# SYNAPS PoE

## Micro-UPS DC PoE/PoE+

## outdoor


BACnet IP / HTTPS / SNMP

EN Operating instructions

MAN170012 | Aa | 2019.02

# 1. Safety

These operating instructions contain all the instructions to follow in order to install, commission and operate the **SYNAPS PoE** Uninterruptible Power Supply. It is recommended to follow them very carefully to ensure an optimum functioning of the product.
It is vital to read the Safety Precautions before installing or starting to operate this product.

**Safety Precautions:**

**SYNAPS PoE** is an equipment designed to be connected to the public 110 V / 230 V mains network. It ensures continuity of service for equipment in case of power failure. The lithium backup function is integrated into the product.

- An easily accessible two-pole circuit-breaker must be provided upstream.
- To avoid any risk of electric shock, all **INTERVENTIONS** must be carried out with the equipment **SWITCHED OFF** (upstream two-pole circuit-breaker open).
- Interventions with the equipment switched on are authorized only when it is impossible to switch the equipment off. The operation must only be performed by qualified personnel.
- During installation, connect the ground wire first and disconnect it last when dismantling.
- The equipment is only designed to be attached to a wall, a post or any other non-combustible surface.
- The product is designed for vertical mounting.
- The wires must be dimensioned and protected according to the maximum input/output current.
- Observe the thermal and mechanical limits.
- For prolonged storage or disconnection, switch off the mains and press the stop button back-up function (see BACKUP PUSH BUTTON on the connection label (Figure 4.3)).
- The backup is maintenance-free. Do not open it.

## 2. Directives and environment and public health protection

The SLAT company is, through their products, committed to protecting the environment and the public health and complies with the corresponding directives.

SLAT develops and manufactures all its products in accordance with the environmental directives RoHS (Restriction of Hazardous Substances) and WEEE (Waste of Electrical and Electronic Equipment).

RoHS
2011/65/UE

At its end of life, the product has to be recycled. For end-of-life recycling, a plug-in connector enables qualified professionals independent from SLAT to easily remove the backup.

The SLAT products are compliant with the CE directives.

CE

# 3. General Information

## 3.1 The company

To meet its customers' requirements more effectively:

- SLAT has been designing and manufacturing all its products in accordance with the ISO 14001 standard since 2007.
- SLAT recycles its products at the end of their life cycle, by means of its recycling program.

## 3.2 Purpose of the document

The operating instructions provide the information necessary for the positioning, the connection, the configuration and the operation of the **SYNAPS PoE** equipment.

Theses instructions are also available in PDF format in the Library Account at www.slat.com .

## 3.3 Related documentation

The following documents are associated with these operating instructions:

- Installation manual
- Commercial brochure

This documentation is available at www.slat.com.

## 3.4 Intended audience

The operations described in this document should be performed only by authorized trained staff.

## 3.5 Indicator labels

This document comprises three types of important notices.
The type of notice informs you of the potential consequences in the case of non-compliance with the instructions.
These consequences are not exhaustive and are sorted in order of ascending risk:

**IMPORTANT REMARK!**

**Contains additional information. Non-compliance will not cause damage to equipment or personal injuries.**

**CAUTION!**

**Equipment and goods can be seriously damaged or people seriously injured if the precautions for use are not followed.**

**DANGER!**

**Non-compliance may result in serious injury or death.**

# 4. The product

## 4.1 Description

**SYNAPS PoE with "Smart Backup Inside", lead-free, cadmium-free and very long service life.**


**SYNAPS PoE** is a backed-up DC Micro-UPS PoE/PoE+ (**U**ninterruptible **P**ower **S**upply) dedicated to security systems. In the event of a brown-out or power failure, it ensures continuity of service for the PoE/PoE+ equipment it powers with its integrated backup function and maintains communication with the supervisor. SYNAPS PoE is installed as close as possible to the applications and provides all the advantages for optimizing wiring and simplifying maintenance. It also provides selectivity of electrical protection of applications.

### Built-in functions

- Secures up to two PoE / PoE+ equipments
- Total PoE budget 55 W
- Integrated backup from <1 second to 5 hours
- Integrated Lithium-Ion $LiFePO_4$ backup technology, with a very long service life
- Configurable reboot function for each port
- HTTPS / SNMP / BACnet IP open communication protocols.

### Benefits of the SYNAPS PoE

- Protects PoE equipment against any electrical disturbance, internal or external
- Ultra-compact & Plug and Play
- Performs self-diagnostic and that of its environment
- Saves wiring
- 4 protected Ethernet ports 100 Mbps / 1 protected Ethernet port 1000 Mbps

## 4.2 Operating principle

When connected to the mains, the UPS DC SYNAPS PoE stores energy and continuously powers the connected devices.
During brownouts or when the mains fail, the built-in emergency supply continues to provide power to the connected devices without interruption.
In the event of a complete discharge, the recharging time to 100% of the backup will in all cases be less than 20 hours of mains presence.

## 4.3 Schematic diagram

The visual below shows the product diagram:

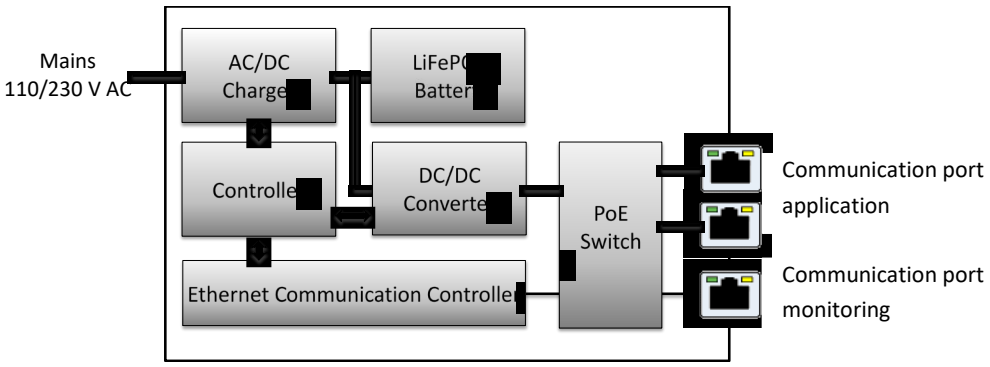


*Figure 4.1: Schematic diagram*

## 4.4 Product views


*Figure 4.2: Exterior view*

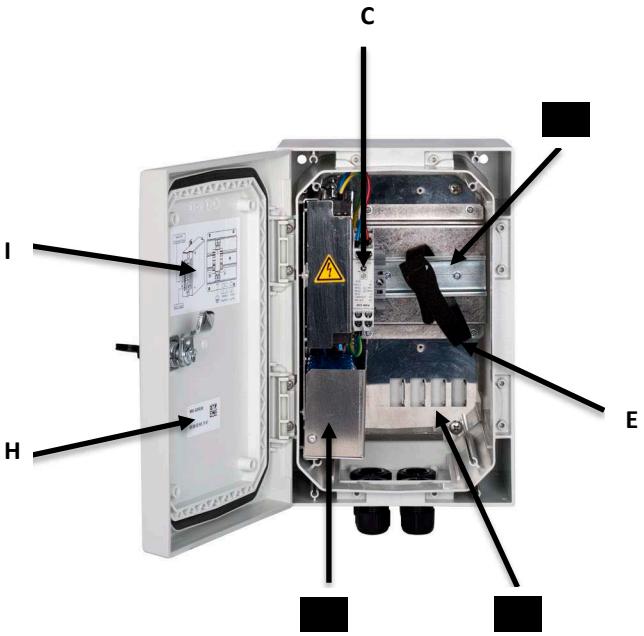


*Figure 4.3: Interior view*

| | Name | Load |
|---|---|---|
| A | Handle with key lock | Door opening vs closing and protection. |
| B | Cable gland | Cable feedthrough including a wired RJ 45. |
| C | Lightning arrestor | 230 V AC mains input on the screw terminal block of the surge arrester. |
| D | DIN rail | Assembly of customer equipment. |
| E | PoE ports | Energy and communication output. |
| F | Cable clips | Prevents cables from being pulled out. |
| G | Lithium backup | Emergency power, continuity of service. |
| H | MAC address | Identifying SYNAPS over the IP network. |
| I | Connection label | Location of connection points and the backup disconnect button for extended storage. |

*Table 4.1: Location and key of constituent parts*

## 4.5 Models

The list of available product models is to be found at www.slat.com.

| Models | Codifications |
|---|---|
| SYNAPS-POE 3E P2 | 89931716 |
| SYNAPS-POE 3E P2 EC | 89931726 |

*Table 4.2: Product models*

## 4.6 Scope of delivery

The product is delivered with:

- Installation manual

- Post mounting kit (if option)

- Anti-vandal kit (if option)

# 5. Energy storage

## 5.1 Available storage option

SLAT products are combined with batteries or backups. They are used as emergency supplies in the event the mains voltage disappears. The available autonomy then depends on the capacity of the built-in backup.

