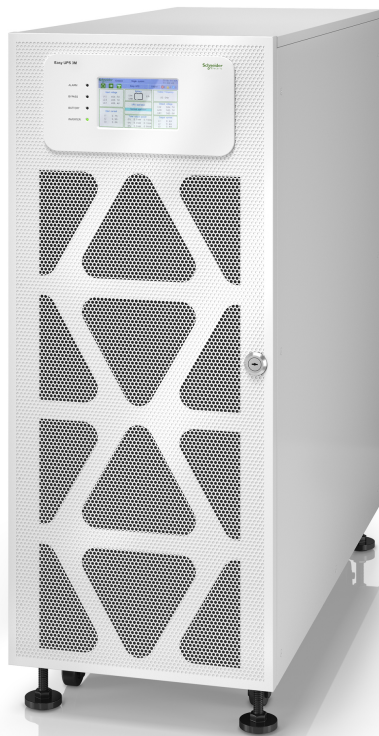


Easy UPS 3M

60-200 kVA 400 V

Technical Specifications

11/2019



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Table of Contents

Important Safety Instructions — SAVE THESE	
INSTRUCTIONS	5
Electromagnetic Compatibility	6
Safety Precautions	6
System Overview	8
User Interface	8
Status LEDs	9
Model List	9
Location of Breakers	11
Overview of Single UPS	12
Overview of 1+1 Redundant Parallel System with Common Battery Bank.....	13
Overview of Parallel System.....	14
Technical Data.....	16
Input Power Factor	16
Efficiency	16
Derating Due to Load Power Factor	17
End of Discharge Voltage	17
Battery Runtimes.....	18
Battery Runtimes for UPSs with Internal Batteries and Modular Battery Cabinets	18
Battery Runtimes for UPSs for External Batteries and Classic Battery Cabinets	19
Compliance.....	20
Communication and Management	20
Facility Planning for 60-80 kVA UPSs for Internal Batteries	21
Input Specifications	21
Bypass Specifications	21
Output Specifications	22
Battery Specifications	22
Recommended Upstream Protection.....	23
Recommended Cables Sizes	23
Recommended Bolts and Cable Lugs	24
Torque Specifications.....	24
UPS Weights and Dimensions	24
UPS Shipping Weights and Dimensions	24
Clearance	25
Environmental	25
Heat Dissipation	25
Facility Planning for 60-100 kVA UPSs for External Batteries	26
Input Specifications	26
Bypass Specifications	26
Output Specifications	27
Battery Specifications	27
Recommended Upstream Protection.....	27
Recommended Cable Sizes	28
Recommended Bolts and Cable Lugs	29

Torque Specifications	29
UPS Weights and Dimensions	29
UPS Shipping Weights and Dimensions	29
Clearance	30
Environmental	30
Heat Dissipation	31
Facility Planning for 120-200 kVA UPSs for External Batteries	32
Input Specifications	32
Bypass Specifications	32
Output Specifications	33
Battery Specifications	33
Recommended Upstream Protection.....	33
Recommended Cable Sizes	34
Recommended Bolts and Cable Lugs	35
Torque Specifications.....	35
UPS Weights and Dimensions	35
UPS Shipping Weights and Dimensions	35
Clearance	36
Environmental	36
Heat Dissipation	36
Requirements for a Third Party Battery Solution.....	37
Third Party Battery Breaker Requirements.....	37
Guidance for Organizing Battery Cables.....	37
Weights and Dimensions	39
Parallel Maintenance Bypass Panel Weights and Dimensions.....	39
Parallel Maintenance Bypass Panel Shipping Weights and Dimensions	39
Classic Battery Cabinet Weights and Dimensions	39
Classic Battery Cabinet Shipping Weights and Dimensions.....	39
Battery Breaker Box Weight and Dimensions	40
Battery Breaker Box Shipping Weight and Dimensions	40
Battery Breaker Kit Weights and Dimensions	40
Battery Breaker Kit Shipping Weights and Dimensions	40
Drawings	41
Easy UPS 3M UPS for External Batteries – Single Mains System.....	41
Easy UPS 3M UPS for External Batteries – Dual Mains System	42
Easy UPS 3M UPS for Internal Batteries – Single Mains System	43
Easy UPS 3M UPS for Internal Batteries – Dual Mains System	44
Options	45
Default Settings.....	45
Limited Factory Warranty.....	47

Important Safety Instructions — SAVE THESE INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety messages may appear throughout this manual 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 a “Danger” or “Warning” safety message 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 with this symbol to avoid possible injury or death.

DANGER

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

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

WARNING

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

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

CAUTION

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

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

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.

Failure to follow these instructions can result in equipment damage.

Please Note

Electrical equipment should only be installed, operated, serviced, and maintained by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Electromagnetic Compatibility

NOTICE

RISK OF ELECTROMAGNETIC DISTURBANCE

This is a product Category C3 according to IEC 62040-2. This is a product for commercial and industrial applications in the second environment - installation restrictions or additional measures may be needed to prevent disturbances. The second environment includes all commercial, light industry, and industrial locations other than residential, commercial, and light industrial premises directly connected without intermediate transformer to a public low-voltage mains supply. The installation and cabling must follow the electromagnetic compatibility rules, e.g.:

- the segregation of cables,
- the use of shielded or special cables when relevant,
- the use of grounded metallic cable tray and supports.

Failure to follow these instructions can result in equipment damage.

Safety Precautions

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- The product must be installed according to the specifications and requirements as defined by Schneider Electric. It concerns in particular the external and internal protections (upstream circuit breakers, battery circuit breakers, cabling, etc.) and environmental requirements. No responsibility is assumed by Schneider Electric if these requirements are not respected.
- After the UPS system has been electrically wired, do not start up the system. Start-up must only be performed by Schneider Electric.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

The UPS System must be installed according to local and national regulations. Install the UPS according to:

- IEC 60364 (including 60364-4-41- protection against electric shock, 60364-4-42 - protection against thermal effect, and 60364-4-43 - protection against overcurrent), **or**
- NEC NFPA 70

depending on which one of the standards apply in your local area.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Install the UPS system in a temperature controlled area free of conductive contaminants and humidity.
- Install the UPS system on a non-flammable, level, and solid surface (e.g. concrete) that can support the weight of the system.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

The UPS is not designed for and must therefore not be installed in the following unusual operating environments:

- Damaging fumes
- Explosive mixtures of dust or gases, corrosive gases, or conductive or radiant heat from other sources
- Moisture, abrasive dust, steam or in an excessively damp environment
- Fungus, insects, vermin
- Salt-laden air or contaminated cooling refrigerant
- Pollution degree higher than 2 according to IEC 60664-1
- Exposure to abnormal vibrations, shocks, and tilting
- Exposure to direct sunlight, heat sources, or strong electromagnetic fields

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

NOTICE

RISK OF OVERHEATING

Respect the clearance requirements around the UPS system and do not cover the product's ventilation openings when the UPS system is in operation.

Failure to follow these instructions can result in equipment damage.

NOTICE

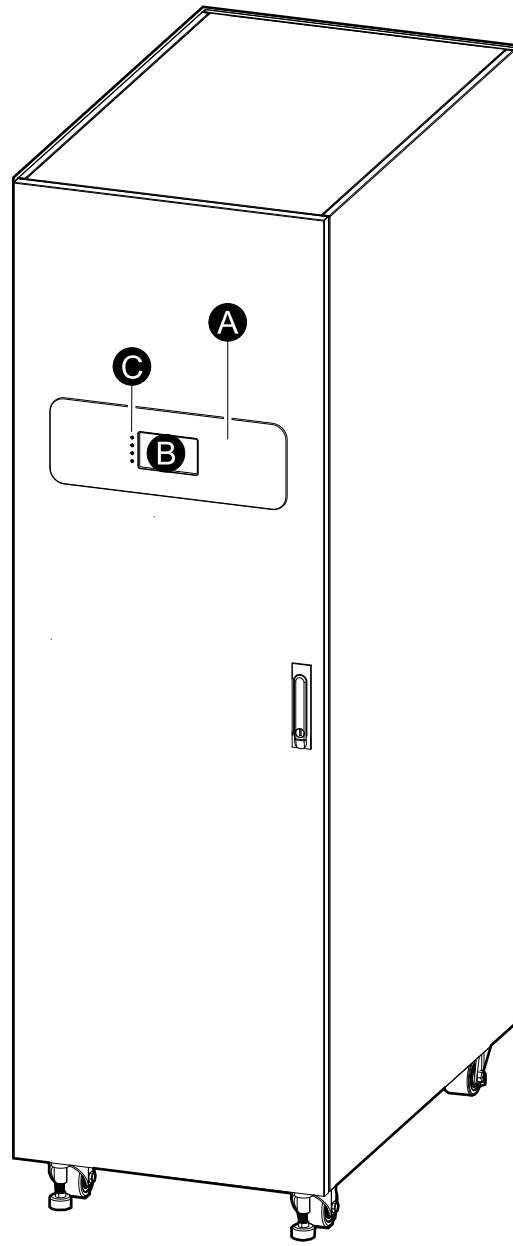
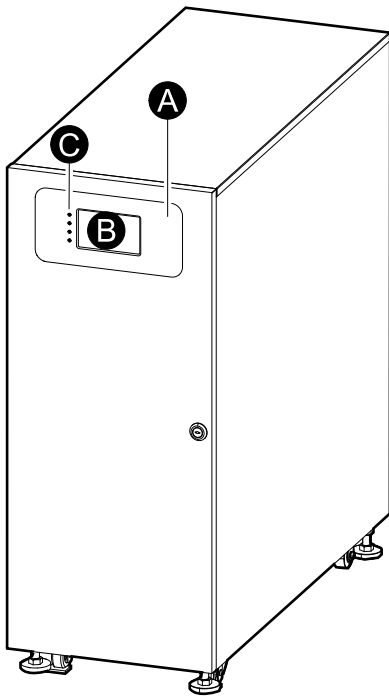
RISK OF EQUIPMENT DAMAGE

Do not connect the UPS output to regenerative load systems including photovoltaic systems and speed drives.

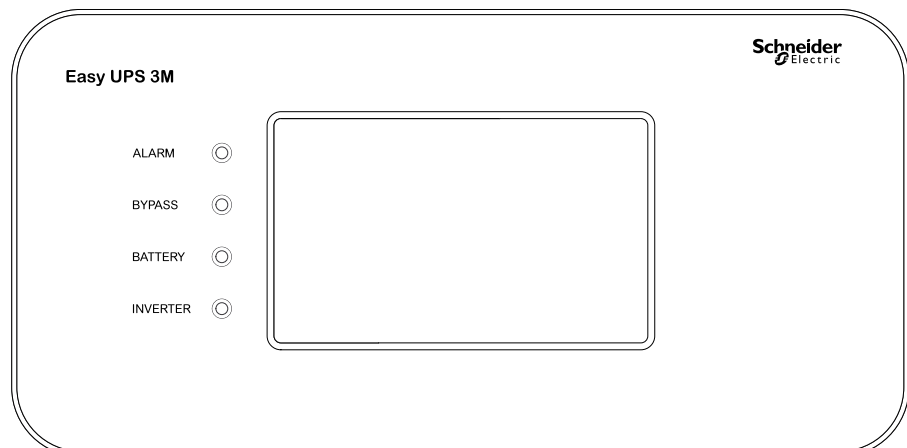
Failure to follow these instructions can result in equipment damage.

