8/18/25, 1:43 PM HDC-25-17



August 18, 2025

HDC-25-17

Historic District
Certificate of
Appropriateness
Status: Active

Submitted On: 8/15/2025

Primary Location

702 GIMGHOUL RD CHAPEL HILL, NC 27514

Owner

THOMAS PHYLLIS TRUSTEE 105 SOUTH DUNTON AVE ARLINGTON HTS, NC 60005

Applicant

Kaylan Watson919-833-9096

@ permitting@ncsolarnow.com

♠ 2509 Atlantic Ave Raleigh, NC 27604

Certificate of Appropriateness Form

Historic District *

Gimghoul

Application Type

Check all that apply

Minor Work is exterior work that doesn't involve any substantial alterations, additions, or removals that could impair the integrity of the property and/or the district as a whole. See Chapel Hill Historic Districts Design Principles & Standards ("Principles & Standards") (p. 9-11) for a list of minor works.

Major Work (Historic District Commission Review) includes all exterior changes to structures and features other than minor works.

Contact HDC Staff Liaison(s) if you're unsure of the application type.

Maintenance or Repair Work	Minor Work (Staff Review)
Major Work (Historic District Commission Review)	COA Amendment

8/18/25, 1:43 PM HDC-25-17

Briefly describe the proposed changes. *

Installation of roof-mounted PV Array via DOI/OPT 2 and installation of (2) Tesla Powerwall 3.

Is this application for after-the-fact work?* ②

No

Is this application a request for review after a previous denial?*

No

Applicant Authorization

Applicant Signature*

Kaylan WatsonAug 15, 2025

Relationship to Property Owner*

Other

If other, please explain relationship to property owner.

*

Applicant



TOWN OF CHAPEL HILL Planning Department 405 Martin Luther King Jr. Blvd. Chapel Hill, NC 27514-5705

phone (919) 968-2728 email planning@townofchapelhill.org www.townofchapelhill.org

Property Owner Authorization for Historic District Certificate of Appropriateness (COA)

The current property owner must complete and sign this authorization form if someone else applies for a Certificate of Appropriateness on their behalf. Please submit a separate form per property owner.

Project Nam	9	Thomas_PV+Ba	ittery			
Property Ad	dress 702 Gimghoul Road, Chapel Hill, NC 27514					
Parcel Identi Number(s) (F	10700766077					
Property Ow	ner Name (mı	ıst match Cour	nty tax records) Ph	yllis Thomas		
Property Ow Address	ner	702 Gim	ghoul Road,	Chapel I	Hill, NO	C 27514
Property Ow	ner Email	alan@alanscurti	s.com	Property Own	er Phone	312-218-4176
Relationship Applicant	to					
ii tile property	owner is an e	riaty, provide de		arding the prine	ipaie er are	onaly.
ii tile property	owner is an e	mity, provide de		arding the princ	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
ii tile property	owner is an e		operty Owner Acknow	• .		
As the proper architects, en	ty owner, you gineers, desig	Pro may represent y ners, and others	pperty Owner Acknow	ledgement nted by attorney evidence and ex	r; however,	professionals such as
As the proper architects, en	ty owner, you gineers, desig	Promay represent yners, and others	operty Owner Acknow ourself or be represe onay provide factual	ledgement nted by attorney evidence and ex	r; however,	professionals such as
As the proper architects, en qualified, but	ty owner, you gineers, desig not legal argur	Promay represent yners, and others nents on behalf Prope	operty Owner Acknow yourself or be represe s may provide factual of the property owner orty Owner Authorizati	ledgement nted by attorney evidence and ex con Statement on for Condition	r; however, opert opinio	professionals such as
As the proper architects, en qualified, but	ty owner, you gineers, desig not legal argur	Promay represent yners, and others nents on behalf Prope wher hereby authowledge and b	operty Owner Acknow yourself or be represe s may provide factual of the property owner orty Owner Authorizati	ledgement nted by attorney evidence and ex on Statement on for Conditions supplied with thi	r; however, cpert opinion al Zoning Descriptions	professionals such as ons so far as they are District and certifies that,

Morning Kaylan,

Thank you for submitting the COA application quickly.

- Can you provide historical information on the property? Is this property on the national register? Is the building where the solar panels are located a contributing or a non-contributing structure?
- Can you provide photos of the building where the solar panels will be located? The photos should show each side of the building and the building from the street. You'll want to show if the structure will be visible from the street.
- You'll need to identify and explain how the applicable design standards apply to this project. See 3.1.7 and 3.9.8.
- 3.1.7. When possible, locate new roof features and mechanical equipment—including, but not limited to dormers, chimneys, skylights, vents, plumbing stacks, solar collectors, and satellite dishes—on roof slopes where they are not visible from the street or in locations where they will not compromise this historic roof design, damage character-defining features or materials, or otherwise compromise the architectural integrity of the building.
- 3.9.8. Locate low-profile solar panels on side or rear elevations, when possible, or on low-sloped roofs where they are minimally visible from the street. (a.) Solar panels should be flush-mounted—installed parallel with and close to the surface of the roof to which they are attached—in order to minimize their visual impact. (b.) Solar panels should match the color of the existing roof material as much as possible, in order to visually blend with the roof. (c.) Solar panels should be set back from the edges of the roof to minimize their visibility. (d.) Solar panels should not extend above the roof ridges or otherwise alter the roof form of the building. e. No associated pipes or cables should be visible from the street.

- The application fee is \$455. I'll activate the payment step, so you can make the payment.
Can you provide the requested information by the end of the week?
Thank you,

Charnika



	August	18.	2025
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Morning Charnika,

Thank you for reviewing the information and the COA application. I've provided details below to address your questions:

- * The property is not on the national register, and the building where the solar panels will be installed is a non-contributing structure.
- * Section 3.17 should not be an issue for the installation as no panels will be placed on the home's roof. Instead, they will be on a detached structure in the rear, which has side-facing roofs not visible from the street. The design ensures compliance with Section 3.9.8, as all panels will be flush-mounted, match the existing roof color, and will not extend beyond the edges and ridges of the roof. Additionally, no conduit or wiring will be visible from the street.

Sincerely,

JR Flanagan

Permitting Coordinator

j.flanagan@ncsolarnow.com | www.ncsolarnow.com



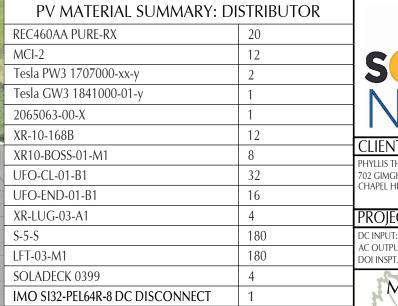


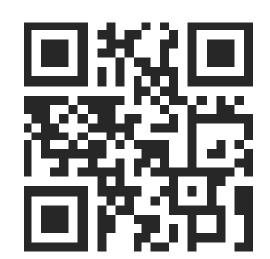
















CLIENT INFO

PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

PROJECT INFO

AC OUTPUT: 23.000 k
DOI INSPT. METHOD: OPTION

Model Energy

300 Fayetteville St. #1430 Raleigh, NC 27602 919-274-9905 ModelEnergy.com



CODE REFERENCES

NATIONAL ELECTRICAL CODE v. 2 NC FIRE PROTECTION CODE v. 20 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MF RISK CATEGORY: II EXPOSURE: B SNOW: 15 PSF

SHEET INDEX

PV-1: COVER SHEET
PV-2: PV STRUCTURAL
PV-3: PV ELECTRICAL
PV-4: PV EQUIPMENT LABELS

PV-5: PV INSTALL GUIDE VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	8/7/2025

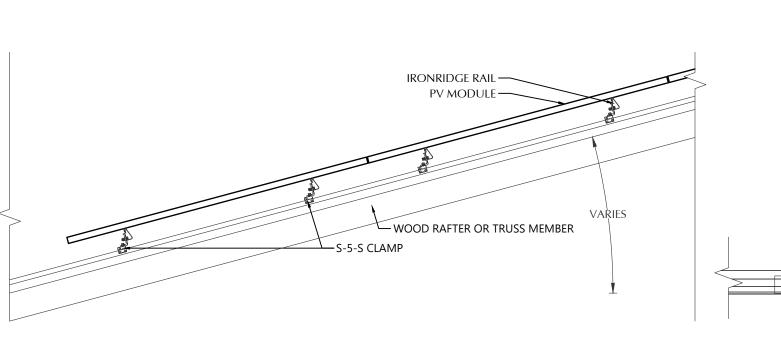
PV SYSTEM COVER PAGE

PV-1.1

-PV MODULE FRAME

FASTENING OBJECT

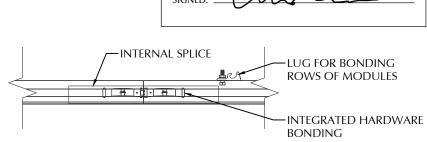
IRONRIDGE UNIVERSAL

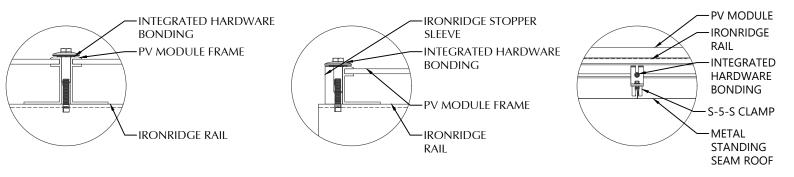


STATEMENT OF STRUCTURAL COMPLIANCE

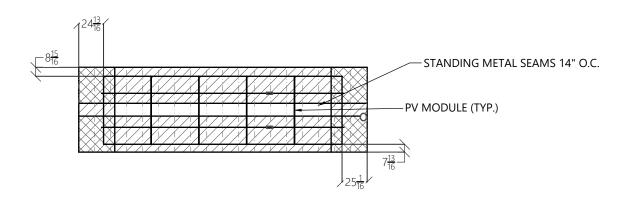
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1 ROOF FASTENER DETAIL NOT TO SCALE



2 ROOF A ARRAY LAYOUT

1/8" = 1'-0"

PV MODULES		
MAKE	REC	
MODEL	REC460AA PURE-RX	
WIDTH	47.40 IN	
LENGTH	68.00 IN	
THICKNESS	30 MM	
WEIGHT	50.00 LBS.	
ARRAY AREA	112 SQFT.	
ARRAY WEIGHT	280 LBS.	

ROOF SUMMARY			
STRUCTURE:			
TYPE	RAFTERS		
MATERIAL	SOUTHERN PINE #2		
SIZE	2 X 6		
SPACING	16 IN O.C.		
EFFECTIVE SPAN	70 IN		
PITCH	8/12		
DENSITY	30 LBS./CU.FT.		
DECKING:			
TYPE	OSB		
MATERIAL	COMPOSITE		
THICKNESS	7/16 IN		
WEIGHT	1.60 LBS/SQFT		
ROOFING:			
TYPE	STANDING SEAM METAL		
MATERIAL	METAL		
WEIGHT	1.30 LBS./SQFT.		

ROOF MOUNT SUMMARY			
MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG	
WIND ZONE 1	28 IN	14 IN	
WIND ZONE 2	28 IN	11 IN	
WIND ZONE 3	14 IN	9 IN	

ROOF LOADING			
GROUND SNOW LOAD:	15 LBS./SQFT.		
LIVE LOAD	20 LBS./SQFT.		
DEAD LOAD			
ROOFING	2.9 LBS/SQFT.		
PV ARRAY	2.5 LBS./SQFT.		
TOTAL	5.4 LBS./SQFT.		
WIND LOAD:			
UPLIFT ZONE 1	-24.6 LBS./SQFT.		
UPLIFT ZONE 2	-29.0 LBS./SQFT.		
UPLIFT ZONE 3	-29.0 LBS./SQFT.		
DOWNWARD	23.0 LBS./SQFT.		
FASTENER LOAD:			
UPLIFT ZONE 1	-163 LBS.		
UPLIFT ZONE 2	-192 LBS.		
UPLIFT ZONE 3	-96 LBS.		
DOWNWARD	152 LBS.		

ROOF MOU	NT & FASTENER
ROOF MOUNT:	
MAKE	S-5!
MODEL	S-5-S
MATERIAL	ALUMINUM
FASTENER:	
MAKE	S-5!
MODEL	SET SCREW
MATERIAL	STAINLESS STEEL
SIZE	3/8-24 X 0.80"
GENERAL:	
WEIGHT	0.39 LBS.
FASTENERS PER MOUNT	2
MAX. PULL-OUT FORCE	426.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	213.0 LBS.

