Gutor PXC

10-80 kVA Single UPS

Installation

10/2018





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

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication.

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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 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 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 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

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All safety instructions in this document must be read, understood and followed.

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

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read all instructions in the Installation Manual before installing or working on this UPS system.

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

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not install the UPS system until all construction work has been completed and the installation room has been cleaned.

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

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 breakers, battery 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.

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, or
- Canadian Electrical Code (C22.1, Part 1)

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

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

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Install the UPS system in a temperature controlled indoor environment 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.

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.

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not drill or cut holes for cables or conduits with the gland plates installed and do not drill or cut holes in close proximity to the UPS.

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

AWARNING

HAZARD OF ARC FLASH

Do not make mechanical changes to the product (including removal of cabinet parts or drilling/cutting of holes) that are not described in the Installation Manual.

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

NOTICE

RISK OF OVERHEATING

Respect the space 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.

Electrical Safety

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- The UPS system must be installed in a room with restricted access (qualified personnel only).
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Turn off all power supplying the UPS system before working on or inside the equipment.
- Before working on the UPS system, check for hazardous voltage between all terminals including the protective earth.
- The UPS contains an internal energy source. Hazardous voltage can be present even when disconnected from the utility/mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that utility/mains and batteries are disconnected. Wait five minutes before opening the UPS to allow the capacitors to discharge.
- A disconnection device (e.g. disconnection circuit breaker or switch) must be installed to enable isolation of the system from upstream power sources in accordance with local regulations. This disconnection device must be easily accessible and visible.
- The UPS must be properly earthed/grounded and due to a high leakage current, the earthing/grounding conductor must be connected first.

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

ADANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

In systems where backfeed protection is not part of the standard design, an automatic isolation device (backfeed protection option or other device meeting the requirements of IEC/EN 62040–1 or UL1778 5th Edition – depending on which of the two standards apply to your local area) must be installed to prevent hazardous voltage or energy at the input terminals of the isolation device. The device must open within 15 seconds after the upstream power supply fails and must be rated according to the specifications.

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

When the UPS input is connected through external isolators that, when opened, isolate the neutral or when the automatic backfeed isolation is provided external to the equipment or is connected to an IT power distribution system, a label must be fitted at the UPS input terminals, and on all primary power isolators installed remote from the UPS area and on external access points between such isolators and the UPS, by the user, displaying the following text (or equivalent in a language which is acceptable in the country in which the UPS system is installed):

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Risk of Voltage Backfeed. Before working on this circuit: Isolate the UPS and check for hazardous voltage between all terminals including the protective earth.

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

Battery Safety

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Battery circuit breakers must be installed according to the specifications and requirements as defined by Schneider Electric.
- Servicing of batteries must only be performed or supervised by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- Do not dispose of batteries in a fire as they can explode.
- Do not open, alter, or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

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

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Batteries can present a risk of electric shock and high short-circuit current. The following precautions must be observed when working on batteries

- Remove watches, rings, or other metal objects.
- · Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- · Do not lay tools or metal parts on top of batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electric shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

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

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

When replacing batteries, always replace with the same type and number of batteries or battery packs.

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

NOTICE

RISK OF EQUIPMENT DAMAGE

- Wait until the system is ready to be powered up before installing batteries in the system. The time duration from battery installation until the UPS system is powered up must not exceed 72 hours or 3 days.
- Batteries must not be stored more than six months due to the requirement of recharging. If the UPS system remains de-energized for a long period, Schneider Electric recommends that you energize the UPS system for a period of 24 hours at least once every month. This charges the batteries, thus avoiding irreversible damage.

Failure to follow these instructions can result in equipment damage.

Specifications

Input Specifications

Input Specifications for Systems without Transformer

	10 kVA			20 kVA			30 kVA			40 kVA				
Input Voltage (V)	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V		
Connections	L1, L2, L	.3, N, PE										•		
Voltage range (V)	± 10% (3	342-418	V for 380	V systen	ns, 360-4	40 V for 4	400 V sys	tems, 374	4-457 V fe	or 415 V s	systems			
Frequency range (Hz)	± 8% (40	6–54 Hz	for 50 Hz	z systems	, 55–65 ⊦	lz for 60 l	Hz syster	ns)						
Nominal input current (A)	19	18	17	32	31	29	50	48	46	63	60	58		
Maximum input current (A)	25	23	22	42	40	38	65	62	60	82	78	75		
Total harmonic distortion (THDI)	< 5% at	100% lo	ad		<u>.</u>		•		•	•		+		
Maximum input short-circuit withstand (kA) Icc	65													
Protection	Schneid	er NSX (current li	miting) or	Fuse GL	type								
Ramp-in	10% nor	10% nominal power/sec												
Backfeed protection	Backfee of the U	Backfeed protection is not installed in the UPS and must be provided by third party and installed upstream of the UPS.												
	50 13/0													
	50 KVA				60 KVA				80 KVA					
Input Voltage (V)	380 V	400	V 4	15 V	380 V	400	V 4	15 V	380 V	400	V	115 V		
Connections	L1, L2, I	.3, N, PE												
Voltage range (V)	± 10% (3	342-418	V for 380) V systen	ns, 360-4	40 V for 4	400 V sys	stems, 374	4-457 V fe	or 415 V s	systems			
Frequency range (Hz)	± 8% (40	6–54 Hz	for 50 Hz	z systems	, 55–65 ⊦	Iz for 60 I	Hz syster	ns)						
Nominal input current (A)	82	78	7	5	94	90	8	6	126	120		115		
Maximum input current (A)	107	101	9	8	122	117	1	12	164	156		150		
Total harmonic distortion (THDI)	< 5% at 100% load													
Maximum input short-circuit withstand (kA) Icc	65													
Protection	Schneider NSX (current limiting) or Fuse GL type													
Ramp-in	10% nominal power/sec													
Backfeed protection	Backfee of the U	d protec PS.	tion is no	t installed	in the UF	PS and m	ust be pr	ovided by	third par	ty and ins	stalled u	ostream		

