



TOPHiKu6 (All-Black)

N-type TOPCon Technology

435 W ~ 465 W

CS6.2-48TD-435 | 440 | 445 | 450 | 455 | 460 | 465

MORE POWER



Module power up to 465 W
Module efficiency up to 23.3 %



Excellent anti-LeTID & anti-PID performance.
Low power degradation, high energy yield



Lower temperature coefficient (Pmax): -0.29%/°C,
increases energy yield in hot climate



Lower LCOE & system cost

MORE RELIABLE



Tested up to ice ball of 35 mm diameter
according to IEC 61215 standard



Minimizes micro-crack impacts



Heavy snow load up to 6000 Pa,
wind load up to 4000 Pa*



Industry Leading Product Warranty on Materials and Workmanship*



Linear Power Performance Warranty*

**1st year power degradation no more than 1%
Subsequent annual power degradation no more than 0.4%**

*Subject to the terms and conditions contained in the applicable Canadian Solar Limited Warranty Statement. Also this 25-year limited product warranty is available only for products installed and operating on rooftops in certain regions.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001: 2015 / Quality management system
ISO 14001: 2015 / Standards for environmental management system
ISO 45001: 2018 / International standards for occupational health & safety
IEC 62941: 2019 / Photovoltaic module manufacturing quality system

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68
UNI 9177 Reaction to Fire: Class 1 / Take-e-way



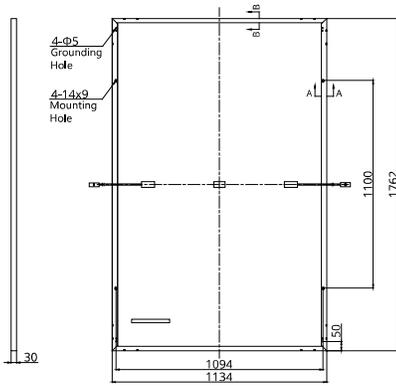
* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

CSI Solar Co., Ltd. is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 23 years, it has successfully delivered over 133 GW of premium-quality solar modules across the world.

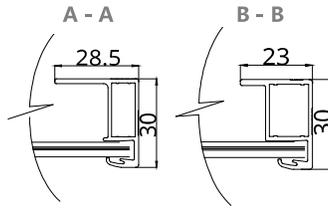
* For detailed information, please refer to the Installation Manual.

ENGINEERING DRAWING (mm)

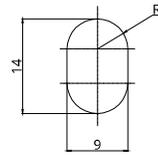
Rear View



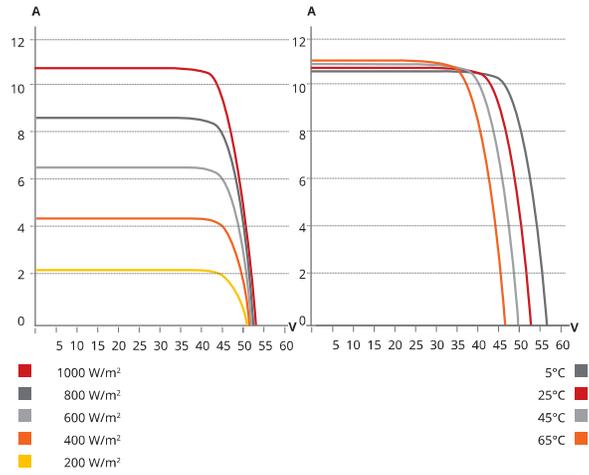
Frame Cross Section



Mounting Hole



CS6.2-48TD-455 / I-V CURVES



ELECTRICAL DATA | STC*

CS6.2-48TD	435	440	445	450	455	460	465
Nominal Max. Power (Pmax)	435 W	440 W	445 W	450 W	455 W	460 W	465 W
Opt. Operating Voltage (Vmp)	44.2 V	44.4 V	44.6 V	44.8 V	45.0 V	45.2 V	45.4 V
Opt. Operating Current (Imp)	9.85 A	9.91 A	9.98 A	10.05 A	10.12 A	10.18 A	10.25 A
Open Circuit Voltage (Voc)	52.3 V	52.5 V	52.7 V	52.9 V	53.1 V	53.3 V	53.5 V
Short Circuit Current (Isc)	10.47 A	10.54 A	10.61 A	10.68 A	10.75 A	10.82 A	10.89 A
Module Efficiency	21.8%	22.0%	22.3%	22.5%	22.8%	23.0%	23.3%
Operating Temperature	-40°C ~ +85°C						
Max. System Voltage	1500V (IEC/UL)						
Module Fire Performance	TYPE 29 (UL 61730) or CLASS C (IEC 61730)						
Max. Series Fuse Rating	20 A						
Protection Class	Class II						
Power Tolerance	0 ~ + 10 W						

