Leading Conversion Technology for Power Resilience

INVIEW FIT

Firmware 7.5

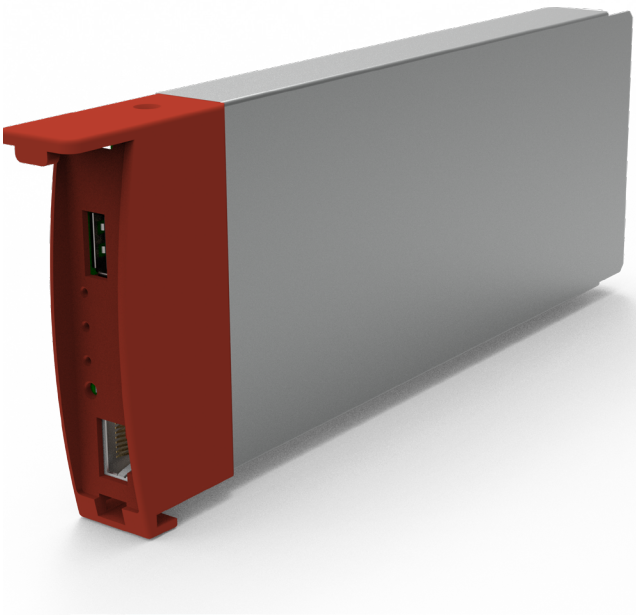
User Manual

MONITORING & CONTROL DEVICES:

- Manages your infrastructure
- Informs the user in case of issues
- Minimises maintenance expenditures
- Leverages the possibilities of IoT & Big data
- Decrease electricity costs with this advanced energy management system

CONTROLLER FOR BRAVO 25 AND BRAVO 25-R

Bravo Retrofit Replacement



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Version 1.0

Leading Conversion Technology for Power Resilience

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Release Note

Version	Release date (DD/MM/YYYY)	Modified page number	Modifications
1.0	26/10/2026	-	First release of the manual

1. CE+T Power at a glance

CE+T Power is your trusted partner in **advanced power solutions** engineered to meet the demands of modern and dynamic industrial applications. With over 60 years of experience in power conversion technology, CE+T Power nurtures the industry with **innovative solutions designed for critical power backup and energy management.**

Our complete range of power solutions includes **modular inverters** (DC to AC), UPS (securing AC loads with batteries), and **multi-directional converters** (inverter, rectifier, and UPS all-in-one). Coupled with our state-of-the-art **monitoring solution**, you have a real energy blender to connect multiple sources of energy seamlessly!

Whether you require **robust backup power solutions**, **energy management solutions**, **or a combination of both**, CE+T Power delivers tailored solutions to meet your specific needs. Our products are **designed with integration in mind, ensuring seamless compatibility with other components of your system**. CE+T Power is committed to providing you with the expertise and resources needed to maximize the performance of your power systems.

Thank you for choosing CE+T Power as your partner in advanced power management. Let's power the future together.

2. Abbreviations

AC	Alternating current
AL	Alarm
DC	Direct current
DHCP	Dynamic Host Configuration Protocol
DSP	Digital Signal Processor
ECI	Enhanced Conversion Innovation
EPC	Enhanced Power Conversion
ESD	Electro Static Discharge
ETH	Ethernet
HTTP	HyperText Transfer Protocol
HTTPS	Secure HyperText Transfer Protocol
LAN	Local Access Network
LVD	Low Voltage Disconnect
MBB	Measure Box Battery
MBP	Manual By-pass
MET	Main Earth Terminal
MIB	Management Information Base
N	Neutral
NTP	Network Time Protocol
NT/KO	Not Okay
NUA	Non-Urgent Alarm
PCB	Printed Circuit Board
PE	Protective Earth (also called Main Protective Conductor)
PEK	Power Extension Kit
PWR	Power
REG	Regular
SNMP	Simple Network Management Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol
TRS	True Redundant Structure
UA	Urgent Alarm
USB	Universal Serial Bus

3. Warranty and Safety Conditions*

WARNING:

Except Inview XC, the electronics in the power supply system are designed for an indoor, clean environment.

When installed in a dusty and/or corrosive environment, outdoor or indoor, it is important to:

- Install an appropriate filter on the enclosure door, or on the room's air conditioning system.
- Keep the enclosure door closed during operation.
- Replace the filters on a regular basis.

Important safety instructions, save these instructions.

3.1 Disclaimer

- The manufacturer declines all responsibilities if equipment is not installed, used or operated according to the instructions herein by skilled technicians according to local regulations.
- Warranty does not apply if the product is not installed, used and handled according to the instructions in the manuals.

3.2 Technical care

- This electric equipment can only be repaired or maintained by a "qualified employee" with adequate training. Even personnel who are in charge of simple repairs or maintenance are required to have knowledge or experience related to product maintenance.
- Please follow the procedures contained in this Manual, and note all the "DANGER", "WARNING" AND "NOTICE" marks contained in this Manual. Warning labels must not be removed.
- Qualified employees are trained to recognize and avoid any dangers that might be present when working on or near exposed electrical parts.
- Qualified employees understand how to lock out and tag out machines so the machines will not accidentally be turned on and injure employees working on them.
- Qualified employees also understand safety related work practices, including those by OSHA and NFPA, as well as knowing what personal protective equipment should be worn.
- All operators are to be trained to perform the emergency shut-down procedure.
- Never wear metallic objects such as rings, watches, or bracelets during installation, service and maintenance of the product.
- Insulated tools must be used at all times when working with live systems.
- When handling the system/units pay attention to sharp edges.

* These instructions are valid for most CE+T Products/Systems. Some points might however not be valid for the product described in this manual.

3.3 Installation

- This product is intended to be installed only in restricted access areas.
- The Inverter System may contain output over current protection in the form of circuit breakers. In addition to these circuit breakers, the user must observe the recommended upstream and downstream circuit breaker requirements as per the local regulations.
- Please use extreme caution when accessing circuits that may be at hazardous voltages or energy levels.
- The modular inverter rack is a dual input power supply. The complete system shall be wired in a way that both input and output leads can be made power free.
- In REG systems, to comply with local and international safety standards the N (output) and PE shall be bonded. The bonded connection between N (output) and PE must be removed once the AC input is connected.
- AC and DC circuits shall be terminated with no voltage / power applied.
- The safety standard IEC/EN62040-1-1 requires that, in the event of an output short circuit, the inverter must disconnect in 5 seconds maximum. The parameter can be adjusted on Inview controller; however, if the parameter is set at a value > 5 seconds, an external protection must be provided so that the short circuit protection operates within 5 seconds. Default setting is 60 seconds.
- The system is designed for installation within an IP20 or IP21 environment. When installed in a dusty or humid environment, appropriate measures (air filtering) must be taken.
- All illustrations in the manual are for general reference.

3.3.1 Handling

- The cabinet shall not be lifted using lifting eyes.
- Remove weight from the cabinet by unplugging the inverters. Mark inverters clearly with shelf and position for correct rebuild. This is especially important in dual or three phase configurations.
- Empty module positions must not be left open. Replace with dummy cover.

3.3.2 Surge and transients

The mains (AC) supply of the modular inverter system shall be fitted with Lightning surge suppression and Transient voltage surge suppression suitable for the application at hand. Manufacturer's recommendations of installation shall be adhered to. Selecting a device with an alarm relay for function failure is advised.

Indoor sites are considered to have a working lightning surge suppression device in service.

- Indoor sites Min Class II.
- Outdoor sites Min Class I + Class II or combined Class I+II. The modular inverter system/rack can reach hazardous leakage currents. Earthing must be carried out prior to energizing the system. Earthing shall be made according to local regulations.

3.3.3 Other

- Isolation test (Hi-Pot) must not be performed without instructions from the manufacturer.

3.4 Maintenance

- The converter system/rack can reach hazardous leakage currents. Earthing must be carried out prior to energizing the system. Earthing shall be made according to local regulations.
- Prior to any work conducted to a system/unit, make sure that AC input voltage and DC input voltage are disconnected.
- Prior to accessing the system or modules, make sure all source of supply is disconnected.
- CAUTION – Risk of electric shock. Capacitors store hazardous energy. Do not remove cover until five minutes after disconnecting all sources of supply.
- Some components and terminals carry high voltage during operation. Contact may result in fatal injury.

3.5 Replacement and Dismantling

- ESD Strap must be worn when handling PCBs and open units.
- CE+T cannot be held responsible for disposal of the Inverter system and therefore the customer must segregate and dispose of the materials which are potentially harmful to the environment, in accordance with the local regulations in force in the country of installation.
- If the equipment is dismantled, to dispose of its component products, you must comply with the local regulations in force in the country of destination and in any case avoid causing any kind of pollution.

Note: To download the latest documents, please visit our website *www.cet-power.com* and to download latest software visit our website *my.cet-power.com*.

4. Introduction

4.1 Inview FIT

The Inview Fit is an advanced monitoring and control unit for the Bravo 25 and Bravo 25-R power systems. System data is accessed through the web interface, the Modbus protocol, or the SNMP protocol.

The Inview FIT is compatible only with Bravo 25 - 48/230-277 and Bravo 25-R 48/230-277 systems equipped with Bravo 25 (= ECI) and Bravo 25-R (=TSI) shelves.

The Inview Fit interface provides the user access to the configuration and the setup files of the system modules. This unit also controls the DC regulation.

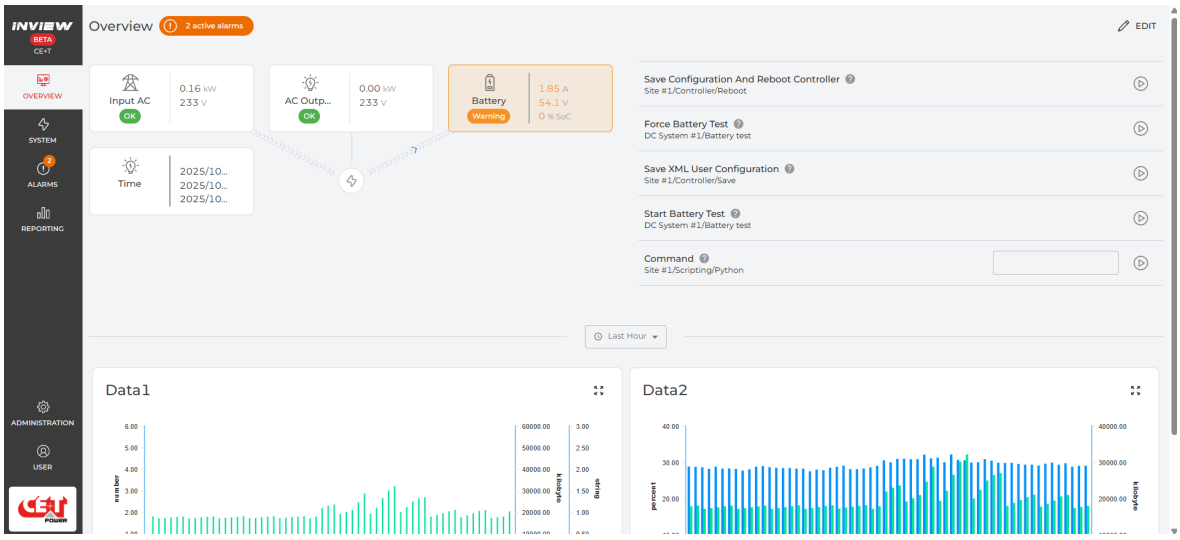


The Inview Fit unit includes these components and functions:

- It monitors a maximum of 32 converters.
- Three LEDs show a major alarm, a minor alarm, and the system status.
- Two digital inputs and three output relay contacts are on the rear part of the shelves.
- USB and Ethernet connections

4.2 Inview web interface

The Inview FIT has no display. An overview of the system can be accessed through the web interface, as shown below. For more details, refers to section “6. Web Interface”.



Widget view in web interface

4.3 Inview FIT - Specifications

Models	Inview FIT
Modules compatibility	Bravo 25 - 48/230-277 and Bravo 25-R - 48/230-277
Display	No
Hardware interfaces	1xETH*, 1xRS485**, 1xCAN**
Supported protocols	Modbus RS485, Modbus TCP, SNMP v1, v2C and v3, HTTP/HTTPS
Digital Input / Output relay	2/3**
Buzzer	Yes
Mounting	2U Shelf
Power supply	Internal shelf 12Vdc
Power consumption	4W
Operating Temperature Range	-20 to 50°C
CPU	NXP i.MX 6UltraLite
CPU cores	1 x ARM Cortex A7
CPU frequency	528 MHz
Integrated GPU	No
RAM	512 MB
eMMC	2 x 4 GB
Dimension (WxHxD)	20 x 80 x 220 mm
Weight	270 g
Part number	P20010-F00C0_v01

(* - 100 Mbps, auto-negotiation), (** - These parts are accessible from the rear of the module shelf).

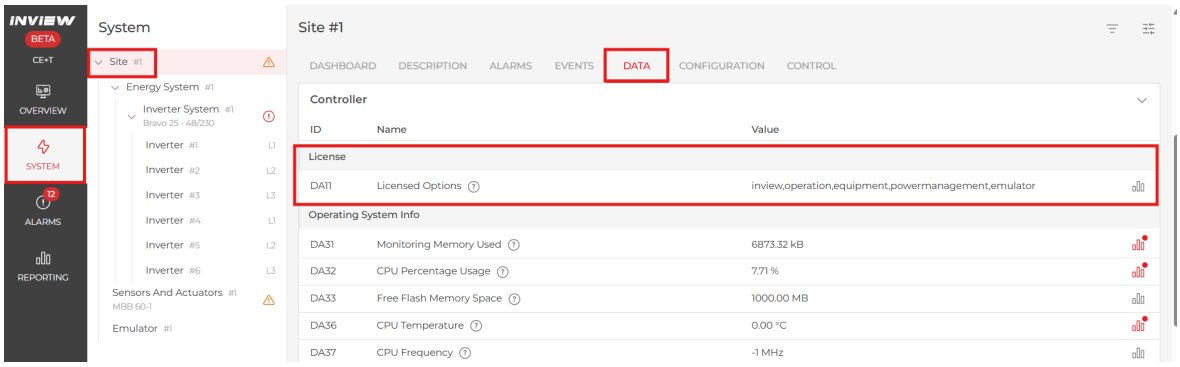
4.4 Inview License

Inview FIT includes a default standard licence. To upgrade this default licence to any listed licence option. Contact your supplier or CE+T for the latest price.

License Number	License Type	Features
1	Standard (called 'Inview')	• Communication with a limited number of CE+T devices: ▪ Maximum 32 Modules • Real time monitoring and configuration via web interface, including relay mapping: ▪ Access to Inview web interface ▪ Alarms reflecting the system status ▪ Events ▪ Real-time data ▪ Access to controls to send manual set points via web interface • System remote interaction for data collecting: modbus read, email alerts, SNMP traps and NTP: ▪ Modbus TCP/RS485 read only ▪ Email notification from a certain alarm level (SMTP) ▪ SNMP v1, v2c, v3 read only and traps ▪ NTP protocol • Cybersecurity capabilities: ▪ Firewall segregation of interfaces ▪ Https with self-signed /standard certificate • 3 Levels of user roles: ▪ Basic, Expert, Admin roles give access to different parameters ▪ User Role Management via Admin login
2	Operation extension	• Reporting, configuration and control via machine-to-machine interface: ▪ Customized boolean expressions for relay control (PLC) ▪ Data recordings and charts display ▪ Modbus TCP/ RS485 and SNMP read & write • Enhanced cybersecurity capabilities: ▪ RADIUS (Remote Authentication Dial-In User Service) ▪ IEEE 802.1X Standard (DoT.1X) - Authentication with SCEP with automatic certificate renewal ▪ Https connection (custom/official certificate)
3	Equipment extension	• Communication with third party device: ▪ Communication with any interfaced third party device (MPPT, SunSpec modbus inverters, smart batteries, meters…) • May require additional cost due to interfacing service if the device has not been interfaced yet. Interfacing service to be provided by CE+T • Maximum number of devices depends on the device itself

8	Branding	• Company logo: You can replace the default logo with your company logo. This logo shows on the Inview device and the web interface. • Interface color: The main color of the interface can be customized to match your company's brand.

To know about the available license options, log in to the web interface, go to *System > Site > Data* , and scroll down to check the **ID DA11** in the Controller section.



5. Installation

5.1 Site preparation

- All cables should be copper wire and must be rated for min 90°C (194°F).
- All cables must be sized according to the rated current of the Inview and to the customer terminal connection.
- All power and signal cables should be routed properly.

5.2 Install

- Place the Inview Fit in the designated location on the left side of the shelf (in the same position as the T2S).
- Push the Inview Fit until the latch clicks into position.



5.3 Remove

- Use a small screwdriver to release the latch that holds the Inview Fit in position.
- Pull the front panel support to remove the Inview Fit.

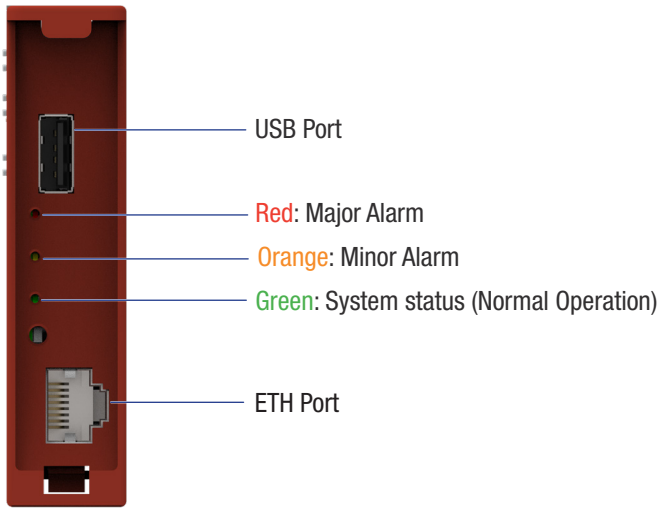
Caution: Be careful when you insert the screwdriver into the Inview Fit slot. If the tip is not correctly in position, it can damage the retaining clip.



5.4 Hardware Connections

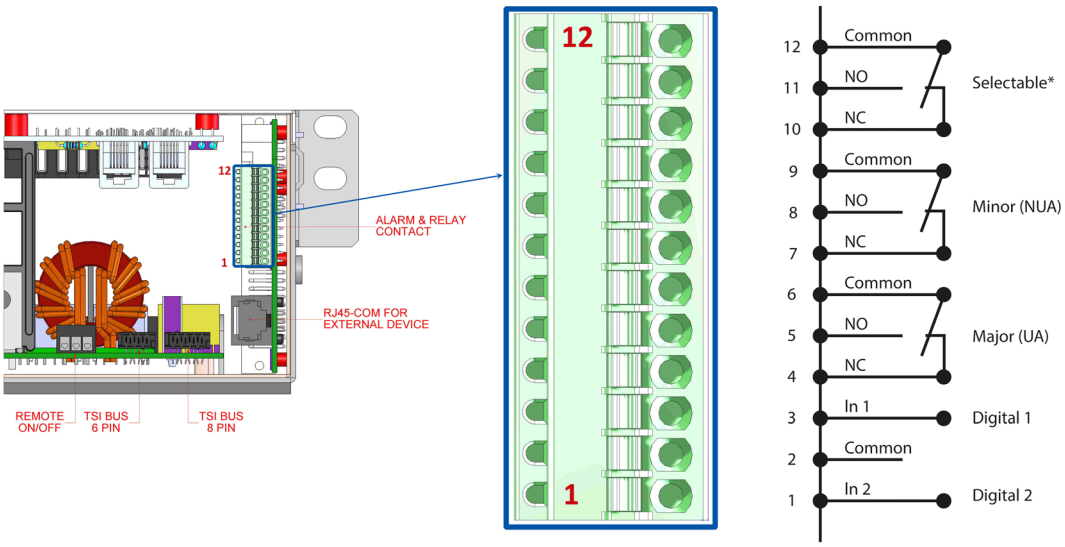
5.4.1 Inview Fit Ports and LED

Inview Fit has the ETH port and USB port in the front panel and the Output Relay, Digital inputs, Modbus RTU and power connections are present at the rear side of the Inview Fit and rear of the shelf.



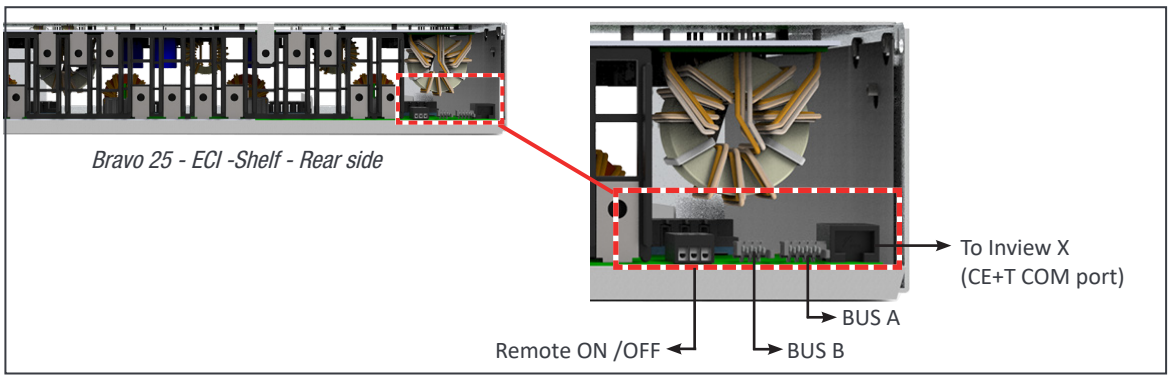
5.4.2 Signalling

The below images are termination details of Bravo TSI shelves.



