

# SolaHD S5KC MBC

User Manual — Rack-Mount Maintenance Bypass Cabinet



## Contacting EMERSON Industrial Automation-SolaHD For Support

To contact Emerson Industrial Automation SolaHD Services for information or repair service in the United States, call 1-800-377-4384, Option# 2. SolaHD offers a complete range of start-up services, repair services, preventive maintenance plans and service contracts.

For repair or maintenance service outside the 48 contiguous United States, contact SolaHD Services, if available in your area. For areas not covered by SolaHD Services, the authorized distributor is responsible for providing qualified, factory-authorized service.

For SolaHD Services to assist you promptly please have the following information available:

Part numbers: \_\_\_\_\_

Serial numbers: \_\_\_\_\_

Rating: \_\_\_\_\_

Date purchased: \_\_\_\_\_

Date installed: \_\_\_\_\_

Location: \_\_\_\_\_

Input voltage/frequency: \_\_\_\_\_

Output voltage/frequency: \_\_\_\_\_

DC source reserve time: \_\_\_\_\_

**Website:** [www.solahd.com](http://www.solahd.com)

**Technical Services E-Mail:** [solahd.technicalservices@emerson.com](mailto:solahd.technicalservices@emerson.com)

# Contents

<b>Important Safety Precautions</b>	<b>1</b>
Save these Instructions . . . . .	1
Glossary of Symbols . . . . .	3
<b>1.0 General Description</b>	<b>4</b>
1.1 System Description . . . . .	4
1.2 Appearance and Components . . . . .	4
1.2.1 Bypass Indicator LED. . . . .	5
1.2.2 UPS Indicator LED . . . . .	5
1.2.3 Output Indicator LED . . . . .	5
1.3 Features . . . . .	5
1.4 Operating Mode . . . . .	6
1.4.1 UPS Mode. . . . .	6
1.4.2 Maintenance Bypass Mode. . . . .	6
<b>2.0 Installation</b>	<b>7</b>
2.1 Unpacking Inspection . . . . .	7
2.2 Installation Environment . . . . .	7
2.3 Installation Procedures. . . . .	7
2.4 Cable Selection and Connection . . . . .	11
2.4.1 Cable Selection . . . . .	11
2.4.2 Cable Connection for 200-240V input/output. . . . .	12
2.4.3 Cable Connection for 200-240V input ; 200/100-240/120 V output with integral output transformer. . . . .	13
2.4.4 Cable Connection for 200/100-240/120V input/output . . . . .	15
<b>3.0 Operation</b>	<b>16</b>
3.1 Startup . . . . .	16
3.2 Shutdown (with Loss of All Power) . . . . .	16
3.3 Transfer of the System from UPS to Maintenance Bypass. . . . .	16
3.4 Transfer of the System from Maintenance Bypass to UPS. . . . .	17
<b>4.0 Troubleshooting</b>	<b>18</b>
<b>5.0 Specifications</b>	<b>19</b>
<b>6.0 PAD—Optional</b>	<b>20</b>
6.1 Introduction. . . . .	20
6.2 Installing the PAD . . . . .	21

# Figures

Figure 1 — General SolaHD S5KC MBC appearance . . . . .	4
Figure 2 — Components on the front of the SolaHD S5KC MBC . . . . .	4
Figure 3 — Parts on the rear of the SolaHD S5KC MBC . . . . .	5
Figure 4 — Operation in UPS Mode . . . . .	6
Figure 5 — Operation in Maintenance Bypass Mode . . . . .	6
Figure 6 — Installing the cage nuts. . . . .	8
Figure 7 — Attaching the rear of the rack—mount rail kit . . . . .	8
Figure 8 — Securing the front of the rack—mount rails . . . . .	9
Figure 9 — Installing the SolaHD S5KC MBC . . . . .	9
Figure 10 — Completed view of the SolaHD S5KC MBC installation . . . . .	10
Figure 11 — Remove the conduit boxes . . . . .	11
Figure 12 — Connection of SolaHD S5KC MBC's upper terminal block (to/from UPS unit) . . . . .	12
Figure 13 — Connection of SolaHD S5KC MBC's lower terminal block (from main AC source/to main distribution panel) . . . . .	12
Figure 14 — Connection of SolaHD S5KC MBC's upper terminal block (to/from UPS unit) . . . . .	12
Figure 15 — Connection of SolaHD S5KC MBC's lower terminal block (from main AC source/to main distribution panel) . . . . .	13
Figure 16 — Connection of SolaHD S5KC MBC's upper terminal block (to/from UPS unit) . . . . .	13
Figure 17 — Connection of SolaHD S5KC MBC's lower terminal block(from main AC source / to main distribution panel) . . . . .	14
Figure 18 — Connection of the upper terminal block of the SolaHD S5KC MBC (to/from UPS unit) . . . . .	15
Figure 19 — Connection of the lower terminal block of the SolaHD S5KC MBC (from main AC source / to main distribution panel) . . . . .	15
Figure 20 — Remove the cover. . . . .	21
Figure 21 — Attach the PAD . . . . .	21

# Tables

Table 1 — Cables and protection grade . . . . .	11
Table 2 — Installation reference . . . . .	11
Table 3 — Connections, upper terminal block, single-phase input, L-N-PE (50 Hz) or L-L-G (60Hz) . . . . .	13
Table 4 — Connections, lower terminal block, single-phase input, L-N-PE (50Hz) or L-L-G (60Hz) . . . . .	14
Table 5 — Troubleshooting . . . . .	18
Table 6 — Specifications. . . . .	19
Table 7 — Technical specifications of the PAD (PD2-101 ~ PD2-105) . . . . .	20
Table 8 — Technical specifications of the PAD (PD2-106 ~ PD2-109) . . . . .	20
Table 9 — Technical specifications of the PAD (PD2-200 ~ PD2-204) . . . . .	20

# IMPORTANT SAFETY PRECAUTIONS

## SAVE THESE INSTRUCTIONS

This manual contains important safety instructions. Read all safety, installation and operating instructions before operating the parallel UPS system. Adhere to all warnings on the unit and in this manual. Follow all operating and user instructions. Individuals must fully understand this equipment to install and operate it.

