

Installation Guide Smart-UPS™ RT Parallel kit SRTGPK01

Important Safety Instructions

Read the instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this document or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to either a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

A CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Product Handling Guidelines



18-32 kg 40-70 lb









Safety and General Information

Inspect the package contents upon receipt. Notify the carrier and dealer if there is any damage

- This parallel kit is for indoor use only.
- Do not operate this parallel kit in direct sunlight, in contact with fluids, or where there is excessive dust or high humidity.
- Do not operate the parallel kit near open windows or doors.

Electrical safety

- Connection to the branch circuit (mains) must be performed by a qualified electrician.
- The protective earth conductor for the parallel kit carries the leakage current from the load devices (computer equipment). An insulated ground conductor is to be installed as part of the branch circuit that supplies input power to the UPS. The conductor must have the same size and insulation material as the grounded and ungrounded branch circuit supply conductors. The conductor will be green and with or without a yellow stripe.
- The grounding conductor is to be grounded to earth at the service equipment, or if supplied by a separately derived system, at the supply transformer or motor generator set.

Hardwiring safety

- Verify that all branch circuit (mains) and low voltage (control) circuits are deenergized, and locked out before installing cables or making connections, whether in the parallel kit or to the UPS.
- Wiring by a qualified electrician is required.
- Check national and local codes before wiring.
- Select wire size and connectors according to national and local codes.
- Strain relief is required for all hardwiring.
- All openings allowing access to parallel kit hardwiring terminals must be covered. Failure to do so may result in personal injury or equipment damage.

Package Contents

Inspect the contents upon receipt. Notify the carrier and dealer if the unit is damaged.





*1:1: 1 phase input / 1 phase output

*3:1: 3 phase input / 1 phase output

*3:3: 3 phase input / 3 phase output

Hereinafter referred to as "1:1", "3:1" and "3:3" respectively.

Terminal and shrink tubes (factory default: 1:1)							
Terminal	$25 \text{ mm}^{2} - \Phi6 \text{ mm} - x6$ $35 \text{ mm}^{2} - \Phi6 \text{ mm} - x10$ $70 \text{ mm}^{2} - \Phi10 \text{ mm} - x3$ $120 \text{ mm}^{2} - \Phi10 \text{ mm} - x5$	Heat shrink tube	Φ10x30 - x6 Φ12x35 - x10 Φ20x50 - x8				

Optional accessories (not supplied)

Recommended terminals and heat shrink tubings (not supplied)						
		16 mm^2 - $\Phi 6 \text{ mm} - x8$				
		25 mm^2 - $\Phi6 \text{ mm} - x10$				
Terminal	3:1	35 mm^2 - $\Phi 6 \text{ mm} - x10$				
		$70 \text{ mm}^2 - \Phi 10 \text{ mm} - x3$				
$\langle O \rangle$		$120 \text{ mm}^2 - \Phi 10 \text{ mm} - x3$				
		10 mm^2 - $\Phi 6 \text{ mm} - x10$				
	3:3	16 mm^2 - $\Phi 6 \text{ mm} - x18$				
		25 mm^2 - $\Phi 6 \text{ mm} - x9$				
		$25 \text{ mm}^2 - \Phi 10 \text{ mm} - x5$				
		$\Phi 8x30 - x8$				
Heat shrink tube	2.1	$\Phi 10x30 - x10$				
	5.1	$\Phi 12x35 - x10$				
		$\Phi 20x50 - x6$				
		$\Phi 8x30 - x28$				
	3:3	$\Phi 10x30 - x9$				
		$\Phi 12x35 - x5$				

Specifications

Environmental

A CAUTION

RISK OF EQUIPMENT DAMAGE

- Parallel kit must be used indoors only.
- The installation location should be sturdy to withstand the weight of the parallel kit.
- Do not operate parallel kit where there is excessive dust or where the temperature or humidity are outside specified limits.

Failure to follow these instructions can result in equipment damage.

Environmental

Tomponatura	Operating	0 to 40 °C (32 to 104 °F)
Temperature	Storage	-15 to 45 °C (5 to 113 °F)
Maximum Elevation	Operating	0 - 3,000 m (0 - 10,000 ft) 0 - 1,000 m no derating; 1,000 to 3,000 m, power reduction of 1%/100 m
	Storage	0 to 15,000 m (0 to 50,000 ft)
Humidity International Protection Code		0% to 95% relative humidity, non-condensing
		IP20

Physical

Unit weight without packaging	20.7 kg
Unit weight with packaging	28.9 kg
Unit dimensions without packaging Height x Width x Depth	131 x 440 x 660 mm (5.16 x 17.3 x 26.0 in.)
Unit dimensions with packaging Height x Width x Depth	260 x 590 x 790 mm (10.23 x 23.2 x 31.1 in.)