The backup (Smart Backup Inside) integrated into SYNAPS represents **a guaranteed minimum energy of 40 Wh.**

## 5.2 Technology

The technology behind the SYNAPS PoE backup is Lithium-Iron-Phosphate ($LiFePO_4$). $LiFePO_4$ offers the best safety characteristics of any Lithium storage system (see Figure 5.1). This includes better resistance to impacts and to extreme temperatures.

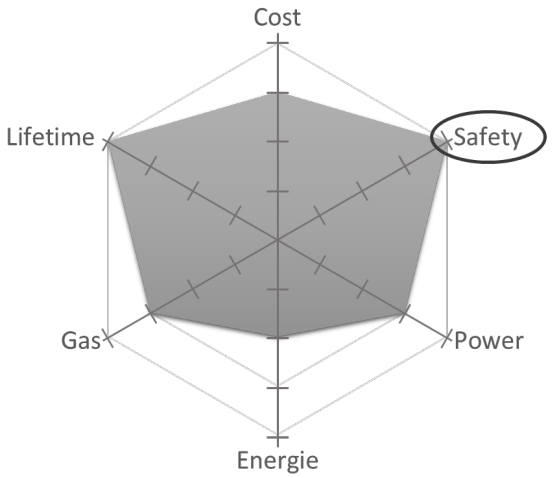


*Figure 5.1: $LiFePO_4$ characteristics*

The SYNAPS PoE backup has the following features:

- Lithium-Iron-Phosphate technology ($LiFePO_4$)
- No risk of thermal runaway
- Storage: 9 months without recharging
- 10 year service life @ 25°C
- Lead-free, cadmium-free, 100% recyclable

## 5.3 Autonomy duration

| Operating power | Autonomy expressed in hours and minutes |
|---|---|
| 5 W | 5h01 |
| 7 W | 4h |
| 10 W | 3h04 |
| 15 W | 2h12 |
| 20 W | 1h42 |
| 25 W | 1h23 |
| 30 W | 1h10 |
| 35 W | 1h |
| 40 W | 0h53 |
| 45 W | 0h47 |
| 50 W | 0h43 |
| 55 W | 0h39 |

*Table 5.1: Autonomy vs Power*

## 5.4 Self-discharge

In idle running, for the SYNAPS PoE the power consumed by self-discharge is 2.5 W.

# 6. Installation

## 6.1 Positioning / Installation on support

The product must be installed according to the EN 60950-1 and EN 62368-1 standards.

The **SYNAPS PoE** cabinet is designed to be installed **vertically**. It can be fitted to a post, a wall or in a pull box. Product cooling by natural convection requires a side clearance of at least 5 cm on each side.

**Wall mounting:**

The **SYNAPS PoE** cabinet is designed to be wall mounted:

1 Place the product on the wall and mark the fixing points (through the 4 screw holes).
2 Drill the wall and fit 4 suitable dowels on the support.
3 Secure the product with 4 screws.
4 Use 10 mm diameter washers.

Figure 6.1 shows how the cabinet should be positioned after mounting on the wall.

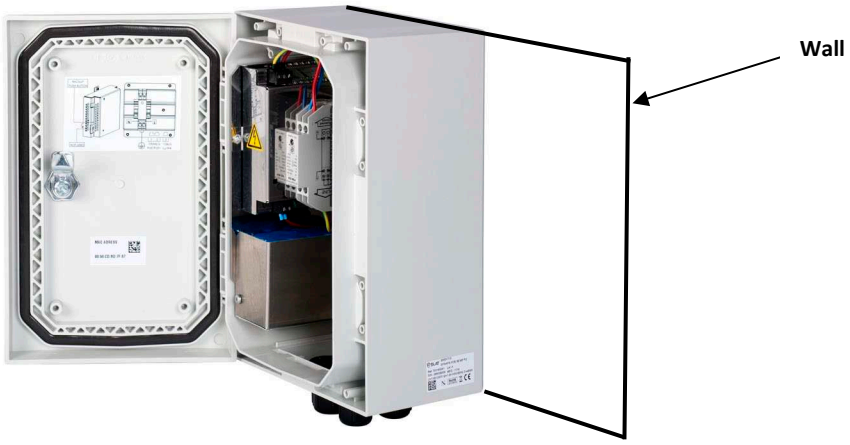


*Figure 6.1: Position on the wall*

**Post mounting:**

The **SYNAPS PoE** cabinet is designed to be attached to a post with the optional post mounting kit:

It is up to the installer to check the load-bearing capacity of the post.

1 Mount the kit on the product using a hex wrench.
2 Secure the product to the post using the tightening clamp.

## 6.2 Connection

### 6.2.1 Connection specifications

| | | |
|---|---|---|
| Mains | | Power cable L/N/PE |
| Ethernet Ports 1 to 2 (PoE) | | Ethernet cable Cat 5 or more / shielded or unshielded / straight or twisted cables |
| Ethernet Port 3 | Connection 100 Mbps | Ethernet cable Cat 5 or more / shielded or unshielded / straight or twisted cables |
| | Connection 1000 Mbps | Ethernet cable Cat 5 or more / shielded or unshielded / straight or twisted cables |

*Table 6.1: Connection specifications*

**DANGER!**

**The wire sectional area must be chosen according to the operating current.**

### 6.2.2 Wiring

*Figure 6.2: Wiring*

After installing the product on its support, the wiring must be carried out.

To connect the wires, the door of the cabinet must be opened because the Ethernet ports and the power input cord are accessible from the inside only.

The Ethernet ports are auto MDI-X, such that either straight-through or twisted cables can be used.

## Connection

**DANGER!**

**To connect the wires, the application must be switched off. The upstream circuit-breaker of the application must be open!**

The wires are connected according to the following steps:

1. Connect the emergency power supply to the mains
   The mains input cables must be connected to the lightning arrester terminal strip (see Figure 4.3). Connect the following three wires according to their color:
   - Yellow/green  ground wire
   - Blue  neutral wire
   - Brown  line wire

   After connecting the ground wire, the neutral and line wires can be connected.
   ⇨ Once the connections have been made, the upstream circuit-breaker can be closed.

**DANGER!**

**The ground wire must always be connected before connecting the power supply to the mains!**

2. Connect the SYNAPS PoE to the application
   The product is connected to the PoE/PoE+ applications by the two Ethernet ports on the left (ports 1 and 2).
   - This connection allows to supply the application with power:
     The output voltage is set to the 55 V DC.
   - It also allows communication with the application.

   For the connection, the tab on the RJ45 plug must be positioned on the front.

3. Connect the SYNAPS PoE to the supervisor
   SYNAPS PoE is connected to the supervisor via the Ethernet port on the right (Port 3).
   This connection creates the link with the supervisor for remote management.

**Information on the communication:**

The two Ethernet ports with PoE/PoE+ function located at the bottom left (Ports 1 to 2) allow the communication with an application like a camera or an external controller. The communication speed is 10 / 100 Mbps. Each port is numbered (see the numbers on the connection label). Nevertheless, the 2 ports can be used indifferently.

The Ethernet port located at the bottom right (Port 3) allow the communication with the supervisor. The communication speed is 10 / 100 / 1000 Mbps.

# 7. Commissioning

The communication parameters can be configured via the HTTPS website. It also makes it possible to configure the energy saving mode (ECO) and the stealth mode.

In order to communicate with the product, it must be configured according to the following chapters. The computer's network configuration, to which the product will be connected to, has to be compatible with the product's network parameters.

## 7.1 Communication protocols

The product supports the following communication protocols.

**Application layer protocols**

- HTTPS
- BACnet IP
- SNMP v1, v2c + v3
- DHCP

**Network layer protocols**

- IPv4
- ICMP

## 7.2 Installing the root certificate

To use the products in HTTPS and to communicate safely with them the SLAT root certificate must be installed on the user's computer. This certificate is valid for all SLAT products and can be downloaded from the Library Account on the www.slat.com website.

