

MONITORING – INVIEW S

WITH MEASURE BOX BATTERY

User Manual V2.1

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
1.1	25/03/2019	-	Updated the content and wiring diagrams
2.0	25/11/2019	-	Updated the content and screen shots to software version 3.0
2.1	09/01/2020	60	Updated the Aux power supply information

1. HELIOS at a glance

HELIOS 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
MBB	Measure Box Battery
MBDC	Measure Box DC Loads
TCP/IP	Transmission Control Protocol/Internet Protocol
USB	Universal Serial Bus
LAN	Local Access Network
ETH	Ethernet
SNMP	Simple Network Management Protocol
HTTP	HyperText Transfer Protocol
HTTPS	Secure HyperText Transfer Protocol
NTP	Network Time Protocol
MIB	Management Information Base
DHCP	Dynamic Host Configuration Protocol
NT/KO	Not Okay
AL	Alarm

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 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.

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 Pre-cautions before 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.

4. Introduction

4.1 Inview S

Inview S is an advanced monitoring and controller unit for **Bravo 20, Bravo 10, Sierra 25, and Sierra 10** power 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, the user can also access the system information through the web interface and SNMP protocol.

The Inview S interface provides the user to access the configuration and setup files of the modules in the system. Also, it is a controller for DC regulation.

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

- 2.8" LCD touch screen display
- Three LED's to indicate Major alarm, Minor alarm and System status
- Two Digital Inputs
- Two Output Relay contacts
- Records 5000 logs as FIFO



4.2 Inview S Slot

Inview S Slot is also an advanced monitoring and controller unit, but it for **Bravo 10 and Sierra 10** power systems. This product is specially designed in 1U height to accommodate in the module shelf and reduces the additional space in the cabinet.

As like **Inview S**, it also allows the user to easily access the system information through inbuilt powerful LCD touch screen graphic display. In addition to the touch screen display, the user can also access the system information through the web interface and SNMP protocol.

The Inview S Slot interface provides the user to access the configuration and setup files of the modules in the system. As like Inview S, it is also a controller for DC regulation.

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

- 1.8" LCD touch screen display
- Three LED's to indicate Major alarm, Minor alarm and System status
- Two Digital Inputs
- Two Output Relay contacts
- Records 5000 logs as FIFO



4.3 Inview S - Specifications

Models	Inview S	Inview S Slot	Inview S + MBB	Inview S Slot + MBB
Modules compatibility	Bravo 10 and 20	Bravo 10	Bravo 10 and 20 Sierra 10 and 25	Bravo 10 and Sierra 10
Touch screen display	2.8" capacitive	1.8" resistive	2.8" capacitive	1.8" resistive
Web interface	YES (monitoring and configuration)			
Hardware / software interfaces	ETH, Modbus TCP*, SNMP v1, v2c and v3*, NTP, HTTP/HTTPS			
Output relays	2		8	
Digital input	2		10	
Voltage sensor	-		3	
Current sensor	-		3	
Temperature sensor	-		2	
Mounting	DIN or panel	Shelf	DIN or Panel + DIN (MBB)	Shelf + DIN (MBB)
Power supply	12 Vdc (10-14 Vdc) + PE Connection (auxiliary source)	48 Vdc (from the busbar)	12 Vdc (10-14 Vdc) + PE Connection (auxiliary source)	48 Vdc (from the busbar) 12 Vdc (auxiliary source for MBB)
Dimension (W x H x D) mm	180 x 83 x 31	87 x 42 x 331	180 x 83 x 31 + 160 x 97 x 38	87 x 42 x 331 + 160 x 97 x 38
Weight	240 g	650 g	240 + 240 g	650 + 240 g
Part number	T602004100	T602004110	T602004100 + T602006000	T602004110 + T602006000

* Available soon.

4.4 Accessories

4.4.1 Measure Box Battery (MBB)

Measure Box Battery is a unit which monitors the battery parameters such as battery voltage, current, and temperature and LVD. In addition it contains extended Digital Inputs and Output Relay contacts.

MBB can connect upto three in parallel.



4.4.1.1 Specifications

Measure Box Battery	
VDC	3 VDC inputs (V COM, V midpoint string 1, V midpoint string 2), maximum 60 Vdc
IDC	3 IDC inputs, 0-60mV shunt (I COM, I string 1, I string 2)
Temperature sensor	Yes
Output relays	6 dry contacts (maximum 60 Vdc, 0.5 A)
Digital inputs	8 (0 - 5V)
Communication	CAN Bus
Power supply	12 Vdc input (10 - 14 Vdc) + PE connection
Synoptics	1 LED
Mounting	DIN Rail
Dimension (W x H x D)	160 x 97 x 38 mm
Weight	240 g
Part number	T602006000

4.4.2 Measure Box DC loads (MBDC)

Measure Box DC loads is a unit which monitors the current parameters of DC loads. It measures the exact current value at each DC load terminal through shunt.

Each MBDC can monitor up to maximum 20 DC loads. In addition, it contains extended 20 Digital Inputs.

MBDC can connect upto three in parallel.



4.4.2.1 Specifications

Measure Box DC Loads	
IDC	20 IDC inputs, 0-60mV shunt (I COM, I string 1, I string 2)
Digital inputs	20 (0 - 5V)
Communication	CAN Bus
Power supply	12 Vdc input (10 - 14 Vdc) + PE connection
Synoptics	1 LED
Mounting	DIN Rail
Dimension (W x H x D)	160 x 97 x 38 mm
Weight	240 g
Part number	T602006001

5. Installation

5.1 Site preparation

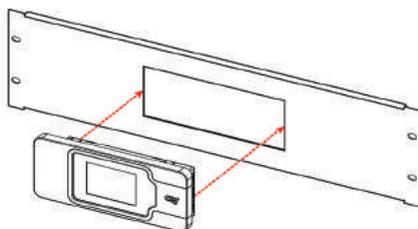
- All cables should be copper wire and must be rated for min 90°C (194°F).
- All cables must be sized according to the rated current of the Inview S / Measure Box Battery and to the customer terminal connection.
- All power and signal cables should be routed properly.

5.2 Mounting - Inview S

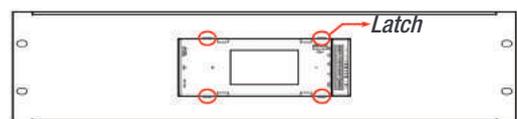
5.2.1 Panel Mounting

Before mounting the Inview S in the system, route all the required connection cables from the system and place near to the Inview S mounting location.

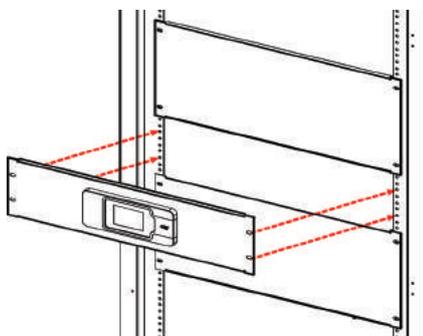
1. Place the Inview S in the panel sheet.
2. Lock all the four latches at the rear side of the Inview S in the panel sheet.
3. Connect required connection cables to the Inview S.
4. Mount the panel sheet in the system with screws.



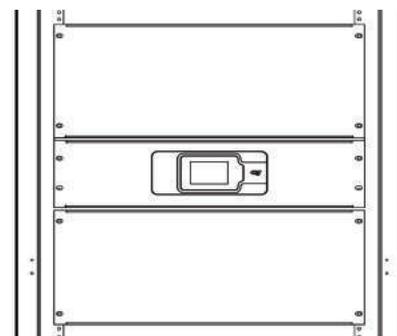
Place the Inview S in the panel sheet



Lock it with four latches



Connect wires and place the panel sheet in the cabinet

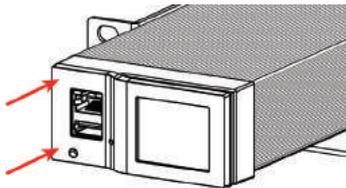


Mount the panel sheet with screws

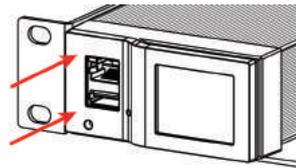
Note: To know about panel sheet dimension and cut-out details, refer "13. Annex 4: Inview S panel sheets", page 61.

5.3 Installing - Inview S Slot

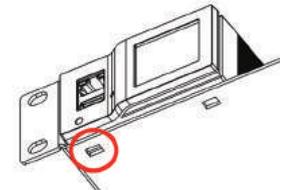
1. Place the Inview S Slot and slide into the shelf.
2. Push the unit firmly until the controller rear part is engaged correctly with shelf.
3. Make sure the latch is locked in the shelf.



Place the module & slide into the shelf



Push firmly until module is engaged

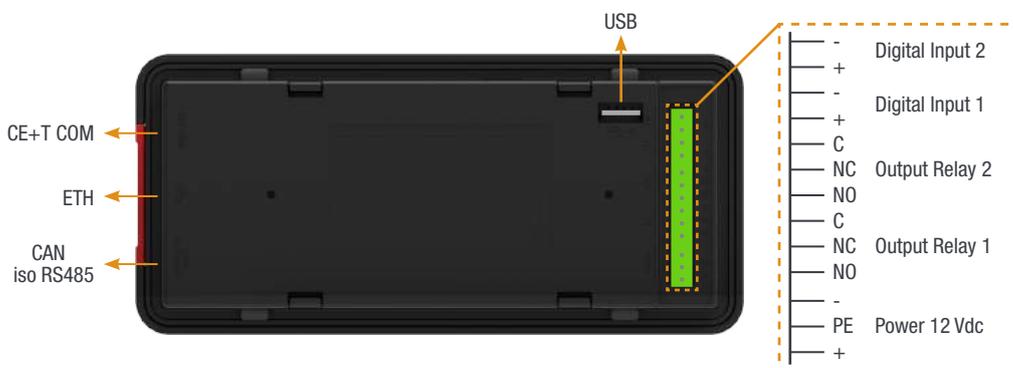


Make sure the latch is locked in the shelf

5.4 Hardware Connections

5.4.1 Inview S - Connections

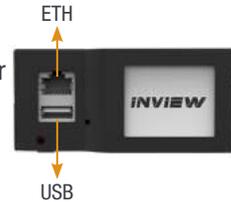
Inview S is composed of multiple network ports, digital inputs and Output Relay contacts which are present at the rear side of the product.



- **Helios COM** port is dedicated to establish connection between Inview S and converters.
- **ETH** () port is used for network connectivity and user can access the system information in the Web Interface and SNMP.
- **CAN / iso RS485** port is used to establish communication between Inview S and accessories such as Measure Box Battery and Measure Box DC load.
Note: In future version, user can use this port for RS485-Modbus communication.
- **USB** port is used to update the Inview S firmware.
- **Digital Inputs (D1 and D2):** Two digital inputs are available for customer connections.
- **Output Relays (K1 and K2):** Two output relays are available and it is used for Major and Minor Alarms.
- **Power:** The regulated separate +12 Vdc is required for powering the controller and the power consumption is 5W. (**Helios** can provide auxiliary power supply converter (48 to 12 Vdc). Part number is **T602006004**)

5.4.2 Inview S Slot - Connections

Inview S Slot has an ETH port and USB at the front. Output relays, digital inputs, CAN and power connections are present at the rear side of the Inview S Slot connected shelf.

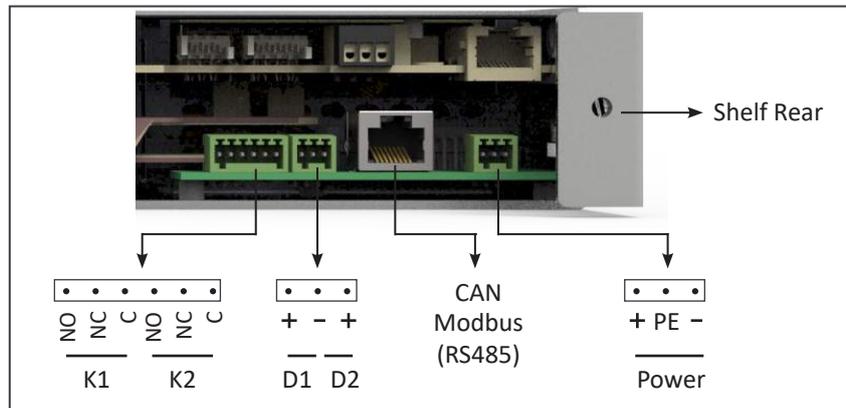


5.4.2.1 Inview S Slot - Front connections

- LAN port is used for network connectivity and user can access the system information in the Web Interface.
- USB port is used to update the Inview S firmware.

5.4.2.2 Inview S Slot - Shelf rear connections

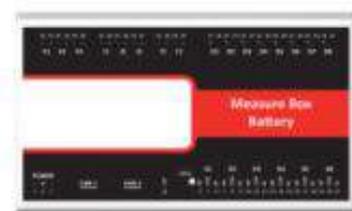
- Digital Inputs (D1 and D2):** Two digital inputs are available for customer connections.
- Output Relays (K1 and K2):** Two output relays are available and can be used for Major and Minor Alarms.
- CAN / Modbus (RS485) port** is used to establish communication between Inview S Slot and accessories. It also provide the +12 Vdc power to **one accessory** such as Measure Box Battery or Measure Box DC load.
Note: In future version, user can use this port for RS485-Modbus communication.
- Power:** The redundant external auxiliary +12 Vdc and the power consumption is 5W. By default, Inview S Slot takes power from DC bus. If DC is not present, it takes +12 V from external Auxiliary power supply converter (AC to DC).



5.4.3 Measure Box Battery - Connections

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

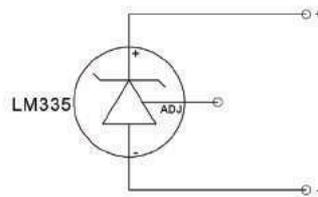
- Voltage (V1 to V3)** is used to monitor the voltage of DC. Ensure the polarity while wiring.
 - V1: common DC 48V voltage
 - V2: string 1 monitoring
 - V3: string 2 monitoring



- Current (I1 to I3) terminal is used to monitor the current of Battery. Ensure the polarity from the shunt while wiring.
 - I1: battery shunt when a common shunt is used for all strings
 - I2: string 1 shunt when measuring each battery
 - I3: string 2 shunt when measuring each battery

Note: MBB is designed to monitor the current from 50mV or 60mV shunt only.

