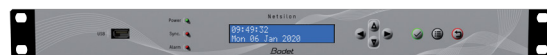


## PRESENTATION

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

- **Very high precision** internal clock regulated by 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.

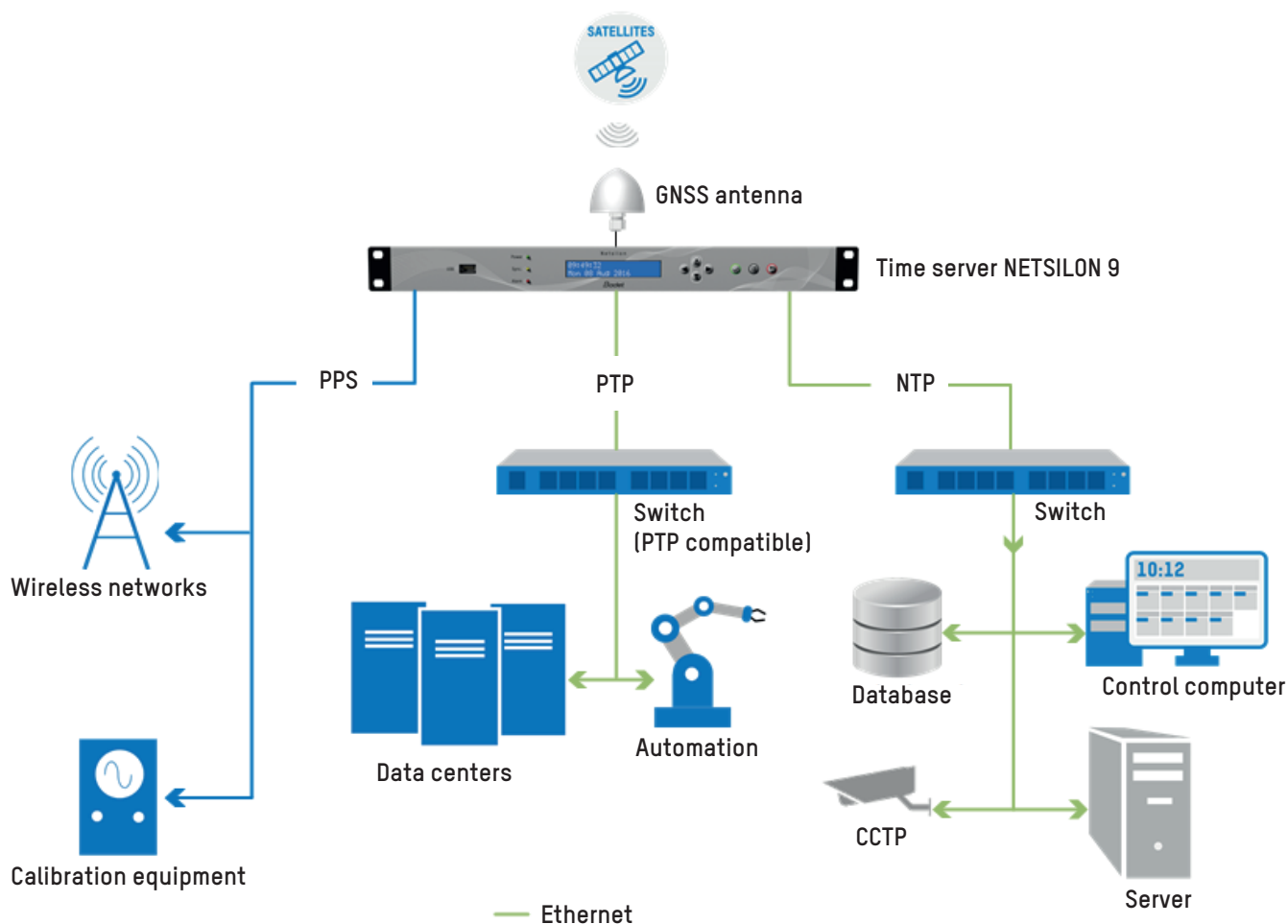
Warranty: 3 years.



