

# SR Series NTP Network Time Server Datasheet

## APPLICATIONS

Network Timing and Synchronisation

NTP Synchronised Clock Systems

CCTV and DVR Synchronisation

## KEY FEATURES

Linux Based True Stratum 1 NTP Time Servers

Single and Dual LAN Options.

GPS, Radio and Dual Reference Clock Options

High stability TCXO Options for Extended Holdover

## KEY BENEFITS

Synchronize Windows, Linux, DVRs, Wall Clocks and Network Infrastructure

Accurate, Traceable Source of Time Inside Your Firewall

Accurately Synchronize Time Critical Processes

## PRODUCT OVERVIEW

TimeTools SR Series is a complete range of Linux based Network Time Servers. The range provides a real breakthrough in price and performance. By utilising a customized Linux kernel and an unmodified version of the latest network time protocol distribution, NTP version 4.2, the SR series offers true Stratum 1 NTP/SNTP functionality.

### Synchronize Multiple Platforms

The SR Series provides an accurate time reference for synchronising multiple platforms, including: Windows, Linux, CCTV, DVR's, wall clocks and network infrastructure.



### Secure

The SR series provides a reliable, highly accurate, traceable, source of time inside your firewall. No need to compromise security by opening ports in your firewall. A secure, easy to use, password-protected browser interface (HTTP / HTTPS\*) is provided for system configuration and management. FTP/SCP\* can be utilised to download NTP statistics and upload firmware upgrades, provided by TimeTools free of charge.

### High Sensitivity, Single Satellite in View GPS

A cutting-edge high-sensitivity GPS receiver that can often operate with an indoor located GPS antenna is utilised by the SR series. Additionally, the new receivers can operate from a single satellite-in-view making operation from a window often possible. These features potentially provide a great saving on installation costs when compared to traditional roof-mounted GPS antennas. Of course, our GPS antennas are completely weatherproof and can be mounted outdoors.

### Multiple Reference Clock Options

Multiple optional external reference clock combinations can be provided with the SR series; GPS, MSF radio, DCF-77 radio and dual GPS / radio reference capabilities. The SR series provides true flexibility.

### High Stability TCXO Oscillator Options

High-stability, GPS/ LF disciplined, TCXO backup oscillator options are available to maintain accurate time for extended periods in the event of primary reference clock signal loss.

### 5-Year Warranty and Free Lifetime Support

The SR Series NTP Server is a low-power convection cooled device with no moving parts, aiding long-term reliability. Our confidence in the reliability of the device is reflected in the provision of an industry leading 5-year warranty.

### High Quality Rack-Mountable Enclosure

Housed in a compact, yet rugged, 1U high, rack-mountable aluminium enclosure, the SR series takes up minimal valuable rack-space.



### SR7110 – Competitively Priced

The SR7110 is an entry-level Linux based true NTP time server at a highly competitive price. It can utilise GPS or LF radio time references to provide stratum-1 NTP functionality, ideal for synchronising digital wall clocks and smaller networks.

### SR9210 / SR9750 – Feature Rich, Value

The mid-range SR9210 and SR9750 models are high specification NTP network time references. They incorporate a high-throughput Ethernet network interface, combined with the ability to accept GPS, LF radio or dual GPS/LF external time references. The SR9750 also incorporates a high-stability GPS/LF disciplined Temperature Controlled Crystal Oscillator (TCXO) for extended holdover. The SR9210 and SR9750 are ideal time references where a large number of network time clients are to be synchronised accurately and reliably.

### SR9860D – Dual LAN, High Accuracy

The top-of-range SR9860D incorporates dual independent LAN capability for synchronising multiple networks. It also provides enhanced precision along with a GPS/LF disciplined TCXO for extended holdover. Ideal for reliably synchronising multiple large networks with a high degree of accuracy.



