# Symmetra™ PX

# 100 kW 208 V

# **Technical Specifications**

Including Optional 100 kW Modular PDUs and Optional 300 mm Maintenance Bypass Panel (600:208 V, 480:208 V, 208:208 V, 208 V Transformerless)

2/2019





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

# **Table of Contents**

Important Safety Instructions — SAVE THESE	
INSTRUCTIONS	5
Safety Precautions	
Technical Data	8
Model List	
Input Power Factor	
Efficiency	
Efficiency Curve in Normal Operation and at Nominal Input	
Voltage	9
Derating due to Load Power Factor	
Batteries	
Efficiency DC to AC at Nominal Battery Voltage	
Battery Run-Times — Schneider Electric Battery Solutions	
Battery Discharge Current	
End of Discharge Voltage	
Battery Gassing Rates Per Shelf/string (Cubic Feet per Hour)	
Electrolyte Values	
Battery Material Safety Data Sheet	
Compliance	
·	
Facility Planning	
Specifications for Installations without PDU	22
Specifications for Installations with PDU or Maintenance Bypass	25
Cabinet	
Batteries	
Physical	
Weights and Dimensions	
Shipping Weights and Dimensions	
Clearance Symmetra PX 100 kW	
Environmental	
Heat Dissipation	
Drawings	32
Symmetra PX 100 kW 208 V Single Mains Bottom Feed with PDU with	
Transformer	33
Symmetra PX 100 kW 208 V Dual Mains Bottom Feed with PDU with	
Transformer	34
Symmetra PX 100 kW 208 V Single Mains Top Feed with PDU with	
Transformer	35
Symmetra PX 100 kW 208 V Dual Mains Top Feed with PDU with	
Transformer	36
Symmetra PX 100 kW 208 V Single Mains Bottom Feed with PDU without	
Transformer	37
Symmetra PX 100 kW 208 V Dual Mains Bottom Feed with PDU without	
Transformer	38
Symmetra PX 100 kW 208 V kW Single Mains Top Feed with PDU	
without Transformer	39
Symmetra PX 100 kW 208 V Dual Mains Top Feed with PDU without	
Transformer	40

	Symmetra PX 100 kW 480 V Single Mains Bottom Feed with PDU with	
	Transformer	41
	Symmetra PX 100 kW 480 V Dual Mains Bottom Feed with PDU with	
	Transformer	42
	Symmetra PX 100 kW 480 V Single Mains Top Feed with PDU with	
	Transformer	43
	Symmetra PX 100 kW 480 V Dual Mains Top Feed with PDU with	
	Transformer	44
	Symmetra PX 100 kW 600 V Single Mains Bottom Feed with PDU with	
	Transformer	45
	Symmetra PX 100 kW 600 V Dual Mains Bottom Feed with PDU with	
	Transformer	46
	Symmetra PX 100 kW 600 V Single Mains Top Feed with PDU with	
	Transformer	47
	Symmetra PX 100 kW 600 V Dual Mains Top Feed with PDU with	
	Transformer	48
Οp	otions	49
	Hardware Options	49
	Configuration Options	
Lin	nited Factory Warranty	53

# 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.

### **ADANGER**

**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.

## **AWARNING**

**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.

# **ACAUTION**

**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**

# **ADANGER**

#### 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.

## **ADANGER**

#### 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.

# **ADANGER**

#### 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.

100 kW 208 V Technical Data

# **Technical Data**

## **Model List**

- Symmetra PX 10 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 20 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 30 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 40 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 50 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 60 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 70 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 80 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 90 kW Scalable to 100 kW, 208 V with Startup
- Symmetra PX 100 kW Scalable to 100 kW, 208 V with Startup



# **Input Power Factor**

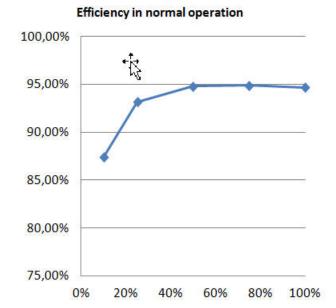
	Input Power Factor
> 25% load	> 0.99
> 15% load	> 0.95
> 10% load	> 0.90

# **Efficiency**

	100 kW System
25% load	93.2
50% load	94.8
75% load	94.9
100% load	94.7

Technical Data 100 kW 208 V

## **Efficiency Curve in Normal Operation and at Nominal Input Voltage**



# **Derating due to Load Power Factor**

The Symmetra PX 100 kW exhibits no derating due to leading or lagging load power factor.

# **Batteries**

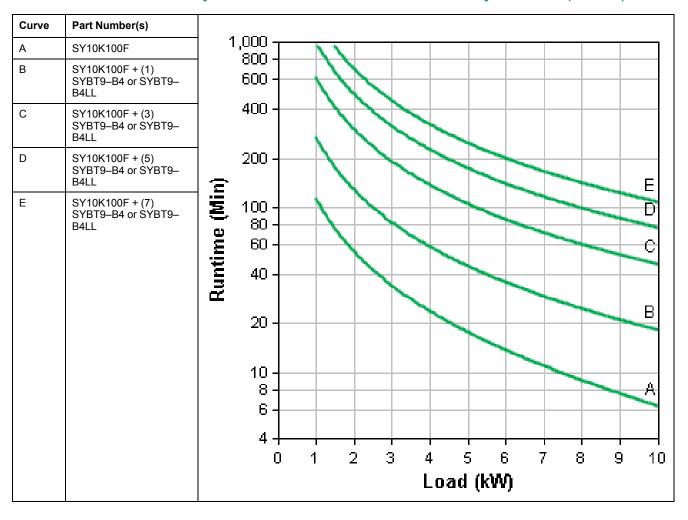
## **Efficiency DC to AC at Nominal Battery Voltage**

	100 kW
25% - 50% load	≥ 93.2
50% - 100% load	≥ 94.7

100 kW 208 V Technical Data

## **Battery Run-Times** — Schneider Electric Battery Solutions

### Symmetra PX 10 kW Scalable to 100 kW Battery Run-Times (Minutes)



Technical Data 100 kW 208 V

# Symmetra PX 20 kW Scalable to 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)		
Α	SY20K100F	700	
В	SY20K100F + (1) SYBT9-B4 or SYBT9- B4LL	400	
С	SY20K100F + (2) SYBT9–B4 or SYBT9– B4LL	200	
D	SY20K100F + (4) SYBT9-B4 or SYBT9- B4LL	<b>≘</b> ₁00	
E	SY20K100F + (6) SYBT9-B4 or SYBT9- B4LL	Runtime (Mim) 80 60 60 40 10 8 60 4 0 5 10 15 Load (kW)	E D C B A 20

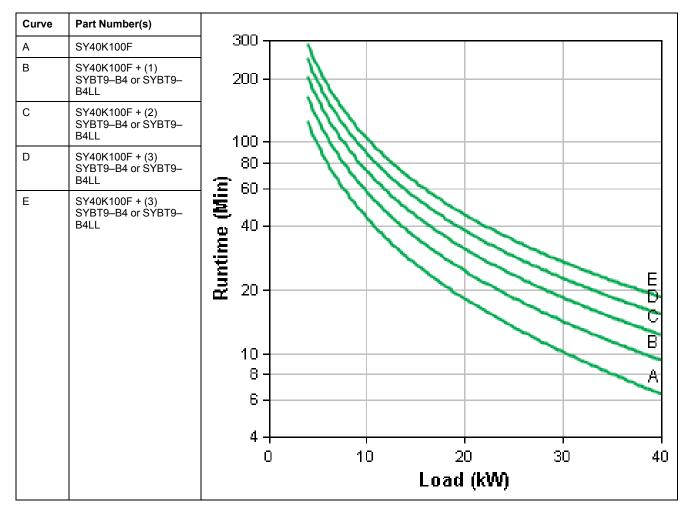
100 kW 208 V Technical Data

# Symmetra PX 30 kW Scalable to 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)	
Α	SY30K100F	450
В	SY30K100F + (1) SYBT9-B4 or SYBT9- B4LL	
С	SY30K100F + (3) SYBT9–B4 or SYBT9– B4LL	200
D	SY30K100F + (4) SYBT9-B4 or SYBT9- B4LL	100 2 80
E	SY30K100F + (5) SYBT9-B4 or SYBT9- B4LL	Will 80 60 80 80 80 80 80 80 80 80 80 80 80 80 80

Technical Data 100 kW 208 V

### Symmetra PX 40 kW Scalable to 100 kW Battery Run-Times (Minutes)



100 kW 208 V Technical Data

# Symmetra PX 50 kW Scalable to 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)		
Α	SY50K100F	600	
В	SY50K100F + (1) SYBT9-B4 or SYBT9- B4LL	400	
С	SY50K100F + (2) SYBT9–B4 or SYBT9– B4LL	200	
D	SY50K100F + (3) SYBT9-B4 or SYBT9- B4LL	≘100	
E	SY50K100F + (1) SYCFXR9	<b>E</b> 80	E D

