

GNSS Based Network Time Server



Technology

NGS-N90 is the next generation of GNSS based Network Time Server from Accord which is also a source of highly stable and accurate time and frequency source. It comes fitted with a Accord's GNSS receiver capable of receiving and tracking signals from GPS, SBAS (GAGAN), GLONASS (optional) and Dual frequency IRNSS (optional).

Accord NGS has multiple GbE ports for time dissemination over the network using NTP protocol. It comes with multitude of customizable options for signal outputs and ports making it truly suited to meet the network and site requirements of the end-user.

Specification

Network Time Protocols supported

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|--------------------------------|---|
| ▲ NTP V3 and V4 | Stratum-1 primary Server with support for Unicast, Broadcast, Multicast (Programmable option to transmit GPS time instead of UTC time as a part of the NTP messages.) |
| ▲ Throughput | Supports more than 5000 client/s |
| ▲ PTP v2 (Optional) | E2E and P2P grandmaster Clock with hardware time stamping |
| ▲ PTP time stamping resolution | 8 ns (Optional) |

Synchronization Performance

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| ▲ 1-PPS output accuracy in sync mode | < 20 ns RMS to UTC, rising edge active |
| ▲ Frequency accuracy | 1×10^{-12} when tracking satellites |
| ▲ Holdover accuracy (1 day) | 1. Rubidium Oscillator < 1 us (optional)
2. < 1e-12 after 24 Hours of continuous operation with Position fix availability at near constant temperature |

LAN Ports

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| ▲ 10Base-T/100Base-Tx/1000Base-T (GbE) on RJ-45 Connector | For Time distribution over LAN using NTP Protocol.
LAN-1 shall also be used for, <ul style="list-style-type: none">◆ Data port for Management via SNMP V1 /V2c◆ For remote control and monitoring via web based interface application over HTTPS via through Web interface or RS-232◆ For software update |
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Other Network Protocols Supported

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| ▲ Protocols | NTP v2, v3, v4,
Unicast, Multicast, Broadcast
SNTP, v3, v4
IPv4 and IPv4/IPv6
HTTPS (web interface)
TIME and DAYTIME server
TELNET
SNMP v1, v2c, v3
FTP, DHCP clients
TCP/IP |
|-------------|---|

Specification

Internal GNSS Receiver Specifications

▲ Make	Accord's GNSS Receiver
▲ Number of Channels	55 [GPS-16, GLONASS-16 IRNSS L5-11, IRNSS S-11, SBAS (GAGAN)-3]
▲ GNSS bands	1. Single frequency GPS (L1) and SBAS (GAGAN) L1:1575.42±10MHz
(Optional)	2. Single frequency GLONASS (G1) G1:1602.00±5MHz
(Optional)	3. Dual frequency IRNSS(L5 & S), L5-band:1176±12MHz S-band: 2492±8.5MHz
▲ Position Accuracy	< 10 m RMS (1σ) with GPS+SBAS under clear sky condition < 5 m RMS (1σ) with GPS+SBAS+IRNSS under clear sky condition
▲ Acquisition Time	Cold Start : <20 min <2 mins (Warm up mode)

▲ Satellite selection provision (Optional)	GPS only GLONASS only IRNSS only GPS+GLONASS+IRNSS (Hybrid mode)
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User Interface

▲ Display with Keypad	High resolution Vacuum Fluorescent Display (VFD) to display Time in GPS/UTC/IST, Position of the Antenna, the status of the Unit and programmable parameters
▲ Web browser interface	HTTP based comprehensive web-interface over LAN port-1 for local or remote monitoring, command and control over the network
▲ LEDs	1.Power 2.GNSS Receiver Position Fix status 3.System Lock/Sync/Holdover Indication 4.System Fault Indication

Internal Clock source

▲ Oscillator	TCXO / OCXO / Rubidium
▲ Frequency	10 MHz
▲ Aging	STAND +/- 1 x10 ⁻⁷ OCXO +/- 5 x10 ⁻⁹ Rubidium +/- 5 x10 ⁻¹¹

▲ OCXO Oscillator Phase noise (DBc/Hz @ 10MHz)	1 Hz	: -98
	10 Hz	: -127
	100 Hz	: -140
	1 Khz	: -150
	10 Khz	: -150
▲ Allan Deviation	100 Khz	: -150
	5e-11	@ 1 sec
	4e-11	@ 10 sec
	1e-12	@ 24 hrs

