

MONITORING – INVIEW S

WITH MEASURE BOX BATTERY

User Manual V1.0

THE NEW GENERATION OF MONITORING

- WEB-BASED USER INTERFACE
- EXTENDED LOG CAPABILITIES
- IN BUILT DISPLAY



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Release Note:

Version	Release date (DD/MM/YYYY)	Modified page number	Modifications
1.0	14/12/2018	-	First release of the manual.

1. CE+T at a glance

CE+T Power designs, manufactures and markets a range of products for industrial operators with mission critical applications, who are not satisfied with existing AC backup systems performances, and related maintenance costs.

Our product is an innovative AC backup solution that unlike most used UPS's

- Maximizes the operator's applications uptime;
- Operates with lowest OPEX;
- Provides best protection to disturbances;
- Optimizes footprint.

Our systems are:

- Modular
- Truly redundant
- Highly efficient
- Maintenance free
- Battery friendly

2. Abbreviations

ECI	Enhanced Conversion Innovation
EPC	Enhanced Power Conversion
REG	Regular
DSP	Digital Signal Processor
AC	Alternating current
DC	Direct current
PE	Protective Earth (also called Main Protective Conductor)
N	Neutral
PCB	Printed Circuit Board
TRS	True Redundant Structure
PWR	Power
ESD	Electro Static Discharge
MET	Main Earth Terminal
MBP	Manual By-pass
TCP/IP	Transmission Control Protocol/Internet Protocol
USB	Universal Serial Bus
LAN	Local Access Network
ETH	Ethernet
SNMP	Simple Network Management Protocol
NTP	Network Time Protocol
MIB	Management Information Base
DHCP	Dynamic Host Configuration Protocol

3. Warranty and Safety Conditions*

WARNING:

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 electrical 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 as defined by UL60950 and in accordance with the National Electric Code, ANSI/NFPA 70, or equivalent agencies.
- 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 UL listed upstream and downstream circuit breaker requirements as defined in this manual.
- 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.
- REG systems and EPC systems that have no AC input wired and connected can be seen as independent power sources. To comply with local and international safety standards 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 T2S; 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.

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 inverter positions must not be left open. Replace with module or 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 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.
- Prior to any work conducted on a system/unit make sure that AC input voltage and DC input voltage are disconnected.
- Inverter modules and shelves contain capacitors for filtering and energy storage. Prior to accessing the system/modules after power down, wait at least 5 minutes to allow capacitors to discharge.
- 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.

To download the latest documentation and software, please visit our website at www.heliosps.com

4. Introduction

4.1 Inview S

Inview S is a monitoring and controller unit for Sierra Converter systems. It allows the user to easily access the system information through inbuilt powerful touch screen graphic display. In addition to the touch screen display, user can also access the system information through web interface and SNMP protocol.

The Inview S interface provides the user to access the configuration and setup files of the modules that are connected in the system. It is the controller for DC regulation.

Inview S can monitor up to 32 inverters / converters and featured with:

- LCD touch screen display
- 2 Digital Inputs
- 2 Output Relay contacts
- Records 1000 events as FIFO



4.1.1 Description

Inview S has 3 LEDs at front to indicate.

- Major Alarm
- Minor Alarm
- System Status

At rear of the product contains network connectivity ports and free potential dry contacts.

- CAN / iso RS485 – Isolated CAN communication
- RJ45 – Connection to ETH for LAN
- CE+T COM – Connection to CE+T power modules.
- USB – Access for USB key
- D1 & D2 – Digital Inputs
- K1 & K2 – Output Relay Contacts
- PWR – 12 VDC power to the product

4.2 Measure Box Battery (MBB)

Measure Box Battery is a compact unit which monitors the Battery. In addition it contains extended Digital Inputs and Output Relay contacts.



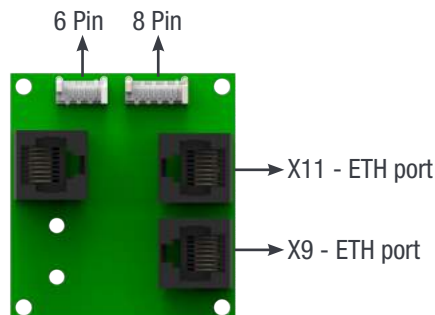
4.2.1 Description

Measure Box Battery is composed of multiple analog and digital inputs and outputs. They are used for:

- Battery management
 - Voltage (V1 to V3)
 - Current (I1 to I3)
 - Temperature (T1 and T2)
 - Low voltage disconnection
- 8 Digital Input (D1 to D8)
- 6 Output Relay (k1 to K6)

4.3 Hub Board

Hub Board provides communication between Modules in the system and Inview S.



- 6 and 8 Pin: Connection between Hub board and Module shelf.
- X9 or X11: Connection between Hub board and Inview S

5. Installation

5.1 Site preparation

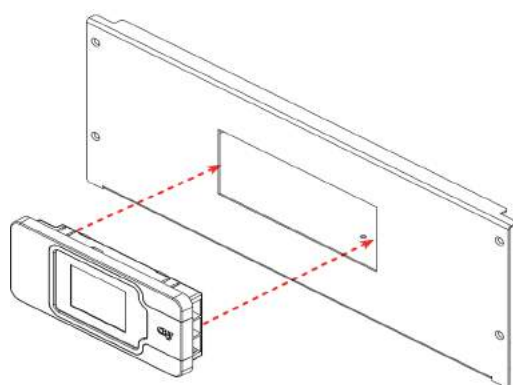
- All cables should be copper wire and must be rated for min 90°C (194°F).
- All cables must be sized according to the rated current of the Inview S / Measure Box Battery and to the customer terminal connection.
- All power and signal cables should be routed properly.

5.2 Mounting

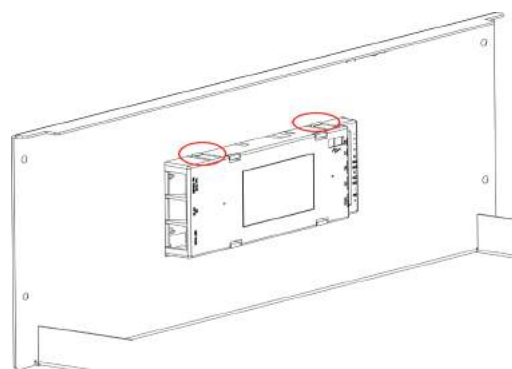
5.2.1 Panel Mounting

Step 1: Place the controller in the rack

Step 2: Fix and make sure on rear that all four latches of the controller are locked to the rack.
(Latch – 2 at top and 2 at bottom)



Place the controller



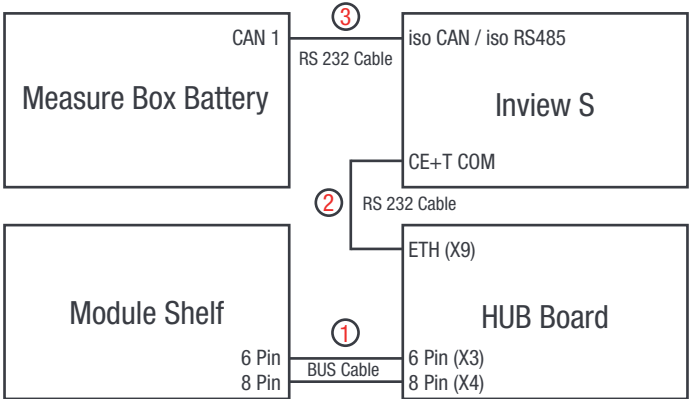
Fix it with four latches

5.3 Hardware Connections

5.3.1 Sierra System

In Sierra System, the Inview S and Measure Box Battery should be connected as per the following:

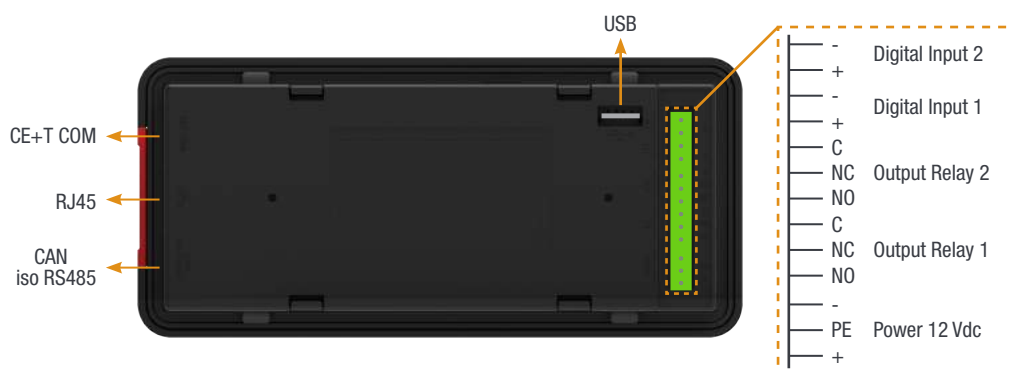
- 1. Connect the 6 Pin and 8 Pin terminal between Sierra shelf and HUB Board using BUS cable
- 2. Connect HUB board ETH port (X9) and Inview S CE+T COM port using RJ45 cable.
- 3. Connect Inview S iso CAN/iso RS485 port and Measure Box Battery CAN1 port using RJ45 Cable




For more information about wiring refer section “11. Annex 2: Inview S with MBB - Wiring diagram”, page 45

5.3.2 Inview S - Connections

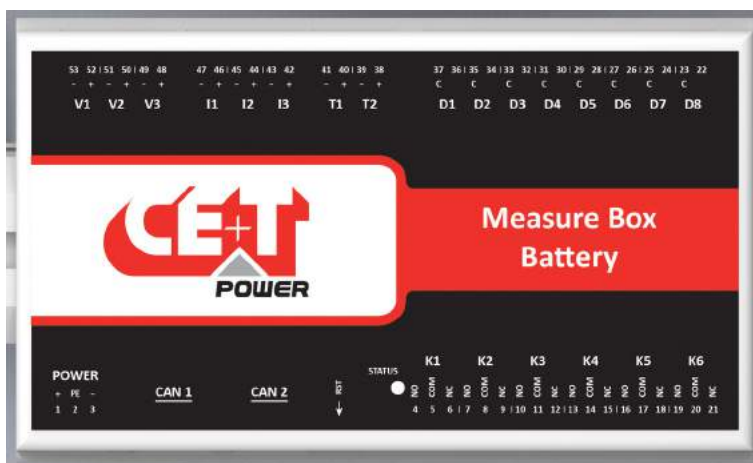
Inview S is composed of multiple network ports and inbuilt free potential contacts.