Input Specifications for Systems with Rectifier Input Transformer (T001)

	10 kVA			20 kVA			30 kVA			40 kVA			
Input Voltage (V)	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	
Connections	L1, L2, I	_3, PE										<u> </u>	
Voltage range (V)	± 10% (342-418	V for 380) V systen	ns, 360-44	40 V for 4	100 V sys	stems, 374	4-457 V f	or 415 V s	systems)	
Frequency range (Hz)	± 8% (4	6–54 Hz	for 50 Hz	z systems	, 55–65 H	z for 60 l	Hz syster	ms)					
Nominal input current (A)	19	18	17	33	31	30	52	49	48	65	62	60	
Maximum input current (A)	25	23	22	43	40	39	68	64	62	85	81	78	
Inrush current	10 x noi	minal inp	ut curren	it					•	•			
Total harmonic distortion (THDI)	< 5% at	100% loa	ad										
Maximum input short-circuit withstand (kA) Icc	65	35											
Protection	Schneic	Schneider NSX (current limiting) or Fuse GL type											
Ramp-in	10% no	10% nominal power/sec											
Backfeed protection	Backfee of the U	ed protect PS.	tion is no	ot installed	in the UF	PS and m	ust be pr	ovided by	/ third par	ty and ins	stalled u	ostream	
	50 kVA				60 kVA				80 kVA				
Input Voltage (V)	380 V	400	V 4	15 V	380 V	400	V 4	15 V	380 V	400	v	415 V	
Connections	L1, L2, I	_3, PE			1	I	I				I		
Voltage range (V)	± 10% (342-418	V for 380) V systen	ns, 360-44	40 V for 4	100 V sys	stems, 374	4-457 V f	or 415 V s	systems)	
Frequency range (Hz)	± 8% (4	6–54 Hz	for 50 Hz	z systems	, 55–65 H	z for 60 l	Hz syster	ms)					
Nominal input current (A)	85	80	7	78	98	93	ç	0	131	124		120	
Maximum input current (A)	111 104 101 127 121 117 170 161 156												
Inrush current	10 x noi	minal inp	ut curren	ıt									
Total harmonic distortion (THDI)	< 5% at 100% load												
Maximum input short-circuit withstand (kA) Icc	65												

Schneider NSX (current limiting) or Fuse GL type

Backfeed protection is not installed in the UPS and must be provided by third party and installed upstream of the UPS.

10% nominal power/sec

Protection

Ramp-in

Backfeed protection

Input Specifications for Systems with Output Transformer (T401)

	10 kVA	10 kVA 20 kVA 30 kVA 40 kVA											
Input Voltage (V)	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	
Connections	L1, L2,	L3, N, PE		•									
Voltage range (V)	± 10% (342-418	V for 380	V system	ıs, 360-44	40 V for 4	00 V sys	tems, 374	4-457 V fo	or 415 V s	systems)		
Frequency range (Hz)	± 8% (4	6–54 Hz	for 50 Hz	systems	, 55–65 H	Iz for 60 H	Hz systen	ns)					
Nominal input current (A)	18	18	17	32	30	29	50	48	46	63	60	58	
Maximum input current (A)	23	23	22	42	39	38	65	62	60	82	78	75	
Inrush current	10 x noi	minal inp	ut curren	t									
Total harmonic distortion (THDI)	< 5% at	5% at 100% load											
Maximum input short-circuit withstand (kA) Icc	65	5											
Protection	Schneic	Schneider NSX (current limiting) or Fuse GL type											
Ramp-in	10% no	minal pov	wer/sec										
Backfeed protection	Backfee of the U	ed protect PS.	tion is no	t installed	in the UF	PS and m	ust be pr	ovided by	third par	ty and ins	stalled up	stream	
	50 k\/A				60 kVA				80 k\/A				
Input Voltage (V)	380 V	400	V 4	15 V	380 V	400	V 4	15 V	380 V	400	V 4	15 V	
Connections	L1. L2.	L3. N. PE		-				-				-	
Voltage range (V)	± 10% (342-418	V for 380	V svsten	ıs. 360-44	40 V for 4	00 V svs	tems. 374	4-457 V fo	or 415 V s	systems)		
Frequency range (Hz)	± 8% (4	6–54 Hz	for 50 Hz	svstems	, 55–65 H	Iz for 60 I	- Iz systen	ns)			<u> </u>		
Nominal input current (A)	82 78 75 95 90 87 127 120 116												
Maximum input current (A)	107 101 98 124 117 113 165 156 151												
Inrush current	10 x noi	minal inp	ut curren	t			<u> </u>						
Total harmonic distortion (THDI)	< 5% at	100% loa	ad										

Maximum input short-circuit withstand (kA) Icc

Protection

Ramp-in

Backfeed protection

65

Schneider NSX (current limiting) or Fuse GL type

Backfeed protection is not installed in the UPS and must be provided by third party and installed upstream of the UPS.

