HP MSR30 Series

Key features

- Converged routing, switching, voice, and security
- Third-party applications and virtualized services platform
- Embedded encryption, firewall, and security features
- Unified wired and wireless WAN and LAN
- Support for AC/DC power and PoE

Product overview

HP MSR30 Series routers are a component of the HP FlexBranch solution, which is part of the HP FlexNetwork architecture.

MSR30 Series routers are ideal for the branch and regional offices of medium to large enterprises that require high-performance integrated routing, switching, security, wireless, voice, and virtualized applications.

With a rich set of modular WAN, LAN, and voice interface connectivity options in a single device, these routers help reduce operating and capital costs, and reduce complexity by enabling remote users in branch locations to securely and reliably access enterprise applications and corporate resources.

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

- **Weighted random early detection (WRED)/random early detection (RED)**
  delivers congestion avoidance capabilities through the use of queue management algorithms

- **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**
  restricts access to critical configuration commands; offers multiple privilege levels with password protection; 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**
  offers different mechanisms for configuration updates; FTP allows bidirectional transfers over a TCP/IP network; trivial FTP (TFTP) is a simpler method using User Datagram Protocol (UDP); Secure File Transfer Protocol (SFTP) runs over an SSH tunnel to provide additional security

- **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 timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time

- **Information center**
  provides a central repository 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 and LAN interfaces**
  provide a traditional link with E3, T3, E1, T1, ADSL, ADSL2, ADSL2+, G.SHDSL, OC-3, POS, ATM, and ISDN/AM backup; deliver high-density Ethernet access with WAN Fast Ethernet/Gigabit Ethernet, LAN Fast Ethernet, and PoE; offer mobility access with IEEE 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 (STP)**
  supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

- **Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) protocol snooping**
  controls and manages 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 (RIP)**
  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)**
  delivers an implementation of the Exterior Gateway Protocol (EGP) utilizing path vectors; uses TCP for enhanced reliability for the route discovery process; reduces bandwidth consumption by advertising only incremental updates; supports extensive policies for increased flexibility; scales to very large networks

- **Open shortest path first (OSPF)**
  delivers faster convergence; uses this link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery

- **Intermediate system to intermediate system (IS-IS)**
  uses a path vector Interior Gateway Protocol (IGP), 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 the 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**
  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; is an important element for the transition from IPv4 to IPv6

- **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, which reduces complexity and increases 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

- **Terminal Access Controller Access-Control System (TACACS+)**
  delivers an authentication tool using TCP with encryption of the full authentication request, providing 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**
  uses standard IEEE 802.1X, allowing 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 log in to a remote device or securely log in to the router 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, and AES 128/192/256 encryption, and MD5 and SHA-1 authentication

- **Dynamic Virtual Private Network (DVPN)**
  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)**
  utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3

- **Protocol Independent Multicast (PIM)**
  defines modes of Internet IPv4 and IPv6 multicasting to allow one-to-many and many-to-many transmission of information; supports PIM Dense Mode (DM), Sparse Mode (SM), and Source-Specific Mode (SSM)

- **Multicast Source Discovery Protocol (MSDP)**
  allows multiple PIM-SM domains to interoperate; is used for inter-domain multicast applications

- **Multicast Border Gateway Protocol (MBGP)**
  allows multicast traffic to be forwarded across BGP networks and kept separate from unicast traffic

Integration

- **Embedded NetStream**
  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**
  simplifies and streamlines deployment, management, and training through the use of a common operating system, thereby cutting costs as well as reducing the risk of human errors associated with having to manage multiple operating systems across different platforms and network layers

4

- **High reliability**
  provides a state-of-the-art unified code base

- **Faster time to market**
  allows new and custom features to be brought rapidly to market through engineering efficiencies, delivering better initial and ongoing stability

