

# Vertiv™ Liebert® ITA2

## 20 kVA 208 V and 40 kVA 400 V UL MBC



### Quick Installation Guide



**IMPORTANT:** Read the Safety and Regulatory Statement guidelines before installing, connecting to supply, or operating the Vertiv™ Liebert® ITA2 maintenance bypass cabinet (MBC). For detailed information of installation, operation, maintenance, and troubleshooting, visit the ITA2 product page and refer the Vertiv™ Liebert® ITA2 UPS Installer/User Guide for the model by scanning the QR code above, or visiting [www.Vertiv.com](http://www.Vertiv.com).

#### Unpacking and Inspection

Inspect the UPS for damage. If you find any damage, document and photograph the damages and notify local Vertiv representative.

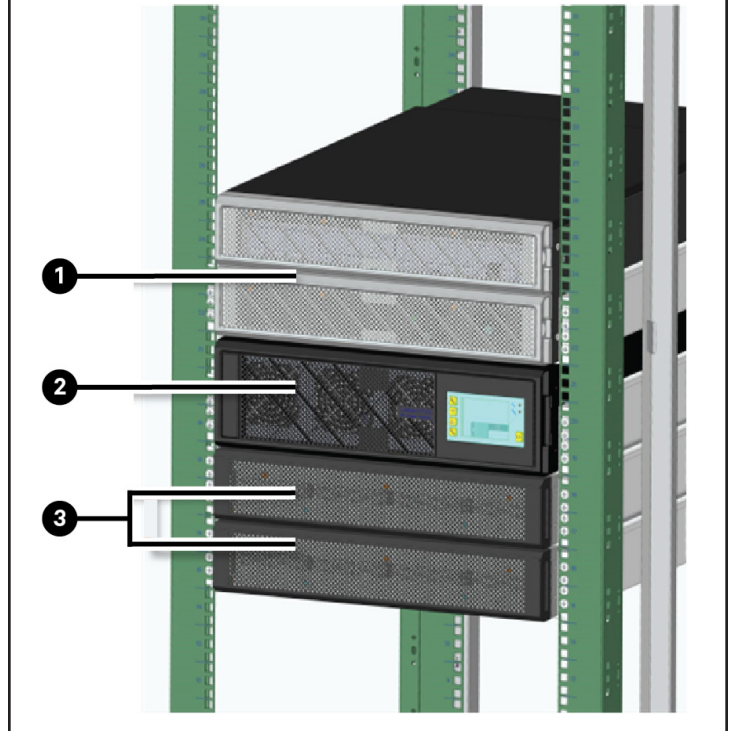
#### Selecting the Power Cables

**NOTE:** Before connecting the cables between the MBC and UPS, ensure that all the circuit breakers on the MBC front panel are open. Ensure that the feeder breakers are open, locked, and tagged to prevent inadvertent operation by unauthorized personnel. When connecting wiring, follow the local wiring regulations, and take the environment situation into account.

**NOTE:** The conduit size and wiring method must be in accordance with all local, regional, and national codes and regulations, including NEC ANSI/NFPA 70.

The installation of UPS, MBC, and EBC shown in the below figure.

Figure 1 Installation of MBC and EBC



Item	Description
1	ITA2 20/40 kVA MBC
2	ITA2 20/40 kVA UPS
3	ITA2 EBC

The maximum current for operating modes, recommended wire sizes and power cables, and plugs are listed in Tables 1 to 3, below.

