NETSILON 7 / 9 / 11

Quick start

This document refers to the following products:

907 900	NETSILON 7 AC
907 901	NETSILON 7 DC
907 902	NETSILON 7 AC+DC
907 903	NETSILON 7 AC+AC

This document refers to the following products:

907 910	NETSILON 9 AC
907 911	NETSILON 9 DC
907 912	NETSILON 9 AC+DC
907 913	NETSILON 9 AC+AC

This document refers to the following products:

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

On receipt, ensure that the product has not been damaged during transportation and report any concerns to the carrier.

CONTENTS

SAFETY INFORMATION AND PROTECTIVE MEASURES

The following symbols and pictograms are used to illustrate a source of danger during installation, use, and maintenance of this device.

Symbol	Description
	IEC60417 - 1641 Operating instructions
	IEC60417 - 5002 Positioning of cell
	IEC60417 - 5017 Earth, ground
	IEC60417 - 5018 Functional earthing
	IEC60417 - 5019 Protective earth (ground)
	IEC60417 - 5031 Direct current
	IEC60417 - 5032 Alternating current
	IEC60417 - 5033 Both direct and alternating current
	IEC60417 - 5036 Dangerous voltage
	IEC60417 - 5172 Class II equipment
	IEC60417 - 6040 Caution, ultraviolet radiation
	IEC60417 - 6041 Caution, visible radiation
	IEC60417 - 6042 Caution, risk of electric shock
	IEC60417 - 6092 Class II equipment with functional earthing
	IEC60417 - 6151 Caution, infrared radiation
	IEC60417 - 6172 Disconnection, all power plugs
	IEC60417 - 6414 Waste Electrical and Electronic Equipment (WEEE)
	IEC60417 - 0434b Caution
3〜	*IEC60417 - 5032-1* Three-phase alternating current
3N〜	*IEC60417 - 5032-2* Three-phase alternating current with neutral conductor
	IEC60417 - 5009 Power, Stand-by
	IEC60417 - 6069 Caution, very bright light

1. GENERAL POINTS

Thank you for choosing the BODET Netsilon time server. This product has been carefully designed for your satisfaction according to the rules of our ISO9001 and ISO14001 quality system.

We recommend that you read this manual carefully before using the product for the first time.

Failure to observe these instructions may cause irreversible damage and invalidate the warranty. BODET shall not be responsible for any damage arising due to non-observance of these instructions. The product is guaranteed for 3 years, excluding damage caused by power surges (lightning, etc.) in the absence of a Bodet GPS/GNSS surge protector on the installation.

Non-contractual data. Bodet reserves the right to make changes to equipment, including functional, technical and aesthetic changes, without notice.

This manual is subject to change without notice. To obtain the most recent version of this document, please refer to our website: www.bodet-time.com.

1.1 Introduction

Observe all safety precautions during installation, operation and maintenance of this device.

Key to symbols:

[i] : indicates advice, a recommendation or any other noteworthy information relating to use of Netsilon.

⚠ : indicates that special attention needs to be paid.

⚡ : indicates that misuse or failure to follow the instructions could result in a electrical danger. This information must be taken into account when installing or using Netsilon.

4 versions are available for each Netsilon time server model, depending on the power supply:

> Netsilon 7 / 9 / 11 AC
> Netsilon 7 / 9 / 11 DC
> Netsilon 7 / 9 / 11 AC+DC
> Netsilon 7 / 9 / 11 AC+AC

1.2 General specifications

1.2.1. Mechanical characteristics

Construction	Metal case - 1 U rack - 19"
Operating temperature	0°C to +50°C
Relative Humidity level at 40°C	0-90% RH without condensation
Protection class	IP20
Weight	2.5 kg
Dimensions	442 x 264 x 44.2mm

1.2.2. Electrical characteristics

Power supply	AC : 100-240V∿ / 50-60Hz / 1.9-0.8A DC : 22-30V⎓ / 3.2-1.9 A AC+DC │ Redundant power supplies, AC+AC │ characteristics, above.
Consumption	20 W (without option card)
Alarm Input	Alarm IN Dry contact Input, potential-free contact $I_{IN} \leq 10$ mA
Alarm Output	Alarm OUT Relay NC-NO-C. Maximum current : 1A/50V⎓, 1A/30V∿
MTBF	100,000 hours

1.3 Netsilon 7 presentation

1.3.1. Front panel
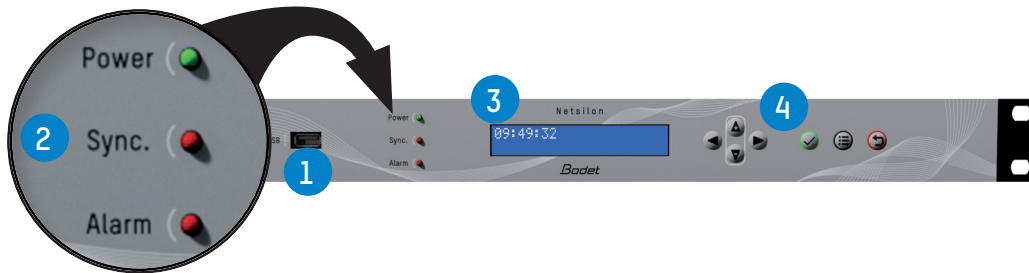
The Netsilon front panel contains:
> a USB[1] ① port
> three status LEDs for power supply, synchronisation and alarms (Power, Sync. and Alarm) ②.
See Chapter **8.1 Status of LEDs on front panel, (User Manual)**
> a two-line LCD display ③,
> control keys ④ for initial setup (full setup from the web server).

1.3.2. Rear panel

> **NETSILON 7 (AC+DC)**
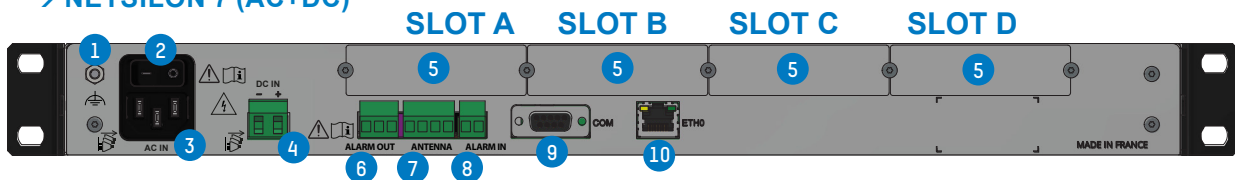
① Functional earthing terminal ⏚: can be attached to the cabinet frame (optional).
The protective earth is provided by the IEC male connector ③.