- **Green initiative support**
  provides support for RoHS and WEEE regulations

Product architecture

- **Ideal multiservice platform**
  provides a 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 Platform (OAP) and virtualization**
  are available on HP MSR Open Architecture Platform (OAP) Module with VMware vSphere; offer an industry-leading virtualization platform that integrates third-party applications with the MSR series routers; provides application and services flexibility; delivers the potential 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 an external USB 3G modem for a 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 10-calendar-day delivery (available in most countries)

- **Electronic and telephone support**
  limited electronic and business-hours telephone support is available from HP for the entire warranty period; to reach our support centers, refer to
  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

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

HP MSR30 Series

Specifications

	HP MSR30-10 Router (JF816A)	HP MSR30-10 DC Router (JG184A)	HP MSR30-11E Router (JG182A)
Ports	2 SIC slots	2 SIC slots	2 SIC slots
	1 MIM slot	1 MIM slot	1 MIM slot
	2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full	2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full	2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full
			24 RJ-45 autosensing 10/100 LAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full
Physical characteristics	17.4(w) x 14.17(d) x 1.74(h) in (44.2 x 36 x 4.42 cm) (1U height)	17.4(w) x 14.17(d) x 1.74(h) in (44.2 x 35.99 x 4.42 cm) (1U height)	17.4(w) x 14.17(d) x 1.74(h) in (44.2 x 35.99 x 4.42 cm) (1U height)
Weight	10.58 lb (4.8 kg)	10.58 lb (4.8 kg)	9.92 lb (4.5 kg)
Memory and processor			
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, 256 MB flash
Mounting	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
Performance			
Throughput	up to 220 Kpps (64-byte packets)	up to 220 Kpps (64-byte packets)	up to 220 Kpps (64-byte packets)
Routing table size	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)
Environment			
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
Electrical characteristics			
Frequency	50/60 Hz		50/60 Hz
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
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.
Safety	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
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 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 CISPR 22 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 CISPR 22 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
Telecom	FCC part 68; CS-03	FCC part 68; CS-03	FCC part 68; CS-03
Management	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

HP MSR30 Series

Specifications (continued)

	HP MSR30-10 Router (JF816A)	HP MSR30-10 DC Router (JG184A)	HP MSR30-11E Router (JG182A)
Notes	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 MSR Open Application Platform (OAP) with VMware vSphere MIM Module (JG532A) is not supported on this model.	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 MSR Open Application Platform (OAP) with VMware vSphere MIM Module (JG532A) is not supported on this model.	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 MSR Open Application Platform (OAP) with VMware vSphere MIM Module (JG532A) is not supported on this model.
Services	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)
	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)	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)	Refer to the HP website at **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.
	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, 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)	
	Refer to the HP website at **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.	Refer to the HP website at **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.	

Specifications (continued)

	HP MSR30-11F Router (JG183A)	HP MSR30-16 Router (JF233A)	HP MSR30-16 PoE Router (JF234A)
Ports	2 SIC slots	4 SIC slots	4 SIC slots
	1 MIM slot	1 MIM slot	1 MIM slot
	2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full	2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full	2 autosensing 10/100 WAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full
	48 RJ-45 autosensing 10/100 LAN ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full		
Physical characteristics			
	17.4(w) x 14.17(d) x 1.74(h) in (44.2 x 35.99 x 4.42 cm) (1U height)	17.4(w) x 17.39(d) x 1.74(h) in (44.2 x 44.18 x 4.42 cm) (1U height)	17.4(w) x 17.39(d) x 1.74(h) in (44.2 x 44.18 x 4.42 cm) (1U height)
Weight	10.58 lb (4.8 kg)	13.23 lb (6 kg)	13.23 lb (6 kg)
Memory and processor			
Processor	RISC @ 333 MHz, 256 MB DDR SDRAM, 256 MB flash	RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash	RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	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
Performance			
Throughput	up to 220 Kpps (64-byte packets)	up to 240 Kpps (64-byte packets)	up to 240 Kpps (64-byte packets)
Routing table size	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)
Environment			
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
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Maximum heat dissipation	113 BTU/hr (119.21 kJ/hr)	341 BTU/hr (359.76 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	100 W	100 W
PoE power			150 W
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).
Safety	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
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 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 CISPR 22 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 CISPR 22 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
Telecom			
	FCC part 68; CS-03	FCC part 68; CS-03	FCC part 68; CS-03
Management	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