MOUNTING RAILS		
IRONRIDGE		
XR10		
ALUMINUM		
0.036 LBS/IN		
34 IN		



CLIENT INFO

PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

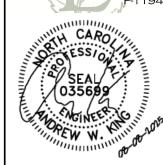
PROJECT INFO

DC INPUT: 9.200 kW
AC OUTPUT: 23.000 kW
DOI INSPT. METHOD: OPTION 2

Model Energy

300 Fayetteville St. #1430

Raleigh, NC 27602 919-274-9905 ModelEnergy.com



CODE REFERENCES

NATIONAL ELECTRICAL CODE v. 2017 NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

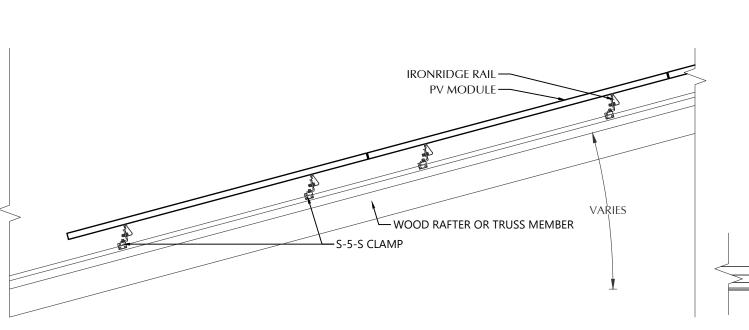
SHEET INDEX PV-1: COVER SHEET

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PV-5: PV INSTALL GUIDE

<u>VERSIONS</u>

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	8/7/2025

PV SYSTEM STRUCTURAL



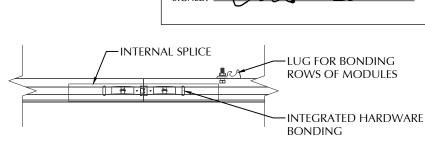
-PV MODULE FRAME

-IRONRIDGE UNIVERSAL FASTENING OBJECT

STATEMENT OF STRUCTURAL COMPLIANCE

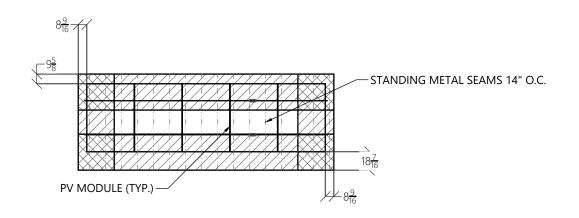
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INTEGRATED HARDWARE BONDING PV MODULE FRAME	IRONRIDGE STOPPER SLEEVE INTEGRATED HARDWARE BONDING PV MODULE FRAME	PV MODULE IRONRIDGE RAIL INTEGRATED HARDWARE BONDING S-5-S CLAMP
IRONRIDGE RAIL	IRONRIDGE RAIL	METAL STANDING SEAM ROOF

1 ROOF FASTENER DETAIL NOT TO SCALE



\bigcirc	ROOF B ARRAY LAYOUT 1/8" = 1'-0"
(2)	1/8" = 1'-0"

PV MODULES	
MAKE	REC
MODEL	REC460AA PURE-RX
WIDTH	47.40 IN
LENGTH	68.00 IN
THICKNESS	30 MM
WEIGHT	50.00 LBS.
ARRAY AREA	112 SQFT.
ARRAY WEIGHT	280 LBS.

ROOF SUMMARY		
STRUCTURE:		
TYPE	RAFTERS	
MATERIAL	SOUTHERN PINE #2	
SIZE	2 X 6	
SPACING	16 IN O.C.	
EFFECTIVE SPAN	83 IN	
PITCH	7/12	
DENSITY	30 LBS./CU.FT.	
DECKING:		
TYPE	OSB	
MATERIAL	COMPOSITE	
THICKNESS	7/16 IN	
WEIGHT	1.60 LBS/SQFT	
ROOFING:		
TYPE	STANDING SEAM METAL	
MATERIAL	METAL	
WEIGHT	1.30 LBS./SQFT.	

	ROOF MOUNT SUMMARY		
Ν	MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
١	WIND ZONE 1	28 IN	14 IN
١	WIND ZONE 2	28 IN	11 IN
١	WIND ZONE 3	14 IN	9 IN

ROOF LOADING		
GROUND SNOW LOAD:	15 LBS./SQFT.	
LIVE LOAD	20 LBS./SQFT.	
DEAD LOAD		
ROOFING	2.9 LBS/SQFT.	
PV ARRAY	2.5 LBS./SQFT.	
TOTAL	5.4 LBS./SQFT.	
WIND LOAD:		
UPLIFT ZONE 1	-24.6 LBS./SQFT.	
UPLIFT ZONE 2	-29.0 LBS./SQFT.	
UPLIFT ZONE 3	-29.0 LBS./SQFT.	
DOWNWARD	23.0 LBS./SQFT.	
FASTENER LOAD:		
UPLIFT ZONE 1	-163 LBS.	
UPLIFT ZONE 2	-192 LBS.	
UPLIFT ZONE 3	-96 LBS.	
DOWNWARD	152 LBS.	

ROOF MOUNT & FASTENER		
ROOF MOUNT:		
MAKE	S-5!	
MODEL	S-5-S	
MATERIAL	ALUMINUM	
FASTENER:		
MAKE	S-5!	
MODEL	SET SCREW	
MATERIAL	STAINLESS STEEL	
SIZE	3/8-24 X 0.80"	
GENERAL:		
WEIGHT	0.39 LBS.	
FASTENERS PER MOUNT	2	
MAX. PULL-OUT FORCE	426.0 LBS.	
SAFETY FACTOR	2	
DESIGN PULL-OUT FORCE	213.0 LBS.	
·	·	

MOUNTING RAILS		
IRONRIDGE		
XR10		
ALUMINUM		
0.036 LBS/IN		
34 IN		



CLIENT INFO

PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

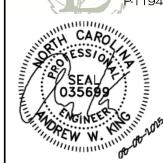
PROJECT INFO

DC INPUT: 9.200 kW
AC OUTPUT: 23.000 kW
DOI INSPT. METHOD: OPTION 2

Model Energy

300 Fayetteville St. #1430

Raleigh, NC 27602 919-274-9905 ModelEnergy.com



CODE REFERENCES

NATIONAL ELECTRICAL CODE v. 2017 NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

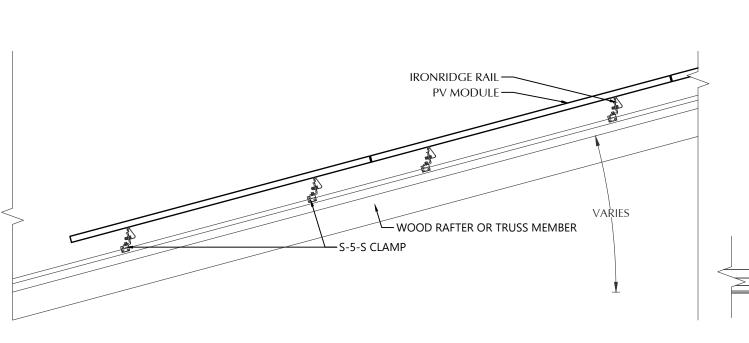
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VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	8/7/2025

PV SYSTEM STRUCTURAL



BONDING

-PV MODULE FRAME

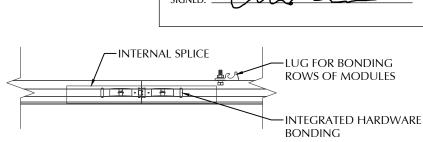
FASTENING OBJECT

IRONRIDGE UNIVERSAL

STATEMENT OF STRUCTURAL COMPLIANCE

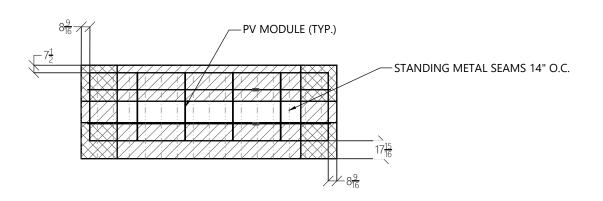
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-PV MODULE -INTEGRATED HARDWARE -IRONRIDGE STOPPER -IRONRIDGE SLEEVE RAIL PV MODULE FRAME -INTEGRATED HARDWARE -INTEGRATED BONDING HARDWARE BONDING -PV MODULE FRAME -S-5-S CLAMP -IRONRIDGE RAIL -METAL IRONRIDGE STANDING RAIL **SEAM ROOF**

ROOF FASTENER DETAIL NOT TO SCALE



\bigcirc	ROOF C ARRAY LAYOUT
2	1/8" = 1'-0"

PV MODULES	
MAKE	REC
MODEL	REC460AA PURE-RX
WIDTH	47.40 IN
LENGTH	68.00 IN
THICKNESS	30 MM
WEIGHT	50.00 LBS.
ARRAY AREA	112 SQFT.
ARRAY WEIGHT	280 LBS.

ROOF SUMMARY		
STRUCTURE:		
TYPE	RAFTERS	
MATERIAL	SOUTHERN PINE #2	
SIZE	2 X 6	
SPACING	16 IN O.C.	
EFFECTIVE SPAN	81 IN	
PITCH	7/12	
DENSITY	30 LBS./CU.FT.	
DECKING:		
TYPE	OSB	
MATERIAL	COMPOSITE	
THICKNESS	7/16 IN	
WEIGHT	1.60 LBS/SQFT	
ROOFING:		
TYPE	STANDING SEAM METAL	
MATERIAL	METAL	
WEIGHT	1.30 LBS./SQFT.	

ROOF MOUNT SUMMARY		
MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	28 IN	14 IN
WIND ZONE 2	28 IN	11 IN
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ROOF LOADING		
GROUND SNOW LOAD:	15 LBS./SQFT.	
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MODEL	S-5-S	
MATERIAL	ALUMINUM	
FASTENER:		
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MODEL	SET SCREW	
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SAFETY FACTOR	2	
DESIGN PULL-OUT FORCE	213.0 LBS.	

MOUNTING RAILS		
MAKE	IRONRIDGE	
MODEL	XR10	
MATERIAL	ALUMINUM	
WEIGHT	0.036 LBS/IN	
SPACING	34 IN	



CLIENT INFO

PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

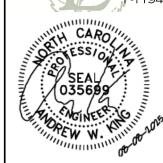
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NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH RISK CATEGORY: EXPOSURE: SNOW: 15 PSF

SHEET INDEX PV-1: COVER SHEET

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VERSIONS

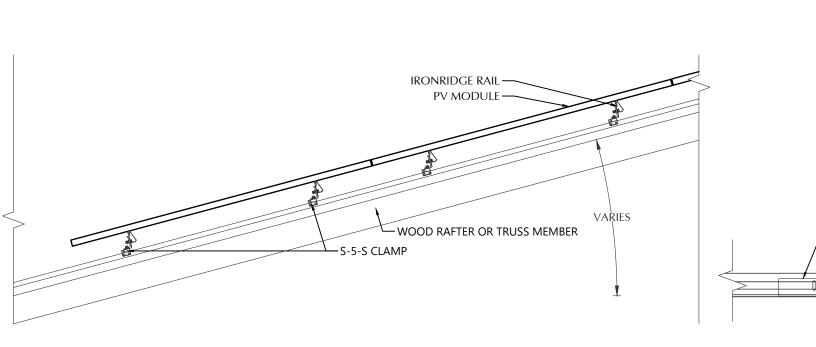
FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	8/7/2025

PV SYSTEM STRUCTURAL

-PV MODULE FRAME

FASTENING OBJECT

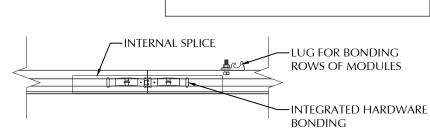
IRONRIDGE UNIVERSAL

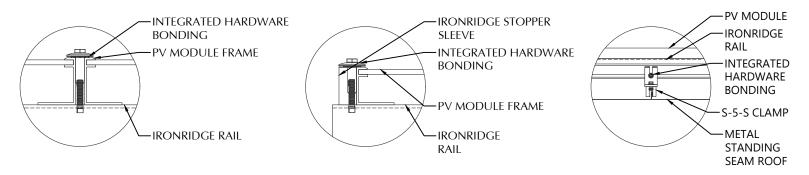


STATEMENT OF STRUCTURAL COMPLIANCE

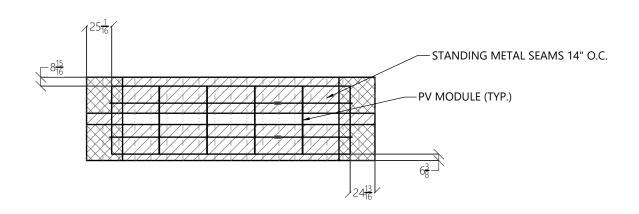
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1 ROOF FASTENER DETAIL NOT TO SCALE



\bigcirc	ROOF D ARRAY LAYOUT
2	1/8" = 1'-0"

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WEIGHT	50.00 LBS.	
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ARRAY WEIGHT	280 LBS.	

ROOF SUMMARY		
STRUCTURE:		
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SPACING	16 IN O.C.	
EFFECTIVE SPAN	69 IN	
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DENSITY	30 LBS./CU.FT.	
DECKING:		
TYPE	OSB	
MATERIAL	COMPOSITE	
THICKNESS	7/16 IN	
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ROOFING:		
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MATERIAL	METAL	
WEIGHT	1.30 LBS./SQFT.	

ROOF MOUNT SUMMARY		
MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
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WIND ZONE 2	28 IN	11 IN
WIND ZONE 3	14 IN	9 IN

ROOF LOADING		
GROUND SNOW LOAD:	15 LBS./SQFT.	
LIVE LOAD	20 LBS./SQFT.	
DEAD LOAD		
ROOFING	2.9 LBS/SQFT.	
PV ARRAY	2.5 LBS./SQFT.	
TOTAL	5.4 LBS./SQFT.	
WIND LOAD:		
UPLIFT ZONE 1	-24.6 LBS./SQFT.	
UPLIFT ZONE 2	-29.0 LBS./SQFT.	
UPLIFT ZONE 3	-29.0 LBS./SQFT.	
DOWNWARD	23.0 LBS./SQFT.	
FASTENER LOAD:		
UPLIFT ZONE 1	-163 LBS.	
UPLIFT ZONE 2	-192 LBS.	
UPLIFT ZONE 3	-96 LBS.	
DOWNWARD	152 LBS.	

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	S-5!
MODEL	S-5-S
MATERIAL	ALUMINUM
FASTENER:	
MAKE	S-5!
MODEL	SET SCREW
MATERIAL	STAINLESS STEEL
SIZE	3/8-24 X 0.80"
GENERAL:	
WEIGHT	0.39 LBS.
FASTENERS PER MOUNT	2
MAX. PULL-OUT FORCE	426.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	213.0 LBS.