Technical Data 100 kW 208 V

## Symmetra PX 60 kW Scalable to 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)	
Α	SY60K100F	500
В	SY60K100F + (1) SYBT9-B4 or SYBT9- B4LL	400
С	SY60K100F + (2) SYBT9–B4 or SYBT9– B4LL	200
D	SY60K100F + (3) SYBT9-B4 or SYBT9- B4LL	.≘ 100 .≘ 80
E	SY60K100F + (1) SYCFXR9	≥ 60
		Runtime 40
		20 D
		10 B
		6
		4
		0 10 20 30 40 50 60 <b>Load (kW)</b>

100 kW 208 V Technical Data

# Symmetra PX 70 kW Scalable to 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)		
Α	SY70K100F	700 600 <b>- \ \</b>	
В	SY70K100F + (1) SYBT9-B4 or SYBT9- B4LL	400	_
С	SY70K100F + (2) SYBT9-B4 or SYBT9- B4LL	200	
D	SY70K100F + (1) SYCFXR9		
E	SY70K100F + (2) SYCFXR9	William	

Technical Data 100 kW 208 V

# Symmetra PX 80 kW Scalable to 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)	
Α	SY80K100F	800
В	SY80K100F + (1) SYBT9–B4 or SYBT9– B4LL	400
С	SY80K100F + (1) SYCFXR9	
D	SY80K100F + (2) SYCFXR9	200
E	SY80K100F + (3) SYCFXR9	Williams

100 kW 208 V Technical Data

# Symmetra PX 90 kW Scalable to 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)	
Α	SY90K100F	700
В	SY90K100F + (1) SYCFXR9	400
С	SY90K100F + (2) SYCFXR9	
D	SY90K100F + (3) SYCFXR9	200
		(£100 € 80
		<b>5</b> 80 <b>1</b>
		<u>o</u> 60
		Rumuri we of the control of the cont
		20 B
		40
		10 - A
		6
		4 + + + + + + + + + + + + + + + + + + +
		0 10 20 30 40 50 60 70 80 90
		Load (kW)
		Luau (KYY)

Technical Data 100 kW 208 V

### Symmetra PX 100 kW Battery Run-Times (Minutes)

Curve	Part Number(s)	
Α	SY100K100F	650
В	SY100K100F + (1) SYCFXR9	400
С	SY100K100F + (2) SYCFXR9	200
D	SY100K100F + (3) SYCFXR9	200 100 80 60 40 10 8 6 4 10 8 6 4 4 2 0 10 20 30 40 50 60 70 80 90 100 Load (kW)

# **Battery Discharge Current**

I bat at bat nominal, 100% load	275
I bat at bat min, 100% load	343

### **End of Discharge Voltage**

End of discharge voltage at full load (VDC)	154
End of discharge voltage at no load (VDC)	168

## **Battery Gassing Rates Per Shelf/string (Cubic Feet per Hour)**

The battery gassing rates are calculated based on:

- Gassing rate at 2.4 V/cell (ft³/hr) assuming 98% recombination efficiency = 0.00021
- · Six cells per cartridge
- Eight cartridges per battery unit
- Four battery units (one battery module) per shelf

Battery modules	1	2	3	4	5	6	7	8	9
	0.04032	0.08064	0.12096	0.16128	0.20160	0.24192	0.28224	0.32256	0.36288

100 kW 208 V Technical Data

# **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)	

## **Battery Material Safety Data Sheet**

**NOTE:** For Material Safety Data Sheet (MSDS), go to the Knowledge Base http://schneider-electric.com/sites/corporate/en/support/faq/faq\_main.page and type "MSDS" to get the latest MSDS information.

Technical Data 100 kW 208 V

# **Compliance**

Safety: UL1778 4th EditionEMC/EMI/RFI: FCC47 Part 15

Markings: UL1778

100 kW 208 V Facility Planning

# **Facility Planning**

# **Specifications for Installations without PDU**

### **Input Specifications**

**NOTE:** Delta input is not permitted.

	208 V UPS only		
Connection type, single feed	3PH + N + G		
Connection type, dual feed	Input: 3PH +G Bypass: 3PH + N + G		
Input frequency (Hz)	50 or 60		
Input frequency range (Hz)	40–70 with 10 Hz/sec slew rate		
Nominal input current (A) <sup>1</sup>	296		
Maximum input current at low charge rate – 10% (A) <sup>2</sup>	327		
Maximum input current at high charge rate – 20% (A) <sup>2</sup>	332		
Input current limit (A) <sup>3</sup>	360		
Nominal bypass input current (A)	278		
Total harmonic distortion (THDI)	< 5% at full load (symmetrical)		
Maximum short circuit level Icc (kA)	Rated conditional short–circuit current lcc: 30 kA. Rated peak withstand current lpk: lcc x 1.7. Device: Refer to Required Upstream and Downstream Protection, page 22.		

## **Output Specifications**

	208 V UPS only
Connection type	3PH + N + G or 3PH + G
Nominal output current (A)	278

### **Required Upstream and Downstream Protection**

## **ADANGER**

### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Connect only to a circuit provided with (see below) amperes maximum branch circuit overcurrent protection in accordance with the National Electric Code, NSI/NFPA 70.

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

<sup>1.</sup> Input current based on nominal voltage and rated load, batteries fully charged.

<sup>2.</sup> Input current based on full battery recharge, nominal voltage and rated load.

Current limitation through electronic current limiting is based on full rated load and limited battery recharge from -10% to -15% input voltage.

Facility Planning 100 kW 208 V

#### Input and Bypass

	208 V UPS only		
	Input	Bypass <sup>4</sup>	
Schneider Electric Breaker	PowerPact LJF34600WU33X	PowerPact LJF34600WU33X	
Trip setting (A)	80%	80%	
Ir (A)	450	350	
Isd (x Ir) <sup>5</sup>	1.5–10	1.5–10	
li (x ln) <sup>5</sup>	1.5–11	1.5–11	

#### **Battery and Output**

	208 V UPS only		
	Standard rated (80%) 100% rated		
Battery (A)	350	300	
Output (A)	350	300	

#### **Recommended Conductor Sizes**

## **▲ 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.

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

NOTE: Maximum allowable conductor size: 500 kcmil.

Conductor sizing in this manual is based on Table 310-16 of the National Electrical Code (NEC) with the following assertions.

- 90 °C conductors (THHN) for 75 °C termination
- · 3 current carrying conductors
- An ambient temperature of 30 °C
- · Use only copper conductors

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

Equipment Grounding Conductors (EGC) are sized in accordance with NEC Article 250-122 and Table 250-122.

The conductor sizes are recommendations for maximum configurations. Even if the load is less than the maximum rating, it is wise to plan for future load increases. If the system is operated at a lower load than its rating and it is desired to supply the system with a lower rated breaker and smaller conductors, conductor ampacities are to be selected in accordance with the NEC.

	208 V UPS only		
	Standard rated (80%) 100% rated		
Input	2 x 4/0 AWG	500 kcmil	
Bypass	500 kcmil	300 kcmil	

<sup>4.</sup> Only applicable to dual mains systems.

<sup>5.</sup> Isd and li must be set by the installer based on the installation coordination

100 kW 208 V Facility Planning

	208 V UPS only		
	Standard rated (80%)	100% rated	
Battery	500 kcmil	300 kcmil	
Output	500 kcmil	300 kcmil	
Equipment Grounding Conductor	3 AWG	3 AWG	

# **Recommended Bolt and Lug Sizes**

Cable	Terminal Bolt Diameter	Cable Lug Type		Crimping tool CT-720 Crimping Die:	
		80% rated	100% rated	80% rated	100% rated
Input	M10	LCA4/0-12H-X	LCA500-12H-X	CD-720-3	CD-720-7
Bypass	M10	LCA500-12H-X	LCA300-12H-X	CD-720-7	CD-720-4
Battery 1	M10	_	LCA300-12H-X	_	CD-720-4
Battery 2	M10	-	LCA300-12H-X	-	CD-720-4
Output	M10	LCA500-12H-X	LCA300-12H-X	CD-720-7	CD-720-4

**Facility Planning** 100 kW 208 V

# **Specifications for Installations with PDU or Maintenance Bypass Cabinet**

### **Input Specifications**

	208 V : 208 V	480 V : 208 V	600 V : 208 V	Maintenance Bypass Cabinet or PDU without Transformer
Connection type	3PH + G + GEC		·	L1 + L2 + L3 + N +G
Nominal input frequency (Hz)	57-63			40-70
Nominal input current (A)	302	131	104	297
Maximum input current at low charge rate – 10% (A) <sup>7</sup>	332	144	115	327
Maximum input current at high charge rate – 20% (A) <sup>7</sup>	337	146	117	332
Input current limit (A)8	366	165	127	360
Nominal bypass input current (A)	282	122	98	278
Maximum short circuit withstand (kA)9	65	65	25	30

### **Output Specifications**

	208 V : 208 V	480 V : 208 V	600 V : 208 V	Maintenance Bypass Cabinet or PDU without Transformer
Connection type	4-wire (3PH + N + G) or 3-	wire (3PH + G)		
Output voltage	3 x 208/120 V			
Nominal output current (A)	278	278	278	278
Power distribution modules (not included)	20 A, 30 A, 50 A, 60 A			
Subfeed	278 A maximum (included)	) see following table		

### PDU Subfeed Circuit Breaker Trip Currents Merlin Gerin NSJ400 - STR23SP Electronic Trip Unit (400 A frame)

NOTE: This breaker is 100% rated.

lo Setting	Ir Setting	Ir Setting									
	1	0.98	0.95	0.93	0.90	0.88	0.85	0.8			
0.9	NA	NA	NA	NA	NA	NA	NA	288			
0.8	NA	NA	NA	297.610	288	281.6	272	256			
0.7	280	274.4	266	260.4	252	246.4	238	224			
0.63	252	247	239.4	234.4	226.8	221.8	214.2	201.6			

Input current based on nominal voltage and rated load, batteries fully charged.