HP MSR30 Series

Specifications (continued)

	HP MSR30-11F Router (JG183A)	HP MSR30-16 Router (JF233A)	HP MSR30-16 PoE Router (JF234A)
Notes	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 MSR Open Application Platform (OAP) with VMware vSphere MIM Module (JG532A) is not supported on this model.	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.
Services	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)
	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)	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, 24x7 coverage for hardware (UX155E)	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, 24x7 software phone (UX158E)	4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)	4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)
	4-year, 24x7 SW phone support, software updates (UX161E)	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)
	5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)	4-year, 24x7 SW phone support, software updates (UX161E)	4-year, 24x7 SW phone support, software updates (UX161E)
	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, 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 (UX156E)	5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)
	5-year, 24x7 SW phone support, software updates (UX162E)	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)
	3 Yr 6 hr Call-to-Repair Onsite (UX163E)	5-year, 24x7 SW phone support, software updates (UX162E)	5-year, 24x7 SW phone support, software updates (UX162E)
	4 Yr 6 hr Call-to-Repair Onsite (UX164E)	3 Yr 6 hr Call-to-Repair Onsite (UX163E)	3 Yr 6 hr Call-to-Repair Onsite (UX163E)
	5 Yr 6 hr Call-to-Repair Onsite (UX165E)	4 Yr 6 hr Call-to-Repair Onsite (UX164E)	4 Yr 6 hr Call-to-Repair Onsite (UX164E)
	Refer to the HP website at **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.	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, 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, 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 **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.	Refer to the HP website at **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.

Specifications (continued)

	HP MSR30-20 Router (JF284A)	HP MSR30-20 PoE Router (JF802A)	HP MSR30-20 DC Router (JF235A)
Ports	4 SIC slots	4 SIC slots	4 SIC slots
	2 MIM slots	2 MIM slots	2 MIM slots
	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	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	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
Physical characteristics	17.4(w) x 17.39(d) x 1.74(h) in (44.2 x 44.18 x 4.42 cm) (1U height)	17.4(w) x 17.39(d) x 1.74(h) in (44.2 x 44.18 x 4.42 cm) (1U height)	17.4(w) x 17.39(d) x 1.74(h) in (44.2 x 44.18 x 4.42 cm) (1U height)
Weight	15.21 lb (6.9 kg)	15.21 lb (6.9 kg)	15.21 lb (6.9 kg)
Memory and processor			
Processor	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash
Mounting	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
Performance			
Throughput	up to 300 Kpps (64-byte packets)	up to 300 Kpps (64-byte packets)	up to 300 Kpps (64-byte packets)
Routing table size	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)
Environment			
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
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	
Maximum heat dissipation	426 BTU/hr (449.43 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	
DC voltage			-48 to -60 VDC, rated
Maximum power rating	125 W	125 W	125 W
PoE power		150 W	
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. 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.
Safety	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
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 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 CISPR 22 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 CISPR 22 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
Telecom	FCC part 68; CS-03	FCC part 68; CS-03	FCC part 68; CS-03
Management	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

HP MSR30 Series

Specifications (continued)

	HP MSR30-20 Router (JF284A)	HP MSR30-20 PoE Router (JF802A)	HP MSR30-20 DC Router (JF235A)
Notes	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.
Services	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)
	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 **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.	Refer to the HP website at **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.	Refer to the HP website at **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.

