Symmetra™ PX 96 and 160 kW

380/400/415 V

Technical Specifications

11/2016

www.schneider-electric.com

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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

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.

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-inflammable, 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.

Technical Data

Model List

Symmetra PX 96 kW 400 V

Symmetra PX 96 kW

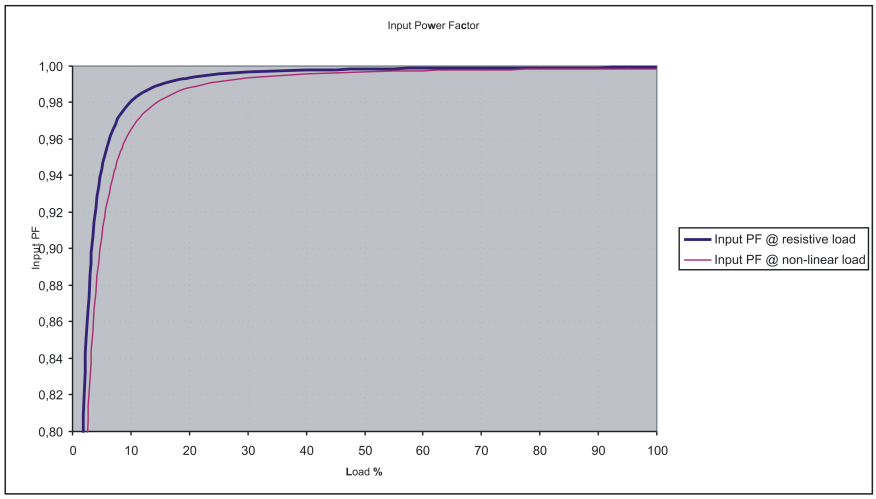
- Symmetra PX 32 kW Scalable to 96 kW (SY32K96H)
- Symmetra PX 32 kW Scalable to 96 kW with Integrated Modular Distribution (SY32K96H-PD)
- Symmetra PX 32kW Scalable to 96kW, without Bypass, Distribution, or Batteries, 400V (SY32K96H-NB)
- Symmetra PX 64 kW Scalable to 96 kW (SY64K96H)
- Symmetra PX 64 kW Scalable to 96 kW with Integrated Modular Distribution (SY64K96H-PD)
- Symmetra PX 64kW Scalable to 96kW, without Bypass, Distribution, or Batteries, 400V (SY64K96H-NB)
- Symmetra PX 96 kW (SY96K96H)
- Symmetra PX 96 kW with Integrated Modular Distribution (shown) (SY96K96H-PD)
- Symmetra PX 96kW, without Bypass, Distribution, or Batteries, 400V (SY96K96H-NB)

Symmetra PX 160 kW 400 V

Symmetra PX 160 kW with Integrated Modular Distribution

- Symmetra PX 32 kW Scalable to 160 kW (SY32K160H)
- Symmetra PX 32 kW Scalable to 160 kW with Integrated Modular Distribution (SY32K160H-PD)
- Symmetra PX 32kW Scalable to 160kW, without Bypass, Distribution, or Batteries, 400V (SY32K160H-NB)
- Symmetra PX 64 kW Scalable to 160 kW (SY64K160H)
- Symmetra PX 64 kW Scalable to 160 kW with Integrated Modular Distribution (SY64K160H-PD)
- Symmetra PX 64kW Scalable to 160kW, without Bypass, Distribution, or Batteries, 400V (SY64K160H-NB)
- Symmetra PX 96 kW Scalable to 160 kW (SY96K160H)
- Symmetra PX 96 kW Scalable to 160 kW with Integrated Modular Distribution (SY96K160H-PD)
- Symmetra PX 96kW Scalable to 160kW, without Bypass, Distribution, or Batteries, 400V (SY96K160H-NB)
- Symmetra PX 128 kW Scalable to 160 kW (SY128K160H)
- Symmetra PX 128 kW Scalable to 160 kW with Integrated Modular Distribution (SY128K160H-PD)
- Symmetra PX 128kW Scalable to 160kW, without Bypass, Distribution, or Batteries, 400V (SY128K160H-NB)
- Symmetra PX 160 kW (SY160K160H)
- Symmetra PX 160 kW with Integrated Modular Distribution (shown) (SY160K160H-PD)
- Symmetra PX 160kW, without Bypass, Distribution, or Batteries, 400V (SY160K160H-NB)

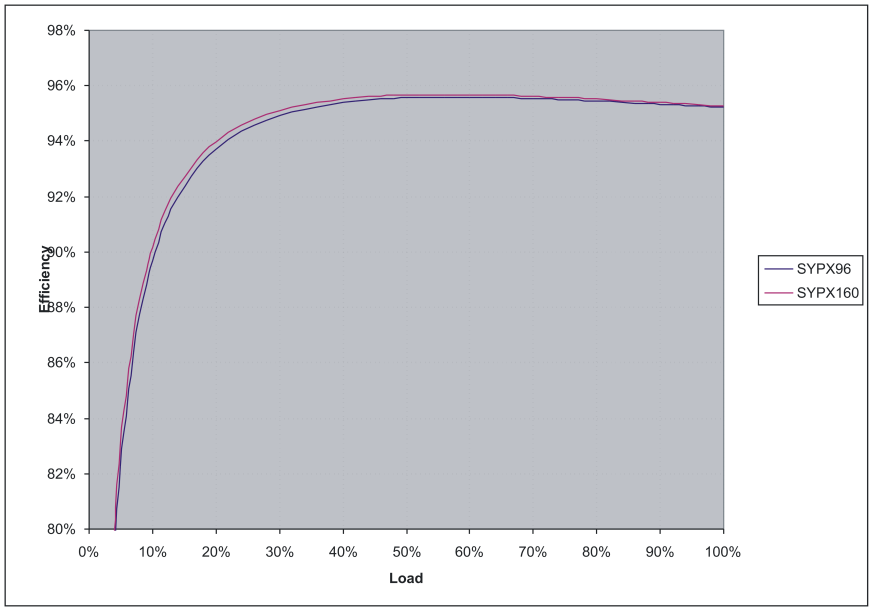
Input Power Factor



Efficiency (TÜV certified)

System	25% load	50% load	75% load	100% load
Symmetra PX 96 kW 400 V	94.5	95.6	95.5	95.2
Symmetra PX 160 kW 400 V	94.7	95.7	95.6	95.3

Efficiency Curves



Derating due to Load Power Factor

The Symmetra PX 96/160 kW exhibits no derating due to leading or lagging load power factor

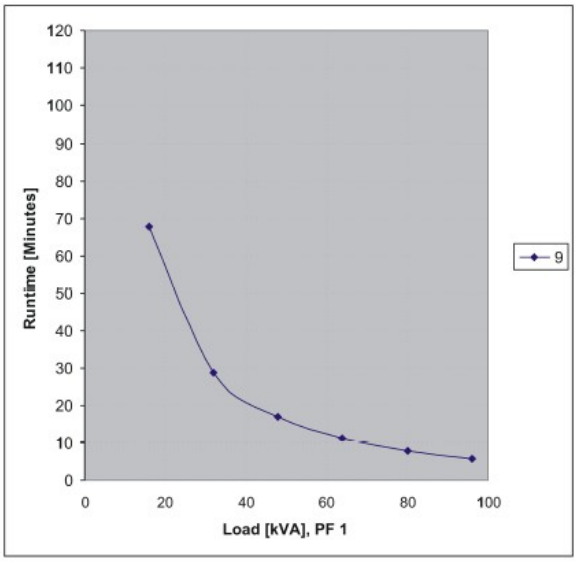
Batteries

Efficiency DC to AC

	96 kW			160 kW		
	380 V	**400 V**	**415 V**	**380 V**	**400 V**	**415 V**
Efficiency at nom battery voltage (%)	95%	95%	95%	95%	95%	95%

