

October 9, 2018

Champaign County Department of Planning & Zoning Attn: Susan Burgstrom, Senior Planner 1776 East Washington Street Urbana, IL 61802

Re: Prairie Solar Equipment Specification Sheets

Dear Champaign County,

Please see the attached equipment specification sheets. Please note that they are anticipated specification sheets and subject to change.

Sincerely,

George J. Gunnoe

Development Manager

Ten Doe





HiKu

SUPER HIGH POWER BIFACIAL POLY PERC MODULE

390 W ~ 405 W

ADDITIONAL BACK POWER OUTPUT UP TO 30%

CS3W-390|395|400|405PB-AG

MORE POWER



Up to 30% more energy yield due to back side power generation



24 % more front side power than conventional modules



Low NMOT: 42 ± 3 °C Low temperature coefficient (Pmax): -0.37 % / °C



Innovative module design, better shading tolerance

MORE RELIABLE



Lower internal current, lower hot spot temperature



Minimizes micro-cracks and prevents snail trails



Fire Class A and Type 3 / Type 13



Heavy snow load up to 5400 Pa, wind load up to 2400 Pa *





power output warranty



product warranty on materials and workmanship

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2008 / Quality management system
ISO 14001:2004 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730: 2005 & 2016: VDE / CE (Pending) UL 1703: CSA (Pending)

* Please contact your local Canadian Solar sales representative for the specific product certificates applicable in your market.

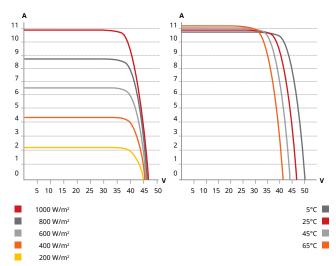
CANADIAN SOLAR INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. As a leading PV project developer and manufacturer of solar modules with about 30 GW deployed around the world since 2001, Canadian Solar Inc. is one of the most bankable solar companies worldwide.

^{*}For detail information, please refer to Installation Manual.

ENGINEERING DRAWING (mm)

Rear View Frame Cross Section A-A Corner Protector Detail 17.7 18:1 13.0 Mounting Hole 13.8 13.3 8.5

CS3W-400PB-AG / I-V CURVES



ELECTRICAL DATA | STC*

LLLCTIMEN		7 310					
		Nominal Max. Power (Pmax)		Opt. Operating Current (Imp)	Open Circuit Voltage (Voc)	Short Circuit Current (Isc)	Module Efficiency
CS3W-390PB-AG		390 W	38.3 V	10.19 A	46.8 V	10.74 A	17.54%
	5%	410 W	38.3 V	10.71 A	46.8 V	11.28 A	18.41%
Bifacial	10%	429 W	38.3 V	11.21 A	46.8 V	11.81 A	19.29%
Gain**	20%	468 W	38.3 V	12.23 A	46.8 V	12.89 A	21.04%
	30%	507 W	38.3 V	13.25 A	46.8 V	13.96 A	22.80%
CS3W-395P	B-AG	395 W	38.5 V	10.26 A	47 V	10.82 A	17.76%
	5%	415 W	38.5 V	10.78 A	47 V	11.36 A	18.66%
Bifacial	10%	435 W	38.5 V	11.3 A	47 V	11.9 A	19.56%
Gain**	20%	474 W	38.5 V	12.31 A	47 V	12.98 A	21.31%
	30%	513 W	38.5 V	13.34 A	47 V	14.07 A	23.07%
CS3W-400P	B-AG	400 W	38.7 V	10.34 A	47.2 V	10.9 A	17.99%
	5%	420 W	38.7 V	10.86 A	47.2 V	11.45 A	18.89%
Bifacial	10%	440 W	38.7 V	11.37 A	47.2 V	11.99 A	19.79%
Gain**	20%	480 W	38.7 V	12.41 A	47.2 V	13.08 A	21.58%
	30%	520 W	38.7 V	13.44 A	47.2 V	14.17 A	23.38%
CS3W-405PB-AG		405 W	38.9 V	10.42 A	47.4 V	10.98 A	18.21%
	5%	425 W	38.9 V	10.94 A	47.4 V	11.53 A	19.11%
Bifacial	10%	445 W	38.9 V	11.46 A	47.4 V	12.08 A	20.01%
Gain**	20%	486 W	38.9 V	12.5 A	47.4 V	13.18 A	21.85%
	30%	527 W	38.9 V	13.56 A	47.4 V	14.27 A	23.70%

