sentryum

S3U - S3U SW

40/50/60kVA

Installation manual

RIELLO ELETTRONICA

riello ups

SUMMARY

GLOSSARY OF ACRONYMS

Acronym	ITEM	Description
S3U	Sentryum UL	*Three phase output voltage UPS*
SW	Four switches version	*UPS model type*
SLOT	Expansion Slot	*Slot to accommodate the communication cards and relays expansion board*
COM	Communication Board	*It includes R.E.P.O., IN/OUT signals interface, USB communication port, serial port*
PAR	Parallel Ports	*Communication interface between two or more UPS for parallel function*
EXT T_BATT	External Battery Temperature Probe	*Connector for external battery temperature kit*
B_BOX R.E.P.O.	battery cabinet REPO	*Remote power off for the battery cabinet breaker trip coil*
SWMB	Manual Bypass Switch	*Maintenance bypass breaker*
SWIN	Mains Input Switch	*Mains input breaker*
SWBYP	Bypass Input Switch	*Bypass line input breaker*
SWOUT	Output Switch	*Output switch disconnector*
B+	-	*Positive battery voltage/current/temp.*
B-	-	*Negative battery voltage/current/temp.*
CB	*Battery Charger*	*UPS internal battery charger*
PE	*Protective earth*	*Earth connection of the UPS*
EPO	*Emergency power off*	*UPS remote power off command*

PREPARATIONS

SAVE THIS INSTRUCTIONS: This manual contains important instruction to properly install the UPS unit. Read safety manual before starting UPS installation.

ALL THE OPERATIONS DESCRIBED IN THIS SECTION ARE TO BE PERFORMED EXCLUSIVELY BY QUALIFIED STAFF.

The company declines all liability for damage caused by incorrect connections or operations not described in this manual.

INSTALLATION ENVIRONMENT

When choosing the site in which to install the UPS and the battery cabinet, the following points should be taken into consideration:

- Avoid dusty environments
- Check that the floor is level and capable of withstanding the weight of the UPS and the battery cabinet
- Avoid cramped environments that could impede the normal maintenance activities
- The relative humidity should not exceed 90%, non-condensing
- This equipment is intended for use in a controlled environment; hence the temperature must be regulated in a range between 0 and 40°C

  The UPS may be operated with an ambient temperature of between 0 and 40°C. The recommended working temperature for the UPS and the batteries is between 20 and 25°C. In fact, if the battery has an average life of 5 years with a working temperature of 20°C, the life is halved if the working temperature is increased to 30°C.

- Avoid installing the equipment in places exposed to the direct sunlight or hot air

To keep the temperature of the installation room within the range indicated above, there must be a system for eliminating the dissipated heat (the UPS kW / kcal/h / B.T.U./h dissipation values are shown in the table on the previous page). The methods that may be used are:

- *Natural ventilation*
- *Forced ventilation*, recommended if the outside temperature is less (e.g. 20°C) than the temperature at which the UPS or Battery cabinet is to be operated (e.g. 25°C)
- *Air-conditioning system*, recommended if the outside temperature is higher (e.g. 30°C) than the temperature at which the UPS or battery cabinet is to be operated (e.g. 25°C)

ENVIRONMENTAL CONDITIONS	
Operating temperature	0 - 40°C
Recommended working temperature for optimum battery performance	20 - 25°C
Storage temperature	-25°C ÷ +60°C (UPS) -15°C ÷ +40°C (UPS with batteries)
Max relative humidity in operation	5 - 95% (without condensing)
Maximum Operating Altitude (according with IEC/EN 62040-3)	Full power up to 1000 m a.s.l. (power derating of 0.5% for each 100 m between 1000 and 4000 m)

TECHNICAL DATA				
Power		40 kVA / 40 kW	50 kVA / 50 kW	60 kVA / 60 kW
V Input		208 V ± 20% (3PH + N)		
Frequency Input		50 – 60 Hz		
V Output [Δ/Y]		208/120 V – 220/127 V (3PH + N)		
Frequency Output		50 / 60 Hz		
Power loss with no load		0.380 kW 327 kcal/hr 1297 BTU/hr	0.500 kW 430 kcal/hr 1707 BTU/hr	0.500 kW 430 kcal/hr 1707 BTU/hr
Power loss @ 50% load *(1)*		1.030 kW 886 kcal/hr 3515 BTU/hr	1.420 kW 1221 kcal/hr 4845 BTU/hr	1.750 kW 1505 kcal/hr 5971 BTU/hr
Power loss @ 100% load *(1)*		2.640 kW 2270 kcal/hr 9008 BTU/hr	3.050 kW 2622 kcal/hr 10407 BTU/hr	4.020 kW 3457 kcal/hr 13710 BTU/hr
Flow rate of fans for removing heat from installation room (*2*)		1407 m^3/hr	1626 m^3/hr	2143 m^3/hr
Isolation protection		IP20		
Cable input		On the rear from bottom / top without additional cabinet		
Net weight	Single switch	575 lb / 261 Kg	586 lb / 266 Kg	586 lb / 266 Kg
	Four switches	591 lb / 268 Kg	613 lb / 278 Kg	613 lb / 278 Kg
UPS dimensions (W x D x H)	(W/O TB cover)	23.6 x 38.6 x 61.4 in 600 x 980 x 1560 mm		
	(With TB cover)	23.6 x 45.3 x 61.4 in 600 x 1150 x 1560 mm		
Shipping dimensions (W x D x H)		26.8 x 41.3 x 75.6 in 680 x 1050 x 1980 mm		
Audible noise		<60 dB(A)	<70 dB(A)	<70 dB(A)
Colour		Pantone Black “C”		

1) 3.97 B.T.U./h = 1 kcal/h

2) *To calculate the air flow rate, the following formula may be used: Q [m3/h] = 3.1 x P_{diss} [Kcal/h] / (t_a - t_e) [°C]*
P_{diss} is the power expressed in Kcal/h dissipated by all the devices installed in the installation environment.
ta= ambient temperature, te=outside temperature. To take leaks into account, the value obtained should be increased by 10%.
The table shows an example of a flow rate with (t_a - t_e)=5°C and a rated resistive load (pf=1).
(Note: This formula is applicable if ta>te only; if the UPS installation does not require an air-conditioning system).

ELECTROMAGNETIC COMPATIBILITY

This UPS complies with Part 15 of the FCC rules (Class A). It may cause radio interference in the home environment. The user may have to adopt supplementary measures.
This product is for professional use in industrial and commercial environments. Connections to USB must be made with the cable provided. Connection to RS232 (RJ10 connector) have to be made with a shielded cable less than 3 metres (10 ft) long.

PRELIMINARY INFORMATION FOR INSTALLATION

ALL OPERATIONS DESCRIBED IN THIS SECTION MUST BE PERFORMED BY QUALIFIED AND TRAINED PERSONNEL ONLY.

Our Company assumes no liability for damages caused by incorrect connections or operations not described in this manual.
The following operations have to be performed with the UPS disconnected from the power mains, off and with all equipment switches open.

Before making the connection, open all cabinet switches and verify that the UPS is completely isolated from power sources: battery and AC power line. In particular, check that:
- the UPS input line is completely disconnected
- the UPS bypass line is completely disconnected
- the external UPS battery line switch/fuses are open
- all UPS switches are in the open position
- check with a multimeter that there are no dangerous voltages

The first connection to be made is the protective conductor (earth wire), this must be connected to the screw marked as PE near the terminal blocks with a circled earth symbol.
The UPS must operate while connected to the earthing system.

The input Neutral must always be connected.

ATTENTION: a three-phase four-wire distribution system is required.
The standard UPS version must be connected to a 3 Phase + Neutral + PE (ground protection) power line.
Comply with clockwise phase sequence.

ATTENTION: After the installation operation is complete, refit the cabinet protection panels using the appropriate screws.

INTERNAL PROTECTIVE DEVICES

The table below shows the sizes of the switch disconnectors of the UPS: these devices are accessible from the front of the UPS. There are also indications about the internal fuses (not accessible) protecting the input, the output and battery lines.
Fuses must be replaced with ones of the same size and the characteristics indicated in the table below.

	UPS Switch disconnectors and power module internal protective devices				
	Disconnect switches	Breaker	Power module internal fuses		
UPS (kVA)	SWOUT	SWIN / SWBYP / SWMB *	Rectifier input fuse	Main battery fuses**	Output fuse**
40	160A (3P)	160A (3P)	100A LET	170M1319 160A	63A LET
50	250A (3P)	250A (3P)	125A LET	170M1321 250A	100A LET
60	250A (3P)	250A (3P)	125A LET	170M1321 250A	100A LET

***** *SWBYP, SWOUT, SWMB: not available in the single switch version.*
******All fuses mentioned in this table are produced by COOPER BUSSMANN and are referred to the quantity installed in a single module and a single phase/pole.

BACKFEED PROTECTION

The UPS is electronically protected against backfeed. This protection acts by means of a sensing circuit which turns off the inverter if a fault on the static switch is detected. In this condition, to avoid interrupting the load supply, the UPS switches to bypass line.
An optional dry contact is provided for the driving of a disconnecting device to be installed upstream to the UPS.
A dry contact can be set to drive a disconnecting device to be installed upstream the UPS, in this case when a backfeed fault occours, the system opens the external disconnecting device avoiding the stop of the inverter.
See user manual for function configuration.