- **CE+T COM** port is dedicated to establish connection between Inview S and Sierra system through HUB Board.
- **LAN** () port is used for network connectivity and user can access the system information in the Web Interface.
- **CAN / iso RS485** is used share the system (DC) information to MBB.
- **USB** port is used to access the Inview S configuration and setup files.
- **Digital Inputs (D1 and D2):** Two potential free Digital Inputs are available for customer connections.
 - Digital Input 1 is assigned for MBP operation if used.
 - Digital Input 2 is assigned for Surge Arrester if used.
- **Output Relays (K1 and K2):** Two output relays are available and can be used for Major and Minor Alarms
- **Power:** The unregulated separate +12 V power supply is required for powering Inview S and this power should not be shared with other devices.
(CET can provide Auxiliary Power Supply converter (48 to 12 Vdc). Part number is **T602006004**)

5.3.3 Measure Box Battery - Connections

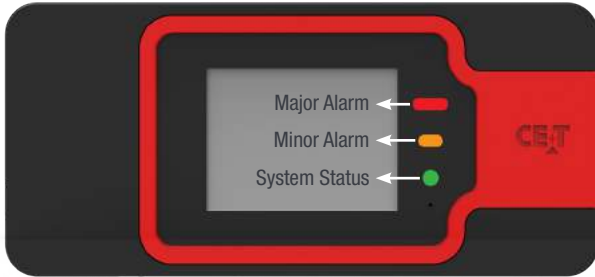
Measure Box Battery is composed of multiple analog and digital inputs and outputs.



- **Voltage (V1 to V3)** is used to monitor the voltage of Battery.
- **Current (I1 to I3)** terminal is used to monitor the current of Battery.
- **Temperature (T1 & T2)** terminal is used to monitor the temperature of Battery.
- **CAN 1 and CAN 2** port is used to establish the connection between Inview S and Measure Box Battery and user can series (Daisy chain) with another Measure Box Battery.
- **Digital Inputs (D1 to D8):** Eight potential free extended Digital Inputs are available for customer connections.
- **Output Relays (K1 to K6):** Six output relays are available are available for customer connections
 - K1 to K4 - Major and Minor Alarms
 - K5 and K6 - LVD Connections
- **Power:** The unregulated separate +12 V power supply is required for powering MBB and this power should not be shared with other devices.
(CET can provide Auxiliary Power Supply converter (48 to 12 Vdc). Part number is **T602006004**)

6. Operation

6.1 LED indications



- S - Flash low
- FS - Flash fast
- SA - Sequence one after the other
- X - Not used LED

6.1.1 LEDs code during normal operation

LEDs code below corresponds to the system and Inview S in full operation.

System Status	Minor Alarm	Major Alarm	Description
●			Master Mode
	●		Minor alarm
		●	Major alarm

6.2 Inview S - LCD Display

Once system is powered upon, the Inview S is up and ready for operation.

Configuration and other parameters can be changed using the Inview S interface.

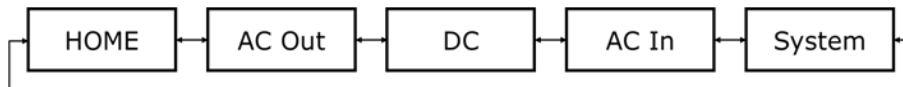
Inview S provides a quick and efficient user interface to:

- Overview of the system information
- Detail information on
 - AC input power at system level
 - AC output power at system level
 - DC information at system level

Home		
AC In	DC	AC Out
L1	Float	L1
220.0 V	49.0 V	230.0 V
7.7 A	36.2 A	4.8 A
1.7 kW		1.1 kW
MOD 6	RED FAIL	INST 15.6 kW

6.2.1 Hierarchy

By default, home will be displayed. Monitoring pages are available in a circular list



6.2.2 Interface Areas

Home [1]		
AC In	DC	AC Out
L1	Float	L1
[2] 220.0 V	49.0 V	230.0 V
7.7 A	36.2 A	4.8 A
1.7 kW		1.1 kW
MOD 6	RED FAIL	INST 15.6 kW
[3]		

- [1] **Banner**
Displays the title of the current page and navigation buttons for next and previous page. If more contents on the main area, Up and Down navigation buttons will be present.
- [2] **Main Area**
Provides the information about selected page. It can be measures, logs, or even controls.

- [3] **Toolbar**

The toolbar is always accessible and provide quick access to following pages:

- Measures
- Controls / Settings
- Alarms and Logs

Note: In certain conditions the pop up can be displayed and it hides the tools bar, replacing by a “close” or any other call to action control. But the banner will be always present.

6.2.3 Pages and Feature

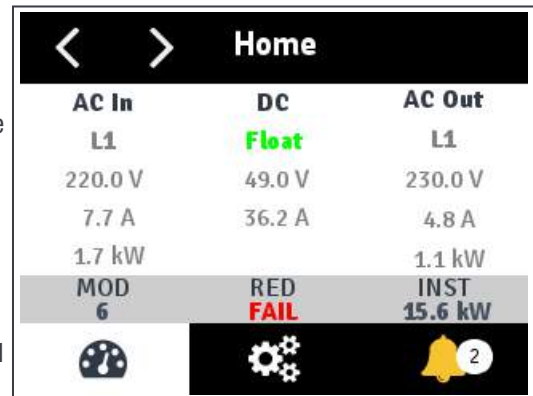
6.2.3.1 Home Page

Home page gives an overview of system status in one page.

AC In column displays the voltage (V), current (A) and power (kW) of the AC input. In the multi input phase system, Home page provides L1 information and next pages provide the information of L2 and L3.

DC column displays the battery mode, voltage (V), current (A) and battery temperature.

AC Out column displays the output configuration is given (1P, 2P or 3P). Measures are provided overall. Voltage (V), current (A) and power (kW) are available.



The grey bar provides few extra status:

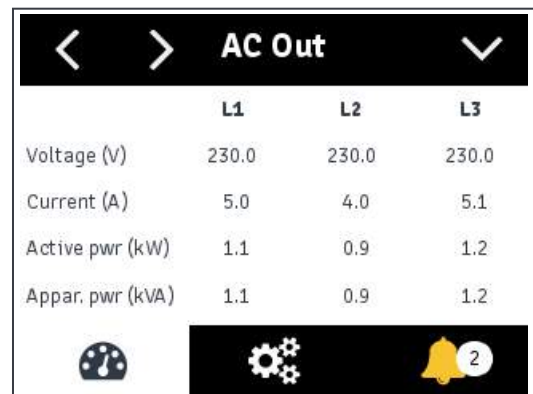
- **MOD** - Number of modules configured in the system
- **RED** - Redundancy satisfied or not
- **INST** - Installed Power

6.2.3.2 AC Out Page

This page displays the measurement made by the modules on the AC output.

Available values are:

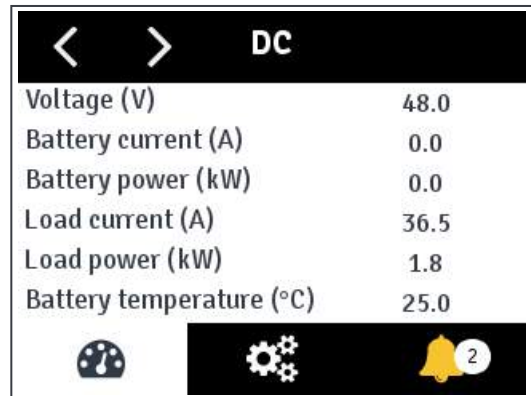
Measure	Unit
Voltage	Volts (V)
Current	Ampere (A)
Active Power	Kilo Watt (kW)
Apparent Power	Kilo Volt Ampere (kVA)
Power Factor	-



6.2.3.3 DC Page

This page displays the measurement made by the modules on the DC.

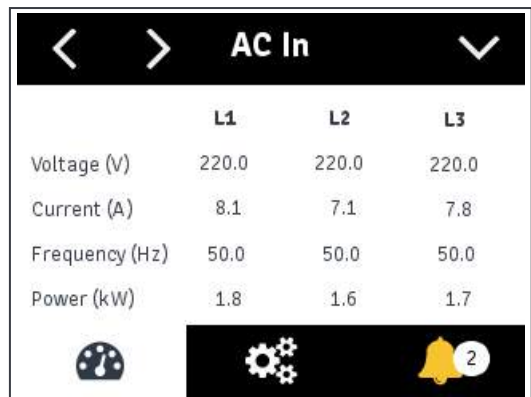
Measure	Unit
Voltage	Volts (V)
Battery Current	Ampere (A)
Battery Power	Kilo Watt (kW)
Load Current (DC Converter Current)	Ampere (A)
Load Power (DC Converter Power)	Kilo Watt (kW)
Battery temperature	Celsius (°C)



6.2.3.4 AC In Page

This page displays the measurement made by the modules on the AC output.