Input specifications

Nominal input voltage	220/230/240 VAC	380/400/415 VAC	380/400/415 VAC	
Model	1:1	3:1	3:3	
Input connection	Hardwire connection (L+N+PE)	Hardwire connection (L1+L2+L3+N+PE)	Hardwire connection (L1+L2+L3+N+PE)	
Input voltage range	100 to 285 VAC	173 to 493 VAC	173 to 493 VAC	
Maximum Input Current	248.2 A	82.7 A	82.7 A	
Load Capacity	40 kVA	40 kVA	40 kVA	

Output specifications

Output power capacity	40 kVA / 40 kW	40 kVA / 40 kW	40 kVA / 40 kW		
Nominal output voltage	220/230/240 VAC	220/230/240 VAC	380/400/415 VAC		
Model	1:1	3:1	3:3		
Output connection	Hardwire connection (L+N+PE)	Hardwire connection (L+N+PE)	Hardwire connection (L1+L2+L3+N+PE)		
Maximum total current	181.8 A	181.8 A	60.6 A		
Overload Protection	Yes	Yes	Yes		

Torque specifications

Bolt specifications	Torque
M4	1.7 Nm (1.25 lb - ft / 15 lb - in)
M6	5 Nm (3.69 lb - ft / 44.3 lb - in)
M8	17.5 Nm (12.91 lb - ft / 154.9 lb - in)
M10	30 Nm (22 lb - ft / 194.7 lb - in)

Tower Installation

A CAUTION

RISK OF FALLING OBJECTS

- The equipment is heavy. Each battery module weighs 24.5 kg (54 lb).
- Always practice safe lifting techniques adequate for the weight of the equipment.
- Remove the battery modules before installing the UPS.
- Use the battery module handle to slide the battery modules in or out of the UPS.
- Do not use the battery module handle to lift or carry the battery module.

Failure to follow these instructions can result in equipment damage and minor or moderate injury.

1 Assemble stabilizer bracket.

2 Change the orientation of the UPS1 to tower orientation.







4 Install the Parallel kit on the stabilizer bracket.





5 Install the battery-pack2 on the stabilizer bracket.











8 Secure the battery modules to the battery pack with 16 screws.





9 Secure the battery compartment door to the battery pack with 12 screws.



(D) Install the front bezels of UPS modules and battery packs.



Rack Installation

A CAUTION

RISK OF FALLING OBJECTS

- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.
- Always use the recommended number of screws to secure brackets to the UPS.
- Always use the recommended number of screws and cage nuts to secure the UPS to the rack.
- Always install the UPS at the bottom of the rack.
- Always install the XLBP below the UPS in the rack.
- Parallel kit and UPS rail models are the same (SRTGRK1). The model of XLBP guide rail is SRTGRK2.

Failure to follow these instructions can result in equipment damage and minor or moderate injury.

1 Secure the rack-mount brackets to parallel kit with 8 (M4x6) screws.





Install the rail kit to the Rack.

Parallel kit	SRTGRK1
UPS	SRTGRK1
Battery pack	SRTGRK2



Install the 20 floating nuts to the rails of the Rack.

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4 Install the UPS1 into the rack.







6 Install the Parallel kit into the rack.



7 Install the battery-pack2 into the rack.



8 Install the UPS2 into the rack.



9 Install 4 battery modules into each battery pack.



O Secure the battery modules to the battery packs with 16 screws.





① Secure the battery compartment door to the battery pack with 12 screws.



Description Install the front bezels of UPS modules and battery packs.



Front Panel Features



Rear Panel Features



1 Output phase Terminals	5 UPS2 Input phase Terminals	9 UPS2 Output Neutral Terminals
2 Input phase Terminals	6 UPS1 Input phase Terminals	1 UPS1 Output Neutral Terminals
3 UPS2 Output phase Terminals	Output Neutral Terminals	1 Ground Terminal
4 UPS1 Output phase Terminals	8 MBS*	

MBS*: Maintenance Bypass Signal.