The SolaHD S5KC MBC (maintenance bypass cabinet) is designed for commercial/industrial use only. It is not intended for use with life support or other designated critical devices. Maximum load must not exceed that shown on the rating label of the maintenance bypass cabinet (MBC). Install and operate the SolaHD S5KC MBC only in a clean indoor environment, free of conductive contaminants, moisture, flammable liquids, gases and corrosive substances. The SolaHD S5KC MBC contains no user-serviceable parts. Refer all faults to your local dealer, local Emerson Industrial Automation® representative or Emerson Industrial Automation SolaHD Services.

The SolaHD S5KC modular UPS system with MBC is designed for use on a properly earthed (grounded), 200-240VAC, 50 or 60Hz supply. The system must be installed only by properly trained and qualified personnel. A qualified electrician must review and approve customer-supplied wiring, circuit breakers and intended loads and verify correct input, output and earth connections to ensure compliance with the technical standards and local electrical codes.

### **WARNING**

**RISK OF ELECTRICAL SHOCK, FIRE AND HIGH SHORT CIRCUIT CURRENT MAY RESULT IN INJURY OR DEATH.**

**The precautions below must be followed before replacing the battery pack:**

- Wear rubber gloves and boots.
- Remove rings, watches and other metal objects.
- Use tools with insulated handles.
- Do not lay tools or other metal objects on the batteries.
- If the battery kit is damaged in any way or shows signs of leakage, contact your local Emerson representative immediately.
- Do not dispose of batteries in a fire. The batteries may explode.
- Handle, transport and recycle batteries in accordance with local regulations.

### **WARNING**

**RISK OF ELECTRICAL SHOCK, FIRE AND HIGH SHORT CIRCUIT CURRENT MAY RESULT IN INJURY OR DEATH.**

**The SolaHD S5KC MBC has been designed and manufactured to ensure personal safety, but improper use can result in electrical shock or fire. To ensure safety, follow the precautions below:**

- Turn off the SolaHD S5KC MBC.
- **BE SURE TO** unplug the SolaHD S5KC MBC before cleaning.
- Clean the unit with a dry cloth. **DO NOT USE LIQUID OR AEROSOL CLEANERS!**
- Never block or insert any objects into the ventilation holes or other openings of the MBC.
- Do not place the MBC power cord where it might be damaged. Periodically inspect the cord for damage.

## Electromagnetic Compatibility

The SolaHD S5KC MBC complies with the limits of Category C2, pursuant to IEC/EN/AS 62040-2, and for a Class A digital device, pursuant to Part 15 of FCC rules. Operation is subject to the following conditions:

- The output cables must be no longer than 10m (32ft).
- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation. Operating this device in a residential area is likely to cause harmful interference that users must correct at their own expense.

The SolaHD S5KC MBC complies with the requirements of EMC Directive and the relevant published technical standards. Continued compliance requires installation in accordance with these instructions and use of accessories approved by Emerson.

## NOTICE

**This is a Category C2 UPS product. In a residential environment, this product may cause radio interference, in which case the user may be required to take additional measures.**

**Operate the unit in an indoor environment only in an ambient temperature range of 0-40°C (32-104°F). Install it in a clean environment, free from moisture, flammable liquids, gases and corrosive substances.**

**This SolaHD S5KC MBC contains no user-serviceable parts except the internal battery pack. The unit's On/Off push buttons do not electrically isolate internal parts. Under no circumstances attempt to gain access internally, due to the risk of electric shock or burn.**

**Do not continue to use the SolaHD S5KC MBC if the front panel indications are not in accordance with these operating instructions or the performance alters in use. Refer all faults to your Emerson representative or SolaHD Services.**

**Servicing of batteries must be performed by properly trained and qualified personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from the batteries. Proper disposal of batteries is required. Refer to your local laws and regulations for disposal requirements.**

**Never block or insert any object into the ventilation holes or other openings.**

**DO NOT CONNECT equipment that could overload the UPS or demand DC current from the SolaHD S5KC MBC, for example: electric drills, vacuum cleaners, laser printers, hair dryers or any appliance using half-wave rectification.**

**Storing magnetic media on top of the SolaHD S5KC MBC may result in data loss or corruption.**

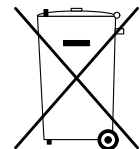
## Information for the Protection of the Environment

This unit makes use of components dangerous for the environment. The components removed must be taken to specialized collection and disposal centers.

**NOTICE TO EUROPEAN UNION CUSTOMERS: DISPOSAL OF OLD APPLIANCES**—This product has been supplied from an environmentally aware manufacturer that complies with the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/CE.

The symbol at right is placed on this product to encourage recycling wherever possible. Recycle this product through a recycling facility at the end of its service life. Do not dispose of this product as unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of waste electrical and electronic equipment (WEEE).

For information regarding the disposing of this equipment, go to [www.SolaHD.com](http://www.SolaHD.com) or contact Emerson's worldwide technical support. Refer to the back page of this manual for contact information



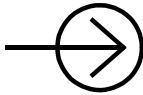
## GLOSSARY OF SYMBOLS



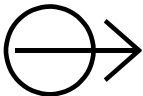
Risk of electrical shock



Indicates caution followed by important instructions



AC input



AC output



Consult the manual



Recycle



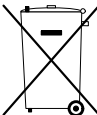
Equipment grounding conductor



Bonded to ground



AC voltage



WEEE

# 1.0 GENERAL DESCRIPTION

Read this manual thoroughly to ensure proper installation and operation of this unit.

Installation must be performed by properly trained and qualified personnel. General operations can be conducted with no need of specialized training.

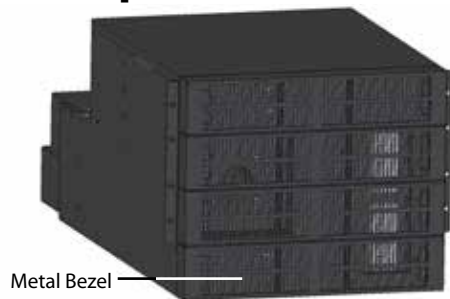
This chapter describes the SolaHD S5KC MBC, including appearance, components, features, operating mode and specifications.