EXTERNAL PROTECTIVE DEVICES

INPUT

To reduce the risk of fire, connect only to a circuit provided with the branch circuit overcurrent protection as reported in the table below, in accordance with the National Electric Code, ANSI/NFPA 70.

	Overcurrent protective devices	
UPS (kVA)	Mains input	Separate bypass input (only SW versions)
S3U 40 / S3U 40 SW	250A, “C” curve	200A, “C” curve
S3U 50 / S3U 50 SW	250A, “C” curve	200A, “C” curve
S3U 60 / S3U 60 SW	300A, “C” curve	250A, “C” curve

If the protective device upstream to the UPS interrupts the neutral wire, it must also interrupt all the phase wires at the same time (four-poles switch).

OUTPUT

To avoid potential safety hazards and unwanted power outages the system must be designed with proper selectivity. This will assure that only the overcurrent protection device for a faulted circuit will open.

To limit a power outage to the faulted circuit, select the UPS output protection devices according to the table below:

Output protections (recommended values for selectivity)	
Normal fuses (GI)	In (Nominal current)/4
Breakers (C curve)	In (Nominal current)/4
Ultra-fast fuses (GF)	In (Nominal current)/3

SHORT CIRCUIT PROTECTION

If a failure at the output occurs, the UPS protects itself by limiting the value and duration of the current output (short-circuit current). These values also depend on the operating status of the UPS at the time of the failure; there are two different cases:

- UPS in NORMAL OPERATION: the UPS protects itself supplying (from the inverter) 2.5 times the nominal current to the output for the first 200ms, which is then reduced to 1.5 times nominal for 300 ms. After this time (500 ms), if present and synchronized, the bypass takes the load in order to clear the short circuit with the full current capability of the mains.
- UPS in BATTERY OPERATION: the UPS protects itself supplying 2.5 times the nominal current to the output for the first 200ms, which is then reduced to 1.5 times nominal for 300 ms. After this time (500 ms) it switches off.

SHORT CIRCUIT WITHSTANDING

This equipment is rated for use on a circuit capable of delivering no more than the current reported in the following table, at 220V maximum.

Short circuit current withstanding (values in symmetrical Amperes)						
UPS model	**S3U 40**	**S3U 40 SW**	**S3U 50**	**S3U 50 SW**	**S3U 60**	**S3U 60 SW**
Main input	42kA	42kA	42kA	42kA	42kA	42kA
Separate bypass input	NP	42kA	NP	42kA	NP	42kA

RCD BREAKER

WARNING: risk of electric shock from high leakage current.
The earth leakage current of this UPS may exceed 3.5 mA (max 15mA).
A proper earth connection must be provided.

Basing on the electrical system adopted, a Residual Current Device may be requested by the local regulations.

Transient and steady-state earth leakage currents, which may occur when starting the equipment, and the additional leakage current of the load should be taken into account when selecting instantaneous RCD or GFI devices.

During normal operation, when the mains supply is present, an RCD breaker at the input of the UPS will activate if a fault occurs at the output side, since the output circuit is not isolated from the input.
In any case, other RCD breakers may still be installed at the output, preferably in coordination with those present at the input.

Residual current devices must be selected sensitive to DC unidirectional pulses and insensitive to transient current pulses.

ELECTRICAL CONNECTIONS

WARNING: a 4-wire three-phase distribution system is required.
The UPS must be connected to a power supply line made up of 3 phases + neutral + PE (protective earth) and must be earthed in accordance with the local electrical code of practice. *The phase sequence must be respected.*

Make sure that the equipment is properly connected to the input neutral, otherwise serious damages can occur to the UPS.

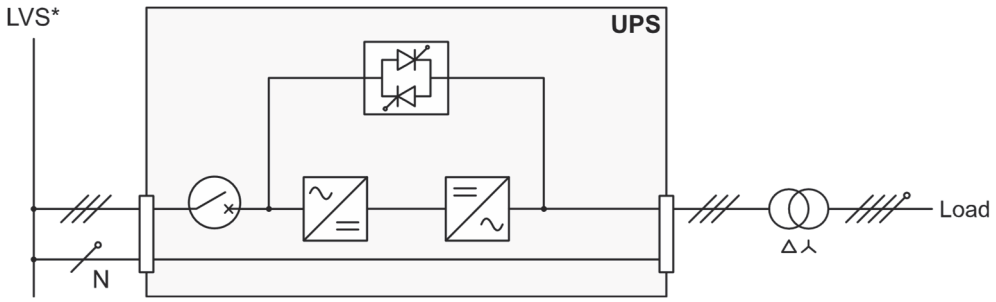
THE UPS INPUT NEUTRAL IS CONNECTED TO THE UPS OUTPUT NEUTRAL
THE DISTRIBUTION SYSTEM THAT POWERS THE UPS IS NOT MODIFIED BY THE UPS

The neutral condition is only modified if an isolation transformer is present or when the UPS works with a neutral isolated upstream. If an input isolation transformer is not present, the neutral from the mains power supply is connected to the UPS output neutral. As a result, there will be no change to the neutral arrangements of the installation:

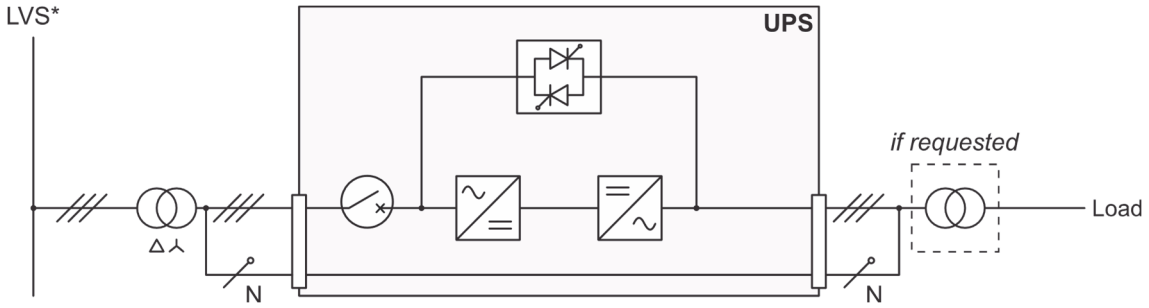
WIRING DIAGRAMS FOR CONNECTING TO THE ELECTRICAL SYSTEM

S3U, SINGLE INPUT

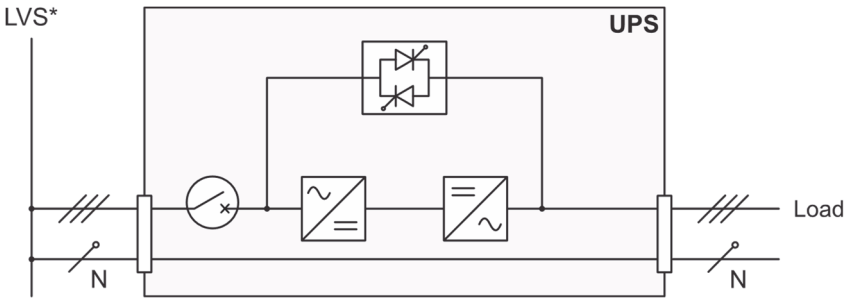
UPS with galvanic isolation at output



UPS with galvanic isolation at input



UPS without any variation in neutral condition

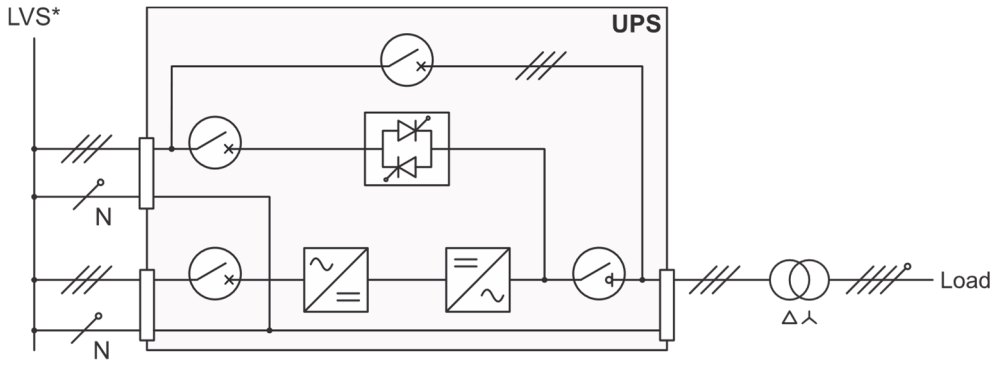


* LVS: low voltage source

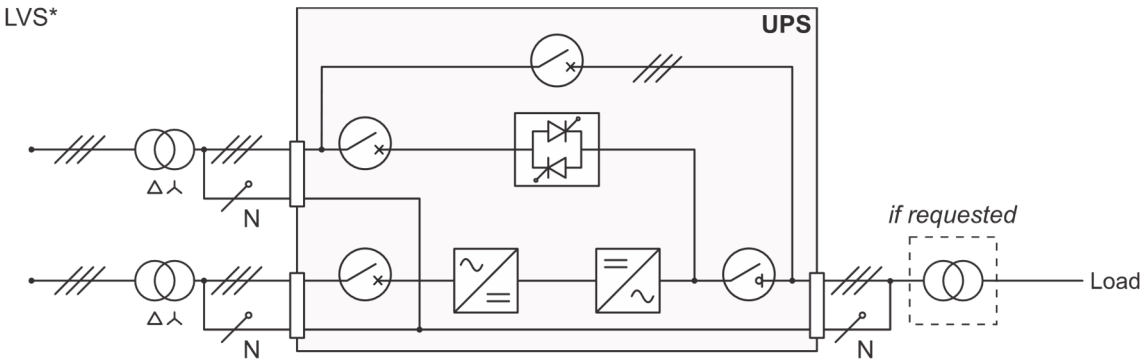
In single switch unit installations is suggested to place an external maintenance bypass within the main switchboard, in order to service the UPS in complete safety conditions, or to enable the UPS to be replaced without interrupting the power supply to the load. In this case respect the details contained in Remote Maintenance Bypass paragraph of the User Manual.