MOUNTING RAILS		
IRONRIDGE		
XR10		
ALUMINUM		
0.036 LBS/IN		
34 IN		



CLIENT INFO

PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

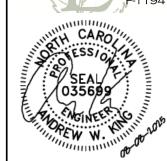
PROJECT INFO

DC INPUT: 9.200 kW
AC OUTPUT: 23.000 kW
DOI INSPT. METHOD: OPTION 2

Model Energy

300 Fayetteville St. #1430

Raleigh, NC 27602 919-274-9905 ModelEnergy.com



CODE REFERENCES

NATIONAL ELECTRICAL CODE v. 2017 NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

SHEET INDEX PV-1: COVER SHEET

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PV-3: PV ELECTRICAL
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<u>VERSIONS</u>

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	8/7/2025

PV SYSTEM STRUCTURAL

	CONDUCTOR SCHEDULE									
TAG	CURRENT CARRYING CONDUCTORS		GROUNDING CONDUCTORS		CONDUIT/RACEWAY		NOTES			
IAU	QTY.	SIZE	INSULATION	QTY.	SIZE	INSULATION	QTY.	SIZE	LOCATION	NOILS
C1	4	10 AWG	PV WIRE	1	6 AWG	BARE	-	-	FREE AIR	1,5
C2	4	10 AWG	THWN-2	1	10 AWG	THWN-2	1	3/4"	EXT/INT	2,4,5
C2.1	8	10 AWG	THWN-2	1	10 AWG	THWN-2	1	3/4"	EXT/INT/BURIED	2,4,5
C3	3	6 AWG	THWN-2	1	10 AWG	THWN-2	1	1"	EXT/INT	2,4,5
C4	3	4/0 AWG ALUMINUM	XHHW	1	6 AWG	THWN-2	1	2"	EXT/INT	2,4,5,6
XC	-	-	-	-	-	-	-	-	-	3

NOTES:

- 1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
- 2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE
- EXISTING CONDUCTORS, FIELD VERIFY
- 4. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
- PLEASE REFERENCES NOTES ON PV-4.1 FOR ADDITIONAL DETAIL
- SERVICE & FEEDER GROUNDED CONDUCTORS MAY BE SIZED SMALLER THAN UNGROUNDED CONDUCTORS PER NEC 310.15(B)(7)

DC DISCONNECT		
MAKE	IMO	
MODEL	SI32-PEL64R-8	
ENCL. RATING	NEMA 3R	
VOLT. RATING	600 VOLTS	
AMP RATING	32 AMPS	
UL LIST. (Y/N)	YES	
PROTECT. RATING	NEMA TYPE 4X	
FUSED (Y/N)	NO	
FUSE RATING	N/A	

METER COMBO (EXISTING)		
EATON-CUTLER HAMMER		
NA		
NEMA 3R		
240		
200 AMPS		
YES		
YES		
200 AMPS		

- MAIN BREAKER SERVES AS SERVICE DISCONNECT
- RELOCATE FEED THROUGH LUGS TO POWER **ENERGY MANAGEMENT**

MAX. DC VOLTAGE CALCULATION			
$V_{OC}MAX = V_{OC} * (1 + (TMIN - TSTC) * (VTC / 100))$			
V _{OC} MAX	71.34		
MAX STRING VOLTAGE	356.7		
MAX. DC CURRENT CALCULATION			
$I_{SC}MAX = I_{SC} * TCX$			
IscMAX (AMPS)	11.10		

JUNCTION BOX			
MAKE	GENERIC		
MODEL	NA		
ENCL. RATING	NEMA 1		
VOLT. RATING	240 VOLTS		
AMP RATING	60 AMPS		
UL LIST. (Y/N)	YES		
FUSED (Y/N)	NO		
FUSE RATING	N/A		
-			

EMERGENCY STOP		
T		
X		
UL LIST. (Y/N) YES		
T		

PV MODULE		
MAKE	REC	
MODEL	REC460AA PURE-RX	
NOM. POWER (PNOM)	460 WATTS	
NOM. VOLT. (VMPP)	54.9 VOLTS	
O.C. VOLT (VOC)	65.8 VOLTS	
MAX. SYS. VOLT.	1000 VOLTS	
NOM. CURR. (IMPP)	8.4 AMPS	
S.C. CURR. (ISC)	8.9 AMPS	
TEMP. COEF. (PMPP)	-0.24 %/C	
TEMP. COEF. (Voc)	-0.24 %/C	
MAX SERIES FUSE	25 AMPS	
UL COMPLIANT (Y/N)	YES	

AC DISCONNECT 'A' & 'B'				
MAKE	GENERIC			
MODEL	NA			
ENCL. RATING	NEMA 3R			
VOLT. RATING	240 VOLTS			
AMP RATING	60 AMPS			
UL LIST. (Y/N)	YES			
FUSED (Y/N)	NO			
FUSE RATING	N/A			
	<u> </u>			

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES
- DISCONNECT MARKED AND RATED PER NEC SECTION 690.13 AND 705.10
- CO-LOCATE BOTH DISCONNECTS BY UTILITY METER

MID-CIRCUI	t interrupter	DC/AC INVERTER & BATTERY		
MAKE	TESLA	'Ad	&Β'	
MODEL	MCI-2	MAKE	TESLA POWERWALL 3	
ENCL. RATING	NEMA 4X / IP65	MODEL	1707000-XX-Y	
DC INPUT:	THEME INTO IT OF	INVERTER INFO:		
CONNECTOR TYPE	MC4	DC INPUT:		
		MAX POWER	20000 WATTS	
MAX IN-LINE PV MODULES	3	INPUT VOLT. RANGE	60-550 VOLTS	
MAX MCI PER STRING	5	MPPT VOLT. RANGE	150-480 VOLTS	
MAX. SYSTEM VOLTAGE	1000 VOLTS	MAX. MPPT CUR.	13 AMPS	
NOM. CURRENT (Imp)	15.00 AMPS	STRING INPUTS	6 MPPTs	
MAX. CURRENT (Isc)	19.00 AMPS	AC OUTPUT:		
RSD COMPLIANT (Y/N)	YES	MAX. CONT. POWER	11500 WATTS	
UL COMPLIANT (Y/N)	YES	NOM. VOLT.	240 VOLTS	

ROOFTOP JUNCTION BOX MAKE SOLADECK PROTECT. RATING NEMA TYPE 3R UL LIST. (Y/N)

ENERGY MANAGEMENT		
MAKE TESLA		
MODEL	BACKUP GATEWAY 3	
ENCL. RATING	NEMA 3R	
VOLT. RATING	240 VOLTS	
DISCONNECT CURR.	200 AMPS	
UL LIST. (Y/N)	YES	
MAIN BREAKER (Y/N)	NO	
MAIN BREAKER RATING	N/A	

- TROUGH MAY BE USED IF NECESSARY LAND EACH POWERWALL 3 VIA ITS OWN
- 60A BREAKER ON INTERNAL PANELBOARD
- FEED MAIN BREAKER ENCLOSURE VIA **BACKUP LUGS**

DC/AC INVENTER & DATTERT				
'A&B'				
MAKE	TESLA POWERWALL 3			
MODEL	1707000-XX-Y			
INVERTER INFO:				
DC INPUT:				
MAX POWER	20000 WATTS			
INPUT VOLT. RANGE	60-550 VOLTS			
MPPT VOLT. RANGE	150-480 VOLTS			
MAX. MPPT CUR.	13 AMPS			
STRING INPUTS	6 MPPTs			
AC OUTPUT:				
MAX. CONT. POWER	11500 WATTS			
NOM. VOLT.	240 VOLTS			
MAX. CONT. CURRENT	48.00 AMPS			
RAPID SHUTDOWN (Y/N)	YES			
PROTECT. RATING	NEMA TYPE 3R			

SET SITE EXPORT LIMIT TO 20kW

BATTERY INFO:

USABLE ENERGY

NOM. VOLT.

MAX, CONT, CHARGE

UL LIST. (Y/N)

MAIN BREAKER ENCLOSURE

13.5 kWh

240 VOLTS

5000 WATTS

YES

MAKE	GENERIC
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240
AMP RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

BACKED-UP LOADS PANEL	
(EXIS	ΓING)
MAKE	CUTLER-HAMMER
MODEL	N/A
ENCL. RATING	NEMA 1
VOLT. RATING	240
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
MAIN BREAKER RATING	N/A

CLIENT INFO

PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

PROJECT INFO

DC INPUT: 9.200 kW AC OUTPUT: 23.000 kW DOI INSPT. METHOD: OPTION 2

Model Energy

300 Fayetteville St. #1430

Raleigh, NC 27602 919-274-9905 ModelEnergy.com

CODE REFERENCES

NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH RISK CATEGORY: EXPOSURE: SNOW: 15 PSF

SHEET INDEX PV-1: COVER SHEET

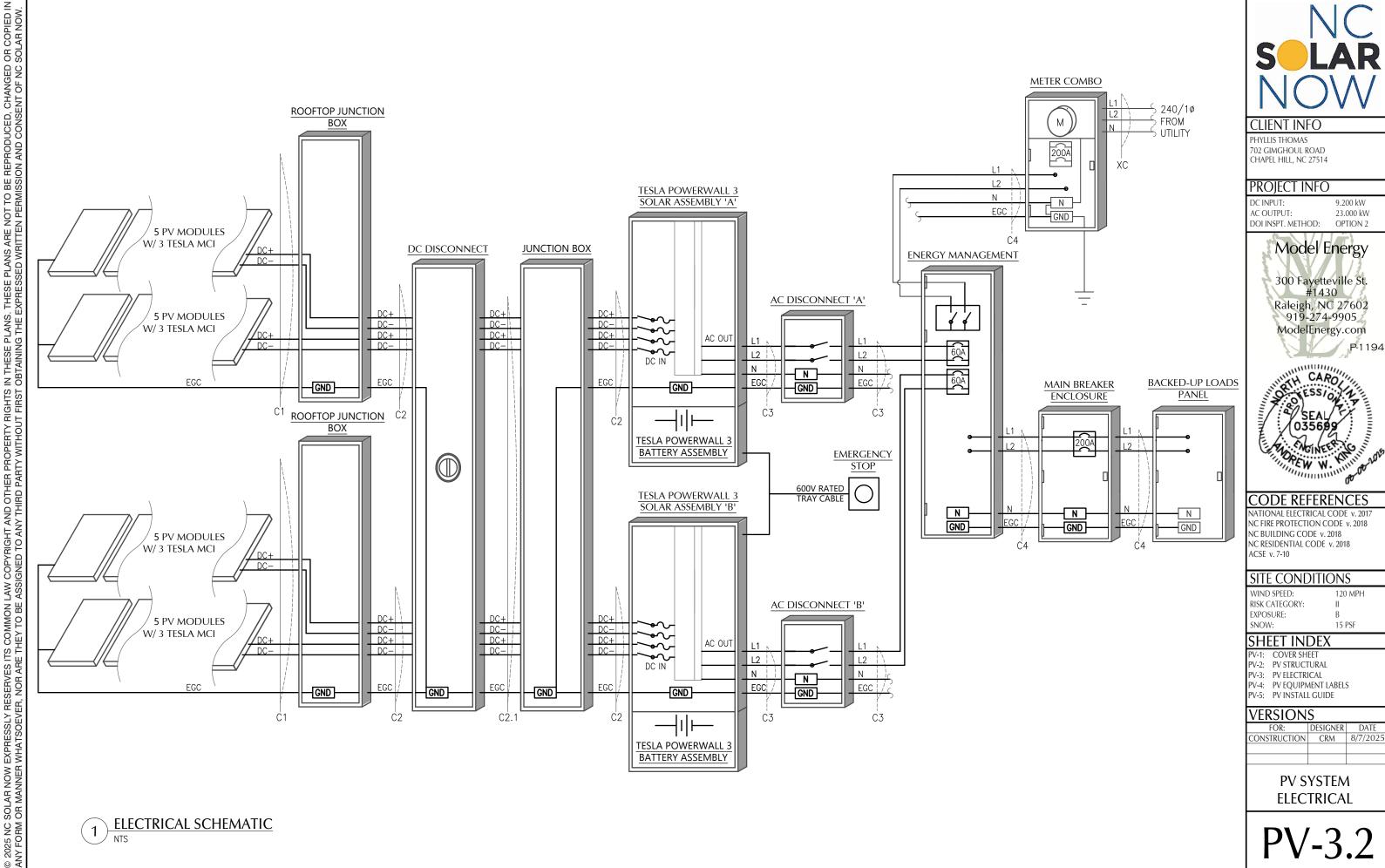
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VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	8/7/2025

PV SYSTEM ELECTRICAL

PV-3.1



PV-3.2

WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31 (G)(3)&(4) PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

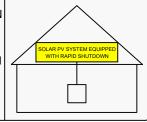
RAPID SHUTDOWN **SWITCH FOR SOLAR PV SYSTEM**

PLACE ON RAPID SHUTDOWN SWITCH OR EOUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD

IN THE ARRAY



NEC 690.56 (C)(1)(a)

PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

PV SYSTEM DISCONNECT

NEC 690.13 (B) PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING

THIS FOLUPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR.

NEC 705.12 (B)(2)(3)(c)

!WARNING THREE POWER SOURCES

SOURCES: UTILITY GRID, BATTER' AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12(B)(3) PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY THREE POWER SOURCES

DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE MAXIMUM VOLTAGE 600 VDC

MAX CIRCUIT CURRENT 22.2 AMPS

NEC 690.53 PLACE ON ALL DC DISCONNECTING MEANS PHOTOVOLTAIC SYSTEM AC DISCONNECT A

OPERATING VOLTAGE 240 VOLTS OPERATING CURRENT 48.0 AMPS

NEC 690.54 PLACE ON INTERCONNECTION DISCONNECTING MEANS

SERVICE DISCONNECT LOCATED:

PV/BATTERY DISCONNECT LOCATED:

NEC 705 10 PLACE AT SERVICE EQUIPMENT AND PV SYSTEM DISCONNECTING MEANS

NEC 705.12 (B)(2)(3)(C)

CAUTION: DO NOT INSTALL

ADDITIONAL LOADS IN THIS PANE

LABEL NOTES:

- LABELS SHOWN ARE NOT TO SCALE.
- LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
- 3. DC CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.
- PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
- EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
- WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT.
- A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT
- A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
- LABELS WILL BE APPLIED IN ACCORDANCE WITH THE NEC. SOME LABELS SHOWN MAY NOT BE NECESSARY.

