

PanelClaw®'s clawFR/clawFRplus PV Module Racking System in 5Deg, 10Deg, and 10Deg Dual Tilt configurations are ANSI/UL 2703/UL 3741 Listed systems with the following ratings:



Conforms to UL STD 2703 (2015) Standard for Safety First Edition: Mounting Systems, Mounting Devices, Clamping/ Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels and Certified to CSA TIL No. A-40.

- Max Overcurrent Protective Device (OCPD) Rating: 40A
- Max Module Size: 36.8 ft²
- Module Orientation: Landscape
- System Design Load Rating: 30 PSF downward, 30 PSF upward, 5 PSF lateral
- Actual system structural capacity defined by the PE stamped calculation package and racking construction set

CLASS A SYSTEM FIRE RATING PER UL 2703

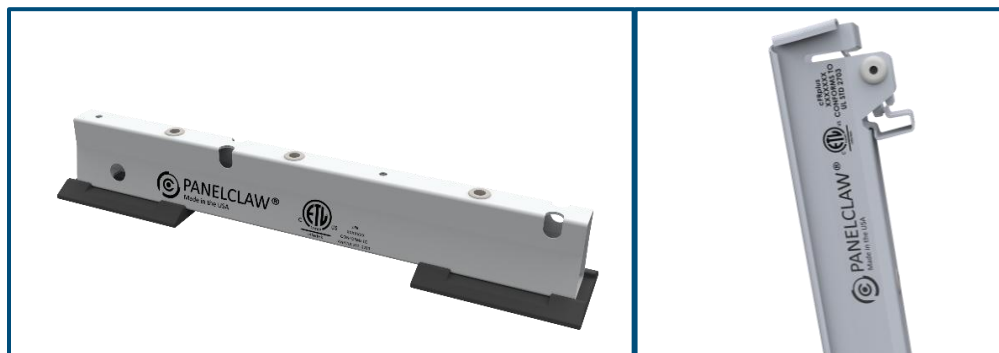
- Low Slope Roofs (less than 2:12) with Module Types 1, 2, 16, 19, 22, 25, 29, 30 and 38.
- Class A Fire rating is applicable with or without wind deflectors. Review PanelClaw Racking Construction Set for deflector configuration requirements.
- Class A rated PV systems can be installed on Class A, B, and C roofs without affecting the roof fire rating.

Conforms to ANSI/CAN/UL STD 3741 (2020) Standard for Safety Photovoltaic Hazard Control System

- Refer to clawFR/clawFRplus UL 3741 PV Hazard Control Installation Addendum for full ratings, approved equipment, and installation requirements.

Markings are located on the clawFR Base, clawFRplus Tilt Arm as shown below:

Please visit the PanelClaw (www.panelclaw.com) website for the 5Deg, 10Deg, and 10Deg Dual Tilt installation manuals.



Adding Modules and MLPEs to PanelClaw Product Listings

We regularly add new modules and Module Level Power Electronics (MLPEs) to the clawFR/clawFRplus ANSI/UL 2703/UL 3741 listing. If you have specified or plan to specify a module or MLPE not listed in this document, we can quickly and efficiently add it. We work closely with all module and MLPE manufacturers in the industry and have developed a standard process for evaluating and adding them to our listing. We offer the most robust and expeditious process for addition of modules or MLPEs to a flat roof racking platform in the industry.

For additional information regarding PanelClaw's ANSI/UL 2703/UL 3741 listings, please contact Applications Engineering at +1 (978) 688-4900.

UL 2703/UL 3741 Compatible Modules

The clawFR/clawFRplus System has been tested and evaluated to UL 2703 for bonding, grounding, mechanical loading and fire classification, and may be used to ground and/or mount PV modules listed to UL 1703 or UL 61730. A list of approved modules is included below. Unless otherwise noted, "xxx" refers to the module power rating and both black and silver frames are included in the certification. Please refer to the Module Database on the PanelClaw website for load rating details and any module specific requirements. The approved module list below also applies to the PowerCap model.

Site specific conditions may limit the use of compatible modules.