Bravo TSI - Shelf Rear Details

The below images are termination details of Bravo ECI shelves.



Bravo ECI - Shelf Rear Details

Relay characteristics (Selectable, Major, Minor)

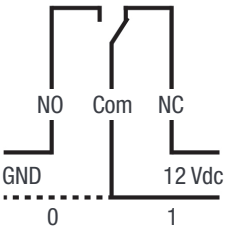
- Switching power : 60 W
- Rating : 2 A at 30 VDC / 1 A at 60 VDC
- Max wire size : 1 mm^2

Digital input characteristics (Digital In 1 / 2)

- Signal voltage : +5 VDC (galvanically insulated)
- Max wire size : 1 mm^2

5.4.2.1 Output Relay Connections

Each output relay terminal in should be connected as below diagram. A possible way of connecting Ground and 12 Vdc in order to get a “0” or a “1” based on the relay state.

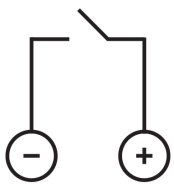


Maximum voltage and maximum current:

- 0-60 Vdc is 30 W (max 0.5 A)

5.4.2.2 Digital Input Connections

In digital input terminal, the external voltage should not be applied and it is mandatory to connect only like switches. Each digital input terminal in Inview Fit should be connected as per diagram. Digital inputs of Inview are user customizable.



Digital input terminal

Example with two Digital inputs of Inview Fit:

- Digital Input 1 could be assigned for MBP operation.
- Digital Input 2 could be assigned for Surge Arrester.

5.4.3 Remote ON/OFF

The function of remote ON/OFF is used turn off the module/system output.

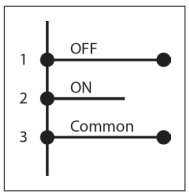
By default a jumper is placed between pin 3 and 2. If remote on/off is used, jumper should be removed from the shelf and connect changeover contactor.

- The remote ON/OFF switch the AC output OFF.

- AC and DC inputs are not affected by the remote ON/OFF function.
- The remote ON/OFF can be connected to any shelf.
- The remote ON/OFF requires changeover contacts, one input opens as the other close. If both transitions are not picked up the status is not changed.

Relay characteristics (Remote ON/OFF)

- Signal voltage +5 VDC (galvanic insulated)
- Max wire size 1 mm^2



Functional table for remote ON/OFF function

#	Pin 1-3	Pin 2-3	Status	Indication
1	Open	Open	Normal operation	All (Green)
2	Closed	Open	OFF	AC output (OFF) AC Input (Green) DC Input (Green)
3	Open	Closed	Normal operation	All (Green)
4	Closed	Closed	Normal operation	All (Green)

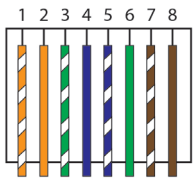
Warning: If remote ON/OFF is not used, pin 2 and 3 MUST be bridged together!

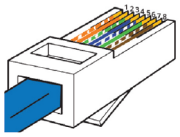
5.4.4 ModBus (RS485) Pin Details

ModBus RTU is available on the RJ45 connector, located on the rear side of the rack containing the T2S ETH Controller. The pin out of this connector is the following:

Pin Number	Name	Description
1	CANH	CANH pin for Candis
2	CANL	CANL pin for Candis
3	GND_IAX	Digital Communication Ground
4	GND_IAX	Digital Communication Ground
5	12V_IAX	+12 V unregulated
6	COM_A	RS485 A
7	GND_IAX	Digital Communication Ground
8	COM_B	RS485 B

RJ45 Pinout T-568B





1. White Orange 2. Orange 3. White Green 4. Blue
5. White Blue 6. Green 7. White Brown 8. Brown

Note: The wire colours might vary, but make sure the wire positions are exactly crimped.

6. Web Interface

6.1 Login

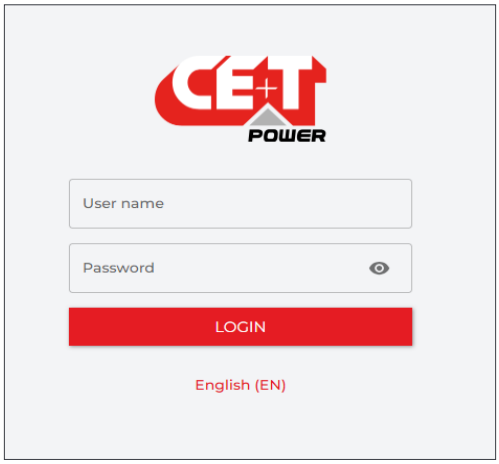
Open the web browser, type the default IP address **10.250.250.1** in the address field and press enter.

Note: Use any of the latest web browsers: Google Chrome, Mozilla Firefox, Safari, or Microsoft Edge.

Inview Fit have three login – Basic, Expert and Admin. All three login is password protected.

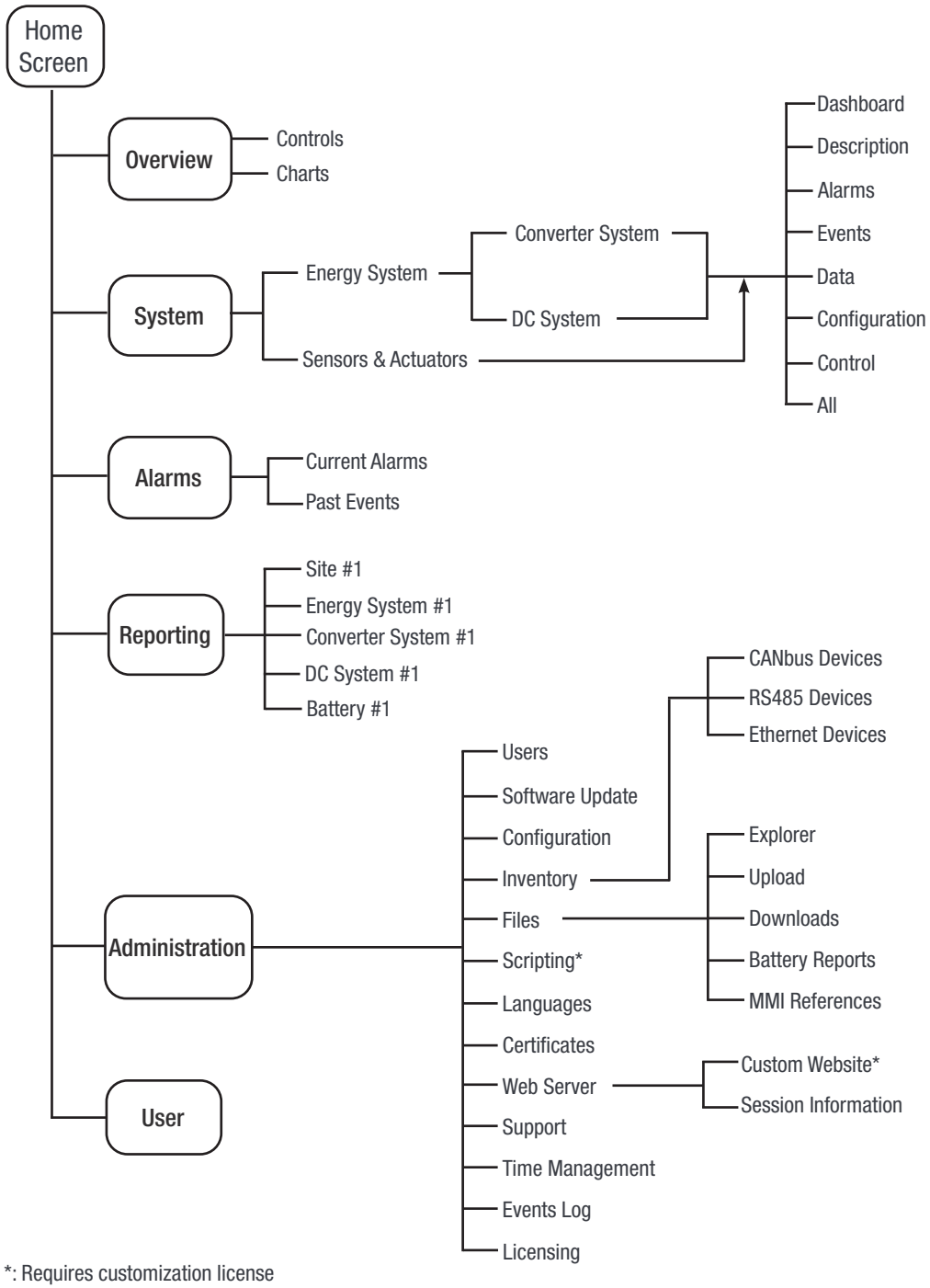
The default password for all three logins is “1234”. It can be modified, refer section 7.1.1, page 27.

An auto-logout feature is available to avoid a user being connected all the time. When no action is performed for more than 10 minutes, the session will expire and goes go to the login screen.



6.2 Inview Layout

The web interface of all the Inview controllers is the same. The Inview web interface allows the user to interact with system, access, configure and modify the system parameters. The below tree provides an overview of the menu structure in the web interface.



*: Requires customization license

6.3 Interface

6.3.1 Inview Home Screen



The icons provide quick access to the corresponding pages.

1 → **INVIEW:** Click the **INVIEW** logo to navigate to the home page from any menu page in the system.

2 → **Notification**: Click the **NOTIFICATION** icon to open the Alarm page and view Current Alarms and Past Events.

3 → **Widgets**: Click Widget to view more detailed data and information related to the selected widget.

4 → **Control**: Shortcuts to specific control functions that are selected from the drop down list.

5 → **EDIT**: Click **EDIT** to edit the main screen overview (widgets/controls/data).

6 → **OVERVIEW**: Click **OVERVIEW** to navigate to main screen.

7 → **SYSTEM**: Click **SYSTEM** to navigate to advance settings of power system, connectivity, PMS and more.

8 → **ALARMS**: Click **ALARMS** to navigate to the Alarm page to view Current Alarms and Past Events.

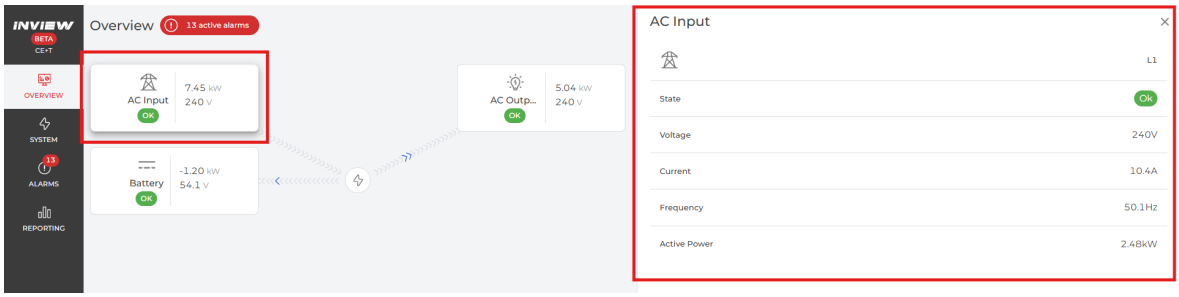
9 → **REPORTING**: Click **REPORTING** to display data graph (Data from Site, Energy system, Inverter system DC System, Battery, etc..).

10 → **DATA (1 & 2)**: The **DATA 1** and **DATA 2** charts shows the variable data in both formate (Graph Chart or Bar Chart).

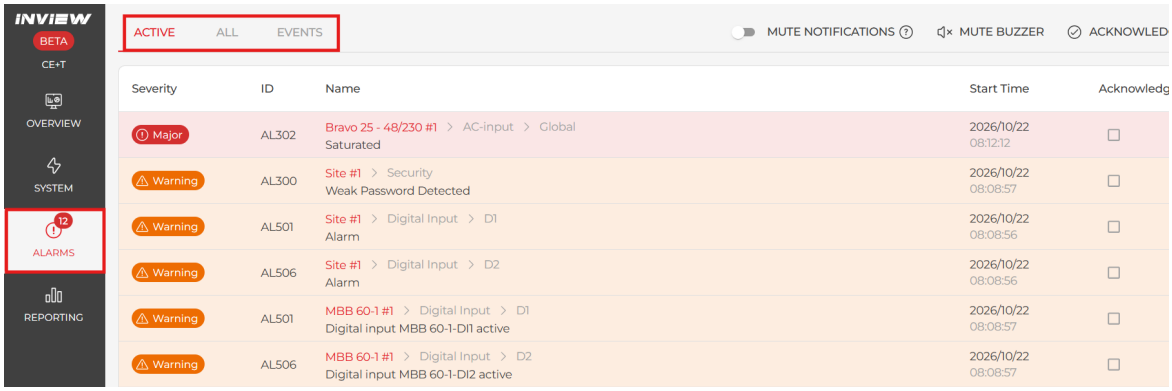
11→ **ADMINISTRATION**: Click **ADMINISTRATION** to access the User management, Software update, Configuration, Inventory, files, Languages selection, Certificates, Web Server, Support package, Time management, Events log and Licensing.

12 → **USER:** Click **USER** to access the information of login account such as Quick Links to Save Configuration,Save Inventory and Reboot controller, Website links to download software and documents, Change Password and Logout.

- Click on any Widget to view the corresponding details on the right side on the screen.



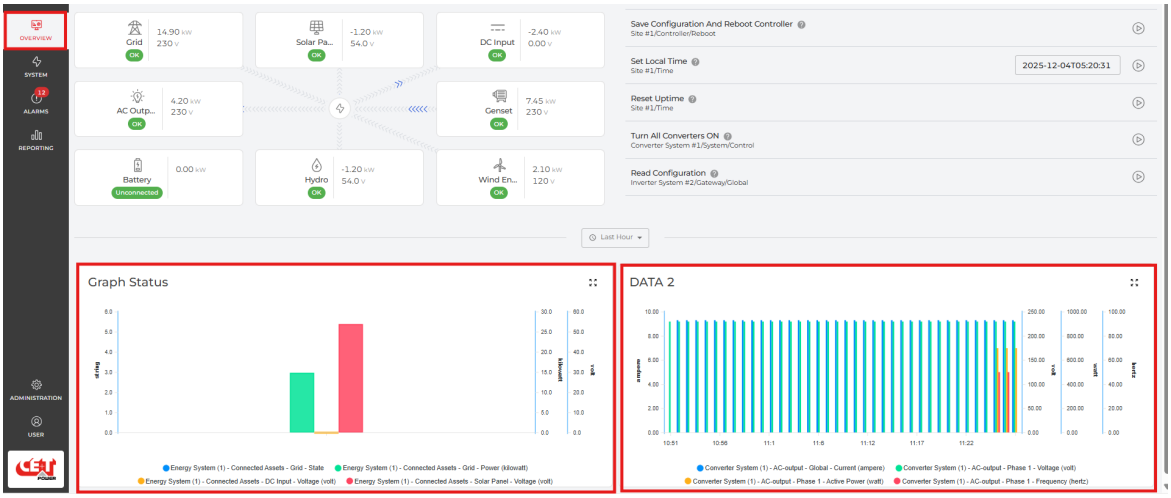
- Click ALARMS to navigate to the Alarm page to view Active, All and Events, Mute Notification , Mute Buzzer and Acknowledge.



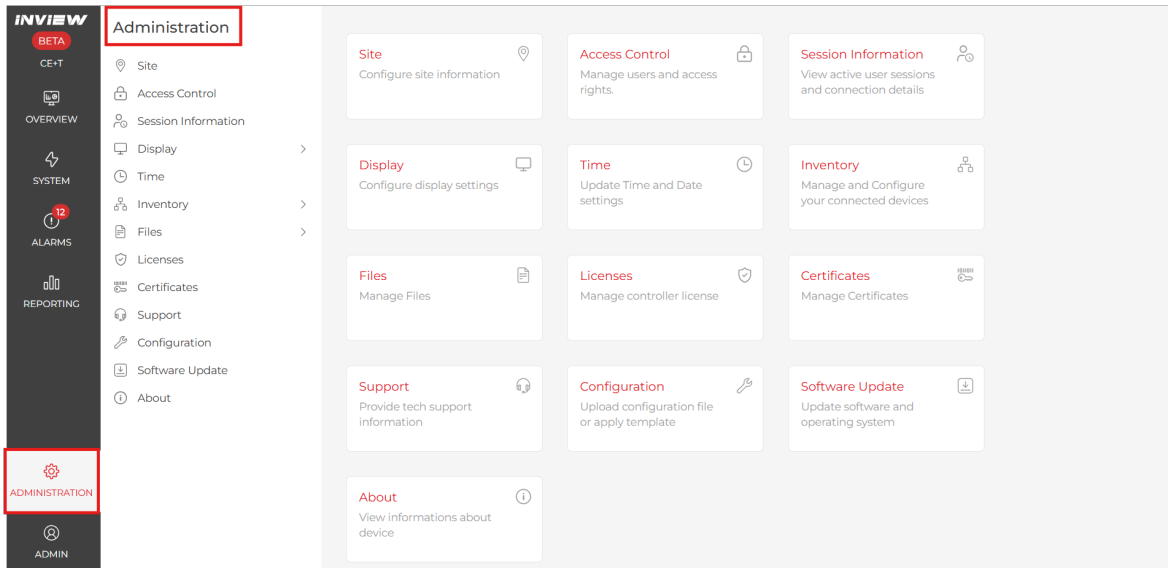
- Click REPORTING to display data graph (Data from Site, Energy system, Inverter system DC System, Battery, etc..).



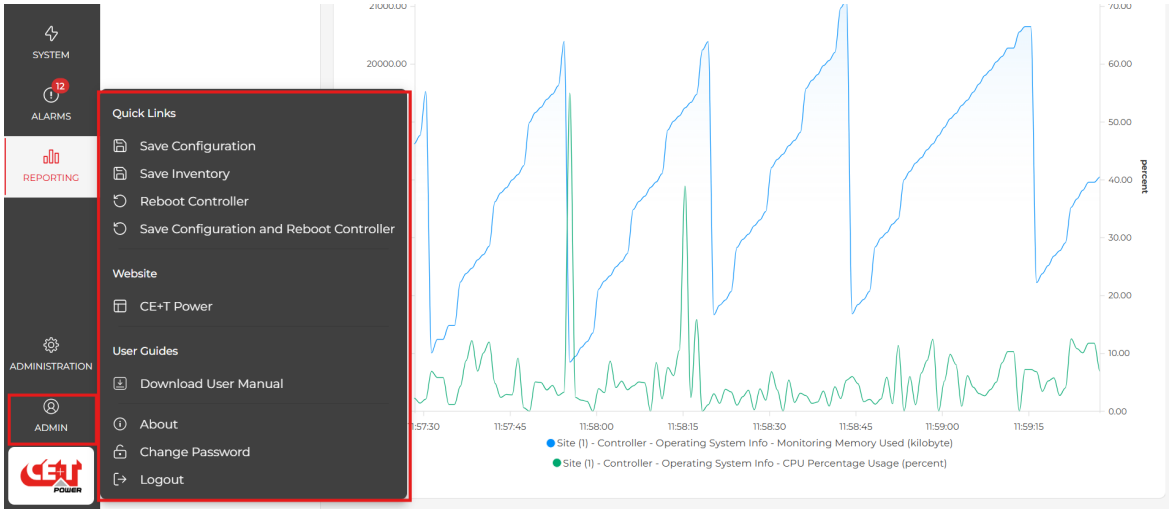
- The Graph Status and DATA charts shows the variable data in both Graph or Bar Chart.



- Click ADMINISTRATION to access the Site, Access Control, Session Information, Display, Time, Inventory, Files, Licenses, Certificates, Support, Configuration, Software Update and About.

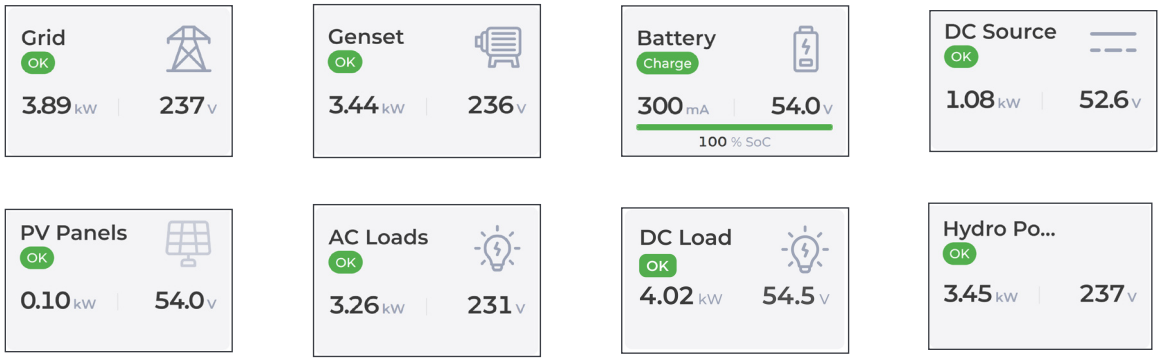


- Click Admin to access the Save Configuration,Save Inventory, Reboot controller, Save Inventory and Reboot controller, Website links to download software and documents, Change Password and Logout.



