RFC 1334 PPP Authentication Protocols (PAP)  
 RFC 1349 Type of Service  
 RFC 1350 TFTP Protocol (revision 2)  
 RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)  
 RFC 1381 SNMP MIB Extension for X.25 LAPB

### HP MSR30-60 DC Router (JF801A)

RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol  
 RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol  
 RFC 1490 Multiprotocol Interconnect over Frame Relay  
 RFC 1519 CIDR  
 RFC 1534 DHCP/BOOTP Interoperation  
 RFC 1542 Clarifications and Extensions for the Bootstrap Protocol  
 RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)  
 RFC 1577 Classical IP and ARP over ATM  
 RFC 1613 Cisco Systems X.25 over TCP (XOT)  
 RFC 1624 Incremental Internet Checksum  
 RFC 1631 NAT  
 RFC 1638 PPP Bridging Control Protocol (BCP)  
 RFC 1661 The Point-to-Point Protocol (PPP)  
 RFC 1662 PPP in HDLC-like Framing  
 RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMLv2  
 RFC 1701 Generic Routing Encapsulation  
 RFC 1702 Generic Routing Encapsulation over IPv4 networks  
 RFC 1721 RIP-2 Analysis  
 RFC 1722 RIP-2 Applicability  
 RFC 1723 RIP v2  
 RFC 1795 Data Link Switching: Switch-to-Switch Protocol A1W DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1  
 RFC 1812 IPv4 Routing  
 RFC 1829 The ESP DES-CBC Transform  
 RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses  
 RFC 1944 Benchmarking Methodology for Network Interconnect Devices  
 RFC 1973 PPP in Frame Relay  
 RFC 1974 PPP Stac LZS Compression Protocol  
 RFC 1990 The PPP Multilink Protocol (MP)  
 RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)  
 RFC 2091 Trigger RIP  
 RFC 2131 DHCP  
 RFC 2132 DHCP Options and BOOTP Vendor Extensions  
 RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements  
 RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification  
 RFC 2280 Routing Policy Specification Language (RPSL)  
 RFC 2284 EAP over LAN  
 RFC 2338 VRRP  
 RFC 2364 PPP Over AAL5  
 RFC 2374 An Aggregatable Global Unicast Address Format  
 RFC 2451 The ESP CBC-Mode Cipher Algorithms  
 RFC 2453 RIPv2  
 RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols  
 RFC 2511 Internet X.509 Certificate Request Message Format  
 RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)  
 RFC 2644 Directed Broadcast Control  
 RFC 2661 L2TP  
 RFC 2663 NAT Terminology and Considerations  
 RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5  
 RFC 2694 DNS extensions to Network Address Translators (DNS\_ALG)  
 RFC 2702 Requirements for Traffic Engineering Over MPLS  
 RFC 2747 RSVP Cryptographic Authentication  
 RFC 2763 Dynamic Name-to-System ID mapping support

RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)  
 RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)  
 RFC 2784 Generic Routing Encapsulation (GRE)  
 RFC 2787 Definitions of Managed Objects for VRRP  
 RFC 2961 RSVP Refresh Overhead Reduction Extensions  
 RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS  
 RFC 2973 IS-IS Mesh Groups  
 RFC 2993 Architectural Implications of NAT  
 RFC 3022 Traditional IP Network Address Translator (Traditional NAT)  
 RFC 3027 Protocol Complications with the IP Network Address Translator  
 RFC 3031 Multiprotocol Label Switching Architecture  
 RFC 3032 MPLS Label Stack Encoding  
 RFC 3036 LDP Specification  
 RFC 3046 DHCP Relay Agent Information Option  
 RFC 3063 MPLS Loop Prevention Mechanism  
 RFC 3065 Support AS confederation  
 RFC 3137 OSPF Stub Router Advertisement  
 RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels  
 RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels  
 RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)  
 RFC 3214 LSP Modification Using CR-LDP  
 RFC 3215 LDP State Machine  
 RFC 3246 Expedited Forwarding PHB  
 RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)  
 RFC 3277 IS-IS Transient Blackhole Avoidance  
 RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile  
 RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile  
 RFC 3392 Support BGP capabilities advertisement  
 RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)  
 RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering  
 RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec  
 RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers  
 RFC 3784 ISIS TE support  
 RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit  
 RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management  
 RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)  
 RFC 3847 Restart signaling for IS-IS