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

ELECTRICAL DATA | NMOT*

	Nominal Max.	Operating	Opt. Operating		Short Circuit
	Power	Voltage	Current		Current
	(Pmax)	(Vmp)	(Imp)	(Voc)	(Isc)
CS3W-390PB-AG	290 W	34.9 V	8.31 A	43.8 V	8.67 A
CS3W-395PB-AG	293 W	35.1 V	8.35 A	44.0 V	8.72 A
CS3W-400PB-AG	297 W	35.3 V	8.42 A	44.2 V	8.78 A
CS3W-405PB-AG	301 W	35.5 V	8.48 A	44.4 V	8.85 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	Poly-crystalline
Cell Arrangement	144 [2 X (12 X 6)]
Dimensions	2126 × 1064 × 26.5 mm (83.7 × 41.9 × 1.04 in) including mini frame
(Excluding mini frame)	2126 \times 1048 \times 5.8 mm (83.7 \times 41.3 \times 0.23 in) without J-Box and corner protector
Weight	32.9 kg (72.5 lbs)
Front / Back Glass	2.5 mm heat strengthened glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 diodes
Cable	4.0 mm ² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	1400 mm (55.1 in), 1700 mm (66.9 in) is optional for single tracking system with leap-frog connection
Connector	T4 series
Per Pallet	30 pieces
Per Container (40' HQ)	600 pieces

ELECTRICAL DATA

Operating Temperature	-40°C ~ +85°C
Max. System Voltage	1500 V (IEC) or 1000 V (IEC/UL)
Market Fire Dangerone	TYPE 3 / Type 13 (UL 1703)
Module Fire Performance	or CLASS A (IEC61730)
Max. Series Fuse Rating	20 A
Application Classification	Class A
Power Tolerance	0 ~ + 5 W

^{*} 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. Canadian Solar Inc. reserves the right to make necessary adjustment to the information described herein at any time without further notice.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.37 % / °C
Temperature Coefficient (Voc)	-0.29 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42 ± 3°C

PARTNER SECTION

^{**} Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.





RELIABILITY IS POWER.

167 X
fewer components than competitive trackers

99996%
Uptime Reliability

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THE MOST RELIABLE TRACKER UNDER THE SUN

HIGHEST POWER DENSITY.

Higher density means more power and more profit. DuraTrack HZ v3 offers the unique ability to maximize the power density of each site, boasting 6% more density than our closest competitor.

LEADING TERRAIN ADAPTABILITY.

Uneven terrain? Hill yes! Our flexibly linked architecture, with articulating driveline joints and forgiving tolerances, create the most adaptable system in market for following natural land contours and creates the greatest power generation potential from every site.

FEWER COMPONENTS. GREATER RELIABILITY.

Less is more. Array was founded on a philosophy of engineered simplicity. Minimizing potential failure points (167 times fewer components than competitors), DuraTrack HZ v3 consistently delivers higher reliability and an unmatched uptime of 99.99%.

FAILURE-FREE WIND DESIGN.

DuraTrack HZ v3 was designed and field tested to withstand some of the harshest conditions on the planet. It is the only tracker on the market that reliably handles wind events with a fully integrated, fully automatic wind-load mitigation system.

ZERO SCHEDULED MAINTENANCE.

Three decades of solar tracker system design, engineering and testing has resulted in uncompromising reliability. Maintenance-free motors and gears, fewer moving parts, and industrial-grade components means maintenance-free energy generation.