S3U SW, FOUR SWITCHES, DUAL INPUT

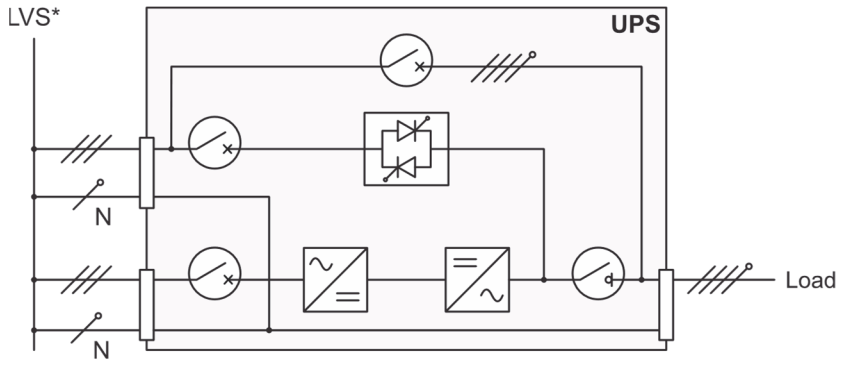
UPS with galvanic isolation at output and with separate bypass input



UPS with galvanic isolation and with separate bypass input



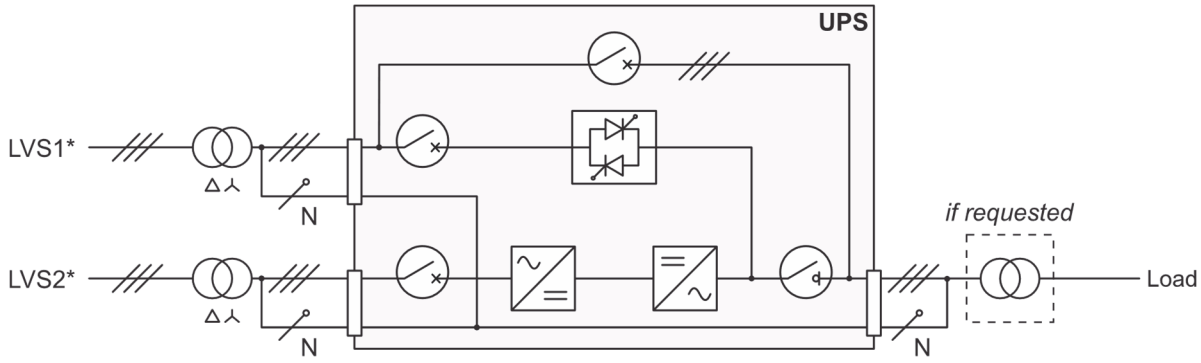
UPS without any variation in neutral condition and with separate bypass input



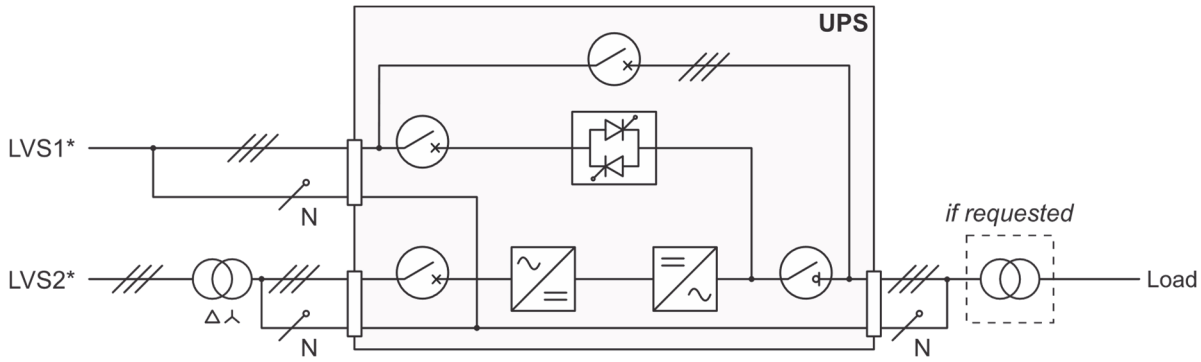
* LVS: low voltage source

Separate bypass:
if the separate bypass option is present (four switches version “SW” only) and the bypass is fed by a separate low voltage source, protective devices must be present on both the main input line and the bypass line.
Note: the neutral of the input line and that of the bypass are commoned inside the equipment, so they must refer to the same potential. If the two power supplies are different, an isolation transformer has to be used on either of the inputs.

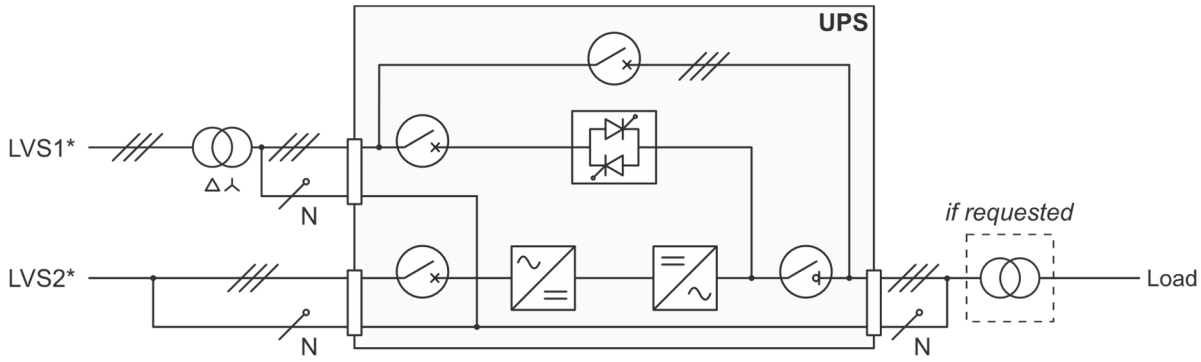
UPS with galvanic isolation and with separate bypass input



UPS with galvanic isolation at input and with separate bypass input



UPS with galvanic isolation and with separate bypass input



* LVS1: low voltage source 1

* LVS2: low voltage source 2

INSTALLATION

READ "SAFETY MANUAL" BEFORE STARTING THE UPS INSTALLATION

PRELIMINARY INFORMATION FOR INSTALLATION

ALL OPERATIONS DESCRIBED IN THIS SECTION MUST BE PERFORMED BY QUALIFIED AND TRAINED PERSONNEL ONLY.

Our Company assumes no liability for damages caused by incorrect connections or operations not contained in this manual.

The following operations have to be performed with the UPS disconnected from the power mains, and with all equipment switches open.
Before making the connection, open all cabinet switches and verify that the UPS is completely isolated from power sources: battery and AC power line. In particular, check that:

- the UPS input line is completely disconnected

- the UPS bypass line is completely disconnected

- the external UPS battery cabinet breaker/fuses are open

- all UPS switches are in the open position

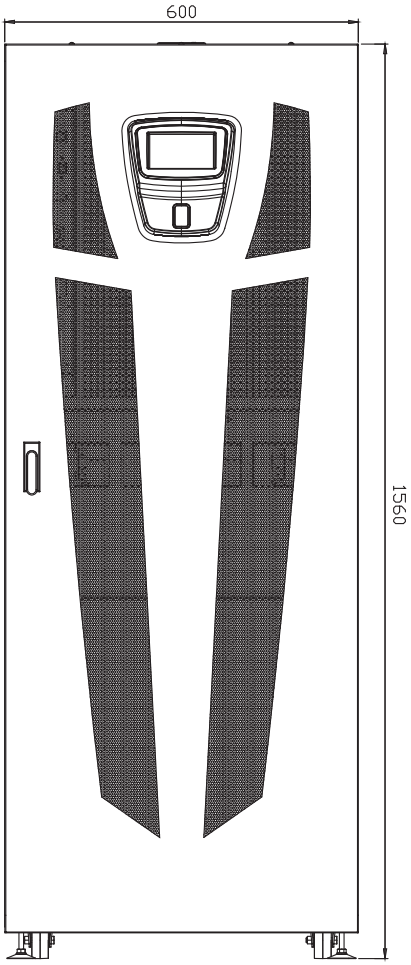
- the battery cabinet protective device is in the open position