#### IP multicast

RFC 1112 IGMP  
 RFC 2236 IGMPv2  
 RFC 2283 Multiprotocol Extensions for BGP-4  
 RFC 2362 PIM Sparse Mode  
 RFC 2934 Protocol Independent Multicast MIB for IPv4  
 RFC 3376 IGMPv3

#### IPv6

RFC 1981 IPv6 Path MTU Discovery  
 RFC 2080 RIPng for IPv6  
 RFC 2292 Advanced Sockets API for IPv6

## Specifications (continued)

### HP MSR30-60 PoE Router (JF804A)

#### Standards and protocols (applies to all products in series)

RFC 2461 IPv6 Neighbor Discovery  
 RFC 2462 IPv6 Stateless Address Auto-configuration  
 RFC 2463 ICMPv6  
 RFC 2464 Transmission of IPv6 over Ethernet Networks  
 RFC 2472 IP Version 6 over PPP  
 RFC 2473 Generic Packet Tunneling in IPv6  
 RFC 2529 Transmission of IPv6 Packets over IPv4  
 RFC 2545 Use of MP-BGP-4 for IPv6  
 RFC 2553 Basic Socket Interface Extensions for IPv6  
 RFC 2740 OSPFv3 for IPv6  
 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers  
 RFC 3056 Connection of IPv6 Domains via IPv4 Clouds  
 RFC 3513 IPv6 Addressing Architecture  
 RFC 3596 DNS Extension for IPv6

#### MIBs

RFC 1213 MIB II  
 RFC 1229 Interface MIB Extensions  
 RFC 1286 Bridge MIB  
 RFC 1493 Bridge MIB  
 RFC 1573 SNMP MIB II  
 RFC 1724 RIPv2 MIB  
 RFC 1757 Remote Network Monitoring MIB  
 RFC 1850 OSPFv2 MIB  
 RFC 2011 SNMPv2 MIB for IP  
 RFC 2012 SNMPv2 MIB for TCP  
 RFC 2013 SNMPv2 MIB for UDP  
 RFC 2233 Interfaces MIB  
 RFC 2454 IPV6-UDP-MIB  
 RFC 2465 IPV6 MIB  
 RFC 2466 ICMPv6 MIB  
 RFC 2618 RADIUS Client MIB  
 RFC 2620 RADIUS Accounting MIB  
 RFC 2674 802.1p and IEEE 802.1Q Bridge MIB  
 RFC 2737 Entity MIB (Version 2)  
 RFC 2863 The Interfaces Group MIB  
 RFC 2933 IGMP MIB  
 RFC 3813 MPLS LSR MIB

### HP MSR30-60 DC Router (JF801A)

#### Network management

IEEE 802.1D (STP)  
 RFC 1155 Structure of Management Information  
 RFC 1157 SNMPv1  
 RFC 1905 SNMPv2 Protocol Operations  
 RFC 2272 SNMPv3 Management Protocol  
 RFC 2273 SNMPv3 Applications  
 RFC 2274 USM for SNMPv3  
 RFC 2275 VACM for SNMPv3  
 RFC 2575 SNMPv3 View-based Access Control Model (VACM)  
 RFC 3164 BSD syslog Protocol

#### OSPF

RFC 1245 OSPF protocol analysis  
 RFC 1246 Experience with OSPF  
 RFC 1587 OSPF NSSA  
 RFC 1765 OSPF Database Overflow  
 RFC 1850 OSPFv2 Management Information Base (MIB), traps  
 RFC 2328 OSPFv2  
 RFC 2370 OSPF Opaque LSA Option  
 RFC 3101 OSPF NSSA

#### QoS/CoS

IEEE 802.1P (CoS)  
 RFC 2474 DS Field in the IPv4 and IPv6 Headers  
 RFC 2475 DiffServ Architecture  
 RFC 2597 DiffServ Assured Forwarding (AF)  
 RFC 2598 DiffServ Expedited Forwarding (EF)  
 RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP

#### Security

IEEE 802.1X Port Based Network Access Control  
 RFC 1321 The MD5 Message-Digest Algorithm  
 RFC 2082 RIP-2 MD5 Authentication  
 RFC 2104 Keyed-Hashing for Message Authentication

RFC 2138 RADIUS Authentication  
 RFC 2209 RSVP-Message Processing  
 RFC 2246 Transport Layer Security (TLS)  
 RFC 2716 PPP EAP TLS Authentication Protocol  
 RFC 2865 RADIUS Authentication  
 RFC 2866 RADIUS Accounting  
 RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication

#### VPN

RFC 2403 - HMAC-MD5-96  
 RFC 2404 - HMAC-SHA1-96  
 RFC 2405 - DES-CBC Cipher algorithm  
 RFC 2547 BGP/MPLS VPNs  
 RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP  
 RFC 2842 Capabilities Advertisement with BGP-4  
 RFC 2858 Multiprotocol Extensions for BGP-4  
 RFC 2918 Route Refresh Capability for BGP-4  
 RFC 3107 Carrying Label Information in BGP-4

#### IPsec

RFC 1828 IP Authentication using Keyed MD5  
 RFC 2401 IP Security Architecture  
 RFC 2402 IP Authentication Header  
 RFC 2406 IP Encapsulating Security Payload  
 RFC 2407 - Domain of Interpretation  
 RFC 2410 - The NULL Encryption Algorithm and its use with IPsec  
 RFC 2411 IP Security Document Roadmap  
 RFC 2412 - OAKLEY  
 RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

#### IKEv1

RFC 2865 - Remote Authentication Dial In User Service (RADIUS)  
 RFC 3748 - Extensible Authentication Protocol (EAP)

### Transceivers

HP X110 100M SFP LC FX Transceiver (JD102B)  
HP X110 100M SFP LC LX Transceiver (JD120B)  
HP X110 100M SFP LC LH40 Transceiver (JD090A)  
HP X110 100M SFP LC LH80 Transceiver (JD091A)  
HP X120 1G SFP LC SX Transceiver (JD118B)  
HP X120 1G SFP LC LX Transceiver (JD119B)  
HP X125 1G SFP LC LH40 1310nm Transceiver (JD061A)  
HP X120 1G SFP LC LH40 1550nm Transceiver (JD062A)  
HP X125 1G SFP LC LH70 Transceiver (JD063B)  
HP X120 1G SFP LC LH100 Transceiver (JD103A)  
HP X120 1G SFP LC BX 10-U Transceiver (JD098B)  
HP X120 1G SFP LC BX 10-D Transceiver (JD099B)

### Cables

HP X200 V.24 DTE 3m Serial Port Cable (JD519A)  
HP X200 V.24 DCE 3m Serial Port Cable (JD521A)  
HP X200 V.35 DTE 3m Serial Port Cable (JD523A)  
HP X200 V.35 DCE 3m Serial Port Cable (JD525A)  
HP X200 X.21 DTE 3m Serial Port Cable (JD527A)  
HP X200 X.21 DCE 3m Serial Port Cable (JD529A)  
HP X260 RS449 3m DTE Serial Port Cable (JF825A)  
HP X260 RS449 3m DCE Serial Port Cable (JF826A)  
HP X260 RS530 3m DTE Serial Port Cable (JF827A)  
HP X260 RS530 3m DCE Serial Port Cable (JF828A)  
HP X260 Auxiliary Router Cable (JD508A)  
HP X260 E1 RJ45 3m Router Cable (JD509A)  
HP X260 E1 RJ45 20m Router Cable (JD517A)  
HP X260 E1 (2) BNC 75 ohm 3m Router Cable (JD175A)  
HP X260 E1 BNC 20m Router Cable (JD514A)  
HP X260 E1 2 BNC 75 ohm 40m Router Cable (JD516A)  
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable (JD511A)  
HP X260 2E1 BNC 3m Router Cable (JD643A)  
HP X260 T1 Router Cable (JD518A)  
HP X260 T1VI DB15M RJ45 3m Router Cable (JF843A)  
HP X260 T1 Voice Router Cable (JD535A)  
HP X260 8T1 RJ45 3m Router Cable (JD639A)  
HP X260 T3/E3 Router Cable (JD531A)  
HP X260 E3-30 E3/T3 Router Cable (JD533A)  
HP X260 E1 4-port IMA Router Cable (JD638A)  
HP CAB-75ohm 8E1-3m-BNC-IMA (JD927A)  
HP X260 T1 4-port IMA Router Cable (JD640A)  
HP X260 8E1 BNC 75 ohm 3m Router Cable (JD512A)  
HP X260 SIC-8AS RJ45 0.28m Router Cable (JD642A)  
HP X200 Transit Plug D25F MP8(S) Single Cable (JD636A)  
HP X200 Transit RJ45 0.5m Single Cable (JD641A)  
HP X260 mini D-28 to 4-RJ45 0.3m Router Cable (JG263A)

