Neousys Technology Inc.

PB-9250J-SA

User Manual

Revision 1.0

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Safety Precautions

- Read these instructions carefully before you install, operate, or transport the system.
- Install the system or DIN rail associated with, at a sturdy location
- Install the power socket outlet near the system where it is easily accessible
- Secure each system module(s) using its retaining screws
- Place power cords and other connection cables away from foot traffic. Do not place items over power cords and make sure they do not rest against data cables
- Shutdown, disconnect all cables from the system and ground yourself before touching internal modules
- Ensure that the correct power range is being used before powering the device
- Should a module fail, arrange for a replacement as soon as possible to minimize down-time
- If the system is not going to be used for a long time, disconnect it from mains (power socket) to avoid transient over-voltage

Service and Maintenance

- ONLY qualified personnel should service the system
- Shutdown the system, disconnect the power cord and all other connections before servicing the system
- When replacing/ installing additional components (expansion card, memory module, etc.), insert them as gently as possible while assuring proper connector engagement

ESD Precautions

- Handle add-on module, motherboard by their retention screws or the module's frame/ heat sink. Avoid touching the PCB circuit board or add-on module connector pins
- Use a grounded wrist strap and an anti-static work pad to discharge static electricity when installing or maintaining the system
- Avoid dust, debris, carpets, plastic, vinyl and styrofoam in your work area.
- Do not remove any module or component from its anti-static bag before installation

About This Manual

This manual introduces and demonstrates installation procedures of Neousys intelligent ultracapacitor-based power backup stand alone module, PB-9250J-SA.

Revision History

Version	Date	Description
1.0	May. 2019	Initial release

1 PB-9250J-SA Overview

1.1 PB-9250J-SA Introduction

PB-9250J-SA is a standalone power backup module that can protect your box-PC against power outages. Utilizing state-of-the-art supercapacitor technology, it can operate in harsh environments from -25 to 65°C, and have extremely high durability lasting up to 10 years. PB-9250J-SA is composed of eight 370F/ 3.0V supercapacitors, which offers 3.3 times longer lifespan than its 2.7V counterpart, and stores 9250 watt-second energy to offer extra extended operation time to backup your system. Thanks to Neousys' patented CAP energy management technology, It can reliably supply 180W power to the back-end system and automatically manage boot and shutdown without installing additional drivers/ software. In addition to UPS-like power backup mode, it also offers two advanced ignition control modes for in-vehicle usage. PB-9250J-SA can work with either standard box-PC or in-vehicle controller to provide stable power supply and execute user-configurable power-on/ power-off delay according to IGN signal input. Featuring various modes, automatic shutdown control and up to 180W output power, PB-9250J-SA can work with most off-the-shelf box-PCs. And with properties such as maintenance-free energy storage and uninterruptible power supply, PB-9250J-SA can prevent the connected back-end system from data loss during power outage in harsh industrial environments!

1.2 Specification of PB-9250J-SA

Supercapacitor Configuration	
Composition	8x 370F, 3.0V supercapacitors
Capacity	9250 watt-second
Expected lifespan	>10 years @ 25°C with 9250 w·s capacity* 76,000 hours @ 35°C with 9250 w·s capacity* 34,000 hours @ 45°C with 9250 w·s capacity* 15,000 hours @ 55°C with 9250 w·s capacity* 7,200 hours @ 65°C with 9250 w·s capacity* 34,000 hours @ 65°C with reduced 6525 w·s capacity* 7,200 hours @ 85°C with reduced *6525* w·s capacity* ***Expected lifespan is:*** ● *2.2x when configured as 7820 watt-second energy capacity* ● *4.8x when configured as 6525 watt-second energy capacity*
Cycle life	500,000 charging/discharging cycles*
Power Specification	
Input Voltage	12~35 VDC
Input Connector	1x 3-pin pluggable terminal block (V+, GND, IGN_IN)
Output Voltage	Charge mode: DC_IN bypass (DC_OUT = DC_IN) Discharge mode: 12 or 24V
Output Power	Maximum 180W output**
Output Connector	1x 3-pin pluggable terminal block (V+, GND, IGN_OUT)
I/O Interface	
COM Port	1x DB9 for 3-wire RS-232
Isolated DIO	1x 10-pin pluggable terminal block for - PWR_BTN# output - SYS_STAT input
Mechanical and Environmental	
Dimension	82.5mm(W) x 175.2mm(H) x 128.2mm(D)
Weight	1.7 Kg
Mounting	DIN-rail mounting and wall-mounting
Operating Temperature	-25°C ~ 65°C -40°C ~ 85°C with reduced energy capacity
Storage Temperature	-40°C ~ 85°C
Vibration	Compliant with IEC61373:2010, Category 1, Class B Body mounted

Shock	Compliant with IEC61373:2010, Category 1, Class B Body mounted
Certification	Compliant with EN50155:2007, CE/FCC Class A, according to EN 55032 & EN 55035

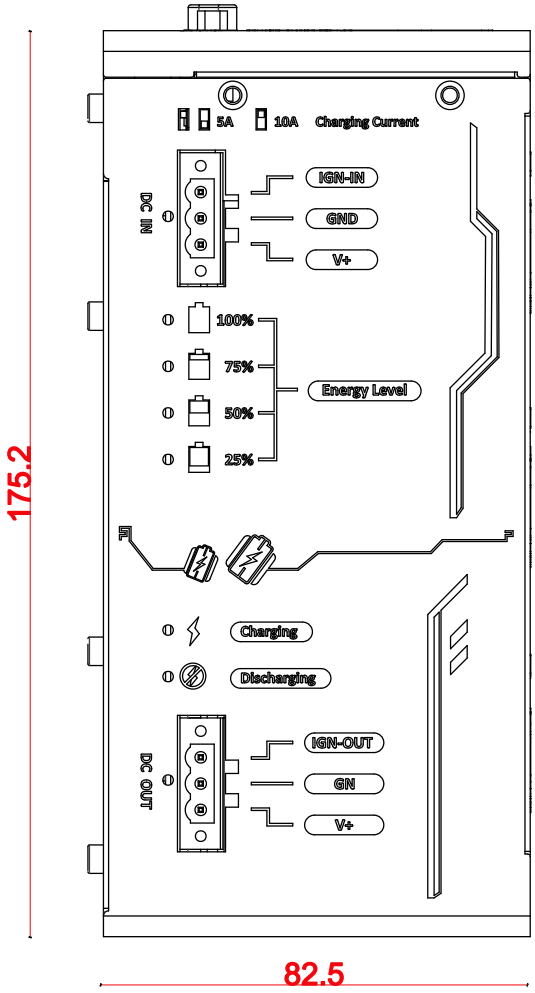
** Once the rated lifetime or cycle life has been reached, the capacity of supercapacitor may decrease up to 30% and ESR may increase up to 100% from initial values.*

*** Backup time for uninterruptible operation may be reduced when sustaining a back-end system with high power consumption.*

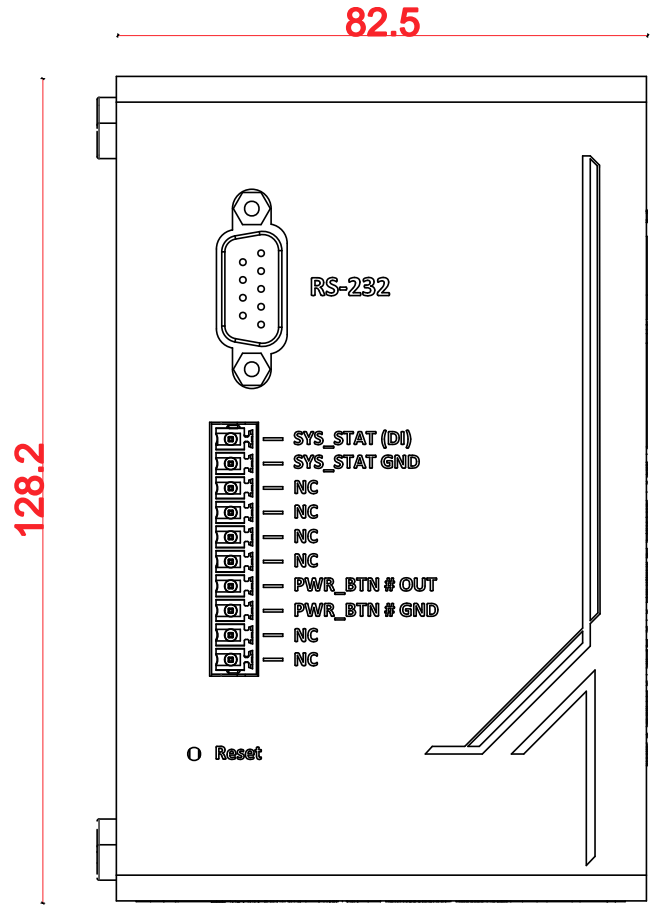
1.3 Dimension

> NOTE
>
> *All measurements are in millimeters (mm).*

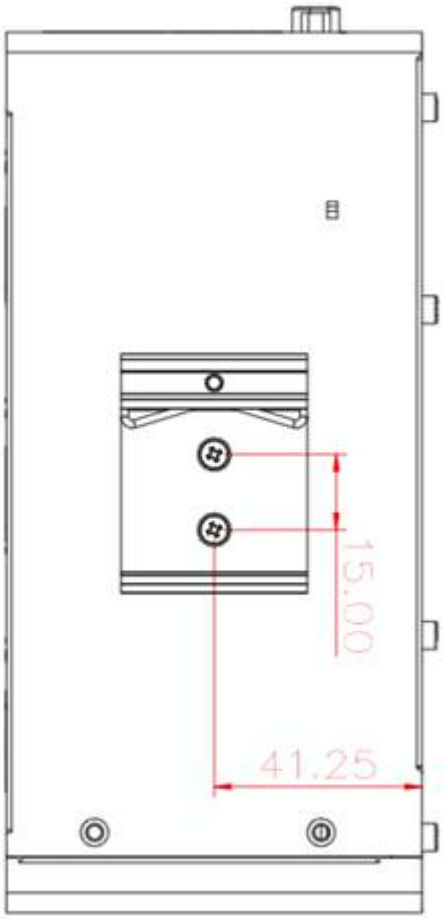
1.3.1 PB-9250J-SA Main Panel View



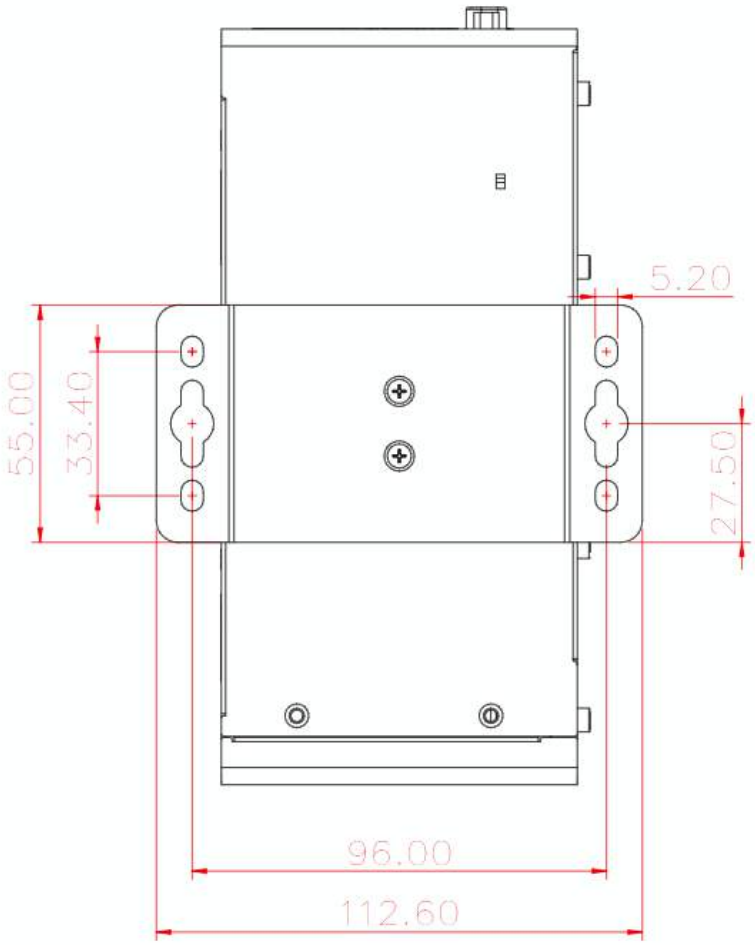
1.3.2 PB-9250J-SA COM/ 10-Pin IO Panel View



1.3.3 PB-9250J-SA DIN Rail View



1.3.4 PB-9250J-SA Wall Mount View



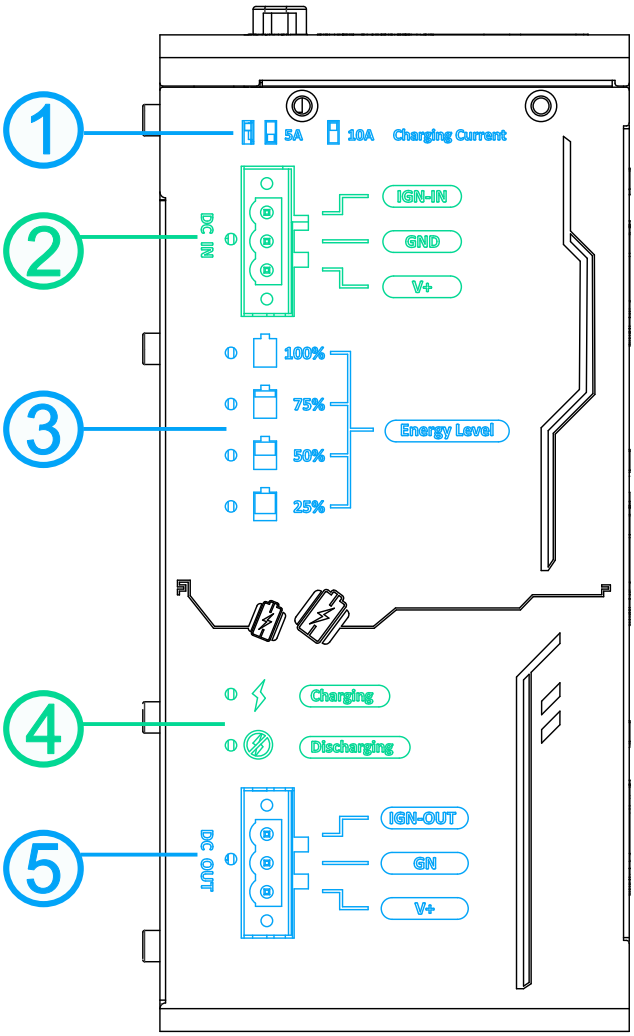
2 Unpacking the System

Upon receiving and unpacking your PB-9250J-SA, please check immediately if the package contains all the items listed in the following table. If any item(s)are missing or damaged, please contact your local dealer or Neousys Technology.

