ELTEK
A Delta Group Company

User's Guide

Smartpack R Controller

Monitoring and Control Unit

350166.013 Issue 1.1, 2019 May

SAFETY and ENVIRONMENTAL PRECAUTIONS

The **product warranty** becomes invalid if the following safety precautions are not followed during handling, installation, commissioning and general use/operation of *Eltek* power supply system.

General Precautions

CAUTION: Even though the product incorporates protection circuitry and other safeguards, it can be **damaged, perform poorly or have a reduced lifetime** if it is exposed to incorrect treatment during transport, installation or service. Always handle the equipment using proper lifting techniques, do not roll, climb or drill hole in the cabinets or enclosures. G1

WARNING: Opening the equipment may cause personal injury — even if the mains AC supply is disconnected. Hazardous voltages may be present inside, as large capacitors may still be charged. G2

Environmental Precautions

CAUTION: To avoid damage the equipment, **keep objects clear of system ventilation inlets, outlets and system fans**, if any, ensuring the **airflow** through the units is **not obstructed**, and that the fans rotate freely. Use caution with power modules, as they can reach **extreme temperatures** under load and normal operation. E1

WARNING: The installer/user is responsible for ensuring that the power system is not damaged by current surges, over-voltages, etc. caused by external transients, lightning, electrostatic discharge, etc. To avoid damage and obtain the expected system reliability, it is mandatory to always install SPDs in Eltek's power supply systems. Follow the instructions given in "*Requirements for Surge Protection*", doc. 2024623. E2

WARNING: The electronics in the power supply system are designed for indoor, clean environment. When installed in outdoor enclosures — using heat sinks or closed loop heat management systems — it is important to maintain the equipment closed and tight during operation, to avoid external air entering the enclosure. Also, when using open loop heat management systems, it is important to replace the filters on a regular basis. Indoor installations in dusty or humid areas require appropriate air filtering of the room, or filtering of the air entering the power system. Follow the instructions given in "*Generic Guidelines Environmental Protection*", doc. 2038879 E3

Precautions during Installation

CAUTION: Read the user documentation carefully before installing and using the equipment, as installation and operation is to be performed as described in it. Always tighten screws and bolts with the **torque values recommended by the supplier** of the terminals, breakers, etc. Also, refer to ***Eltek*'s Typical Torque Recommendations** in the documentation. For safety reasons, the **commissioning and configuration of the equipment is only to be performed** by *Eltek*'s personnel or by authorized and qualified persons. I1

CAUTION: This product is tested and verified according to international safety, environmental and EMC standards. Any **non-*Eltek* equipment** installed into this product after delivery might influence the performance and **could infringe the original approvals**. The **installer is responsible** for ensuring that the environmental properties of this product/ system do not deteriorate during installation, and that it is performed in accordance with applying regulations.
Installations in USA and Canada must comply with NEC/CEC requirements. I2

CAUTION: Before you start the electrical installation, you must **always disconnect** all external supply circuit breakers, as well as internal battery and load fuses/ breakers, if any. I3

WARNING: For safety reasons (high leakage current / high touch current) you must always connect the AC earth wire (PE) to the terminals, before you connect the AC input cable(s).
The batteries, if any, represent a major energy hazard. To avoid short-circuit of battery poles, you must always remove metallic objects — uninsulated tools, rings, watches, etc. — from the vicinity of the batteries. I4

WARNING: 60V power systems, and higher voltage systems, are only to be installed in Restricted Access Locations (RAL). Access must be limited by use of tool, i.e. lock and key. I5

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Table of Contents

1. Introduction

The advanced Smartpack R is a Linux based controller developed for replacing the previous Smartpack in Eltek power systems.

About this Guide

This booklet provides users of Smartpack based power systems with the required information for operating the *Smartpack R*.

Read also the generic and site specific documentation for your power system.

For detailed functionality description, browse and search through the many topics in the Online Help pages at the web (see chap 10, page 41).

NOTE

- you must log in to access Online Help and Online Controller Functionality - contact your Eltek representative for a username and password.

System

In the *Flatpack2 PS* system shown in Figure 1, where the *Smartpack R* controller monitors and controls the system, and serves as the local user interface between you and the system.

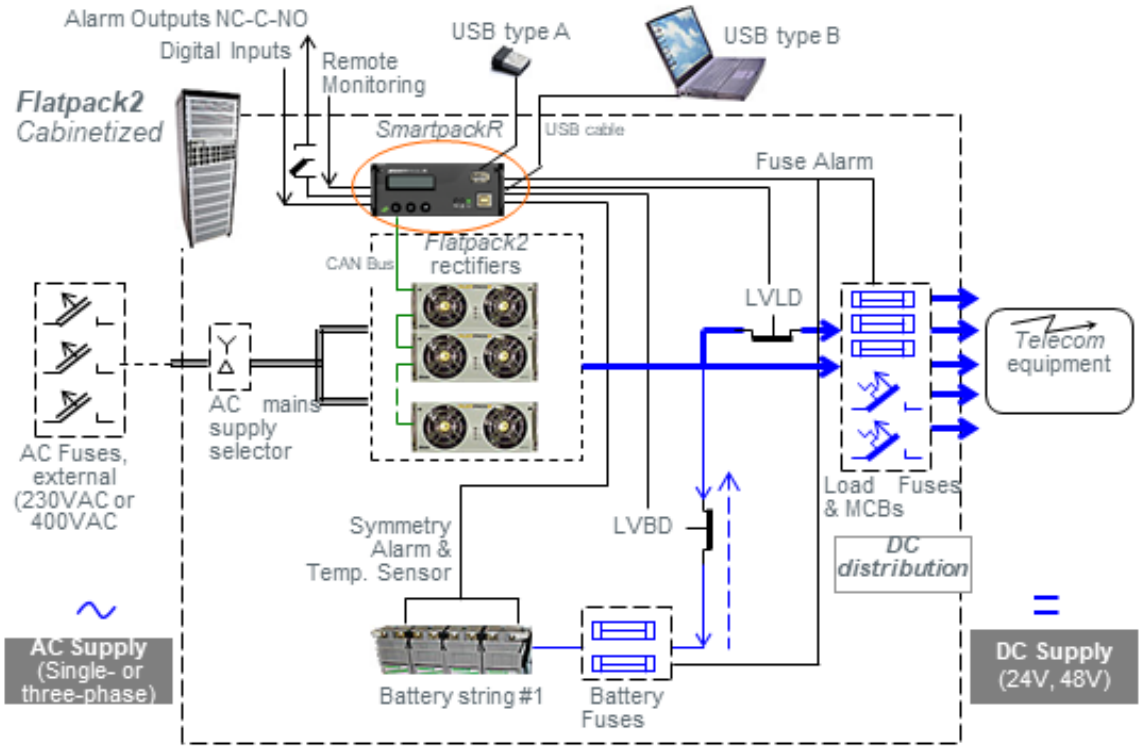


Figure 1 Example of a typical Flatpack2 PS system for DC power supply of telecom equipment. The system is fed from an external AC mains supply, and consists of rectifiers in power shelves, a control unit and DC distribution unit. Battery banks, LVD contactors, etc. are typically also a part of the system.

2. The Smartpack R Controller

RETROFIT CONTROLLER:

The Smartpack R is a replacement for the first generation Smartpack controllers, manufactured and sold between 2005 to 2018, meant first and foremost for retrofitting of mid-range Eltek power systems from that period. It has the same form factor, i.e. the same dimensions and connections as the original Smartpack and is fully backwards compatible.

The Smartpack R controllers are powerful modules used as master controllers in the distributed control system of Smartpack based power supply systems. .

Smartpack R is the interface for system information, and communicates with rectifiers and other nodes and power modules via CAN.

Connecting to the Ethernet port allows easy access to the responsive HTML5 web pages.

Figure 2: Smartpack R front view

Key Features

A wide range of features are implemented in the *Smartpack R* controller:

- ✓ Inherit microprocessor and Linux operative system from Smartpack2 Touch controller.
- ✓ Supporting new power modules (Rectiverter) and CAN Nodes (Fleximonitor).
- ✓ Remote monitoring (responsive web, security, SNMP, MODBUS, RADIUS etc.)
- ✓ Protocols for 3rd party (Smart batteries, meters, etc.) for site monitoring.
- ✓ Same D-SUB/connector based I/O as Smartpack WEB/SNMP (".118 module").
- ✓ USB type A-port in the front for connecting devices and dongles.
- ✓ USB type B-port in the front as an Ethernet Craft port.
- ✓ RS-232 and RS-485- for communication w/3rd party equipment.
- ✓ 2 x Contactor Control Outputs (latching).
- ✓ 6 x Configurable Inputs & Outputs.
- ✓ Full compatibility with MultiSite Monitor.

For detailed functionality description, browse and search through the many topics in the Online Help and Online Controller Functionality pages at the web – also see chapter 10 in this guide.

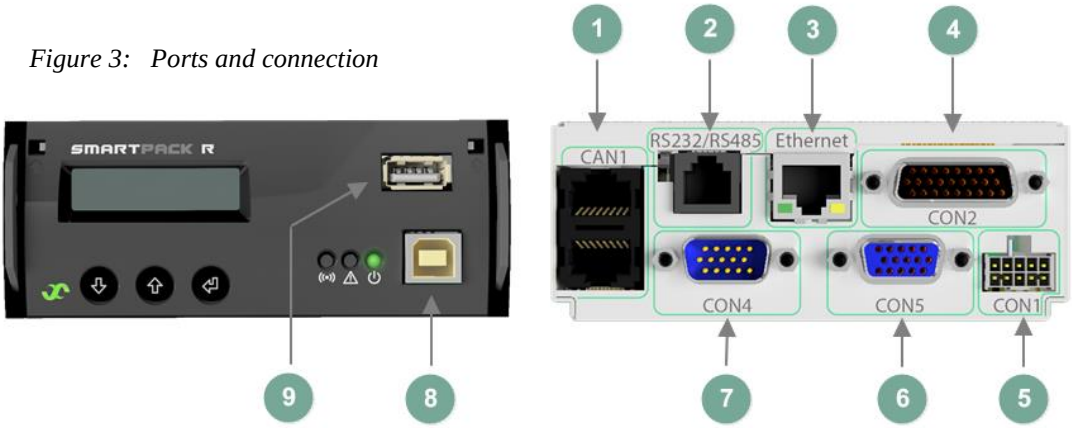
Connector and Communication Ports

Overview of connections and communication ports:

WARNING

Smartpack R must be used with Eltek interface card, part number 200625. (Same as used with the old Smartpack)

Figure 3: Ports and connection



1. **2xCAN1**: - for connection to other controller modules - *see page 12-13.*

2. **RS-232 & RS-485** - a combined RJ-11 connector - *see page 10.*

3. **Ethernet:** - connection to a local area network - *see page 10*

4. **Alarm I/0 Connections** (CON2) Extended D-sub, 26 pins, female (Customer) - *see page 10*.

5. **Alarm I/0 Connections** (CON1), Mini power connector, 10 pins, male (Customer) - *see page 10.*

6. **System Connections** (CON5), D-sub, 15 pins, female (Internal) - *see page 9*.

7. **Battery Connections** (CON4), D-sub, 15 pins, male (Internal) - *see page 9*.

8. **USB type B**, Ethernet craft port with fixed IP-address *(eth1)* - *see page 29-30.*

9. **USB type A,** for connecting devices and dongles *(wlan0, wwan0 and eth2)* - *see page 29-32.*

System & Battery Signals for Internal Connections

In general, Smartpack R has an identical pinout for connection to replace the previous Smartpack (ver.118) in Eltek Power Systems.
(In addition, there are some new connection facilities)
- See figure 4. for the internal system and battery connections.