Table 1: Modules Qualified for use with clawFR/clawFRplus	
Module Manufacturer	Module Type
Adani	Adani modules with 30, 35 and 40 mm frames ASX-Y-ZZ-xxx Where "S" can be blank or S; "X" can be B, M or P; "Y" can be 7, G12R or M10; and "ZZ" can be blank, 132, 144 or PERC
AIONRISE	Aionrise modules with 35 and 40 mm frames AIONyyG1-xxx Where "yy" can be 60 or 72
Aptos Solar	Aptos modules with 35 and 40 mm frames DNA-yy-zzaa-xxxbb Where "yy" can be 108, 120 or 144; "zz" can be BF, BFN, MF or MFN; and "aa" can be 10 or 26; and "bb" can be blank, W or W-DG
Astronergy	Astronergy modules with 30, 35 and 40 mm frames CHSMbbyyZZZ-xxx Where "bb" can be 60, 66 or 72; "yy" can be blank or 12; "ZZZ" can be HC, M, M(DG)/F-B, M(DG)/F-BH, M/HV, N(DG)/F-BH, P, P/HV

Table 1: Modules Qualified for use with clawFR/clawFRplus	
Module Manufacturer	Module Type
Auxin	Auxin modules with 35 and 40 mm frames AXNCyzAxxxB Where "C" can be 6, 10, or G1; "y" can be M or P; "z" can be blank, 08, 09, 610, 11, or 612; and "A" can be blank, F, M or T; and "B" can be blank, A, B, C or W
Axitec	Axitec Modules with 30, 35, and 40 mm frames AC-xxxZZ/yyy Where "ZZ" can be MH, MB, MBT or TGB; and "yyy" can be 108BB, 108V, 108VB, 144S, 144TS, 144V or 144VB
Big Shine Solar	Big Shine Solar modules with 35mm frames BSExxxN-144BMH-DG
Bila Solar	Bila Solar modules with 30mm frames AA-xxxUS-6x24GG
Bluesun Solar	Bluesun modules with 30 and 35 mm frames BSMxxxY-AAA Where "Y" can be M or M10; and "AAA" can be 60HPH or 72HBD
BYD	BYD Solar modules with 30 mm frames BYDxxxZLBK Where "Z" can be M or N
Boviet	Boviet modules with 35 and 40 mm frames BVMZZ12YY-xxx-Bcc Where "ZZ" can be 66 or 76, "YY" can be M, M(S) or P; and "B" can be blank or L; and "cc" can be blank, H, H-HC, H-HC-BF or H-HC-BF-DG
Canadian Solar	Canadian Solar modules with 30, 35 and 40 mm frames CSbY-xxxZ Where "b" can be 1, 3, 6, 6.1, 6.2 or 7; "Y" can be H, K, L, N, R, U, W, Y, -48TM, -54TM, -66TB or -72TB; and "Z" can be H, HP, P, PB-AG, M, MS, MS-HL, MB-AG, T or TB-AG
Caterpillar	Caterpillar Modules with 35 mm frames PVCxxxA Where "A" can be M, MP or MP03-H
Certainteed	CertainTeed modules with 30, 35 and 40 mm frames CTBBxxxYZZ-AA Where "BB" can be blank, M10 or TC; "Y" can be HC; "ZZ" can be 11 or 12; and "AA" can be 06, 08 or 09
Crossroads	Crossroads Solar modules with 40 mm frames Crossroads Solar xxx
CSUN	CSUN modules with 40 mm frames CSUNxxx-zzA Where "zz" is 72; and "A" is M, MH, MM5BB, P or PH

