

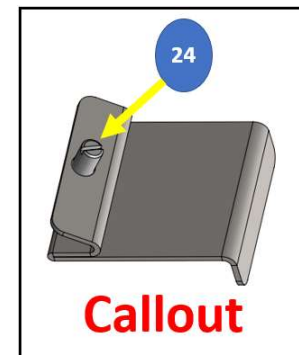
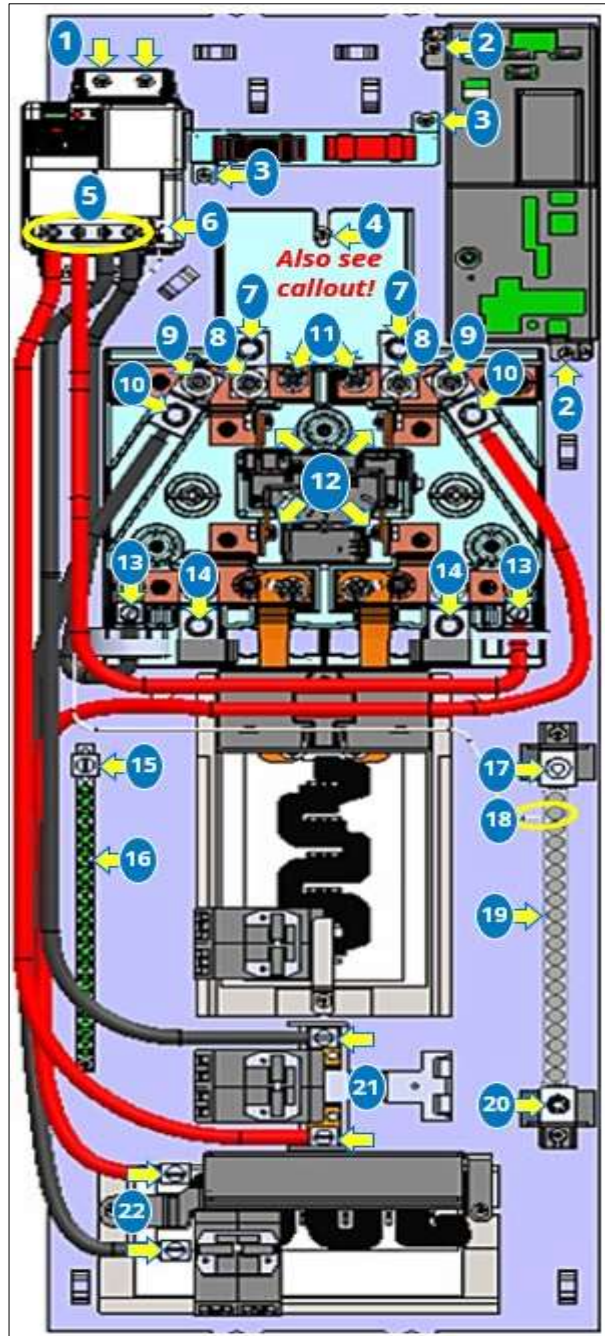
SunVault™ Storage Torque Values

Installation Guide Appendix H

All conductors must be torqued and clearly paint marked. For conductor torque values into breaker terminals, see values *specified on each breaker* for the specific wire size (AWG) being used.

H.1 Hub+

For the Hub+ tables in this section, refer to the following numbered diagram:



