Microsemi System Products

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μNTP Stratum 1

Power over Ethernet (PoE) Systems

Network Time Servers

Microsemi

Power Matters.™

Power over Ethernet (PoE) Solutions

Microsemi PoE systems enable delivery of up to 95 watts of reliable, scalable Power over Ethernet (PoE) to IP phones, IP cameras, WLAN access points, Zero Clients and other Ethernet devices over standard Cat5 or better Ethernet cable. All Microsemi systems support 10/100/1000 data rates and are available in 1, 4, 6, 12 and 24 port increments, bringing flexibility and longevity to network upgrades. New to Microsemi's PoE lineup is a catalog of outdoor IP66 rated PoE midspans, hubs and switches, enabling new power and data solutions for environmentally challenging deployments and a new line up of Industrial PoE products that are ideal for environments that need extended temperature range support and appropriate certifications..

As well as being innovators of PoE systems, Microsemi is a market leader in PoE technology and is a major contributor to IEEE 802.3af, 802.3at and HDBaseT standards.
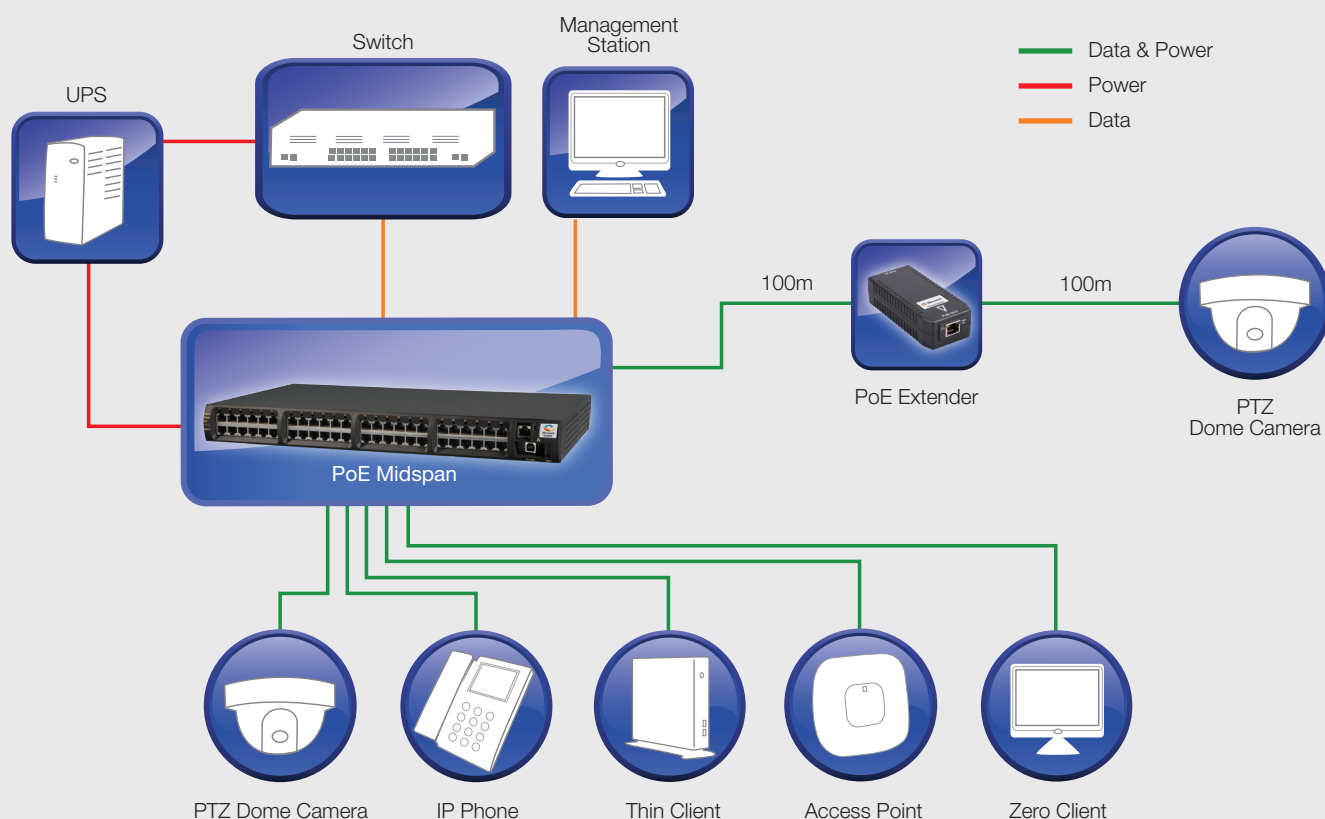