10% nominal power/sec

Input Specifications for Systems with Rectifier Input Transformer (T001) and Inverter Output Transformer (T401)

	10 kVA 20 kVA 30 kVA 40 kVA											
Input Voltage (V)	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V
Connections	L1, L2,	L3, PE										<u> </u>
Voltage range (V)	± 10% (342-418	V for 380) V syster	ns, 360-4	40 V for 4	400 V sys	tems, 37	4-457 V f	or 415 V	systems)
Frequency range (Hz)	± 8% (4	6–54 Hz	for 50 Hz	z systems	s, 55–65 ⊦	Iz for 60	Hz syster	ns)				
Nominal input current (A)	19	18	18	33	31	30	52	49	48	66	63	60
Maximum input current (A)	25	23	23	43	40	39	68	64	62	86	82	78
Inrush current	10 x no	10 x nominal input current										
Total harmonic distortion (THDI)	< 5% at	< 5% at 100% load										
Maximum input short-circuit withstand (kA) Icc	65											
Protection	Schneid	ler NSX	(current li	imiting) oi	r Fuse GL	type						
Ramp-in	10% no	minal po	wer/sec									
Backfeed protection	Backfeed protection is not installed in the UPS and must be provided by third party and installed upstream of the UPS.											
	50 kVA				60 kVA				80 kV∆			
Input Voltage (V)	380 V	400	V A	15 V	380 V	400	V A	15 V	380 V	400	v	415 V

	JURVA												
Input Voltage (V)	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V				
Connections	L1, L2, L3,	PE											
Voltage range (V)	± 10% (342	2-418 V for 3	380 V syster	ns, 360-440	V for 400 V	systems, 37	4-457 V for	415 V systen	ns)				
Frequency range (Hz)	± 8% (46-	54 Hz for 50	Hz systems	s, 55–65 Hz i	for 60 Hz sys	stems)							
Nominal input current (A)	85	5 81 78 99 94 90 132 125 121											
Maximum input current (A)	111	11 105 101 129 125 117 172 163 157											
Inrush current	10 x nomir	nal input curi	rent			·	·						
Total harmonic distortion (THDI)	< 5% at 10	10% load											
Maximum input short-circuit withstand (kA) Icc	65												
Protection	Schneider	NSX (currer	nt limiting) o	r Fuse GL ty	ре								
Ramp-in	10% nominal power/sec												
Backfeed protection	Backfeed protection is not installed in the UPS and must be provided by third party and installed upstream of the UPS.												

Bypass Specifications

Bypass Specifications for Systems without Transformer

3:1

	10 kVA			20 kVA			30 kVA			40 kVA			
	220 V	230 V	240 V	220 V	230 V	240 V	220 V	230 V	240 V	220 V	230 V	240 V	
Connections	L, N, PE	, PE											
Voltage range (V)	± 10% (0% (198–242 V for 220 V systems, 207–253 V for 230 V systems, 216–264 V for 240 V systems)											
Frequency (Hz)	50/60												
Frequency range (Hz)	47–53/5	56–64											
Nominal bypass current (A)	45	43 42 91 87 83 136 130 125 182 174 167											
Protection	Schneid	Schneider NSX (current limiting) or Fuse GL type											

	50 kVA			60 kVA			80 kVA						
	220 V	230 V	240 V	220 V	230 V	240 V	220 V	230 V	240 V				
Connections	L, N, PE	N, PE											
Voltage range (V)	± 10% (19	10% (198– 242 V for 220 V systems, 207–253 V for 230 V systems, 216–264 V for 240 V systems)											
Frequency (Hz)	50/60	0/60											
Frequency range (Hz)	47–53/56–	-64											
Nominal bypass current (A)	227	227 217 208 273 261 250 364 348 333											
Protection	Schneider NSX (current limiting) or Fuse GL type												

	10 kVA			20 kVA			30 kVA			40 kVA			
	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	
Connections	L1, L2,	2, L3, N, PE											
Voltage range (V)	± 10% (% (342-418 V for 380 V systems, 360-440 V for 400 V systems, 374-457 V for 415 V systems)											
Frequency (Hz)	50/60												
Frequency range (Hz)	47-53/5	56–64											
Nominal bypass current (A)	15	5 14 14 30 29 28 46 43 42 61 58 56											
Protection	Schneid	Schneider NSX (current limiting) or Fuse GL type											

	50 kVA			60 kVA			80 kVA						
	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V				
Connections	L1, L2, L3,	. L2, L3, N, PE											
Voltage range (V)	± 10% (34)	10% (342-418 V for 380 V systems, 360-440 V for 400 V systems, 374-457 V for 415 V systems)											
Frequency (Hz)	50/60)/60											
Frequency range (Hz)	47–53/56–	-64											
Nominal bypass current (A)	76	76 72 70 91 87 83 122 115 111											
Protection	Schneider	Schneider NSX (current limiting) or Fuse GL type											

