

# SyncServer Options

For customizing the:

SyncServer S100  
SyncServer S200  
SyncServer S250  
SyncServer S250i  
SyncServer S300  
SyncServer S350  
SyncServer S350i

## Options

- Rubidium Atomic Oscillator
- Oven Controlled Crystal Oscillator (OCXO)
- IEEE 1588 / PTP Grandmaster
- Time Interval Measurements
- Low Frequency Radio
- Window Mounted GPS Antenna
- 48 Vdc Power Supply
- Synchronization Software
- Inline GPS Signal Amplifier
- Lightning Arrestor
- GPS Antenna Cable Splitter
- GPS Down/Up Converter for Long Cable Runs

Microsemi® makes it easy to configure the SyncServer® S100/S200/S250/S300/S350 to meet your specific application needs with a variety of hardware and software options. Whether your application requires specific NTP stratum behaviors controllable using oscillator upgrades, different GPS antenna solutions, or a variety of other useful options, we have a good solution for you.

Not sure how to achieve what you want? Simply call Microsemi's network timing experts. For more than 30 years Microsemi has defined premium time and synchronization solutions. Put our expertise to work for you.



## Rubidium Atomic Oscillator



Rubidium atomic clock oscillator upgrades improve holdover accuracy and saves you valuable time. The standard SyncServer is equipped with a temperature compensated crystal oscillator (TCXO) that keeps the server accurate to nanoseconds when tracking GPS. However, if the GPS signal is lost, thereby placing the server in holdover, the TCXO will soon drift away from perfect. Upgrading the oscillator improves the holdover accuracy significantly.

Rubidium holdover accuracy is 3 to 25 microseconds per day. The value of the upgraded oscillator is that if the GPS signal is lost, the SyncServer can continue to serve very accurate NTP time. This provides IT staff plenty of time to correct the problem with no degradation or disruption in network time synchronization accuracy.

## Oven Controlled Crystal Oscillator (OCXO)



The Ovenized Crystal Oscillator (OCXO) upgrade improves holdover accuracy. By keeping the crystal oscillator at a fixed temperature, if the GPS signal is lost, thereby placing the server in holdover, the OCXO reduces clock the drift.

OCXO holdover accuracy is about 1 millisecond per day. The value of the upgraded oscillator is that if the GPS signal is lost the SyncServer can continue to serve accurate NTP time for several days. This provides some time to correct the problem with minimal degradation or disruption in network time synchronization accuracy.

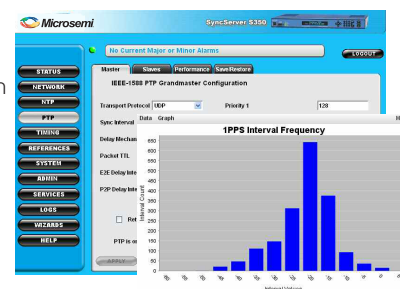
## IEEE 1588 / PTP Grandmaster Time Interval Measurements

All S300/S350 SyncServers are factory ready for high accuracy, hardware based PTP time stamping. When enabled, the PTP Grandmaster functions are very easy to configure via the web interface, and the PTP protocol begins with immediate operation.

The S300/S350 SyncServer actively monitors PTP slave access and Grandmaster performance thereby removing any uncertainty about slave connectivity and grandmaster loading.

PTP slave accuracy testing is an essential part of any high-accuracy PTP deployment. 1PPS Time Interval measurements built into the S350 will measure in real-time the 1PPS accuracy of hardware based PTP slaves compared to the S350.

Real-time charting of slave 1PPS accuracy via time history of histogram is also available via the web interface. While measurements are being made the user-configurable charts will continuously present updated results.



## National Low Frequency Radio Time Broadcast Receiver



National time authorities in the United States and Japan broadcast accurate time via AM radio signals that are traceable to the national time standard.

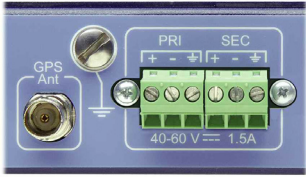
The Low Frequency Radio Option (LFR) is a useful back-up time reference to GPS and can also be used as an alternative to GPS if GPS is not a viable option.

The AM signals travel via ground waves and sky waves and signal strength varies with distance from the transmitter and time of day. Generally the signals are available 24 hours a day. However, inside some structures and great distances from the transmitter the signal may be available only a night or not at all.

Accuracy: <100 milliseconds to UTC (<20 ms typical)

Option includes antenna, 50' (15 m) cable & mount. Maximum cable length is 500' (150 m).

