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Delta Infrasuite Power Management

Rack-Mount Power Distribution Cabinet

User Manual

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Save This Manual

This manual contains important instructions and warnings that you should follow during the installation, operation, storage and maintenance of this product. Failure to heed these instructions and warnings will void the warranty.

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Chapter 1 : Important Safety Instructions

1.1 Safety Warnings

- Please read this user manual thoroughly before operating and maintaining the rack-mount PDC.
- To avoid injury and damage, please follow the instructions stated in the user manual and the labels attached to the rack-mount PDC to operate.
- Only qualified service personnel can perform maintenance. Do not perform maintenance yourself. Do not open or remove the cover of the rack-mount PDC to avoid high voltage electric shock.

1.2 Installation Warnings

- Install the rack-mount PDC in a well-controlled indoor area, away from excess moisture, heat and dust and inaccessible for children.
- Leave adequate space around all sides of the rack-mount PDC for proper ventilation, operation and maintenance.
- To ensure reliable operation of the rack-mount PDC and to protect the rack-mount PDC from overheating, do not block or cover the rack-mount PDC's slits and openings. When wiring, do not block or cover the fan of the rack-mount PDC to hinder ventilation.

1.3 Usage Warnings

- Do not install and operate the rack-mount PDC in an area near humidity, water, gas and heat sources.
- For safety concerns and securing normal operation of the rack-mount PDC, ensure the power supply to the rack-mount PDC is completely cut off before installation and maintenance.
- Before usage, you must allow the rack-mount PDC to adjust to room temperature for at least one hour.
- Proper heat dissipation ensures reliable operation of the rack-mount PDC. Please leave adequate space around all sides of the rack-mount PDC for proper ventilation.

- To avoid a possible risk of current leakage, the rack-mount PDC must be well grounded before connecting to the power.
- The risk of dangerous high voltage is possible when the rack-mount PDC is connected to the power. Please cut off the power when there is no need to use the rack-mount PDC.
- Before initial start-up of the rack-mount PDC or start-up of the rack-mount PDC after being idle for a period of time, qualified service personnel must check the rack-mount PDC thoroughly and check if the rack-mount PDC is grounded or not.
- You must contact qualified service personnel if either of the following events occur:
 1. Liquid is poured or splashed on the rack-mount PDC.
 2. The rack-mount PDC does not run normally after this user manual is carefully observed.

1.4 Storage Warnings

- **Before Installation**

If the rack-mount PDC needs to be stored prior to installation, it should be placed in a dry area. The allowable storage temperature is between $-20^{\circ}\text{C} \sim 40^{\circ}\text{C}$.

- **After Usage**

If the rack-mount PDC needs to be stored for a period of time after usage, please turn off all of its connected critical loads and cut off its input power. After that, remove all of the critical loads connected to the rack-mount PDC and place the rack-mount PDC in a dry and ventilated area with the temperature between $-20^{\circ}\text{C} \sim 40^{\circ}\text{C}$.

1.5 Standard Compliance

- EN 62040-1

Chapter 2 : Product Introduction

2.1 General Overview

The rack-mount PDC is applicable to any power system that needs power distribution and power monitoring functions. It has the flexibility to distribute its output power according to its connected critical loads and it provides excellent branch protection and branch monitoring functions.

The unit is composed of a 4U cabinet and a hot-swappable control module, and it can accommodate at maximum six hot-swappable breaker modules (optional). Each hot-swappable breaker module (optional; at maximum six) provides three-phase output.

It has a multi-language LCD panel, which is easy for the user to operate and obtain relevant data. The product features good heat-stability, practicality and convenient installation and maintenance. It provides three different rated power levels, 30kVA, 50kVA and 80kVA, for your selection.

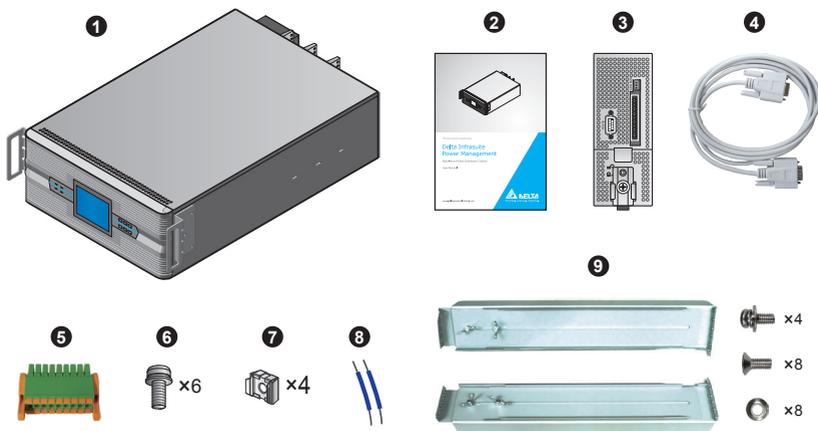
2.2 Package Inspection

- **External**

During rack-mount PDC transportation, some unpredictable situations might occur. It is recommended that you inspect its exterior packaging. If you notice any damage, please immediately contact the dealer from whom you purchased the unit.

- **Internal**

1. Check the rating label on the rack-mount PDC and make sure the device No. and capacity match what you ordered.
2. Examine if any parts are loose or damaged.
3. The rack-mount PDC package includes the following items:



No.	Item	Quantity
①	Rack-mount PDC	1 PC
②	User Manual	1 PC
③	Hot-swappable Control Module	1 PC
④	RS-232 Cable	1 PC (1.8m)
⑤	Terminal Block	1 PC (18-Pin)
⑥	M6 Screw	6 PCS
⑦	Floating Nut	4 PCS
⑧	Shorting Wire	2 PCS
⑨	Rail Kit	1 SET

4. If there is any damage or anything missing, please immediately contact the dealer from whom you purchased the unit.
5. If the rack-mount PDC needs to be returned, carefully repack the rack-mount PDC and all of the accessories using the original packing material that came with the unit.

2.3 Functions & Features

Flexible Configurations

- Provides three different rated power levels, 30kVA, 50kVA and 80kVA, for your selection.
- Allows installation of at maximum six hot-swappable breaker modules (optional), which means that it can connect at maximum 18 branches.
- Allows installation of a TVSS module (optional) to protect your sensitive equipment.
- Allows installation of a main input breaker (optional)
- Supports SNMP IPv6 card (optional).

High Reliability

- Provides REPO function.
- Detects any hot-swappable breaker module's branch current.
- Provides abnormal voltage and phase-lack alarms.
- Provides system and each branch's current monitoring and alarm functions.
- Intelligently judges the specifications of each hot-swappable breaker module (optional; at maximum six) installed.
- Intelligently judges if each latch is closed or open, each branch's status and the optional main input breaker's status.

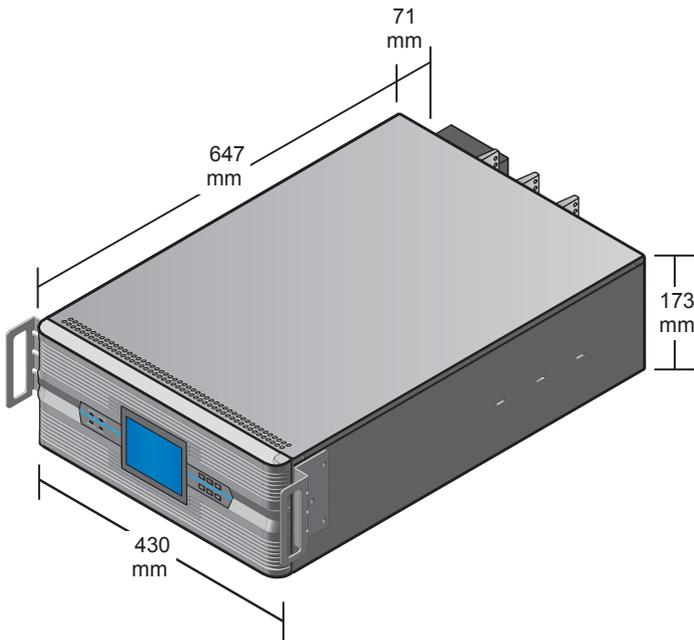
Multi-function

- Equipped with a 4.9-inch LCD panel.
- Built-in RS-232 port and smart slot allow remote mentioning.
- Records at maximum 2000 event logs.
- Provides 6 sets of output dry contacts.

Chapter 3 : Exterior & Mechanism

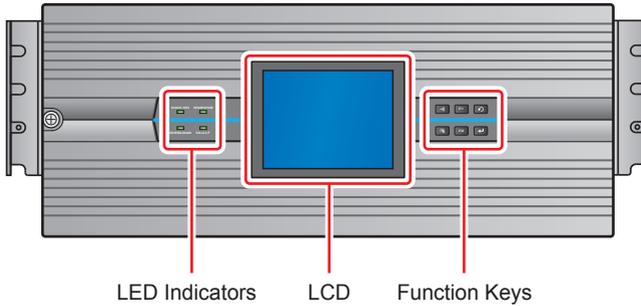
You can install at maximum one hot-swappable control module and at maximum six hot-swappable breaker modules (optional) in the rack-mount PDC. The hot-swappable control module is a standard accessory, which has been installed in the rack-mount PDC before the rack-mount PDC is shipped out of the factory. As for the hot-swappable breaker module, it is optional (at maximum six). The user can follow actual requirements to decide what type of rack-mount PDC (30kVA/ 50kVA/ 80kVA) and how many of hot-swappable breaker modules (optional; at maximum six) should be installed. For information about the rack-mount PDC's dimensions, front panel and rear panel, please refer to the following.