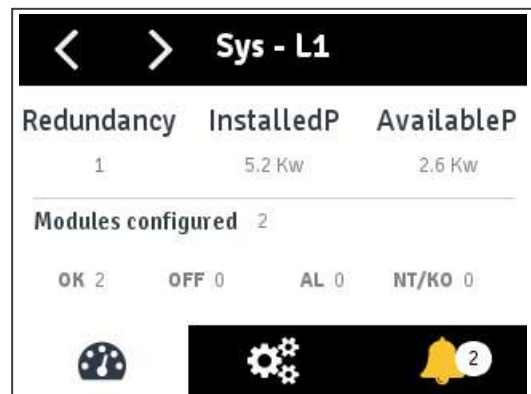
Measure	Unit
Voltage	Volts (V)
Current	Ampere (A)
Frequency	Hertz (Hz)
Power	Kilo Watt (kW)
Energy Meter	Kilo Watt (kW)




6.2.3.5 System Page

This page displays the system power information. In the multi input phase system, System first page provides overall system power information and next pages provide the following information of each phase such as L1, L2 and L3.

- Number of Redundancy modules
- Installed power
- Available power
- Number of configured modules and its status




6.2.3.6 Settings Page

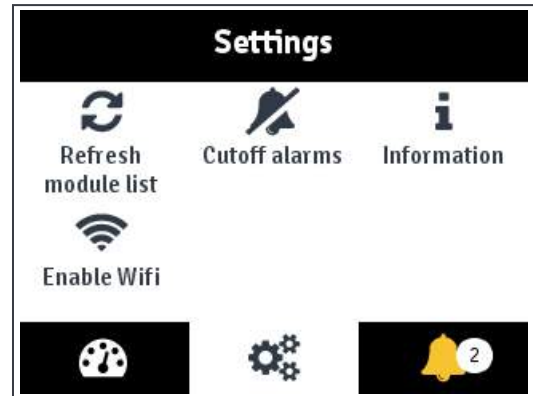
Clicking the *Settings* icon  on the tool bar brings the system page. In this page, quick actions are available which is often needed for on-site maintenance.

Note: If any parameter is changed, an authentication page will appear. Enter the display PIN password to apply changes.

Refresh module list

As the system is modular, it's mandatory to tell it that something has changed at module level. By clicking the *Refresh module list*

icon  on the toolbar, the system will scan modules, remove modules which are no more present and monitor newly populated modules.



Cutoff alarms


Clicking the *Cutoff alarms* icon  on the toolbar, the following occur:

- Relays get back to their “not in alarm” state
- Buzzer sound is turned off


This behaviour is valid for all types of alarm. For the time being, SNMP, led, display ... are not impacted by the cutoff.

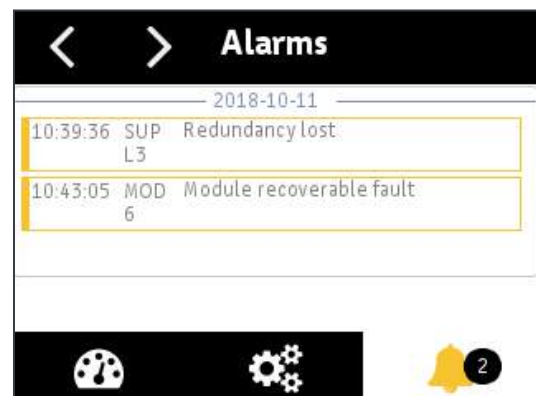
It's a one-time action and cannot be undo. Pressing many times the cutoff button does not change anything to behaviour (sound is **not** turned for example).

Information

Clicking the *Informations* icon  on the toolbar, it launches a pop up listing information about the system such as IP, URL, MAC, Software Version, Date and Time.

6.2.3.7 Alarms and Logs Page

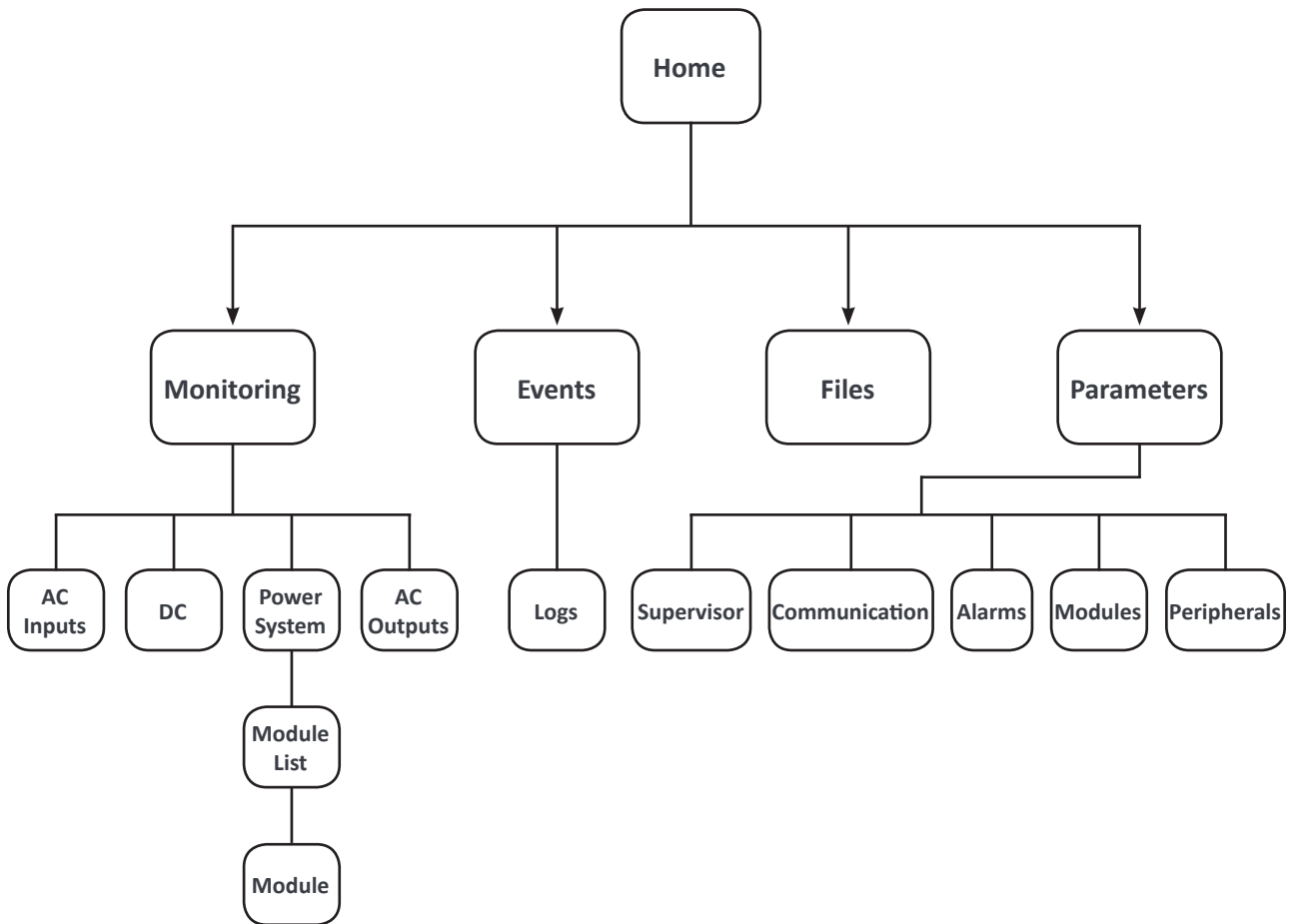
Clicking the *Alarms* icon  on the tool bar brings the Alarms page. Using the navigation button you can find the Logs page.



6.3 Inview S - WEB Interface

The user interface is also accessible on the laptop by typing the IP address of the system in a web browser. Refer section , page 14 for Hardware connections.

The interface has a “top-down” philosophy: first screen gives a general overview, then one can go deeper and get more information on clicking the specific area.



6.3.1 Login

The user interface is accessible by typing the IP address of the system in a web browser. The default IP address is **10.250.250.1**

Important remark:

Web browser brand and version can change the interface proper behaviour. It's strongly recommended to use Google Chrome, Mozilla Firefox, OSX Safari. If you wish to use Microsoft Internet Explorer, version should be 10 at least.

Inview S has two login – **Basic** and **Expert**. Both login is protected with password.

Default password for both login is “1234”. It can be modified, refer section 6.3.3.15, page 36.