The **root certificate** is named **SLAT_ca_cert.crt**

The certificate must be installed in the certificate store: "Trusted Root Certification Authorities"

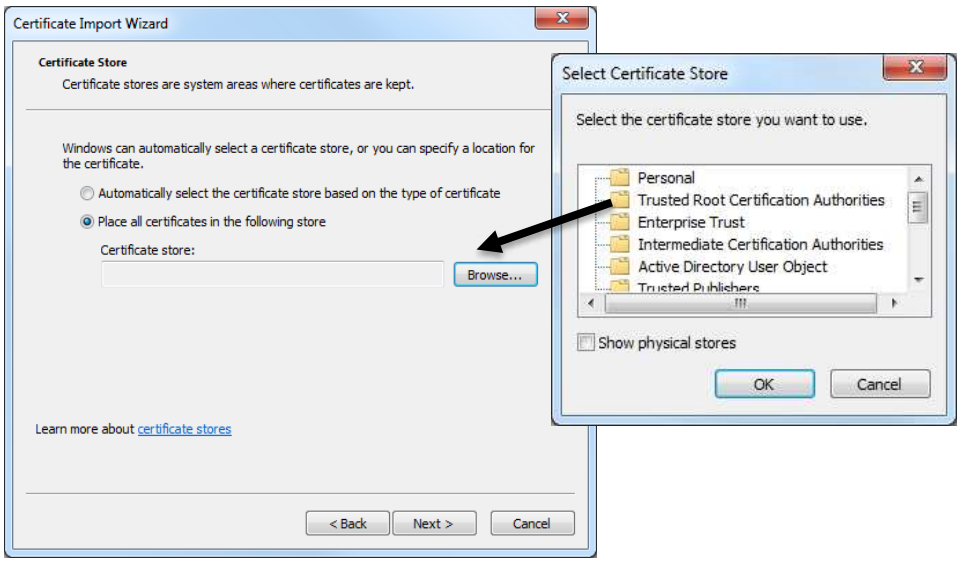


*Figure 7.1: Selecting the certificate store*

## 7.3 Assigning an IP address

The DHCP (dynamic IP address allocation) automatically assigns an IP address to a product in order to communicate with it. This feature is enabled by default in the factory configuration.

Two different operating modes exist according to the availability or lack of a DHCP server on the network:

A. DHCP server available

If a DHCP server is available, it automatically allocates an IP address to the product. If several products are connected to the network, it assigns a different IP address to each one.
To determine the new address, browse the network.

B. DHCP server not available

If no DHCP server is available on the network, the product uses the IP settings below. When the switch is first connected to the network, it remains in DHCP for 1 minute before switching to the predefined IP address.

- IP address 192.168.1.1
- Network mask 255.255.255.0
- No gateway

In this case, if several products need to be connected to a single network, as they possess the same IP parameters, they must be isolated and the IP address of each product must be modified using their HTTPS web interface before being connected to the network in order to avoid any address conflicts. The same procedure applies if the same IP address exists several times on a given network. See chapter 7.6 for instructions on changing the IP address.

## 7.4 Login page – Logging onto the product

Using the allocated or predefined IP address, it is possible to log onto the product using a web browser (over HTTPS). The language used is that of the web browser.

**IMPORTANT REMARK!**

**The default login and password are:**

**Login: admin**

***There is no password. Click directly on "OK".***

Once connection with the product has been established, the "SYSTEM STATE" page is displayed (see chapter 7.8). The default language of the administrator's embedded web site is English.

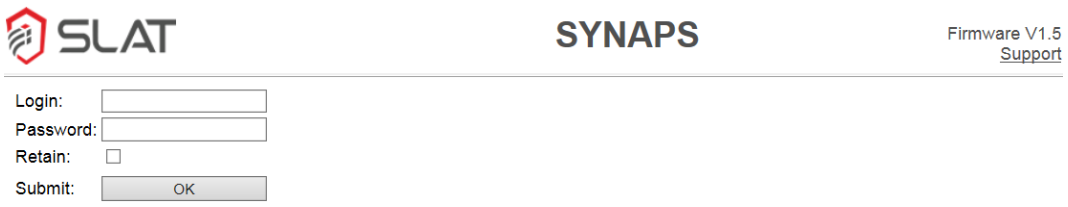


*Figure 7.2: Login page*

## 7.5 Configuration page  General settingsconfiguration

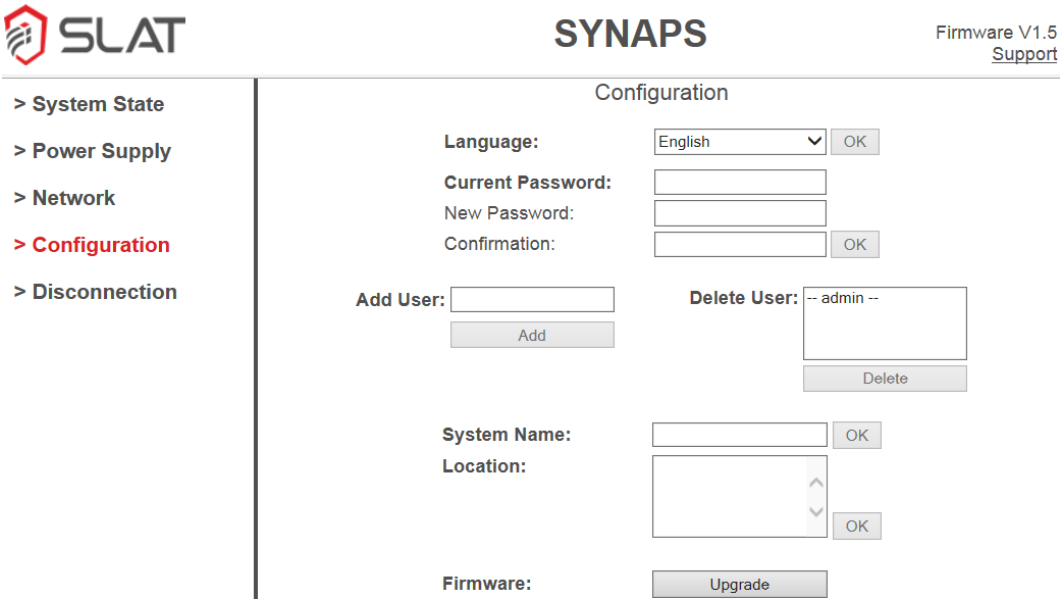


*Figure 7.3: Configuration page*

To configure the product, click on the "CONFIGURATION" tab in the left-hand menu. This page allows to perform the following configuration operations. Confirm the operations by clicking on the button next to them ("OK", "Add", "Delete", "Update").

1. **Change language**
2. **Change password**
3. **Add user**
   Up to 8 users (including the administrator) can be created. By default, the user account is created in the same language as that of the administrator. It can be changed as required.
   A new user does not need to enter a password. Upon initial logon, he/she may define a new password, if desired, via the "CONFIGURATION" page.
4. **Delete user**
5. **Enter the system name**
   The system name with up to 16 characters can be entered. Over HTTPS, the name always possesses the prefix "SYNAPS-". This information is also available over SNMP and BACnet IP, but without the prefix.
6. **Enter the product location**
   The location here defined is shown on the "SYSTEM STATE" page (see chapter 7.8). This information is also available over SNMP and BACnet IP.
7. **Updating Firmware (communication)**
   The communication firmware can be updated to install new functions. The current version is displayed in the top right-hand corner of the page.

Operations 1 and 2 can be performed from all accounts (administrator and users). Operations 3 to 7 however, can only be performed by the administrator.