3.1 Dimensions



(Figure 3-1 : Dimensions)

3.2 Front Panel (Control Panel)



(Figure 3-2 : Control Panel)

• LED Indicators

No.	Symbol	Name	Description
1	<p>MAIN ON</p> 	Power On Indicator	<p>1. On (Green): The system is under operation.</p> <p>2. Off: The system has not started yet. If an alarm sounds every second, it indicates that one of the following events occurs.</p> <ul style="list-style-type: none"> • Main input voltage is abnormal. • Main input frequency is abnormal. • Main input current THD is too high.
2	 <p>OVERLOAD</p>	Overload Indicator	<p>1. On (Yellow): The system is overloaded. If the LED lights up with an alarm sounding every second, it indicates that one of the following events occurs.</p> <ul style="list-style-type: none"> • Main input has an over-current issue. • Main input's neutral has an over-current issue. • Branch has an over-current issue. • The system is overloaded. <p>2. Off: The loads are normal.</p>

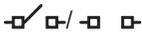
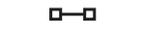
No.	Symbol	Name	Description
3	<p>WARNING</p> 	Warning Indicator	<p>1. On (Yellow): When the warning indicator lights up, it will be accompanied with an alarm. The alarm frequency varies according to different events; please refer to below:</p> <ol style="list-style-type: none"> a. When an alarm sounds every 10 seconds, it means that the main input current is too low. b. When an alarm sounds every 3 seconds, it means that the fan is abnormal. c. When an alarm sounds every second, it means that one of the following events occurs: <ul style="list-style-type: none"> ● System temperature is too high. ● Main input voltage is abnormal. ● Main input power factor is too low. ● Main input current or voltage THD is too high. <p>2. Off: System is normal.</p>
4	 <p>FAULT</p>	Fault Indicator	<p>1. On (Red): When the fault indicator lights up, it will be accompanied with an alarm. The alarm frequency varies according to different events; please refer to below:</p> <ol style="list-style-type: none"> a. When an alarm sounds every 0.5 second, it means that one of the following events occurs: <ul style="list-style-type: none"> ● Input voltage: phase lack. ● Input voltage: unbalance. b. When an alarm sounds continuously, it means that one of the following events occurs: <ul style="list-style-type: none"> ● REPO function is enabled. ● FRAM is abnormal. <p>2. Off: System is normal.</p>

• Function Keys

No.	Symbol	Name	Description
1		ESC Key	Goes back to the previous screen or cancels current selection.
2		Entry Key	Enters into the selected option, menu or confirms current setting.
3		Function Key F1	Previous screen/ cursor up/ cursor left/ number increase
4		Function Key F2	Next screen/ cursor down/ cursor right/ number decrease
5		Buzzer On Button	Enables the buzzer.
6		Buzzer Off Button	Disables the buzzer.

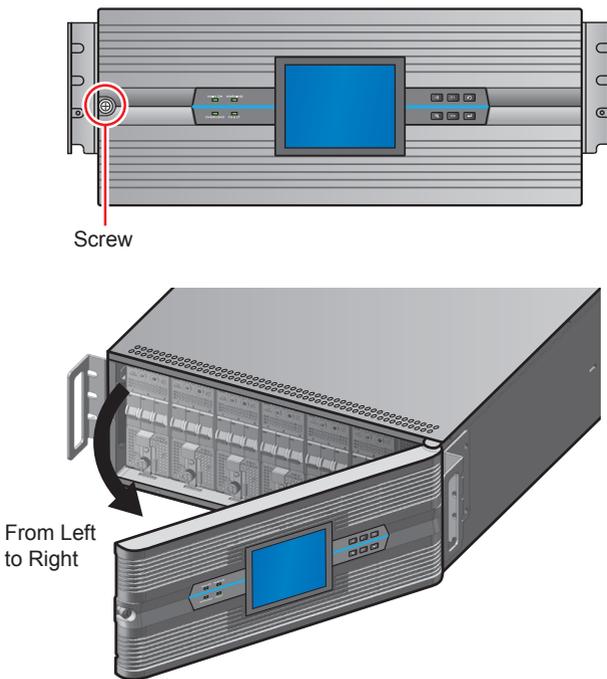
• Symbols on the LCD

No.	Symbol	Description
1		Goes back to the previous screen or cancels current selection.
2	F1 :  F2 : 	Use the function Key F1 or F2 to switch between pages or move the cursor up or down.
3	F1 :  F2 : 	Use the function Key F1 or F2 to move the cursor to the right or to the left.
4	F1 :  F2 : 	Use the function Key F1 or F2 to increase or decrease number.
5		Enters into the selected option, menu or confirms current setting.
6		When the symbol  becomes  , it means that you can change your selected item's setting.

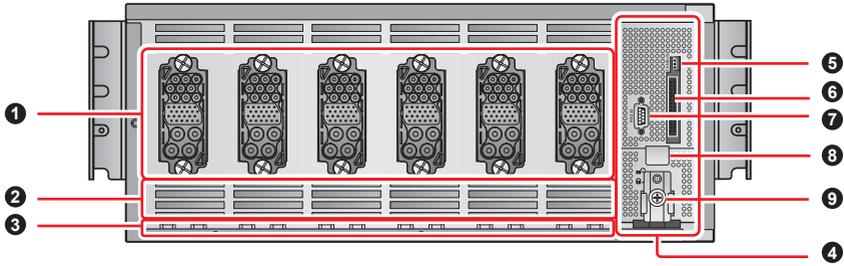
No.	Symbol	Description
7		The breaker is in the OFF status.
8		The breaker is in the ON status.
9		AC Input

3.3 Internal Mechanism of the Rack-mount PDC

Loosen the screw shown in **Figure 3-3** to open the rack-mount PDC's front panel. After that, you can see the internal mechanism of the rack-mount PDC. Please refer to **Figure 3-4**.



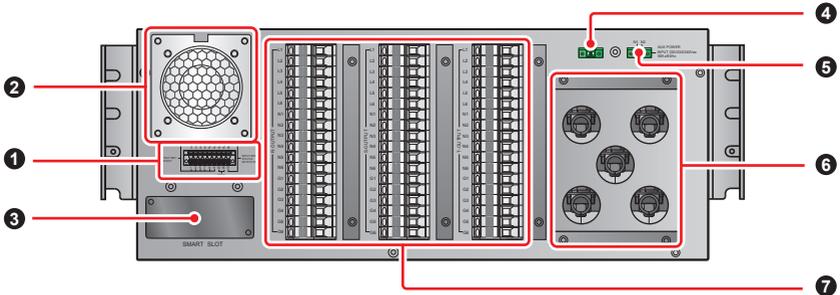
(Figure 3-3 : Open the Front Panel)



(Figure 3-4 : Internal Mechanism of the Rack-mount PDC (Front Panel))

No.	Item	Function
①	Connector (Total: 6)	Connects the hot-swappable breaker module (optional; at maximum six). :
②	Vents	For ventilation.
③	Rails	Assist installation of the hot-swappable breaker module (optional; at maximum six) in the rack-mount PDC and connect with the relevant connector.
④	Hot-swappable control module	Monitors and controls the rack-mount PDC.
⑤	CAN Bus Port	Reserved.
⑥	LCD communication port.	Connects the LCD Panel.
⑦	RS-232 Port	Communicates with a connected computer, receives the rack-mount PDC's data and upgrades the rack-mount PDC's firmware.
⑧	Handle	Helps to pull out the hot-swappable control module.
⑨	Latch	Locks the hot-swappable control module and connects the hot-swappable control module to the power supply. Only when this latch is in the 'LOCKED' position and the latch knob is firmly fixed, will the system work normally.

3.4 Rear Panel



(Figure 3-4 : Rear Panel)

No.	Item	Function	
1			
	Function	Pin	Triggered Event
	Output Dry Contact	Pin 1 & 2	The main input breaker (optional) is OFF or tripped.
		Pin 3 & 4	The hot-swappable breaker module's breaker is OFF. You can install at maximum six hot swappable breaker modules (optional) in the rack-mount PDC.
Pin 5 & 6		The main input breaker (optional) has an over-current issue.	

No.	Item	Function	
1	Output Dry Contact	Pin 7 & 8	The hot-swappable breaker module's breaker has an over-current issue. You can install at maximum six hot-swappable breaker modules (optional) in the rack-mount PDC.
		Pin 9 & 10	When the system has an over-temperature issue.
		Pin11 & 12	When the input has a phase-lack issue.
	REPO	Pin13 & 15	Remote emergency power off.  NOTE: Installation of a main input breaker (optional) is necessary for such application.
	Input Control	Pin14 & 16	When the rack-mount PDC has an over-current or overload issue, the main input breaker (optional) will be tripped to protect the rack-mount PDC.
	Input Circuit Breaker Status Detection	Pin17 & 18	Detection of the status of the main input breaker (optional).
2	Fan	For ventilation.	
3	Smart Slot	Connects the SNMP IPv6 card.	

No.	Item	Function
4	L1 & L2 terminals	<p>If you install the main input breaker (optional), please connect the L1 terminal to the main input breaker's R terminal (input end). This ensures the connection of the internal power supply and normal operation of the rack-mount PDC.</p> <p>If you don't install the main input breaker (optional), use the provided shorting wire to short the L1 and L2 terminals. This ensures the connection of the internal power supply and normal operation of the rack-mount PDC.</p>
5	N1 & N2 terminals	<p>If you install the main input breaker (optional), please connect the N1 terminal to the main input breaker's N terminal (input end). This ensures the connection of the internal power supply and normal operation of the rack-mount PDC.</p> <p>If you don't install the main input breaker (optional), use the provided shorting wire to short the N1 and N2 terminals. This ensures the connection of the internal power supply and normal operation of the rack-mount PDC.</p>
6	Input Terminal Block	Connects the input power.
7	Output Terminal Block	Connects the critical loads and includes R/ S/ T/ N/ G terminals.

Chapter 4 : Installation & Removal

4.1 Installation & Removal of the Rack-mount PDC



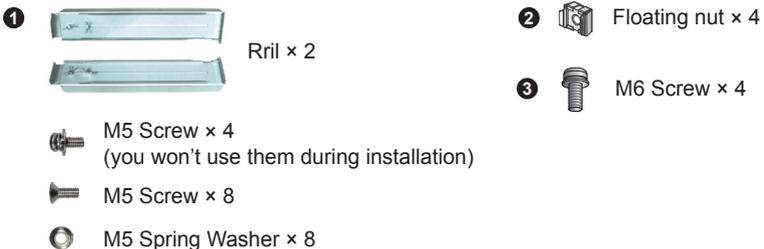
WARNING!

1. Only qualified service personnel can perform installation and removal of the rack-mount PDC.
2. The rack-mount PDC is not hot-swappable.
3. The rack-mount PDC is heavy (> 32kg) and requires at least two people for handling.
4. Before installation/ removal of the rack-mount PDC, please cut off all power.
5. Only after the LCD is off, the rack-mount PDC's fan stops running and the input power is completely cut off can you remove the rack-mount PDC.

4.1.1 Installation/ Placement of the Rack-mount PDC

The rack-mount PDC's dimensions are 430mm (W)* 665mm (D)* 173mm (H) and its maximum weight is 38kg. You can install it in a rack or place it on a platform that can support it. If you wish to install the rack-mount PDC in a rack, please follow the procedures below:

- ① Before installation, please take out the ① rail kit (1 set), ② four floating nuts and ③ four M6 screws from the accessory package. Please refer to **Figure 4-1**.