Figure 1: Microsemi PoE solution includes single and multi-port midspans, hubs, switches, and accessories.

Single and Multiport PoE Midspans

Product	Description	Specifications *(Power Level - 15.4 Watts)*
	PD-3501G Midspan This single port midspan offers a solution for low port density IP Terminal installations.	• Provides 15.4W • IEEE802.3af compliant
	PD-3504G Midspan This 4 port midspan offers a solution for IP terminals where available rack space is limited.	• 4 ports • IEEE802.3af compliant • Provides 15.4W per port
	PD-6500G Midspan Remote management enabled midspan family provides 15.4w to IP terminals, leaving network infrastructure completely unaltered.	• 6/12/24 ports • Remote power management • Provides 15.4W per port • IEEE802.3af compliant

Product	Description	Specifications *(Power Level - 30 Watts)*
	PD-5501G Midspan This DC powered single port midspan provides a high-power solution for remote powering while dissipating 50% less power.	• Provides 30W per port • IEEE802.3at compliant • 12-24VDC
	PD-9001GR Midspan This 30W single port midspan provides a high-power solution for remote powering of current and emerging high power applications.	• Provides 30W • IEEE802.3at compliant

Product	Description	Specifications *(Power Level - 30 Watts)*
	PD-9004G Midspan This 4 port midspan offers a 30W solution for emerging high power devices.	• IEEE802.3at compliant • 3 units can fit in 1U 19" rack • Provides 30W per port
	PD-5524G Midspan High power, remote management enabled EEPoE midspan is designed specifically to cut power dissipation over cables by 50% while powering end devices that require up to 30W.	• 24 ports • Provides 30W per port • EEPoE technology – reduces power loss over cables by 50% • Midspan-midspan mutual backup • Remote power management • High power over 4-pairs • IEEE 802.3at complian

Single and Multiport PoE Midspans

Product	Description	Specifications *(Power Level - 30 Watts)*
	PD-9001 GI/DC (30W) and PD-9501GI/DC (60W) Single Port Industrial PoE Midspan PD-9001GI and PD-9501GI are single port, midspan solutions for remote powering of current and emerging high power applications that generates up to 30W (PD-9001) or 60W (PD-9501). It is designed for industrial and outdoor applications from a temperature and shock and vibration standpoint.	• PD-9001GI: 30W • PD-9501GI:60W • Industrial rated IP30 • Extended temp range -40 ℃ to +75 ℃ • Plug and play installation • Supports 10/100/1000 Mbps • Shock IEC 60068-2-27 • Vibration IEC 60068-2-6

Product	Description	Specifications *(Power Level - 60 Watts)*
	PD-9501G Midspan 60W single port, high power midspan enables remote powering of current and emerging high power applications.	• Provides 60W • IEEE802.3at compliant • AC and DC models available • Energy efficient PoE (EEPoE) dissipates 50% less power when powering 25.5W devices