6.3.2 Widgets

The flexible view can be configured depending on the system topology with the following types of widgets:



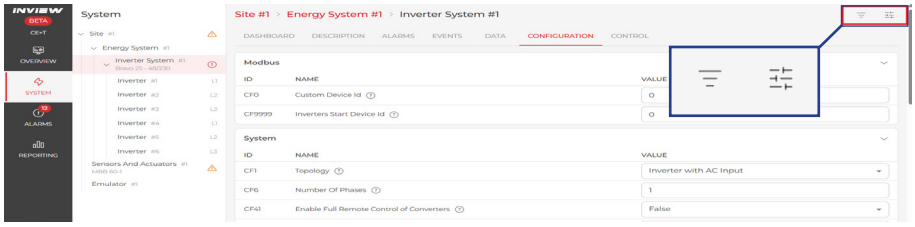
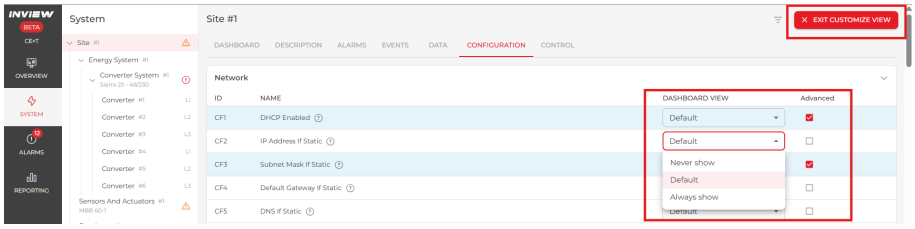
Source and **Load** are the different convention signs used for the different assets. The conventions of the different assets are listed in the below table. Based on the type of asset, the widget icon is displayed on the home page.

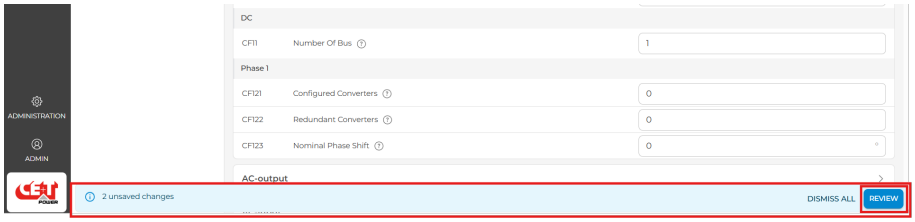
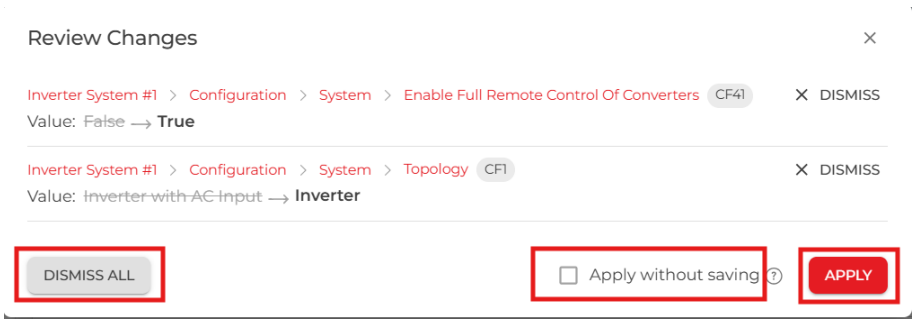
S.No	Widget	Convention Type	Power Supplied	Power Received
1	Grid	Source	Positive	Negative
2	Genset	Source	Positive	Negative
3	Battery	Load	Negative	Positive
4	DC Source	Source	Positive	Negative
5	Solar	Source	Positive	Negative
6	AC Load	Load	Negative	Positive

S.No	Widget	Convention Type	Power Supplied	Power Received
7	DC Load	Load	Negative	Positive
8	Hydro Power	Source	Positive	Negative

6.4 Web Page Controls

Click the control icons to perform the configuration or setup.

Controls	Description
	Filters: Page displays depending upon the filter selection. *Note: Filter, Edit and Dashboard icons are present at the top right side of the web page.* 
	Edit the view and Select the corresponding parameter to display the dashboard data or can hide the parameter. Visibility of the parameters, mark the check box to view. 
	On-Board help: Provide a short description to help to know about the corresponding parameters.
	Page or section expands.
	Page or section collapse.
	Particular section opens in a new tab.
	Particular section open as a pop-up.
	Drop down list – more options are present.

Controls	Description
	Delete / Clear the corresponding parameter.
	**Modifications list**: this list helps the user to overview the changes and can apply the required parameters. **Review:** Clicking on "**REVIEW**" button, the controller accepts all the parameter changes in the modifications list. **Note**: The icon ⓘ indicates the number of unsaved modifications in the list.  **Apply without saving:** Clicking on check box to "**Apply without saving**", the controller accepts all the parameter changes in the configuration file. **Apply:** Clicking on check box to "**APPLY**" button, the controller accepts all the parameter changes in the modifications list and saves them in the configuration file. **Dismiss All:** Clicking on "**DISMISS ALL**" button, the controller rejects all the parameter changes in the modifications list. **Note**: The review changes shows the all the modifications in the list. 

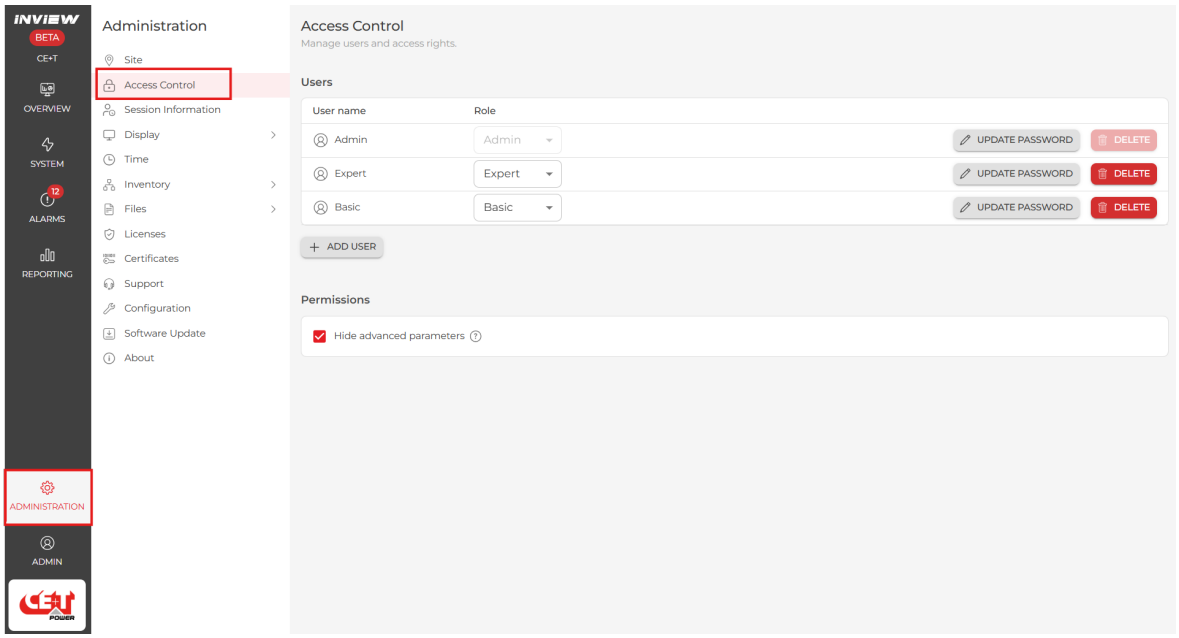
7. System Settings

Once system is powered on, the Inview Fit is up and ready for operation. Configuration and other parameters can be changed using the web interface. Perform the following procedure to configure the system through web interface.

7.1 Users Management

The users page provides the access to create and modify the user accounts for web interface and PIN modification for LCD interface.

Navigate to *ADMINISTRATION > Access Control,* for user management.



7.1.1 Web Interface - User account

Users can create up to **ten** accounts for web interface and assign role as Admin, Expert, or Basic.

- **Basic** – User can only view the parameters and download the files.
- **Expert** - User can access and modify all the applicable parameters, and can change their own password.
- **Admin** – User can access, modify all the applicable parameters, and manage user accounts. All parameters are displayed by default (**Note:** The manufacturer created ***Admin account*** cannot be deleted)

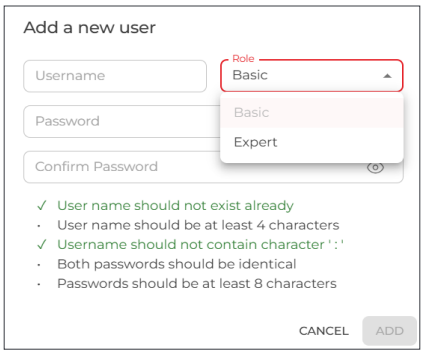
Note: The feature of creating and editing user account is available only in Admin privilege.

- **Creating a new user account**

  I) In Users page, Click on "**+ADD**" button. A pop window appears with the title "Add a new user."

  II) Enter an appropriate user name and assign a role from the drop down list as Basic or Expert.

  III) Enter a new password, type the same password for confirmation, and then click **ADD** button. The password length should be at least eight characters.



- **Editing the existing user account**

  In the Users page, choose a user account which you like modify.

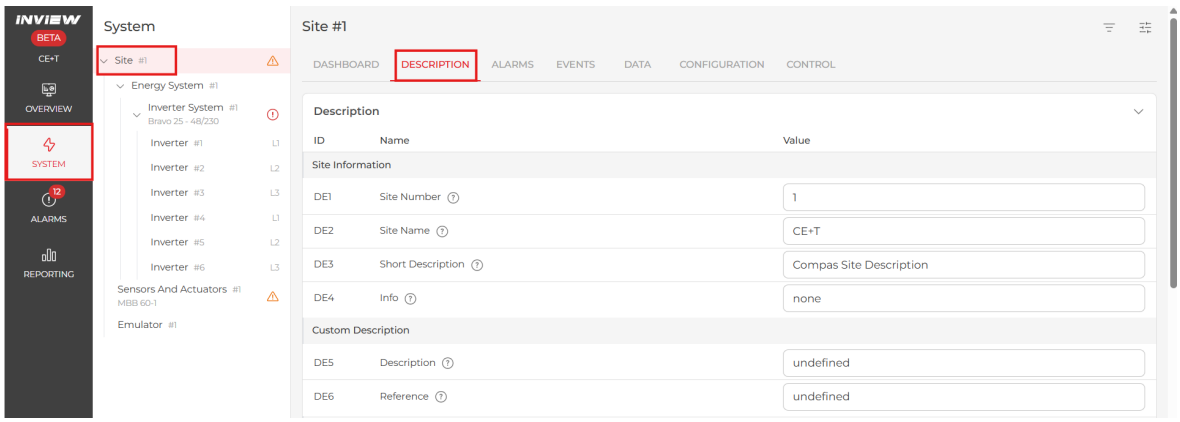
  - Modify the privilege from the "**Role**" drop-down list as Expert or Basic.
  - Click on "**PASSWORD**" button to edit existing password.
  - Click on "**DELETE**" button to remove the user account.

7.2 Site Management

7.2.1 Site Description

Navigate to *SYSTEM > SITE > Description*.

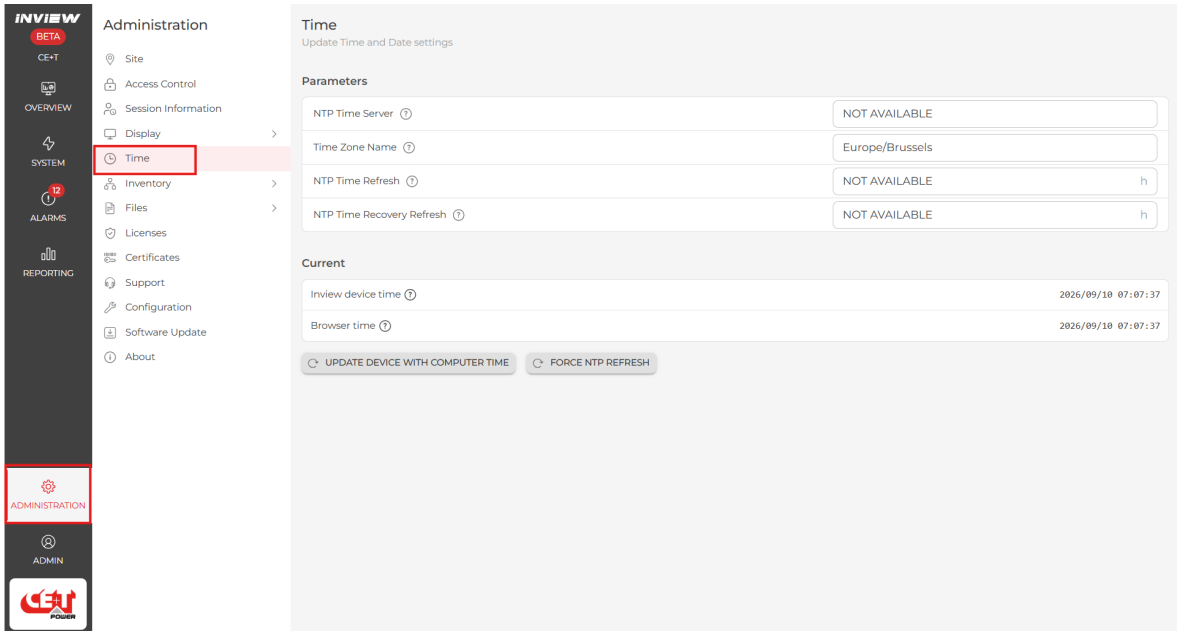
Enter the Site details such as *Site description*, *Location* and *Contact details*.



7.2.2 Date and Time Settings

Navigate to *ADMINISTRATION > Time*.

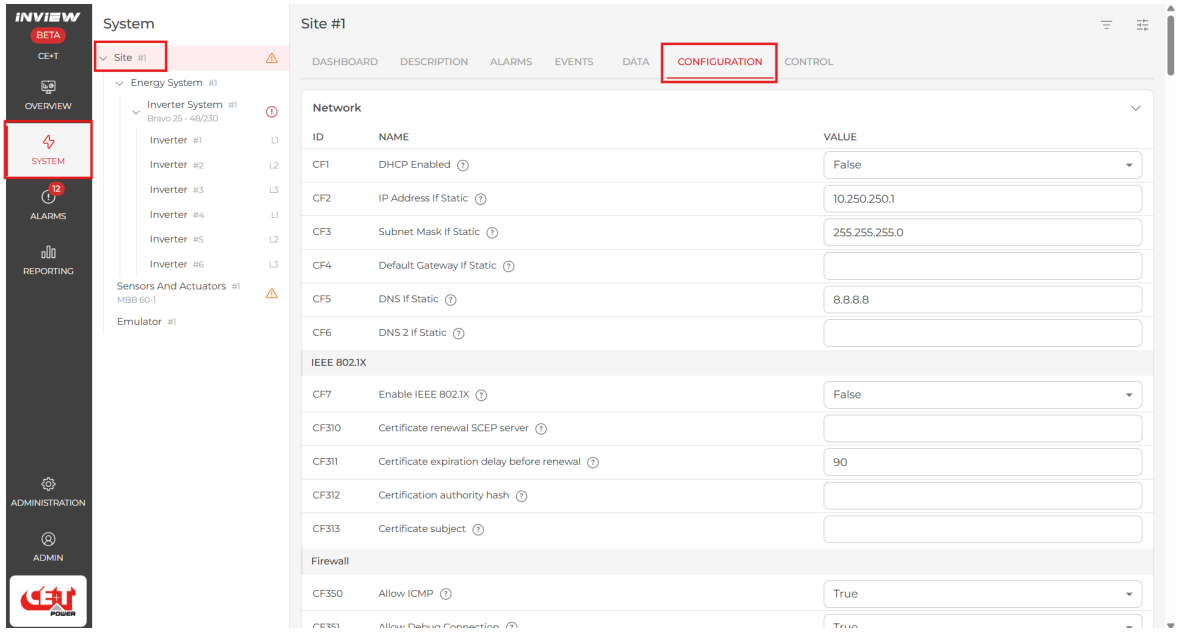
- **Update with Computer time:** Inview read the laptop time during the configuration and adapt that time.
- **Update with NTP**: Inview Internal clock synchronizes with the server time.



7.2.3 Network Settings

Navigate to *SYSTEM > SITE > Configuration*

Enter the **Network** details such as *IP address, Firewall settings, authentication controls, web server* and applicable parameters.



IEEE 802.1X *authentication* and WiFi requires an operation license. Contact your sales representative or customer support for more information.

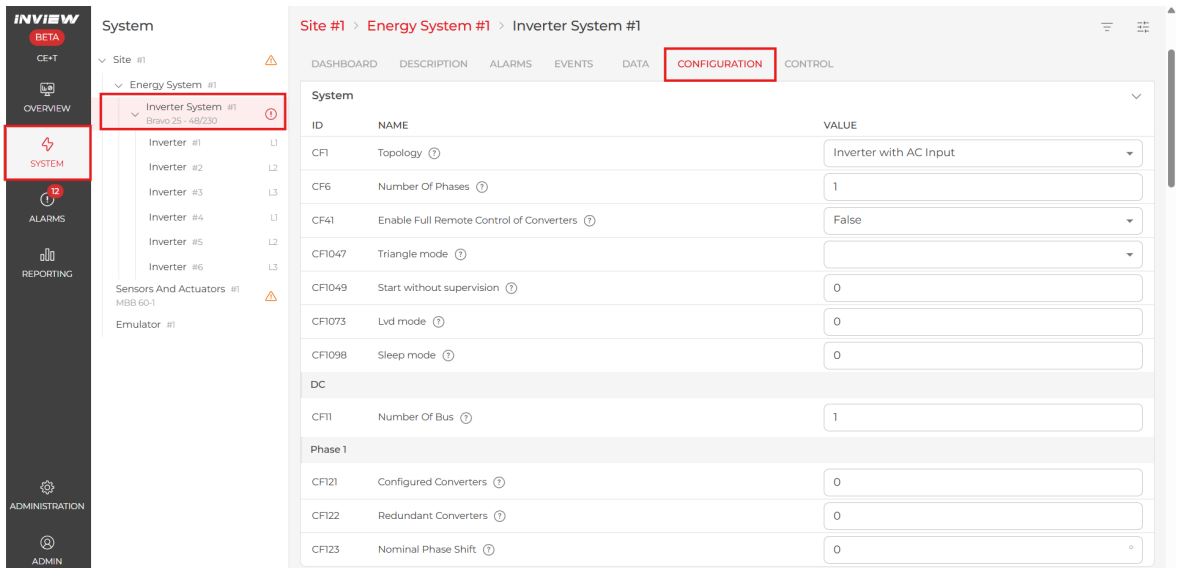
Wi-Fi has three modes: disabled (default), permanently enabled, or enabled on request. When the activation is “Enabled on Request”, use the touchscreen to activate the Wi-Fi. Navigate to Administration > Enable Wi-Fi. The device PIN protects this access.

When the Wi-Fi is active, look for Inview network in the Wifi settings of your tablet or computer. Connect to this network. Then, after the connection is successful, enter “inview.wifi” into the web browser to open the Inview web interface.

Contact your sales representative or customer support for more information about IEEE 802.1X or other Network features.

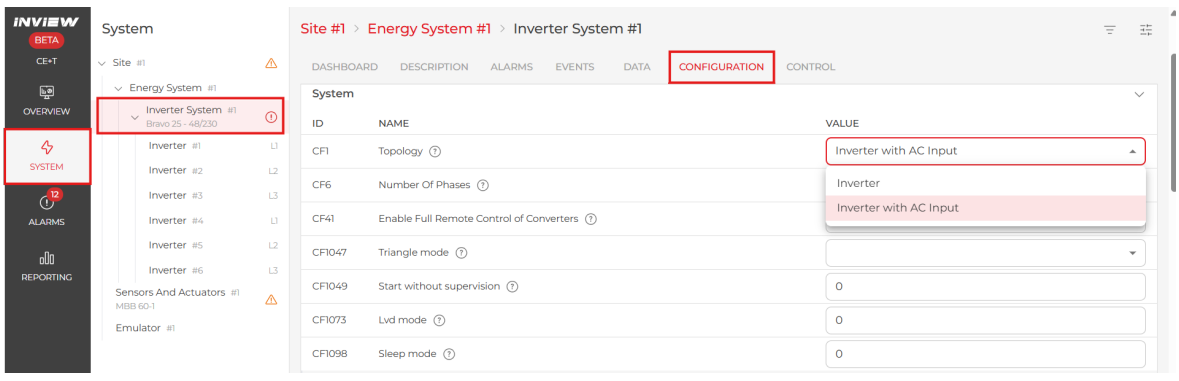
7.3 System Configuration

To configure the inverter systems, navigate to *SYSTEM > SITE > ENERGY SYSTEM > INVERTER SYSTEM > Configuration.*



7.3.1 Topology Selection

Navigate to *SYSTEM > SITE > ENERGY SYSTEM > INVERTER SYSTEM > Configuration > System.*
In System section ID **CF1**, select the topology from the drop-down list based upon the system design.