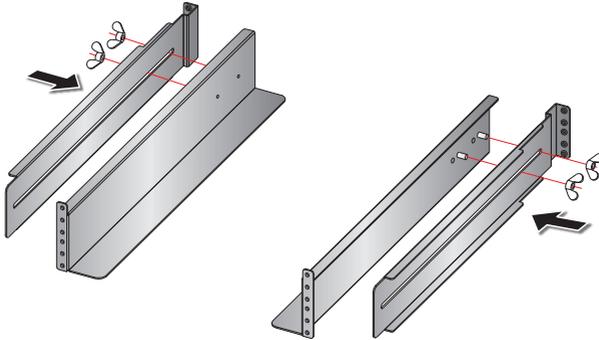


(Figure 4-1: Needed Accessories during Installation)



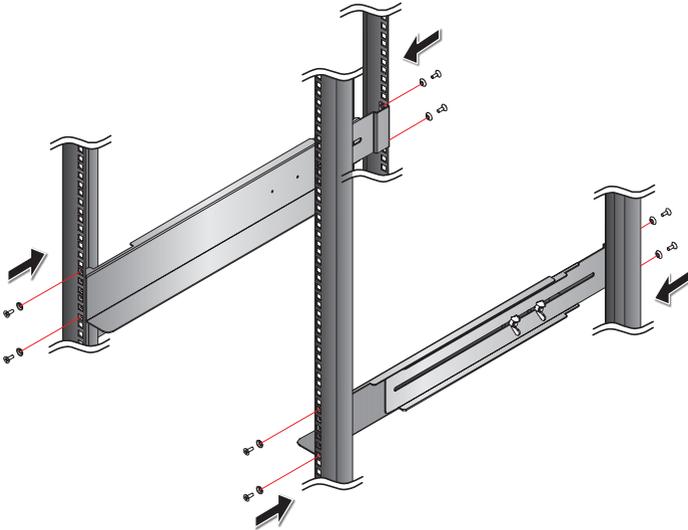
NOTE: Please note that there will be extra two M6 screws left after installation. The two screws are spare parts.

- 2 Adjust the length of the provided rails according to your rack and tighten the nuts. See **Figure 4-2**.



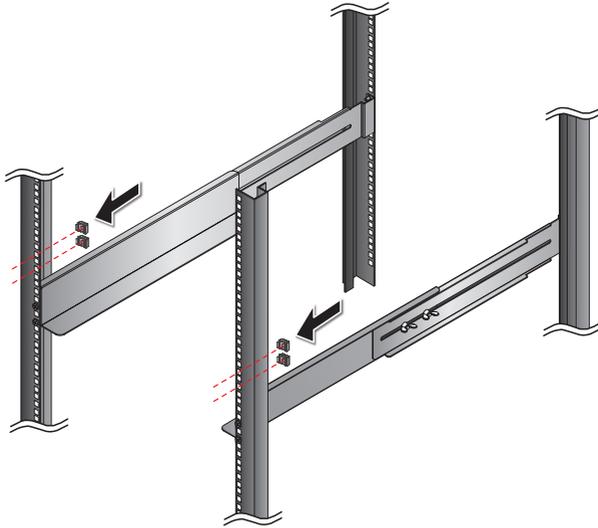
(Figure 4-2: Adjust the Rails and Tighten the Nuts)

- 3 Use the provided eight M5 screws and eight M5 spring washers to attach the rails to your rack. See **Figure 4-3**.



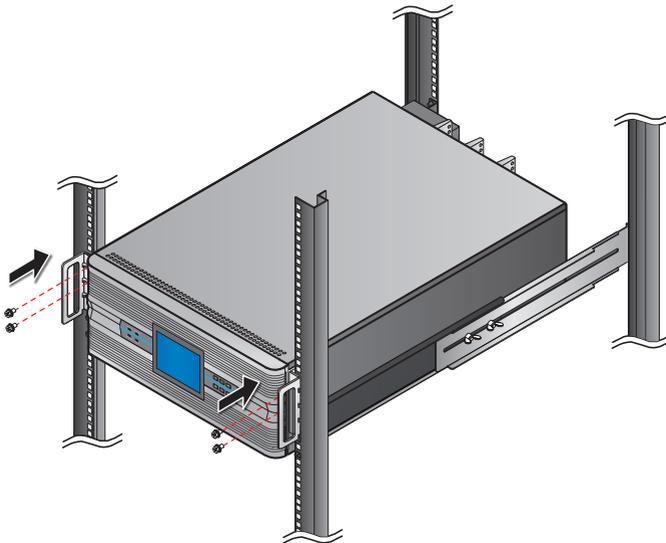
(Figure 4-3: Attach the Rails to Your Rack)

- 4 Attach the provided four floating nuts to the front pillars of your rack. See **Figure 4-4**.



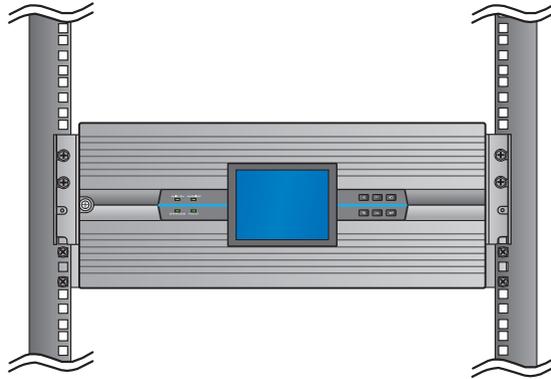
(Figure 4-4: Attach the Floating Nuts to the Front Pillars of Your Rack)

- 5 Insert the rack-mount PDC into the rack and tighten the provided four M6 screws. See **Figure 4-5**.



(Figure 4-5: Insert the Rack-mount PDC into Your Rack)

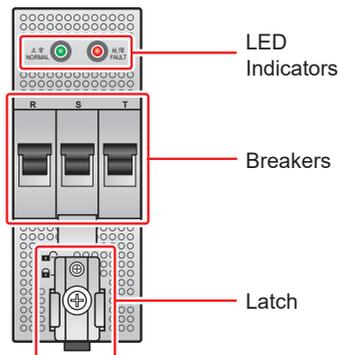
- 6 After installation, the front view of the rack-mount PDC is shown as **Figure 4-6**.



(Figure 4-6: Front View after Installation)

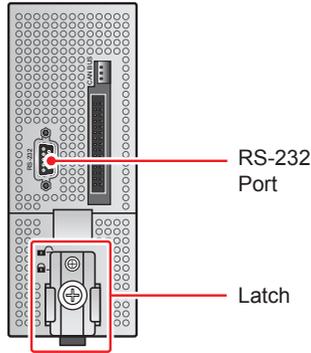
4.1.2 Removal of the Rack-mount PDC

- 1 Loosen the screw shown in **Figure 3-3** to open the rack-mount PDC's front panel.
- 2 Before turning off each hot-swappable breaker module's breaker, please make sure that its connected critical loads have been safely shut down. Otherwise, the critical loads won't be protected. Each hot-swappable breaker module (optional; at maximum 6) has three branch breakers.
- 3 Turn off all of the hot-swappable breaker modules' breakers in the rack-mount PDC. Please refer to **Figure 4-7**.



(Figure 4-7: Hot-swappable Breaker Module)

- 4) If the hot-swappable control module is connected with the RS-232 cable, please cut off all power supply first and then remove the RS-232 cable. Please refer to **Figure 4-8**.



(Figure 4-8: Hot-swappable Control Module)

- 5) The rack-mount PDC is not how-swappable. Before removing the rack-mount PDC, please remove all wiring connected to the front and rear panels of the rack-mount PDC.
- 6) If you install the rack-mount PDC in a rack, please reverse the procedures stated in **4.1.1 Installation/ Placement of the Rack-mount PDC** to remove the rack-mount PDC from your rack.

4.2 Installation & Removal of the Hot-swappable Control Module



WARNING!

1. Only qualified service personnel can perform installation and removal of the hot-swappable control module.
2. Before installation/ removal of the hot-swappable control module, please cut off all power.

4.2.1 Installation of the Hot-swappable Control Module

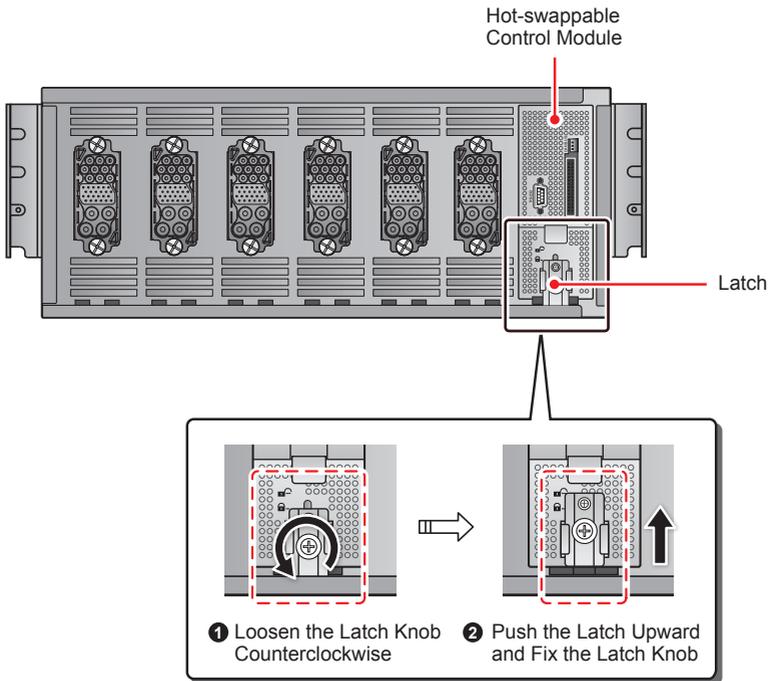
- 1) Loosen the screw shown in **Figure 3-3** to open the rack-mount PDC's front panel.
- 2) Face the front of the hot-swappable control module, aim the connector inside the rack-mount PDC (please refer to **Figure 3-4** for the connector's location),

and insert the hot-swappable control module along the rails until it snaps into place. Please note that the hot-swappable control module must be installed at the most right side of the rack-mount PDC (please refer to **Figure 4-11**).

- 3 Follow the actual requirements to decide whether the RS-232 cable (provided) should be connected or not.
- 4 Reinstall the rack-mount PDC's front panel.

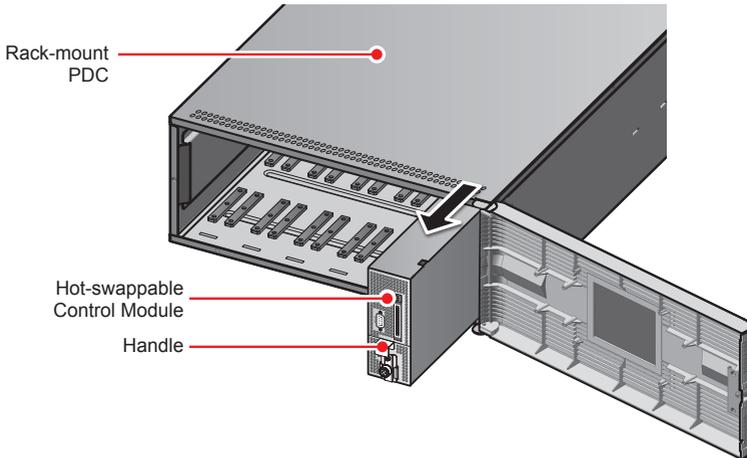
4.2.2 Removal of the Hot-swappable Control Module

- 1 Loosen the screw shown in **Figure 3-3** to open the rack-mount PDC's front panel.
- 2 Loosen the latch knob of the hot-swappable control module until it pops up ① and move the latch knob to the upper position ② and fix it firmly to cut off the hot-swappable control module's internal power ②.