## 7.6 Network page – IP connection and Ethernet information configuration

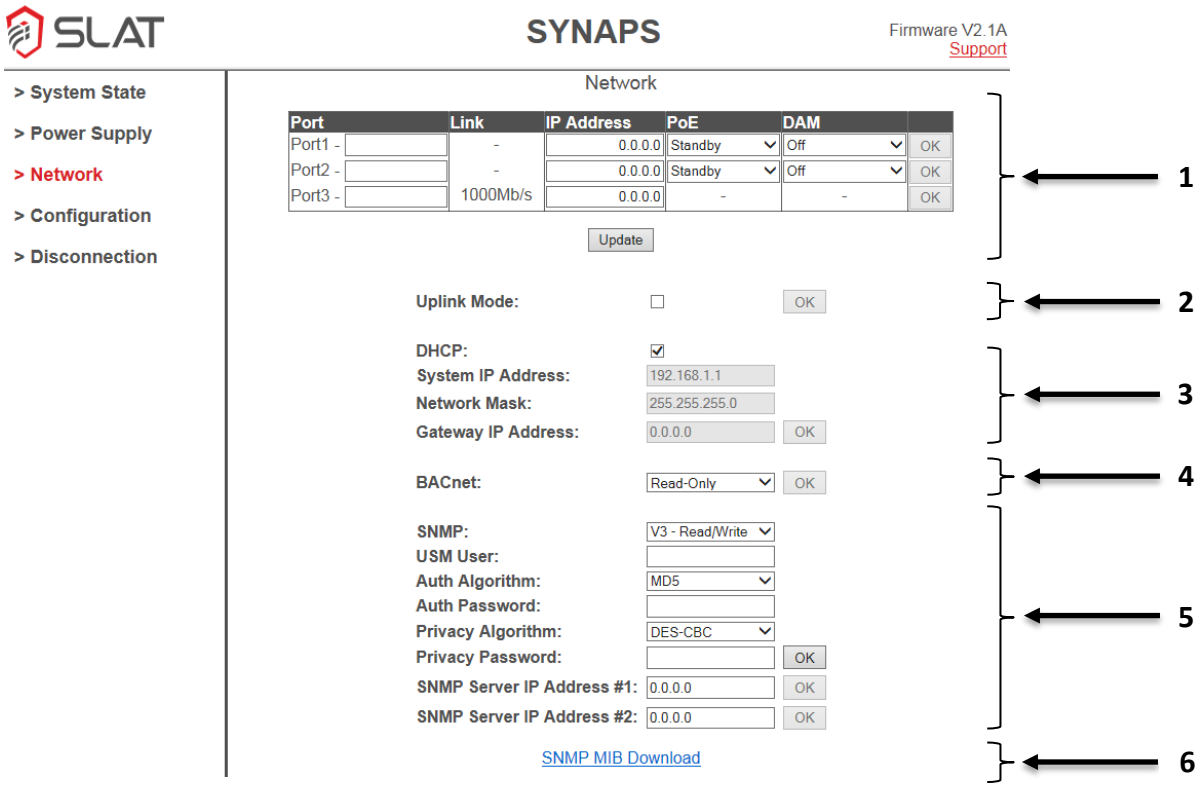


*Figure 7.4: Network page*

To configure the IP connection, click on the "NETWORK" tab in the left-hand menu. This page displays all connection-related information (e.g.: connected ports, IP address).

The administrator can access and edit all information.

Users can only view the information concerning each port (1) and the product's IP parameters (3).

### 1. Port configuration

The table shows the configuration and status of each of the three ports on the SYNAPS PoE.
To save changes made to a port, click on "OK" to the right of the same row.

- **Port**
  This column contains the port identifier. It can be customized as required by entering a name of up to 11 characters in the right-hand box.
  If an IP address has been entered in the "IP Address" column, then the text "Port X" is a hypertext link to this same IP address.

- **Link**
  This column indicates whether an Ethernet link has been established, displaying the connection speed
  Port 1 to 2: 10 or 100 Mbps
  Port 3: 10, 100 or 1000 Mbps

- **IP Address**
  This field is used to enter an IP address. If this IP address is different from "0.0.0.0", it changes the "Port X" identifier to a hypertext link to this same IP address.

- **PoE**
  This field indicates the PoE status and the potential consumption. It also allows to pilot this. Note that only Ports 1 to 2 are PoE and that Port 3 is not.
  Once the PoE is active, without a connected application the indicated status is "Standby". By connecting an application to one port, a PoE budget for this port is negotiated ("Starting"). The PoE class defines a power range (maximum 12.95 W for PoE and 25.5 W for PoE+). Once the negotiation has finished, the power consumption is indicated in this field.
  The PoE for each port can manually be stopped ("Off") or activated ("On").
  It is also possible to manually do a reset of the PoE of each port ("Restart"): The PoE power supply stops for 8 seconds and restarts automatically. It stays in standby while waiting for a new negotiation (like when a new application is connected to the product).

- **DAM (Device Activity Monitoring)**
  This field allows to control the DAM function, which authorizes the surveillance of the applications, connected to the ports 1 to 2 (PoE). The administrator can activate ("On") or disable ("Off") this function. It is disabled by default.
  Once the function is active, it remains on standby waiting for the connected application to start and to answer to the regularly sent inquiries. As soon as the application has started, it answers to the inquiries and thus activates the DAM supervision and protection of the application. In case the application does no longer answer, the DAM launches an automatic restart for the corresponding PoE port.
  For the DAM function being operable, the connected application's IP address has to be entered in the field "IP Address".

**Updating the information**

The data are automatically refreshed every 10 seconds, except when an edit operation is in progress. By clicking on "Update", the data can be manually refreshed.

## 2. Uplink mode configuration

The Uplink Mode can be activated to control the data flow (box to the right of Uplink Mode checked). The port 3 will be used as an uplink port. All the multicast streams get out through the port 3.

## 3. Product IP parameter configuration

The product's IP parameters consist of its IP address, network mask and gateway IP address. These parameters can be automatically assigned by DHCP, or entered manually. DHCP is enabled by default. It's only possible to function in DHCP if a DHCP server is available on the network.

The following paragraph explains how to change the product's IP parameters:

- Automatic IP parameter assignment
  For an automatic assignment, the DHCP must be enabled (box to the right of DHCP checked). Click on "OK" next to "Gateway IP Address". The DHCP server allocates a new IP address to the product. It is necessary to explore the network to determine the new address.

- Manually entering IP parameters
  To enter the IP parameters manually, DHCP must be disabled (box to the right of DHCP unchecked). Enter the new parameters into the three fields below (product IP address, network mask and gateway IP address). If the gateway feature is to be disabled, enter the gateway IP address of "0.0.0.0". Click on "OK" next to "Gateway IP Address" to save the configuration. The user is automatically re-routed to the new address (login page).

### 4. BACnet IP protocol configuration

The BACnet IP protocol can operate in one of the following modes:

- Read/Write
  The data can be viewed and modified via the BACnet IP protocol. Actions can be implemented.
- Read Only
  The data can only be viewed via the BACnet IP protocol.
- Disabled
  The BACnet IP protocol is disabled.

Click on "OK" next to "BACnet" to save the configuration.

### 5. SNMP protocol configuration

The product supports SNMP versions V1, V2c and V3. The SNMP protocol can operate in one of the following modes:

- Read/Write
  The data can be viewed and modified via the SNMP protocol. Actions can be implemented.
- Read Only
  The data can only be viewed via the SNMP protocol.
- Disabled
  The SNMP protocol is disabled.

Version SNMP V1 and V2c: Click on "OK" next to "SNMP" to save the configuration.

Version SNMP V3:

- USM User
  Create a login.
- Auth Algorithm
  Choose the algorithm to hash the password corresponding to the login.
- Auth Password
  Enter a password of between 8 and 16 characters.
- Privacy Algorithm
  Choose the encryption algorithm.
- Privacy Password
  Enter an encryption code of between 8 and 16 characters.

Click on "OK" next to "Privacy Password " to save the configuration.

If the user wishes to receive SNMP traps, he/she must configure the IP address of the SNMP servers receiving them. To save the changes, click on "OK" to the right of the same row.
If the function is to be disabled, enter the IP address of "0.0.0.0".
Two SNMP servers can be entered.

### 6. Loading the MIB

The SNMP MIB (Management Information Base) can be downloaded here. In case the download doesn't start, verify that it isn't blocked by the internet browser.

## 7.7 Power Supply page – Power supply configuration

The "POWER SUPPLY" page contains information relating to the battery and its use. Only the administrator is authorized to edit this information. Users can only view them.

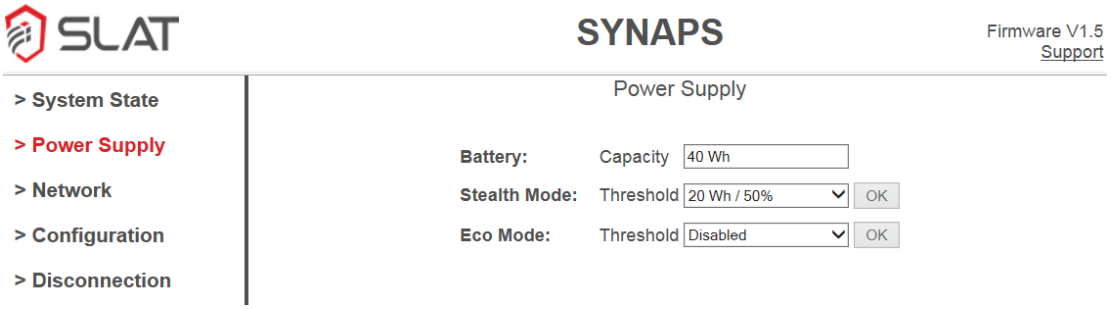


*Figure 7.5: Power Supply page*

### Battery

The capacity displayed is the battery's minimum capacity. The value is given for information purposes and cannot be changed. It differs from the capacity's typical value given on the product label.

### Stealth Mode

The Stealth Mode allows supervision to stop the product consumption to relieve network load. The product automatically pass in normal operation once the remaining autonomy has reached the guaranteed autonomy percentage selected by the administrator during configuration.

To enable the Stealth Mode, the threshold (percentage of the guaranteed autonomy when Stealth Mode is used) must be defined: 25% / 50% / 75% / Disabled. Click on "OK" to the right to save the new threshold.

### Eco Mode

When enabled, the Eco Mode improves power efficiency at low charge (<20% of $I_{max}$), while guaranteeing a defined percentage of autonomy. In the factory settings, the Eco Mode is disabled by default.

To enable the Eco Mode, the threshold (percentage of the autonomy that must remain available to the user) must be defined: 50% / 60% / 70% / 80% / Disabled. Click on "OK" to the right to save the new threshold.