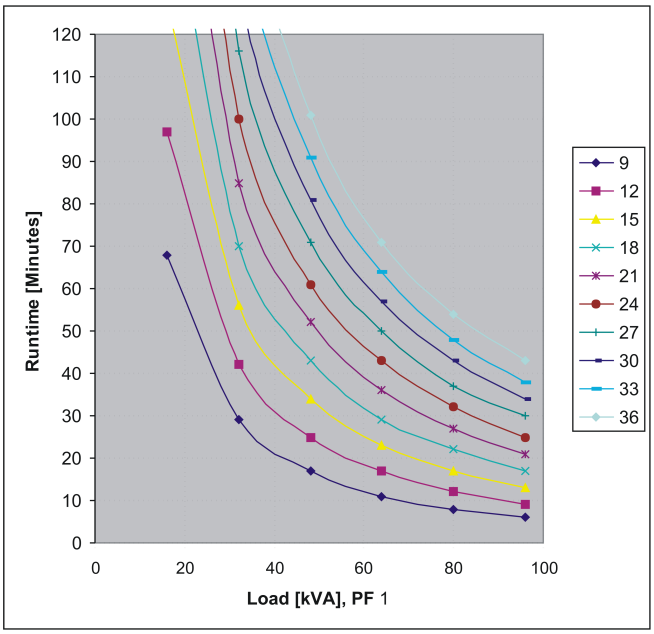
Battery Runtimes – Schneider Electric Battery Solutions

Symmetra PX 96 kW Battery Runtimes (Minutes) – Modular Battery Solution



	Load kW					
Number of bat shelves	**16**	**32**	**48**	**64**	**80**	**96**
9	68	29	17	11	8	6

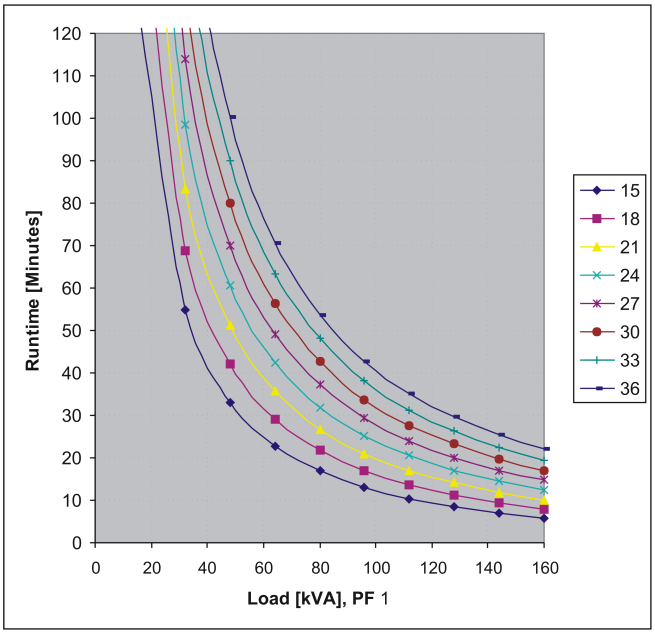
Symmetra PX 96 kW Battery Runtimes (Minutes) – Extended Modular Battery Solution



		Load kW					
Number of modular battery cabinets	**Number of bat shelves**	**16**	**32**	**48**	**64**	**80**	**96**
1	9	68	29	17	11	8	6
2	10	77	33	20	13	9	7
	11	87	38	22	15	11	8
	12	97	42	25	17	12	9
	13	107	47	28	19	14	11
	14	117	51	31	21	15	12
	15	128	56	34	23	17	13
	16	138	61	37	25	19	14
	17	149	65	40	27	20	16
	18	160	70	43	29	22	17
3	19	171	75	46	32	24	18
	20	182	80	49	34	25	20
	21	193	85	52	36	27	21
	22	204	90	55	38	29	23
	23	216	95	58	41	30	24
	24	227	100	61	43	32	25
	25	238	106	64	45	34	27
	26	250	111	68	47	36	28
	27	262	116	71	50	37	30
4	28	274	121	74	52	39	31
	29	286	127	78	54	41	33
	30	298	132	81	57	43	34
	31	310	137	84	59	45	35
	32	322	143	88	62	47	37
	33	334	148	91	64	48	38
	34	346	154	95	66	50	40

		Load kW					
Number of modular battery cabinets	**Number of bat shelves**	**16**	**32**	**48**	**64**	**80**	**96**
	35	359	160	98	69	52	42
	36	371	165	101	71	54	43

Symmetra PX 160 kW Battery Runtimes (Minutes) – Modular Battery Solution



		Load kW									
Number of modular battery cabinets	**Number of bat shelves**	**16**	**32**	**48**	**64**	**80**	**96**	**112**	**128**	**144**	**160**
PDU with modular batteries and 1 modular battery cabinet	15	123	55	33	23	17	13	10	8	7	6
	16	133	59	36	25	18	14	11	9	8	7
	17	144	64	39	27	20	16	13	10	9	7
	18	154	69	42	29	22	17	14	11	9	8
PDU with modular batteries and 2 modular battery cabinets	19	165	74	45	31	23	18	15	12	10	9
	20	175	79	48	33	25	20	16	13	11	9
	21	186	83	51	36	27	21	17	14	12	10
	22	197	88	54	38	28	22	18	15	13	11
	23	208	93	57	40	30	24	19	16	14	12
	24	219	98	60	42	32	25	20	17	14	12
	25	230	104	64	45	34	27	22	18	15	13
	26	241	109	67	47	35	28	23	19	16	14
	27	252	114	70	49	37	29	24	20	17	15
PDU with modular batteries and 3 modular battery cabinets	28	264	119	73	52	39	31	25	21	18	16
	29	275	124	77	54	41	32	26	22	19	16
	30	287	130	80	56	43	34	28	23	20	17
	31	298	135	83	59	44	35	29	24	21	18
	32	310	140	87	61	46	37	30	25	22	19
	33	322	146	90	63	48	38	31	26	23	20
	34	334	151	93	66	50	40	33	27	23	20

		Load kW									
Number of modular battery cabinets	**Number of bat shelves**	**16**	**32**	**48**	**64**	**80**	**96**	**112**	**128**	**144**	**160**
	35	346	156	97	68	52	41	34	28	24	21
	36	358	162	100	71	54	43	35	30	25	22