Specifications (continued)

	HP MSR30-40 Router (JF229A)	HP MSR30-40 PoE Router (JF803A)	HP MSR30-40 DC Router (JF287A)
Ports	4 SIC slots	4 SIC slots	4 SIC slots
	4 MIM slots	4 MIM slots	4 MIM slots
	2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)	2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)	2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)
	2 fixed Gigabit Ethernet SFP ports	2 fixed Gigabit Ethernet SFP ports	2 fixed Gigabit Ethernet SFP ports
Physical characteristics			
	17.4(w) x 16.63(d) x 3.47(h) in (44.2 x 42.23 x 8.82 cm) (2U height)	17.4(w) x 16.63(d) x 3.47(h) in (44.2 x 42.23 x 8.82 cm) (2U height)	17.4(w) x 16.63(d) x 3.47(h) in (44.2 x 42.23 x 8.82 cm) (2U height)
Weight	26.23 lb (11.9 kg)	26.23 lb (11.9 kg)	26.23 lb (11.9 kg)
Memory and processor			
Processor	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash
Mounting	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
Performance			
Throughput	up to 360 Kpps (64-byte packets)	up to 360 Kpps (64-byte packets)	up to 360 Kpps (64-byte packets)
Routing table size	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)
Environment			
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
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	
Maximum heat dissipation	717 BTU/hr (756.44 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	210 W	210 W	210 W
PoE power		375 W	
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. 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.
Safety	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
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 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 CISPR 22 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 CISPR 22 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
Telecom			
	FCC part 68; CS-03	FCC part 68; CS-03	FCC part 68; CS-03
Management	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
Notes	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.

HP MSR30 Series

Specifications (continued)

	HP MSR30-40 Router (JF229A)	HP MSR30-40 PoE Router (JF803A)	HP MSR30-40 DC Router (JF287A)
Services	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)
	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)	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, 24x7 coverage for hardware (UX155E)	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, 24x7 software phone (UX158E)	4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)	4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)
	4-year, 24x7 SW phone support, software updates (UX161E)	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)
	5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)	4-year, 24x7 SW phone support, software updates (UX161E)	4-year, 24x7 SW phone support, software updates (UX161E)
	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, 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 (UX156E)	5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)
	5-year, 24x7 SW phone support, software updates (UX162E)	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)
	3 Yr 6 hr Call-to-Repair Onsite (UX163E)	5-year, 24x7 SW phone support, software updates (UX162E)	5-year, 24x7 SW phone support, software updates (UX162E)
	4 Yr 6 hr Call-to-Repair Onsite (UX164E)	3 Yr 6 hr Call-to-Repair Onsite (UX163E)	3 Yr 6 hr Call-to-Repair Onsite (UX163E)
	5 Yr 6 hr Call-to-Repair Onsite (UX165E)	4 Yr 6 hr Call-to-Repair Onsite (UX164E)	4 Yr 6 hr Call-to-Repair Onsite (UX164E)
	Refer to the HP website at **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.	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, 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, 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 **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.	Refer to the HP website at **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.

Specifications (continued)

	HP MSR30-60 Router (JF230A)	HP MSR30-60 PoE Router (JF804A)	HP MSR30-60 DC Router (JF801A)
Ports	4 SIC slots	4 SIC slots	4 SIC slots
	6 MIM slots	6 MIM slots	6 MIM slots
	2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)	2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)	2 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)
	2 fixed Gigabit Ethernet SFP ports	2 fixed Gigabit Ethernet SFP ports	2 fixed Gigabit Ethernet SFP ports
Physical characteristics	17.4(w) x 16.61(d) x 5.2(h) in (44.2 x 42.18 x 13.2 cm) (3U height)	17.4(w) x 16.61(d) x 5.2(h) in (44.2 x 42.18 x 13.2 cm) (3U height)	17.4(w) x 16.61(d) x 5.2(h) in (44.2 x 42.18 x 13.2 cm) (3U height)
Weight	29.98 lb (13.6 kg)	29.98 lb (13.6 kg)	29.98 lb (13.6 kg)
Memory and processor			
Processor	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash	RISC @ 533 MHz, 512 MB DDR SDRAM, 256 MB compact flash
Mounting	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
Performance			
Throughput	up to 360 Kpps (64-byte packets)	up to 360 Kpps (64-byte packets)	up to 360 Kpps (64-byte packets)
Routing table size	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)	30000 entries (IPv4), 30000 entries (IPv6)
Environment			
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
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	
Maximum heat dissipation	717 BTU/hr (756.44 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	210 W	210 W	210 W
PoE power		375 W	
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. 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.
Safety	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
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 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 CISPR 22 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 CISPR 22 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
Telecom	FCC part 68; CS-03	FCC part 68; CS-03	FCC part 68; CS-03
Management	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
Notes	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.