WIRING NOTES:

- CONDUCTORS SHALL BE COPPER OR ALUMINUM, RATED AT NOT LESS THAN 600 VOLTS
- MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE. USE-2. OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV. SUNLIGHT, AND MOISTURE RESISTANT. CABLE ASSEMBLIES SHALL BE TYPE DG. BARE CONDUCTORS SHALL BE A MINIMUM OF #6 AWG.
- EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT). RIGID POLYVINYL CHLORIDE CONDUIT(PVC), RIGID METALLIC CONDUIT (RMC), LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC), OR LIOUIDTIGHT FLEXIBLE NON METALLIX CONDUIT (LFNC). SE-TYPE CABLE CAN BE USED AS AN ALTERNATIVE. ADDITIONAL WIRING METHODS SHALL BE PERMITTED ONLY WHEN IN COMPLIANCE WITH ALL NEC REQUIREMENTS.
- INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 OR XHHW AND INSTALLED IN ELECTRICAL METALLIC TUBING (EMT), FLEXIBLE METAL CONDUIT(FMC), LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC), LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC). TYPE SE, NM, AND MC CABLE ASSEMBLIES SHALL ALSO BE PERMITTED. ADDITIONAL WIRING METHODS SHALL BE PERMITTED ONLY WHEN IN COMPLIANCE WITH ALL NEC REQUIREMENTS.
- BURIED WIRING CONDUCTOR INSULATION SHALL BE RATED FOR DIRECT BURIAL WHEN INSTALLED OUTSIDE OF RACEWAY. CONDUCTOR INSULATION SHALL BE TYPE THWN-2 OR XHHW AND INSTALLED IN RIGID PVC. RIGID METALLIC CONDUIT, OR HDPE. ADDITIONAL WIRING METHODS SHALL BE PERMITTED ONLY WHEN IN COMPLIANCE WITH ALL NEC REQUIREMENTS.
- USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMAGE
- MINIMUM CONDUIT SIZE TO BE 1/2".
- WIRING METHODS TO CONFORM TO CHAPTER 3 OF THE NEC.

CONSTRUCTION NOTES:

- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
- FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
- ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE
- FUSES 0 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200.000 AMPERE INTERRUPTING RATING A, UNLESS NOTED OTHERWISE.
- ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
- ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
- ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
- SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
- A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
 - -THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT(PSF)
 - -THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
 - -THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
 - -THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE



PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

PROIECT INFO

DC INPUT: AC OUTPUT: DOLINSPT, METHOD:

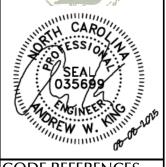


9.200 kW

23,000 kW

OPTION 2

#1430 Raleigh, NC 27602 919-274-9905 ModelEnergy.com



CODE REFERENCES

NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH RISK CATEGORY: **EXPOSURE:** SNOW: 15 PSF

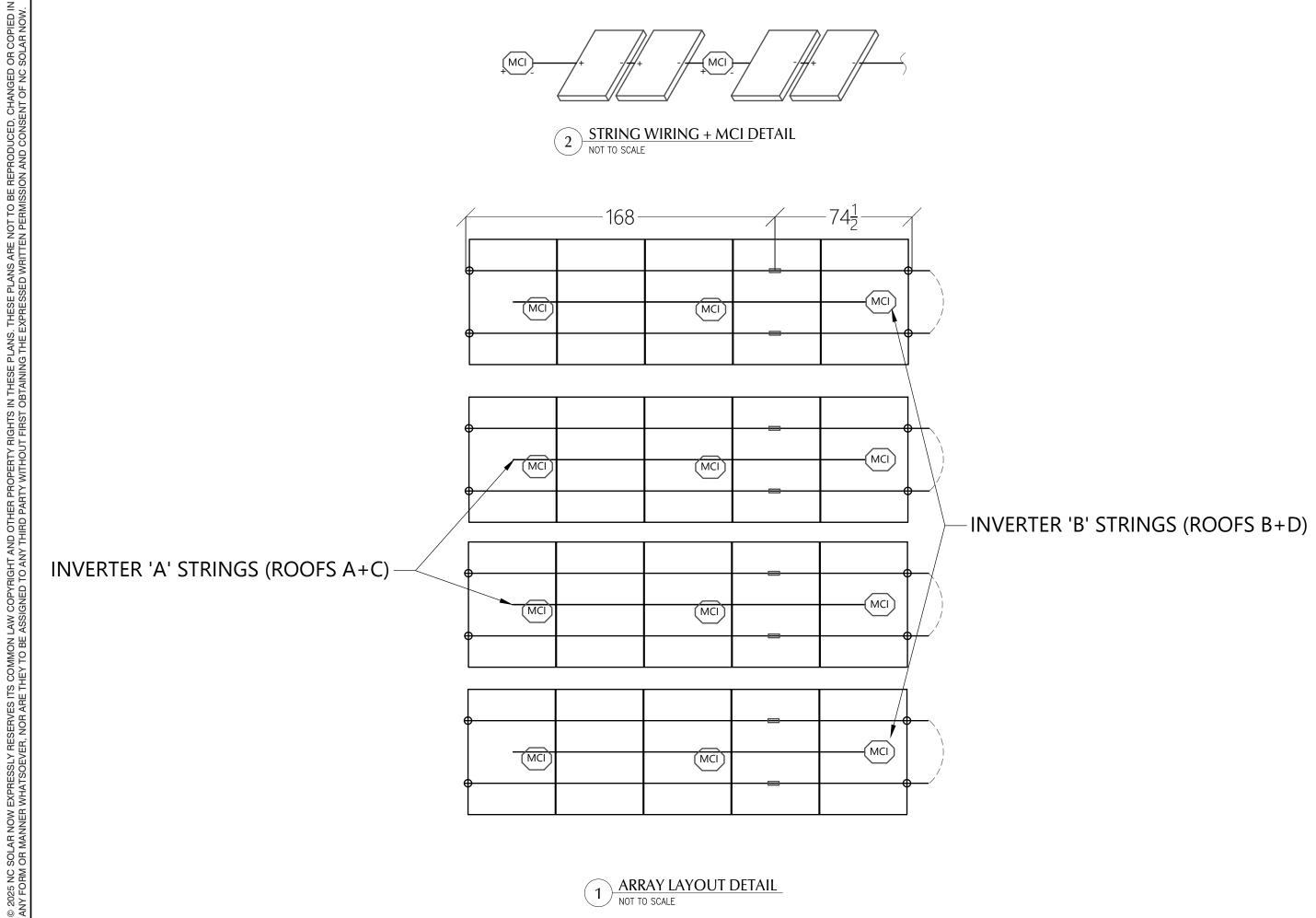
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PV SYSTEM **EQUIPMENT LABELS**





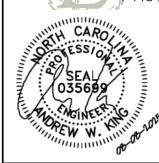
PHYLLIS THOMAS 702 GIMGHOUL ROAD CHAPEL HILL, NC 27514

PROJECT INFO

DC INPUT: AC OUTPUT: 23.000 kW DOI INSPT. METHOD:

Model Energy

300 Fayetteville St. #1430 Raleigh, NC 27602 919-274-9905 ModelEnergy.com



NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH RISK CATEGORY: EXPOSURE: SNOW: 15 PSF

SHEET INDEX

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VERSIONS

FOR:	DESIGNER	DATE
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PV SYSTEM INSTALL **GUIDE**

PV-5.1

The Right Way![®]

S-5-S Clamp

The S-5-S clamp was created specifically for popular snap-together profiles—including residential profiles by Taylor Metals and Easy Lock Standing Seam. For horizontal seams under .540 inches (like the Firestone UC4) the S-5-S or S-5-S Mini can be used to avoid the necessity of crimping the seam.

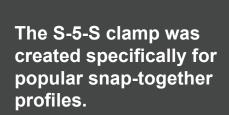
Its simple design and size make it perfect for use with S-5!® snow retention products and other heavy-duty applications. Installation is as simple as setting the patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5! clamps.

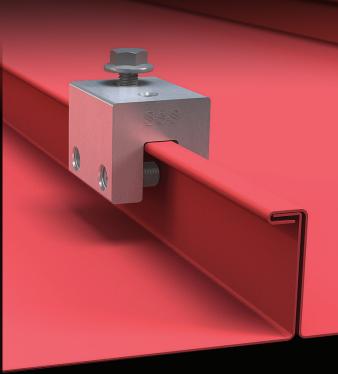
S-5-S Mini Clamp

The right way to attach almost anything to metal roofs!

The S-5-S Mini is a bit shorter than the S-5-S and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.







The strength of the S-5-S clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but not pierce itleaving roof warranties intact.

The S-5-S and S-5-S Mini clamps are each furnished with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. A structural aluminum attachment clamp, the S-5-S is compatible with most common metal roofing materials excluding copper. All included hardware is stainless steel. Please visit www.S-5.com for more information including CAD details, metallurgical compatibilities and specifications.

The S-5-S clamp has been tested for load-to-failure results on most major brands and profiles of standing seam roofing. The independent lab test data found at www.S-5.com can be used for load-critical designs and applications. S-5!® holding strength is unmatched in the industry. Profiles that are shaped as illustrated below will work with the S-5-S and S-5-S Mini. In order for the S-5-S or S-5-S Mini to fit these types of seams, the finished seam must:

- Be at least 1.00" high.
- Have a height distance less than or equal to 0.25" between the male portion of the panel and female portion of the panel.

S-5-S Clamp

Hex Flange Bolt (2x) M8-1.25 . Threaded Hole O.SAIN [14mm]

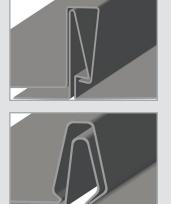
M8-1.25 X 16.00 mm

Two 3/8-24 X 0.80" **Round-Point Setscrews**

2.00in

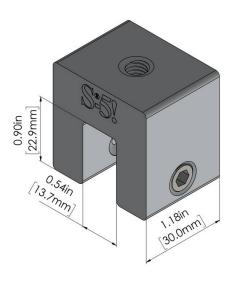
S-5-S Mini Clamp

Example Profiles









Please note: All measurements are rounded to the second decimal place.

S-5!® Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

Distributed by

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Flush Mount System



Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.



Strength Tested

All components evaluated for superior structural performance.



PE Certified

Pre-stamped engineering letters available in most states.



Class A Fire Rating

Certified to maintain the fire resistance rating of the existing roof.



Design Assistant

Online software makes it simple to create, share, and price projects.



UL 2703 Listed System

Entire system and components meet newest effective UL 2703 standard.



25-Year Warranty

Products guaranteed to be free of impairing defects.

XR Rails (

XR10 Rail



A low-profile mounting rail for regions with light snow.

- · 6' spanning capability
- · Moderate load capability
- Clear and black finish

XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- · Heavy load capability
- · Clear and black finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- · Extreme load capability
- · Clear anodized finish

Bonded Splices



All rails use internal splices for seamless connections.

- · Self-drilling screws
- · Varying versions for rails
- · Forms secure bonding

Clamps & Grounding

UFOs



Universal Fastening Objects bond modules to rails.

- Fully assembled & lubed
- · Single, universal size
- · Clear and black finish

Stopper Sleeves



Snap onto the UFO to turn into a bonded end clamp.

- · Bonds modules to rails
- · Sized to match modules
- · Clear and black finish

CAMO



Bond modules to rails while staying completely hidden.

- Universal end-cam clamp
- · Tool-less installation
- Fully assembled

Grounding Lugs



Connect arrays to equipment ground.

- · Low profile
- Single tool installation
- · Mounts in any direction

Attachments

FlashFoot2



Flash and mount XR Rails with superior waterproofing.

- Twist-on Cap eases install
- · Wind-driven rain tested
- Mill and black finish

Conduit Mount



Flash and mount conduit, strut, or junction boxes.

- Twist-on Cap eases install
- · Wind-driven rain tested
- Secures ¾" or 1" conduit

Slotted L-Feet



Drop-in design for rapid rail attachment.

- Secure rail connections
- · Slot for vertical adjusting
- · Clear and black finish

Bonding Hardware



Bond and attach XR Rails to roof attachments.

- T & Square Bolt options
- · Nut uses 7/16" socket
- · Assembled and lubricated

Resources



Design Assistant

Go from rough layout to fully engineered system. For free.

Go to IronRidge.com/design



NABCEP Certified Training

Earn free continuing education credits, while learning more about our systems.

Go to IronRidge.com/training

Powerwall 3

Power Everything

Powerwall 3 is a fully integrated solar and battery system, designed to accelerate the transition to sustainable energy. Customers can receive whole home backup, cost savings, and energy independence by producing and consuming their own energy while participating in grid services. Once installed, customers can manage their system using the Tesla App to customize system behavior to meet their energy goals.

Powerwall 3 achieves this by supporting up to 20 kW DC of solar and providing up to 11.5 kW AC of continuous power per unit. It has the ability to start heavy loads rated up to 185 LRA, meaning a single unit can support the power needs of most homes. Powerwall 3 Expansions make it easier and more affordable to scale up customers' systems to meet their current or future needs. Powerwall 3 is designed for fast and efficient installations, modular system expansion, and simple connection to any electrical service.



Powerwall 3 Technical Specifications

System Technical Specifications

Model Number	1707000-xx-	у		
Nominal Grid Voltage (Input & Output)	120/240 VAC	;		
Grid Type	Split phase			
Frequency	60 Hz			
Nominal Battery Energy	13.5 kWh AC	1		
Nominal Output Power (AC)	5.8 kW	7.6 kW	10 kW	11.5 kW
Maximum Apparent Power	5,800 VA	7,600 VA	10,000 VA	11,500 VA
Maximum Continuous Current	24 A	31.7 A	41.7 A	48 A
Overcurrent Protection Device ²	30 A	40 A	60 A	60 A
Configurable Maximum Continuous Discharge Power Off-Grid (PV Only, -20°C to 25°C)	15.4 kW ³			
Maximum Continuous Charge Current / Power (Powerwall 3 only)	20.8 A AC / 5 kW			
Maximum Continuous Charge Current / Power (Powerwall 3 with up to (3) Expansion units)	33.3 A AC / 8 kW			
Output Power Factor Rating	0 - 1 (Grid Code configurable)			
Maximum Output Fault Current (1 s)	160 A			
Maximum Short-Circuit Current Rating	10 kA			
Load Start Capability	185 LRA			
Solar to Battery to Home/Grid Efficiency	89% 1,4			
Solar to Home/Grid Efficiency	97.5% 5			
Power Scalability	Up to 4 Powe	rwall 3 units su	pported	
Energy Scalability	Up to 3 Expa	nsion units (for	a maximum tot	tal of 7 units)
Supported Islanding Devices	Gateway 3, Backup Switch, Backup Gateway 2			
Connectivity	Wi-Fi (2.4 and 5 GHz), Ethernet, Cellular (LTE/4G ⁶)			
Hardware Interface	Dry contact relay, Rapid Shutdown (RSD) certified switch and 2-pin connector, RS-485 for meters			
AC Metering	Revenue Grade (+/- 0.5%, ANSI C12.20)			
Protections	Integrated arc fault circuit interrupter (AFCI), Isolation Monitor Interrupter (IMI), PV Rapid Shutdown (RSD) using Tesla Mid-Circuit Interrupters			
Customer Interface	Tesla Mobile	Арр		
Warranty	10 years			

 $^{^1}$ Values provided for 25°C (77°F), at beginning of life. 3.3 kW charge/discharge power.