(Figure 4-9: Loosen the Latch Knob, Move it to the Upper Position and Fix it Firmly)

- 3 Remove all wiring connected to the hot-swappable control module.
- 4 Pull out the hot-swappable control module from the rack-mount PDC.



(Figure 4-10: Pull out the Hot-swappable Control Module)



NOTE: The main input breaker and the TVSS module are optional. For information of installation/ removal of the main input breaker and the TVSS module, please contact qualified service personnel.

4.3 Installation & Removal of the Hot-swappable Breaker Module (Optional; at Maximum Six)



WARNING!

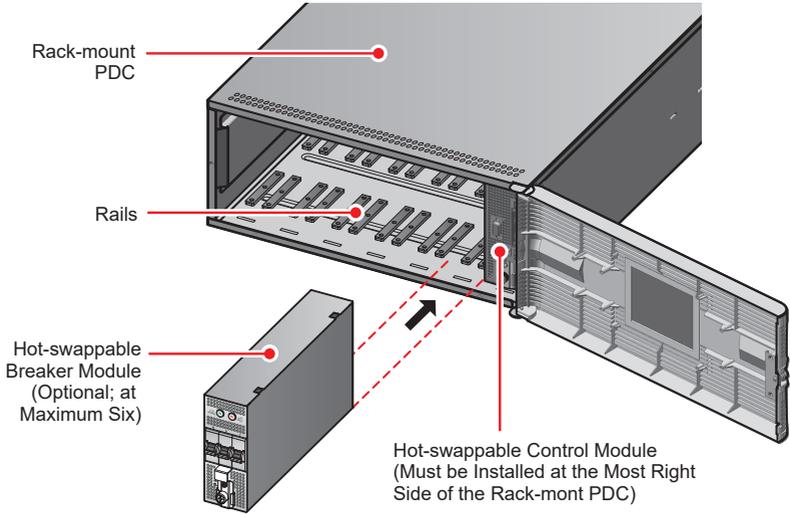
1. Only qualified service personnel can perform installation and removal of the hot-swappable breaker module (optional; at maximum six).
2. You can install at maximum six hot-swappable breaker modules (optional) in the rack-mount PDC. If you install less than six hot-swappable breaker modules (optional), it is suggested that you install the hot-swappable breaker modules dispersedly in the rack-mount PDC for proper ventilation.
3. Before installation/ removal of the hot-swappable breaker module (optional; at maximum six), please cut off all power.

4. You can choose to install different specifications (16A/ 20A/ 32A) of the hot-swappable breaker modules (optional; at maximum six) in the rack-mount PDC.
5. The removal of the hot-swappable breaker module (optional; at maximum six) will cut off the power supplied to its relevant critical loads.
6. The functions of the LED indicators of the hot-swappable breaker module (optional; at maximum six) are as follows. For LED's location, please refer to **Figure 4-7**.

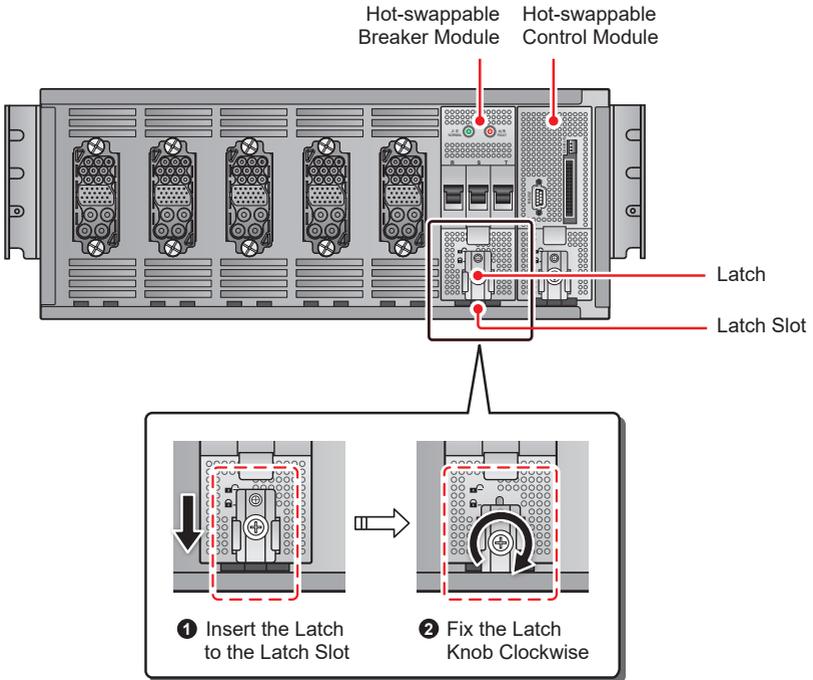
Red LED Indicator	ON: At least one of the hot-swappable breaker module's breakers is in the OFF position.
Green LED Indicator	ON: All of the three branch breakers of the hot-swappable breaker module (optional; at maximum six) are in the ON position.

4.3.1 Installation of the Hot-swappable Breaker Module (Optional; at Maximum Six)

- ① Loosen the screw shown in **Figure 3-3** to open the rack-mount PDC's front panel.
- ② Face the hot-swappable breaker module's LED indicators, aim the connector inside the rack-mount PDC (please refer to **Figure 3-4** for the connector's location), and insert the hot-swappable breaker module along the rails until it snaps into place. Please refer to **Figure 4-11**.
- ③ Insert the hot-swappable breaker module's latch into the rack-mount PDC's latch slot ① and firmly fix the latch knob into the  position ②. Please refer to **Figure 4-12**.
- ④ Reinstall the rack-mount PDC's front panel.



(Figure 4-11: Insert the Hot-swappable Breaker Module into the Rack-mount PDC)



(Figure 4-12: Lock the Hot-swappable Breaker Module's Latch Knob)

4.3.2 Removal of the Hot-swappable Breaker Module (Optional; at Maximum Six)

- 1 Loosen the screw shown in **Figure 3-3** to open the rack-mount PDC's front panel.
- 2 Turn off the breakers of the hot-swappable breaker module (optional; at maximum six) that you wish to remove. Please refer to **Figure 6-2**.
- 3 Loosen the latch knob of the hot-swappable breaker module (optional; at maximum six) that you wish to remove until it pops up and move the latch knob to the upper position  and fix it firmly (please reverse the procedures shown in **Figure 4-12**).
- 4 Pull out the hot-swappable breaker module (optional; at maximum six) that you wish to remove from the rack-mount PDC (please reverse the procedures shown in **Figure 4-11**).
- 5 Reinstall the rack-mount PDC's front panel.

Chapter 5 : Wiring

5.1 Pre-wiring Warnings

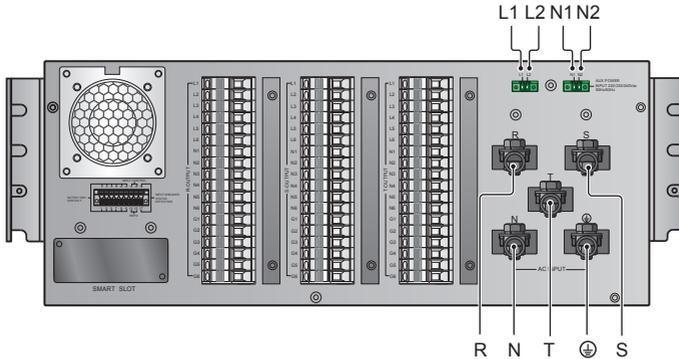
1. Please read this user manual thoroughly before wiring. Only qualified service personnel can perform installation, wiring, operation and maintenance. If you want to install the rack-mount PDC yourself, installation must be under the supervision of qualified service personnel.
2. Before wiring, ensure that the input power is completely cut OFF.
3. Install suitable conduits and bushings for the input/ output cables.
4. Please refer to national and local electrical codes for acceptable non-fuse breakers and cable sizes.
5. PVC cables with temperature resistance up to 105°C are suggested for wiring.
6. Check that the size, diameter and phase are correct for each cable that needs connecting to the rack-mount PDC. 0 AWG wires for input and 10 AWG wires for output are suggested if you use copper wires.
7. To protect the rack-mount PDC from overheating, wiring must not block or cover the rack-mount PDC's fan and vents.
8. Ensure that each cable is firmly fixed.
9. The rack-mount PDC's grounding terminal (⊕) must be grounded. Please use ring-type terminals for wiring.
10. Incorrect wiring could damage the rack-mount PDC or cause electric shock.

5.2 Input Wiring



NOTE: Please refer to **5.1 Pre-wiring Warnings** first.

(Rack-mount PDC Rear View)



(Figure 5-1: Wiring Terminals_Input)

A. If you don't install the main input breaker (optional) and the TVSS module (optional), please follow the procedures below to perform wiring.

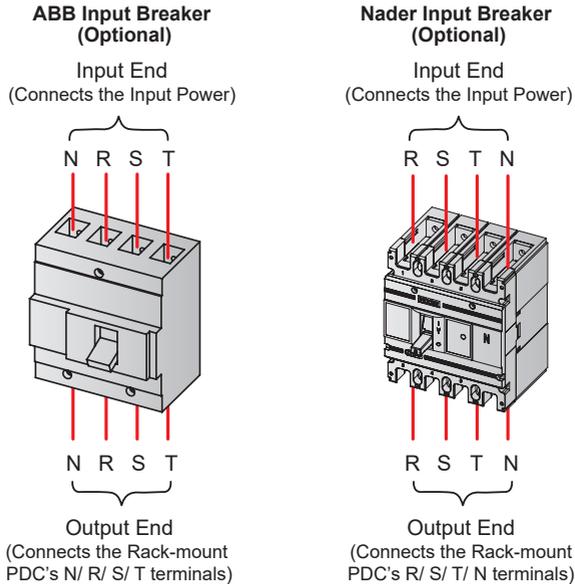
- 1 The wiring terminals are located at the rear of the rack-mount PDC (see **Figure 5-1**). Please use the provided shorting wires to short the L1 & L2 terminals and N1 & N2 terminals.
- 2 Connect the rack-mount PDC's R, S, T and N terminals with the input power.
- 3 Ground the rack-mount PDC's \oplus terminal.