Bypass Specifications for Systems with Transformer (T501)

3:1

	10 kVA			20 kVA			30 kVA			40 kVA		
	220 V	230 V	240 V	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V
Connections	L, N, PE	, N, PE L1, L2, PE										
Voltage range (V)	± 10% (for 230	198– 242 V system	2 V for 22 s, 216–2	0 V syste 64 V for 2	ms, 207– 240 V sys	253 V tems)	± 10% (400 V s	342-418 ystems, 3	V for 380 374-457 \	V systen / for 415 \	ns, 360-4 V system	40 V for s)
Frequency (Hz)	50/60											
Frequency range (Hz)	47–53/5	56–64										
Nominal bypass current (A)	47	45	43	95	91	87	82	78	75	109	104	100
Inrush current	10 x no	10 x nominal input current										
Protection	Schneider NSX (current limiting) or Fuse GL type											

	50 kVA	kVA 60 kVA 80 kVA 0 V 400 V 415 V 380 V 400 V 415 V 410 V											
	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V				
Connections	L1, L2, PE	, L2, PE											
Voltage range (V)	± 10% (342	10% (342-418 V for 380 V systems, 360-440 V for 400 V systems, 374-457 V for 415 V systems)											
Frequency (Hz)	50/60	0/60											
Frequency range (Hz)	47–53/56–	64											
Nominal bypass current (A)	137	137 130 125 164 156 150 218 208 200											
Protection	Schneider	Schneider NSX (current limiting) or Fuse GL type											

	10 kVA	10 kVA		20 kVA	20 kVA		30 kVA			40 kVA		
	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V
Connections	L1, L2,	L1, L2, L3, PE										
Voltage range (V)	± 10% (10% (342-418 V for 380 V systems, 360-440 V for 400 V systems, 374-457 V for 415 V systems)										
Frequency (Hz)	50/60	50/60										
Frequency range (Hz)	46-54/	55–65										
Nominal bypass current (A)	16	15	14	32	30	29	47	45	43	63	60	58
Inrush current	10 x no	10 x nominal input current										
Protection	Schnei	Schneider NSX (current limiting) or Fuse GL type										

	50 kVA			60 kVA	60 kVA			80 kVA		
	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	
Connections	L1, L2, L3,	L1, L2, L3, PE								
Voltage range (V)	± 10% (34)	± 10% (342-418 V for 380 V systems, 360-440 V for 400 V systems, 374-457 V for 415 V systems)								
Frequency (Hz)	50/60	50/60								
Frequency range (Hz)	46-54/55-	-65								
Nominal bypass current (A)	79	79 75 72 95 90 87 126 120 116								
Protection	Schneider NSX (current limiting) or Fuse GL type									

Output Specifications

	10 kVA			20 kVA			30 kVA			40 kVA		
Output Voltage (V)	220 V	230 V	240 V	220 V	230 V	240 V	220 V	230 V	240 V	220 V	230 V	240 V
Connections	L, N, PE	=										
Overload capacity	150% fo 125% fo 230% fo 1000%	/50% for 1 minute /25% for 10 minutes 230% for 60 ms /000% for 100 ms (bypass operation)										
Output voltage tolerance	± 1%	1%										
Output power factor	0.8											
Nominal output current (A)	45	43	42	91	87	83	136	130	125	182	174	167
Total harmonic distortion (THDU)	< 2% at < 5% at	< 2% at 100% linear load < 5% at 100% non-linear load (IEC 62040–3)										
Output frequency (Hz)	50/60 H 50/60 H	lz (sync to lz ± 0.1%	o bypass) (free-run) ining)								
Slew rate (Hz/sec)	Program	nmable: ().25, 0.5,	1, 2, or 4								
Output performance classification (according to IEC/EN62040-3)	VFI-SS	VFI-SS-111										
Load crest factor	Unlimited											
Load power factor	0.5 lead	ling to 0.5	lagging	without d	erating							

	50 kVA			60 kVA			80 kVA		
Output Voltage (V)	220 V	230 V	240 V	220 V	230 V	240 V	220 V	230 V	240 V
Connections	L, N, PE	L, N, PE							
Overload capacity	150% for 1 125% for 1 230% for 6 1000% for	I50% for 1 minute I25% for 10 minutes 230% for 60 ms 1000% for 100 ms (bypass operation)							
Output voltage tolerance	± 1%								
Output power factor	0.8								
Nominal output current (A)	227	217	208	273	261	250	364	348	333
Total harmonic distortion (THDU)	< 2% at 10 < 5% at 10	0% linear lo 0% non-line	ad ar load (IEC	62040–3)					
Output frequency (Hz)	50/60 Hz (50/60 Hz ±	sync to bypa : 0.1% (free-	iss) running)						
Slew rate (Hz/sec)	Programm	able: 0.25, 0	.5, 1, 2, or 4	Ļ					
Output performance classification (according to IEC/EN62040-3)	VFI-SS-11	VFI-SS-111							
Load crest factor	Unlimited	Unlimited							
Load power factor	0.5 leading	to 0.5 laggi	ng without d	erating					