990-5240F-001 25

Input current based on full battery recharge, nominal voltage and rated load.

Current limitation through electronic current limiting is based on full rated load and limited battery recharge from -10% to -15% input 8.

The maximum available fault current was not evaluated by Underwriters Laboratories.

<sup>10.</sup> Factory default: 400 x0.93 x 0.8 = 297.6 A or 300 A. The maximum Subfeed Output Loading must not be greater than 278 A per phase.

100 kW 208 V Facility Planning

Io Setting	Ir Setting							
	1	0.98	0.95	0.93	0.90	0.88	0.85	0.8
0.5	200	196	190	186	180	176	170	160
2000 AII. 240	.o (C) for addition	onal information.				.5 x In	.9 1 .88 2 .85 .8 x I	.93 .95 .98

### L-Frame with Micrologic 3.3 S Trip Unit (Subfeed Breaker)

NOTE: This breaker is 100% rated.

**NOTE:** The maximum subfeed output loading must not be greater than 278 A per phase.

In = 400 A		Value de	Value depending on sensor rating (In) and setting on rotary switch									
L Long time prote	ction	1										
Pick-up (A) Tripping between 1.05 and 1.20 I <sub>n</sub>	Ir =	125	150	175	200	225	250	300	N/A	N/A		
S Short time prote	ction								•			
Pick-up (A) accuracy ± 10%	Isd = Ir x	1.5	2	3	4	5	6	7	8	10		
I Instantaneous	•		•	•	•	•	•	•	•	•		
Pick-up (A) accuracy ± 15%	li = ln x	1.5	2	3	4	5	6	8	10	12		

# L-Frame with Micrologic 3.3 S Trip Unit (QB 600 V Canadian unit)

**NOTE:** This breaker is 100% rated.

In = 250 A		Value dep	Value depending on sensor rating (In) and setting on rotary switch									
L Long time protection												
Pick-up (A)         Tripping between         Ir =         70         80         100         125         150         175         200         225         250									250			
S Short time protect	ction			,								
Pick-up (A) accuracy ±10%	lsd = lr x	1.5	2	3	4	5	6	7	8	10		
I Instantaneous												
Pick-up (A) accuracy ±15%	li = ln x	1.5	2	3	4	5	6	8	10	12		

## L-Frame Mission Critical with Micrologic 3.3 S-W 600 A Trip Unit

NOTE: This breaker is 80% rated.

In=600 A	In=600 A									
S short time protect	S short time protection									
Pick-up (A) accuracy ± 10%         Isd = Ir x         1.5         2         3         4         5         6         7         8         10									10	

Facility Planning 100 kW 208 V

I Instantaneous										
Pick-up (A) accuracy ± 15%	li = In x	1.5	2	3	4	5	6	8	10	11

### L-Frame Mission Critical with Micrologic 3.3 S-W 400 A Trip Unit

NOTE: This breaker is 80% rated.

In=400 A										
S short time protection										
Pick-up (A) accuracy ± 10%	Isd = Ir x	1.5	2	3	4	5	6	7	8	10
I Instantaneous										
Pick-up (A) accuracy ± 15%	li = In x	1.5	2	3	4	5	6	8	10	12

## **Recommended Current Rating of Supply OCPD**

	208 V : 208 V	480 V : 208 V	600 V : 208 V	Maintenance bypass cabinet or PDU without transformer
	Standard rated <sup>11</sup>			
Input (A)	500	225	175	450

#### **Inrush Currents**

The supply overcurrent protective device must be able to handle the below transformer inrush currents.

	208 V : 208 V	480 V : 208 V	600 V : 208 V
Inrush current (A)	4500	2000	1500

#### **Recommended Conductor Sizes**

# **ADANGER**

#### 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.

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

**NOTE:** All wiring must comply with all applicable national and/or local electrical codes. Maximum allowable conductor size: 2 x 350 kcmil.

Conductor sizing in this manual is based on Table 310-16 of the 2008 National Electrical Code (NEC) with the following assertions:

- 90 °C conductors (THHN) for 75 °C termination
- · 3 Current Carrying Conductors
- An ambient temperature of 30 °C

11. Standard circuit breakers are rated to carry 80% of their current rating continuously.

100 kW 208 V Facility Planning

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

Equipment Grounding Conductors (EGC) are sized in accordance with NEC Article 250-122 and Table 250-122.

Grounding Electrode Conductors (GEC) are sized in accordance with NEC Article 250-66 and Table 250-66.

The conductor sizes are recommendations for maximum configurations. Even if the load is less than the maximum rating, Schneider Electric recommends to plan for future load increases. If the system is operated at a lower load than its rating and it is desired to supply the system with a lower rated breaker and smaller conductors, conductor capacities are to be selected in accordance with the NEC. The transformer inrush must be taken into account when sizing conductors.

		208 V : 208 V	480 V : 208 V	600 V : 208 V	Maintenance Bypass Cabinet or PDU without Transformer <sup>12</sup>		
Input (phase and neutral)	Copper	2 <sup>13</sup> x 4/0	4/0	2/0	2 x 4/0		
neutrar)	Aluminum	2 <sup>13</sup> x 300 kcmil	300 kcmil	4/0	2 x 300 kcmil		
Grounding Electrode Conductor	Copper	2 AWG			NA		
(GEC)	Aluminum	1/0		NA			
Equipment Grounding	Copper	2 AWG	4 AWG	6 AWG	2 AWG		
Conductor (EGC)	Aluminum	1/0	2 AWG	4 AWG	1/0		
Output	Supplied with power d	istribution modules exc	ept for maintenance by	pass			
Subfeed output	Copper	(2) 2/0 Phase and Neu	utral, 4 AWG EGC, GEO	C not required <sup>14</sup>			
	Aluminum	(2) 4/0 Phase and Neutral, 2 AWG EGC, GEC not required14					

<sup>2.</sup> The PDU without a transformer requires a neutral and does not require GEC.

<sup>13.</sup> Two conductors per phase and neutral (when neutral is required)

<sup>14.</sup> Subfeed is required to have two conductors per phase and neutral for full output due to limited wire bend space.

Facility Planning 100 kW 208 V

## **Batteries**

Battery Input	
Nominal voltage (VDC)	2 x 192
Connection	BAT+, CT, BAT-
Nominal battery discharge <sup>15</sup> (A)	276
Maximal battery discharge <sup>16</sup> (A)	344
End of discharge voltage	1.6-1.75 V/cell (automatic, depending on load)
Ah rating	Unlimited
Nominal output charge current (A)	52

# **Physical**

# **Weights and Dimensions**

#### **Cabinets**

Cabinet	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
100 kW UPS (SYCF100KF)	341 (752)	2011 (79.1)	600 (23.6)	1070 (42.1)
Modular battery cabinet (SYCFXR9 and SYCFXR48)	345 (760)	1996 (78.5)	600 (23.6)	1070 (42.1)
PDU (PDPM100F6F-M, PDPM100G6F-M, PDPM100L6F-M)	816 (1800)	2004 (78.8)	600 (23.6)	1070 (42.1)
PDU (PDPM100F-M)	408 (900)	2004 (78.8)	600 (23.6)	1070 (42.1)
Maintenance Bypass Panel (SYMBP100F, SYMBP160H)	169 (371)	2004 (78.8)	300 (11.8)	1070 (42.1)
Side Car for Bottom Cable Entry (PDPM100SC)	138 (305)	2004 (78.8)	300 (11.8)	1070 (42.1)

### **Battery and Power Modules**

Module	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
Battery Unit (SYBTU2- PLP, SYBTU2-PLPLL)	25.2 (55.3)	159 (6.2)	107 (4.2)	700 (27.5)
Power Module — 208 V (SYPM10KF2)	25.1 (55.1)	132 (5.2)	483 (19)	700 (27.5)

990-5240F-001 29

<sup>15.</sup> Based on rated load and nominal battery voltage (2.0 V/cell)16. Based on rated load at the end of the discharge (1.6 V/cell)

100 kW 208 V Facility Planning

### **Shipping Weights and Dimensions**

#### **Cabinets**

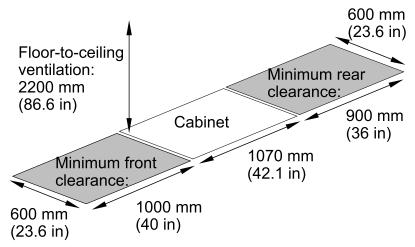
Cabinet	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
100 kW UPS (SYCF100KF)	386 (851)	2140 (84)	848 (33.3)	1210 (47.6)
Modular battery cabinet (SYCFXR9 and SYCFXR48)	379 (835)	2150 (84.6)	848 (33.3)	1210 (47.6)
PDU (PDPM100F6F-M, PDPM100G6F-M, PDPM100L6F-M)	862 (1900)	2150 (84.6)	1016 (40)	1210 (47.6)
PDU (PDPM100F-M)	454 (1000)	2150 (84.6)	1016 (40)	1210 (47.6)
Maintenance Bypass Panel (SYMBP100F, SYMBP160H)	189 (416)	2150 (84.6)	848 (33.3)	1210 (47.6)
Side Car for Bottom Cable Entry (PDPM100SC)	159 (350)	2150 (84.6)	848 (33.3)	1210 (47.6)