Product	Description	Specifications *(Power Level - 72 Watts)*
	PD-9500G Midspan High power, remote management enabled EEPoE midspan family is designed specifically to power IP terminals requiring up to 60W.	• 6/12/24 ports • Remote power management • EEPoE technology – reduces power loss over cables by 50% • High power over 4-pairs • IEEE802.3at compliant • Midspan-midspan mutual backup • Povides 72W per port in Extended Power Mode

| Product	Description	Specifications *(Power Level - 95 Watts)*
	PD-9601G/AC 1-Port PoH Midspan, 4-pairs 95W, 10/100/1000 BaseT, AC Input	• Up to 95W of power over 4-pairs • PoH, IEEE802.3at and 802.3af compliant • Plug-and-play installation • Guaranteed uptime
	PD-9606/G/ACDC/M PD-9612G/ACDC/M 6-port and 12-port high power midspan for emerging high power end devices.	• 4 pairs 95W/port • PoH, IEEE802.3at and 802.3af compliant • Managed • AC and DC input

PoE Systems for Outdoor PoE Installations

Product	Description	Specifications *(Standards Compliance)*
	### PD-9000G Midspan Remote management enabled midspan family provides 15.4w to IP terminals, leaving network infrastructure completely unaltered.	• 6/12/24 ports • Provides 36W per port in Extended Power Mode • IEEE802.3at compliant • Midspan-midspan mutual backup • Remote power management
	### PD-9001 GI/DC (30W) and PD-9501GI/DC (60W) Single Port Industrial PoE Midspan PD-9001GI and PD-9501GI are single port, midspan solutions for remote powering of current and emerging high power applications that generates up to 30W (PD-9001) or 60W (PD-9501). It is designed for industrial and outdoor applications from a temperature and shock and vibration standpoint.	• PD-9001GI: 30W • PD-9501GI:60W • Industrial rated IP30 • Extended temp range -40 ℃ to +75 ℃ • Plug and play installation • Supports 10/100/1000 Mbps • Shock IEC 60068-2-27 • Vibration IEC 60068-2-6

	### PD-9001GO and PD-9501GO Outdoor Midspans
	
	 Single port outdoor midspans combine IP66-rated enclosure and surge protection for remote powering of outdoor devices such as security cameras and WLAN access points.
	 PD-9001GO provides 30W of power.
	 PD-9501GO provides 60W of power.
		• PD-9001GO: 30W
		 • PD-9501GO: 60W
		 • Outdoor midspan for outdoor devices
		 • Outdoor rated: IP66
		 • Extended temperature range
		   PD-9001G: -40ºC, +65ºC
		   PD-9501G: -40ºC, +50ºC
		 • Fully IEEE802.3at standard compliant
		 • Supports 802.3af and 802.3at devices
		 • Includes critical surge protection
		 • AC power input

	### PD-9002GHO Hub The PD-9002GHO offers plug and play installation for outdoor Ethernet based devices and is well suited to power IP camera's and WLAN APs together, where the camera is passing up to 1G data wirelessly through the WLAN AP.	• 2 ports PoE passive HUB • 802.3at rated (30W/port) • Outdoor rated: IP66 • -40 degrees to 131 F (-40ºC to +55ºC) operating ambient temperature
	### PDS-102GO The PDS-102GO is an outdoor PoE switch that enables remote monitoring and control of two outdoor devices including remote reset, while extending the reach between the switch and powered devices by an additional 100m, to a maximum of 200 meters.	• 2 port outdoor PoE switch • Delivers up to 30W per device • Outdoor rated: IP66 • Integrated surge protection • IEEE802.3at compliant • Midspan-midspan mutual backup • Remote power management

Product	Description	Specifications
	PDS-104GO The PDS-104GO is an outdoor PoE switch and enables the connection of 4 powered devices to the network such as an outdoor WLAN, outdoor IP Camera and outdoor P2P radio. The switch offers SFP port for uplink in order to support Optical interface or electrical interface and delivers PoE power up to 60W per device.	• 5 ports – 1 SFP data input, 4 PoE outputs • Remotely managed – SNMP and web • Extends network reach by additional 100m • Outdoor rated: IP66 • Extended temperature range -40ºC to +50ºC • IEEE802.3at compliant • 60W per port • Supports 10/100/1000Mbps data rates • Includes integral surge protection • Plug 'n Play installation
	PD-OUT/SP11 Lightning Surge Protector Lightning surge protector is IP66 rated for outdoor installation and designed to protect Ethernet networks with outdoor mounted devices such as security cameras and WLAN access points.	• Outdoor PoE surge protection • Outdoor rated: IP66 • Suitable for Ethernet • Supports data rates up to 1 Gpbs • All eight lines protected