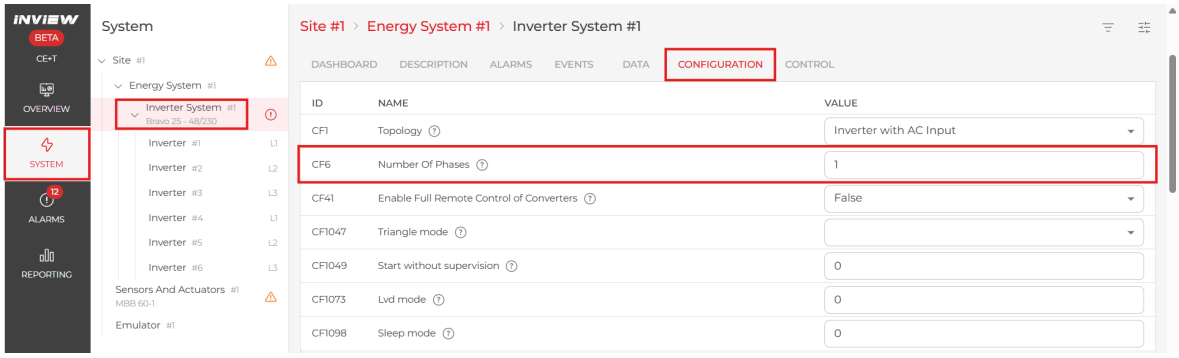


7.3.2 Phase Selection

To configure the Single, Dual or Three phase of the system, navigate to *SITE > ENERGY SYSTEM > INVERTER SYSTEM > Configuration*.

In the System section **ID CF6**, enter the number of phases based upon the system input/output power.

*(**Note**: while configuring the AC phases, all the inverters should be in OFF mode)*



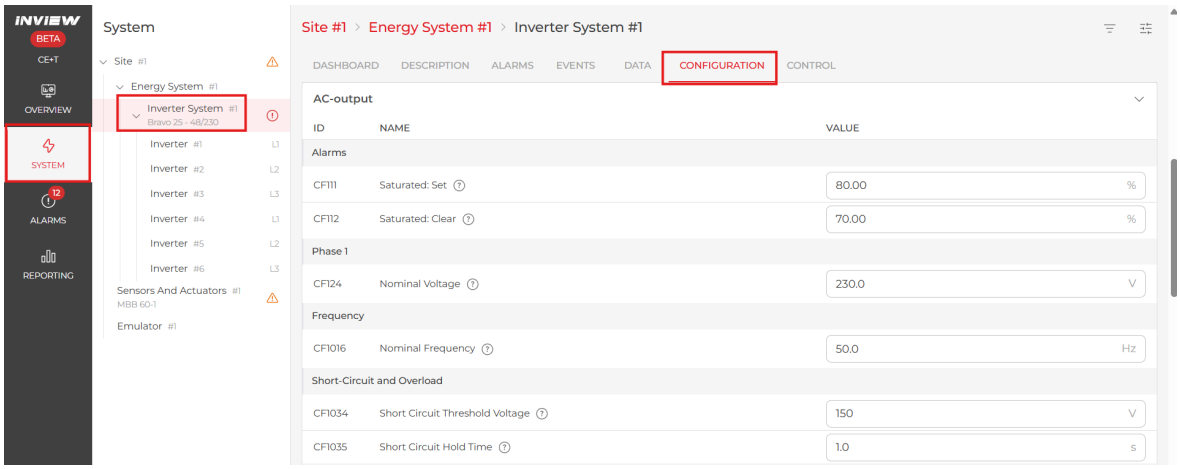
7.3.3 AC Output Configuration

To configure AC output parameters, navigate to *SITE > ENERGY SYSTEM > INVERTER SYSTEM > Configuration*.

In the AC Outputs section, enter the values for the corresponding parameter ID:

- ID CF121: enter the number of inverters configured for phase 1(Installed power)
- ID CF122: enter the number of inverters redundant for phase 1(Available power)
- ID CF122: enter the phase shift degree for phase 1
- Similarly, enter the values for phase 2 and 3
- **ID CF1016**: enter the nominal frequency

*(**Note**: while configuring the AC phases, the inverter should be in OFF mode)*



7.3.4 Inverter Configuration

If the system has more than one Inverter, it is better to start configuring with two Inverter on each phase.

1. Insert only one inverter in the first phase of the system.
   Navigate to *SITE > ENERGY SYSTEM > INVERTER SYSTEM > INVERTER > Control > Global*.

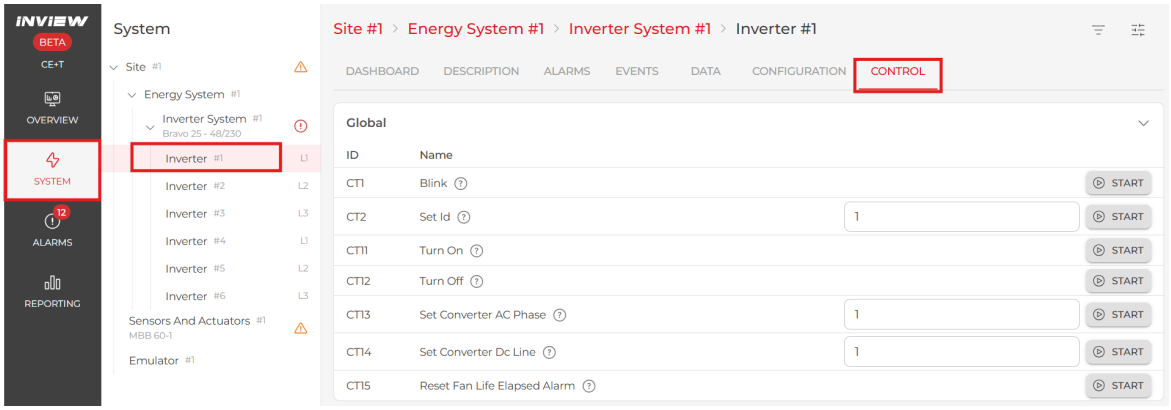
*(**Note**: while assigning the phases of the inverter, its AC output must be in OFF)*

I) Execute the ID **CT12**, to turn off the Inverter

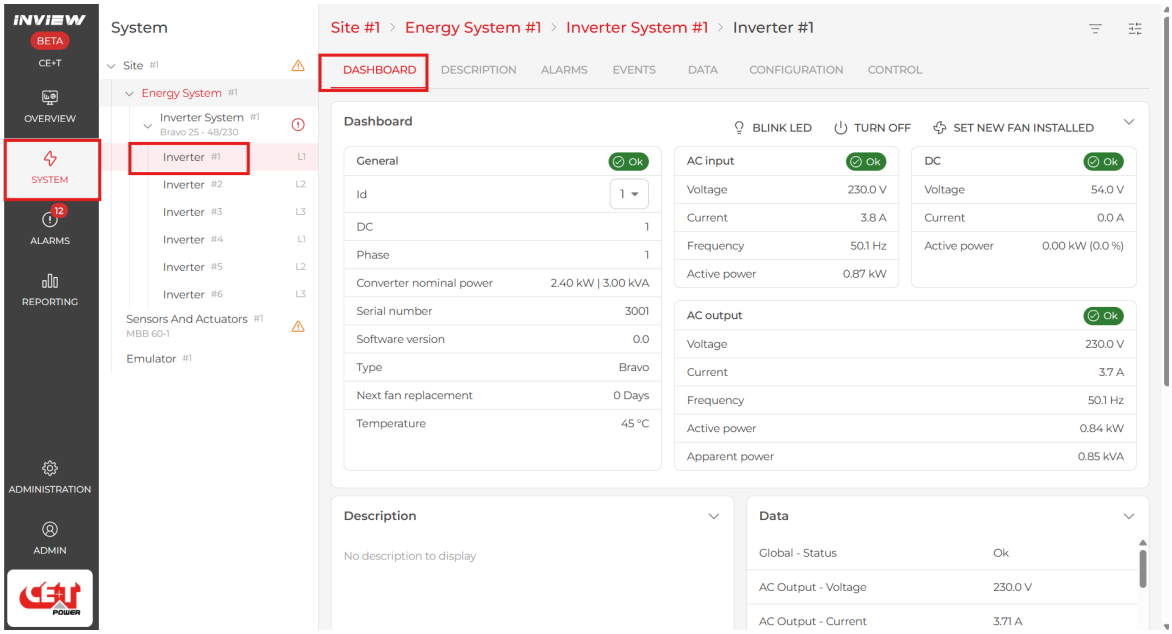
II) In the ID **CT2**, type "1" to set the Inverter ID and in the ID **CT13** as "1" to assign phase 1

III) After setting the values, click the ▶ icon to execute that command

In this page, you can turn on/off the module or AC output and DC port of the module.



To get an overview of the Inverter details, navigate to *SITE > ENERGY SYSTEM > INVERTER SYSTEM > INVERTER > Dashboard*.



In this page also you can modify the Inverter ID and Phase number.

Other Features:

- **Blink LED:** Clicking on “BLINK LED” button, the corresponding Inverter LED’s blink for 6 seconds. It helps to identify the Inverter in the system and also the assigned phase of the Inverter.
- **Turn Off**: Clicking on “TURN OFF” button, the corresponding inverter will be turned OFF and generates an alarm in events page as inverter off.

2. If it is a single-phase system, insert the remaining inverters and set module ID and assign them to phase 1.

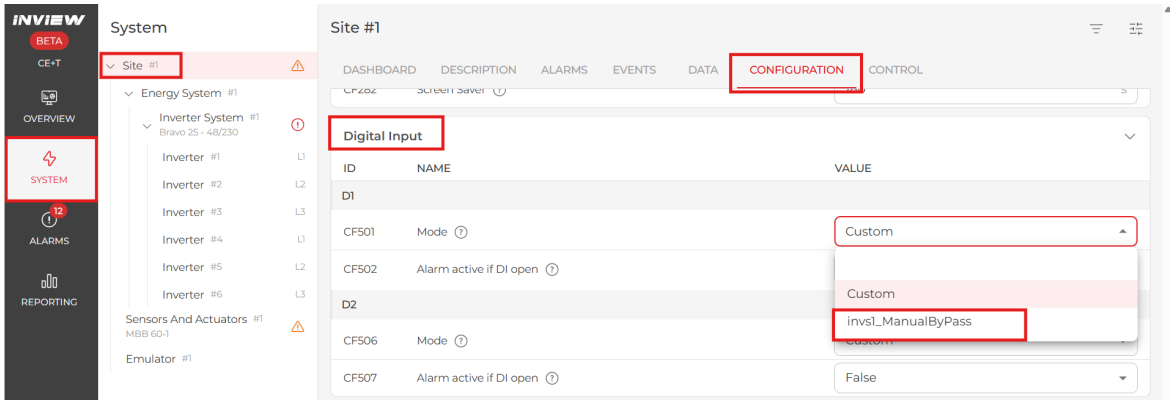
Note: Perform the following procedure for the multiphase system

3. Insert the 2 inverters in phase 2, and set the Inverter ID as “2,”.
4. Insert the 2 other Inverter in phase 3, and set the Inverter ID as “3,” and assign it “Phase 3.”
5. After configuring the first inverter, turn ON all the Inverters with no load.
   To turn on all the Inverter, navigate to *SITE > ENEGY SYSTEM > INVERTER SYSTEM > INVERTER > Control and execute CT41 parameter*.
6. Then, add one by one the other inverter that will automatically detect their phase.

7.4 Manual Bypass Configuration

The manual by-pass is a manually operated switch, and it is used to transfer the load from normal to by-pass without interruption. When the system is in by-pass, the load is subjected to AC main disturbances. The standard manual by-pass is “Make before Break”. The MBP auxiliary contact must be connected to the **Inview Digital input 1**.

Navigate to *SYSTEM > SITE > Configuration* and scroll down to the **Digital Input** section. In the **ID CF501,** select the *“invs1_ManualByPass”* from the drop down list.



***Note**: For more information about MBP auxiliary connection with remote ON/OFF, refer to the system user manual.*

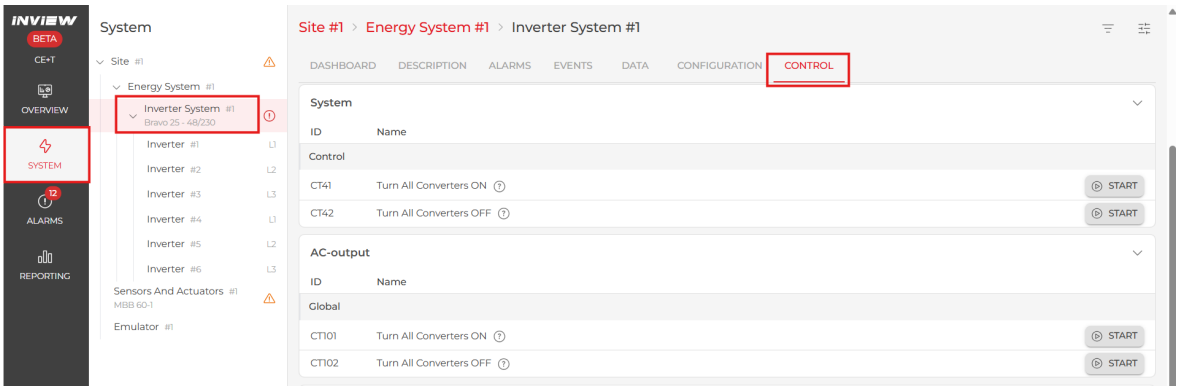
7.5 Module Remote ON/OFF

The AC and DC output of the system and also each module in the system can be turned ON/OFF in two ways:

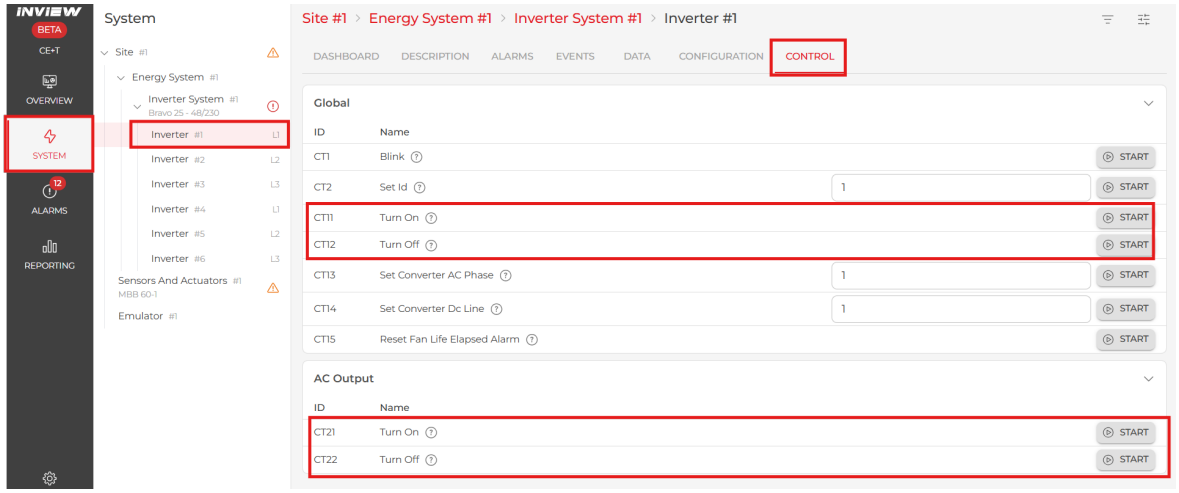
1. Remote ON/OFF terminal at rear side of the shelf`: will impact only AC output.

7. Through web interface:

- System Level
  - Both AC-In and AC-Out: *SITE> INVERTER SYSTEM > Control*, scroll down to System section > CT41 and CT42
  - AC-Out Only: *SITE > INVERTER SYSTEM > Control*, scroll down to AC Outputs section > CT101and CT102



- Module Level
  - Both AC-In and AC-Out: *SYSTEM > SITE > INVERTER SYSTEM > INVERTER > Control*, scroll down to Global section at CT11 and CT12
  - AC-Out Only: *SYSTEM > SITE > INVERTER SYSTEM > INVERTER > Control*, scroll down to AC output section at CT21 and CT22

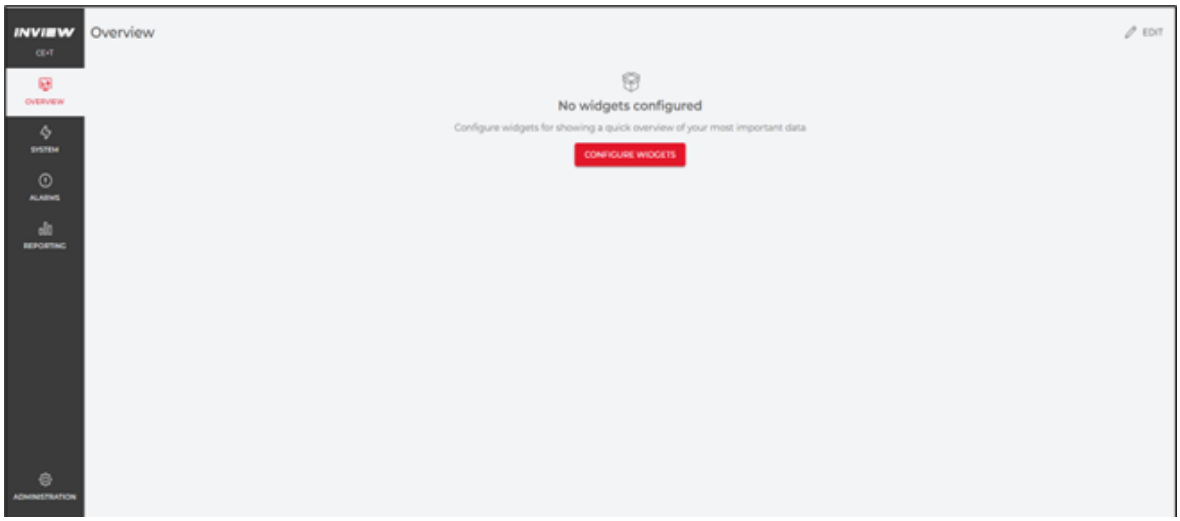


7.6 Widgets Configuration

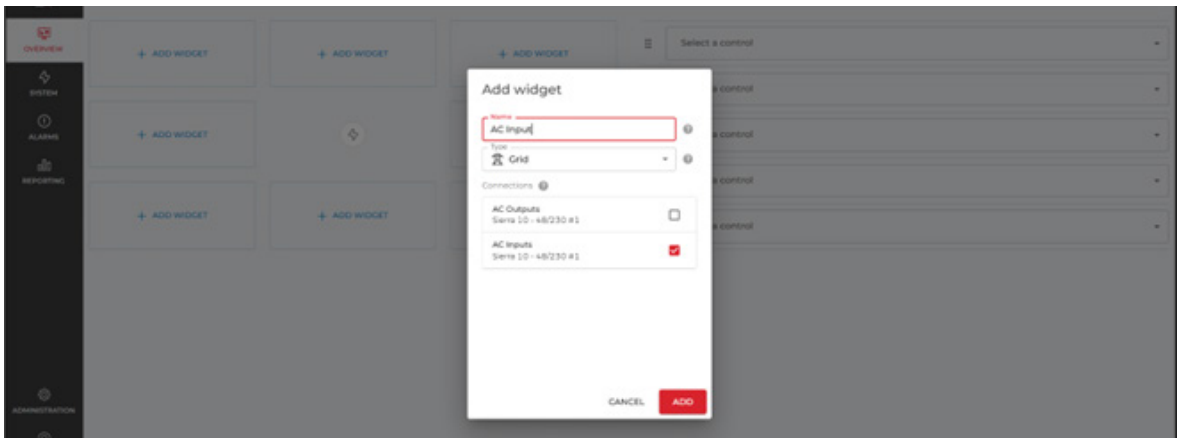
Different types of widgets are available. The configuration appears on the web interface and on the LCD touch screens are not the same.

Perform the following step for Widgets configuration:

1. **Configure widgets:** Click the OVERVIEW and click on either EDIT or CONFIGURE WIDGETS button.



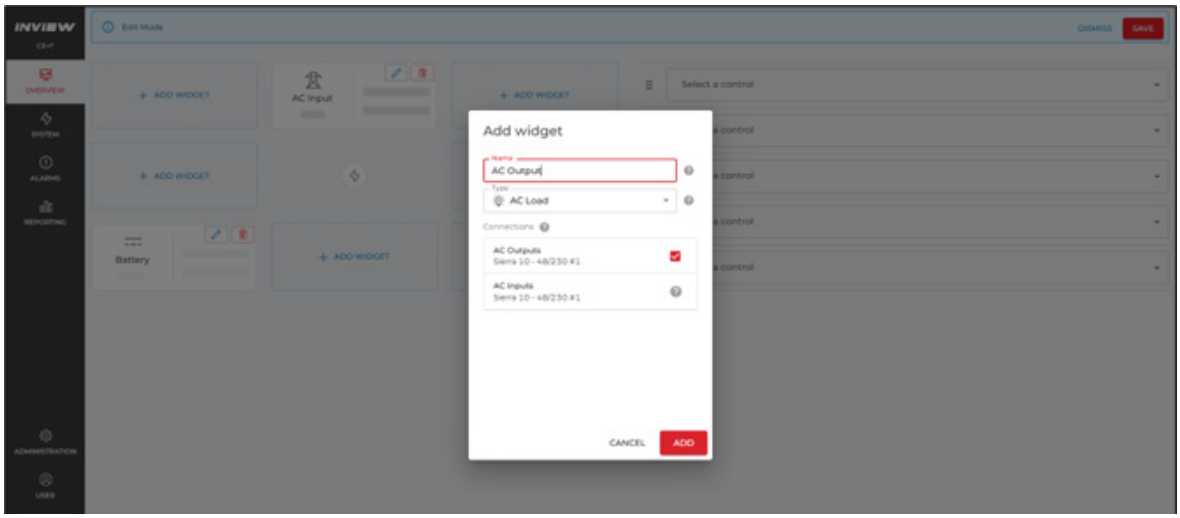
2. Click +ADD WIDGET to add a widget with the relevant parameter and icon.
3. To configure the AC Input widget, click +ADD WIDGET and enter the following details in the Add Widget window:
   - Enter AC Input in the widget name.
   - Click the drop down arrow and select the specific icon for the widget.
   - Click on the corresponding AC Inputs check-box.
   - Click ADD to save the widget.



