NTS-pico3-ANT

IEEE1588 Antenna Integrated Time Server

- All-in-One GNSS RCV & SERVER
- PTP IEEE1588 GrandMaster
- NTP/SNTP Server STRATUM-1
- White Rabbit High Accuracy*
- Reference time from GNSS
- Built-in RF antenna
- 650ps Delay Surge Arrester*
- GNSS Reacquisition < 1s
- GNSS Hot Start (TTFF) < 3s
- GNSS Warm Start (TTFF) <25s
- GNSS Cold Start (TTFF) <25s
- Holdover TCXO, MCXO*, OCXO*
- Ethernet 2x 1GbE (SFP*, RJ45*)
- Ethernet 100/10Mbps (RJ45)
- Device powered from PoE LAN1
- Hardware Time Stamping
- IEC61850 Smart Grids
- Power Profile IEEE C37.238
- Telecom ITU-T G.8275.1 and .2
- SyncE ITU-T G.8261.1
- HTTP, HTTPS, TELNET, SSH
- SYSLOG, SNMP (MIB-2)
- Best CYBER-SECURITY product

* extra feature requiring additional firmware upgrade

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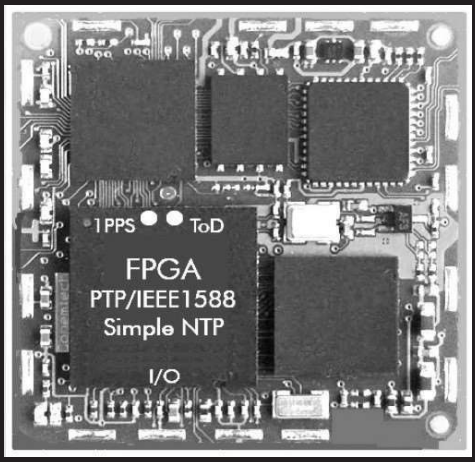
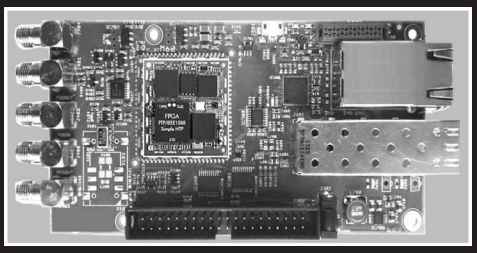


LAN2-3 FPGA supports hardware timestamping and PTP profiles



LAN2-3 are hosted by separate security board isolated from MAIN unit and using ANALOG (PPS+ToD) synchronization signals only.

Embedded version NTS-pico3 insde

The LAN1 is hosted on embedded ver. of well known NTS-pico3. The special embedded version of NTS-pico3 inside ANT version controls GNSS, MANAGEMENT, PoE and autonomous LAN2-3. The NTSpico3-ANT product is all-in-one assembled inside dome bullet class industrial housing and it is powered PoE (LAN1).

NTS-pico3-ANT product view

NTS-pico3-ANT is advanced, external version of NTS-pico3. It is antenna integrated time server. It delivers UTC/TAI ref. time directly to network using NTP, PTP protocols. Reference time is supported from GNSS. Unit has ultra fast Time To First Fix start-up TTFF supported by SBAS systems. Standard product includes hardware timestamping. It s supports profiles *Default, Power, Telecom, White Rabbit** high accuracy*.

It is equipped with 3x LANs (2x 1GbE SFP, RJ45 and 1x 100Mbps RJ45/PoE) supporting both IPv4 and IPv6. Product has natural air cooling and it can operate 24/7 powered by Ethernet PoE interface RJ45. The surge arrester for RJ45 shall be purchased separately.

A built-in GNSS satellite receiver includes TCXO oscillator for a short-time holdover. To increase holdover time the MCXO* and OCXO* oscillators are available on request.