## 1.1 System Description

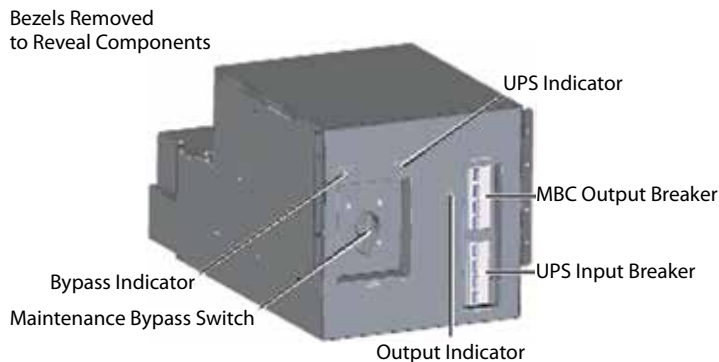
This rack-mountable MBC is intended for use with the SolaHD S5KC, SolaHD S4KC 10kVA or other UPS with equivalent specifications. Typical applications include supporting workstations, servers, network, telecommunications or other sensitive electronic equipment.

The SolaHD S5KC MBC was designed to provide maximum system availability to business critical equipment by allowing transfer of connected equipment to an alternate power path allowing full isolation of the UPS for maintenance. The UPS can then be turned off and removed from service with no interruption of power to connected equipment.

## 1.2 Appearance and Components



**Figure 1: General SolaHD S5KC MBC appearance**



**Figure 2: Components on the front of the SolaHD S5KC MBC**

The front panel of the SolaHD S5KC MBC has three LED indicators, including Bypass indicator (amber), UPS indicator (green) and Output indicator (amber).



### 1.2.1 Bypass Indicator LED

The amber Bypass Indicator illuminates when the maintenance bypass source is available. When the Bypass Indicator is illuminated, it is permissible to transfer the connected equipment to Maintenance Bypass mode by rotating the switch (see **Figure 2**). When the Bypass Indicator is not illuminated, the maintenance bypass source is not ready or available and transfers should not occur.

**NOTE:** When the switch is in the Maintenance Bypass position, the connected equipment is not protected by the UPS and is susceptible to any AC mains/utility anomalies and outages.

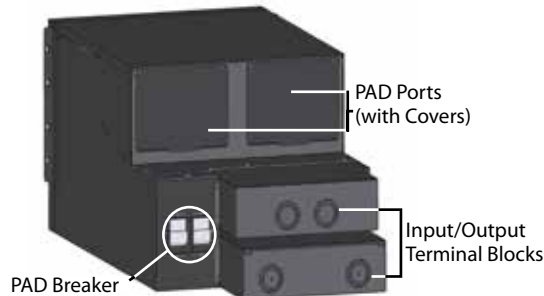
### 1.2.2 UPS Indicator LED

The green UPS Indicator shows when UPS output power is available. When the UPS Indicator is illuminated, UPS output power is available to the SolaHD S5KC MBC and it is permissible to transfer the rotary switch to the UPS Mode. See **Figure 2**. When the UPS indicator is not illuminated, the UPS output power is not ready/available and transfers should not occur.

### 1.2.3 Output Indicator LED

The amber Output Indicator indicates when the SolaHD S5KC MBC main output breaker is closed and power is available on the main output terminal block. When the Output Indicator is not illuminated, output power is not available.

The PAD ports, PAD breakers and input/output terminal blocks are on the rear of the SolaHD S5KC MBC, as shown in **Figure 3**.



**Figure 3: Parts on the rear of the SolaHD S5KC MBC**

## 1.3 Features

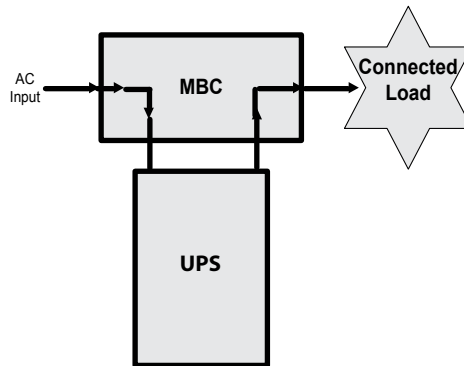
- Supports 10, 15 or 20kVA power, depending on model
- High-speed transfer switch
- Compact design
- Multiple power path indicators
- Easily accessible terminal blocks
- Rack-mountable or tower orientation
- Integral output distribution options via optional PADs

## 1.4 Operating Mode

The SolaHD S5KC MBC permits maintaining power to all connected equipment during maintenance of the SolaHD S5KC. The SolaHD S5KC MBC operates in two modes, UPS Mode and Maintenance Bypass Mode.

### 1.4.1 UPS Mode

The diagram below illustrates the SolaHD S5KC MBC operating in UPS Mode.

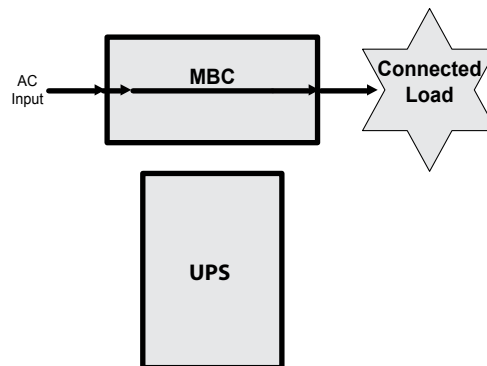


**Figure 4: Operation in UPS Mode**

While the SolaHD S5KC MBC is in UPS Mode, the UPS is supplying continuous, high-quality AC power. In this operating mode, connected equipment is protected by the UPS. The maintenance bypass switch is rotated toward the UPS indicator (green) indicates this mode.

### 1.4.2 Maintenance Bypass Mode

The diagram below illustrates the SolaHD S5KC MBC operating in Maintenance Bypass Mode.



**Figure 5: Operation in Maintenance Bypass Mode**

While the SolaHD S5KC MBC is in the Maintenance Bypass mode it provides an alternate path for power to the connected equipment. Should the UPS need to be taken out of service for limited maintenance or repair, manual activation of the bypass will immediately transfer the equipment from the UPS inverter to the bypass source. In this mode, the connected equipment is not protected from utility/mains power abnormalities or outages. The maintenance bypass switch is rotated toward the Bypass Indicator (amber) in this mode.

## 2.0 INSTALLATION

This chapter provides the steps and procedures for installing the SolaHD S5KC MBC, including preparation and cable selection and connection.

### 2.1 Unpacking Inspection

Upon receiving the SolaHD S5KC MBC, unpack the MBC and conduct the following checks:

- Inspect the unit for shipping damage. If any shipping damage is founded, report it to the carrier.
- Check against the delivery list to verify that the types of the accessories are complete and correct.