Symmetra PX 160 kW Battery Runtimes (Minutes) – Classic Batteries

Additional details can be found on the ISX designer

Power Factor: 0.8

Battery Configuration	32 kVA	64 kVA	96 kVA	128 kVA	160 kVA
A	30 min	11 min	6 min	N/A	N/A
B	41 min	17 min	10 min	6 min	N/A
AA	74 min	30 min	17 min	11 min	8 min
BB	92 min	41 min	25 min	17 min	12 min
AAA	116 min	50 min	30 min	20 min	15 min
BBB	147 min[1]	66 min	41 min	29 min	22 min
AAAA	164 min[1]	71 min	43 min	30 min	22 min
BBBB	204 min[1]	92 min	58 min	41 min	31 min

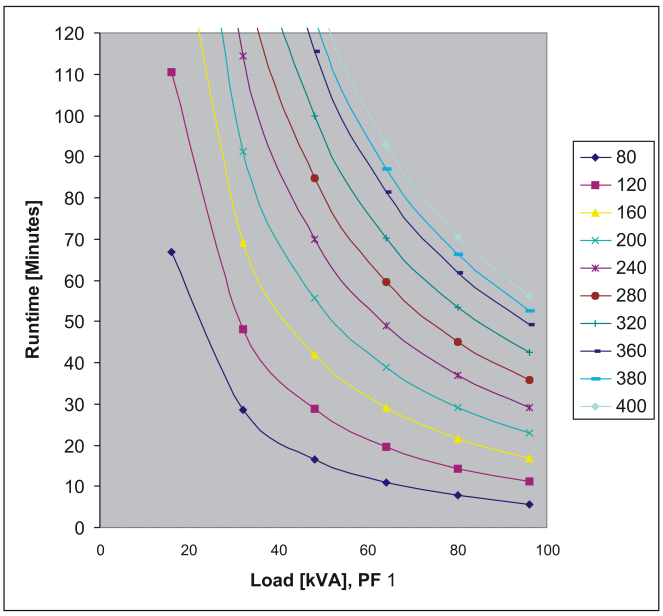
Power Factor: 1.0

Battery Configuration	32kVA	64kVA	96kVA	128kVA	160kVA
A	22 min	8 min	4 min	N/A	N/A
B	31 min	12 min	7 min	4 min	N/A
AA	54 min	22 min	13 min	8 min	6 min
BB	72 min	31 min	18 min	12 min	9 min
AAA	88 min	37 min	22 min	15 min	11 min
BBB	115 min[1]	51 min	31 min	22 min	16 min
AAAA	125 min[1]	54 min	32 min	22 min	16 min
BBBB	160 min[1]	72 min	44 min	31 min	23 min

1. Recharge time may be too long – check with customer requirements.

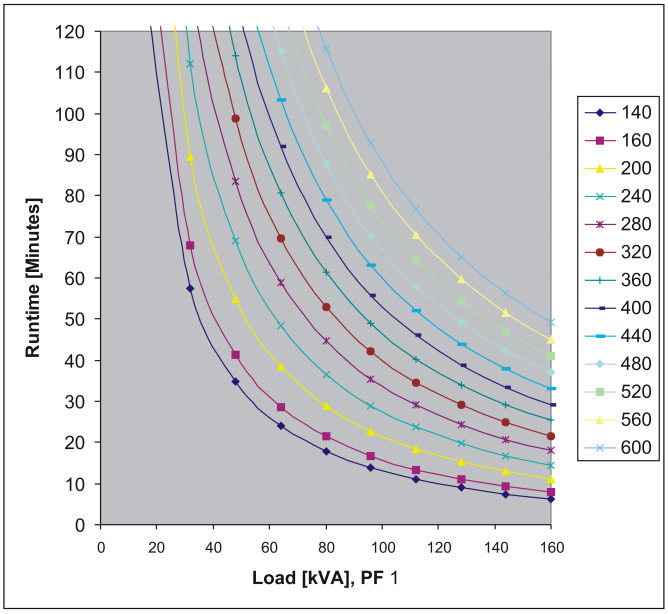
Battery Runtimes — Third Party Classic Battery Solution

Symmetra PX 96 kW Battery Runtimes (Minutes) — Classic Batteries



Battery Ah		Load kW					
20 hr rate Ah	**Approx. Equivalent 10 hr rate Ah**	**16**	**32**	**48**	**64**	**80**	**96**
80	74	67	29	17	11	8	6
100	93	88	38	23	15	11	8
120	112	111	48	29	20	14	11
140	130	134	59	35	24	18	14
160	149	157	69	42	29	22	17
180	167	182	80	49	34	25	20
200	186	207	91	56	39	29	23
220	205	323	103	63	44	33	26
240	223	258	114	70	49	37	29
260	242	284	126	77	54	41	32
280	260	311	138	85	60	45	36
300	279	338	150	92	65	49	39
320	298	366	163	100	70	53	42
340	316	393	175	108	76	58	46
360	335	421	188	116	81	62	49
380	353	450	201	124	87	66	53
400	372	479	213	132	93	71	56

Symmetra PX 160 kW Battery Runtimes (Minutes) — Classic Batteries



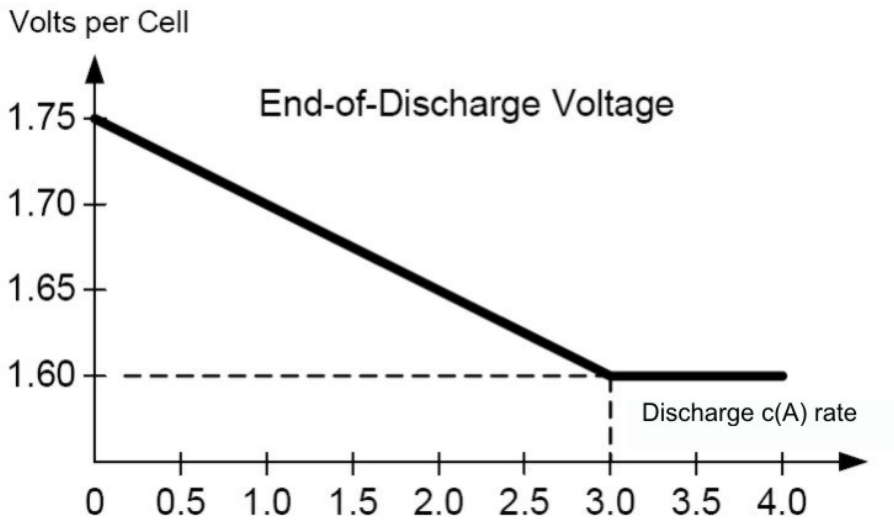
Battery Ah		Load kW									
20 hr rate Ah	**Approx. Equivalent 10 hr rate Ah**	**16**	**32**	**48**	**64**	**80**	**96**	**112**	**128**	**144**	**160**
140	130	129	57	35	24	18	14	11	9	7	6
160	149	152	68	41	29	21	17	13	11	9	8
180	167	175	79	48	33	25	20	16	13	11	9
200	186	199	90	55	38	29	23	18	15	13	11
220	205	224	101	62	43	33	26	21	18	15	13
240	223	249	112	69	48	37	29	24	20	17	14
260	242	274	124	76	54	41	32	26	22	19	16
280	260	300	135	84	59	45	35	29	24	21	18
300	279	326	147	91	64	49	39	32	27	23	21
320	298	352	160	99	70	53	42	35	29	25	22
340	316	379	172	106	75	57	45	37	31	27	23
360	335	406	184	114	81	61	49	40	34	29	25
380	353	434	197	122	86	66	52	43	36	31	27
400	372	461	209	130	92	70	56	46	39	33	29
420	391	489	222	138	98	74	59	49	41	36	31
440	409	518	235	146	103	79	63	52	44	38	33
460	428	546	248	154	109	83	67	55	47	40	35
480	446	575	261	162	115	88	70	58	49	42	37
500	465	604	275	171	121	92	74	61	52	45	39
520	484	633	288	179	127	97	78	64	54	47	41
540	502	663	301	187	133	102	81	67	57	49	43
560	521	692	315	196	139	106	85	70	60	52	45
580	539	722	329	204	145	111	89	74	62	54	47
600	558	752	342	213	151	116	93	77	65	56	49

