

REVISIONS			
DESCRIPTION	DATE	REV	
INITIAL RELEASE	04/26/2022	UR	

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PROJECT NAME

SHEET NAME	SPEC SHEETS
SHEET SIZE	ANSI B 11" X 17"
SHEET NUMBER	PV-10

Mechanical Parameters	Operating Parameters
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Mechanical Parameters	Operating Parameters
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Operational Temperature: -40 °T ~ +85 °T
Power Output (Maximum): 0 ~ 5 W
Vcc and Icc (Maximum): 250 mA
Maximum System Voltage: 0 ~ 5.5 VDC (ECC4)
Maximum Serial Bus Rate: 25 k
Nominal Operating Cell Temperature: 45 ± 2 °T
Safety Class: Class 3
Fire Rating: UL Type 3
Biocompatibility: Class 1



Week	STC	MOQ	STC	MOQ
1	54.0	100	54.0	100
2	54.0	100	54.0	100
3	54.0	100	54.0	100
4	54.0	100	54.0	100

Year	DTY	STC	NOCT	STC	NOCT
1997	21.0	27.8	4.0	4.0	4.0
1998	15.1	15.9	49.2	45.0	4.0
1999	15.1	15.9	2.5	2.5	2.5
2000	20.8	20.0	41.0	39.2	4.0
2001	20.8	20.0	4.0	4.0	4.0
2002	20.8	20.0	4.0	4.0	4.0
2003	20.8	20.0	4.0	4.0	4.0
2004	20.8	20.0	4.0	4.0	4.0
2005	20.8	20.0	4.0	4.0	4.0
2006	20.8	20.0	4.0	4.0	4.0
2007	20.8	20.0	4.0	4.0	4.0
2008	20.8	20.0	4.0	4.0	4.0
2009	20.8	20.0	4.0	4.0	4.0
2010	20.8	20.0	4.0	4.0	4.0
2011	20.8	20.0	4.0	4.0	4.0
2012	20.8	20.0	4.0	4.0	4.0
2013	20.8	20.0	4.0	4.0	4.0
2014	20.8	20.0	4.0	4.0	4.0
2015	20.8	20.0	4.0	4.0	4.0
2016	20.8	20.0	4.0	4.0	4.0
2017	20.8	20.0	4.0	4.0	4.0
2018	20.8	20.0	4.0	4.0	4.0
2019	20.8	20.0	4.0	4.0	4.0
2020	20.8	20.0	4.0	4.0	4.0
2021	20.8	20.0	4.0	4.0	4.0
2022	20.8	20.0	4.0	4.0	4.0
2023	20.8	20.0	4.0	4.0	4.0
2024	20.8	20.0	4.0	4.0	4.0
2025	20.8	20.0	4.0	4.0	4.0
2026	20.8	20.0	4.0	4.0	4.0
2027	20.8	20.0	4.0	4.0	4.0
2028	20.8	20.0	4.0	4.0	4.0
2029	20.8	20.0	4.0	4.0	4.0
2030	20.8	20.0	4.0	4.0	4.0
2031	20.8	20.0	4.0	4.0	4.0
2032	20.8	20.0	4.0	4.0	4.0
2033	20.8	20.0	4.0	4.0	4.0
2034	20.8	20.0	4.0	4.0	4.0
2035	20.8	20.0	4.0	4.0	4.0
2036	20.8	20.0	4.0	4.0	4.0
2037	20.8	20.0	4.0	4.0	4.0
2038	20.8	20.0	4.0	4.0	4.0
2039	20.8	20.0	4.0	4.0	4.0
2040	20.8	20.0	4.0	4.0	4.0
2041	20.8	20.0	4.0	4.0	4.0
2042	20.8	20.0	4.0	4.0	4.0
2043	20.8	20.0	4.0	4.0	4.0
2044	20.8	20.0	4.0	4.0	4.0
2045	20.8	20.0	4.0	4.0	4.0
2046	20.8	20.0	4.0	4.0	4.0
2047	20.8	20.0	4.0	4.0	4.0
2048	20.8	20.0	4.0	4.0	4.0
2049	20.8	20.0	4.0	4.0	4.0
2050	20.8	20.0	4.0	4.0	4.0
2051	20.8	20.0	4.0	4.0	4.0
2052	20.8	20.0	4.0	4.0	4.0
2053	20.8	20.0	4.0	4.0	4.0
2054	20.8	20.0	4.0	4.0	4.0
2055	20.8	20.0	4.0	4.0	4.0
2056	20.8	20.0	4.0	4.0	4.0
2057	20.8	20.0	4.0	4.0	4.0
2058	20.8	20.0	4.0	4.0	4.0
2059	20.8	20.0	4.0	4.0	4

to 443 W from

Electrical characteristics with different rear side power gain (reference)

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187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Mechanical | Leadline

Temperature Rating (°C)

Current-Voltage Curves (1.0-7749D-40M)

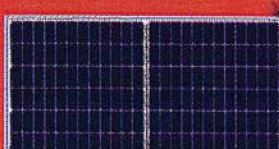


LONGI

Due to continued technical innovation, IBCO and its improvement, technical data have prevailed most for modification accordingly. LONGI have the sole right to make such modifications as require without further notice. Demanding party will request for the latest data sheet for such as contract, and make it a consulting and binding part of all communication with respect to both parties.