WARNING

Smartpack R must be used with Eltek interface card, part number 200625. (Same as used with the old Smartpack)

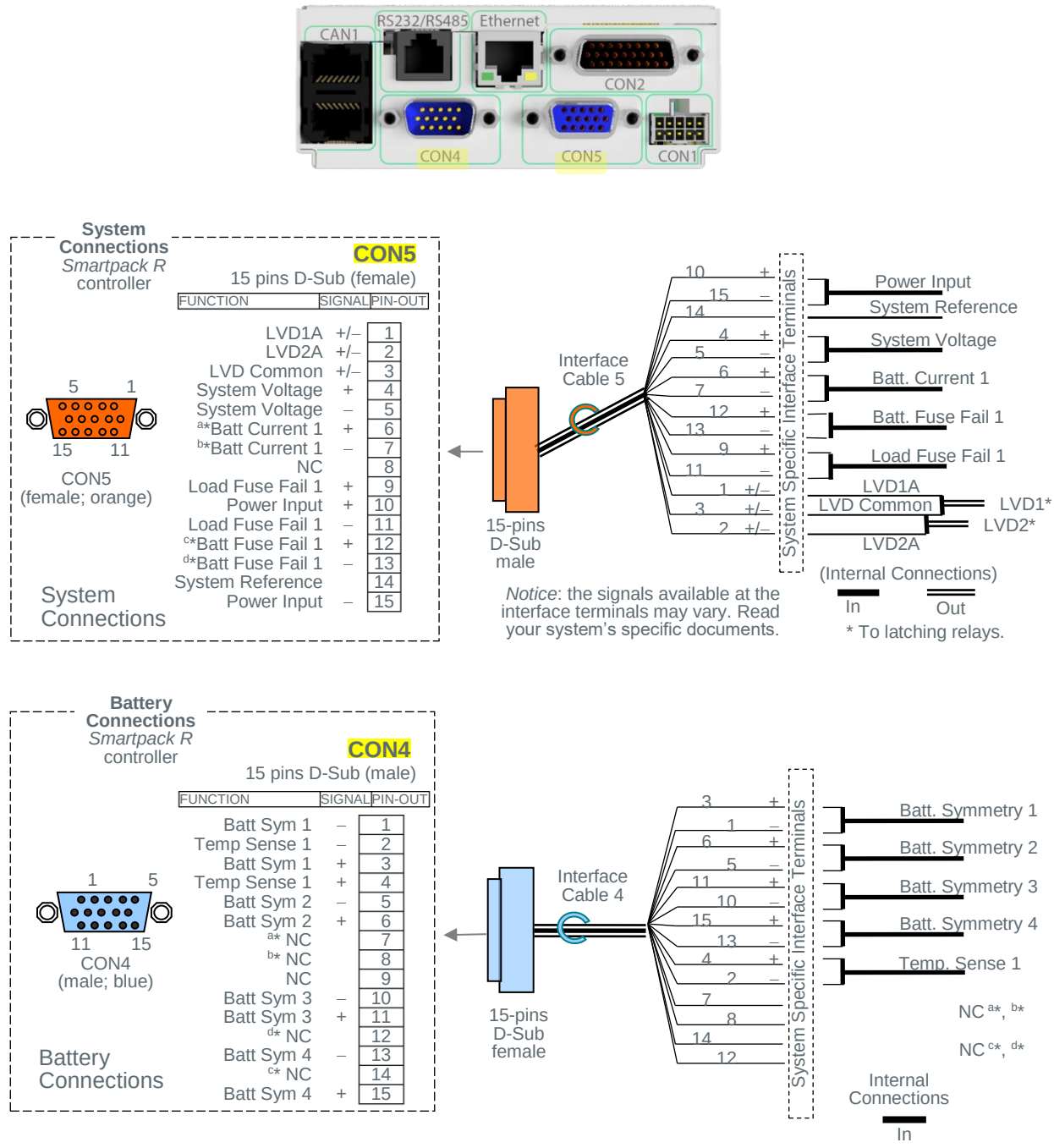


Figure 4: Overview of internal system and battery connections

Alarm Relay & Digital Input Signals

In standard *Smartpack*-based DC power systems, the controller's customer alarm relay and digital input signals are cabled to dedicated easy accessible terminals, as shown in Figure 5. See also your system's specific arrangement drawings.

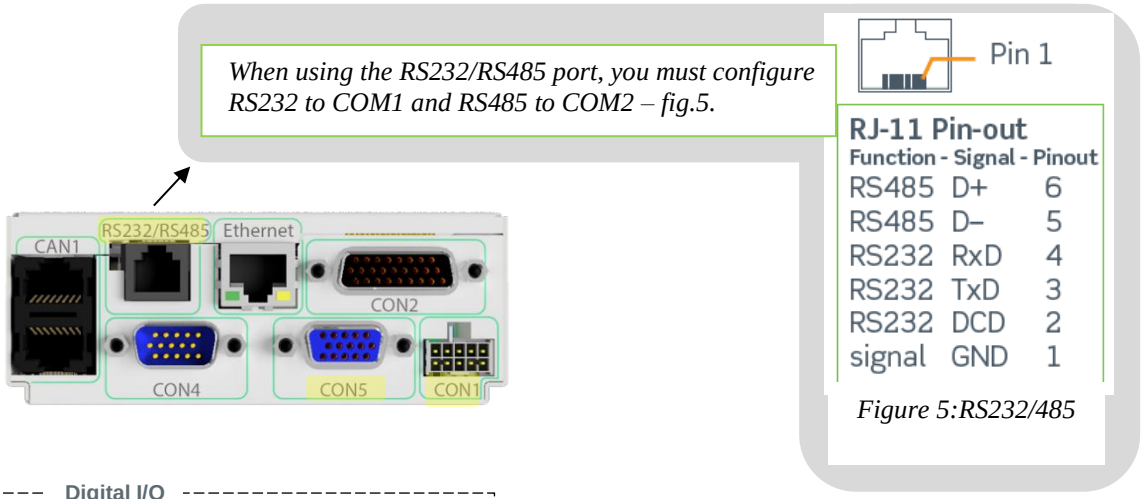


Figure 5:RS232/485

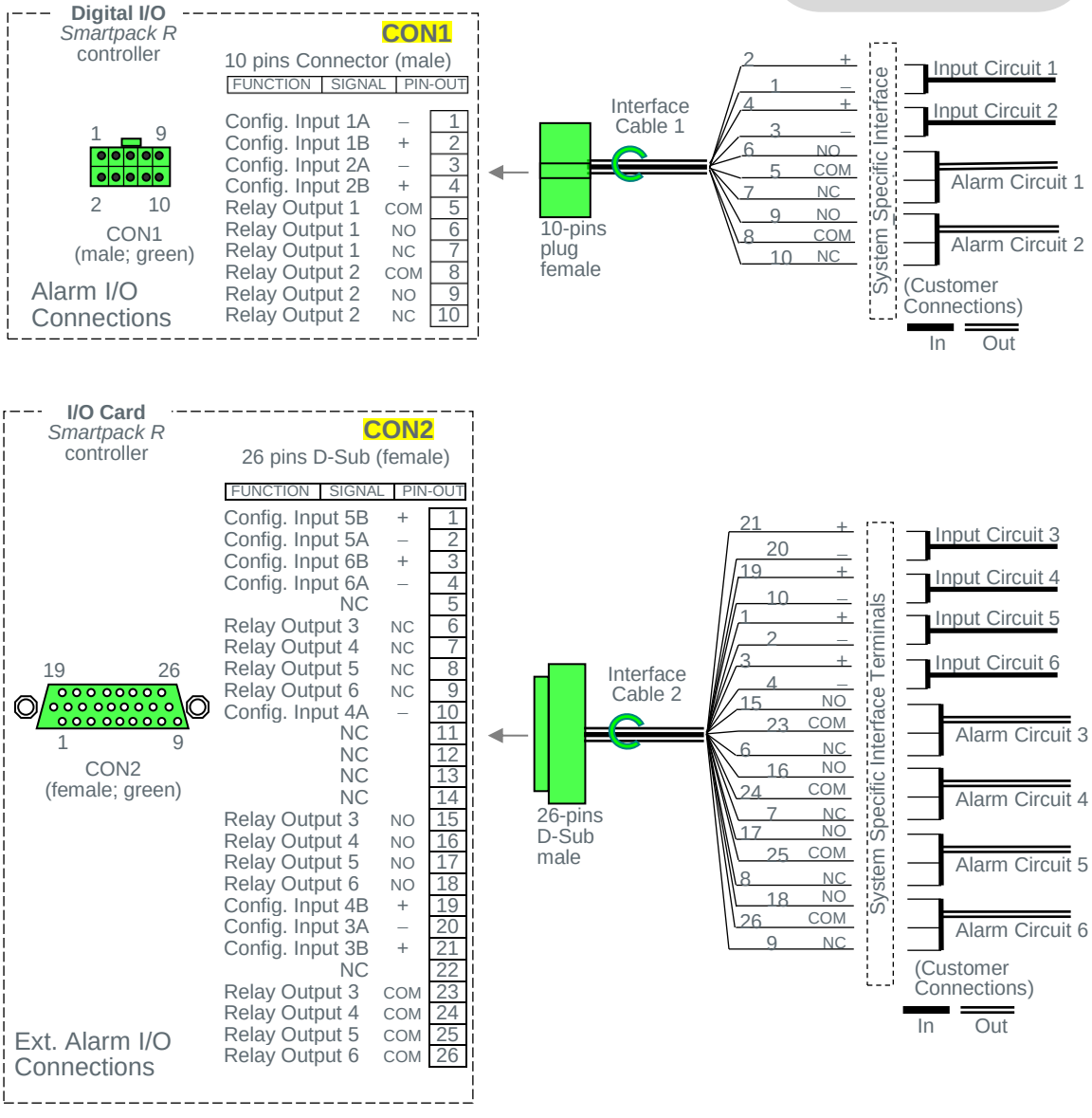


Figure 6: Overview of alarm relay & digital input signals connections

Retrofit – replacing Smartpack

Replace your old Smartpack in 5 simple steps (Requires Smartpack R out of the box with default configuration).

The Smartpack R is design to be quick and easy to install and configure, making it simple for you to upgrade and extend the lifetime of your old power systems.

1a

First copy the old configuration file to your laptop with Powersuite and save it on the PC or a USB memory stick.

OR

1b

Configuration transfer from Smartpack with USB cable typeB – typeA cable. See page 24.

2

Then slide your old smartpack controller out of your power system.

3

Unplug it. Power modules will run in stand-alone mode temporary at default voltage.

4

Then plug in the new Smartpack R, and slide it into your system. Add the necessary parameters that don't follow the configuration file*.
If you carried out Step 1b, then you have finished, otherwise continue with Step 5"

5

If done 1a, simply copy the old configuration data back to the controller using the web interface. From USB (see page 23) or from PC (see page 26). Add the necessary parameters that don't follow the configuration file*.

* **These settings do not follow the configuration file and must be configured manually:** User accounts, Network, e-Mail, SNMP and NTP – settings.

WARNING

Smartpack R must be used with Eltek interface card, part number 200625. (Same as used with the old Smartpack)

Mounting and Removing the Controller

The Smartpack controller incorporates handles that serve both to lock the module into position and to pull it out of its housing.

Mounting the controller:

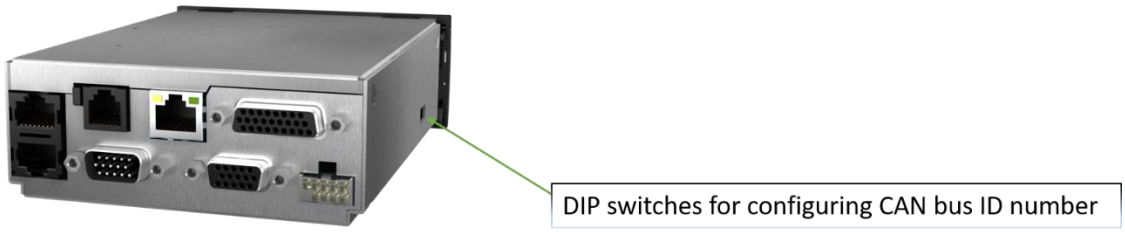
1. **Opening the handles** by using a screwdriver.
2. **Insert the controller** into the shelf after plugging the cables to the rear.
3. **Lock the handles** by pushing handles into locked position.

Removing the controller:

1. **Opening the handles** by using a screwdriver.
2. **Remove the controller** by using both hands to pull it loose gently.
3. **Unplug the cables.**

3. CAN Bus

Each control unit must be configured with a CAN bus address (or ID number), to enable multiple units to communicate reliably on the CAN bus (hardware-assignment).
The addresses are configured via DIP-switches.
- For example in a distributed DC power system with several Smartpack controllers, the master is configured with ID #1 and the slave with ID #2 and so on.

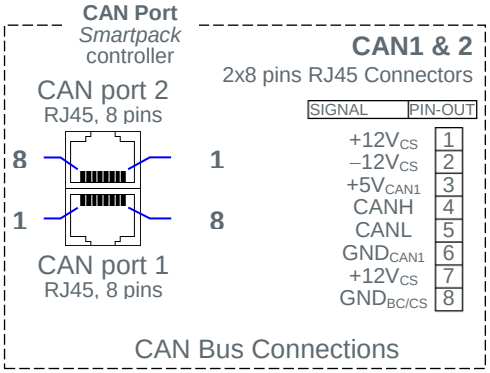


CAN Bus Address Range — Control Units

You can address various numbers of each node type, Smartpack, Controllers, Smartnodes, Battery Monitors, Load Monitors, etc. — to the control system's CAN bus. See table below:

CONTROLLER CAN NODES — CAN ID # RANGE			
CAN Device	**Start**	**End**	**Num. of nodes**
Smartpack / Smartpack R controller	1	8	8
Smartpack2 Basic controller	1	8	8
Smartpack2 Master / Touch controller	11	14	4
Smartnode	17	30	14
Battery Monitor	33	46	14
Load Monitor	49	62	14
FlexiMonitor	65	78	14
I/O Monitors	81	94	14
Mains Monitor	97	110	14

CAN Port Signals — Internal Connections



CAN port 1 and 2 are electrically identical, and are used to enable connection of the CAN bus incoming and outgoing CAT5 cables.

CAN ports' pin 1&2 may supply the slave controller with 12VDC, 16W via the CAN bus.

CAN Bus Termination

To ensure a correct bus communication and avoid data reflection, you must always terminate the CAN bus with a 120Ω resistors.

Eltek power systems are shipped from factory with the CAN bus already terminated with a 120Ω resistors. **The CAN bus** termination is implemented with a special RJ45 plug with built-in 120Ω end-of-line resistor.