Battery Discharge Current

	96 kW	160 kW
I bat at bat nominal , 100% load	265	441
I bat at bat min , 100% load	330	550
I bat at bat min , 150% load	495	825

End of Discharge Voltage at 100% Load

NOTE: The voltage is 1.6 to 1.75 per cell depending on load.



NOTE: C equals $I_{discharge}$ divided by the battery Ah capacity.

Electrolyte Values

	Battery unit	String of batteries (4 battery units)
Electrolyte volume L (gal)	2.78 (0.61)	11.14 (2.45)
Electrolyte weight kg (lbs)	3.62 (7.98)	14.46 (31.90)
Sulfuric acid weight kg (lbs)	1.43 (3.16)	5.73 (12.6)

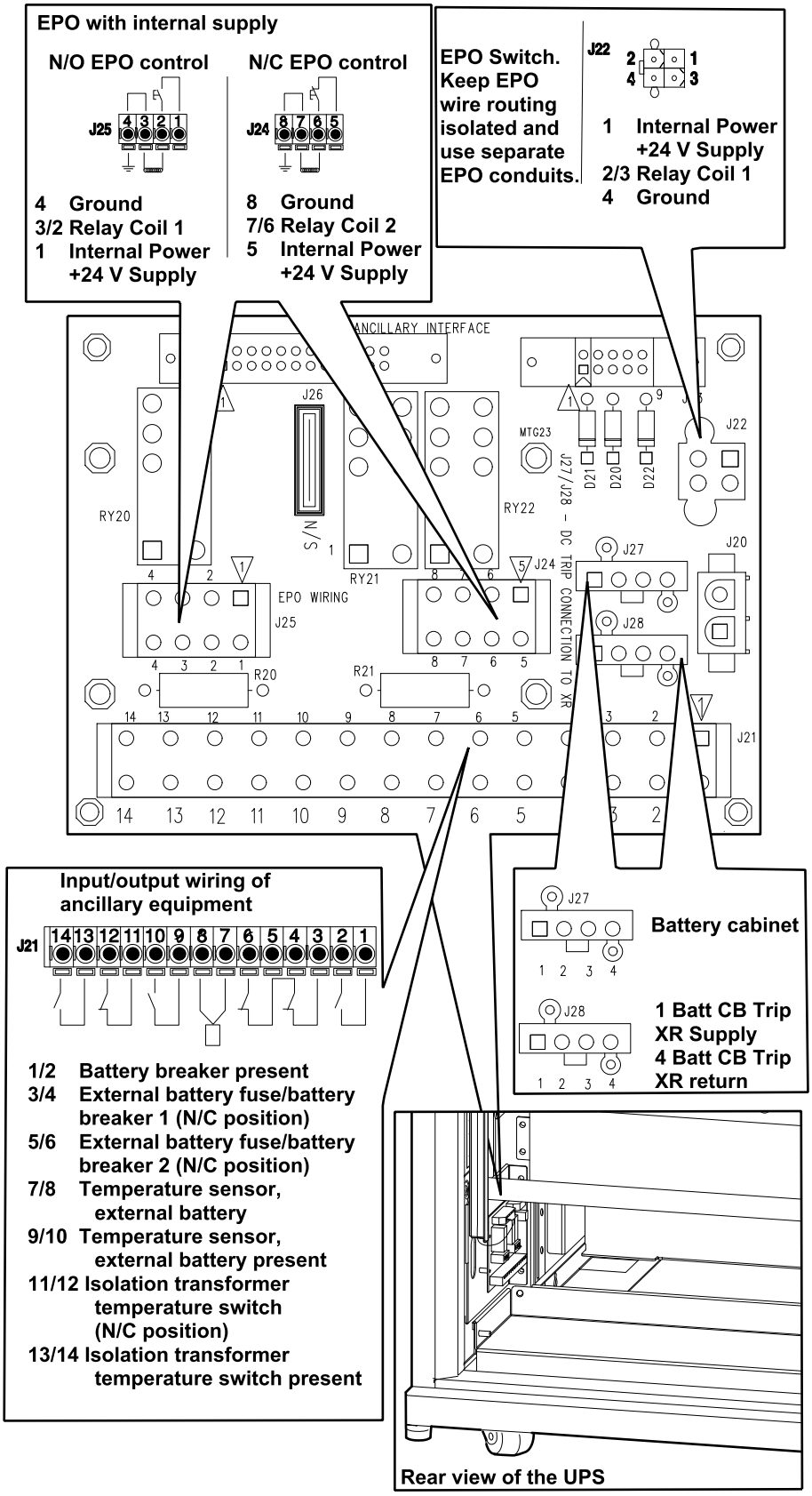
Communication and Management

Features

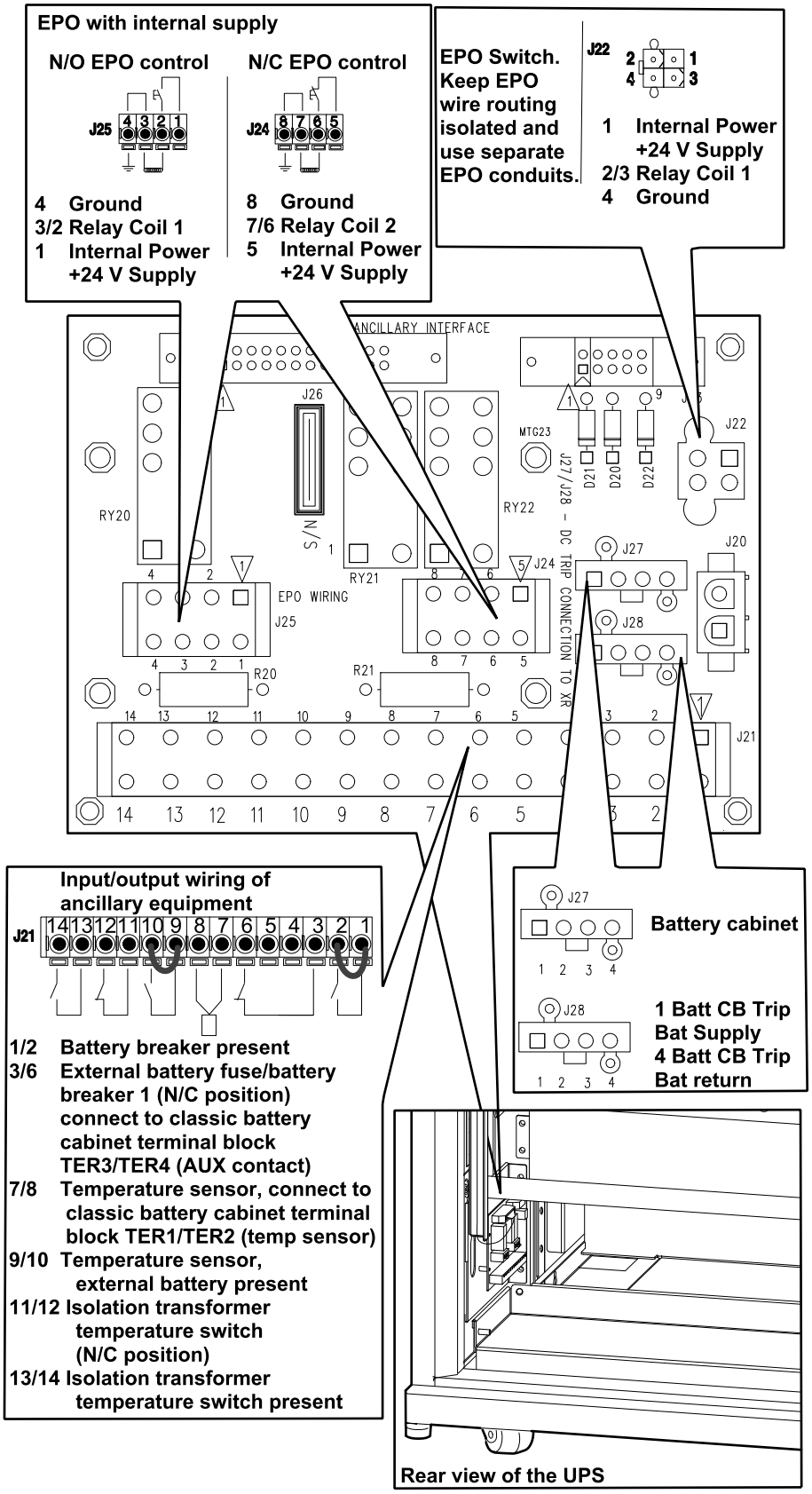
Available SmartSlot™ Interface Quantity	2
Control panel	Multi-function LCD status and control console
Audible alarm	Alarm when on battery : distinctive low battery alarm : configurable delays
Emergency Power Off (EPO)	Yes

EPO and Input/Output Contacts

EPO Switch Wiring Diagram for Modular Battery Cabinet



EPO Switch Wiring Diagram for Classic Battery Cabinet



Compliance

Regulatory Approvals

- EN 50091-1.
- EN/IEC 62040–1: Uninterruptible Power Systems (UPS). General and safety requirements for UPS, 2008 Operator access area.
- EN/IEC 62040–2: 2006 Uninterruptible Power Systems (UPS) Part 2. Electromagnetic compatibility (EMC) requirements. Class C1–UPS.
- EN/IEC 62040–3: 2011 Uninterruptible Power Systems (UPS). Method of specifying the performance and test requirements, 2001 Classifications; VFI-SS-111.

Facility Planning

Input Specifications

	96 kW			160 kW		
	380 V	**400 V**	**415 V**	**380 V**	**400 V**	**415 V**
Connection type	3PH + N + PE					
Input frequency (Hz)	40–70					
Total harmonic distortion (THDI)	< 5% at full load					
Nominal input current (A)[2]	154	146	141	256	243	234
Maximum input current (A)[3]	169	160	155	281	267	258
Input current limitation (A)[4]	197	197	197	295	295	295
Input power factor correction	> 0.98 at load > 50%					
Maximum short circuit level Icc (kA)	Rated conditional short–circuit current Icc: 30 kA. Rated peak withstand current Ipk: Icc x 1.7. Device: Refer to *Required Upstream and Downstream Protection, page 24*.					

Bypass Specifications