PowerView Pro SNMPv3 Cloud-based Power Management
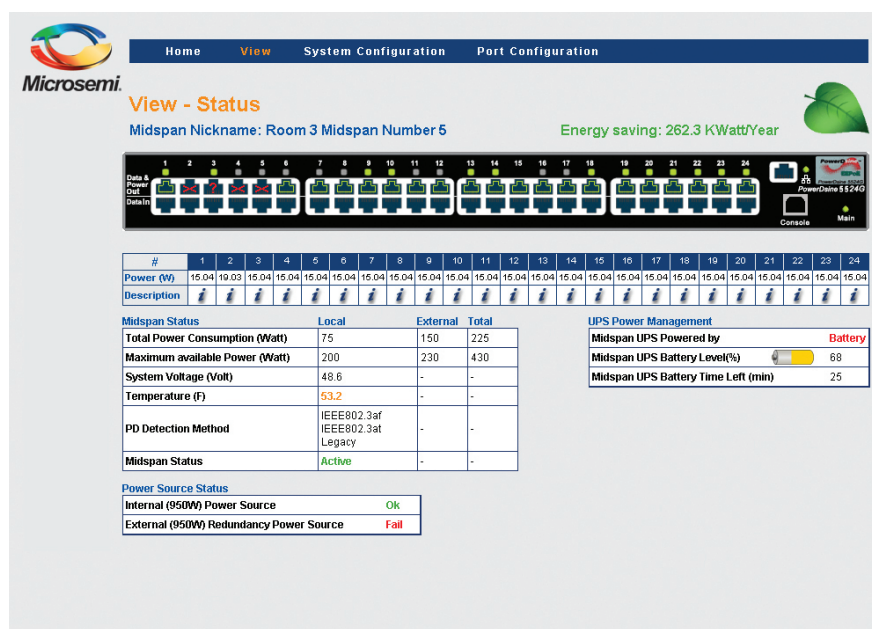
• SNMPv3 and web-based management
• Supports both IPv4 and IPv6 addressing
• Comes standard in all rack mountable units
• Monitors battery life in UPS and manage flow to critical and non-critical devices
• Monitors statistics, usage, and availability
• Allows devices to be remotely rebooted
• On/off scheduling allows power saving in periods of non-use as well as remote reboot capabilities to increase network efficiency and uptime

PoE Accessories

Family	Product Number	Description
PoE Tester	PD-AFAT-Tester	The Power over Ethernet (PoE) Tester, connected to an RJ-45 outlet, tests the cabling infrastructure for the presence of power, either IEEE802.3af or IEEE802.3at (2-pairs 30W or 4-pairs 60W). The PoE Tester also identifies the existence and type of Power Sourcing Equipment (either Endspan or Midspan) in your network.
802.3af Active Splitter	PD-AS-601/5	Power conversion from 48V to 5V output, 2 x DC jacks: round 3.4x1.35mm and 5.5x2.5mm
802.3at Active Splitter	PD-AS-701/12	Power conversion from 48V to 12V output, 2 pairs, for use with PD-9000G family
	PD-AS-951/12-24	Power conversion from 48V to 12V or 24V DC output (user selectable), 4 pairs, for use with PD-9500G family
	PD-AS-951/18	Power conversion from 48V to 18V DC output, 4 pairs for use with PD-9500G family
PoE Extender	PD-PoE Extender	1-port, extends PoE range by additional 100m, 802.af/802.at output power. Combine with PD-3504G or PD-9004G to effectively power edge-based Ethernet devices.