²See <u>Powerwall 3 Installation Manual</u> for fuse requirements if using fuse for overcurrent protection.

³ If enabling the 15.4 kW off-grid maximum continuous discharge power, Powerwall 3 must be installed with an 80 A breaker and appropriately sized conductors.

⁴ Typical solar shifting use case.

⁵Tested using CEC weighted efficiency methodology.

⁶The customer is expected to provide internet connectivity for Powerwall 3; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

Powerwall 3 Technical Specifications

Solar Technical Specifications

Maximum Solar STC Input	20 kW
Withstand Voltage	600 V DC
PV DC Input Voltage Range	60 — 550 V DC
PV DC MPPT Voltage Range	60 — 480 V DC
MPPTs	6
Maximum Current per MPPT (I _{mp})	13 A ⁷
Maximum Short Circuit Current per MPPT (I_{sc})	15 A ⁷

 $^{^{7}}$ Where the DC input current exceeds the MPPT rating, a jumper can be used to combine two MPPTs into a single input to intake DC current up to 26 A I_{MP} / 30 A I_{SC} .

Environmental Specifications

–20°C to 50°C (–4°F to 122°F) ⁸
Up to 100%, condensing
-20°C to 30°C (-4°F to 86°F), up to 95% RH, non- condensing, State of Energy (SOE): 25% initial
3000 m (9843 ft)
Indoor and outdoor rated
NEMA 3R
IP67 (Battery & Power Electronics) IP55 (Wiring Compartment)
PD3
< 50 db(A) typical < 62 db(A) maximum

 $^{^8}$ Performance may be de-rated at operating temperatures above 40°C (104°F).

Compliance Information

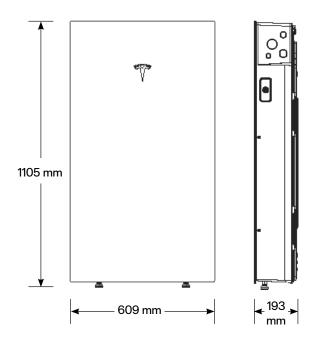
Certifications	UL 1741, UL 9540, UL 9540A, UL 3741, UL 1741 PCS, UL 1741 SA, UL 1741 SB, UL 1973, UL 1699B, UL 1998, CSA C22.2 No. 0.8, CSA C22.2 No. 107.1, CSA C22.2 No. 330, CSA 22.3 No. 9, IEEE 1547, IEEE 1547A, IEEE 1547.1, CA Rule No.21
Grid Connection	United States and Canada
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)
Fire Testing	Meets the unit level performance criteria of UL 9540A

Powerwall 3 Technical Specifications

Mechanical Specifications

Dimensions	$1105 \times 609 \times 193 \text{ mm} (43.5 \times 24 \times 7.6 \text{ in})^9$
Total Weight of Installed Unit	132 kg (291.2 lb)
Weight of Powerwall 3	124 kg (272.5 lb)
Weight of Glass Front Cover	6.5 kg (14.5 lb)
Weight of Wall Bracket	1.9 kg (4.2 lb)
Mounting Options	Floor or wall mount

 $^{^{\}rm 9}$ These dimensions include the glass front cover being installed on Powerwall 3.



Powerwall 3 Expansion Technical Specifications

Battery Technical Specifications

Model Number	1807000-xx-y
Nominal Battery Energy	13.5 kWh
Voltage Range	52 - 92 V DC ¹⁰

¹⁰ Powerwall 3 Expansion units are connected in parallel and are not field serviceable.

Environmental Specifications

-20°C to 50°C (-4°F to 122°F) 11
Up to 100%, condensing
–20°C to 30°C (–4°F to 86°F), up to 95% RH, non- condensing, State of Energy (SOE): 25% initial
3000 m (9843 ft)
Indoor and outdoor rated
NEMA 3R
IP67
PD3

¹¹Performance may be de-rated at operating temperatures above 40°C (104°F).

Compliance Information

Certifications

UL 1973, UL 9540

Mechanical Specifications

Dimensions	1105 x 609 x 168 mm (43.5 x 24 x 6.6 in) ¹²	<u> </u>			
Total Weight of Wall- Mounted Expansion Unit	118.5 kg (261.2 lb)		*	,	
Weight of Expansion Unit	110 kg (242.5 lb)		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		 -
Weight of Glass Front Cover	6.5 kg (14.5 lb)				
Weight of Wall Bracket	1.9 kg (4.2 lb)	1105 mm			
Weight of Expansion Accessories	0.7 kg (1.5 lb)				
Mounting Options	Floor or wall mount				
Stacking Capability (Floor Mount Only)	Up to (3) Expansion units behind a Powerwall 3				-
Compatibility with Other Systems	Only compatible with Powerwall 3				
Connection to Powerwall 3 or Expansions	Powerwall 3 Expansion harness 13		_		168
12 These dimensions include the	glass front cover being	_	← 609 r	nm 🗡	→ mm

I hese dimensions include the glass front cover being installed on Powerwall 3 Expansion.

¹³ The Powerwall 3 Expansion harness is a listed component of the UL 9540 certification.

Solar Shutdown Device Technical Specifications

_

The Solar Shutdown Device is a Mid-Circuit Interrupter (MCI) and is integral to the rapid shutdown (RSD) function required for rooftop PV systems in accordance with Article 690 of the NEC. When paired with Powerwall 3, solar array shutdown is initiated by an External System Shutdown Switch or the On/Off Enable switch located on Powerwall 3. Systems not subject to rapid shutdown requirements must still install one or more MCIs for functional purposes; see the Powerwall 3 installation manual for details.

ΕI	ectrical
S	pecifications

Model	MCI-1	MCI-2	MCI-2 High Current
Nominal Input DC Current Rating (I _{MP})	13 A	13 A	15 A
Maximum Input Short Circuit Current (I _{SC})	19 A	17 A	19 A
Maximum System Voltage	600 V DC	1000 V DC 14	1000 V DC ¹⁴
Maximum Disconnect Voltage 15	600 V DC	165 V DC	165 V DC

¹⁴ Maximum System Voltage is limited by Powerwall to 600 V DC.

RSD Module Performance

Maximum Number of Devices per String	5		
Control	Power Line Excitation		
Passive State	Normally Open		
Maximum Power Consumption	7 W		
Warranty	25 years		

Environmental Specifications

Enclosure Rating	NE	MA 4X / IP65	
Storage Temperature	−30°C to 70°C (−22°F to 158°F)	–30°C to 70°C (–22°F to 158°F)	
Operating Temperature	-40°C to 50°C (-40°F to 122°F)	-45°C to 70°C (-49°F to 158°F)	

Mechanical Specifications

Electrical Connections	MC	4 Connector
Housing	Plastic	
Dimensions	125 x 150 x 22 mm	173 x 45 x 22 mm
	(5 x 6 x 1 in)	(6.8 x 1.8 x 1 in)
/eight	350 g (0.77 lb)	120 g (0.26 lb)
Mounting Options	ZEP Home Run Clip	Wire Clip
• .	M4 Screw (#10)	·
	M8 Bolt (5/16")	
	Nail / Wood screw	

Compliance Information

Certifications	UL 1741 PVRSE, UL 3741, PVRSA (Photovoltaic Rapid Shutdown Array)	
RSD Initiation Method	External System Shutdown Switch or Powerwall 3 Enable Switch	

UL 3741 PV Hazard Control (and PVRSA) Compatibility

See <u>UL 3741 Application Addendum</u>

¹⁵ Maximum Disconnect Voltage is the maximum voltage allowed across each MCI in the open position (Rapid Shutdown Initiated). An individual MCI-2 has a voltage rating of 165V but in combination (connected in the same string) their voltage ratings are additive.

Gateway 3

Tesla Gateway 3 controls connection to the grid in a Powerwall system, automatically detecting outages and providing seamless transition to backup power. It provides energy monitoring that is used by Powerwall for solar self-consumption, time-based control, and backup operation.

Performance Specifications

Model Number	1841000-x1-y
Nominal Grid Voltage	120/240 V AC
Grid Configuration	Split phase
Grid Frequency	60 Hz
Continuous Current Rating	200 A
Maximum Supply Short Circuit Current	22 kA with Square D or Eaton main breaker 25 kA with Eaton main breaker ¹⁶
IEC Protective Class	Class I
Overvoltage Category	Category IV
¹⁶ Only Eaton CSR or BWH m	nain breakers are 25 kA rated.

AC Meter	+/- 0.5%
Communication	CAN
User Interface	Tesla App
Backup Transition	Automatic disconnect for seamless backup
Overcurrent Protection Device	100–200 A Service entrance rated Eaton CSR, BWH, or BW, or Square D QOM breakers
Internal Panelboard	200 A 8-space/16 circuit breakers Eaton BR, Siemens QP, or Square D HOM breakers rated to 10–125A
Warranty	10 years

Environmental Specifications

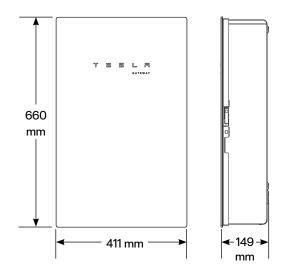
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Operating Humidity (RH)	Up to 100%, condensing
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R

Compliance Information

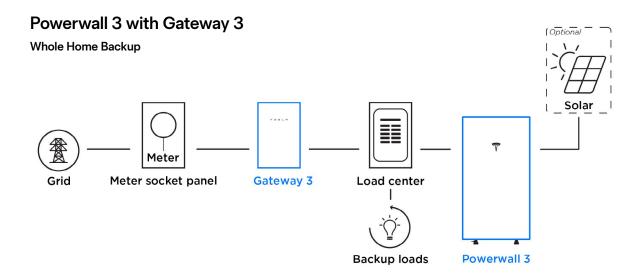
Certifications	UL 67, UL 869A, UL 916, UL 1741 PCS, CSA 22.2 107.1, CSA 22.2 29
Emissions	FCC Part 15, Class B, ICES 003

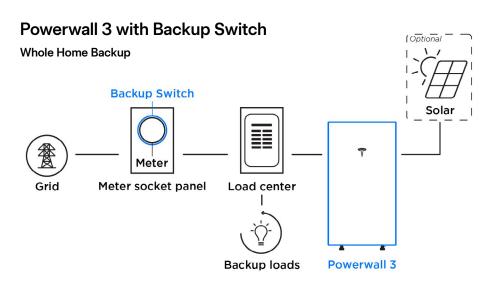
Mechanical Specifications

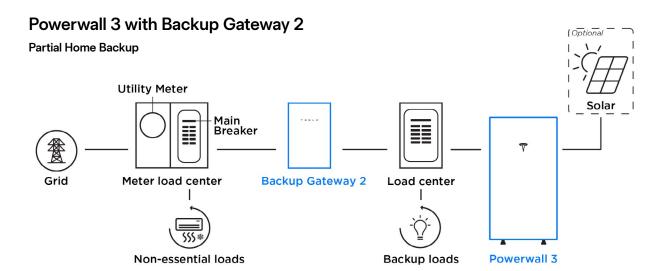
Dimensions	660 x 411 x 149 mm (26 x 16 x 6 in)
Weight	16.3 kg (36 lb)
Mounting options	Wall mount



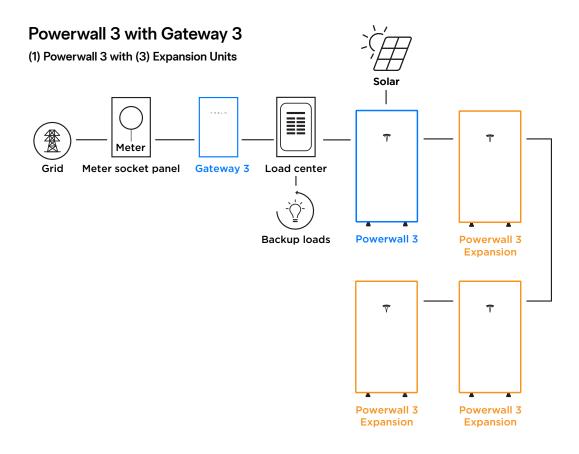
Powerwall 3 Example System Configurations



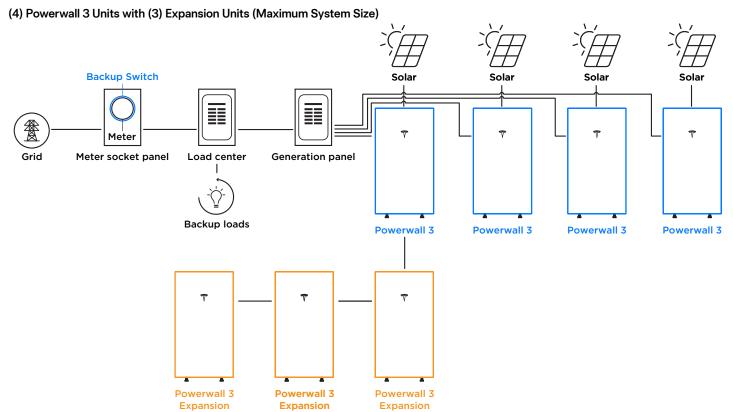




Powerwall 3 Example System Configurations



Powerwall 3 with Backup Switch



SOLAR'S MOST TRUSTED



REC ALPHA® PURE-RX SERIES

DATASHEET



450 - 470W HETEROJUNCTION TECHNOLOGY 22.6% EFFICIENCY

>92% POWER IN YEAR 25

-0.24%/K TEMPERATURE COEFFICIENT OF PMAX



ELIGIBLE

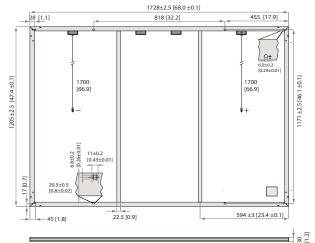
REC ALPHA® PURE-RX SERIES DATASHEET



Measurements in [inches] and mm

Specifications subject to change without notice.