Hardwire the Parallel kit

A CAUTION

RISK OF ELECTRIC SHOCK

- · Adhere to all national and local electrical codes.
- All electrical work must be performed by qualified electrician.
- Turn off all power to this equipment before working on the equipment. Practice lockout/tagout procedures.
- Always connect the UPS and Parallel kit to a grounded outlet.
- · Do not wear jewelry when working with electrical equipment.
- · Ensure that line, neutral and ground cables of the input and output terminals are connected correctly.
- · Actual wire size must comply with required amp capacity and national and local electrical codes.
- All openings that allow access to UPS hardwire terminals must be covered.
- · Select wire size and connectors according to national and local codes.

Failure to follow these instructions can result in equipment damage and minor or moderate injury.

1 Select the mode of operation and install the appropriate jumpers. Refer "Input/Output Wiring Options" for details.

- **2** Take out the four terminal boxes from the supplied accessories.
- 3 Locate the screws securing the covers of the Input Neutral and UPS Neutral Terminal Boxes and remove the covers.



Install the Input Neutral Terminal Box and UPS Neutral terminal Box on the rear panel of the paralleling kit.

Connect the ground and neutral wires to the respective terminals in the Input Neutral Terminal Box and the UPS Neutral Terminal Box. Use an appropriate strain relief (not supplied), on the hardwired input and output power cables. Refer to "Wiring Specifications" for selecting the wire size.



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the UPS Phase Terminal Box and secure the screws removed in step 7.

10 Reinstall the covers of the Input Phase Terminal Box and

Box respectively. Use an appropriate strain relief (not supplied), on the hardwired input and output power cables.

Refer to "Input/Output Wiring Options" for details.

9 Connect the Input phase and UPS phase wires in the Input Phase Terminal Box and the UPS Phase Terminal

Terminal Box on the rear panel of the paralleling kit.

8 Install the Input Phase Terminal Box and UPS Phase

7 Locate the screws securing the covers of the Input Phase and UPS Phase Terminal Boxes and remove the covers.

6 Reinstall the covers of the Input Neutral Terminal Box and the UPS Neutral Terminal Box and secure the screws

removed in step 3.



Wiring Specifications

▲ CAUTION

RISK OF ELECTRIC SHOCK

- Adhere to all national and local electrical codes.
- Wiring should be performed by a qualified electrician.
- Strain reliefs are not supplied with the unit. 38.1 mm (1 1/2 in) Snap in type strain reliefs are recommended.
- The UPS must be wired into a branch circuit, equipped with a circuit breaker rated as specified in the tables below.
- Actual wire size must comply with required ampacity and national and local electrical codes. Select wire size based on wire insulation, installation method, and environmental conditions.

Failure to follow these instructions can result in equipment damage and minor or moderate injury.

RISK OF FIRE

- In the case of "Dual feed" operation be sure that the appropriate jumpers detailed under "Jumper connection details" in page 25 are installed for 1:1 mode and no jumpers are installed for 3:3 mode.
- The Mains input and the Bypass input supplies must be referenced to the same neutral point.

Failure to follow these instructions can result in equipment damage and minor or moderate injury.

Input Connections	Output Connections
Mains Input Single-Phase: Wire to L1-Mains, N-Mains, and Three-Phase: Wire to L1-Mains, L2-Mains, L3-Mains, N-Mains, and	Hardwire Single-Phase: Wire to L1, N, and \downarrow Three-Phase: Wire to L1, L2, L3, N, and \downarrow
Bypass Input (optional) Single-Phase: Wire to L1-Bypass, N-Bypass Three-Phase: Wire to L1-Bypass, L2-Bypass, L3-Bypass, N-Bypass	

