



**Features**

Stand-alone NTP Time Server  
Network Management Protocol  
Advanced Remote Protection  
Security Protection  
Telnet and RS-232 Remote Programming  
Independent Time Acquisition From:  
GPS, IRIG Time Code  
or Dial-up Time Service

1U Height, Rack Mount Unit  
Convenient Front Panel Display  
Versatile Input/Output:  
Ethernet 10BaseT & AUI Interface  
IRIG B Time Code Input/Output  
1 PPS TTL/CMOS Output  
10 MHz Output

**Overview**

Datum's TymServe™ 2100 Network Time Server acquires time from the GPS satellite constellation, IRIG Time Code or Dial-up Time Services (NIST, USNO) and distributes time using the TCP/IP Network Time Protocol, NTP. TymServe simplifies the task of implementing an enterprise network synchronization system, offers better timing accuracy, conserves WAN bandwidth, decreases security risk and provides lower cost of ownership.

Network managers and system integrators appreciate the fact that the TymServe is a complete time server in a convenient, self-contained rack mountable configuration. Configuration is simply a matter of entering the unit's IP address via either the front panel keypad or the RS-232 remote programming port. Network connections are supported with 10BaseT and AUI connectors. In addition, the unit has IRIG time code, 1 PPS and 10 MHz reference inputs and outputs. Network management tools include Simple Network Management Protocol (SNMP) with a custom MIB II extension, remote Telnet access, Dynamic Host Configuration Protocol (DHCP), Bootstrap Protocol (BOOTP) and MD5 access authentication.

The GPS configuration offers a revolutionary concept in network synchronization. GPS satellites continually pass overhead providing an easily accessible source of UTC time for each remote campus equipped with the TymServe. Therefore, it is no longer necessary to synchronize these campuses over WAN links, consuming expensive bandwidth, degrading time accuracy, and introducing an extra security risk. Initial TymServe cost savings come from its simple configuration and installation relative to configuring a conventional workstation as a time server. Savings continue with reduced WAN traffic, elimination of workstation synchronization management, software upgrade costs, and avoiding corporate MIS cost allocations.

The TymServe 2100 Network Time Server simplifies network time synchronization implementation, offers higher performance and costs less.

**Applications**



**Enterprise Data Networks**



**Secure Local Area Networks**



**Network Management**



## Specifications

### Outputs

Time Code	BNC	IRIG B, Modulated 3:1, 3V p-p, 75Ω
	DB9	IRIG B, Differential TTL, DCLS, 50Ω
1 PPS	BNC	TTL, Rising edge on-time, 50Ω
Frequency	BNC	10 MHz, 50Ω
		Square wave with VCXO
		Sine wave with OCXO and Rubidium

### Inputs

Time Code	BNC	IRIG A, IRIG B, NASA 36 (Modulated 2:1 to 6:1) 500 mV to 10 V p-p, >10KΩ
	DB9	IRIG A, IRIG B, NASA 36 Differential TTL, DCLS, 1KΩ
1 PPS	HD-15	TTL, Active rising or falling
GPS	SMA	Antenna / Preamp

### Input/Output Connections

Network	AUI	Ethernet
	10BaseT	Ethernet
Serial Port A	RS-232 / DB9	DTE, Sysplex Timer, Ext. Modem
Serial Port B	RS-232 / DB9	DCE, Configuration and status

### Front Panel

Front Panel Keypad	0 to 9, Menu
Front Panel Display	LCD, 2 x 40 character
Front Panel Indicators	LED, 'Locked', 'Tracking', 'Power'

### Supported Network Features

TCP/IP  
 NTPv2 (RFC 1119) & NTPv3 (RFC 1305)  
 SNTP (RFC 1361)  
 Time Protocol (RFC 868)  
 SNMPv1 w/ Custom MIB II Extension  
 MD5 Authentication (NTP)  
 BOOTP, DHCP & TFTP  
 Telnet  
 NIST ACTS and USNO

### Environment

Power	95 to 265 VAC, 47 to 63 Hz
Size	1.75" h X 17" w X 12" d (std) 4.45cm X 43.18cm X 30.48cm
Operating Temperature	0 to 50 C
Relative Humidity	0 to 95% (non-condensing)
Weight	<10 lbs; (<4.5 kg)

### GPS (optional)

GPS Receiver	Six channel, C/A code
Antenna Size	3.04" d X 2.94" h 7.72cm X 7.47cm
Antenna Operating Temp.	-40 to +85 C
Acquisition	<5 minutes
Cable Type	50 ft; 15.25m / RG58

### Timing Accuracy

Network	1-10 milliseconds, typical
GPS	< 2 microseconds, relative to UTC
IRIG B Time Code	<5 microseconds, relative to code
Dial Up Service	<10 milliseconds, on sync

### Frequency Stability

VCXO (standard)	1X10 <sup>-9</sup> /day aging
OCXO (optional)	1X10 <sup>-9</sup> /day aging
Rubidium (optional)	5X10 <sup>-11</sup> /month aging

### Options

GPS Satellite Receiver  
 Rubidium Oscillator  
 Ovenized Oscillator  
 High Gain GPS Antenna  
 GPS In-Line Amplifier  
 ACUTIME GPS Antenna/Receiver  
 Extended Length GPS Antenna Cable  
 -48 VDC Power Supply  
 Lightning Arrestor

### Note

IRIG A and B time code input support IEEE-1344 Leap Second, Year and Time Figure of Merit enhancements.

### NTP daemon Client Software

<http://www.eecis.udel.edu/~ntp/>  
<ftp://ftp.udel.edu/pub/ntp>

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