4. To configure the AC Output widget, click +ADD WIDGET and enter the following details in the Add Widget

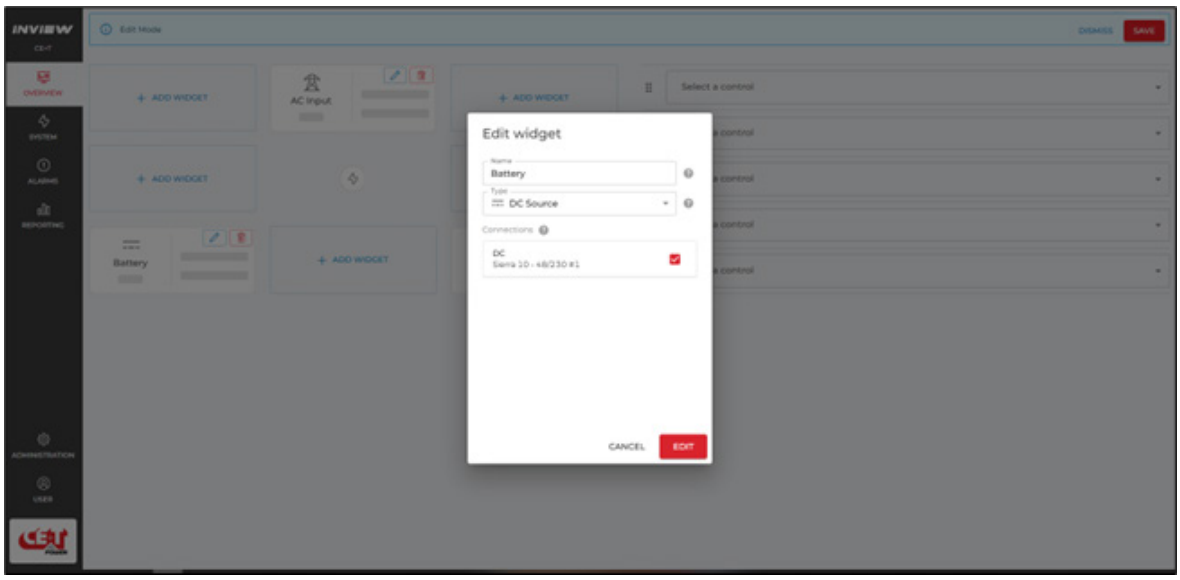
window:

- Enter AC Output in the widget name on the add widget window.
- Click the drop down arrow and select the specific icon for the widget.
- Click on the corresponding AC Output check-box.
- Click ADD to save the widget.



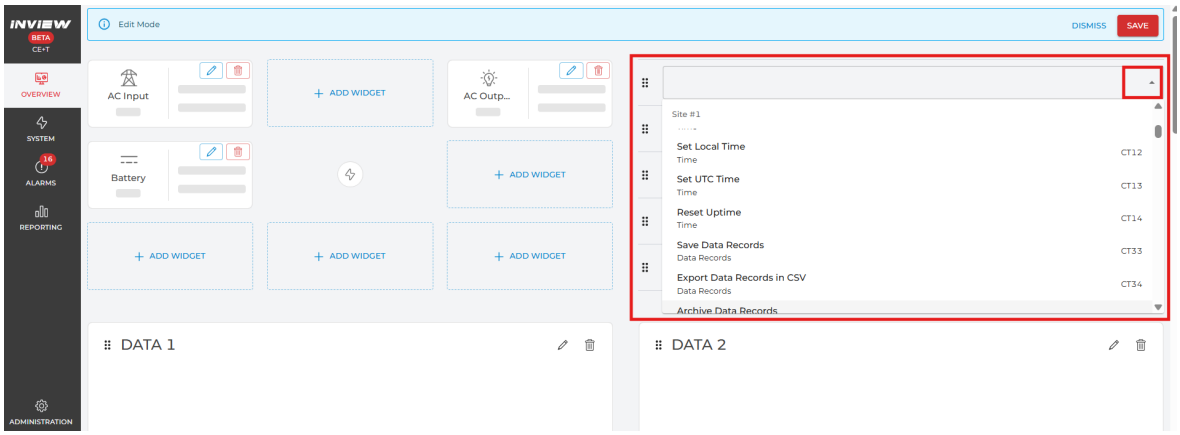
5. To configure the Battery widget, click +ADD WIDGET and enter the following details in the Add Widget window:

- Enter Battery in the widget name.
- Click the drop down arrow and select the specific icon for the widget.
- Click on the corresponding DC Source check-box.
- Click ADD to save the widget.



6. Follow the step 5 to configure more widgets as per the requirement.

7. To configure a control, select any function from the drop-down list or type function ID for quick access. A maximum of five optional controls can be displayed on the overview screen.



8. To configure the Data variable charts, click the + ADD CHART and enter the name for the chart (eg. DATA 1) enter the following details in the Add Chart window:

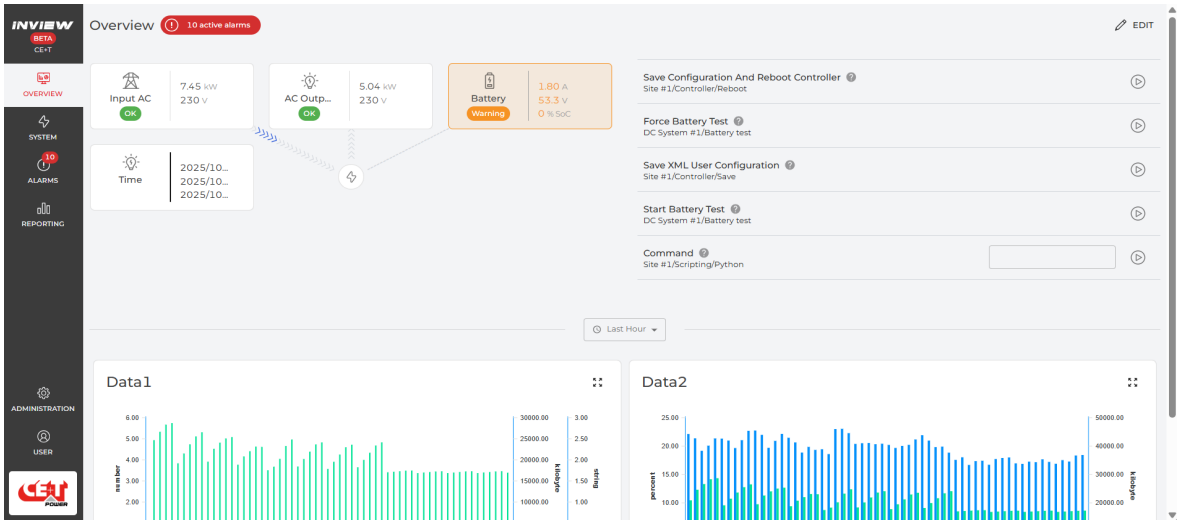
Note: Select the type of chart to display on the overview screen. The chart can be graph chart or bar chart based on the requirement. More than one chart can be added to overview screen.

- Enter DATA 1 in the title tab on the add chart window.

- Click the drop down arrow on the Data tab.
- Select specific parameter from drop-down list.
- Click ADD to save the chart configuration.

9. Click SAVE to save all the configuration and setup.

10. The configured widgets, optional tab and charts (bar chart) are now displayed in the Overview.



7.7 Communication Protocol

7.7.1 Modbus

7.7.1.1 Modbus TCP/IP

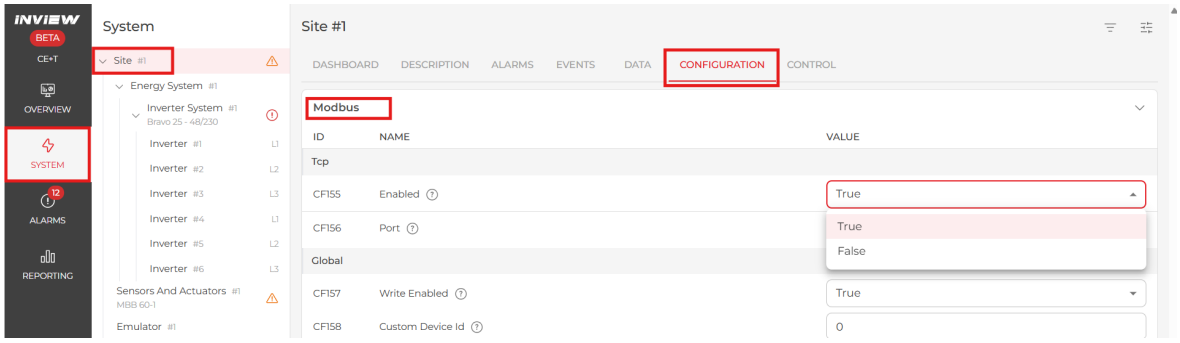
Modbus over TCP/IP have read and write mode, which means that Modbus can be used for monitor and execute actions on the system.

Note: The write mode option is only available with the Operation license.

Port is fixed to standard **Modbus TCP/IP port 502**. This protocol can be either enabled or disabled.

For the Modbus configuration, navigate to *SYSTEM > SITE > Configuration*, scroll down to the *Modbus* section and select the following options. It is also possible to filter on 'Modbus' - Use the filter button on the right.

In the **ID CF155**, select "True" to enable the Modbus TCP/IP function.



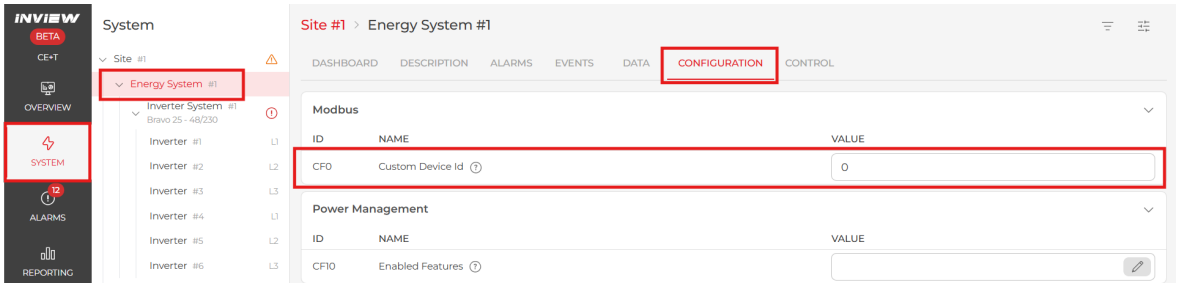
ID CF157 is a global parameter for both Modbus TCP/IP and Modbus RTU. If the Operation license is installed, CF157 can be used to enable the write mode. The following device/equipment mapping has been defined:

Device ID	Equipment
1	DC System 1
2	DC System 2
3	DC System 3
4	DC System 4
11	Inverter System 1
12	Inverter System 2
13	Inverter System 3
14	Inverter System 4
21	DC/DC Converter (Iris)
31	Converter System 1
32	Converter System 2
33	Converter System 3
34	Converter System 4
41	Solar Power System 1
42	Solar Power System 2

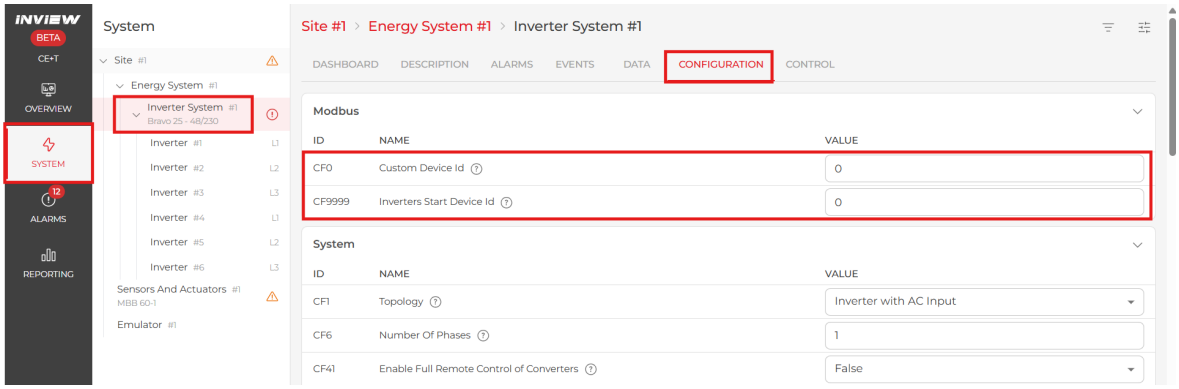
Device ID	Equipment
43	Solar Power System 3
44	Solar Power System 4
91	Energy System 1
100	Site
101	Sensors And Actuators 1
102	Sensors And Actuators 2

Users have the option to customize the device IDs according to their preferences.

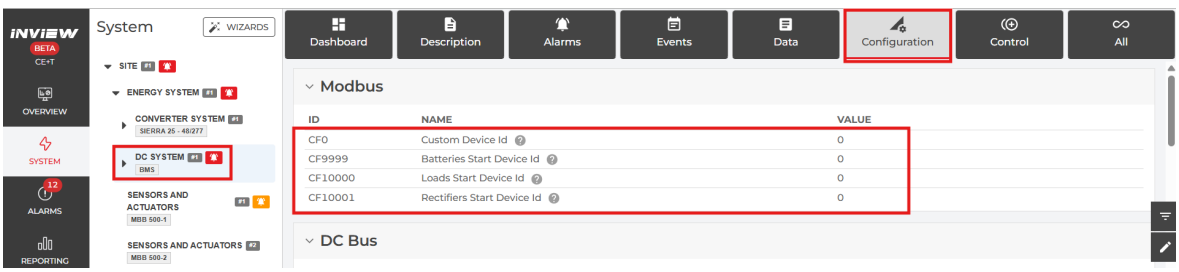
Example A:



Example B



Example C



When the equipment does not exist, it will respond with function code 04:

- Each **discrete input** is associated with the alarm of the equipment, with the same id. Reading 1 means that the alarm is active.

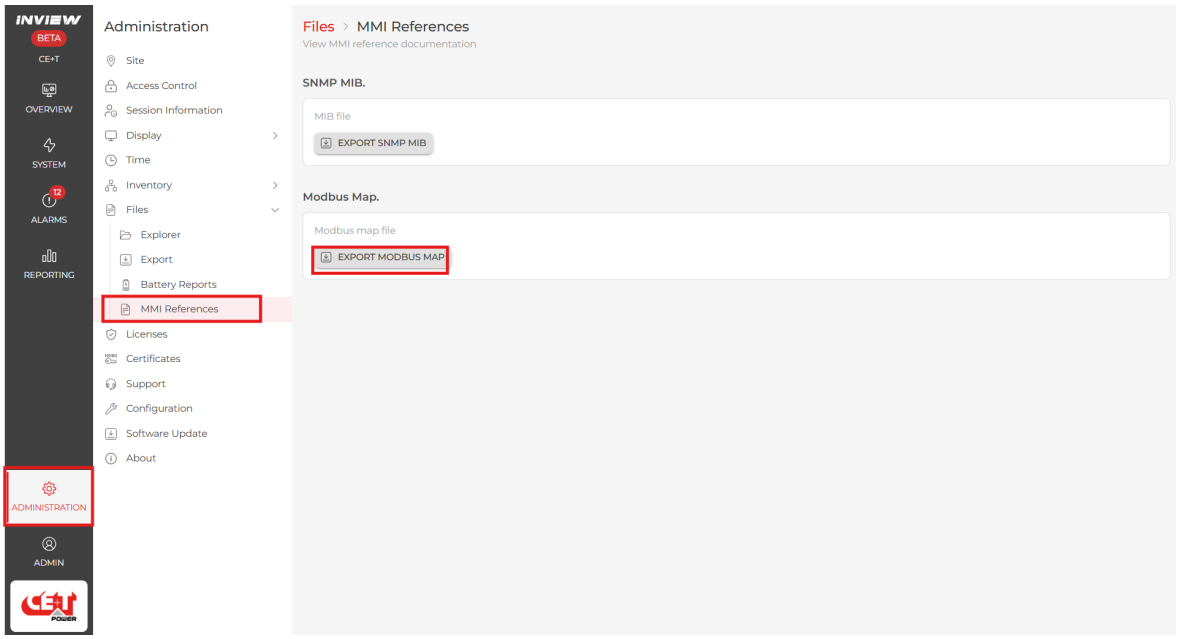
- Each **input register** corresponds to the data of the equipment. All these values are coded assigned 16 bit. A correction factor is often applied. Some status are coded as unit.
- Each **holding register** corresponds to the configuration (first 5000 addresses) or control (next 5000 addresses) of the equipment. It only supports entries that can be read and of numeric type. It includes advanced controls with parameters, complimentary with discrete coils.
- Each **discrete coil** corresponds to the entries for controlling the equipment. It supports only simple control, without any parameters.

The Modbus transport layer is Ethernet over TCP/IP. The default used port is 502:

- Discrete Inputs, alarm reading (Read Only), using modbus command 02.
- Input Registers, data reading (Read Only), using modbus command 04.
- Discrete Coils Table (Command), using modbus command 05.
- Holding registers, using modbus command 03 for multiple read, and 06 for a single write.

If you want to use Modbus to monitor other types of systems, please contact us. We will study the business case and make a proposal.

To download the Modbus data, login to the Inview web interface, navigate to *Administration > Files > MMI References > Export Modbus Map.*

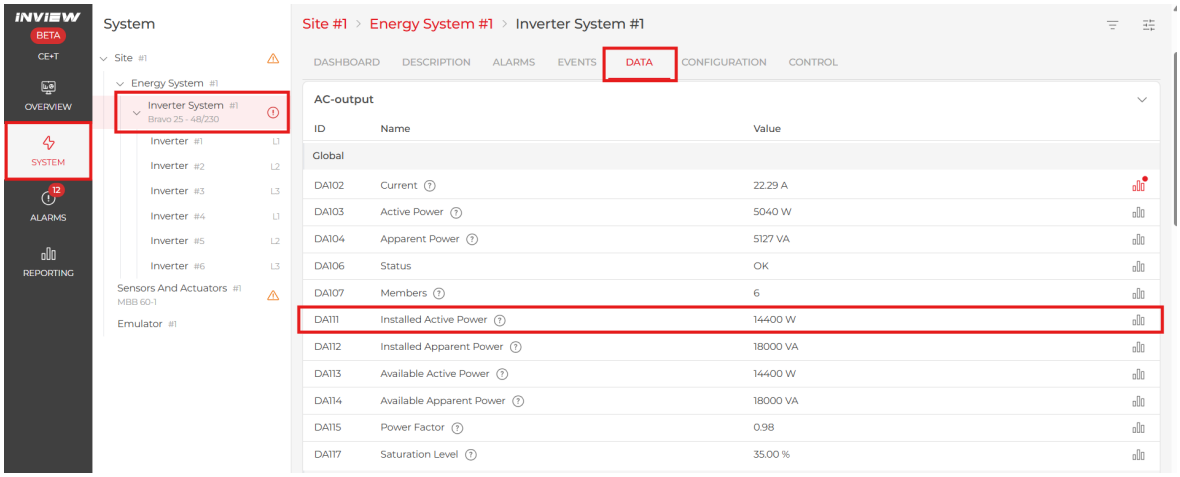


The name of the generated file is “ModbusMap.xlsx”. It contains 4 different sheets:

- Alarm discrete *InputData -> discrete inputs* related to alarms
- *Data input registers -> input registers* related to data
- *Config holding registers 1 -> holding registers* related to configuration parameters
- *Control holding registers 2 -> holding registers* related to controls to be executed

Example to read the installed Power DA111 of Inverter system 1 (ID 31):

- Set the Slave ID to 31
- Use the function 04 (PLC address starts with 30000)
- Check for address 111
- The referred address in the Modbus map is 30111
- The corresponding PLC address is 30112 (1-based)



7.7.1.2 Modbus RTU

Modbus RTU have read and write mode. The Modbus RTU is used to monitor and execute actions on the system. Modbus RTU network consists of one master device and one or more slave device.

Note: The write mode option is only available with the operation license.

Modbus RTU uses serial communication over a dedicated RS485 line. RS485 is the physical interface for communication. Refer to section “5.4.4 ModBus (RS485) Pin Details”, page 17 for the wires.

To establish communication between the laptop and Inverter system through modbus RTU,

Use a RJ45 cable and cut the one end of the RJ45 cable and isolate the Blue (B), Blue white (A) and Brown (GND) wires from the RJ45 cable.

