



BUILDING-INTEGRATED SOLAR TECHNOLOGY

SOLAR EQUIPMENT & SPACE REQUIREMENT

MITREX SOLAR FACADE
- 50kW INDUSTRIAL

1. INTRODUCTION

Photovoltaic systems offer a promising solution to combat global warming while providing sustainable energy for the future. In utility scales, solar farms are prevalent and interconnected with the grid. For enhanced efficiency and reduced loss, it is beneficial to have load and generation sources situated close to each other. Solar projects implemented in or on buildings are particularly advantageous as they harness most of the solar energy for immediate use within the building. This approach not only minimizes losses but also alleviates congestion in transmission and distribution lines.

2. FOR BUILDING OWNERS

A crucial concern for building owners is the electrical equipment required for solar projects. Beyond cost considerations, they worry about the space these equipment installations demand. This document addresses the necessary equipment for various PV project sizes and scenarios.

3. LOGISTICS CONSIDERATIONS

BIPV (Building Integrated Photovoltaics) and regular rooftop solar installations as BAPV (Building applied photovoltaics) differ in terms of installation locations, solar panel types, and mounting equipment. However, both BIPV and BAPV systems share similar components apart from the solar panels. In rooftop projects, a designated area on the flat or tilted roof is necessary. In contrast, BIPV panels replace specific building elements such as facades, windows, railings, and so on, eliminating the need for additional space.

Additional equipment, such as AC equipment, requires some space on the roof, wall, or inside the building (like electrical or mechanical room). The specific requirements for AC equipment depend on factors such as the system size, number of electricity phases (single phase or three phases), maximum DC voltages allowed in the building, and local distribution company (LDC) regulations. When inverters are placed inside the building, DC cables need to be carefully routed through conduits, necessitating penetration points in the structure. The number and size of conduits vary according to each scenario, as detailed in the accompanying table.

4. REQUIRED AC EQUIPMENT FOR DIFFERENT SCENARIOS

Mitrex Panels, both BIPV and BAPV, are suitable for a 1000V system voltage. However, certain buildings may be restricted to a maximum of 600V DC based on local codes. Electricity services typically operate at 240V single phase or 208V, 480V, and 600V three phases. The table below outlines the required AC equipment for all the aforementioned scenarios, considering different system sizes.

		600V DC MAX SYSTEM			
# OF PHASES	SINGLE PHASE	THREE PHASE			
VOLTAGE	240V	208V	480V	600V	
5kW	Inverter	Solaredge SE5000H-US	---	---	---
	Disconnect	240V 30A Disconnect	---	---	---
	Panelboard	---	---	---	---
	Transformer	---	---	---	---
	Conduit	1" Conduit	---	---	---
	SCADA	---	---	---	---
10kW	Inverter	Solaredge SE10000H-US	Solaredge SE10KUS	Fronius Symo 15.0-3	Solaredge SE10KUS
	Disconnect	240V 60A Disconnect	240V 60A Disconnect	600V 30A Disconnect x 2	600V 30A Disconnect x 3
	Panelboard	---	---	---	---
	Transformer	---	---	---	600V/208V 15kVA TX
	Conduit	1 1/4" Conduit	1 1/4" Conduit	1 1/2" Conduit	1 1/4" Conduit
	SCADA	---	---	---	---
20kW	Inverter	Solaredge SE10000H-US x 2	Solaredge SE10KUS x 2	Fronius Symo 20.0-3	Solaredge SE10KUS x 2
	Disconnect	240V 200A Disconnect	240V 100A Disconnect	600V 30A Disconnect x 2	600V 30A Disconnect x 2
	Panelboard	240V 200A Panel	240V 100A Panel	---	600V 100A Panel
	Transformer	---	---	---	600V/208V 30kVA TX
	Conduit	1 1/2" Conduit	2" Conduit	1 1/2" Conduit	2" Conduit
	SCADA	---	---	---	---
50kW	Inverter	---	Solaredge SE17.3KUS x 3	SMA Core1 33.3kW x 2	SMA Core1 33.3kW x 2
	Disconnect	---	240V 200A Disconnect	600V 60A Disconnect x 2	600V 60A Disconnect x 2
	Panelboard	---	240V 200A Panel	600V 100A Panel	600V 100A Panel
	Transformer	---	---	---	600V/480V 75kVA TX
	Conduit	---	2" Conduit	3" or 2 x 2" Conduit	3" or 2 x 2" Conduit
	SCADA	---	Depends on the Hydro	Depends on the Hydro	Depends on the Hydro
100kW	Inverter	---	Solaredge SE17.3KUS x 6	SMA Core1 33.3kW x 3	SMA Core1 33.3kW x 3
	Disconnect	---	240V 400A Disconnect	600V 200A Disconnect x 2	600V 200A Disconnect x 2
	Panelboard	---	240V 400A Panel	600V 200A Panel	600V 200A Panel
	Transformer	---	---	---	600V/480V 150kVA TX
	Conduit	---	3" or 2 x 2" Conduit	4" or 2 x 3" or 3 x 2" Conduit	4" or 2 x 3" or 3 x 2" Conduit
	SCADA	---	Depends on the Hydro	Depends on the Hydro	Depends on the Hydro
500kW	Inverter	---	---	SMA Core1 33.3kW x 15	SMA Core1 33.3kW x 15
	Disconnect	---	---	600V 600A Disconnect x 2	600V 600A Disconnect x 2
	Panelboard	---	---	600V 800A Panel	600V 800A Panel
	Transformer	---	---	---	600V/480V 500kVA TX
	Conduit	---	---	5 x 4" Conduit	5 x 4" Conduit
	SCADA	---	---	Depends on the Hydro	Depends on the Hydro