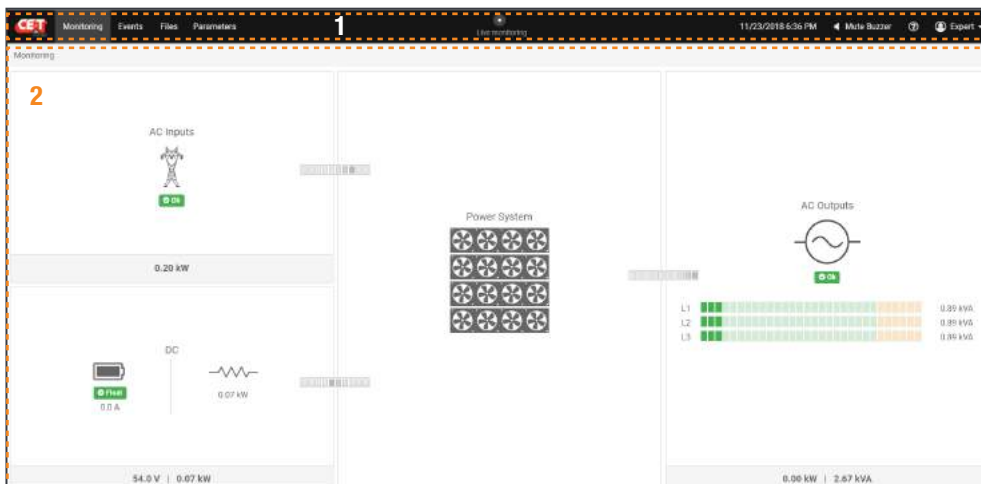


Basic login can only browse the pages and download the files but Expert login can access and also modify the parameter values.

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

6.3.2 Interface Areas

- 1 → Header
- 2 → Main Page



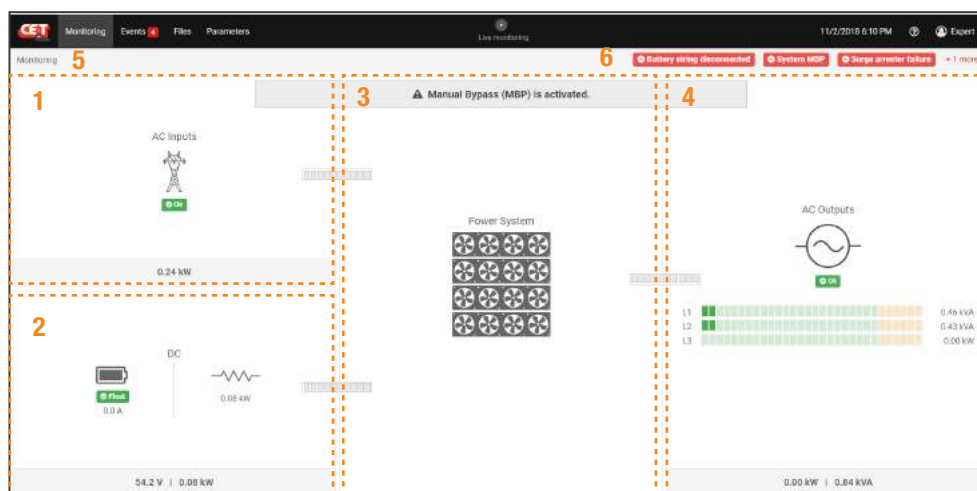
6.3.2.1 Header



The tabs in header provide quick access to the corresponding pages.

- 1 → **CE+T Logo:** Clicking on logo will display the home page from any page you are accessing in the interface.
- 2 → **Menu:** Provide quick access to **Monitoring, Events, Files and Parameters** page.
- 3 → **Date and Time:** Display the date and time, you can select local or synchronize with NTP server.
- 4 → **Mute Buzzer:** Clicking on this area, the buzzer sound of generated alarm will be muted.
- 5 → **?**: Provide information of latest 3 ongoing events.
- 6 → **Account:** Provides the information of which account is logged in (Basic or Expert). Clicking on drop down arrow user can access the following pages:
 - **Administration** - Here you can change the password for web and LCD display interface, updating software, downloading Debug page, setting Date & Time and exporting SNMP MIB file. (Administration page will appear only in Expert login).
 - **About** - Provides the information of Inview S and network connectivity details.
 - **Logout** - An act of logging out of a Inview S.

6.3.2.2 Main Page



- 1 → **AC Inputs:** Clicking on the AC Input region will bring the user to all measurements regarding AC Input.
- 2 → **DC:** Clicking on the DC region will bring the user to all measurements regarding Battery and DC Output.
- 3 → **Power System:** Clicking on the Power System region will bring the user to information regarding the system such as redundancy, available power and so on. It is also the path to the module level monitoring.
- 4 → **AC Outputs:** Clicking on the AC Output region will bring the user to all measurements regarding AC Output. Regardless of the system configuration (1P, 3P), displayed power is the total amount of power fed to the load. Power is expressed in both kW and kVA and the Power Factor (PF) is computed.

- 5 → **Breadcrumbs:** Provide navigation of the page. It trail all levels so that user can know where you are within the interface and can go to any previous menu.
- 6 → Provide notifications – **Alarm, Events** and so on.

6.3.3 Pages and Feature

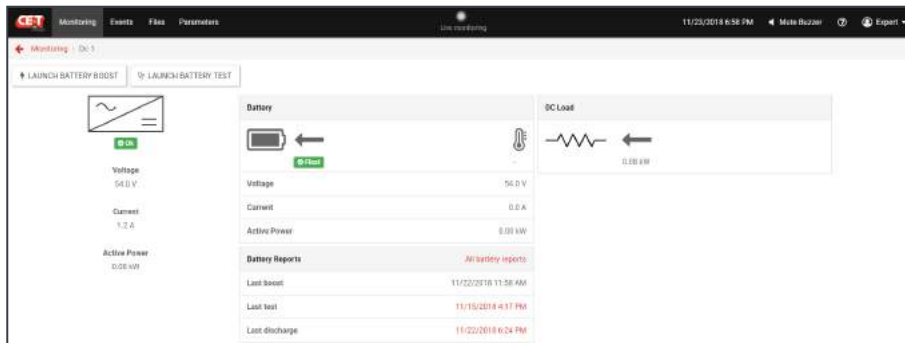
6.3.3.1 Monitoring - AC Inputs

AC input page displays **Voltage, Current, Frequency, Input Power** and **Energy Metering** which measured by the modules on the AC Input. In multi-phase system displays the information of each phase.



6.3.3.2 Monitoring - DC


DC page displays **Overall DC details, Battery** and **DC Load** which measured by the modules on the DC input and DC Load. In this page, user can launch battery boost and test by clicking “**LAUNCH BATTERY BOOST**” and “**LAUNCH BATTERY BOOST**” button.

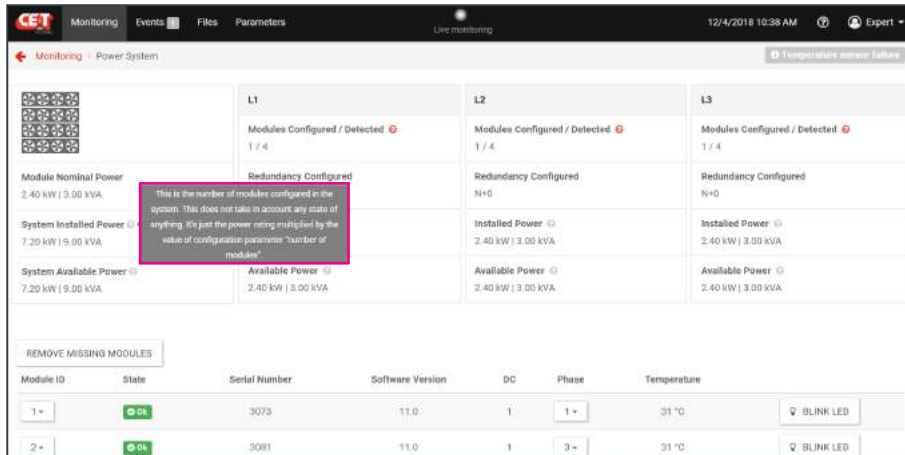


- Overall DC details - Voltage, Current, Active power
- Battery - Voltage, Current, Active power, Battery Report
- DC Load

Note: Negative value indicates the load is taking power from battery (discharging).









6.3.3.3 Monitoring - Power System

Power System page displays System Power, Phase details and module list of the system. In this page user can view the list of modules installed in the system and also can remove the non functioning modules from the list by clicking  button.



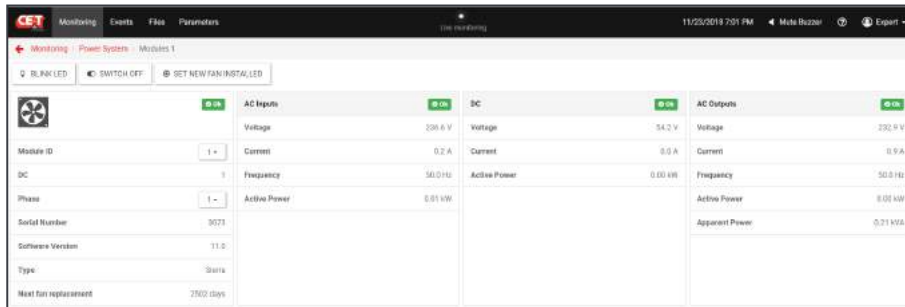
Note: By clicking on  icon provide brief description of the corresponding parameters.