If there is any discrepancy, contact the carrier and your SolaHD representative immediately.

### 2.2 Installation Environment

The SolaHD S5KC MBC environment must be free of conductive contaminants and excessive moisture (water and condensation), flammable vapors, chemical fumes, corrosive gases and liquids.

### 2.3 Installation Procedures

#### Installation Tools

The tools required to properly set up your UPS are listed below:

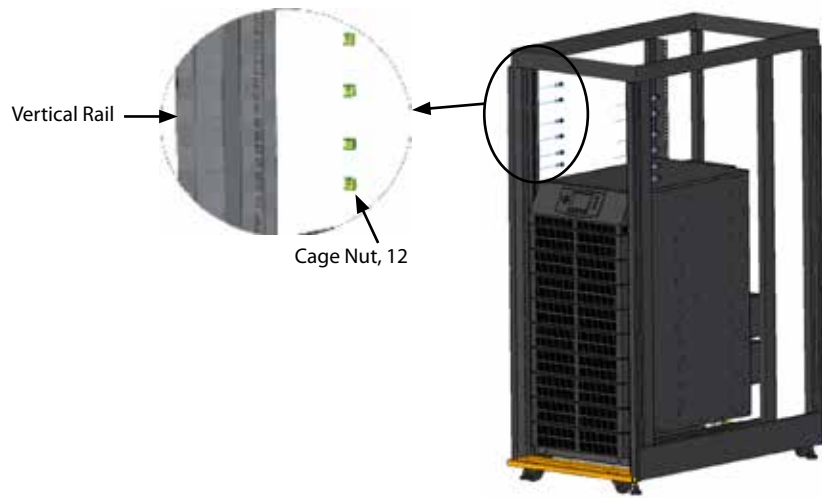
- 13mm (1/2 in) wrench or socket
- #1 and #2 Phillips screwdrivers
- Torque wrench

If the SolaHD S5KC MBC is to be installed in a rack enclosure, see the following for the installation procedures:

**NOTE:** *The SolaHD S5KC MBC is rack-mountable. If the SolaHD S5KC is to be rack mounted and there is no UPS in the rack, please first install the UPS before installing the SolaHD S5KC MBC. If there is UPS in the rack and the UPS is operating, please turn off the UPS, disconnect the local input breaker and loads, and remove the UPS Input/ Output cables according to the corresponding UPS user manual.*

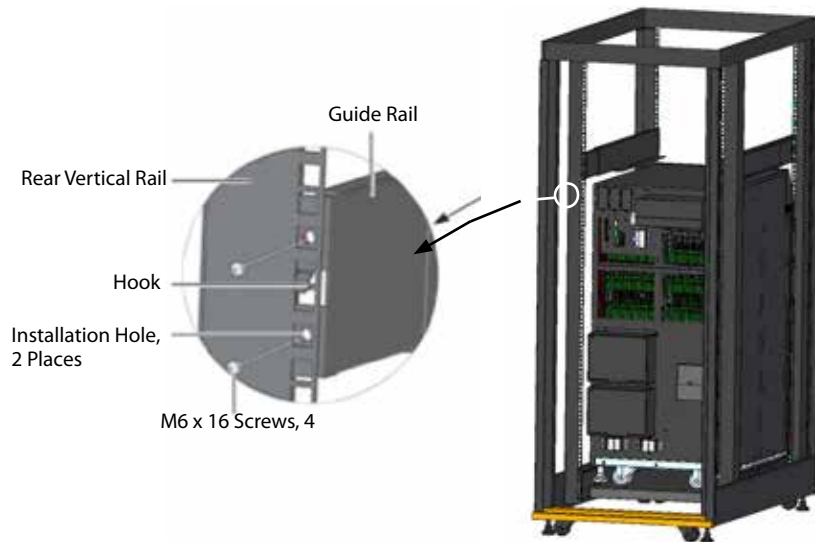
1. Locate the rack-mount rails from the SolaHD S5KC MBC packaging and review the following procedures to install the rails onto the vertical pole of the rack:
2. Install the cage nuts in the middle square holes of the 1U and 2U height space, the upper square holes of the 3U and 6U height spaces and in the lower square holes of the 5U and 8U height spaces, as shown in **Figure 6**.

**NOTE:** *The height space indicates the whole U height space counted from the top of the SolaHD S5KC UPS. The 1U and 2U height spaces are used to install the guide rails. The 3U, 6U, 5U and 8U height spaces are used to install the securing brackets of the SolaHD S5KC MBC.*



**Figure 6: Installing the cage nuts**

3. Using the hook on the rear flange of the rack-mount rail, clip it onto the rear vertical pole and use the provided four M6 x 16 screws to secure them, as shown in **Figure 7**.



**Figure 7: Attaching the rear of the rack-mount rail kit**

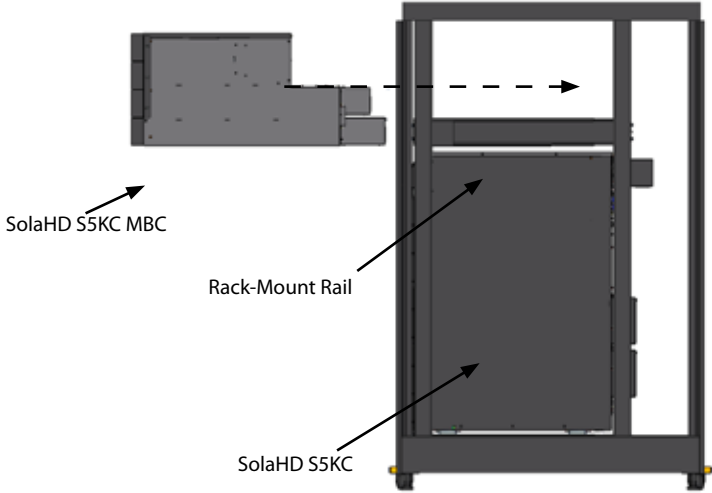
4. Using the provided four M6 x 16 screws, secure the front of the rack-mount rails onto the vertical pole, as shown in **Figure 8**.