#### **Modules**

Cabinet	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
Battery Unit (SYBTU2- PLP, SYBTU2-PLPLL)	27 (59.2)	180 (7)	150 (5.9)	810 (31.89)
Power Module — 208 V (SYPM10KF2)	28.45 (61.7)	225 (8.8)	595 (23.4)	795 (31.3)

### **Clearance Symmetra PX 100 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.



Facility Planning 100 kW 208 V

# **Environmental**

Operating environment	0–40 °C (32–104 °F)
Operating relative humidity	0–95%, non-condensing
Operating elevation without derating	0–999.9 meters (0–3333 feet)
Storage temperature	-15-40 °C (5-104 °F)
Storage relative humidity	0–95%, non-condensing
Storage elevation	0–15000 meters (0–50000 feet)
Audible noise at 1 meter from surface of unit - at 100% load - at 70% load	67 dBA 60 dBA
UPS air flow at 0–100% load	162 CFM
Protection class	NEMA 1
Colour	Black

# **Heat Dissipation**

	Without PDU	With PDU			
	208 V	208 V: 208 V	480 V: 208 V	600 V: 208 V	208 V no transformer
Heat dissipation at 100% load and charging batteries (BTU/hr)	22,687	34,572	34,231	32,525	28,771

100 kW 208 V Drawings

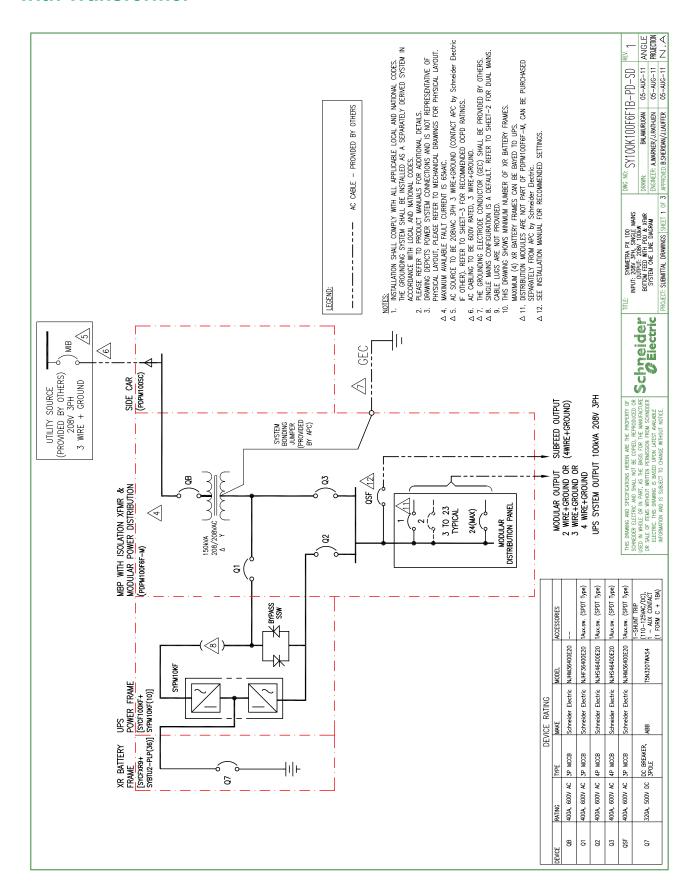
# **Drawings**

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

 $\ensuremath{\text{NOTE:}}$  These drawings are for reference ONLY — subject to change without notice.