2.1 PB-9250J-SA Packing List

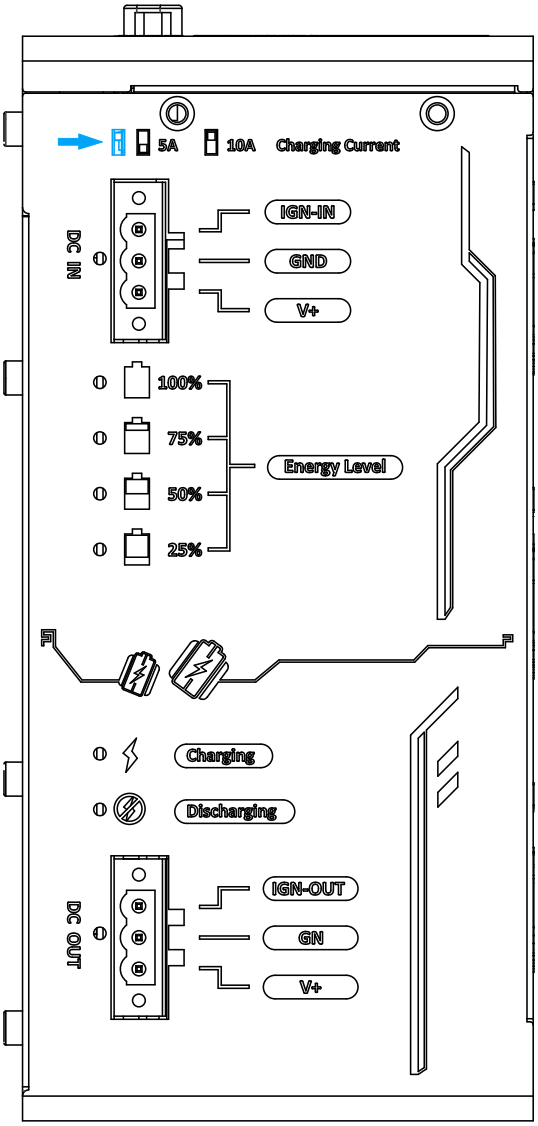
Item	Description	Qty
1	PB-9250J-SA	1
2	3-pin power terminal block	2
3	10-pin I/O terminal block	1
4	DIN-rail clip set (standard)/ wall-mount bracket (optional)	1
5	DB9 (Female) to DB9 (Female) cable	1

2.2 PB-9250J-SA Main Panel I/O



No.	Item	Description
1	Charging current switch	Charging current selector switch for **5A** or **10A**.
2	3-pin terminal block for DC/ ignition input	Compatible with DC power input from 12~35V, the terminal block is also used for ignition signal input.
3	Battery capacity level LED	Indicates capacity level at or less than 100 / 75 / 50 / 25 percent.
4	Charging / discharging status LED	LED status indicating if the module is being charged or in a discharge status.
5	3-pin terminal block for DC/ ignition output	Compatible with DC power output from 12~35V, the terminal block is also used for ignition signal output.

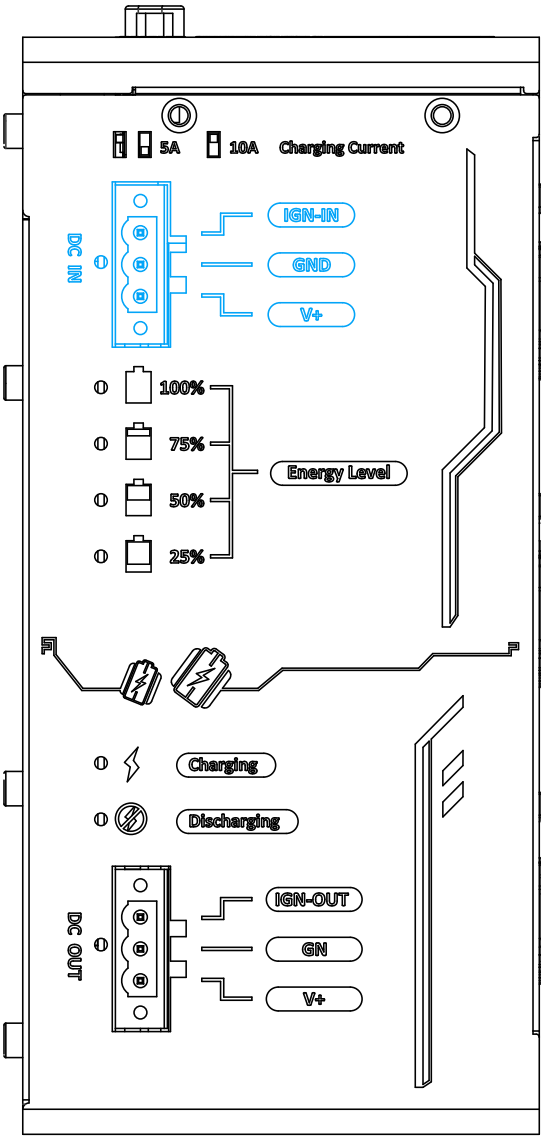
2.2.1 5A/ 10A Charging Current Switch



PB-9250J-SA can be set to charge at 5A or 10A input. The different current input will result in different charging times from 0% to full. Please refer to the following table:

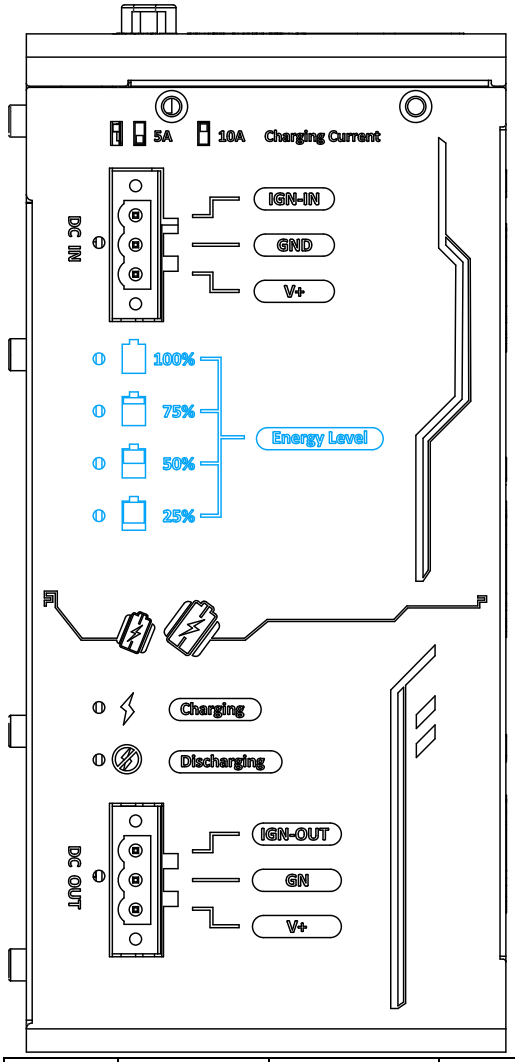
Current	Voltage	Approx. charging time (from 0%)
5A	24V	90~110 seconds
	12V	170~200 seconds
10A	24V	40~60 seconds
	12V	60~90 seconds

2.2.2 3-pin terminal block for DC/ ignition input



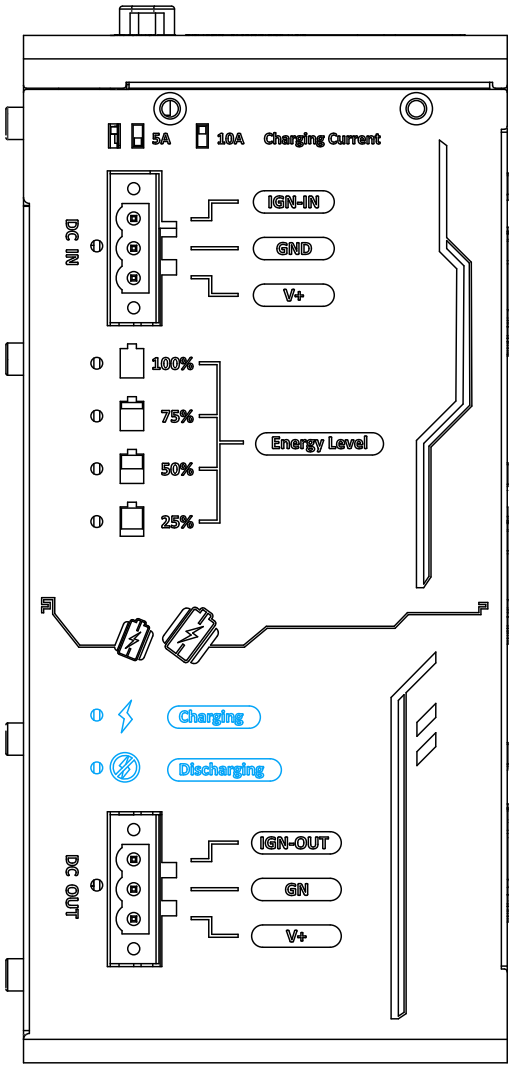
The system accepts a wide range of DC power input from 12 to 35V via a 3-pin pluggable terminal block, which is fit for field usage where DC power is usually provided. The screw clamping mechanism on the terminal block offers connection reliability when wiring DC power. In addition to DC power input, this terminal block can also accept ignition signal input (IGN) when PB-9250J-SA is configured in Ignition Control Mode/ Ignition Relay Mode for in-vehicle applications.

2.2.3 Supercapacitor Energy Level



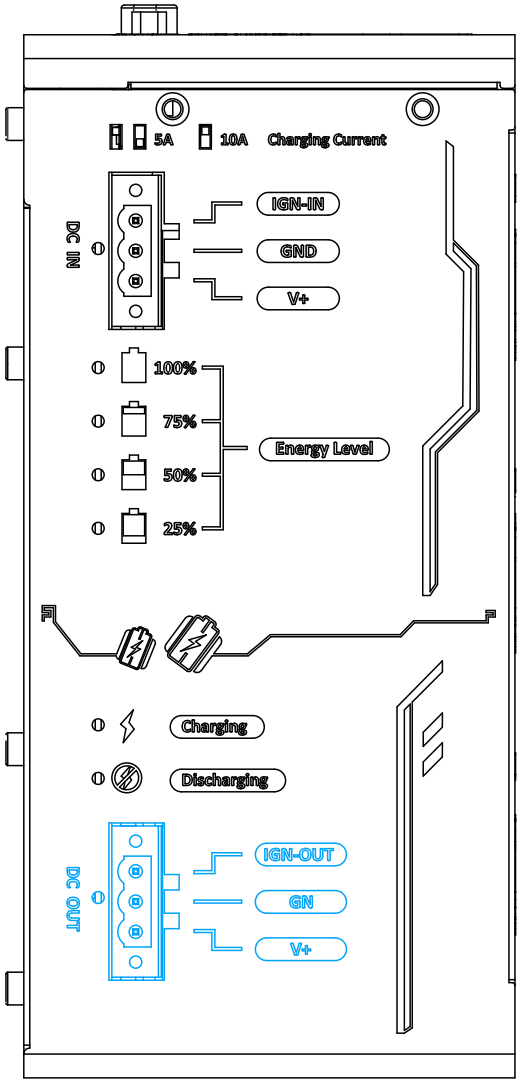
LED	Color	Status	Description
100%	Green	Steady-lid	Energy of the SuperCAP reached 100%
		Off	Energy of the SuperCAP is below 100%
75%	Green	Steady-lid	Energy of the SuperCAP reached 75%
		Off	Energy of the SuperCAP is below 75%
50%	Green	Steady-lid	Energy of the SuperCAP reached 50%
		Off	Energy of the SuperCAP is below 50%
25%	Green	Steady-lid	Energy of the SuperCAP reached 25%
		Off	Energy of the SuperCAP is below 25%

2.2.4 Charging/ Discharging Status LED



LED	Color	Status Description
	Orange	When lid, it indicates PB-9250J is being charged.
	Red	When flashing, it indicates a discharge status.