System Overview

- A. User interface
- B. Display interface
- C. Status LEDs



User Interface



Status LEDs

LED	State	Description
ALARM	Steady red	Critical alarm
	Flashing red	Warning alarm
	Off	No alarm condition
BYPASS	Steady yellow	The load is supplied by the bypass source
	Flashing yellow	There is an alarm condition on the bypass source
	Off	The load is not supplied by the bypass source
BATTERY	Steady yellow	The load is supplied by the battery source
	Flashing yellow	The battery source is unavailable
	Off	The load is not supplied by the battery source
INVERTER	Steady green	Inverter on
	Off	Inverter off

Model List

UPSs for External Batteries

- E3MUPS60KHS: Easy UPS 3M 60 kVA 400 V 3:3 UPS for external batteries, Start-up 5x8
- E3MUPS80KHS: Easy UPS 3M 80 kVA 400 V 3:3 UPS for external batteries, Start-up 5x8
- E3MUPS100KHS: Easy UPS 3M 100 kVA 400 V 3:3 UPS for external batteries, Start-up 5x8
- E3MUPS120KHS: Easy UPS 3M 120 kVA 400 V 3:3 UPS for external batteries, Start-up 5x8
- E3MUPS160KHS: Easy UPS 3M 160 kVA 400 V 3:3 UPS for external batteries, Start-up 5x8
- E3MUPS200KHS: Easy UPS 3M 200 kVA 400 V 3:3 UPS for external batteries, Start-up 5x8

UPSs for Internal Batteries

- E3MUPS60KHBS: Easy UPS 3M 60kVA 400V 3:3 UPS for internal batteries, Start-up 5x8
- E3MUPS60KHB1S: Easy UPS 3M 60kVA 400V 3:3 UPS with internal batteries - 9.5 minutes runtime, Start-up 5x8
- E3MUPS60KHB2S: Easy UPS 3M 60kVA 400V 3:3 UPS with internal batteries - 14 minutes runtime, Start-up 5x8
- E3MUPS80KHBS: Easy UPS 3M 80kVA 400V 3:3 UPS for internal batteries, Start-up 5x8
- E3MUPS80KHB1S: Easy UPS 3M 80kVA 400V 3:3 UPS with internal batteries - 9.4 minutes runtime, Start-up 5x8
- E3MUPS80KHB2S: Easy UPS 3M 80kVA 400V 3:3 UPS with internal batteries - 15 minutes runtime, Start-up 5x8

Battery Solutions

- E3MCBC7A: Easy UPS 3M Classic Battery Cabinet with batteries, IEC, 700 mm wide - Config A
- E3MCBC7B: Easy UPS 3M Classic Battery Cabinet with batteries, IEC, 700 mm wide - Config B
- E3MCBC10A: Easy UPS 3M Classic Battery Cabinet with batteries, IEC, 1000 mm wide - Config A
- E3MCBC10B: Easy UPS 3M Classic Battery Cabinet with batteries, IEC, 1000 mm wide - Config B
- E3MCBC10C: Easy UPS 3M Classic Battery Cabinet with batteries, IEC, 1000 mm wide - Config C
- E3MCBC10D: Easy UPS 3M Classic Battery Cabinet with batteries, IEC, 1000 mm wide - Config D
- E3MCBC10E: Easy UPS 3M Classic Battery Cabinet with batteries, IEC, 1000 mm wide - Config E
- E3MBBB60K80H: Easy UPS 3M Battery Breaker Box 60-80 kVA 400 V
- E3MBBB100K200H: Easy UPS 3M Battery Breaker Box 100-200 kVA 400 V
- E3MBBK60K80H: Easy UPS 3M Battery Breaker Kit 60-80 kVA 400 V
- E3MBBK100K200H: Easy UPS 3M Battery Breaker Kit 100-200 kVA 400 V
- E3SXR6: Easy UPS 3S Empty Modular Battery Cabinet
- E3SBTH4: Easy UPS 3S High Capacity Battery String

Parallel Maintenance Bypass Panel

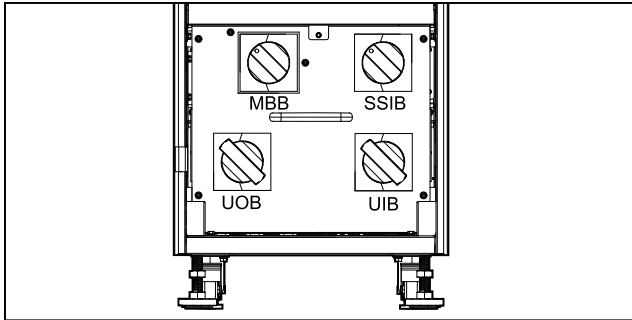
- E3MBPAR60K200H: Easy UPS 3M Parallel Maintenance Bypass Panel

Options

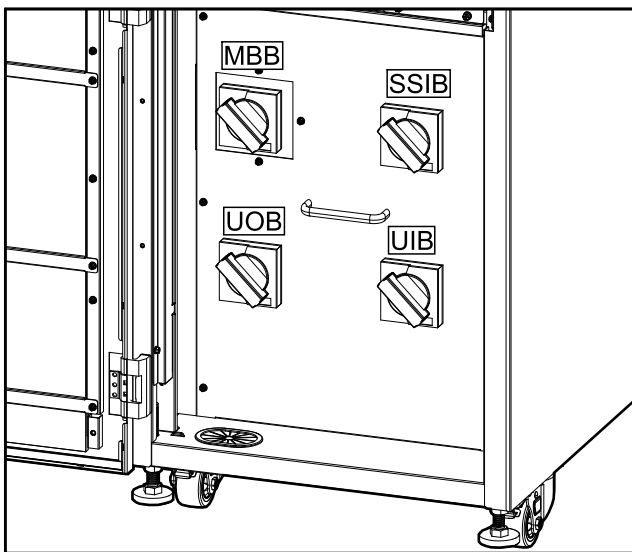
- E3SOPT001: Easy UPS 3 Series Network Card
- E3MOPT001: Easy UPS 3M Parallel Kit for 60-200 kVA UPS
- E3MOPT003: Easy UPS 3M Cable Kit for Adjacent Installation of 700 mm Classic Battery Cabinet, 60-100 kVA UPS
- E3MOPT004: Easy UPS 3M Cable Kit for Adjacent Installation of 1000 mm Classic Battery Cabinet, 60-100 kVA UPS
- E3MOPT005: Easy UPS 3M Cold start kit
- E3MOPT006: Easy UPS 3M Cable Kit, Classic Battery Cabinet & 60-100 kVA UPS, Modular Battery Cabinet & 60-80 kVA UPS

Location of Breakers

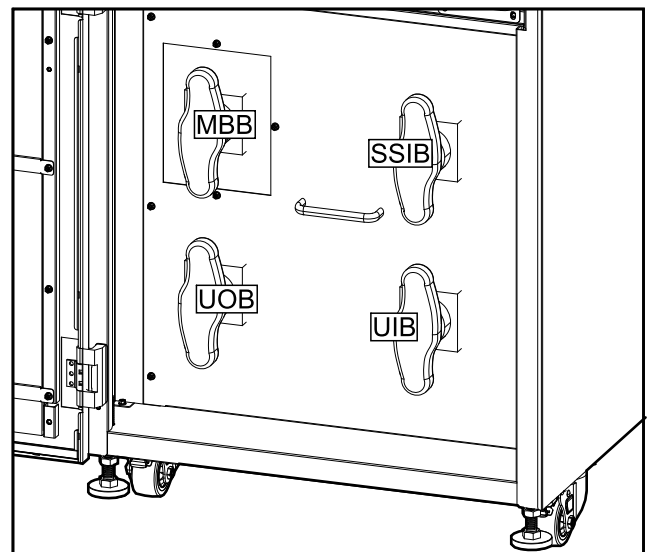
60-100 kVA UPS for External Batteries



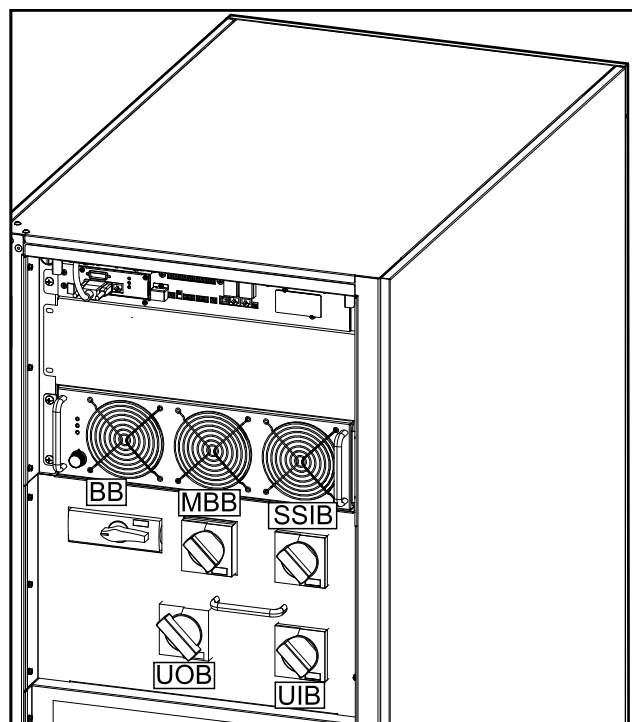
120-160 kVA UPS for External Batteries



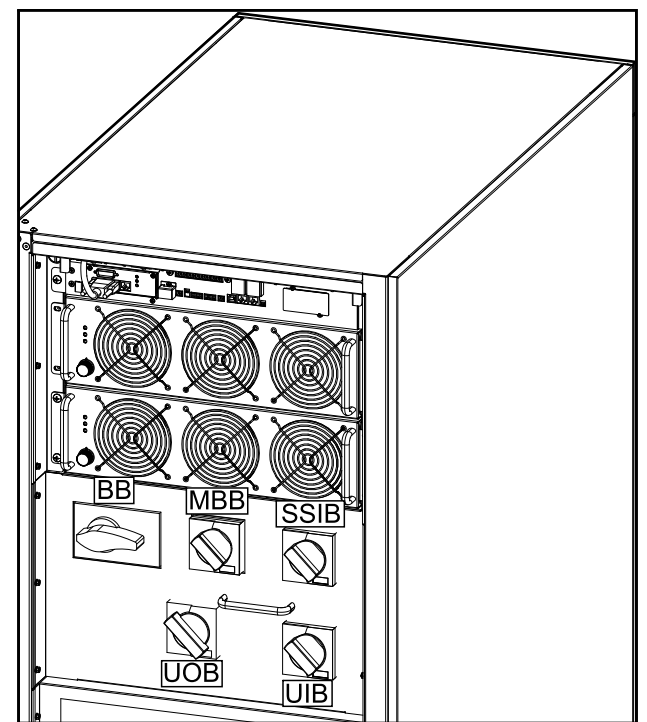
200 kVA UPS for External Batteries



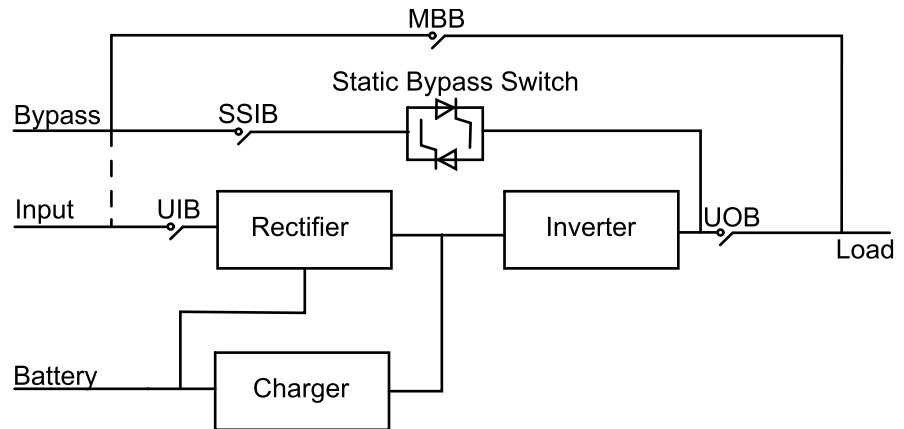
Front View of the 60 kVA UPS for Internal Batteries



