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A SOLAR SYSTEMS WAREHOUSE PLATFORM
& MANUFACTURING INTERGRATOR

WHO WE ARE

We are an international team experienced in solar energy projects and supply chain, with extensive experience in sales in Switzerland and in procurement and logistics in China and South Korea.

We work closely with leading industrial partners in their respective fields, including the manufacture of solar panels, inverters, optimizers with monitoring systems, solar power glasses, car recharges and small/large battery storage ESS.



— FIND US

WHERE WE ARE

01

WEARHOUSE I

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1462 Yvonand, Switzerland

02

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03

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PRODUCTS
SOLAR
PANELS

**FULL BLACK
MONOCRYSTALLIN
E SOLAR MODULE**



SK-390P8-108M SK-395P8-108M SK-400P8-108M


SK-405P8-108M SK-410P8-108M

MONO HALF -CELL 10BB

Representation	Product Name	Half-Cell	Solar Cell Type	Wattage	Silicon Type
EXAMPLE	SK-400P8-108M	108 PCS	182 × 182 mm	400W	M/Monocrystalline

Features

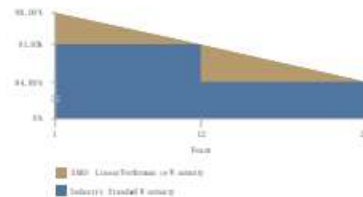
- High module conversion efficiency**
 Module efficiency up to 20.97%
- Half-cell Design**
 Less energy loss caused by shading due to new cell string layout and lower cell connection power loss due to half-cell design.
- Excellent weak light performance**
 More power output in weak light condition such as cloudy, morning and sunset.
- Higher Durability against harsh environment**
 Reliable quality leads to a better sustainability even in harsh environment.
- Lower operating temperature**
 Lower operating temperature and temperature coefficient increases the power output.
- Anti-PID (Potential induced degradation)**
 Excellent Anti-PID performance.
- Lower LCOE**
 2% more power generation, lower LCOE.

 Warning: Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice.



25 Years Linear Warranty



25 Years output guarantee.
 12 Years quality assurance.
 5-year Limited warranty of materials and workmanship.

ELECTRICAL PERFORMANCE

Electrical Parameters at Standard Test Conditions (STC)					
Module Type	SK-390P8-108M	SK-395P8-108M	SK-400P8-108M	SK-405P8-108M	SK-410P8-108M
Power Output (Pmax / W)	390W	395W	400W	405W	410W
Power Output Tolerances	±3%	±3%	±3%	±3%	±3%
Module Efficiency (η _m)	19.93%	20.20%	20.46%	20.72%	20.97%
Voltage at Pmax (Vmp / V)	30.04V	30.82V	31.01	31.19V	31.20V
Current at Pmax (Imp / A)	12.73A	12.82A	12.9A	12.99A	13.08A
Open-circuit Voltage (Voc / V)	36.08V	36.82V	36.96V	37.1V	37.23V
Short-circuit Current (Isc / A)	13.06A	13.75A	13.82A	13.91A	14.0A

STC:1000W/m² irradiance, 25°C module temperature, AM1.5g Spectrum according to IEC 60904-1.

Electrical parameters at SMIT (Irradiance 800 W/m ² , ambient temperature 20 °C, AM=1.5, wind speed 1 m)					
Module Type	SK-390P8-108M	SK-395P8-108M	SK-400P8-108M	SK-405P8-108M	SK-410P8-108M
Power Output (Pmax / W)	290W	294W	298W	302W	306W
Voltage at Pmax (Vmp / V)	28.7V	28.8V	29.0V	29.2V	29.3V
Current at Pmax (Imp / A)	10.10A	10.23A	10.2A	10.36A	10.42A
Open-circuit Voltage (Voc / V)	34.2V	34.6V	34.8V	35.1V	35.3V
Short-circuit Current (Isc / A)	10.94V	11.04A	11.1A	11.17A	11.24A

