

## PRESENTATION

Compact and modular, the Netsilon 11 time server combines the accuracy of a master clock with the secure approach of data networks:

- **Very high precision** internal clock with its **OCXO** quartz.
- Priority order for the different synchronisation references (input).
- Modular design allowing a wide variety of input/output signals (up to 4 expansion cards).
- Network security management: Enable/disable encryption, authentication, and access protocols.
- Alarm information available as SNMP traps and email.

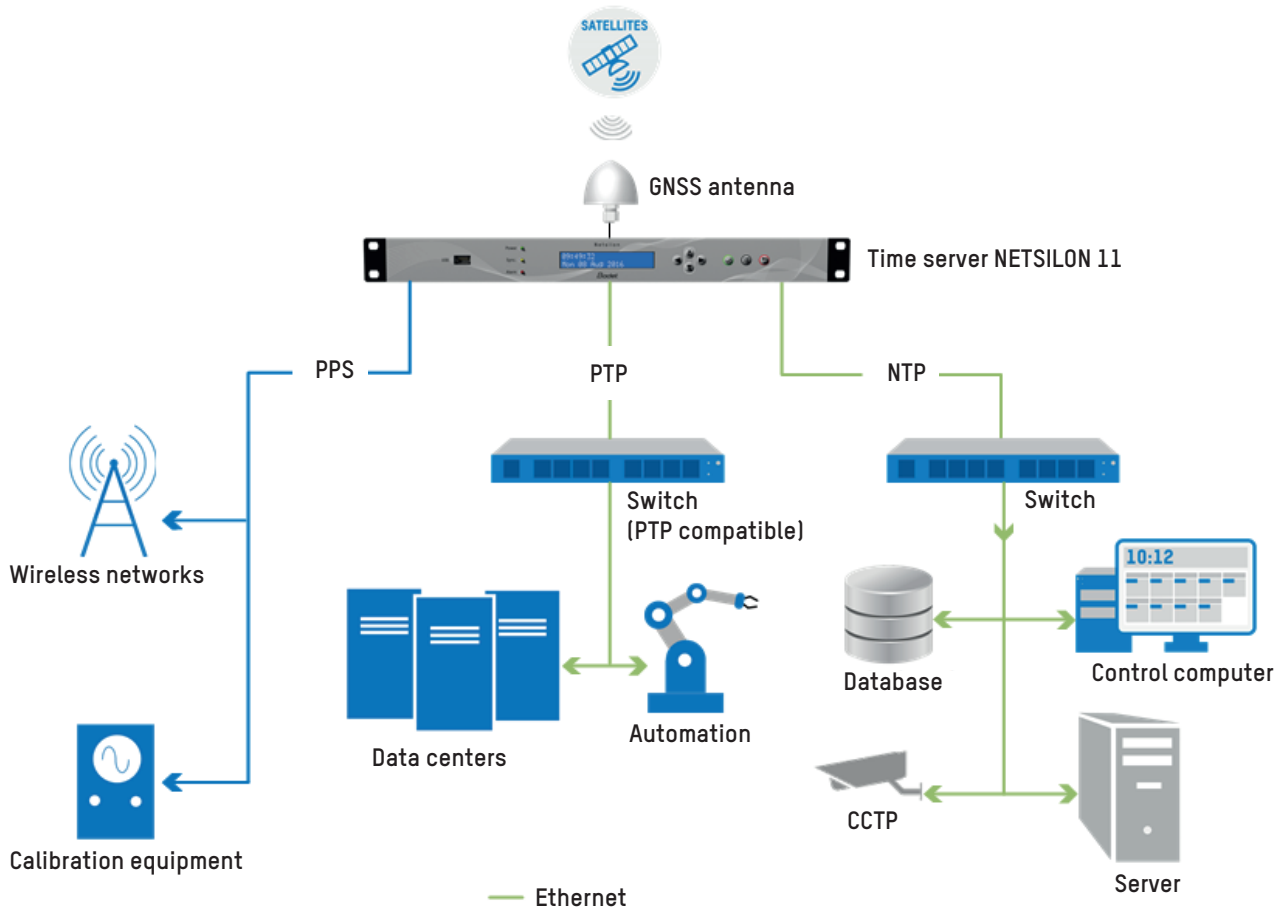


Warranty: 3 years.