Front View of the 80 kVA UPS for Internal Batteries



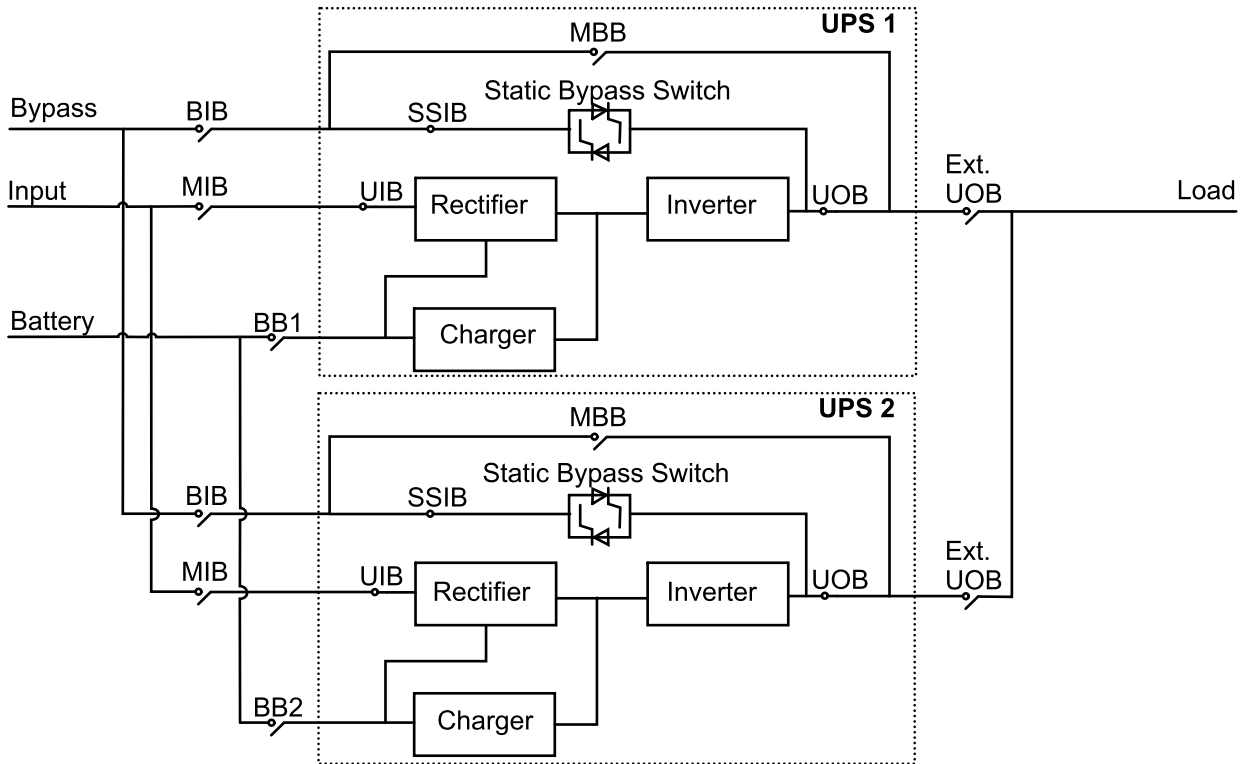
Overview of Single UPS



UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
MBB	Maintenance bypass breaker

Overview of 1+1 Redundant Parallel System with Common Battery Bank

NOTE: Common battery banks are not supported in systems with internal batteries.

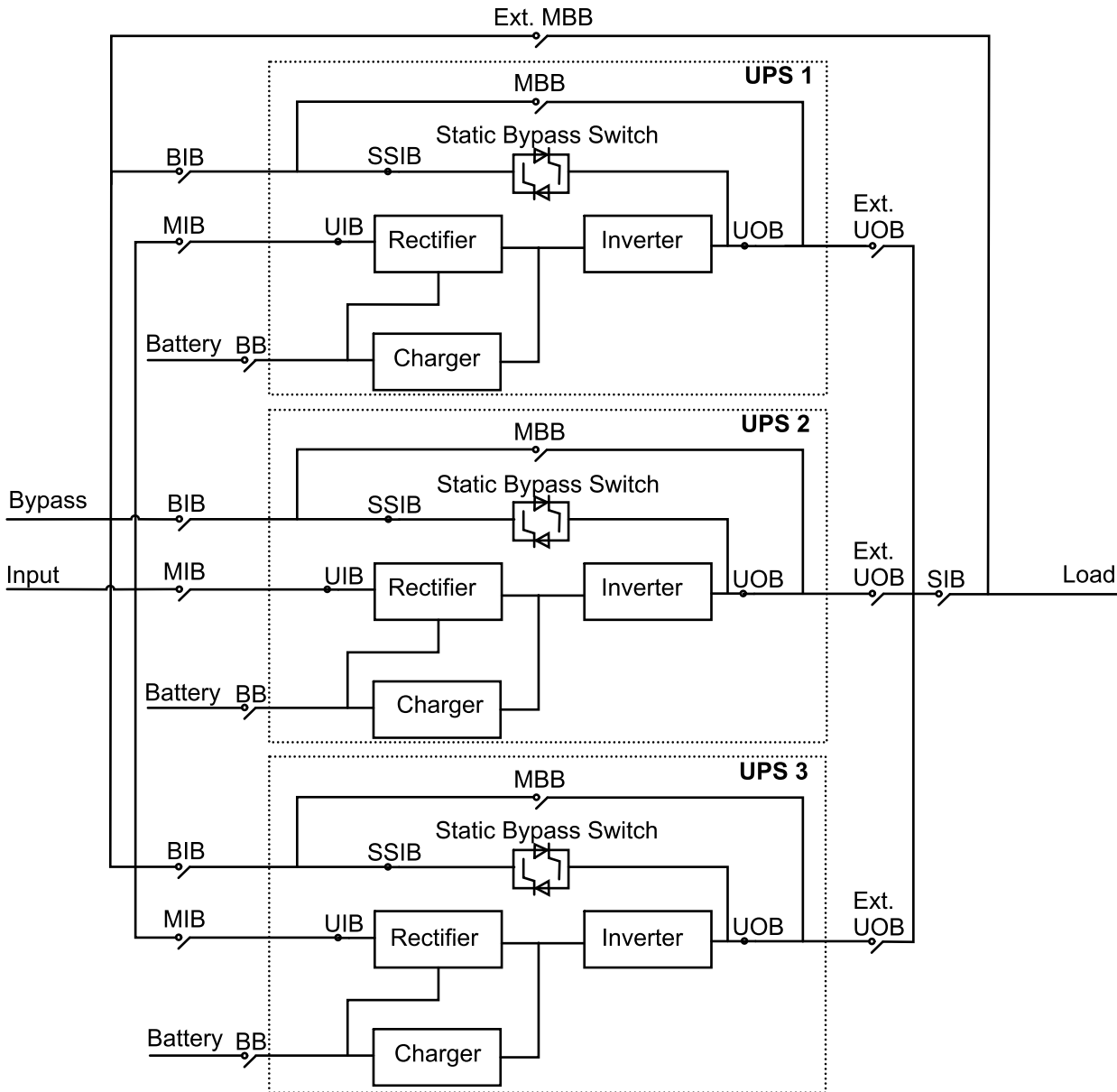


MIB	Mains input breaker
BIB	Bypass input breaker
UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
Ext. UOB	External unit output breaker
MBB	Maintenance bypass breaker
Ext. MBB	External maintenance bypass breaker
BB1	Battery breaker 1
BB2	Battery breaker 2

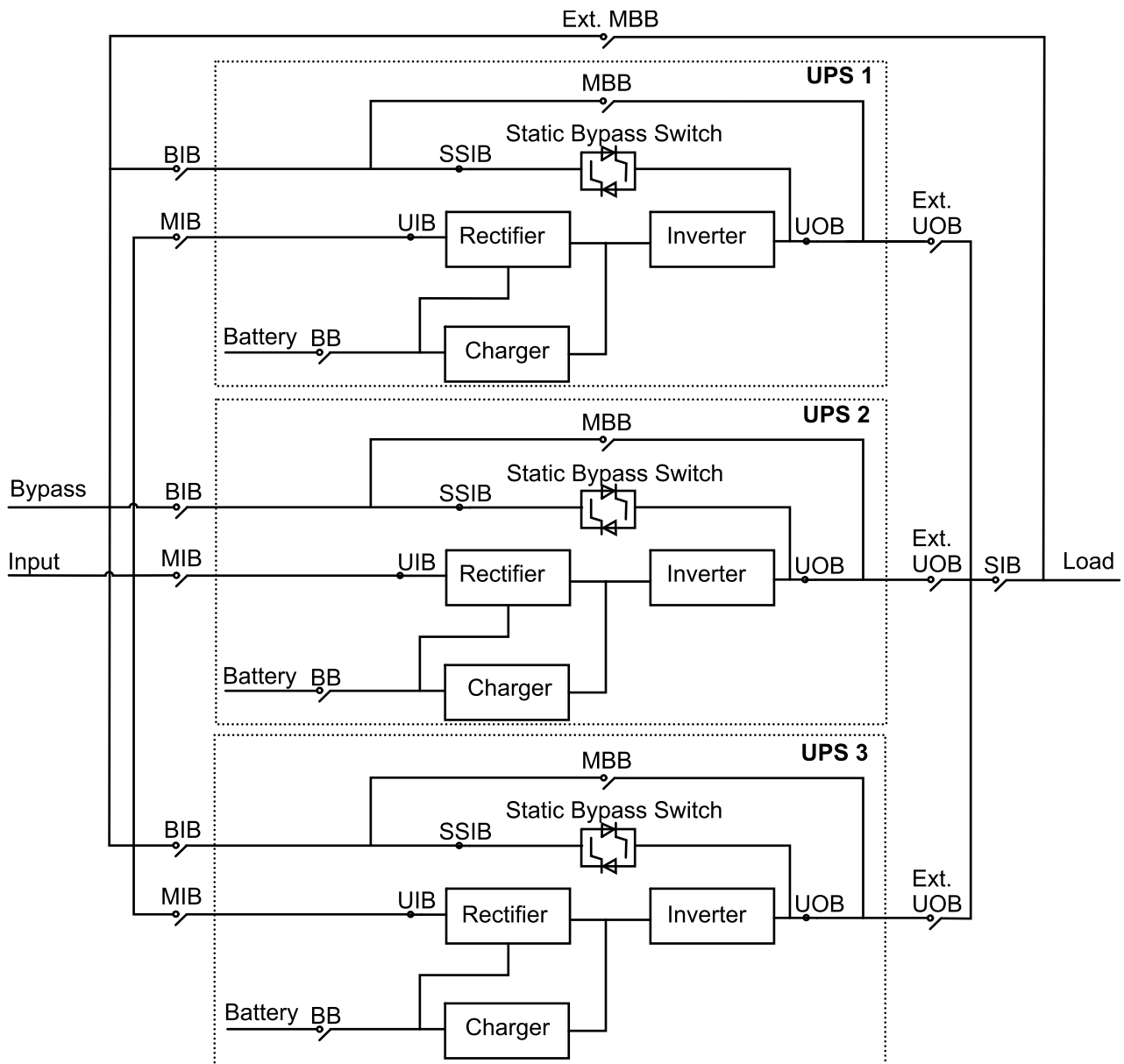
Overview of Parallel System

NOTE: In parallel systems with an external maintenance bypass breaker Ext. MBB, the maintenance bypass breakers MBB must be padlocked in the open position.