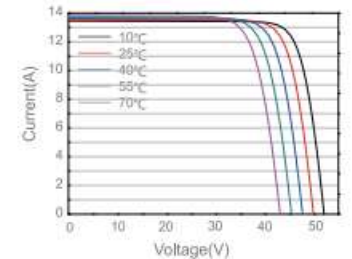
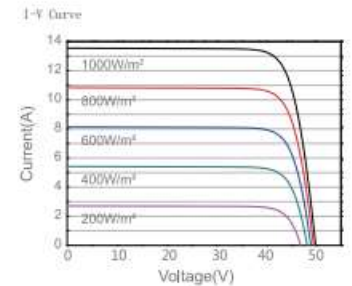
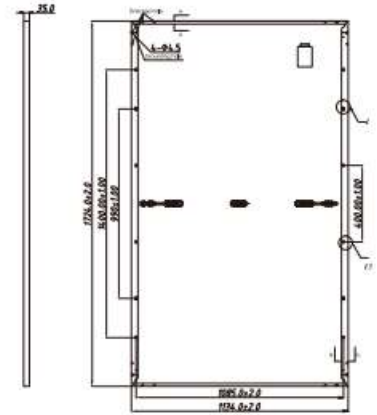
Thermal Characteristics			
Normal operating cell temperature	SMIT	°C	45 ± 2
Temperature coefficient of Pmax	γ	1/°C	-0.41
Temperature coefficient of Voc	β _{Voc}	1/°C	-0.27
Temperature coefficient of Isc	α _{Isc}	1/°C	0.05
Temperature coefficient of Vmp	β _{Vmp}	1/°C	-0.42

Operating Conditions	
Max. system voltage	1000Vdc
Max. series fuse rating	20A
Operating temperature range	-40° C to 85° C
Max. static load, front (e.g., snow)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter)	25mm/23m/s

Construction Materials	
Front cover (material/thickness)	low-iron tempered glass/3.2mm
Cell (QTY)	108PCS Mono Pcs (102MM)
Frame (Material)	anodized aluminum alloy/silver/blue
Junction box (protection degree)	≥ IP65
Cable (length/cross-sectional area)	30mm/2.5mm ²

General Characteristics	
Product Dimension (L/W/H)	1729/1134/35mm
Weight	20.5KG
QTY of per pallet	10pcs per pallet
Packaging box dimensions	2190/820/1110MM
No. of pallets for 40HQ containers	22 Pallets (40HQCS, GR: 40HQCS)

Note: This publication summarizes product warranty and Specifications which are subject to change without notice.



SK-410P8-108M

MONO HALF-CELL 10BB

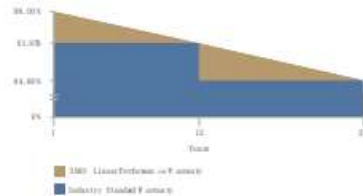
Representation	Product Name	Half-Cell	Solar Cell Type	Wattage	Silicon Type
EXAMPLE	SK-410P8-108M	108 PCS	182 × 182 mm	410W	M:Monocrystalline

Features


- High module conversion efficiency**
Module efficiency up to 20.97%
- Half-cell Design**
Less energy loss caused by shading due to new cell string layout and lower cell connection power loss due to half-cell design.
- Excellent weak light performance**
More power output in weak light condition such as cloudy, morning and sunset
- Higher Durability against harsh environment**
Reliable quality leads to a better sustainability even in harsh environment
- Lower operating temperature**
Lower operating temperature and temperature coefficient increases the power output
- Anti-PID (Potential induced degradation)**
Excellent Anti-PID performance
- Lower LCOE**
2% more power generation, lower LCOE



25 Years Linear Warranty



25 Years output guarantee
12 Years quality assurance
Source: Limited warranty of materials and workmanship

 Warning: Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice

ELECTRICAL PERFORMANCE

Electrical Parameters at Standard Test Conditions (STC)	
Module Type	SK-410P8-108M
Power Output (Pmax / W)	410W
Power Output Tolerances	±3%
Module Efficiency (% _M)	20.97%
Voltage at Pmax (Vmp / V)	31.30V
Current at Pmax (Imp / A)	13.08A
Open-circuit Voltage (Voc / V)	37.23V
Short-circuit Current (Isc / A)	14.01

STC: 1000W/m² irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-2.