LONGI Solar Energy Co., Ltd. 隆基太阳能有限公司
Room 821, Tower 3, Jinfeng Financial Plaza, No. 824, Fuyuan Avenue, Aotian Zhanghuo, 300129, China
Tel: 400-23-302606 Fax: 400-23-302606 www.longi-solar.com www.facebook.com/LONGI.Solar

2010040300711

[illegible]

LR4-72HBD
425~455M

**High Efficiency
Low LID Bifacial PERC with
Half-cut Technology**

-0.45%

84.95%



Complete Content and Product Certifications

- | | |
|---|---|
| <ul style="list-style-type: none"> - High module conversion efficiency (up to 20.9%) - Better energy yield with excellent low irradiance performance and temperature coefficient - First year power degradation <2% | <p>High-efficiency technology enables additional energy harvesting from rear side (up to 25.6%)</p> <p>Glass/glass lamination enables 30-year product lifetime, with annual power degradation < 0.05%, 1500h⁺ competitive to reduce BOS cost</p> <p>Solid PID resistance ensured by your cell process optimization and careful module BOM selection</p> <p>Reduced relative loss with lower operating current</p> <p>Higher energy yield with lower operating temperature</p> <p>Reduced hot spot risk with optimized electrical design and lower operating current</p> |
|---|---|

LONGI

Room 801, Tower 3, Cultural Financial Plaza, No.323 Zhenyuan Avenue, Pudong Shanghai, 200120, China
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3.8 kW | 7.6 kW

17
12
9
7
4
3
2
1
0

- The Government of Kentucky has been successful in its efforts to increase the number of people who are employed in the state.
- The Government of Kentucky has been successful in its efforts to increase the number of people who are employed in the state.

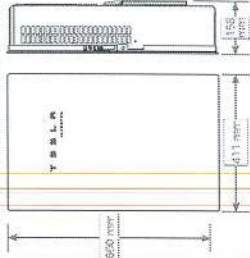
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- * Integrated into a broader, more formal, and more robust education
- * The standard number of subjects to high school is to complete took

3.2 kW	7.6 kW
3,600 W	7,600 W
3,200 VA at 208 V	6,650 VA at 208 V
3,400 VA at 240 V	7,000 VA at 240 V
16 A	32 A
Maximum Continuous Current	20 A
Breaker (Overcurrent Protection)	25 A
Nominal Power Factor	1.0, 0.95 (cosφ / leading)
THD (at Nominal Power)	<5%
2	4
1-2	1-2-1-2
Input Connectors per MPPT	600 VDC
Maximum Input Voltage	90 ~ 150 VDC
DC Input Voltage Range	50 ~ 480 VDC
DC MPPT Voltage Range	Maximum Current per MPPT ()
Maximum Current per MPPT ()	11 A
Maximum Input Circuit Current per MPPT ()	19 A

Dimensions	657 mm x 231 mm x 158 mm (26 in x 9 in x 6 in)
Weight	52 lb*
Mounting options	Wall Mount (standard)



Feature	Model A	Model B	Model C
Peak Efficiency	97.5%	98.2%	96.0%
CEC Efficiency	97.5%	98.5%	96.0%
Max AC Ratio	1.4	1.5	1.3
Customer Interface	Touchscreen App	Web Portal	Mobile App
Internet Connectivity	WiFi (2.4 GHz, 802.11 b/n)	Bluetooth, Cellular (4G LTE)	WiFi (2.4 GHz, 802.11 b/n)
AC Remote Metering Support	Yes (up to 4 CHL, 802.11 b/n)	Yes (up to 8 CHL, 802.11 b/n)	Yes (up to 2 CHL, 802.11 b/n)
Protections	Includes surge protection and fault current interrupter (FCI)	Includes surge protection and fault current interrupter (FCI)	Includes surge protection and fault current interrupter (FCI)
Supported Grid Types	60 Hz, 240 V Split Phase	60 Hz, 240 V Split Phase	60 Hz, 240 V Split Phase
Required Number of Ties	1	2	1
Warranty	10 years	12 years	10 years