UPSs for External Batteries



UPSs for Internal Batteries



MIB	Mains input breaker
BIB	Bypass input breaker
UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
Ext. UOB	External unit output breaker
MBB	Maintenance bypass breaker
Ext. MBB	External maintenance bypass breaker
SIB	System isolation breaker
BB	Battery breaker

Technical Data

Input Power Factor

The values are at a 400 V, 50 Hz linear load.

	UPSs for Internal Batteries		UPSs for External Batteries					
	60 kVA	80 kVA	60 kVA	80 kVA	100 kVA	120 kVA	160 kVA	200 kVA
25% load	0.99	0.99	0.98	0.97	0.98	0.98	0.98	0.98
50% load	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
75% load	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
100% load	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99

Efficiency

Efficiency in Normal Mode

The values are at a 400 V, 50 Hz linear load.

	UPSs for Internal Batteries		UPSs for External Batteries					
	60 kVA	80 kVA	60 kVA	80 kVA	100 kVA	120 kVA	160 kVA	200 kVA
25% load	95.3	94.8	95.5	94.7	95.3	95.3	95.6	95.5
50% load	95.6	95.5	95.8	95.5	95.6	95.6	95.8	95.6
75% load	95.3	95.3	95.4	95.3	95.2	95.2	95.2	95.1
100% load	94.8	94.9	94.8	94.9	94.8	94.6	94.5	94.5

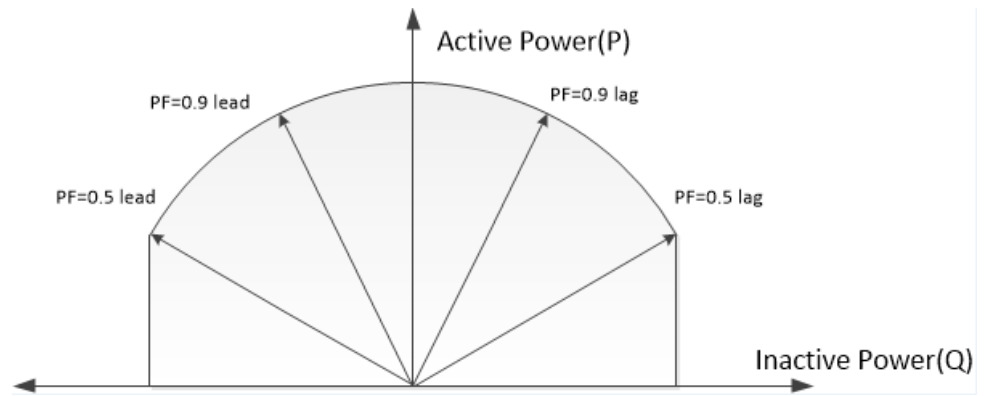
Efficiency in ECO Mode

	UPSs for Internal Batteries		UPSs for External Batteries					
	60 kVA	80 kVA	60 kVA	80 kVA	100 kVA	120 kVA	160 kVA	200 kVA
25% load	98.9	98.8	98.9	98.8	99.0	99.0	99.0	99.0
50% load	99.1	98.9	99.1	99.0	99.2	99.2	99.1	99.1
75% load	99.0	98.9	99.0	98.9	99.0	99.0	99.0	99.0
100% load	99.1	99.0	99.1	99.0	99.1	99.0	99.0	99.0

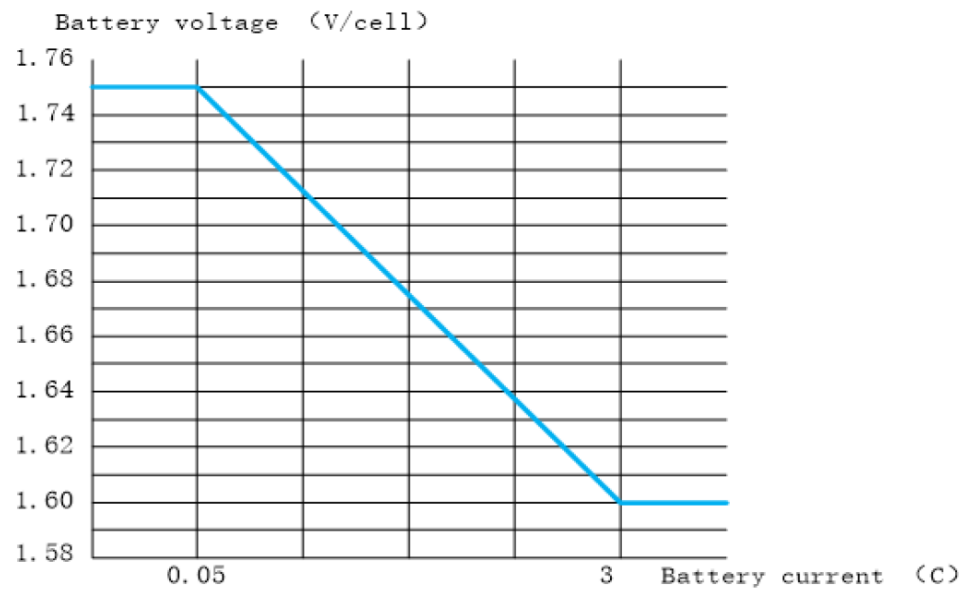
Efficiency in Battery Operation

	UPSs for Internal Batteries		UPSs for External Batteries					
	60 kVA	80 kVA	60 kVA	80 kVA	100 kVA	120 kVA	160 kVA	200 kVA
25% load	95.0	94.5	94.9	95.0	95.1	94.8	95.1	94.7
50% load	95.8	95.3	95.7	95.4	95.7	95.5	95.5	95.2
75% load	95.7	95.3	95.4	95.2	95.4	95.3	95.1	94.9
100% load	95.3	95.1	95.1	94.8	94.9	95.0	94.7	94.4

Derating Due to Load Power Factor



End of Discharge Voltage



Battery Runtimes

Battery Runtimes for UPSs with Internal Batteries and Modular Battery Cabinets

Battery runtimes are listed in minutes and are estimated values based on battery manufacturer data for operation at 25 °C.

Number of modular battery strings	60 kVA UPS				80 kVA UPS			
	25% Load	50% Load	75% Load	100% Load	25% Load	50% Load	75% Load	100% Load
2	16	6.1						
3	27.5	11	6.1		19	7.3		
4	39.5	16.5	9.4	6	27.5	11	6	
5	52.5	22	12.5	8.5	36.5	15	8.5	5.4
6	65.5	28	16.5	11	46	19	11	7.2
7	79.5	34	20	13.5	55.5	23.5	13.5	9
8	93.5	40	24	16	65.5	28	16	10.5
9	105	46.5	28	19	76	32.5	19	12.5
10	120	53	32	22	86	37	22	14.5
11	135	59.5	36	24.5	97	41.5	24.5	16.5
12	150	66	40	27.5	105	46.5	27.5	19
13	165	73	44.5	30.5	115	51.5	30.5	21
14	180	80	48.5	33.5	125	56.5	33.5	23
15	195	87	53	36.5	140	61.5	36.5	25
16	215	94	57.5	40	150	66.5	40	27.5
17	230	100	61.5	43	160	71.5	43	29.5
18	245	105	66	46	175	76.5	46	32
19	260	115	71	49.5	185	82	49.5	34
20	280	120	75.5	52.5	195	87	52.5	36.5
21	295	130	80	56	210	92.5	56	38.5
22	315	135	84.5	59	220	98	59	41
23	330	145	89.5	62.5	235	100	62.5	43.5
24	350	150	94	66	245	105	66	46
25	365	160	99	69	260	110	69	48
26	385	165	100	72.5	270	120	72.5	50.5
27	400	175	105	76	285	125	76	53
28	420	185	110	79.5	295	130	79.5	55.5
29	435	190	115	83	310	135	83	58
30	455	200	120	86.5	320	140	86.5	60.5

Battery Runtimes for UPSs for External Batteries and Classic Battery Cabinets

Battery runtimes are listed in minutes and are estimated values based on battery manufacturer data for operation at 25 °C.

Battery Runtimes for 60 and 80 kVA UPSs and Classic Battery Cabinets

Battery Solution	60 kVA UPS				80 kVA UPS			
	25% Load	50% Load	75% Load	100% Load	25% Load	50% Load	75% Load	100% Load
E3MCBC7A	49	19	10	5.9	33.5	12.5	5.9	
E3MCBC7B	66.5	28	16.5	10.5	46.5	19	10.5	6.9
E3MCBC10A	88	39	23.5	16	63	27.5	16	10.5
E3MCBC10B	125	56	33.5	22.5	90.5	39	22.5	14.5
E3MCBC10C	140	63.5	38	26	100	44.5	26	17
E3MCBC10D	190	89	55.5	39	140	63.5	39	27
E3MCBC10E	280	125	79	55.5	200	91.5	55.5	38
2xE3MCBC7A	115	49.5	29	19	82.5	34	19	12
2xE3MCBC7B	150	67	40.5	28	105	47	28	19

Battery Runtimes for 100 and 120 kVA UPSs and Classic Battery Cabinets

Battery Solution	100 kVA UPS				120 kVA UPS			
	25% Load	50% Load	75% Load	100% Load	25% Load	50% Load	75% Load	100% Load
E3MCBC7A	24.5	8.5			19	5.9		
E3MCBC7B	35.5	14	7.8		28	10.5	5.7	
E3MCBC10A	48.5	20.5	11.5	7.5	39	16	8.9	5.4
E3MCBC10B	69.5	29	16	10	55.5	22.5	12	7.3
E3MCBC10C	78.5	33.5	19	12	63	26	14.5	8.9
E3MCBC10D	105	49	29.5	20.5	88	39	23.5	16
E3MCBC10E	155	70	42	28.5	125	55.5	33	22.5
2xE3MCBC7A	62.5	25	13.5	8.4	49	19	10	5.9
2xE3MCBC7B	83	35.5	21	14	66.5	28	16.5	10.5
2xE3MCBC10A					88	39	23.5	16
2xE3MCBC10B					125	55.5	33	22.5
2xE3MCBC10C					140	63.5	38	26
2xE3MCBC10D					190	88.5	55	39
2xE3MCBC10E					280	125	79	55.5
E3MCBC10A+ E3MCBC10D					140	63.5	39	27
E3MCBC10B+ E3MCBC10E					200	91	55.5	38.5