		1000V DC MAX SYSTEM			
# OF PHASES	SINGLE PHASE	THREE PHASE			
VOLTAGE	240V	208V	480V	600V	
5kW	Inverter	Fronius Primo 5.0-1	---	---	---
	Disconnect	240V 30A Disconnect	---	---	---
	Panelboard	---	---	---	---
	Transformer	---	---	---	---
	Conduit	1 1/4" Conduit	---	---	---
	SCADA	---	---	---	---
10kW	Inverter	Fronius Primo 10.0-1	Fronius Symo 10.0-3 (208V)	Fronius Symo 10.0-3	Fronius Symo 10.0-3
	Disconnect	240V 60A Disconnect	240V 60A Disconnect	600V 30A Disconnect x 2	600V 30A Disconnect x 3
	Panelboard	---	---	---	---
	Transformer	---	---	---	600V/480V 15kVA TX
	Conduit	1 1/2" Conduit	1 1/2" Conduit	1 1/2" Conduit	1 1/2" Conduit
	SCADA	---	---	---	---
20kW	Inverter	Fronius Primo 10.0-1 x 2	Fronius Symo 10.0-3 (208V) x 2	Fronius Symo 20.0-3	Fronius Symo 20.0-3
	Disconnect	240V 200A Disconnect	240V 100A Disconnect	600V 30A Disconnect x 2	600V 30A Disconnect x 3
	Panelboard	240V 200A Panel	240V 100A Panel	---	---
	Transformer	---	---	---	600V/480V 30kVA TX
	Conduit	2" Conduit	2" Conduit	1 1/2" Conduit	1 1/2" Conduit
	SCADA	---	---	---	---
50kW	Inverter	---	Fronius Symo 15.0-3 (208V) x 3	SMA Corel 50kW	SMA Corel 50kW
	Disconnect	---	240V 200A Disconnect	600V 60A Disconnect x 2	600V 60A Disconnect x 3
	Panelboard	---	240V 200A Panel	---	---
	Transformer	---	---	---	600V/480V 75kVA TX
	Conduit	---	3" or 2 x 2" Conduit	1 1/2" Conduit	1 1/2" Conduit
	SCADA	---	Depends on the Hydro	Depends on the Hydro	Depends on the Hydro
100kW	Inverter	---	Fronius Symo 15.0-3 (208V) x 7	Solaredge SE100KUS	Solaredge SE100KUS
	Disconnect	---	240V 400A Disconnect	600V 200A Disconnect x 2	600V 200A Disconnect x 3
	Panelboard	---	240V 400A Panel	---	---
	Transformer	---	---	---	600V/480V 150kVA TX
	Conduit	---	4" or 2 x 3" or 4 x 2" Conduit	2 1/2" or 2 x 1 1/2" PVC Conduit	2 1/2" or 2 x 1 1/2" PVC Conduit
	SCADA	---	Depends on the Hydro	Depends on the Hydro	Depends on the Hydro
500kW	Inverter	---	---	Solaredge SE100KUS x 5	Solaredge SE100KUS x 5
	Disconnect	---	---	600V 600A Disconnect x 2	600V 600A Disconnect x 2
	Panelboard	---	---	600V 800A Panel	600V 800A Panel
	Transformer	---	---	600V/480V 500kVA TX	600V/480V 500kVA TX
	Conduit	---	---	2 x 4" or 5 x 2 1/2" Conduit	2 x 4" or 5 x 2 1/2" Conduit
	SCADA	---	---	Depends on the Hydro	Depends on the Hydro

CASE STUDY

50KW SYSTEM ON INDUSTRIAL BUILDING

BUILDING TYPE:

Industrial building with 240 panels of 250W (total 60 kW DC)

SYSTEM SIZE:

3 x 17.3kW Solaredge inverter SE17.3KUS

SYSTEM LAYOUT:

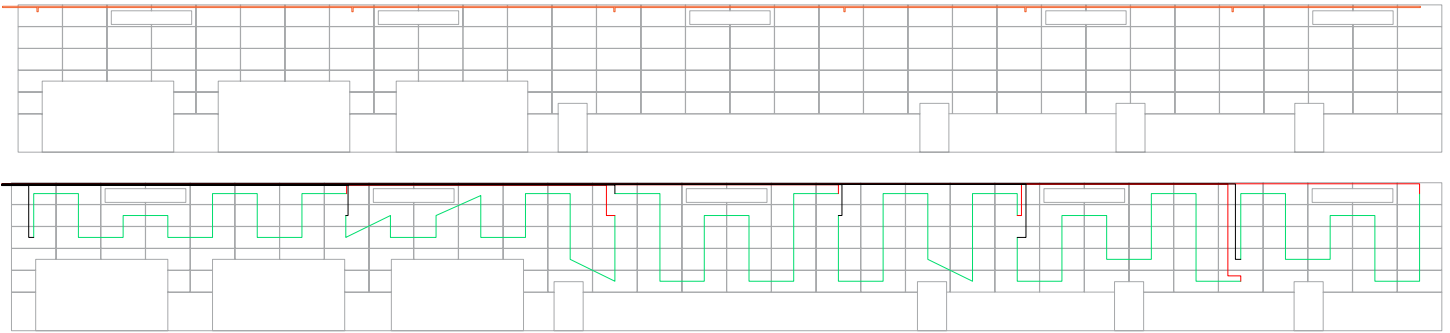
12 strings of 20 panels with one building penetration holes (Conduit size 2")

