

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.

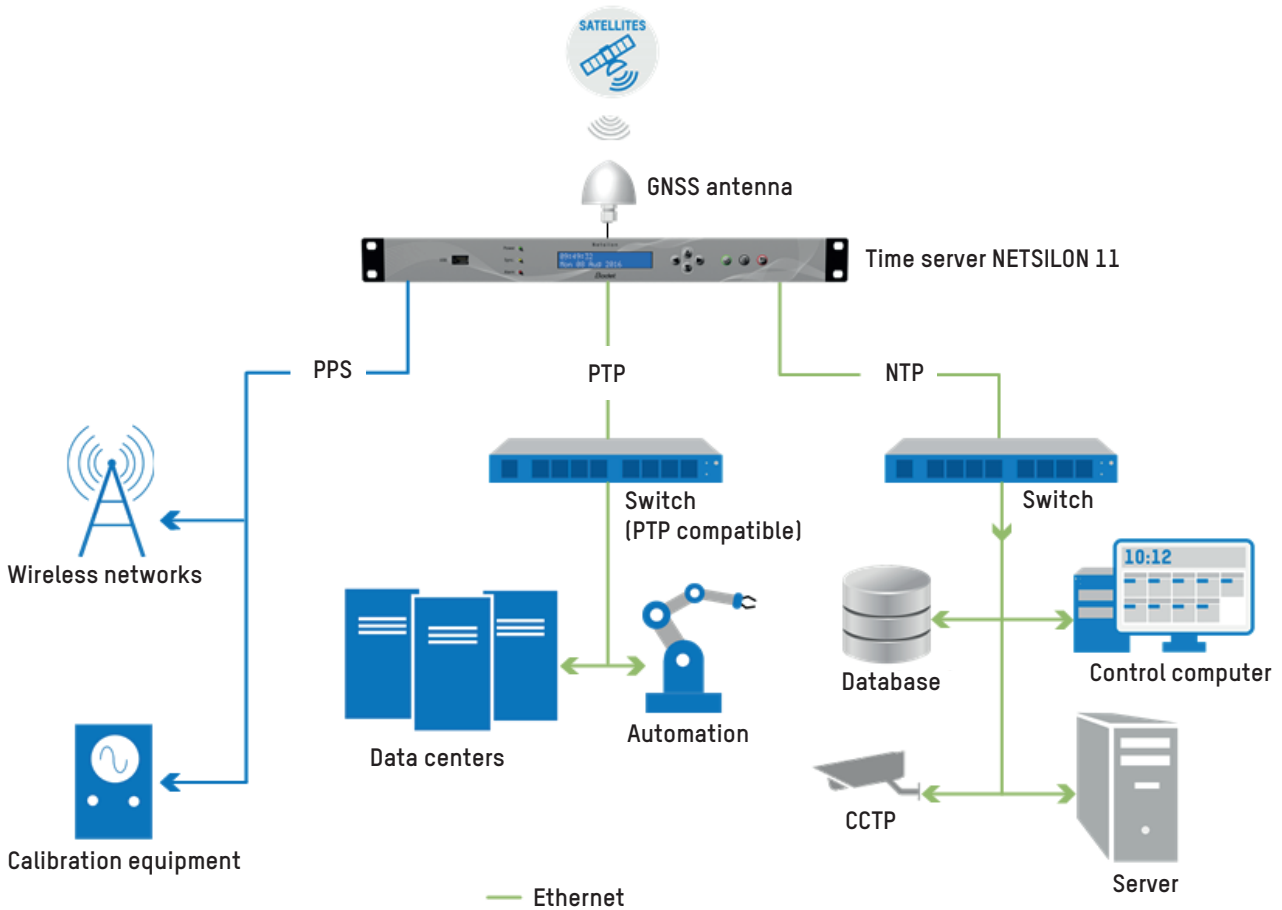


Warranty: 3 years.

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 |

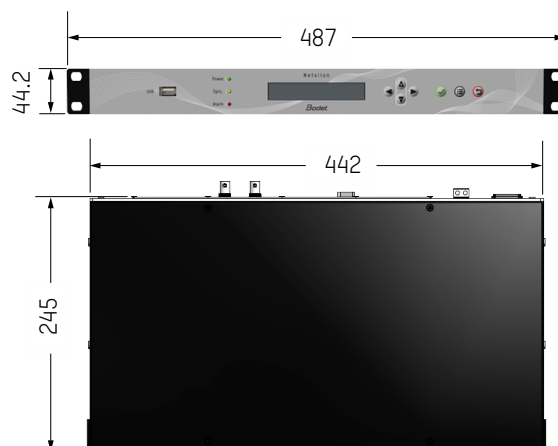
SPECIFICATIONS

| TYPICAL VALUES OF THE OCXO QUARTZ | |
|---|---------------------------------|
| 10 MHZ FREQUENCY OUTPUT | |
| Accuracy (average after 24h when GPS)..... | 1×10^{-11} |
| Medium Term Stability (without GPS after 2 weeks of GPS synchronisation)..... | 1×10^{-9} /day |
| <i>Short Term Stability (Allan Deviation)</i> | |
| 1 sec..... | 1×10^{-11} |
| Temperature Stability (peak to peak)..... | 1×10^{-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)..... | ± 50 ns |
| Holdover after 24h (after 2 weeks of GPS synchronisation at constant temperature) | ± 2.5 μ s |
| Signal waveform and levels..... | TTL (5V _{p-p}) 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. | FANLESS |
| Alarm Input..... | Alarm IN Dry contact Input, potential-free contact I _{IN} ≤ 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 |
| 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 / 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 |
| • 907 975..... | 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 |