DuraTrack® HZ v3

COST VERSUS VALUE

We believe value is more than the cost of a tracking system. It's about building with forgiving tolerances and fewer parts so construction crews can work efficiently. It means protecting your investment with a failure-free wind management system. It also includes increasing power density. But most of all, value is measured in operational uptime, or reliability. Ours is 99.996%... and we're still improving on it.

THE GLOBAL LEADER IN RELIABILITY

Array has spent decades designing and perfecting the most reliable tracker on the planet. Fewer moving parts, stronger components and intelligent design that protects your investment in the harshest weather are but a few of the innovative differences that keep your system running flawlessly all day and you resting easy at night.

STRUCTURAL & MECHANICAL FEATURES/S Tracking Type	Horizontal single axis
kW per Drive Motor	Up to 907 kW DC using 360W crystalline
String Voltage	Up to 1,500V DC
Maximum Linked Rows	28
Maximum Row Size	80 modules (crystalline, 1,000V DC) & 90 modules (crystalline, 1,500V DC)
Drive Type	Rotating gear drive
Motor Type	2 HP, 3 PH, 480V AC
Motors per 1 MW AC	Less than 2
East-West / North-South Dimensions	Site / module specific
Array Height	54" standard, adjustable [46" min height above grade)
Ground Coverage Ratio (GCR)	Flexible, 28–45% typical, others supported on reques
Terrain Flexibility	N-S tolerance: 0°–8.5° Standard, option to increase Driveline: 40° in all directions
Modules Supported	Most commercially available, including frameless crystalline and thin film
Tracking Range of Motion	± 52°
Operating Temperature Range	-30°F to 130°F (-34°C to 55°C)
Module Configuration	Single-in-portrait standard. Two-or-three in landscape (framed or frameless), four-in-landscap (thin film) also available.
Module Attachment	Single fastener, high-speed mounting clamps with integrated grounding. Traditional rails for crystalline in landscape, custom racking for thin film and frameless crystalline per manufacturer specs.
Materials	HDG steel and aluminum structural members
Allowable Wind Load (IBC 2012)	135 mph, 3-second gust exposure C
Wind Protection	Passive mechanical system relieves wind and obstruction damage — no power required
ELECTRONIC CONTROLLER FEATURES/SPE	CIFICATIONS
Solar Tracking Method	Algorithm with GPS input
Control Electronics	MCU plus Central Controller
Data Feed	MODBUS over Ethernet to SCADA system
Night-time Stow	Yes
Tracking Accuracy	± 2° standard, field adjustable
Backtracking	Yes
INSTALLATION, OPERATION & MAINTENANG	E
PE Stamped Structural Calculations & Drawings	Yes
On-site Training & System Commissioning	Yes
Connection Type	Fully bolted connections, no welding
In-field Fabrication Required	No
Dry Slide Bearings & Articulating Driveline Connections	No lubrication required
Scheduled Maintenance	None required
GENERAL	
Annual Power Consumption (kWh per 1 MW)	400 kWh per MW per year, estimated
Land Area Required per 1 MW	Approx. 5 to 5.75 acres per MW @ 33% GCR (site and design specific)
Energy Gain vs. Fixed-Tilt	Up to 25%, site specific
Warranty	10 year structural, 5 year drive & control components
Patent Numbers	US patent 8,459,249. US patent 9,281,778.
	US patent 9,581,678 B2 and patents pending

SUNNY CENTRAL 1850-US / 2200-US / 2500-EV-US / 2750-EV-US





Unmatched Power Density

- Small footprint simplifies site preparation and logistics
- Industry leading over-dimensioning capabilities
- Integrated voltage supply for internal consumption and external loads

Robust Performance

- Precision air-cooling enables greater reliability and simpler service compared to liquid cooled inverters
- Best-in-class performance in any environment
- DC/AC Ratio up to 250%