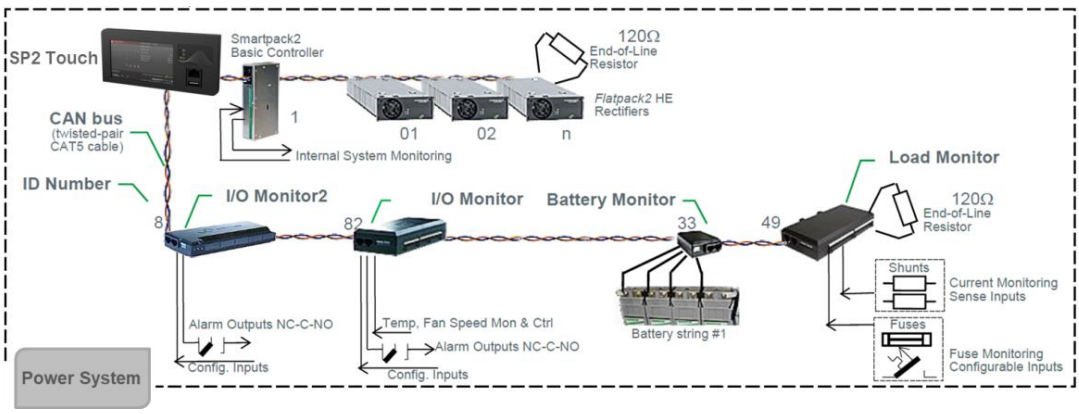


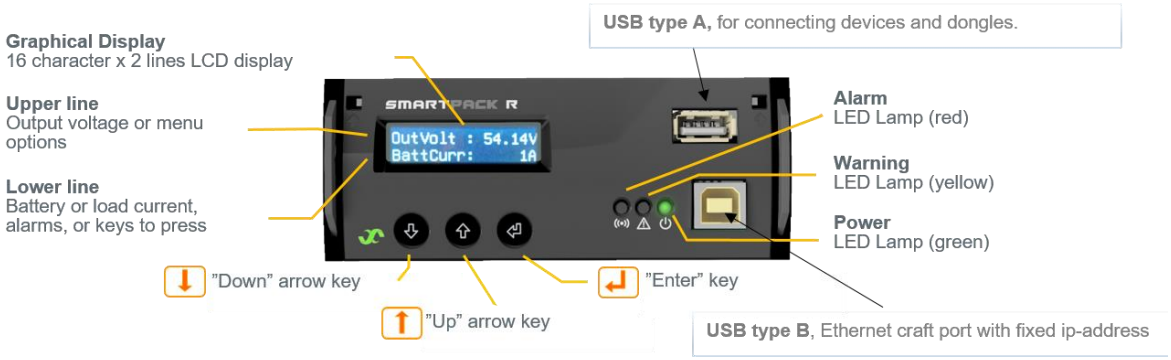
Figure 7: Example of CAN bus addressing and termination in a Smartpack2-based control system with several modules connected the CAN bus.

In addition to the two dedicated wires for communication, the CAN bus multi-wire cable must integrate wires for the CAN power supply and other signals. In standard industrial environments, the CAN bus can use standard cabling without shielding or twisted pair wiring. If very low interference (EMI) is required, a CAT-5 twisted-pair cable is recommended.

4. Front Panel Operation

This section describes the Smartpack R controller display and indicators, and how to operate the Smartpack2-based power system from the controller's front panel.

For detailed functionality description, browse and search through the many topics in the Online Help and Online Controller Functionality pages at the web - see chapter 10 in this user guide.



Modes of Operation in LCD Display

The front panel display have 3 modes of operation:
- Status Mode, User Mode and Service Mode – see figure 8

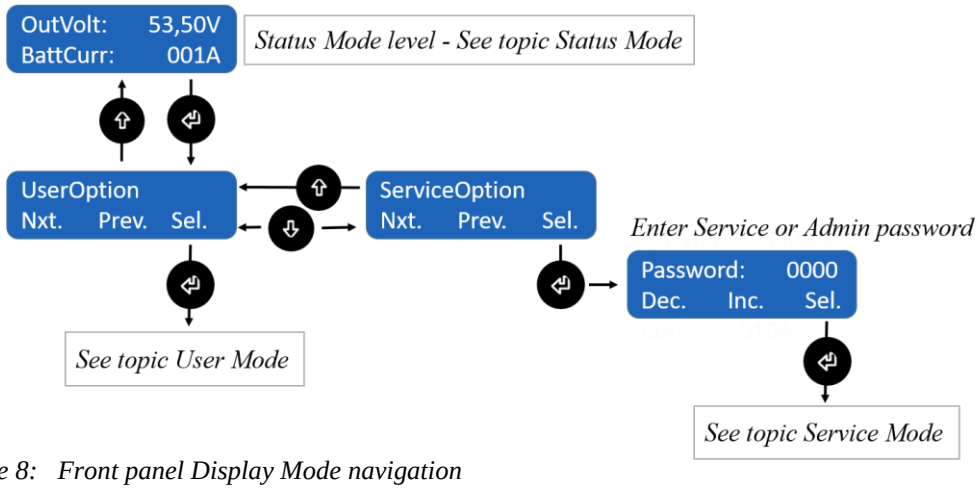


Figure 8: Front panel Display Mode navigation

The display is default in *Status Mode* (displays the system's status), showing the status screens rotating every 2 second or changing with the ⇧ button.

It is from 2 to 19 status screens to display, depending on HW in system and monitors enabled.
- See more in the *Status Mode information chapter*.

Example of display view in status mode:

Depending on the display's mode, the upper line shows the output voltage or menu options, while the lower line displays battery and load current, alarms or information about which key to press.

User Mode

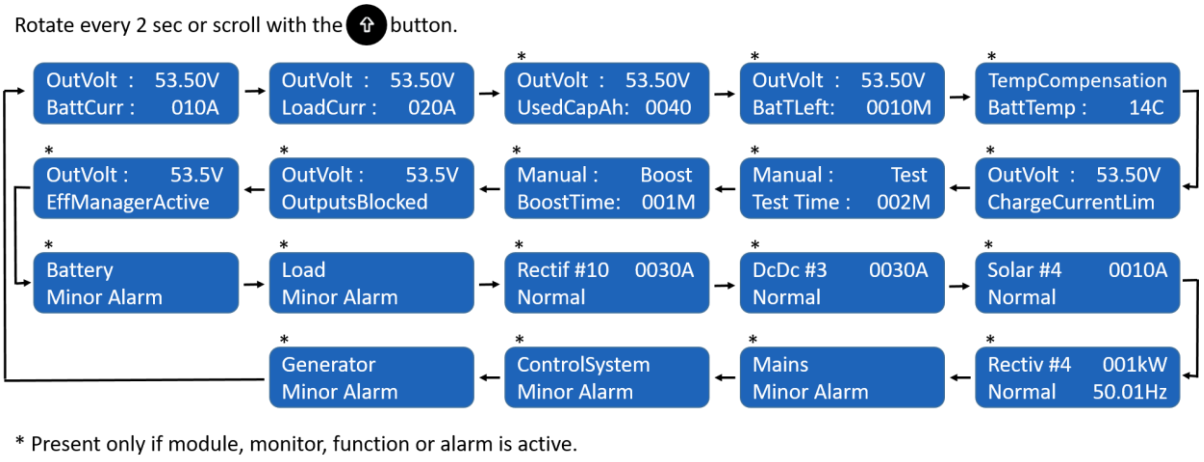
By pressing the ⏎ button when in *Status Mode* (fig.8) you enter *User Mode* where you can read a lot of settings and monitors without entering any password.
- *See more in the User Mode information chapter.*

Service Mode

By pressing the ⏎ + ⇩ button when in *Status Mode* (fig.8) you enter Service *Mode* where you, after entering the Service Mode password, can do a lot of settings.
- *See more in the Service Mode menus chapter.*

Status Mode information

When the front keys are not in operation, the display is in *Status Mode.* The following information is then scrolled through the display depending on which controller/power - modules are connected:



* Present only if module, monitor, function or alarm is active.

Figure 9: Front panel Display "Status mode" information.

User Mode information

When pressing the button when in *Status Mode* you enter *User Mode* where you can read a lot of settings and monitors without entering any password (fig.8)

Notice that if no keys are pressed within 30 seconds, the display will automatically switch from *User Mode* and to back to *Status Mode*.

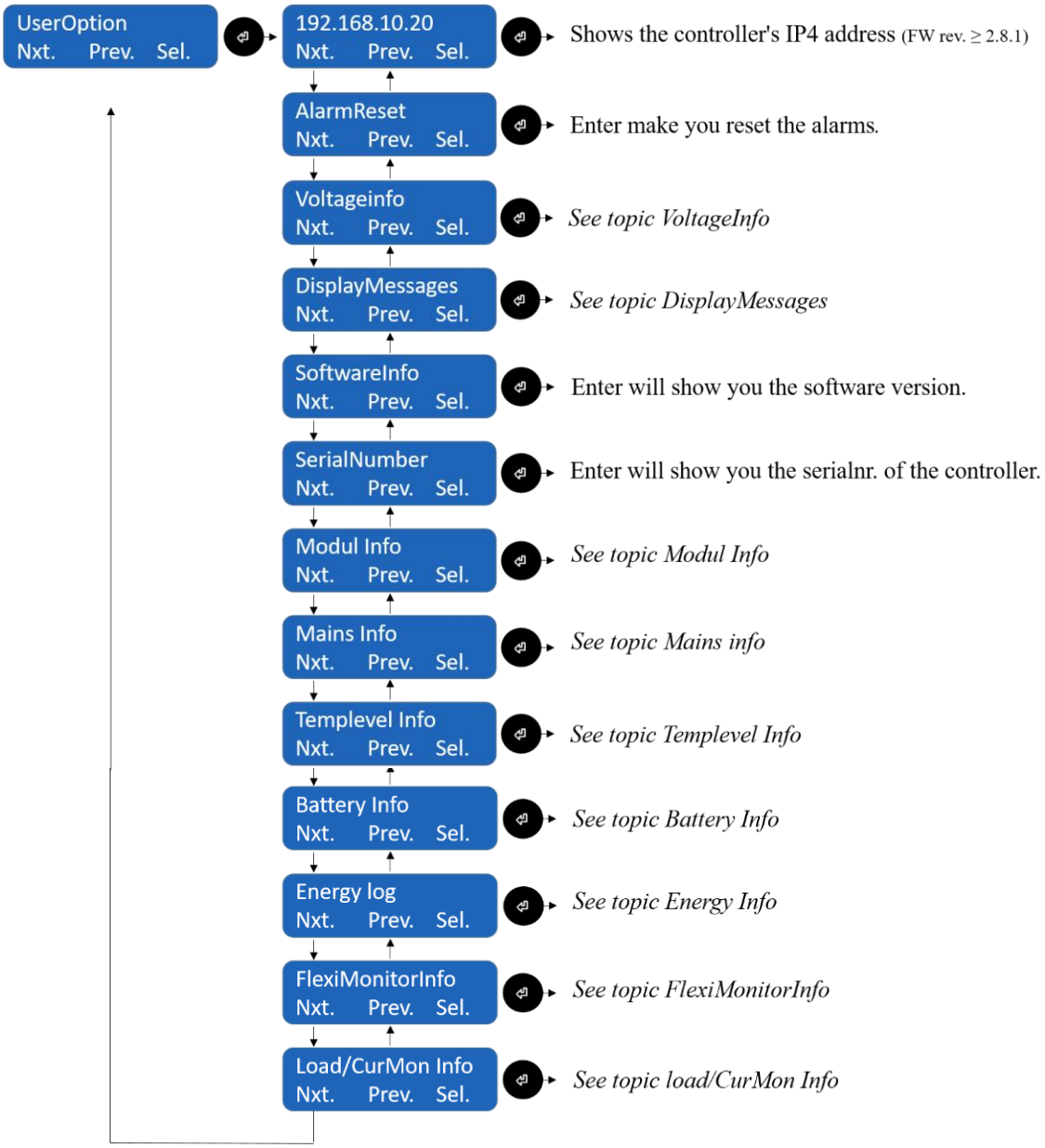
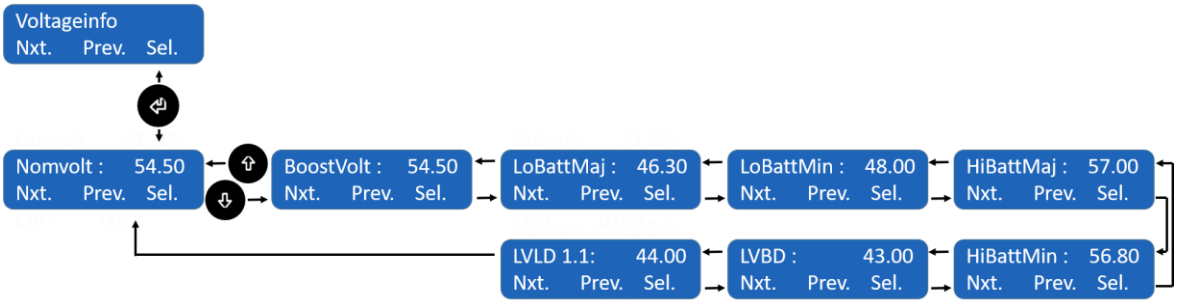


Figure 10: Front panel "Display User Mode" menus.