- Temperature (T1 & T2): T1 terminal is used for temperature compensation and T2 terminal is not available. For temperature monitoring, the LM335 sensor must be used and wired as per the following.

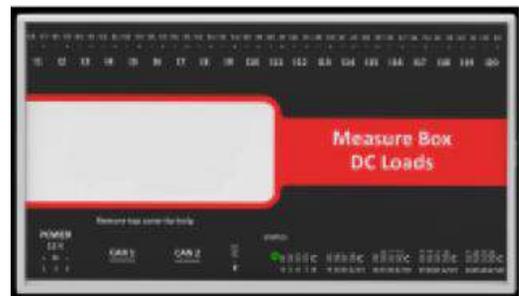


- CAN 1 port is used to establish the connection between Inview S and Measure Box Battery.
- CAN 2 port is used to connect and parallel up to three MBB. It also helps to connect the MBDC.
- Digital Inputs (D1 to D8): Eight Digital Inputs are available for customer connections.
- Output Relays (K1 to K6): Six output relays are available for customer connections
 - K1 and K2 - Major and Minor alarms
 - K5 and K6 - LVD Connections
- Power: The regulated separate +12 V power supply is required for powering MBB and the power consumption is 2W. (CET can provide auxiliary power supply converter (48 to 12 Vdc). Part number is **T602006004**).

5.4.4 Measure Box DC (MBDC) - Connections

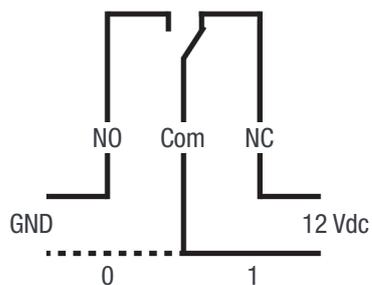
Measure Box DC load is composed of multiple digital inputs.

- Current (I1 to I20) terminal is used to monitor the current of DC loads.
- Digital Inputs (D1 to D20): Twenty potential free extended Digital Inputs are available for customer connections.
- CAN 1 port is used to establish the connection between Inview S or Measure Box Battery.
- CAN 2 port is used to connect and parallel up to three MBDC.
- Power: The regulated separate +12 V power supply is required for powering MBDC and the power consumption is 2W. (CET can provide auxiliary power supply converter (48 to 12 Vdc). Part number is **T602006004**)



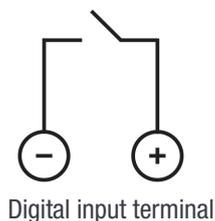
5.4.5 Output relay connections

Each output relay terminal in Inview S and MBB 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.



5.4.6 Digital input connections

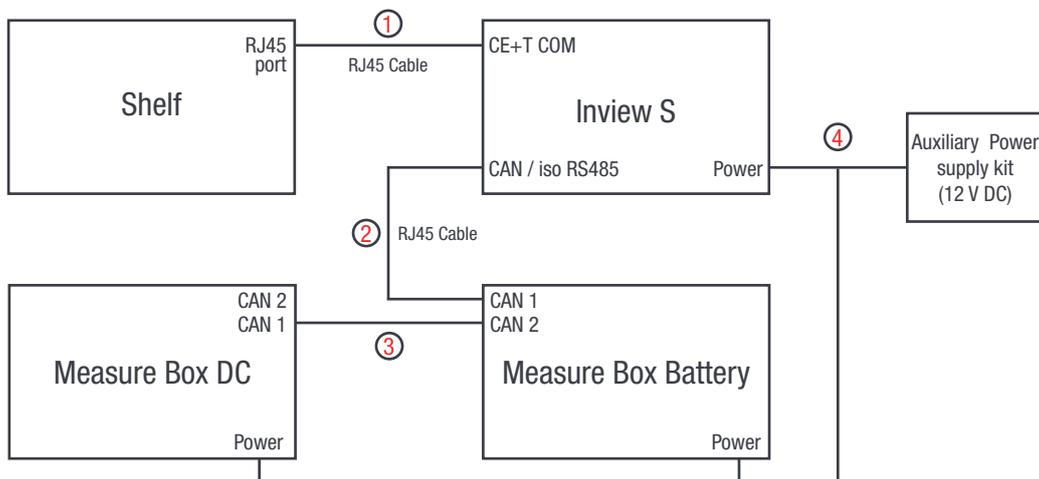
In digital input terminal, the external voltage should not be applied and it is mandatory to connect only like switches. Each digital input terminal in Inview S, MBB and MBDC should be connected as below diagram.



5.4.7 Inview S with Bravo and Sierra - System

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

1. Connect “RJ45” port in shelf and “**Helios COM**” port in Inview S using RJ45 straight cable.
2. Connect “CAN / iso RS485” port in Inview S and “CAN1” port in Measure Box Battery using RJ45 straight cable.
3. Connect “CAN2” port in Measure Box Battery and “CAN1” port in Measure Box DC using RJ45 straight cable.
(Note: Measure Box DC is an optional)
4. Connect 12 V supply to Inview S and MBB from auxiliary power supply kit.



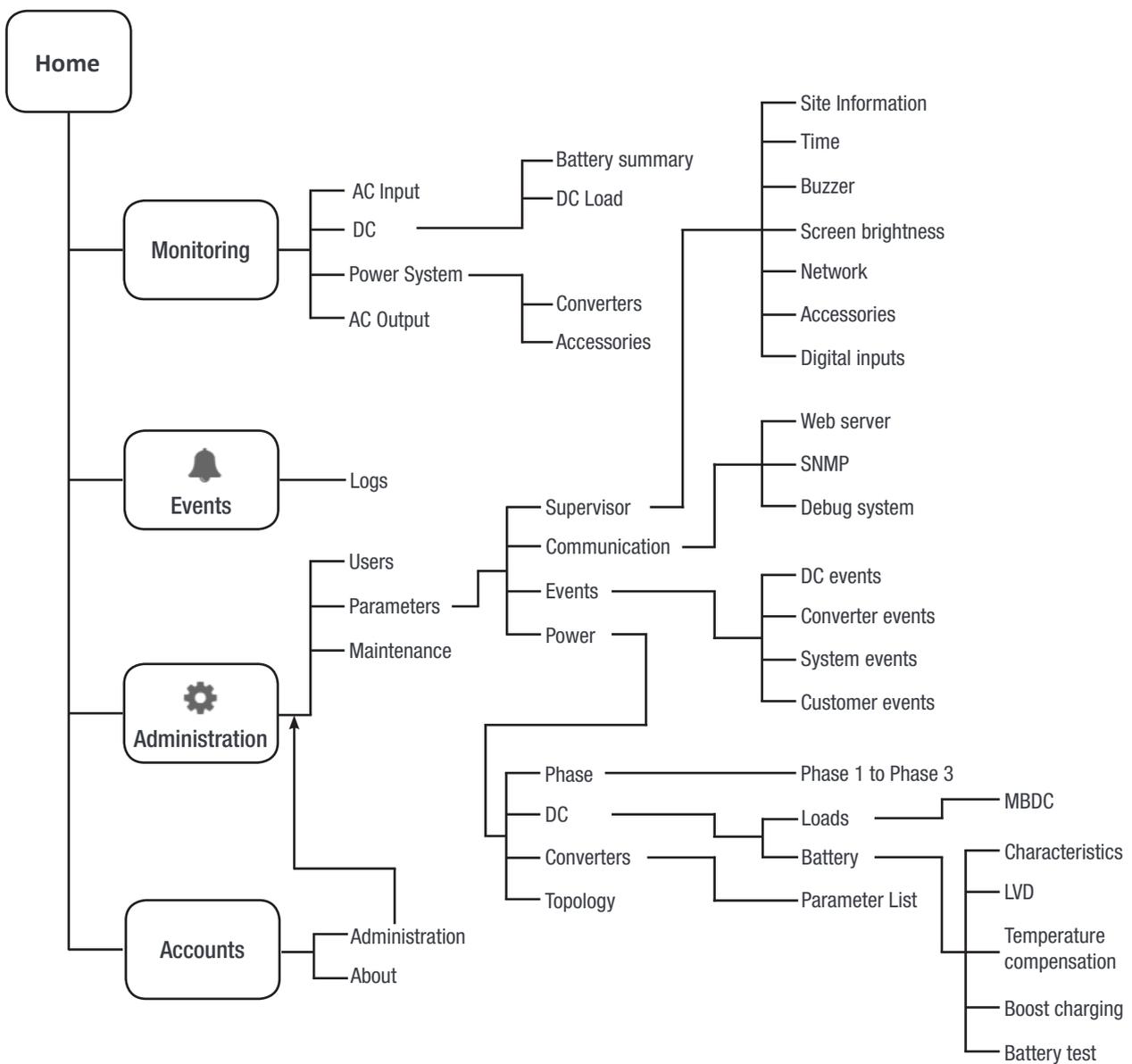
For more information about wiring refer “11. Annex 2: Inview S with MBB - Wiring diagram”, page 59

6. Overview - Web Interface

The web interface of both controller **Inview S** and **Inview S Slot** is same. Inview web interface provides 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.

Note: Clicking on a parameter in the tree goes to the corresponding section.



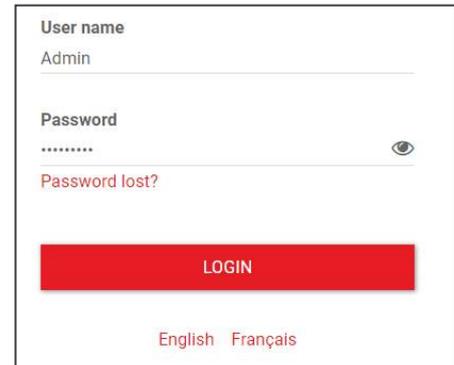
6.1 Login

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

Note: Use any one of the following latest version of web browser: Google Chrome, Mozilla Firefox, Safari or microsoft edge.

Inview S has 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 , page 30.

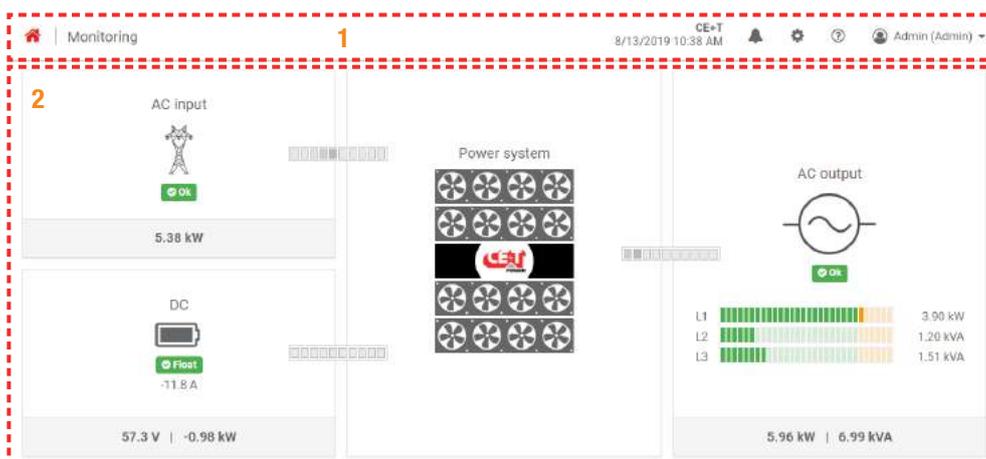


Basic login can only browse the pages and download the files, but Expert and Admin login can access and also modify the system parameter values.

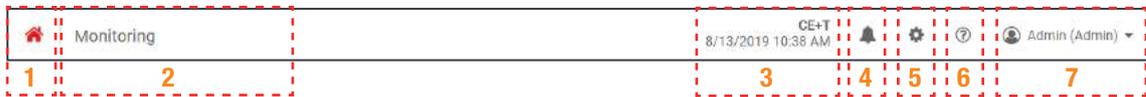
An auto-logout feature is available to avoid a user being connected all the time. When no action is performed for more than 10 minutes, the session will expire and goes to login screen.

6.2 Interface Areas

- 1 → Header
- 2 → Main Page



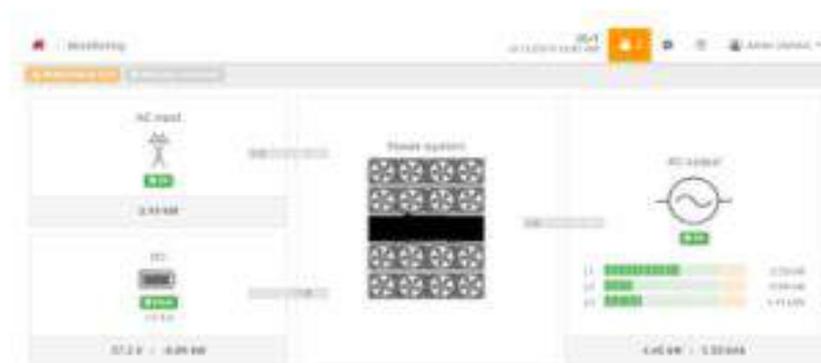
6.2.1 Header



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

- 1 → **Home:** Clicking on  goes to the home page from any page you are accessing in the interface.
- 2 → **Breadcrumbs:** Provide navigation of the page. It trails all levels so that user can know where you are within the interface and can go to any previous menu.
- 3 → Display the date, time and the site name of the system.
- 4 → **Events:** Clicking on  goes to Events and Logs page.
- 5 → **Administration:** Clicking on  provide access to Users, Parameters and Maintenance pages.
- 6 → **Info:** Clicking on  in the home page, provides brief information about the system, while in other pages provide the latest three ongoing events.
- 7 → **Account:** Provides the information of which account is logged in (Basic, Expert or Admin). Clicking on drop-down arrow user can access the following pages:
 - **Administration** - Provide quick access to Users, Parameters and Maintenance pages.
 - **About** - Provides the information of Inview product details and network connectivity details.