② On/Off switch.

③ Mains connector AC IN. IEC 320 AC power inlets.

④ DC IN direct current power supply terminal. 3.81mm terminal.
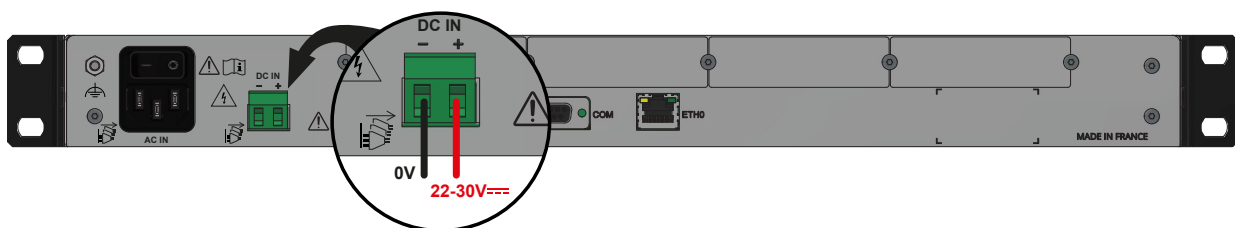
⑤ Slots for option cards:
> NETWORK option card (RJ45), ref. 907 920.
> AFNOR option card, ref. 907 940.
> PULSE option card, ref. 907 942.
> CURRENT LOOP option card, ref. 907 944.
> NETWORK FIBER option card (2 SFP), ref. 907 921.
> ASCII option card, ref. 907 926.

The option cards are installed in our production factory. For subsequent installation, refer to the expansion card installation guide.

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[1] *Netsilon supports USB keys formatted to AT16/FAT32 and NTFS*

6 Common/Normally-Closed/Normally-Open relay contact output.
If contact Normally-Open: no alarms / If contact Normally-Closed: alarms.

NC
NO
Com

ALARM OUT ANTE
ALARM OUT ANTENNA ALARM IN
COM
ETH0
MADE IN FRANCE

7 Terminal for monoconstellation antenna: GPS or GLONASS.

Green PS -
Yellow PS +
Brown Rx-
White Rx+

UT ANTENNA ALA
ANTENNA ALARM IN
COM
ETH0
MADE IN FRANCE

8 Alarms input: interfaces with the dry contact of the client equipment.

GND
INPUT

AC IN
TENNA ALARM IN
ANTENNA ALARM IN
COM
ETH0
MADE IN FRANCE

9 Serial port.

5 4 3 2 1
9 8 7 6
COM

Tx OUT
Rx IN
0V

DC IN
− +
AC IN
ALARM OUT ANTENNA ALARM IN
M IN
MADE IN FRANCE

10 ETH0 network card.

> **NETSILON 7 (AC)**

AC IN
ALARM OUT ANTENNA ALARM IN COM ETH0
MADE IN FRANCE

> **NETSILON 7 (DC)**

DC IN
− +
ALARM OUT ANTENNA ALARM IN COM ETH0
MADE IN FRANCE

> **NETSILON 7 (AC+AC)**

AC IN 1 AC IN 2
ANTENNA ALARM IN COM ETH0
MADE IN FRANCE
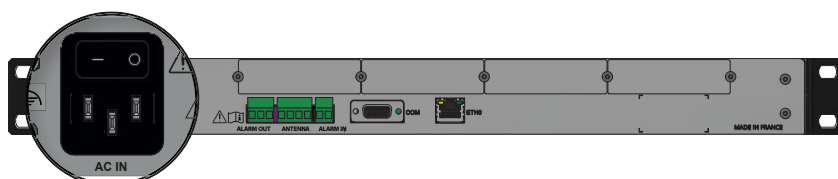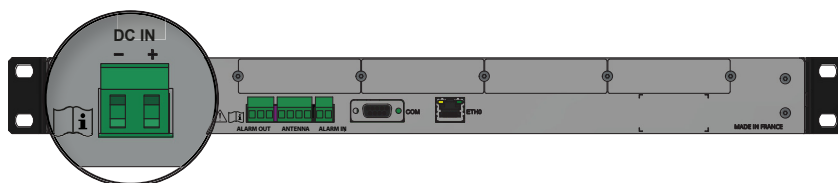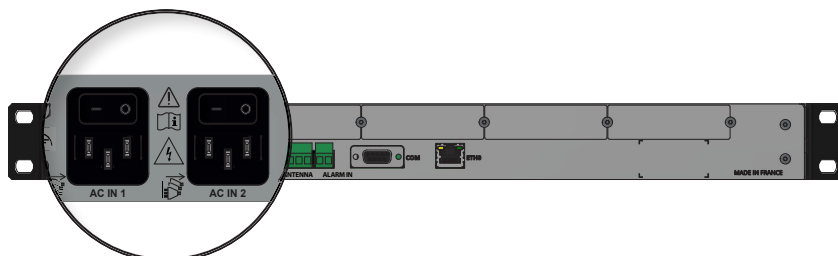
## 1.4 Netsilon 9 / Nestilon 11 presentation

1.4.1. Front panel
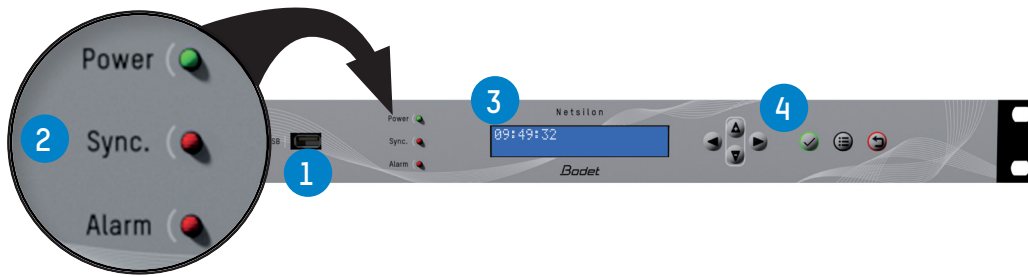
The Netsilon front panel contains:

> a USB[1] ① port

> three status LEDs for power supply, synchronisation and alarms (Power, Sync. and Alarm) ②.
  See Chapter **8.1 Status of LEDs on front panel, (User Manual)**

> a two-line LCD display ③,

> control keys ④ for initial setup (full setup from the web server).