	10 kVA			20 kVA			30 kVA			40 kVA		
Output Voltage (V)	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V
Connections	L1, L2,	L1, L2, L3, N, PE										
Overload capacity	150% fo 125% fo 230% fo 1000%	150% for 1 minute 125% for 10 minutes 230% for 60 ms 1000% for 100 ms (bypass operation)										
Output voltage tolerance	± 1%											
Output power factor	0.8											
Nominal output current (A)	15	14	14	30	29	28	46	43	42	61	58	56
Total harmonic distortion (THDU)	< 2% at < 5% at	100% lin 100% nc	ear load on-linear l	oad (IEC	62040–3)						
Output frequency (Hz)	50/60 H 50/60 H	lz (sync to lz ± 0.1%	o bypass) (free-run) ning)								
Slew rate (Hz/sec)	Program	nmable: (0.25, 0.5,	1, 2, or 4								
Output performance classification (according to IEC/EN62040-3)	VFI-SS-	VFI-SS-111										
Load crest factor	Unlimited											
Load power factor	0.5 lead	0.5 leading to 0.5 lagging without derating										

	50 kVA			60 kVA			80 kVA		
Output Voltage (V)	380 V	400 V	415 V	380 V	400 V	415 V	380 V	400 V	415 V
Connections	L1, L2, L3,	L1, L2, L3, N, PE							
Overload capacity	150% for 1 125% for 1 230% for 6 1000% for	I50% for 1 minute I25% for 10 minutes 230% for 60 ms I000% for 100 ms (bypass operation)							
Output voltage tolerance	± 1%								
Output power factor	0.8								
Nominal output current (A)	76	72	70	91	87	83	122	115	111
Total harmonic distortion (THDU)	< 2% at 10 < 5% at 10	00% linear lo 00% non-line	ad ar load (IEC	62040–3)					
Output frequency (Hz)	50/60 Hz (50/60 Hz ±	sync to bypa : 0.1% (free-	ass) running)						
Slew rate (Hz/sec)	Programm	able: 0.25, ().5, 1, 2, or 4						
Output performance classification (according to IEC/EN62040-3)	VFI-SS-11	VFI-SS-111							
Load crest factor	Unlimited	Unlimited							
Load power factor	0.5 leading	g to 0.5 laggi	ng without d	erating					

Battery Specifications

	10 kVA	20 kVA	30 kVA	40 kVA	50 kVA	60 kVA	80 kVA			
Charging power in % of output power	20									
Nominal battery voltage (VDC)	384	384								
Nominal float voltage (VDC)	436 (adjustab	436 (adjustable up to 490)								
Boost charge voltage (VDC)	480 (adjustab	480 (adjustable up to 540)								
End of discharge voltage (VDC)	335 (adjustabl	le)								
Battery current at full load and nominal battery voltage (A)	22.3	44.3	66.3	88.5	110.5	132.5	176.5			
Battery current at full load and minimum battery voltage (A)	26.2	52.1	77.9	104.1	130.0	155.9	207.6			
Restored energy time to 90% charge	8 hours									
Temperature compensation	Adjustable									
Ripple current	< 1%									
Battery test	Manual or aut	omatic (selectal	ble)							
Deep discharge protection	Yes	Yes								
Recharge according to battery temperature	Yes	Yes								
Cold start	Yes									

Required Upstream Protection

Input Fuse or Circuit Breaker

	10 kVA	20 kVA	30 kVA	40 kVA	50 kVA	60 kVA	80 kVA
Input – 3–phase (A)	32	50	100 (80) ¹	100	125	160	200
Bypass – 1–phase (A)	63	125	200	250	300	350	500
Bypass – 1–phase with transformer (A)	63	125	100	160	200	200	315
Bypass – 3–phase (A)	25	40	63	80	100	125	160

^{1.} Without transformer T001 and T401 or with transformer T401 only

Recommended Cable Sizes

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Use power cables of equal resistance, equal length, and equal size for the same function.

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

NOTE: The maximum cable length is 100 meters.

Cable sizes in this manual are based on table 52–C2 of IEC 60364–5–52 with the following assertions:

- 90 °C conductors
- Use of copper conductors
- An ambient temperature of 30 °C
- 400 V/230 V and grouping of four cables

If the ambient temperature is greater than 30 $^\circ\text{C},$ larger conductors are to be selected with the correction factors of the IEC.

	10 kVA	20 kVA	30 kVA	40 kVA	50 kVA	60 kVA	80 kVA
Input – 3–phase (mm²)	10	10	16	16	25	35	50
Bypass – 1–phase (mm ²)	16	35	50	70	70	95	120
Bypass – 1–phase with transformer (mm ²)	16	35	25	35	50	50	95
Bypass – 3–phase (mm²)	10	10	10	16	16	16	25
Output – 1–phase (mm²)	16	35	50	70	70	95	120
Output – 3–phase (mm²)	10	10	10	16	16	16	25
Battery (mm ²) ²	16	16	25	35	50	70	95

Torque Specifications

Bolt size	Torque
M6	5 Nm (3.69 lb-ft)
M8	17.5 Nm (12.91 lb-ft)
M10	30 Nm (22 lb-ft)
M12	50 Nm (36.87 lb-ft)

^{2.} Based on 30 m battery cable length at maximum voltage 540 VDC.