6.2.2 Home Page



- 1 → **AC Input:** Clicking on the AC Input region displays the page contain all measurements regarding AC Input.
- 2 → **DC:** Clicking on the DC region displays the page contains all measurements regarding DC input and output.
- 3 → **Power System:** Clicking on the Power System region display the page contains regarding system information such as overall system power and also in each phase, configured modules, active modules, and list of detected modules and accessories.

- 4 → **AC Output:** Clicking on the AC Output region displays the page contains all measurements regarding AC Output. Regardless of the system configuration (1P, 3P), display the power fed to the load on each phase.
- 5 → **Notifications:** Display the current generated alarms and events.

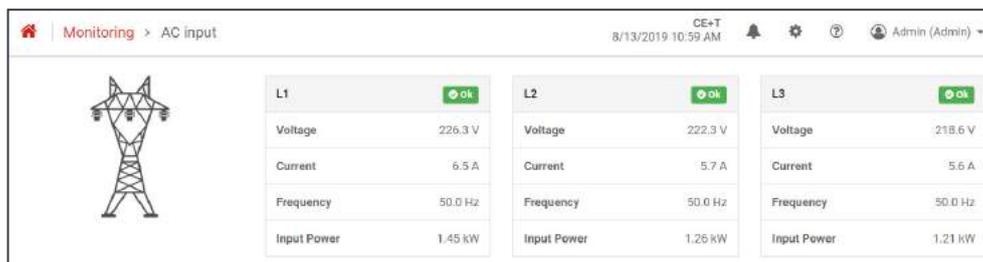
6.3 Web page and its features

6.3.1 Monitoring

6.3.1.1 AC Input

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

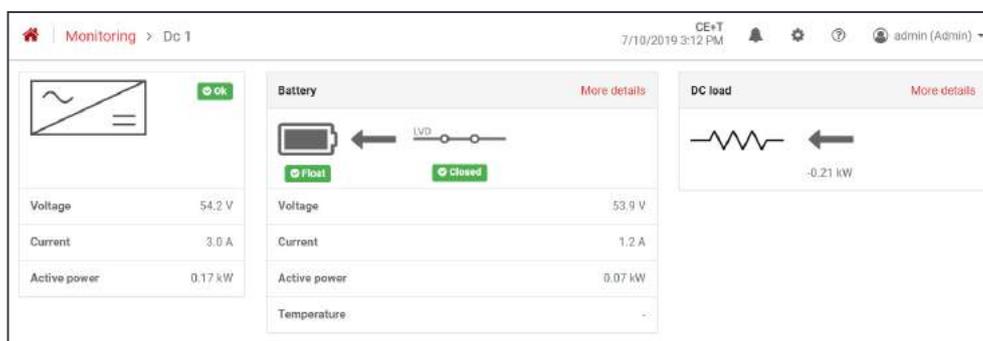
Select *Home page > AC input*



6.3.1.2 DC

DC page displays the summary of DC information, which includes both battery and DC load. Next to it, displays separately the summary of Battery and DC Load which is measured by the modules on the DC input and DC Load.

Select *Home page > DC*



- **Battery:** Clicking on Battery region in DC page displays the detailed information of battery. In this page, the user can set boost charging and perform the battery test by clicking the “LAUNCH BATTERY BOOST” and “LAUNCH BATTERY TEST” button.

From this page, the user can go to battery configuration page and maintenance page to view battery reports by clicking on the Configuration and Battery reports region.

- **DC Load:** Clicking on the DC load region displays the summary of all DC loads.

Note: Negative sign “-” indicates discharging and positive sign “+” indicates charging.

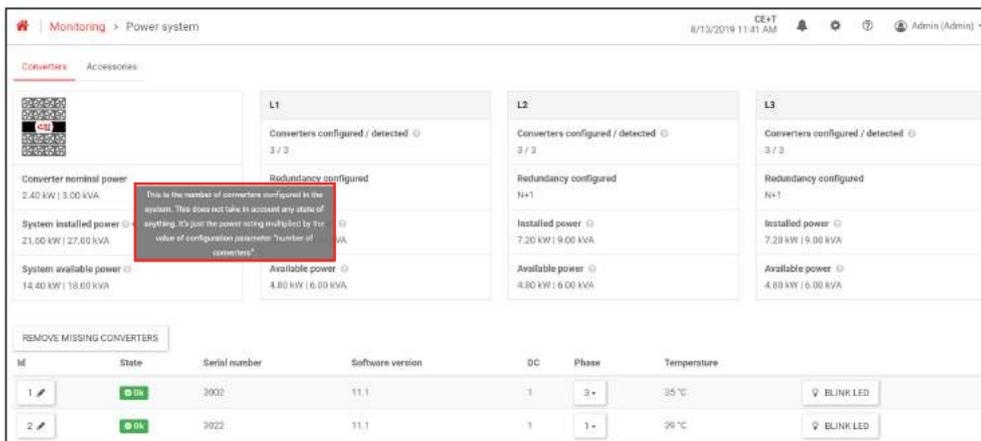
From this page, user can go to the MBDC page where all the DC loads are listed by clicking Global region.

6.3.1.3 Power System

Power System page provides detailed system information such as overall system power and also in each phase, configured modules, active modules, Redundancy configuration, and list of detected converters (modules) and accessories.

Note: Inview automatically detects the installed module in the system and display as “Converter” in the interface. It can be either inverter, converter, or rectifier.

Select Home page > Power system



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

Power system page contains Modules and Accessories section.

Converters

Select Converters tab in the power system page.

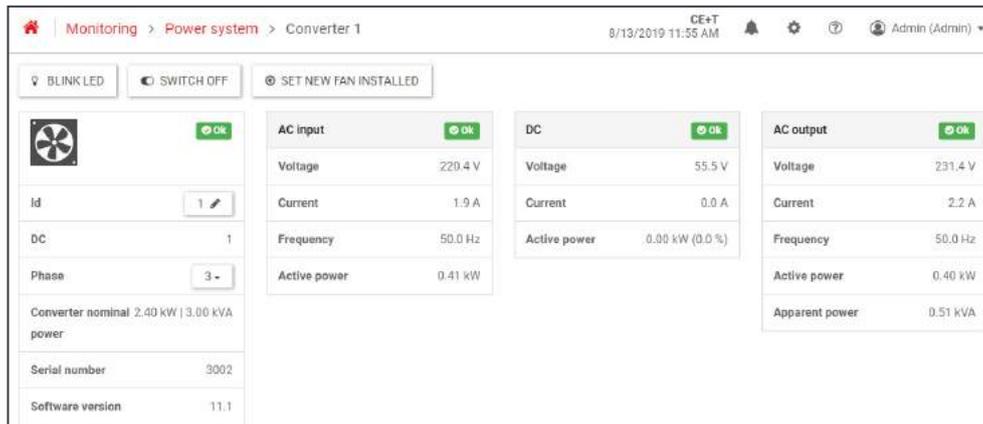
Bottom of the page displays the list of all installed modules and provides the general information of the modules. Clicking on “BLINK LED” button, the corresponding module LED’s blink for 6 seconds. It helps to identify the module in the system and also the assigned phase of the module.

Note: Clicking on “REMOVE MISSING MODULES” button removes all the non-active modules from the list.

To know more about the module, select a particular module from the list.

REMOVE MISSING CONVERTERS							
Id	State	Serial number	Software version	DC	Phase	Temperature	
1	OK	3035	11.1	1	1	32 °C	BLINK LED
2	OK	3089	11.1	1	1	32 °C	BLINK LED
3	OK	3025	11.1	1	1	30 °C	BLINK LED

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.
(Note: the module output should be turned OFF while assigning the phases)
 - Module power, 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 Output – Voltage, Current, Frequency, Active Power and Apparent Power.
- **Other Features:**
 - **Blink LED:** Clicking on “BLINK LED” button, the corresponding module LED’s blink for 6 seconds. It helps to identify the module in the system and also the assigned phase of the module.
 - **Switch OFF:** Clicking on “SWITCH OFF” button, the corresponding module will be turned OFF and generates an alarm in events page as module off.
 - **Set new fan installed:** Clicking on “SET NEW FAN INSTALLED” button, the corresponding module “Module fan replacement” due will be reset to 2556 days (7 years).
(Note: Do not click this button, until a new fan is replaced inside the module.)

Accessories

Select **Accessories** tab in the power system page, it displays the list of Accessories installed in the system. Accessories are Measure Box Battery and Measure Box DC. Clicking on “BLINK LED” button, the corresponding accessory LED blink for 6 seconds. It helps to identify the accessory in the system.

Type	State	Id	Serial number	Software version	
Measure box battery	OK	MBB-1	103	1.7.9	BLINK LED
Measure box battery	OK	MBB-2	197	1.5.2	BLINK LED
Measure box DC	OK	MBDC-1	37	1.5.2	BLINK LED
Measure box DC	OK	MBDC-2	99	1.5.2	BLINK LED

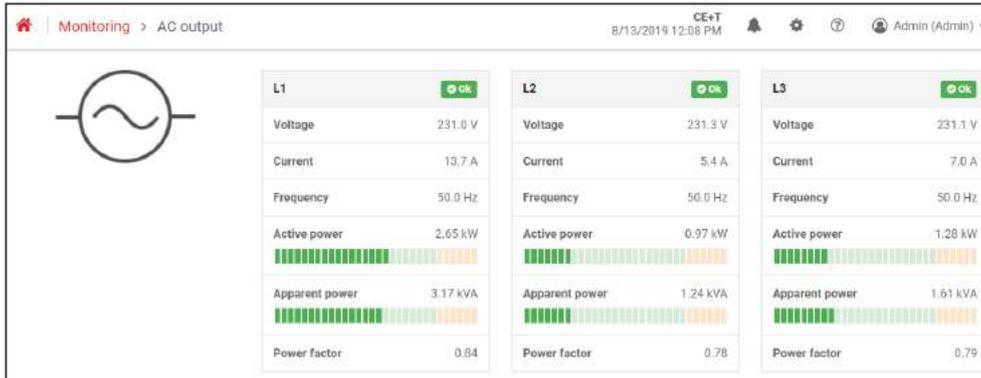
To know more about the accessory, select a particular accessory from the list, and it displays detailed information of that accessory. The following is an accessory of Measure box battery page.

From this page, the user can view and configure the corresponding accessory by clicking “Configuration” at the right corner of the web page.

6.3.1.4 AC Output

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

Select Home page > AC output



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

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

6.3.2 Events

Events page displays the list of current alarms and events, and it stops displaying once the alarms is cleared. It also provides the information of events Severity, Origin, Description and Date & time. Events triggered depends upon the delay time of the relay.

Select Home page >

SEVERITY	ORIGIN	DESCRIPTION	DATE
Minor alarm	System AC-in-L1	AC in source failure	8/13/2019 12:26 PM
Minor alarm	System AC-in-L2	AC in source failure	8/13/2019 12:26 PM
Minor alarm	System AC-in-L3	AC in source failure	8/13/2019 12:26 PM
Notification	Battery 1	On battery	8/13/2019 12:26 PM

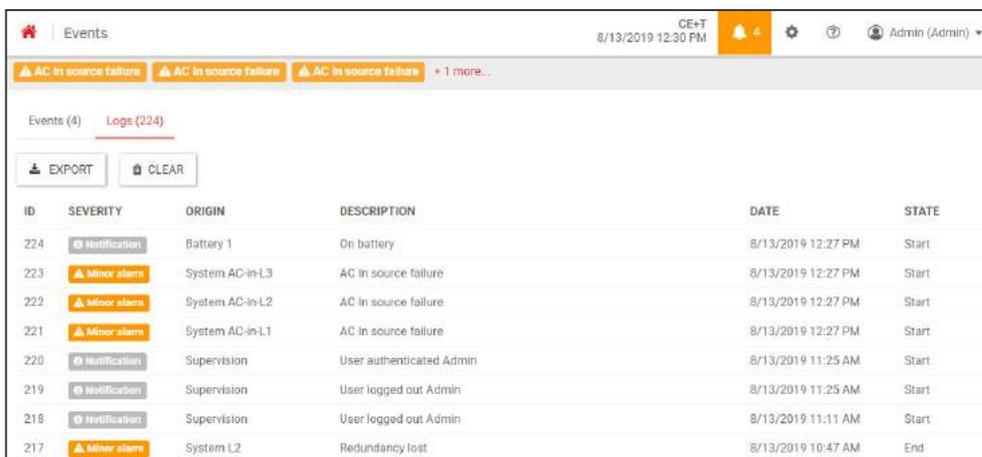
6.3.2.1 Logs

Logs page display the list of changes that occurred in the system, to help during troubleshooting. It also provides the information of *Logs ID, Severity, Origin, Description, Date & time, and State.*

It displays latest 5000 logs as FIFO (First In First Out).

Select *Home page* >  > *Logs*

In this page user can download the log file (.csv) and clear logs by clicking “EXPORT” and “CLEAR” button.