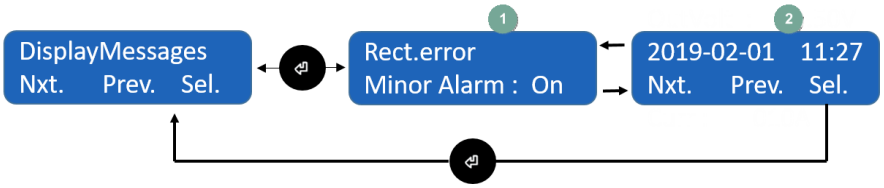
Voltage Info

For the "voltageinfo" display structure: – use ⏎ button to select Voltageinfo and then ⇧ and the ⇩ button to move between the different display':

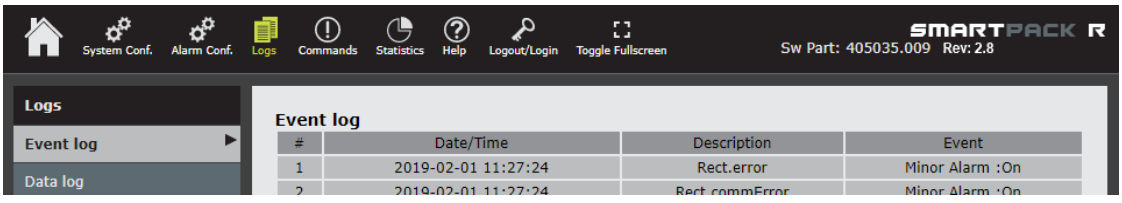


Display Messages

Press "Enter" (Sel.) will display the last event in Event log – for example:



1. Display's the last event description in the event log:



2. Display's the Date/Time for the last event in the event log.

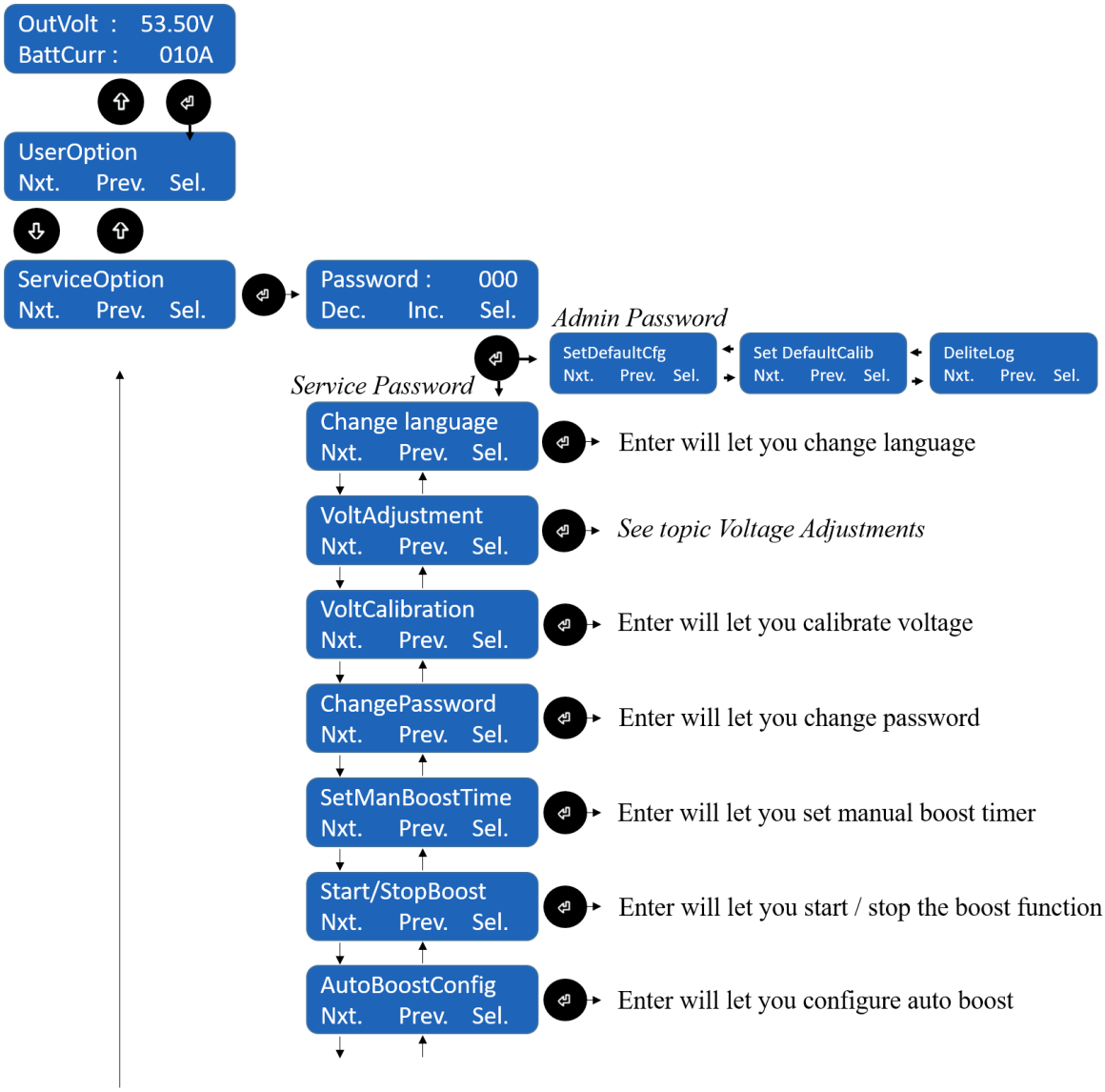
Service Mode menus

To enter *Service Mode* when in *Status mode (fig.8)*:

1. Press the ⏎ button and you entering *User Mode* then:
2. Press ⇩ to get to *Service mode*.

Notice that if no keys are pressed within 30 seconds, the display will automatically switch back to *Status Mode*.

Figure 11-1: Front panel "Display Service Mode" menus.



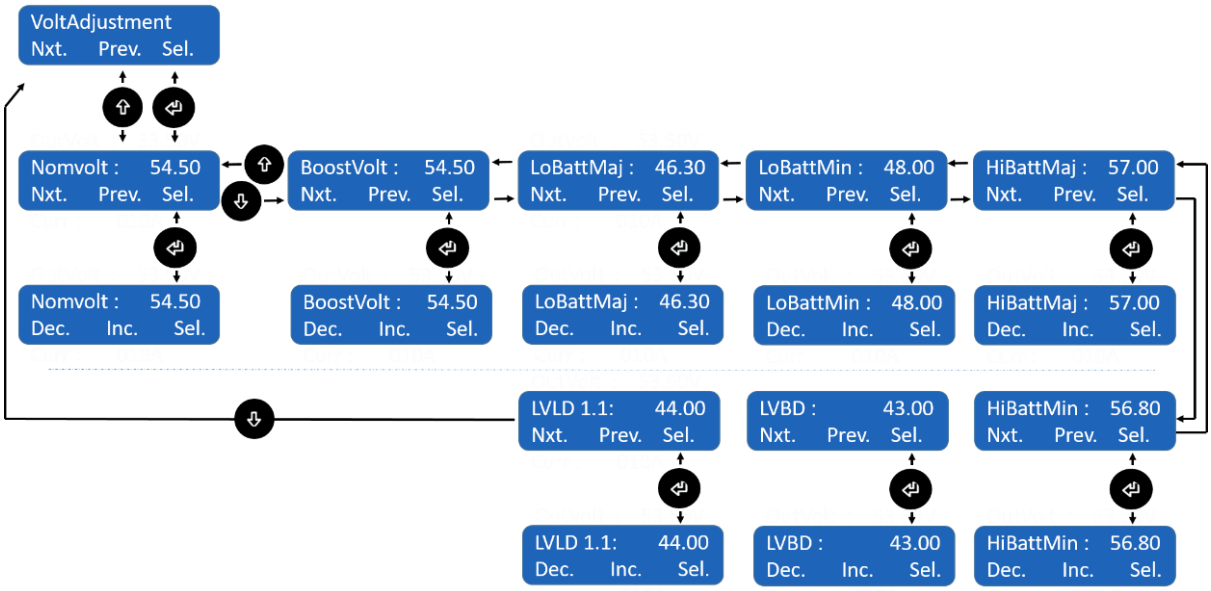
- *Service Mode menu continues on the next page:*

- *Service Mode menu continued from the previous page:*

Figure 11-2: Front panel "Display Service Mode" menus.

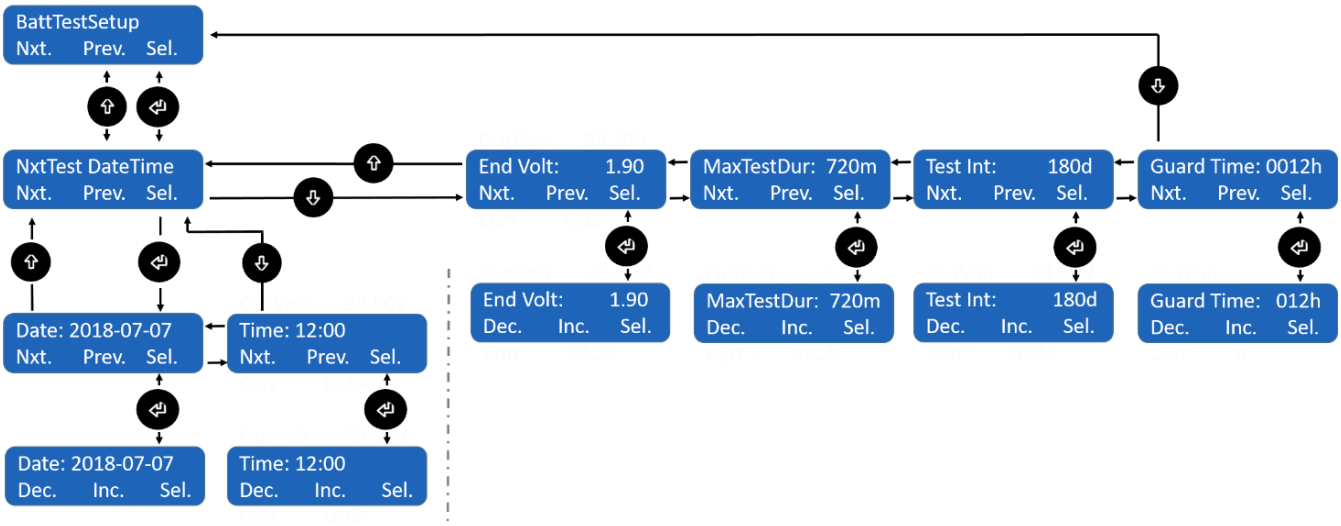
Voltage Adjustments

Service mode *(see figure 11)*, Voltage Adjustments display settings:



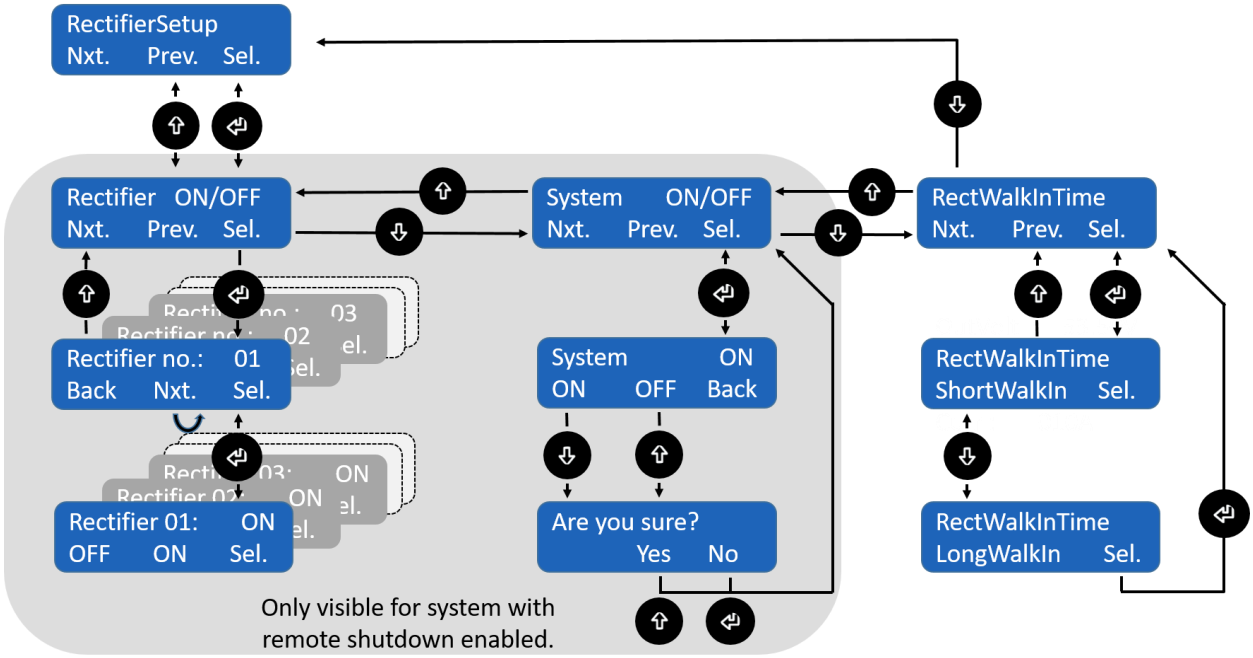
Battery Test Setup

Service mode *(see figure 11)*, Battery Test Setup display settings:



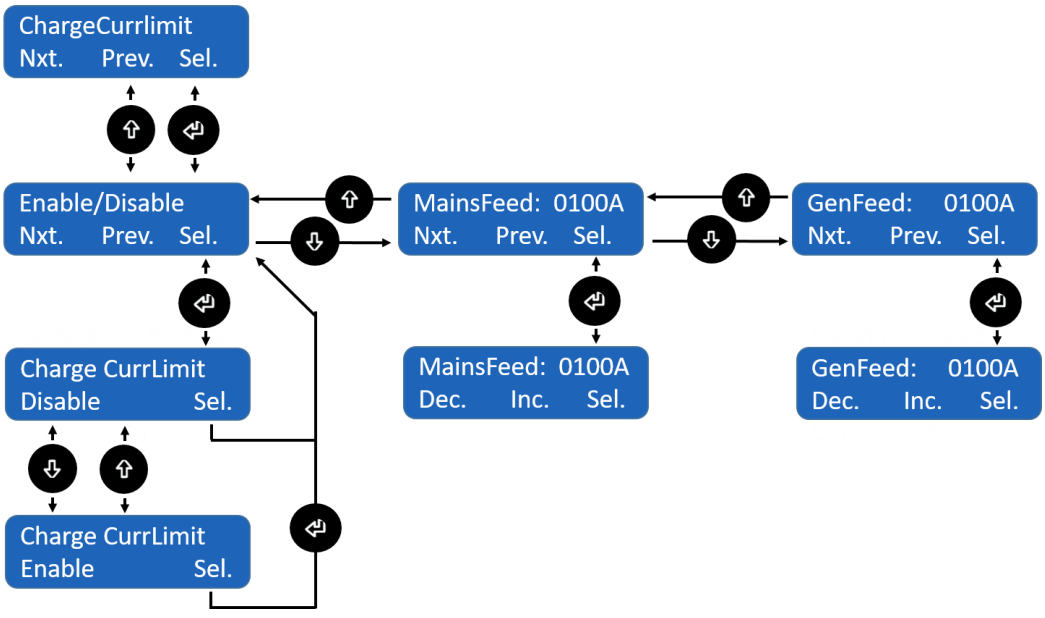
Rectifier Setup

Service mode *(see figure 11)*, Rectifier Setup display settings:



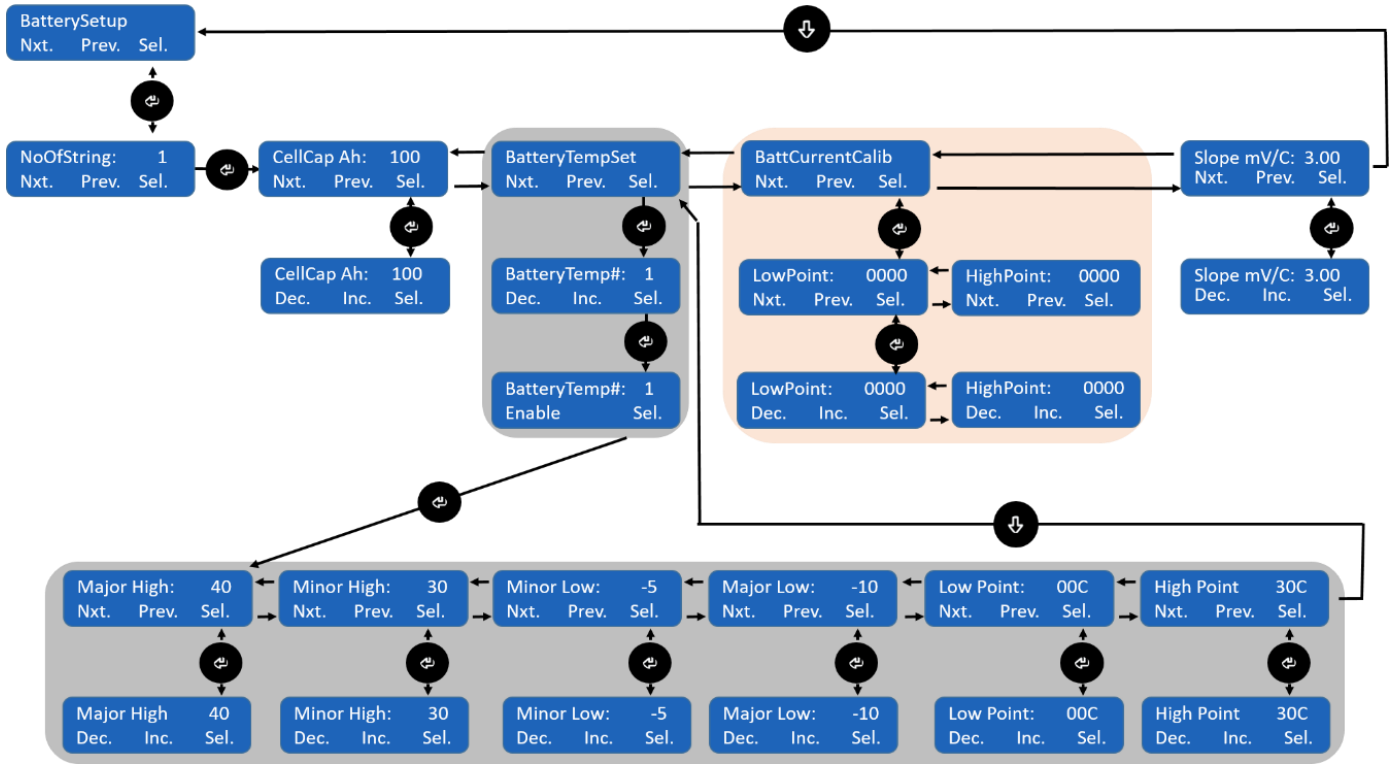
Charge Current Limit

Service mode *(see figure 11)*, Charge Current Limit display settings:



Battery Setup

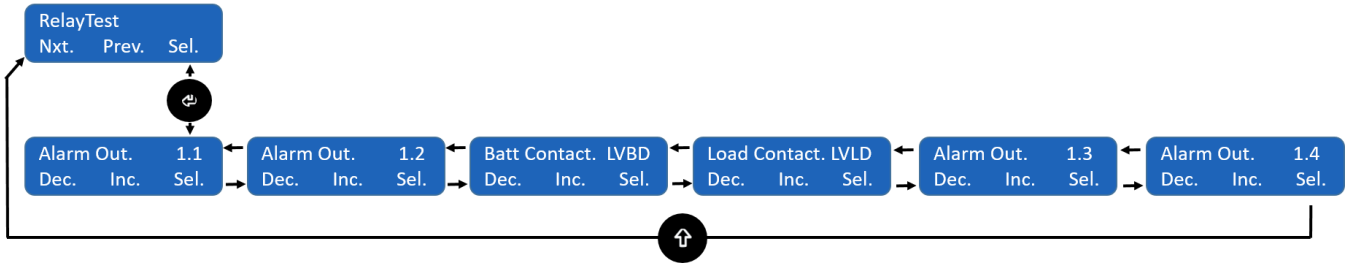
Service mode *(see figure 11)*, Battery Setup display settings:



Relay Test

Service mode *(fig. 11)*, Relay Test display options:

- scroll to the relay you want and select (Sel.) for test.



5. Configuration

The *Eltek* power supply system's functionality represents a vast set of functions, characteristics or capabilities implemented in the hardware and software of the controllers, control units and nodes connected to the system's CAN bus.

You can use following types of user interfaces to access the functions and parameters:

- The Smartpack R controller's front panel user interface
- A standard web browser to access Controller Web-based User Interface

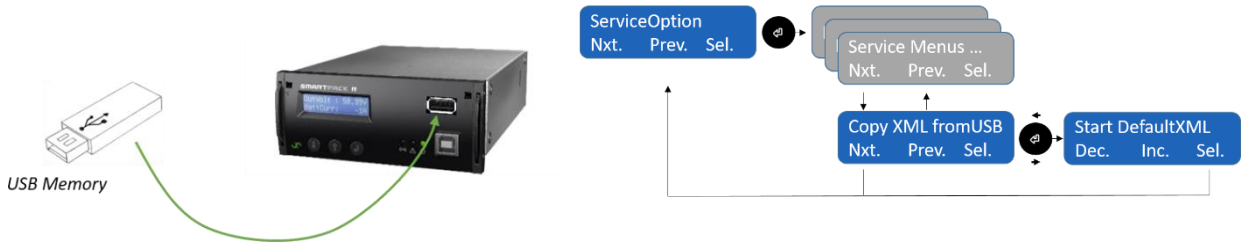
For detailed functionality description, browse and search through the many topics in the Online Help pages at the web (see chap 10, page 41).

Configurations files load / save

Configurations files in XML or HEX format can be load or saved through functions in the:

1. **By uploading from an USB memory connected in the front.**
2. **Configuration transfer from Smartpack by using USB cable.**
3. **Web interface commands section**

Upload XML from USB



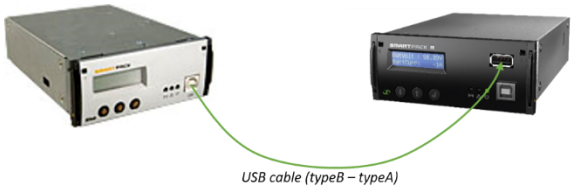
To enter the "*Copy XML from USB"* menu, go to the "Service Option" (see topic *Service Mode menus*) and scroll through the menus until you reach the "*Copy XML from USB":*

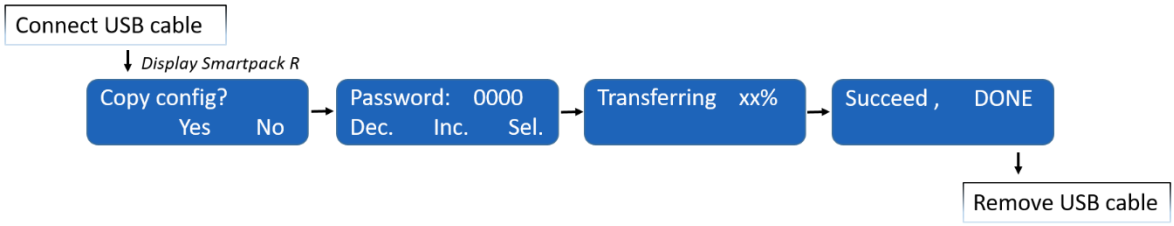
1. The USB memory with the xml files must be connected
   It can maximum be 3 files with the fixed names: Default1.xml, Default2.xml and Default3.xml
2. Press ⏎ button (Sel.) to copy the files from the USB to the Smartpack R Controller.
3. Wait for the files to download from USB.
4. Press ⏎ button (Sel.) to start importing and programing the controller from the XML files.

Configuration transfer from Smartpack

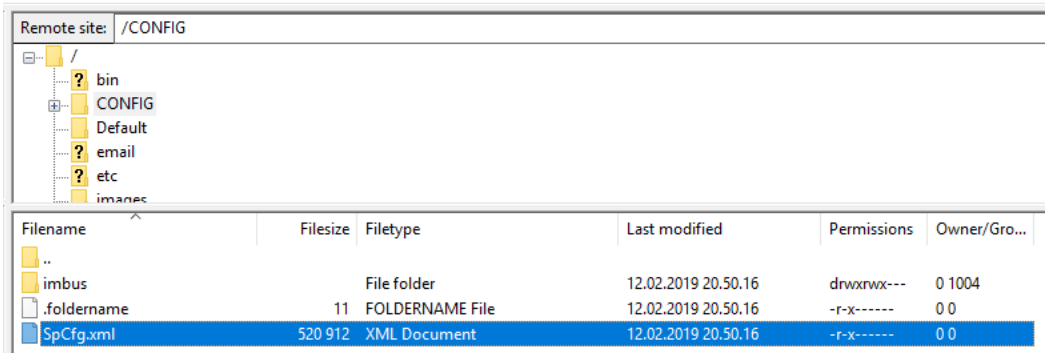
Smartpack R is designed to replace the older Smartpack and have an xml template that can read configuration from the older Smartpack before swapping controllers.

1. Power up the Smartpack R controller next to the Smartpack.
2. Insert USB (typeB – typeA) between the two controllers.
3. Press YES when prompted in display to copy configuration.





The XML template, asking Smartpack for configuration, can be customized for your needs. You will find it in the folder CONFIG with the name SpCfg.xml using ftp (file name is not to be changed).



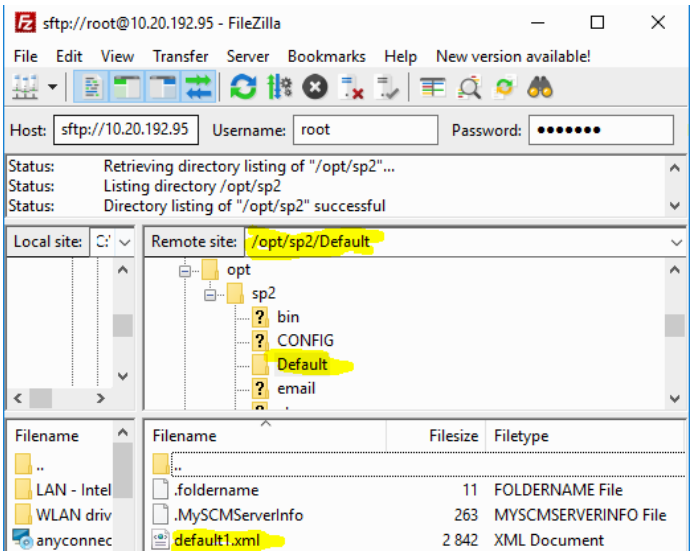
NOTE - *Product cfg, Network settings and calibration is not included in the template file.*

Web interface commands section

XML Default Files

Set Default Configuration with Default-xml files – resets system values using a properly-formatted Eltek XML file. An XML file can be used to configure all controller parameters.