1.4.2. Rear panel

> **NETSILON 9 / NETSILON 11 (AC+DC)**
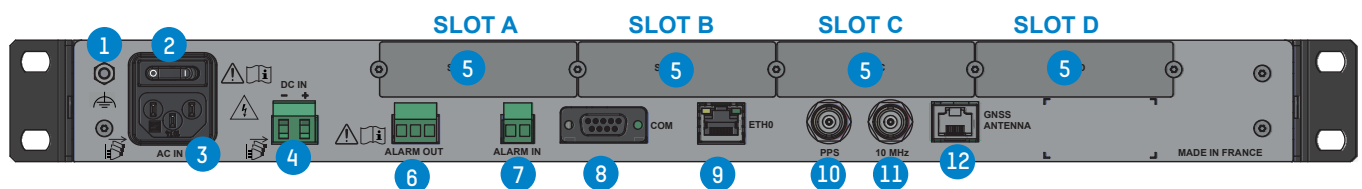
① Functional earthing terminal ⏚: can be attached to the cabinet frame (optional).
  The protective earth is provided by the IEC male connector ③.

② On/Off switch.

③ Mains connector AC IN. IEC 320 AC power inlets.

④ DC IN direct current power supply terminal. 3.81mm terminal.
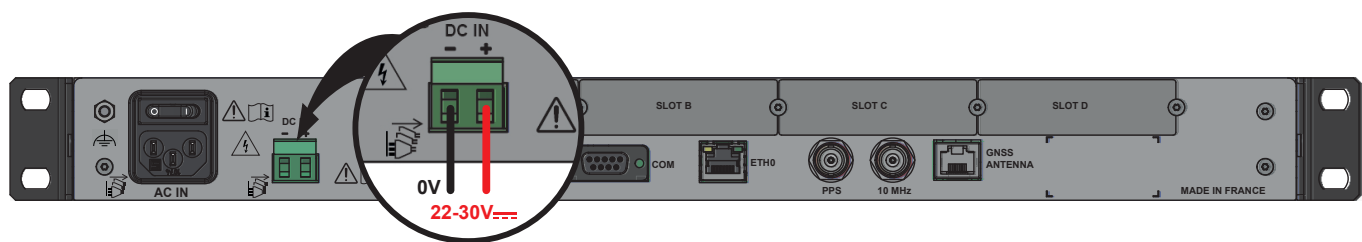
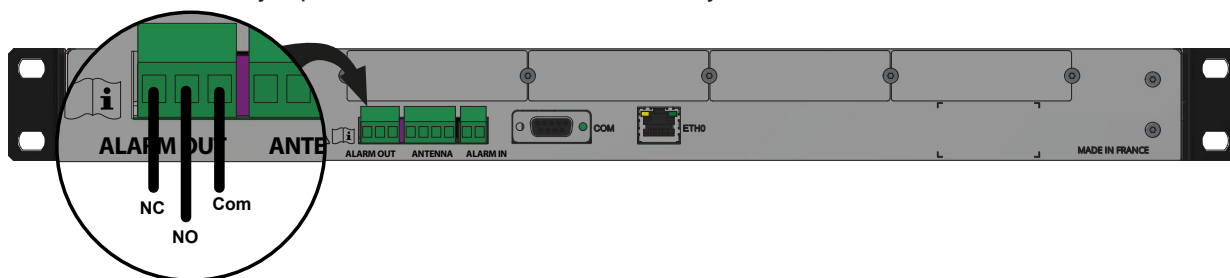⑤ Slots for option cards:

> NETWORK option card (RJ45), ref. 907 920. Maximum 2 option cards [Slot A or B or C].
> NETWORK option card (SFP), ref. 907 921. Maximum 2 option cards [Slot A or B or C].
> PTP option card (RJ45+SFP), ref. 907 922. Maximum 1 option card [Slot A or B or C or D].
> IRIG OUTPUT option card, ref. 907 930. Maximum 4 option cards [Slot A or B or C or D].
> IRIG INPUT option card, ref. 907 947. Maximum 1 option card [Slot A or B or C or D].
> ASCII option card, ref. 907 926. Maximum 4 option cards [Slot A or B or C or D].
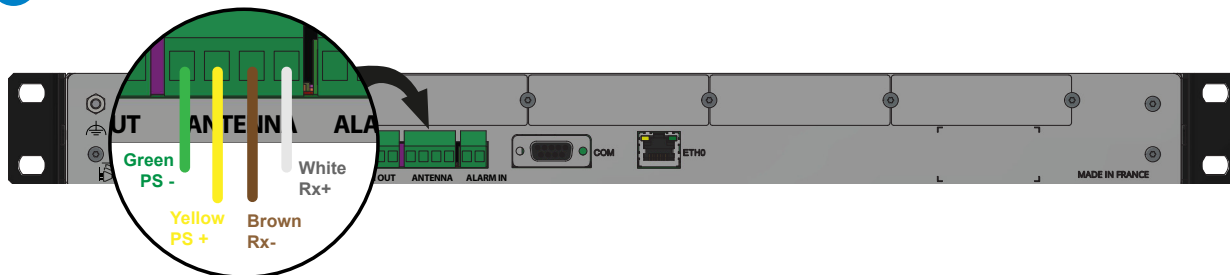
The option cards are installed in our production factory. For subsequent installation, refer to the expansion card installation guide.