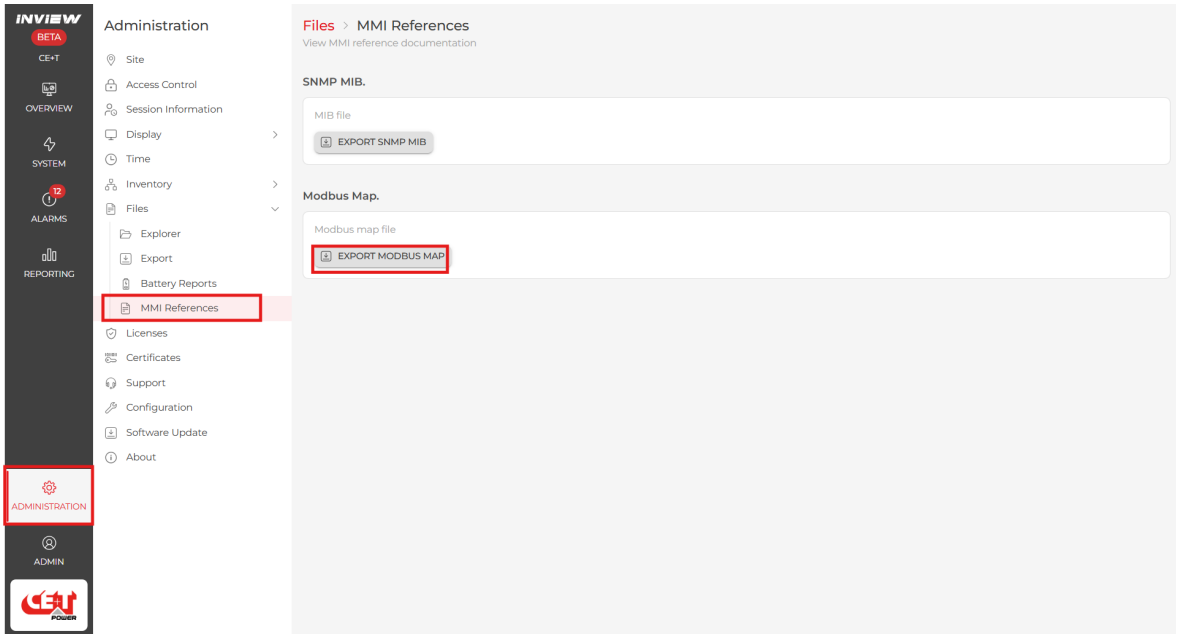
Use a USB cable (USB A-RS232 (FTDI)) and isolate the Yellow (B), Orange (A) and Black (GND).

Connect the USB cables Yellow (B) to Blue wire (B), Orange (A) to Blue white (A) and Black (GND) to Brown (GND) wire of the RJ45 cable.

In this setup, Inview acts as a Modbus RTU client. The external Modbus device (polling Inview data) acts as the server. The master device transmits the request message, which includes the server address, function code and data. The server responds with the same function code with the requested data.

Note: For monitoring any other system through Modbus, please contact us for further support.

To download the Modbus data, login to the Inview web interface, navigate to *Administration > Files > MMI References > Export Modbus Map.*



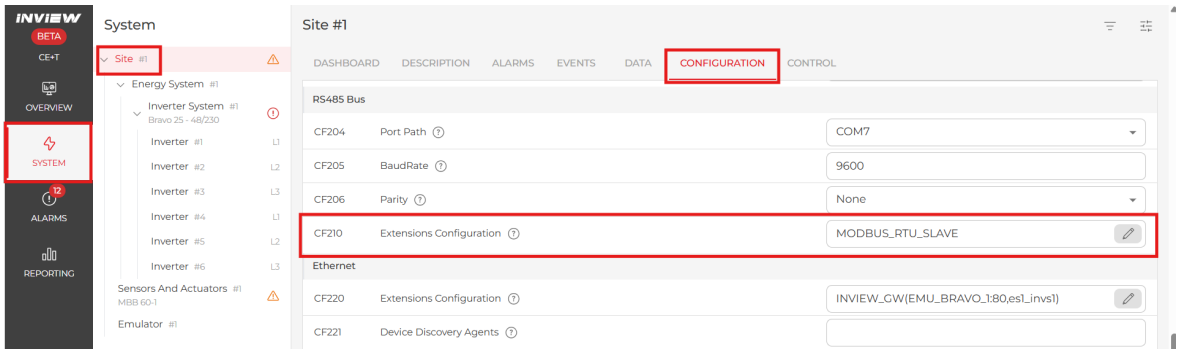
The name of the generated file is “Modbus.xls”. It contains 4 different sheets:

- *Alarm discrete InputData -> discrete inputs* related to alarms
- *Data input registers -> input registers* related to data
- *Config holding registers 1 -> holding registers* related to configuration parameters
- *Control holding registers 2 -> holding registers* related to controls to be executed

To read the Modbus RTU (Through Modbus setup application). Open the Modbus application to setup the following parameters.

- Set the Slave ID to *31*
- *Function as 04* Read Input Register
- Set address *111 (PLC Address = 30111)*
- The referred address in the Modbus map is *30111*
- The corresponding *PLC address* is *30112 (1-based)*

To configure the **Modbus RTU** in Inview, navigate to *SITE > Configuration*, scroll down to **RS485 Bus**.



- *CF205 - Baud Rate* to *9600*
- *CF206 - Parity- Even*
- To set CF210 extensions configuration - *Edit > Wizard > Add Serial Equipment > Custom Equipment*, type *MODBUS_RTU_SLAVE* and *SAVE*.
- *CF210 - Extensions configuration* to *MODBUS_RTU_SLAVE*

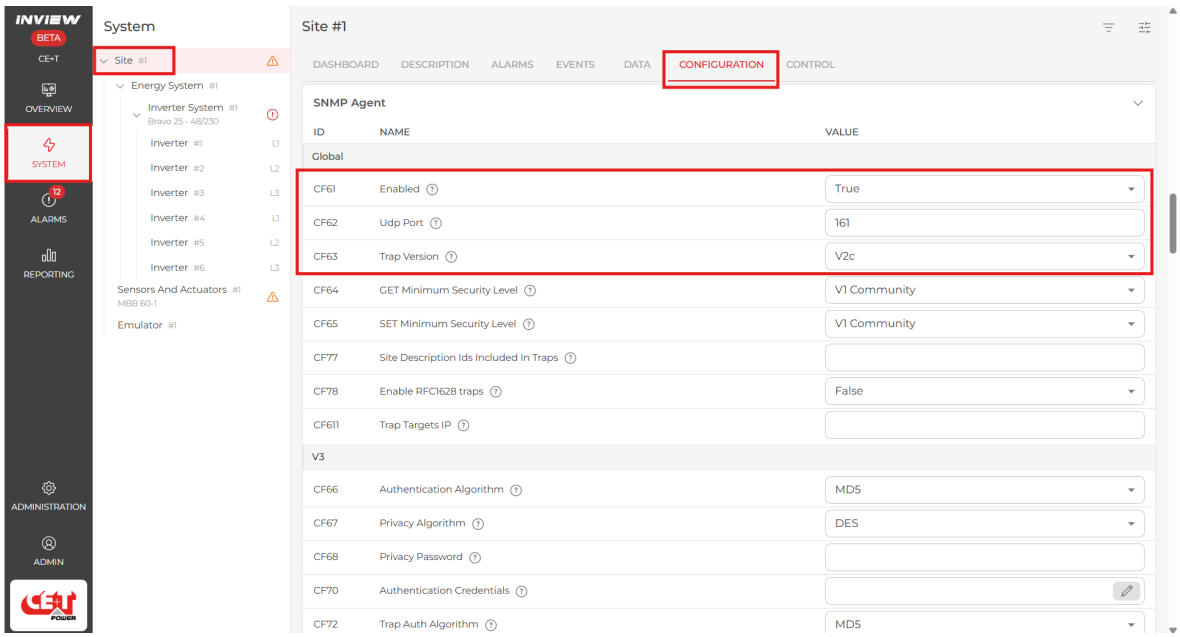
To establish communication both Master and Slave devices should have the same Baud rate and Parity.

7.7.2 SNMP

This section describes the Management Information Base (MIB) schema design for SNMP V1, V2c and V3 configuration. A MIB schema describes the structure of information served by a Simple Network Management Protocol Subsystem (SNMP) agent.

For the SNMP configuration, navigate to *SYSTEM > SITE > Configuration*, scroll down to the *SNMP Agent* section and select the following options.

- In the **ID CF61**, select "True" to enable the SNMP function and enter the port address in the **ID CF62**.
- In the **ID CF63**, select the SNMP version V1, V2C or V3.

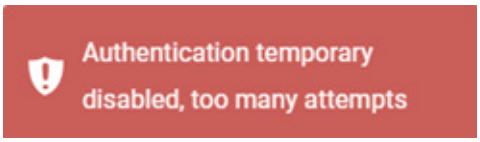


7.8 Cyber Security

7.8.1 Password Policy

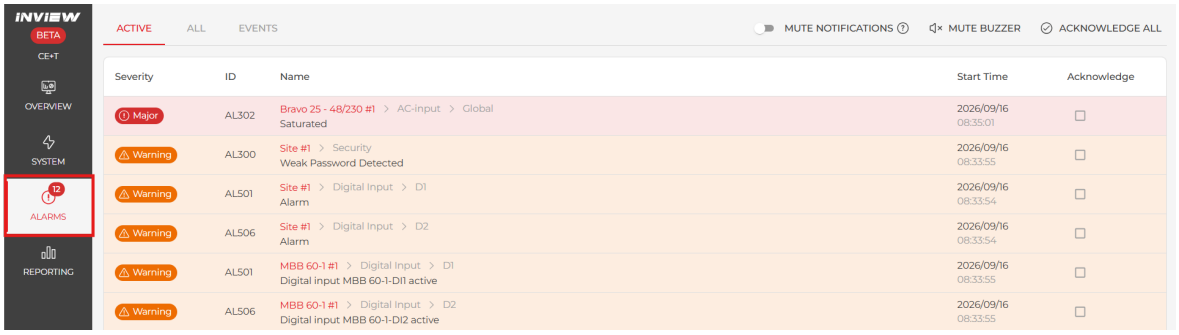
Starting from Inview software version 5.5, a new password policy is introduced. The password must be a minimum of eight characters.

If the wrong password is entered continuously five times, next time, the Inview restrict to login, and it will allow again only after five minutes.



7.8.2 Weak Password Alarm

An alarm is raised when the system detects any user using a legacy password storage, default password or default pin code.

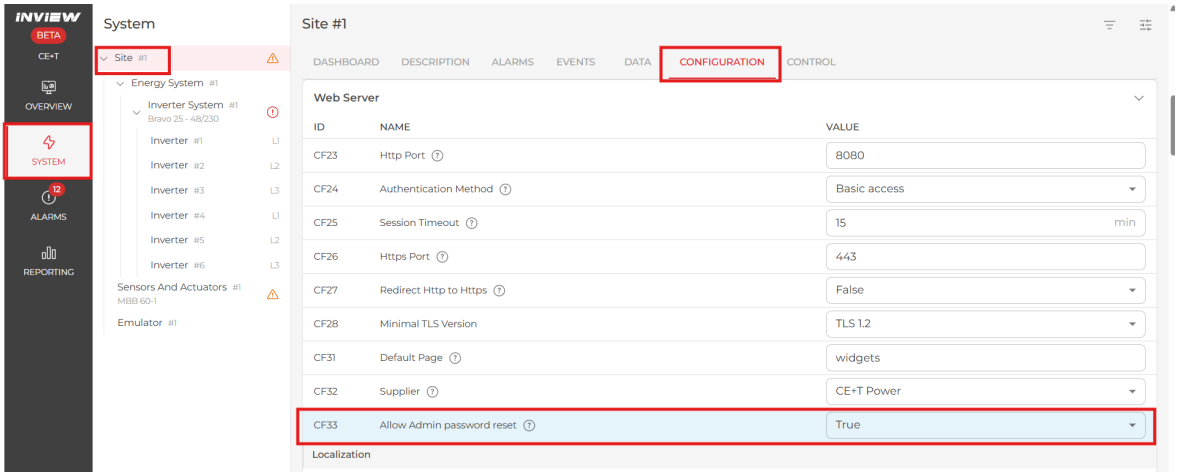


To fix the weak password alarm, check the followings:

- Make sure the PIN code is not having the default value.
- Make sure that no user is using the default password.
- If the configuration is migrated from an older version, use the web interface and change the existing password.

7.8.3 Password Protection

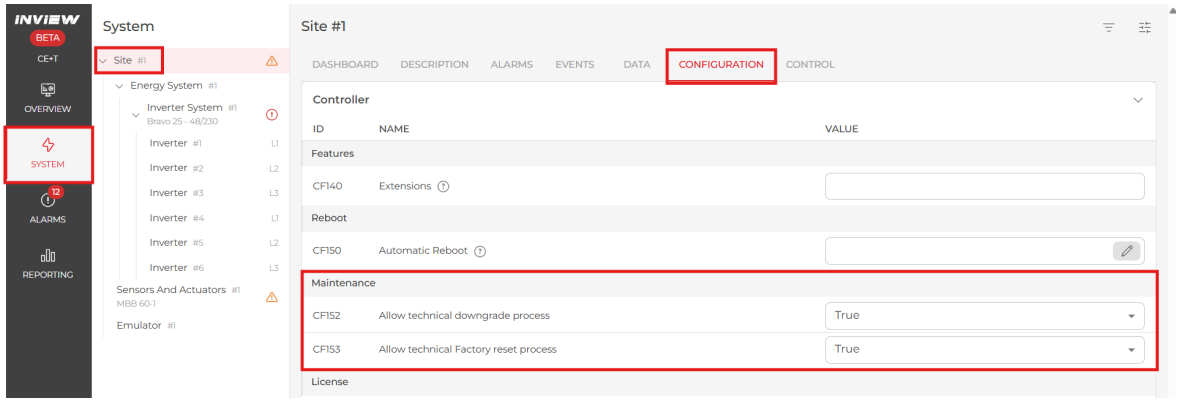
Starting from Inview software version 5.5, a new password protection feature is added. To know more about it and configure it, navigate to *SYSTEM > SITE > Configuration,* scroll down to Webserver section to CF33 (Allow Admin password reset).



- If "**True**" is selected, the web interface passwords and PIN details will be present while exporting the configuration and log files. *(Note: the password details are encrypted)*
- If "**False**" is selected, the password (for users, SNMP, Mail, MQTT, etc.) and PIN details are protected and will not be available in the configuration and log files.

7.8.4 Software Downgrade and Reset

To know about software downgrade and factory reset, navigate to *SYSTEM > SITE > Configuration,* scroll down to Controller section to maintenance ID CF152 and CF153. By default, the "True" option will be present on both parameters.



Warning: If both CF152 and 153 parameters are in False condition and the controller is corrupted, there is no possibility of recovering the data and cannot do the factory reset.

- **CF152 (Allow technical downgrade process):** Select the "**True**" option and downgrade the software version to the previous one using the USB key. Contact CE+T for the downgrading process.
- **CF153 (Allow technical Factory reset process):** Select the "**True**" option and perform the factory reset using USB Key. After the factory reset, the controller will be in default settings. Contact CE+T for the factory reset process.

8. Defective Unit

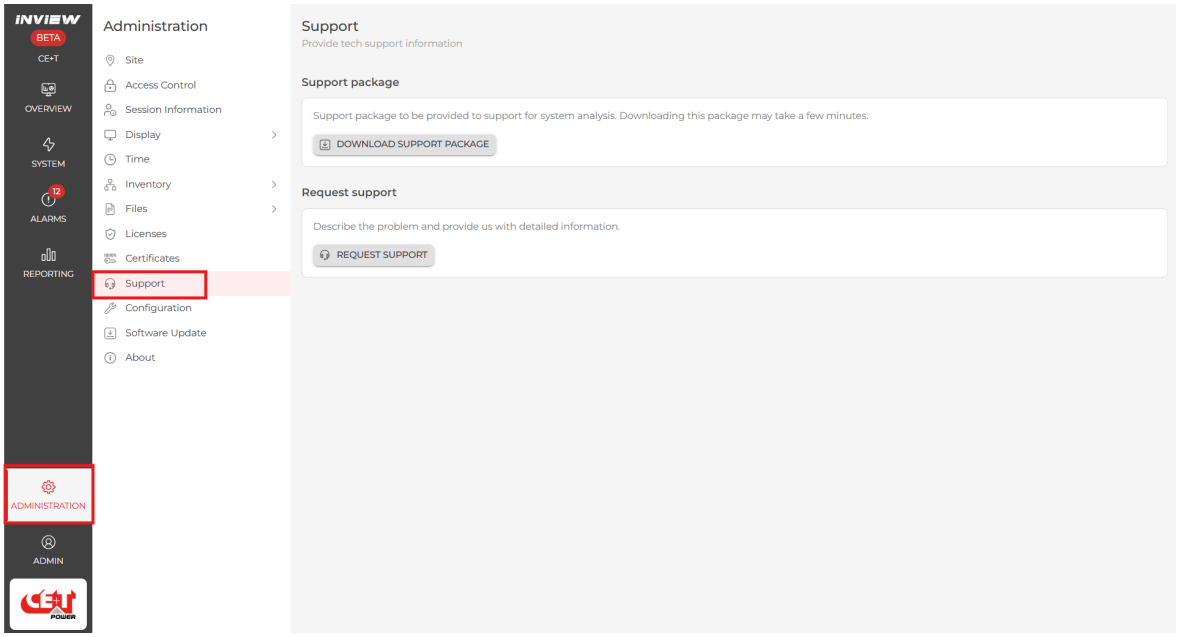
8.1 Return Defective Inview

- A repair request should follow the regular logistics chain:
  End-user => Distributor => CE+T Power.
- Before returning a defective product, a RMA number must be requested through the http://my.cet-power.com extranet. Repair registering guidelines may be requested by email at repair@cet.be
- **Freight costs:**
  - The cost to ship the unit(s) from the Customer's premises back to CE+T Power is at the Customer's charge.
  - CE+T Power will pay for the shipping of the unit(s) back to the Customer's premises.
- **Warranty:**
  - The warranty will be void if the transport conditions or packing were inadequate.
  - The warranty will be cancelled if the unit sent for repair has been opened by parties other than a CE+T approved Repair Centre.
- **Repair costs:**
  - If the faulty unit is under warranty, CE+T Power will bear the repair costs.
  - If the warranty is void, the repair costs will be invoiced to the Customer.
  - If a unit sent back to CE+T Power (Repair or Swap) presents no defect or failure, a lump sum amount will be charged to the Customer.
- **Swap conditions:**
  - You must provide CE+T Power with a Purchase Order for the new unit that you are requesting, at the current price. No Swap request will be accepted without it!
  - Within 3 months of the reception of our Swap approval email, you will have to provide CE+T Power with a tracking reference proving that you have shipped the faulty unit(s) back to CE+T Power.
  - If CE+T Power does not receive the tracking reference or the unit in time, CE+T Power will automatically invoice the unit(s) sent in exchange, at the current price list value.
- **RMA:**
  - Your Return Material Authorization number (RMA) and the address of the appropriate Repair Centre will be confirmed to you after careful review of your request.
  - The RMA number must be present on the packing and all the paperwork of the returned material.
  - So please, wait until you receive these two information before you ship us the faulty unit.

9. Troubleshooting and Service

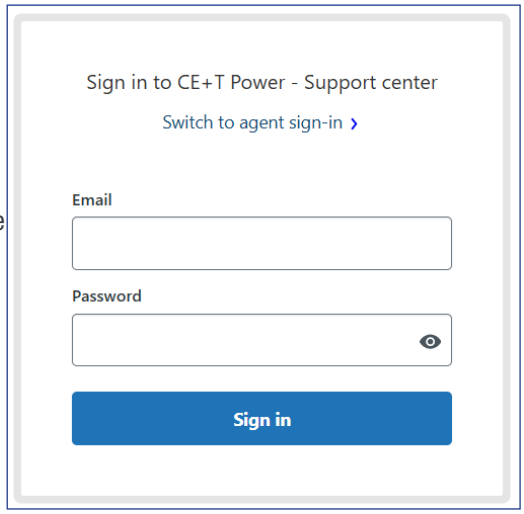
For Service

- Check the Service Level Agreement (SLA) of your vendor. Most of the time they provide assistance on call with integrated service. If such SLA is in place, you must call their assistance first.
- To raise the request support ticket to CE+T customer support, perform the following steps:
  - Navigate to *ADMINISTRATION > Support* and click "Download support package" to download the "diagnostics" zip file.



