
MODEL 54580

Network Time Server

The Larus Model 54580 Network Time Server (NTS) distributes time for precise synchronization of client computer clocks over a network. Time is acquired from the Global Positioning System (GPS) and distributed over the network using Network Time Protocol (NTP). Client computer clocks can be synchronized to less than 1 millisecond. Computer clock synchronization is a highly cost-effective solution for transaction and data processing systems, secure local area networks, and enterprise networks.

The 54580 saves both time and money compared to configuring a workstation as a time server or using a separate NTS generator. Installation is quick and ongoing maintenance and support costs are eliminated. Since the 54580 is easily added to existing networks, precision time can be accessible with minimum effort. Clients require only an Ethernet connection and NTP client software which is readily available on the Internet.

Network managers and system administrators can obtain information remotely on the health and status of the NTP server and the primary time synchronization source using the SNMP protocol Enterprise MIB. Also, MDS security protocol is included to authenticate NTP client-server communication.

The 54580 is a single card designed to plug into a Larus Model 54500 or 5400 (List 5 or higher) Telecom Timing Generator Shelf. The shelf must contain at least one Larus Model 54591 or 54593 clock card in a 54500 system or at least one 5410 or 5412 clock card in a 5400 system. Precision timing inputs to the 54580 are automatically provided when the card is plugged into the shelf. The 54580 provides IRIG B, 10 MHz, and 1PPS on BNC connectors. The 1 PPS signal comes directly from the clock card and is accurate to 130 nanoseconds. The 54580 also provides NTP via a 15-pin AUI connector to a customer-provided MAU. Initial setup commands are integrated into the command set for the entire timing shelf in a 54500 system. When the NTS is used in a 5400 system, setup commands are input via a front panel connector (to a PC).

FEATURES

- # Synchronization of computer clocks over a network
- # 1 millisecond accuracy
- # Exceptional cost-effectiveness and affordability
- # Time reference to GPS with ST2 or ST3 clock backup
- # SNMP Enterprise MIB support
- # MDS Security Protocol
- # Network Time Protocols/outputs
- # IRIG B output
- # 1 PPS output accurate to 130 ns
- # 10 MHz output
- # Alarm status output

SPECIFICATIONS

Input Synchronization Sources

Synchronization signals are provided by the shelf mounted tracking clocks.

The shelf requires:

- # 54500 series; at least one 54591 or 54593 clock
- # 5400-5 series (or higher); at least one 5410 or one 5412 clock

Network Protocols

Network Time Protocol:

- # NTP (RFC 1305, 2030)

Includes:

- # SNTP (RFC1361)
- # TIME (RFC 868)
- # MD5 (RFC1321)
- # SNMPv1 Enterprise MIB II

Network Transport Protocol:

- # UDP/IP

Simple Network Management (SNMP):

- # Provides the network administrator with the NTP Time Server Protocol status, network status, and statistics. This feature implements SNMP version 1 and Management Information Base (MIB) II.

SPECIFICATIONS (continued)

General Specifications

Network Interface:

- # UDP/IP (TCP/IP)
- # Ethernet or IEEE 802.3
- # 15-pin AUI connector
- # Optional MAUs to support 10Base-T and 10Base-2
- # The AUI supports 1640 ft connections while the 10Base-T and 10Base-2 support 328 ft and 607 ft respectively.

Auxiliary Outputs (standard unit shipped with IRIG B and 1 PPS):

- # IRIG B: 1 kHz amplitude modulated carrier, 5 Vpp high into 600 ohms, BNC connector
- # 1 PPS: AC MOS level, 22 ohm output impedance, rising edge on time, BNC connector

Timing Accuracy:

- # Network: 1 to 10 milliseconds typical
- # GPS: < 1 microsecond to UTC
- # IRIG B: < 10 microseconds to input code
- # 1 PPS: 130 nanoseconds

Serial I/O:

- # Bidirectional RS-232 with user-selectable communication protocol, 9600 baud rate

Alarm/Status Output:

- # Wire wrap pins on rear panel (fault is high impedance state)
- # Power Fail LED
- # GPS LED
- # Degraded GPS LED
- # Output Loss LED
- # Alarms displayed on system monitor (54500 only)

Three-level Fault Protection:

- # Normal timing operation is with GPS locked. If GPS unlocks, the clock will sustain operation. If the clock fails, the NTS card will sustain operation.

Control:

- # 54500: System terminal or terminal connected to front panel
- # 5400: Terminal connected to front panel

Internal Oscillator:

- # 10 MHz VCXO
- # Accuracy: 1×10^{-11} when GPS is locked
- # Stability: 25×10^{-6} over 0 °C to +50 °C when not externally synchronized

Environment

Operating Temperature:

- # 0 °C to +50 °C

Storage Temperature:

- # -40 °C to +85 °C

Humidity:

- # 0% to 95%, noncondensing

Certifications:

- # FCC, CE

Mechanics

Size:

- # 0.75" wide plug in module

Power:

- # 48 Vdc, 200 mA (positive ground)
Provided by shelf

Client Software

A Network Time Protocol daemon is required for client operation. You can obtain the appropriate daemon and other supplemental information on the Internet at the sites shown below as well as other locations. An OS/2 daemon is available from Larus.

- # <http://www.eecis.udel.edu/~ntp>
- # <ftp://ftp.udel.edu/pub/ntp>
- # <http://www.eecis.udel.edu/~ntp/software.htm>

Features and specifications subject to change without notice.