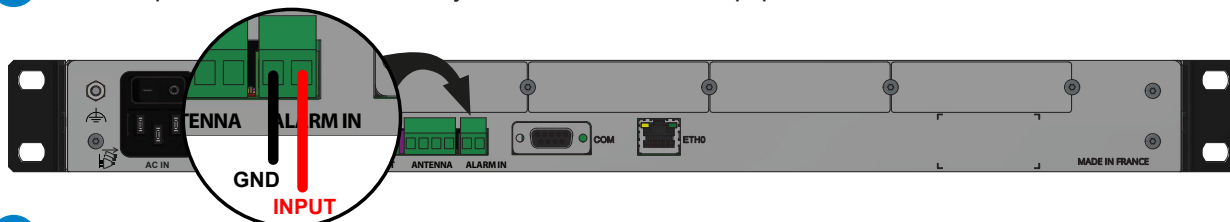[1] Netsilon supports USB keys formatted to FAT16/FAT32 and NTFS

6 Common/Normally-Closed/Normally-Open relay contact output.
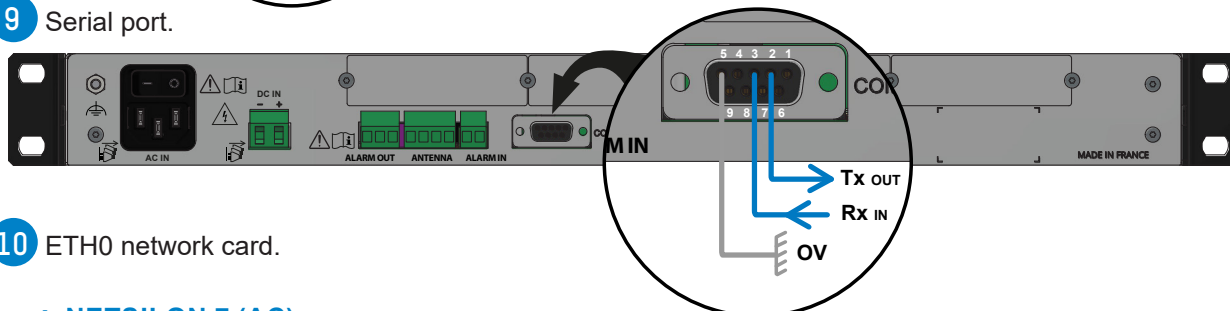If contact Normally-Open: no alarms / If contact Normally-Closed: alarms.
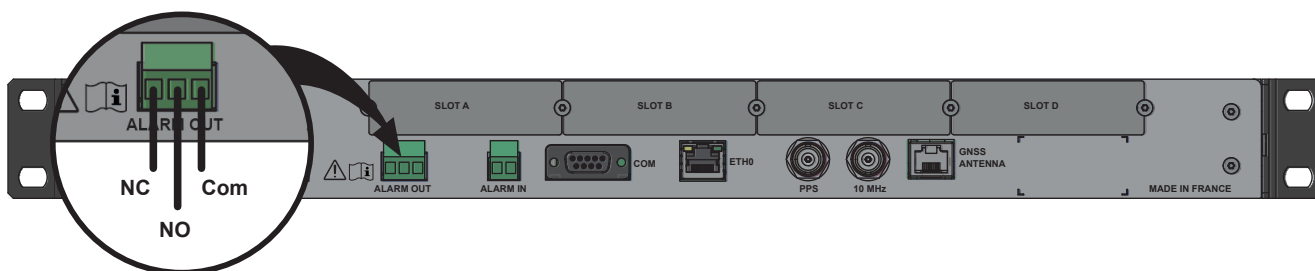
7 Alarms input: interfaces with the dry contact of the client equipment.
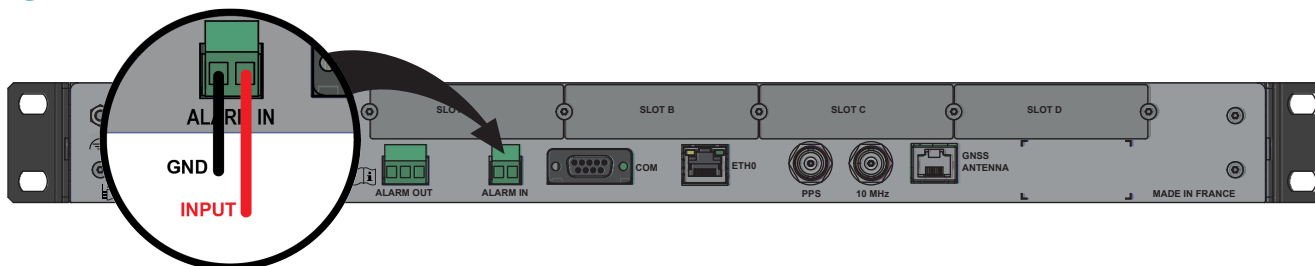
8 Serial port. DB9 connector
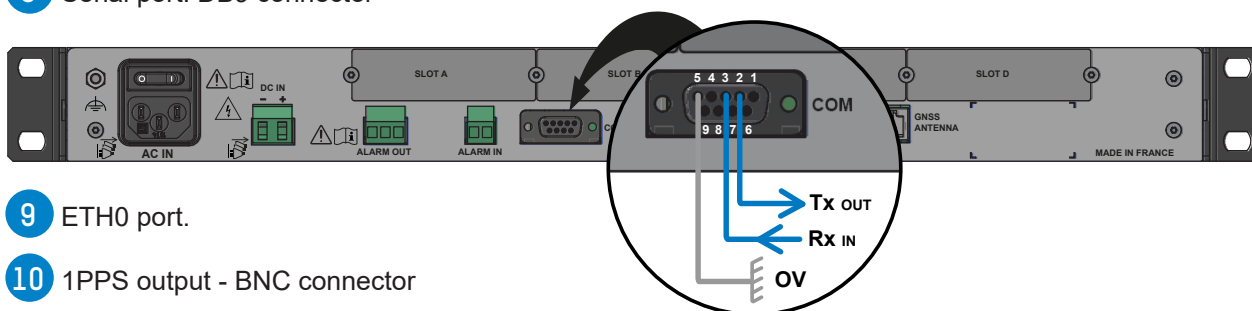
9 ETH0 port.