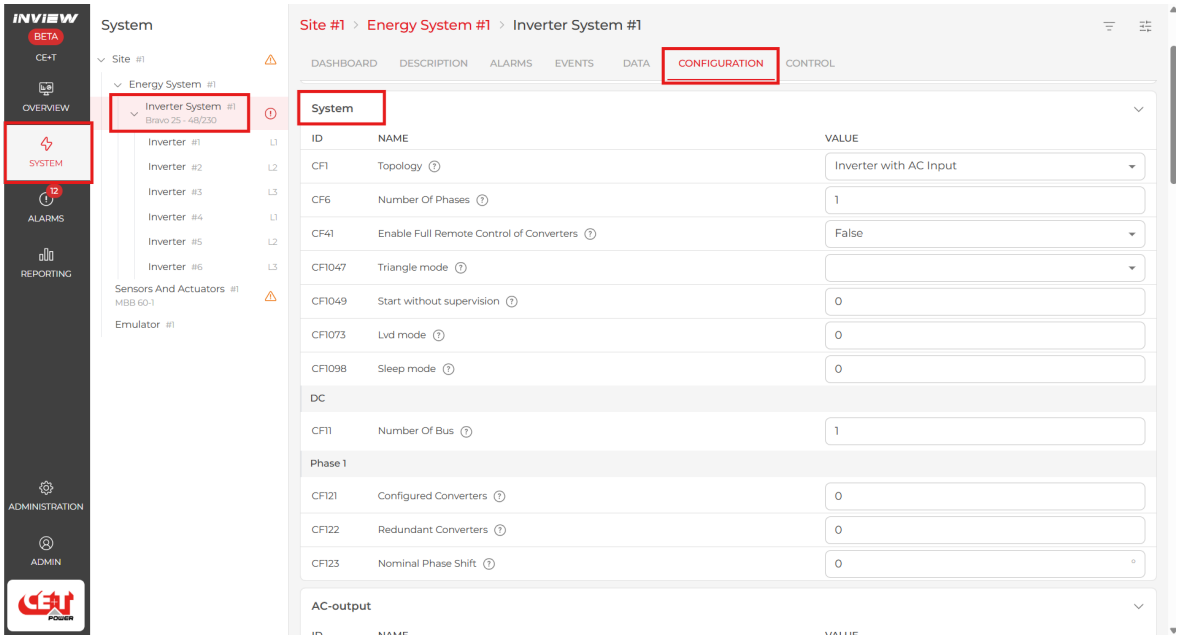
  - For USA and Canada:
    - Attach the downloaded the "diagnostics" zip file in the email
    - Send it to CE+T America customer support: tech.support@cetamerica.com

  - For Rest of the world:
    - Click "Request support" to send the diagnostic file to CE+T customer support.
    - You will be redirected to our ticketing platform.
    - Sign in to CE+T Power - Support center
    - Open a new ticket and attach the diagnostic file
    - Click Submit to send the request support ticket to CE+T customer support



10. Annexe 1: Converter - Parameter List

To view and edit the converter parameters, navigate to *SYSTEM > SITE > Energy System > INVERTER SYSTEM > Configuration.*



If you want to have an overview of standard systems' parameters, you can also view the parameters in our Monitoring Emulator https://www.cet-power.com/en/monitoring-emulator/. Do not hesitate to use the help buttons for more information about the parameters.

11. Annexe 2: PLC/Boolean Expression

11.1 Overview

The term PLC means Programmable Logic Controller. A PLC lets the user add custom data, alarms, or controls with a logical expression. This controller is cost-effective for regulation processes where the main loop is not faster than one second.

Some configuration fields accept a Boolean expression or a mathematical expression. The sections that follow give information about the syntax and examples of correct expressions. The PLC function is only available with an 'Operation' license.

A PLC data element is the result of a mathematical operation on any data.

A PLC alarm is the result of a combination or an operation of any information in Inview Fit. By default, a PLC alarm has a severity level of 'none'. This level prevents system damage if the configuration is incorrect. To make the alarm show, change the configuration of the alarm in the 'Alarms' menu.

A PLC control includes a control command and a triggering condition. The triggering condition is a combination or an operation of any information in Inview Fit. Some controls require values, such as setpoints. Write the condition and the execution value with the correct PLC syntax.

CAUTION: Incorrect programming can cause dangerous and unwanted system behavior. The manufacturer is not responsible for errors that the user makes. Do not use PLC control if you did not receive CE+T training.

Use Boolean expressions with PLC syntax to open or close relays. These expressions follow custom logic to satisfy system requirements and monitor specific alarms.

11.2 Abbreviations used in the Syntax

Abbreviations	Descriptions
esX	Refers to the Energy System with ID X
invsX	Refers to the Inverter System with ID X
convsX	Refers to the Converter System with ID X
dcdcX	Refers to the DC Converter System with ID X
rdcsx	Refers to the Remote DC System with ID X
dcX	Refers to the DC System with ID X
saX	Refers to the Sensors and Actuators with ID X
emX	Refers to the Energy Meter with ID X
spsX	Refers to the Solar Power System with ID X
invX	Refers to the Inverter with ID X
coX	Refers to the Converter with ID X
batX	Refers to the Battery with ID X
loadX	Refers to the (DC) Load with ID X
daX	Refers to Data with ID X
alX	Refers to Alarm with ID X

Abbreviations	Descriptions
cfX	Refers to Configuration parameter with ID X
ctX	Refers to Control with ID X
deX	Refers to Description with ID X
severity_level	Refers to the highest severity level of the relative equipment (0->9)
severity_type	Refers to the highest severity type of the relative equipment (none - warning - minor - major - critical)

11.3 Use of Syntax to Access Data Entries from a Monitored Device

Syntax	Explanation
@(daXXX)	The data with ID XXX of the relative equipment (of the equipment where the PLC is written). Example: @(data501), @(da501)
@(esY_daXXX)	The data with ID XXX relative to the Energy System with ID Y. Example: @(es1_da100) – Denotes the active scheduling with ID DA100 from Energy System #1 (only available with some power management features)
@(spsY_daXXX)	The data with ID XXX relative to the Solar Power System with ID Y. Example: @(sps1_da11) – Denotes the data with ID DA11 from Solar Power System #1 (only available when the solar converter communicates correctly with Inview)
@(dcY_batZ_daXXX)	The data with ID XXX relative to the Battery with ID Z of the DC System with ID Y. Example: @(dc1_bat1_da5) – Denotes the voltage measurement data with ID DA5 from Battery #1 of DC System #1
@(dcdcY_coZ_daXXX)	The data with ID XXX relative to the Converter with ID Z of the DC Converter System with ID Y. Example: @(dcdc1_co1_da5) – Denotes the data with ID DA5 from Converter #1 of DC Converter System #1
@(convsY_coZ_daXXX)	The data with ID XXX relative to the Converter with ID Z of the Converter System with ID Y. Example: @(convs1_co1_da8) – Denotes the temperature measurement data with id DA8 from Converter #1 of Converter System #1
@(invsY_invZ_daXXX)	The data with ID XXX relative to the Inverter with ID Z of the Inverter System with ID Y. Example: @(invs1_inv1_da8) – Denotes the temperature measurement data with ID DA8 from Inverter #1 of Inverter System #1
@(emY_daXXX)	The data with ID XXX relative to the Energy Meter with ID Y. Example: @(em1_da10) – Denotes the current measurement data with ID DA10 from Energy Meter #1

Other possible syntaxes:

- @(dcY_daXXX), @(dcY_alXXX),...
- @(saY_daXXX), @(saY_alXXX),...
- @(invsY_daXXX), @(invsY_alXXX),...
- @(convsY_daXXX), @(convsY_alXXX),...
- @(spsY_daXXX), @(spsY_alXXX),...
- @(dcdcY_daXXX), @(dcdcY_alXXX),...

11.4 Use of Syntax to Access Alarms Grouped by Severity Level or Severity Type

@(severity_level)	The highest severity level active of the relative equipment (0->9). This can be useful to activate a relay based on the severity level.
@(severity_type)	The highest severity type active of the relative equipment (none - warning - minor - major - critical). This can be useful to activate a relay based on the severity level.
@(dcY_severity_level)	The highest severity level active, relative to the DC System with ID Y.
@(saY_severity_level)	The highest severity level active, relative to the equipment Sensors And Actuators with ID Y.

11.5 Operators and Functions

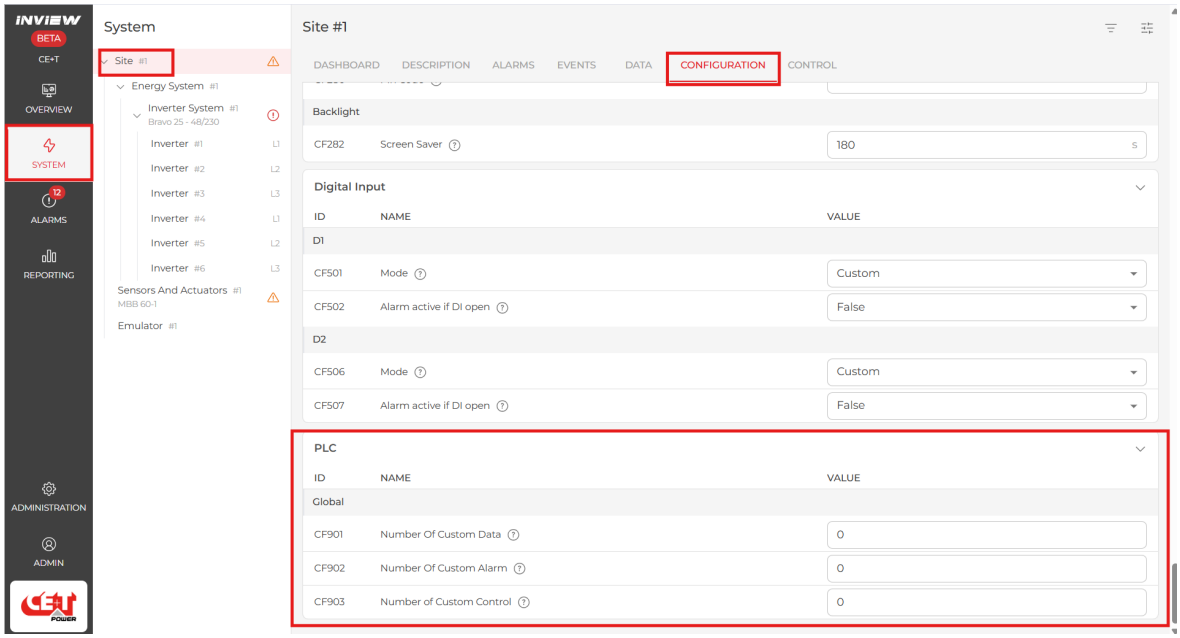
Syntax	**Explanation**
(….)	Parentheses
&&	Logical AND
ll	Logical OR
= or ==	Equal
!=	Not Equal
+	Addition
-	Subtraction
*	Multiplication
/	Division
>	Superior
>=	Superior or Equal
<	Inferior
<=	Inferior or equal
$second()	Second part of the actual time
$minute()	Minute part of the actual time
$hour()	Hour part of the actual time
$day()	Integer indicating the day of the month
$dayofweek()	Integer indicating the day of the week. This integer ranges from zero =>indicating Sunday, to six=> indicating Saturday
$dayofyear()	Integer indicating the day of the year
$month()	Integer indicating the month of the year
$year()	Integer indicating the year
$time()	The actual time of the day
@ts(XX:XX)	Create a timespan variable from XXXX string. Example: @ts(11:30) corresponds to 11:30.
$iif(condition, val if true, val if false)	Equivalent to “If then else”
$abs(XXX)	The absolute value of XXX

$case(condition, val, condition2, val2, ...)	Equivalent to “switch”
$ceil(XXX)	The ceil value of XXX
$floor(XXX)	The floor value of XXX
$max(X1, X2, X3, …)	The maximum value between X1,X2,X3, etc.
$min(X1, X2, X3, …)	The minimum value between X1,X2,X3, etc.
$sqrt(XXX)	The square root value of XXX

11.6 Examples of Boolean Expressions for Custom PLC Data, Alarms, Controls and Relays

11.6.1 Create Custom Data

1. Recalculate the voltage of the Converter System AC-out based on apparent power and current.
   a. Navigate to *SITE > Configuration > PLC* to add a custom PLC data. (There is no PLC configuration possible under the Converter System)



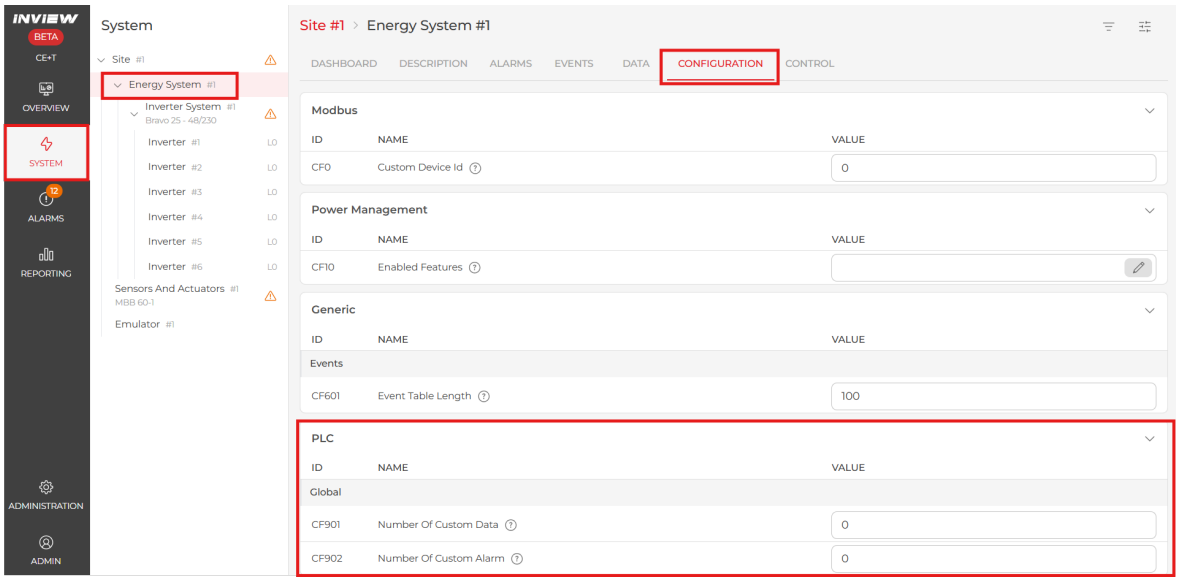
2. Change the parameter CF901 (Number Of Custom Data) to ‘1’. You will see three new parameters (CF1301, CF1302 and CF1303).
3. Configure the data name, the mathematical expression and the unit.
   a. Change the name CF1301 (e.g. “AC-out Voltage”)
   b. Change the Mathematical expression CF1302 to “@(convs1_da104)/@(convs1_da102)”
      - @(convs1_da104) represents the data with ID 104 of the Converter System: Global AC-output Apparent Power in this case.
      - @(convs1_da102) represents the data with ID 102 of the Converter System: Global AC-output Current in this case.
   c. Change the unit CF1303 to ‘V’.

4. The custom data is now available under *SITE > Data > PLC*.

11.6.2 Create Custom Alarm

1. Adding an overload alarm on an energy meter.

   a. Navigate to the concerned *Energy Meter > Configuration > PLC*.



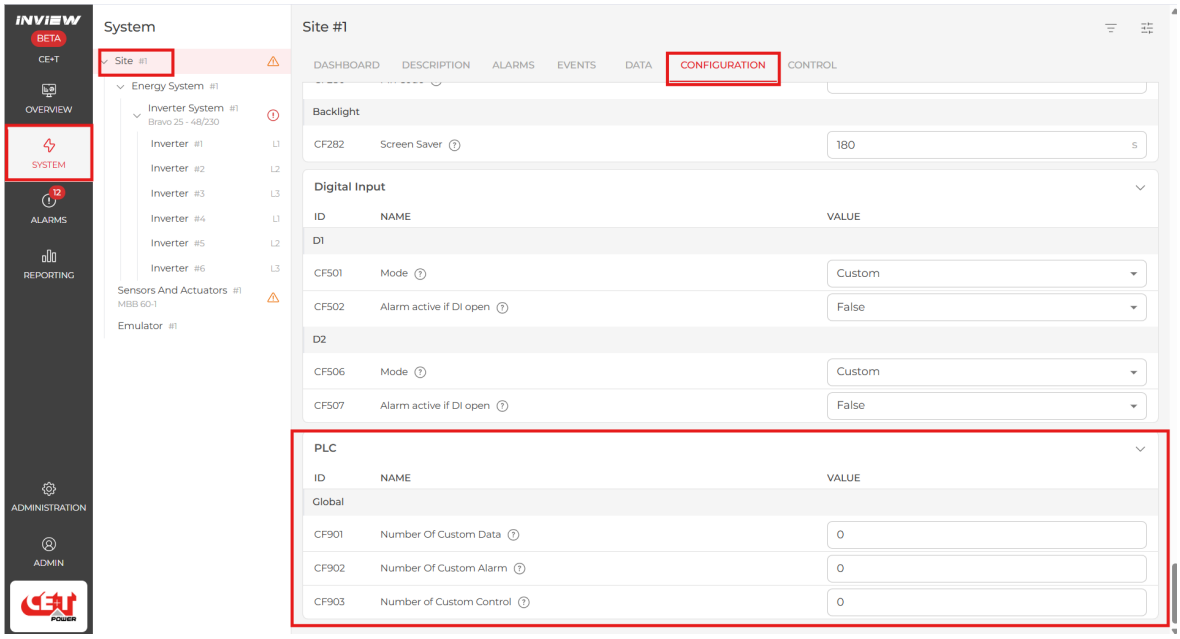
   b. Change the parameter CF902 (Number Of Custom Alarm) of the energy meter to 1. You will see two new parameters (CF1001, CF1002).

   c. Configure the alarm name and triggering condition.

- Change the name CF1001 (e.g. “Overload current on line 1 (current > 1A)”)
- Change the Boolean expression CF1002 to “@(da10) >= 1”
  - @(da10) represents the data with ID 10 of this device : Current – Phase 1 in this case.
  - ‘>=1’ compares the data to a value superior or equal to 1.
- The alarm severity level is ‘none’ by default. The configuration of the alarm has to be changed under *Energy Meter > Alarms > PLC*. Adapt the severity level for the alarm to be shown.
- Now, the alarm is triggered (pops up) when the data parameter with ID=10 (DA10) is superior or equal to one, when the current of phase 1 is higher than 1A.

2. Adding a high temperature alarm with a hysteresis.

   a. Navigate to *Site > Configuration > PLC* to add a custom PLC alarm.
   (There is no PLC configuration possible under Sensors and Actuators (MBB 60V and MBB 500V) on which your temperature sensor is cabled.)



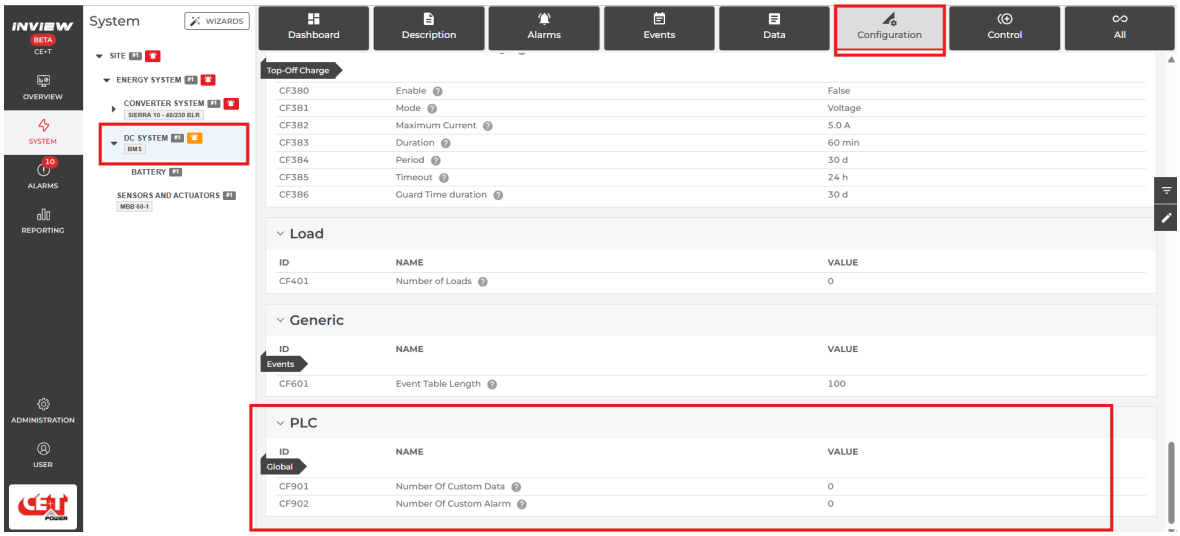
   b. Change the parameter CF902 (Number Of Custom Alarm) to 1. You will see two new parameters (CF1001, CF1002).

   c. Configure the alarm name and triggering condition.

- Change the name CF1001 (e.g. “Indoor Temperature High”)
- Change the Boolean expression CF1002 to
  “(@(sa1_da301)>50) || ((@(al101) == True && @(sa1_da301) > 48))”
  - The alarm will be triggered if @(sa1_da301) - the temperature DA301 of the Sensors and Actuators #1 - is over 50°C OR if @(alarm101) – current alarm - is true and @(data1) is still over 48°C.
  - The alarm severity level is ‘none’ by default. The configuration of the alarm has to be changed under *Site / Alarms / PLC*. Adapt the severity level for the alarm to be shown.

3. Adding an alarm for the battery being in 'Charge' state.

   a. Navigate to *DC System > Configuration > PLC* to add a custom PLC alarm.



   b. Change the parameter CF902 (Number Of Custom Alarm) to 1. You will see two new parameters (CF1001, CF1002).

   c. Configure the alarm name and triggering condition.

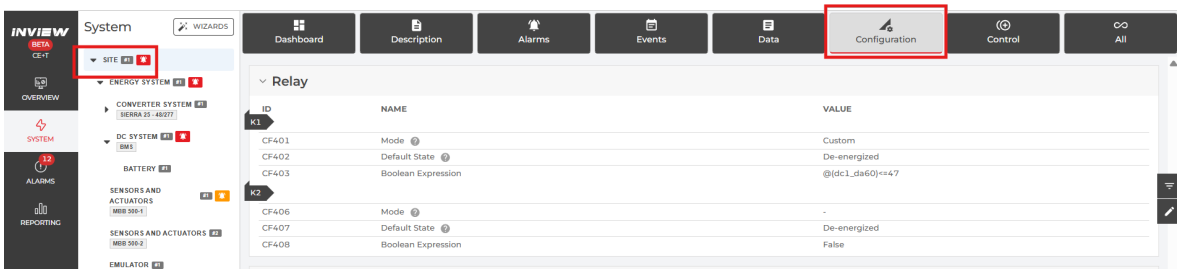
- Change the name CF1001 (e.g. "Battery in Charge")
- Change the Boolean expression CF1002 to "@(da1)=2"
  - The alarm will be triggered if @(da1) - the Battery state DA1 of the DC System - is equal to 2.
  - The possible values of DA1 are:
    - 0 = Unknown
    - 1 = Disconnected
    - 2 = Charge
    - 3 = Discharge
    - 4 = Warning
    - 5 = Error
- The alarm severity level is 'none' by default. The configuration of the alarm has to be changed under *DC System > Alarms > PLC*. Adapt the severity level for the alarm to be shown.