GENERAL DAT	TA CONTRACTOR OF THE CONTRACTO
Cell Type	88 half-cut bifacial REC heterojunction cells,
	with gapless technology
Glass	0.13 in solar glass with anti-reflective surface treatment
	in accordance with EN12150
Backsheet	Highly resistant polymer (Black)
Frame	Anodized aluminum (Black)
Junction Box	4-part, 4 bypass diodes,
	IP68 rated, in accordance with IEC 62790:2020
Connectors	Stäubli MC4 PV-KBT4/KST4 (12 AWG)
	in accordance with IEC 62852:2014, IP68 only when connected
Cable	12 AWG solar cable, 66.9 in (1.70 m) + 66.9 in (1.70 m)
	in accordance with EN50618:2014
Dimensions	$68.0 \times 47.4 \times 1.2 \text{ in } (22.4 \text{ ft}^2) / 1728 \times 1205 \times 30 \text{ mm } (2.08 \text{ m}^2)$
Weight	50.0 lb / 22.7 kg
Origin	Made in Singapore



ELECTRICAL DATA	DATA PRODUCT CODE*: RECXXXAA PURE-RX		
Power Output - P _{MAX} (WP)	450	460	470
Watt Class Sorting - (W)	0/+10	0/+10	0/+10
Nominal Power Voltage - $V_{MPP}(V)$	54.3	54.9	55.4
Nominal Power Current - $I_{MPP}(A)$	8.29	8.38	8.49
Open Circuit Voltage - V_{oc} (V)	65.6	65.8	65.9
Short Circuit Current - $I_{SC}(A)$	8.81	8.88	8.95
Power Density (W/ft²)	20.1	20.5	21.0
Panel Efficiency (%)	21.6	22.1	22.6
Power Output - P _{MAX} (W _P)	343	350	358
Nominal Power Voltage - V_{MPP} (V)	51.2	51.7	52.2
Nominal Power Current - $I_{MPP}(A)$	6.70	6.77	6.86
Open Circuit Voltage - V _{oc} (V)	61.8	62.0	62.1

Values at standard test conditions (STC: air mass AM 1.5, irradiance 1000 W/m², temperature 25°C), based on a production spread with a tolerance of P_{MAXV}, V_{CC} & I_{Cx} ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m², temperature 20°C, windspeed 1 m/s). *Where xxx indicates the nominal power class (P_{MAX}) at STC above.

MODULE RATINGS	
Module Operating Temperature [T98] _s	158°F (70°C)
Min. Environmental Temperature	-40°F (-40°C)
System Voltage	1000 V
Maximum Test Load (4 Point Mounting, Front)*	+7000 Pa (1.02 lbs/in²)
Maximum Test Load (4 Point Mounting, Rear)*	-4000 Pa (0.58 lbs/in²)
Maximum Test Load (6 Point Mounting, Front)**	+8000 Pa (1.16 lbs/in²)
Maximum Test Load (6 Point Mounting, Rear)**	-6000 Pa (0.87 lbs/in²)
Max Series Fuse Rating	25 A
Max Reverse Current	25 A

Design load = Test load / 1.5 (safety factor) § 98th percentile operating temperature * IEC61730/UL61730 certified. Refer to installation manual. **Internal testing. Refer to installation manual.

TEMPERATURE RATINGS*	
Nominal Module Operating Temperature	44 ± 2°C
Temperature coefficient of P _{MAX}	-0.24%/K
Temperature coefficient of V _{oc}	-0.24%/K
Temperature coefficient of I _{SC}	0.04%/K
*The temperature coefficients stated are linear values	

DELIVERY INFORMATION Panels per Pallet Panels per 40 ft GP/high cube 594 (18 Pallets) container 792 (24 Pallets) Panels per 53 ft truck

Available from:

STC

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

CERTIFICATIONS

ISO 14001; ISO 9001	l; IEC45001; IEC62941		
IEC 61215:2021;IEC 61730:2023;UL 61730			
ISO 11925-2	Ignitability (EN 13501-1 Class E)		
IEC 62716	Ammonia Resistance		
IEC 61701	Salt Mist (SM6)		
IEC 61215:2016	Hailstone (35mm)		
UL 61730	Fire Type 2		







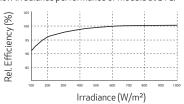


WARRANTY			
	Standard	REC ProTrust	
Installed by an REC Certified Professional	No	Yes	Yes
System Size	All	<25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%

REC ProTrust Warranty applies only for i) REC panels installed by an REC Certified Solar Professional, and ii) panels have been registered by the installer with REC. Subject to System Size and further conditions. See www.recgroup.com for details.

LOW LIGHT BEHAVIOR

Typical low irradiance performance of module at STC:



REC Solar PTE, LTD. 20 Tuas South Ave. 14 Singapore 637312 post@recgroup.com www.recgroup.com



RSTC Enterprises, Inc. 2214 Heimstead Road Eau Claire, WI 54703 715-830-9997



Outdoor Photovoltaic Enclosures

Composition/Cedar Roof System

ETL listed and labeled

Report # 3171411PRT-002 Revised May, 2018

- UL50 Type 3R, 11 Edition Electrical equipment enclosures
- CSA C22.2 No. 290 Nema Type 3R
- Conforms to UL 1741 Standard

0799 Series Includes:

0799 - 2 Wire size 2/0-14

0799 - 5 Wire size 14-6 0799 - D Wire size 14-8

Models available in Grey, Black or Stainless Steel

Basic Specifications

Material options:

- Powder coated, 18 gauge galvanized 90 steel (1,100 hours salt spray)
- Stainless steel

Process - Seamless draw (stamped) Flashing - 15.25" x 17.25" Height - 3" Cavity - 255 Cubic inches

Base Plate:

- Fastened to base using toggle fastening system
- 5 roof deck knockouts
- Knockout sizes: (3) .5", (1) .75" and (1) 1"
- 8", 35mm slotted din rail
- Ground Block

Passthrough and combiner kits are available for either AC or DC applications.

0799 Series







Eaton BRP20B200R

Catalog Number: BRP20B200R

Eaton BR main breaker loadcenter, 200A, X5, Aluminum, Cover included, NEMA 3R, Metallic, 10 kAIC, BR, 40 circuits, Single pole, 20 spaces, Three-wire, Single-phase

General specifications

Product Name

Eaton BR main breaker loadcenter

UPC

786689059255

Product Height

5.5 in

Product Weight

19 lb

Certifications

UL 67 UL 50

Catalog Number

BRP20B200R

Product Length/Depth

29 in

Product Width

14.31 in

Warranty

10 year



Product specifications Number of spaces 20 Interrupt rating 25 kAIC Phase Single-phase Bus material Aluminum Main circuit breaker CSR Enclosure NEMA 3R Amperage Rating 200 A **Number Of Poles** Single-pole

Mounting

Combination

Enclosure material

Metallic

Туре

Plug-on neutral main circuit breaker loadcenter

Cover

Cover included

Used with

Type BR 1-inch breakers

NEMA rating

NEMA 3R

Number of wires

3

Number of circuits

40

Voltage rating

120/240 V

Box size

Resources

Brochures

Loadcenters and Circuit Breakers

Specifications and datasheets

Eaton Specification Sheet - BRP20B200R



Eaton Corporation plc Eaton House 30 Pembroke Road Dublin 4, Ireland Eaton.com

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Eaton.com/socialmedia

Safety switch, general duty, non fusible, 60A, 2 pole, 10hp, 240VAC, NEMA 3R, bolt on provision

DU222RB

Product availability: Stock - Normally stocked in distribution

facility

Price*: 353.00 USD

wan	
-----	--

Product	Single Throw Safety Switch
Duty Rating	General duty
Device Application	Residential
Disconnect Type	Non-fusible disconnect switch
Factory Installed Neutral	None
Phase	3 phase
Number of Poles	2
Current Rating	60 A
Voltage Rating	240 V AC
Enclosure Rating NEMA	NEMA 3R
Motor power hp	10 hp at 240 V AC 60 Hz for 1 phase motors

Complementary

Mounting Type	Surface	
Electrical Connection	Lugs	
Wiring configuration	2 wires	
Wire Size	AWG 12AWG 3 aluminium AWG 14AWG 3 copper	
Tightening torque	35 lbf.in (3.95 N.m) 0.000.01 in² (2.085.26 mm²) (AWG 14AWG 10) 35 lbf.in (3.95 N.m) (AWG 14AWG 10) 45 lbf.in (5.08 N.m) 0.01 in² (8.37 mm²) (AWG 8) 45 lbf.in (5.08 N.m) 0.020.03 in² (12.321.12 mm²) (AWG 6AWG 4) 50 lbf.in (5.65 N.m) 0.04 in² (26.67 mm²) (AWG 3)	
Depth	3.75 in (95.25 mm)	
Width	7.75 in (196.85 mm)	
Height	9.63 in (244.60 mm)	
Net Weight	16.98 lb(US) (7.7 kg)	

Environment

Certifications UL listed file E2875

^{*} Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Ordering and shipping details

Category	00106-D & DU SW,NEMA3R, 30-200A
Discount Schedule	DE1A
GTIN	785901491491
Returnability	Yes
Country of origin	MX

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	5.30 in (13.462 cm)
Package 1 Width	7.20 in (18.288 cm)
Package 1 Length	10.00 in (25.4 cm)
Package 1 Weight	4.65 lb(US) (2.109 kg)
Unit Type of Package 2	PAL
Number of Units in Package 2	120
Package 2 Height	36.50 in (92.71 cm)
Package 2 Width	40.00 in (101.6 cm)
Package 2 Length	48.00 in (121.92 cm)
Package 2 Weight	610.00 lb(US) (276.691 kg)
Unit Type of Package 3	CAR
Number of Units in Package 3	5
Package 3 Height	10.70 in (27.178 cm)
Package 3 Width	10.20 in (25.908 cm)
Package 3 Length	23.50 in (59.69 cm)
Package 3 Weight	24.60 lb(US) (11.158 kg)

Offer Sustainability

Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACh Regulation	REACh Declaration
REACh free of SVHC	Yes
EU RoHS Directive	Compliant EU RoHS Declaration
Toxic heavy metal free	Yes
Mercury free	Yes
China RoHS Regulation	China RoHS declaration Pro-active China RoHS declaration (out of China RoHS legal scope)
RoHS exemption information	Yes
Environmental Disclosure	Product Environmental Profile
PVC free	Yes

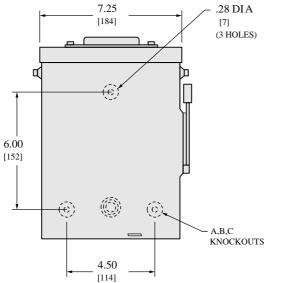
Contractual warranty

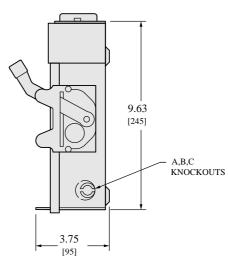
Warranty

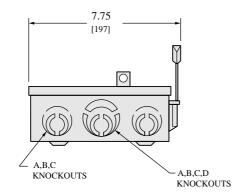
18 months

Technical Illustration

Dimensions







NEMA TYPE 3R

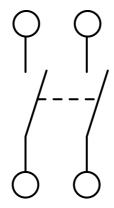
IN. [mm]

KNOCKOUTS							
SYMBOL	A	В	С	D			
CONDUIT SIZE (IN.)	.50	.75	1	1.25			

TOP OF NEM A TYPE 3R SWITCHES H AVE PROVISIONS FOR MAXIMUM 2 1/2" BO LT-ON HUB. ALL DIMENSIONS ARE APPROXIMATE. REFER TO TECHNICAL DRAWINGS AND DOCUMENTATION.

Technical Illustration

Wiring Diagram



DU222RB

Recommended replacement(s)

Eaton M22-PVT

Catalog Number: M22-PVT

Eaton M22 Modular Twist-to-Release Emergency Stop Operator, 22.5 mm, 35 mm Pushbutton, Twist-to-Release, Button: Red, IP67, IP69K, NEMA 4X, 13, 100,000 Operations, Non-illuminated

General specifications



Eaton M22 modular pushbutton

UPC

786685271606

Product Height

1 in

Product Weight

0.1 lb

Catalog Number

M22-PVT

Product Length/Depth

2 in

Product Width

2 in

Warranty

Eaton Selling Policy 25-000, one (1) year

from the date of installation of the

Product or eighteen (18) months from the

date of shipment of the Product,

whichever occurs first.

Compliances

Certifications **CCC Marked CE Marked CSA** Certified Bureau Veritas

GoST-R Lloyd's Register Certified

CSA CSA

Catalog Notes

Includes contact block mounting adapter.





default Taxonomy Attribute Label

Type

Emergency Stop

Actuator function

Twist-to-release

Button color

Red

Actuator

35 mm pushbutton

Illumination

Non-illuminated

Series

M22

Environmental rating

IP67, IP69K, NEMA 4X, NEMA 13

Operating cycles

100,000

Size

22.5 mm

Resources

Brochures

M22 Twist-to-Release, Mushroom Head Emergency Stop Buttons

Catalogs

Eaton's Volume 7—Logic Control, Operator Interface and Connectivity

Installation instructions

M22 Operators and Accessories

Specifications and datasheets

Quick Selector - M22 Pushbuttons

Eaton Specification Sheet - M22-PVT

Global Data Sheet - M22-PVT



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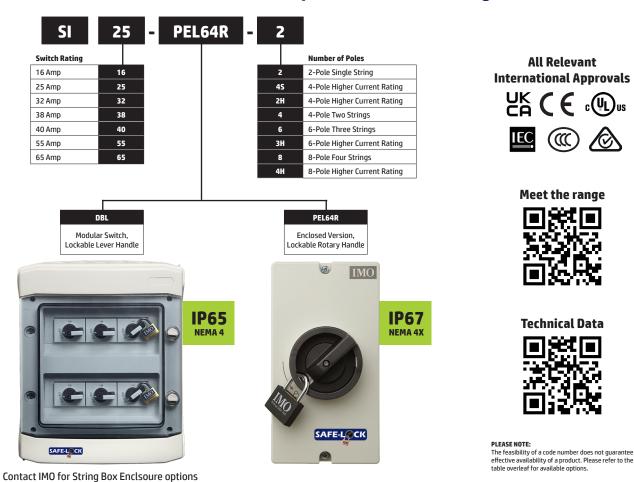
Eaton.com/socialmedia

Product Selection Guide

SI Series TRUE DC Solar Isolators



How our SI Series TRUE DC Solar Isolator part numbers are configured...