10 1PPS output - BNC connector

11 10MHz output - BNC connector

12 GNSS antenna RJ45 connector

> NETSILON 9 / NETSILON 11 (AC)
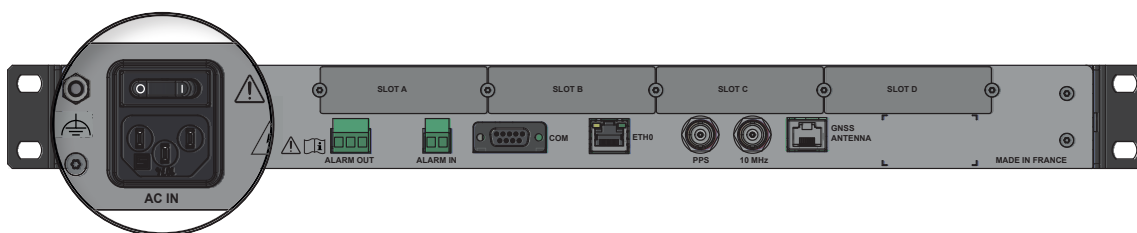
> NETSILON 9 / NETSILON 11 (DC)
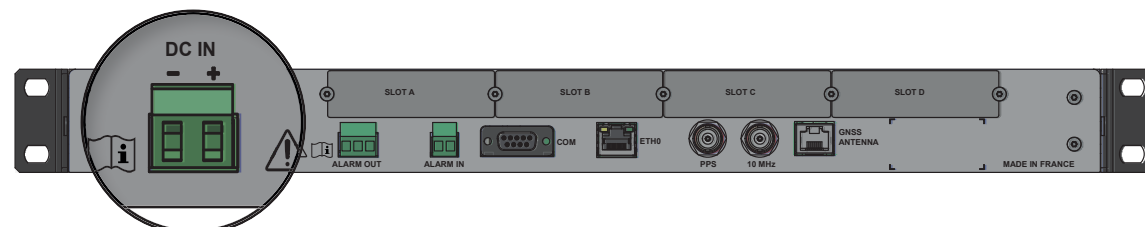
> NETSILON 9 / NETSILON 11 (AC+AC)
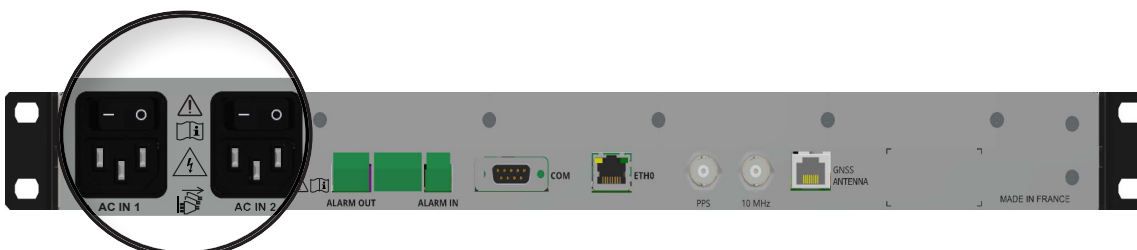
2. INSTALLATION

This chapter provides an overview of the steps to be followed to install Netsilon.

Several factors must be taken into account when installing Netsilon:
   1) The type of power supply: AC, DC, AC+DC, AC+AC
   2) The type of installation: Netsilon integration into an existing Ethernet network or new installation (ensure cable accessibility).
   3) A PC connected to the Ethernet network with a web browser[1] such as Google Chrome®, Mozilla Firefox, Microsoft Edge or Internet Explorer® is required.

If Netsilon is equipped with option cards, they must be configured from the web server once network configuration is complete (via the ETH0 port).

2.1 Checking the package

Carefully unpack the time server and check the contents of the package. These should include:
   > The Netsilon unit, with its option cards,
   > The two brackets for mounting in a 19'' rack,
   > A quick start guide.

2.2 Safety

This product has been carefully designed for your satisfaction according to the rules of our ISO9001 and ISO14001 quality system.

Before beginning to install and configure Netsilon, carefully read the various safety instructions.
Ensure that you observe the safety warnings and precautions at all times during the installation, operation and maintenance of your product.

⚠ **This device should be installed and maintained by qualified personnel, trained on BODET equipment.**

The device is connected to the mains. The installation must be in accordance with the IEC 364 norm.

2.2.1. Installing the equipment

The installation and maintenance of this device must be performed by accredited personnel. This product must not be installed by untrained and unauthorised users / operators.
Electrical installation of the equipment must comply with applicable in force country electrical standards.
This equipment is not suitable for use in places likely to receive children.

2.2.2. Opening the equipment

There are no user-repairable parts inside this equipment. Please contact BODET customer support if the equipment needs to be repaired.
Do not open the product except when adding or replacing expansion cards and changing battery :

> **Caution, risk of electric shock. Disconnect all power sources.**

> **Never open the product while power supplies indicated by the symbol are connected.**

> **Ensure that all power supply sources are removed from the device before installing the option cards.**

 The ON/OFF switch is of functional type. It is not a power supply disconnect switch. Disconnect the power supply and relay circuits before any intervention.

2.3 Mechanical rack installation

The Netsilon time server should be installed in a 19" rack or cabinet, using the two brackets supplied.

 We recommend that you install Netsilon in a secure location.

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[1] It is recommended that you use the latest version of your internet browser.

2.4 Electrical installation

All cables must be securely attached to the chassis before being connected to the various terminal blocks in order to prevent traction on connections. Conductors on the same circuit must be attached to each other close to the terminal block to avoid reduced isolation should one of the terminals become loose.
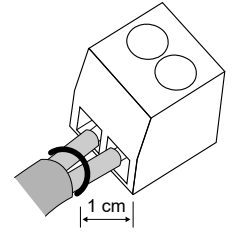
⚠ **The equipment must only be connected to the power supply once it has been securely mounted in the 19" destination rack.**

2.4.1. Power supply

Power supply management according to version:

> Netsilon 7 / 9 / 11 (100-240V∼): mains power supply only.