Environment

	Operating	Storage
Temperature	-10 °C to 40 °C ³	-15 $^\circ\text{C}$ to 40 $^\circ\text{C}$ for systems with batteries
		-30 $^\circ\text{C}$ to 80 $^\circ\text{C}$ for systems without batteries
Relative humidity	0-95% non-condensing	0-95% non-condensing
Elevation according to IEC 62040–3	1000 m: 1.000 1500 m: 0.975 2000 m: 0.950 2500 m: 0.925 3000 m: 0.900	≤ 5000 m above sea-level (or in an environment with equivalent air pressure)
Audible noise (1 meter from surface)	55 dBA at 70% load 65 dBA at 100% load	
Protection class	IP 42 and air filter	
Color	RAL7035	

Heat Dissipation

Without Transformer

	10 kVA	20 kVA	30 kVA	40 kVA	50 kVA	60 kVA	80 kVA
Heat dissipation at 100% load (BTU/hr)	1963	3429	4959	6490	8081	9551	12539
Heat dissipation at 75% load (BTU/hr)	1447	2522	3645	4768	5937	7014	9206
Heat dissipation at 50% load (BTU/hr)	931	1615	2330	3046	3793	4478	5874
Heat dissipation at 25% load (BTU/hr)	683	1235	1803	2372	2957	3510	4628

With Rectifier Input Transformer (T001) or Inverter Output Transformer (T401)

	10 kVA	20 kVA	30 kVA	40 kVA	50 kVA	60 kVA	80 kVA
Heat dissipation at 100% load (BTU/hr)	3193	5847	8570	11294	14084	16741	22109
Heat dissipation at 75% load (BTU/hr)	2369	4333	6350	8366	10433	12401	16376
Heat dissipation at 50% load (BTU/hr)	1544	2819	4130	5440	6783	8061	10643
Heat dissipation at 25% load (BTU/hr)	998	1855	2729	3604	4496	5354	7082

With Rectifier Input Transformer (T001) and Inverter Output Transformer (T401)

	10 kVA	20 kVA	30 kVA	40 kVA	50 kVA	60 kVA	80 kVA
Heat dissipation at 100% load (BTU/hr)	4444	8302	12237	16171	20178	24042	31826
Heat dissipation at 75% load (BTU/hr)	3305	6172	9096	12021	14999	17870	23655
Heat dissipation at 50% load (BTU/hr)	2167	4043	5957	7871	9820	11699	15484
Heat dissipation at 25% load (BTU/hr)	1319	2484	3670	4855	6059	7226	9574

3. Up to 55 °C with derating

UPS Weights and Dimensions

	Weight kg		Height mm	Width mm	Width mm			
	Without Transform- er	With 1 Transform- er	With 2 Transform- ers		Without Transform- er	With 1 Transform- er	With 2 Transform- ers	
10 kVA UPS	310	420	530	2100	600	600	600	800
20 kVA UPS	310	455	600	2100	600	600	600	800
30 kVA UPS	340	520	700	2100	600	600	600	800
40 kVA UPS	340	545	750	2100	600	600	600	800
50 kVA UPS	420	720	1020	2100	600	1000	1000	800
60 kVA UPS	420	720	1020	2100	600	1000	1000	800
80 kVA UPS	460	820	1180	2100	600	1000	1000	800

Battery Weights and Dimensions

15 Minutes Battery Runtime

	Weight kg	Height mm	Width mm	Depth mm
10 kVA UPS	454	2100	600	800
20 kVA UPS	614	2100	600	800
30 kVA UPS	870	2100	600	800
40 kVA UPS	870	2100	600	800
50 kVA UPS	1200	2100	800	800
60 kVA UPS	1210	2100	800	800
80 kVA UPS	1210	2100	800	800

30 Minutes Battery Runtime

	Weight kg	Height mm	Width mm	Depth mm
10 kVA UPS	454	2100	600	800
20 kVA UPS	870	2100	600	800
30 kVA UPS	1210	2100	800	800
40 kVA UPS	1210	2100	800	800
50 kVA UPS	1715	2100	1200	800
60 kVA UPS	2395	2100	1600	800
80 kVA UPS	2395	2100	1600	800

60 Minutes Battery Runtime

	Weight kg	Height mm	Width mm	Depth mm
10 kVA UPS	614	2100	600	800
20 kVA UPS	1210	2100	800	800
30 kVA UPS	1715	2100	1200	800
40 kVA UPS	2395	2100	1600	800
50 kVA UPS	2395	2100	1600	800
60 kVA UPS	3580	2100	2400	800
80 kVA UPS	3580	2100	2400	800

Clearance

The UPS system can be placed up against the wall. Leave a distance of 100 mm (4 in) between the UPS and the wall.

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



System Overview

Breakers in the System

Q301 Q601 Q528 001

UPS and Optional Auxiliary Cabinet

- Q501: Bypass mains
- Q001: Rectifier mains
- Q201: Battery
- Q601: Manual bypass
- Q528: Bypass input
- Q301: Bypass transformer (only present with bypass transformer installed in AUX cabinet.)