- Overall system power - Module Nominal Power, System Installed Power and System Available Power
- Each phase details (In Multi-Phase systems) - Number of modules configured and detected, Redundancy Configured, Installed Power and Available Power
- Module list
 - Module ID: Set address of the module.
 - State: Displays the status of the module - ON/OFF.
 - Serial Number of the module.
 - Software Version of the module.
 - DC: Displays to which DC group the module is assigned.
 - Phase: Assign to which phase the module to function (Note: While changing the phase, the module should be in OFF condition).
 - Temperature inside the module.
 - Blink LED: By clicking this button, corresponding module LED's will blink thrice. It will help to identify the module in the system and also in which phase was assigned.
 - Click on any module from the list will bring the details of corresponding module. Refer section “6.3.3.4 Monitoring - Modules”, page 26

Module ID	State	Serial Number	Software Version	DC	Phase	Temperature	
1 -	 Ok	3073	11.0	1	1 -	30 °C	 BLINK LED
2 -	 Ok	3081	11.0	1	3 -	30 °C	 BLINK LED
3 -	 Ok	3039	11.0	1	1 -	31 °C	 BLINK LED
4 -	 Ok	3075	11.0	1	3 -	31 °C	 BLINK LED

6.3.3.4 Monitoring - Modules

Modules page displays *General information*, *AC Input*, *DC* and *AC Output* details of the corresponding module. This page has other features such as *BLINK LED*, *SWITCH OFF* and *SET NEW FAN INSTALLED*.



- **General Information**
 - **Module ID:** Set identification number for module.
 - **DC:** Displays to which DC group the module is assigned.
 - **Phase:** Assign to which phase the module to function.
 - Serial Number, Software Version, Type of the module and due days of module fan replacement.
- AC Inputs – Voltage, Current, Frequency and Active Power.
- DC – Voltage, Current and Active Power.
- AC Outputs – Voltage, Current, Frequency, Active Power and Apparent Power.
- **Other Features:**
 - **Blink LED:** Clicking on , corresponding module LED's will blink thrice. It will help you to identify the module in system.
 - **Switch OFF:** Clicking on , corresponding module will be turned OFF and generated alarm in Events page as **Module off**.
 - **Set new fan installed:** Clicking on , corresponding module “Module fan replacement” due will be reset to 2556 days.
(Note: Do not click this button, until a new fan is replaced inside the module.)

6.3.3.5 Monitoring - AC Outputs

AC Output page displays Voltage, Current, Frequency, Active Power, Apparent Power and Power Factor which measured by the modules on the AC Output. In multi-phase system displays the information of each phase.



The bar below the Active and Apparent power indicates the load delivering by the system.

- Green - Load is within the range.
- Orange - Overload.

6.3.3.6 Events

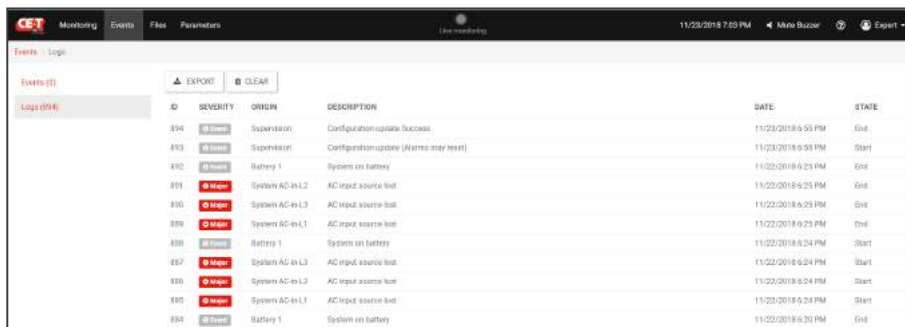
Events page records the list of changes in the system. Also provides the information of events Severity, Origin, Description and Date & time.



6.3.3.7 Events - Logs

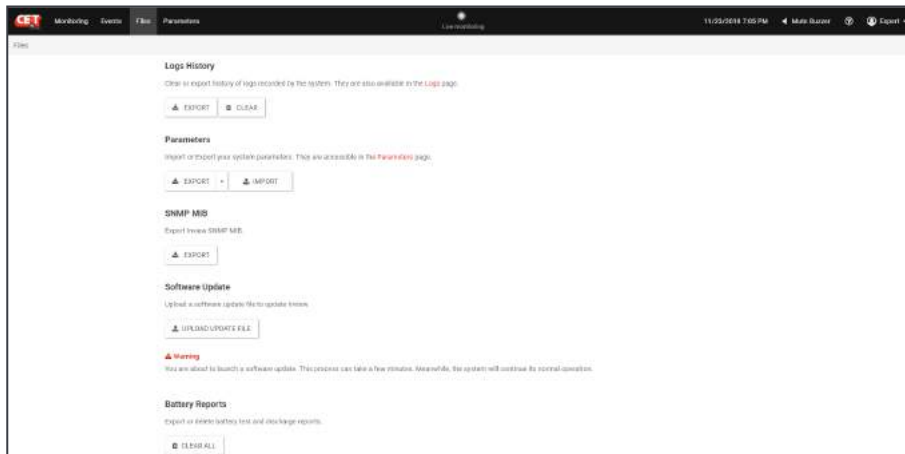
Logs page display the list of logs recorded in the system. Also provides the information of Logs ID, Severity, Origin, Description, Date & time and State.



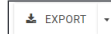


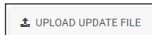

In this page user can download the log file (.csv) and clear logs by clicking and .



6.3.3.8 Files

Files page provide access to Logs History, Parameters, SNMB MIB, Software Update and Battery Reports.



- **Logs History:** User can download (.csv) and clear the logs list which are recorded in the system by clicking  and . This feature is also available on Events > Logs page.
- **Parameters:** User can download and upload the system parameters by clicking  and . A drop down arrow at export button will provide the option to download JSON or CSV file. This feature is also available on Parameters page.
- **SNMP MIB:** User can export SNMB MIB file by clicking .
- **Software Update:** User can upload the compatible Inview S software file by clicking . The latest software is available in my.cet-power.com.
- **Battery Reports:** This section displays the list of battery test and discharge reports. By clicking , user can clear the list.

Note: Inview S supports a maximum of 12 Battery event reports (6 tests + 6 discharges).

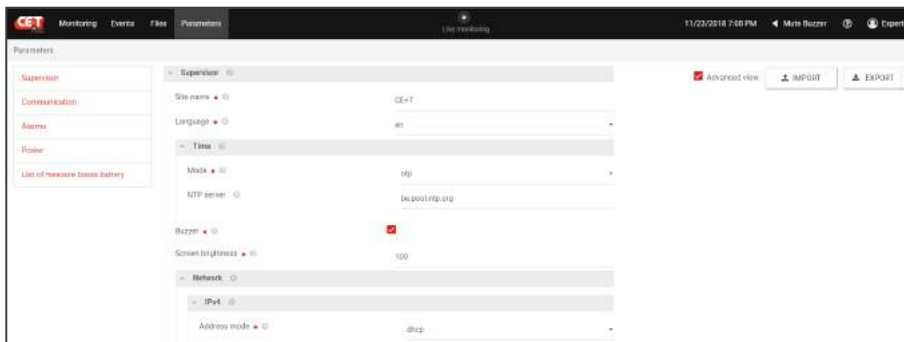
6.3.3.9 Parameters

Parameters page provide access to *Supervisor, Communication, Alarms, Power and List of measure boxes battery* pages. Changing the parameter values in this page will reflect the Inview S function.

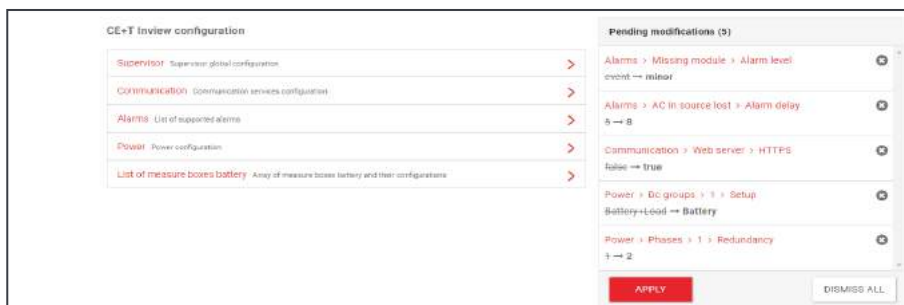


Other Features







- User can download and upload the system parameters by clicking **EXPORT** and **IMPORT**. A drop down arrow at export button will provide the option to download JSON or CSV file. This feature is also available on *Files* page.
- **Advanced view:** Clicking on **Advanced view** check box will provide expanded view of parameters. In this view user can see all parameters and its values.



- **Modifications:** At right side of this page, it will display the list of parameter modifications. It will help the user to overview the modifications and can perform any of the following actions as per their needs:
 - **Apply:** Clicking on **APPLY** will apply all the modifications.
 - **Dismiss All:** Clicking on **DISMISS ALL** will cancel all the modifications.
 - Clicking on **✕** will cancel only the particular modifications.

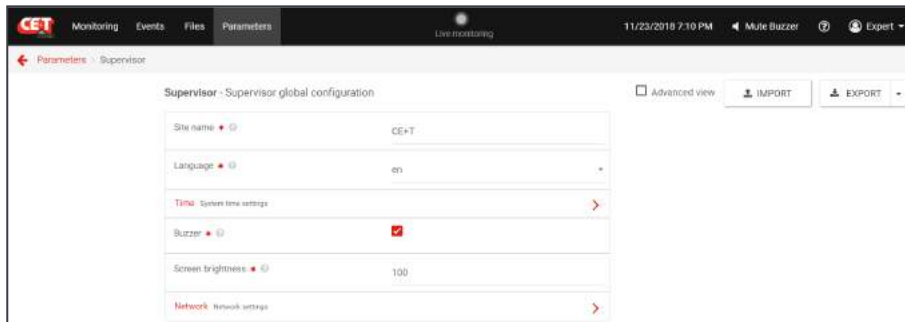


- **Controls:** Placing or clicking on it, perform the corresponding function

Controls	Description
	Provide short description about the corresponding parameters
	Required values should be filled.
	Drop down list – more options are present
	Page expands
	Increment and decrement the parameter values.
	Delete the corresponding parameter.