Battery Runtimes for 160 and 200 kVA UPSs and Classic Battery Cabinets

Battery Solution	160 kVA UPS				200 kVA UPS			
	25% Load	50% Load	75% Load	100% Load	25% Load	50% Load	75% Load	100% Load
E3MCBC7A	12				8.4			
E3MCBC7B	19	7			14			
E3MCBC10A	27	10.5	5.4		20.5	7.5		
E3MCBC10B	38.5	14.5	7.4		28.5	10		
E3MCBC10C	44	17.5	9		33	12	5.7	

Battery Runtimes for 160 and 200 kVA UPSs and Classic Battery Cabinets (Continued)

Battery Solution	160 kVA UPS				200 kVA UPS			
	25% Load	50% Load	75% Load	100% Load	25% Load	50% Load	75% Load	100% Load
E3MCBC10D	63.5	27.5	16	10.5	48.5	20.5	11.5	7.4
E3MCBC10E	91	39	22.5	14.5	69	29	16	10
2xE3MCBC7A	33.5	12	5.9		24.5	8.5		
2xE3MCBC7B	47	19	10.5	6.9	35	14	7.7	
2xE3MCBC10A	63.5	27.5	16	10.5	48.5	20.5	11.5	7.4
2xE3MCBC10B	91	39	22.5	14.5	69	29	16	10
2xE3MCBC10C	100	44.5	26	17	78.5	33	19	12
2xE3MCBC10D	140	63.5	39	27	105	48.5	29.5	20
2xE3MCBC10E	200	91.5	55.5	38.5	155	69.5	42	28.5
E3MCBC10A+ E3MCBC10D	100	45	27	18.5	78	34.5	20.5	13.5
E3MCBC10B+ E3MCBC10E	145	64.5	38.5	26	110	49	28.5	19

Compliance

Safety	IEC 62040-1: 2008-06, 1st edition Uninterruptible Power Systems (UPS) - Part 1: General and safety requirements for UPS IEC 62040-1: 2013-01, 1st edition amendment 1
EMC/EMI/RFI	IEC 62040-2: 2005-10, 2nd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements
Performance	IEC 62040-3: 2011-03, 2nd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements
Environmental	IEC 62040-4: 2013-04, 1st edition Uninterruptible Power Systems (UPS) - Part 4: Environmental aspects – Requirements and reporting
Markings	CE, RCM, EAC, WEEE
Transportation	ISTA 2B

Communication and Management

- User interface with status LEDs and display
- RS485
- SNMP (options)
- Dry contacts
- USB

Facility Planning for 60-80 kVA UPSs for Internal Batteries

Input Specifications

	60 kVA			80 kVA		
Voltage (V)	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE					
Input voltage range (V)	342–477 at full load ¹					
Frequency range (Hz)	40–70					
Nominal input current (A)	96	91	88	128	122	117
Maximum input current (A)	109	104	100	154	146	141
Input current limitation (A)	155			206		
Total harmonic distortion (THDI)	<3% for linear loads					
Input power factor	> 0.99					
Maximum short circuit rating	10 kA RMS					
Protection	Fuse					
Ramp-in	7 seconds					

Bypass Specifications

	60 kVA			80 kVA		
Voltage (V)	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE					
Overload capacity	110% for 60 minutes 130% for 10 minutes 130–150% for 1 minute					
Minimum bypass voltage (V)	266	280	291	266	280	291
Maximum bypass voltage (V)	475	480	477	475	480	477
Frequency (Hz)	50 or 60					
Frequency range (%)	±1, ±2, ±4, ±5, ±10. Default is ±10 (user selectable).					
Nominal bypass current (A)	91	87	83	122	115	111
Maximum short circuit rating	10 kA RMS					

1. 150–342 V with a linear derating of the load to 30%.

Output Specifications

	60 kVA			80 kVA		
Voltage (V)	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE					
Overload capacity ²	110% for 60 minutes 125% for 10 minutes 150% for 1 minute					
Output voltage regulation	± 1%					
Dynamic load response	20 milliseconds					
Output power factor	1.0					
Nominal output current (A)	91	87	83	122	115	111
Total harmonic distortion (THDU)	<3% at 100% linear load <5% at 100% non-linear load					
Output frequency (Hz)	50 or 60					
Slew rate (Hz/sec)	Programmable: 0.5 to 2.0. Default is 0.5					
Output performance classification (according to IEC/ EN62040-3)	VFI-SS-111					
Load power factor	0.5 leading to 0.5 lagging without derating					

Battery Specifications

	60 kVA	80 kVA
Charging power in % of output power	1–16%	1–24%
Maximum charging power (kW)	9600	19200
Nominal battery voltage (40 blocks) (VDC)	± 240	
Nominal float voltage (40 blocks) (VDC)	± 270	
End of discharge voltage (40 blocks) (VDC)	± 192	
Battery current at full load and nominal battery voltage (A)	133	176
Battery current at full load and minimum battery voltage (A)	166	222
Temperature compensation (per cell)	Programmable from 0–7 mV. Default is 0 mV	
Ripple current	< 5% C10	

2. At 30 °C.

Recommended Upstream Protection

NOTE: For local directives which require 4–pole circuit breakers: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

	60 kVA		80 kVA	
	Input	Bypass	Input	Bypass
Breaker type	Compact NSX160F TM125D (LV430631)	Compact NSX100F TM100D (LV429630)	Compact NSX160F TM160D (LV430630)	Compact NSX160F TM160D (LV430630)
In setting	125	100	160	160
Ir setting	125	100	160	144
Im setting	800 (fixed)	800 (fixed)	1250 (fixed)	1250 (fixed)

Recommended Cables Sizes

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 50 mm².

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

Cable sizes in this manual are based on table B.52.5 of IEC 60364–5–52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper conductors
- Installation method C

PE size is based on table 54.2 of IEC 60364–4–54.

If the ambient temperature is greater than 30 °C, larger conductors are to be used in accordance with the correction factors of the IEC.

60 kVA UPS

	Cable Size per Phase (mm ²)	Neutral Cable Size (mm ²) ³	PE Cable Size (mm ²)
Input	35	2x25	16
Bypass	25		16
Output	25	2x25	16
Battery	50	50	25

80 kVA UPS

	Cable Size per Phase (mm ²)	Neutral Cable Size (mm ²) ³	PE Cable Size (mm ²)
Input	50	2x50	25
Bypass	50		25

3. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

	Cable Size per Phase (mm ²)	Neutral Cable Size (mm ²) ⁴	PE Cable Size (mm ²)
Output	50	2x50	25
Battery	2x50	2x50	50

Recommended Bolts and Cable Lugs

Cable Size (mm ²)	Bolt Size	Cable Lug Type
16	M8	KST TLK16-8
25	M8	KST TLK25-8
35	M8	KST TLK35-8
50	M8	KST TLK50-8

Torque Specifications

Bolt Size	Torque
M8	17.5 Nm

UPS Weights and Dimensions

UPS	Weight kg	Height mm	Width mm	Depth mm
60 kVA	311	1970	600	1000
80 kVA	339	1970	600	1000

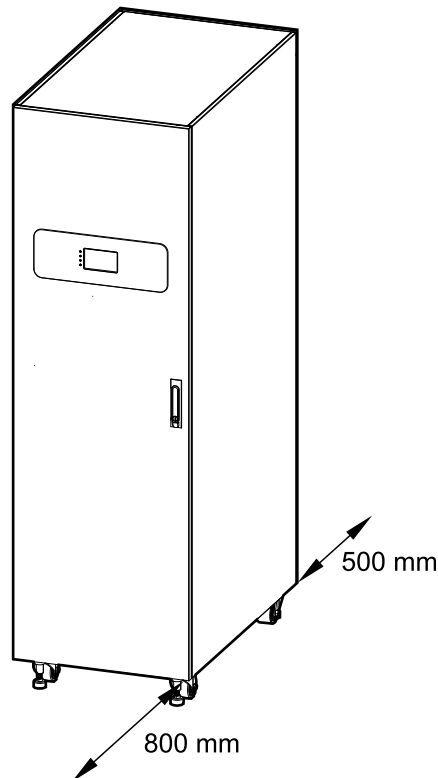
UPS Shipping Weights and Dimensions

UPS	Weight kg	Height mm	Width mm	Depth mm
60 kVA	360	2102	750	1125
80 kVA	387	2102	750	1125

4. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

Clearance

NOTE: Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.



Environmental

	Operation	Storage
Temperature	0 °C to 40 °C	-15 °C to 40 °C for systems with batteries -25 °C to 55 °C for systems without batteries
Relative humidity	0–95% non-condensing	
Elevation derating according to IEC 62040–3	Power derating factor: 0–1500 m: 1.000 1500–2000 m: 0.975	< 15000 m above sea level (or in an environment with equivalent air pressure)
Audible noise	<65 dBA at full load and an ambient temperature of 30 °C ⁵	
Protection class	IP20 (dust filter as standard)	
Color	RAL 9003	

Heat Dissipation

	60 kVA		80 kVA	
	W	BTU/hr	W	BTU/hr
Normal operation	3084	10523	4296	14659
Battery operation	2958	10093	4352	14850
ECO mode	540	1843	696	2375

5. According to ISO 3746.

Facility Planning for 60-100 kVA UPSs for External Batteries

Input Specifications

	60 kVA			80 kVA			100 kVA		
Voltage (V)	380	400	415	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE								
Input voltage range (V)	342–477 at full load ⁶								
Frequency range (Hz)	40–70								
Nominal input current (A)	96	91	88	128	122	117	160	152	146
Maximum input current (A)	109	104	100	154	146	141	186	177	170
Input current limitation (A)	155			206			258		
Total harmonic distortion (THDI)	<3% for linear loads								
Input power factor	> 0.99								
Maximum short circuit rating	10 kA RMS								
Protection	Fuse								
Ramp-in	7 seconds								

Bypass Specifications

	60 kVA			80 kVA			100 kVA		
Voltage (V)	380	400	415	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE								
Overload capacity	110% for 60 minutes 130% for 10 minutes 130–150% for 1 minute								
Minimum bypass voltage (V)	266	280	291	266	280	291	266	280	291
Maximum bypass voltage (V)	475	480	477	475	480	477	475	480	477
Frequency (Hz)	50 or 60								
Frequency range (%)	±1, ±2, ±4, ±5, ±10. Default is ±10 (user selectable).								
Nominal bypass current (A)	91	87	83	122	115	111	152	144	139
Maximum short circuit rating	10 kA RMS								

6. 150–342 V with a linear derating of the load to 30%.