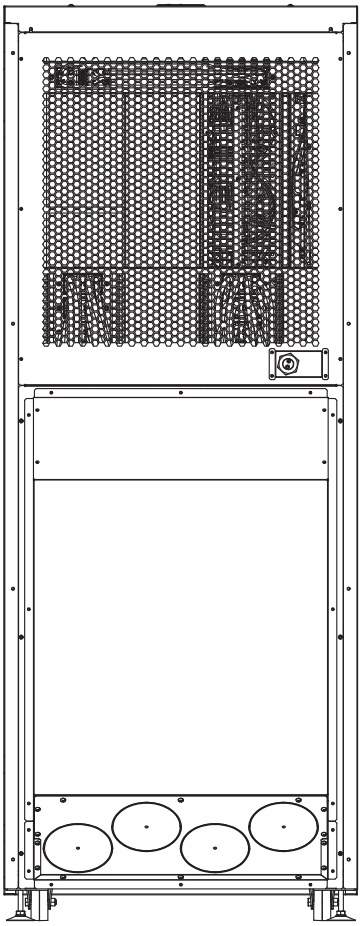
- check with a multimeter that there are no dangerous voltages on ac and dc terminal blocks

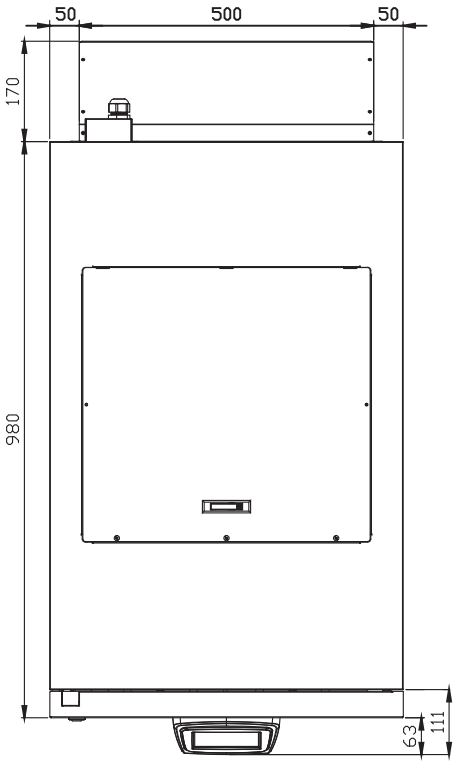
The input Neutral must always be connected.

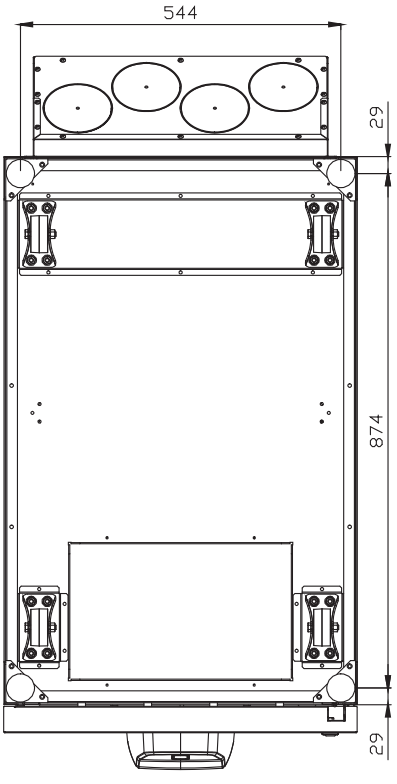
ATTENTION: a three-phase four-wire distribution system is required.
The standard UPS version must be connected to a 3 Phase + Neutral + PE (ground protection) power line.
Comply with clockwise phase rotation.

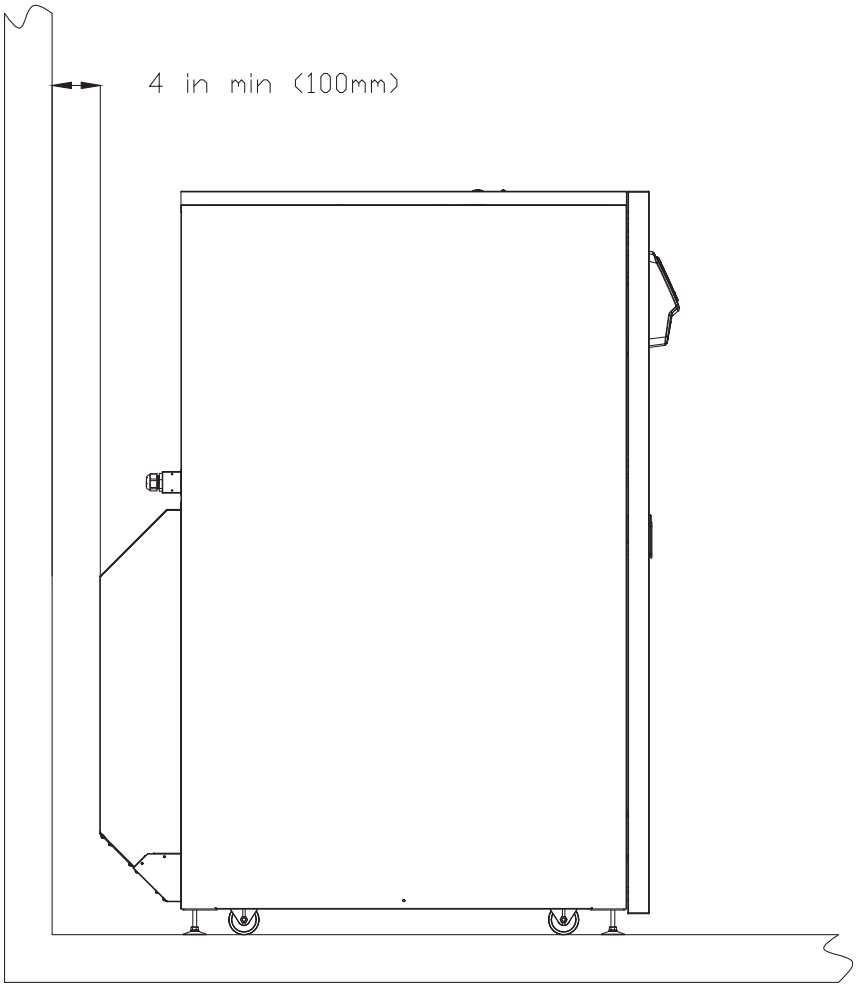
POSITIONING INFORMATION











UPS CABINET POSITIONING

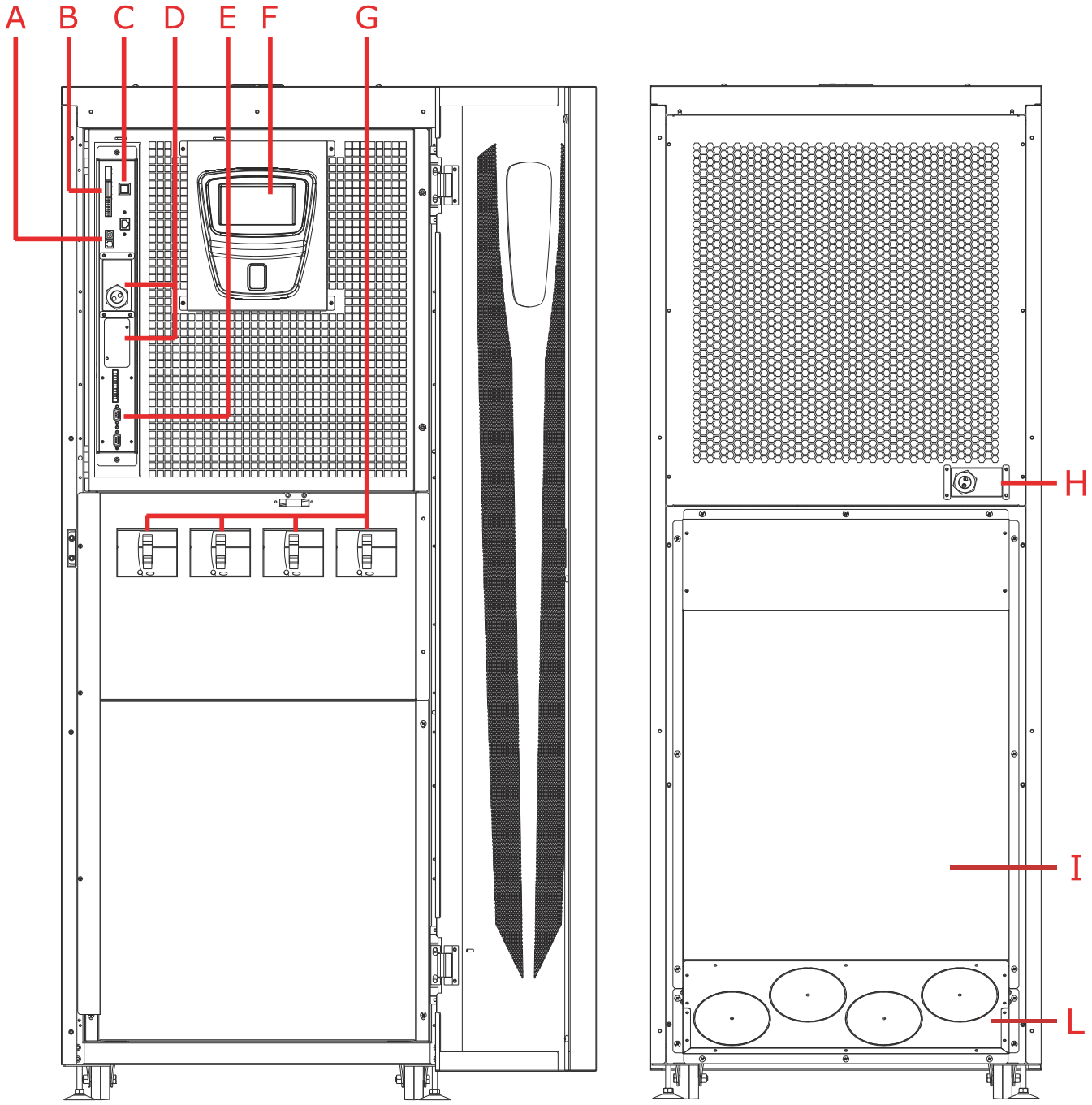
When positioning, take into account that:
- the wheels are to be used for final positioning only. Suitable moving equipment must be used to transport the UPS near to the final position.
- plastic parts and the door are not able to act as pushing points or handles.
- for user operation and maintenance, is needed to ensure enough free space in front of the UPS (≈1.5 m).
- no objects should rest on the upper part of the UPS.