5-Year  
Warranty

Unlimited  
Support

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# Product Specification

Model	SR7110	SR9210	SR9750	SR9860D
<b>Network</b>				
LAN 10/100 Mbit Base T, RJ45 auto-sensing	Single LAN	Single LAN	Single LAN	Dual LAN
<b>Timing Protocols</b>				
NTP v2, v3, v4, SNTP v3, v4	•	•	•	•
NTP Peering, NTP Broadcast	•	•	•	•
NTP MD5 Authentication	•	•	•	•
NTP Requests / Second (typical)	> 200	> 1,000	> 1,000	> 5,000
Maximum Number of NTP Clients (typical)	> 12,000	> 64,000	> 64,000	> 320,000
NMEA RS232 Output	•	•	•	•
<b>Time Reference Options</b>				
12 Channel GPS Receiver – High Sensitivity Indoor Operation	•	•	•	•
GPS Over-Determined Clock, Single Satellite Operation	•	•	•	•
LF - MSF (UK) Reference Clock Capability	•	•	•	•
LF - DCF-77 (German) Reference Clock Capability	•	•	•	•
Dual GPS and LF Radio Reference Clocks Capability	•	•	•	•
<b>Monitoring and Reporting</b>				
SNMP v1 / v2c Trap Alarms (Can be disabled)	•	•	•	•
System Logging (Syslog)	•	•	•	•
Remote System Logging (Remote Syslog)	•	•	•	•
GPS Satellites in View & Signal to Noise Ratio (SNR)	•	•	•	•
<b>Configuration Protocols</b>				
HTTP (Web)	•	•	•	•
HTTPS (SSL Secure Sockets Layer)	•	•	•	•
SSH (Secure Shell), SCP (Secure Copy Protocol)	•	•	•	•
TELNET, FTP	•	•	•	•
Console (RS232)	•	•	•	•
DHCP	•	•	•	•
<b>Oscillator Options</b>				
Standard Crystal Oscillator	•	•	•	•
High Stability GPS/LF Disciplined TCXO Oscillator	•	•	•	•
<b>Timing (typical)</b>				
GPS Accuracy	1 msec UTC	60 nsec UTC	60 nsec UTC	60 nsec UTC
LF Accuracy	10 –50 msec	1 –20 msec	1 –20 msec	1 –20 msec
NTP Accuracy (GPS Synchronised)	< 10 msec UTC	< 250 usec	< 250 usec	< 1 usec
24 Hour TCXO Holdover (GPS disciplined, typ @ 25C)			< ±10ms (2.3e10-7)	<±4.3ms(1e10-7)
Buffered 5V 1 PPS Output		○	○	•

## MECHANICAL \ ENVIRONMENTAL

- **Dimensions** 483 x 205 x 44 mm (19.0" x 8.05" x 1.73")
- **Construction** 1U High 19" Rack mount, 1.8mm Aluminium
- **Weight** approx 2.2Kg (4.84lbs)
- **Power Supply** Universal 100-240VAC 50-60Hz  
CE/UL/CSA Approved PSU  
(Optional 9-36VDC IN and 85-250VDC IN versions available)
- **Power Consumption** approx 5W
- **Operating Temperature** 0C ~ +60C
- **Storage Temperature** -20C ~ +85C  
(Extended Temperature Range Options Available)
- **Relative Humidity** 95% non-condensing

## APPROVALS

- CE, EN61000-6-1, EN61000-6-3,
- FCC
- RoHS

## INPUT \ OUTPUT

- **LAN** Single/Dual 10/100 MBit BaseT , RJ45 auto-sensing
- **Serial Console:** 9 way 'D' RS232, 9600, N, 8, 1
- **GPS Antenna Input:** TNC female
- **LF/AUX Input:** 9 way 'D'
- **Power:** Double Fused Switched IEC Inlet
- **PPS:** Buffered pulse per second output

## INTEGRAL GPS RECEIVER

- **Type:** 12 Channel, L1 1575.42 MHz, High Sensitivity
- **Features:** High sensitivity, Over-determined clock modes
- **Timing:** GPS Time Traceable to UTC (USNO)
- **Accuracy (typical):** +/- 60 nsec UTC
- **Acquisition (Cold Start):** 38 sec

# Form Factor and Connectivity

## Front Panel View



- 1U High 19-inch Rack-Mountable Aluminium Enclosure
- Black Powder Coated Front Panel with White Lettering
- Anodised, Brushed Aluminium Base, Top and Rear Panels
- Ultra-Bright 40-Character by 2-Line White on Blue Backlit LCD Display