PROJECT SOLAR EQUIPMENT:

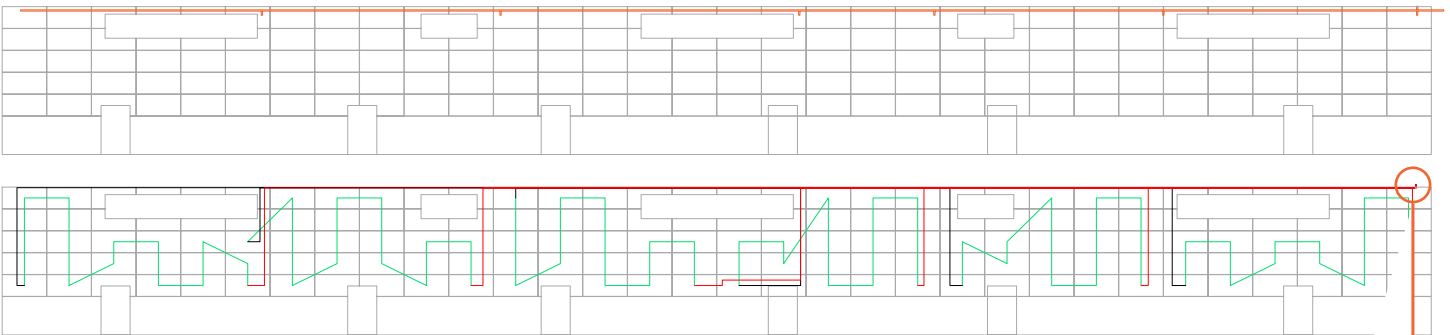
One AC Panelboard 200A 240V, two 200A 240V disconnect switches (One could be replaced with breaker inside the main building switchboard if available)

50kW SYSTEM WIRING LAYOUT: HOME RUN TO THE BUILDING ROOFTOP

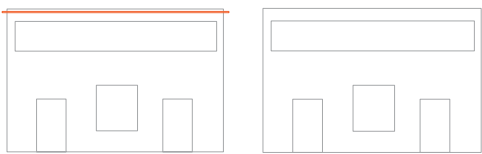
EAST ELEVATION



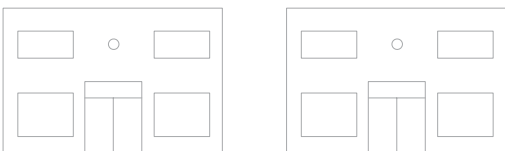
WEST ELEVATION



NORTH ELEVATION

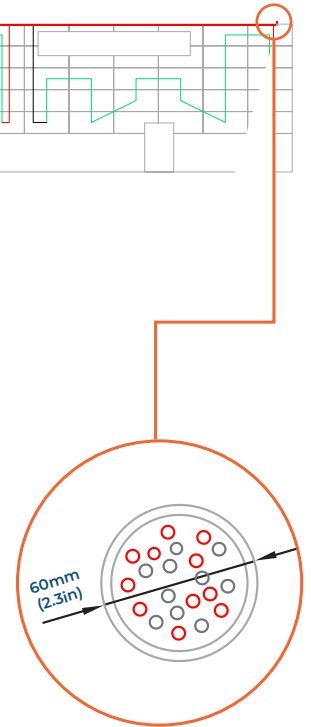


SOUTH ELEVATION



LINE COLOUR REFERENCE

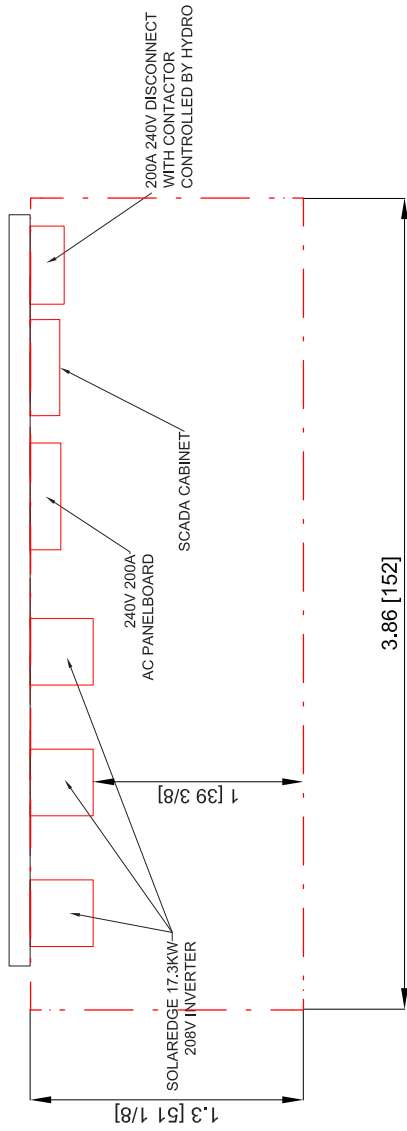
- Building & solar panels layout
- Conduit layout
- Electrical strings
- Home run wiring