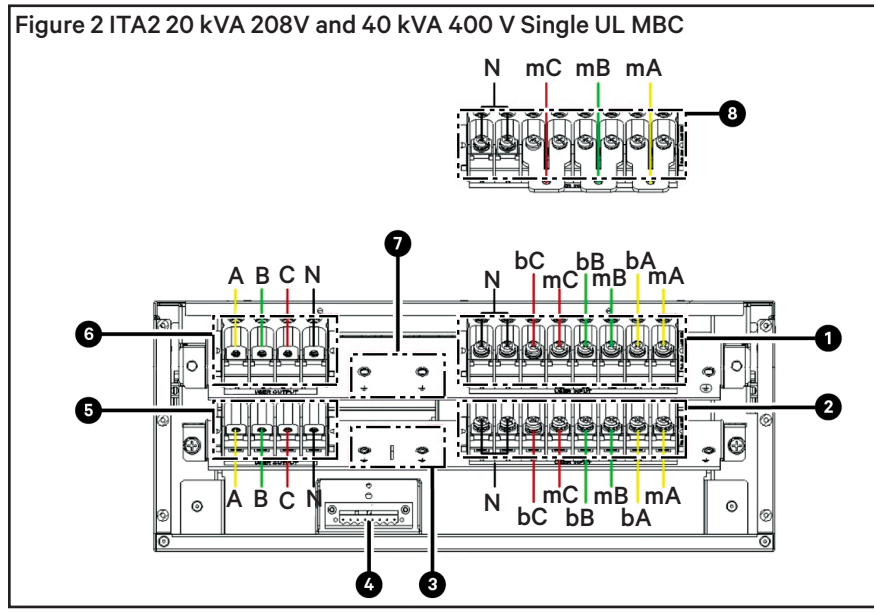
Table 1 Liebert® ITA2 MBC Currents and Cables — User and UPS Rectifier Input

Unit Rating	Maximum Input Current (A)	Recommended OPD (A)	75 °C THW Copper Wire (Phase) *Number of Cable per phase:1	75 °C THW Copper Wire (Neutral) *Number of Cable:1	75 °C THW Copper Wire (Ground) *Number of Cable: 1	Recommended Torque (lb-in)
UPS	75	100	2 AWG	2 AWG	6	50
Single MBC	75	100	2 AWG	2 AWG	6	50
2+0 MBC	150	200	300 kcmil	300 kcmil	4	53
2+1 MBC	150	200	300 kcmil	300 kcmil	4	53

Unit Rating	Maximum Input Current (A)	Recommended OPD (A)	75 °C THW Copper Wire (Phase) <small>*Number of Cable per phase:1</small>	75 °C THW Copper Wire (Neutral) <small>*Number of Cable:1</small>	75 °C THW Copper Wire (Ground) <small>*Number of Cable: 1</small>	Recommended Torque (lb-in)
UPS	60.6	80	2 AWG	2 AWG	8	50
Single MBC	60.6	80	2 AWG	2 AWG	8	50
2+0 MBC	121.2	160	4/0 AWG	4/0 AWG	4	53
2+1 MBC	121.2	160	4/0 AWG	4/0 AWG	4	53

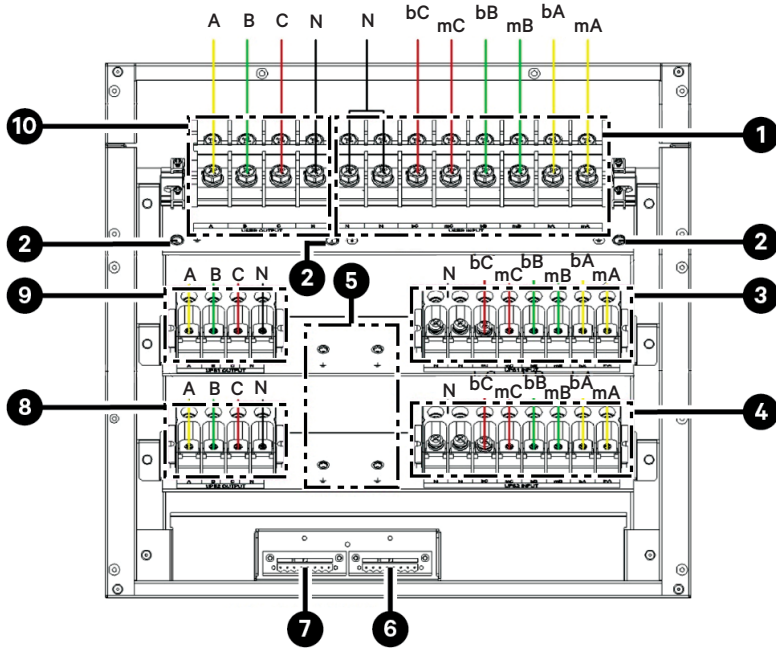
	300 kcmil (150 mm <sup>2</sup> )	4/0 AWG (107 mm <sup>2</sup> )	1/0 AWG (53.5 mm <sup>2</sup> )	2 AWG (33.6 mm <sup>2</sup> )	4 AWG (21.2 mm <sup>2</sup> )	6 AWG (13.3 mm <sup>2</sup> )	8 AWG (8.4 mm <sup>2</sup> )
Part Number	MISUMI: CB150-S8	MISUMI: CB100-8	MISUMI: CB60-6	WIZEON: GT35-6	McMaster-Carr: 7113K469	McMaster-Carr: 7113K366	McMaster-Carr: 7113K444
	KST: SQNBS150-8	KST: SQNBS100-8	KST: SQNBS60-6	KST: SQNBS38-6	KST: RNBS22-8	Thomas and Betts: RE6-14	Thomas and Betts: RDV717