Table 1: Modules Qualified for use with clawFR/clawFRplus	
Module Manufacturer	Module Type
Dehui	Dehui modules with 30, 35, and 40 mm frames DH-MYYYY-xxx Where "YYY" can be 760, 772, 860, 872; and "Z" can be B, F, or W
Emmvee	Emmvee modules with 35 mm frames Exxx-YYZZZ-A Where "YY" can be HCM, HCMW, HCBG or HCBT; "ZZZ" can be 108, 120, 132 or 144; and "A" can be T or BT
Energy America	Energy America modules with 30mm frames EA-ZLK8-THLDD132xxx/M
ET Solar (EliTe Solar)	ET Solar modules with 30, 33, 35, and 40 mm frames ET-YZZZxxxAA Where "Y" can be M, N or NR; "ZZZ" can be 48TBH, 66TBH, 672, 672BH, 754BH, 760BH, 766BH, 772BH, 760TBH, 766TBH, 772TBH, 848TBH or 866TBH; and "AA" can be GB, GL, TB, TW, WB, WW
Freevolt	Freevolt modules with 35 mm frames ECP-PVGRAF-144HC-xxx
GCL	GCL modules with 35 and 40 mm frames GCL-ab/YY xxx Where "a" can be M or P; "b" can be 3 or 6; and "YY" can be 60, 72 or 72DH
Goldi	Goldi modules with 35 mm frames GS10-Byyy-zz-xxx Where "yyy" can be 108 or 144; and "zz" can be GF or TF
Grape Solar	Grape modules with 35 mm frames GS-M120-xxx-FAB1
GreenWatts Solar	GreenWatts modules with 30 and 35 mm frames HSYY-xxx-ZZ Where "YY" can be 54, 60, 66, 72 or 78; and "ZZ" can be MN or BOB
Hansol	Hansol modules with 30 mm frames HAXxxYY-zzz Where "YY" can be AA, AD or XD; and "zzz" can be GNEA0 or NNEA0
Heliene	Heliene modules with 35 and 40 mm frames YYZZ-xxxA Where "YY" can be 72, 96, 108, 120, 132, 144 or 156; "ZZ" can be HC, M, MBLK G1, P or MSLV G1; and "A" can be blank, G1, G1 Bifacial, M10 Bifacial, M10-SL, M10-SL-BLK, M10 TPC SL, M10 SL-Bifacial, M10 TPC SL Bifacial, Bifacial, M10 NTYP SL or M10 NTYP SL Bifacial
HT SAAE	HT-SAAE modules with 35 and 40 mm frames HT72-aaaZ-xxx Where "aaa" can be 18, 156 or 166, "Z" can be M, M-C, M(V), M(V), X or X (ND)-F

Table 1: Modules Qualified for use with clawFR/clawFRplus	
Module Manufacturer	Module Type
Hyperion Solar (Runergy)	Hyperion or Runergy modules with 30 and 35 mm frames HY-DHzzzA8-xxxB Where "zzz" can be 108 or 144; "A" can be N or P; and "B" can be blank or B
Hyundai	Hyundai modules with 30, 32, 35, 40 and 50 mm frames HiY-SxxxZZ Where "Y" can be A, N or S; "S" can be M, S or T; and "ZZ" can be HG, HI, KI, NJ, NF(BK), OJ, PI, RI, TI, YH(BK) or XG(BK)
Illuminate USA	Illuminate USA Modules with 30 and 35 mm frames IL5-72HBD-xxxM
JA Solar	JA Solar modules with 30, 35 and 40 mm frames JAY-bbww-xxx/aa Where "y" can be M or P; "bb" can be 54, 60, 66, 72 or 78; "ww" can be D10, D30, D40, D41, D45, S01, S09, S10, S17, S30 or S31; and "aa" can be LB, MB, MR, SC or PR
Jinko	Jinko modules with 30, 35 and 40 mm frames JKMxxxZZ-aa Where "ZZ" can be M, N, P or PP; and "aa" can be 54HL4-B, 60L, 66HL4M-BDV, 72, 72H, 72-V, 72L-V, 72HL-V, 72H-V, 72HL-TV, 7RL3-V, 7RL3-TV, 72HBL-V, 72HL4-V, 72HL4-TV, 72HL4-V-TV, 72HL4-BDV or 72HL4-BDX
KB Solar	KB Solar modules with 35 mm frames KBS-xxx-Mono-YY Where "YY" can be blank or BF
LA Solar	LA Solar modules with 35 mm frames LSxxxYY Where "YY" can be BF, BL, BLA, HC or ST
LG	LG modules with 40, and 46 mm frames LGxxxYaZ-bb Where "Y" can be N, Q or S; "a" can be 1, 2 or 3; "Z" can be C, K, T, or W; and "bb" can be A5, A6, E6, E6.AW5, L5, V5, V6
Longi	Longi modules with 30, 35 and 40 mm frames LRa-YYzz-xxxM Where "a" can be 4, 5, 6, 7 or 8; "YY" can be 54, 66 or 72; and "zz" can be blank, HV, PE, PH, HBD, HGD, HGDB, HPB, HPH, HIBD, HABB or HABD
Maxeon	Maxeon modules with 35, 40, and 46 mm frames SPR-AAAY-xxx-zzz Where "AAA" can be MAX, P or X; "Y" can be 3, 5, 6, 7, 21 or 22; and "zzz" can be blank, R, BLK, BLK-R, COM, or UPP
Meyer Burger	Meyer Burger Modules with 35 mm frames Meyer Burger Black or White
Mission Solar (mSolar)	Mission Solar modules with 35 and 40 mm frames YYYbbxxxZZaa Where "YYY" can be MSI, MSE, TXI or TXS; "bb" can be blank, 6 or 10; "ZZ" can be blank, HN, HT, SQ, SX, 108, 120 or 144; and "aa" can be blank, BB, BW, 4G, 4T, 5R, 6W, 6Z, 9R, 9S or 9Z