Output Specifications

	60 kVA			80 kVA			100 kVA		
Voltage (V)	380	400	415	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE								
Overload capacity ⁷	110% for 60 minutes 125% for 10 minutes 150% for 1 minute								
Output voltage regulation	± 1%								
Dynamic load response	20 milliseconds								
Output power factor	1.0								
Nominal output current (A)	91	87	83	122	115	111	152	144	139
Total harmonic distortion (THDU)	<3% at 100% linear load <5% at 100% non-linear load								
Output frequency (Hz)	50 or 60								
Slew rate (Hz/sec)	Programmable: 0.5 to 2.0. Default is 0.5								
Output performance classification (according to IEC/ EN62040-3)	VFI-SS-111								
Load power factor	0.5 leading to 0.5 lagging without derating								

Battery Specifications

	60 kVA	80 kVA	100 kVA
Charging power in % of output power	1–20%	1–30%	1–24%
Maximum charging power (W)	12000	24000	24000
Nominal battery voltage (32–50 blocks ⁸) (VDC)	± 192 to ± 300		
Nominal float voltage (32–50 blocks ⁸) (VDC)	± 215.5 to ± 337.5		
End of discharge voltage (32–50 blocks) (VDC)	± 153.6 to ± 240		
Battery current at full load and nominal battery voltage (36–50 blocks) (A)	147–105	196–140	245–175
Battery current at full load and minimum battery voltage (36–50 blocks) (A)	185–132	246–176	308–221
Temperature compensation (per cell) ⁹	Programmable from 0–7 mV. Default is 0 mV		
Ripple current	< 5% C10		

Recommended Upstream Protection

NOTE: For local directives which require 4–pole circuit breakers: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

7. At 30 °C.

8. 32–34 blocks are only possible when the load is <90%.

9. If the temperature is above 28 °C. If the temperature is below 28 °C, no compensation is needed.

	60 kW		80 kW		100 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker type	Compact NSX160F TM125D (LV430631)	Compact NSX100F TM100D (LV429630)	Compact NSX160F TM160D (LV430630)	Compact NSX160F TM160D (LV430630)	Compact NSX250F TM200D (LV431631)	Compact NSX160F TM160D (LV430630)
In setting	125	100	160	160	200	160
Ir setting	125	100	160	144	200	160
Im setting	800 (fixed)	800 (fixed)	1250 (fixed)	1250 (fixed)	1000	1250 (fixed)

Recommended Cable Sizes

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 70 mm².

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

Cable sizes in this manual are based on table B.52.5 of IEC 60364–5–52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper conductors
- Installation method C

PE size is based on table 54.2 of IEC 60364–4–54.

If the ambient temperature is greater than 30 °C, larger conductors are to be used in accordance with the correction factors of the IEC.

60 kVA UPS

	Cable Size per Phase (mm ²)	Neutral ¹⁰ Cable Size (mm ²)	PE Cable Size (mm ²)
Input	35	2x25	16
Bypass	25		16
Output	25	2x25	16
Battery	50	50	25

80 kVA UPS

	Cable Size per Phase (mm ²)	Neutral ¹⁰ Cable Size (mm ²)	PE Cable Size (mm ²)
Input	50	2x50	25
Bypass	50		25
Output	50	2x50	25
Battery	2x50	2x50	50

10. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

100 kVA UPS

	Cable Size per Phase (mm ²)	Neutral ¹¹ Cable Size (mm ²)	PE Cable Size (mm ²)
Input	70	2x70	35
Bypass	70		35
Output	70	2x70	35
Battery	2x70	2x70	70

Recommended Bolts and Cable Lugs

Cable Size (mm ²)	Bolt Size	Cable Lug Type
16	M8	KST TLK16-8
25	M8	KST TLK25-8
35	M8	KST TLK35-8
50	M8	KST TLK50-8
70	M8	KST TL70-8

Torque Specifications

Bolt Size	Torque
M8	17.5 Nm

UPS Weights and Dimensions

UPS	Weight kg	Height mm	Width mm	Depth mm
60 kVA	109	915	360	850
80 kVA	140	915	360	850
100 kVA	145	915	360	850

UPS Shipping Weights and Dimensions

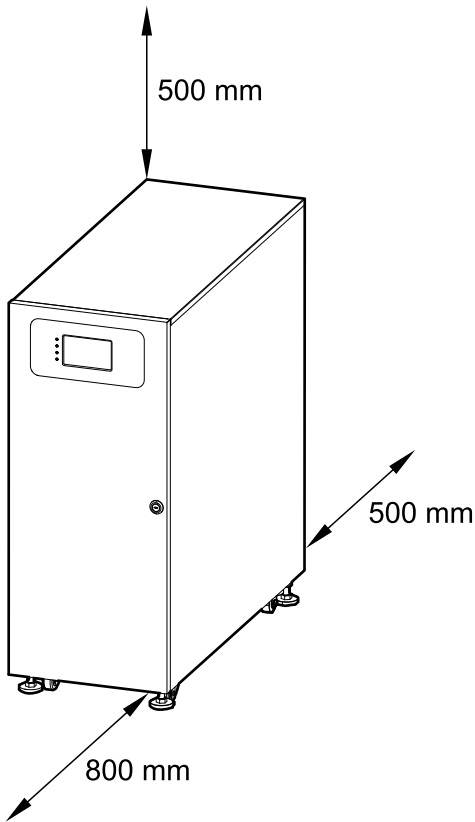
UPS	Weight kg	Height mm	Width mm	Depth mm
60 kVA	133	1140	475	965
80 kVA	164	1140	475	965
100 kVA	169	1140	475	965

11. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

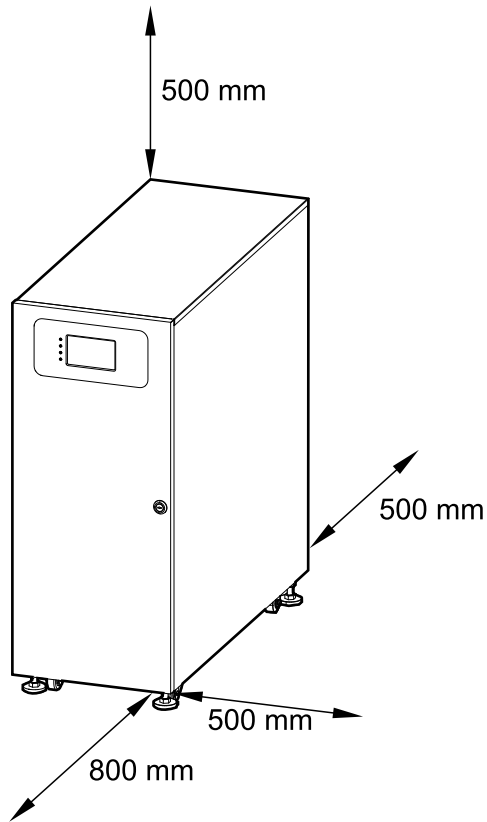
Clearance

NOTE: Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.

Option A



Option B



NOTE: If the UPS is installed without side access, the length of the cables connected to the UPS must allow for rolling out the UPS.

Environmental

	Operation	Storage
Temperature	0 °C to 40 °C	-15 °C to 40 °C for systems with batteries -25 °C to 55 °C for systems without batteries
Relative humidity	0–95% non-condensing	
Elevation derating according to IEC 62040–3	Power derating factor: 0–1500 m: 1.000 1500–2000 m: 0.975	< 15000 m above sea level (or in an environment with equivalent air pressure)
Audible noise	<65 dBA at full load and an ambient temperature of 30 °C ¹²	
Protection class	IP20 (dust filter as standard)	
Color	RAL 9003	

12. According to ISO 3746.

Heat Dissipation

	60 kVA		80 kVA		100 kVA	
	W	BTU/hr	W	BTU/hr	W	BTU/hr
Normal mode	3084	10523	4296	14659	5500	18767
Battery mode	2958	10093	4352	14850	5520	18835
ECO mode	540	1843	696	2375	1020	3480

Facility Planning for 120-200 kVA UPSs for External Batteries

Input Specifications

	120 kVA			160 kVA			200 kVA		
Voltage (V)	380	400	415	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE								
Input voltage range (V)	342-477 at full load ¹³								
Frequency range (Hz)	40-70								
Nominal input current (A)	192	182	176	256	243	234	320	304	293
Maximum input current (A)	218	207	200	262	262	262	336	336	336
Input current limitation (A)	309			412			515		
Total harmonic distortion (THDI)	<3% for linear loads								
Input power factor	> 0.99								
Maximum short circuit rating	10 kA RMS								
Protection	Fuse								
Ramp-in	7 seconds								

Bypass Specifications

	120 kVA			160 kVA			200 kVA		
Voltage (V)	380	400	415	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE								
Overload capacity	110% for 60 minutes 130% for 10 minutes 130-150% for 1 minute								
Minimum bypass voltage (V)	266	280	291	266	280	291	266	280	291
Maximum bypass voltage (V)	475	480	477	475	480	477	475	480	477
Frequency (Hz)	50 or 60								
Frequency range (%)	±1, ±2, ±4, ±5, ±10. Default is ±10 (user selectable).								
Nominal bypass current (A)	184	175	169	246	233	225	307	292	281
Maximum short circuit rating	10 kA RMS								

13. 150-342 V with a linear derating of the load to 30%.

Output Specifications

	120 kVA			160 kVA			200 kVA		
Voltage (V)	380	400	415	380	400	415	380	400	415
Connections	L1, L2, L3, N, PE								
Overload capacity ¹⁴	110% for 60 minutes 125% for 10 minutes 150% for 1 minute								
Output voltage regulation	± 1%								
Dynamic load response	20 milliseconds								
Output power factor	1.0								
Nominal output current (A)	182	173	167	243	231	223	304	289	278
Total harmonic distortion (THDU)	<3% at 100% linear load <5% at 100% non-linear load								
Output frequency (Hz)	50 or 60								
Slew rate (Hz/sec)	Programmable: 0.5 to 2.0. Default is 0.5								
Output performance classification (according to IEC/ EN62040-3)	VFI-SS-111								
Load power factor	0.5 leading to 0.5 lagging without derating								

Battery Specifications

	120 kVA	160 kVA	200 kVA
Charging power in % of output power	1-20%	1-22.5%	1-24%
Maximum charging power (W)	24000	36000	48000
Nominal battery voltage (32-50 blocks ¹⁵) (VDC)	± 192 to ± 300		
Nominal float voltage (32-50 blocks ¹⁵) (VDC)	± 215.5 to ± 337.5		
End of discharge voltage (32-50 blocks) (VDC)	± 153.6 to ± 240		
Battery current at full load and nominal battery voltage (36-50 blocks) (A)	294-211	392-281	490-351
Battery current at full load and minimum battery voltage (36-50 blocks) (A)	369-265	493-353	616-441
Temperature compensation (per cell) ¹⁶	Programmable from 0-7 mV. Default is 3 mV		
Ripple current	< 5% C10		

Recommended Upstream Protection

NOTE: For local directives which require 4-pole circuit breakers: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

14. At 30 °C.

15. 32-34 blocks are only possible when the load is <90%.

16. If the temperature is above 28 °C. If the temperature is below 28 °C, no compensation is needed.

	120 kVA		160 kVA		200 kVA	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker type	Compact NSX250F Micrologic 2.2 (LV431770)	Compact NSX250F Micrologic 2.2 (LV431770)	Compact NSX400F Micrologic 2.3 (LV432676)	Compact NSX400F Micrologic 2.3 (LV432676)	Compact NSX400F Micrologic 2.3 (LV432676)	Compact NSX400F Micrologic 2.3 (LV432676)
In setting	250	250	360	320	400	400
Ir setting	0.97	0.95	0.9	0.99	1	0.99
Im setting	1.5-10	1.5-10	1.5-10	1.5-10	1.5-10	1.5-10

Recommended Cable Sizes

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 150 mm².