2.2.5 3-pin terminal block for DC/ ignition output



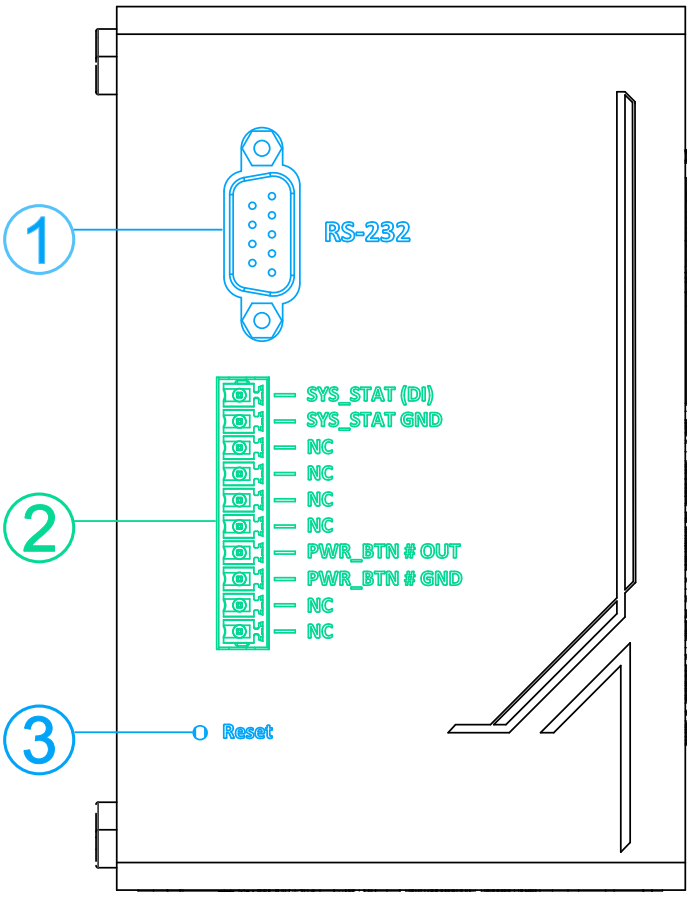
When charging, the system bypasses DC power output from 12 to 35V via a 3-pin pluggable terminal block. When discharging, the system provides 12/24 DC power output via a 3-pin pluggable terminal block. The screw clamping mechanism on the terminal block offers connection reliability when wiring DC power. In addition to DC power output, this terminal block can also send ignition signal output (IGN) to back-end system when PB-9250J-SA is configured in Ignition Control Mode/ Ignition Relay Mode for in-vehicle applications.

NOTE

If the input voltage is equal or higher than 17V, the output voltage during the discharge status will be 24V.

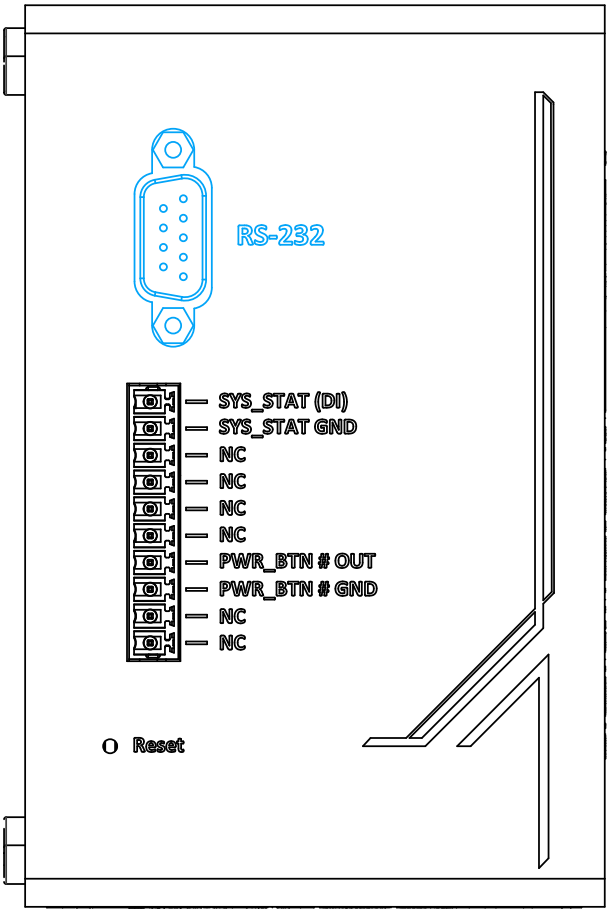
If the input voltage is lower than 17V, the output voltage during the discharge status will be 12V.

2.3 PB-9250J-SA Side Panel I/O



No.	Item	Description
1	RS-232 COM port	9-pin D-sub COM port to connect to the host computer.
2	10-pin I/O terminal block	10-pin input/ output terminal block consists of two signal pairs: power button signal output and system status input.
3	Reset button	The button is for users to manually reset and load system default configuration in case of a system halt or malfunction.

2.3.1 COM Port

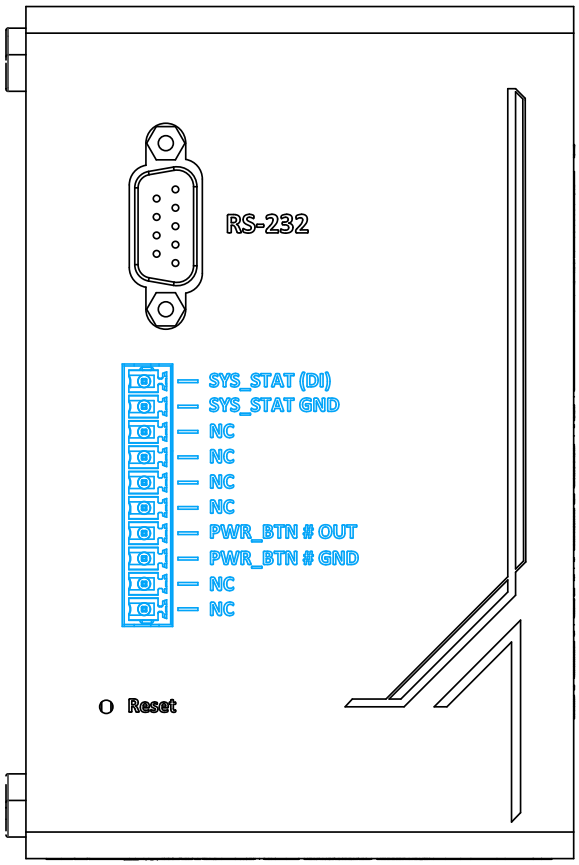


The 9-pin D-sub COM port can connect and communicate with the host computer to acquire PB-9250J-SA information.

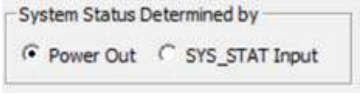
NOTE

The host computer's COM port must be configured in RS-232 mode to properly communicate with PB-9250J-SA module.

2.3.2 10-pin I/O Terminal Block



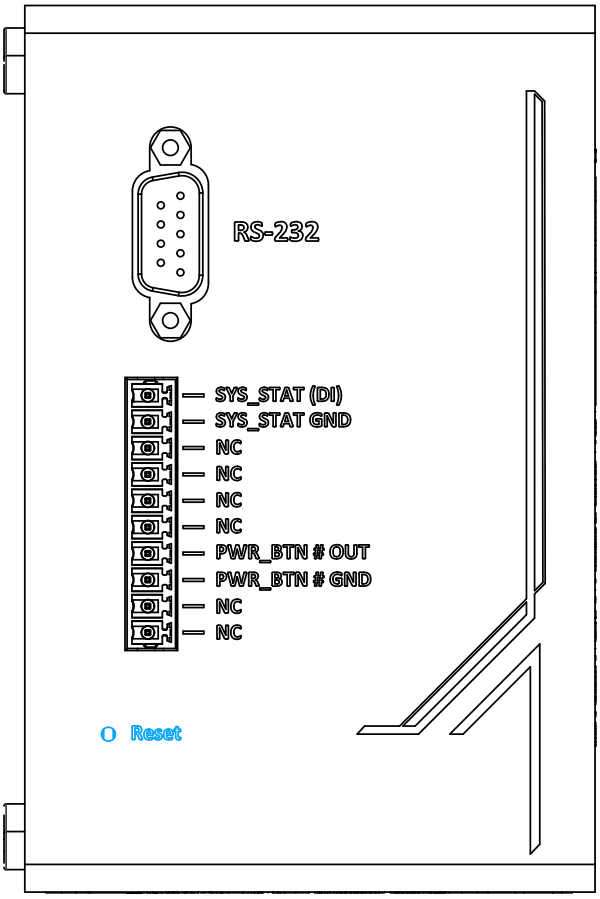
There are two signal pairs on the 10-pin I/O terminal block. One is power button signal output (PWRBTN#), the other is system status input (SYS_STAT). Power button signal pair is sent by PB-9250J to turn on/off the back-end system. It should be linked to the remote control signal pair on the back-end system. The PWRBTN# signal pair is an open/ short signal. It is necessary to link the PWRBTN# signal pair in order for boot/ shutdown control. System status signal pair is used to detect the status of the back-end system (whether it is running or turned off). This signal pair is optional due to PB-9250J's built-in status detection function which can automatically detect the back-end system status via the power consumption of the system. Note that the signal input pair of PB9250J can accept 5~24V voltage output from back-end system to indicate the status (on/ off) of the system, for example the USB 5V of general box-PC. Also, digital input signal should be high when the back-end system is on, and low when system is off



NOTE

PB-9250J should be configured to SYS_STAT Input via utility when user decide to connect system status signal pair.

2.3.3 Reset Button



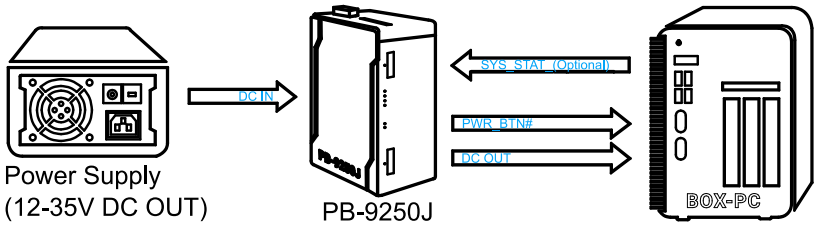
The reset button is used to manually reset and load system default configuration in case of a system halt or malfunction. To avoid unexpected operation, the button is purposely placed behind the panel. To reset the system, please use a pin to poke the button behind the panel.

3 PB-9250J-SA Setting

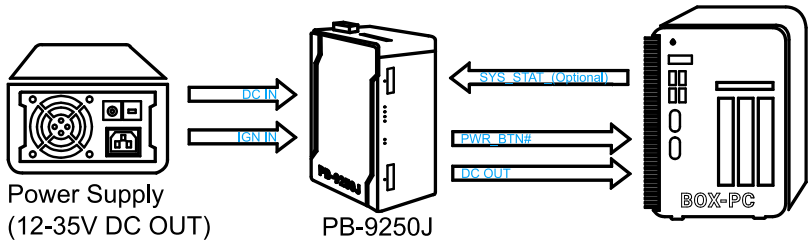
3.1 PB-9250J-SA Wiring

PB-9250J-SA can be configured to three different operating modes: Normal Backup Mode/ Ignition Control Mode/ Ignition Relay Mode. The following sections show detail information about how to wire and use the three different modes.

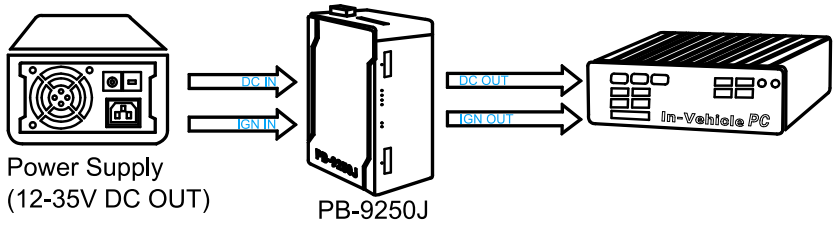
Normal Backup Mode



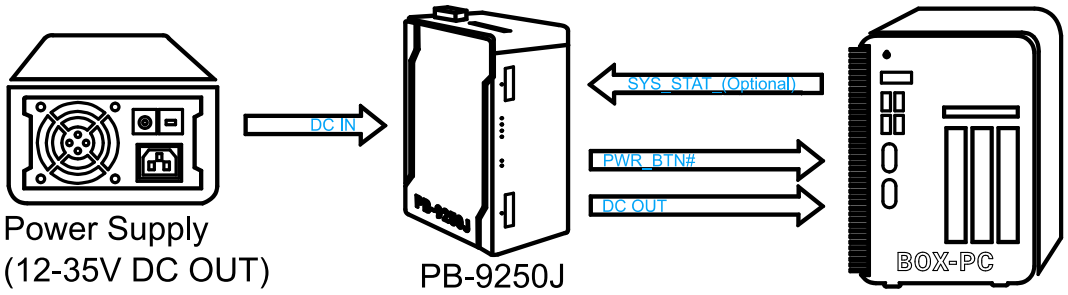
Ignition Control Mode



Ignition Relay Mode



3.1.1 Normal Backup Mode



Normal Backup Mode is for general purpose use of PB-9250J-SA. In Normal Backup Mode, DC output 12~35V from power supply should be connected to the DC IN of PB-9250J. DC OUT of PB-9250J should be connected to the power input of the back-end system. In addition, user should connect PWRBTN# signal pairs to the remote control or whichever connector that is connected to the power button signal of the back-end system.