PoE Selection Guide

Indoor PoE Midspan

Watts per Port	Product Number	Number of Ports	Remotely Managed	Gigabit	Input	Warranty	Other
15.4W	PD-3501G/AC	1		x	AC	1-year	
15.4W	PD-3504G/AC	4		x	AC	1-year	
15.4W	PD-6506G/AC/M	6		x	AC	Limited lifetime	
15.4W	PD-6512GAC/M	12	x	x	AC	Limited lifetime	
15.4W	PD-6524G/AC/M/F	24	x	x	AC	Limited lifetime	400W total power
30W	PD-5501G/12-24VDC	1		x	DC	1-year	
30W	PD-5524G/ACDC/M	24	x	x	AC & DC	Limited lifetime	450W total power
30W	PD-9001GR/AC	1		x	AC	1-year	
30W	PD-9004G/AC	4		x	AC	1-year	
30W	PD-9006G/ACDC/M	6	x	x	AC & DC	Limited lifetime	450W total power
30W	PD-9012G/ACDC/M	12	x	x	AC & DC	Limited lifetime	450W total power
30W	PD-9024G/ACDC/M/F	24	x	x	AC	Limited lifetime	1000W total power
60W	PD-9501G/AC	1		x	AC	1-year	
60W	PD-9501G/24VDC	1		x	DC	1-year	
60W	PD-9501G/48VDC	1		x	DC	1-year	
60W	PD-9506G/ACDC/M	6	x	x	AC & DC	Limited lifetime	450W total power
60W	PD-9512G/ACDC/M	12	x	x	AC & DC	Limited lifetime	1000W total power
60W	PD-9524G/ACDC/M	24	x	x	AC & DC	Limited lifetime	1000W total power
95W	PD-9601G/AC	1	x	x	AC	1-year	

PoE Systems for Outdoor Installations

Watts per Port	Product Number	Number of Ports	Remotely Managed	Gigabit	Input	Warranty	Other
30W	PD-9001GO/AC	1		x	AC	1-year	Outdoor deployment
30W	PD-9001GI/DC	1		x	DC	1-year	Industrial applications, Outdoor applications (wide temp range support)
40W	PD-9001G-40/SP/AC	1		x	AC	1-year	Indoor deployment
60W	PD-9501GO/AC	1		x	DC	1-year	Outdoor deployment
60W	PD-9501GO/12-24VDC	1		x	DC	1-year	Outdoor deployment
60W	PD-9501GI/DC	1		x	DC	1-year	Industrial applications, Outdoor applications (wide temp range and environmental support)
60W	PD-9501GO/48VDC	1		x	DC	1-year	Outdoor deployment

PoE Switches and Hubs for Outdoor Installations

Watts per Port	Product Number	Number of Ports	Remotely Managed	Gigabit	Input	Warranty	Other
30W	PDS-102GO/AC/M	1 data input, 2 PoE output	x	x	AC	1-year	
30W	PD-9002GHO/AC	2		x	AC	1-year	PoE hub - outdoor deployment
60W	PDS-104GO/AC/M	5, 1 SFP data input, 4 PoE outputs	x	x	AC	1-year	Lightning Protection for switch and other indoor network

Network Time Servers

Next Generation IT networks need accurate, reliable and secure time. Microsemi's high-performance SyncServer® product line like the S300 and S200 are enterprise class GPS Network Time Servers that support the expanding technological requirements of large enterprises. Accurately synchronized clocks are critical for network log file accuracy, security, billing systems, electronic transactions, database integrity, VoIP, and many other essential applications.