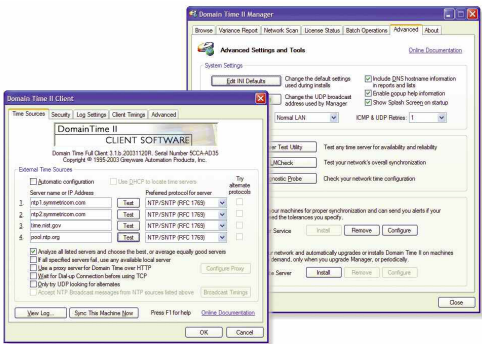
# 48 Vdc Power Supply



The 48 Vdc equipped SyncServers are supplied with primary and secondary 48 Vdc inputs to accommodate inputs from alternate DC power sources. Using diode switching, the polarity of the inputs can be different such as plus-plus, plus-minus, minus-plus, or minus-minus. Specifications are 40-60 Vdc, 50 watts maximum, 1.5 amps. Isolation: Ground input is fully floating. Either input polarity may be strapped to Chassis ground at the input terminal block.

SyncServers are sold as AC or DC models. Specify at the time of order the power supply configuration of choice. Most SyncServer options are compatible with either AC or DC models.

# Synchronization Software



Network time synchronization software is an essential part of distributing time to network clients.

**Windows:** Domain Time II is a comprehensive NTP/PTP software solution that simplifies network time synchronization. Versatile time clients and software servers keep the network hierarchy synchronized to a master clock such as the SyncServers. Easy to use management tools simplify and automate many tasks related to keeping these clients up-to-date. Monitoring functions track the synchronization across the network to notify you of any problems. The result is a reliable time synchronization system that requires little management overhead and offers tremendous value to the integrity of network operations and applications.

# GPS Antenna Cable Accessories

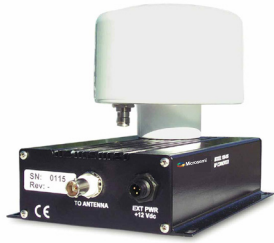


Antenna cable accessories enable versatile solutions that are simple to achieve. Inline GPS amplifiers are an easy way to extend cable runs from 150 feet (45 meters) to 300 feet (90 meters). Lightning arrestors provide valuable electrical shock protection to the SyncServer. Antenna cable splitters leverage a single antenna and cable between two GPS equipped time servers.

Description	GPS Antenna Options
GPS L1 GPS Antenna Splitter	150-711
GPS Lightning Arrestor Kit w/25 ft. (7.5 m) Cable	150-709
GPS Lightning Arrestor Kit w/50 ft. (15 m) Cable	150-710
GPS L1 Inline Antenna Amplifier	150-200
Extended Cable (75 ft./22.5 m)	340-75-5
Extended Cable (100 ft./30 m)	340-100-5
Extended Cable (125 ft./37.5 m)	340-125-5
Extended Cable (150 ft./45 m)	340-150-5
Extended Cable (200 ft./60 m)	340-200-5
Extended Cable (250 ft./75 m)	340-250-5
Extended Cable (275 ft./82.5 m)	340-275-5
Extended Cable (300 ft./90 m)	340-300-5

**Important:** Antenna cables do not connect to each other. Lengths greater than 50 feet from antenna to time server must be ordered separately for full length. Exception is if a lightning arrestor is being added. Antenna lengths greater than 150 total feet require GPS L1 inline amplifier (pn 150-200). 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.

## GPS Down/Up Converter for Long Cable Runs



GPS signal down/up conversion is required when signal losses in the antenna cable limit the distance between the receiver and the antenna assembly. Signal strengths and noise immunity as well as the cost benefits over the use of low loss cable and amplifiers are the main advantages of using the Antenna Down/Up Converter assembly.

The down converter antenna and up converter unit replace the standard L1 GPS antenna. The signal output from the converter is L1 C/A code that can be decoded by any L1 GPS receiver. Cable lengths of up to 1500 feet (457 meters) are supported.

## Window Antenna Option



SyncServers can track GPS satellites through a window and still maintain accurate time. Depending on user entered position accuracy; time accurate to 5 microseconds to UTC is possible from tracking a single intermittent GPS satellite. A position accurate to 1 km provides accuracy to 100 microseconds.

The option includes a Window Antenna with suction cup, a 6 foot (2 meter cable), and a BNC-to-TNC adapter to connect to the standard antenna/cable that ships with SyncServers [Part 500-140-619].

No special GPS receiver software upgrade is required. Compatible with all SyncServer standard antenna accessories. Use in place of standard GPS roof antenna that ships with all GPS equipped models.

Note: some window glazing blocks the GPS signals preventing the SyncServer from tracking GPS.

## Option Availability Matrix

	S100	S200	S250i	S250	S300	S350i	S350
Rubidium Upgrade		•		•	•		•
OCXO Upgrade*		•		•	•		•
40-60 Vdc Power Supply*		•		•	•		•
Synchronization Software	•	•	•	•	•	•	•
Window Antenna*	•	•		•	•		•
GPS Down Up Converter*	•	•		•	•		•
GPS Antenna Cable Accessories	•	•		•	•		•
Low Frequency Radio*					•		•
IEEE 1588 / PTP Grandmaster*					•		•
Time Interval Measurements**							•

\*Not available on SAASM models or S250i or S350i models

\*\*Included standard with IEEE 1588 / PTP Option in S350 only



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