HP MSR30 Series

Specifications (continued)

	HP MSR30-60 Router (JF230A)	HP MSR30-60 PoE Router (JF804A)	HP MSR30-60 DC Router (JF801A)
Services	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)	3-year, parts only, global next-day advance exchange (UX150E)
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)
	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 **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.	Refer to the HP website at **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.	Refer to the HP website at **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.

Standards and Protocols

(applies to all products in series)

BGP	RFC 1163 Border Gateway Protocol (BGP)	RFC 1771 BGPv4	RFC 1997 BGP Communities Attribute
	RFC 1267 Border Gateway Protocol 3 (BGP-3)	RFC 1772 Application of the BGP	RFC 1998 PPP Gandalf FZA Compression Protocol
	RFC 1657 Definitions of Managed Objects for BGPv4	RFC 1773 Experience with the BGP-4 Protocol	RFC 2385 BGP Session Protection via TCP MD5
		RFC 1774 BGP-4 Protocol Analysis	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 2454 MIB for UDP6
		RFC 2452 MIB for TCP6	

General protocols	IEEE 802.1D MAC Bridges	RFC 1624 Incremental Internet Checksum	RFC 2961 RSVP Refresh Overhead Reduction Extensions
	IEEE 802.1p Priority	RFC 1631 NAT	RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
	IEEE 802.1Q VLANs	RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 2973 IS-IS Mesh Groups
	IEEE 802.1s Multiple Spanning Trees	RFC 1661 The Point-to-Point Protocol (PPP)	RFC 2993 Architectural Implications of NAT
	IEEE 802.1w Rapid Reconfiguration of Spanning Tree	RFC 1662 PPP in HDLC-like Framing	RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
	RFC 768 UDP	RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 3027 Protocol Complications with the IP Network Address Translator
	RFC 783 TFTP Protocol (revision 2)	RFC 1701 Generic Routing Encapsulation	RFC 3031 Multiprotocol Label Switching Architecture
	RFC 791 IP	RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 3032 MPLS Label Stack Encoding
	RFC 792 ICMP	RFC 1721 RIP-2 Analysis	RFC 3036 LDP Specification
	RFC 793 TCP	RFC 1722 RIP-2 Applicability	RFC 3046 DHCP Relay Agent Information Option
	RFC 826 ARP	RFC 1723 RIP v2	RFC 3063 MPLS Loop Prevention Mechanism
	RFC 854 TELNET	RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	RFC 3065 Support AS confederation
	RFC 855 Telnet Option Specification		RFC 3137 OSPF Stub Router Advertisement
	RFC 856 TELNET	RFC 1812 IPv4 Routing	RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
	RFC 858 Telnet Suppress Go Ahead Option	RFC 1829 The ESP DES-CBC Transform	RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
	RFC 894 IP over Ethernet	RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
	RFC 925 Multi-LAN Address Resolution	RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 3214 LSP Modification Using CR-LDP
	RFC 950 Internet Standard Subnetting Procedure	RFC 1973 PPP in Frame Relay	RFC 3215 LDP State Machine
	RFC 959 File Transfer Protocol (FTP)	RFC 1974 PPP Stac LZS Compression Protocol	RFC 3246 Expedited Forwarding PHB
	RFC 1006 ISO transport services on top of the TCP: Version 3	RFC 1990 The PPP Multilink Protocol (MP)	RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
	RFC 1027 Proxy ARP	RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 3277 IS-IS Transient Blackhole Avoidance
	RFC 1034 Domain Concepts and Facilities	RFC 2091 Trigger RIP	RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
	RFC 1035 Domain Implementation and Specification	RFC 2131 DHCP	
	RFC 1042 IP Datagrams	RFC 2132 DHCP Options and BOOTP Vendor Extensions	RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
	RFC 1058 RIPv1	RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements	RFC 3392 Support BGP capabilities advertisement
	RFC 1071 Computing the Internet Checksum	RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification	RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
	RFC 1091 Telnet Terminal-Type Option	RFC 2280 Routing Policy Specification Language (RPSL)	RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering
	RFC 1122 Host Requirements	RFC 2284 EAP over LAN	RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPSec
	RFC 1141 Incremental updating of the Internet checksum	RFC 2338 VRRP	
	RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 2364 PPP Over AAL5	RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
	RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 2374 An Aggregatable Global Unicast Address Format	RFC 3784 ISIS TE support
	RFC 1195 OSI ISIS for IP and Dual Environments	RFC 2451 The ESP CBC-Mode Cipher Algorithms	RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit
	RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 2453 RIPv2	RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management
	RFC 1293 Inverse Address Resolution Protocol	RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols	RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)
	RFC 1315 Management Information Base for Frame Relay DTEs	RFC 2511 Internet X.509 Certificate Request Message Format	RFC 3847 Restart signaling for IS-IS
	RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)	FRF.1.2 PVC User-to-Network Interface (UNI) Implementation Agreement – July 2000
	RFC 1333 PPP Link Quality Monitoring	RFC 2644 Directed Broadcast Control	FRF.11.1 Voice over Frame Relay Implementation Agreement – May 1997 – Annex J added March 1999
	RFC 1334 PPP Authentication Protocols (PAP)	RFC 2661 L2TP	
	RFC 1349 Type of Service	RFC 2663 NAT Terminology and Considerations	FRF.12 Frame Relay Fragmentation Implementation Agreement – December 1997
	RFC 1350 TFTP Protocol (revision 2)	RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5	FRF.16.1 Multilink Frame Relay UNI/NNI Implementation
	RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2694 DNS extensions to Network Address	
	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		
	RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol		
	RFC 1490 Multiprotocol Interconnect over Frame Relay		