6.3.3.10 Parameters – Supervisor

Supervisor page display and access to global parameters such as *Site name*, *Language* setting, *Time & date* settings, and *Network* settings.



- **Site name:** Enter the site location where Inview S is installed.
- **Language:** Set your preferred language.
- **Time:** Select manual or NTP.
 - Manual – It will update the time which is set on computer or laptop.
 - NTP – Synchronize with the server time.
- **Buzzer:** Clicking on check box, **Mute Buzzer** option will display in the header.
- **Screen brightness:** Adjusting the Touch screen brightness.
- **Network:** Select the network type *dhcp* or *static*. Depending up on the type define the network address.



6.3.3.11 Parameters - Communication

Communication page provide access to *Web server*, *SNMP* and *Debug system*.



- **Web server:** Set the HTTP protocol and port parameters. After changing the HTTP parameters, the user interface will log out and it reflect in the URL page.



- **SNMP:** Set the mode and port parameter of SNMP. In this page you can view list of Trap receiver and can define the destination port of Trap receiver for SNMP. SNMP supports v1 and v2c. Port number and community strings are user configurable.

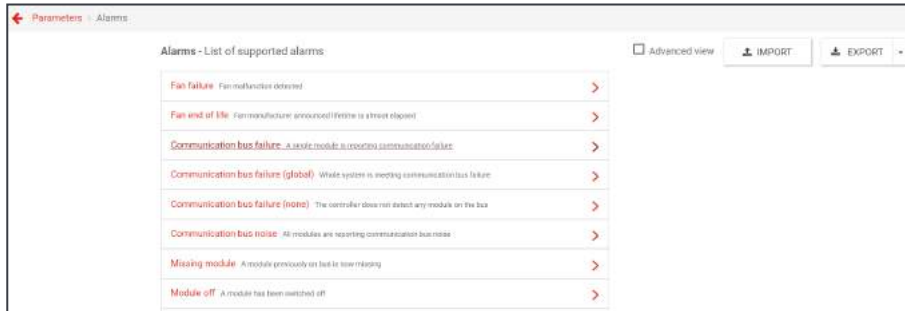


- **Debug system:** Clicking on the check box will enable the Debug process.
(Warning: Do not try this feature until have complete knowledge on Inview S controller)



6.3.3.12 Parameters - Alarms

Alarms page provide the list of supported alarms. User can define the alarm level and delay.



- **Alarm level:** User can define the alarm for corresponding parameter as *disabled, event, minor* or *major*.



- **Alarm delay:** Set the delay in seconds. Alarm will be activated after the set delay.



6.3.3.13 Parameters - Power

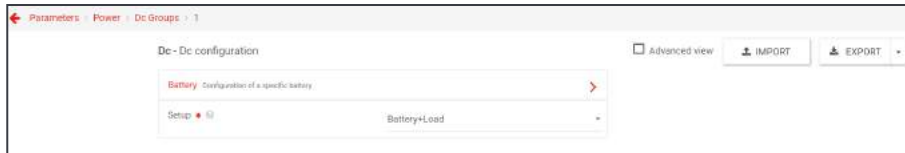
Power page provide access to view and configure the *AC Phases, DC groups* and *Module* parameters.



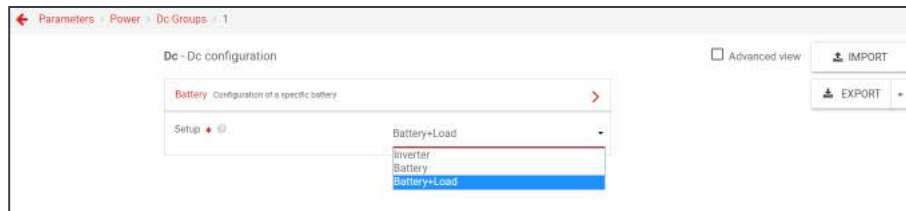
- **Phase page** display the list of phases configured in the system. User can configure the number of modules and redundancy modules to the corresponding phase.



- Dc Groups page display the list of available DC in the system. User can assign the modules to corresponding groups.



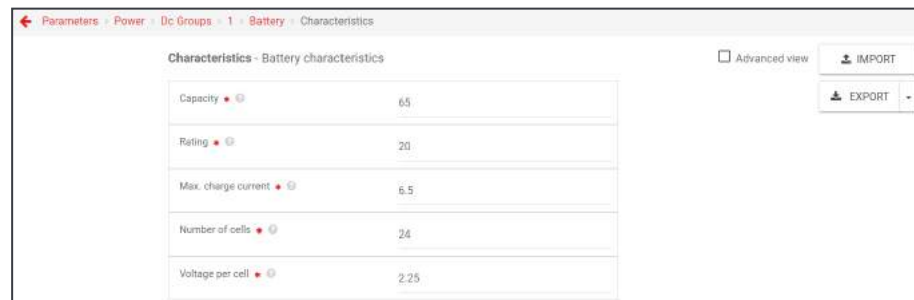
- **Setup:** Configure the System output power to deliver.
 - Inverter – only to AC Load.
 - Battery – Only to DC Load.
 - Battery+Load – Both AC and DC Load.



- **Battery:** In this page user can define the *Characteristics, Measure box, LVD, Temperature compensation, Boost charging and Test configuration* for the specific battery.



- **Characteristics:** Define the characteristics of the battery such as Capacity in AH, Discharge rating in hours, Maximum charge current in amps, Number of cell in a battery and Floating voltage per cell in volts.



- **Measure box:** Define the Measure box information which is going to monitor this battery such as Serial number, Power sensor, Mid point 1 and 2 of voltage source and Temperature sensors.

Parameter	Value
Serial number	6
Power sensor	1
Mid point 1 voltage source	2
Mid point 2 voltage source	3
Temperature sensor	1

- **LVD:** Define the Low voltage disconnect settings such as Enable/disable the LVD, Threshold voltage for disconnection in volts, Delay before reconnection in seconds, Shutdown sequence duration in seconds and enabling bi-stable or mono-stable relay.

Parameter	Value
Enabled	<input type="checkbox"/>
Voltage	42
Delay	15
Shutdown	60
Use bi-stable relay	<input type="checkbox"/>

- **Temperature compensation:** Define Enable/Disable, Reference temperature, Coefficient of per cell and Minimum & Maximum temperature threshold of the Temperature compensation.

Parameter	Value
Enabled	<input checked="" type="checkbox"/>
Reference temperature	25
Coefficient	-2.5
Minimum	15
Maximum	40

- **Boost charging:** Define the Boost charging configuration of the battery such as Enable/Disable, Voltage per cell, Time out, Low current stop, Low cell voltage start, Temperature stop and Long discharge start.

Parameters > Power > Dc Groups > 1 > Battery > Boost Charging

Boost charging - Boost charging configuration

Advanced view

Enabled	<input checked="" type="checkbox"/>
Voltage per cell	2,35
Timeout	<input checked="" type="checkbox"/>
Timeout duration	3600
Low current stop	<input checked="" type="checkbox"/>
Stop threshold	4
Low cell voltage start	<input checked="" type="checkbox"/>
Start threshold	2
Temperature stop	<input checked="" type="checkbox"/>
Temperature stop threshold	45
Long discharge start	<input checked="" type="checkbox"/>
Discharge duration	3600

- **Test:** Define the value for the Battery test such as Enable/Disable, Test power in watts, Timeout duration in seconds, Low voltage stop, Enable the schedule by setting start date, Recurrence, Guard Time and Duration.

Parameters > Power > Dc Groups > 1 > Battery > Test

Test - Battery test configuration

Advanced view

Enabled	<input checked="" type="checkbox"/>
Power	500
Timeout	<input checked="" type="checkbox"/>
Timeout duration (in seconds)	3600
Low voltage stop	<input checked="" type="checkbox"/>
Stop threshold	1.75
Scheduling	<input type="checkbox"/>

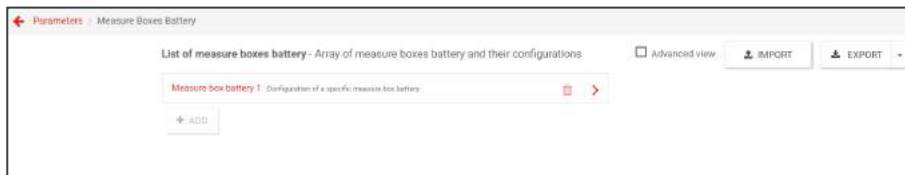
- **Modules** page provide access to view and configure the module parameters.

To know more about the description of each module parameters, Refer “10. Annexe 1: Module - Parameter List”, page 41



6.3.3.14 Parameters - List of measure boxes battery

This page display the list of peripherals installed in the system. By clicking ADD button you can add the peripherals.