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

Cable sizes in this manual are based on table B.52.5 of IEC 60364–5–52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper conductors
- Installation method C

PE size is based on table 54.2 of IEC 60364–4–54.

If the ambient temperature is greater than 30 °C, larger conductors are to be used in accordance with the correction factors of the IEC.

120 kVA UPS

	Cable Size per Phase (mm ²)	Neutral ¹⁷ Cable Size (mm ²)	PE Cable Size (mm ²)
Input	95	120	50
Bypass	95	120	50
Output	95	120	50
Battery	2x70	2x70	70

160 kVA UPS

	Cable Size per Phase (mm ²)	Neutral ¹⁷ Cable Size (mm ²)	PE Cable Size (mm ²)
Input	120	120	70
Bypass	120	120	70
Output	120	120	70
Battery	2x95	2x95	95

17. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

200 kVA UPS

	Cable Size per Phase (mm ²)	Neutral ¹⁸ Cable Size (mm ²)	PE Cable Size (mm ²)
Input	150	150	95
Bypass	150	150	95
Output	150	150	95
Battery	2x120	2x120	120

Recommended Bolts and Cable Lugs

Cable Size (mm ²)	Bolt Size	Cable Lug Type
50	M8	KST TLK50-8
70	M10	KST TLK70-10
95	M10	KST TLK95-10
120	M10	KST TLK120-10
150	M10	KST TLK150-10

Torque Specifications

Bolt Size	Torque
M8	17.5 Nm
M10	30 Nm

UPS Weights and Dimensions

UPS	Weight kg	Height mm	Width mm	Depth mm
120 kVA	193	1300	500	850
160 kVA	227	1300	500	850
200 kVA	304	1300	600	850

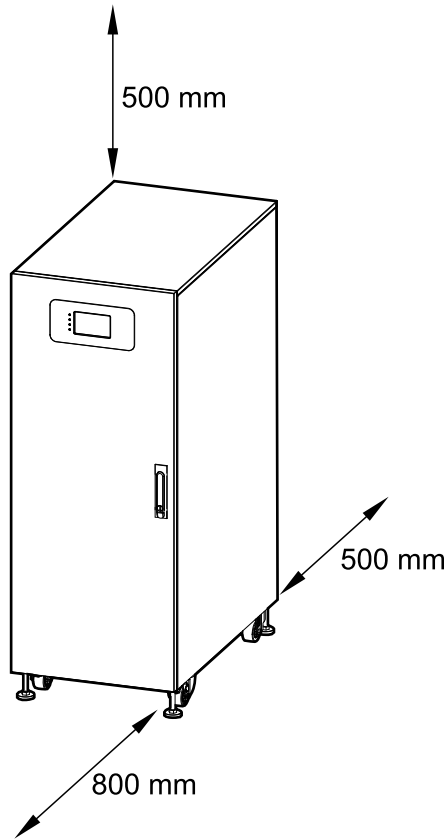
UPS Shipping Weights and Dimensions

UPS	Weight kg	Height mm	Width mm	Depth mm
120 kVA	223	1500	625	975
160 kVA	257	1500	625	975
200 kVA	338	1500	725	975

18. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

Clearance

NOTE: Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.



Environmental

	Operation	Storage
Temperature	0 °C to 40 °C	-15 °C to 40 °C for systems with batteries -25 °C to 55 °C for systems without batteries
Relative humidity	0–95% non-condensing	
Elevation derating according to IEC 62040-3	Power derating factor: 0-1500 m: 1.000 1500-2000 m: 0.975	< 15000 m above sea level (or in an environment with equivalent air pressure)
Audible noise	<70 dBA at full load and an ambient temperature of 30 °C ¹⁹	
Protection class	IP20 (air filter as standard)	
Color	RAL 9003	

Heat Dissipation

	120 kVA		160 kVA		200 kVA	
	W	BTU/hr	W	BTU/hr	W	BTU/hr
Normal mode	6000	20473	8000	27297	10000	34121
Battery mode	6000	20473	8000	27297	10000	34121
ECO mode	1020	3480	1600	5459	2000	6824

19. According to ISO 3746.

Requirements for a Third Party Battery Solution

Battery breaker boxes from Schneider Electric are recommended for the battery interface. Please contact Schneider Electric for more information.

Third Party Battery Breaker Requirements

⚠ DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
All selected battery breakers must be equipped with instantaneous trip functionality with an undervoltage release coil or a shunt trip release coil.
Failure to follow these instructions will result in death or serious injury.

NOTE: There are more factors to consider when selecting a battery breaker than the requirements listed below. Please contact Schneider Electric for more information.

Design Requirements for Battery Breaker

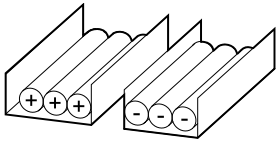
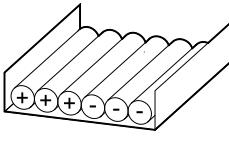
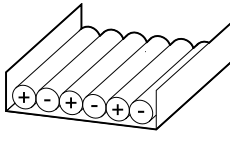
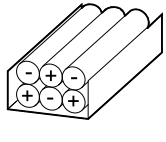
Battery breaker rated DC voltage > Normal battery voltage	The normal voltage of the battery configuration is defined as the highest nominal occurring battery voltage. This can be equivalent to the float voltage which may be defined as number of battery blocks x number of cells x cell float voltage. Ex: 32 blocks of 6 cells of 2.27 = 435 VDC.
Battery breaker rated DC current > Rated discharge battery current	This current is controlled by the UPS and must include maximum discharge current. This will typically be the current at the end of discharge (minimum operation DC voltage or in overload condition or a combination).
DC landings	Three DC landings for DC-cables are required.
AUX switches for monitoring	One AUX switch must be installed in each battery breaker and connected to the UPS. The UPS can monitor one battery breaker.
Short-circuit breaking capability	The short-circuit breaking capability must be higher than the short-circuit DC current of the (largest) battery configuration.
Minimum trip current	The minimum short-circuit current to trip the battery breaker must match the (smallest) battery configuration, to make the breaker trip in case of a short circuit, up to the end of its life time.

Guidance for Organizing Battery Cables

NOTE: For 3rd party batteries, use only high rate batteries for UPS applications.

NOTE: When the battery bank is placed remotely, the organizing of the cables is important to reduce voltage drop and inductance. The distance between the battery bank and the UPS must not exceed 200 m (656 ft). Contact Schneider Electric for installations with a longer distance.

NOTE: To minimize the risk of electromagnetic radiation, it is highly recommended to follow the below guidance and to use grounded metallic tray supports.

Cable Length				
<30 m	Not recommended	Acceptable	Recommended	Recommended
31–75 m	Not recommended	Not recommended	Acceptable	Recommended
76–150 m	Not recommended	Not recommended	Acceptable	Recommended
151–200 m	Not recommended	Not recommended	Not recommended	Recommended

Weights and Dimensions

Parallel Maintenance Bypass Panel Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Parallel maintenance bypass panel E3MBPAR60K200H	62	1000	700	320

Parallel Maintenance Bypass Panel Shipping Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Parallel maintenance bypass panel E3MBPAR60K200H	92	1200	800	570

Classic Battery Cabinet Weights and Dimensions

	Maximum Weight kg	Height mm	Width mm	Depth mm
E3MCBC7A	736	1900	710	845
E3MCBC7B	909	1900	710	845
E3MCBC10A	1097	1900	1010	845
E3MCBC10B	1277	1900	1010	845
E3MCBC10C	1404	1900	1010	845
E3MCBC10D	1100	1900	1010	845
	1082	1900	1010	845
E3MCBC10E	1280	1900	1010	845
	1262	1900	1010	845

Classic Battery Cabinet Shipping Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
E3MCBC7A	756	1980	815	970
E3MCBC7B	929	1980	815	970
E3MCBC10A	1117	1980	1130	970
E3MCBC10B	1297	1980	1130	970
E3MCBC10C	1424	1980	1130	970
E3MCBC10D	1120	1980	1130	970
	1102	1980	1130	970
E3MCBC10E	1300	1980	1130	970
	1282	1980	1130	970

Battery Breaker Box Weight and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Battery breaker box E3MBBB60K80H	25	650	500	280
Battery breaker box E3MBBB100K200H	38	800	500	280

Battery Breaker Box Shipping Weight and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Battery breaker box E3MBBB60K80H	55	1200	825	530
Battery breaker box E3MBBB100K200H	65	1200	825	530

Battery Breaker Kit Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Battery breaker kit E3MBBK60K80H	7	415	288	190
Battery breaker kit E3MBBK100K200H	13	530	320	230

Battery Breaker Kit Shipping Weights and Dimensions

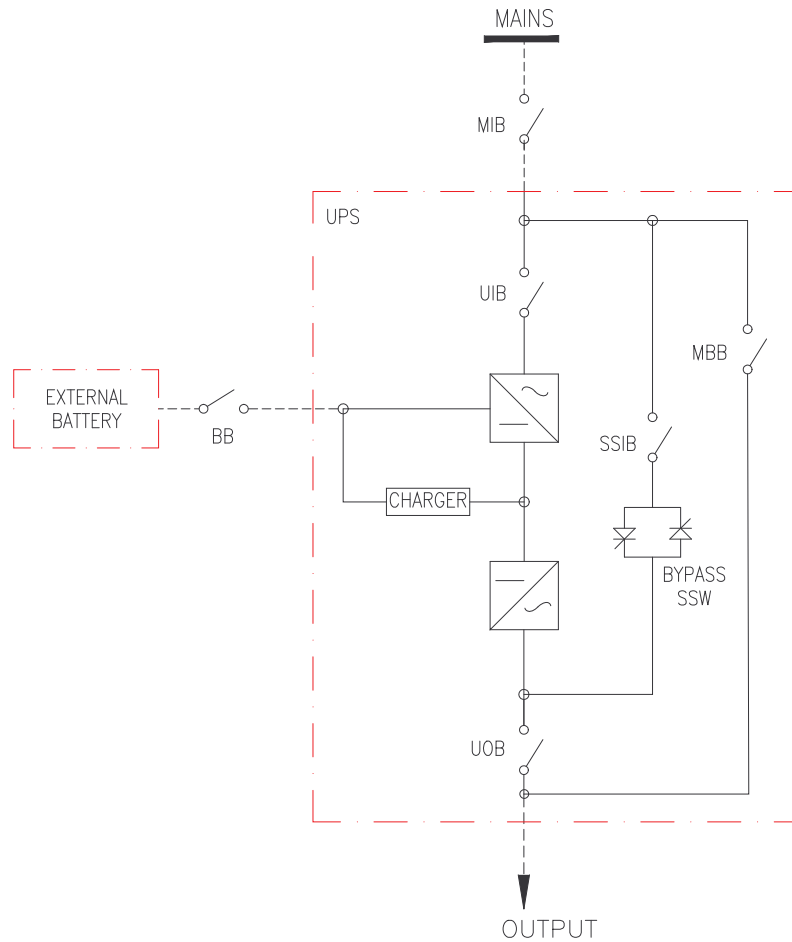
	Weight kg	Height mm	Width mm	Depth mm
Battery breaker kit E3MBBK60K80H	22	800	500	570
Battery breaker kit E3MBBK100K200H	29	800	500	570