## 7.8 System State page – Access to system information

Once connection with the product has been established, the "SYSTEM STATE" page is displayed. Figure 7.6 and the following paragraph describe the information displayed on this page.

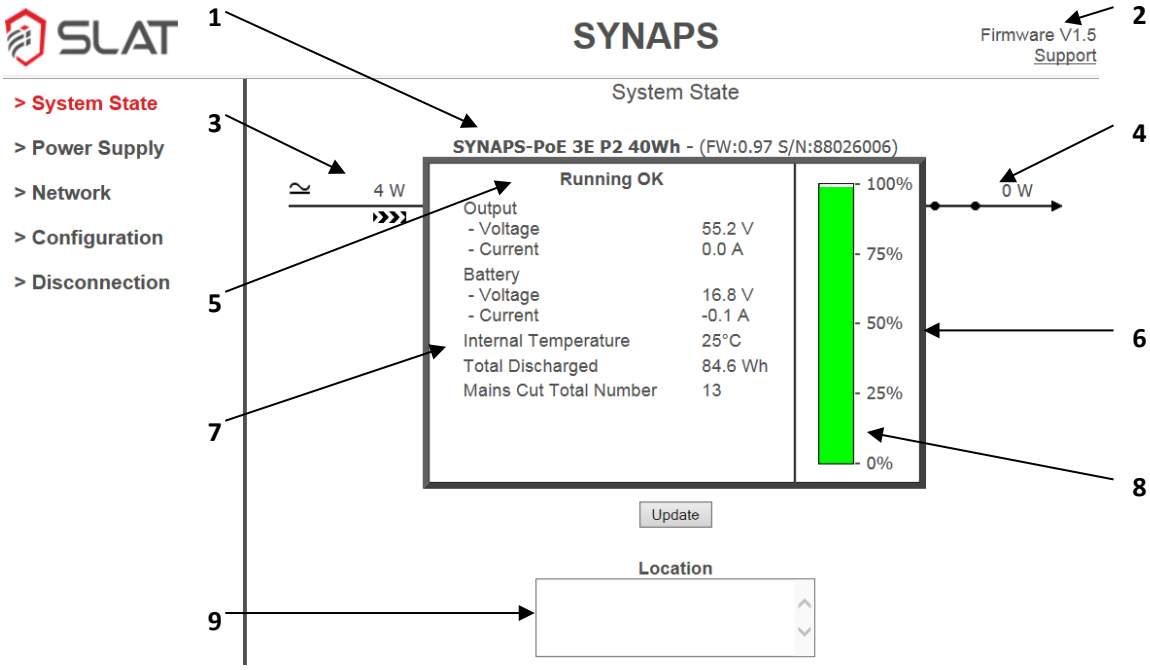


*Figure 7.6: System State page*

The "System State" page displays the operating status and all the physical values measured by the product. It is refreshed every 10 seconds. To manually refresh the data, click on "Update".

1. **Product description**
   - Reference and version
   - Actual capacity in Watt-hours
   - Power supply firmware version and serial number

2. **Communication firmware version and support**
   You can use the "Support" link to send an email to SLAT's after-sales service.

3. **Mains input**
   Mains power is indicated by the pictogram on the left in Figure 7.6. If no mains power is present, a red cross is displayed over the pictogram. The value displayed indicates mains consumption in Watts.

4. **Output**
   When the switch is closed, the PoE applications are powered by the product. If the switch is open, the backup is reaching the end of its autonomy: disconnection and interruption of the power supply are imminent. The value indicates the total PoE power supplied to the devices in Watts.

5. **Product operating status**
   The text indicates whether product operation is ok, or whether there is a product fault.

6. **Operating mode**
   The product operating mode is indicated by the frame color:
   - Operating on mains gray frame
   - Operating on backup orange frame
   - Eco or Stealth Mode green frame

7. **Operation-related data**
    - Output current and voltage
    - Battery voltage and current
      If the displayed battery current is negative, the battery is discharging.
    - Internal temperature of the SYNAPS
    - Total Watt-hours drained from the SYNAPS since product factory inspection and commissioning
    - Total number of power cuts since product factory inspection and commissioning

8. **Charge gauge**
   The gauge shows the backup pack's charge status. The backup pack must be fully charged once before the gauge will display an accurate reading.

9. **Location**
   The location defines the place where the product is installed. This information can be changed in the "CONFIGURATION" page (see chapter 7.5).

## 7.9 Factory configuration reset

In order to return to the original settings, a factory configuration reset has to be performed by pressing and holding the disconnect backup push button for 10 seconds, with mains power present (see ‘BACKUP PUSH BUTTON’ on the ‘connection label’ (Figure 4.3)). The factory configuration reset concerns all user-definable parameters, including DHCP. The total Watt-hours drained and the number of power cuts, displayed on the "System State" page (see chapter 7.8) are not reset.

**IMPORTANT REMARK!**

**To perform the factory configuration reset, the product must be connected to the mains, or it will be switched off.**

## 7.10 Product switch-off

To stop and switch-off the product, it’s necessary to:

- Disconnect the mains power.
- Open the cabinet door.
- Press the disconnect backup push button (see ‘BACKUP PUSH BUTTON’ on the ‘connection label’ (Figure 4.3)).

# 8. Operation

During use, it is possible to interact with the product. There are two types of communication - local report and/or remote report.

## 8.1 Local report on product

### PoE LED

The product indicates the state of the PoE/PoE+ supply of the Ports 1 to 2 via the LEDs on the top left of each one of these ports. When the application, which is connected to one of the ports, is supplied via PoE, the corresponding LED shines yellow.

### Link LED

The product indicates the Ethernet connection status of an application to the Ports 1 to 2 via the LEDs on the top right of each one of these ports. When a connection between an application and a port is established, the port's Link LED shines.

| Color | | Mode |
|---|---|---|
| Green | steady | Connection established |
| | flashing | Connection established and activity on the line |

*Table 8.1: Link LED state*

### Uplink LED

The product indicates the Ethernet connection status of Port 3 and the communication speed via the LEDs on the top left and right of this port. When a connection on this port is established, depending on the communication speed, one of the two Uplink LEDs shines green:

Port 5 – LED right: 100 Mbps
Port 5 – LED left: 1 Gbps

| Color | | Mode |
|---|---|---|
| Green | steady | Connection established |
| | flashing | Connection established and activity on the line |

*Table 8.2: Uplink LED state*

## 8.2 Remote report Communication

When using the product, it is possible to communicate with it from a distance using the incorporated communication system. The Ethernet connection makes it possible to:

- retrieve information remotely,
- have more details about the types of faults,
- communicate analogue values (operating voltages and currents, remaining backup percentage, internal temperature, autonomy),
- configure the power supply.

The product communicates its information on the Ethernet connection via the HTTPS, SNMP and BACnet IP application protocols.

The information and explanations on how to configure the product are described in chapter 7.

The following chapters describe the information available via the different protocols.

### 8.2.1 Accessible data

The following data is available via SNMP and BACnet IP:

| Bit | Name | Description |
|---|---|---|
| 27 - 31 | *Reserve* | - |
| 26 | Ethernet Failure | In read mode, if the bit is set to 1, then one or more Ethernet links have been lost. The fault remains active even if the links are restored. To acknowledge the fault, set bit to 1, which then switches to 0 in read mode. |
| 25 | Halt Stealth | Set bit to 1 to stop Stealth Mode. The bit remains set to 0 in read mode. |
| 24 | Start Stealth / Stealth State | In read mode, if the bit is set to 1, then Stealth Mode is enabled. Set bit to 1 to start Stealth Mode. |
| 20 - 23 | *Reserve* | - |
| 19 | Communication Failure | Internal communication failure if the bit is 1. The values of the read data are not significant. |
| 18 | Initialization Failure | Initialization of the internal communication in progress if the bit is 1. The values of the read data are not significant. |
| 16 - 17 | *Reserve* | - |
| 15 | High Battery Current | If the bit is set to 1, then the battery current is too high. |
| 14 | High Battery Voltage | If the bit is set to 1, the product must be replaced: the battery voltage is too high. |
| 13 | End of Autonomy | End of autonomy pre-alarm when the bit is set to 1 (imminent cut). |
| 12 | Battery Failure | If the bit is set to 1, the product must be replaced: the battery is defective or has been removed. |
| 11 | Rectifier Failure | If the bit is set to 1, the product must be replaced: the charging system is faulty and the battery may not be charged. |
| 10 | Mains Failure | If the bit is set to 1, mains power is absent. |
| 9 | Output Overload | If the bit is set to 1, the total PoE budget is exceeded. |
| 8 | Output Short-Circuit | If the bit is set to 1, the output is short-circuited. |
| 7 | High Temperature | If the bit is set to 1, the temperature in the product is too high. |
| 6 | Battery Disconnection | If the bit is set to 1, the battery is disconnected. |
| 5 | Stealth Mode or Eco Mode | If the bit is set to 1, then Stealth Mode or Eco Mode is enabled. |
| 4 | Intrusion Detection | When the option is present, if the bit is set to 1, then the box tampering and tearing detection is enabled. |
| 0 - 3 | *Reserve* | - |