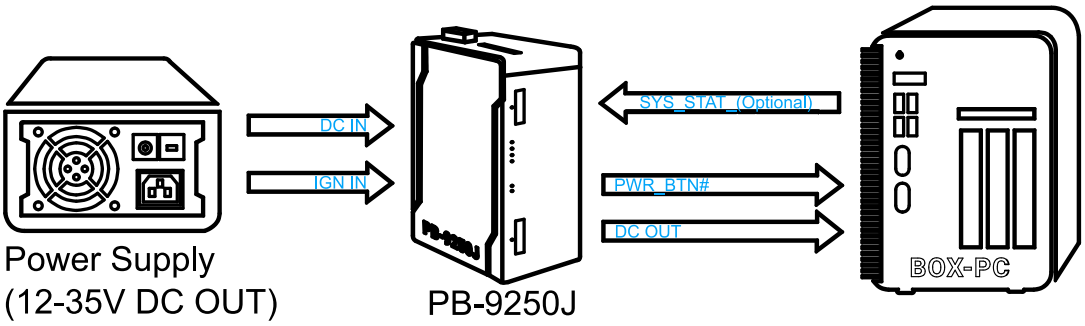
In Normal Backup Mode, PB-9250J begins to charge as soon as the power is supplied. Charging time should take approximately 40~200 seconds to fully charge PB-9250J (depending on charging current and input voltage). Afterwards, PB-9250J will automatically initiate the power button signal to turn on the back-end system. Under power blackout condition, PB-9250J can sustain back-end system alive by supplying 12V/24V power output. PB-9250J calculates the energy it needs for back-end system to properly turn off. In other words, PB-9250J can sustain connected system as long as possible before initiating a power button signal to shut down the system.

NOTE

If the input voltage is equal or higher than 17V, the output voltage during the discharge status will be 24V.

If the input voltage is lower than 17V, the output voltage during the discharge status will be 12V.

3.1.2 Ignition Control Mode



Ignition Control Mode is ideal for box-PCs that lack the ignition control function, but still need and want to operate as an in-vehicle controller. With PB-9250J built-in IGN control function, PB-9250J receives the IGN signal and sends a power button signal to the connected system. In Ignition Control Mode, DC output 12~35V from power supply should be connected to the DC IN of PB-9250J. IGN input should also connected to IGN IN of PB-9250J (same connector of power input). DC OUT of PB-9250J should be connected to the power input of the back-end system. In addition, user should connect PWRBTN# signal pairs to the remote control or whichever connector is connected to the power button signal of the back-end system.

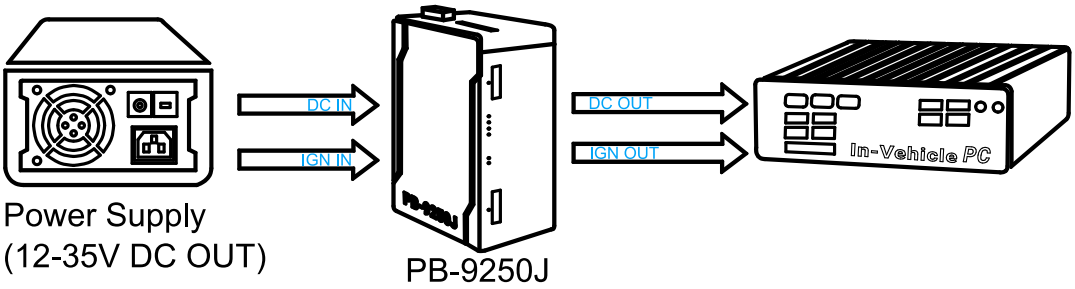
Once the system has been setup, PB-9250J will begin to charge when power input and IGN are both supplied. It should take approximately 40~200 seconds to fully charge PB-9250J (depending on charging current and input voltage). Afterwards, PB-9250J will automatically initiate the power button signal to turn on the back-end system according to the user-defined delay time. When the system is in operation, PB-9250J will turn off the connected system according to the user-defined delay time if IGN input is turned off. Under power blackout condition, PB-9250J can sustain back-end system alive by supplying 12V/24V power output as the same as Normal Backup Mode.PB-9250J can sustain the connected system as long as possible and then initiate the power button signal before shutting down the system. If power input and IGN is turned off simultaneously, PB-9250J will shutdown the system according to the user-defined IGN off delay time if the IGN off delay is shorter than the estimated learnt time for shutting down the system, and vise versa.

NOTE

If the input voltage is equal or higher than 17V, the output voltage during the discharge status will be 24V.

If the input voltage is lower than 17V, the output voltage during the discharge status will be 12V.

3.1.3 Ignition Relay Mode



Ignition Relay Mode is for in-vehicle box-PCs in transportation application. In Ignition Relay Mode, PB-9250J can receive IGN input signal and pass it to the back-end system. DC output 12~35V from power supply should be connected to the DC IN of PB-9250J. IGN input should also connected to IGN IN of PB-9250J. DC OUT of PB-9250J should be connected to the power input of the back-end system. In addition, IGN OUT of PB-9250J should be connected to the IGN input of the back-end system.

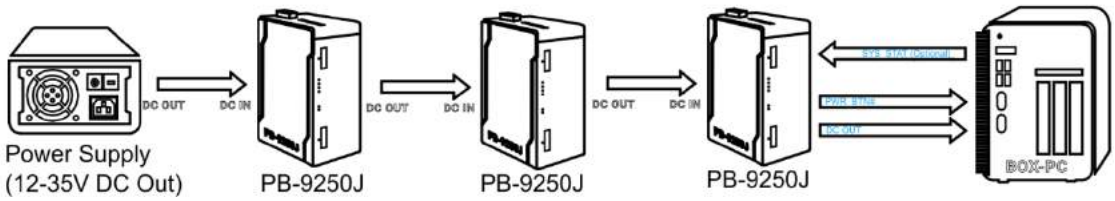
Once the system has been setup, PB-9250J will begin to charge when power input and IGN are both supplied. It should take approximately 40~200 seconds to fully charge PB-9250J (depending on charging current and input voltage). Afterwards, PB-9250J will automatically initiate IGN signal in order to turn on the back-end system. During system operation, PB-9250J will cut off IGN signal if the IGN input is turned off. Under power blackout condition, PB-9250J can sustain back-end system alive by supplying 12V/24V power output, but note that PB-9250J can only cut off the IGN out signal if IGN input of PB-9250J is turned off. In other words, PB-9250J's role is to only relay IGN signal in real-time and the IGN on/off delay depends on the back-end system.

NOTE

If the input voltage is equal or higher than 17V, the output voltage during the discharge status will be 24V.

If the input voltage is lower than 17V, the output voltage during the discharge status will be 12V.

3.2 Daisy Chain Connection



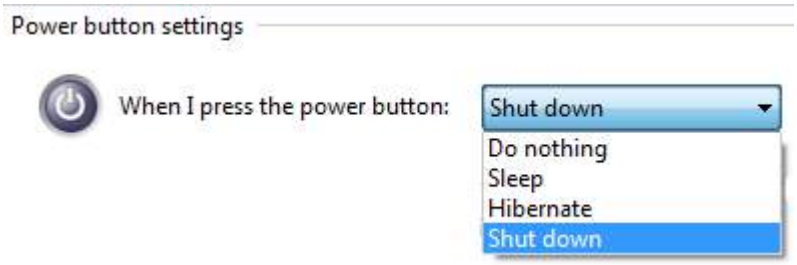
Compatible only in Normal Backup Mode, PB-9250J can be wired together in sequence. To daisy chain PB-9250J, user should connect DC power input into the first PB-9250J. Then connect the power output to next power input of PB-9250J, and so on. The power output of the last PB-9250J which is nearest to the system and connects to the power input of the backend system. Remember to connect power button and remaining signal to the system. Please refer to the example shown above with three PB-9250J daisy chained.

Daisy chaining PB-9250J results in larger capacitor and longer backup time. User can decide how many PB-9250J to daisy chain depend on their needs.

3.3 Configuring Windows System

Please make sure you've configured your Windows system to initiate a shutdown process when pressing the power button. By default, Windows 7/ 8/ 10 goes to sleep (S3) mode when the power button is pressed. As sleep (S3) is not a complete shutdown behavior, PB-9250J-SA will not recognize this command. To configure the setting in your Windows system, go to "Control Panel>System and Security>Power Options".

Set the "When I press the power button" configuration to "Shut down"

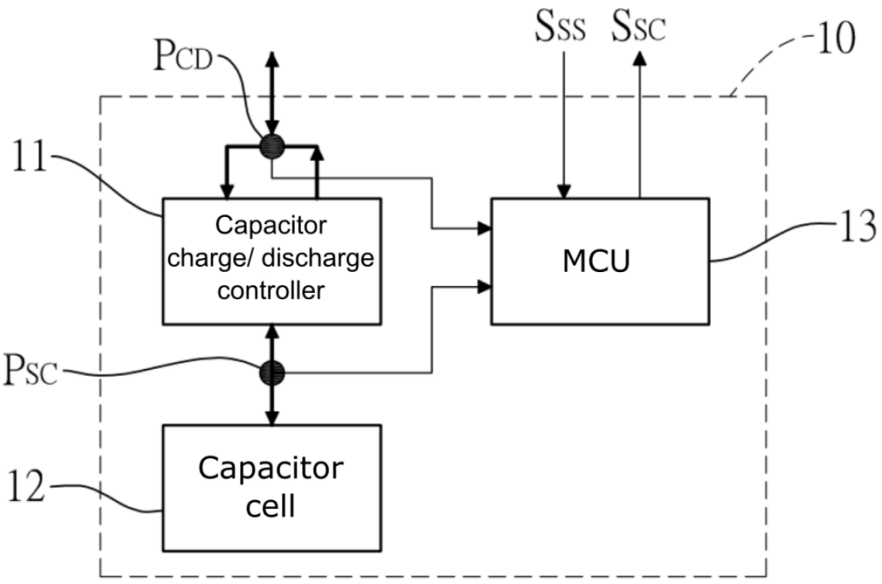


4 CAP Energy Management Technology ~ PB-9250J-SA Parameter Configurer

By controlling fundamental techniques such as charge/ discharge control, active load balance and DC/ DC regulation, Neousys is able to design and create a reliable ultracapacitor-based power backup system. However, the real challenge is how to get the most out of the capacitor energy while ensuring the system shuts down safely during a power blackout.

4.1 CAP Energy Management Technology

The patented architecture (R.O.C. patent I598820) incorporates a microprocessor along with ultracapacitors and charge/ discharge controller. The proprietary firmware embedded in the MCU not only monitors energy level continuously, it also automatically initiates soft-shutdown to prevent data loss/ corruption.



By providing sophisticated real-time energy monitoring, high/ low voltage protection and auto/ manual shutdown control, the dedicated interface help users better manage and efficiently utilize their PB-9250J. The software can also extend the lifespan of ultracapacitors up to 4.8x by controlling charge/ discharge cycles.

4.2 PB-9250J-SA Parameter Configurer

4.2.1 Executing PB9250J Parameter Configurer

The PB-9250J Parameter Configurer is an application that allows the user to monitor and manage the connected PB-9250J-SA.

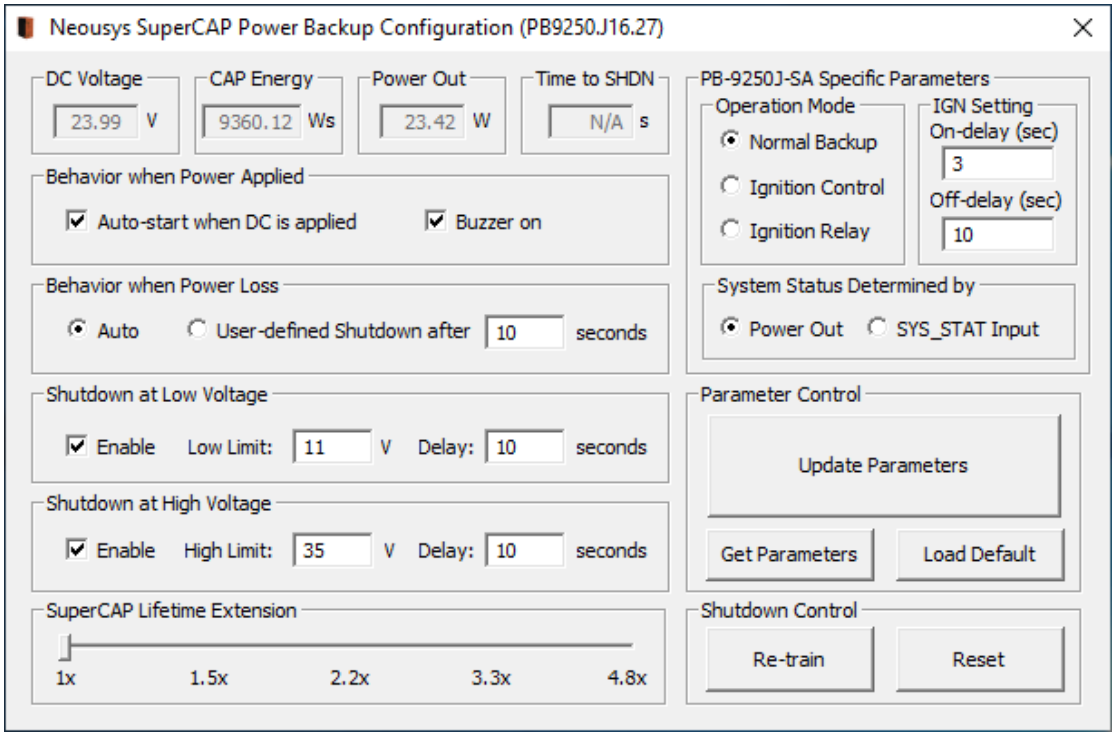
Once you have setup PB-9250J-SA and have connected it to the host controller COM port (configured in RS-232 mode). You may run it by double clicking the exe file.