Unit Rating	User Rectifier Input in. (mm)	User Bypass Input in. (mm)	User Output in. (mm)	UPS Rectifier Input in. (mm)	UPS Bypass Input in. (mm)	UPS Output in. (mm)
Single MBC	2 (50)	1.25 (31.75)	1.25 (31.75)			
2+0 MBC	3 (76.2)	2 (50)	2.5 (63.5)	2 (50)	1.25 (31.75)	1.25 (31.75)
2+1 MBC	3 (76.2)	2 (50)	2.5 (63.5)			



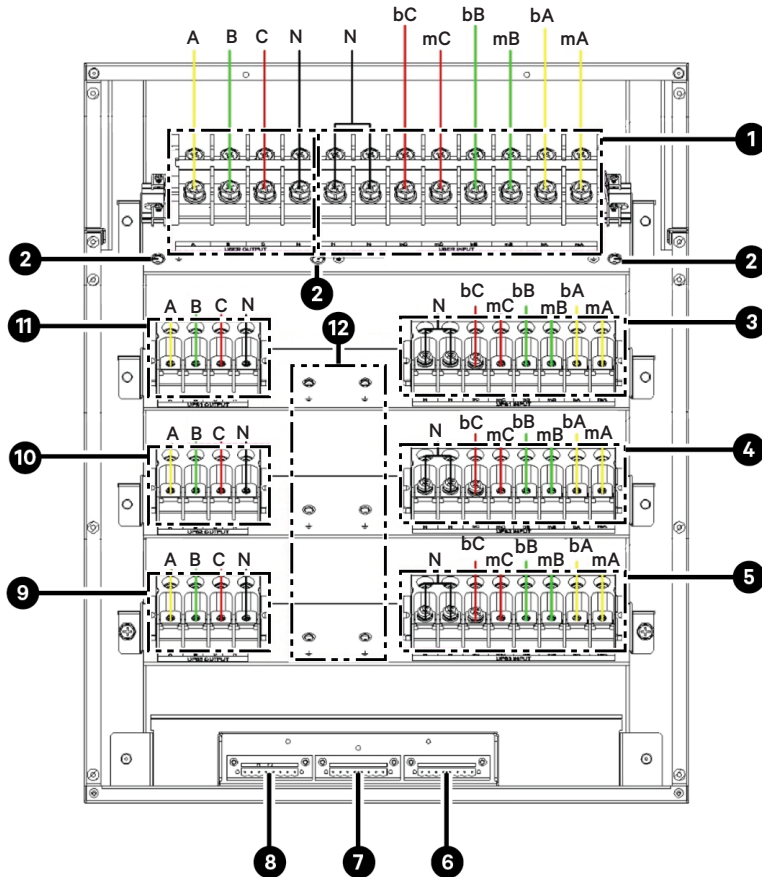
Item	Description
1	User dual-input
2	UPS input
3	UPS PE
4	UPS dry contact
5	UPS output
6	User output
7	User PE
8	User single-input