## APPLICABLE STANDARDS

- EN 55024 (2010)
- EN 55032 (2012)
- EN 60950
- EN 61000-3-2 (2014)
- EN 61000-3-3 (2013)
- EN 61000-6-2 (2005)
- EN 50121-4 (2006)
- EN 62311 (2008)

## EXAMPLE OF INSTALLATION



## REFERENCE SIGNALS

|              | STANDARD                                     | OPTION                    |
|--------------|----------------------------------------------|---------------------------|
| Inputs.....  | - GNSS (GPS-GLONASS-GALILEO-BeiDou)<br>- NTP | - NTP<br>- PTP            |
| Outputs..... | - NTP<br>- 10 MHz<br>- PPS                   | - NTP<br>- PTP<br>- AFNOR |

## SPECIFICATIONS

## TYPICAL VALUES OF THE OCXO QUARTZ

## 10 MHz FREQUENCY OUTPUT

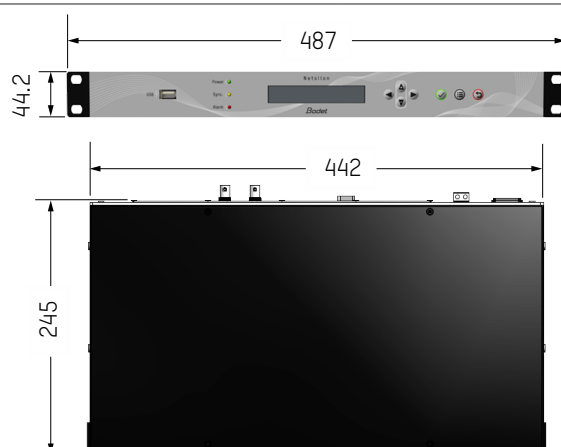
|                                                                               |                                 |
|-------------------------------------------------------------------------------|---------------------------------|
| Accuracy (average after 24h when GPS ).....                                   | $1 \times 10^{-11}$             |
| 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 |

## PPS OUTPUT

|                                                                                         |                                      |
|-----------------------------------------------------------------------------------------|--------------------------------------|
| Accuracy to UTC (1 sigma locked to GPS).....                                            | $\pm 50$ ns                          |
| Holdover after 24h (after 2 weeks of GPS synchronisation at constant temperature) ..... | $\pm 15$ $\mu$ 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         |
| Humidity rating .....       | 0-90 % without condensation |
| Protection rating .....     | IP41                        |
| Weight .....                | 2.5 kg                      |
| Dimensions .....            | See illustration below      |



## ELECTRICAL CHARACTERISTICS

|                   |                                                                             |                |
|-------------------|-----------------------------------------------------------------------------|----------------|
| Power supply..... | DC only: 18-36 VDC (5,5A)<br>or AC only: 85-264VAC; 1,9-0,75A<br>or AC + DC | <b>FANLESS</b> |
| 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<br>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<br>(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 PROTOCOL .....                                                             | Conforms with RFC 868.                                                                                                                 |
| DAYTIME PROTOCOL .....                                                          | Conforms with RFC 867.                                                                                                                 |

## COMMUNICATION

|                 |                                       |
|-----------------|---------------------------------------|
| HTTP/HTTPS..... | Conforms with RFC 2616.               |
| SSH.....        | SSH v1.3, SSH v1.5, SSH v2 (openSSH). |

## MANAGEMENT

|         |                         |
|---------|-------------------------|
| IP..... | IPv4, IPv6 : Dual stack |
|---------|-------------------------|

## SERVICES

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

## SUPERVISION

|                                    |                                                           |
|------------------------------------|-----------------------------------------------------------|
| SNMP .....                         | v1 (RFC 1157), v2c (RFC 1901-1908) and v3 (RFC 3411-3418) |
| Relay contact/External input ..... | Sending and receiving of alarms                           |

## SECURITY FEATURES

- Enable/disable protocols
- Protection by single authentication (login + password)
- DES and AES encryption
- SHA-1, MD5 authentication
- TLS encryption
- SCP: secured copy of Netsilon files in SSH session
- SFTP: secured transfer of Netsilon files in SSH session

## REFERENCES

|                 |                                      |
|-----------------|--------------------------------------|
| • 907 910 ..... | NETSILON 9 (100-240 VAC)             |
| • 907 911.....  | NETSILON 9 (18-36 VDC)               |
| • 907 912 ..... | NETSILON 9 (100-240 VAC + 18-36 VDC) |

## 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) |
| • 907 940 ..... | AFNOR CARD (2 outputs)                         |

## 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) |

| 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                                                               |
| Norme.....                | IEEE-1588 V2                                                    |

| 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.         |

| AFNOR CARD             |                              |
|------------------------|------------------------------|
| Number of outputs..... | 2 (independent)              |
| Signal type .....      | Amplitude modulation (RS485) |
| Connector type.....    | Terminal block               |
| Max no of cards .....  | 4                            |