4.2.2 Connecting to COM 1 Port on Host Computer

NOTE

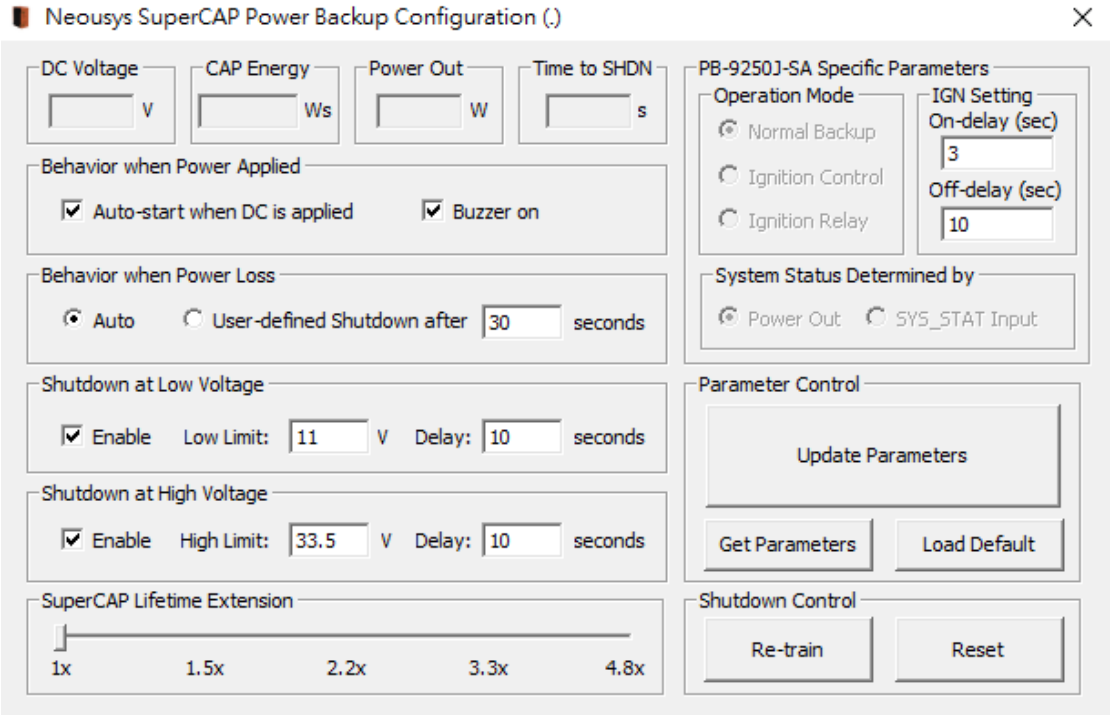
Please make sure the host system's COM port is configured to operate in RS-232 mode.

By default, Neousys_PB_Configurer.exe is designed to communicate with PB-9250J-SA via COM 1 port of the connected host computer. When successfully connected, the configurer should look similar to the following illustration.



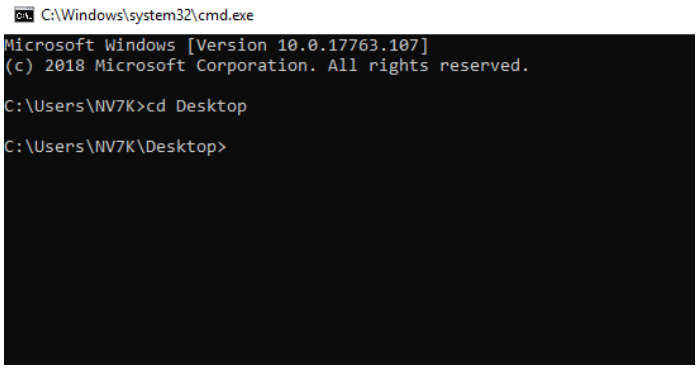
4.2.3 Connecting to a Different COM Port on Host Computer

If you wish to connect to another COM port (COM2, 3 or 4), you will need to reconfigure the connection setting or the configurer will read false readings (F/W Version, DC Voltage, CAP Energy) upon initial connection.

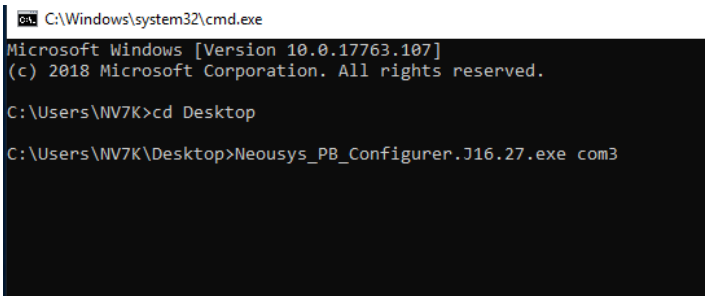


To complete the connection switch to the new COM port, the following steps must be performed in order for the system to read PB-9250J parameters.

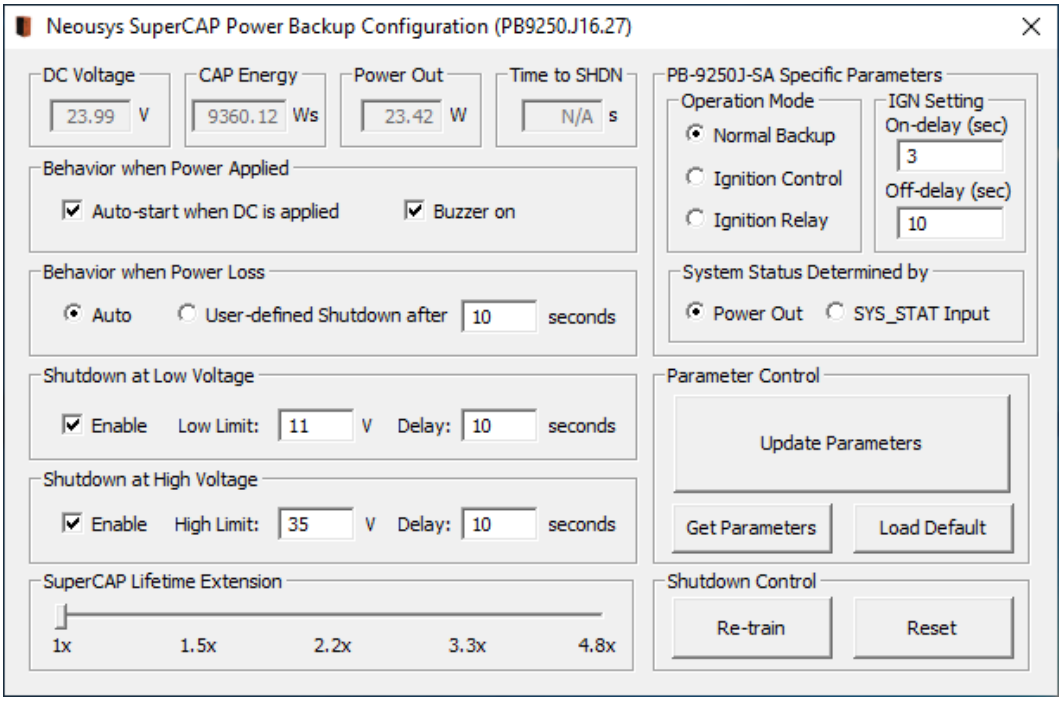
1. Press Windows key
2. In the “Search programs and files” column, type in “cmd” and press Ctrl+Shift+Enter to run the “command line dialogue” with administrative rights
3. Change directory to where Neousys_PB_Configurer.J16.27.exe can be located. For example, with the file Neousys_PB_Configurer.J16.27.exe placed in the C directory and the newly connected port on the host computer is COM3.



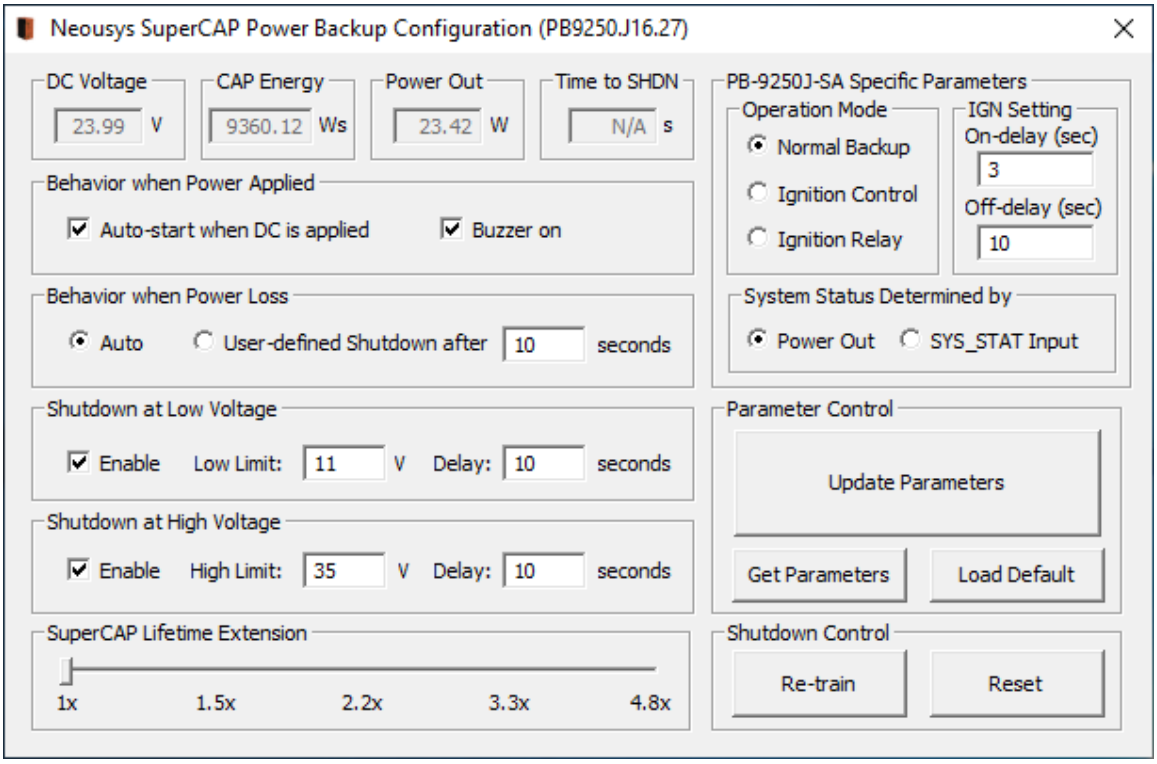
4. Type in “Neousys_PB_Configurer.J16.27.exe com3” (.exe file name + COM port number connected) and press Enter.



5. Once the command has been issued, all parameters should be updated accordingly. If not, press “Get Parameters” on the configurer to acquire statuses.



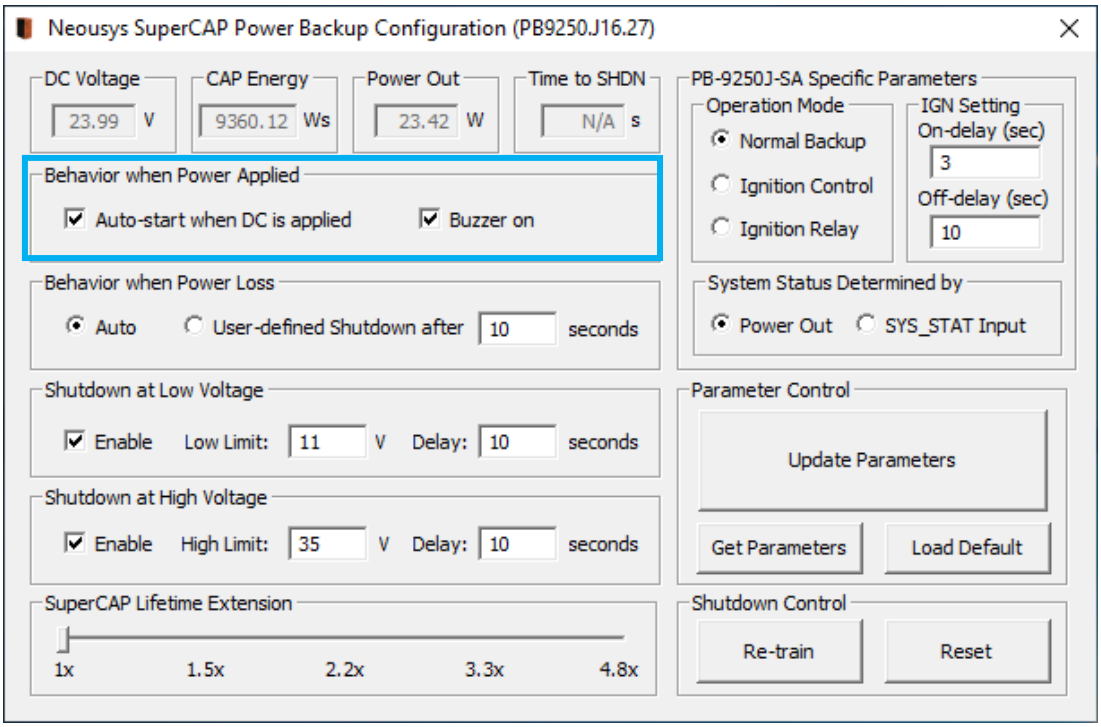
4.2.4 PB-9250J Parameter Configurer Over View



Item			Description
DC Voltage			Shows the current input voltage of your PB-9250J.
CAP Energy			Shows the current charged energy status (rated 9250Ws Max.).
Power Output			Shows the power draw of the back-end system.
Time to SHDN			Shows the time in seconds, before shutdown is initiated.
Parameter Configurer	Behavior when Power Applied		Auto start the back-end system once PB-9250J has been fully charged in Normal Backup Mode.
	Behavior for Power Loss		This allows you to set the delay time (in seconds) to shutdown when DC voltage drops below 11V.
	Shutdown at Low Voltage		This allows you set the low voltage limit and delay time (in seconds) to shutdown (Note: **DO NOT** set voltage lower than 11V).
	Shutdown at High Voltage		This allows you set the high voltage limit and delay time (in seconds) to shutdown (Note: **DO NOT** set voltage higher than 35V).
	Operation Mode	Normal Backup Mode	PB-9250J to operate in Normal Backup Mode when chosen
		Ignition Control Mode	PB-9250J to operate in Ignition Control Mode when chosen
		Ignition Relay Mode	PB-9250J to operate in Ignition Relay Mode when chosen
	IGN Setting	On-delay (sec)	This allows you to set the IGN delay time (in seconds) to turn on the system when PB-9250J is configured in Ignition Control Mode.
		Off-delay (sec)	This allows you to set the IGN delay time (in seconds) to shutdown the system when PB-9250J is configured in

		Ignition Control Mode.
System Status Determined by	Power Out	Determines back-end system status via power draw/ consumption of back-end system.
	SYS_STAT Input	Determines back-end system status via digital input signal pair into PB-9250J (1: on/ 0: off).
Parameter Control	**Update Parameters**: Click on this button for new parameters to take effect. **Get Parameters**: Click on this button to acquire current parameters. **Load Default**: Clicking on this button to load default parameters.	
Shutdown Control	**Re-train**: This button will re-train PB-9250J to be customized to the system's required shutdown time. **Reset**: This button will reset (erase) previous Re-train shutdown settings.	