How to select the correct isolator for your needs...

When choosing the appropriate SI Series TRUE DC solar isolator the steps below along with the table overleaf will help you to select the right version for your installation.

Step 1.

Determine your maximum rated voltage (V_{max}). We include voltage ratings from 500V to 1500V for all pole configurations on the table overleaf.

Step 2.

Determine your maximum rated current (I_{max}). We include current ratings from 16A to 85A for all pole configurations on the table overleaf. Ensure the rating selected meets or exceeds your I_{max}.

Step 3.

Determine the number of strings your pv installation has.

Step 4

Select a suitable isolator from the table overleaf, with sufficient load capacity at your required voltage. For multiple string installations, consider your preferred isolator configuration. eq. a two string installation might use two appropriately rated 2-Pole isolators or one appropriately rated 4-Pole isolator.

EXAMPLE REQUIREMENT: "I need a DC isolator rated for 25A at 1500V per string"

- Using the table overleaf, scan horizontally across the 1500V rating line of each isolator option.
- · Locate the required current rating option at 1500V DC, in this case, 25A.
- Note that the SI25 isolator in -4S pole configuration meets the 25A@1500VDC requirement and select this device.

If the installation had multiple strings of this rating, we could consider the SI25-DBL-4S version in a string box as a more compact and aesthetically pleasing option to the installation of multiple separate SI25-PEL64R-4S enclosed isolators.

Number of Poles	Max. No. of Strings	Suffix	Rated operational current I	Туре	SI16	SI25	SI32	SI38	S140	SI55	SI65
2 Dolos Cinglo String	or strings		500V	A	16	25	32	45	48	55	76
2 Poles - Single String			600V	Α	16	25	32	45	48	55	76
± :			700V 800V	A A	16 16	25 20	32 23	36 30	37 35	55 55	76 65
7 7			900V	A	16	17	20	25	31	43	55
))	1	-2	1000V	A	10	11.5	13	20	29	36	40
			1100V	A	8	10	11.5	-	19	25	-
=/			1200V 1300V	A A	7 6	8.5 7	10 8	10	11	17 14	17
			1400V	A	5	6	7	-	9	12	-
			1500V	А	3	5	6	6	8	10	10
4 Poles - Higher Voltage Rating			500V	А	16	25	32	45	48	55	76
Trotes ringiner voltage riating			600V	A	16	25	32	45	48	55	76
i — i			700V 800V	A A	16 16	25 25	32 32	45 45	48	55 55	76 76
\ \frac{1}{7}\frac{1}{7}\frac{1}{7}\]			900V	A	16	25	32	45	48	55	76
	1	-4S	1000V	Α	16	25	32	38	40	55	76
			1100V 1200V	A A	16 16	25 25	32 32	32	40	55 55	55 55
=/			1300V	A	16	25	32	-	40	55	55
			1400V	А	16	25	32	-	40	55	55
			1500V	A	16	25	32	32	40	55	55
4 Poles - Higher Current Rating			500V	Α	29	45	58	65	72	85	85
inglier carrent nating			600V	A	29	45	55	58	68	85	85
·			700V 800V	A A	22 17	27 20	32 23	36 30	49 42	77 63	80 65
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			900V	A	16	17	20	25	31	43	55
	1	-2H	1000V	A	10	11.5	13	20	29	36	40
			1100V 1200V	A A	8 7	10	11.5 10	- 10	19 11	25 17	- 17
			1300V	A	6	8.5 7	8	-	10	14	- 17
/ /V			1400V	Α	5	6	7	-	9	12	-
			1500V	A	3	5	6	6	8	10	10
4 Poles - Two Strings			500V	Α	16	25	32	45	48	55	76
4 Total Two Strings			600V	A	16	25	32	45	48	55	76
1 1 1 1			700V 800V	A A	16 16	25 20	32 23	36 30	37 35	55 55	76 65
\ \frac{1}{1} \frac{1}{1} \frac{1}{1} \frac{1}{1}			900V	A	16	17	20	25	31	43	55
	2	-4	1000V	Α	10	11.5	13	20	29	36	40
			1100V	A	8 -	10	11.5	-	19	25	-
			1200V 1300V	A A	7 6	8.5 7	10 8	10 -	11	17 14	17
			1400V	Α Α	5	6	7	-	9	12	-
			1500V	А	3	5	6	6	8	10	10
6 Poles - Three Strings			500V	A	16	25	32	45	48	55	76
6 Poles - Three Strings			500V 600V	A A	16 16	25 25	32 32	45 45	48 48	55 55	76 76
6 Poles - Three Strings			500V	A A A	16 16 16	25 25 25	32 32 32	45 45 36	48 48 37	55 55 55	76 76 76
6 Poles - Three Strings			500V 600V 700V	A A	16 16	25 25	32 32	45 45	48 48	55 55	76 76
6 Poles - Three Strings	3	-6	500V 600V 700V 800V 900V 1000V	A A A A	16 16 16 16 16 16	25 25 25 20 17 11.5	32 32 32 23 20 13	45 45 36 30 25 20	48 48 37 35 31 29	55 55 55 55 43 36	76 76 76 65 55 40
6 Poles - Three Strings	3	-6	500V 600V 700V 800V 900V 1000V 1100V	A A A A A	16 16 16 16 16 16 10	25 25 25 20 17 11.5	32 32 32 23 20 13 11.5	45 45 36 30 25 20	48 48 37 35 31 29	55 55 55 55 43 36 25	76 76 76 65 55 40
6 Poles - Three Strings	3	-6	500V 600V 700V 800V 900V 1000V	A A A A A A A A A	16 16 16 16 16 16	25 25 25 20 17 11.5	32 32 32 23 20 13 11.5	45 45 36 30 25 20	48 48 37 35 31 29	55 55 55 55 43 36 25	76 76 76 65 55 40
6 Poles - Three Strings	3	-6	500V 600V 700V 800V 900V 1000V 1100V	A A A A A	16 16 16 16 16 10 8	25 25 25 20 17 11.5 10	32 32 32 23 20 13 11.5	45 45 36 30 25 20 -	48 48 37 35 31 29 19	55 55 55 55 43 36 25	76 76 76 65 55 40
6 Poles - Three Strings	3	-6	500V 600V 700V 800V 900V 1000V 1100V 1200V	A A A A A A	16 16 16 16 16 10 8 7	25 25 25 20 17 11.5 10 8.5	32 32 32 23 20 13 11.5 10	45 45 36 30 25 20 -	48 48 37 35 31 29 19 11	55 55 55 55 43 36 25 17	76 76 76 65 55 40 -
	3	-6	500V 600V 700V 800V 900V 1000V 1100V 1200V 1300V 1400V 1500V	A A A A A A A A A A	16 16 16 16 10 8 7 6 5 3	25 25 25 20 17 11.5 10 8.5 7 6 5	32 32 32 23 20 13 11.5 10 8 7 6	45 45 36 30 25 20 - 10 - 6	48 48 37 35 31 29 11 10 9	55 55 55 55 43 36 25 17 14 12	76 76 76 65 55 40
6 Poles - Three Strings 6 Poles - Higher Current Rating	3	-6	500V 600V 700V 800V 900V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 10 8 7 6 5 3	25 25 25 20 17 11.5 10 8.5 7 6 5	32 32 32 23 20 13 11.5 10 8 7 6	45 45 36 30 25 20 - - 10 - - 6	48 48 37 35 31 29 19 11 10 9 8	55 55 55 55 43 36 25 17 14 12 10	76 76 76 65 55 40 - 17 - 10
	3	-6	500V 600V 700V 800V 900V 1000V 1100V 1200V 1300V 1400V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 10 8 7 6 5 3	25 25 25 20 17 11.5 10 8.5 7 6 5	32 32 32 23 20 13 11.5 10 8 7 6	45 45 36 30 25 20 - 10 - 6	48 48 37 35 31 29 11 10 9	55 55 55 55 43 36 25 17 14 12	76 76 76 65 55 40
			500V 600V 700V 800V 900V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 900V	A A A A A A A A A A	16 16 16 16 10 8 7 6 5 3 29 29 29 29	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38	32 32 32 23 20 11.5 10 8 7 6 58 58 55 51	45 45 36 30 25 20 - 10 - - 6	48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62	55 55 55 55 43 36 25 17 14 12 10 85 85 85 85	76 76 65 55 40 - 17 - 10 85 85 85 85 78
	3	-6 -3H	500V 600V 700V 800V 900V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 900V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 10 8 7 6 5 3 29 29 29 29 29	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38	32 32 32 23 20 13 11.5 10 8 7 6 58 58 55 51 47	45 45 36 30 25 20 - 10 - - 6	48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58	55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78	76 76 76 65 55 40 - 17 - 10 85 85 85 85 78
			500V 600V 700V 800V 900V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 900V 11000V	A A A A A A A A A	16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29	25 25 25 20 11.1.5 10 8.5 7 6 5 45 43 40 38 38 27	32 32 32 23 23 11.5 10 8 7 6 58 58 55 51 47 45 37	45 45 36 30 25 20 - 10 - - 6	48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62	55 55 55 55 43 36 25 17 14 12 10 85 85 85 85	76 76 65 55 40 - 17 - 10 85 85 85 85 78
			500V 600V 700V 800V 900V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 900V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 10 8 7 6 5 3 29 29 29 29 29	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38	32 32 32 23 20 13 11.5 10 8 7 6 58 58 55 51 47	45 45 36 30 25 20 - 10 - - 6 - - -	48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58	55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78	76 76 76 65 55 40 17 10 85 85 85 78 70
			500V 600V 700V 800V 900V 11000V 1100V 1200V 1300V 1500V 600V 700V 800V 900V 1100V 1100V 1200V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29 29 19 17 17	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 27 25 21	32 32 32 23 20 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25	45 45 36 30 25 20 - 10	48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 -	55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78 70	76 76 65 55 40 - 17 - 10 85 85 85 85 78 70
			500V 600V 700V 800V 900V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 900V 1100V 1100V 1200V 1300V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 17 10 8 7 6 5 3 29 29 29 29 29 19 17 15 12	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 38 38 38 13 27 25 21	32 32 32 23 20 13 11.5 10 8 7 6 58 58 55 51 47 47 45 28 25 22 20	45 45 36 30 25 20 - 10	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58	55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 85 78 70	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating			500V 600V 700V 800V 900V 11000V 11000V 1200V 1300V 1500V 600V 700V 800V 900V 11000V 11000V 11000V 11000V 11000V 11000V 11000V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 17 15 12 10	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 27 25 21 18	32 32 32 23 20 13 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25 22 20	45 45 36 30 25 20 - 10 - - - - - - - - - - - - - - - - -	48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 - - - - 48	55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78 70	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
			500V 600V 700V 800V 900V 1100V 1200V 1300V 1500V 500V 600V 700V 800V 1100V 1100V 1500V 500V 1000V 1100V 1100V 1500V 500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29 29 19 17 17 15 16 16 10 10 10 10 10 10 10 10 10 10 10 10 10	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 38 27 25 21 11 11 11 12 12 13 14 14 14 14 14 14 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	32 32 32 32 23 20 13 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25 22 20 20 32	45 45 36 30 25 20 - - - - - - - - - - - - - - - - - -	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 - - - - - - - - - - - - -	55 55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 87 70 -	76 76 76 65 55 40 - 17 - 10 85 85 85 70
6 Poles - Higher Current Rating			500V 600V 700V 800V 900V 11000V 11000V 1200V 1300V 1500V 600V 700V 800V 900V 11000V 11000V 11000V 11000V 11000V 11000V 11000V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 17 15 12 10	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 27 25 21 18	32 32 32 23 20 13 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25 22 20	45 45 36 30 25 20 - 10 - - - - - - - - - - - - - - - - -	48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 - - - - 48	55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78 70	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating	1	-3Н	500V 600V 700V 800V 900V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 900V 1100V 1200V 1300V 500V 600V 700V 800V 900V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 8 7 6 5 3 29 29 29 29 29 29 17 17 15 12 10 16 16 16 16	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 38 18 14 25 25 25 20 17	32 32 32 32 23 20 13 11.5 10 8 7 6 5 5 8 55 5 5 5 5 47 47 45 37 28 22 20 20 20 20 20 20 20 20 20 20 20 20	45 45 36 30 25 20 - - - 6 - - - - - - - - - - - - - - -	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 37 35 31	55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating			500V 600V 700V 800V 900V 1100V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 1000V 1100V 1200V 1500V 500V 600V 700V 800V 700V 800V 700V 800V 1000V 1200V 1300V 1400V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 10 8 7 6 5 3 29 29 29 29 29 29 19 17 15 12 10 16 16 16 16 16 16 16	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 27 25 21 18 14 25 25 25 20 17	32 32 32 32 20 13 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25 22 20 32 32 32 32 32 32 32 32 32 32	45 45 36 30 25 20 - 10 - - - - - - - - - - - - - - - - -	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 48 37 35 31	55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating	1	-3Н	500V 600V 700V 800V 1000V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 1000V 1100V 1100V 1500V 500V 600V 700V 800V 1000V 1100V 1500V 1500V 1000V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29 19 17 15 16 16 16 16 16 16 16 10 8	25 25 25 20 111.5 10 8.5 7 6 5 45 43 40 38 27 25 21 18 14 25 25 20 20 17 11.5	32 32 32 32 33 31 31 31 31 31 31 31 31 31	45 45 36 30 25 20 - - - - - - - - - - - - - - - - - -	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 37 35 31 29 19	55 55 55 55 55 55 55 55 43 36 25 25 17 14 12 10 85 85 85 85 85 87 70 - - - - - - - - - - - - -	76 76 76 65 55 40 17 10 85 85 85 85 70 76 76 76 65 55 40
6 Poles - Higher Current Rating	1	-3Н	500V 600V 700V 800V 900V 1100V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 1000V 1100V 1200V 1500V 500V 600V 700V 800V 700V 800V 700V 800V 1000V 1200V 1300V 1400V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 10 8 7 6 5 3 29 29 29 29 29 29 19 17 15 12 10 16 16 16 16 16 16 16	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 27 25 21 18 14 25 25 25 20 17	32 32 32 32 20 13 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25 22 20 32 32 32 32 32 32 32 32 32 32	45 45 36 30 25 20 - 10 - - - - - - - - - - - - - - - - -	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 48 37 35 31	55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating	1	-3Н	500V 600V 700V 800V 900V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 1000V 1100V 1200V 1300V 1000V 1100V 1200V 1300V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 1000V 1100V 1200V 1300V 1400V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 18 7 6 5 3 29 29 29 29 29 29 29 10 17 15 12 10 16 16 16 16 16 16 10 8 8 7 6 5 5	25 25 25 20 17 11.5 10 8.5 7 6 5 45 45 43 40 38 38 38 27 25 21 18 14 25 25 20 17 11.5	32 32 32 32 23 20 13 11.5 10 8 7 6 5 5 8 55 5 5 5 5 47 47 45 22 20 20 32 32 32 20 32 32 32 32 32 32 32 37 37 37 38 38 38 38 38 38 38 38 38 38 38 38 38	45 45 36 30 25 20 - 10 6	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 72 68 62 58 48 48 37 35 31 29 19 11 10 9	55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating	1	-3Н	500V 600V 700V 800V 1000V 1100V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 1000V 1100V 1200V 1300V 1000V 1100V 1200V 1300V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 1000V 1100V 1200V 1300V 1400V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 10 8 7 6 5 3 29 29 29 29 29 29 29 19 17 15 12 10 16 16 16 16 16 10 8 7 6 5 3	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 38 38 38 14 27 25 21 18 14 25 25 25 20 17 11.5 10 8.5 7 6 8.5 7 6 8.5 7 8.5 10 10 10 10 10 10 10 10 10 10 10 10 10	32 32 32 32 23 20 13 11.5 10 8 7 6 5 58 55 51 47 47 45 22 20 32 22 20 32 32 32 32 32 32 36 37 66 66 66 67 67 68 68 68 68 68 68 68 68 68 68 68 68 68	45 45 45 36 30 25 20 - 10	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 72 68 62 58 48 48 37 35 31 29 19 11 10 9 8	55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating 8 Poles - Four Strings	1	-3Н	500V 600V 700V 800V 900V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 900V 1100V 1200V 1300V 1400V 1500V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 1100V 1200V 1300V 1400V 1500V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 18 7 6 5 3 29 29 29 29 29 29 29 19 17 15 12 10 16 16 16 16 16 16 16 17 10 8 8 7 7 6 5 3 3	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 38 38 27 25 21 18 14 25 25 20 17 11.5 6 5	32 32 32 32 23 20 13 11.5 10 8 7 6 58 55 51 47 45 37 28 25 22 20 32 32 32 32 32 32 32 32 36 37 47 45 47 45 47 45 47 47 48 48 48 48 48 48 48 48 48 48	45 45 45 36 30 25 20 - 10	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 48 37 35 31 29 19 11 10 9 8	55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating	1	-3Н	500V 600V 700V 800V 1000V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 1000V 1100V 1100V 1200V 1100V 1200V 1100V 1200V 1100V 1200V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 1000V 1400V 1500V 1500V 1600V 1700V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29 19 17 17 15 10 16 16 16 16 16 10 8 7 6 5 3 3 29 29 29 29 29 29 29 29 29 29 29 29 29	25 25 25 20 10 11.5 10 8.5 7 6 5 45 43 40 38 27 25 21 18 14 25 25 20 17 11.5 10 8.5 7 6 6 7 6 7 6 7 6 7 7 8 7 8 7 8 7 8 7 8	32 32 32 32 33 31 32 33 31 31 31 31 31 31 31 31 32 32 32 32 32 32 32 32 32 32	45 45 36 30 25 20 10 6	48 48 48 37 35 31 29 19 11 10 9 8 8 72 72 72 68 62 58 48 48 48 37 35 31 29 19 11 10 9 8 8	55 55 55 55 55 55 55 55 17 14 12 10 85 85 85 85 85 70 - - - - - - - - - - - - -	76 76 76 65 55 40 17 10 85 85 85 78 70 76 76 65 55 40 17 10 85 85 85 85 85 85 85 85 85 85 85 85 85
6 Poles - Higher Current Rating 8 Poles - Four Strings	1	-3Н	500V 600V 700V 800V 900V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 900V 1100V 1200V 1300V 1400V 1500V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 1100V 1200V 1300V 1400V 1500V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 18 7 6 5 3 29 29 29 29 29 29 29 19 17 15 12 10 16 16 16 16 16 16 16 17 10 8 8 7 7 6 5 3 3	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 38 38 27 25 21 18 14 25 25 20 17 11.5 6 5	32 32 32 32 23 20 13 11.5 10 8 7 6 58 55 51 47 45 37 28 25 22 20 32 32 32 32 32 32 32 32 36 37 47 45 47 45 47 45 47 47 48 48 48 48 48 48 48 48 48 48	45 45 45 36 30 25 20 - 10	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 48 37 35 31 29 19 11 10 9 8	55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating 8 Poles - Four Strings	1	-3H	500V 600V 700V 800V 1000V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 1000V 1100V 1100V 1500V 1000V 1100V 1100V 1100V 1100V 1200V 1300V 1400V 1500V 1000V 1100V 1500V 500V 600V 700V 800V 1000V 1100V 1500V 500V 600V 700V 800V 1100V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 17 10 8 7 6 5 3 29 29 29 29 29 29 19 17 15 12 10 16 16 16 16 16 16 16 16 16 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 27 25 21 18 14 25 25 20 17 11.5 5	32 32 32 32 23 20 13 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25 22 20 32 32 32 32 32 31 31 31 31 31 31 31 31 31 31	45 45 36 30 25 20 10	48 48 48 37 35 31 29 19 11 10 9 8 8 72 72 72 68 62 58 1 11 10 9 11 10 9 11 10 9 11 10 9 11 10 9 11 10 9 11 10 9 11 10 9 8	55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 78 70 - - - - - - - - - - - - -	76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating 8 Poles - Four Strings	1	-3Н	500V 600V 700V 800V 1000V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 1000V 1100V 1100V 1200V 1100V 1500V 600V 700V 800V 1000V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 900V 1000V 1100V 1500V 1000V 1100V 1100V 1500V 900V 1000V 1100V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29 19 17 15 10 16 16 16 16 16 16 16 16 16 16 17 10 8 7 7 6 5 3 29 29 29 29 29 29 29 29 29 29 29 29 29	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 27 25 21 18 14 25 25 25 20 17 11.5 5	32 32 32 32 33 31 31 31 31 31 31 31 31 31	45 45 45 36 30 25 20 10 6	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 72 72 72 72 72 72 72 72 72 72	55 55 55 55 55 55 55 53 43 36 25 17 14 12 10 85 85 85 87 70 - - - - - - - - - - - - -	76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating 8 Poles - Four Strings	1	-3H	500V 600V 700V 800V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 1000V 1100V 1500V 1000V 1100V 1100V 1200V 1100V 1200V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 1000V 1100V 1500V 500V 600V 700V 800V 1000V 1100V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 19 17 17 15 10 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29 29 29 29 29 29 29 29	25 25 25 20 111.5 10 8.5 7 6 5 45 43 40 38 27 25 21 11 14 25 25 20 17 11.5 10 8.5 7 6 6 5 7 6 7 6 7 6 7 7 6 7 7 8 7 8 7 8 7 8 7 8	32 32 32 32 33 31 31 31 31 31 31 31 31 31	45 45 45 36 30 25 20 10 6	48 48 48 37 35 31 29 19 11 10 9 8 8 72 72 72 68 62 58 48 48 48 37 35 31 29 19 11 10 9 8 8 72 72 72 72 72 72 72 72 72 72 72 72 72	55 55 55 55 55 55 55 55 57 17 14 12 10 85 85 85 85 85 70 - - - - - - - - - - - - -	76 76 76 65 55 40 17 10 85 85 85 85 78 70 76 76 65 55 40 17 10 85 85 85 85 85 85 85 85 85 85 85 85 85
6 Poles - Higher Current Rating 8 Poles - Four Strings	1	-3H	500V 600V 700V 800V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 1000V 1100V 1200V 1500V 600V 700V 800V 1100V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 1400V 1500V 500V 600V 700V 800V 700V 800V 700V 800V 700V 800V 900V 1100V 1100V 1200V 1300V 1400V 1500V 600V 700V 800V 900V 1100V 1200V 1300V 1400V 1500V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 16 17 10 8 7 6 5 3 29 29 29 29 29 29 19 17 15 12 10 16 16 16 16 16 16 16 16 16 16 17 18 29 29 29 29 29 29 29 29 29 29 29 29 29	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 27 25 21 18 14 25 25 25 20 17 11.5 5	32 32 32 32 33 31 31 31 31 31 31 31 31 31	45 45 45 36 30 25 20 10 6	48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 68 62 58 48 48 48 37 35 31 29 19 11 10 9 8 72 72 72 72 72 72 72 72 72 72 72 72 72	55 55 55 55 55 55 43 36 25 17 14 12 10 85 85 85 85 70 - - - - - - - - - - - - -	76 76 65 55 40 - 17 - 10 85 85 85 78 70
6 Poles - Higher Current Rating 8 Poles - Four Strings	1	-3H	500V 600V 700V 800V 1100V 1100V 1200V 1300V 1500V 600V 700V 800V 1000V 1100V 1500V 1000V 1100V 1100V 1200V 1100V 1200V 1100V 1200V 1300V 1400V 1500V 500V 600V 700V 800V 1000V 1100V 1500V 500V 600V 700V 800V 1000V 1100V	A A A A A A A A A A A A A A A A A A A	16 16 16 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 19 17 17 15 10 16 16 16 16 10 8 7 6 5 3 29 29 29 29 29 29 29 29 29 29 29 29 29	25 25 25 20 17 11.5 10 8.5 7 6 5 45 43 40 38 27 25 21 18 14 25 25 20 17 11.5 5 6 6 6 7 6 6 7 6 6 7 7 6 6 7 7 6 6 7 7 7 6 6 7 7 8 7 8	32 32 32 32 33 20 13 11.5 10 8 7 6 58 58 55 51 47 45 37 28 25 22 20 32 32 32 32 23 20 13 11.5 10 8 7 7 8 8 7 8 9 10 10 10 10 10 10 10 10 10 10	45 45 36 30 25 20 10	48 48 48 37 35 31 29 19 11 10 9 8 8 72 72 72 68 62 58	55 55 55 55 55 55 55 57 17 14 12 10 85 85 85 85 85 70 - - - - - - - - - - - - -	76 76 65 55 40 17 10 85 85 85 85 78 70