Figure 3 ITA2 20 kVA 208 V and 40 kVA 400 V 2+0 UL MBC



Item	Description
1	User dual-input
2	PE
3	UPS1 input
4	UPS2 input
5	UPS 1 to 2 PE
6	UPS2 dry contact
7	UPS1 dry contact
8	UPS2 output
9	UPS1 output
10	User output

Figure 4 ITA2 20 kVA 208 V and 40 kVA 400 V 2+1 UL MBC



Item	Description
1	User dual-input
2	PE
3	UPS1 input
4	UPS2 input
5	UPS3 input
6	UPS3 dry contact
7	UPS2 dry contact
8	UPS1 dry contact
9	UPS3 output
10	UPS2 output
11	UPS1 output
12	UPS 1 to 3 PE

## Connecting MBC Input-Power Cables

Prepare for connection by removing the conduit box from the MBC, opening knockout holes, and routing cables through the conduit.

### Single-input Connection to the MBC

**NOTE:** The copper shorting busbars are factory installed between mA and bA, mB and bB, and mC and bC.

1. Keep the shorting busbars in place on the MBC user input terminal block.
2. Refer to the MBC main input terminal block in the figure of MBC terminal blocks above, and connect the input cables as follows:
  - Phase A to busbar between mA and bA.
  - Phase B to busbar between mB and bB.
  - Phase C to busbar between mC and bC.
  - Neutral to two N terminals.
  - Ground to the PE screw (next to mA of user input terminal).

### Dual-Input Connection to the MBC

1. Remove the shorting busbars between terminals mA and bA, mB and bB, and mC and bC.
2. For the user main input, refer to the MBC user dual-input terminal block in the figure of MBC terminal blocks above, and connect the input cables as follows:
  - Phase A to mA
  - Phase B to mB
  - Phase C to mC
  - Neutral to N
  - Ground to the PE screw (next to mA of user input terminal)
3. For bypass input, refer to the MBC figure, and connect bypass input cables as follows:
  - Phase A to bA
  - Phase B to bB
  - Phase C to bC
  - Neutral to N
  - Ground to the PE screw (next to N of user input terminal)

### Connecting MBC Dedicated Output

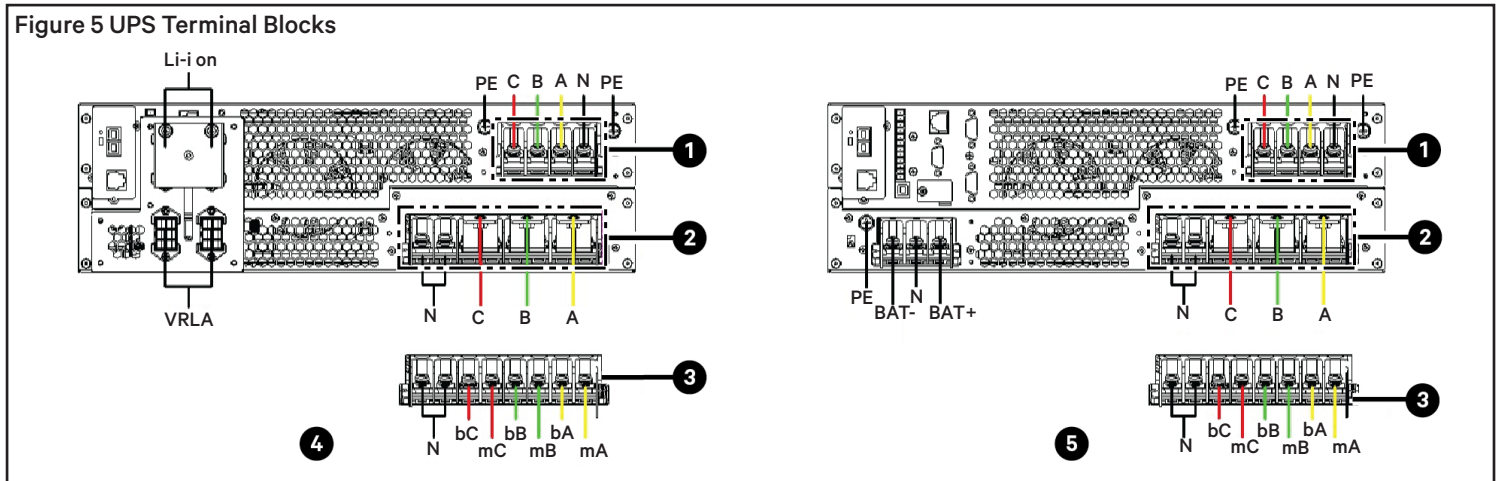
1. The MBC can be hardwired to a dedicated output distribution panel.
2. Refer to the MBC user output terminal block in the figure of MBC terminal blocks above and connect the output cables to MBC, as follows:
  - Phase A to A
  - Phase B to B
  - Phase C to C
  - Output neutral to N.
  - Safety ground to the ground (PE) screw (next to A of user output terminal)