Hub+: Typical Field-Wired Terminations and Connections

Connection	Tool	Torque			Diag. #	Torque Tool Range
		in-lb	N-m	ft-lb		in-lb (ft-lb)
Hub+ PVS Plastic Cover Screws (quantity two, #6 screws)	T15 Torx (11-in-1)	12	1.3	1.0	N/A	0 – 40 (0 – 4)
Hub+ Dead Front Screws (quantity six, 10/32" SS)	5/16" nut driver (11-in-1)	12	1.3	1.0	N/A	0 – 40 (0 – 4)
Ungrounded Conductors into Top of Hub+ Factory Line-Side Lugs (L1/L2 incoming feeders)	3/8" Allen	#1 AWG to 300 kcmil: 375	42.4	31.2	7	120 – 600 (10 – 50)
		#1-#6 AWG: 275	31.1	22.9		120 – 600 (10 – 50)
Hub+ Ground Bar, Main Ground Lug	5/16" standard (flathead) screwdriver	2/O to #4 AWG: 50	5.6	41.6	15	120 – 600 (10 – 50)
Hub+ Ground Bar, Branch Circuit Wire Holes	#2 square	#14-#10: 20 #8: 25 #6: 35 #4: 45	2.2 2.8 3.9 5.0	1.6 2.1 2.9 3.7	16	0 – 150 (0 – 12)
Hub+ Neutral Bar, Main Neutral Lug	1/4" Allen	300 kcmil to #1 AWG: 50	5.6	4.1	17	0 – 150 (0 – 12)
Hub+ Neutral Bar, Branch Circuit Wire Holes	#2 square	#14-#10: 20 #8: 25 #6: 35 #4: 45	2.2 2.8 3.9 5.0	1.6 2.1 2.9 3.7	19	0 – 150 (0 – 12)
Hub+ Neutral Bar, Pass-Through Neutral Lug	1/4" Allen	2/O to #3 AWG: 50 #6-#4 AWG: 45	5.6 5.0	4.1 3.7	20	0 – 150 (0 – 12)
RPO cable conductors (ferruled conductors into green connector)	Precision flat screwdriver	3	.34	NA	N/A	0 – 40 (0 – 4)

Hub+: When Field Changes Necessitate Engaging or Disturbing Factory Connections

Connection	Tool	Torque			Diag. #	Torque Tool Range
		in-lb	N-m	ft-lb		in-lb (ft-lb)
Hub+ Consumption CT Mounting Bracket to Hub+ Backplate (quantity two, 8/32" nuts)	11/32" nut driver	12	1.3	1.0	3	0 – 40 (0 – 4)
Optional Hub+ Main Breaker Ungrounded conductors into breaker (L1/L2 incoming feeders)	1/4" Allen	#2 AWG to 300 kcmil: 250	28.2	20.8	23	120 – 600 (10 – 50)
Optional Hub+ Main Breaker Power tabs to Hub+ Line Side Busing (quantity two, 1/4"-20 threaded studs)	7/16" socket	48	5.4	4.0	11	0 – 150 (0 – 12)
Optional Hub+ main breaker Housing to Hub+ backplate (quantity one 8/32 nut)	11/32" nut driver	12	1.3	1.0	4	0 – 40 (0 – 4)
Hub+ MID Line-Side Factory Conductors to Hub+ Non-Backup Pan #1 AWG conductors into line lugs (L1/L2, if removed and used to wire to alternate flex subpanel or directly to flex pan 125 A breaker)	3/8" Allen	#3 AWG to 250 kcmil: 375	42.4	31.2	10	120 – 600 (10 – 50)
		#2-#6 AWG: 275	31.1	22.9		0 – 150 (0 – 12)
MID Load Side Lugs for Generation Pan Conductors into lugs (quantity two; L1 factory-routed through production CT)	5/16" standard (flathead) screwdriver	#4-#6 AWG: 45	5.0	3.7	13	0 – 150 (0 – 12)
MID Load-Side Busing Lugs (Open lugs are hidden behind shroud—optional use to wire to alternate backed-up subpanel.) Important! Downstream subpanel must have OCPD if conductors are landed on these lugs instead of from a breaker in the Backup Pan.	3/8" Allen	#3 AWG to 250 kcmil: 375	42.4	31.2	14	120 – 600 (10 – 50)
		#2-#6 AWG: 275	31.1	22.9		120 – 600 (10 – 50)
Flex Pan Hold-Down Bracket (to hold down ESS or 125 A breakers)	Precision flat screwdriver	10	1.1	NA	24	0 – 40 (0 – 4)