Operating Temperature	-50°C to 85°C (-52°F to 133°F)
Operating Humidity (RH)	5% to 90% (noncondensing)
Storage Temperature	-50°C to 70°C (-52°F to 158°F)
Maximum Elevation	5000 m (16413 ft)
Environment	Indoor and outdoor rated
Seals/Bearing Rating	Type 2B
Ingress Rating	IP55 (Power components)
Performance Rating	100% for power electronics and terminal wiring components; 95% for all other components
Operating Noise @ 1 m	< 60 dBA nominal, < 50 dBA maximum
Operating Power	For the 7.5-kW solid inverter, performance may be derated to 6.2 kW at 40°C (104°F). For the 15-kW solid inverter, performance may be derated to 12.5 kW at 40°C (104°F).

Grid Certifications	UL 1741, UL 1741 SA, IEEE 1547, IEEE 1547.1
Safety Certifications	UL 1604B, UL 1741, UL 1998 (US)
Emissions	FCC 47CFR15.109 (a) FCC 47CFR15.109 (b)

THE A COMPANY

THE A COMPANY

SPEC SHEETS

ANSI B
11" X 17"

SHEET NUMBER
PV-11

BARRY JACOBSON
4509 NW 23RD AVE, STE 20,
GAINESVILLE, FL 32606
TEL: (352)281-5946
CSLB #: CVC56761
Email barry@solairimpact.com

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL RELEASE	04/26/2022	UR

THOMAS COLLINS
1250 NW DALIAN LN,
LAKE CITY, FL 32055 USA
APN# 313S1706127001
UTILITY: FPL
AHJ: CITY OF LAKE CITY

SOLAR SHUTDOWN DEVICE

The Tesla Solar Shutdown Device is part of the PV system rapid shutdown (RSD) function in accordance with Article 690 of the 2014 National Electrical Code (NEC). When paired with the Tesla Solar Inverter, the PVRSS is initiated by any loss of AC power.



ELECTRICAL SPECIFICATIONS

Nominal Input DC Current Rating (I _{sc})	12 A
Maximum Input Short Circuit Current (I _{sc})	15 A
Maximum System Voltage	500 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

COMPLIANCE INFORMATION

Certifications	UL 1741 PVRSS PVRSA (Photovoltaic Rapid Shutdown Array)
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PVRSS

RSD Initiation Method	Loss of AC power
Compatible Equipment	Tesla Solar Inverter

ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature	-40°C to 50°C (-40°F to 122°F)
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Enclosure Rating	NEMA 4 / IP65

SOLAR SHUTDOWN DEVICE REQUIREMENTS PER MODULE

The following modules have been certified as part of a PV Rapid Shutdown Array (PVRSA) when installed together with the Tesla Solar Inverter and Tesla Solar Shutdown Devices. See the Tesla Solar Inverter Installation Manual for guidance on installing Tesla Solar Inverter and Solar Shutdown Devices with other modules.

Brand	Model	Required Solar Shutdown Devices
Tesla	Solar Roof V3	1 Solar Shutdown Device per 10 modules
Hanwha	Q-PEAK DUO BLK-GS	1 Solar Shutdown Device per 3 modules
Hanwha	Q-PEAK DUO BLK-GS+	1 Solar Shutdown Device per 3 modules

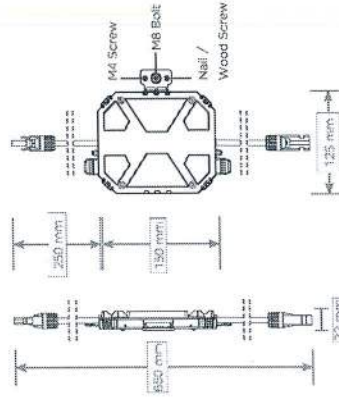
特斯拉太阳能

NA 2021-1-14

TESLA.COM/ENERGY

MECHANICAL SPECIFICATIONS

Electrical Connections	MCA Connector
Housing	Plastic
Dimensions	125 mm x 150 mm x 22 mm (3 in x 6 in x 1 in)
Weight	350 g (0.77 lb)
Housing Options	ZEP Home Run Clip M4 Screw (#10) M8 Bolt (5/16") Nail / Wood screw



THOMAS COLLINS
1250 NW DALIAN LN,
LAKE CITY, FL 32055 USA
APN# 313S1706127001
UTILITY: FPL
AHJ: CITY OF LAKE CITY

PROJECT NAME

SHEET NAME

SPEC SHEETS

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-12

solar impact
BARRY JACOBSON
4509 NW 23RD AVE, STE 20,
GAINESVILLE, FL 32606
TEL: (352) 281-5946
CSLB #: CVC56761
Email: barry@solariimpact.com