4.2.5 Behavior when Power Applied



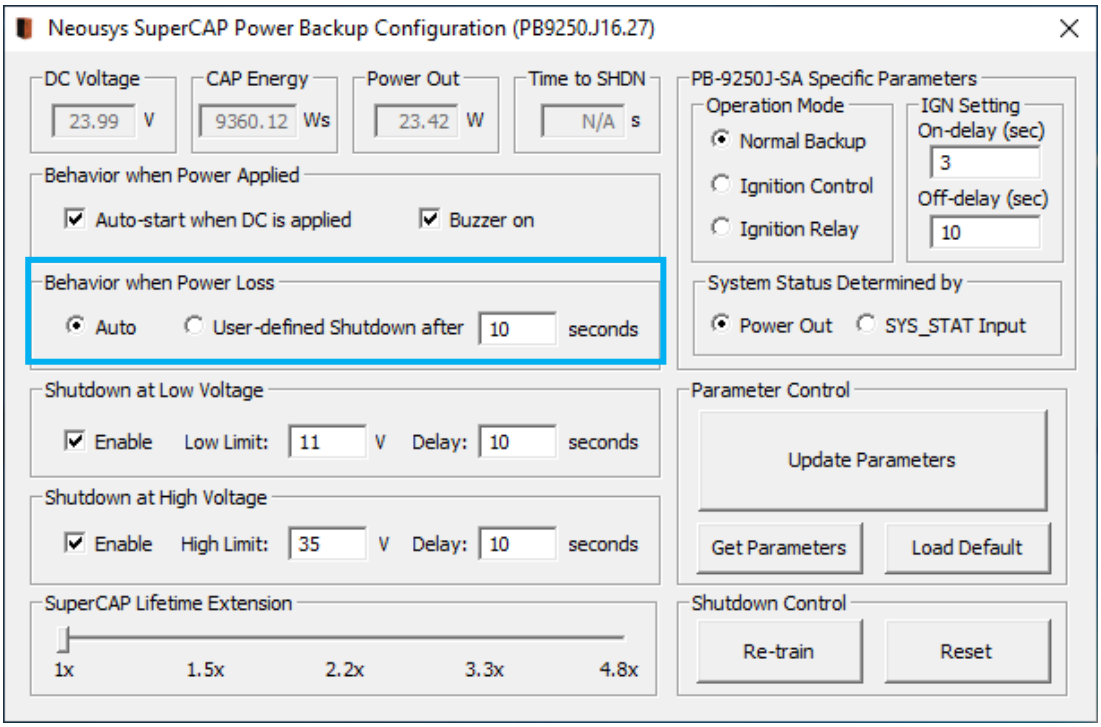
Behavior when Power Applied

Auto-start when Power applied	If the "**Auto-start**" box is checked, the system will start after PB-9250J has been fully charged when DC applied.
	If the "**Auto-start**" box is not checked, once you have plugged in the 3-pin pluggable terminal block (applied DC power input) and PB-9250J is fully charged, you will need to press the power button to turn the system on.
Buzzer on	If the "**Buzzer on**" box is checked, a buzzer sound will sound as soon as the supercapacitors start to discharge (supplying power to the system).
	If the "**Buzzer on**" box is not checked, no buzzer sound will be made when the supercapacitors start to discharge.

NOTE

For new parameters to take effect, you must click on "Update Parameters" and follow procedure instructions. Please refer to the relevant section for details.

4.2.6 Behavior when Power Loss



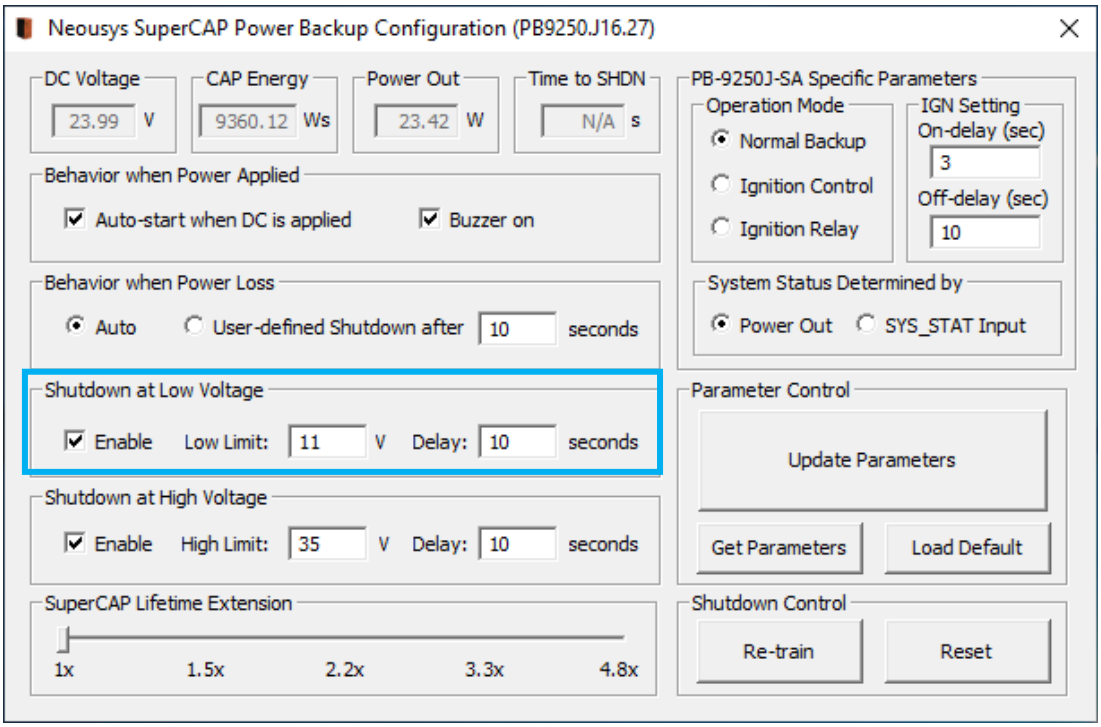
Behavior when Power Loss Settings

Auto	If the "**Auto**" box is selected, the delay shutdown time will be pre-determined by the MCU when you "Re-train" PB-9250J.
User-defined Shutdown after _ seconds	If the "**User-defined Shutdown after _ seconds**" is selected, when power loss, the shutdown process will be initiated by the user defined time in seconds.

NOTE

For new parameters to take effect, you must click on "Update Parameters" and follow procedure instructions. Please refer to the relevant section for details.

4.2.7 Shutdown at Low Voltage



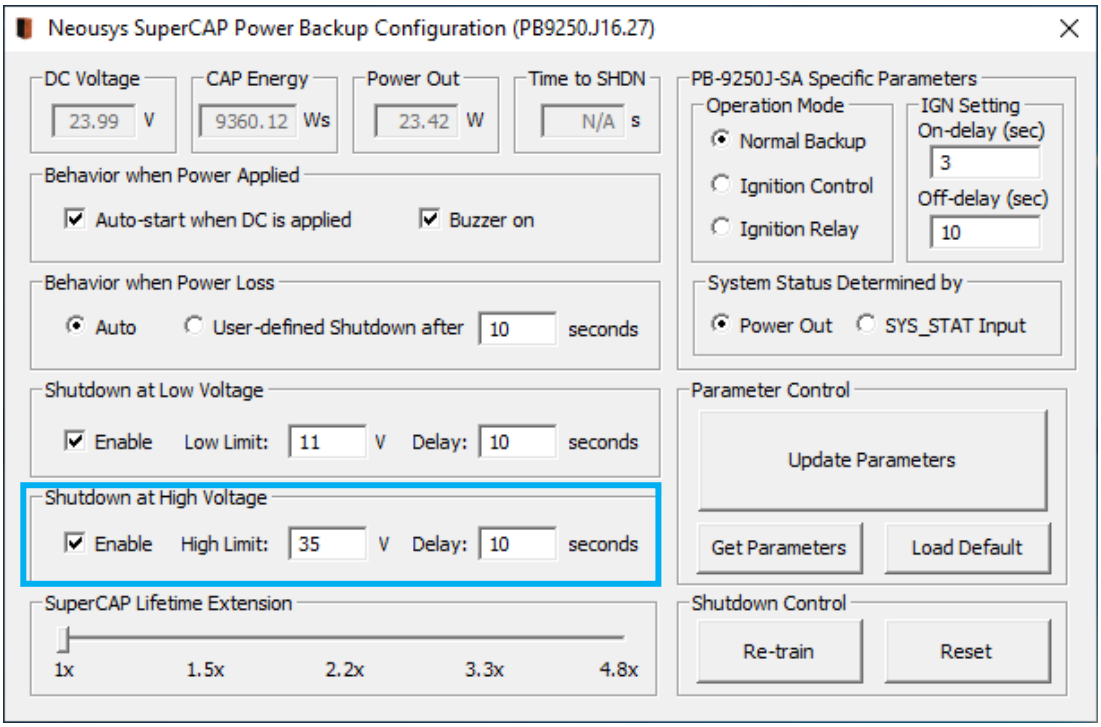
Shutdown at low Voltage

Enable	If the "**Enable**" box is checked, the shutdown process will be determined by the Low Limit: _ V and Delay: _ seconds settings.
Low Limit: _ V	If the "**Enable**" box is checked, the shutdown process will be initiated by low voltage limit setting (Low Limit: _ V) and the Delay: _ seconds.
Delay: _ seconds	If the "**Enable**" box is checked, the shutdown process will be initiated after _ seconds (Delay: _ seconds) when the low voltage limit setting (Low Limit: _ V) is reached.

NOTE

For new parameters to take effect, you must click on "Update Parameters" and follow procedure instructions. Please refer to the relevant section for details.

4.2.8 Shutdown at High Voltage



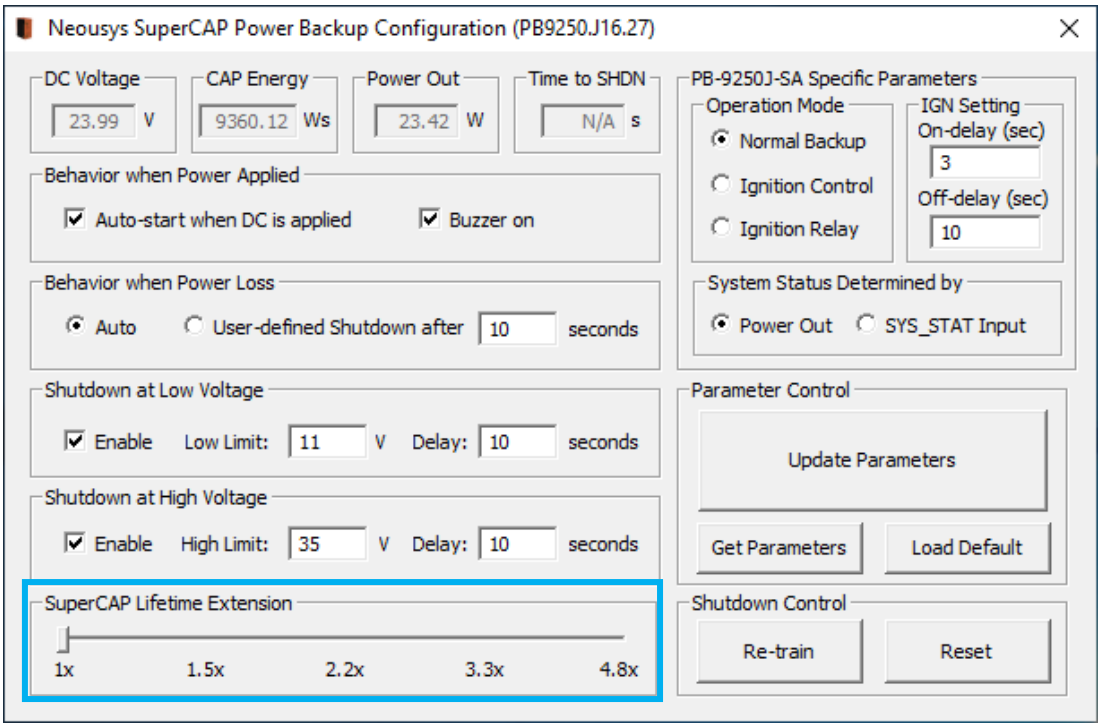
Shutdown at High Voltage

Enable	If the "**Enable**" box is checked, the shutdown process will be determined by the High Limit: _ V and Delay: _ seconds settings.
High Limit: _ V	If the "**Enable**" box is checked, the shutdown process will be initiated by high voltage limit setting (High Limit: _ V) and the Delay: _ seconds.
Delay: _ seconds	If the "**Enable**" box is checked, the shutdown process will be initiated after _ seconds (Delay: _ seconds) when the high voltage limit setting (High Limit: _ V) is reached.