	96 kW			160 kW		
	380 V	**400 V**	**415 V**	**380 V**	**400 V**	**415 V**
Connection type	3PH + N + PE					
Input frequency (Hz)	40–70					
Nominal input current (A)	147	139	134	243	231	223
Maximum short circuit level Icc (kA)	Rated conditional short–circuit current Icc: 30 kA. Rated peak withstand current Ipk: Icc x 1.7. Device: Refer to *Required Upstream and Downstream Protection, page 24*.					

Output Specifications

	96 kW			160 kW		
	380 V	**400 V**	**415 V**	**380 V**	**400 V**	**415 V**
Connection type	3PH + N + PE					
Output capacity	150% for 60 seconds (normal operation) 125% for 10 minutes (normal operation) 150% for 60 seconds (battery operation) 125% for 10 minutes (battery operation) 100% load (bypass operation) 1000% for 100 ms (bypass operation)					
Nom output current (A)	147	139	134	243	231	223

2. Input current is based on nominal voltage and rated load, batteries fully charged
3. Input current is based on nominal voltage, rated load and full battery charge current.
4. Integrated electronic current limitation functionality.

	96 kW			160 kW		
	380 V	**400 V**	**415 V**	**380 V**	**400 V**	**415 V**
Output frequency (sync to bypass)	47–53 Hz for 50 Hz nominal[5]					
Slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, and 6					
Total harmonic distortion (THDU)	< 2% linear < 5% non-linear					
Output power factor	0.5 leading to 0.5 lagging without derating					
Dynamic load response	+/- 5%					
Output voltage regulation	+/- 1%					
Crest factor	2.7					

Modular Battery Specifications

NOTE: The batteries must be connected to a DC rated circuit breaker.

Battery Type	**Sealed lead–acid**
Nominal voltage (VDC)	+/- 192 (96 cells at 2 V)
Float voltage (VDC)	+/- 218 (96 cells at 2.27 V)
End of discharge voltage at full load (VDC)	+/- 154 (96 cells at 1.6 V)
End of discharge maximum battery current (A)	96 kW: 332 160 kW: 550
Maximum charging power[6]	96 kW: 9.6/19.2 kW (selected via the display) 160 kW: 16/32 kW (selected via the display)

Classic Battery Specifications

NOTICE

HAZARD OF EQUIPMENT DAMAGE

Do not mix battery types in the same installation.

Failure to follow these instructions can result in equipment damage.