WARNING!
The UPS must be positioned on a level floor.
Ensure that the floor can support the total weight of the system. Refer to the TECHNICAL DATA table.

After positioning, lower the four feet at the floor, using an appropriate spanner.
Ensure that the total weight of the cabinet is distributed on feet only (the casters must be lifted from floor).
Ensure that the UPS is level.

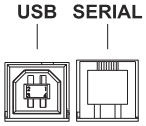
It is possible to reuse the brackets for pallet fastening to anchor the UPS to the floor.

UPS DETAILS



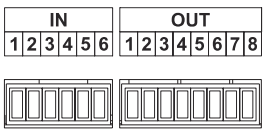
FRONT ***REAR***

A



Communication ports: The UPS is provided with two serial ports (USB and RS232) for computer connection.

B



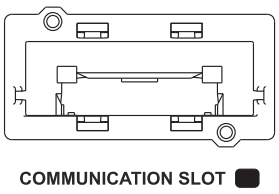
Programmable auxiliary contacts: Programmable input and output contacts.

R.E.P.O. : Emergency Power Off contact.

C

Cold start button: This button allows the user to turn the UPS on from battery, even without the mains present. Refer to User Manual for further information.

D



Communication slots: The UPS is endowed with two communication slots to host optional boards. Slots are not generally interchangeable.

SLOT 1 - Communication Slot
Slot to accomodate the communication cards (e.g. Netman 204).

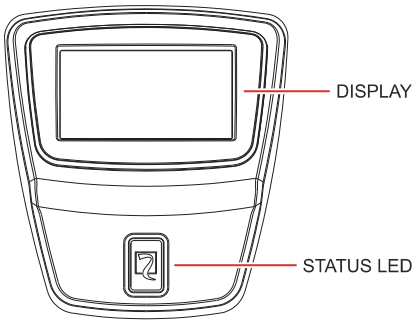
SLOT 2 - Relay Slot
Slot to accomodate an additional communication board (default configuration), or relay expansion board (e.g. Multicom 384, to be set by configuration software). It can also be provided with a plastic cover to increase the degree of protection.

Please refer to the optional board kit user manual for further information.

E

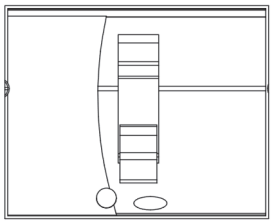
Parallel ports: The parallel ports will enable the connection of up to four units in parallel by using the optional cable kit (one for each unit).

F



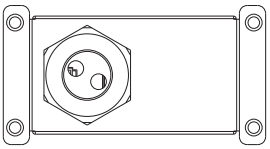
Touch screen display and led indicator: Through the 5” touch panel display the user can monitor the system parameter and configure the UPS. The Riello logo backlight color indicates the system status.
Refer to User Manual for further information.

G



Switch disconnectors/Breakers: input, bypass, service bypass breaker and output switch.

H



External signals cover: remove this cover to access the external signal connectors.

- EXT T-BATT
- BATTERY CABINET REPO

See “auxiliary connectors section” below for further information.

I

Terminal blocks cover: remove this cover to access the terminal blocks for UPS wiring.

L

Cable output: This aluminum panel can be drilled to customize cable output. To maintain the IP20 protection degree, suitable cable glands must be used.

POWER CONNECTION INFORMATION

Wiring information:
For power cable connection, use Phoenix Contact “AI” type copper ferrules (or equivalent) of proper diameter, crimp with suitable hexagonal shape crimping tool.
Use torque force indicated in the following tables when connecting AC and DC wiring terminals.
Ring terminal of PE stud size have to be 8 mm minimum

INPUT AC Line Connection 3PH + N + PE (Single / Dual Mains)								
UPS size	Max Power [kW-kVA]	Max Current [A]	Terminal A, B, C, N		PE	Wire A, B, C, N, PE		
			Maximum cross section	Tight. torque [in-lb]	Tight. torque [lb-in]	Type	Cross sectional area A, B, C, N	Cross sectional area PE**
40	40 - 40	156	250MCM	275	126	75°C or 90°C copper wire	250 kcmil*	AWG 4
50	50 - 50	196	500MCM	375	126	75°C or 90°C copper wire	350 kcmil*	AWG 4
60	60 - 60	228	500MCM	375	126	75°C or 90°C copper wire	500 kcmil*	AWG 4

BYPASS AC Line Connection 3PH + N + PE (Dual Mains)								
UPS size	Max Power [kW-kVA]	Max continuous current [A]	Terminal A, B, C, N		PE	Wire A, B, C, N, PE		
			Maximum cross section	Tight. torque [in-lb]	Tight. torque [lb-in]	Type	Cross sectional area A, B, C, N	Cross sectional area PE
40	40 - 40	122	250MCM	275	126	75°C or 90°C copper wire	AWG 3/0*	AWG 4
50	50 - 50	153	500MCM	375	126	75°C or 90°C copper wire	250 kcmil*	AWG 4
60	60 - 60	183	500MCM	375	126	75°C or 90°C copper wire	350 kcmil*	AWG 4

OUTPUT AC Line Connection 3PH + N + PE								
UPS size	Max Power [kW-kVA]	Nominal current [A]	Terminal A, B, C, N		PE	Wire A, B, C, N, PE		
			Maximum cross section	Tight. torque [in-lb]	Tight. torque [lb-in]	Type	Cross sectional area A, B, C, N	Cross sectional area PE
40	40 - 40	111	250MCM	275	126	75°C or 90°C copper wire	AWG 3/0*	AWG 4
50	50 - 50	139	500MCM	375	126	75°C or 90°C copper wire	AWG 4/0*	AWG 4
60	60 - 60	166	500MCM	375	126	75°C or 90°C copper wire	300 kcmil*	AWG 4

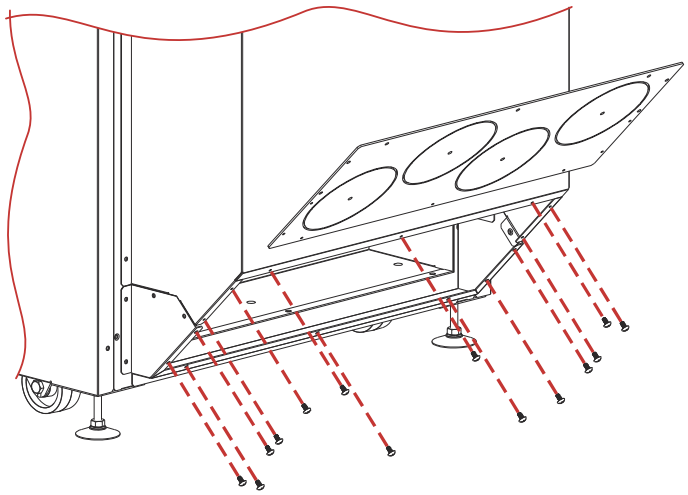
Input Battery DC Line Connection BATT+, BATT-, PE (Nominal voltage 240V)								
UPS size	Max Power [kW-kVA]	Rated Current [A]		Terminal BATT +, BATT -		PE	Wire BATT +, BATT -, PE **	
		@nominal battery voltage	@end of discharge voltage	Maximum cross section	Tight. torque [in-lb]	Tight. torque [lb-in]	Type	Cross sectional area +, -	Cross sectional area PE
40	40 - 40	182	224	250MCM	275	126	75°C or 90°C copper wire	AWG 3/0*	AWG 4
50	50 - 50	225	280	500MCM	375	126	75°C or 90°C copper wire	AWG 4/0*	AWG 4
60	60 - 60	270	337	500MCM	375	126	75°C or 90°C copper wire	300 kcmil*	AWG 4

(*) *The suggested cross section refers to 90°C rated cables with an ambient temperature of 40°C. If different cables are used, or installed at a higher ambient temperature, the cable size needs to be reviewed according to the National Electric Code (Table 310.16).*

(**) *The maximum length of the cables for connecting the battery cabinet (optional) is 10 metres (33 ft).*