Standards and Protocols (continued)

(applies to all products in series)

	RFC 1519 CIDR	Translators (DNS_ALG)	Agreement – May 2002
	RFC 1534 DHCP/BOOTP Interoperation	RFC 2702 Requirements for Traffic Engineering Over MPLS	FRF.2.2 Frame Relay Network-to-Network Interface (NNI) Implementation Agreement – March 2002
	RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	RFC 2747 RSVP Cryptographic Authentication	FRF.20 Frame Relay IP Header Compression Implementation Agreement – June 2001
	RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)	RFC 2763 Dynamic Name-to-System ID mapping support	FRF.3.2 Frame Relay Multiprotocol Encapsulation Implementation Agreement – April 2000
	RFC 1577 Classical IP and ARP over ATM	RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)	FRF.7 Frame Relay PVC Multicast Service and Protocol Description – October 1994
	RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	
		RFC 2784 Generic Routing Encapsulation (GRE)	
		RFC 2787 Definitions of Managed Objects for VRRP	
IP multicast	RFC 1112 IGMP	RFC 2236 IGMPv2	RFC 2362 PIM Sparse Mode
		RFC 2283 Multiprotocol Extensions for BGP-4	RFC 2934 Protocol Independent Multicast MIB for IPv4
IPv6	RFC 1981 IPv6 Path MTU Discovery	RFC 2462 IPv6 Stateless Address Auto-configuration	RFC 2553 Basic Socket Interface Extensions for IPv6
	RFC 2080 RIPng for IPv6	RFC 2463 ICMPv6	RFC 2740 OSPFv3 for IPv6
	RFC 2292 Advanced Sockets API for IPv6	RFC 2464 Transmission of IPv6 over Ethernet Networks	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
	RFC 2373 IPv6 Addressing Architecture	RFC 2472 IP Version 6 over PPP	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
	RFC 2460 IPv6 Specification	RFC 2473 Generic Packet Tunneling in IPv6	RFC 3513 IPv6 Addressing Architecture
	RFC 2461 IPv6 Neighbor Discovery	RFC 2529 Transmission of IPv6 Packets over IPv4	RFC 3596 DNS Extension for IPv6
		RFC 2545 Use of MP-BGP-4 for IPv6	
MIBs	RFC 1213 MIB II	RFC 1850 OSPFv2 MIB	RFC 2618 RADIUS Client MIB
	RFC 1229 Interface MIB Extensions	RFC 2011 SNMPv2 MIB for IP	RFC 2620 RADIUS Accounting MIB
	RFC 1286 Bridge MIB	RFC 2012 SNMPv2 MIB for TCP	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