### Connecting Single MBC to UPS Cables

#### MBC to UPS Input

1. Remove the shorting busbars between terminals mA and bA, mB and bB and mC and bC of the input terminals on UPS.
2. Refer to the figure of MBC terminal blocks above, and the UPS terminal blocks on the next page and connect the cables from the MBC's UPS Input terminal block to the UPS Input terminal block.

Phase	From	To	Description
	UPS INPUT terminal on MBC	INPUT terminal on UPS	
A	mA	mA	main input
B	mB	mB	
C	mC	mC	
N	N	N	
Ground	PE (next to mA)	PE busbar (next to the N of output terminal)	
A	bA	bA	bypass input
B	bB	bB	
C	bC	bC	
N	N	N	



Item	Description	Item	Description
1	Output terminal block	4	ITA2 20 kVA 208 V UL UPS
2	Single-input terminal block	5	ITA2 40 kVA 400 V UL UPS
3	Dual-input terminal block		

### MBC to UPS Output

1. Refer to UPS Output terminal block in the MBC terminal blocks figure, on the previous page, and the UPS terminal blocks figure above and connect cables from the MBC to UPS.

**Table 6 The Power Input Connection between MBC and UPS**

Phase	From	To	Description
	UPS Output Terminal on MBC	Output Terminal on UPS	
A	A	sA	Output
B	B	sB	
C	C	sC	
N	N	N	
Ground	PE (next to mA)	PE busbar (next to the N of output terminal)	