*Table 8.3: Detail of the "System state" variable*

<table>
<tr><th>Bit</th><th>Name</th><th>Description</th></tr>
<tr><td>26 - 31</td><td>Reserve</td><td>-</td></tr>
<tr><td>24 - 25</td><td>Ethernet State</td><td>Ethernet port status:<table><tr><th>Value</th><th>Status</th></tr><tr><td>00</td><td>No link</td></tr><tr><td>01</td><td>10 Mbps link</td></tr><tr><td>10</td><td>100 Mbps link</td></tr><tr><td>11</td><td>1000 Mbps link</td></tr></table></td></tr>
<tr><td>20 - 22</td><td>PoE Class</td><td>-</td></tr>
<tr><td>18 - 19</td><td>PoE Management</td><td>PoE-class:<table><tr><th>Value</th><th>Class</th></tr><tr><td>000</td><td>Unknown</td></tr><tr><td>001</td><td>1</td></tr><tr><td>010</td><td>2</td></tr><tr><td>011</td><td>3</td></tr><tr><td>100</td><td>4</td></tr><tr><td>101</td><td>- Reserve -</td></tr><tr><td>110</td><td>0</td></tr><tr><td>111</td><td>No class</td></tr></table></td></tr>
<tr><td>16 - 17</td><td>PoE State</td><td>PoE control (read/write):<table><tr><th>Value</th><th>Status</th></tr><tr><td>00 (write: no effect)</td><td>- Reserve -</td></tr><tr><td>01</td><td>Stop PoE</td></tr><tr><td>10</td><td>Start PoE</td></tr><tr><td>11</td><td>Restart PoE</td></tr></table></td></tr>
<tr><td>0 - 15</td><td>PoE Power</td><td>PoE status:<table><tr><th>Value</th><th>Status</th></tr><tr><td>00</td><td>PoE stopped</td></tr><tr><td>01</td><td>PoE on hold</td></tr><tr><td>10</td><td>PoE defective</td></tr><tr><td>11</td><td>PoE active</td></tr></table></td></tr>
<tr><td>20 - 22</td><td>PoE Class</td><td>PoE output power expressed in tenths of a Watt</td></tr>
</table>

*Table 8.4: Detail of the "Ethernet port X state" variable*

### 8.2.2 HTTPS protocol

The HTTPS website provides product management and data processing-related information.

Chapter 7 describes the use of the HTTPS website and the various data available.

To log onto the embedded website, use the selected login and password. Chapter 7.5 explains how to change the password.

### 8.2.3 SNMP protocol

Two MIBs are available over SNMP:

- The **MIB-2**, defined by the RFC1213 standard.
- The **MIB SLAT-SDC** is proprietary and specific to SLAT. It is common to the entire SYNAPS range. It can be downloaded from the embedded website (HTTPS) on the "Network" page (see chapter 7.6).

**IMPORTANT REMARK!**

**For the SNMP v1 et v2c The Write Community is "private".**

**For the SNMP v3 the user and the password must be configured.**

The following variables are available via SNMP:

| **Mib-2** | | |
|---|---|---|
| **Variable** | **SNMP Name** | **Description** |
| Model | sysDesc | SYNAPS reference and version. |
| System name | sysName | SYNAPS identifier (available in write mode, up to 16 characters) |
| Location | sysLocation | SYNAPS location (available in write mode, up to 32 characters) |

*Table 8.5: MIB-2 variables*

| Mib SLAT | | |
|---|---|---|
| **Variable** | **SNMP name** | **Description** |
| Model | model | SYNAPS reference and version. |
| Capacity | capacity | Battery capacity: energy expressed in Watt-hours. |
| Serial number | serialNumber | SYNAPS serial number. |
| System state | systemState | 32-bit variable presenting the state of the SYNAPS system. Each time a change is made, this variable is sent in the form of an SNMP trap (for details of the variable, see Table 8.3)*. |
| Gauge | energyGauge | Gauge in percent, corresponding to the amount of energy available in the battery. A value of 100 corresponds to a fully charged battery. |
| Output voltage | outputVoltage | Output voltage: the value is expressed in tenths of a Volt. |
| Output current: | outputCurrent | Output current: the value is expressed in tenths of an Ampere. |
| Output power | outputPower | Instantaneous power supplied by the SYNAPS: the value is expressed in Watts. |
| Mains power | mainsPower | Instantaneous mains power input: the value is expressed in Watts. |
| Temperature | temperature | SYNAPS internal temperature: the value is expressed in °C. |
| Total discharged energy | totalDischargedEnergy | Amount of energy provided by the SYNAPS battery since initial commissioning: the value is expressed in tenths of a Watt-hour. |
| Mains cut total number | mainsCutTotalNumber | Total number of power cuts since initial commissioning. |
| Output voltage adjustment | voutAdjust | Not applicable for SYNAPS PoE products. |
| Stealth Mode threshold | stealthModeThreshold | Minimum battery charge level in percent for Stealth Mode. Accepted values: 25, 50, 75 or 100. The value 100 disables the Stealth Mode. |
| Eco Mode threshold | ecoModeThreshold | Minimum battery charge level in percent for Eco Mode. Accepted values: 50, 60, 70, 80 or 100. The value 100 disables Eco Mode. |
| Ethernet port *X* state | ethernetPort*X*-State | 32-bit variable presenting the status of each Ethernet port *X* representing the number of port (for details of this variable, see Table 8.4). |

*Table 8.6: MIB SLAT variables*

* In order to use SNMP traps, the IP addresses of the SNMP servers to which the traps should be sent must be entered into the HTTPS website (see chapter 7.6).

### 8.2.4 BACnet IP protocol

The following objects are accessible via BACnet IP:

| Property | Remark / Value | RW |
|---|---|---|
| Object_Identifier | Product instance, by default: 421000 | RW-E |
| Object_Name | SYNAPS system name (max. 16 characters). By default: □□ | RW-E |
| Object_Type | DEVICE (8) | R |
| System_Status | OPERATIONAL (0) or STATUS_NON_OPERATIONAL (4) if not ready | R |
| Vendor_Name | □SLAT□ | R |
| Vendor_Identifier | 954 | R |
| Model_Name | Product type | R |
| Location | Product location (max. 32 characters). By default: □□ | RW-E |
| Firmware_Revision | □communication firmware version□ | R |
| Application_Software_Version | □□ | R |
| Protocol_Version | 1 | R |
| Protocol_Revision | 12 | R |
| Protocol_Services_Supported | read-property, write-property, who-has, who-is, device-communication control | R |
| Protocol_Object_Types_Supported | DEVICE, ANALOG_VALUE, POSITIVE_INTEGER_VALUE | R |
| Object_List [17] | device, analog-value 0 □ 10, positive_integer_value 0...4 | R |
| Max_APDU_Length_Accepted | 1476 | R |
| Segmentation_Supported | NO_SEGMENTATION (3) | R |
| APDU_Timeout | 3000 | R |
| Number_Of_APDU_Retries | 3 | R |
| Device_Address_Binding | - | R |
| Database_Revision | 0 | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.7: BACnet IP variables*

| Analog Value Object 0 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 0 | R |
| Object_Name | □Vout□ | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Output Voltage" | R |
| Present_Value | Output voltage | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Volts (5) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.8: Analog Value Object 0*

| Analog Value Object 1 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 1 | R |
| Object_Name | Iout | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Output current" | R |
| Present_Value | Output current: | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Amperes (3) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.9: Analog Value Object 1*

| Analog Value Object 2 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 2 | R |
| Object_Name | Pout | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Output power" | R |
| Present_Value | Output power | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Watts (47) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.10: Analog Value Object 2*

| Analog Value Object 3 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 3 | R |
| Object_Name | Pin | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Input power" | R |
| Present_Value | Mains power | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Watts (47) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.11: Analog Value Object 3*

| Analog Value Object 4 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 4 | R |
| Object_Name | Temperature | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Internal temperature" | R |
| Present_Value | Internal temperature | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Degree Celsius (62) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.12: Analog Value Object 4*

| Analog Value Object 5 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 5 | R |
| Object_Name | BatteryGauge | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Remaining autonomy" | R |
| Present_Value | Battery gauge | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Percent (98) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.13: Analog Value Object 5*

| Analog Value Object 6 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 6 | R |
| Object_Name | Battery capacity | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Installed battery capacity" | R |
| Present_Value | Battery capacity | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Watt hours (18) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.14: Analog Value Object 6*