The Microsemi SyncServer provides very reliable and secure network synchronization technology by combining multi-port network interfaces with multiple time reference technology and enhanced security protocols. Support of the essential security and network protocols provide for easy management and seamless integration into your existing and future network. An important advantage available with the Microsemi Network Time Servers is the option to use the Time Server with an Atomic Clock (such as a Rubidium oscillator). The Rubidium atomic clock has the ability to provide 'holdover' when the GPS source is unavailable or compromised. Atomic clock quality holdover keeps the clock very accurate if the GPS signal is lost. This is a huge benefit to the Enterprise networks as it allows the network to continue to stay accurately synchronized while allowing the GPS issue to be resolved. With the selection of the oscillator type—TCXO, OCXO or Rubidium—within the time server, the user can specify how far to let the clock drift in terms of estimated time accuracy without impacting the performance of the network. When the user selects the Rubidium atomic clock, the SyncServer can holdover for weeks and still be accurate to less than a millisecond. This provides the IT staff plenty of time to correct the problem with no degradation or disruption in network time synchronization accuracy.


Figure 2: SyncServer S300

Key Benefits of Microsemi SyncServers

- Extremely accurate time source for network synchronization
- Synchronize thousands of client, server and workstation clocks
- Very reliable and secure source of time for your network
- Multiple NTP ports for easy network configuration and adaptation
- Enhanced network and security features
- Improve network log file accuracy to speed network fault diagnosis and forensics
- Access multiple time sources for reliable and secure time
- Very easy to install and maintain
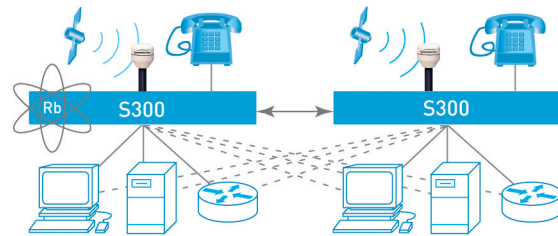- Intuitive web interface for easy control and maintenance
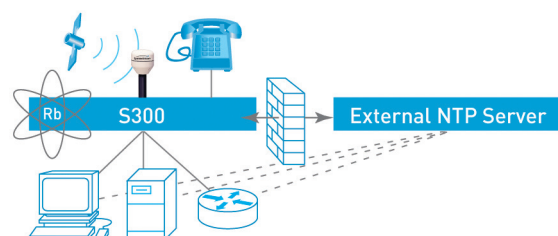
Examples of Network Timing Configurations
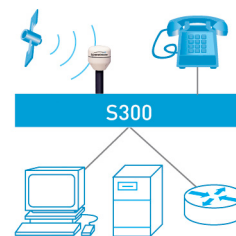
Basic configuration
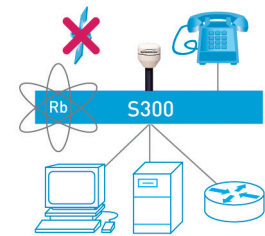
Resilient configuration incorporating a Rubidium oscillator for improved holdover performance.

Redundant, resilient and secure configuration incorporating a Rubidium oscillator in the primary server and peering to another server for backup redundancy.

Resilient internal configuration. However security, accuracy and security risks exist when peering with an external time server through the firewall.

Network Time Servers (SyncServer S200 and S300)

SyncServer S200

Enterprise Class GPS Network Time Server

Microsemi's high-performance SyncServer® S200™ is high bandwidth GPS Network Time Server that supports the expanding technological requirements of large enterprises

• Stratum 1 Operation Via GPS Satellites

• 3 Independent NTP Ports

• High-Resolution Vacuum Florescent Display

• Full numeric keypad

• IPv6 and IPv4 Compatible

• Secure Web-Based Management

• SSH, SSL, SCP, SNMP v3, Custom

• MIB, HTTPS, Telnet, FTP, and more

• Stratum 2 Operation via NTP Servers

• Nanosecond time accuracy to UTC

• Dedicated Sysplex Timer output

• Email Alerts for Alarms or Error

• Single Satellite Timing

• Two-Year Warranty

• Rubidium oscillator upgrade for extended holdover

Figure 3: SyncServer S200 Rear View

SyncServer S300

High Performance, Enhanced Security GPS Network Time Server

The SyncServer® S300™ is a high performance, enhanced security enterprise class GPS Network Time Server. It sets standards for security, accuracy, reliability, and redundancy in network time servers.