### Connecting Communication Cables

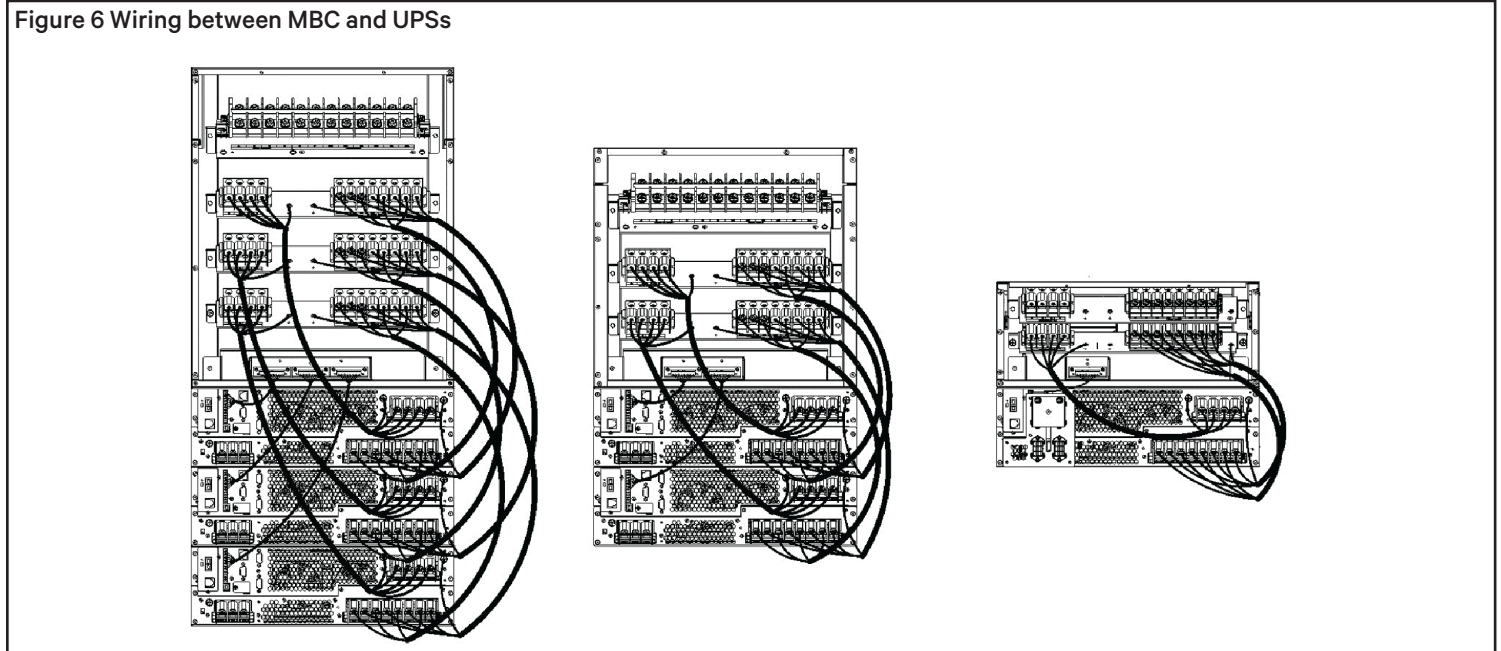
1. Refer to the communication connections figure above and connect the 8-pin connector of the signal cable to the port on the MBC.
2. Connect each of the 2-pin connectors to the appropriate dry-contact port on the UPS according to the connector/port labels.

**Table 7 The Communication Connection between MBC and UPS**

Phase	From	To	Description
	Dry Contact Terminal on MBC	Dry Contact Terminal on UPS	
1	1	1	Main input feedback protection
2	2		
3	3	2	Bypass input feedback protection
4	4		
5	5	3	Maintenance bypass mode
6	6		
7	7	4	Service mode
8	8		

## Connecting Parallel MBC to UPSs Cables

The wiring between parallel MBC and UPS is same as connecting single MBC to UPS cables. Repeat the steps in connecting single MBC to UPS cable chapter and the wiring is shown as below figure.



## Powering the MBC

1. Pull both ends of the plastic bezels in front of MBC with equal force to remove them.
2. Ensure that the maintenance bypass breaker (MBB) on the front panel is OFF and its cover is secured at low state.
3. In the external panel, close the feeder breakers to provide main input for single-input system or provide both main input and bypass input for a dual-input system.
4. Close the rectifier input breaker (RIB) and bypass input breaker (BIB).
5. Secured the cover of main output breaker (MOB) at high state.
6. Close the MOB.
7. Power-on the UPS using the operation and display panel by pressing the *Power* button until the confirmation dialog appears.
8. Use the Up/Down arrows to select *YES* then press *Enter*.

**NOTE:** The connected equipment is supplied protected power from the UPS.

9. Reassemble the bezels on the front of the MBC.

**Figure 7 Operation and Display Panel**



Item	Description
1	Run
2	Alarm
3	Display
4	Power
5	Enter
6	Down
7	Up
8	Escape

## To contact Vertiv Technical Support: visit [www.Vertiv.com](http://www.Vertiv.com)

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