Table 1: Modules Qualified for use with clawFR/clawFRplus	
Module Manufacturer	Module Type
Mitrex	Mitrex modules with 30 mm frames Mxxx-X3H Where "X" can I or L
NE Solar	NE Solar modules with 30, 35 and 40 mm frames NESExxx-zzAAX-yy Where "zz" can be 54, 60 or 72; "AA" can be MH or TH; "X" can be blank or B; and "yy" can be M6 or M10
Neo Solar	Neo Solar Power modules with 35 mm frames D6MxxxE4A
Panasonic	Panasonic modules with 40 mm frames VBHNxxxYYzzA Where "YY" can be either KA, RA or SA; "zz" can be either 03, 17 or 18; and "A" can be blank, E or N
Panasonic (EverVolt)	Panasonic modules with 30 mm frames EVPVxxxA Where "A" can be blank or H, K, HK, HK2 or PK
Philadelphia Solar	Philadelphia modules with 30, 35 and 40 mm frames PS-YzzAA-xxxW Where "Y" can be M, MNB, MNG or P; "zz" can be 60, 72, 108, 132, 144 or 156; and "AA" can be blank, (BF), (HC), (HCBF) or (HCBF)-GG; and "W" can be blank or W
Phono Solar	Phono Solar modules with 30, 35 and 40 mm frames PSxxxY-ZZ/A Where "Y" can be M, M1, MH, M1H, M4, M4H, M6, M6H, M8H, M8GF or M8GFH; "ZZ" can be 18, 20 or 24; and "A" can be blank, T, TH, TNH, UHB, VHB or VNHB
Prism Solar	Prism Solar modules with 35 mm frames PST-xxxW-M72Y Where "Y" can be H, HB, or HBI
Q CELLS	Q CELLS Modules with 30, 32, 35 and 40 mm frames aaYY-ZZ-xxx where "aa" can be Q. or B.; "YY" can be PLUS, PRO, PEAK, LINE PRO, LINE PLUS, PLUS DUO, PEAK DUO or Tron; and "ZZ" can be BFR G4, BFR G4.1, BFR G4.3, BFR G4.1, BFR G4.1/TAA, EC-G4.4, G4, G4.1, BLK G4.1, G4.2, G4.1/MAX, G4.1/TAA, BLK G4.1/TAA, G5, BLK G5, BLK-G6+/HL, L-G4, L-G4.1, L-G4.2, L-G5.2, L-G5.3, L-G6.2, L-G6.3, L-G6.3/BFG, L-G4.2, L-G4.2/TAA, L-G7, L-G7.2, L-G7.3, L-G8.2, L-G8.3, L-G8.3/BFG, L-G8.3/BGT, BLK-G10, BLK-G10+, BLK-G10+/AC, M-G2+, BLK M-G2+, BLK M-G2.H+, BLK M-G2+/AC, BLK M-G2.H1+/AC, BLK ML-G10+, BLK ML-G10.B+, BLK ML-G10.C+, BLK ML-G10+/t, BLK-G10+/HL, BLK ML-G10+/TS, ML-G12S.3/BFG, XL-G2.3/BFG, XL-G10.c, XL-G10.d, XL-G10.d/BFG, XL-G10.2, XL-G10.3, XL-G10.3 / BFG, XL-G11.2, XL-G11.3, XL-G11.3/BFG or XL-G11S.3/BFG
Rayzon Solar	Rayzon Solar Modules with 35 mm frames RSGxxxWC