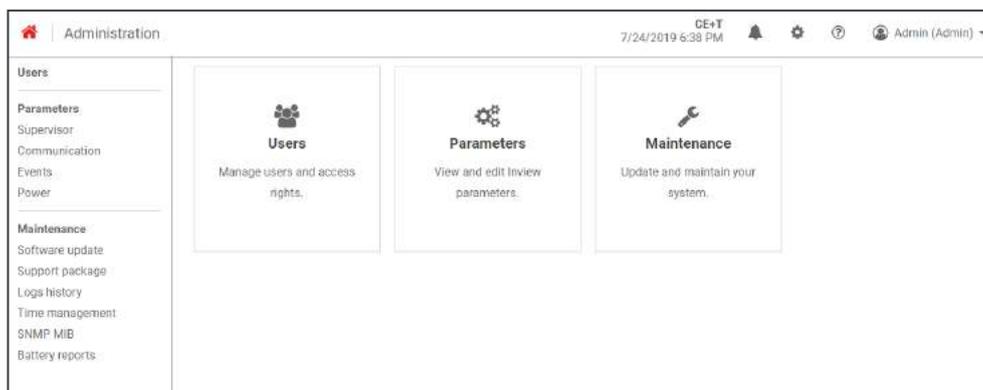
ID	SEVERITY	ORIGIN	DESCRIPTION	DATE	STATE
224	Notification	Battery 1	On battery	8/13/2019 12:27 PM	Start
223	Minor alarm	System AC-in-L3	AC in source failure	8/13/2019 12:27 PM	Start
222	Minor alarm	System AC-in-L2	AC in source failure	8/13/2019 12:27 PM	Start
221	Minor alarm	System AC-in-L1	AC in source failure	8/13/2019 12:27 PM	Start
220	Notification	Supervision	User authenticated Admin	8/13/2019 11:25 AM	Start
219	Notification	Supervision	User logged out Admin	8/13/2019 11:25 AM	Start
218	Notification	Supervision	User logged out Admin	8/13/2019 11:11 AM	Start
217	Minor alarm	System L2	Redundancy lost	8/13/2019 10:47 AM	End

6.3.3 Administration

Administration page provide access to Users, Parameters and Maintenance pages.

- Users page provides the option to create, modify and delete user accounts.
- Parameters page provide access to supervisor, communication, events and power pages.
- Maintenance page provides access to update software, download support package, download logs, time setting, download MIB and view battery reports.

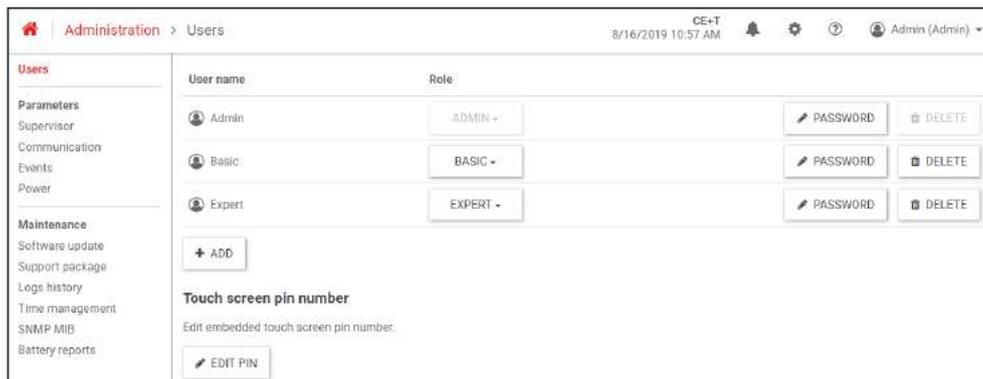
Select *Home page* > 



6.3.3.1 Users

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

Select Home page >  > Users



Web interface - User account

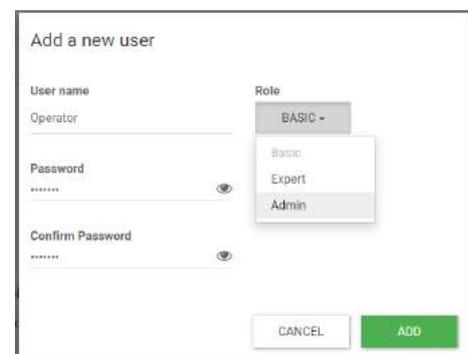
Users can create up to ten accounts for web interface and assign role as Admin, Expert, or Basic.

- Admin – User can access, modify all the applicable parameters, and manage user accounts. (The manufacturer created **Admin** account cannot be deleted)
- Expert - User can access and modify all the applicable parameters, and can change their own password.
- Basic – User can only view the parameters.

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

- **Creating a new user account**

- a) In Users page, Click on “+ADD” button. A pop window appears with the title “Add a new user.”
- b) Enter an appropriate user name and assign a role from the drop down list as Basic, Expert or Admin.
- c) Enter a new password, type the same password for confirmation, and then click **ADD** button. The password length should be at least seven 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 Admin, Expert, or Basic.
- Click on “PASSWORD” button to edit existing password.
- Click on “DELETE” button to remove the user account.

LCD interface - PIN number

Inview S and Inview S Slot LCD interface do not have any user account; the user can view the system details and cannot modify the parameters. The LCD interface is protected with the PIN during any action request.

- **Editing the LCD PIN number**

- Select *Home page* >  > *Users*.
- In users page, Click on “**EDIT PIN**” button below the “Touch screen pin number”.
- Enter a new pin, type the same for confirmation, and then click **OK**. The pin should be four integers.



6.3.3.2 Parameters

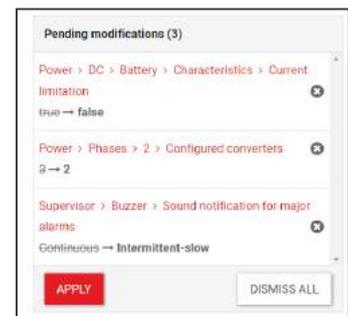
Parameters page provide access to *Supervisor*, *Communication*, *Events* and *Power* pages. Modification of parameter values in these pages reflects the function of Inview S.

Select *Home page* >  > *Parameters*



Other Features

- User can upload and download the system parameters by clicking “**IMPORT**” and “**EXPORT**” button at the top right side of the page. These two buttons are available in all parameters page.
- **Modifications list:** At the right side of the parameters page, displays the list of parameter modifications. This list helps the user to overview the changes and can apply the required parameters.
 - **Apply:** Clicking on “**APPLY**” button, the controller accepts all the parameter changes in the modifications list.
 - **Dismiss All:** Clicking on “**DISMISS ALL**” button, the controller rejects all the parameter changes in the modifications list.
 - Clicking on  button, the controller rejects only the particular modification from the list.



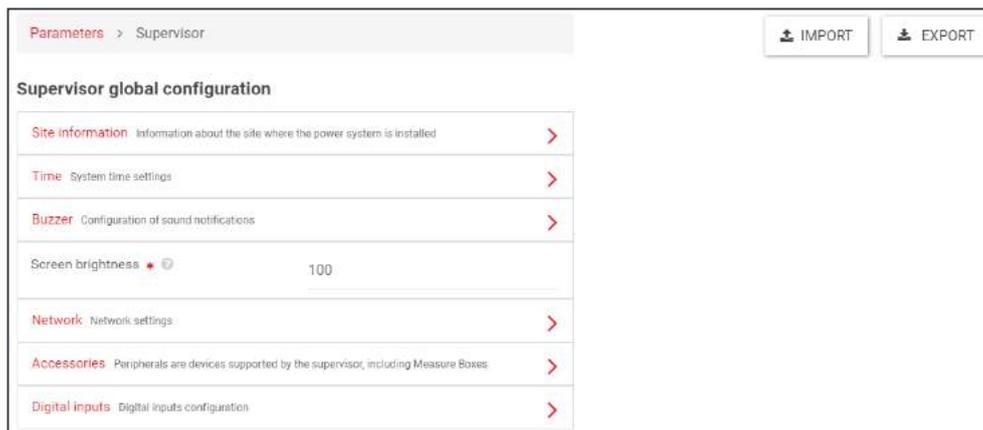
- Controls: Placing or clicking on it, perform the corresponding action

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.

Supervisor

Supervisor page display and access to global parameters such as *Site information*, *Time settings*, *Buzzer*, *Network*, *Accessories* and *Digital input settings*.

Select Home page >  > Parameters > Supervisor



- **Site Information:** Enter the site location details where Inview is installed.
- **Time:** Set the time settings and it reflects in the header, logs and events.
 - **Mode:** Choose Computer or NTP from the drop down list and update in **Time management** at Maintenance page, refer, page 47.
 - Computer – Inview read the computer time during the configuration and adapt the time.
 - NTP – Inview Internal clock synchronizes with the server time.
 - **Time zone:** Choose the time zone from the drop-down list.
 - **NTP server:** Enter the NTP server address.

- **Buzzer:** Select the check box to enable the buzzer sound when any alarm is generated. User can set different sound sequence to differentiate Major and Minor alarm from the drop-down list. Even though this feature is disabled, the buzzer produces sound during LVD notifications.
- **Screen brightness:** Adjust the LCD touch screen brightness between 25% to 100%. If no action is performed for more than 3 minutes, the LCD screen goes off and wakes up once the screen was tapped.
- **Network:** Inview supports IPv4 network. Choose the Address mode as *dhcp* or *static* from the drop-down list. Depending upon the type, enter the network address.

Note:

The 192.168.20.31/24 represents the IPv4 address 192.168.20.31 and its associated routing prefix 192.168.20.0, or equivalently, its subnet mask 255.255.255.0, which has 24 leading 1-bits.

The higher bit count values such as /30, /31 limit the number of allowed IP addresses in the subnet. Ultimately, value /32 would make the device unreachable and must be avoided. The most common value is “/24” and corresponds to a 255.255.255.0 subnet mask.

- **Accessories:** Enter the number of accessories that are installed in the system. Accessories are Measure Box Battery and Measure Box DC.
- **Digital inputs:** Inview has two digital inputs, and it named as “IVS-DI1” and “IVS-DI2” in the interface. If a Measure Box Battery (MBB) is installed in the system, the user has additional 8 digital inputs, and they are “MBB-1-DI1 to DI8”.

Number of Digital Inputs = 2 from Inview S + (8 x number of Measure Box battery configured)

- **Configure Inview and Measure Box Battery Digital inputs:**

Inview S: Select *Home page* > > *Parameters* > *Supervisor* > *Digital inputs* > *IVS* and click the digital input to configure.

Measure Box Battery: Select *Home page* > > *Parameters* > *Supervisor* > *Digital inputs* > *MBB-1* and click the digital input to configure.

- **Digital input mode:** Select the option from the drop-down list.
- **Active when:** Configure at which state the digital input should be triggered. By default, the digital input is in open condition. If it is closed, the action will be triggered.
- **Label:** Enter an appropriate and distinct label. This label displays on the web pages, logs, events and touch screen display and it helps to identify the particular digital input easily from the list.

Note: In measure box battery the label display as its ID. If measure box DC load is connected, more digital inputs will be available along with Measure box battery.

Communication

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

Select Home page >  > Parameters > Communication



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



Note: If HTTPS protocol is used, the self- signed SSL certificate is required.

- **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. User can configure of maximum three TRAP receiver.



- **Debug system:** Select the check box to enable debug feature. During normal operation, the check box should be disabled.

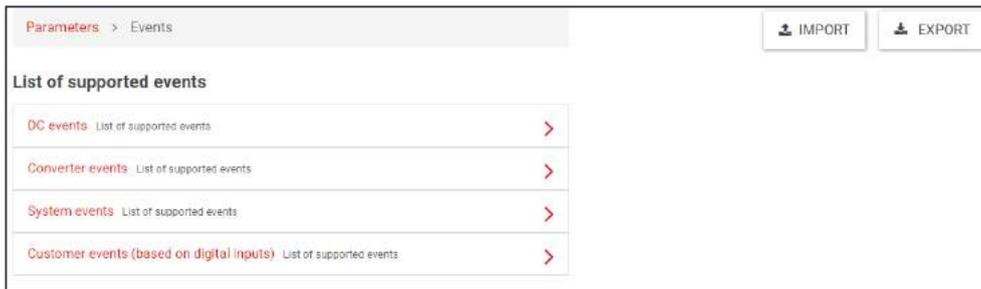


Note: the debugging process must be performed by a qualified technical person who has adequate knowledge on Helios monitoring products.

Events

Events page provide access to configure DC, Converter, System and Customer events.

Select Home page >  > Parameters > Events

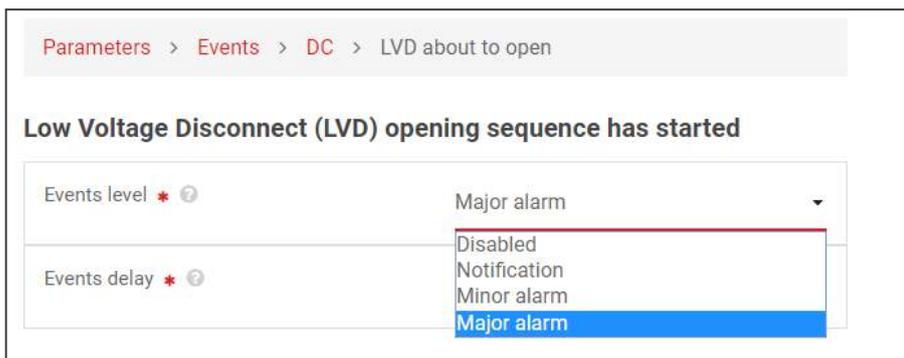


Users can configure each event level and delay, and some events have threshold fields.

- **Events level:** Choose the level of the corresponding events as *Disabled*, *Notification*, *Minor alarm* or *Major Alarm* from the drop-down list.
- **Events delay:** Enter the delay time and can set from 0 to 3600 seconds. The events will appear depend upon the relay time.
- **Events threshold:** If the parameter value goes below the mentioned value, the event will appear.
- **Events cancel threshold:** If the parameter value reaches the mentioned value, the event will be cleared.

The followings are the example of configuring the “LVD” and “DC voltage too high” events . Similarly, other events can be configured.