Pre-installed batteries	**XP12V1800**	**XP12V2500**
Battery Type	**Sealed lead-acid**	
Nominal voltage (V)	12	12
Power[7]	1370	1870
Nominal capacity[8]	56.4	69.5
Internal resistance (mOhm)	8.6	6.2
Short circuit current (A)	1521	2030

5. The following options can be selected: 40–60 Hz, 47–53 Hz, 49.9–50.1 Hz.
6. Input current limit may lower charging capability in some line and load conditions.
7. 15 min 1.60 VDC 25 °C W/block
8. C_{10} 1.80 VDC 25 °C Ah

DC Power Levels for Battery Sizing with Output Power Factor = 1

DC power in kW				
Load	**25%**	**50%**	**75%**	**100%**
32 kVA	8.5	16.9	25.4	33.9
64 kVA	16.9	33.9	50.8	67.7
96 kVA	25.4	50.8	76.2	101.6
128 kVA	33.9	67.7	101.6	135.4
160 kVA	42.3	84.7	127.0	169.3

DC Power Levels for Battery Sizing with Output Power Factor = 0.8

DC power in kVA				
Load	**25%**	**50%**	**75%**	**100%**
32 kVA	6.8	13.5	20.3	27.1
64 kVA	13.5	27.1	40.6	54.2
96 kVA	20.3	40.6	61.0	81.3
128 kVA	27.1	54.2	81.3	108.4
160 kVA	33.9	67.7	101.6	135.4

Maximum Current with Battery at End of Discharge (A)

Load	**25%**	**50%**	**75%**	**100%**
32 kW	27.6	55.1	82.7	110.2
64 kW	55.1	110.2	165.3	220.5
96 kW	82.7	165.3	248.0	330.7
128 kW	110.2	220.5	330.7	440.9
160 kW	137.8	275.6	413.4	551.1

Recommended Cable Sizes

NOTE: Input and output neutral wires must be rated for 173% of phase load if feeding switch mode power supply loads without input power factor corrections.

NOTE: Copper wires must be used for input/output wiring.

Required Upstream and Downstream Protection

The specified upstream breakers below are required to obtain the conditional short-circuit current rating, Icc at 30 kA symmetrical rms.

Single and Dual Mains Systems

Input and Bypass

With Breaker Compact NSX400F — Micrologic 2.3

	96 kW		160 kW	
	Input	**Bypass**	**Input**	**Bypass**
Trip setting	96 kW	96 kW	160 kW	160 kW
Io (A)	225	160	400	250
Ir (x Io)[9]	1	1	1	1
Isd (x Ir)	1.5–10	8	1.5–10	8

With Breaker PowerPact NLGF36400U3XTW

	96 kW	
	Input	**Bypass**
Trip setting	96 kW	96 kW
Ir (A)	225	160
Ir (@ 6 Ir)[9]	0.5–16	0.5–16
Ii (x In)	1.5–12	1.5–12

With Fuses

96 kW		160 kW	
Input	**Bypass**	**Input**	**Bypass**
200 A gG/gL type fuse	160 A gG/gL type fuse	315 A gG/gL type fuse	250 A gG/gL type fuse

Output

	96 kW 400 V		160 kW 400 V	
	Fuse	**Breaker (A)**	**Fuse**	**Breaker (A)**
UPS output Q2	160 A gL type fuse	160	250 A gL type fuse	250

Physical

Weights and Dimensions

	Part number	Weight kg	Height mm	Width mm	Depth mm
96 and 160 kW UPS cabinet[10]	(SYCF160KH)	325	2011	600	1070

9. Ir and Isd must be set by the installer based on the installation coordination
10. Not including power modules.

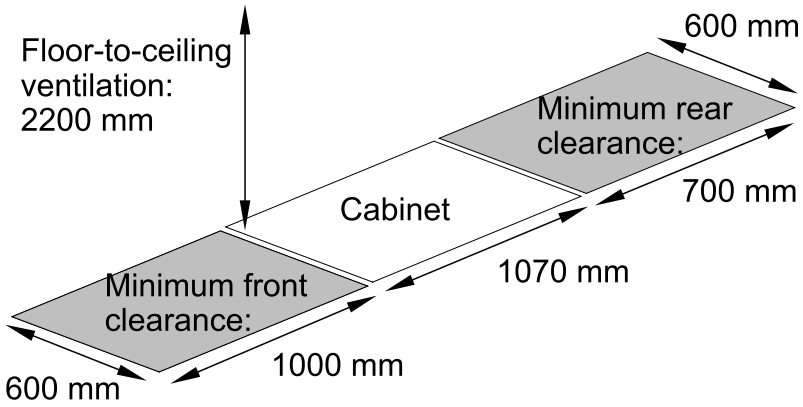
Shipping Weights and Dimensions

	Part number	Weight kg	Height mm	Width mm	Depth mm
96 and 160 kW UPS cabinet[11]	(SYCF160KH)	358	2140	848	1210

Clearance Symmetra PX 96 and 160 kW

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.

NOTE: Rear clearance can only be reduced to 300 mm for ventilation when the UPS cabinet is used in push-to-wall installations, typically together with the classic battery cabinet.



Environmental

	Operation	Storage
Temperature	0 to 40 °C	-15 to 40 °C
Relative humidity	0 - 95%	0 - 95%
Elevation	0-1000 m: 100% load 1000–1500 m: 95% load 1500–2000 m: 91% load 2000–2500 m: 86% load 2500–3000 m: 82% load	0-15000 m
Audible noise at 1 meter from surface of unit	63.00 dBA	
Protection class	NEMA 1	
Colour	Black	

Heat Dissipation

NOTE: Full load heat loss at nominal mains and fully charged batteries.

UPS rating	32 kW	64 kW	96 kW	128 kW	160 kW
Heat dissipation kWh (BTU/hr)	1.68 (5748)	3.37 (11496)	5.05 (17244)	6.73 (22992)	8.42 (28741)

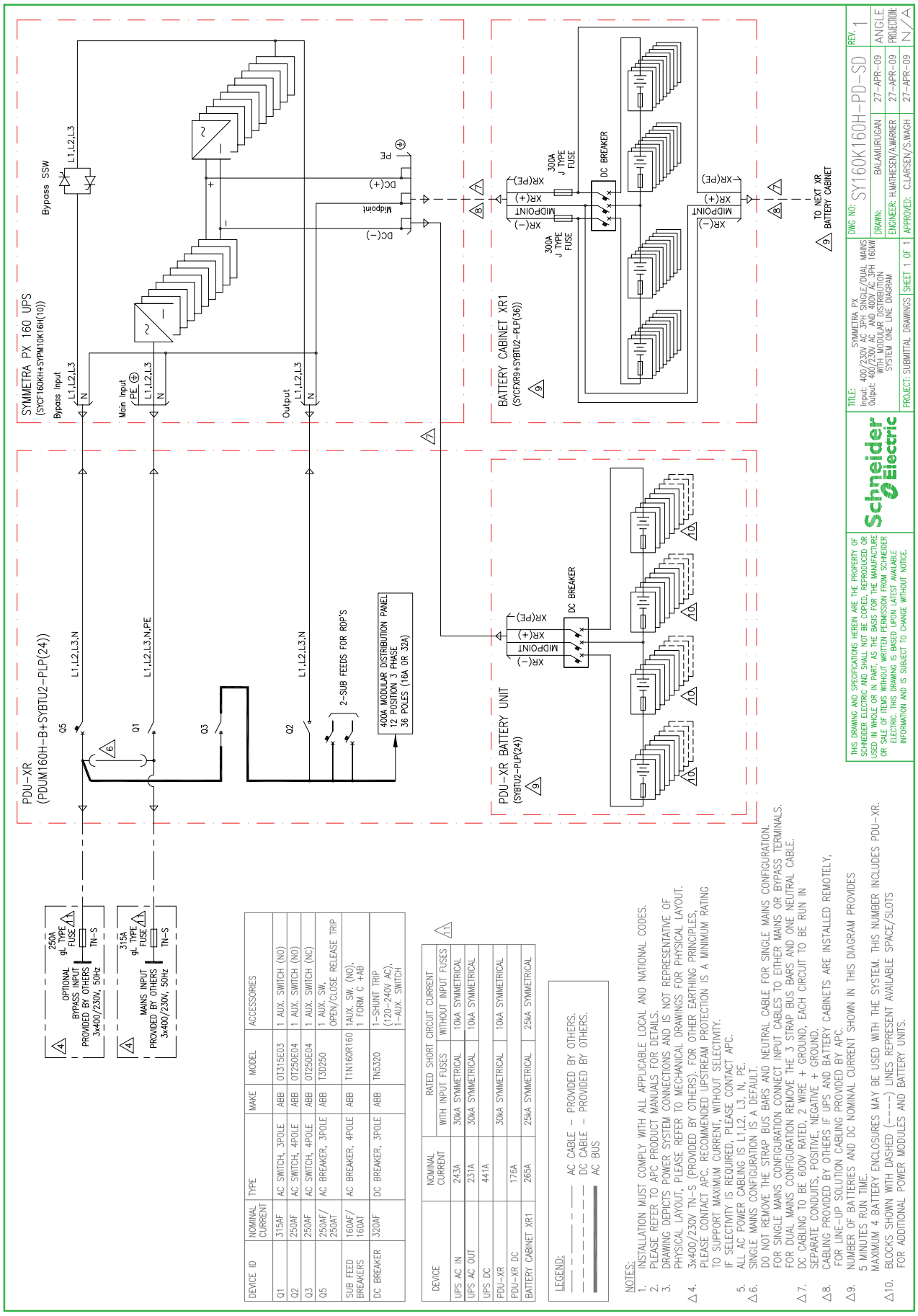
11. Not including power modules.