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL DATA | NMOT*

CS6.2-48TD	435	440	445	450	455	460	465
Nominal Max. Power (Pmax)	328 W	332 W	336 W	339 W	343 W	347 W	351 W
Opt. Operating Voltage (Vmp)	41.7 V	41.8 V	42.0 V	42.2 V	42.4 V	42.6 V	42.8 V
Opt. Operating Current (Imp)	7.87 A	7.93 A	7.98 A	8.04 A	8.09 A	8.14 A	8.20 A
Open Circuit Voltage (Voc)	49.4 V	49.6 V	49.8 V	50.0 V	50.1 V	50.3 V	50.5 V
Short Circuit Current (Isc)	8.44 A	8.50 A	8.55 A	8.61 A	8.67 A	8.72 A	8.78 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m² spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

MECHANICAL DATA

Specification	Data
Cell Type	TOPCon cells
Cell Arrangement	144 [2 x (12 x 6)]
Dimensions	1762 × 1134 × 30 mm (69.4 × 44.6 × 1.18 in)
Weight	24.6 kg (54.2 lbs)
Front Glass	2.0 mm heat strengthened glass with anti-reflective coating
Back Glass	2.0 mm heat strengthened glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	4 mm ² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	Portrait: 300 mm (11.8 in) (+) / 200 mm (7.9 in) (-); landscape: 1100 mm (43.3 in)*
Connector	T6 or MC4-EVO2 or MC4-EVO2A
Per Pallet	36 pieces
Per Container (40' HQ)	936 pieces

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.29 % / °C
Temperature Coefficient (Voc)	-0.25 % / °C
Temperature Coefficient (Isc)	0.045 % / °C
Nominal Module Operating Temperature	42 ± 3°C

PARTNER SECTION



* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice. Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

CSI Solar Co., Ltd.

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DATASHEET
 Single-Phase Hybrid/AC Inverter
 H1-3.0 / 3.7 / 4.6 / 5.0 / 6.0-E-G2
 AC1-3.0 / 3.7 / 4.6 / 5.0 / 6.0-E-G2



H1&AC1(G2)

HYBRID/AC INVERTER

Harness the power of the sun day and night with the ground-breaking range of Hybrid & AC inverters from Fox ESS.

Full of advanced features and compatible with our very own range of high-voltage batteries, the hybrid range from Fox ESS. It is a new class of Inverter.



Fox ESS storage solutions are available with advanced and intuitive app based remote control and monitoring functionality.



Easy Installation

Flexible configuration, plug and play set-up, built-in fuse protection.



High Voltage

Includes high-voltage batteries for maximum round-trip efficiency.



IP65 Rated

Engineered to last with maximum flexibility. Suitable for outdoor installation.



Remote Monitoring

Monitor your system remotely via smartphone app or web portal.



up to
6kW
 charge/
 discharge

REFINED – POWERFUL – FLEXIBLE

BATTERY EXPANSION EASY UPGRADE



Expand your system easily by simply adding additional batteries. There are three battery size options, and Max. seven batteries can be installed in series, providing up to 33.24kWh of storage capacity.

For more about the Fox ESS range, visit:

WWW.FOX-ESS.COM



TECHNICAL SPECIFICATIONS

Model	H1-3.0-E-G2 AC1-3.0-E-G2	H1-3.7-E-G2 AC1-3.7-E-G2	H1-4.6-E-G2 AC1-4.6-E-G2	H1-5.0-E-G2 AC1-5.0-E-G2	H1-6.0-E-G2 AC1-6.0-E-G2
INPUT PV (ONLY FOR HYBRID)					
Max. Input Power [W]	4500 A:2250 B:2250	5500 A:2750 B:2750	6900 A:3450 B:3450	7500 A:3750 B:3750	9000 A:4500 B:4500
Max. Input Voltage [V]	600				
Start-up Input Voltage [V]	75				
Rated Input Voltage [V]	360				
MPPT Operating Voltage Range [V]	80 ~ 550				
Max. Input Current [A]	16 / 16				
Max. Short-circuit Current [A]	20 / 20				
No. of Independent MPP Trackers	2				
No. of Strings per MPP Tracker	1				
BATTERY CONNECTION					
Battery Type	Lithium Battery (LFP)				
Battery Voltage [V]	80 ~ 480				
Max. Charge/Discharge Current [A]	40				
Communication Interface	CAN(communicate with inverter, upgrade BMS)				
AC INPUT AND OUTPUT (GRID)					
Max. AC Input Power [VA]	6000	7680	9200	10000	12000
Max. AC Input Current (per phase) [A]	27.3	34.9	41.8	45.5	54.5
Rated Output Power [W]	3000	3680	4600	5000	6000
Max. Output Apparent Power [VA]	3300	4048/3680 ¹	5060	5500	6600
Rated Output Current (per phase) [A]	13.6	16.7/16 ¹	20.9	22.7	27.3
Rated Output Current (per phase) [A](For AUS)	13.0	16.0	20.0	21.7	26.1
Max. Output Current [A]	15.0	18.4	23.0	25.0	30.0
Rated Grid Voltage [V]	220/230/240				
Rated Grid Frequency [Hz]	50/60				
Power Factor	1 (Adjustable from 0.8 leading to 0.8 lagging)				
THDi [%]	<3 @rated power				
EPS OUTPUT (WITH BATTERY)					
Max. Output Apparent Power [VA]	3000	3680	4600	5000	6000
Peak Output Apparent Power (60s) [VA]	3600	4400	5500	6000	7200
Max. Current (per phase) [A]	13.6	16.7	20.9	22.7	27.3
Rated Output Voltage [V]	220/230/240				
Rated Output Frequency [Hz]	50/60				
Power Factor	1 (Adjustable from 0.8 leading to 0.8 lagging)				
THDv (linear Load) [%]	<2 @rated power				
Parallel operation [PCS]	10				
Switch time [ms]	<20				
EFFICIENCY					
Euro Efficiency [%]	95.26	95.70	96.23	96.30	96.33
Max. Efficiency [%]	97.01	97.08	97.04	97.08	97.08
Max. Battery Charge Efficiency (PV to BAT) (@full load) [%]	98.50				
Max. Battery Discharge Efficiency (BAT to AC) (@full load) [%]	97.00				
PROTECTION					
Insulation Monitoring	YES				
Residual Current Monitoring	YES				
DC Reverse Polarity Protection	YES				
Anti-islanding Protection	YES				
AC Short-circuit Protection	YES				
AC Overcurrent/Overvoltage Protection	YES				
DC Switch	YES				
Battery Wack-up Function	YES				
SPD	DC: Type II, /AC: Type III				
AFCI	Optional				
GENERAL DATA					
Dimensions (W*H*D) [mm]	434*418*185				
Weight [kg]	22				
Installation	Wall-Mounted				
Topology	Non-isolated				
Cooling Method	Natural				
Noise Emission [dB]	35				
Max. Operating Altitude [m]	2000				
Operating Temperature Range [°C]	-25 ~ 60				
Humidity (No Condensation) [%]	0 ~ 100				
Ingress protection	IP65				
Standby consumption[W]	<15				
Monitoring Module	WiFi, LAN(Optional) , 4G(Optional)				
Communication	RS485, DRM, Ripple Control, USB, CAN				
Display	LCD, App, Website				
STANDARD COMPLIANCE (MORE AVAILABLE UPON REQUEST)					
Safety	EN 62109-1, EN 62109-2				
Grid Regulation	G98, G99, EN50549, AS / NZS 4777.2				

* More technical characteristics are available on demand and customized.

1、 3680 for G98. 2、 4600 for German and Belgium. 3、 5000 for Australia and Belgium.

Fox ESS EP5

HIGH VOLTAGE STORAGE BATTERY
From Fox ESS



The EP5 is a high-performance, scalable battery storage system, allows for maximum flexibility, making it suitable for a broad range of storage applications.

Additional batteries can be installed in parallel allowing for a maximum storage capacity of 20.8kwh.

- Scalable to 20.8 kWh
- 90% Depth of Discharge
- Floor or Wall Mounting
- Compact & Easy Installation
- IP65 Protection Level
- High Voltage and High Efficiency



**Safety
Reliable**



**Easy
Installation**



**High
Efficiency**



**Expandable
System**



**90%
DoD**

Fox ESS EP5

HIGH VOLTAGE STORAGE BATTERY

SYSTEM NAME	EP5
ELECTRICAL CHARACTERISTICS	
Compatible PCS	All Series of H1, KH, H3, H3-Pro, US
Battery Type	LifePO4 Prismatic Cell
Nominal Energy [kWh]	5.18
Nominal Voltage [V]	192
Operating Voltage [V]	174 ~ 219
Max.Charge/Discharge Current [A]*1	27
Recommend Charge Current [A]	13.5
Peak Discharge Current [A]	65 @60s
Peak Charge Current [A]	32.4 @5s
Battery Pack Round-Trip Efficiency [%]	≥95
Depth of Discharge [%]	90
Cycle Life	≥4000
Communication	CAN
Display	LED*5
Scalability	Max. 4 Units in Parallel
OPERATING CONDITIONS	
Installation Location	Outdoor/ Indoor
Operating Temperature [°C]	Charge: 0 ~ 55 Discharge: -10 ~ 55
Storage Temperature [°C]	0 ~ 35
Cooling Method	Natural Convection
Humidity [%]	5 ~ 95 (No Condensing)
Altitude [m]	Max. 2,000
MECHANICAL CHARACTERISTICS	
Dimensions (W*H*D) [mm]	380*625*147
Weight [kg]	50.5±2
CERTIFICATES	
Safety	IEC62619
EMC	EN IEC 61000-6-1/3
Transportation	UN38.3
Ingress Protection	IP65

*1, The current is affected by temperature, cell voltage and SOC.

INCLUDES FREE BIRD PROTECTION



MRS BROWN

We already had solar panels installed but we're very troubled with pigeons. Deege installed the netting, the men were efficient extremely polite and tidy workers. Delighted to say we have no constant cooing now. Would highly recommend.



PROTECT BOTH YOUR INVESTMENT & WILDLIFE



ENHANCE THE AESTHETICS OF YOUR SYSTEM



MINIMISE CLEANING AND MAINTENANCE COSTS