Select Home page >  > Parameters > Events > DC > LVD about to open



Select Home page >  > Parameters > Events > DC > DC voltage too high

Parameters > Events > DC > DC voltage too high

The DC voltage exceeded the maximum threshold

Events level * ?	Minor alarm ▼
Events delay * ?	30
Events threshold * ?	57.5
Event cancel threshold ?	55.5

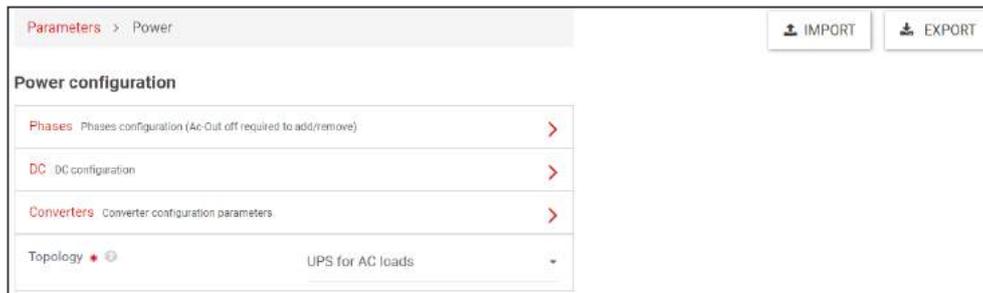
- List of supported events

S.No	Events
DC events	
1	LVD about to open
2	LVD open
3	Battery midpoint unbalance
4	Battery string disconnected
5	Battery strings current imbalance
6	Battery temperature too high
7	Battery temperature too low
8	Temperature sensor failure
9	Battery test cancelled
10	Battery test failure
11	Battery test ongoing
12	DC load disconnected
13	DC load saturated
14	Converter DC output power too high
15	DC source lost
16	DC voltage too high
17	DC voltage too low

Converter events		
1	Overload	
2	System parallelization bus issue	
3	Fan end of life	
4	Fan failure	
5	Missing converter	
6	Converter off	
7	Recoverable fault	
8	Unrecoverable fault	
9	Wrong configuration	
System events		
1	Less converters than configured	
2	Measure box missing	
3	Measure box wrong version	
4	AC In source failure	
5	System AC Out failure	
6	AC Out saturated	
7	Auxiliary power failure	
8	Manual Bypass	
9	On battery	
10	Redundancy lost	
11	Redundancy plus one lost	
Customer events (based on digital inputs)		
1	IVS (Inview S)	IVS-DI1
2		IVS-DI2
3	MBB-1	MBB-1-DI1 to DI8
4	MBB-2	MBB-2-DI1 to DI8
5	MBB-3	MBB-3-DI1 to DI8

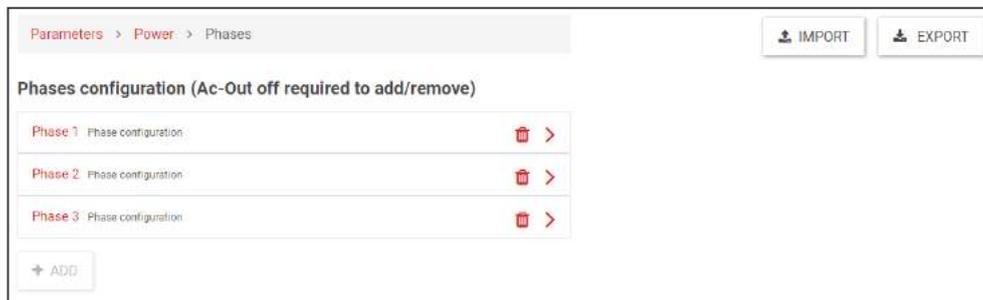
Power

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



- **Phase** page displays the list of phases configured in the system. User can configure the number of modules and redundancy based upon the system capacity for each phase.

Select Home page >  > Parameters > Power > Phases.



In a system, AC phases can be configured as one, two or three. Click on  icon to add phases and  icon to delete the configured phase.

Note: while configuring the AC phases, the AC output should be in off.

Select a phase from the list to configure.



- **Configured converters:** Enter the number of modules for each phase based upon the system capacity. It includes the redundancy modules.
- **Redundancy:** Enter the number of redundancy modules required from the configured modules in the corresponding phase. Available power and Installed power will be displayed, depending on the module redundancy configuration.

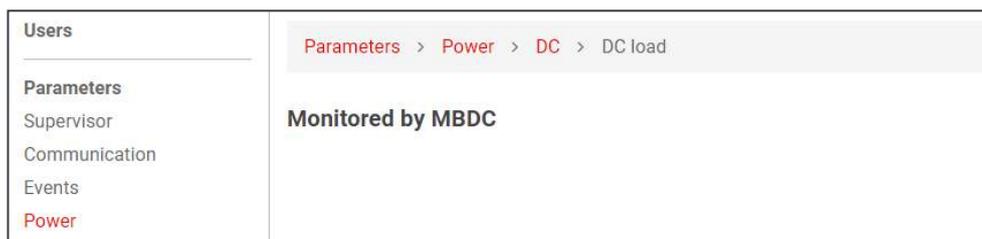
- DC page provide access and configure the DC loads and Battery parameters.

Select Home page >  > Parameters > Power > DC



- Loads page display the list of connected DC loads and these loads are monitored through Measure Box DC.

Select Home page >  > Parameters > Power > DC > Loads



- Battery page provide access and configure the battery parameters such as battery characteristics, LVD, temperature compensation, boost charging and test.

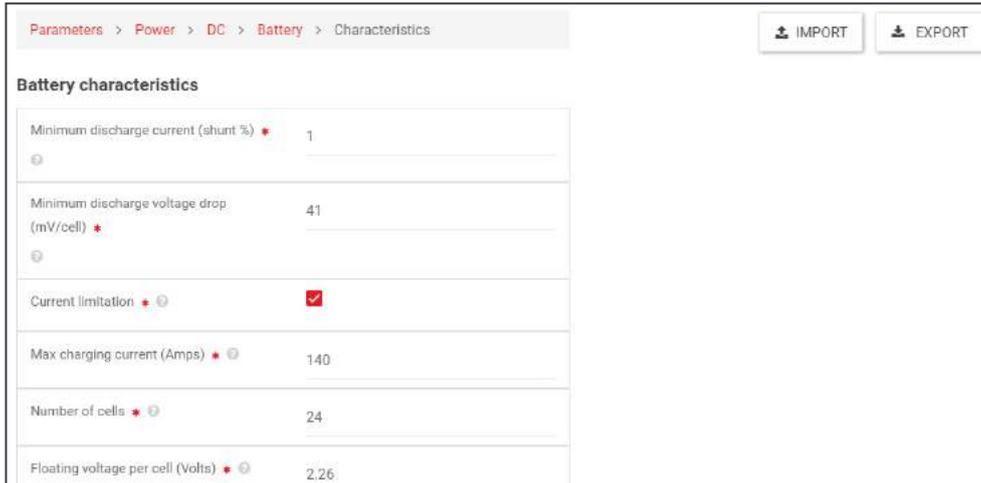
Note: While modifying the parameters, it is advised to enter the values as per in the battery datasheet.

Select Home page >  > Parameters > Power > DC > Battery



1. **Characteristics:** Displays the battery parameters and configured with default values. User can modify it as per the battery connected in the system.

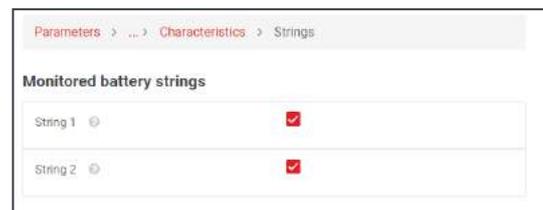
Select Home page >  > Parameters > Power > DC > Battery > Characteristics



Battery characteristics	
Minimum discharge current (shunt %) *	1
Minimum discharge voltage drop (mV/cell) *	41
Current limitation *	<input checked="" type="checkbox"/>
Max charging current (Amps) *	140
Number of cells *	24
Floating voltage per cell (Volts) *	2.26

- **Current limitation:** Enabling/Disabling the Battery current limitation. It is only used when charging to limit the maximum charging current.
- **Max charging current:** Enter the maximum charge current value as per in the battery datasheet. The current limitation is applicable for the whole battery, including all the strings.
- **Number of cells:** Enter the total number of cells in each string.
- **Floating voltage per cell:** Enter the floating voltage of the cell as per in the battery datasheet. The value should be entered in volts with two decimals.
- **Current measure configuration:** select an option from the drop-down list.
 - Select “None” option, if shunt is not installed.
 - Select “Single shunt” option, if only one shunt is used for the entire string.
 - Select “One shunt per string” option, if a shunt is used for each string
- **Temperature offset:** Enter the value for temperature offset and this value will be added to temperature measurements.
- **String capacity:** Enter the total capacity of each string in AH.
- **Fuse rating:** Enter the rating value of the fuse in amps which is installed between the DC terminal and the battery string.
- **Shunt:** Enter the current rating and voltage drop at a maximum current of the shunt, which is connected between the DC terminal and battery string in the system. The value of “shunt caliber” should be in amps and “shunt max. voltage drop” in mili volts.
- **Min current for imbalance monitoring:** Below this threshold, string current imbalance is not monitored. This feature is only available when system is configured in “One shunt per string” and at least two strings.
- **Strings:** Clicking on this displays the list of all strings in the system. Enabling a string check box from the list, the Inview monitors the current, voltage and temperature of the corresponding string through MBB and displays in MBB page (Home > Power system > Accessories and click the corresponding MBB).

List of strings = 2 x number of MBB installed.



Monitored battery strings	
String 1	<input checked="" type="checkbox"/>
String 2	<input checked="" type="checkbox"/>

2. **LVD** works as bistable only and it prevents batteries from discharging beyond the critical low voltage. It is installed in-line between the load and the battery. LVD continuously monitors the battery voltage, and if it falls below the preset voltage threshold, then it automatically disconnects the battery. It will automatically reconnect the load when the voltage is in range. In this page, the parameters are configured with default values. User can modify it as per the LVD installed in the system.

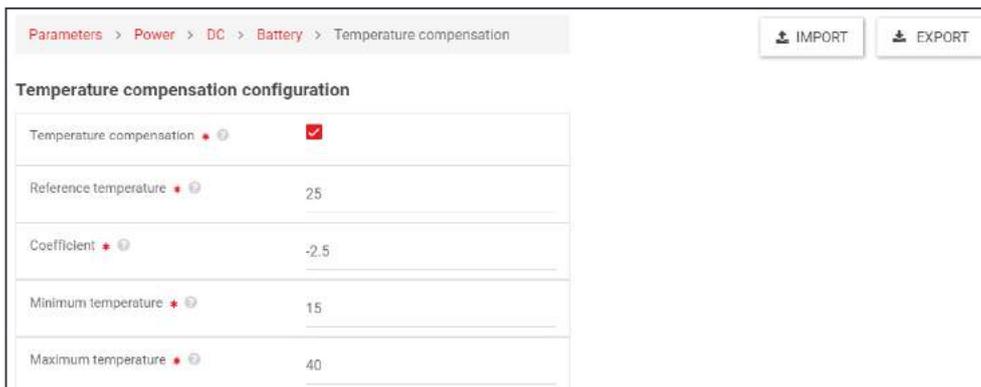
Select Home page >  > Parameters > Power > DC > Battery > LVD



Low Voltage Disconnect settings	
LVD	<input type="checkbox"/>
Inhibit LVD	<input type="checkbox"/>
Voltage	42
Delay	15
Shutdown	60

- **LVD:** Select the checkbox to enable the feature. It is recommended to enable this feature to protect batteries.
 - **Inhibit LVD:** Select the checkbox to enable the inhibit feature. It allows the user to inhibit LVD operation and therefore, to maintain LVD closed.
 - **Voltage:** Enter the voltage in volts, and this is the reference voltage where LVD disconnect or connect the battery and load, and it has the precision of 0.1V.
 - **Delay:** Enter the delay time in seconds of LVD closing. Some times there might be a sudden spike in battery voltage, at that time LVD should not close. The re-connection of LVD will only take place when the battery voltage is constant for the set seconds.
 - **Shutdown:** Enter the shutdown sequence time in seconds.
3. **Temperature compensation** feature will optimize the battery performance and increase the operational life of the battery. Inview precisely monitors the battery temperature through temperature sensor and ensure the battery is appropriately charged according to the temperature. In this page, the parameters are configured with default values, and the user can modify it.

Select Home page >  > Parameters > Power > DC > Battery > Temperature compensation



Temperature compensation configuration	
Temperature compensation	<input checked="" type="checkbox"/>
Reference temperature	25
Coefficient	-2.5
Minimum temperature	15
Maximum temperature	40

- **Temperature compensation:** Select the check-box to enable the feature.
 - **Reference temperature:** Enter the battery reference temperature. It is the temperature, where battery to be maintained at constant voltage for the best performance. Refer the battery manufacturer datasheet for the temperature.
 - **Coefficient:** Enter the coefficient value for temperature compensation of each cell.
 - **Temperature:** Enter the minimum and maximum temperature of the battery. If the temperature is out of the range, the set charging voltage becomes constant.
4. **Boost charging** involves a high current for short period of time to charge the battery. It is generally if the battery has been discharged heavily. Boost charge enables the quick charging of depleted batteries. In this page, the parameters are configured with default values, and the user can modify it.

Select Home page >  > Parameters > Power > DC > Battery > Boost charging

Parameters > Power > DC > Battery > Boost charging IMPORT EXPORT

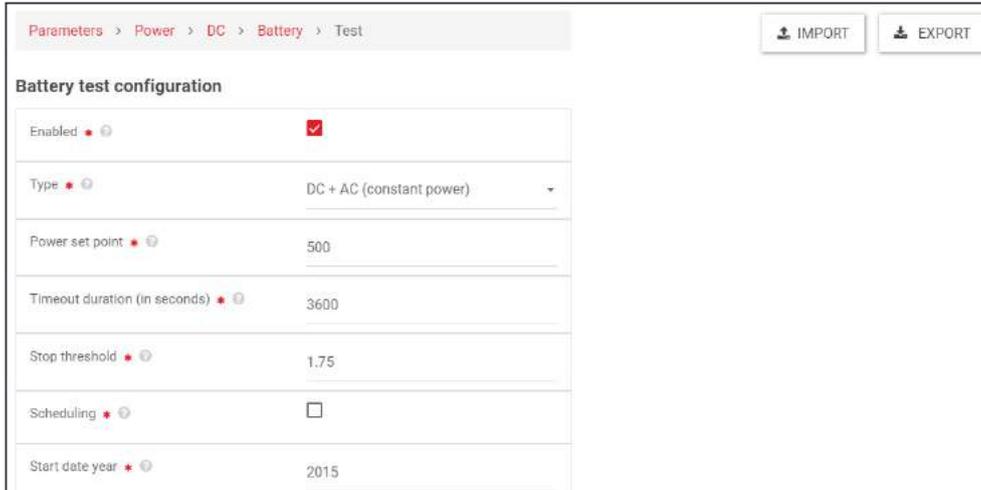
Boost charging configuration

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"/>
Current stop threshold 	4
Low cell voltage start 	<input checked="" type="checkbox"/>

- **Enabled:** Select the check-box to enable the boost charging feature.
- **Voltage per cell:** Enter the boost voltage of per cell as per in the battery datasheet. According to this voltage, the battery charges.
- Boost charging stops automatically and starts charging the battery in float voltage. If any one of the following conditions are met.
 - If it reaches the seconds mentioned in “Timeout duration.”
 - If current drops below the amps mentioned in “Current stop threshold.”
 - If the temperature goes beyond the Celsius mentioned in “Temperature stop threshold.”
- Boost charging mode starts, if any one of the following conditions are met.
 - If the battery cell voltage drops to mentioned voltage level in “Low cell voltage start.”
 - If the battery is discharging more than the seconds mentioned in “Discharge duration.”