## SR7110 / SR9210 / SR9750 Rear Panel View



- Double Fused Switched IEC Power Inlet
- TNC Threaded-Lock GPS Antenna Connection
- LF Radio Antenna / Aux Connection
- LF Signal, Power-On and GPS Signal Status LED's
- Single 10/100 MBit BaseT RJ45 Ethernet Port
- Console RS232 Configuration Port
- (Optional Buffered 1PPS Phono Connection Not Shown)

## SR9860D Rear Panel View



- Double Fused Switched IEC Power Inlet
- TNC Threaded Lock GPS Antenna Connection
- LF Radio Antenna / Aux Connection
- Buffered 1PPS Phono Connection
- LF Signal, Power-On and GPS Signal Status LED's
- Dual 10/100 MBit BaseT RJ45 Ethernet Ports with Integrated Status LED's
- Console RS232 Configuration Port
- Aux 2 Connection Port

# SR Series Options and Accessories



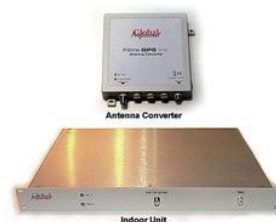
## Jam-Resistant, GPS Timing Antenna

- Professional grade, permanent-mount GPS antenna.
- Jam-Resistant, Pre-filtered, high-gain characteristics.
- Weather-proof IP67 housing.
- Long Cable Runs
- Optional wall / mast mount available



## MXS / DXS Ultra High Gain Radio Antenna

- MSF/DCF-77 LF Radio Antenna
- Weather-proof housing
- Highly Sensitive Active Antenna
- Ultra-High Gain
- Long Cable Runs
- Ideal for low-signal strength areas.



## LF / GPS Over Optical Fibre System

- Allows LF and GPS signals to be transmitted with minimal losses over very long cable distances.
- Highly secure and interference free link between antenna and receiver
- Transparent cross-site connections



## GPS and LF Surge Suppressors

- Protects valuable network equipment from harmful surges.
- GPS and LF radio surge suppressors available
- Multi-strike maintenance free versions
- Fully weather-proof housing
- Rugged N-type threaded-lock connectors



## GPS In-line Amplifiers

- Allows extended cable runs over long distances
- Fully weather-proof enclosure
- Rugged N-type threaded-lock connectors



## GPS Splitters

- Share a single GPS antenna between multiple GPS devices.
- 2 to 32 Way Options
- Rack-mountable or compact enclosures
- Various connector options TNC/BNC/N-type.
- DC IN or receiver powered options

## Product Codes

### SR Series NTP Time Servers

SR 7110 GPS \ LF NTP Server	SR7110-20P
SR 9210 GPS \ LF \ Dual Reference NTP Server	SR9210-20P
SR 9750 GPS \ LF \ Dual Reference NTP Server with TCXO	SR9750-20P
SR 9860D GPS \ LF \ Dual Reference NTP Server with TCXO	SR9860D-20P

Scope of Supply: SR Series NTP Time Server, IEC Mains Lead, Console Configuration Cable, Product User Guide and NTP Client CD.  
(Optional 9-36VDC IN, 85-250VDC IN and extended temperature range versions available on request.)

### Optional SR Series GPS Antennas and Accessories

Jam-Resistant Pole Mounting GPS Antenna	T-3072
GPS Antenna Pole / Wall Mount	MT4-GPS
30m RG58 Cable	TCX-030
50m LMR195 Cable	TCX-050
100m LMR400 Cable	TCX-100
Additional cable lengths available on request	

GPS Surge Suppressor	SPP-GPS
GPS Amplifier – 20db	T-AD200-8
GPS Splitters – 2 to 32 way, compact or rack-mount	P.O.A
LF / GPS over optical fibre systems	P.O.A

### Optional SR Series LF (Radio) Antennas and Accessories

Ultra-High-Gain MSF (UK) Antenna	SR-MXS-00
Ultra-High-Gain DCF-77 (German) Antenna	SR-DXS-00
LF Radio Surge Suppressor	SPP-LF

*TimeTools Limited has relied on representations made by its suppliers in certifying this product as RoHS compliant.*

*TimeTools Limited is not responsible for the operation or failure of operation of GPS satellites or LF time & frequency broadcasts or the availability of GPS satellite or LF radio signals.*

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*All specifications subject to change without notice.*

*Terms and conditions of sale available on request.*

*\*Model dependent.*

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