| Analog Value Object 7 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 7 | R |
| Object_Name | StealthModeThreshold | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Minimum battery gauge level for Stealth Mode (25%, 50% or 75% - 100 disables Stealth Mode)" | R |
| Present_Value | Stealth Mode threshold | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Percent (98) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.15: Analog Value Object 7*

| Analog Value Object 8 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 8 | R |
| Object_Name | EcoModeThreshold | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Minimum battery gauge level for Eco Mode (50%, 60%, 70% or 80% - 100% disables Eco Mode)" | R |
| Present_Value | Eco Mode threshold | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Percent (98) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.16: Analog Value Object 8*

| Analog Value Object 9 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 9 | R |
| Object_Name | TotalDischargedEnergy | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Total discharged energy" | R |
| Present_Value | Total discharged energy | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | Watt hours (18) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.17: Analog Value Object 9*

| Analog Value Object 10 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | analog-value 10 | R |
| Object_Name | MainsCut | R |
| Object_Type | ANALOG_VALUE (2) | R |
| Description | "Mains cut total number" | R |
| Present_Value | Total number of power cuts | RW |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Event_State | NORMAL (0) | R |
| Out_Of_Service | FALSE (0) | R |
| Units | No units (95) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.18: Analog Value Object 10*

| Positive Integer Value Object 0 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | positive-integer-value 0 | R |
| Object_Name | Default | R |
| Object_Type | POSITIVE_INTEGER_VALUE (48) | R |
| Description | "System state register" | R |
| Present_Value | System state [32 bit]* | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Units | No units (95) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.19: Positive Integer Value Object 0*

*To consult the detail of the "Present Value - System state" see Table 8.3.

| Positive Integer Value Object 1 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | positive-integer-value 1 | R |
| Object_Name | StealthMode | R |
| Object_Type | POSITIVE_INTEGER_VALUE (48) | R |
| Description | "Stealth mode operating" | R |
| Present_Value | Stealth Mode disabled if null, else enabled | RW |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Units | No units (95) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.20: Positive Integer Value Object 1*

| Positive Integer Value Object 2 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | positive-integer-value 2 | R |
| Object_Name | SerialNumber | R |
| Object_Type | POSITIVE_INTEGER_VALUE (48) | R |
| Description | "Serial number" | R |
| Present_Value | Serial number | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Units | No units (95) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.21: Positive Integer Value Object 2*

| Positive Integer Value Object 3 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | positive-integer-value 3 | R |
| Object_Name | Ethernet1 | R |
| Object_Type | POSITIVE_INTEGER_VALUE (48) | R |
| Description | "1st Ethernet port state" | R |
| Present_Value | Port 1 status* | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Units | No units (95) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.22: Positive Integer Value Object 3*

*To consult the detail of the "Present Value - Port 1 Status" see Table 8.4.

| Positive Integer Value Object 4 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | positive-integer-value 4 | R |
| Object_Name | Ethernet2 | R |
| Object_Type | POSITIVE_INTEGER_VALUE (48) | R |
| Description | "2nd Ethernet port state" | R |
| Present_Value | Port 2 status* | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Units | No units (95) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.23: Positive Integer Value Object 4*

*To consult the detail of the "Present Value - Port 2 Status" see Table 8.4.

| Positive Integer Value Object 4 | | |
|---|---|---|
| **Property** | **Remark / Value** | **RW** |
| Object_Identifier | positive-integer-value 5 | R |
| Object_Name | Ethernet3 | R |
| Object_Type | POSITIVE_INTEGER_VALUE (48) | R |
| Description | "3rd Ethernet port state" | R |
| Present_Value | Port 3 status* | R |
| Status_Flags | IN_ALARM: 0 | R |
| | FAULT: 0 | |
| | OVERRIDDEN: 0 | |
| | OUT_OF_SERVICE: 0 | |
| Units | No units (95) | R |
| R: Read Property, W: Write Property, -E: Storage in EEPROM / Flash | | |

*Table 8.24: Positive Integer Value Object 5*

*To consult the detail of the "Present Value - Port 3 Status" see Table 8.4.

# 9. Maintenance and troubleshooting

### Maintenance

The product has been designed to function for a long period of time **without requiring maintenance**.

**IMPORTANT REMARK!**

**Every intervention on the product must only be carried out by qualified personnel.**

**DANGER!**

**At no time should the cover of the charger power supply be opened, even for maintenance purposes.**

### Troubleshooting

During installation, commissioning or use, unexpected situations may arise. In the event of a problem, the table below can be consulted. It contains a list of possible problems with their corresponding causes and solutions.

| Problem | Fault via communication | Cause | Solution |
|---|---|---|---|
| The product does not start. | No communication | The mains voltage is not connected or is not present. | Check if the mains voltage is connected properly. |
| | | The mains voltage fuse is faulty or absent. | Replace the product. |
| There is no voltage at the output. | Output short-circuit | Output overload or short-circuit. | Remove the short-circuit. |
| - | Backup fault | Backup malfunction; the backup is disconnected or has failed. | Replace the product. |
| | Charger fault | Charger malfunction. | The charger has failed. Replace the product. |
| The Status LED is orange + fast flashing and the output voltage is less than the normal value. | Output overload | There is a slight overload on the output. | Lower the output load until the current is less than the maximum output value (see Table 10.4). |
| The product's temperature is too high. | Temperature too high | Temperature is too high because the ambient temperature does not fulfill the conditions specified in Table 10.6. | Cool the installation. |
| The product's IP address is lost. | No communication | - | Perform a factory configuration reset (see chapter 7.9). |
| The administrator's password has been lost. | No communication | - | Perform a factory configuration reset (see chapter 7.9). |
| A user password has been lost. | No communication | - | Delete the account of the user via the administrator's account. |
| No connection: The *Link LED* of port 1 to 2 or the *Uplink LEDs* of port 3 are not illuminated. | No communication | Bad Ethernet connection. | Verify the connection and use an appropriate Ethernet cable (see Table 6.1). |
| A *Link or Uplink LED* is illuminated but there is no communication. | No communication | Configuration problem. | Check that the configuration of the SYNAPS and the computer are compatible (see chapter 7). |

*Table 9.1: Problems, causes and solutions*

For additional technical assistance, contact the SLAT hotline +33 4 78 66 63 70.

For an RMA request (authorization to return goods), refer to chapter 11.2 .

No equipment may be returned without prior issuance of an RMA number.

# 10. Technical data

## 10.1 Electrical characteristics

### 10.1.1 Electrical characteristics of the power supply

| Mains input | |
|---|---|
| AC network voltage | 98 V  265 V |
| DC network voltage | 140 V ... 375 V |
| Frequency | 45 Hz  65 Hz |
| Class | 1 |
| Inrush current | Limited by CTN |
| Neutral system | TT, TN, IT |
| Primary short-circuit protection | Slow-blow fuse on the phase |
| Characteristics of the built-in fuse | 2.5 A (slow-blow, internal) |
| Shock wave protection | Differential mode by varistor and filter |
| Primary current @ 98 V | 1.5 A |
| Primary current @ 265 V | 0.42 A |
| Residual consumption in Eco and Stealth Mode | < 1 W |
| Lightning arrestor | 10 kA |
| Circuit breaker to be provided upstream | Curve C or D (recommended rating 2 A) |

*Table 10.1: Mains input electrical characteristics*

**Current behavior:**

Inrush current at start-up

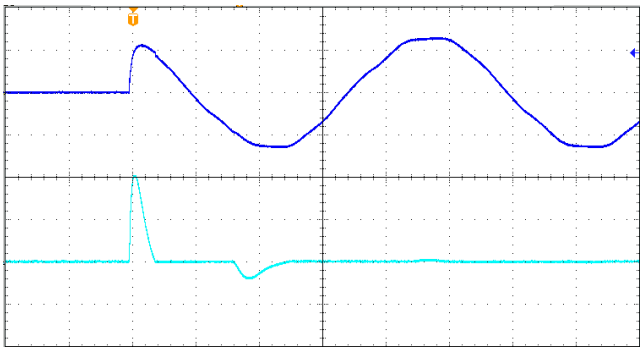

*Figure 10.1: Oscillogram - inrush current*

| Test conditions | |
|---|---|
| Input voltage | 230 V AC |
| Output current and voltage | 55 V DC ; no load |
| Ambient temperature | +20°C |
| **Description of the diagram** | |
| Upper curve | Input voltage (250 V / DIV) |
| Lower curve | Input current (20 A / DIV) |
| Time scale | 4 ms / DIV |