BUILDING PENETRATION FOR CONDUIT TO INVERTER

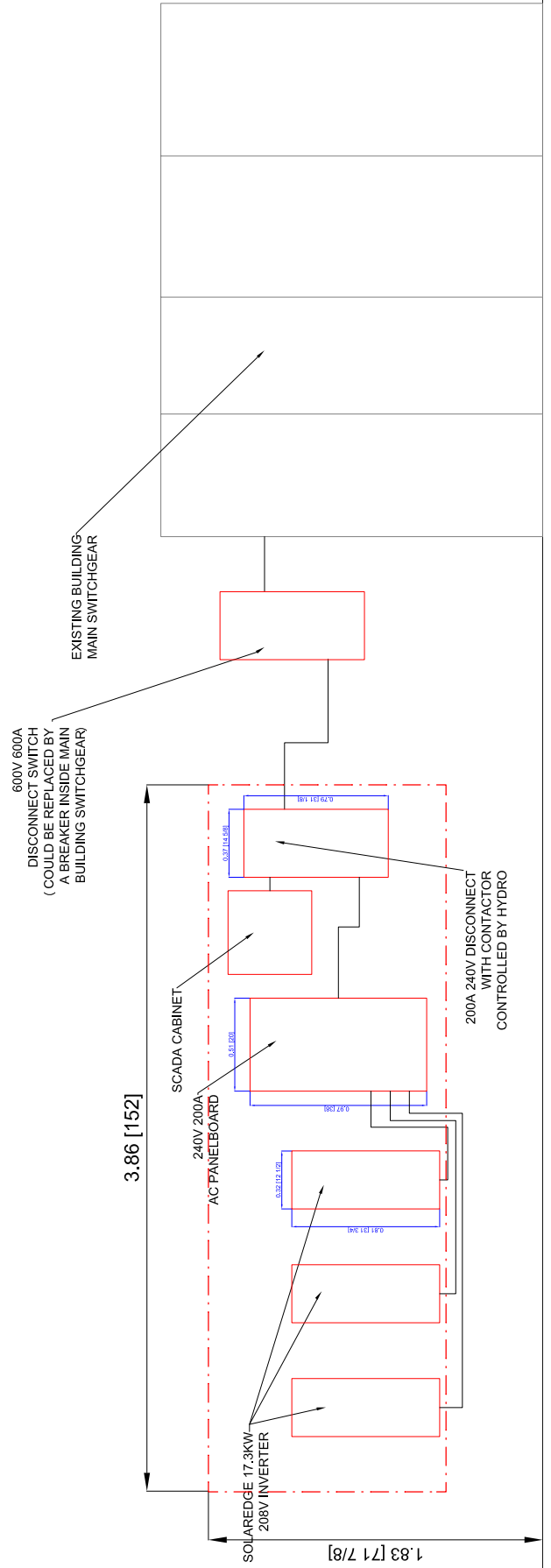
500kW SYSTEM WIRING LAYOUT: HOME RUN TO THE BUILDING ROOFTOP

TOP VIEW



Note: Working area is 1m (39.37in) in front of solar equipments as per electrical code.

FRONT VIEW



Three Phase Inverters for the 120/208V Grid For North America

SE10KUS / SE17.3KUS



The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for superior efficiency and longer strings
- Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- Integrated arc fault protection and rapid shutdown for NEC 2014, 2017, and 2020, per article 690.11 and 690.12
- Built-in module-level monitoring with Ethernet, wireless or cellular communication for full system visibility
- Integrated Safety Switch
- UL1741 SA and SB certified, for CPUC Rule 21 grid compliance

/ Three Phase Inverters for the 120/208V Grid⁽¹⁾

For North America

SE10KUS / SE17.3KUS

Model Number	SE10KUS	SE17.3KUS	
Applicable to inverters with part number	SEXK-USX21XXXX		
OUTPUT			
Rated AC Power Output	10000	17300	W
Maximum Apparent AC Output Power	10000	17300	VA
AC Output Line Connections	3W + PE, 4W + PE		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-N)	105 – 120 – 132.5		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-L)	183 – 208 – 229		
AC Frequency Minimum-Nominal-Maximum ⁽²⁾	59.3 – 60 – 60.5		
Continuous Output Current (per Phase)	27.8	48.25	Aac
GFDI Threshold	1		
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
THD	≤ 3		
Power Factor Range	+/- 0.85 to 1		
INPUT			
Maximum DC Power (Module STC)	17500	30275	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC+ to DC-	600		
Operating Voltage Range	370 – 600		
Maximum Input Current	27.8	48.25	Adc
Maximum Input Short Circuit Current	55		
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	167kΩ Sensitivity ⁽³⁾		
CEC Weighted Efficiency	97	97.5	%
Night-time Power Consumption	< 4		
ADDITIONAL FEATURES			
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)		
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection		
Rapid Shutdown	NEC2014, NEC2017 and NEC2020 compliant/certified		
RS485 Surge Protection Plug-in	Supplied with the inverter, Built-in		
AC, DC Surge Protection	Type II, field replaceable, Built-in		
DC Fuses (Single Pole)	25A, Built-in		
Smart Energy Management	Export Limitation		
DC SAFETY SWITCH			
DC Disconnect	Integrated		
STANDARD COMPLIANCE			
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (HI)		
Emissions	FCC part15 class A		
INSTALLATION SPECIFICATIONS			
AC Output Conduit size /AWG range	¾" or 1" / 6 - 10 AWG		
DC Input Conduit size / AWG range	¾" or 1" / 6 - 12 AWG		
Number of DC inputs pairs	4		
Dimensions with Safety Switch (H x W x D)	31.8 x 12.5 x 11.8 / 808 x 317 x 300		
Weight with Safety Switch	78.2 / 35.5		
Cooling	Fans (user replaceable)		
Noise	< 62		
Operating Temperature Range	-40 to +140 / -40 to +60(4)		
Protection Rating	NEMA 3R		
Mounting	Bracket provided		

(1) For 277/480V inverters refer to the [Three Phase Inverters for the 277/480V Grid for North America datasheet](#).