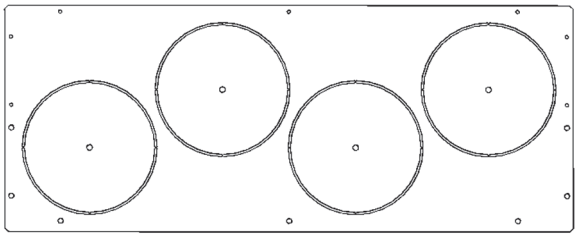
POWER CONNECTION INSTALLATION

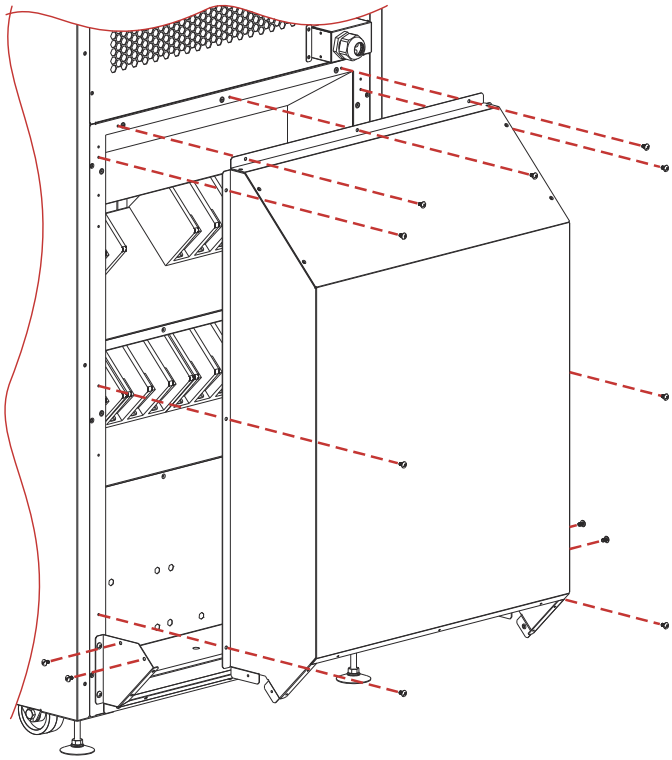
To install the UPS to the power mains, follow the indications below:



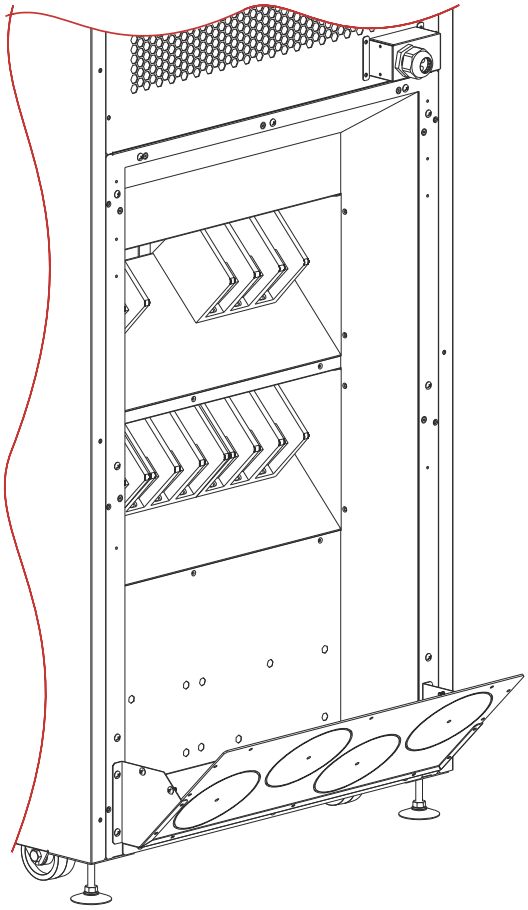
Remove the terminal block cover aluminum panel.

Cut appropriate holes on the panel to pass the input/output power cables according to plant needings. Use suitable cable glands to achieve the required degree of protection.





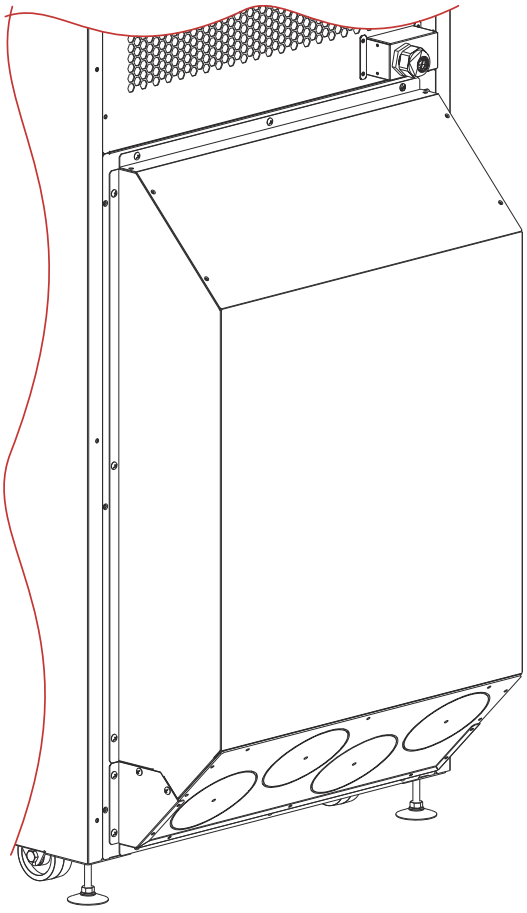
Remove the bigger part of the cover to access the terminal blocks.



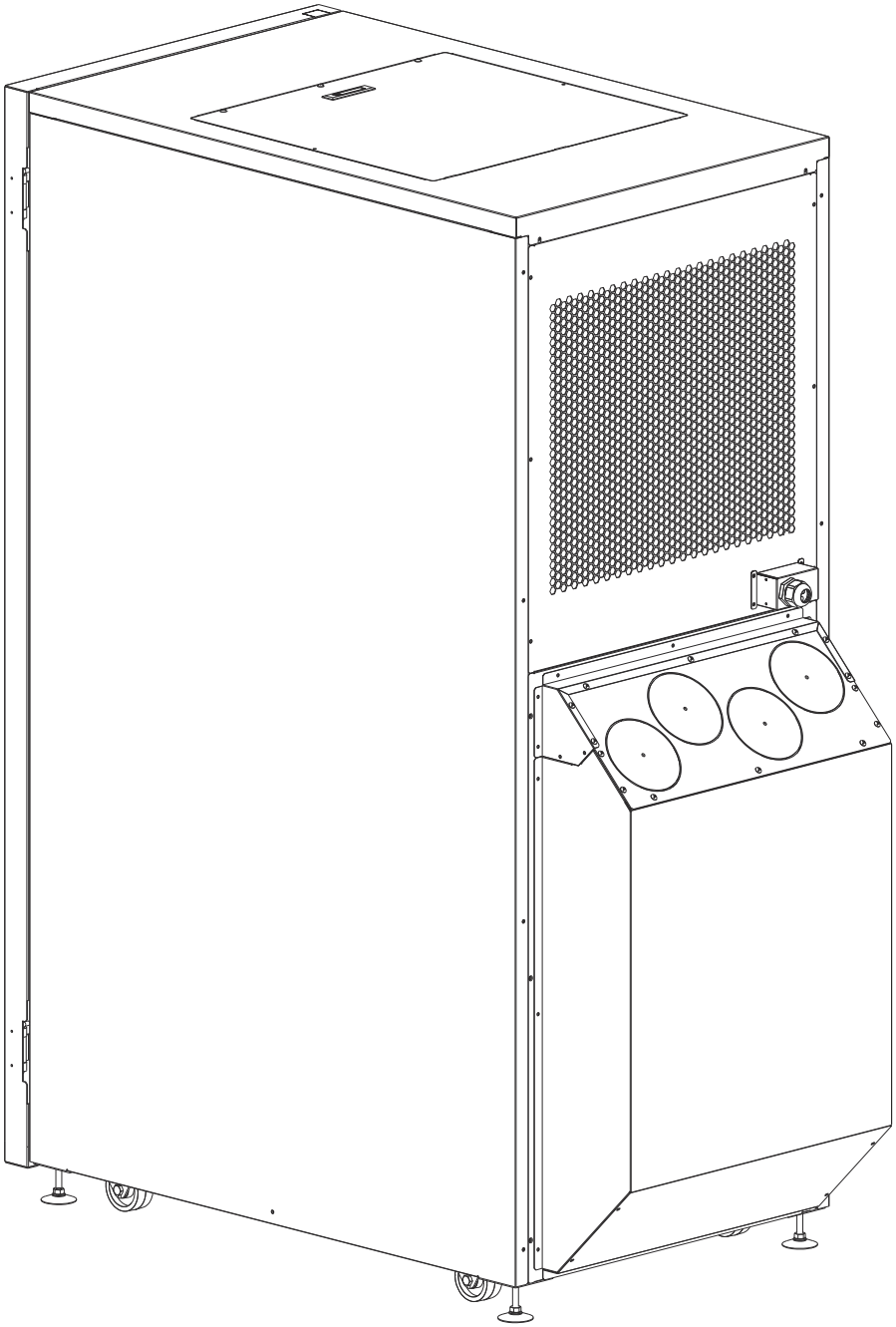
Put the aluminum plate in place and fasten it with the provided screws, after passing the power cables through it.

Connect the power cables to terminal blocks.

ATTENTION: connect always the PE wire first.



Close the top cover with the previously removed screws.



If top cable entry is required by the installation, the rear terminal cover can be rotated by 180 degrees to enable the wiring to exit upward.