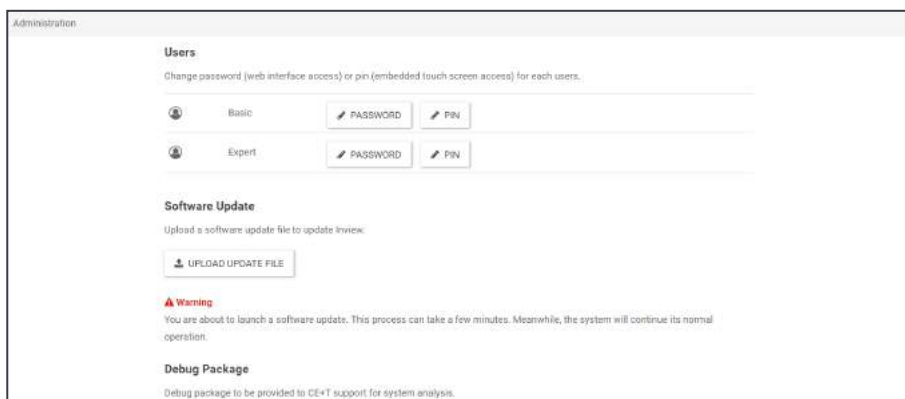
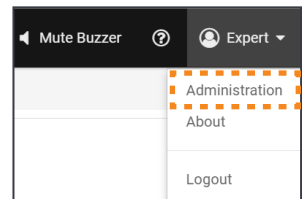


6.3.3.15 Administration


Administration page provide access to modify the Password, updating software, Debugging, setting the time and downloading the SNMP MIP file.

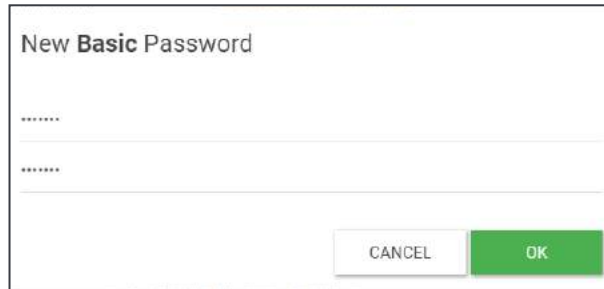
In Header, click Expert and the click Administration.


(Note: Administration page available only in Expert login)

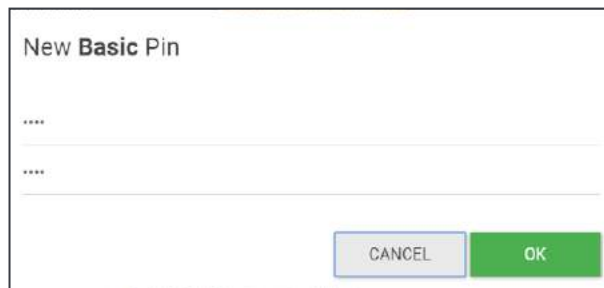


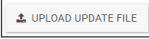


- Users page provide access to change password for Web interface and LCD display. It includes of both Basic and Expert login.

- **Web Interface:** Clicking on  in Basic or expert, the following screen appear. Enter the new password and retype the same password for confirmation and then press OK.



- **LCD Display:** Clicking on  in Basic or expert, the following screen appear. Enter the new password and retype the same password for confirmation and then press OK.



- **Software Update:** User can upload the compatible Inview S software file by clicking . The latest software is available in my.cet-power.com.
- **Debug Package:** User can download the package by clicking .
- **Time:** User can set Local or NTP server time which will reflect in header, logs, events and so on.
- **SNMP MIB:** User can download SNMB MIB file by clicking .

7. Trouble Shooting and Defective Situations Fixing

7.1 Defective Inview S

7.1.1 Return defective Inview S

- 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-power.com.
- The RMA number should be mentioned on all shipping documents related to the repair.
- Be aware that products shipped back to CE+T Power without being registered first will not be treated with high priority!
- Information on failure occurrence as well as module status given through Menu 2-1 shall be attached to defective unit return package or recorded in RMA.

8. Service

For Service

- Check 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.
- If your vendor doesn't provide such assistance (*) you may call CE+T directly. Toll free Number **1(855) 669 - 4627(**)**

Service is available from 8:00 A.M. to 10:00 P.M. EST, Monday through Friday, except closing periods for holidays or inclement weather.

Major Incidents and Emergency conditions can be invoked for immediate handling of same number or by dropping a mail on customer.support@cetamerica.com (***)

(*) CE+T will redirect your call to your vendor if he has such SLA in place.

(**) Valid in USA and Canada only.

(***) Messages that are not Major Incident or Emergency will be served at the next scheduled working a day.

9. Maintenance Task

As maintenance will perform on live system, all task should perform only by trained people with sufficient acknowledge on ECI and Sierra product.

Tasks:

- Identify the site, customer, responsible, cabinet number, product type.
- Download and save configuration file for back up.
- Check configuration file to be in accordance with operational site conditions.
- Read and save log file for back up.
- Check and analyze log file, and if alarm are present.
- Replace dust filter if present. Filter is mandatory in dusty environment.
- Check module temperature and log value. If internal temperature is higher then previous year, it should be interesting analyze if it is due an increasing load or dust effect. It is common to have a delta of 15°C by 30% of load between the ambient and the internal temperature. If temperature increase due internal dust built up clean the TSI with vacuum cleaner and/or soft compressed air.
- Clean cabinet (vacuum cleaner or dry cloth)
- Control the inverter mapping (AC Group, DC Group, Address)
- Check load level and record the rate value (print in word document the 4 screen modules information for the 32 modules, the 3 screen for the phases value and the 2 screens for the group AC and DC value)
- Change the configuration file for AC and DC mix mode to check that all TSI work on both power supply
- Check alarm operation (e.g., redundancy lost, mains failure, DC failure) on dry contact and through SNMP system or web interface.
- Switch OFF AC IN and check alarms.
- Check temperature terminal and temperature wiring. If possible use an infrared camera.
- Read and record value as wave form, power factor, Crest factor, THD I from power analyser.
- Take cabinet picture
- Keep track of report and provide end user with a copy.
- Perform a MBP procedure. This task is not really recommended*, but could be demanded by site manager.

* It is not recommended because when you perform a By-pass procedure, generally there is no back up on AC input line, and the load shutdown if mains disappear.

9.1 Spare Parts

Product	Part Number
Inview S	T302004100
Measure Box Battery	T302006000
Hub Board (ECI bus adaptor)	P324730301
Aux power supply 12 V	T602006004
Aux power supply kit (with Din Rail)	P602004120

10. Annexe 1: Module - Parameter List

Parameter	Description	Min	Default	Max	Unit
V DC in low start - dV (000)	Low DC Voltage where a higher value leads the DC/AC converter to re-start	39	44	61	V
V DC in low transfer - dV (001)	Low DC Voltage where a lower value leads to transfer the load from DC IN to AC IN. Under this voltage peak-shaving is relaxed and battery discharge test is stopped.	39	39	61	V
V DC in low stop - dV (002)	Low DC voltage where a lower value stops the DC/AC converter	39	39	61	V
V DC in high start - dV (003)	High DC voltage where a higher value re-starts the DC/AC converter	39	58	61	V
V DC in high transfer - dV (004)	High DC Voltage where a higher value leads to transfer the load from DC IN to AC IN	39	61	61	V
V DC in high stop - dV (005)	High DC voltage where a higher value stops the DC IN converter. Value increased from sw 173 to 62 VDC	39	61	61	V
V AC in low start - dV (006)	AC IN Voltage where a higher value leads the AC IN to start	195	195	195	V
V AC in low transfer - dV (007)	AC IN Voltage where a lower value leads to the transfer of the load from the AC IN to DC IN	185	185	185	V
V AC in low stop - dV (008)	AC IN Voltage where a lower value leads the AC IN converter to stops. It is possible to step down to 150 Vac. In this case, the AC/DC converter will run at a lower power. The converter DC/DC supply the rest (ONLY if DC is available, if not, there is a de-rating)	182	182	182	V
V AC in high start - dV (009)	AC IN Voltage where a lower value leads the AC IN converter re-start	255	255	255	V
V AC in high transfer - dV (010)	AC IN Voltage where a higher value leads to the transfer the load of the charge from the AC IN converter to the DC IN converter	260	260	260	V
V AC in high stop - dV (011)	AC IN Voltage where a higher value leads to stop the AC IN converter	265	265	265	V
F AC in low start - cHz (012)	Frequency where a higher value leads the outlet of the inverters trying to synchronize with AC IN	47	47.3	63	Hz
F AC in low stop - cHz (013)	Frequency where a lower value leads the outlet of inverters stop to synchronize with AC IN	47	47	63	Hz
F AC in high start - cHz (014)	Frequency where a lower value leads the inverters outlet to synchronize with AC IN	47	52.7	63	Hz
F AC in high stop - cHz (015)	Frequency where a higher value leads the inverters outlet to stop to synchronize with AC IN	47	53	63	Hz