New 21st century paradigm of Industry 4.0 cyber-security

Why hackers cannot succeed ? The typical PTP network appliance has single FPGA or ASIC sharing PTPstack to all network LAN interfaces. The NTS-pico3-ANT uses private CPU for management port LAN1, 100% separating it (no TCP/IP) from LAN2 & 3 using own FPGA. This ensures hackers cannot break into production network of smart-grids or telecom taking any control over it. Hackers cannot move between LAN1 and LAN2-3. The future* version of product will be equipped with anti-jamming*/spoofing* alarm.

GNSS Synchronization w/ SBAS (EGNOS, WAAS)

- Receiver 32-channel accuracy RMS better than 15 ns
- Acquisition: -143dBm; reacquisition: -160dBm; tracking: -160dBm

- GPS with AGPS L1 (1575,42MHz)
- GLONASS L1 (1598,06-1605,38MHz)
- GALILEO* E1 (1575,42MHz)
- BEIDOU* L1 (1561,09-1575,42MHz)

8-lines Surege Arrester (RS-45 ended)

Surge Arrester (optional)

- Arrester Delay Time 630ps (picoseconds)
- UL Certificate E311081
- Standard IEC61643-21, 61024-1
- Max current 10kA
- Response (switch) time < 1ns (nanoseconds)
- Wire-2-PE 1kA according IEC61643-21

Network Interfaces

IEEE802.3	LAN1 (MANAGEMET)	LAN2	LAN3
Network Interface Speed	100/10Mbps	1GbE	1GbE
Connector Type	RJ45	SFP	RJ45
Timestamping	HARDWARE	HARDWARE	HARDWARE
Precision Time Protocol IEEE1588:2008	PTPd	PTP ASIC	PTP ASIC
IEEE1588:2019	PTPd*	PTP FPGA*	PTP FPGA*
PTP mode	MASTER	MASTER	MASTER
	SLAVE	SLAVE	SLAVE
PTP CLOCK mode	OC	OC, BC	OC, BC
PTP IEEE1588 Profiles	Default	Default	Default
TELECOM	NO	ITU-T G.8265.1	ITU-T G.8265.1
	NO	ITU-T G.8275.1	ITU-T G.8275.1
	NO	ITU-T G.8275.2	ITU-T G.8275.2
POWER IEEE C37.238	NO	IEEE C37.238	IEEE C37.238
IEC61850-9-3	NO	(via C37.238)	(via C37.238)
MAX PTP #SLAVES	UNLIMITED	32/128*/256*	32/128*/256*
Synchronous Ethernet ITU-T G.8261.1	NO	SyncE	SyncE
		Master & Slave	Master & Slave

Management

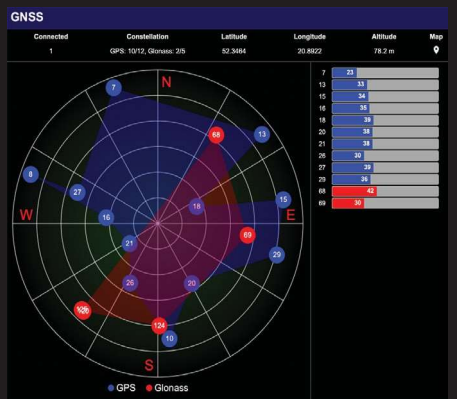
- SNMP
- MIB 2
- RADIUS
- HTTP
- HTTPS
- SSH
- TELNET*
- NTPQ

Mechanical/environmental

Size: 13 x 13 x 30mm
Weight netto NTS-pico3-ANT (only): 1.2kg
Weight brutto BOX (NTS-pico3 & Antenna): 6.0kg

Operating temperature: -40 ℃ to +70 ℃
Storage temperature: -40 ℃ to +80 ℃
Humidity: up to 99%
IP67 water resistant
MTBF 391000 hours

* extra feature requiring additional hardware upgrade



View of GNSS radar buil-tin management