Table 1: Modules Qualified for use with clawFR/clawFRplus	
Module Manufacturer	Module Type
REC	REC modules with 30 and 38 mm frames RECxxxYYZZ Where "YY" can be AA, NP, NP2, NP3, TP2, TP2S, TP2M or TP2SM; and "ZZ" can be blank, Black, BLK, BLK2, 72, Pro M, Pro L, Pure, Pure-R, Pure-RX or Pure 2
Renogy	Renogy Modules with 35 mm frames RAAxxxD-YY-ZZZ Where "AA" can be NG or SP; "YY" can be blank, 144, BB or BK; and "ZZZ" can be blank, 108 or 120
Risen	Risen Modules with 30, 35 and 40 mm frames RSMyy-a-xxxZ Where "yy" can be 72, 110, 120 or 144; "a" can be 6 or 8; and "Z" can be M, P or BMDG
S-Energy	S-Energy modules with 35 mm frames SABB-CCYYY-xxxZ Where "A" can be L; "BB" can be 40; "CC" can be 72; "YYY" can be MAI, MBI or MCI; and "Z" can be V
SEG Solar	SEG Solar modules with 30, 33, 35 and 40 mm frames SBB-aYY-xxx-ZZ Where "BB" can be RP or EG; "a" can be blank, 6 or B; "YY" can be blank, MA or PA; and "ZZ" can be blank, 6MA, 6PA, 6MA-HV, BB, BG, BW, WB, WW, BMB, BMA-HV, BMA-BG, BMA-TB, BMB-TB, BMB-BG, BMD-BG, BMB-HV, BMD-HV, BMD-TB, BTA-BG, BTB-BG, BTD-BG, BTC-BG or BTZ-BG
Sharp Electronics	Sharp modules with 40 mm frames NU-SAxxx
Shinsung E&G	Shinsung E&G modules with 35 mm frames SSVxxx-144MH
Silfab	Silfab Modules with 35 and 38 mm frames SIL-xxxAA Where "AA" can be BG, BK, BL, HC, HC+, HM, HN, HL, NL, QD, QM, XM or XM+
Sinotec	Sinotec Modules with 30 mm frames STS-xxxP-54DD
Sirius PV	Sirius PV Modules with 35 mm frames ELNSM54M-HC-BF-xxx
Solar4America	Solar4America modules with 30, 35 or 40 mm frames S4Axxx-ZZyy Where "ZZ" can be 60, 72, 108 or 144; "yy" can be MH5, MH5BB, MH5BW, MH10STT, TH10BB, TH10STT or TH16STT
Solarever	Solarever modules with 30, 35 mm frames SE-zzz*yy-xxxM-aaa Where "zzz" can be 166 or 182; "yy" can be 83, 91 or 105; and "aaa" can be 96-BD, 108 or 144
Solaria	Solaria modules with 35 mm frames PowerA-xxxY-ZZ Where "A" can be X or XT; "Y" can be R; and "ZZ" can be blank or PL

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Module Manufacturer	Module Type
SolarSpace	SolarSpace modules with 30 and 35 mm frames SS8-yyzzz-xxxA Where "yy" can be 54 or 72; "zzz" can be HD, HDB or HSB; and "A" can be M or N
SolarTech Universal	SolarTech modules with 40 mm frames EPIQ
Sonali	Sonali modules with 35 and 40 mm frames SS-M-xxx-yyy Where "M" can be blank or M; and "yyy" can be blank or W-M60H M10
Solarworld	Solarworld Modules with 33 mm frames SWxxx
Star Solar	Star Solar modules with 35 mm frames Star-xxxW-YYY-ZZZ Where "YYY" can be M60H or M60HB; and "ZZZ" can be blank or M10
Sunmac Solar	Sunmac modules with 30 and 35 mm frames SMxxxMaaaZZ-YY Where "aaa" can be 660, 754 or 772; "ZZ" can be NH or SH; and "YY" can be BB or TB
SunPower	Sunpower modules with 35, 40 and 46 mm frames SPR-Zb-xxx-YY Where "Z" can be A, E, M, P or X; "b" can be blank, 5, 17, 18, 19, 20, 21, 22 or 23 and "YY" can be COM, COM-MLSD, MLSD, MLSD-COM, G-AC, BLK-G-AC, H-AC, BLK-H-AC or UPP
Suntech	Suntech Modules with 35 and 40 mm frames STPxxxy-zz/aa Where "y" is blank or S; and "zz" can be 24, B60 or B72; and "aa" can be Vfw, Vnh, or Wnhb
Talesun	Talesun modules with 30, 35 and 40 mm frames TAByZZaa-xxx Where "A" can be D, M or P; and "B" can be 3, 6, 7 or 9; "y" can be blank, F, G, H, I or L; "ZZ" can be 48, 54, 60, 66, 72 or 78; and "aa" can be M, M(H) or P
Tata Power Renewable Energy	TP Solar Ltd modules with 30 mm frames TPxxxHG10B
Tesla	Tesla modules with 40 mm frames TxxxY Where "Y" can be H or S
Thornova	Thornova Modules with 30 and 35 mm frames TS-YYZZ(xxx)-X Where "YY" can be BB, BBT, BG or BGT; "ZZ" can be 54, 60 or 72; and "X" can be blank, G11 or X
Topco Solar	Topco Solar modules with 30mm frames TPM7-SH108-xxx/M