5. **Battery test** is a preventive maintenance test to determine the battery condition during system running. The test is based on a constant power set point and the min voltage at the end of the test. In this page, the parameters are configured with default values, and the user can modify it.

Select *Home page* >  > *Parameters* > *Power* > *DC* > *Battery* > *Test*



Battery test configuration	
Enabled	<input checked="" type="checkbox"/>
Type	DC + AC (constant power)
Power set point	500
Timeout duration (in seconds)	3600
Stop threshold	1.75
Scheduling	<input type="checkbox"/>
Start date year	2015

- **Enabled:** Select the checkbox to enable the battery test feature.
- **Type:** choose the type of battery test from the drop-down list.
 - DC + AC (constant power): The system will discharge the battery at the configured constant power using AC and DC.
 - DC Only (voltage using only loads): In this mode, module stops charging and battery feed the DC load till configured set output DC voltage.
- **Power set point:** It is the exact value in Watts that will be taken from the battery during the test. If the system has DC loads consuming more than this power value, then the module will supply the delta needed to secure these loads.

If DC loads are lower than that value, power will be taken from the battery to feed the AC output. If the AC output consumption is lower than that, then the remaining power will be fed back to the grid, only if grid reinjection is configured and allowed.

If the system cannot consume the whole power taken from the battery as configured, the test is interrupted, and an event is generated. The whole logic also applies for a system where no DC load is installed, i.e., DC load = 0 Watts.

- **Timeout and Low voltage stop:** The battery test is successful if the configured timeout in seconds is reached before the low voltage threshold. In the other case, if the low voltage threshold is reached before the timeout, then the test is considered as failed.

Note: if a battery test fails, it is recommended to check the battery condition before trying the battery test again.

The following event list will interrupt an ongoing battery test. If an event is configured as “disabled,” then it’s not taken into account during the battery test neither.

- BatteryLvdIncoming
- BatteryStringDisconnected
- BatteryTemperatureHigh
- BatteryTemperatureSensorFailure
- BatteryVoltageHigh
- BatteryVoltageLow
- SystemParallelizationBusIssue
- Overload
- SupervisorMeasureBoxMissing
- SystemAcInSourceLost / SystemAcInVoltageHigh / SystemAcInVoltageLow
- SystemDcOutExceeded / SystemDcSourceLost / SystemDcVoltageHigh / SystemDcVoltageLow /
- SystemMBP

- **Scheduling:** The battery test can be scheduled based on:
 - Date of the first test DD/MM/YYYY
 - Hour of the test: the time of the day when the test will be launched (and every occurrence)
 - Recurrence in Weeks: the number of weeks between two scheduled tests

The following event list will prevent a battery test to start. If an event is configured as “disabled”, then it’s not taken in account.

- BatteryFloatVoltageLow
- BatteryLvdIncoming
- BatteryLvdOpen
- BatteryStringDisconnected
- BatteryTemperatureHigh
- BatteryTemperatureSensorFailure
- BatteryTestFailure: previous failed test has not been ack
- BatteryTestOngoing: a test is already running
- BatteryVoltageHigh
- BatteryVoltageLow
- System parallelization bus issue
- Overload
- SupervisorMeasureBoxMissing / SupervisorMeasureBoxWrongVersion
- SystemAcInSourceLost / SystemAcInVoltageHigh / SystemAcInVoltageLow / SystemDcOutExceeded
- SystemDcSourceLost / SystemDcVoltageHigh / SystemDcVoltageLow
- SystemMBP
- SystemOnBattery

If an occurrence of scheduled test should start and one of the events of this list is ongoing in the system, then the test is discarded, and a log entry is written.

Remarks

- If an occurrence of scheduled test should start during a time shift (daylight saving time or user changing the system time), then it is discarded.
- If an occurrence of scheduled test should start and the system is already in discharge or boost, it's discarded, and a log entry is written.

- **Reporting:** A report is generated for every battery test. There are 4 columns:

- Timestamp: date and time
- Voltage of the battery
- Current of the battery
- Temperature of the battery

Timestamp	temperature	Battery voltage	Battery current	Battery
07/03/2019 09:47		53.6	-4.1	24.7
07/03/2019 09:47		53.2	-7.9	24.8

- **Guard time:** In order to prevent successive battery tests close to each other, a guard time is implemented and can be configured (in hours). Meanwhile, this can be disabled in order to run smoothly Factory Acceptance Test or Commissioning that would require to do so.

If an occurrence of scheduled test should start and the system is within guard time, it's discarded, and a log entry is written.

- **Converters page** provide access to view and configure the module parameters. In this page, the parameters are configured with default values, and the user can modify it.

Select Home page >  > Parameters > Power > Modules / Converters

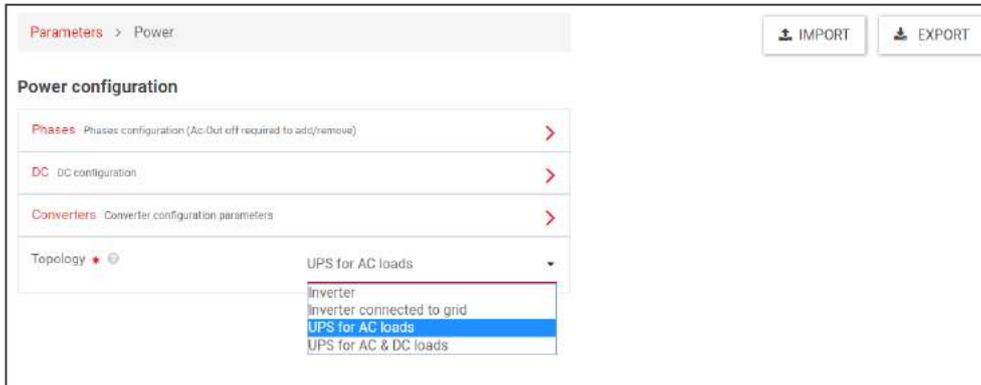


Parameter	Value
V DC in low start - dV (000)	460
V DC in low transfer - dV (001)	440
V DC in low stop - dV (002)	430
V DC in high start - dV (003)	580
V DC in high transfer - dV (004)	610
V DC in high stop - dV (005)	610

To know more about the description of each module parameters, Refer "10. Annexe 1: Modules - Parameter List", page 55

- Topology: Select the topology from the drop-down list based upon the system design.

Select Home page >  > Parameters > Power



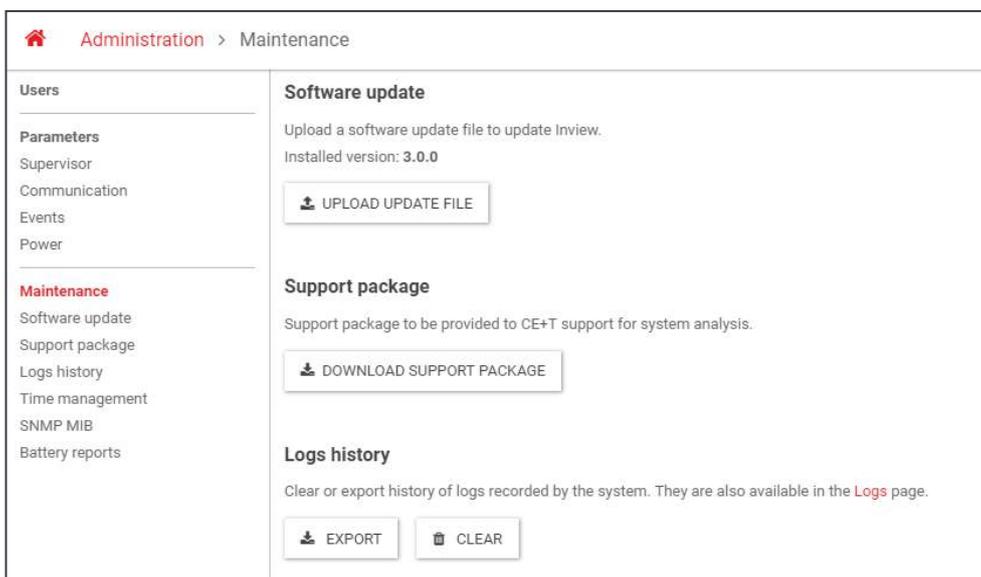
Topology	Supported Modules	Input	Output
Inverter	Bravo 20 and 10	DC	AC load
Inverter connected to grid	Bravo 20 and 10	AC and DC	AC load
UPS for AC loads	Flexa 25 and 200	AC and DC	AC load and battery charging
UPS for AC and DC loads	Sierra 25 and 10	AC and DC	AC & DC load and battery charging

Note: Depending upon the topology selection, the home and DC pages vary in the web interface.

6.3.3.3 Maintenance

Maintenance page provides the access to update the device software, download support package and log files, setting the time with local or NTP, downloading SNMP MIB file and can view the battery reports.

Select Home page >  > Maintenance



- **Software update:** User can view the currently installed software version and can update it to the latest software. Perform the following steps to updates the latest software.
 - Download the latest software (.upg) from my.cet-power.com and save it on your laptop,
 - Click “UPLOAD UPDATE FILE” button and link to the downloaded software file.

Note: For more details, refer section “14. Annex 5: Inview S - Software upgrading”, page 62

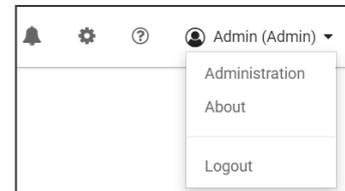
- **Support package:** User can download the debug package by clicking the “DOWNLOAD DEBUG PACKAGE” button and provide to the CE+T support team for system analysis.
- **Logs History:** User can download (.csv) and clear the logs list which is recorded in the system by clicking “EXPORT” and “CLEAR” button. This feature is also available on Events > Logs page.
- **Time Management:** User can choose either Local or NTP server time.
 - To change time parameters click “change time parameters” below the time management or go to Administration > Parameters > Supervisor > Time. Set the time zone and NTP server address
- **SNMP MIB:** User can download the SNMP MIB file by clicking the “EXPORT” button.
- **Battery Reports:** Displays the list of battery test and discharge reports. User can download and delete the particular reports by clicking the three dotted vertical bar at the end of the corresponding row.

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

6.3.4 Account

User management display the login account such as Admin, Expert or Basic and by clicking on dropdown arrow provide access to the following pages.

- **Administration** page provides access to Users, Parameters and Maintenance pages. To know more about “Administration,” refer section 6.3.3, page 29.
- **About** page provides product brief information such as software version, part and serial numbers, and network connectivity details.



7. Overview - LCD Interface

7.1 Inview S - LCD interface

Inview S LCD interface is a 2.8-inch touch screen. It does not have any user account, the user can only view the system details. The LCD interface is protected with the PIN during any action request. To modify the PIN, refer section 6.3.3.1, page 30.