One Line Diagrams

Single UPS



Single UPS with Optional Input Transformer, Output Transformer and Bypass Transformer



Installation Procedure for Bottom Cable Entry System

10-80 kVA UPS



------ Signal cable ------ Power cable 10-80 kVA UPS with Bypass Transformer



AWARNING

TIPPING HAZARD

The cabinet is top-heavy. Move the cabinet carefully with a forklift or a low profile pallet jack by lifting from the front.

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

- 1. Remove the Kick Plates, page 29.
- 2. Mount the UPS System to the Floor, page 30.
- 3. Prepare for Cables in Bottom Cable Entry System, page 33.
- 4. Follow one of the procedures:
 - Connect the Power Cables in Bottom Cable Entry System, page 36, or
 - Connect the Power Cables in Bottom Cable Entry System with Bypass Transformer , page 39.
- 5. Connect the Signal Cables, page 46.
- 6. Reinstall the Kick Plates, page 49.

Installation Procedure for Top Cable Entry System





Signal cable
Power cable

TIPPING HAZARD

The cabinet is top-heavy. Move the cabinet carefully with a forklift or a low profile pallet jack by lifting from the front.

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

- 1. Remove the Kick Plates, page 29.
- 2. Mount the UPS System to the Floor, page 30.
- 3. Prepare for Cables in Top Cable Entry System, page 34.
- 4. Follow one of the procedures:
 - Connect the Power Cables in Top Cable Entry System, page 42, or
 - Connect the Power Cables in Top Cable Entry System with Bypass Transformer, page 44.
- 5. Connect the Signal Cables, page 46.
- 6. Reinstall the Kick Plates, page 49.

10-80 kVA UPS with Bypass Transformer

Remove the Kick Plates

NOTE: Front and rear kick plates are removed in the same way on all the cabinets. Remove the kick plates as needed for cabling access and save for final installation steps.

- 1. Remove the M5 screws.
- 2. Remove the kick plate from the spring clips.



Mount the UPS System to the Floor

All the cabinets in the UPS system must be anchored to the floor. Seismic anchoring is optional, unless required by local regulations in seismic installation areas.

NOTE: Anchoring bolts are not supplied. Use appropriate bolts for the floor type.

1. Drill anchoring holes in the floor for each cabinet in your UPS system.

Anchoring Floor Hole Overview for 400 mm Wide Cabinet







2. **Only for seismic anchoring**: Drill seismic anchoring holes (option) for the cabinets that will be installed on the left-most and right-most side of the UPS system.





Total system width in mm (UPS + AUX cabinets)	A in mm (from hole-to-hole in bracket)	B in mm (from bracket end to bracket end)
600	633	658
1000	1033	1058
1200	1233	1258
1400	1433	1458
1600	1633	1658

3. Mount each cabinet to the floor.

4. **Only for seismic anchoring**: Install the seismic brackets on the left-most and right-most cabinets in the UPS system with the provided screws and bolts.

Front View



5. Only for seismic anchoring: Mount the seismic brackets to the floor.

Prepare for Cables in Bottom Cable Entry System

1. Remove the panel in the bottom of the UPS.

Front View of the UPS



2. Loosen the nut in each side of the bottom plate and reposition the bottom plate to make room for the cables. Tighten the nuts after repositioning the bottom plate.

Front View of the UPS



Prepare for Cables in Top Cable Entry System

1. Remove the panel in the bottom of the UPS.

Front View of the UPS



2. Remove the gland plates in the top of the AUX cabinet.

Front View of the UPS



3. Drill/punch holes for cables/conduits in the gland plates. Install conduits (not provided), if applicable.

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not drill or punch holes for cables or conduits with the gland plates installed and do not drill or punch holes in close proximity to the cabinet.

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

4. Reinstall the gland plates in the top of the AUX cabinet(s).

Front View of the UPS



Connect the Power Cables in Bottom Cable Entry System

1. Connect the PE cables to the PE busbar in the bottom of the UPS.

Front View of the Left Side of the UPS



- 2. Connect the power cables:
 - a. Connect the input cables to the X001 (L1, L2, L3, N4) terminals.
 - b. Connect the bypass cables to the X501 terminals (3:3: L1, L2, L3, N)/ (3:1: L, N).
 - c. Connect the output cables to the X601 terminals (3:3: L1, L2, L3, N)/(3:1: L, N).
 - d. Connect the battery cables to the X201 (B+,B-) terminals.

Front View of the 10-40 kVA 3:3 UPS



Front View of the 10-40 kVA 3:1 UPS







Front View of the 50-80 kVA 3:1 UPS



3. Fasten the cables to the panel in the bottom of the UPS using cable reliefs.



Front View of the Left Side of the UPS

Connect the Power Cables in Bottom Cable Entry System with Bypass Transformer

- 1. Connect the PE cables to the PE busbar in the bottom of the UPS and AUX cabinet.
- 2. Connect the power cables:
 - a. Connect the bypass cables to the X301 (L1, L2, L3) terminals.
 - b. Connect the input cables to the X001 (L1, L2, L3, N^5) terminals.
 - c. Connect the output cables to the X601 (3:3: L1, L2, L3, N)/(3:110–20 kVA: L, N))/(3:130–80 kVA: L1, L2) terminals.
 - d. Connect the battery cables to the X201 (B+,B-) terminals.