NOTE

For new parameters to take effect, you must click on "Update Parameters" and follow procedure instructions. Please refer to the relevant section for details.

4.2.9 SuperCAP Lifetime Extension



The SuperCAP lifetime extension setting is an automated setting when users only need to click on the bar, drag it to the desired lifetime extension setting, click on the “Update Parameters” and follow procedure instructions for settings to take effect.

SuperCAP Lifetime Extension

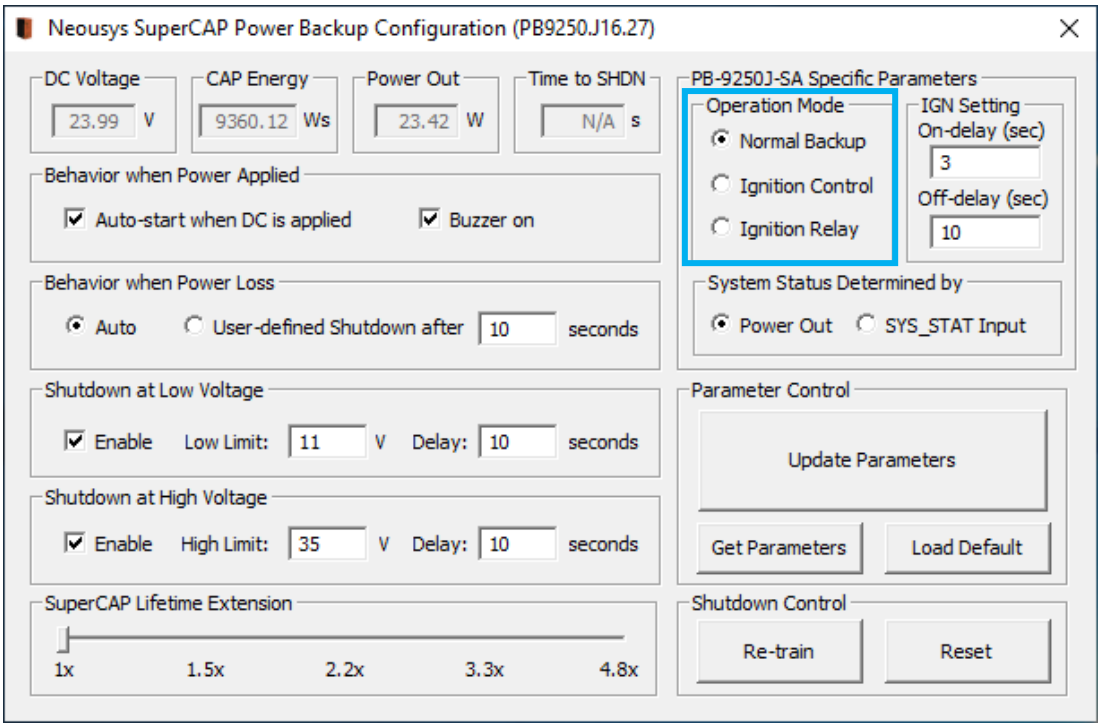
It is recommended to only use the SuperCAP Lifetime Extension to extend the lifetime if PB-9250J will be operating in high temperatures (>65°C) for long duration. The SuperCap lifetime can be extended by reducing SuperCap energy utilization. The following table shows the lifetime extension vs energy utilization vs hrs of operation (at 65°C)

SuperCAP Lifetime Extension	SuperCAP Energy Utilization	SuperCAP Hrs of Operation
1x	9250 w·s	7,200 hrs
1.5x	8524 w·s	10,600 hrs
2.2x	7820 w·s	15,000 hrs
3.3x	7163 w·s	22,000 hrs
4.8x	6525 w·s	34,000 hrs

NOTE

For new parameters to take effect, you must click on “Update Parameters” and follow procedure instructions. Please refer to the relevant section for details.

4.2.10 Operation Mode



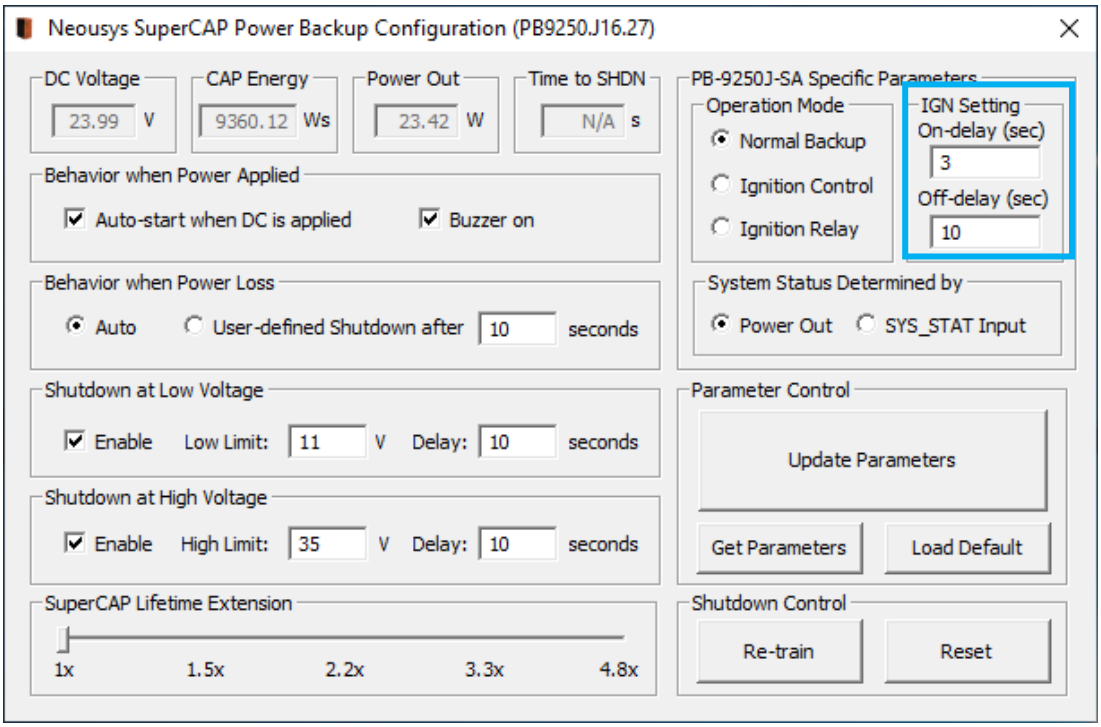
Operation Mode

Normal Backup Mode	If "**Normal Backup Mode**" box is selected, PB-9250J will operate in Normal Backup Mode.
Ignition Control Mode	If "**Ignition Control Mode**" box is selected, PB-9250J will operate in Ignition Control Mode.
Ignition Relay Mode	If "**Ignition Relay Mode**" box is selected, PB-9250J will operate in Ignition Relay Mode.

NOTE

For new parameters to take effect, you must click on "Update Parameters" and follow procedure instructions. Please refer to the relevant section for details.

4.2.11 IGN Setting



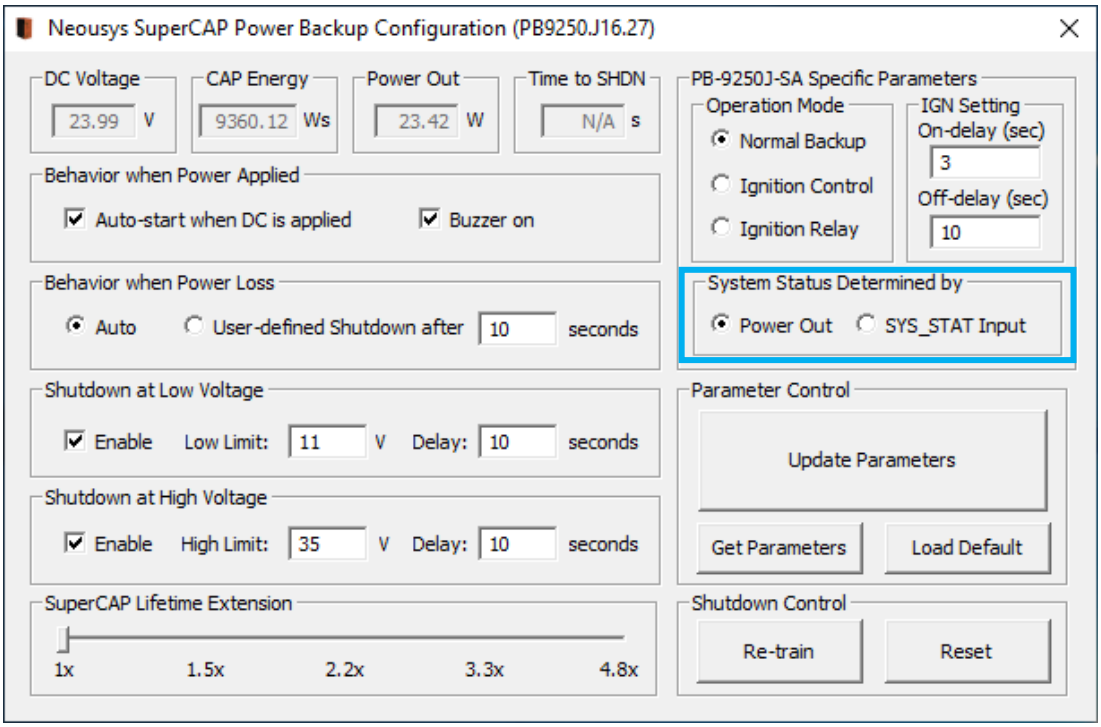
If PB-9250J is in Ignition Control Mode, user can set IGN on/off delay via IGN setting.

On-delay (sec)	the PWRBTN# signal will be sent after _ seconds (Delay: _ seconds) after PB-9250J is fully charged to turn on the back-end system.
Off-delay (sec)	the PWRBTN# signal will be sent after _ seconds (Delay: _ seconds) to turn off the back-end system after IGN in signal has been cut off.

NOTE

For new parameters to take effect, you must click on "Update Parameters" and follow procedure instructions. Please refer to the relevant section for details.

4.2.12 System Status Determined by



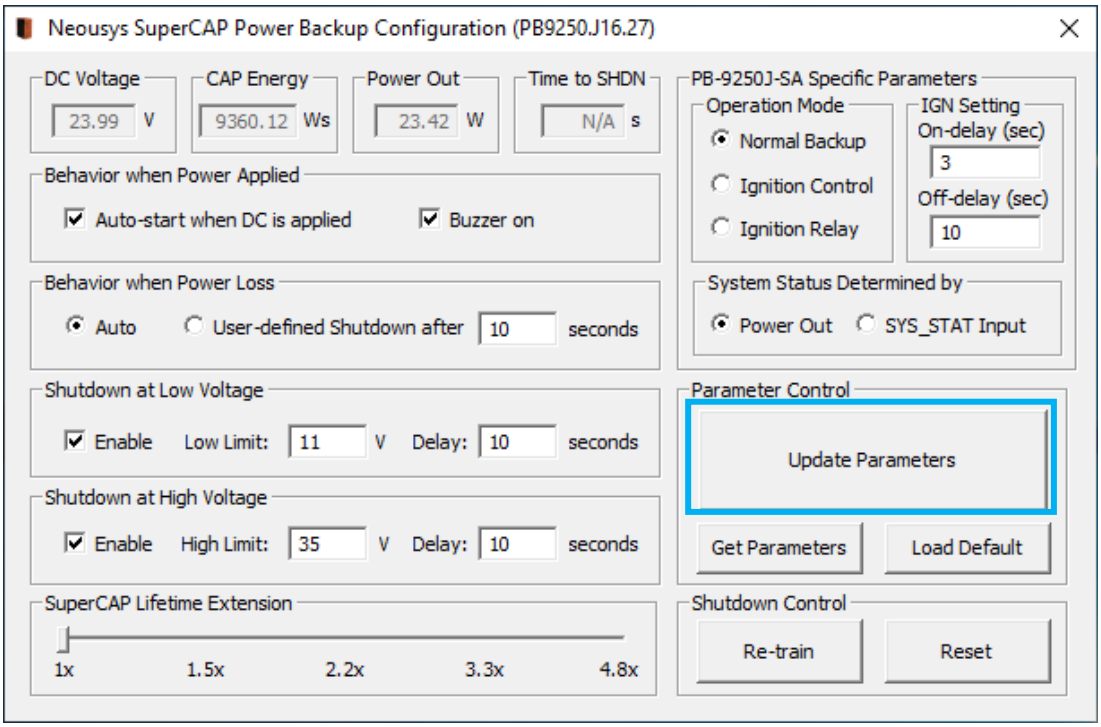
PB-9250J has to monitor back-end system status (whether it's on or off) in order to make the right operation in different situation.