**Figure 8: Securing the front of the rack-mount rails**

- 5. Remove the SolaHD S5KC MBC from the shipping carton and install it using the following steps:
- 6. Lift the SolaHD S5KC MBC and place it on the guide rails. Slide it into the rack.

**NOTE:** The weight of the SolaHD S5KC MBC is 30kg (66 lb.), please be careful when lifting it. This may require two people.



**Figure 9: Installing the SolaHD S5KC MBC**

- 7. Using the provided eight M6 x 16 screws, securing the SolaHD S5KC MBC to the front vertical post. See **Figure 10** for the completed assembly view.



**Figure 10: Completed view of the SolaHD S5KC MBC installation**

8. Refer to 2.4 - Cable Selection And Connection for wiring connections.
9. Refer to 6.0 - PAD—Optional for installing any integral output distribution PADs.

## 2.4 Cable Selection And Connection

### 2.4.1 Cable Selection

Select proper cable size/amperage based on the SolaHD S5KC MBC model. The models have different circuit breaker ratings. See Table 1 for the amperages for proper cable selection.

Item	Model		
	S5KCMBCR2 Series	S5KCMBCR1 Series	S5KCMBCRG Series
Maximum Input Current	125A	100A	63A
Input Protection	125A	100A	63A
Maximum Output Current	125A	100A	63A
Terminal Block Wire Size Range	Maximum: 2/0 (60mm <sup>2</sup> ) ; Minimum: 6 AWG (22mm <sup>2</sup> )		

*90° C rated copper wire is recommended*

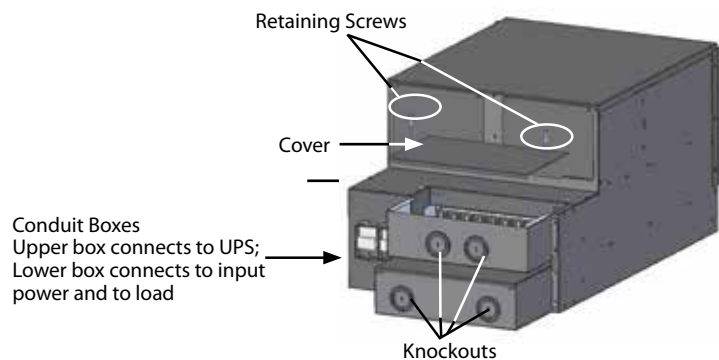
*Terminal block torque requirements are 4.52Nm (40 in-lb)*

The SolaHD S5KC unit model number determines which section to follow for the installation instructions for the SolaHD S5KC MBC.

UPS Model Number	UPS System Voltage and Frame Type	See Manual Section
S5KCA	200-240V Input / Output; Transformer-Free	2.4.2
S5KCB	200-240V Input / Output; Transformer-Free	2.4.2
S5KCC	200-240 Input - 200/100-240/120 Output; Transformer-Based	2.4.3
S5KCD	200-240 Input - 200/100-240/120 Output; Transformer-Based	2.4.3
S5KCE	200/100-240/120 Input / Output; Transformer-Free	2.4.4
S5KCF	200/100-240/120 Input / Output; Transformer-Free	2.4.4

To connect the cables:

1. Remove the conduit boxes on the rear of the SolaHD S5KC MBC, as shown in Figure 11.



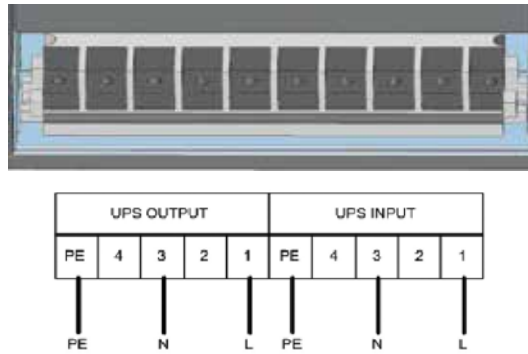
**Figure 11: Remove the conduit boxes**

2. Remove the knockouts on the conduit boxes (see Figure 11) and pull the cables through them.
3. Connect the cables to the corresponding input/output terminals, and using a torque wrench, turn the screws clockwise until tightened.

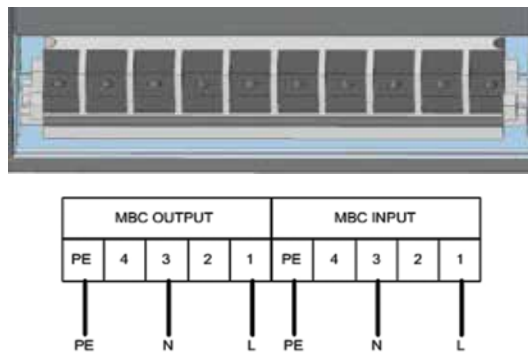
**NOTE:** The upper terminal block connects with the UPS; The lower terminal block connects with the local power input and loads.

### 2.4.2 Cable Connection For SolaHD S5KC UPS 200-240V Input/Output

Refer to **Figures 12 and 13** for the cable connections when the SolaHD S5KC UPS is to be connected and wired for single-phase input, either L-N-PE (50Hz voltages) or L-L-G (60Hz voltages).

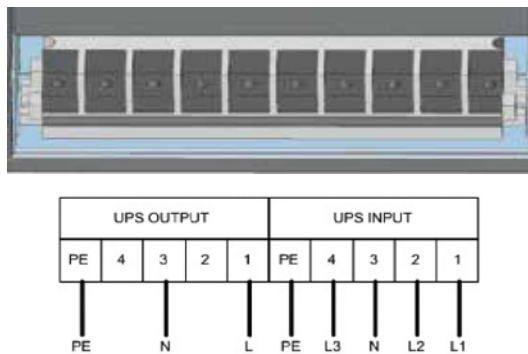


**Figure 12: Connection of SolaHD S5KC MBC's upper terminal block (to/from UPS unit)**



**Figure 13: Connection of SolaHD S5KC MBC's lower terminal block (from main AC source/to main distribution panel)**

Refer to **Figures 14 and 15** for the cable connections when the SolaHD S5KC UPS is to be connected and wired for three-phase input, L1-L2-L3-N-PE (50Hz voltages only).



