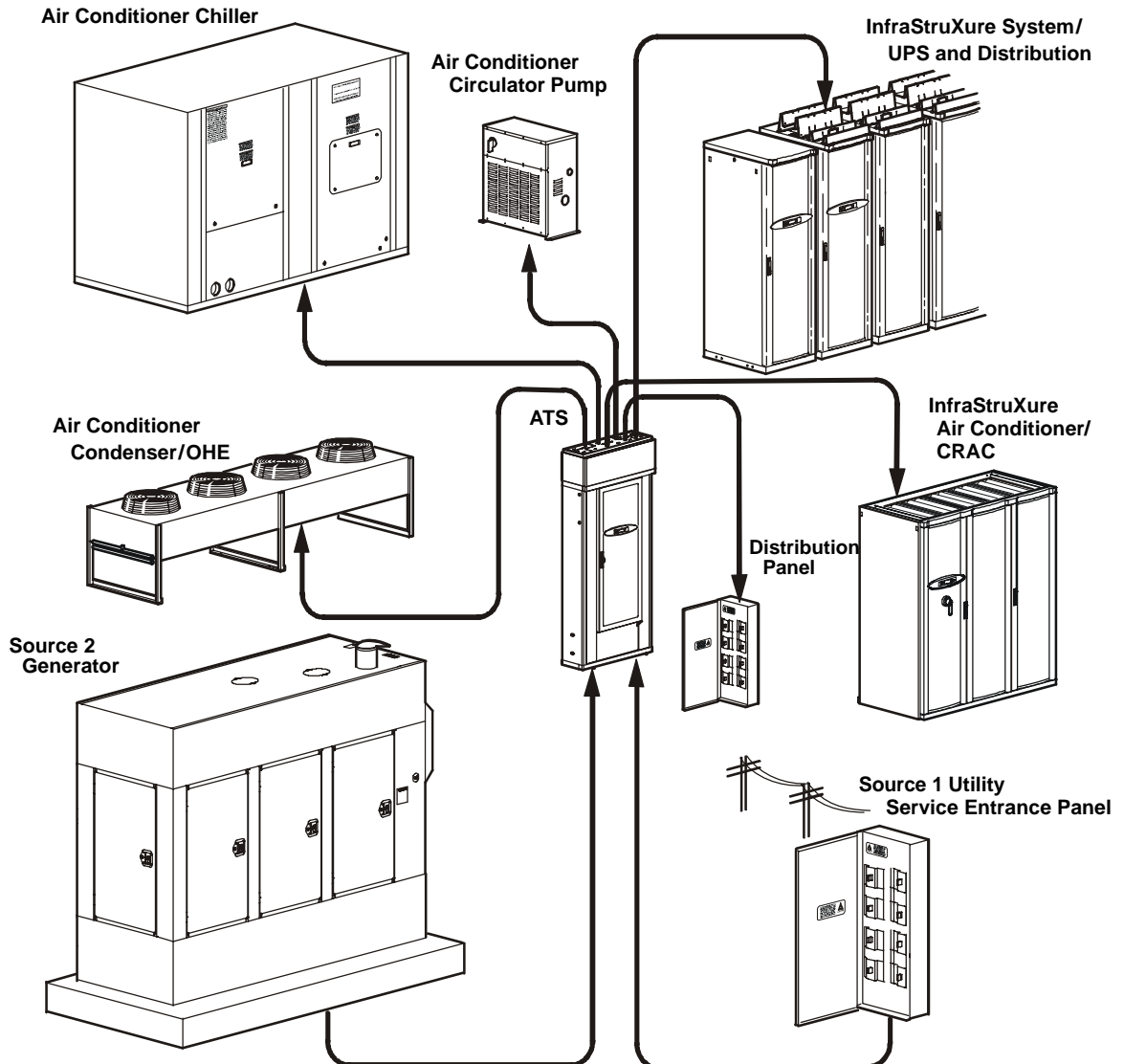


InfraStruXure Power Generation System

Overview

The InfraStruXure Power Generation System consists of a diesel-powered generator and a Smart Distribution Panel with Automatic Transfer Switch (ATS). The ATS is connected to utility power (Source 1) and the generator (Source 2), with utility as the preferred power source. The ATS is designed for the data center floor, which places the ATS and the power distribution closer to your data center equipment. Labels on the ATS provide quick visual indication of which ATS sub-feed breaker is supplying power to each piece of equipment. The diagram below provides examples of data center equipment that can be connected to the ATS.