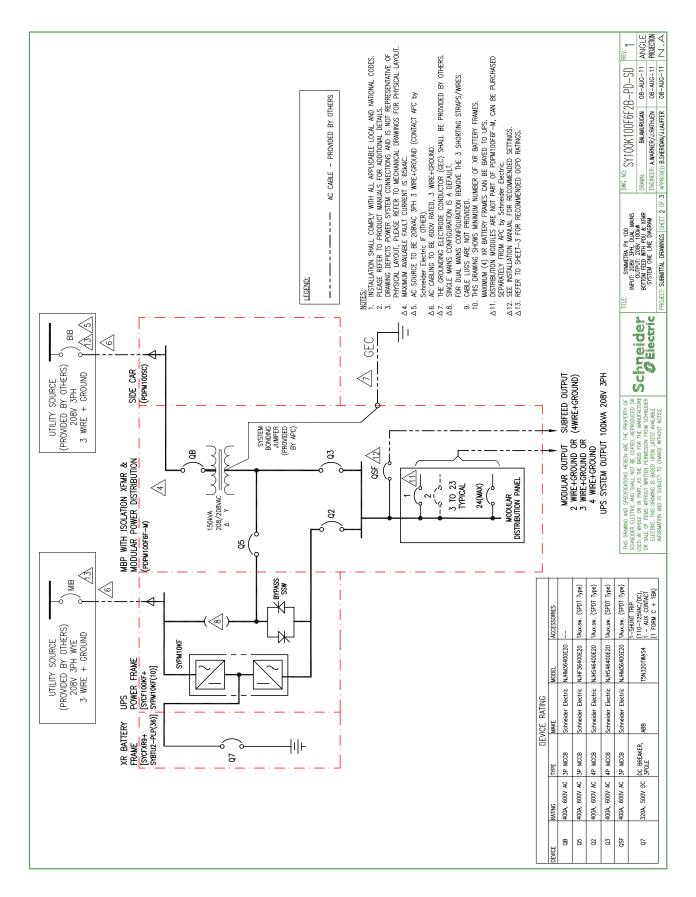
Drawings 100 kW 208 V

# Symmetra PX 100 kW 208 V Single Mains Bottom Feed with PDU with Transformer



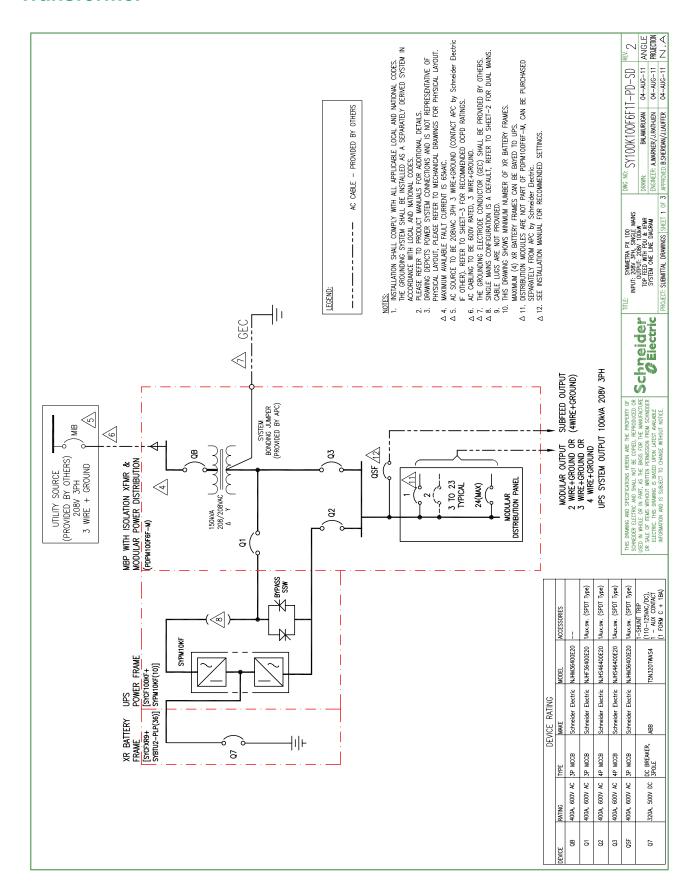
100 kW 208 V Drawings

# Symmetra PX 100 kW 208 V Dual Mains Bottom Feed with PDU with Transformer



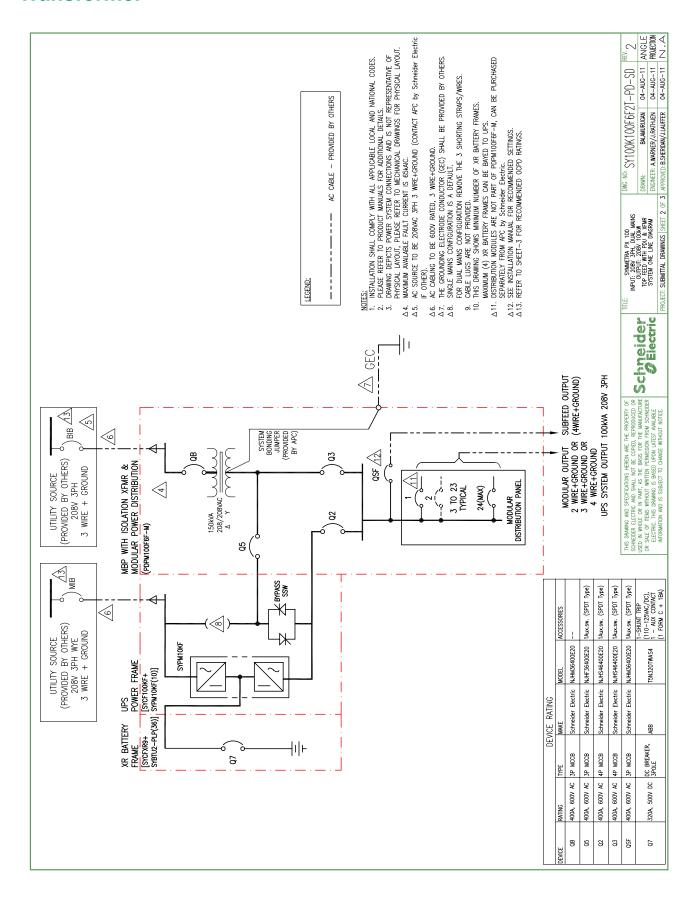
Drawings 100 kW 208 V

# Symmetra PX 100 kW 208 V Single Mains Top Feed with PDU with Transformer

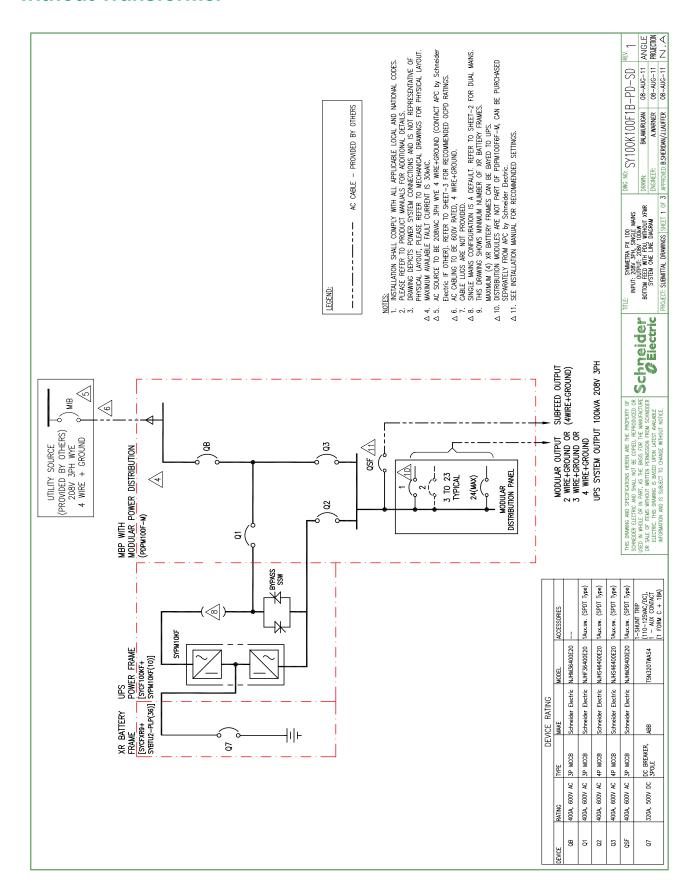


100 kW 208 V Drawings

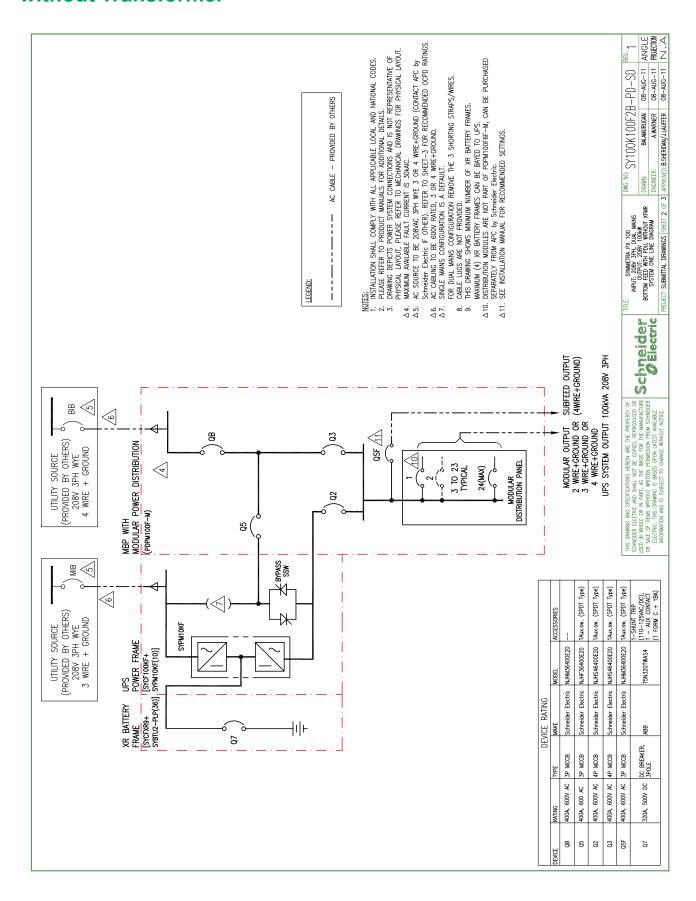
# Symmetra PX 100 kW 208 V Dual Mains Top Feed with PDU with Transformer



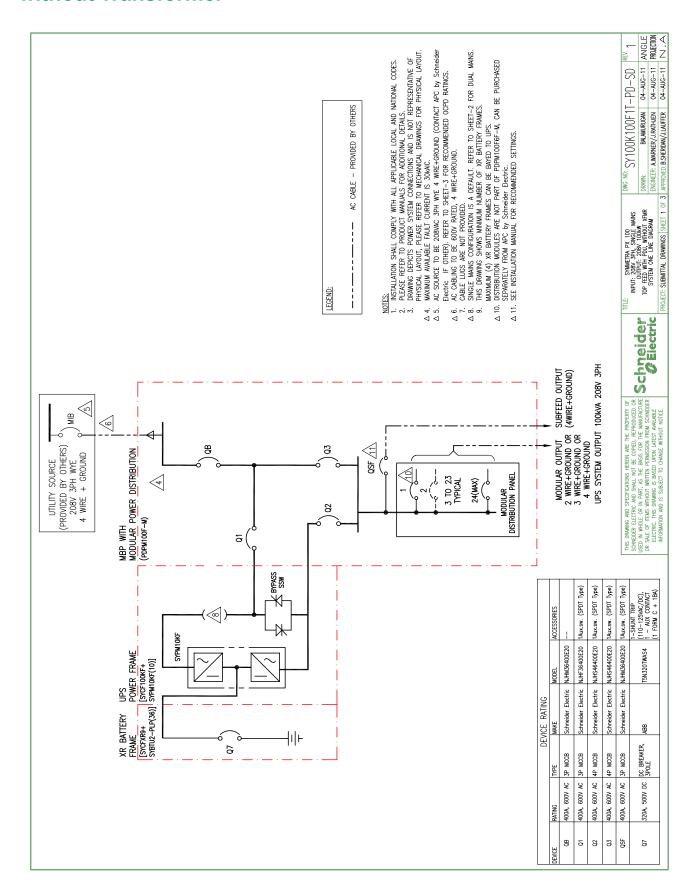
## Symmetra PX 100 kW 208 V Single Mains Bottom Feed with PDU without Transformer



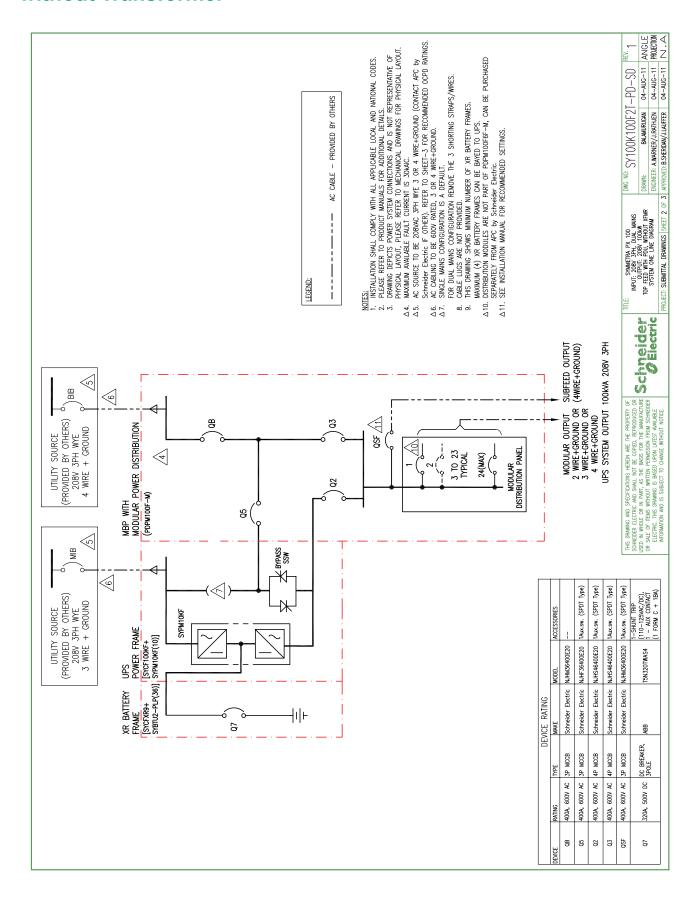
## Symmetra PX 100 kW 208 V Dual Mains Bottom Feed with PDU without Transformer