### Power Supply

HP RPS 800 Redundant Power Supply (JD183A)

### Router Modules

HP MSR Encryption Accelerator Advanced Module (JD608A)  
HP MSR Standard Encryption Accelerator Module (JD609A)  
HP MSR Voice Co-processor Module (JD610A)  
HP MSR 32-channel Voice Processor Module (JD598A)  
HP MSR 24-channel Voice Processor Module (JD599A)  
HP MSR 16-channel Voice Processor Module (JD600A)  
HP MSR 8-channel Voice Processor Module (JD601A)  
HP MSR 9-port 10/100Base-T Switch DSIC Module (JD574B)  
HP MSR 9-port 10/100Base-T PoE Switch DSIC Module (JD621A)  
HP MSR 4-port 10/100Base-T Switch SIC Module (JD573B)  
HP MSR 4-port 10/100Base-T PoE Switch SIC Module (JD620A)  
HP MSR 1-port 10/100Base-T SIC Module (JD545B)  
HP MSR 1-port 100Base-X SIC Module (JF280A)  
HP MSR 1-port GbE Combo SIC Module (JD572A)  
HP MSR 2-port FXO SIC Module (JD558A)  
HP MSR 1-port FXO SIC Module (JD559A)  
HP MSR 2-port FXS SIC Module (JD560A)  
HP MSR 1-port FXS SIC Module (JD561A)  
HP MSR 2-port ISDN-S/T Voice SIC Module (JF821A)  
HP MSR 2-port FXS/1-port FXO SIC Module (JD632A)  
HP MSR 1-port E1 Voice SIC Module (JD575A)  
HP MSR 1-port T1 Voice SIC Module (JD576A)  
HP MSR 1-port E1/Fractional E1 (75ohm) SIC Module (JD634B)  
HP MSR 2-port E1/Fractional E1 (75ohm) SIC Module (JF842A)  
HP MSR 1-port T1/Fractional T1 SIC Module (JD538A)  
HP MSR 1-port Analog Modem SIC Module (JD536A)  
HP MSR 1-port ADSL2+ SIC Module (JD537A)  
HP MSR 1-port ADSL over ISDN SIC Module (JG056B)  
HP MSR 1-port 8-wire G.SHDSL (RJ45) DSIC Module (JG191A)  
HP MSR 1-port Enhanced Sync/Async Serial SIC Module (JD557A)  
HP MSR 1-port ISDN-S/T SIC Module (JD571A)  
HP MSR 8-port Async Serial SIC Module (JF281A)  
HP MSR 16-port Async Serial SIC Module (JG186A)  
HP MSR 802.11b/g/n Wireless Access Point SIC Module (JF819A)  
HP MSR 802.11b/g/n Wireless Access Point SIC Module (NA) (JG211A)  
HP 3G Wireless GSM/WCDMA WAN SIC Module (JF820A)  
HP MSR 2-port 10/100Base-T MIM Module (JD613A)  
HP MSR 4-port 10/100Base-T MIM Module (JD551A)  
HP MSR 2-port Gig-T MIM Module (JD548A)  
HP MSR 16-port 10/100 MIM Module (JD569A)  
HP MSR 16-port 10/100 PoE MIM Module (JD618A)