How the InfraStruXure Power Generation System Operates

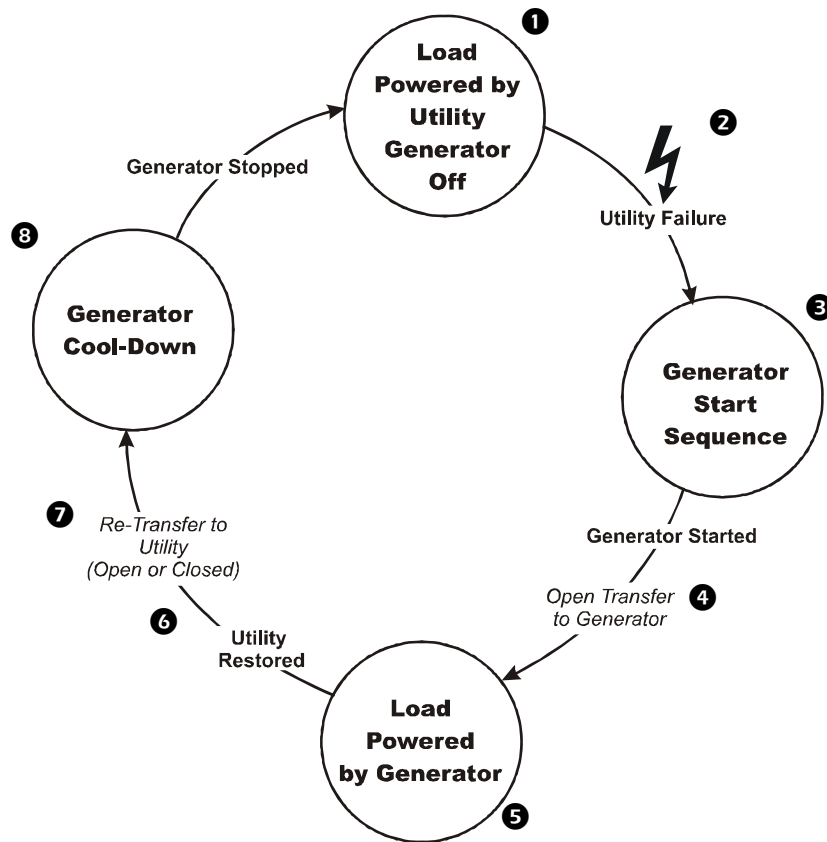
Operation of the ATS during a utility mains failure when automatic operation is enabled

Typically, your data center equipment is powered by utility [Source 1] (1), and the generator is off. When the Source 1 line quality is bad (2), the ATS signals the generator to start (3). When the generator starts, the ATS will perform an open transfer to generator (4).

The generator will run and support your data center equipment (5) until utility comes back online (6).

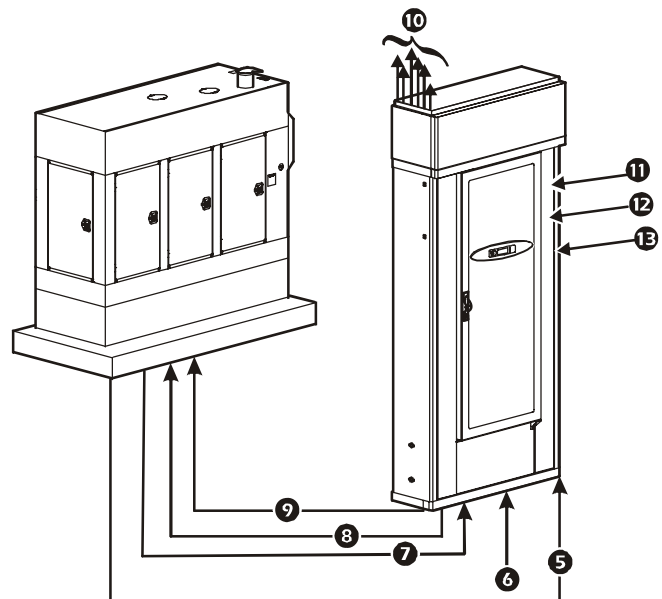
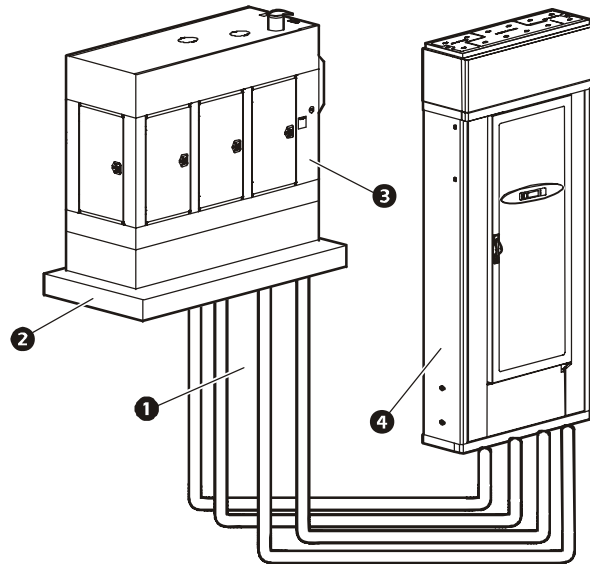
Once the utility has been of good and stable quality for the length of the **Line Stable** setting and the generator has run for the **Min Gen Runtime** setting, your data center equipment is once