Drawings

NOTE: A comprehensive set of drawings is available on the engineering website at engineer.apc.com.

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

Symmetra PX Single System with PDU with Modular Batteries



DEVICE ID	NOMINAL CURRENT	TYPE	MAKE	MODEL	ACCESSORIES
Q1	315AF	AC SWITCH, 3POLE	ABB	OT315E03	1 AUX. SWITCH (NO)
Q2	250AF	AC SWITCH, 4POLE	ABB	OT250E04	1 AUX. SWITCH (NO)
Q3	250AF	AC SWITCH, 4POLE	ABB	OT250E04	1 AUX. SWITCH (NC)
Q5	250AF/ 250AT	AC BREAKER, 3POLE	ABB	T3D250	1 AUX. SW. OPEN/CLOSE RELEASE TRIP
SUB FEED BREAKERS	160AF/ 160AT	AC BREAKER, 4POLE	ABB	T1N160R160	1AUX. SW. (NO), 1 FORM C +AB
DC BREAKER	320AF	DC BREAKER, 3POLE	ABB	TN5320	1-SHUNT TRIP (120-240V AC), 1-AUX. SWITCH

DEVICE	NOMINAL CURRENT	RATED SHORT CIRCUIT CURRENT	
		WITH INPUT FUSES	WITHOUT INPUT FUSES
UPS AC IN	243A	30kA SYMMETRICAL	10kA SYMMETRICAL
UPS AC OUT	231A	30kA SYMMETRICAL	10kA SYMMETRICAL
UPS DC	441A	30kA SYMMETRICAL	10kA SYMMETRICAL
PDU-XR	176A		
PDU-XR DC			
BATTERY CABINET XR1	265A	25kA SYMMETRICAL	25kA SYMMETRICAL

LEGEND:
- AC CABLE - PROVIDED BY OTHERS.
- DC CABLE - PROVIDED BY OTHERS.
- AC BUS

NOTES:
1. INSTALLATION MUST COMPLY WITH ALL APPLICABLE LOCAL AND NATIONAL CODES.
2. PLEASE REFER TO APC PRODUCT MANUALS FOR DETAILS.
3. DRAWING DEPICTS POWER SYSTEM CONNECTIONS AND IS NOT REPRESENTATIVE OF PHYSICAL LAYOUT, PLEASE REFER TO MECHANICAL DRAWINGS FOR PHYSICAL LAYOUT.
△4. 3x400/230V TN-S (PROVIDED BY OTHERS). FOR OTHER EARTHING PRINCIPLES, PLEASE CONTACT APC. RECOMMENDED UPSTREAM PROTECTION IS A MINIMUM RATING TO SUPPORT MAXIMUM CURRENT, WITHOUT SELECTIVITY. IF SELECTIVITY IS REQUIRED, PLEASE CONTACT APC.
5. ALL AC POWER CABLING IS L1,L2, L3, N, PE.
△6. SINGLE MAINS CONFIGURATION IS A DEFAULT. DO NOT REMOVE THE STRAP BUS BARS AND NEUTRAL CABLE FOR SINGLE MAINS CONFIGURATION. FOR SINGLE MAINS CONFIGURATION CONNECT INPUT CABLES TO EITHER MAINS OR BYPASS TERMINALS. FOR DUAL MAINS CONFIGURATION REMOVE THE 3 STRAP BUS BARS AND ONE NEUTRAL CABLE.
△7. DC CABLING TO BE 600V RATED, 2 WIRE + GROUND, EACH CIRCUIT TO BE RUN IN SEPARATE CONDUITS, POSITIVE, NEGATIVE + GROUND.
△8. CABLING PROVIDED BY OTHERS IF UPS AND BATTERY CABINETS ARE INSTALLED REMOTELY, FOR LINE-UP SOLUTION CABLING PROVIDED BY APC.
△9. NUMBER OF BATTERIES AND DC NOMINAL CURRENT SHOWN IN THIS DIAGRAM PROVIDES 5 MINUTES RUN TIME. MAXIMUM 4 BATTERY ENCLOSURES MAY BE USED WITH THE SYSTEM. THIS NUMBER INCLUDES PDU-XR.
△10. BLOCKS SHOWN WITH DASHED (----) LINES REPRESENT AVAILABLE SPACE/SLOTS FOR ADDITIONAL POWER MODULES AND BATTERY UNITS.