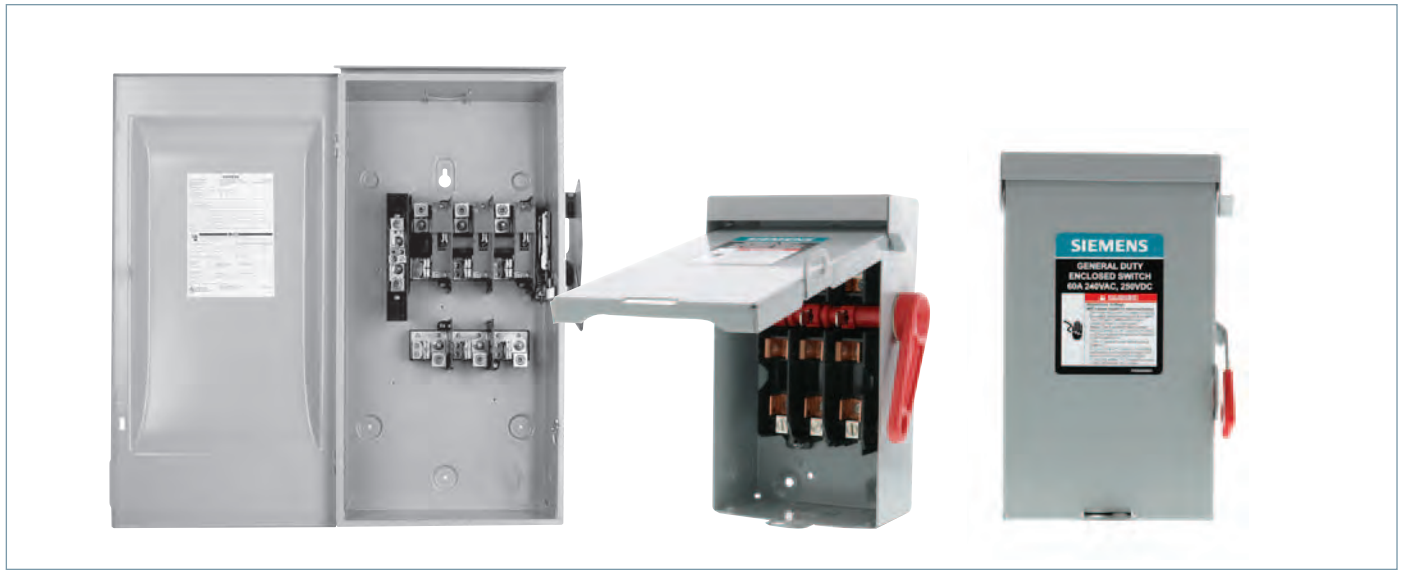
(2) For other regional settings please contact SolarEdge support.

(3) Where permitted by local regulations.

(4) For power de-rating information refer to the [Temperature De-rating - Technical Note \(North America\)](#).

General Duty Safety Switches

Selection



4 SAFETY SWITCHES

System	Ampere Rating	Indoor — Type 1		Outdoor — Type 3R		Horsepower Rating ^①						
		Catalog Number	Ship Wt. (lbs.) Std. Pkg	Catalog Number	Ship Wt. (lbs.) Std. Pkg	240V AC		250 Volt DC				
						1-Phase, 2-Wire	2-Phase, 4-Wire	3-Phase, 3-Wire	Std.	Max.	Std.	Max.

240 Volt Fusible^①

2-Pole, 2-Fuse, and Solid Neutral^{②③④}

240 Volt AC/250 Volt DC

	30	GF221NA	30 ^⑦	GF221NRA ^⑤	30 ^⑦	1½	3	—	—	3	7½	5
	60	GF222NA	20 ^⑥	GF222NRA ^⑤	20 ^⑥	3	10	—	—	7½	15	10
	100	GF223N	23	GF223NR	23	7½	15	—	—	15	30	20
	200	GF224N	47	GF224NR	48	15	—	—	—	25	60	40

3-Pole, 3-Fuse, and Solid Neutral^④

240 Volt AC/250 Volt DC

	30	GF321NA	30 ^⑦	GF321NRA ^⑤	30 ^⑦	1½	3	—	—	3	7½	5
	60	GF322NA	20 ^⑥	GF322NRA ^⑤	20 ^⑥	3	10	—	—	7½	15	10
	100	GF323N	25	GF323NR	25	7½	15	—	—	15	30	20
	200	GF324N	49	GF324NR	50	15	—	—	—	25	60	40
	400	GF325NA	94.6	GF325NRA	94.6	15	—	—	—	50	125	50
	600	GF326NA	95.6	GF326NRA	95.6	15	—	—	—	75	200	—

240 Volt Non-Fusible^{③④⑪}

2-Pole or 3-Pole

240 Volt AC/250 Volt DC

	30	GNF221A	20 ^⑦	GNF221RA ^⑤	20 ^⑦	—	3	—	—	—	—	5
	30	GNF321A ^⑨	20 ^⑦	GNF321RA ^{⑤⑩}	20 ^⑦	—	3	—	—	7½	—	5
	30	GNF321LA ^⑩	30 ^⑦	GNF321RLA ^{⑤⑩}	30 ^⑦	—	3	—	—	7½	—	5
	60	GNF222A	30 ^⑦	GNF222RA ^⑤	30 ^⑦	—	10	—	—	15	—	10
	60	GNF322A	30 ^⑦	GNF322RA ^⑤	30 ^⑦	—	10	—	—	15	—	10
	100	GNF323	23	GNF323R	24	—	15	—	—	30	—	20
	200	GNF324	46	GNF324R	47	—	15	—	—	60	—	40
	400	GNF325A	114	Use 600V Switch — HNF365RA	—	—	15	—	—	125	—	50
	600	GNF326A	116	Use 600V Switch — HNF366RA	—	—	15	—	—	200	—	—