again powered by utility (7). The re-transfer to utility can be either an open or closed transfer. After the re-transfer, the generator will cool down (8) and stop.



Installation Overview

- ❶ Run conduit from the generator to the ATS.
- ❷ Pour the generator pad.
- ❸ Install the generator.
- ❹ Install the ATS.
- ❺ Connect input power from the generator to the ATS.
- ❻ Connect utility input to the ATS.
- ❼ Connect the DC power input, start contact, and emergency stop contact to the ATS.
- ❽ Connect the communication cable from the ATS to the generator.
- ❾ Run AC power input from the ATS to the generator for the heater and battery charger.
- ❿ Connect the branch distribution equipment to the ATS.
- ⓫ Connect the EPO switch to the user interface board on the user connection plate on the ATS.
- ⓬ Connect the user contact inputs and relay outputs to the user connection plate on the ATS.
- ⓭ Connect to the network at the surge-protected ethernet port on the ATS.



Power and Communication Connections

400 A, 208 V 400 A, 480 V 800 A, 208 V

AC Power Input to ATS from Generator

	208 V	480 V	208 V
Voltage (L-L)	208 V	480 V	208 V
Output power of generator	125 kW	200 kW	200 kW
Size of generator output circuit breaker	400 A, 100%	320 AT*	720 AT*
Connection type	4W + G	3W + G or 4W + G	3W + G or 4W + G
Recommended wire size if 30°C [†]	500 kcmil	350 kcmil	(2) 500 kcmil or (3) 250 kcmil
Recommended wire size if 40°C [†]	2 x 3/0	500 kcmil	(3) 300 kcmil
Recommended equipment grounding conductor (EGC) size [†]	3 AWG	3 AWG	(2) or (3) 1/0 AWG

AC Power Input to ATS from Utility**

	208 V	480 V	208 V
Voltage (L-L)	208 V	480 V	208 V
Size of upstream utility circuit breaker	400 A	320 AT*	720 AT*
Connection type	4W + G	3W + G or 4W + G	4W + G
Recommended wire size if 30°C [†]	500 kcmil	350 kcmil	(2) 500 kcmil or (3) 250 kcmil
Recommended wire size if 40°C [†]	2 x 3/0	500 kcmil	(3) 300 kcmil
Recommended equipment grounding conductor (EGC) size [†]	3 AWG	3 AWG	(2) or (3) 1/0 AWG

12 VDC to ATS from Generator

Recommended wire size [†]	Two, 12 AWG stranded copper
Voltage	12 VDC
Connection point	Hard-wire to generator controller terminal block

Communication Connection from Generator to ATS

Recommended wire size [†]	Belden® 9830 cable or equivalent (24 AWG; 3 twisted, shielded pairs; 100 ohms nominal impedance; 60 pF/ft nominal capacity)
Connection point	RS485/RS232 converter on ATS to identical converter on generator (requires installation)

AC Power from ATS to Generator Heater and Battery Charger

Recommended wire size [†]	Two, 12 AWG stranded copper
Voltage	120 VAC
Connection style	Hard-wire from transformer in ATS to double duplex NEMA 5-20 outlet box on generator

Start Signal Connection to Generator from ATS

Recommended wire size [†]	Two, 12–28 AWG stranded copper
Connection point	Hard-wire to generator controller terminal block

Emergency Stop Signal Connection to Generator from ATS

Recommended wire size [†]	Two, 12–28 AWG stranded copper
Connection point	Hard-wire to generator controller terminal block