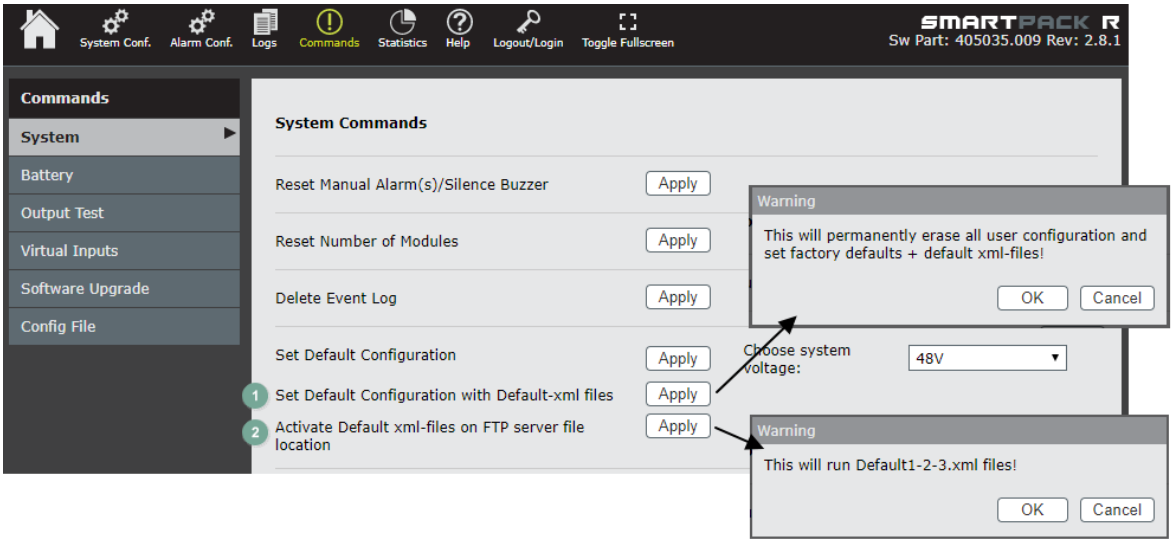
Use ftp to access the “default folder” in the file system ftp://x.y.z.a./opt/sp2/Default:



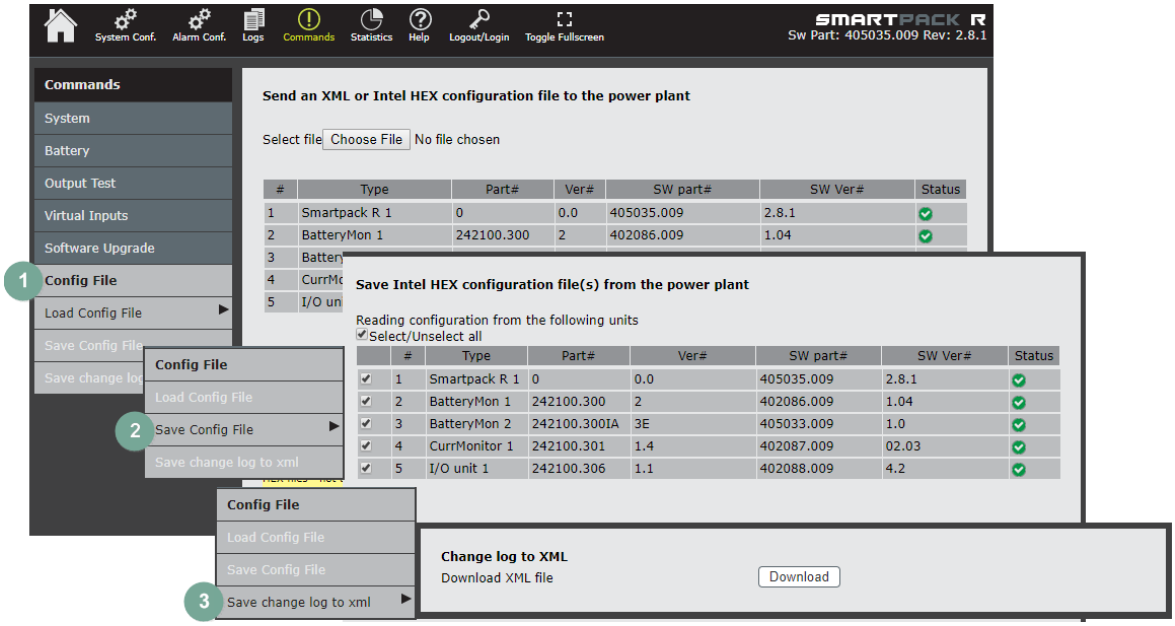
Upload the default files to the file system - up to 3 files where the name of the files should be Default1.xml, Default2.xml and Default3.xml.

Use the controller’s web configuration pages to apply the two alternative function:

1. Using the “Set Default Cfg with default xml-files” the system is first set to Default Configuration and then the 3 xml files will load into the system sequentially.
2. Using the “Activate Default xml-files” the system load the 3 xml files from the Default folder sequentially (without doing a “set default configuration). - Require sw rev ≥ 2.8.1.



Save/Load Configuration files



The “Load/Save Config” pages in the Commands section facilitate loading and saving of controller configuration files.

1. **Load Config File**: - page for loading XML or HEX configuration files from the computer into the controller.
2. **Save Config File**: - page for saving HEX configurations file to the computer.

WARNING - *HEX configuration files must <u>not</u> be used across software revisions!*

3. **Save Change LOG to XML:** - makes a XML fil of changes in configuration for the controller modules.

   Recommended way to make a ChangeLog file is to start with doing a “Set default” for your system. Do the changes and settings you want for your system – then Save Change Log to file and you can have this for backup or for setup to other similar systems.

   Use of the saved Change Log file:

- Load it to a system with the “Load Config Fil” function. (Do a “Set default” first).
- Make it a default fil by renaming to “XML Default Files" (see page 25).

NOTE - *Product cfg, Network settings and calibration is not included in the change file.*
- For configuration values set more than one time, only the latest change is in the file.

6. LED indications

The Smartpack R controller has the following LED indications:

LED Indicator	Represents	Status	Description
Green	Power	OFF ON	NO Power supply Supply OK
Amber	Warning	OFF ON	No Alarm Minor Alarm
Red	Alarm	OFF ON	No Alarm Major Alarm

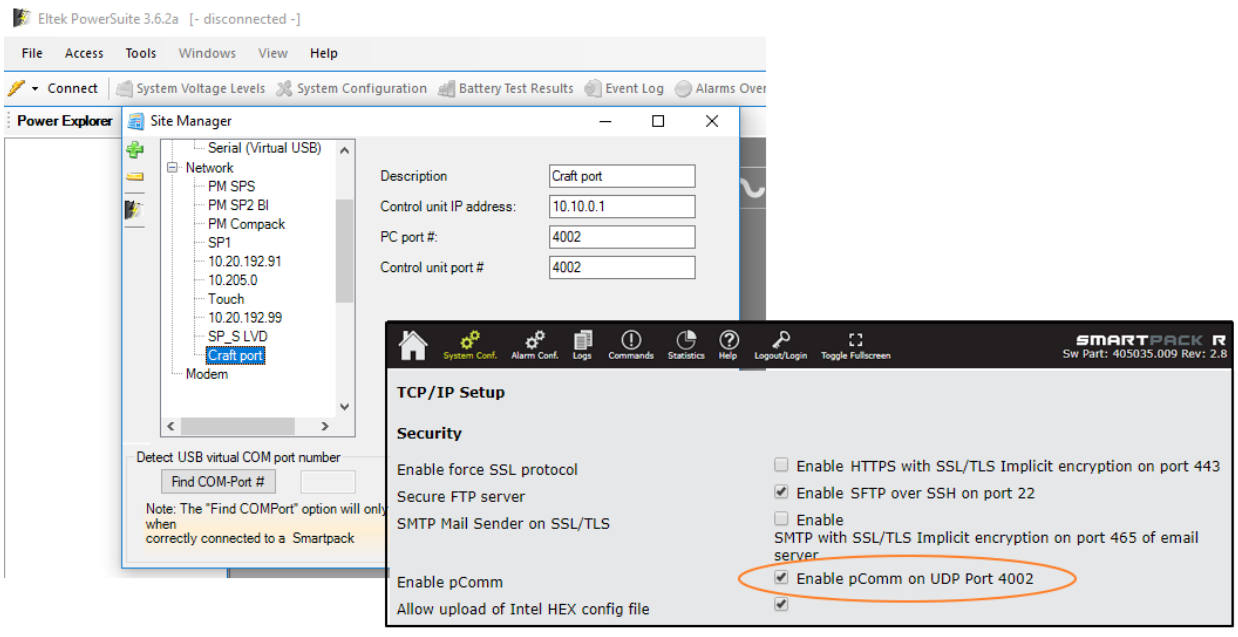
7. Controller Access

Three ways to access the *Smartpack R* controller:

1. **Locally** from a stand-alone computer through the USB type B port in the front. (Fixed IP-adr. 10.10.0.1).
   See the topic “Setting up TCP/IP communication” page 29..

   - Gives you access to the controllers web interface.

   - It’s also possible to use PowerSuite with logon through Network and the craft port address 10.10.0.1.
   (Requires that pComm is enabled (default off) – must be done by using the web interface)



- continued from previous page:

2. **Locally** from a stand-alone computer through a Wi-Fi dongle connected to the USB type a port in the front.
   - Gives you access to the controllers web interface. (Fixed ip-adr. 10.20.0.1)
   See the topic “Setting up TCP/IP communication” page 29.
3. **Remote** through the Local Area Network (LAN) connected to the main Ethernet port located in the rear.

Each controller is shipped with a unique Eltek MAC address stored inside the controller and marked on the controller’s label, and with the default IP address <192.168.10.20> for the Ethernet LAN port.

NOTE

All configuration for the Smartpack R controller requires administrator (admin) permissions.

Setting up TCP/IP communication

You have access to the TCP/IP settings in the web interface when logged in as administrator.

Navigate in to the Device Settings / Network Settings / TCP/IP Setup – where you'll find 5 tabs – eth0, eth, wlan0, wwan0 and eth2.

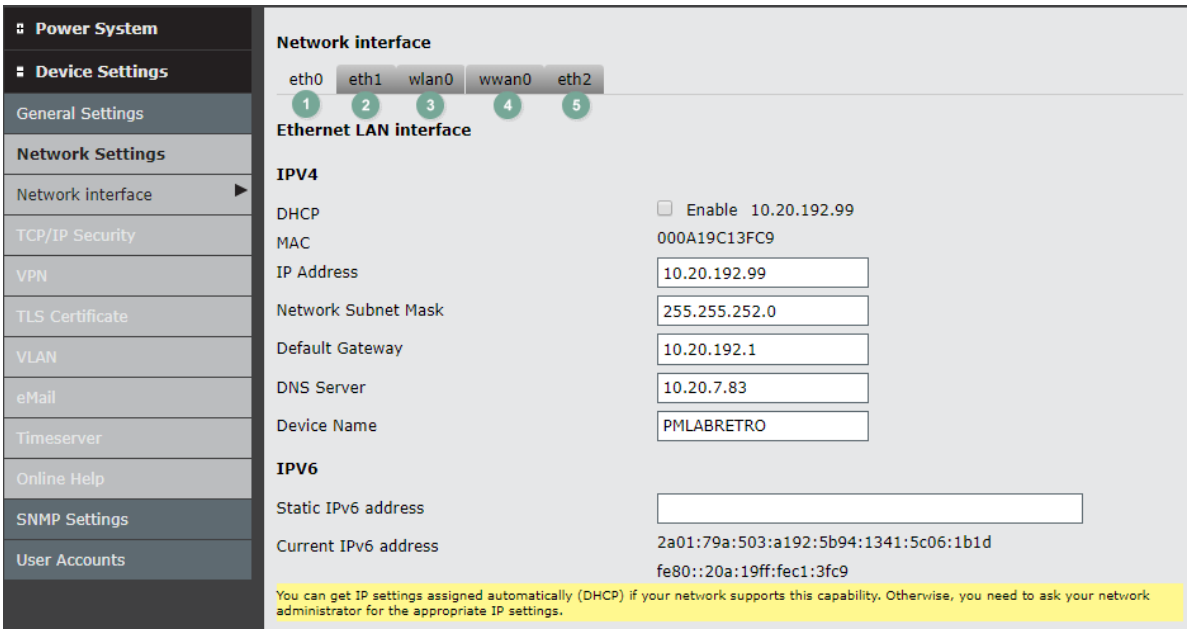


Figure 12: Settings for TCP/IP communication

Each controller is shipped with a unique Eltek MAC address stored inside the controller and marked on the controller's label, and with the default IP address <192.168.10.20> for the Ethernet LAN port.

1. Main Ethernet Port

eth0 Eth0 settings (fig.12).
Setup for the main Ethernet port located on the rear/side of the controller.
The configuration is identical to other Eltek controllers.

2. Ethernet Craft Port

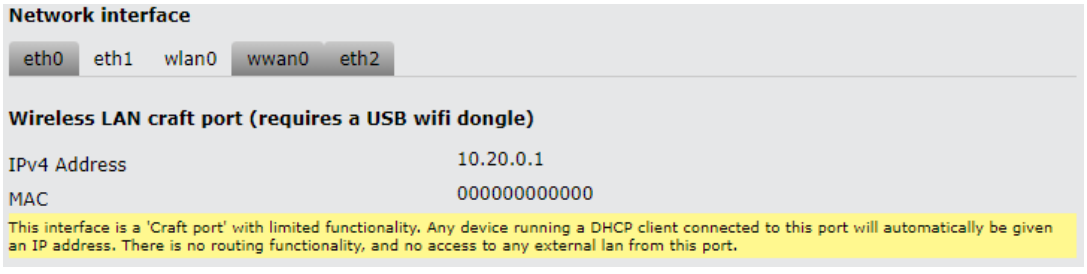
eth1 Eth1 settings (fig.12).
Displaying IP-address for the front Ethernet Craft port where you can connect directly to a PC and log on to the controller with address 10.10.0.1 (not changeable).

3. Wi-Fi Craft Port (USB Wi-Fi Adapter)

wlan0 Wlan0 settings (fig.12).
Displaying IP-address for the front USB Wi-Fi Craft port where you can connect a USB Wi-Fi dongle (not all types supported).