① Dual horsepower ratings: Std.- applies when non-time delay fuses are installed. Max.- applies when time-delay fuses are installed.
 ② These switches are UL-listed for application on grounded B-phase systems.
 ③ Suitable for use on 3-phase motor loads.

④ Service entrance labeled.
 ⑤ Has provision for ECHA type hub.
 ⑥ 5 switches per standard package.
 ⑦ 10 switches per standard package.
 ⑧ Height reduced switch (45.25 rather than 56 inches in height) for use with 500MCM or smaller conductors.

⑨ Not suitable for service entrance.
 ⑩ Indicates oversized enclosure.
 ⑪ Internal shields for 30A to 200A switches to meet 2020 NEC 230.62 touch safe requirements for service entrance equipment can be purchased separately. See accessory section for catalog numbers.

General and Heavy Duty Safety Switches

Dimensions

Safety Switch Dimensions (Inches)* & Shipping Weights

Catalog Number	Height			Width		Depth		Knockout Diagram ^①	Shipping Weight (lbs.)
	Box A	With Door B	With Rain Shed C	Box D	With Handle E	Box F	With Handle G		
GF221NA	8.4	8.56	—	5.08	5.44	2.93	3.96	S4	30(10)
GF221NRA	8.4	8.56	8.56	5.08	5.44	2.93	3.96	S5	30(10)
GF222NA	9.91	10.07	—	6.06	6.42	3.21	4.24	S21	20(5)
GF222NRA	9.91	10.07	10.07	6.06	6.42	3.21	4.24	S22	20(5)
GF223N	21.95	23.15	—	9.64	11.7	5.05	8.63	S10	23
GF223NR	21.95	—	23.46	9.64	11.67	5.05	8.7	S11	24
GF224N	29.9	31.07	—	14.62	16.68	6.36	10.92	S12	47
GF224NR	29.9	—	31.42	14.61	16.68	6.36	10.92	S13	48
GF225NA	45.32	45.81	—	22.4	23.404	6.94	9.93	S18	91.1
GF225NRA	45.32	45.81	—	22.4	23.404	6.94	9.93	S19	91.1
GF226NA	45.32	45.81	—	22.4	23.404	6.94	9.93	S18	95.6
GF226NRA	45.32	45.81	—	22.4	23.404	6.94	9.93	S19	95.6
GF321NA	8.4	8.56	—	5.08	5.44	2.93	3.96	S4	30(10)
GF321NRA	8.4	8.56	8.56	5.08	5.44	2.93	3.96	S5	30(10)
GF322NA	9.91	10.07	—	6.06	6.42	3.21	4.24	S21	20(5)
GF322NRA	9.91	10.07	10.07	6.06	6.42	3.21	4.24	S22	20(5)
GF323N	21.95	23.15	—	9.64	11.7	5.05	8.63	S10	25
GF323NR	21.95	—	23.46	9.64	11.67	5.05	8.7	S11	25
GF324N	29.9	31.07	—	14.62	16.68	6.36	10.92	S12	49
GF324NR	29.9	—	31.42	14.61	16.68	6.36	10.92	S13	50
GF325NA	45.32	45.81	—	22.4	23.404	6.94	9.93	S18	94.6
GF325NRA	45.32	45.81	—	22.4	23.404	6.94	9.93	S19	94.6
GF326NRA	45.32	45.81	—	22.4	23.404	6.94	9.93	S19	99.6
GF326NA	45.32	45.81	—	22.4	23.404	6.94	9.93	S18	99.6
GF326NRA	45.32	45.81	—	22.4	23.404	6.94	9.93	S19	99.6
GNF221A	6.18	6.35	—	4.2	4.56	2.88	3.93	S4	20(10)
GNF221RA	6.18	6.35	6.35	4.2	4.56	2.88	3.93	S5	20(10)
GNF321LA	8.4	8.56	—	5.08	5.43	2.93	3.95	S4	30(10)
GNF321RLA	8.4	8.56	8.56	5.08	5.43	2.93	3.95	S5	30(10)
GNF222A	8.4	8.56	—	5.08	5.43	2.93	3.95	S4	30(10)
LNF222RA	8.4	8.56	8.56	5.08	5.43	2.93	3.95	S20	30(10)
GNF222RA	8.4	8.56	8.56	5.08	5.43	2.93	3.95	S5	30(10)
GNF321A	6.18	6.35	—	4.2	4.56	2.88	3.93	S4	20(10)
GNF321RA	6.18	6.35	6.35	4.2	4.56	2.88	3.93	S5	20(10)
GNF322A	8.4	8.56	—	5.08	5.43	2.93	3.95	S4	30(10)
GNF322RA	8.4	8.56	8.56	5.08	5.43	2.93	3.95	S5	30(10)
GNF323	21.95	23.15	—	9.64	11.7	5.05	8.63	S10	23
GNF323R	21.95	—	23.46	9.64	11.67	5.05	8.7	S11	24
GNF324	29.9	31.07	—	14.62	16.68	6.36	10.92	S12	46
GNF324R	29.9	—	31.42	14.61	16.68	6.36	10.92	S13	47
GNF325A	33.47	33.96	—	22.4	23.404	6.94	9.93	S18	75
GNF326A	33.47	33.96	—	22.4	23.404	6.94	9.93	S18	77
HF221J also HF261J	14.27	17.33	—	6.65	9.02	5.32	10.46	—	13
HF221N also HF261	14.26	15.45	—	6.64	9.01	5.05	10.17	S6	12
HF221NR also HF261R	14.39	—	15.77	6.64	9.01	5.05	10.17	S8	13
HF221S also HF261S	14.27	17.33	—	6.65	9.02	5.32	10.46	—	13
HF222J also HF262J	16.22	19.31	—	9.17	11.47	5.33	10.46	—	19
HF222N also HF262	16.26	17.46	—	9.15	11.53	5.05	10.17	S16	18
HF222NR also HF262R	16.26	—	17.77	9.16	11.53	5.05	10.17	S17	19
HF222S also HF262S	16.22	19.31	—	9.17	11.47	5.33	10.46	—	19
HF223J also HF263J	21.96	23.16	—	9.65	12.02	5.34	10.46	—	24
HF223N also HF263	21.95	23.15	—	9.64	12.01	5.05	10.17	S10	23
HF223NR also HF263R	21.95	—	23.46	9.64	11.97	5.05	10.17	S11	24