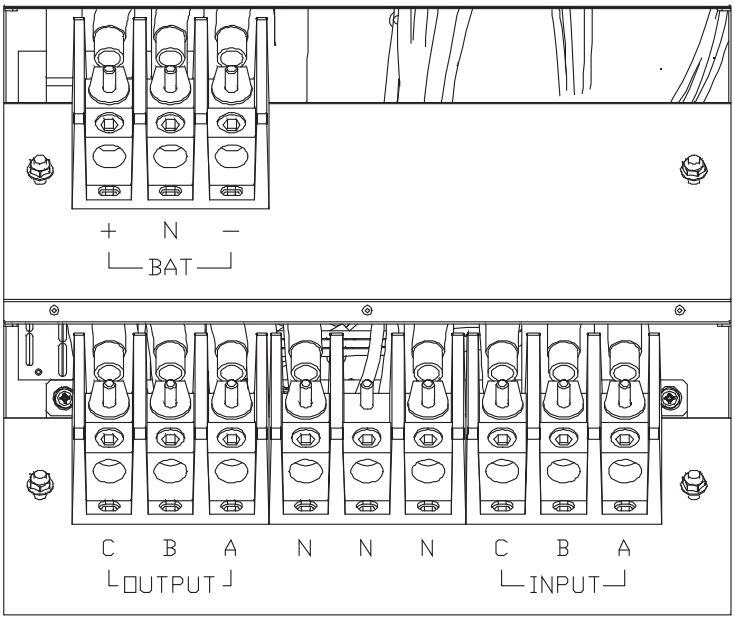
CONNECTION DETAIL

The first wire to be connected is the protective earth wire, which has to be inserted in the terminal marked PE with a circled earth symbol. During operation the UPS must be connected to the earthing system.

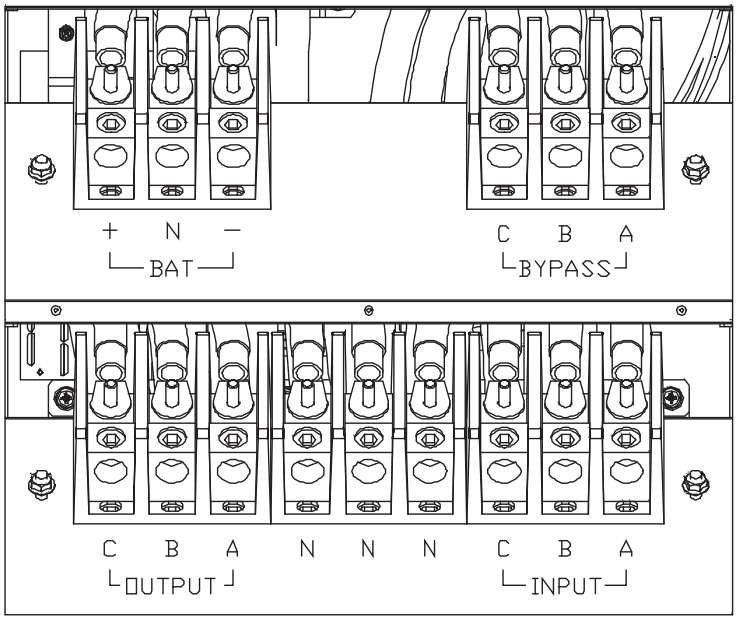
Connect the input and output cables to the terminal blocks as indicated in the figure below:

POWER CONNECTIONS

S3U (single input version)



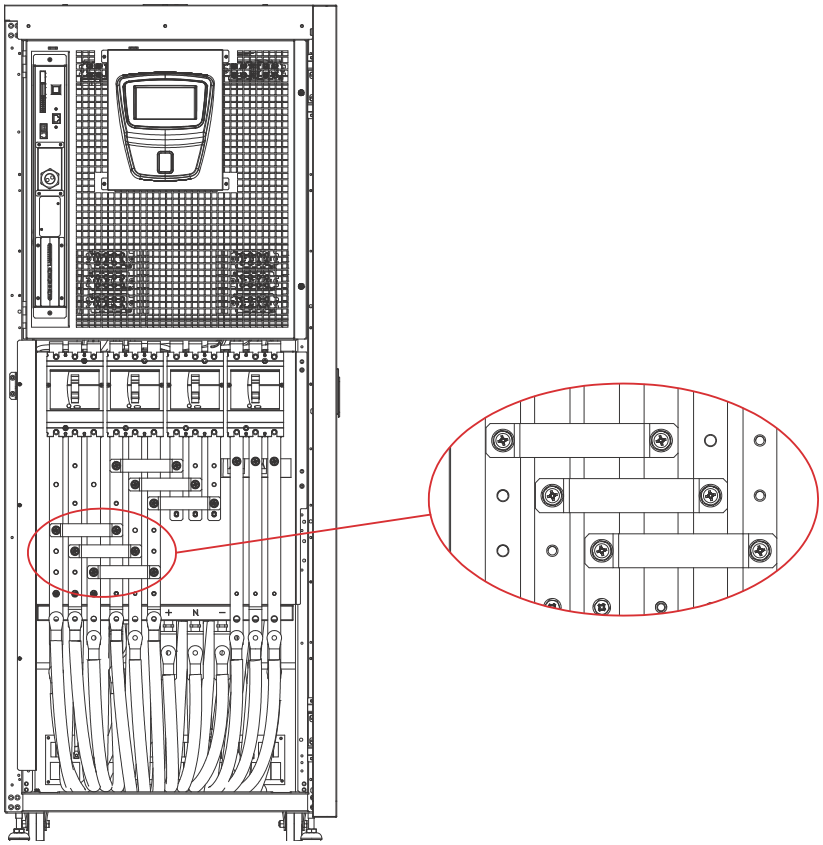
S3U SW (dual input, four switches version)



THE INPUT AND BYPASS NEUTRALS MUST ALWAYS BE CONNECTED.
THE INPUT AND BYPASS LINES MUST REFER TO THE SAME NEUTRAL POTENTIAL.

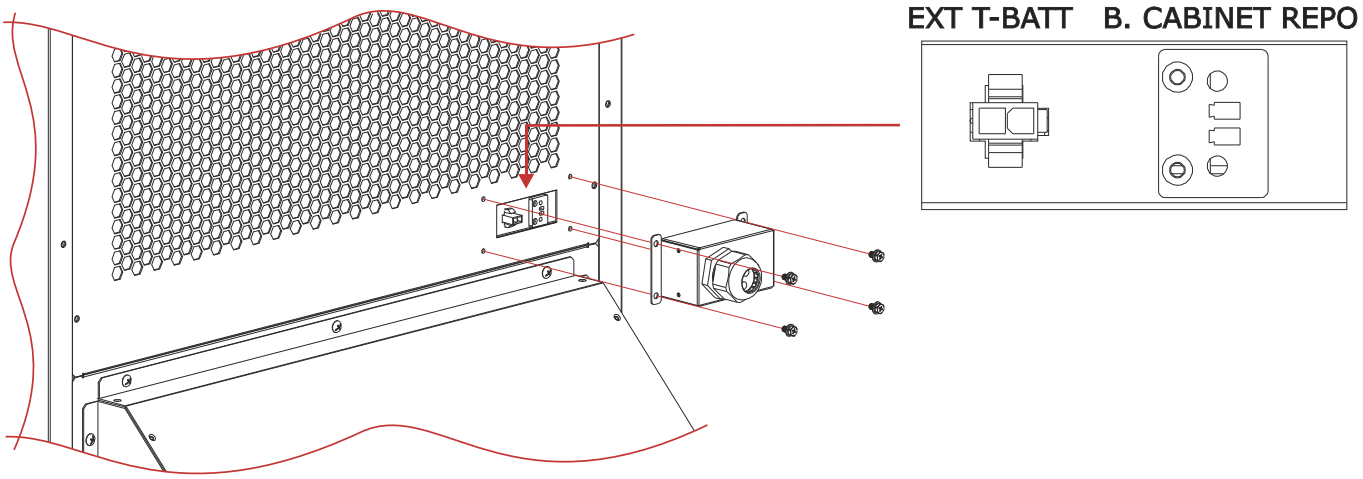
SINGLE INPUT CONNECTION BRIDGES

In order to link the mains input with bypass for single input connection of the “SW” versions, three bridges are installed by default to short-circuit bypass to input terminal blocks (R, S, T) on the front bars.



To access the bridges, it is necessary to remove the front breaker covers below the door.
Remove the circled bars links if a separate bypass line has to be connected.

AUXILIARY CONNECTORS



On the UPS rear, just above the terminal block cover, there are two signal connectors, enclosed in a metal cover:

EXT T_BATT External battery cabinet temperature

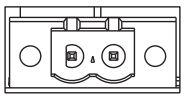
- Through this input the UPS is able to read the temperature of the external batteries and compensate the floating charge level.
  For more information please refer to the “BATTERY BOX INSTALLATION” section of this manual.
  WARNING: This input is not isolated.

B_BOX REPO battery cabinet breaker remote trip

- Connect the battery cabinet REPO wires to the battery cabinet to make the battery breaker trip when the UPS REPO is pressed to disconnect the battery circuit from UPS.
  This feature is required by National Electrical Code (Article 645.11) and it is mandatory for computer room installations.

COMMUNICATION INTERFACE

R.E.P.O.



R.E.P.O.