ATS Branch Distribution to Equipment^{††}

Circuit breaker style	MCCB ABB Tmax T1 or T3 up to 225 A
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ATS Ethernet Connection

Connection type	Cat-5 network cable connected to the surge protected ethernet port on the ATS user connection plate
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ATS EPO Connection

Connection type	Dry contact (NO or NC) or 24 VDC on the ATS user connection plate
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ATS User Input Contacts/Relay Outputs

Connection type	Dry contact (NO or NC) on the ATS user connection plate
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[†] Always follow the National Electric Code (NFPA 75) or the Canadian Electric Code (CSA C22.1-02) and local codes when installing the InfraStruXure Power Generation System. The AC Power Input wire sizes provided in this document are recommendations only. The ATS is provided with a panel board to supply power to multiple loads. Since loading could increase after the product's initial installation, the AC Power Input wires were selected for the maximum current that can be delivered by the panel board. If the ATS is purchased to supply a calculated load rated less than the panel board, and the load will never increase, smaller wires can be used if the requirements in the NEC, CEC, and local codes are followed.

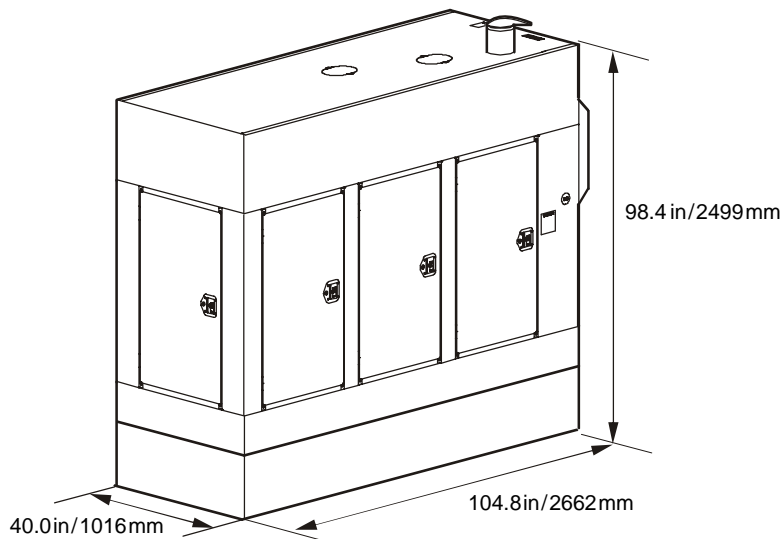
^{††} Wire sizes to loads shall be in accordance with the ratings of the circuit breakers selected to power the loads.

* The 320 A rating is attained by adjusting the 400 A circuit breaker's current setting to 0.8. The 720 A rating is attained by setting the 800 A circuit breaker's current setting to 0.9.

**If the ATS was purchased as a stand-alone component, the 400 A ATS can be supplied with any circuit breaker rated 400 A or less and the 800 A ATS can be supplied with any circuit breaker rated 800 A or less.