B. If you install the main input breaker (optional), please follow the procedures below to perform wiring.

• Input Power Wiring:

- 1 Please follow the specifications of the main input breaker (optional) to choose appropriate length and diameters of power cables. There are two types of main input breakers (optional), ABB and Nader.
- 2 The wiring terminals are located at the rear of the rack-mount PDC (see **Figure 5-1**). Please follow **Figure 5-2** to connect the input end (N, R, S &

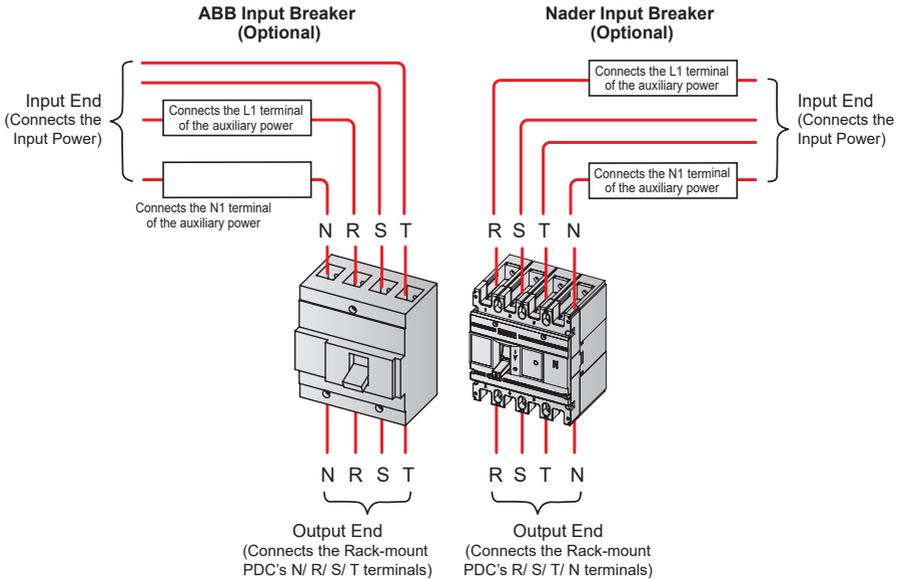
T) of the main input breaker (optional) to the input power and connect the output end (N, R, S & T) of the main input breaker (optional) to the N, R, S & T terminals of the rack-mount PDC respectively.



(Figure 5-2: Main Input Breaker (Optional) Wiring _ ABB & Nader)

- 3 The rack-mount PDC's \oplus terminal must be grounded.
 - 4 Make sure that all screws are firmly fixed and the phase of each cable connected to the input end and output end of the main input breaker (optional) is correct. If it is ABB main input breaker (optional), the phase from left to right is N, R, S & T. If it is Nader main input breaker (optional), the phase from left to right is R, S, T & N.
- **Auxiliary Power Wiring:**
- 1 Please follow the distance between the rack-mount PDC and the main input breaker (optional) to decide the length of power cables. Two 22 AWG cables, one red and one black, are suggested.
 - 2 The wiring terminals are located at the rear of the rack-mount PDC (see **Figure 5-1**). Use the red cable to connect the L1 terminal of the auxiliary power and the R terminal (input end) of the main input breaker (optional).

Use the black cable to connect the N1 terminal of the auxiliary power and the N terminal (input end) of the main input breaker (optional). Please refer to **Figure 5-3**.



(Figure 5-3: Auxiliary Power Wiring _ ABB & Nader)

3 Make sure that all screws are firmly fixed.

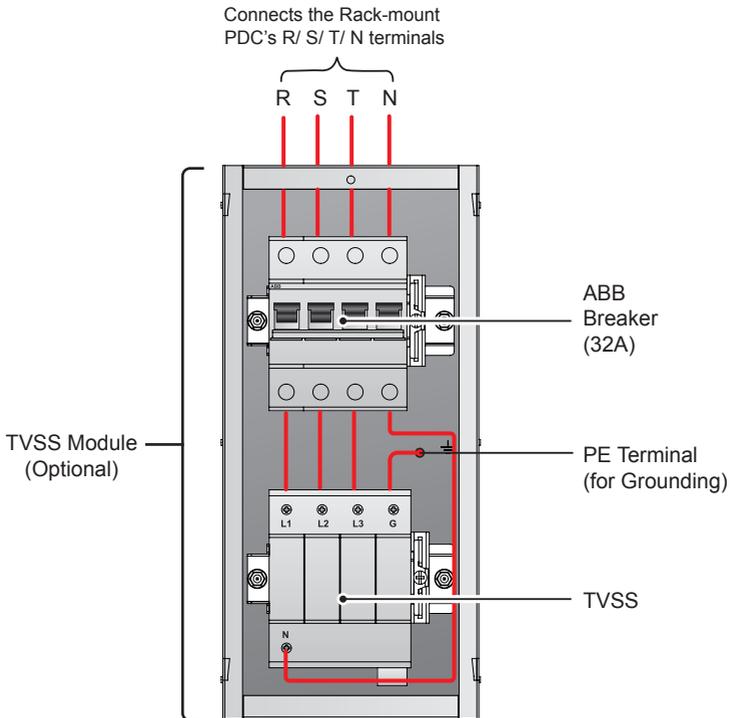
• **Wiring of the Main Input Breaker’s Auxiliary Contacts and Shunt Tripping Device:**

1 The main input breaker (optional) has auxiliary contacts and a shunt tripping device and they have been installed at the left side and the right side of the main input breaker (optional) respectively. For more information, please refer to the user manual of the main input breaker (optional).

2 To detect the status of the main input breaker (optional), please connect the auxiliary contacts’ two wires (N and NC) to Pin 17 and Pin 18 located at the rear of the rack-mount PDC respectively. To automatically turn off the main input breaker (optional) when emergency power off occurs, please connect the shunt tripping device’s two wires to Pin 14 (-12V) and Pin 16 (+12V) located at the rear of the rack-mount PDC respectively. For each Pin location, please refer to **3.4 Rear Panel**. For relevant installation information, please contact qualified service personnel.

C. If you install the TVSS module (optional), please follow the procedures below to perform wiring.

- 1 Before wiring, please make sure that the input power is completely cut OFF.
- 2 Check if the TVSS module (optional) is in good condition or not. If there is any damage or its status indicator becomes red, it means that the TVSS module (optional) cannot be used any more. If the status indicator shows green, it means that the TVSS module (optional) is normal.
- 3 Please select appropriate cables to connect the R, S, T & N terminals of the TVSS module (optional) to the R, S, T & N terminals of the rack-mount PDC (see **Figure 5-4**) . After that, ground the PE terminal of the TVSS module (optional).

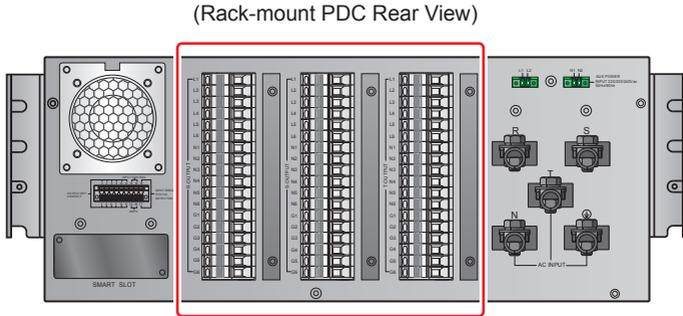


(Figure 5-4: TVSS Module (Optional) Wiring)

5.3 Output Wiring

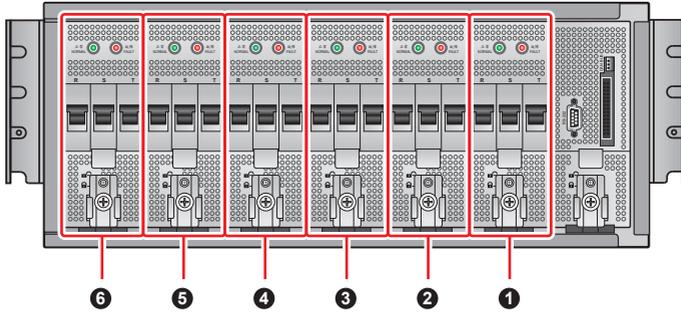


NOTE: Please refer to **5.1 Pre-wiring Warnings** first.



(Figure 5-5: Wiring Terminals_ Output)

- 1 The rack-mount PDC can connect to three-phase critical loads, single-phase critical loads, or three-phase and single-phase critical loads together. When the rack-mount PDC connect to the three-phase and single-phase critical loads together, each branch breaker's current cannot be over than the suggested de-rating specifications (refer to **Appendix 1: Technical Specifications**), and each branch breaker should averagely share the total loads.
- 2 The rack-mount PDC includes one hot-swappable control module and six hot-swappable breaker module slots. You can install at maximum six hot-swappable breaker modules (optional) in the rack-mount PDC. Please refer to **3.2 Front Panel (Control Panel)**. The hot-swappable breaker module (optional; at maximum six) has three different specifications, 16A, 20A and 32A.
- 3 You can install the hot-swappable breaker module (optional; at maximum six) in any of the six hot-swappable breaker module slots.
- 4 If you install six hot-swappable breaker modules (optional) in the rack-mount PDC, the No. of the six hot-swappable breaker modules (optional) are defined as 1, 2, 3, 4, 5, and 6 from the right to the left of the rear of the rack-mount PDC shown in the figure and table below. Each hot-swappable breaker module (optional; at maximum six) has three branch breakers, which are T-phase, S-phase and R-phase breakers. If you install six hot-swappable breaker modules (optional) in the rack-mount PDC, there will be a total of 18 branches, and the LCD will show #1, #2, #3...#18 to present these 18 branches. Please refer to the figure and table below for detailed information.



Slot No.	No. of the Hot-swappable Breaker Module	Breaker No.	Branch No. on the LCD	Phase	Relevant Output Wiring Terminal
①	Hot-swappable Breaker Module 1	Breaker 1	#1	T	L1
		Breaker 2	#2	S	L1
		Breaker 3	#3	R	L1
②	Hot-swappable Breaker Module 2	Breaker 4	#4	T	L2
		Breaker 5	#5	S	L2
		Breaker 6	#6	R	L2
③	Hot-swappable Breaker Module 3	Breaker 7	#7	T	L3
		Breaker 8	#8	S	L3
		Breaker 9	#9	R	L3
④	Hot-swappable Breaker Module 4	Breaker 10	#10	T	L4
		Breaker 11	#11	S	L4
		Breaker 12	#12	R	L4
⑤	Hot-swappable Breaker Module 5	Breaker 13	#13	T	L5
		Breaker 14	#14	S	L5
		Breaker 15	#15	R	L5
⑥	Hot-swappable Breaker Module 6	Breaker 16	#16	T	L6
		Breaker 17	#17	S	L6
		Breaker 18	#18	R	L6

- 5 When performing output wiring, the output wiring terminals that connect to the critical loads must match to the relevant hot-swappable breaker modules' slots. Please see the above figure and table for relevant information.