Grid Management

- Conforms to all known grid requirements worldwide
- Provides Q on demand

Superior Integration

- Improved DC connection area
- Easily accessible bay for connecting site specific equipment
- Available as a stand-alone inverter or solution with medium-voltage block and tracker auxiliary rack

SUNNY CENTRAL 1850-US / 2200-US / 2500-EV-US / 2750-EV-US

Maximum power density and simple integration for 1,000 V and 1,500 V PV projects

The Sunny Central family features an output of up to 2,750 kVA with 1,500 V DC systems. Fewer system components are needed due to the integrated DC fuse servicing switches and convenience power. The inverter also includes integrated control power and a network switch. OptiCool™ precision air cooling keeps this central inverter running smoothly, even in extreme ambient temperatures. It also protects against sand and dust intrusion. The Sunny Central inverter is the central component of the SMA Utility Power System and offers industry leading DC:AC ratios. In conjunction with the medium-voltage block 2.0, DC technology, power plant controlling system and SMA Service, it offers maximum ROI for utility-scale PV projects.

SUNNY CENTRAL 1000 V

Technical Data	Sunny Central 1850-US	Sunny Central 2200-US	
Input (DC)			
MPP voltage range V _{DC} (at 25 °C / at 35 °C / at 50 °C) ⁷⁾	570 to 950 V / 850 V	570 to 950 V / 800 V / 800 V	
Min. input voltage V _{DC. min} / Start voltage V _{DC. Start}	545 V / 645 V	545 V / 645 V	
Max. input voltage V _{DC, min} / Stati Voltage V _{DC, Stati}	1000 V	1000 V	
	3960 A / 3600 A	3960 A / 3600 A	
Max. input current I _{DC, max} (at 25 °C / at 50 °C)	•		
Max. short-circuit current I _{DC, sc}	6400 A	6400 A	
Number of DC inputs (24/28/32) ⁸⁾	•/0/0	•/0/0	
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm ²	2 x 800 kcmil, 2 x 400 mm ²	
ntegrated zone monitoring	0	0	
Available DC fuse sizes (per input)	200 A, 250 A, 315 A, 3	50 A, 400 A, 450 A, 500 A	
Output (AC)			
Nominal AC power at cos φ =1 (at 35 °C / at 50 °C)	1850 kVA / 1850 kVA	2200 kVA / 2000 kVA	
Nominal AC power at cos φ =0.8 (at 35 °C / at 50 °C)	1480 kW / 1480 kW	1760 kW / 1600 kW	
Nominal AC current I _{AC, nom} = Max. output current I _{AC, max}	3300 A	3300 A	
Nominal AC current I _{AC, nom}	2774 A	3300 A	
Max. total harmonic distortion	< 3% at nominal power	< 3% at nominal power	
	385 V / 308 V to 462 V	385 V / 308 V to 462 V	
Nominal AC voltage / nominal AC voltage range ¹⁾ AC power frequency / range	50 Hz / 47 Hz to 53 Hz	50 Hz / 47 Hz to 53 Hz	