- The Wi-Fi network is given a fixed name = “sp2t_12345” where the numbers is the last 5 of the serial number of the controller.
- Find the network at your device (PC, mobile or tablet)
  connect by using password = network name (“sp2t_12345”)

- Access the controller web pages by address 10.20.0.1 (not changeable).



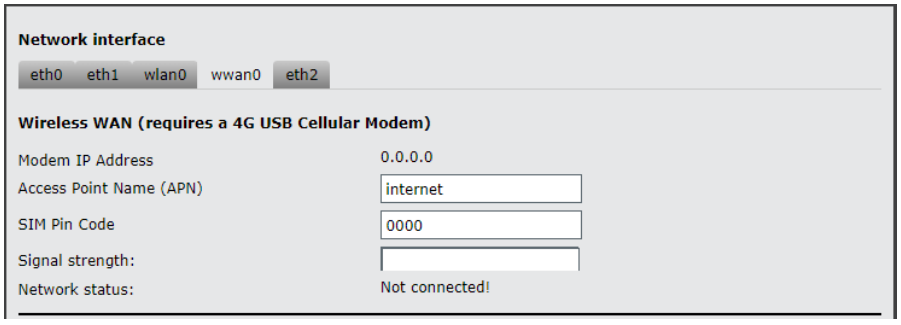
- **The USB port supported types of Wi-Fi dongles for the *wlan0* port at the date of release:**

Manufacturer:	Part name:	Rev info:	Smartpack R Image SW version:
ASUS	N10 Nano	Mfg. year: 2017	2.0
TP-Link	TL-WN722N	V2	2.0
Realtek	Realtek RTL8188EU		2.0
D-Link	DWA-131	Rev E1	2.0

NOTE *The USB port supports a limited range of Wi-Fi dongles.*
For updated list of tested dongles - see Online Controller Functionality web pages.
- URL can be found in Chapter 10 of this user guide.

4. Wireless WAN (USB 4G Cellular Modem)

wwan0 Wwan0 settings (fig.12).

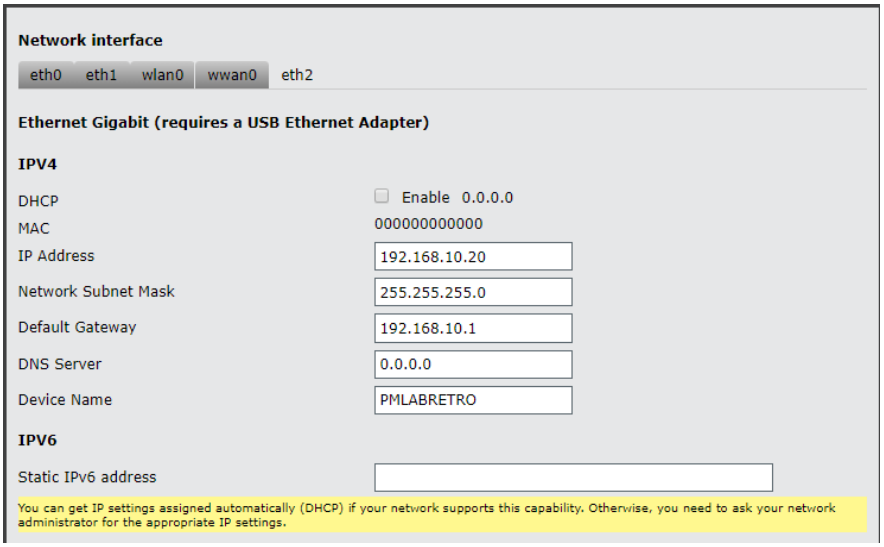


The USB port supported types of 4G Cellular Modem dongles for the *wlan0* port at the date of release:

Manufacturer:	Part name:	Rev info:	Smartpack R Image SW version:
D-Link	DWM-222	Rev A1	2.0

NOTE *The USB port supports a limited range of 4G Cellular dongles.*
For updated list of tested dongles - see Online Controller Functionality web pages.
- URL can be found in Chapter 10 of this user guide.

eth2 Eth2 settings (fig.12).



The USB port supported types of Ethernet Gigabit dongles at the date of release:

Manufacturer:	Part name:	Rev info:	Smartpack R Image SW version:
ExSys	EX-1318		2.0
Plugable	USB2-E1000		2.0
Plugable	USB3-E1000		2.0

NOTE *The USB port supports a limited range of Ethernet Gigabit dongles.*
For updated list of tested dongles - see Online Controller Functionality web pages.
- URL can be found in Chapter 10 of this user guide.

Connecting with ENU

Eltek Network Utility (ENU) program is an administration tool for IP Network connected Eltek power system controllers and is a MS Windows PC application.

NOTE

Free version: *Simple broadcast search, Firmware upgrade and Setup of IP parameters.*

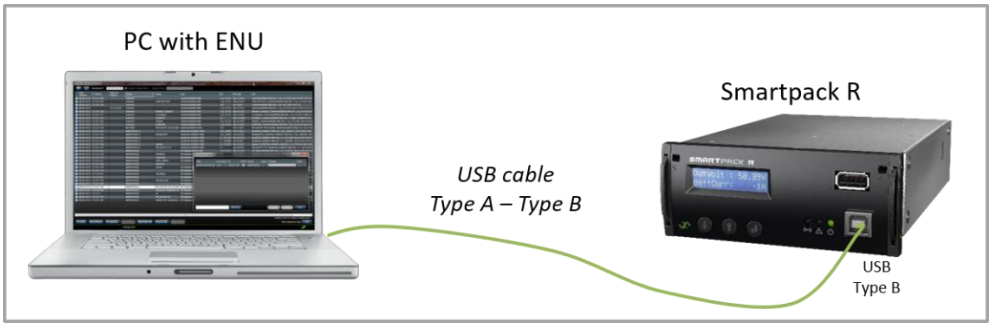
License version: *Advanced subnet and IP range search, Bulk firmware upgrade of controllers, Store «recent search» IP ranges, Bulk xml configuration upload to controllers.*

For license request contact reseller or Eltek support at enu.license@eltek.com

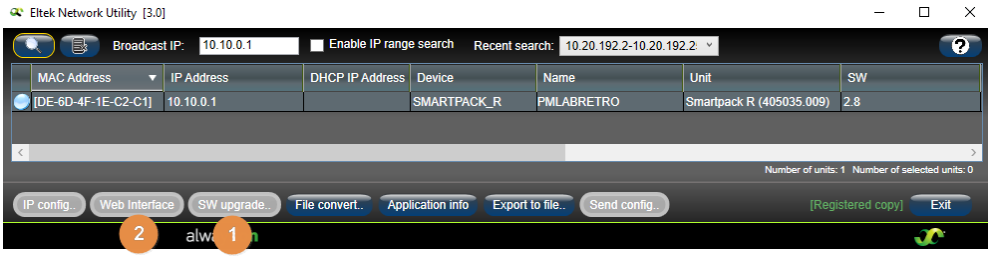
Two ways to access the Smartpack R controller using ENU:

Front USB Craft Port

- Connect direct to the front USB craft port with an USB cable (Type A – Type B).



- Do a search in ENU and the Smartpack R will display with IP address 10.10.0.1



Facilities:

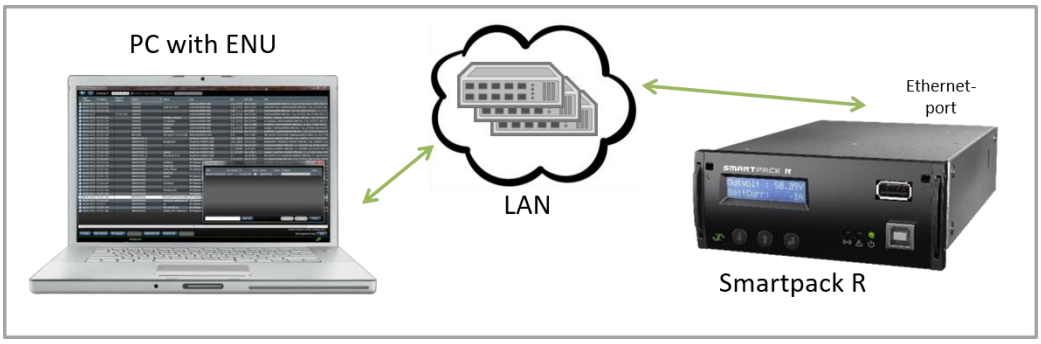
1. SW upgrade - see topic *Firmware Upgrade page 35.*
2. Web interface.
   - opens the Smartpack R web page in your default web browser.

NOTE

Not possible to configure any IP-settings with ENU when connected to the Craft Port (fixed IP) – to configure the network port, use the web interface.
- see page 29.

Ethernet Network

Remote connection from a PC through an Ethernet Network:

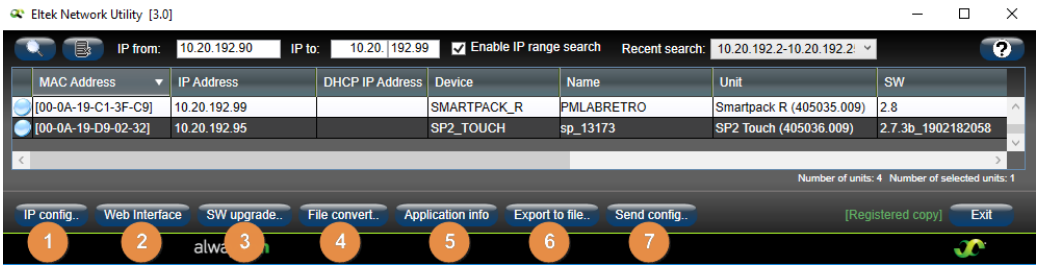


Same subnet:
If the Smartpack R is on the same subnet as your computer – do a broadcast search (IP 255.255.255.255) and the controller will show up.

> NOTE
> *You can check your computer network setup by using the IPCONFIG command in the Command Prompt Window on your computer.*

Outside your subnet:
If the controller is on another subnet - use the Enable IP Range function in ENU and define the range to search (*in licensed version only*).

Facilities:



1. IP Config – opportunities to change IP-configuration settings.
2. Web Interface - opens the Smartpack R web page in your default web browser.
3. SW Upgrade - see topic *Firmware Upgrade page 35.*
3. File Convert – converts software (.s19) files to binary files.
4. Export to file – saves controller info to a xml-file
5. Send Config – send system configurations files (xml) to one or several controllers.

8. Firmware Upgrade

The Smartpack R controller have two types of software: an operating system (OS) and the application software. These can be updated separately or as a package.

We recommend to use the "package" with file name:

405035.009_UPPDATE-FULL_x.x.CRY

- that contains all the necessary elements and ensures proper installation.

Downloading software to a Smartpack R can be done in 3 ways:

1. Using ENU (Eltek Network Utility)
2. Download from USB memory stick
3. Download via SFTP using any free open source FTP client.

Upgrading the firmware does not delete or change any of the configuration and calibration values stored in the controllers.

NOTE

All configuration for the Smartpack R controller requires administrator (admin) permissions.

Software download using ENU (remote)

A quick and easy way to download software for a Smartpack R is to use the ENU program (The Eltek Network Utility) - a Windows-based software that download SW from your PC to the controller through Ethernet LAN using SFTP.

1. **Enter the ENU program** (sw rev ≥ 3.1), search and find your controller and click "SW upgrade".
2. **Open the upgrade fil *405035.009_UPPDATE-FULL_x.x.CRY***
   -to ensure correct upgrade sequence. If loading the files separately, it's crucial to install the two file in correct order: 1. Image and 2. Application
3. Click "Submit"
4. Fill inn user authentication level 3 (administrator) to start updating the controller.

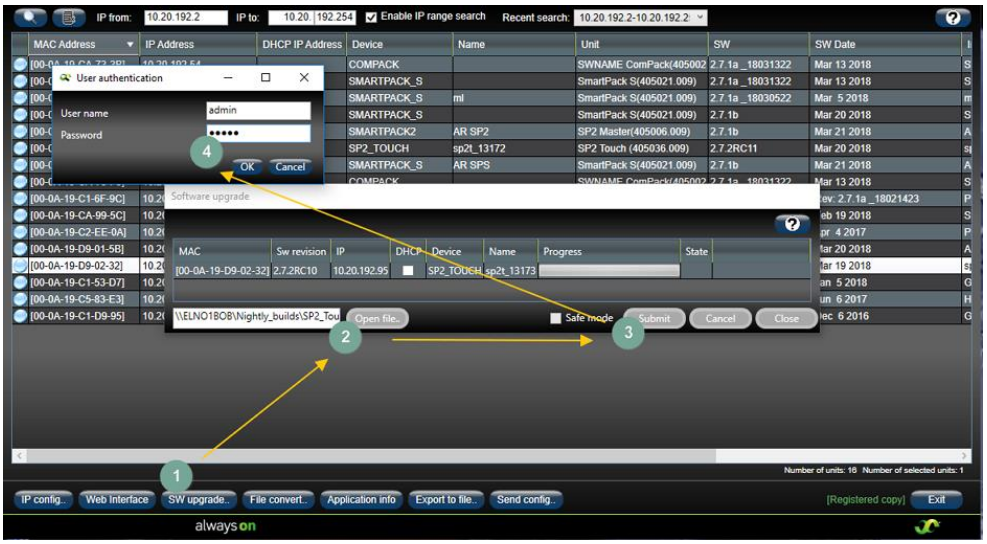


Figure 13: Software download using ENU – sequentially from 1 to 4.