*Table 10.2: Description of the oscillogram - inrush current*

Start-up sequencing

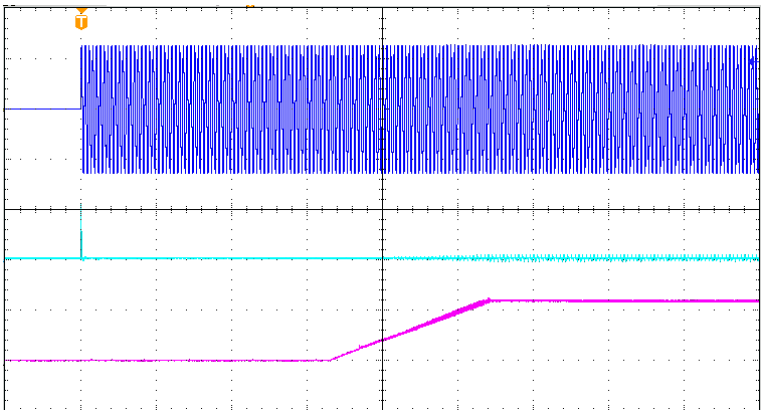

*Figure 10.2: Oscillogram - starting behavior*

| **Test conditions** | |
|---|---|
| Input voltage | 230 V AC |
| Output current and voltage | 55 V DC; 1.09 A |
| Ambient temperature | +20°C |
| **Description of the diagram** | |
| Upper curve | Input voltage (250 V / DIV) |
| Medium curve | Input current (20 A / DIV) |
| Lower curve | Output voltage (50 V / DIV) |
| Time scale | 400 ms / DIV |

Table 10.3: Description of the oscillogram - starting behavior

## 10.1.2 Electrical output characteristics

| **Output** | |
|---|---|
| Standards | IEEE 802.3af, IEEE 802.3at |
| Rated voltage $U_n$ | 55 V |
| Voltage precision | 1% |
| Available output power | 30 W/port, total PoE budget 55 W |
| Power limitation | from $P_{max}$ to $P_{max}$+10% for output voltage > 6 V |
| HF ripple peak-peak (20 MHz-50 Ω) | < 4% of $U_n$ |
| Effective LF ripple | < 0.5% of $U_n$ |
| Static and dynamic regulation characteristics | < 5% of $U_n$ for cumulative variations of the mains and the load (from 10 to 90%) |
| Protection | electronic (no fuse) |
| η @ 20% of use load | 90% |
| η @ 75% of use load | 93% |
| η @ 100% of use load | 92% |
| Protection against output short-circuit | by power supply cut with cyclical restart |
| Protection against surges in user output | deregulation or connection error, by cut-off with cyclical restart if output voltage > $U_n$ + 10% |
| Short-circuit if | $U_{output}$ < 6 V or I > 30 A |

*Table 10.4: Electrical output characteristics*

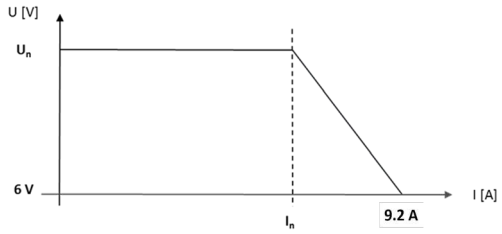


*Figure 10.3: Output voltage vs User current*

### 10.1.3 Functional characteristics

Two user outputs permanently supply a constant voltage (55 V DC) to the equipment which has to be powered. In the event of a current break, the built-in backup maintains the electrical power supply of the equipment connected to the UPS for the duration defined when the SYNAPS was chosen.

An Ethernet connection allows to retrieve the information including the analogue values remotely (voltages and load current, backup, autonomy, internal electronic temperature).

By default, the DHCP is active. The HTTPS webserver makes it possible amongst others to configure the communication parameters and to choose the functioning mode.

A LED for the Ethernet status (Link) and a PoE LED for each PoE port as well as two Ethernet status LEDs (Uplink) for the uplink port are also available.

The Stealth Mode function makes it possible to shed load from the network while guaranteeing backup autonomy.

## 10.2 Mechanical characteristics

| **Mechanical specifications** | |
|---|---|
| Casing (cabinet) | Polycarbonate |
| Protection rating | IP 66 |
| Resistance to impacts | IK 10 |
| Dimensions without anti-vandal kit | W 200 x H 300 x D 150 mm |
| Dimensions with anti-vandal kit | W 200 x H 470 x D 150 mm |
| Available customer space | W 90 x H 120 x D 80 mm |
| Weight | 3.5 kg |
| $C_DA$ | 0.066 |
| Installation | Post- or wall-mounted box |

*Table 10.5: Mechanical specifications*

## 10.3 Environmental specifications

| **Environmental specifications** | | |
|---|---|---|
| Storage temperature | | -25 +60°C |
| Operating temperature | at 100% charge in backup and normal mode<br>at 100% charge in battery charging mode | -10 +50°C<br>-5 +50°C |
| With the EXTREM COLD option | at 100% of load<br>at 75% of load | -20 +50°C<br>-20 +60°C |
| Relative humidity | in storage<br>operating | 10 80%<br>20 70% |
| Altitude | Above 2,000 m, the temperature decreases by 5% every 1,000 m. | |

*Table 10.6: Environmental specifications*

## 10.4 Standards

The product is designed to meet with LV and EMC directives (immunity and emission). It complies with the following standards

### 10.4.1 Safety standards

| Section | Standard number | Title/Content |
|---|---|---|
| LVD Safety | EN 60950-1 (2006) + A11 (2009) + A1 (2010) + A12 (2011) + A2 (2013) (class TBTS) | Safety of information technology equipment, including office hardware, TBTS class. |
| LVD Safety | EN 62368-1 (2014) | Audio/video, information and communication technology equipment - Part 1: Safety requirements. |

*Table 10.7: Safety standards*

### 10.4.2 EMC standards

| Section | Standard number | Title/Content |
|---|---|---|
| Immunity | EN 61000-6-2 (January 2006) | Immunity standard for industrial environments (generic standard) |
| Emissions | EN 61000-3-2 (August 2006) (class A) | Limits for harmonic current emissions (equipment input current <= 16 A per phase) |
| Emissions | EN 61000-6-3 (March 2007) | Emission standard for residential, commercial and light-industrial environments (generic standard) |
| Emissions | EN 61000-6-4 (March 2007) | Emission standard for industrial environments (generic standard) |
| Emissions | EN 55032 (2015) (class B) | Electromagnetic compatibility of multimedia equipment |

*Table 10.8: EMC standards*

### 10.4.3 IEEE standards

The voltage is factory set so that the output voltage is conform with the standards IEEE 802.3af and IEEE 802.3at.

# 11. Warranty and Product Returns

## 11.1 Warranty

The equipment is guaranteed for three years from the date of delivery (ex-works). It is strictly limited to reimbursement or replacement (at our discretion and without compensation of any sort) of parts recognized as faulty by our services, following the return of the product to our premises at the buyer's expense. The replacement or repair of equipment is possible only on our premises. In order to allow our customers to benefit from the latest technical improvements, SLAT reserves the right to make all necessary modifications to its products.


**IMPORTANT REMARK!**

**Mechanical opening of the covers of the sub-assemblies inside the product cancels the manufacturer warranty!**

## 11.2 Product Returns

### 11.2.1 Product under warranty

For the maintenance of your products under warranty, SLAT offer the best solution to facilitate your repairs and minimize lead times:

- Contact the Customer Service department using the form available on our web site www.slat.com , taking care to fill in all the required fields.
- The RMA form will be processed and sent back by the SLAT account manager.
- After receiving your RMA form, return two copies with your product(s), one INSIDE the package and the other on the OUTSIDE of the package for warehouse identification purposes, thereby guaranteeing traceability of your product.
- The repaired or replaced product(s) will be returned within a maximum of 15 business days.

### 11.2.2 Product not under warranty

**Product repair by SLAT**

Contact Customer Service at service.client@slat.fr, making sure to provide all of the following information:

- Last name/First Name
- Company / Complete Address / Phone / Email
- Exact model of the product (indicated on the product label) / SLAT reference (indicated on the product label, code number) / Serial No. / Quantity / Problems(s) encountered (describe the faults encountered with the product)

The form to request the RMA number is also available at www.slat.com.

The account manager will send the RMA form by email together with a quote according to the relevant product range.

After receiving your RMA form, return two copies with your product(s), one INSIDE the package and the other on the OUTSIDE of the package for warehouse identification purposes, thereby guaranteeing traceability of your product. The repairs will be made only after the receipt of the accepted quote together with the repair order form. If the quote is rejected, please return it to service.client@slat.fr marked "refused" and specify whether the equipment should be destroyed or returned in its existing condition (in this case a charge of 150 will be invoiced for handling costs).

The repaired or replaced product(s) will be returned within a maximum of 15 business days. A new 3 month warranty is attributed to the relevant product.

**Conditions: Authorization to return products is issued by SLAT.**

**An RMA number is assigned to each product to be returned. Each RMA number is valid for 30 days.**

**No equipment may be returned without prior issuance of an RMA number.**

**SLAT**

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