	Number				Mains o	circuit	SRTG15	SRTG15KXLI		KXLI	MBS		
	of Phases	Wiring		Wiring		Voltage	Current Full Load (maximum)	Wire Size (typical)	Current Full Load (maximum)	Wire Size (typical)	Current Full Load (maximum)	Wire Size (typical)	Wire Size (typical)
	1.1	Input		220/230/240 VAC	248.2 A	120 mm ²	100.2 A	25 mm ²	124.1 A	35 mm ²			
	1:1	Out	tput	220/230/240 VAC	181.8 A	70 mm ²	68.2 A	16 mm ²	90.9 A	25 mm ²			
			L1/N	290/400/415	248.2 A	120 mm^2	100.2 A	25 mm^2	124.1 A	$35 \ mm^2$			
Single Feed	3:1	Input	L2/L3	VAC	83 A each phase	25 mm ²	33.5 A each phase	25 mm ²	41.5 A each phase	35 mm ²			
		Out	tput	220/230/240 VAC	181.8 A	70 mm ²	68.2 A	16 mm ²	90.9 A	25 mm ²			
	2.2	Input		380/400/415 VAC	83 A each phase	25 mm ²	33.5 A each phase	10 mm ²	41.5 A each phase	16 mm ²			
	5:5	Output		380/400/415 VAC	60.8 A each phase	25 mm ²	22.8 A each phase	6 mm ²	30.4 A each phase	10 mm ²	0.2 mm^2		
	In		put	220/230/240 VAC	248.2 A	120 mm ²	100.2 A	25 mm ²	124.1 A	35 mm ²	0.3 mm		
	1:1	Output		220/230/240 VAC	181.8 A	70 mm ²	68.2 A	16 mm ²	90.9 A	25 mm ²			
		Input	Mains	380/400/415	83 A each phase	25 mm ²	33.5 A each phase	10 mm ²	41.5 A each phase	16 mm2			
Dual Feed	3:1		BPS*	VAC	248.2 A	120 mm^2	100.2 A	25 mm^2	124.1 A	$35 \ mm^2$			
		Out	tput	220/230/240 VAC	181.8 A	70 mm ²	68.2 A	16 mm ²	90.9 A	25 mm ²			
	2.2	Inj	put	380/400/415 VAC	83 A each phase	25 mm ²	33.5 A each phase	10 mm ²	41.5 A each phase	16 mm ²			
	5.5	Out	tput	380/400/415 VAC	60.8 A each phase	25 mm ²	22.8 A each phase	6 mm ²	30.4 A each phase	10 mm ²			

*BPS: Bypass

Input/Output Wiring Options

A CAUTION

RISK OF ELECTRIC SHOCK AND EQUIPMENT DAMAGE

- All electrical work must be performed by a qualified electrician.
- Turn off all power to this equipment before working on the equipment. Practice lockout/tagout procedures.
- · Do not wear jewelry when working with electrical equipment.

Failure to follow these instructions can result in equipment damage and minor or moderate injury.

Input/Output wiring overview: Refer to the diagrams on the following pages for input/output wiring options.



Jumpers illustration:



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Jumper connection details:

	Power I/O Configuration Input:Output		1:1*	1:1	3:1	3:1	3:3	3:3	
	Separate Bypa	ass Feed	No	Yes	No	Yes	No	Yes	*Factory
		SJ1					×		Default
		SJ3		×					
		SJ4		×					
		SJ5	✓						
		SJ6				 ✓ 			
	Input Jumpers	SJ7			×				
		SJ8			×]
Input/Output		SJ9					✓		
Jumper configurations		SJ10		×					
		SJ11		×					
		SJ12				×			
		SJ13			 ✓ 				
		SJ15	✓						
		SJ16				 ✓ 			
		SJ17				 ✓ 			
	Output	SJ2	✓	×	 ✓ 	 ✓ 			
	Jumpers	SJ14	✓	√	√	√			

Input wiring 1:1 single feed (Factory Default)





Ground terminal, all modes are the same.



Input wiring 1:1 dual feed





Input wiring 3:1 single feed



Input wiring 3:1 dual feed



Input wiring 3:3 single feed





Input wiring 3:3 dual feed



Connect parallel cable

Connect the MBS and parallel cables (supplied) between UPS1 and UPS2.



Start Up

Connect external batteries to UPS. Connect equipment and input power to parallel kit.

WARNING

HAZARD OF ELECTRIC SHOCK

- All electrical work must be performed by a qualified electrician.
- Turn off all power to the equipment before working on the equipment. Practice lockout/tagout procedures.
- · Do not wear jewelry when working with electrical equipment.

Failure to follow these instructions can result in death or serious injury.

Note: Ensure the bypass circuit breakers of UPS1 and UPS2 are ON.



	Breaker							
	CB1	CB2	CB3	CB4	CB5	CB6	CB7	UPS status
Single feed	~	√	√	 ✓ 		√	√	Online
	1	√						
					√			maintenance
Dual feed	1	 ✓ 	1	×		√	1	Online
	1	√						
					✓			maintenance

- 1. Use wire to connect UPS1 and UPS2 to parallel kit (cables not supplied). Refer "Connect parallel cable" on page 29 for details.
- 2. Connect external batteries to UPS. Refer "Installation Manual of SRTG192XLBP2" for detailed instructions. **Note:** Use separate battery strings of same Ah for each UPS.
- 3. Connect input utility power to the parallel kit.
- 4. Switch on the input and output circuit breakers of UPS1 and UPS2. The display panel will illuminate when utility power is available. Wait till the UPS initialization is complete.
- 5. Switch on output circuit breakers on the front panel to power the connected equipment.

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