> > Connect the power cord to the AC IN connector at the rear of the device.

> Netsilon 7 / 9 / 11 (22-30V⎓): direct current only.

> > Connect a DC cable and observe the polarity indicated at the rear of the device.

> Netsilon 7 / 9 / 11 (100-240V∼ + 22-30V⎓): mains power supply and/or direct current power supply.

> > Connect the power cord to the AC IN connector and/or a DC cable, being careful to observe the correct polarity indicated at the rear of the device.

> Netsilon 7 / 9 / 11 (100-240V∼ + 100-240V∼): dual mains power supply.

> > Connect the power cord(s) to the AC IN connector(s) at the rear of the device.

The functional earthing terminal can be attached to the cabinet frame (optional).

⚠ **The DC IN power supply must be protected upstream by a 6.3 AT fuse.**

When several Netsilon units are powered from the same power supply, protect each DC IN input with a separate 6.3 AT fuse.

Be careful to observe the correct polarity indicated at the rear of the device.

2.4.2. Backup battery - CR2032

If replacing the CR2032 battery, it is essential to observe the polarity, as indicated on the slot of the battery.
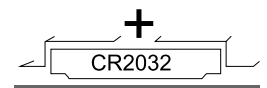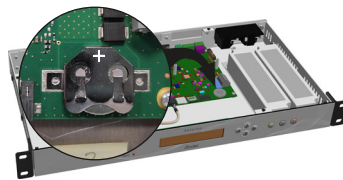
⚠🗑 **Caution :**

> **There is a risk of explosion if the battery is replaced by a non-compliant battery. Use only batteries recommended by the manufacturer.**

> **Dispose of used batteries in accordance with the instructions given on our website.**

> **The accumulator must not be swallowed – risk of chemical burns.**

> **Always keep new and discharged accumulators out of the reach of children.**

> **This product contains a button battery or accumulator. If swallowed, the button battery or accumulator can cause severe internal burns which may be fatal.**

> **If you suspect that an accumulator cell may have been ingested or inserted anywhere in the body, you must seek immediate medical attention.**

2.4.3. Ethernet

The ETH0 Ethernet port, accessible on the rear panel of the device, enables easy connection to routers, switches or hubs.
1) Use a shielded CAT.5E or CAT.6 cable Ethernet cable (RJ45)
2) Connect the Ethernet network cable to the RJ45 connector on the Netsilon rear panel.

📖 **The product is commissioned by activating the ON/OFF switch on the rear panel of the device.**

ℹ **The Bodet company strongly recommends connecting and using Netsilon exclusively on a private network (VLAN).**

2.4.4. Alarm relay circuits

For the relay circuits, provide protection by means of a fused disconnect switch or circuit breaker of 1A maximum. Maintenance must be performed with power off. Disconnect the power supply and relay circuits under hazardous voltage.

3. COMMISSIONING

Netsilon configuration is performed exclusively on the web server. In order to be able to access the web server it is necessary to configure the ETH0 port via the front panel keypad and the LCD screen.

TIP: in order not to disrupt Netsilon synchronisation with the other products present on the network, it is important to maintain identification of the time server.

There are two solutions for accessing the web server:
> With a DHCP server: automatic assignment of an IP address.
> Without a DHCP server: manual assignment of a fixed IP address via the control panel in the Netsilon network menu.

3.1 Factory configuration

The default configuration parameters have been selected to facilitate initial configuration. A single account is activated on shipment from the factory.

> Default web server user account:
>> Username: bodetadmin
>> Password: admin49

This account cannot be deleted. However, it is strongly recommended to change the password

When first running Netsilon, the default parameters are as follows:

Functions	Default status	Means of configuration
Control panel & LCD screen	Unlocked	Control panel (technician menu) + web server
	Language: English	Web Server
	Rotation of information: time, network, synchronisation and system status	Web Server
USB port	Enabled	Web Server
ETH0 Ethernet port	Services : HTTP : ON HTTPS : ON DNS : ON Console: ON SSH : ON	Web server
	IP address not given	Control panel + web server

3.2 Choosing the LCD screen display language

The network settings for configuration of the ETH0 port (assignment of an IP address) can be read or configured via the Netsilon control panel. It is first necessary to select the product's display language:

```
10:54.32
Mon 19 SEP 20__
```
▼ ≣
```
System          ok
Network         ▼
```
▼ ✓
```
Product info    ok
Version         ▼
```
▼ ▼
```
Version         ok
Option cards    ▼
```
▼ ▼
```
Option cards    ok
Language        ▼
```
▼ ▼
```
Language        ok
                ▼
```
✓ ▶
```
Language: ENGLISH  ↕
                   ok
```

Selection of languages available: English, French, Italian, Dutch, German and Spanish

▼ ▼
```
Language: FRENCH   ↕
                   ok
```
▼ ✓
```
Language          ok
                  ▼
```

Exit the menu by pressing the ↩ button.

3.3 Configuration with a DHCP server

1) On start-up, the Netsilon time server waits for automatic assignment of an IP address by the DHCP server. This may take a few minutes.

2) Once assigned, this IP address is shown on the LCD screen. By default, the LCD screen alternately displays several parameters. To read the IP address on the LCD screen, consult the network menu using the Netsilon control panel and LCD screen:

```
10:54.32
Tues 19 SEP 20__
```
▼ ≣
```
System          ok
Network IPv4    ▼
```
▼ ▼
```
Network IPv4    ok      ✓  Display ETH0    ok      ✓  192.168.1.0/24
USB transfer    ▼       ▶  Config. ETH0    ▼       ▶  No gateway ok
```

3) Enter the IP address, as seen on the LCD screen, into the web browser (Google Chrome®, Mozilla Firefox, Microsoft Edge or Internet Explorer®).