Software download using USB memory (local)

An easy on-site option to load SW to the Smartpack R is to use a USB memory stick:
(*For other can modules – see topic SW for CAN nodes, page 38.)*

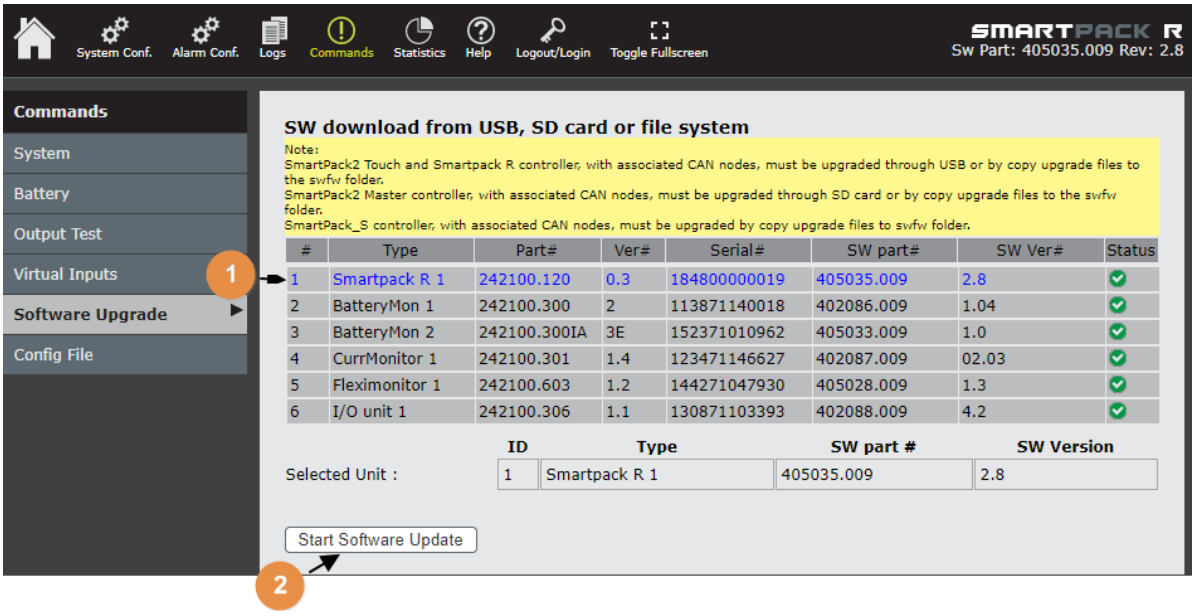
- **Download the .CRY file to the USB stick:**

Packed SW (recommended): 405035.009_UPPDATE-FULL_x.x.CRY
- must be renamed to SMARTPACK_R.CRY *
(SW package consisting of corresponding Image and Application SW and ensure correct upgrade sequence.)

or If loading the files separately, it's crucial to install the two file in correct order:
1. Image *(depending on corresponding Application fw)* - named IMAGE.CRY
2. Application *(depending on corresponding Image sw)* – named SMARTPACK_R.CRY

* Please note that after renaming, the "packed file" has the same name as a clean application file.

- **Plug in the USB stick in the USB slot.**
- **Use a web browser in the PC and access "Command/Software Upgrade" to start the Software Update process.**
- **Mark by clicking the Smartpack R in the list and click the "Start Software Update". The installation will take about 10 min.**



Main status on display when updating Smartpack R with "UPDATE_FULL":
(- if the OS or the application SW is up-to-date, the controller will skip these parts of the installation. If both are up-to-date, the controller will show the message "completed" after a short time.)

Software download via SFTP (remote)

1. **From remote log on to the Smartpack R through sftp://<ip.adr.>/swfw/ and use your admin (level 3) username and password.**

NOTE

You can use any open source FTP client – FileZilla, WinSCP etc.

- **Copy the software file into the swfw folder:**

Packed SW (recommended): 405035.009_UPPDATE-FULL_x.x.CRY
(SW package consisting of corresponding Image and Application SW and ensure correct upgrade sequence. No name change required as for upload from USB.)

or

If loading the files separately, it's crucial to install the two file in correct order:
1. Image *(depending on corresponding Application fw)*
2. Application *(depending on corresponding Image sw)*

- **The Software update process will start automatically** when the software is copied into the swfw folder with right filename and designator.

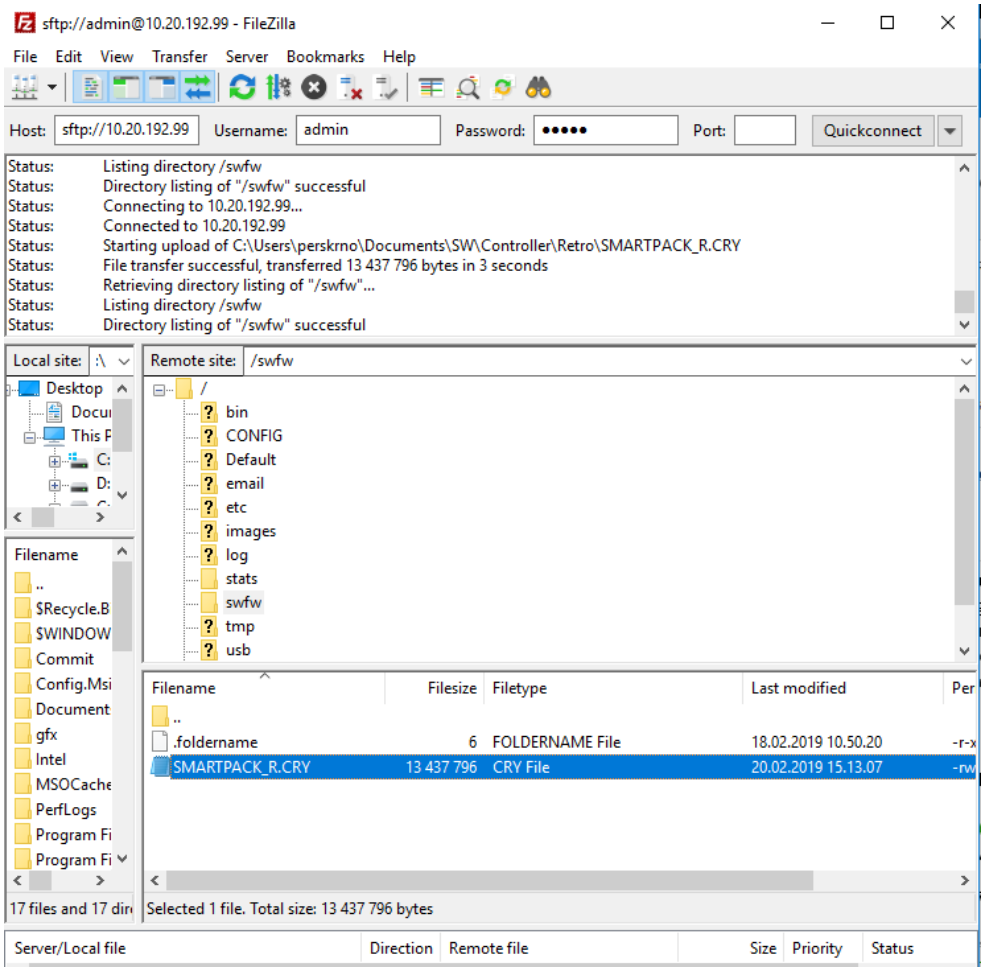
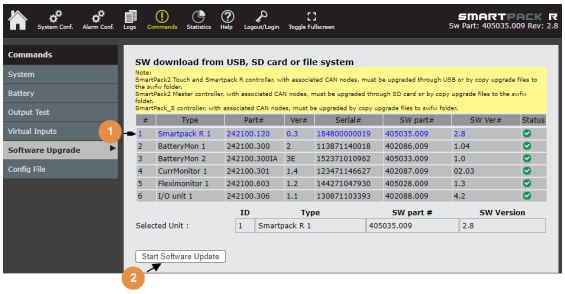


Figure 14: File structure in the Smartpack R and where to put the software update file. (- shown here using a freeware FileZilla client.)

Software for CAN nodes

SW for CAN nodes can be loaded into this swfw folder via SFTP or USB memory, and upgraded trough the same process in the PC browser in the menu "Command/Software Upgrade".



The upgrade files must have predefined filename according to the list below:

Type	HW Part#	SW Part#	Fil name	Comment
SmartPack R	242100.120	405035.009	405035.009_UPPDATE-FULL_x.x.CRY (From USB rename to: SMARTPACK_R.CRY) SMARTPACK_R.CRY IMAGE.CRY	Recommended sw package (cons.of A&I) A) - Application I) - Image (OS)
BatteryMonitor V1	242100.300	402086.009	BATTMON.HEX	
BatteryMonitor V2	242100.300IA	405033.009	BATTMON2.s19	
IO Unit - outdoor - type3 - type2	 242100.304 242100.306 242100.502	402088.009	IO_UNIT.HEX	
LoadMonitor	242100.301	402087.009	LOADMON.HEX	
MainsMonitor	242100.305	402093.009	MAINSMON.HEX	
FlexiMonitor	242100.603	405028.009	FLEXIMON.s19	

Figure 15: List of Software update file names for different controllers.

NOTE

All firmware upgrade and configuration files stored in the swfw folder or USB memory must have specific file names named in uppercase letters.

WARNING

Uploading the firmware (specially the OS) may take a long time. Do not power down the system or controller during firmware upgrade, as it may corrupt the program memory and require service of the unit.

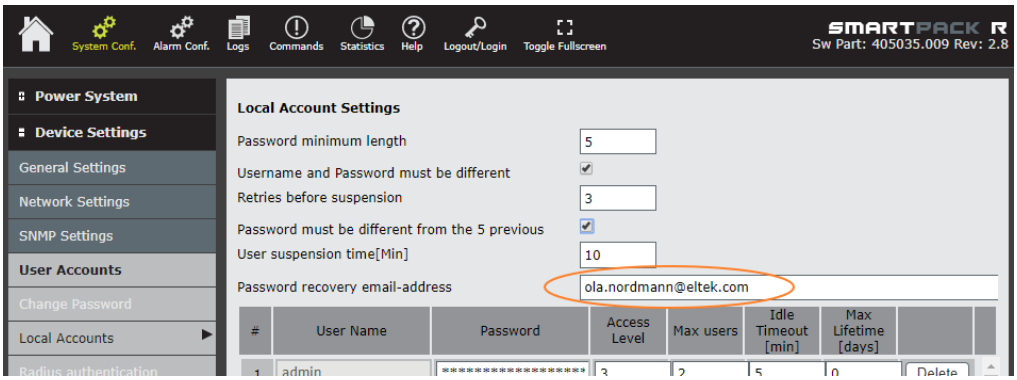
9. Master password

If you have forgotten the password to log in to the Smartpack R, you have to use the Master Password function, that you find in the controller's web interface, to reset all user accounts with associated passwords.

Setup

IMPORTANT

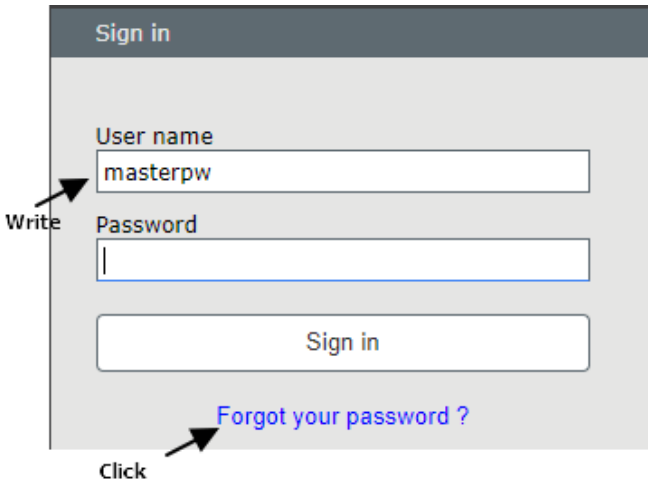
To be able to receive a Master Password - be sure that the **Recovery Email** is filled out:



How it works

1. **When in the "sign in window" and have forgotten the password:**

   - Write *"masterpw"* in the user field.
   - Press the "tab" key
   - Click the *"Forgot your password"* link.



2. **After clicking the "Forgot your password" link - a new page for requesting the Master Password appears:**

Two ways to ask for the Master Password:

1. Click on the mail link and a generated email will show up - send it!
2. Use your phone with a QR-code reader and scan the code and a generated email will show up - send it!

3. Once you have sent the Master Password email request, you will return an email to the email address stored in the "Recovery Email Address" field.

For more details – see the Online Help pages at the web.

WARNING

When you have used the Master Password function, the user names and passwords of all the accounts are set back to default., you must now log in with the default users and passwords admin, status, and control.

Every custom made accounts will be deleted!

10. References

Technical Specifications

For technial spesification: – see the Datasheet Smartpack R
(Can be downloaded from eltek.com/products/smartpack-r-controller/)

Online Help

For detailed functionality description, browse and search through the many topics in:

- Online Help for Controller Functionality –
  onlinehelp.eltek.com/functionality2/
  - an online manual with controller functionality specific topics.

- Online Help –
  onlinehelp.eltek.com/cwui/
  - an online manual which covers a bit of everything in the Eltek Power System.

NOTE

- you must log in to access Online Help and Online Controller Functionality - contact your Eltek representative for a username and password.

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www.eltek.com
For local offices - www.eltek.com/contact

Eltek Norway
+47 3220 3200
Visiting address: Gråterudveien 8, 3036 Drammen
Postal address: PO Box 2340 Stromso, 3003 Drammen