Drawings

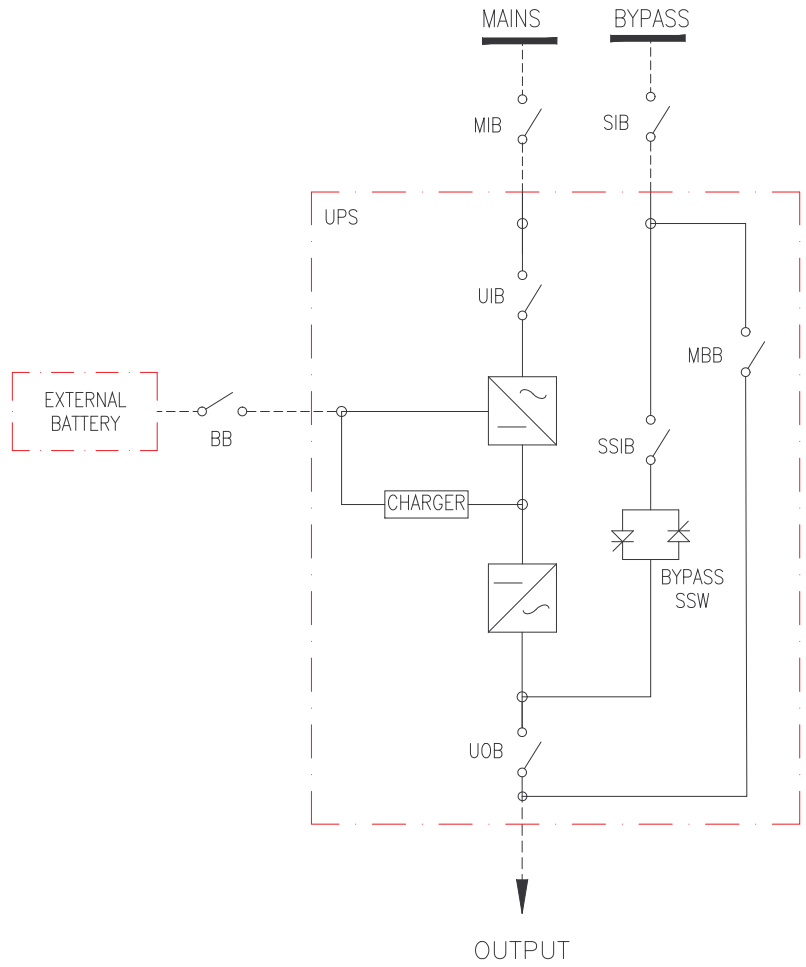
NOTE: A comprehensive set of drawings is available on www.schneider-electric.com.

NOTE: These drawings are for reference ONLY – subject to change without notice.

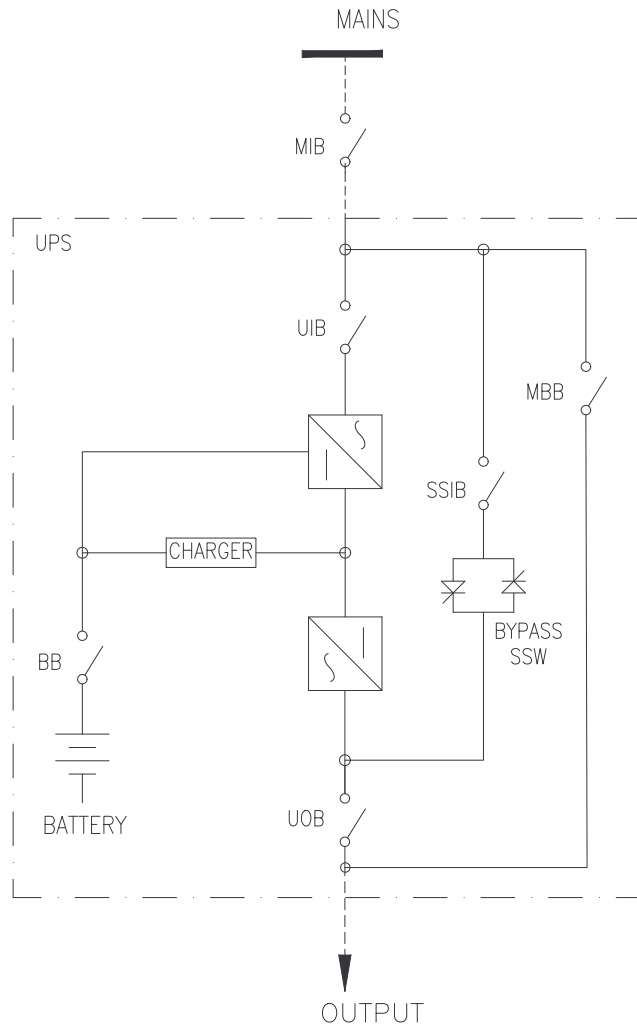
Easy UPS 3M UPS for External Batteries – Single Mains System



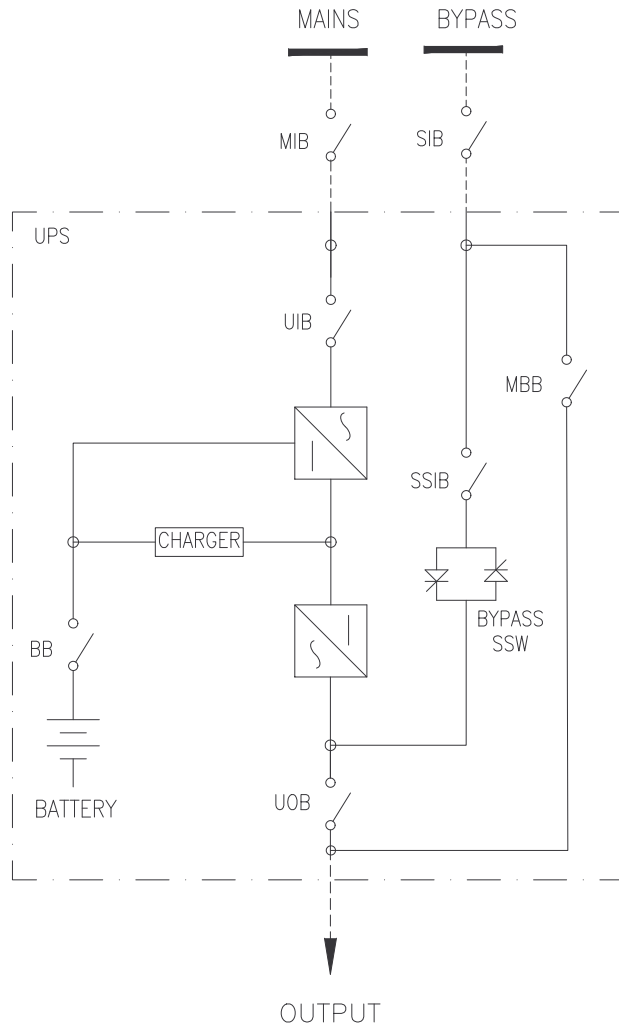
Easy UPS 3M UPS for External Batteries – Dual Mains System



Easy UPS 3M UPS for Internal Batteries – Single Mains System



Easy UPS 3M UPS for Internal Batteries – Dual Mains System



Options

Configuration Options

- Single or dual mains
- Up to six UPSs in parallel
- ECO mode

Default Settings

Setting	Default Value		Available Settings
	UPS for External Batteries	UPSs for Internal Batteries	
Display brightness	63	63	1-63
Backlight timeout (sec)	60	60	10-255
Device ID	1	1	1-255
Baud rate	9600	9600	2400, 4800, 9600, 14400, 19200
Password timeout (minutes)	3	3	0-120
Date	2015-01-01	2015-01-01	
Time	00:00:00	00:00:00	
Operation mode	Single mode	Single mode	Single mode, ECO mode, Parallel mode, Parallel ECO mode
Autostart	Enable	Enable	Enable, Disable
Self-aging load rate (%)	60	60	18-100
Frequency converter mode	Disable	Disable	Disable, Enable
LBS operation	LBS disabled	LBS disabled	LBS disabled, LBS master, LBS slave
Transfer delay (sec)	1	1	0- 20
Par. transfer delay (sec)	10	10	0 -200
EPO transfers to bypass	Disable	Disable	Disable, Enable
Output frequency (Hz)	50	50	50, 60
Output voltage (V)	400	400	380, 400, 415
Output volt. compensation (%)	0.0	0.0	-5.0, -4.5, -4.0, -3.5, -3.0, -2.5, -2.0, -1.5, -1.0, -0.5, 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0
Min. bypass RMS voltage (V)	-10	-10	-10, -15, -20, -30
Max. bypass RMS voltage (V)	10	10	10, 15, 20, 25
Bypass frequency range (%)	10	10	1, 2, 4, 5, 10
Output slew rate (Hz/sec)	0.5	0.5	0.5-2.0
Use bypass ON with overheated SCR	Disable	Disable	Disable, Enable
Allowed transfers to bypass	10	10	3-10
Parallel ID	1	1	1-6
Number of parallel UPSs	2	2	2-6
Number of par. redundant UPSs	0	0	0, 1, 2,3, 4, 5

Setting	Default Value		Available Settings
	UPS for External Batteries	UPSs for Internal Batteries	
Number of battery strings	1	3	1-8
Battery blocks per string	32	40	32, 34, 36, 38, 40, 42, 44, 46, 48, 50
Battery block capacity (Ah)	7	7	7-2000
Periodic boost charge (M)	0	0	0-24
Maximum charge current	0.1	0.1	0.05-0.15
Float voltage (V)	2.25	2.25	2.20-2.29
Boost voltage (V)	2.30	2.30	2.30-2.40
Boost charge duration (minutes)	240	240	0-999
Float temp. compensation	0.000	0.000	0.000-0.007
Boost charge	Disable	Disable	Enable, Disable
Alarm for no battery connected	Enable	Enable	Enable, Disable
Common battery bank	No	No	Yes, No
External batt. breaker status	Enable	Enable	Disable, Enable
Battery breaker trip	Enable	Enable	Disable, Enable
Backfeed on bypass	Enable	Enable	Disable, Enable
External MBB status	Disable	Disable	Disable, Enable
OUT 01	Disable	Disable	Disable, Common alarm, In normal operation, On battery, Static bypass, Maintenance bypass, Output overload, Fan inoperable, Battery inoperable, Battery disconnected, Battery voltage low, Input out of tol., Bypass out of tol., EPO active
OUT 02	Disable	Disable	
OUT 03	Disable	Disable	
OUT 04	Disable	Disable	
IN 01	Disable	Disable	Disable, INV ON, INV OFF, Battery inoperable, Genset on, Custom alarm 3, Custom alarm 4, Disable ECO, Force INV OFF
IN 02	Disable	Disable	
IN 03	Disable	Disable	
IN 04	Disable	Disable	
Self-test settings	Disable auto self-test	Disable auto self-test	Disable auto self-test, self-test every month, self-test every day
Self-test every	0 Day 0 hour 0 minute	0 Day 0 hour 0 minute	
Self-test type	Customize	Customize	10 seconds, 10 minutes, EOD, -10%, Customize
Air filter check (months)	3	3	0, 3, 4, 5, 12
Air filter counter (days)	0	0	

Limited Factory Warranty

One-Year Factory Warranty

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