**Figure 14: Connection of SolaHD S5KC MBC's upper terminal block (to/from UPS unit)**



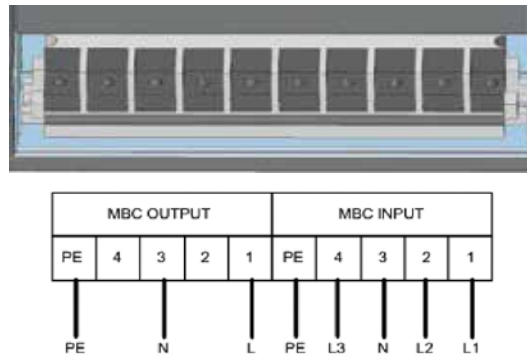


Figure 15: Connection of SolaHD S5KC MBC’s lower terminal block (from main AC source/to main distribution panel)

### 2.4.3 Cable Connection for SolaHD S5KC UPS 200-240V Input ; 200/100-240/120V Output with integral output transformer

Refer to Figures 16 and 17 for the cable connections when the SolaHD S5KC UPS is to be connected and wired for single-phase input, either L-N-PE (50Hz voltages) or L-L-G (60Hz voltages).

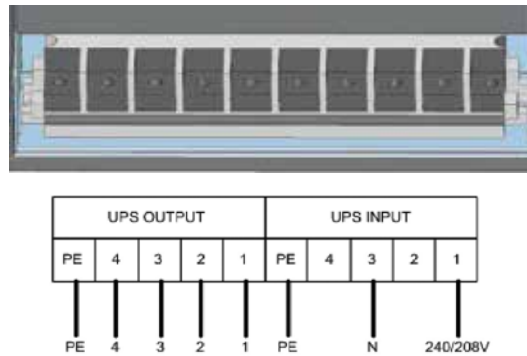


Figure 16: Connection of SolaHD S5KC MBC’s upper terminal block (to/from UPS unit)

Table 3: Connections, Upper Terminal Block, Single-Phase Input, L-N-PE (50Hz) or L-L-G (60Hz)				
Input Voltage	Input Terminal Wiring			
	1	2	3	4
200/100	L1	Do Not Use	L2/N	Do Not Use
220/110	L1	Do Not Use	L2/N	Do Not Use
230/115	L1	Do Not Use	L2/N	Do Not Use
220/127	L1	Do Not Use	L2/N	Do Not Use
240/120	L1	Do Not Use	L2/N	Do Not Use
208/120	L1	Do Not Use	L2/N	Do Not Use
Output Voltage Needed	Output Voltage (Between Terminals)			
	1-4	3-4	2-3	1-3
200/100	100	100	173 (Do Not Use)	200
220/110	110	110	190 (Do Not Use)	220
230/115	115	115	199 (Do Not Use)	230
220/127	127	127	220	254 (Do Not Use)
240/120	120	120	208	240
208/120	120	120	208	240

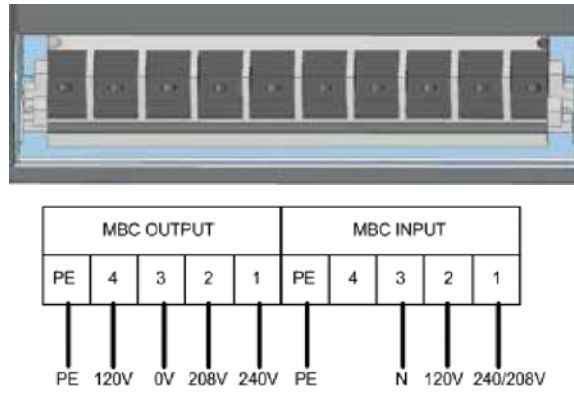


Figure 17: Connection of SolahD S5KC MBC's lower terminal block (from main AC source / to main distribution panel)

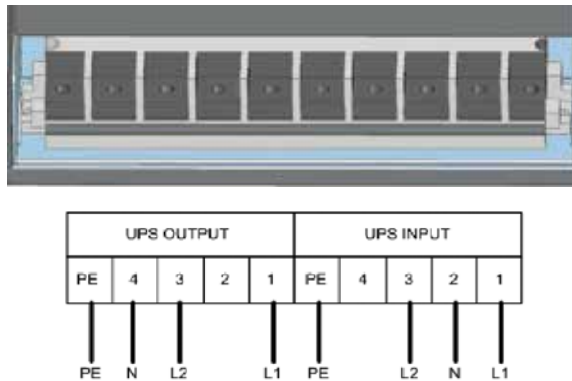
Table 4: Connections, Lower Terminal Block, Single-Phase Input, L-N-PE (50Hz) or L-L-G (60Hz)				
Input Voltage	Input Voltage (Between Terminals)			
	1-4	1-2	2-3	1-3
200/100	Do Not Use	100	100	200
220/110	Do Not Use	110	110	220
230/115	Do Not Use	115	115	230
220/127	Do Not Use	127	127	254 (Do Not Use)
240/120	Do Not Use	120	120	240
208/120	Do Not Use	120	120	240
Output Voltage Needed	Output Voltage (Between Terminals)			
	1-4	3-4	2-3	1-3
200/100	100	100	173 (Do Not Use)	200
220/110	110	110	190 (Do Not Use)	220
230/115	115	115	199 (Do Not Use)	230
220/127	127	127	220	254 (Do Not Use)
240/120	120	120	208	240
208/120	120	120	208	240

**NOTE:**

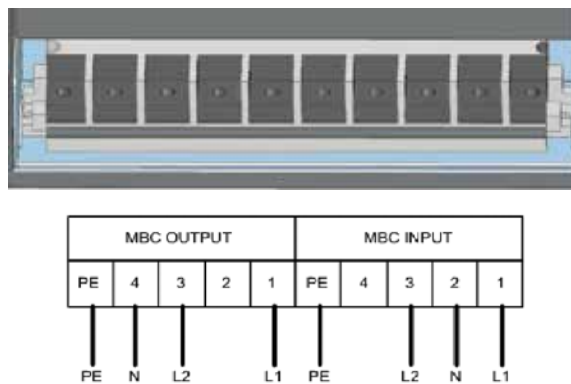
- **To connect a 120V load** between Terminal 3 and Terminal 4 of the SolaHD S5KC MBC OUTPUT, make sure that there is 120V voltage between Terminal 2 and Terminal 3 of the SolaHD S5KC MBC input.
- **To connect a 208V load** between Terminal 2 and Terminal 3 of the SolaHD S5KC MBC output, make sure that there is 208V voltage between terminal 1 and terminal 3 of the MBC input.
- **To connect a 240V load** between Terminal 1 and Terminal 3 of the SolaHD S5KC MBC output, make sure that there is 240V voltage between Terminal 1 and Terminal 3 of the MBC input.
- **To connect a 120V load** between Terminal 3 and Terminal 4 of the SolaHD S5KC MBC output, simultaneously, connect a 208V load between Terminal 2 and Terminal 3 of MBC output or a 240V load between Terminal 1 and Terminal 3 of MBC output, make sure that there is 120V voltage between Terminal 2 and Terminal 3 of the MBC input, at the same time, there is 208V voltage between Terminal 1 and Terminal 3 of the MBC input or 240V voltage between Terminal 1 and Terminal 3 of the MBC input.