*For inches / millimeters conversion, multiply inches by 25.4.

① Knocks not provided on Type 4 / 4X and 12 or in 800 & 1200A switches.

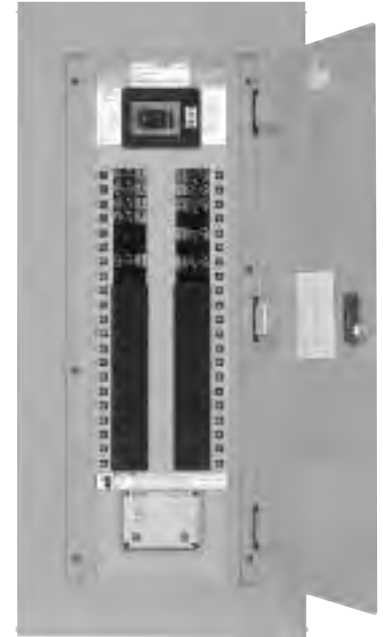
Application

Type P1 Panelboards

Table P1-3 – Main Breaker Panel Size Selector

Maximum Ampere Rating	Main Breaker Types	Max. No. of Poles	Dimensions in Inches (mm)		
			Unit Space A	Box Height B	Weight In lbs. (kg)
100	BL, BLH	18 30 42	9 (229)	32 (813)	105 (48)
	HBL		15 (381)	38 (965)	120 (55)
	BQD		21 (533)	44 (1118)	135 (61)
125	NGB		9 (229)	32 (813)	110 (50)
			15 (381)	38 (965)	125 (57)
			21 (533)	44 (1118)	140 (64)
225	ED2, ED4, ED6, HED4, HED6		9 (229)	32 (813)	110 (50)
			15 (381)	38 (965)	125 (57)
			21 (533)	44 (1118)	140 (64)
250	QJ2		9 (229)	32 (813)	110 (50)
	QJH2		15 (381)	38 (965)	125 (57)
	QJ2-H		21 (533)	44 (1118)	140 (64)
250	FXD6	9 (229)	32 (813)	115 (52)	
	FD6	15 (381)	38 (965)	130 (59)	
	HFD6, HFXD6	21 (533)	44 (1118)	145 (66)	
≤ 250	MLO	9 (229)	32 (813)	115 (52)	
		15 (381)	38 (365)	125 (57)	
		21 (533)	44 (1118)	135 (61)	
400	JD6, JXD6	18 30 42	9 (229)	56 (1422)	172 (78)
	HJD6		15 (381)	62 (1575)	190 (86)
	HJXD6		21 (533)	68 (1727)	208 (95)
			9 (229)	56 (1422)	115 (52)
	MLO		15 (381)	62 (1575)	130 (59)
			21 (533)	68 (1722)	145 (66)

Note: Main breakers use breaker connectors. For sizes, see breaker connector chart. 400 amp main breaker panel has wire bending space for 600 kcmil cables as standard. Use 750 Kcmil lug if 600 Kcmil cable is to be used.