Power Out	System status is determined by the power draw/ consumption of back-end system.
SYS_STAT Input	System status is determined by the input digital signal pair given by back-end system (1: on/ 0: off).

NOTE

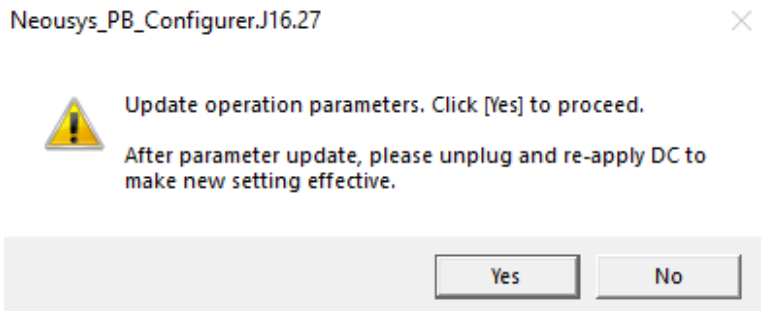
For new parameters to take effect, you must click on "Update Parameters" and follow procedure instructions. Please refer to the relevant section for details.

4.2.13 Update Parameters



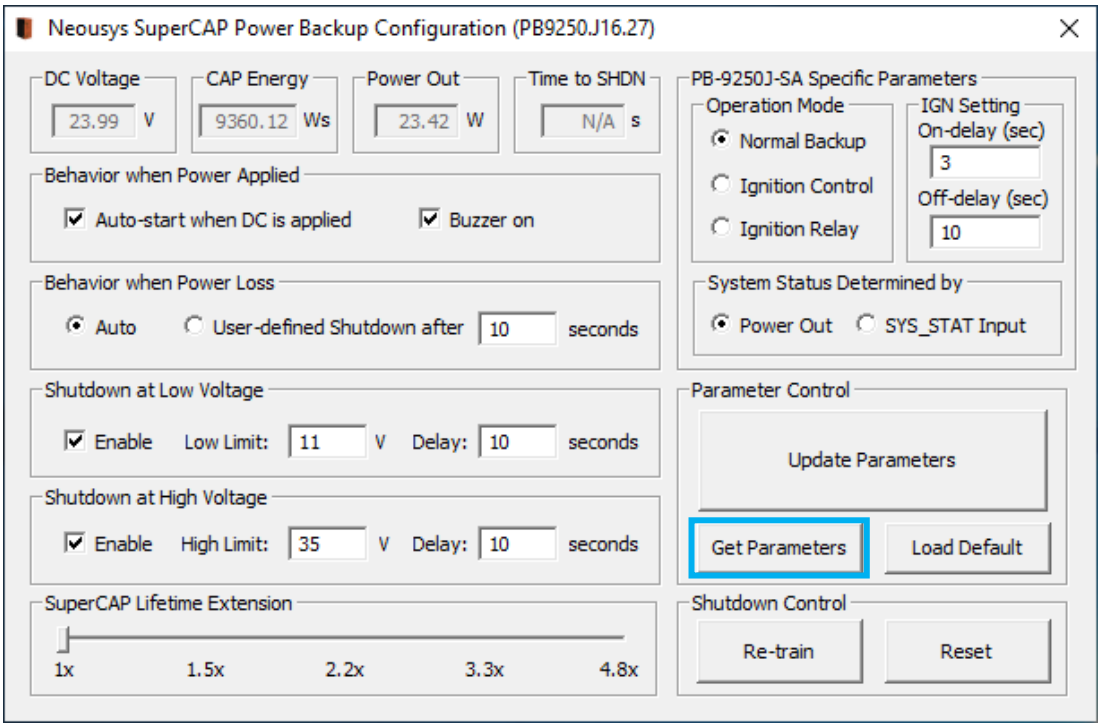
Whenever you enter/ adjust a new parameter or parameters, for the new settings to take effect, you must perform the following steps:

1. Click on the “Update Parameters” button and the following dialogue will appear.



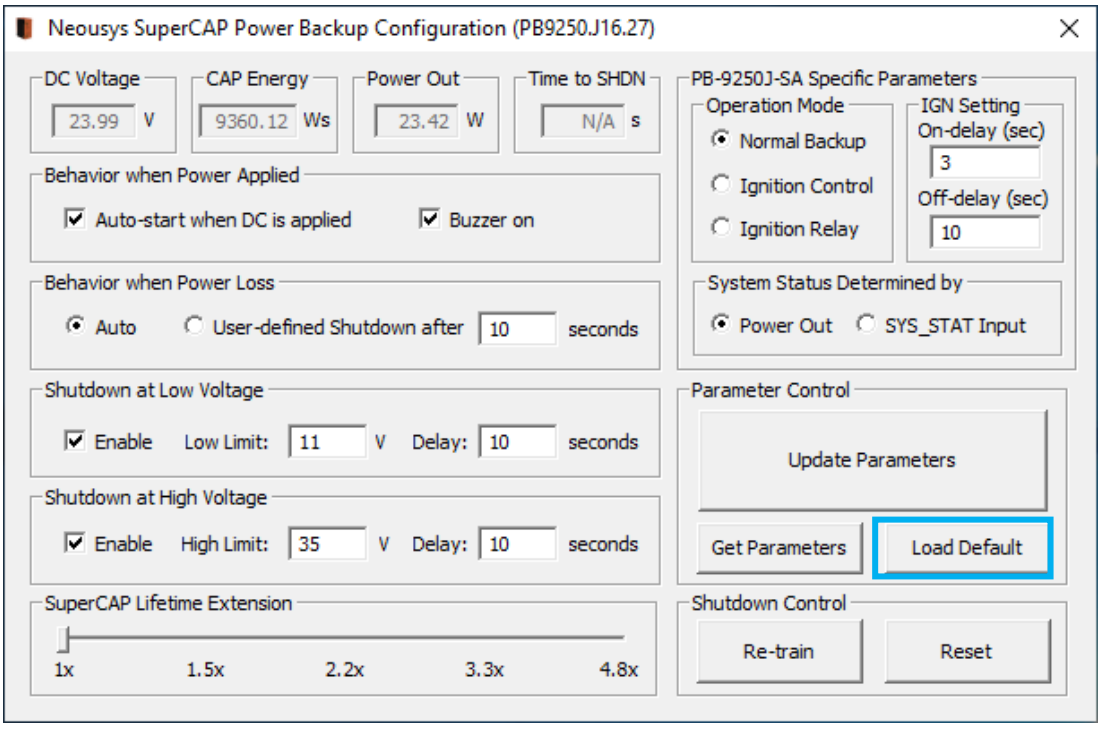
2. Click on yes, PB-9250J will automatically shutdown the system.
3. Once the system has shut down, it should wait for 3~5 sec for PB-9250J to reset.
4. After PB-9250J reset, system will auto start again.

4.2.14 Get Parameters



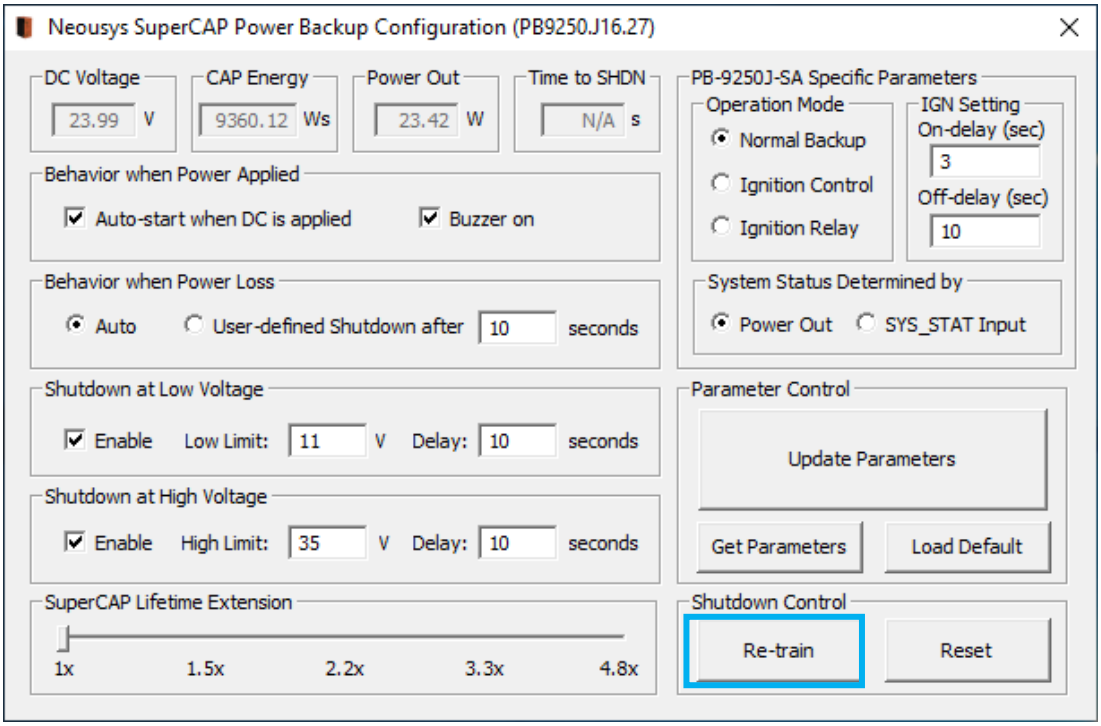
Click on “Get Parameters” to manually acquire the current PB-9250J status for DC voltage, current stored CAP energy and power output.

4.2.15 Load Default



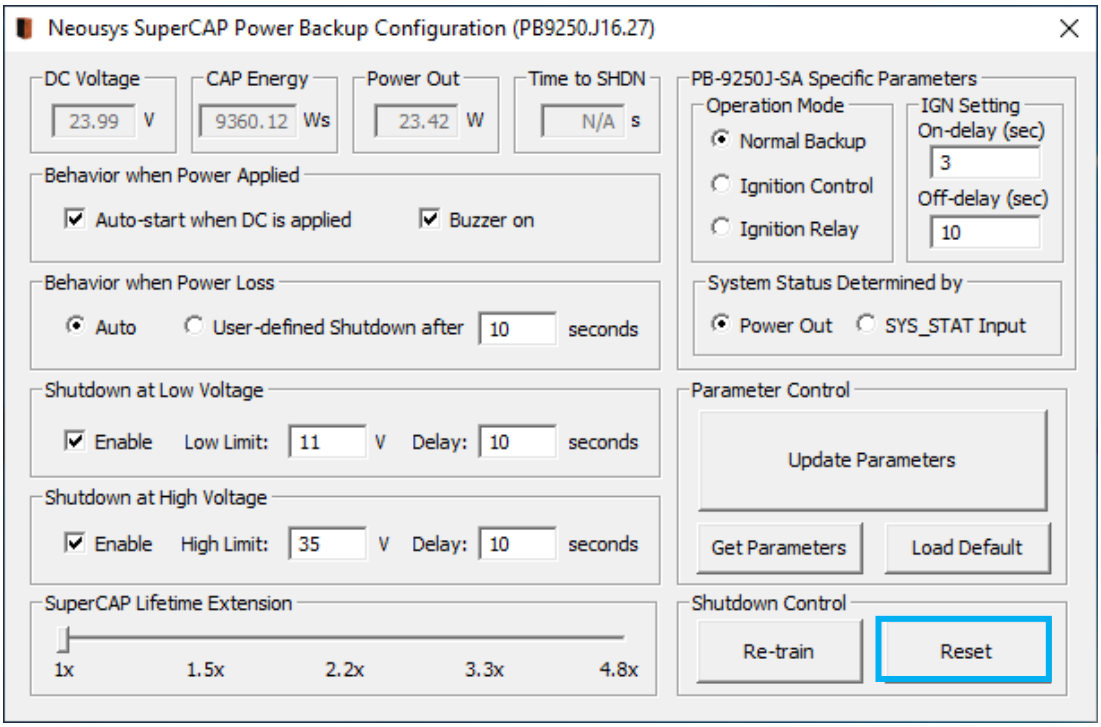
You may set PB-9250J back to the original settings by clicking on “Load Default” to reset all changes you have made previously.

4.2.16 Re-train



The Re-train function is to customize the PB-9250J to your system's required shutdown time! By clicking on "Re-train", a shutdown action will be initiated so the time required to shutdown can be memorized.

4.2.17 Reset



By clicking on Reset, it will erase all previous Re-train settings and hence result in faster shutdown when a command is issued.

4.3 PB-9250J-SA Estimated Extended Operation Time

Utilizing state-of-the-art supercapacitor technology, the Neousys PB-9250J-SA is a standalone power backup module that can protect your box-PC against power outages. It can reliably operate in harsh environments from -25 to 65°C, and have extremely high durability lasting up to 10 years. It serves as a maintenance-free energy storage and uninterruptible power supply to your connected back-end system and can prevent data loss during power outage in harsh industrial environments!

Below is an estimated extended operation time one can expect for the connected back-end system during unforeseen power outage events. The actual extended operation time may vary depending on your connected back-end system hardware configuration.

Power consumption of back-end system	Backup Time
0~50 watts	130~680 seconds
50~100 watts	60~130 seconds
100~150 watts	30~60 seconds
150~200 watts	15~30 seconds