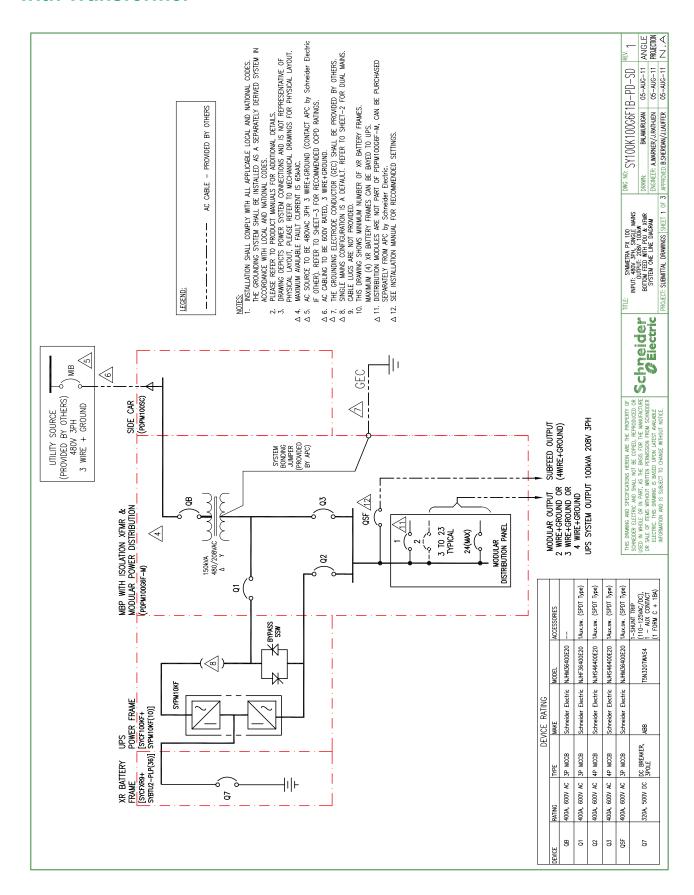
## Symmetra PX 100 kW 208 V kW Single Mains Top Feed with PDU without Transformer



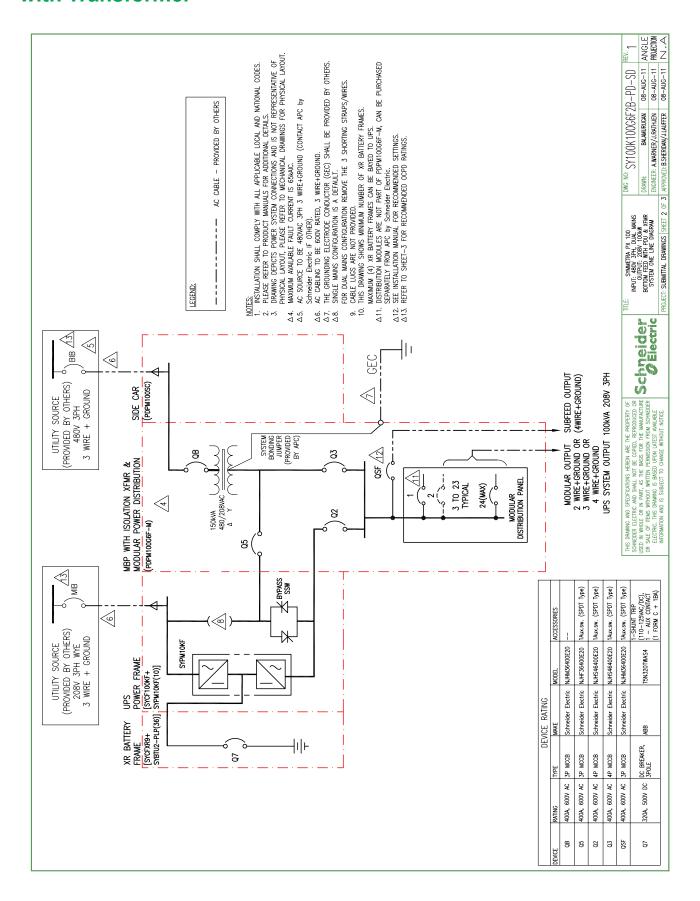
# Symmetra PX 100 kW 208 V Dual Mains Top Feed with PDU without Transformer



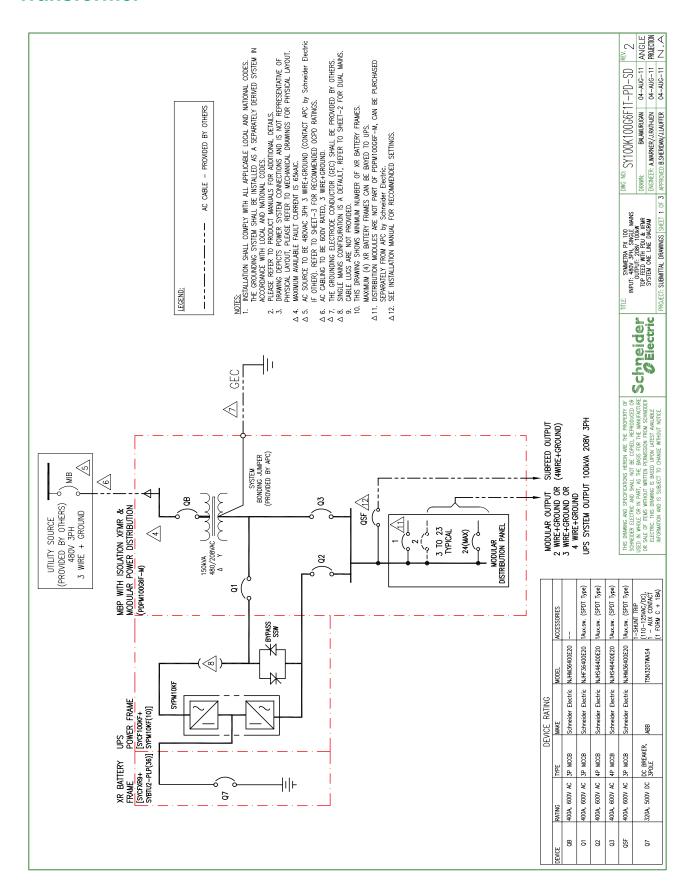
## Symmetra PX 100 kW 480 V Single Mains Bottom Feed with PDU with Transformer



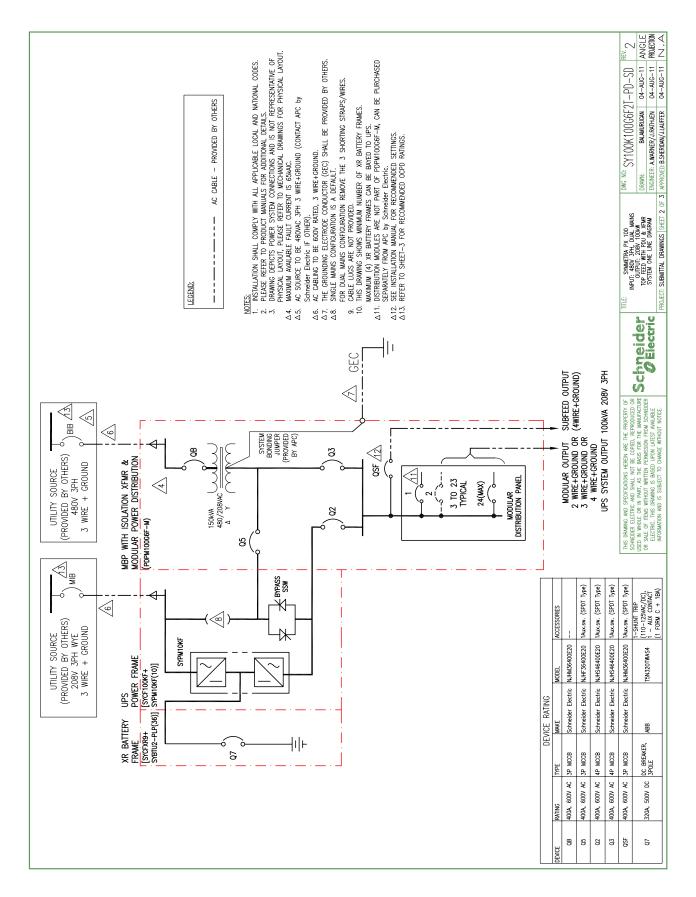
## Symmetra PX 100 kW 480 V Dual Mains Bottom Feed with PDU with Transformer