AC power frequency / range	60 Hz / 57 Hz to 63 Hz	60 Hz / 57 Hz to 63 Hz	
Min. short-circuit ratio at the AC terminals	> 2	> 2	
Power factor at rated power / displacement power factor adjustable 9		ted to 0.8 underexcited	
	· · · · · · · · · · · · · · · · · · ·	ted to 0.0 underexcited	
Efficiency	0 1 / 0.0 0 tolexell	iod to 0.0 offdorexenda	
Max. efficiency / European efficiency / CEC efficiency ²	98.6% / 98.4% / 98.0%	98.6% / 98.4% / 98.0%	
Protective Devices	76.6%, 76.1%, 76.6%	70.0% 70.1% 70.0%	
Input-side disconnection point	DC load	break switch	
·			
Output-side disconnection point		uit breaker	
DC overvoltage protection	-	rester, type I	
AC overvoltage protection (optional)	-	ester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III		
Overcurrent protection device (according to NEC, ANSI/NFPA 70)	36	00 A	
Ground-fault monitoring / remote ground-fault monitoring / insulation monitoring	0/0/0		
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP65 / IP34 / IP34		
Degree of protection (as per UL 50)	Тур	pe 3R	
General Data			
Dimensions (W / H / D)	2780 / 2318 / 1588 mm	n (109.4 / 91.3 / 62.5 inch)	
Weight		1/<7496 lb	
Self-consumption (max. ³¹ / partial load ⁴⁾ / average ⁵⁾		800 W / < 2000 W	
Self-consumption (standby)	·	00 W	
Internal auxiliary power supply	Integrated 8.4 kVA transformer -25°C to 60°C / -13°F to 140°F		
Operating temperature range			
Temperature range (standby)		/ -40°F to 140°F	
Temperature range (storage)		/ -40°F to 158°F	
Noise emission ⁶⁾	66.4 dB(A)	66.3 dB(A)	
Max. permissible value for relative humidity (condensing / non-condensing)	> 95% to 100% (2 m	onth/year) / 0% to 95%	
Maximum operating altitude above MSL 2000 m		•	
Fresh air consumption	650	0 m³/h	
Features			
DC connection	Terminal lug	on each input	
AC connection	With busbar system (three b	usbars, one per line conductor)	
Communication		/IP, Modbus TCP/IP	
Enclosure / roof color		/ RAL 7004	
·		·	
Display		screen (10.1")	
Supply transformer for external loads		.5 kVA)	
Standards and directives complied with	UL 1741 chapters 31 CRD 61, UL 1741-SA, UL 1998, UL 840 Category IV, EMC FCC Part 15 Class A, IEEE 1547, BDEW, CAN/CSA C22.2 107.1-1		
EMC standards (pending)	CISPR 22:2008 modified class A, FCC Part 15 Class A		
Quality standards and directives complied with	VDI/VDE 2862 po	age 2, DIN EN ISO 9001	
Standard features O Optional			
Type designation	SC-1850-US-10	SC-2200-US-10	