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

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] Measures	Settings	Alarms and Logs (2)

- **[1] Header**
Displays the title of the current page and navigation buttons for next and previous page. In some pages, Up and Down navigation buttons appear at the right side, indicating more contents are present.
- **[2] Information Area**
Provides information about the corresponding page.
- **[3] Toolbar**
The toolbar is present at the bottom throughout the interface, to provide quick access to following pages:
 - Measures
 - Settings
 - Alarms and Logs

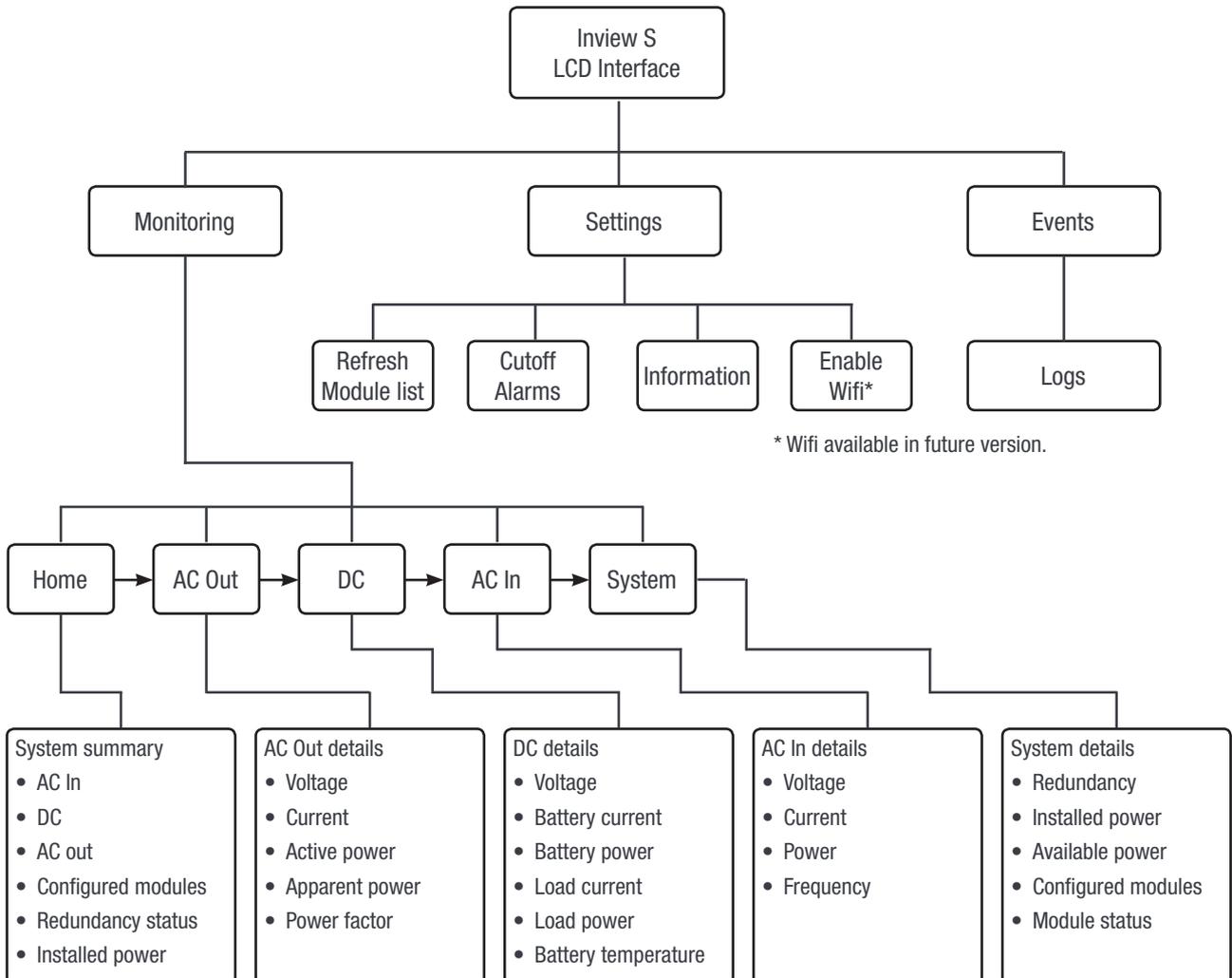
7.1.1 LED indications

Three LED's are present at front side of the controller to indicate major alarm, minor alarm, and system status.



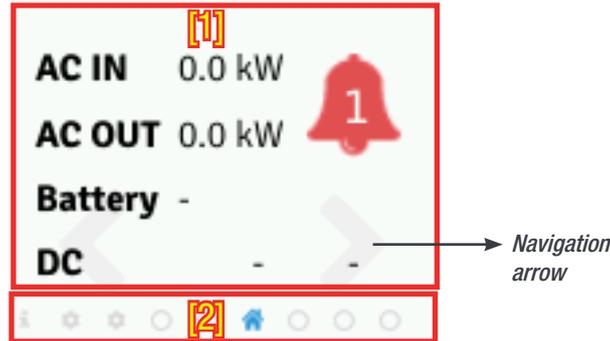
7.1.2 Menu structure

The below tree provides an overview of the menu structure in the Inview S LCD interface.



7.2 Inview S Slot - LCD Display

Once the system is powered upon, the Inview S Slot is up and ready for operation. The LCD is a 1.8-inch touch screen and user can only view the system details through the interface.



- [1] Interface area

Interface area provides information about the corresponding page. At the bottom of the screen, left and right arrows are present for moving next and the previous screen. In some screens, up and down arrows appear at the top of the page, indicating more contents are present.

- [2] Status bar

The status bar appears throughout the interface and illuminate the current page icon.

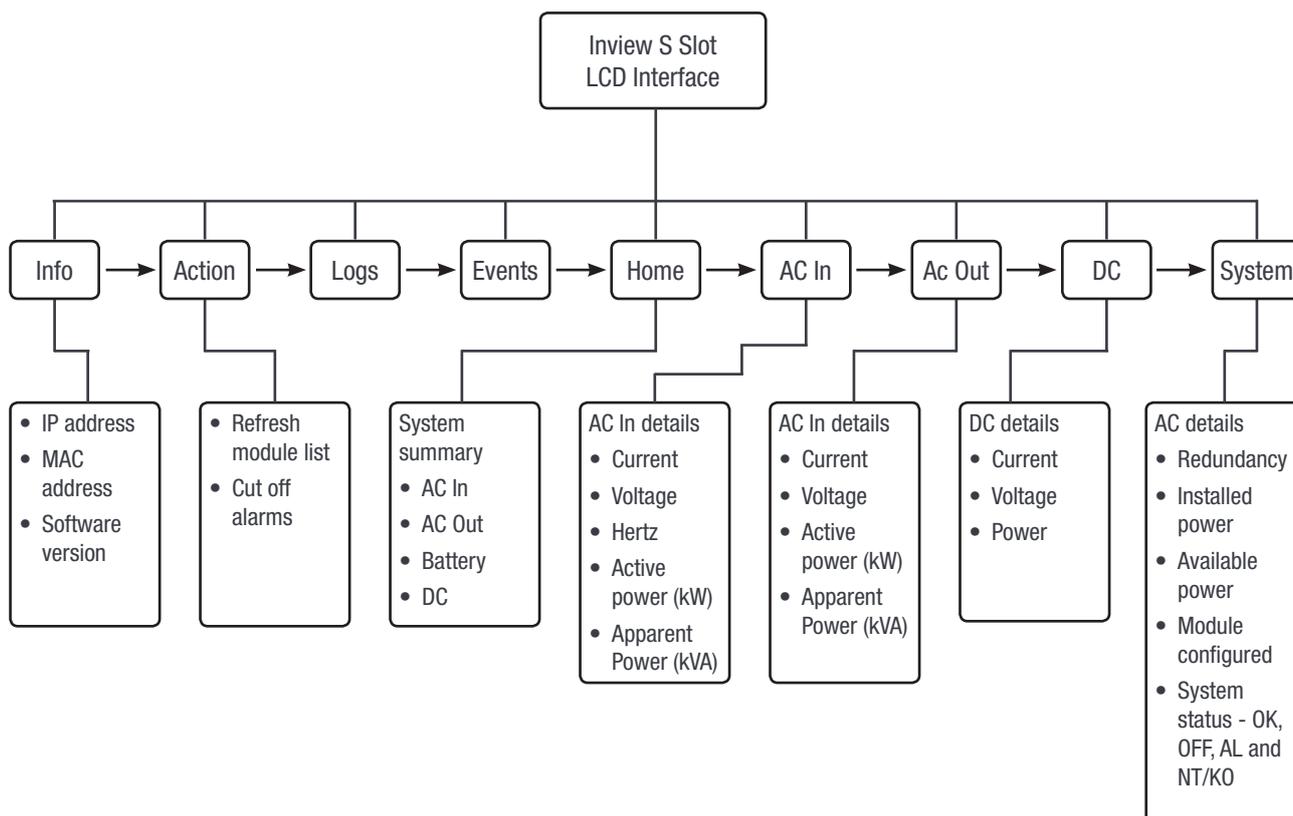
7.2.1 LED indications

Three LED's are present behind the front black plastic of the controller to indicate major alarm, minor alarm, and system status. These LED's are not visible until they illuminate during the corresponding action occurs.



7.2.2 Menu structure

The home page is the default page in the LCD interface, and other pages are arranged in the below sequence.



7.3 LCD interface - Terminology

The below table provides the description of abbreviation and terminology which appears in both Inview S and Inview S Slot LCD interface.

S.NO	Terminology	Description
1	MOD	Number of modules configured in the system
2	RED	Redundancy satisfied or not
3	INST	Installed Power
4	Redundancy	Number of redundancy from the configured modules
5	OK	Number of active modules
6	OFF	OFF: Number of non-active or switched off modules.
7	AL	Displays the alarms
8	NT/OK (Not Okay)	Number of faulty modules or missing modules when compare to configured modules
9	Installed power	It is the total power of the configured modules, including redundancy. Moreover, it is a user configuration based upon the system capacity.
10	Available power	It is the total power of active modules present in the system.
11	Modules configured	Total number of modules configured in the system
12	Refresh module list	The controller performs a complete scan and remove the non-active modules from the module list. Note: If any parameter is changed, an authentication page appears. Enter the display PIN password to apply changes. To modify the password, refer section , page 31.
13	Cutoff alarms	Buzzer sound will be muted
14	Logs	Display the latest 100 events occurred.
15	Information	Displays product and network details

8. Defective unit

8.1 Return defective Inview S

- A repair request should follow the regular logistics chain:
End-user => Distributor => **HELIOS**
- Before returning a defective product, a RMA number must be requested through the sales@heliosps.co.nz
Repair registering guidelines may be requested by email.
- **Freight costs:**
 - The cost to ship the unit(s) from the Customer's premises back to **Helios** is at the Customer's charge.
 - **Helios** 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 canceled if the unit sent for repair has been opened by parties other than a **Helios** approved Repair Centre.
- **Repair costs:**
 - If the faulty unit is under warranty, **Helios** 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 **Helios** (Repair or Swap) presents no defect or failure, a lump sum amount will be charged to the Customer.
- **Swap conditions:**
 - You must provide **Helios** 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 **Helios** with a tracking reference proving that you have shipped the faulty unit(s) back to **Helios**.
 - If **Helios** does not receive the tracking reference or the unit in time, **Helios** 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 informations before you ship us the faulty unit.

9. 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 contact Helios through email.

10. Annexe 1: Modules - Parameter List

10.1 Module - Sierra 25

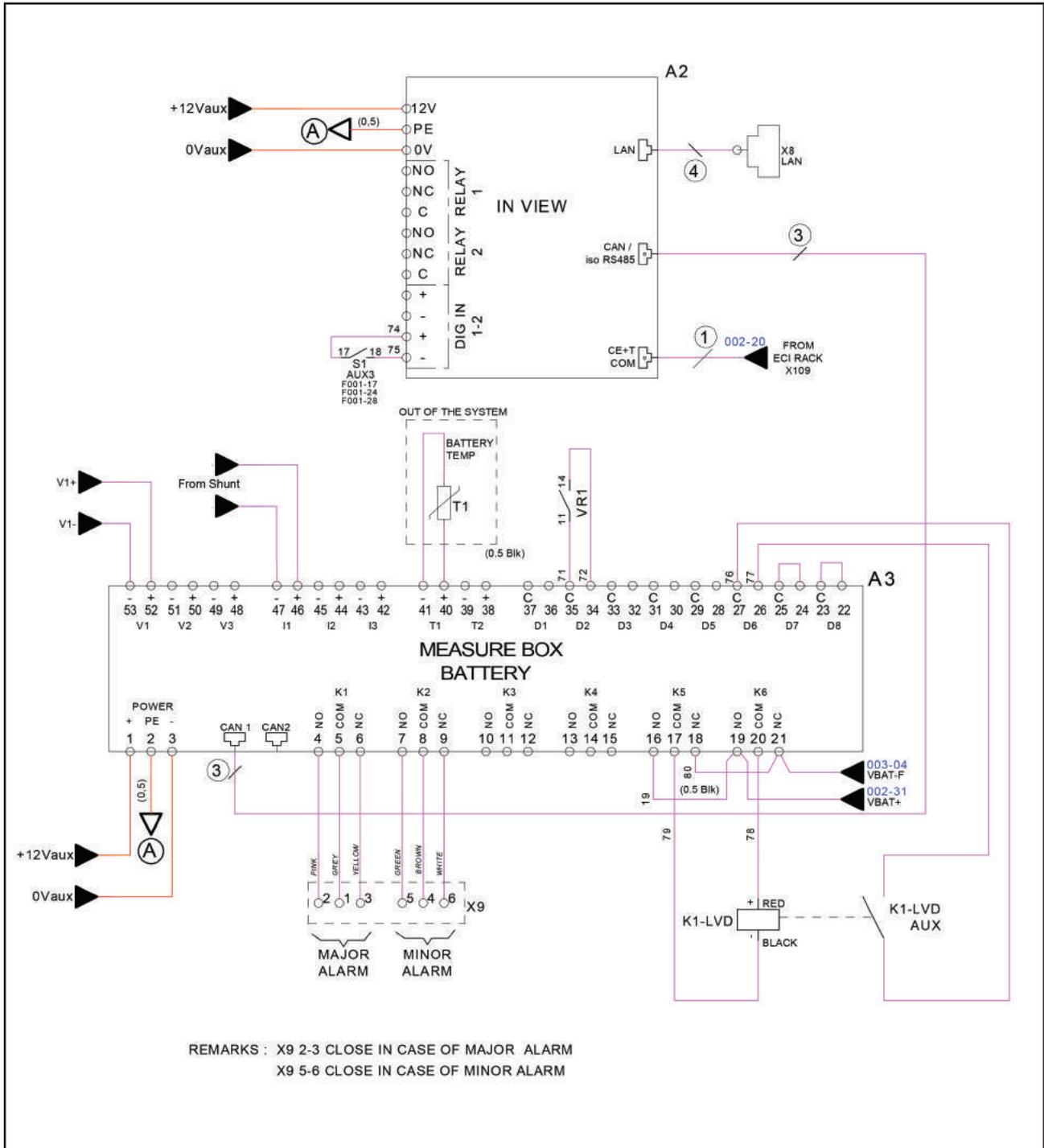
Parameter	Description	Min	Default	Max	Unit
V DC in low start - dV (000)	Low DC Voltage where a higher value leads the DC/AC converter to re-start	390	440	610	dV
V DC in low transfer - dV (001)	Low DC Voltage where a lower value leads to transfer the load from DC IN to AC IN. Under this voltage peak-shaving is relaxed and battery discharge test is stopped.	390	390	610	dV
V DC in low stop - dV (002)	Low DC voltage where a lower value stops the DC/AC converter	390	390	610	dV
V DC in high start - dV (003)	High DC voltage where a higher value re-starts the DC/AC converter	390	580	610	dV
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	390	610	610	dV
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	390	610	610	dV
V AC in low start - dV (006)	AC IN Voltage where a higher value leads the AC IN to start	1950	1950	1950	dV
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	1850	1850	1850	dV
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)	1820	1820	1820	dV
V AC in high start - dV (009)	AC IN Voltage where a lower value leads the AC IN converter re-start	2550	2550	2550	dV
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	2600	2600	2600	dV
V AC in high stop - dV (011)	AC IN Voltage where a higher value leads to stop the AC IN converter	2650	2650	2650	dV
F AC in low start - cHz (012)	Frequency where a higher value leads the outlet of the inverters trying to synchronize with AC IN	4700	4730	6300	cHz
F AC in low stop - cHz (013)	Frequency where a lower value leads the outlet of inverters stop to synchronize with AC IN	4700	4700	6300	cHz
F AC in high start - cHz (014)	Frequency where a lower value leads the inverters outlet to synchronize with AC IN	4700	5270	6300	cHz