## HP MSR30 Series accessories (continued)

HP MSR 24-port 10/100 DMIM Module (JD564A)  
HP MSR 24-port 10/100 PoE DMIM Module (JD619A)  
HP MSR 2-port Enhanced Sync/Async Serial MIM Module (JD540A)  
HP MSR 4-port Enhanced Sync/Async Serial MIM Module (JD541A)  
HP MSR 8-port Enhanced Sync/Async Serial MIM Module (JD552A)  
HP MSR 8-port Enhanced Async Serial MIM Module (JF840A)  
HP MSR 16-port Enhanced Async Serial MIM Module (JF841A)  
HP MSR 4-port FXO MIM Module (JD542A)  
HP MSR 2-port FXO MIM Module (JD543A)  
HP MSR 4-port FXS MIM Module (JD553A)  
HP MSR 16-port FXS MIM Module (JF822A)  
HP MSR 4-port ISDN-S/T Voice MIM Module (JF837A)  
HP MSR 4-port E&M MIM Module (JD539A)  
HP MSR 1-port E1 Voice MIM Module (JD565A)  
HP MSR 2-port E1 Voice MIM Module (JD567A)  
HP MSR 1-port T1 Voice MIM Module (JD566A)  
HP MSR 2-port T1 Voice MIM Module (JD568A)  
HP MSR 2-port E1/CE1/PRI MIM Module (JD544A)  
HP MSR 2-port T1/CT1/PRI MIM Module (JD549A)  
HP MSR 4-port E1/CE1/PRI MIM Module (JD550A)  
HP MSR 8-port E1/CE1/PRI (75ohm) MIM Module (JD563A)  
HP MSR 8-port E1/Fractional E1 (75ohm) MIM Module (JF255A)  
HP MSR 4-port T1 IMA MIM Module (JD556A)  
HP MSR 1-port T3/CT3/FT3 MIM Module (JD628A)  
HP MSR 1-port FE3/CE3 MIM Module (JD630A)  
HP MSR 1-port 4-Wire G.SHDSL MIM Module (JD547A)  
HP MSR 1-port OC-3c/STM-1c ATM SFP MIM Module (JD624A)  
HP MSR 1-port OC-3c/STM-1c POS MIM Module (JG193A)  
HP MSR 4-port T1/Fractional T1 MIM Module (JF254B)  
HP MSR 8-port E1 IMA (75ohm) MIM Module (JD555B)  
HP MSR 1-port E1/CE1/PRI SIC Module (JF253B)  
HP MSR 4-port E1/Fractional E1 MIM Module (JF257B)  
HP MSR 4-port FXS / 1-port FXO DSIC Module (JG189A)  
HP MSR HSPA/WCDMA SIC Module (JG187A)

### Power cords

HP X290 MSR30 1m RPS Cable (JD637A)

### Memory

HP MSR 256MB SDRAM (JD647A)

HP MSR 512MB SDRAM (JD648A)

### HP MSR30-10 Router (JF816A)

HP MSR 16-port 10/100Base-T Switch XMIM Module (JF279A)

HP MSR 24-port 10/100Base-T Switch XMIM Module (JF276A)

HP MSR 802.11b/g/n Wireless Access Point SIC Module (NA) (JG211A)

### HP MSR30-10 DC Router (JG184A)

HP MSR 16-port 10/100Base-T Switch XMIM Module (JF279A)

HP MSR 24-port 10/100Base-T Switch XMIM Module (JF276A)

HP MSR 802.11b/g/n Wireless Access Point SIC Module (NA) (JG211A)

### HP MSR30-11 Router (JF800A)

HP MSR 16-port 10/100Base-T Switch XMIM Module (JF279A)

HP MSR 24-port 10/100Base-T Switch XMIM Module (JF276A)

### HP MSR30-16 Router (JF233A)

HP X600 1G Compact Flash Card (JC684A)

HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-16 PoE Router (JF234A)

HP X600 1G Compact Flash Card (JC684A)

HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-20 Router (JF284A)

HP X600 1G Compact Flash Card (JC684A)

HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-20 PoE Router (JF802A)

HP X600 1G Compact Flash Card (JC684A)

HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-20 DC Router (JF235A)

HP MSR30 Router Software License (JD679A)

HP X600 1G Compact Flash Card (JC684A)

HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-40 Router (JF229A)

HP X600 1G Compact Flash Card (JC684A)

HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-40 PoE Router (JF803A)

HP X600 1G Compact Flash Card (JC684A)

HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)



## HP MSR30 Series accessories (continued)

### HP MSR30-40 DC Router (JF287A)

HP MSR30 Router Software License (JD679A)  
HP X600 1G Compact Flash Card (JC684A)  
HP X600 512M Compact Flash Card (JC685A)  
HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-60 Router (JF230A)

HP X600 1G Compact Flash Card (JC684A)  
HP X600 512M Compact Flash Card (JC685A)  
HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-60 PoE Router (JF804A)

HP X600 1G Compact Flash Card (JC684A)  
HP X600 512M Compact Flash Card (JC685A)

HP X600 256M Compact Flash Card (JC686A)

### HP MSR30-60 DC Router (JF801A)

HP MSR30 Router Software License (JD679A)  
HP X600 1G Compact Flash Card (JC684A)  
HP X600 512M Compact Flash Card (JC685A)  
HP X600 256M Compact Flash Card (JC686A)

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4AA3-0764ENW, Created August 2010; Updated March 2012, Rev. 3