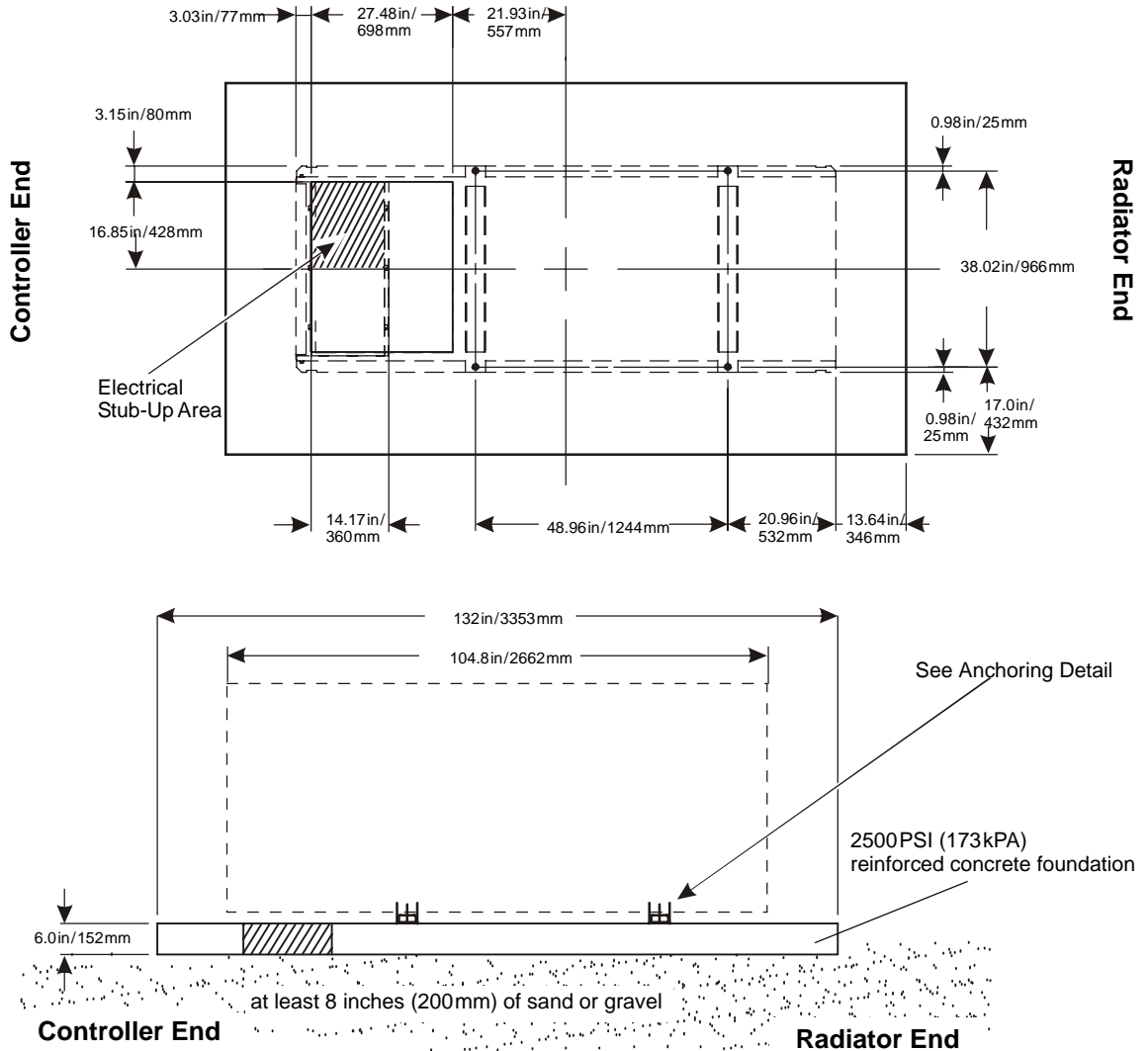
Physical Data

Generator

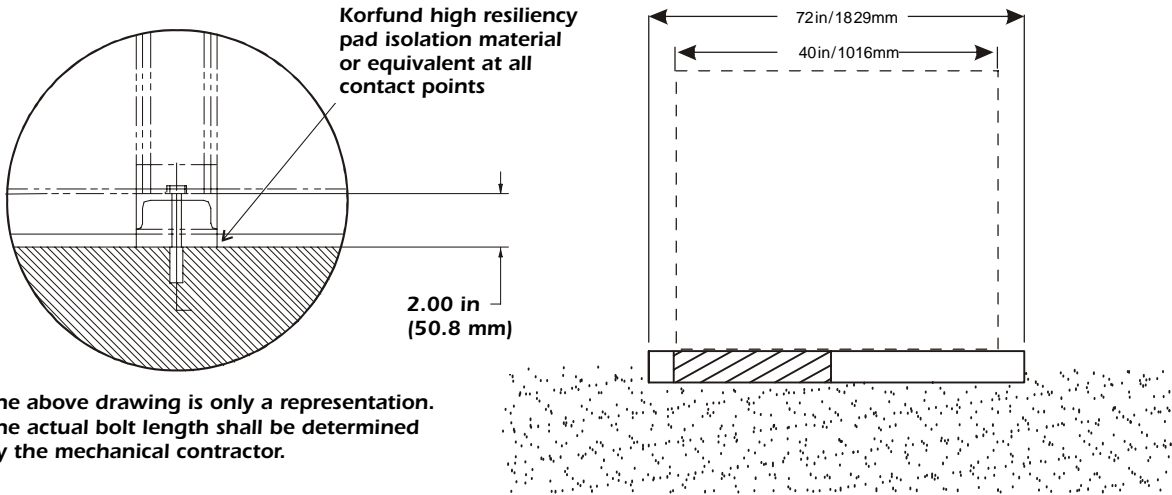


	125kW	200kW
Height	98.4 in / 2499 mm	98.4 in / 2499 mm
Width	40.0 in / 1016 mm	40.0 in / 1016 mm
Length	104.8 in / 2662 mm	104.8 in / 2662 mm
Weight	5109 lb/2317 kg	5311 lb/2409 kg
Operating Temperature Range	-30 to 40°C	-30 to 40°C
Operating Relative Humidity	5 to 100%	5 to 100%
Operating Elevation	12,800 ft/3900 m	12,800 ft/3900 m
Tank Type	Double-wall, steel base	Double-wall, steel base
Fuel Type	Diesel	Diesel
Tank Size	173 gal/655 L	173 gal/655 L
NEC Access Clearances	<ul style="list-style-type: none"> • Three feet to an insulated surface • Three feet to grounded parts, including concrete walls, if 208/120 V • Three and a half feet to grounded parts, including concrete walls, if 480/277 V • Three feet to other live parts, if 208/120 V • Four feet to other live parts, if 480/277 V 	

Generator pad



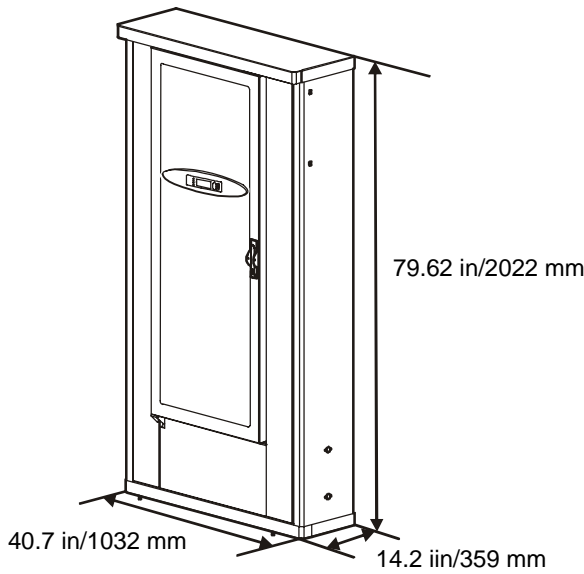
Anchoring Detail
Type J or L Bolt Anchoring



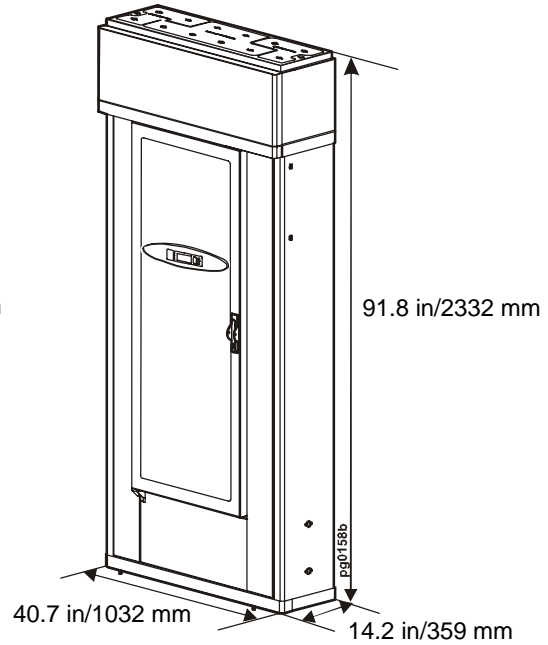
The above drawing is only a representation.
The actual bolt length shall be determined
by the mechanical contractor.

Smart Distribution Panel with Automatic Transfer Switch

400 A
800 A without top wiring box installed



800 A top wiring box installed



	400 A 800 A without top wiring box	800 A with top wiring box
Height	74.6 in / 1895 mm	91.8 in / 2332 mm
Width	28.0 in / 711 mm	40.7 in / 1032 mm
Depth	14.1 in / 358 mm	14.2 in / 359 mm
Weight (lb/kg)	482 lb / 218 kg	725 in / 330 kg
Operating Temperature Range	32 to 104°F (-5 to 40°C)	32 to 104°F (-5 to 40°C)
Operating Relative Humidity	5 to 95%, non-condensing	5 to 95%, non-condensing
Operating Elevation	0 to 6562 ft / 0 to 2000 m	0 to 6562 ft / 0 to 2000 m
NEC Access Clearances	<ul style="list-style-type: none"> • Three feet to an insulated surface • Three feet to grounded parts, including concrete walls, if 208/120 V • Three and a half feet to grounded parts, including concrete walls, if 480/277 V • Three feet to other live parts, if 208/120 V • Four feet to other live parts, if 208/120 V 	