**2.4.4 Cable Connection for SolaHD S5KC UPS 200/100-240/120V Input/Output**

Refer to **Figures 18 and 19** for the cable connections when the SolaHD S5KC UPS is to be connected and wired for single-phase input, L-L-N-G (50/60Hz voltages).



**Figure 18: Connection of the upper terminal block of the SolaHD S5KC MBC (to/from UPS unit)**



**Figure 19: Connection of the lower terminal block of the SolaHD S5KC MBC (from main AC source / to main distribution panel)**

## 3.0 OPERATION

This chapter gives a detailed description of the SolaHD S5KC MBC operation, including startup, shutdown and transfer between UPS and maintenance bypass.

### **WARNING**

**RISK OF ELECTRICAL SHOCK, FIRE AND HIGH SHORT CIRCUIT CURRENT MAY RESULT IN INJURY OR DEATH.**

This SolaHD S5KC MBC must be installed by a properly trained and qualified personnel and connected in accordance with national and local electrical codes.

### 3.1 Startup

Follow these steps to startup the UPS while connected to the Maintenance Bypass.

1. Set the rotary maintenance bypass switch to the UPS position on the front of the MBC.
2. Close the UPS input breaker and the MBC output breaker on the front of the MBC.
3. Close the input breaker located in the local AC power panel providing power to the UPS system.
4. Start the SolaHD S5KC UPS according to its user manual. (Refer to the manual shipped with the UPS).
5. The load is now supplied with conditioned power through the UPS.
6. Close the corresponding PAD breaker, if any PADs are installed.

### 3.2 Shutdown (with Loss of All Power)

To power down the system.

1. Shut down the UPS according to its user manual and open the UPS's input breaker and any breakers on each connected external battery cabinet.
2. Open the remote input breaker in the local power panel and any PAD breakers on the rear of the SolaHD S5KC MBC.
3. Open the UPS input breaker and the MBC output breaker on front of the SolaHD S5KC MBC.

### 3.3 Transfer of the System from UPS to Maintenance Bypass

To transfer from UPS to maintenance bypass:

1. Remove the four metal bezels from the front of the MBC by pulling equally on each side of one bezel at a time.
2. Verify that the Bypass Indicator (amber) on the front of the MBC is illuminated. If this indicator is not illuminated, do not proceed and refer to 4.0 - Troubleshooting.
3. If the Bypass Indicator is illuminated, refer to the SolaHD S5KC user manual to transfer the UPS to internal bypass.
4. Using the rotary maintenance bypass switch on the front of the MBC, transfer it from UPS to Bypass.
5. Turn the UPS Off using the LCD display, then open any breakers on any connected external battery cabinets.
6. Open the UPS input breaker on the front of the MBC.
7. Open both the input and output breakers on the SolaHD S5KC.
8. The UPS is now electrically isolated and may be transferred to maintenance bypass.

## 3.4 Transfer of the System from Maintenance Bypass to UPS


To transfer to UPS from maintenance bypass:

1. Close the UPS input and output breaker on the SolaHD S5KC.
2. Close the UPS input breaker on the front of the MBC.
3. Start the SolaHD S5KC UPS according to its user manual in internal bypass mode.
4. Verify that the UPS Indicator (green) on the MBC is illuminated. If the UPS Indicator does not illuminate, do not proceed and refer to 4.0 - Troubleshooting.
5. If the UPS Indicator is illuminated, transfer the rotary maintenance bypass switch from Bypass to UPS.
6. Transfer the SolaHD S5KC UPS from internal bypass to inverter.
7. Conditioned power is now being supplied through the UPS.

# 4.0 TROUBLESHOOTING

<b>Table 5: Troubleshooting</b>		
<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
<b>Bypass Indicator (amber) not illuminated</b>	Bypass not present	Call qualified service personnel to restore power to local power
	SolaHD S5KC MBC input cable is not connected to bypass.	Refer to 2.4.1 - Cable Selection
<b>Bypass Indicator (amber) not illuminated</b>	UPS output power not present	Turn on UPS, refer to UPS user manual.
	UPS output power not present	Refer to 2.4.1 - Cable Selection
<b>Output Indicator (amber) not illuminated</b>	The output breaker is not closed.	Close MBC output breaker (see Figure 2 for its position)
	The load cable is not connected to the SolaHD S5KC MBC	Refer to 2.4.1 - Cable Selection
<b>SolaHD S5KC MBC will not start some/all connected loads</b>	The MBC output breaker and/or PAD breaker is open.	Close MBC output breaker and/or PAD breakers, refer to Figure 2 and 3 for their positions
	Overload on SolaHD S5KC MBC	Recalculate load requirement and choose a proper version.