	RFC 1493 Bridge MIB	RFC 2013 SNMPv2 MIB for UDP	RFC 2737 Entity MIB (Version 2)
	RFC 1573 SNMP MIB II	RFC 2233 Interfaces MIB	RFC 2863 The Interfaces Group MIB
	RFC 1724 RIPv2 MIB	RFC 2454 IPV6-UDP-MIB	RFC 2933 IGMP MIB
	RFC 1757 Remote Network Monitoring MIB	RFC 2465 IPv6 MIB	RFC 3813 MPLS LSR MIB
		RFC 2466 ICMPv6 MIB	
Network management	IEEE 802.1D (STP)	RFC 1905 SNMPv2 Protocol Operations	RFC 2275 VACM for SNMPv3
	RFC 1155 Structure of Management Information	RFC 2272 SNMPv3 Management Protocol	RFC 2575 SNMPv3 View-based Access Control Model (VACM)
	RFC 1157 SNMPv1	RFC 2273 SNMPv3 Applications	RFC 3164 BSD syslog Protocol
		RFC 2274 USM for SNMPv3	
OSPF	RFC 1245 OSPF protocol analysis	RFC 1587 OSPF NSSA	RFC 1850 OSPFv2 Management Information Base (MIB), traps
	RFC 1246 Experience with OSPF	RFC 1765 OSPF Database Overflow	RFC 2328 OSPFv2
			RFC 2370 OSPF Opaque LSA Option
QoS/CoS	IEEE 802.1P (CoS)	RFC 2474 DS Field in the IPv4 and IPv6 Headers	RFC 2597 DiffServ Assured Forwarding (AF)
		RFC 2475 DiffServ Architecture	RFC 2598 DiffServ Expedited Forwarding (EF)
Security	IEEE 802.1X Port Based Network Access Control	RFC 2104 Keyed-Hashing for Message Authentication	RFC 2716 PPP EAP TLS Authentication Protocol
	RFC 1321 The MD5 Message-Digest Algorithm	RFC 2138 RADIUS Authentication	RFC 2865 RADIUS Authentication
	RFC 2082 RIP-2 MD5 Authentication	RFC 2209 RSVP-Message Processing	RFC 2866 RADIUS Accounting
		RFC 2246 Transport Layer Security (TLS)	
VPN	RFC 2403 - HMAC-MD5-96	RFC 2405 - DES-CBC Cipher algorithm	RFC 2842 Capabilities Advertisement with BGP-4
	RFC 2404 - HMAC-SHA1-96	RFC 2547 BGP/MPLS VPNs	RFC 2858 Multiprotocol Extensions for BGP-4
		RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP	RFC 2918 Route Refresh Capability for BGP-4
IPSec	RFC 1828 IP Authentication using Keyed MD5	RFC 2406 IP Encapsulating Security Payload	RFC 2411 IP Security Document Roadmap
	RFC 2401 IP Security Architecture	RFC 2407 - Domain of interpretation	RFC 2412 – OAKLEY
	RFC 2402 IP Authentication Header	RFC 2410 - The NULL Encryption Algorithm and its use with IPSec	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)

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