Table P1-4 – Main Breaker Selection

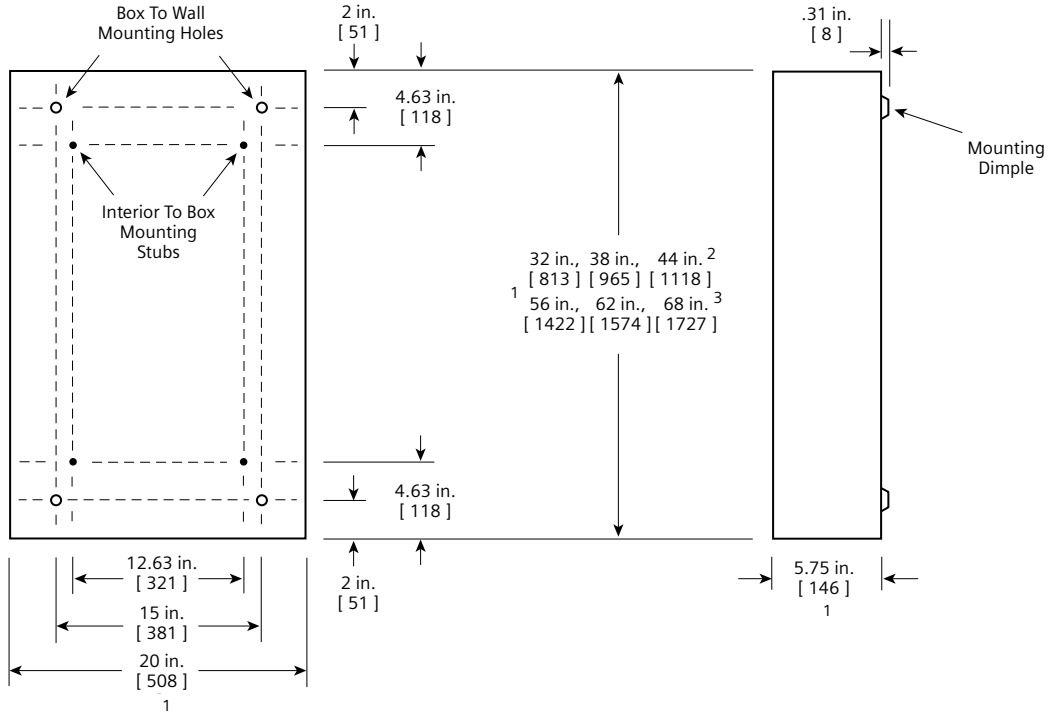
Ampere Rating	Breaker Type	Max. IR (kA) at		Additional Trip Values
		240V AC	480/277V AC	
100	BL (STD)	10	—	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	BLH	22	—	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	HBL	65	—	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	BQD	65	14	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
125	NGB (STD)	100	25	50, 60, 70, 80, 90, 100, 110, 125
	ED4 (STD)	65	25	50, 60, 70, 80, 90, 100, 110, 125
	HED4	100	42	50, 60, 70, 80, 90, 100, 110, 125
225	QJ2 (STD)	10	—	60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225
	QJH2	22	—	60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225
	QJ2-H	42	—	60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225
	HQJ2H	100	—	60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225
250	FXD6 (STD)	65	35	70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250
	FD6	65	35	70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250
	HFD6	100	65	70, 80, 90, 100, 150, 175, 200, 225, 250
	HFXD6	100	65	70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250
400	JXD6 (STD)	65	35	200, 225, 250, 300, 350, 400
	JD6	65	35	200, 225, 250, 300, 350, 400
	HJD6	100	65	200, 225, 250, 300, 350, 400
	HJXD6	100	65	200, 225, 250, 300, 350, 400

Dimensions

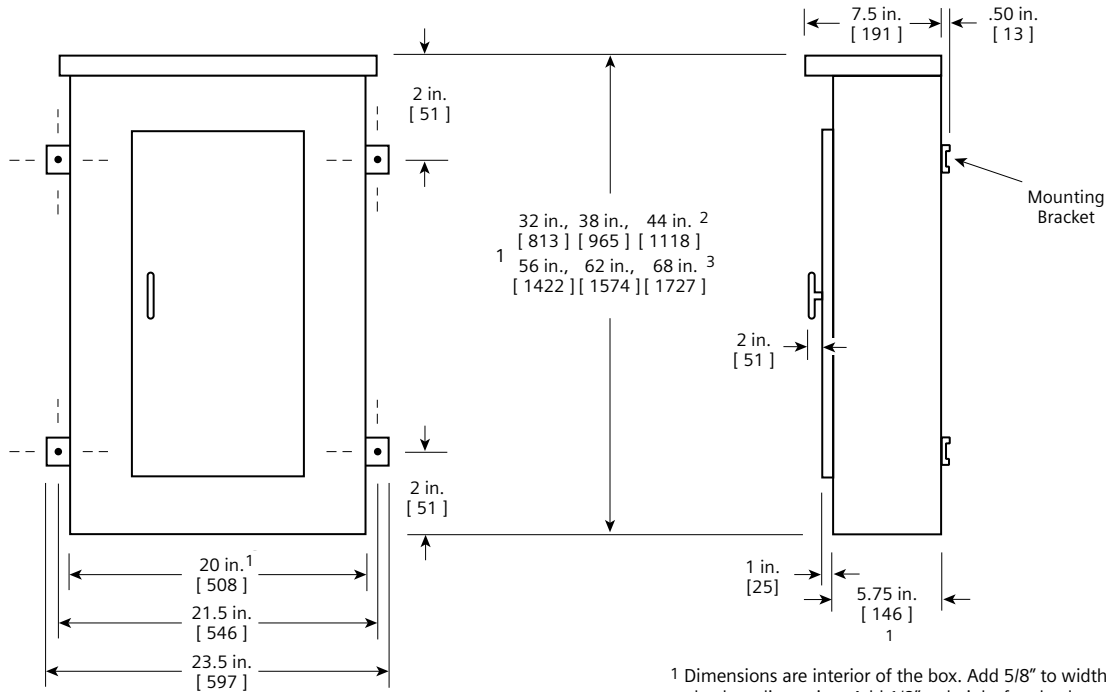
Type P1 Panelboards

Type 1 Box

Box is symmetrical



Type 3R and 3R/12 Box



¹ Dimensions are interior of the box. Add 5/8" to width for absolute dimension. Add 1/8" to height for absolute dimension.

² 250 Amp panel.

³ 400 Amp panel.

Dimensions shown in inches and millimeters [].