## 5.0 SPECIFICATIONS

Table 6: Specifications	
Item	Specification
<b>General</b>	
Unit Rating	S5KCMBCR2 Series: 125A max
	S5KCMBCR1 Series: 100A max
	S5KCMBCRG Series: 63A max
Safety Standards	 UL 1778-4th Edition, CSA C22.2 No. 107.3, CE:IEC62040-1:2008
<b>Mechanical</b>	
Dimensions, W x D x H	440 × 862 × 355 mm (17.3 x 33.9 x 14.3 in.)
Weight	30 kg (66.1 lb)
<b>Environmental</b>	
Operating Ambient Temperature	0°C to +40°C (32°F to 104°F)
Storage Ambient Temperature	-20°C to +60°C (-4°F to +140°F)
Humidity	0 to 95% non-condensing
Shock/Vibration Standards	ISTA Procedure 1A
<b>Input Parameters</b>	
Nominal Voltage	200/208/220/230/240V ~ L + N + PE 220/380V ~ 240/415V ~ L1 + L2 +L3 + N + PE 100/200V ~ 120/240V ~ L1 + L2 +N + PE
Nominal Input Frequency	50/60Hz
Input Frequency Range	40Hz ~ 70Hz
<b>Output Parameters</b>	
Output Voltage	200/208/220/230/240V ~ L + N + PE 100/100/173/200V - 120/120/208/240V ~ 100/200V, 110/220V, 115/230V, 120/208V, 120/240V, 127/220V ~ L1 + L2 +N + PE
Transfer Time	<6 ms
Output Frequency	50/60Hz

## 6.0 PAD—OPTIONAL

### 6.1 Introduction

Power Output Distribution (PADs) are optional, integral distribution units that may be attached on either a UPS or a Maintenance Bypass Cabinet. PADs provide safe and reliable power distribution function for users to directly connect equipment that is to be protected by the UPS. The PAD's technical specifications are listed in **Tables 7 through 9**.

<b>Table 7: Technical Specifications of the PAD (S4KPAD2-101C ~ S4KPAD2-105C)</b>					
Parameter	PAD model				
	S4KPAD2-101C	S4KPAD2-102C	S4KPAD2-103C	S4KPAD2-104C	S4KPAD2-105C
Dimension, W x D x H					
Unit	188 × 145 mm (7.4 × 5.7 in.)				
Shipping	302 × 522 × 220 mm (11.9 × 20.6 × 8.7 in.)				
Weight					
Unit	2 kg (4.4 lb)	3 kg (6.6 lb)	—	3 kg (6.6 lb)	2 kg (4.4 lb)
Shipping	3 kg (6.6 lb)	4 kg (8.8 lb)	—	4 kg (8.8 lb)	3 kg (6.6 lb)
Electrical Specification					
Rating Amp.	63A 2-pole input breaker				
Output Power Connection	L6-30 (2 pcs) 5-20R (8 pcs)	L6-20R (4 pcs) 5-20R (4 pcs)	—	5-20R (4 pcs) L6-30R (2 pcs) L6-20R (2 pcs)	5-20R (4 pcs) L5-30R (2 pcs) L5-20R (2 pcs)

<b>Table 8: Technical Specifications of the PAD (S4KPAD2-106C ~ S4KPAD2-109C)</b>				
Parameter	PAD model			
	S4KPAD2-106C	S4KPAD2-107C	S4KPAD2-108C	S4KPAD2-109C
Dimension, W x D x H				
Unit	188 × 145 mm (7.4 × 5.7 in.)			
Shipping	302 × 522 × 220 mm (11.9 × 20.6 × 8.7 in.)			
Weight				
Unit	3 kg (6.6 lb)	2 kg (4.4 lb)	2 kg (4.4 lb)	2 kg (4.4 lb)
Shipping	4 kg (8.8 lb)	3 kg (6.6 lb)	3 kg (6.6 lb)	3 kg (6.6 lb)
Electrical Specification				
Rating Amp.	63A 2-pole input breaker			
Output Power Connection	L6-20R (4 pcs) 5-20R (4 pcs)	L5-20R (4 pcs) 5-20R (4 pcs)	L6-30R (2 pcs) L6-20R (2 pcs)	L14-30R (2 pcs)

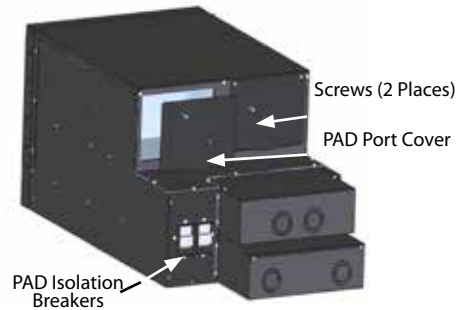
<b>Table 9: Technical Specifications of the PAD (S4KPAD2-200C ~ S4KPAD2-204C)</b>				
Parameter	PAD model			
	S4KPAD2-200C	S4KPAD2-201C	S4KPAD2-202C	S4KPAD2-204C
Dimension, W x D x H,				
Unit	188 × 145 mm (7.4 × 5.7 in.)			
Shipping	302 × 522 × 220 mm (11.9 × 20.6 × 8.7 in.)			
Weight				
Unit	2 kg (4.4 lb)	2 kg (4.4 lb)	2 kg (4.4 lb)	2 kg (4.4 lb)
Shipping	3 kg (6.6 lb)	3 kg (6.6 lb)	3 kg (6.6 lb)	3 kg (6.6 lb)
Electrical Specification				
Rating Amp.	63A 2-pole input breaker			
Output Power Connection	IEC320-C19 (4 pcs) IEC320-C13 (4 pcs)	IEC320-C19 (2 pcs) IEC320-C13 (8 pcs)	IEC320-C13 (12 pcs)	IEC309-32 (2 pcs) IEC320-C13 (4 pcs)



## 6.2 Installing the PAD

To connect the PAD:

1. Ensure the PAD isolation breaker for the PAD port is open.
2. Unscrew the two screws of the cover of the PAD port then remove the cover as shown in **Figure 20**.



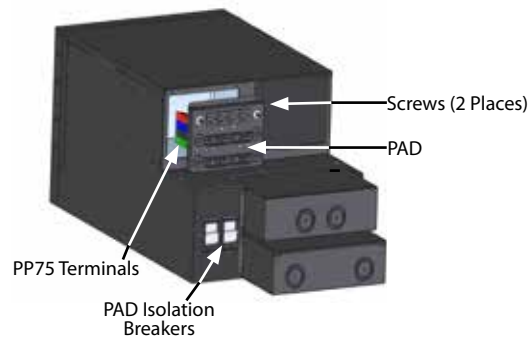
**Figure 20: Remove the cover**

3. Insert the PP75 terminals of the PAD into the PAD port of the SolahD S5KC MBC.

### NOTICE

**CAUTION: Improper connection will result in erroneous operation and may damage the unit. Be sure to insert the PP75 terminals into the corresponding colors of the PAD port.**

4. Align the installation holes of the PAD with that on the SolahD S5KC MBC, then attach the PAD to the MBC as shown in **Figure 21**.



**Figure 21: Attach the PAD**

5. Close the PAD isolation breaker to energize the receptacles on the PAD.

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