4) See Chapter **4. Web server menus.**

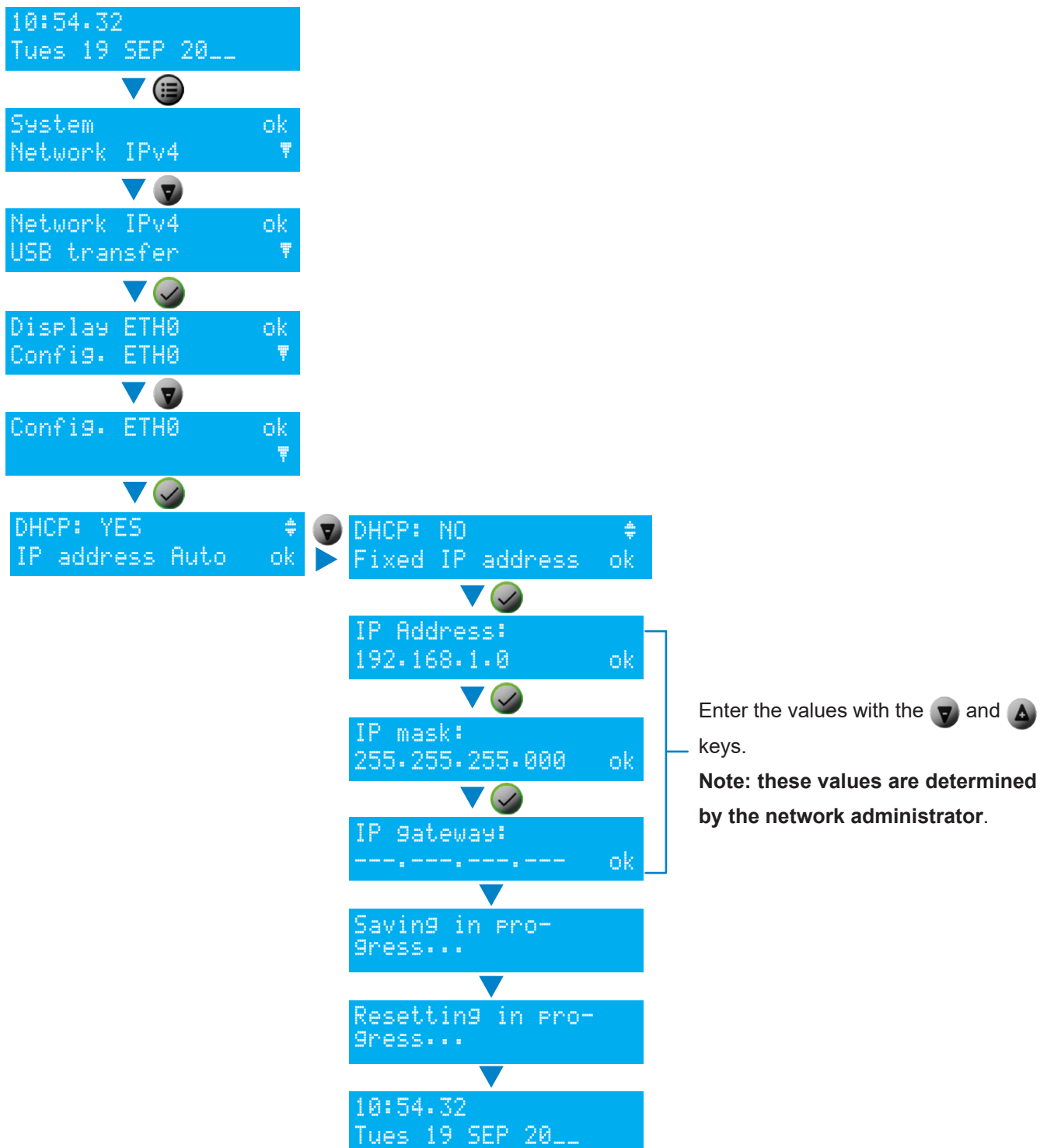📖 ℹ **192.168.1.0/24 is the IP address with CIDR notation.**

3.4 Configuration without a DHCP server

Without automatic assignment of an IP address by a DHCP server, it is necessary to manually assign a fixed IP address.

To manually configure the Netsilon network settings, enter the following three parameters:

> IP address assignment

   > This is a unique address assigned to Netsilon by the network administrator. Ensure that the chosen address is available.

> Subnet mask

   > The subnet mask defines the number of bits taken by the IP address. The number of bits used in the netmask may range from 8 to 30 bits.

> Gateway

   > The gateway address is required if communication with Netsilon is outside the local network. By default, the gateway is disabled.

To configure these three parameters, use the Netsilon network menu, via its control panel:

```
10:54.32
Tues 19 SEP 20__
```
▼ ☰
```
System            ok
Network IPv4       ▼
```
▼ ▼
```
Network IPv4      ok
USB transfer       ▼
```
▼ ✓
```
Display ETH0      ok
Config. ETH0       ▼
```
▼ ▼
```
Config. ETH0      ok
                   ▼
```
▼ ✓
```
DHCP: YES          ⇕
IP address Auto   ok
```
▼ ▶
```
DHCP: NO           ⇕
Fixed IP address  ok
```
▼ ✓
```
IP Address:
192.168.1.0       ok
```
▼ ✓
```
IP mask:
255.255.255.000   ok
```
▼ ✓
```
IP gateway:
---.---.---.---   ok
```
▼
```
Saving in pro-
gress...
```
▼
```
Resetting in pro-
gress...
```
▼
```
10:54.32
Tues 19 SEP 20__
```

Enter the values with the ▼ and ▲ keys.

**Note: these values are determined by the network administrator**.

4. WEB SERVER MENUS

To access the Netsilon web server, follow these steps:

1) Note the Netsilon IP address.

2) Open a web browser page.

3) Enter the IP address into the browser's address bar.

4) Enter the username and default password to access the web server. For info:
  › Username: bodetadmin
  › Password: admin49

› For more information, download full manual : SYSTEM > General > Online help

5. SSH CONFIGURATION - LIMITED CONFIGURATION

› To access the SSH online command set interface, follow these steps (Netsilon must be connected to the network via its ETH0 port)::

1) Download a program enabling you to log into Netsilon remotely (e.g.: PuTTY).

2) Note the IP address of Netsilon.

3) Open the program (PuTTY).