Options

Hardware Options

Modular Battery Cabinets

High-performance battery module for 400V Symmetra PX 48/96/160KW & 208V Symmetra PX 100 KW	SYBT9–B4
High-performance long-lige battery module for 400V Symmetra PX 48/96/160KW & 208V Symmetra PX 100 KW	SYBT9–B4LL
Symmetra PX Modular battery cabinet for 400V PX 96/160kW & 208V PX 100kW for 9 Battery Modules	SYCFXR9
Symmetra PX Modular battery cabinet for 400V PX 96/160kW & 208V PX 100kW with 9 Battery Modules & Startup	SYCFXR9–9
Symmetra PX Modular battery cabinet for 400V PX 96/160kW & 208V PX 100kW for 9 Battery Modules & Startup	SYCFXR9–S

Classic Battery Cabinets

Symmetra PX 96/160kW Classic battery cabinet with classic batteries A[12]	SYPBV96K160HA
Symmetra PX 96/160kW Classic battery cabinet with classic batteries B[12]	SYPBV96K160HB
Symmetra PX 96/160kW Classic battery cabinet (empty) for third party batteries[12]	SYPBV96K160H

Power Module

Symmetra PX Power Module, 10/16kW, 400V	SYPM10K16H

Modular Power Accessories

Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 1080cm	PDX316IEC-1080
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 120cm	PDX316IEC-120
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 1200cm	PDX316IEC-1200
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 240cm	PDX316IEC-240
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 360cm	PDX316IEC-360
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 480cm	PDX316IEC-480
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 600cm	PDX316IEC-600
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 720cm	PDX316IEC-720
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 840cm	PDX316IEC-840
Modular IT Power Distribution Cable Extender 3 Wire 16A IEC309 960cm	PDX316IEC-960
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 1080cm	PDX332IEC-1080
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 120cm	PDX332IEC-120
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 1200cm	PDX332IEC-1200
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 240cm	PDX332IEC-240

12. Product availability may depend on geographical location

Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 360cm	PDX332IEC-360
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 480cm	PDX332IEC-480
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 600cm	PDX332IEC-600
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 720cm	PDX332IEC-720
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 840cm	PDX332IEC-840
Modular IT Power Distribution Cable Extender 3 Wire 32A IEC309 960cm	PDX332IEC-960
IT Power Distribution Module 3x1 Pole 3 Wire 16A 3xIEC309 300cm, 360cm, 420cm	PDM1316IEC-3P
IT Power Distribution Module 3x1 Pole 3 Wire 32A 3xIEC309 300cm, 360cm, 420cm	PDM1332IEC-3P
IT Power Distribution Module 3x1 Pole 3 Wire 32A 3xIEC309 480cm, 540cm, 600cm	PDM1332IEC-3P-2
IT Power Distribution Module 3x1 Pole 3 Wire 32A 3xIEC309 660cm, 720cm, 780cm	PDM1332IEC-3P-3
Power Dist. Mod. 3x1 POLE 3 WIRE RCD 32A 3xIEC309 300CM, 360CM, 420CM	PDM2332IEC-3P30R-1
Power Dist. Mod. 3x1 POLE 3 Wire RCD 32A 3xIEC309 480CM, 540CM, 600CM	PDM2332IEC-3P30R-2
Power Dist. Mod. 3x1 POLE 3 Wire RCD 32A 3xIEC309 660CM, 720CM, 780CM	PDM2332IEC-3P30R-3
Power Dist. Mod. 3 Pole 5 Wire RCD 16A 30mA IEC309 1040CM	PDM316IEC-30R-1040
Power Dist. Mod. 3 Pole 5 Wire RCD 16A 30mA IEC309 140CM	PDM316IEC-30R-140
Power Dist. Mod. 3 Pole 5 Wire RCD 16A 30mA IEC309 320CM	PDM316IEC-30R-320
Power Dist. Mod. 3 Pole 5 Wire RCD 16A 30mA IEC309 500CM	PDM316IEC-30R-500
Power Dist. Mod. 3 Pole 5 Wire RCD 16A 30mA IEC309 680CM	PDM316IEC-30R-680
Power Dist. Mod. 3 Pole 5 Wire RCD 16A 30mA IEC309 860CM	PDM316IEC-30R-860
Power Dist. Mod. 3 Pole 5 Wire RCD 32A 30mA IEC309 1040CM	PDM332IEC-30R-1040
Power Dist. Mod. 3 Pole 5 Wire RCD 32A 30mA IEC309 140CM	PDM332IEC-30R-140
Power Dist. Mod. 3 Pole 5 Wire RCD 32A 30mA IEC309 320CM	PDM332IEC-30R-320
Power Dist. Mod. 3 Pole 5 Wire RCD 32A 30mA IEC309 500CM	PDM332IEC-30R-500
Power Dist. Mod. 3 Pole 5 Wire RCD 32A 30mA IEC309 680CM	PDM332IEC-30R-680
Power Dist. Mod. 3 Pole 5 Wire RCD 32A 30mA IEC309 860CM	PDM332IEC-30R-860
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 1040cm	PDM3516IEC-1040
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 140cm	PDM3516IEC-140
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 200cm	PDM3516IEC-200
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 260cm	PDM3516IEC-260
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 320cm	PDM3516IEC-320
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 380cm	PDM3516IEC-380
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 440cm	PDM3516IEC-440
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 500cm	PDM3516IEC-500
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 560cm	PDM3516IEC-560
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 620cm	PDM3516IEC-620
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 680cm	PDM3516IEC-680
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 740cm	PDM3516IEC-740
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 80cm	PDM3516IEC-80
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 800cm	PDM3516IEC-800
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 860cm	PDM3516IEC-860
IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 920cm	PDM3516IEC-920

IT Power Distribution Module 3 Pole 5 Wire 16A IEC309 980cm	PDM3516IEC-980
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 1040cm	PDM3532IEC-1040
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 140cm	PDM3532IEC-140
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 200cm	PDM3532IEC-200
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 260cm	PDM3532IEC-260
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 320cm	PDM3532IEC-320
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 380cm	PDM3532IEC-380
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 440cm	PDM3532IEC-440
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 500cm	PDM3532IEC-500
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 560cm	PDM3532IEC-560
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 620cm	PDM3532IEC-620
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 680cm	PDM3532IEC-680
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 740cm	PDM3532IEC-740
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 800cm	PDM3532IEC-800
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 860cm	PDM3532IEC-860
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 920cm	PDM3532IEC-920
IT Power Distribution Module 3 Pole 5 Wire 32A IEC309 980cm	PDM3532IEC-980
Modular IT Power Distribution Cable Extender 5 Wire 16A IEC309 300cm	PDX516IEC-300
Modular IT Power Distribution Cable Extender 5 Wire 16A IEC309 600cm	PDX516IEC-600
Modular IT Power Distribution Cable Extender 5 Wire 32A IEC309 300cm	PDX532IEC-300
Modular IT Power Distribution Cable Extender 5 Wire 32A IEC309 600cm	PDX532IEC-600

Modular Power Distribution

Modular Rack Distribution Panel, 138kW, 200A, 400V, 18 Pole, 5U	PDPM138H-5U
Modular Rack-mounted Distribution Panel, 138kW, 200A, 400V, 18 Pole, 5U	PDPM138H-R
Modular Remote Power Panel, 277kW, 400A, 400V, 72 Pole, 300mm	PDPM277H

External Maintenance Bypass

Symmetra PX 96/160kW External maintenance bypass enclosure	SYMBP160H
Symmetra PX 96/160kW External maintenance bypass enclosure	SYWMP96K160H2

UPS Network Management Cards

UPS Network Management Card with Environmental Monitoring and Out of Band Management	AP9618

Configuration Options

- Unity power factor corrected
- TÜV-verified high efficiency (95% at 30% load)
- Internal N+1 redundancy
- Swappable battery and power modules
- Main and redundant intelligence modules
- Service
- Automatic internal bypass
- Dual mains input
- Top or bottom feed
- Line-up/remote modular battery cabinets
- Extended battery runtime available
- Service included
- Generator compatible
- Network manageable
- StruxureWare Central compatible
- Secondary network management card
- SmartSlot device management cards
- Optional modular PDU with maintenance bypass and power distribution modules

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