Table 1: Modules Qualified for use with clawFR/clawFRplus	
Module Manufacturer	Module Type
Trina Solar	Trina Modules with 30, 35, 40 and 46 mm frames TSM-xxxYYZZ Where "YY" can be DD, DE, DEG, NED, NEG, NE09RC, NE09RH.05, NE19RC, NEG21C.20, PA, PD or PE; and "ZZ" can be .05, 05A, 05.08, 09.05, 09C.05, 09C.07, 06XC.05(II), 06XC.07(II), 14, 14A(II), 14H(II), 14H.08(II), 15H, 15H(II), 15M(II), 15HC.20(II), 15MC.20(II), 15V, 15V(II), 15VC.20(II), 18M(II), 18M.08(II), 18MC.20(II), 19, 19C.20, 19RC.20 or 21C.20
Universal	Universal Solar Modules with 35 mm frames UNI-xxx-yyyZZZ-aa Where "yyy" can be 108, 120 or 144; "ZZZ" can be M, MH, BMH; and "aa" can be blank, BB or DG
Upsolar	Upsolar Modules with 40 mm frames UP-MxxxM
URE/NSP	URE/NSP modules with 35 mm frames DyZxxxAA Where "D" can be D or F, "y" can be A, B, 6 or 7; "Z" can be F, K, M or L; and "AA" can be B7G, B8G, BFG, BFG-BB, C8G, DFG-BB, H4A, H8A, E7G-BB, E8G, E8G-BB, L4A, MFG, MFG-BB or M7G-BB
Vikram	Vikram solar modules with 35 and 40 mm frames XVSyy.ZZ.AAA.bb Where "X" can be Hypersol, Paradea, Prexos, or Somera; "yy" can be M, MH, MHBB MS, MDH, MDT or MDHT; "ZZ" can be 54, 60, 66, 72 or 78; "AAA" is the module power rating; and "bb" can be 03, 04, or 05
VSUN	VSUN modules with 30 and 35 mm frames VSUNxxxA-YYYYZ Where "A" can be blank or N; "YYY" can be 108, 120, 132 or 144; and "ZZ" can be BMH, BMH-BB, BMH-DG, M, M-BB, M-BW or MH
Waaree	Waaree modules with 35 mm frames AA-ZZ-xxx Where "AA" can be BI, WSMDI or WSMDIB; "ZZ" can be blank, 55 or 66
Yingli	Yingli modules with 40 mm frames YGE-XXX-T
Yotta	Yotta modules with 30 and 35 mm frames YSM-Bxxx-ZZ-72-1 Where "ZZ" can be 06 or 10
Zeus	Zeus Solar Modules with 40 mm frames ZxxxM-HB
Znshine	ZN Shine modules with 30, 35 and 40 mm frames ZXMY-AAA-xxx/B Where "M" can be M or P; "Y" can be 6, 7 or 8; "AAA" can be 72, GPLDD132, NH120, NH144, NHDB144, NHLDD144, SH108, SH144, SHDB120, SHDB144, SHLDD120, SHLDD144, TP120, TP132, TPLDD120, TPLDD132 or UHLDD144; and "B" can be M, N or P

UL 2703 List of Approved Module Level Power Electronics (MLPE)

We Regularly add modules and MLPEs to this listing. If the module or MLPE you're using is not shown here, contact us so we can evaluate it for addition to our listing.

Table 2: MLPEs Qualified for use with clawFR/clawFRplus	
MLPE Manufacturer	MLPE Model Description
Enphase	IQ7, IQ 7+, IQ8, IQ8+
NEP	PVG-1, PVG-2, PVG-3, PVG-4
Solar Edge	C651U, C652U, P730, P800p, P850, P860, P960, P1101, S1201
Tigo	TS4-A-X (where X can be F, 2F, O, S, or M)
Yotta	DPI 208/480

Table 3: Microstorage Products Qualified for use with clawFR/clawFRplus	
Microstorage Manufacturer	Microstorage Model Description
Yotta	SL-1000