## COMPLIANCE

- Directive LVD 2014/35/EU
- Directive EMC 2014/30/EU

## EXAMPLE OF INSTALLATION



## REFERENCE SIGNALS

	STANDARD	OPTION
Inputs.....	- GNSS (GPS-GLONASS-GALILEO-BeiDou) - NTP	- NTP - PTP - IRIG
Outputs.....	- NTP - 10 MHz - PPS	- NTP - PTP - IRIG

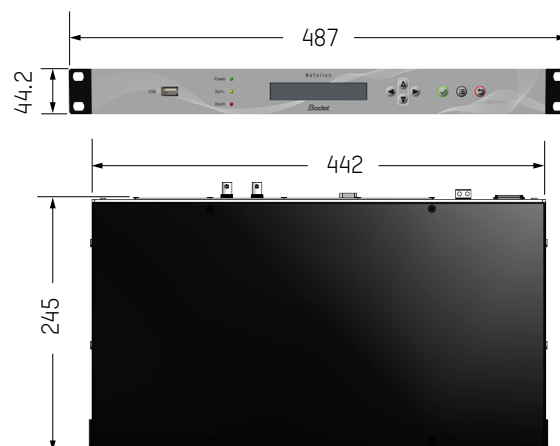
## SPECIFICATIONS

TYPICAL VALUES OF THE OCXO QUARTZ	
10 MHZ FREQUENCY OUTPUT	
Accuracy (average after 24h when GPS ).....	$1 \times 10^{-11}$
Medium Term Stability (without GPS after 2 weeks of GPS synchronisation).....	$1 \times 10^{-9}$ /day
<i>Short Term Stability (Allan Deviation)</i>	
1 sec.....	$1 \times 10^{-11}$
Temperature Stability (peak to peak).....	$1 \times 10^{-9}$
<i>Phase noise (dBc/Hz) - typical</i>	
@10 Hz.....	-125
@100 Hz.....	-145
@1 kHz.....	-155
Signal waveform and levels.....	Sine wave, +13 dBm/50 ohm , BNC

1PPS OUTPUT	
Accuracy to UTC (1 sigma locked to GPS).....	$\pm 50$ ns
Holdover after 24h (after 2 weeks of GPS synchronisation at constant temperature) .....	$\pm 2.5$ $\mu$ s
Signal waveform and levels.....	TTL (5V <sub>p-p</sub> ) 50 ohm, BNC

## MECHANICAL CHARACTERISTICS

Construction .....	Metal case - 1 U rack - 19"
Operating temperature .....	From 0 °C to +50 °C
Relative Humidity level at 40°C .....	0-90 % RH without condensation
Protection rating.....	IP20
Weight .....	2.5 kg
Dimensions .....	See illustration below



## ELECTRICAL CHARACTERISTICS

Power supply.....	AC only : 100-240V $\sim$ / 50-60Hz / 1.9-0.8 A or DC only : 22-30V $\equiv$ / 3.2-1.9A or AC+DC   Redundant power supplies, or AC+AC   characteristics, above.	<b>FANLESS</b>
Consumption.....	20 W (without option card)	
Alarm Input.....	Alarm IN Dry contact Input, potential-free contact I <sub>IN</sub> ≤ 10 mA	
Alarm Output.....	Alarm OUT Relay NC-NO-C. Maximum current : 1A/50V $\equiv$ , 1A/30V $\sim$	
MTBF .....	100,000 hours	

## COMMUNICATIONS

Network port .....	RJ45, 10/100/1000 BASE-T
Configuration serial interface.....	RS232, DB9 connector
Front panel .....	USB socket (Enable/Disable) for saving and updating software Keyboard (lockable) and LCD screen for network configuration

## NETWORK CHARACTERISTICS

### PROTOCOLS

NTP V2, V3, V4 .....	Conforms with RFC 1305 and 5905. Supports Unicast, Broadcast, Multicast, Anycast, MD5 authentication + integrity, peering and Autokey.
Number maximum of NTP requests per second (All Ethernet ports combined).....	7 000
Maximum number of NTP clients (typical).....	32 000
SNTP V3, V4 .....	Conforms with RFC 1769, 2030, 4330 and 5905.
TIME PROTOCOLE .....	Conforms with RFC 868.
DAYTIME PROTOCOLE .....	Conforms with RFC 867.