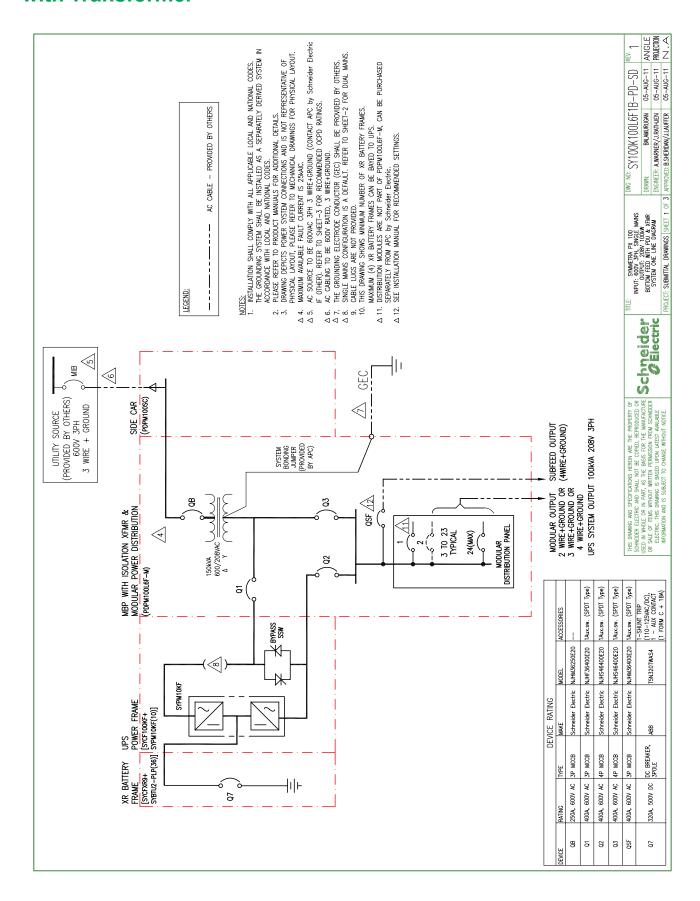
## Symmetra PX 100 kW 480 V Single Mains Top Feed with PDU with Transformer



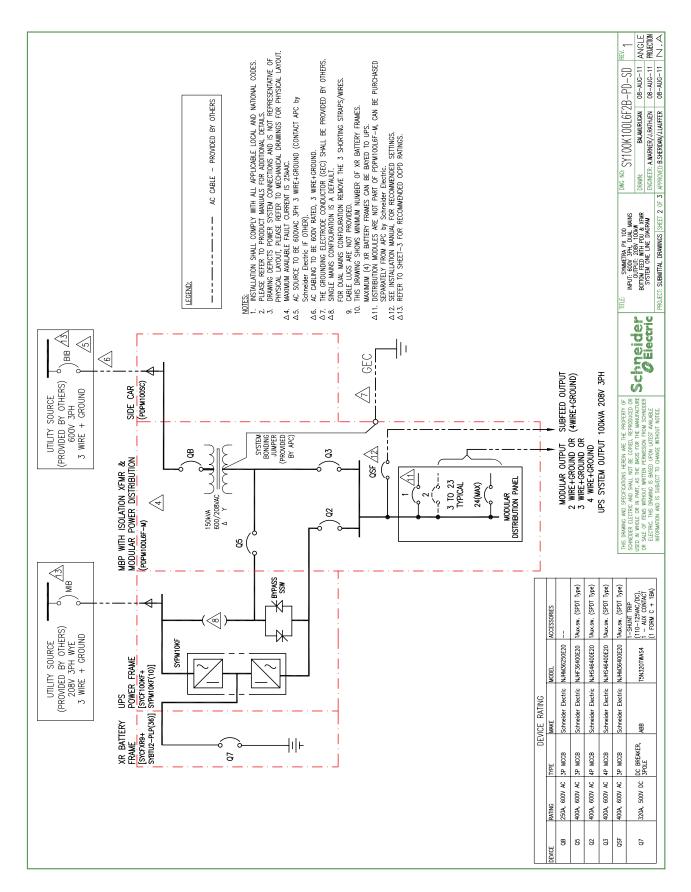
# Symmetra PX 100 kW 480 V Dual Mains Top Feed with PDU with Transformer



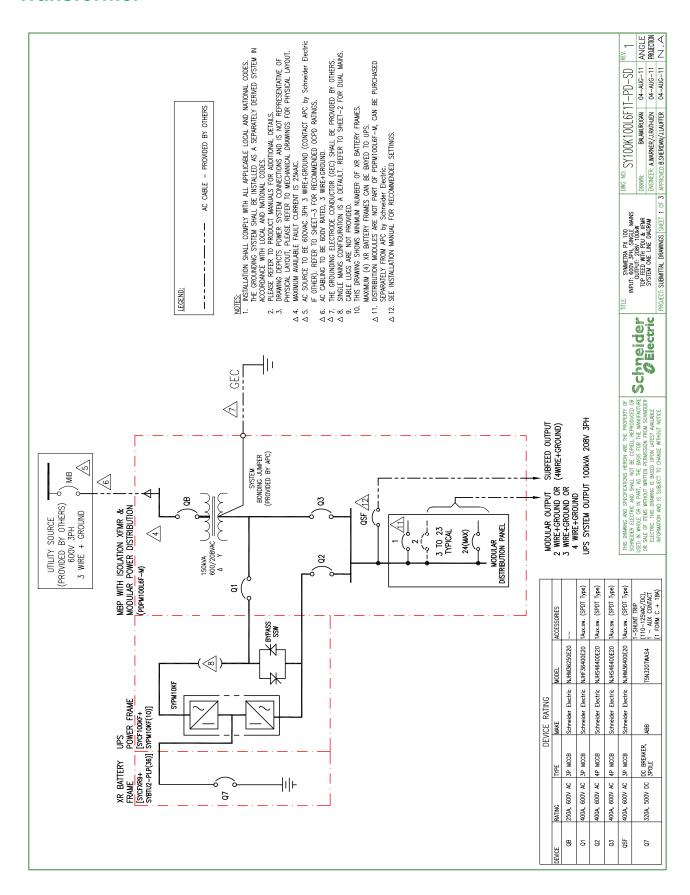
## Symmetra PX 100 kW 600 V Single Mains Bottom Feed with PDU with Transformer



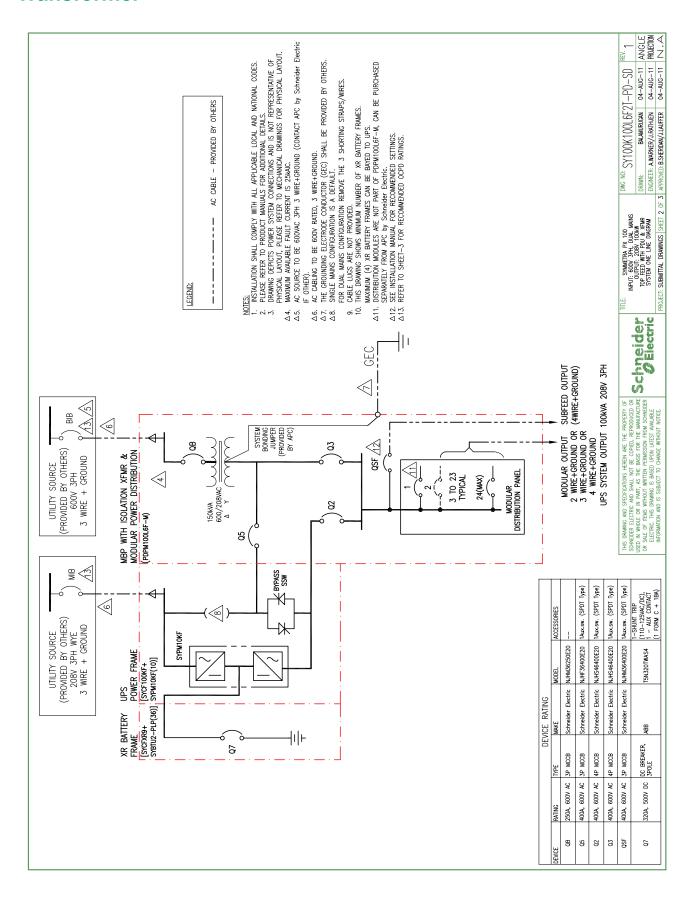
## Symmetra PX 100 kW 600 V Dual Mains Bottom Feed with PDU with Transformer



## Symmetra PX 100 kW 600 V Single Mains Top Feed with PDU with Transformer



# Symmetra PX 100 kW 600 V Dual Mains Top Feed with PDU with Transformer



Options 100 kW 208 V

### **Options**

### **Hardware Options**

#### **Symmetra Battery Systems**

Symmetra PX Battery Frame for 400 V PX 96/160 kW & 208 V PX 100 kW for 9 Battery Modules

SYCFXR9

Symmetra PX Battery Frame for 400 V PX 96/160 kW & 208 V PX 100 kW with 9 Battery Modules & SYCFXR9-9 Startup

Symmetra PX Battery Frame for 400 V PX 96/160 kW & 208 V PX 100 kW for 9 Battery Modules & SYCFXR9-S Startup

#### **Maintenance Bypass Panels**

Symmetra PX 100 kW Maintenance Bypass Panel, 208 V SYMBP100F

#### 100 kW Modular Power Distribution Units

Symmetra PX 100 kW Bottom Feed Side Car, 300 mm

PDPM100SC

100 kW Modular Power Distribution Unit, 208 V, 72 Poles, MBP, 1 Subfeed

PDPM100F-M

100 kW Modular Power Distribution Unit, Isolation Transformer, 208:208V, 72 Poles, MBP, 1 Subfeed