Only in the slots installed with hot-swappable breaker modules (optional; at maximum six) can the slots' relevant output wiring terminals connect to the critical loads. Please refer to the following examples.

Example 1:

If you install a hot-swappable breaker module (optional; at maximum six) in slot No. 1 and you wish to connect three-phase critical loads, the relevant output wiring terminals are R-phase L1 terminal, S-phase L1 terminal, T-phase L1 terminal, N1 terminal (any phase) and G1 terminal (any phase).

Example 2:

If you wish to connect single-phase critical loads, please connect the critical loads to the R-phase L1 terminal or S-phase L1 terminal or T-phase L1 terminal, and connect the critical loads' neutral line to the N1 terminal (any phase) and grounding line to the G1 terminal (any phase).

Example 3:

If you want to connect the three-phase critical loads and single-phase critical loads together, please follow above-mentioned two examples to connect the three-phase critical loads and single-phase critical loads respectively.

Chapter 6 : Start-up & Turn-off

6.1 Start-up of the Rack-mount PDC



WARNING!

Before initial start-up of the rack-mount PDC, please check the following to secure safe and normal operation of the connected critical loads.

- **Exterior Inspection**

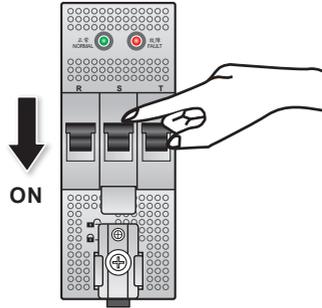
1. Check the exterior of the rack-mount PDC and see if any damage exists.
2. Check whether there is adequate space around all sides of the rack-mount PDC.

- **Interior Inspection**

1. Open the rack-mount PDC's front panel (please refer to **Figure 3-3**), check whether the hot-swappable control module and hot-swappable breaker module (optional; at maximum six) are installed properly and are firmly connected to the relevant connectors, and each latch is locked.
2. Remove any object or foreign matter that does not belong to the rack-mount PDC.
3. Check if any object or foreign matter blocks or covers the rack-mount PDC's vents or fan.
4. Check if wiring is correct.
5. Check if the rack-mount PDC is grounded.

Please follow below procedures to start up the rack-mount PDC:

Check if the fan runs normally. After confirmation, turn the breakers of the hot-swappable breaker modules (optional; at maximum six) that you want to use to the ON position.

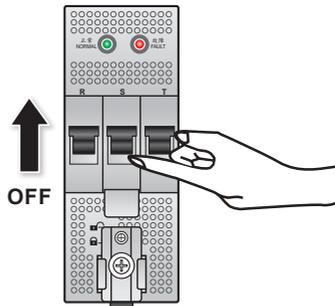


(Figure 6-1 : Turn the Breakers to the ON position)

6.2 Turn-off the Rack-mount PDC

If you want to turn off the rack-mount PDC, store it, maintain it or replace its components, you should correctly turn the rack-mount PDC off to ensure that the connected critical loads won't be damaged and the data won't be lost due to power-off. Please follow the procedures below.

- 1 If the critical loads connected to the hot-swappable breaker module (optional; at maximum six) have data-storage functions, please make sure that the data is saved before turning the critical loads off.
- 2 Turn each breaker of the hot-swappable breaker module (optional; at maximum six) to the OFF position.
- 3 If you install the main input breaker (optional), please turn it off.



(Figure 6-2: Turn the Breakers to the OFF position)

6.3 REPO Function



WARNING!

Only when you use Pin 13 & Pin 15 and install the main input breaker (optional) can REPO function be enabled. For each Pin information, please refer to **3.4 Rear Panel** and **Chapter 5. Wiring**.

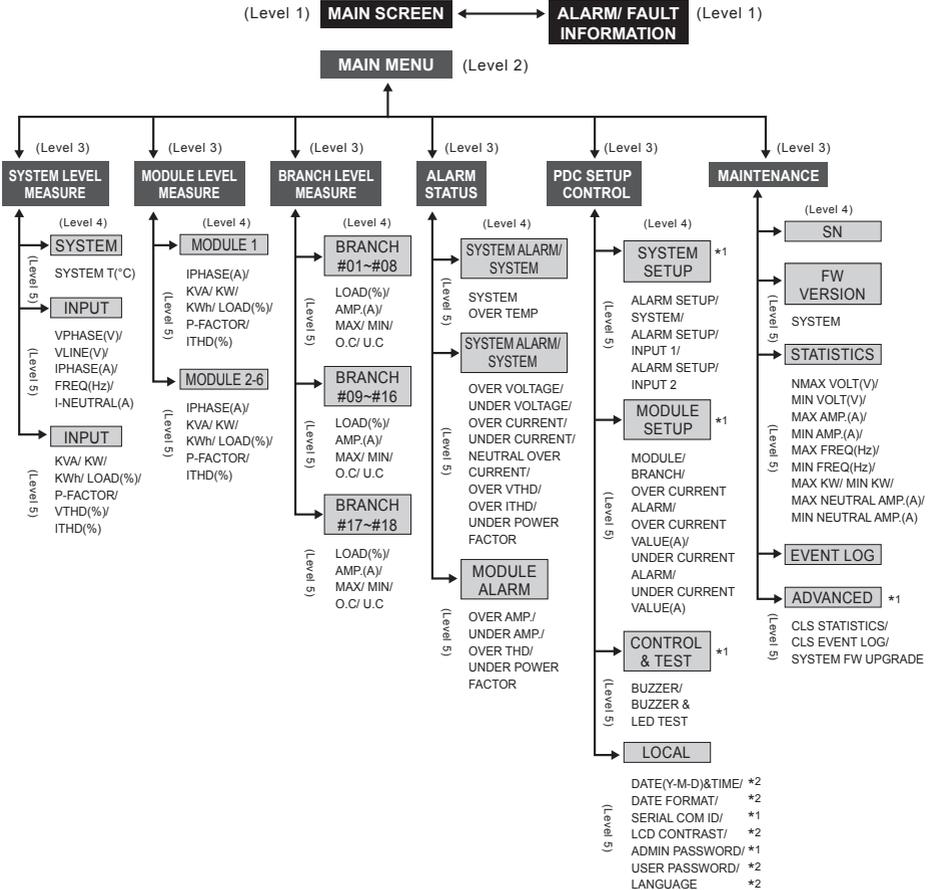
For emergency power off, please enable the user-supplied REPO switch. Only when the user-supplied REPO switch is enabled can the main input breaker (optional) be turned off.

Chapter 7 : Operation

7.1 LCD Display & Function Keys

- For information about the LCD and function keys, please refer to **3.2 Front Panel (Control Panel)**.
- It is suggested that you set up the date, time and password right after initial start-up. Please note that, to avoid a password leak, the password shown on the LCD will still remain 0000 even if the default password (0000) has been changed. Please refer to **7.10.4 Local Setup**.
- The LCD supports multi-language. The default language is English. If you wish to change the default language, please refer to **7.10.4 Local Setup**.
- The LCD shows current system status and event log. You can perform relevant settings and view parameters via it.
- The backlight automatically turns off after 5 minutes of inactivity. Press any key to awaken the LCD.

7.2 LCD Display Hierarchy



NOTE:

- *1: ADMINISTRATOR password is required. *2: USER password is required. Please refer to **7.3 Log in & Password**.
- All of the unit No., date, time, and event shown in this chapter are for reference only. Actual readings depend on the operation of the rack-mount PDC.

7.3 Log in & Password

There are two levels of password protection:

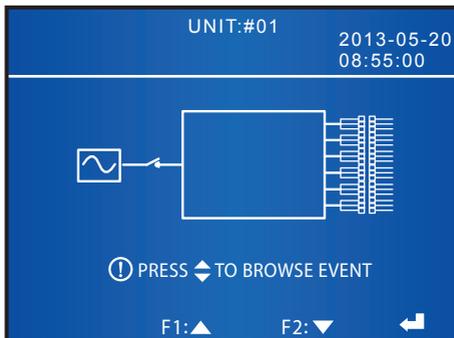
- **ADMINISTRATOR** password allows qualified service personnel to view and change all settings.
- **USER** password only allows general users to set up (1) DATE & TIME, (2) DATE FORMAT, (3) LCD CONTRAST, (4) USER PASSWORD and (5) LANGUAGE.

The default setting for USER password is 0000. For ADMINISTRATOR password, please contact service personnel. When you try to change a setting, the following screen appears prompting you to enter the corresponding password.



If an interval between settings is over five minutes, you have to login and enter the password again. If the password is wrong, the system will go back to the screen that you have selected the item for setup change.

7.4 Main Screen



In the Main Screen, you can check the system's date and time, the status of the main input breaker (optional), the status of each hot-swappable breaker module's breaker, and whether the hot-swappable breaker module (optional; at maximum 6) is installed.

If the message **ⓘ PRESS ↕ TO BROWSE EVENT** appears, it indicates that a warning event has occurred. Press F1 and F2 function keys to switch between pages to check all of the warning events. 60 seconds of inactivity will let the LCD go back to the Main Screen, or you can press **↩** to return to the Main Screen.

To clear the event logs, go to **MAIN MENU** → **MAINTENANCE** → **ADVANCED** → **CLEAR EVENT LOG**.

The backlight automatically turns off after 5 minutes of inactivity. Press any key to awaken the LCD.

7.5 Main Menu

In the Main Screen, press **↩** to enter into the Main Menu shown below. Please refer to the following chapters for details.



7.6 Check System Readings

Route : MAIN MENU → SYSTEM LEVEL MEASURE

UNIT:#01		2013-05-20 08:55:00
SYSTEM		
SYSTEM T(°C)	000.0	
 F1:▲ F2:▼		

UNIT:#01				2013-05-20 08:55:00
INPUT				
	L1-N/L2	L2-N/L3	L3-N/L1	
VPHASE(V)	217.6	218.1	215.2	
VLINE(V)	376.9	377.9	372.8	
IPHASE(A)	14.8	14.4	14.8	
FREQ(Hz)	0.0	0.0	0.0	
I-NEUTRAL(A)	0.0	0.0	0.0	
 F1:▲ F2:▼				

UNIT:#01				2013-05-20 08:55:00
INPUT				
	L1-N	L2-N	L3-N	
KVA	3.0	3.0	3.0	
KW	3.0	3.0	3.0	
KWh	3	3	14	
LOAD(%)	14.1	14.1	14.4	
P-FACTOR	1.00	1.00	1.00	
VTHD(%)	2.1	2.2	2.8	
ITHD(%)	1.4	1.5	2.1	
 F1:▲ F2:▼				

It displays the rack-mount PDC's system temperature and input data. Since input data is equal to output data, the screen will only show input data. Please use F1 and F2 function keys to switch between pages to view the relevant readings.