A. System Specifications and Ratings

Maximum Voltage: 600 VoltsMaximum Current: 60 Amps

Allowable Wire: 14 AWG – 6 AWG

- Spacing: Please maintain a spacing of at least ½" between uninsulated live parts and fittings for conduit, armored cable, and uninsulated live parts of opposite polarity.
- Enclosure Rating: Type 3R
 Roof Slope Range: 2.5 12:12
 Max Side Wall Fitting Size: 1"
- Max Floor Pass-Through Fitting Size: 1"
- Ambient Operating Conditions: (-35°C) (+75°C)
- Compliance:
 - JB-1: UL1741
 - Approved wire connectors: must conform to UL1741
- System Marking: Interek Symbol and File #5015705
- Periodic Re-inspections: If re-inspections yield loose components, loose fasteners, or any corrosion between components, components that are found to be affected are to be replaced immediately.

Table 1: Typical Wire Size, Torque Loads and Ratings

	1 Conductor 2 Conductor	Torque					
	1 Conductor	2 Conductor	Туре	NM	Inch Lbs	Voltage	Current
ABB ZS6 terminal block	10-24 awg	16-24 awg	Sol/Str	0.5-0.7	6.2-8.85	600V	30 amp
ABB ZS10 terminal block	6-24 awg	12-20 awg	Sol/Str	1.0-1.6	8.85-14.16	600V	40 amp
ABB ZS16 terminal bock	4-24 awg	10-20 awg	Sol/Str	1.6-2.4	14.6-21.24	600V	60 amp
ABB M6/8 terminal block	8-22 awg		Sol/Str	.08-1	8.85	600V	50 amp
Ideal 452 Red WING-NUT Wire Connector	8-18 awg		Sol/Str			600V	
Ideal 451 Yellow WING-NUT Wire Connector	10-18 awg		Sol/Str			600V	
Ideal, In-Sure Push-In Connector Part #39	10-14 awg		Sol/Str			600V	
WAGO, 221-612	10-14 awg		Sol/Str			600V	
International Hydraulics 2S2/0	10-14 awg		Sol/Str	4	35		
international riyurauncs 232/0	8 awg		Sol/Str	4.5	40		
Brumall 4-5,3	4-6 awg		Sol/Str		45	200	00V
Braman 4-3,3	10-14 awg		Sol/Str		35	200)
Blackburn LL414	4-14 awg		Sol/Str				

Table 2: Minimum wire-bending space for conductors through a wall opposite terminals in mm (inches)

Wire size	e, AWG or	Wires per terminal (pole)							
		1 2			3	4 or More			
kcmil	(mm2)	mm	(inch)	mm (inch)	mm (inch)	mm (inch)			
14-10	(2.1-5.3)	Not specified		-	-	-			
8	(8.4)	38.1	(1-1/2)	-	-	-			
6	(13.3)	50.8	(2)	-	-	-			