- At nominal AC voltage < 385 V, nominal AC power decreases in the same proportion
 Efficiency measured with internal power supply
 Self-consumption at rated operation
 Self-consumption at < 75% Pn at 25 °C
 Self-consumption averaged out from 5% to 100% Pn at 35 °C

- 6) Sound pressure level at a distance of 10 m 7) At unity power factor 8) Ungrounded systems available with 24 inputs only 9) Depending on the DC voltage

SUNNY CENTRAL 1500 V

Technical Data	Sunny Central 2500-EV-US	Sunny Central 2750-EV-US	
Input (DC)			
MPP voltage range V_{DC} (at 25 °C / at 35 °C / at 50 °C)	850 V to 1425 V / 1200 V / 1200 V	875 V to 1425 V / 1200 V / 1200	
Min. input voltage V _{DC. min} / Start voltage V _{DC. Start}	778 V / 928 V	849 V / 999 V	
Max. input voltage V _{DC, max}	1500 V	1500 V	
Max. input current I _{DC, max} (at 25°C / at 50°C)	3200 A / 2956 A	3200 A / 2956 A	
Max. short-circuit current rating	6400 A	6400 A	
Number of DC inputs (20/24)	• / 0	•/0	
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm ²	2 x 800 kcmil, 2 x 400 mm ²	
Integrated zone monitoring	O	O	
Available DC fuse sizes (per input)		0 A, 400 A, 450 A, 500 A	
Output (AC)	200 A, 230 A, 313 A, 33	0 A, 400 A, 430 A, 300 A	
• • •	2500 13/4 / 2250 13/4	2750 13/4 / 2500 13/4	
Nominal AC power at cos ϕ = 1 (at 35 °C / at 50 °C)	2500 kVA / 2250 kVA	2750 kVA / 2500 kVA	
Nominal AC power at cos φ =0.8 (at 35 °C / at 50 °C)	2000 kW / 1800 kW	2200 kW / 2000 kW	
Nominal AC current $I_{AC, nom} = Max$. output current $I_{AC, max}$	2624 A	2646 A	
Nominal AC current I _{AC, nom}	2624 A	2646 A	
Max. total harmonic distortion	< 3% at nominal power	< 3% at nominal power	
Nominal AC voltage / nominal AC voltage range ¹⁾	550 V / 440 V to 660 V	600 V / 480 V to 690 V	
AC power frequency	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz	
Min. short-circuit ratio at the AC terminals	> 2	> 28)	
Power factor at rated power / displacement power factor adjustable 9	• 1 / 0.8 overexcite	ed to 0.8 underexcited	
Efficiency	O 1 / 0.0 overexcite	ed to 0.0 underexcited	
Max. efficiency ²⁾ / European efficiency ²⁾ / CEC efficiency ³⁾	98.6% / 98.3% / 98.0%	98.7% / 98.5% / 98.5%	
Protective Devices	, 6.6%, 76.6%, 76.6%	76 767 76.6767 76.676	
Input-side disconnection point	DC load-break switch	DC load-break switch	
	AC circuit breaker	AC circuit breaker	
Output-side disconnection point			
DC overvoltage protection	Surge arrester, type I	Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I	Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	Lightning Protection Level III	
Overcurrent protection device (according to NEC, ANSI/NFPA 70)	3600 A	3600 A	
Ground-fault monitoring / remote ground-fault monitoring / insulation monitoring	0/0	0/0	
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP65 / IP34 / IP34	IP65 / IP34 / IP34	
Degree of protection (as per UL 50)	Type 3R	Type 3R	
General Data			
Dimensions (W / H / D)	2780 / 2318 / 1588 mm	(109.4 / 91.3 / 62.5 inch)	
Weight	< 3400 kg / < 7496 lb		
Self-consumption (max. ⁴⁾ / partial load ⁵⁾ / average ⁶⁾)	< 8100 W / < 1800 W / < 2000 W		
Self-consumption (standby)	< 370 W		
Internal auxiliary power supply	Integrated 8.4 kVA transformer		
, , , , , , , , , , , , , , , , , , , ,	-25 to 60°C / -13 to 140°F		
Operating temperature range		′ –40 to 140°F	
Temperature range (standby)			
Temperature range (storage)	·	′ –40 to 158°F	
Noise emission ⁷	66.3 dB(A)	64.3 dB(A)	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 mont	h / year) / 0 % to 95%	
Maximum operating altitude above MSL 2000 m			
Fresh air consumption	6500	m³/h	
Features			
DC connection	Terminal lug	on each input	
AC connection	With busbar system (three bu	sbars, one per line conductor)	
Communication	Ethernet, Ethernet/IP, Modbus TCP/IP		
Enclosure / roof color		/ RAL 7004	
Display	·	reen (10.1")	
Supply transformer for external loads		' '	
Standards and directives complied with	O (2.5 kVA) UL 62109-1, UL 1741 (Chapter 31, CDR 61), UL 1741-SA, NEC 2011/2014 UL 1998, IEEE 1547, IEEE 693, MIL-STD-810G, BDEW, CE, CAN/CSA C22.2 10		
EMC standards (ponding)		lass A, FCC Part 15 Class A	
EMC standards (pending)		·	
Quality standards and directives complied with	VDI/ VDE 2862 pag	ge 2, DIN EN ISO 9001	
Standard features O Optionalw			

- At nominal AC voltage, nominal AC power decreases in the same proportion
 Efficiency measured without internal power supply
 Efficiency measured with internal power supply
 Self-consumption at rated operation
 Self-consumption at < 75% Pn at 25°C

- 6) Self-consumption averaged out from 5% to 100% Pn at 35°C
 7) Sound pressure level at a distance of 10 m
 8) A short-circuit ratio of < 2 requires a special approval from SMA
 9) Depending on the DC voltage