PDPM100F6F-M

100 kW Modular Power Distribution Unit, Isolation Transformer, 480:208V, 72 Poles, MBP, 1 Subfeed

PDPM100G6F-M

100 kW Modular Power Distribution Unit, Isolation Transformer, 600:208V, 72 Poles, MBP, 1 Subfeed

PDPM100L6F-M

#### Symmetra Accessories

Emergency Power Off (EPO) EPW9

#### **Modular Power Accessories**

IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 1200CM	PDM2330L6-12-1200
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 1400CM	PDM2330L6-12-1400
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 1680CM	PDM2330L6-12-1680
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 380cm	PDM2330L6-12-380
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 500CM	PDM2330L6-12-500
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 620CM	PDM2330L6-12-620
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 740CM	PDM2330L6-12-740
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 860CM	PDM2330L6-12-860
IT Power Distribution Module 2 Pole 3 Wire 30A L1-L2 L6-30 980CM	PDM2330L6-12-980
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 1200CM	PDM2330L6-23-1200
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 1400CM	PDM2330L6-23-1400
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 1680CM	PDM2330L6-23-1680
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 380CM	PDM2330L6-23-380
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 500CM	PDM2330L6-23-500
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 620CM	PDM2330L6-23-620
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 740CM	PDM2330L6-23-740
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 860CM	PDM2330L6-23-860
IT Power Distribution Module 2 Pole 3 Wire 30A L2-L3 L6-30 980CM	PDM2330L6-23-980
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 1200CM	PDM2330L6-31-1200
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 1400CM	PDM2330L6-31-1400
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 1680CM	PDM2330L6-31-1680

100 kW 208 V Options

### **Modular Power Accessories (Continued)**

IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 380CM	PDM2330L6-31-380
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 500CM	PDM2330L6-31-500
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 620CM	PDM2330L6-31-620
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 740CM	PDM2330L6-31-740
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 860CM	PDM2330L6-31-860
IT Power Distribution Module 2 Pole 3 Wire 30A L3-L1 L6-30 980CM	PDM2330L6-31-980
IT Power Distribution Module 3x1 Pole 3 Wire 20A 250V L5-20 UL 260cm 380cm 500cm	PDM1320L5-3P-1
IT Power Distribution Module 3x1 Pole 3 Wire 20A 250V L5-20 UL 680cm 860cm 1040cm	PDM1320L5-3P-2
IT Power Distribution Module 3x1 Pole 3 Wire 20A 240V L5-20 UL 1680cm 1680cm 1680cm	PDM1320L5-3P-3
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 1040cm	PDM3450CS50-1040
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 1680CM	PDM3450CS50-1680
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 200cm	PDM3450CS50-200
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 260cm	PDM3450CS50-260
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 320cm	PDM3450CS50-320
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 380cm	PDM3450CS50-380
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 440cm	PDM3450CS50-440
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 500cm	PDM3450CS50-500
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 560cm	PDM3450CS50-560
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 620cm	PDM3450CS50-620
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 680cm	PDM3450CS50-680
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 740c	PDM3450CS50-740
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 800cm	PDM3450CS50-800
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 860cm	PDM3450CS50-860
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 920cm	PDM3450CS50-920
IT Power Distribution Module 3 Pole 4 Wire 50A CS50 980cm	PDM3450CS50-980
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 1040cm	PDM3460IEC309-1040
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 1680cm	PDM3460IEC309-1680
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 200cm	PDM3460IEC309-200
IT Power Distribution Module 3 POLE 4 WIRE 60A IEC309 260CM	PDM3460IEC309-260
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 320cm	PDM3460IEC309-320
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 380cm	PDM3460IEC309-380
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 440cm	PDM3460IEC309-440
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 500cm	PDM3460IEC309-500
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 560cm	PDM3460IEC309-560
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 620cm	PDM3460IEC309-620
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 680cm	PDM3460IEC309-680
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 740cm	PDM3460IEC309-740
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 800cm	PDM3460IEC309-800
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 860cm	PDM3460IEC309-860
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 920cm	PDM3460IEC309-920
IT Power Distribution Module 3 Pole 4 Wire 60A IEC309 980cm	PDM3460IEC309-980
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 1040cm	PDM3520L2120-1040
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 1680cm	PDM3520L2120-1680
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 200cm	PDM3520L2120-200
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 260cm	PDM3520L2120-260

Options 100 kW 208 V

#### **Modular Power Accessories (Continued)**

IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 320cm	PDM3520L2120-320
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 380cm	PDM3520L2120-380
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 440cm	PDM3520L2120-440
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 500cm	PDM3520L2120-500
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 560cm	PDM3520L2120-560
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 620cm	PDM3520L2120-620
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 680cm	PDM3520L2120-680
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 740cm	PDM3520L2120-740
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 800cm	PDM3520L2120-800
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 860cm	PDM3520L2120-860
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 920cm	PDM3520L2120-920
IT Power Distribution Module 3 Pole 5 Wire 20A L21-20 980cm	PDM3520L2120-980
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 1040cm	PDM3530L2130-1040
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 1680cm	PDM3530L2130-1680
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 200cm	PDM3530L2130-200
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 260cm	PDM3530L2130-260
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 320cm	PDM3530L2130-320
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 380cm	PDM3530L2130-380
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 440cm	PDM3530L2130-440
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 500cm	PDM3530L2130-500
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 560cm	PDM3530L2130-560
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 620cm	PDM3530L2130-620
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 680cm	PDM3530L2130-680
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 740c	PDM3530L2130-740
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 800cm	PDM3530L2130-800
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 860cm	PDM3530L2130-860
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 920cm	PDM3530L2130-920
IT Power Distribution Module 3 Pole 5 Wire 30A L21-30 980cm	PDM3530L2130-980

#### **Modular Power Distribution**

Modular Remote Power Panel, 144 kW, 400 A, 208 V, 72 Pole, 300 mm

PDPM144F

Modular Rack Distribution Panel, 72 kW, 200 A, 208 V, 18 Pole, 5U

PDPM72F-5U

#### **Configurable Power Distribution**

InfraStruxure PDU, 150kVA, 416A, 480V:208V Isolation Transformer, 84 Poles, 1 Subfeed PDPB150G6F Rack Distribution Panel 208 V PDRDPF10U-R

#### **Symmetra Power Module**

Symmetra PX 10 kW Power Module, 208 V SYPM10KF2

#### Seismic Kits

Seismic Kit for 600 mm Symmetra PX Battery Cabinets

SYOPT009

Seismic Kit for 300 mm Symmetra PX 100, Symmetra PX 250/500, and Modular PDU Frames

SYOPT300

Seismic Kit for 600 mm Symmetra PX 100 and Symmetra PX 250/500 Frames

SYOPT600

100 kW 208 V Options

### **Configuration Options**

- · Single or dual feed
- · Top or bottom feed
- Internal N+1 redundancy
- · Swappable 9 Ah batteries
- Up to four extended run battery enclosures
- Seismic bracket kits
- Modular PDU with maintenance bypass and swappable power distribution modules (600:208 V, 480:208 V, 208:208 V, 208 V transformerless)
- 300 mm maintenance bypass panel
- Bottom Feed Sidecar (supports bottom feed utility inputs for installations that include a Modular PDU with a transformer
- SmartSlot communication cards
- · StruxureWare Data Center Expert compatible
- Custom wall-mount maintenance bypass panel (contact Schneider Electric)
- · Generator compatible

Limited Factory Warranty 100 kW 208 V

### **Limited Factory Warranty**

### **One-Year Factory Warranty**

The limited warranty provided by Schneider Electric in this Statement of Limited Factory Warranty applies only to products you purchase for your commercial or industrial use in the ordinary course of your business.

### **Terms of Warranty**

Schneider Electric warrants that the product shall be free from defects in materials and workmanship for a period of one year from the date of product start-up when start-up is performed by Schneider Electric-authorized service personnel and occurs within six months of the Schneider Electric shipment date. This warranty covers repairing or replacing any defective parts including on-site labor and travel. In the event that the product fails to meet the foregoing warranty criteria, the warranty covers repairing or replacing defective parts at the sole discretion of Schneider Electric for a period of one year from the shipment date. For Schneider Electric cooling solutions, this warranty does not cover circuit breaker resetting, loss of refrigerant, consumables, or preventive maintenance items. Repair or replacement of a defective product or part thereof does not extend the original warranty period. Any parts furnished under this warranty may be new or factory-remanufactured.

### **Non-transferable Warranty**

This warranty is extended to the first person, firm, association or corporation (herein referred to by "You" or "Your") for whom the Schneider Electric product specified herein has been purchased. This warranty is not transferable or assignable without the prior written permission of Schneider Electric.

### **Assignment of Warranties**

Schneider Electric will assign you any warranties which are made by manufacturers and suppliers of components of the Schneider Electric product and which are assignable. Any such warranties are assigned "AS IS" and Schneider Electric makes no representation as to the effectiveness or extent of such warranties, assumes no responsibility for any matters which may be warranted by such manufacturers or suppliers and extends no coverage under this Warranty to such components.

### **Drawings, Descriptions**

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100 kW 208 V Limited Factory Warranty

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