11.6.3 Create Custom Relay

1. Based on a custom expression.

- Navigate to *SITE > Configuration > Relay*.

a. Set the mode of the corresponding relay to 'Custom'. Change the Boolean expression to the desired condition.

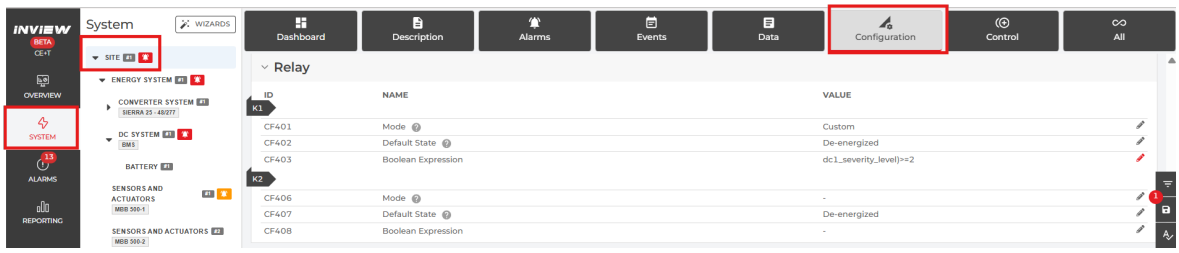


2. Based on severity level

- Navigate to *SITE > Configuration > Relay*.

a. Set the mode of the corresponding relay to 'Custom'.

b. Click Edit and type "@(dc1_severity_level)>=2" in the Boolean Expression box.



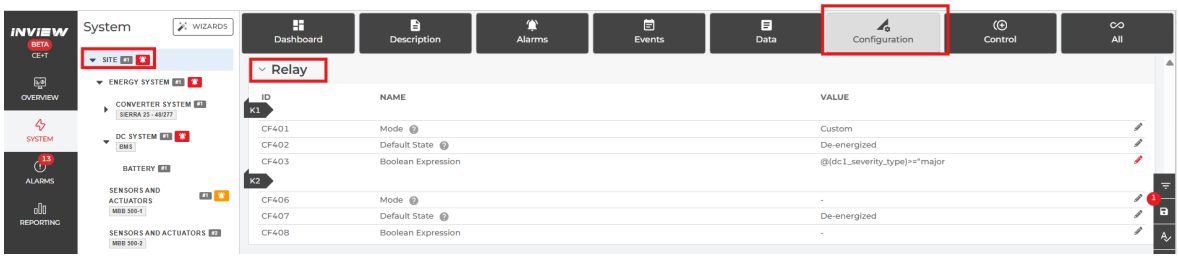
- @(dc1_severity_level) correspond to the highest severity level active among the alarms of DC System #1.
- @(dc1_severity_level)=2 will not trigger the relay, If the alarm with severity level 2 or higher severity level are active in the DC System. All the element under the DC System #1 determines the alarms highest severity level.

3. Based on severity type.

- Navigate to *SITE > Configuration > Relay.*

a. Set the mode of the corresponding relay to 'Custom'.

b. Click Edit and type “@(dc1_severity_type)>=“major” in the Boolean expression box..



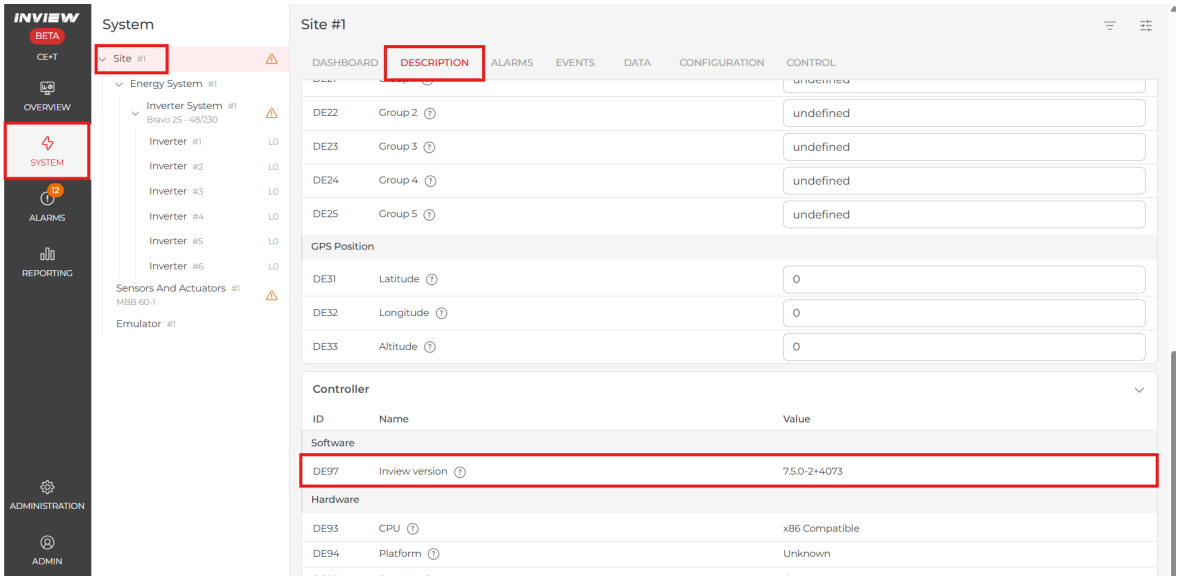
- @(dc1_severity_type) correspond to the highest severity type active among all alarms of DC System #1.
- Pay attention that @(dc1_severity_type)= “minor” will not Energize the relay if there are both alarms with a severity type of “minor” and alarms with higher severity types that are active in the DC System #1. All elements under DC System #1 are considered to determine the highest severity type.

11.6.4 Simple Examples of Custom Alarms or Data

Condition or Data	Configuration examples
The bus voltage is under 47V.	@(data11)<47
If the specific inverter output power is over 2500W	@(convs1_co1_data13)>2500
The time of the day is comprised between 10:30 and 11:30	($time()>@ts(10:30))&&($time()<@ts(11:30))
The day of the week is Sunday	$dayofweek()==0
The alarm with ID 17 is active	@(alarm17) ==True
The alarm with ID 17 and 18 are active	@(alarm17) ==True && @(alarm18) ==True
Linking Digital input with relay	• If Digital input 3 is closed then relay K3 need to be energized. ▪ D3 alarm ID from Inview Fit: al511 ▪ Boolean expression set at relay : @(sa1_al511) • Mode: Custom; Boolean Expression: @(sa1_al511)
Linking Specific alarm with Relay	• If Redundancy lost alarm need to be configured with relay ▪ Redundancy lost alarm ID from Inview Fit: al103 ▪ Boolean expression need to be set at relay: @(convs1_al103) • Mode: Custom; Boolean Expression: @(convs1_al103)
Linking Specific data with Relay	• When the battery voltage reaches below 45V ▪ Battery voltage measurement displayed at: sensors and actuators > Data> da101 ▪ Boolean expression need to be set at relay: @(sa1_al101)<45 • Relay Mode: Custom; Boolean Expression: @(sa1_da101)<45

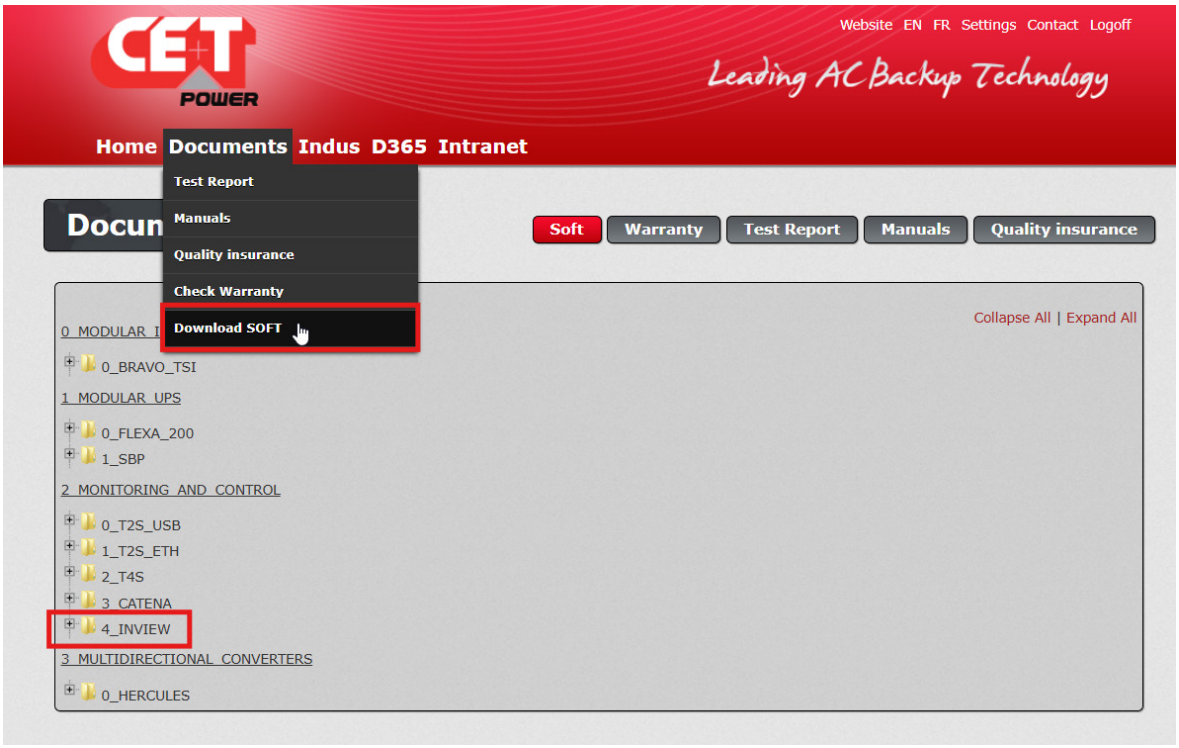
12. Annexe 3: Inview Fit - Software Upgrade

The current software version number is present on *User Context > About*. To know more about software details, navigate to *SYSTEM > SITE > Description* and scroll down to the **Controller** section.

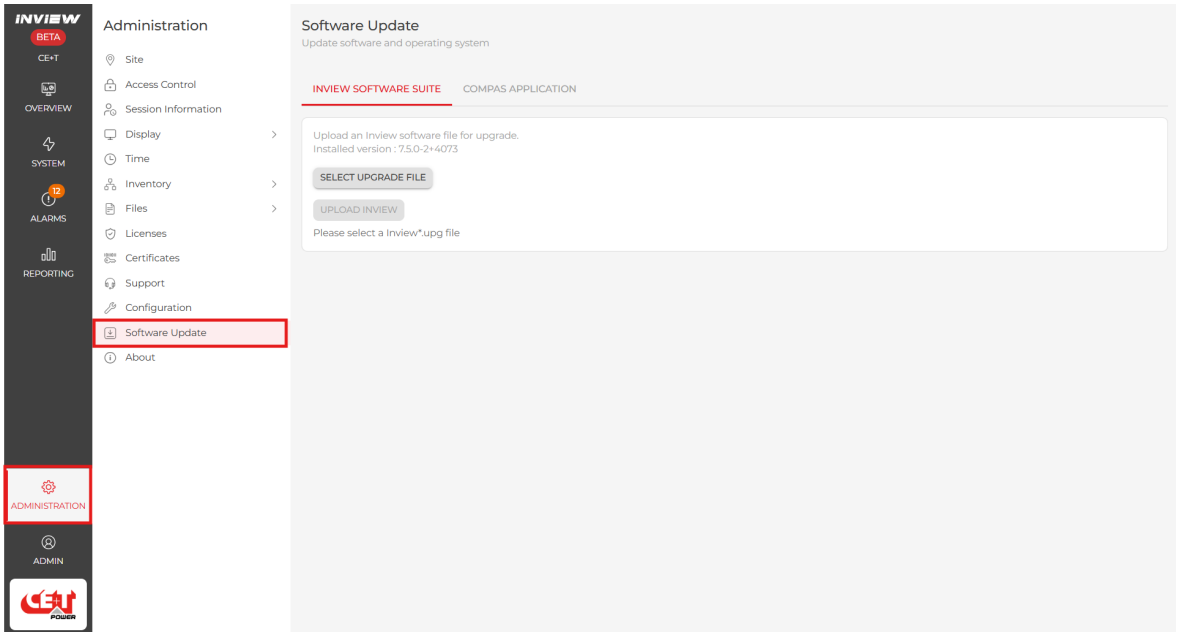


Perform the following steps to upgrade Inview Fit software, and this process can do only through the web interface.

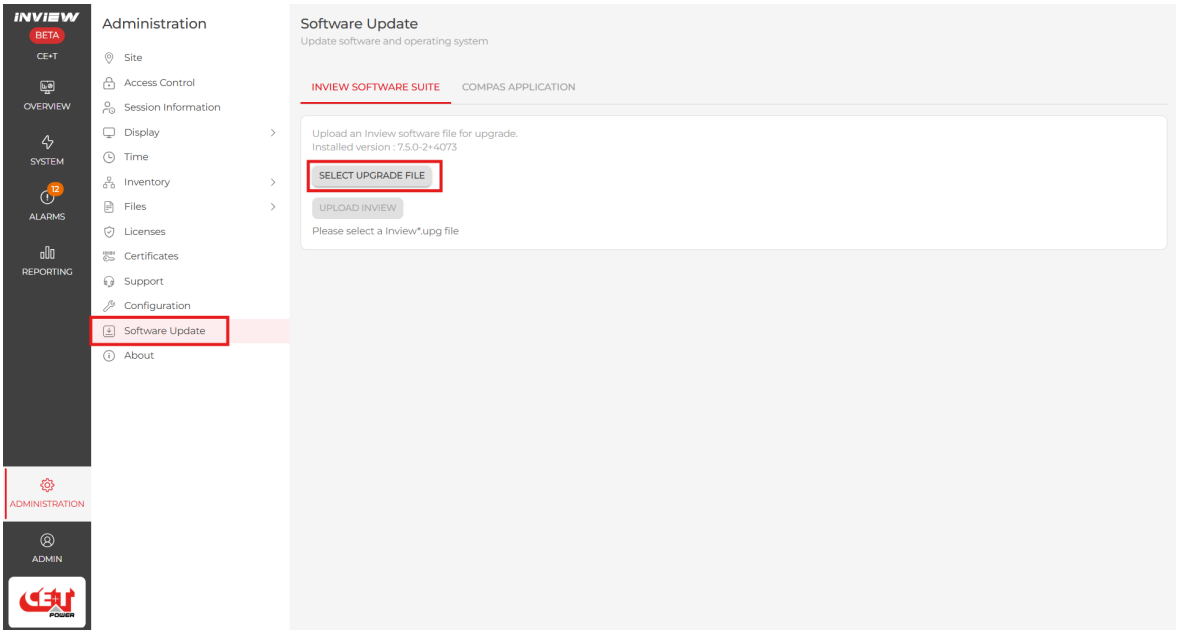
1. Navigate to my.cet-power.com > *Documents > Download SOFT > 2_MONITORING AND CONTROLS* (link) and download the latest software from the **4_INVIEW folder**. The downloaded file will be "**.RAR**", extract and save it in local as "**.UPG**" extension.



2. Login as admin privileged account in the Inview Fit web interface and Navigate to *Administration > Software Update*.



3. Click "**Choose file**" button and direct to the downloaded **.UPG** file and the Click "**Upload, save configuration and reboot**" button.



4. Wait, the upgrading process will take approximately 15 minutes to return to normal operating conditions.
5. After successful up-gradation, the web interface resumes to the login screen. Login and verify the Software version below the Inview logo or navigate to the *Controller* section at *SYSTEM > SITE > Description* page.

Note: During the upgrade, it is highly recommended to ensure that the Inview does not get shut down (it might get bricked). Therefore, it is recommended to use a redundant power supply.

13. Annexe 4: Hardware Replacement

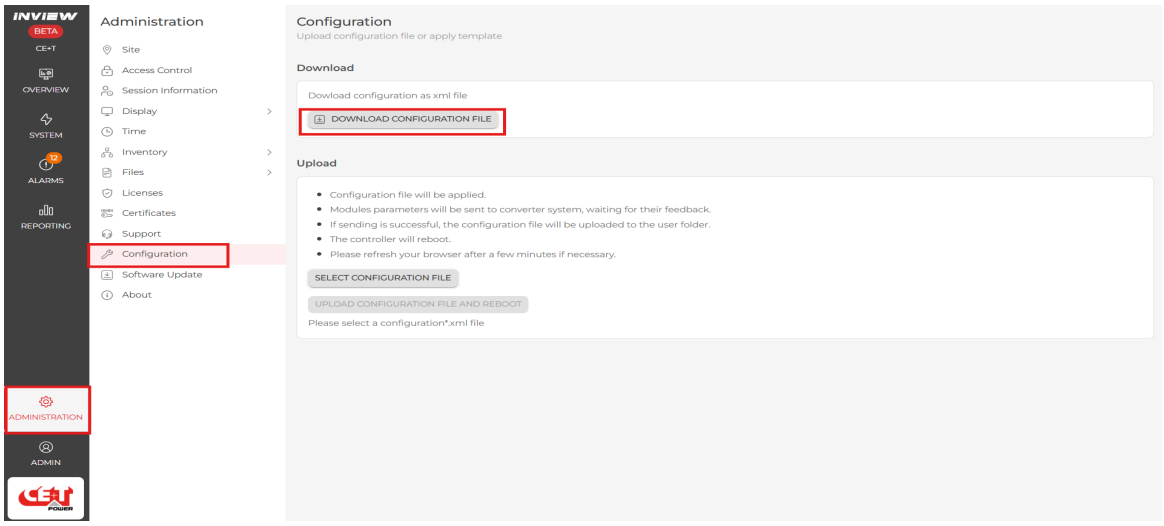
13.1 Inview FIT

Before replacing the new Inview FIT, the existing configuration file must be saved and need to upload the same after installing the new controller.

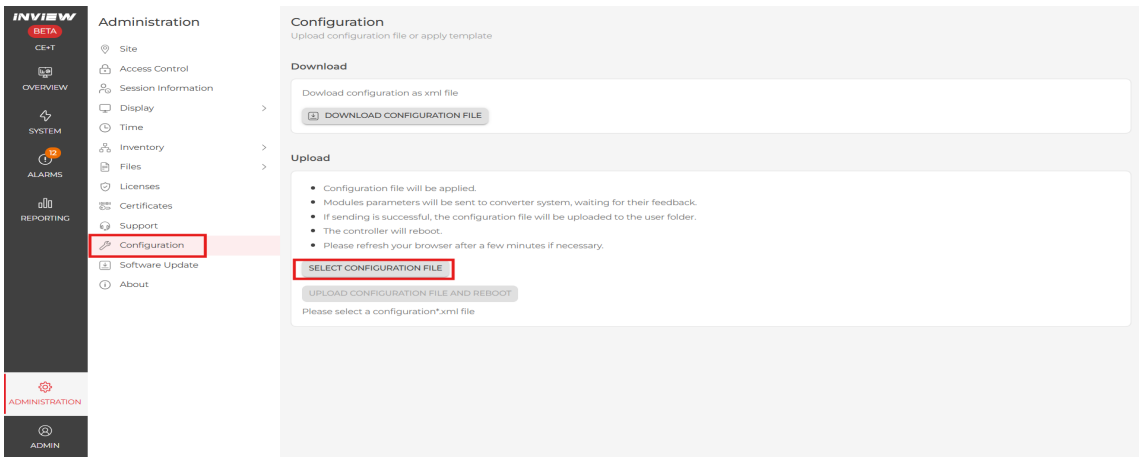
Perform the following steps for replacing Inview FIT:

1. Login as admin privileged account, navigate to *Administration > Configuration*, click "**Download configuration file**" button, and save the file in local.

***Note**: The downloaded file name will be as "configuration.xml" and it must not be renamed.*



2. Remove the existing controller and install the new controller. To know about installing it and its hardware connections, refer to the section 5, page 20.
3. Power on the controller and login as admin privileged account.
4. Navigate to *Administration > Configuration*, click "**Choose file**" button, and direct to the downloaded "*configuration.xml*" file. Then click "**Upload configuration and reboot"** button.



Disclaimer

USA:

Federal Communications Commission (FCC) Statement 15.105(b)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated, keeping the radiator at least 20cm or more away from the person's body.

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

Canada:

For indoor use only - Pour usage intérieur seulement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage, et.
2. l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution: Exposure to Radio Frequency Radiation

1. To comply with the Canadian RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
2. To comply with RSS 102 RF exposure compliance requirements, this equipment should be installed and operated, keeping the radiator at least 20cm or more away from the person's body.

Attention: Exposition au rayonnement radiofréquence

1. Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne ne doivent pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.
2. Pour se conformer aux exigences de conformité CNR 102 RF exposition, cet équipement doit être installé et utilisé en maintenant le radiateur à au moins 20cm ou plus du corps de la personne.