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PHOTOVOLTAIC (PV) AND BATTERY ENERGY STORAGE SYSTEM (BESS) SPECIFICATIONS

Normal Battery Energy	13.5 kWh
Nominal Grid Voltage (Input / Output)	120/240 VAC
Grid Voltage Range	211.2 - 264 VAC
Frequency	60 Hz
Phase	240 VAC, 2N4-HS400
Maximum Continuous Power On-Grid	7.6 kW full sun / 5.8 kW no sun*
Maximum Continuous Power Off-Grid	2.6 kW full sun / 1.7 kW no sun*
Peak On-Grid Power (POG)	32.6 kW full sun / 19.4 kW no sun*
Maximum Continuous Current On-Grid	32 A output
Maximum Continuous Current Off-Grid	40 A output
Load Start Capability	118 A LPA
PV Maximum Input Voltage	605 VDC
PV DC Input Voltage Range	60 - 550 VDC
PV AC Input Voltage Range	60 - 480 VDC
MPPT	4
MPPT Connections per MPPT	12-1-2
Maximum Current per MPPT (I_{sc})	13 A
Maximum Short Circuit Current per MPPT (I_{sc})	15 A
Maximum DC/AC Ratio	1.7
Overcurrent Protection Device	50 A breaker
Maximum Supply Fault Current	10 kA
Maximum Power Factor Rating	+/- 0.9 to 1
Ground Trip Efficiency	99%
Power Generation (DC Efficiency)	97.5% @ 208 V 96.8% @ 240 V
Customer Interface	Trailblazer ASB
Remote Connectivity	Wi-Fi, Ethernet, Cellular, TE/4G
AC/DC Isolating	Isolated AC/DC ($> 0.38\text{ kV}$)
Protections	Isolated AC/DC (ATEC) Rapid Shutdown (RSD)
Warranty	10 years

IV Certifications	UL 1699B, UL 7471, UL 7243 SA, UL 1938 B (A2), IEEE 1547 Safety Energy Storage System Certifications 1973, UL 8540, IEEE 1547, IEEE 1547-1, UN 38.3
Eric Connection	United States
Missions	FCC Part 15 Class B
Environmental	RoHS Directive 2011/65/EU CE L56, IEEE 693-2006 (mP3)
Electric	

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100% (non-condensing)
Storage Conditions	-20°C to 30°C (-4°F to 86°F) Up to 95% RH, non-condensing Storage of Series 50SE, 2000 Initial State (M33 T)
Maximum Humidity	3000 m (M33 T)
Environment	Indoor and outdoor rated
Humidity Type	Type 300
Relative Humidity Level (g/m ³)	< 40 g/m ³ (optimal), < 50 g/m ³ maximum

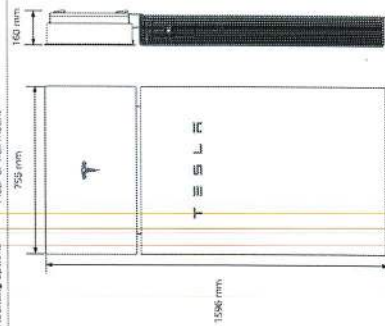
(Values provided for 2000 (T7FF).)

Due to history of AC, all wiring must be grounded.

For all connectivity subjects to network service and signal integrity, the total weight does not include the Renewable bracket, which weighs approximately 3 kg (20 lb).

Performance may be the result at operating temperatures below 10°C (50°F).

Dimensions	19.96 x 75.5 x 160 mm (62.8 x 20.7 x 6.3 in)
Total Weight	140 kg (310 lb)*
Battery Assembly	118 kg (261 lb)
Solar Assembly	22 kg (49 lb)
Mounting options	Flats or wall mounts



of product sales in 2009-10.

TESLA.COM/ENGLISH

北山園

- Integrated battery, inverter, and system controller for a more compact install
- A wide range of application modes, including grid-tied, off-grid, and backup modes
- Web-enabled and 110V connectivity with easy-to-use plug-in IP or LAN interface

Powerwall is an integrated solar-battery system that stores energy from solar production. Its integrated design and prewired connections allow for simple connection to any home, and increased surge power capability. Despite whole home backup it is a smaller package. Smart system controls enable owners to customize system behavior to suit their desirable energy needs.

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1250 NW DALIAN LN,
LAKE CITY, FL 32055 USA
APN# 313S1706127001
UTILITY: FPL

SHEET NAME
SPEC SHEETS

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ANSI B
11" X 17"

SHEET NUMBER
PV-13