### COMMUNICATION

HTTP/HTTPS.....	Conforms with RFC 2616 (signed certificates management)
SSH.....	SSH v1.3, SSH v1.5, SSH v2 (openSSH)

### MANAGEMENT

IP.....	IPv4, IPv6 : Dual stack
VLAN.....	802.1Q standard (single / multi)

### SERVICES

DHCP .....	DHCPv4, DHCPv6, Autoconf & Slaac
SMTP .....	Mail forwarding

### SUPERVISION

Alarm.....	SNMP traps, email and relay contact
SNMP .....	v1 (RFC 1157), v2c (RFC 1901-1908) and v3 (RFC 3411-3418)
Syslog.....	Event log service over UDP, TCP or TLS-secured protocols
Relay contact/External input .....	Sending and receiving of alarms

## SECURITY FEATURES

- Enable/disable protocols,
- Authentication via 802.1x protocol,
- Redundancy via LACP protocol,
- Protection by single authentication (login + password) or authentication via LDAP / LDAPS (over SSL) / Radius,
- DES and AES encryption,
- SHA-1, MD5 authentication,
- SSL/TLS: securing exchanges via computer network,
- SCP: secured copy of Netsilon files in SSH session,
- SFTP: secured transfer of Netsilon files in SSH session.



## REFERENCES

• 907 915.....	NETSILON 11 AC
• 907 916.....	NETSILON 11 DC
• 907 917.....	NETSILON 11 AC+DC
• 907 918.....	NETSILON 11 AC+AC

## EXPANSION CARDS

• 907 920.....	NETWORK CARD (RJ45) (2 ports)
• 907 921.....	NETWORK CARD (SFP) (2 ports)
• 907 922.....	PTP CARD (RJ45+SFP+SMA) (1x connector of each)
• 907 930.....	IRIG OUTPUT CARD (x2 outputs)
• 907 947.....	IRIG INPUT CARD (x1 input)

## ACCESSORIES

• 907 970.....	Bodet GNSS synchronisation antenna
• 907 972.....	Bodet Secure GNSS synchronisation antenna
• 907 975.....	Surge protector
• 907 976.....	Interface GNSS for standard RF antenna

## EXPANSION CARDS

NETWORK CARD (RJ45)	
Number of ports.....	2
Connector type.....	RJ45, 10/100/1000 BASE-T
NTP requests/sec (max).....	7 000 (All Ethernet ports combined)
Management.....	IPv4, IPv6
Mode.....	anycast, multicast, unicast
Max no of cards .....	2, max. 5 ports (1 Eth0 standard + 2x on 2 option cards)

NETWORK CARD (SFP)	
Number of ports.....	2
Connector type.....	SFP - Giga Ethernet
Standards.....	Compatible SX/LX
NTP requests/sec (max)...	7 000 (All Ethernet ports combined)
Management.....	IPv4, IPv6
Mode.....	anycast, multicast, unicast.
Max no of cards.....	2, that is 4 ports SFP max.

PTP/SyncE CARD (RJ45+SFP)	
Number of ports.....	1
Operation.....	Automatic selection of master or slave mode (1 or 2 steps)
Time resolution.....	± 8 ns
Master mode capacity ...	Up to 32 slaves in unicast at the rate of 128 frames per second
Management.....	IPv4, IPv6
Mode.....	multicast, unicast
Connector type.....	Gigabit SFP/RJ45 combo port
Max no of card.....	1
Standard.....	IEEE-1588 V2

IRIG OUTPUT CARD	
Number.....	2 outputs
Connectors type.....	BNC (IRIG AM & DCLS) Pluggable screw terminal (DCLS-RS422)
Formats supported...	Format - Modulation type - Carrier Frequency - Coded Expressions A - 0,1 - 0,3 - 0,1,2,3,4,5,6,7 B - 0,1 - 0,2 - 0,1,2,3,4,5,6,7 E - 0,1 - 0,1,2 - 0,1,2,3,4,5,6,7 G - 0,1 - 0,4 - 1,2,5,6 + AFNOR NF S 87-500 ANNEX A
Max no of cards.....	4, that is 8 outputs max.

IRIG INPUT CARD	
Number.....	1 input
Connectors type.....	BNC (IRIG AM & DCLS) Pluggable screw terminal (DCLS-RS422)
Formats supported...	Format - Modulation type - Carrier Frequency - Coded Expressions A - 0,1 - 0,3 - 0,1,2,3,4,5,6,7 B - 0,1 - 0,2 - 0,1,2,3,4,5,6,7 E - 0,1 - 0,1,2 - 0,1,2,3,4,5,6,7 G - 0,1 - 0,4 - 1,2,5,6 + AFNOR NF S 87-500 ANNEX A
Max no of cards.....	1