Hub+: Additional Factory Connections

Connection	Tool	Torque			Diag. #	Torque Tool Range
		in-lb	N-m	ft-lb		in-lb (ft-lb)
PVDR to Hub+ Backplate (quantity four, 8/32 nuts)	11/32" nut driver	12	1.3	1.0	1	0 – 40 (0 – 4)
MIDC to Hub+ Backplate (quantity two 8/32 nuts)	11/32" nut driver	12	1.3	1.0	2	0 – 40 (0 – 4)
Ungrounded Conductors into PVDR (quantity four)	#2 Phillips screwdriver	24	2.7	2.0	5	0 – 40 (0 – 4)
Grounded (Neutral) #16 AWG Conductor into PVDR	#0 Phillips screwdriver	3	0.34	0.25	6	0 – 40 (0 – 4)
PVDR Grounded (Neutral) #16 AWG Conductor into Hub+ Neutral Bar	#2 square	20	2.2	1.6	18	0 – 40 (0 – 4)
Hub+ Line-Side Feeder Lugs to MID Line Side Busing (quantity two 5/16-18 HH nuts; L1/L2 lugs)	1/2" socket	132	14.9	11.0	8	0 – 150 (0 – 12)
Hub+ Line-Side Lugs for Hub+ Non-Backup Pan, Line Lug to Line Busing (quantity two 5/16-18 HH nuts)	1/2" socket	132	14.9	11.0	9	0 – 150 (0 – 12)
Hub+ MID Contactor (quantity four, 1/4"-20 nuts and bolts)	7/16" socket	72	8.1	6.0	12	0 – 150 (0 – 12)
Generation Pan Conductor Terminals (feed comes from the PVDR)	5/16" standard (flathead) screwdriver	#4 AWG: 45	5.0	3.7	21	0 – 150 (0 – 12)
Hub+ Non-Backup Pan Bus Lugs	5/16" standard (flathead) screwdriver	55	6.2	4.6	22	0 – 150 (0 – 12)

H.2 ESS Enclosures

The following tables provide torque values for the ESS enclosure(s):

Connection	in-lb	N-m	ft-lb	Torque Tool Range in-lb (ft-lb)
Battery Grounding Wire at Each Battery in Each ESS	44	5.0	3.6	0-150 (0-12)
AC Terminals in Inverter Compartment and at Ground Bar	#14-#10 AWG: 35	3.9	2.9	0-150 (0-12)
	#8 AWG: 40	4.5	3.3	0-150 (0-12)
	#6-#4 AWG: 45	5.1	3.7	0-150 (0-12)
AUX cable conductors (ferruled conductors into green connector)	3	.34	NA	0-40 (0-40)
Battery Cables at Inverter DC Busbars in BASE ESS (only if ENERGY ESS is present)	220	24.8	18.4	120-600 (10-50)
Battery Cables (DC) at ENERGY ESS Terminal Block (only if ENERGY ESS is present)	87	9.8	7.2	0-150 (0-12)
AC Fan conductors at ENERGY ESS Terminal Block (only if ENERGY ESS is present)	6	.7	NA	0-40 (0-4)
Grounding Wire ENERGY ESS (only if ENERGY ESS is present)	#6 AWG: 35	3.9	2.9	0-40 (0-4)
	#8 AWG: 25	2.8	2.1	(0-4)
ESS Pedestal Floor Mount Concrete Wedge Anchor Nuts (in concrete)	480	54.2	40	120-600 (10-50)
ESS to Pedestal Mount Base Plate (quantity eight, 1/2" bolts that secure the ESS to the mounting plate)	685	77.3	57	120-720 (0-60)
SunPower DC Busbars into Inverter 3/8" bolt (only BASE ESS and only if disturbed)	180	20.3	15.0	0-150 (0-12)
Inverter Chassis Ground Lug (factory-torqued but may be disturbed in field)	#6-#4 AWG: 45	5.1	3.7	0-150 (0-12)
	#3-#2 AWG: 50	5.6	4.2	