F AC in high stop - cHz (015)	Frequency where a higher value leads the inverters outlet to stop to synchronize with AC IN	4700	5300	6300	cHz
Free running frequency - cHz (016)	Set the Inverters system frequency. This frequency is used when the system is not synchronized on AC input.	-	5000	-	cHz
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.	2000	2300	2450	dV
Out 2 nominal voltage - dV (027)		2000	2300	2450	dV
Out 3 nominal voltage - dV (028)		2000	2300	2450	dV
Out 4 nominal voltage - dV (029)		2000	2300	2450	dV
Out 5 nominal voltage - dV (030)		2000	2300	2450	dV
Out 6 nominal voltage - dV (031)		2000	2300	2450	dV
Out 7 nominal voltage - dV (032)		2000	2300	2450	dV
Out 8 nominal voltage - dV (033)		2000	2300	2450	dV
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.	1	600	6000	ds
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

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	1	

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	5300	5400	5400	cV
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				

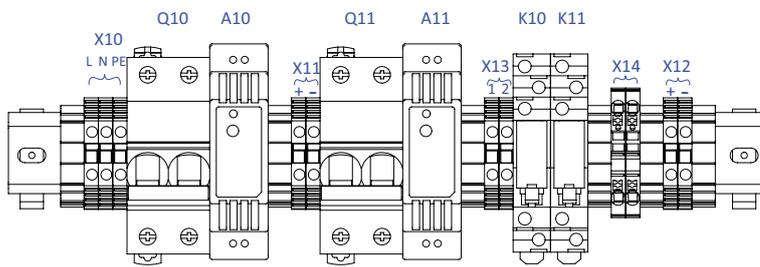
11. Annex 2: Inview S with MBB - Wiring diagram



12. Annex 3: Auxiliary power supply kit

12.1 Auxiliary power supply kit with Din Rail

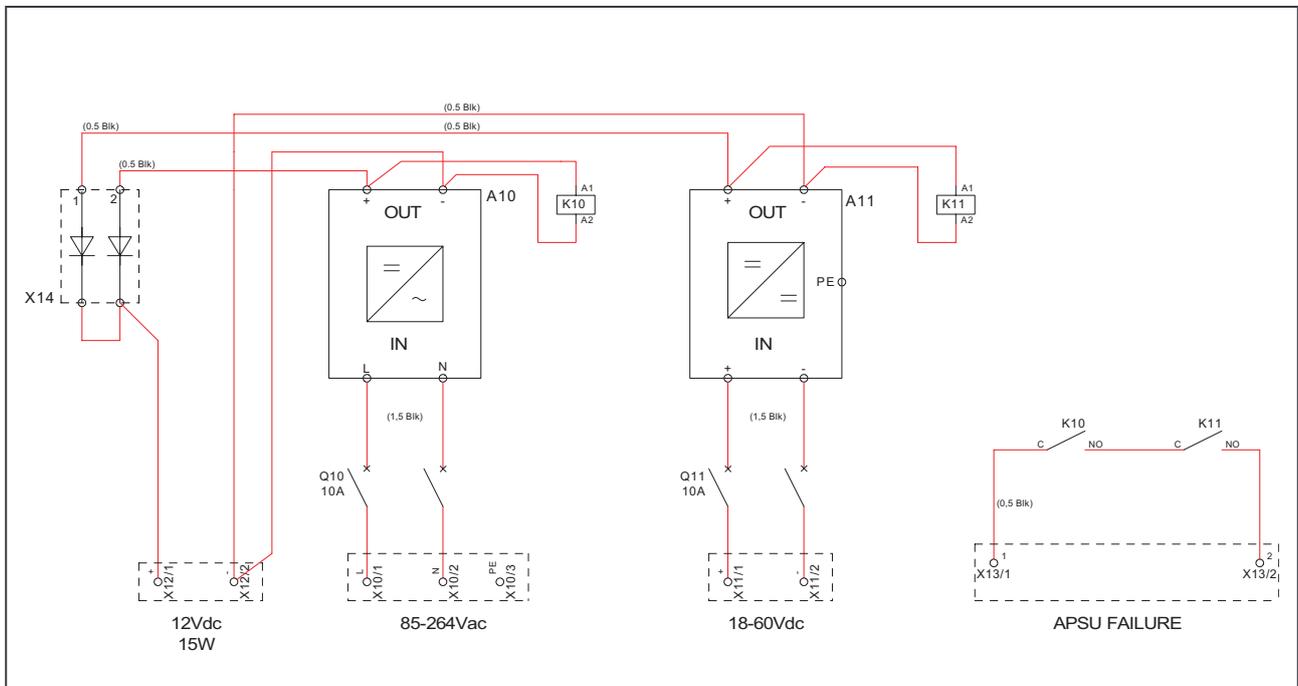
Part number: T602004120



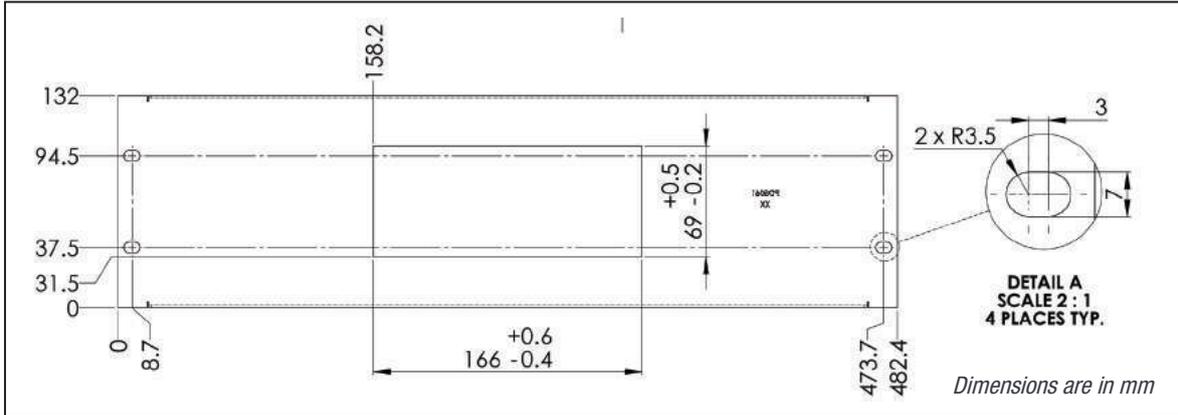
- X10 - AC input terminal (1P)
- X11 - DC input terminal (Battery voltage)
- X12 - DC Output terminal (12 V DC)
- X13 - Alarm contact for Aux power supply unit fail

Front View

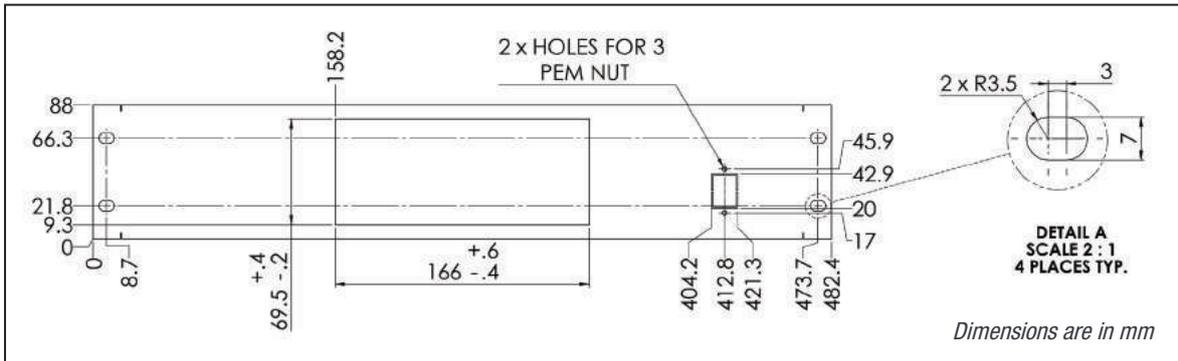
12.2 Auxiliary power supply kit - Wiring diagram



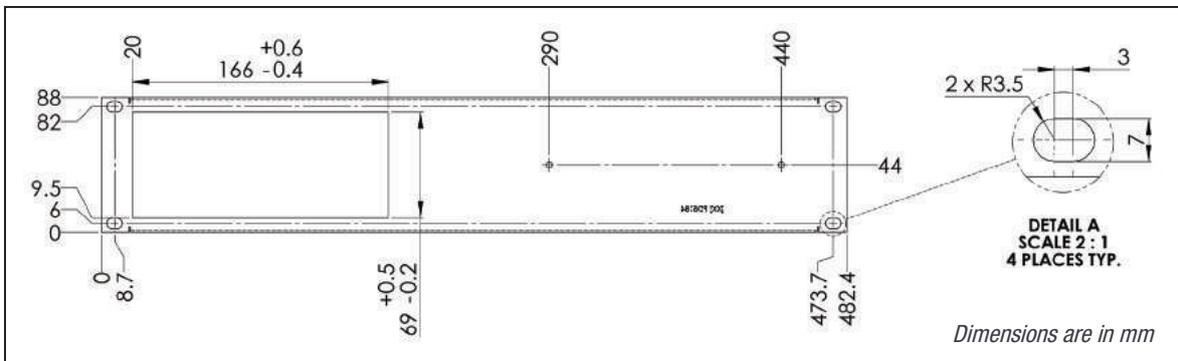
13. Annex 4: Inview S panel sheets



3U Panel sheet - cut out details



2U Panel sheet (center)- cut out details



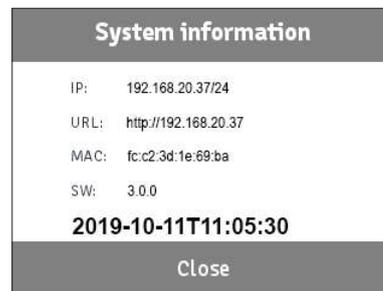
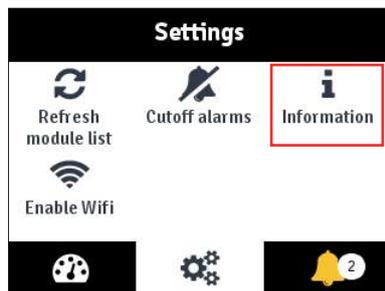
2U Panel sheet (left)- cut out details

14. Annex 5: Inview S - Software upgrading

Perform the following steps to upgrade Inview S software.

1. Check the existing software version.
 - **LCD display:** tap on “Information” icon at **Settings** page in Inview S LCD display and note the existing software version and IP address for web interface.

Note: Software upgrade can be done only through web interface.



- **Web interface:** Login as admin privileged account, click on user account and select **About** from the drop-down list.



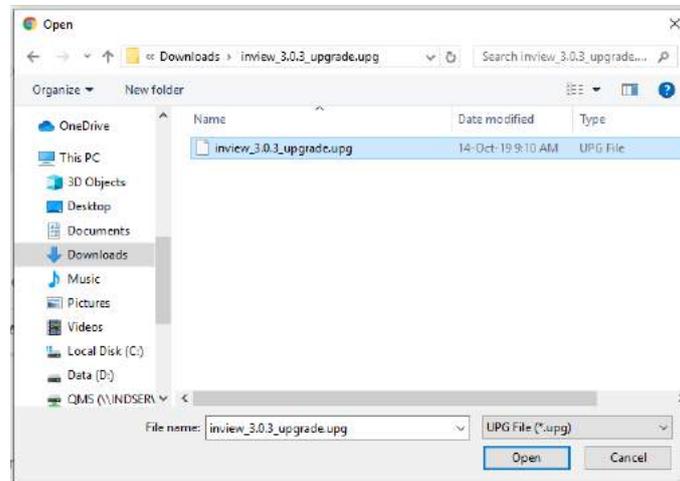
2. Extract the “inview_X.Y.Z_upgrade.upg.RAR” file downloaded on my.cet-power.com. Its name should look like “inview_X.Y.Z_upgrade.upg”



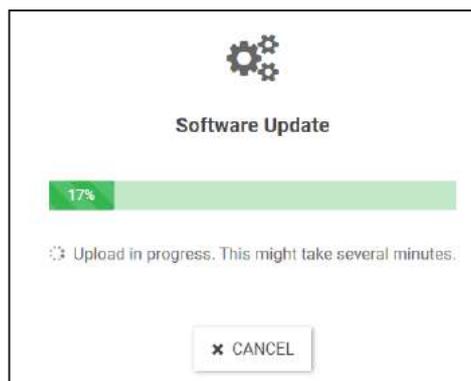
- In Inview S web interface, select *Home page* >  > *Maintenance* and click “UPLOAD UPDATE FILE” under Software update. A pop will appears and click UPDATE.



- Select the downloaded .upg file



- Wait, the upgrading process will take approximately 15 minutes to return normal operating condition



- After successful up-gradation, the web interface resume to login screen. Check the new software version and network details in Info page. (refer step 1)

Note:

- It is forbidden to “downgrade” systems.
- It’s mandatory to have at least Inview software version 2.0.2 or higher to proceed to this upgrade. If the unit is below 2.0.2, get in touch with your Area Sales Manager or supplier.
- Note down the MBB serial and version number which is present at rear side of the product. It may be also required to upgrade to the latest version.

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