Front View of the 10–40 kVA UPS and AUX Cabinet with Bypass Transformer — 3:3



^{5.} No N if input transformer is installed

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Front View of the 10–40 kVA UPS and AUX Cabinet with Bypass Transformer — 3:1

Front View of the 50–80 kVA UPS and AUX Cabinet with Bypass Transformer — 3:3



Front View of the 50–80 kVA UPS and AUX Cabinet with Bypass Transformer — 3:1



Connect the Power Cables in Top Cable Entry System

1. Connect the PE cables to the PE busbar in the top of the AUX cabinet.

Front View of the AUX Cabinet



- 2. Connect the power cables:
 - a. Connect the input cables to the X311 (L1, L2, L3, N6) terminals.
 - b. Connect the bypass cables to the X312 (3:3: L1, L2, L3, N)/(3:1: L, N) terminals.
 - c. Connect the output cables to the X313 (**3:3**: L1, L2, L3, N)/(**3:1**: L, N) terminals.
 - d. Connect the battery cables to the X314 (B+,B-) terminals.

Front View of the AUX Cabinet — 3:1



^{6.} No N if input transformer is installed





Connect the Power Cables in Top Cable Entry System with Bypass Transformer

- 1. Connect the PE cables to the PE busbar.
- 2. Connect the power cables:
 - a. Connect the input cables to the X001 (L1, L2, L3, N7) terminals.
 - b. Connect the bypass cables to the X301 (L1, L2, L3) terminals.
 - c. Connect the output cables to the X601 (3:3: L1, L2, L3, N)/(3:110–20 kVA: L, N))/(3:130–80 kVA: L1, L2) terminals.
 - d. Connect the battery cables to the X201 (B+,B-) terminals.



Front View of the 10–40 kVA AUX Cabinet with Bypass Transformer — 3:1



^{7.} No N if input transformer is installed

Front View of the 50–80 kVA AUX Cabinet with Bypass Transformer — 3:3



Front View of the 50–80 kVA AUX Cabinet with Bypass Transformer — 3:1



Connect the Signal Cables

1. Route the signal cables as shown.

Front View of Bottom Cable Entry System



 Connect the building EPO to the J1602 EPO terminals on the external connection board 0P2553 in the UPS. Connect according to one of the options below:

The EPO circuit is considered Class 2 and SELV. Class 2 and SELV circuits must be isolated from the primary circuitry. Do not connect any circuit to the EPO terminals unless it can be confirmed that the circuit is Class 2 or SELV.

All circuits connected must have the same 0 V reference.

Using the Internal Supply



Using an External Supply



Front View of Top Cable Entry System

3. Connect the signal cables to the input contacts and output relays on the external connection board 0P2553.

Default Configuration	on Settinas for	Input Contacts	and Output Relays
	· · · · J · ·		

Name	Description	Location on external connection board 0P2553	Value	
Option 1 IN	Input contact: Block boost/ initial charge	J1600	Closed state: Disable boost charge	
Option 2 IN	Input contact: Force to boost charge	J1601	Closed state: Start boost charge	
Common alarm	Output relay: Common alarm	J1607	Normally open (NO)/ Normally closed (NC)	
Option 1 OUT	Output relay: Battery operation	J1608	Maximum 250 VAC, 8 A Maximum 24 VDC, 8 A	
Option 2 OUT	Output relay: Static bypass operation	J1609		

Input Contact Specifications

Internal DC supply voltage	24 V limited (10 mA per input)
Threshold resistance $0 \rightarrow 1$	Less than 520 Ohm \rightarrow 1
Threshold resistance $1 \rightarrow 0$	More than 1050 Ohm \rightarrow 0

Output Relay Specifications

AC voltage range	5 V to 400 V
DC voltage range	5 VDC to 250 VDC
AC current range	2 mA at 24 V/10 mA at 5 V to 8 A
DC current range	2 mA at 24 V/10 mA at 5 V to 0.3 mA at 300 V/8 A at 32 V

- 4. Connect the battery temperature sensor cables to the external connection board 0P2553.
 - For Gutor battery cabinet: See battery solution documentation for connection details.
 - For third-party battery solution: Install and connect the temperature sensor (GUPXCXOPT01) in the battery solution.



5. Connect the signal cables from the external equipment to the network management card.

Network Management Card (AP9635) Overview



- Universal I/O port.
- Modem (RJ 11) for Remote Monitoring Service (RMS) through dedicated line.
- Modbus connector RS485 for Modbus protocol network.
- Network 10/100 Base T connector for Ethernet network. Supports the Modbus/TCP, the web interface (HTTP), and the SNMP functionality.
- The reset button resets the network management card while the power remains on.
- The Config serial configuration port connects the network management card to a local computer to configure initial network settings or access the command line interface.
- The status LED indicates network management card status.
- Link-RX/TX (10/100) LED indicates the status of the network.
- 6. Connect the battery breaker signal cables from the battery solution to the terminal block.
 - For Gutor battery solution: See battery solution documentation for connection details.
 - For third-party battery solution: Connect a dry contact related to the position of the battery breaker to X010 (terminal 1 and 2) in the UPS. It must be a NO (Normal Open) dry contact.

Reinstall the Kick Plates

NOTE: Front and rear kick plates are installed in the same way on all the cabinets.

1. Attach the kick plates to the spring clips.

Front View



2. Fasten with the M5 screws.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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