7.7 Check Module Readings

Route : MAIN MENU → MODULE LEVEL MEASURE

UNIT:#01			
		2013-05-20 08:55:00	
MODULE 1			
	L1-N	L2-N	L3-N
IPHASE(A)	25.4	25.2	25.6
KVA	3.0	3.0	3.0
KW	3.0	3.0	3.0
KWh	3	3	14
LOAD(%)	14.1	14.1	14.1
P-FACTOR	1.00	1.00	1.00
ITHD(%)	1.4	1.5	2.1
		F1:▲	F2:▼

UNIT:#01			
		2013-05-20 08:55:00	
MODULE 2~6			
	L1-N	L2-N	L3-N
IPHASE(A)	25.4	25.2	25.6
KVA	3.0	3.0	3.0
KW	3.0	3.0	3.0
KWh	3	3	14
LOAD(%)	14.1	14.1	14.1
P-FACTOR	1.00	1.00	1.00
ITHD(%)	1.4	1.5	2.1
		F1:▲	F2:▼

It displays the relevant readings of the hot-swappable breaker module (optional; at maximum six). Please use F1 and F2 function keys to switch between pages to view the relevant readings.

7.8 Check Branch Readings

Route: MAIN MENU → BRANCH LEVEL MEASURE

UNIT:#01		2013-05-20 08:55:00				
BRANCH						
	LOAD(%)	AMP.(A)	MAX/	MIN/	O.C/	U.C
#01	161.8/	25.9/	26.3/	1.0/	N/	N
#02	163.1/	26.1/	26.4/	1.0/	N/	N
#03	162.5/	26.0/	26.3/	1.1/	N/	N
#04	163.1/	26.1/	26.4/	1.0/	N/	N
#05	161.2/	25.8/	26.2/	1.1/	N/	N
#06	163.1/	26.1/	26.5/	1.0/	N/	N
#07	161.8/	25.9/	26.3/	0.9/	N/	N
#08	162.5/	26.0/	26.3/	1.0/	N/	N


F1:▲
F2:▼

UNIT:#01		2013-05-20 08:55:00				
BRANCH						
	LOAD(%)	AMP.(A)	MAX/	MIN/	O.C/	U.C
#09	161.8/	25.9/	26.3/	1.0/	N/	N
#10	163.1/	26.1/	26.4/	1.0/	N/	N
#11	162.5/	26.0/	26.3/	1.1/	N/	N
#12	163.1/	26.1/	26.4/	1.0/	N/	N
#13	161.2/	25.8/	26.2/	1.1/	N/	N
#14	163.1/	26.1/	26.5/	1.0/	N/	N
#15	161.8/	25.9/	26.3/	0.9/	N/	N
#16	162.5/	26.0/	26.3/	1.0/	N/	N


F1:▲
F2:▼

UNIT:#01		2013-05-20 08:55:00				
BRANCH						
	LOAD(%)	AMP.(A)	MAX/	MIN/	O.C/	U.C
#17	161.8/	25.9/	26.3/	1.0/	N/	N
#18	163.1/	26.1/	26.4/	1.0/	N/	N


F1:▲
F2:▼

It displays each hot-swappable breaker module's branch relevant readings. There will be at maximum 18 branches' data if you install at maximum six hot-swappable breaker modules (optional) in the rack-mount PDC. Please use F1 and F2 function keys to switch between pages to view the relevant readings.

7.9 Check Alarm Status

Route : MAIN MENU → ALARM STATUS

UNIT:#01		2013-05-20 08:55:00
SYSTEM ALARM/SYSTEM		
	STATUS	VALUE
SYSTEM OVER TEMP	N	27.3


F1:▲
F2:▼

UNIT:#01		2013-05-20 08:55:00
SYSTEM ALARM/SYSTEM		
	STATUS	VALUE
OVER VOLTAGE	N	0.0
UNDER VOLTAGE	N	0.0
OVER CURRENT	N	19.6
UNDER CURRENT	N	19.0
NEUTRAL OVER CURRENT	N	16.0
OVER VTHD	N	000.0
OVER ITHD	N	000.0
UNDER POWER FACTOR	N	00.00


F1:▲
F2:▼

UNIT:#01		2013-05-20 08:55:00
MODULE ALARM		
	1	2
OVER AMP.	N 5.7	N 5.4
UNDER AMP.	N 5.4	N 5.4
OVER THD	N 000.0	N 000.0
UNDER POWER FACTOR	N 00.00	N 00.00


F1:▲
F2:▼

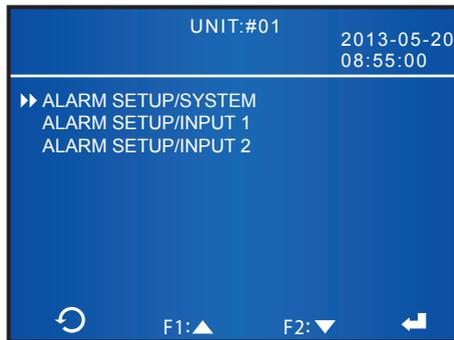
It displays the system's alarm status and the alarm status of the hot-swappable breaker module (optional; at maximum six). Please use F1 and F2 function keys to switch between pages to view the relevant readings.

7.10 PDC Setup & Control

7.10.1 System Setup

Route : MAIN MENU → PDC SETUP & CONTROL → SYSTEM SETUP

To enable the rack-mount PDC's monitoring and alarm functions, you must set up alarm threshold and alarm switch for the system, hot-swappable breaker module (optional; at maximum six), and branch (at maximum eighteen). When the rack-mount PDC detects relevant abnormalities, the buzzer will go off and alarm records will be tracked in the event log.



- **ALARM SETUP/ SYSTEM**

Set up the system's over temperature value and enable or disable the alarms of voltage phase lack, voltage unbalance, and main input breaker (optional).



NOTE : If you install the main input breaker (optional), please set up the 'MAIN BREAK' as 'ENABLE'; if you don't, please set up the 'MAIN BREAK' as 'DISABLE' (default).

- **ALARM SETUP/ INPUT 1**

Set up over voltage value, under voltage value, over AMP. value, under AMP. value, neutral over Amp. value and under power factor value.

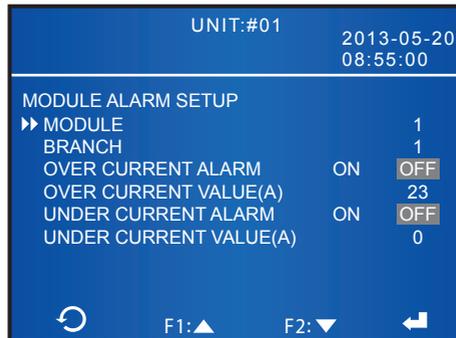
- **ALARM SETUP/ INPUT 2**

Set up over VTHD value and over ITHD value.

7.10.2 Module Setup

Route : MAIN MENU → PDC SETUP & CONTROL → MODULE SETUP

In the following screen, you can set up relevant alarms for a specific module.



- **MODULE**

Select the No. (1/ 2/ 3/ 4/ 5/ 6) of the hot-swappable breaker module that you want to set up.

- **BRANCH**

Select the No. (1/ 2/ 3) of the hot-swappable breaker module's branch that you want to set up.

- **OVER CURRENT ALARM**

Set up the over current alarm for the selected hot-swappable breaker module's branch.

- **OVER CURRENT VALUE (A)**

Set up the over current value for the selected hot-swappable breaker module's branch.

- **UNDER CURRENT ALARM**

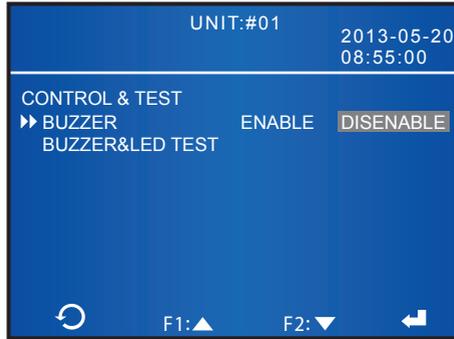
Set up the under current alarm for the selected hot-swappable breaker module's branch.

- **UNDER CURRENT VALUE (A)**

Set up the under current value for the selected hot-swappable breaker module's branch.

7.10.3 Control & Test

Route : MAIN MENU → PDC SETUP & CONTROL → CONTROL & TEST



- **BUZZER**

Enable or disable the buzzer.

You can also press the button to enable the buzzer or press the button to disable the buzzer.

- **BUZZER & LED TEST**

To test whether the buzzer and LED indicators are normal, please select '**BUZZER & LED TEST**' and press the key. If the four LED indicators on the control panel light up and the buzzer goes off, it means that they are normal.



NOTE : If the test result is abnormal, please contact your local dealer or customer service.

7.10.4 Local Setup

Route : MAIN MENU → PDC SETUP & CONTROL → LOCAL

It is suggested that you set up the date, time and password right after wiring. Please note that, to avoid a password leak, the password shown on the LCD will still remain 0000 even if the default password (0000) has been changed.

In the LOCAL screen shown below, you can set up the items as follows.



- **DATE (Y-M-D) & TIME**

Set up the date and time.

- **DATE FORMAT**

Select a date format you like.

- **SERIAL COM ID**

Set up the rack-mount PDC's serial COM ID (1~2).

- **LCD CONTRAST**

Adjust the LCD display contrast (1~5). The default setting is 1.

- **ADMIN PASSWORD**

Change the administrator password (four-digit).

- **USER PASSWORD**

Change the user password (four-digit).

- **LANGUAGE**

Change the display language. The default setting is ENGLISH.

7.11 Maintenance

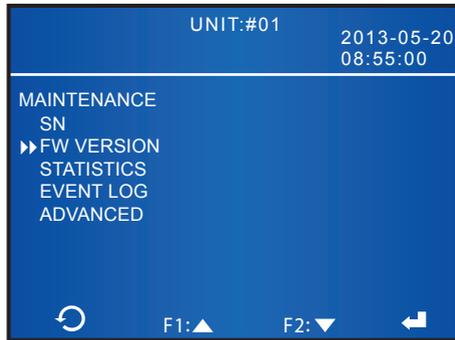
7.11.1 Check Serial Number

Route : **MAIN MENU** → **MAINTENANCE** → **SN**

Following the route above, you can check the serial number.