• Stratum 1 Operation Via GPS Satellites

• 4 Independent NTP Ports

• Internal Dial-up Modem for Time Reference Redundancy

• Stratum 2 Operation via NTP Servers

• TACACS+, RADIUS, NTPv4 Autokey, MD5 authentication

• Secure Web-Based Management

• SSH, SSL, SCP, SNMP, Custom MIB, HTTPS, Telnet, and More

• High-Resolution Vacuum Fluorescent Display

• Full Numeric Keypad

• IPv6 and IPv4 Compatible

• Nanosecond Time Accuracy to UTC

• Dedicated Sysplex Timer Output

• Alarm Relays

• Single Satellite Timing

• Upgrade to AM radio broadcast time sync

• IEEE 1588 / PTP Grandmaster Option

• Rubidium oscillator upgrade for extended holdover

Figure 4: SyncServer S300 Rear View

Accessories

GPS Active Splitter

The GPS L1 Active Splitter provides dependable signals for two GPS receivers allowing them to share a single antenna. With built-in amplification to overcome splitter losses, the Active Splitter can be conveniently cascaded without adding separate amplifiers and bias-tees between splitters.

GPS L1 Inline Antenna Amplifier

The inline amplifier amplifies the GPS signal and permits a longer antenna cable while attaching directly in line with the antenna cable and using the same power as the antenna; no extra wiring is required.

GPS Inline Lightning Arrestor

Lightning arrestors will protect your systems from lightning damage. In-line lightning arrestors are mounted on a low impedance ground between the antenna and the point where the cable enters the building.

Network Time Servers

GPS Network Time Servers

1520R-S200	• SyncServer S200 Multiport, GPS Referenced network time server • Includes roof mounted antenna and 50 ft. (15M) of antenna cable • Two year standard warranty • Refer to product datasheet for more details
1520R-S200-RB	• Rubidium equipped SyncServer S200 Multiport, GPS Referenced network time server • Includes roof mounted antenna and 50 ft. (15M) of antenna cable • Two year standard warranty • Refer to product datasheet for more details
1520R-S300	• SyncServer S300 High performance, high security, multiport, GPS Referenced network time server • Includes roof mounted antenna and 50 ft. (15M) of antenna cable • Two (2) years of standard warranty
1520R-S300-RB	• Rubidium equipped SyncServer S300 multiport, GPS Referenced network time server • Includes roof mounted antenna and 50 ft. (15M) of antenna cable • Two (2) years standard warranty • Refer to the datasheet for more details

Accessories and GPS Antenna Options

150-711	GPS L1 GPS Antenna Splitter	
150-709	GPS Lightning Arrestor Kit w/25 ft. (7.5 m) cable	• Antenna cables do not connect to each other
150-710	GPS Lightning Arrestor Kit w/50 ft. (15 m) cable	
150-200	GPS L1 Inline Antenna Amplifier	• Lengths greater than 50 feet from antenna to time server must be ordered separately for full length. Exception is if a lighting arrestor is being added.
340-75-5	Extended Cable (75 ft./22.5 m)	
340-100-5	Extended Cable (100 ft./30 m)	
340-125-5	Extended Cable (125 ft./37.5 m)	• Antenna lengths greater than 150 total feet require GPS L1 inline amplifier (pn 150-200)
340-150-5	Extended Cable (150 ft./45 m)	
340-200-5	Extended Cable (200 ft./60 m)	• Amplifier must attach at antenna, a cable must be purchased to accommodate length after the inline amplifier* Maximum total cable length is 300 feet* Contact factory for cable runs in excess of 300 feet
340-250-5	Extended Cable (250 ft./75 m)	
340-275-5	Extended Cable (275 ft./82.5 m)	
340-300-5	Extended Cable (300 ft./90 m)	

Microsemi is continually adding new products to it
industry-leading portfolio.

For the most recent updates to our product line and for detailed
information and specifications, please call, email or visit our website:

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Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 3,600 employees globally. Learn more at www.microsemi.com.