4) Enter the IP address.
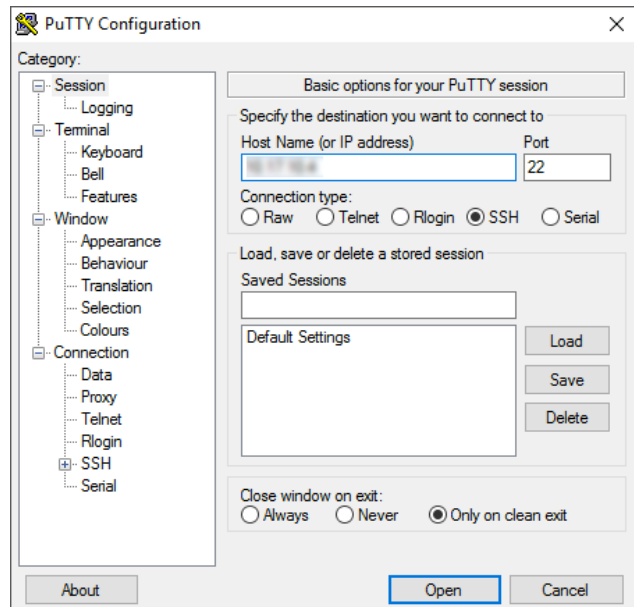
5) Enter the default ID and password to access the command set. Remember:
  › ID: bodetadmin
  › Password: admin49

› For more information on the product and the list of online commands (via the ETH0 port): SYSTEM > General > Online help

6. CONSOLE CONFIGURATION - LIMITED CONFIGURATION

> To access the Netsilon web server, follow these steps (Netsilon, via its COM serial port, must be connected to the PC).

> **The physical connection between the PC and Netsilon must be a direct link via an RS232 (DB9) male/female serial cable.**

1) Download a program enabling you to log into Netsilon (e.g.: PuTTY).

2) Open the program (PuTTY).

3) Enter the communication port.
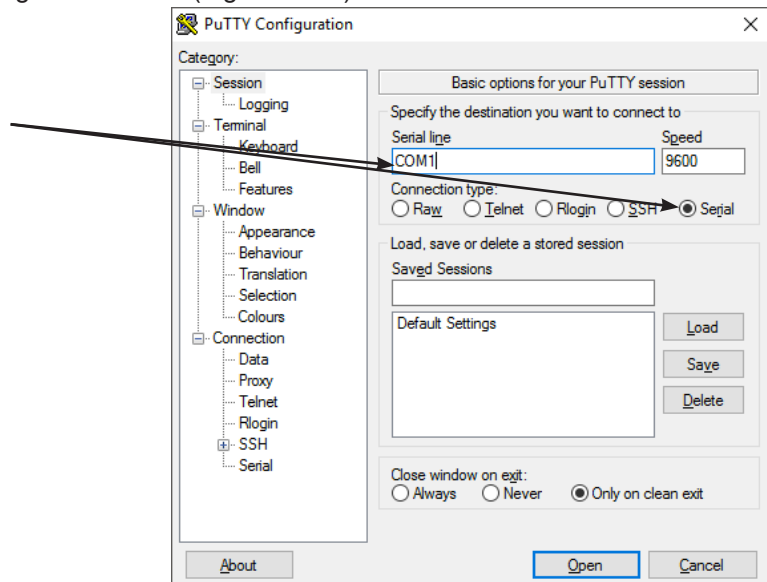
4) Click on "Serial" to check the parameters of the ASCII RS-232 serial connection:
- 9600 baud, 1 start bit, 8 data bits, 1 stop bit, no parity and No root login.
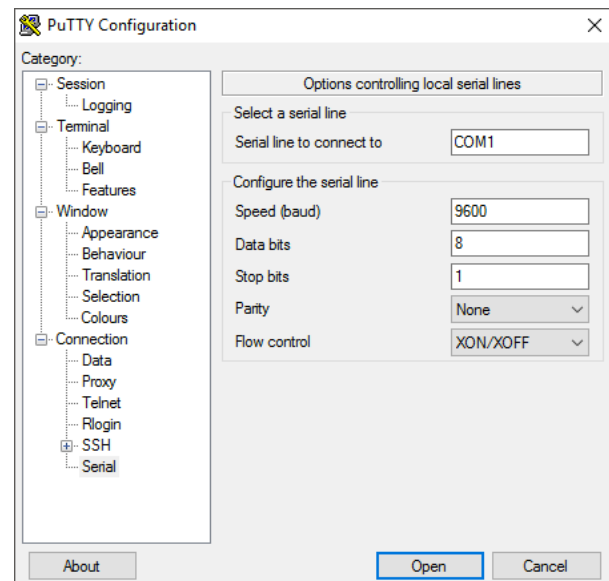
5) Enter the default ID and password to access the command set. Remember:
> ID: bodetadmin
> Password: admin49
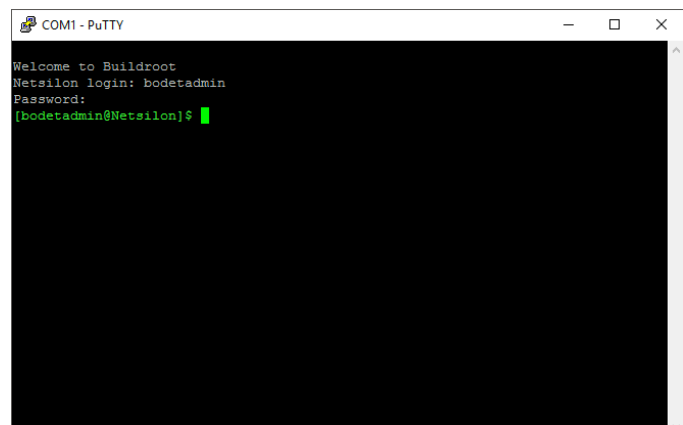
> For more information on the product and the list of online commands (via the COM port): SYSTEM > General > Online help

7. SUPPORT

> To request technical assistance for this equipment :

http://www.bodet-time.com/assistance-clientele.html

> Telephone support is available from Monday to Friday from 8 am to 12 pm and from 1:30 pm to 5 pm.

To speed up the diagnosis of your Netsilon, perform a system backup and note the Netsilon MAC address.