Annexe 1: Module - Parameter List

Free running frequency - cHz (016)	Set the Inverters system frequency. This frequency is used when the system is not synchronized on AC input.		50		Hz
Out 1 phase shift - deg (018)	Phase displacement.	0	0	360	Deg
Out 2 phase shift - deg (019)		0	120	360	Deg
Out 3 phase shift - deg (020)		0	240	360	Deg
Out 4 phase shift - deg (021)		0	0	0	Deg
Out 5 phase shift - deg (022)		0	0	0	Deg
Out 6 phase shift - deg (023)		0	0	0	Deg
Out 7 phase shift - deg (024)		0	0	0	Deg
Out 8 phase shift - deg (025)		0	0	0	Deg
Out 1 nominal voltage - dV (026)	Set output voltage for each phase.	200	230	245	V
Out 2 nominal voltage - dV (027)		200	230	245	V
Out 3 nominal voltage - dV (028)		200	230	245	V
Out 4 nominal voltage - dV (029)		200	230	245	V
Out 5 nominal voltage - dV (030)		200	230	245	V
Out 6 nominal voltage - dV (031)		200	230	245	V
Out 7 nominal voltage - dV (032)		200	230	245	V
Out 8 nominal voltage - dV (033)		200	230	245	V
Short circuit voltage threshold - V (034)	Minimum Voltage Threshold where module considers that outlet is in short circuit.	80	80	200	v
Short circuit hold time - ds (035)	Time Duration when a module tries to eliminate the short-circuit existing on outlet. If the system is still in short-circuit after this time, the output will be stopped.	0.1	60	600	s
Input source - % (036)	Defines the priority source 0 - Feeding from AC IN has priority (converter AC/AC - EPC mode) default value. 100 - Feeding from DC has priority (converter DC/AC - On Line mode)	0	0	100	%
Synchronisation tracking speed (037)	The speed at which the module tries to synchronize the AC Out with AC IN. The lowest value will have the fastest synchronization.	-2	0	2	
Max power - % (038)	Maximum Power that module can supply	30	150	150	%
Max current - % (039)	Maximum Current that module can supply.	30	150	150	%
Max overload duration - s (040)	Maximum Time Duration when module can run with overload	0	15	15	s

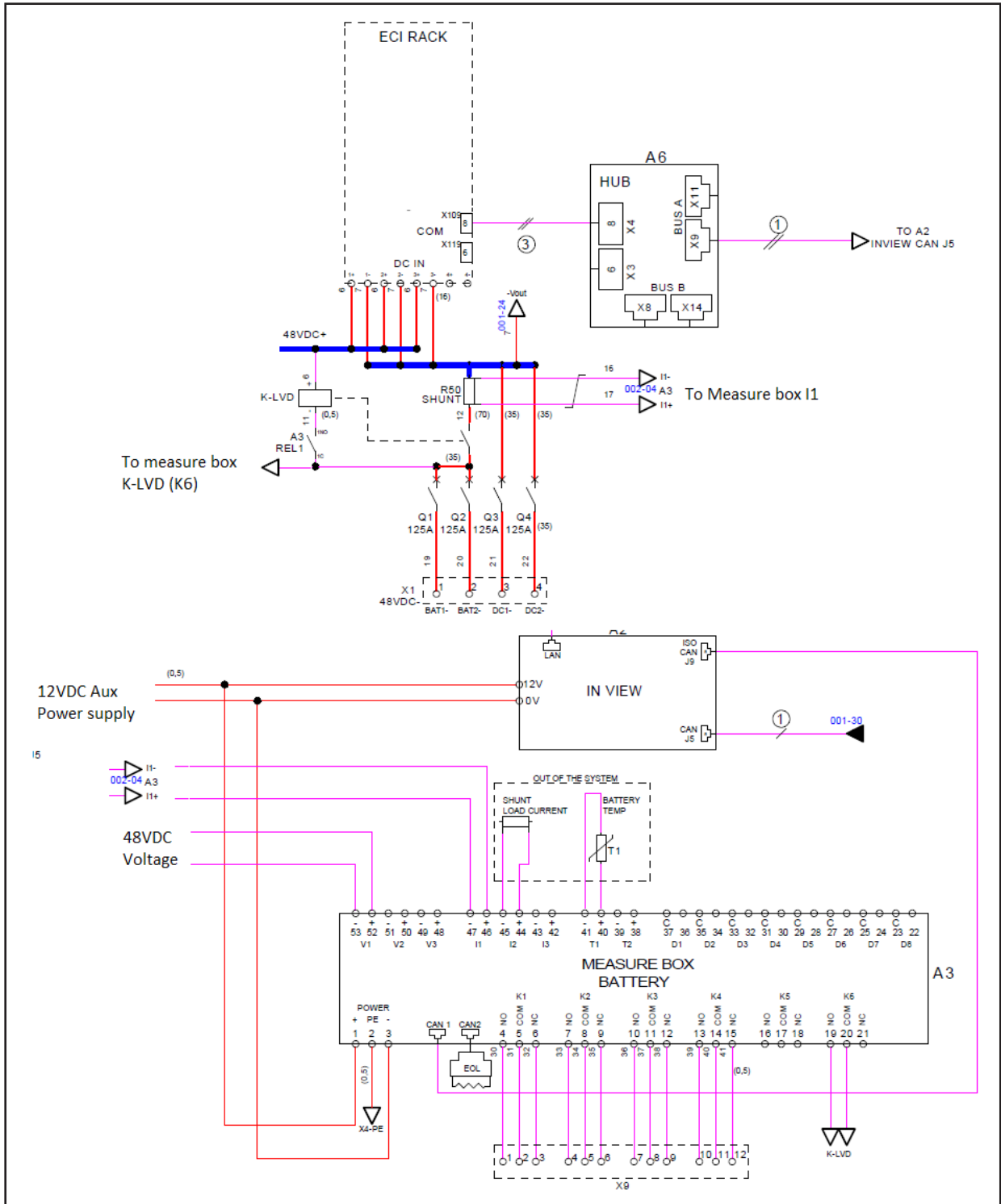
Annexe 1: Module - Parameter List

AC in mode (041)	<p>Allows to open the AC IN inlet relay</p> <p>0 - normal running in EPC mode 1 - AC IN inlet relay is open and so the system is insulated from the Mains.</p> <p>This parameter can be set to 1 only if repartition is on DC (parameter 036 should be 100)</p>	0	0	1	
Booster 10x I in (042)	<p>Allow to inhibit the Booster option which generates a current of 10 In for 20ms in case of short-circuit (9 In for Nova inverter).</p>	0	1	1	
Remote off disable AC in power (043)	<p>This parameter change the attribution of the remote ON/OFF input.</p> <p>If parameter is 1, then, when system is in remote OFF position, output is not stopped and AC input is stopped instead.</p>	0	0	1	
Reinjection allowed (044)	<p>If this parameter is 1, the module is allowed to inject power in the grid with its AC input.</p>	0	0	1	
External clock (045)	<p>Records the “External Clock” mode configuration</p> <p>0 - no protection in: phase drift is allowed. 1 - protection in: no phase drift allowed, stops the system after 1 minute. 2 - System stops immediately.</p>	0	0	2	
Walk in mode - das (046)	<p>The Walk-in mode allows the inverter to come back progressively on the AC priority source after an outage. Friendly use on Genset</p>	0	0	12	
Triangle mode (047)	<p>Defines the protection type for working on Delta load.</p> <p>0 - Default setting, and no delta load protection 1 - The mode is active. If one output phase stops, the other phases will also stop.</p>	0	0	1	
Airco mode (048)	<p>When this mode is activated, the overload capabilities are moved from default value to 330% overload in current and power for maximum 900 ms.</p>	0	0	1	
Start without supervision (049)	<p>When this mode is activated, the module is able to start without Inview S.</p>	0	1	1	
P DC max - W (050)	<p>This feature allow to limit or reduce the INRUSH DC current when the system work on battery. To limit the current this configuration line should limit the inrush DC current.</p> <p>To allow for the high capability this inverter is build with extra capacitor running on 400VDC to provide the requested energy.</p>	0	0	12	

Annexe 1: Module - Parameter List

AC 1 stop power (051)	Stops the power of the corresponding AC group. The AC input of the modules of this AC group will then be used for synchronisation only, no power will be taken.	0	0	1	
AC 2 stop power (052)		0	0	1	
AC 3 stop power (053)		0	0	1	
AC 4 stop power (054)		0	0	1	
St module number (055)	NA	0	0	3	
St module redundancy (056)	NA	0	0	4	
Tus (057)	Mode TUS activation	0	0	1	
Tus modules number (058)	Number of TUS modules in the system (typically 2) -> number of tus seen by local supervision	0	0	24	
Tus sub sub system address (059)	address of the system on TUS bus -> address of local supervision which need to be different from other local supervisions	0	0	4	
Tus sub sub system output phase (060)	Output phase in TUS mode	0	0	11	
Tus sub system index (061)	System index in TUS mode (for example, if we have a A+B redundancy, this parameter is 1 for A systems, 2 for B systems)				
Number of tus sub sub system (062)	Number of systems connected on TUS bus	0	0	8	
Tus supply x supervision mode (063)	X TUS supply source	-	-	-	
Tus supply y supervision mode (064)	Y TUS supply source	-	-	-	
Tus sub sub system dc group (065)	DC group of the system in TUS mode	0	0	3	
V DC charger safe mode - cV (066)	DC voltage set point in SIERRA mode	53	54	54	V
P DC charger safe mode - W (067)	DC power setpoint in sierra mode (> 0 if battery discharge, <0 if battery charging)	0		2400	W
P AC peak shaving safe mode - W (068)	global peak-shaving (-1 if no peak-shaving)				
P AC max per phase safe mode - W (069)	Peak-shaving for each individual phase (-1 if no peak-shaving)				
Phase compensation (070)	Phase balancing	0	1	1	
Sierra mode (071)	Is module allowed to run in charger mode	0	1	1	
V DC low stop charger - cV (072)	Dc voltage under which charger is stopped	0	0	1	
Lvd mode (073)	If this mode is ON, module goes in low consumption mode 1 minute after it stops by Vdc LowStop	0	0	1	
Max V DC increment safe mode - cV (074)	Vdc set point rising speed when there is no supervision				

11. Annex 2: Inview S with MBB - Wiring diagram



12. Annex 3: Auxiliary power supply kit

12.1 Auxiliary power supply kit with Din Rail



12.2 Auxiliary power supply kit - Wiring diagram