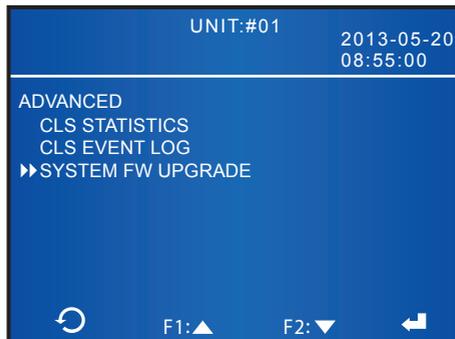
7.11.2 Check/ Upgrade Firmware Version

- To inquire about the firmware version, please go to **MAIN MENU** → **MAINTENANCE** → **FW VERSION**.



- To upgrade the firmware version, please go to **MAIN MENU** → **MAINTENANCE** → **ADVANCED** → **SYSTEM FW UPGRADE**.

If you need to upgrade the firmware version, please contact service personnel.



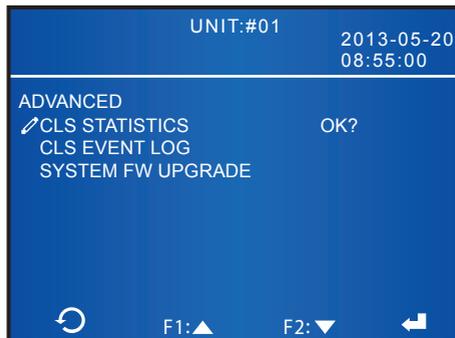
7.11.3 Check/ Clear Statistics

- To inquire about the statistics, please go to **MAIN MENU** → **MAINTENANCE** → **STATISTICS**.



To clear the statistics, please go to **MAIN MENU** → **MAINTENANCE** → **ADVANCED** → **CLS STATISTICS**.

Once you select 'OK?' and press the ◀ button, all statistics will be cleared. You need the administrator password to execute the action.



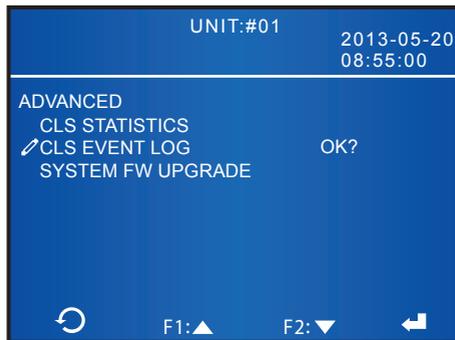
7.11.4 Check/ Clear Event Log

- To inquire about the event logs, please go to **MAIN MENU** → **MAINTENANCE** → **EVENT LOG**.



To clear the event logs, please go to **MAIN MENU** → **MAINTENANCE** → **ADVANCED** → **CLS EVENT LOG**.

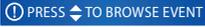
Once you select ‘OK?’ and press the **◀** button, all event logs will be cleared. You need the administrator password to execute the action.



7.12 Reset LCD Display

When the LCD display is abnormal, please press the F1 and F2 function keys simultaneously to reset the LCD display. This won't influence the saved settings and data.

7.13 Check Warning Events

In the Main Screen, if the message  appears, it indicates that a warning event has occurred. Press F1 and F2 function keys to switch between pages to check all of the warning events. 60 seconds of inactivity will let the LCD go back to the Main Screen, or you can press  to return to the Main Screen.

To clear the event logs, please go to **MAIN MENU** → **MAINTENANCE** → **ADVANCED** → **CLS EVENT LOG**.

Chapter 8 : Optional Accessories

There are several optional accessories available for the rack-mount PDC. Please refer to the table below for the optional accessories and their functions.

No.	Fault	Solution
1	SNMP IPv6 Card	Monitors the rack-mount PDC status via SNMP protocol.
2	Hot-swappable Breaker Module	16A/ 20A/ 32A power distribution module (3-pole).
3	Main Input Breaker	ABB/ Nader input breaker (63A/ 100A/ 160A).
4	TVSS Module	For surge protection.



NOTE :

1. For detailed installation and operation of any accessory mentioned above, please refer to the Quick Guide, User Guide, or Installation & Operation Guide included in the package of the relevant optional accessory.
2. If you want to buy any accessory mentioned above, please contact your local dealer or customer service.

Chapter 9 : Maintenance

• Regular Maintenance

A. To ensure the rack-mount PDC's normal operation, please regularly check:

1. If each component is normal and firmly fixed.
2. If the fan runs normally.
3. If any dust or foreign matter exists.
4. If vents are blocked. Regularly clean the rack-mount PDC, especially its slits and openings, to ensure that the air freely flows into the rack-mount PDC to avoid overheating. If necessary, use an air-gun to clean the slits and openings to prevent any object from blocking or covering the areas.

B. The following inspection table is suggested:

When	Inspection Items
24 Hours after Installation	1. Check if each component is normal and firmly fixed.
	2. Check if the fan runs normally.
30 Days after Installation	1. Check if each component is normal and firmly fixed.
	2. Check if the fan runs normally.
Every 6 Months	1. Check if each component is normal and firmly fixed.
	2. Check if the fan runs normally.
	3. Clean dust and check if the vents ventilate well.
Every Year	1. Check if internal components such as breakers and wiring terminals have any loose problems.
	2. Check if the fan runs normally.
	3. Clean dust and check if the vents ventilate well.
	4. Remove any object or foreign matter that does not belong to the rack-mount PDC.

- **Component Replacement or Maintenance**

If the breakers of the hot-swappable breaker module (optional; at maximum six) and cables are worn-out or damaged and need replacement, please contact your local dealer or customer service.

- **Storage**

Storage temperature : $-20^{\circ}\text{C} \sim 40^{\circ}\text{C}$ ($-4^{\circ}\text{F} \sim 104^{\circ}\text{F}$)

Storage relative humidity : $< 90\%$



NOTE:

Please ask your local dealer or customer service for more maintenance information. Do not perform maintenance if you are not trained for it.

Chapter 10 : Troubleshooting

When you see the following alarm messages appear on the LCD, please follow the solutions shown below.

No.	Alarm Message	Possible Cause	Solution
1	RPDC#n Ln INPUT VOLTAGE ABNORMAL	<ol style="list-style-type: none"> 1. Input voltage is out of spec. 2. Input wiring is missing. 	<ol style="list-style-type: none"> 1. Please check the input voltage. 2. Please check if the input wiring has a good connection.
2	RPDC#n TOTAL INPUT NEUTRAL CURRENT HIGH	Overload	<ol style="list-style-type: none"> 1. Please reduce the critical loads. 2. Please contact your service personnel.
3	RPDC#n Ln INPUT CURRENT HIGH	Overload	Please reduce the critical loads.
4	RPDC#n Ln INPUT CURRENT IS OVER LIMIT	Overload	Please reduce the critical loads.
5	RPDC#n Ln INPUT CURRENT LOW	Total loads are lower than the setup range.	<ol style="list-style-type: none"> 1. Please check the critical loads. 2. Please check wiring.
6	RPDC#n SYSTEM OVERLOAD	Overload	<ol style="list-style-type: none"> 1. Please reduce the critical loads. 2. Please check wiring.
7	RPDC#n SYSTEM ENVIRONMENT TEMP HIGH	The fan has abnormalities or the vents are blocked.	<ol style="list-style-type: none"> 1. Please check the fan and vents. 2. Please decrease the ambient temperature.

No.	Alarm Message	Possible Cause	Solution
8	RPDC#n INPUT POWER ABNORMAL	System abnormal	Please contact your service personnel.
9	RPDC#n FRAM ABNORMAL	System abnormal	Please contact your service personnel.
10	RPDC#n FAN#n FAIL	<ol style="list-style-type: none"> 1. Dust is in the fan or the fan is blocked. 2. The fan is damaged. 	<ol style="list-style-type: none"> 1. Please clean the fan. 2. Please check the fan fuse. 3. Please contact your service personnel.
11	RPDC#n B#nn CIRCUIT BREAKER OPEN	Overload	<ol style="list-style-type: none"> 1. Please reduce the critical loads. 2. Please contact your service personnel.
12	RPDC#n B#nn CURRENT HIGH	Overload	Please reduce the critical loads.
13	RPDC#n B#nn CURRENT LOW	Total loads are lower than the setup range.	<ol style="list-style-type: none"> 1. Please check the critical loads. 2. Please check wiring.
14	RPDC#n COMMUNICATION FAIL	<ol style="list-style-type: none"> 1. Communication wire is not well connected. 2. System failure 	<ol style="list-style-type: none"> 1. Please reconnect the communication wire and confirm that it is firmly connected. 2. Please contact your service personnel.



NOTE:

If all possible causes are eliminated but the alarm still appears, please contact your local dealer or customer service.

Appendix 1 : Technical Specifications

Model		Rack-mount PDC		
Main Input Breaker (A)		63	100	160
Input	Nominal Voltage	220/380V, 230/400V, 240/415V (3-phase, 4-wire + G)		
	Voltage Range	220/380V \pm 15%		
	Frequency Range	50/60Hz \pm 5%		
Output	Nominal Voltage	220/380V, 230/400V, 240/415V (3-phase, 4-wire + G)		
Display		LED indicators; LCD (Multi-language supported)		
Interface	Standard	RS-232 port x 1, Smart slot x 1, Output dry contact x 6, REPO x 1		
Environment	Operating Temperature	0 ~ 40°C		
	Relative Humidity	90% (non-condensing)		
	Audible Noise	<70 dBA in normal mode (at a distance of 1 meter in front of the rack-mount PDC)		
	Protection (IP Degree)	IP 20		
Others	Parallel Redundancy	N/A		
	Emergency Power Off	Yes (Remote)		
Physical	Dimensions (Wx Dx H)	430 x 665 x 173 mm		
	Weight	38kg (Max.)		
	Hot-Swappable Breaker Module	1~6 (at maximum 18-pole supported)		

Branch Breaker	16A	20A	32A
De-rating of Branch Breaker when environment temperature at 25°C	12A	15A	23A
De-rating of Branch Breaker when environment temperature at 40°C	11A	14A	21A



NOTE:

1. Please refer to the rating label for the safety rating.
2. All specifications are subject to change without prior notice.

Appendix 2 : Warranty

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship within the warranty period. If the product has any failure problem within the warranty period, Seller will repair or replace the product at its sole discretion according to the failure situation.

This warranty does not apply to normal wear or to damage resulting from improper installation, operation, usage, maintenance or irresistible force (i.e. war, fire, natural disaster, etc.), and this warranty also expressly excludes all incidental and consequential damages.

Maintenance service for a fee is provided for any damage out of the warranty period. If any maintenance is required, please directly contact the supplier or Seller.



WARNING!

The individual user should take care to determine prior to use whether the environment and the load characteristic are suitable, adequate or safe for the installation and the usage of this product. The User Manual must be carefully followed. Seller makes no representation or warranty as to the suitability or fitness of this product for any specific application.

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