Signal Inputs

▲ 1/5/ 10 MHz reference input (optional)	1. Sine, 0-13 dbm, 50 Ω BNC Female-connector
▲ 1-PPS reference input	1. Rising edge active, 5V TTL into 50 Ω 2. BNC Female-connector, IRIG-A/B/G, AM, 3Vpp, 3:1 ratio into 50 Ω
▲ IRIG Input	TNC Receptacle (optional: N-type), 50 Ω impedance active Antenna
▲ RF input from GNSS Antenna	

Signal Outputs

▲ Time Code Output	1. IRIG-A/B/G AM (1 KHz carrier) 2. AM : 3 Vpp, 3:1 ratio into 50 Ω 3. Connectors : BNC female
▲ 10 MHz Sine wave Output	1. Signal type: Sine wave 2. Amplitude: 10 dBm ±1 dB into 50 Ω 3. Accuracy: Function of input sync source(GNSS/ 1PPS/ IRIG) 4. Connector: BNC female
▲ 1 PPS Output	1. TTL levels into 50 Ω 2. Pulse width: 100 us (Programmable) on the rising edge on time 3. Connector: BNC female

Environmental specifications

▲ Operating Temperature	-10°C to +55°C
▲ Storage Temperature	-40°C to +85°C
▲ Relative Humidity	<= 95% non-condensing

Data Outputs

▲ NMEA Data	Position and Time information in NMEA-0183 (ZDA/GGA/GSV/RMC..) standard sentence format at RS232 level on DB-9 female-connector. User selectable rate to 115.2Kbps
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Mechanical Specification

▲ Size	1 U/2U, 19 inch rack mountable
▲ Weight	<6Kg

Power

▲ AC input	100-240 V, 50 Hz, IEC 60320 C14 Connector with lockable plug and 2-m cable
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Product Includes

▲ GNSS Antenna	Accord's GPS Antenna
▲ Low Loss RF Cable for GNSS Antenna	30 m length (Standard)
▲ Antenna Mounting Stand	1-foot tall
▲ AC Power Cord	2m
▲ Installation and Operating Manual	

Antenna Specifications

Electrical Specifications

▲ Frequency Range	1164 to 1249 MHz (85) 1559 to 1607 MHz (48) 2482 to 2502 MHz (20)
▲ Coverage	Hemispherical pattern.
▲ VSWR	< 1.5:1
▲ Passive Gain	Peak : > 5dBic
▲ Beam width (3 dB)	70 deg minimum
▲ Polarization	RHCP
▲ Axial Ratio	< 3dB
▲ LNA gain with Band pass filter	33 +/- 3 dB L band 30 +/- 1.5 dB for 5 band
▲ Noise Figure	< 2.0 dB
▲ Impedance	50 ohms
▲ DC Supply	+5.0 V
▲ Connector	TNC(F)

Available customizations for NGS-N90

(Please contact Factory with your requirements)

1. Additional port: 10Base-T/100Base-Tx on RJ-45 Connector for Time distribution over LAN using PTP (IEEE 1588) Protocol
2. Additional port: 10Base-T/100Base-Tx/1000Base-T GbE on RJ-45 Connector for Time distribution over LAN using NTP Protocol
3. NTP over fiber: 10/100/1000 Base-Lx, 1310nm, single mode fiber on LC type connector
3. Programmable Pulse rate output from 1-PPS to 10 MPPS at RS-422 Level on a single/multiple DB-9 Female-connectors(s)
4. 2-U rack mountable Enclosure depending on the number of output connectors
5. DC supply input :18-36 V with lockable Circular connector
6. 1-PPS output on multiple BNC female connectors
7. 10 MHz output (Sine/Square) on multiple BNC female connector.
8. External IRIG reference input for synchronization
9. RIG time-code output on multiple DB-9 connectors
10. Programmable one-time Trigger outputs
11. Internal GNSS Receiver with redundant Antenna Input
12. Antenna Cable of required length with the Line amplifier
13. Custom outputs and accessories supply as per site requirements

Data subject to change. Please contact us for more information.



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