These connectors are placed on the front, under the door, in the upper-left part (see “UPS DETAILS” for the exact position):

This isolated input is used to turn the UPS off remotely in case of an emergency.
The UPS is supplied from the factory with the “Remote Emergency Power Off” (R.E.P.O.) terminals short-circuited. If it is to be installed, remove the short-circuit and connect to the normally closed contact of the stop device using a double insulated cable.
In case of emergency, by activating the stop device, the R.E.P.O. control is opened, and the UPS will shut-down (refer to USER MANUAL), and the load will be powered off completely.

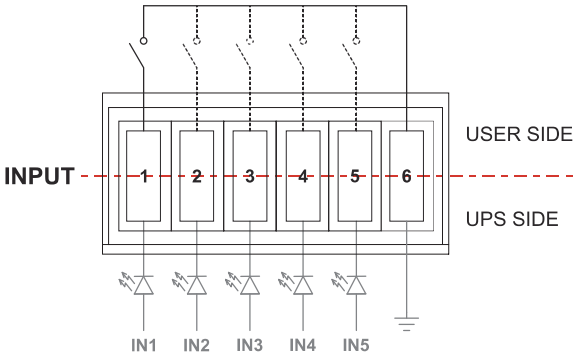
The R.E.P.O. circuit is self-powered with SELV type circuits. No external power supply voltage is therefore required. When it is closed (normal condition), a maximum current of 15mA is present.

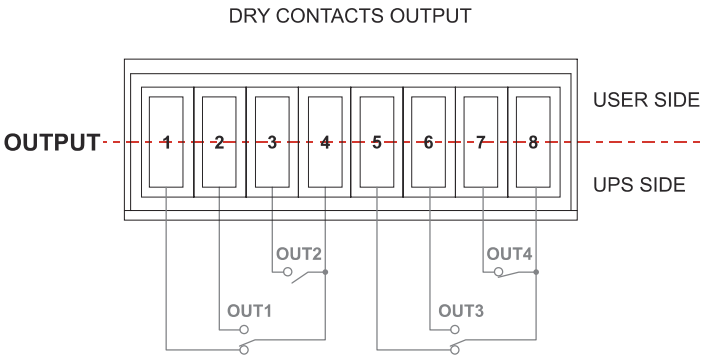
The UPS is supplied from the factory with the “Remote Emergency Power Off” (R.E.P.O.) terminals short-circuited (refer to "UPS

NOTE: If more than one UPS is to be connected within the same R.E.P.O system. Each UPS must be provided with its own dedicated separate set of contacts. Do not connect the systems in parallel or series.

PROGRAMMABLE IN – OUT SIGNALS

The IN-OUT signals (refer to "UPS DETAILS” for the exact position) have a standard factory configuration. The only input signal enabled by default is “**IN 5”.** For further information refer to the “User Manual”.
Moreover, all the INPUT/ OUTPUT signals can be programmed using the service configuration software reserved to service personnel only.





FACTORY DEFAULT SETTING

INPUT	DEFAULT FUNCTION
IN 1	N/A (Customizable)
IN 2	N/A (Customizable)
IN 3	N/A (Customizable)
IN 4	N/A (Customizable)
IN 5	System ON

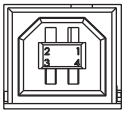
FACTORY DEFAULT SETTING:

OUTPUT	DEFAULT FUNCTION
OUT 1	Load on Bypass
OUT 2	Battery working
OUT 3	Battery low
OUT 4	Fault or Lock (F+L)

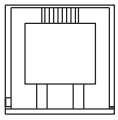
The output dry contacts are rated to:
1A @ 24Vdc or 1A @ 30Vac

NOTE: In case of an external maintenance bypass or Battery Cabinet installation, the relative switch auxiliary contacts must be connected to these inputs and programmed.

USB/SERIAL RS232



USB



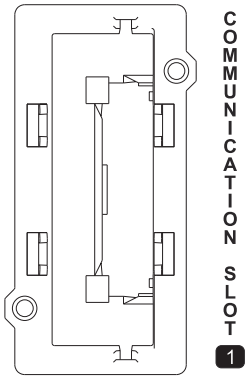
SERIAL RS232

Use these ports to connect the UPS to a server or PC for remote monitoring, service configuration or firmware update.

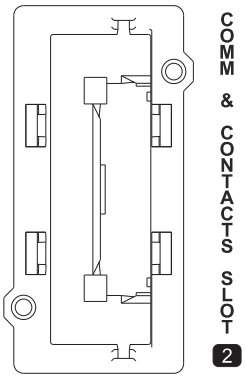
These two ports cannot be used simultaneously. The USB port is to be used as an alternative to the RS232 serial port.
USB port function is only guaranteed with a cable length of no more than 1.5m. Where a longer cable is required, it is recommended that the RS232 serial interface is used.

WARNING: These connectors are not intended for connection to the telephone network.

COMMUNICATION SLOTS



SLOT 1



SLOT 2

The UPS is provided with two communication slots (refer to "UPS DETAILS" ref.10) which can be used to host optional communications cards. The slots are not interchangeable.

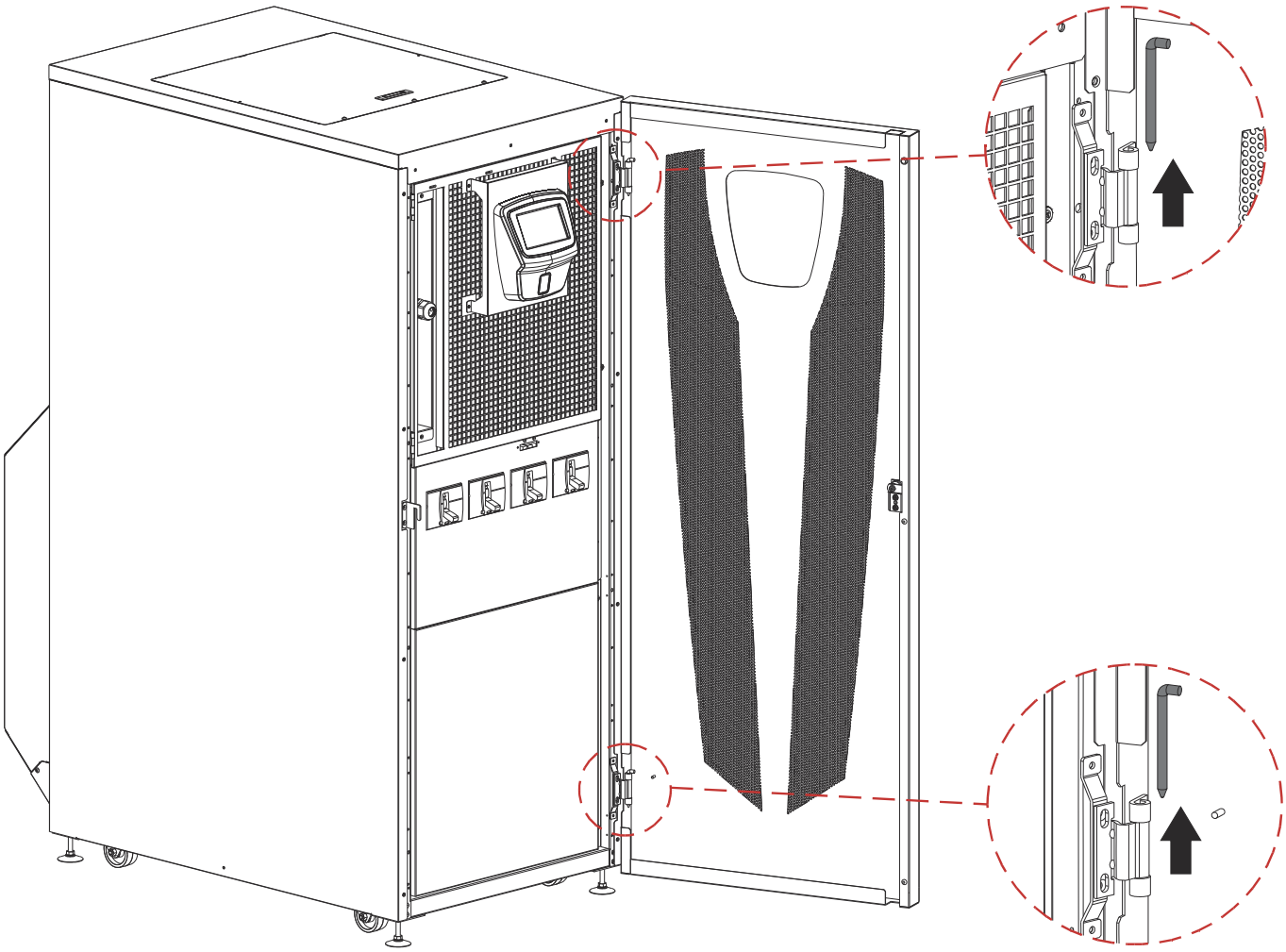
SLOT 1 – Communication Slot
Slot to accomodate the communication cards (no contact or relay cards).

SLOT 2 – Communication and Contacts Slot
Slot to accomodate additional communication cards (default configuration), or contact/relay expansion cards.

Please refer to the optional card kit user manual for further information.

APPENDIX

REMOVING DOOR



To remove the door, first remove the PE connection on the bottom part of the door. Then pull out the pins from the top and bottom hinges and take off the door.

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