Electrical parameters at NMOT (Irradiance 800 W/m ² , ambient temperature 20 °C, AM=1.5, wind speed 1 m)	
Module Type	SK-410P8-108M
Power Output (Pmax / W)	306W
Voltage at Pmax (Vmp / V)	29.37
Current at Pmax (Imp / A)	10.42A
Open-circuit Voltage (Voc / V)	35.3V
Short-circuit Current (Isc / A)	11.25A

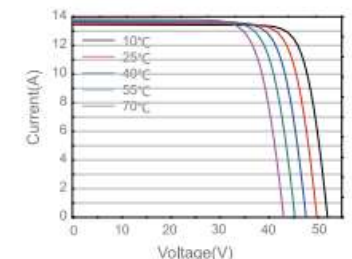
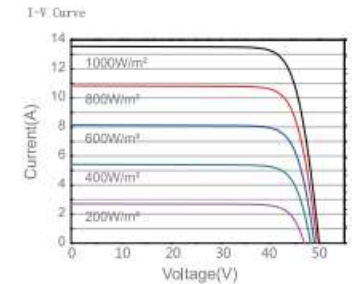
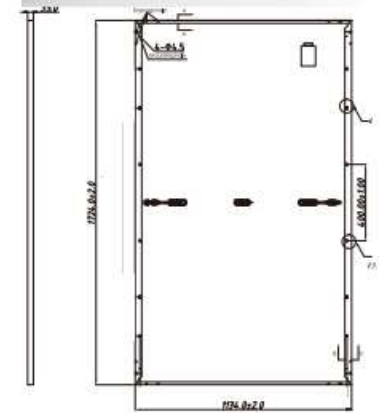
Thermal Characteristics			
Normal operating cell temperature	NMOT	°C	45±2
Temperature coefficient of Pmax	γ	%/°C	-0.43
Temperature coefficient of Voc	β Voc	%/°C	-0.27
Temperature coefficient of Isc	α Isc	%/°C	0.05
Temperature coefficient of Vmp	β Vmp	%/°C	-0.42

Operating Conditions	
Max. system voltage	1500Vdc
Max. series fuse rating	30A
Operating temperature range	-40° C to 85° C
Max. static load, front (e.g., snow)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter)	25mm/23m/s

Construction Materials	
Front cover (material/thickness)	Low-iron tempered glass/2.2mm
Cell (QTY)	108PCS Mono Ptype (102BB)
Frame (Materials)	anodized aluminum alloy/aluminum/alloy
Junction box (protection degree)	≥ IP65
Cable length/cross-sectional area	300mm/4mm ²

General Characteristics	
Products Dimension (L/W/H)	1726*1126*35mm
Weight	20.0KG
QTY of per pallet	31PCS per pallet
Packaging box dimensions	2110*950*1110MM
No. of pallets for 40HQ containers	20 Pallets (806PCS, GR.: 0500630)

Note: This publication summarizes product warranty and Specifications which are subject to change without notice.



MWT MONO PERC FLEXIBLE MODEL

Module efficiency up to 21.8%



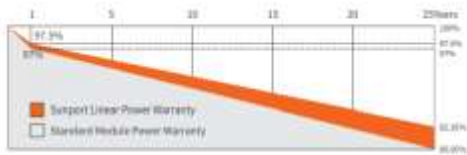
S-FLEX 6 IT - 365-385W
MWT Mono PERC Flexible Module

21.8%
Module Efficiency (STC)

Reinsurance Coverage for 25 Years



Insured by **LLOYD'S**



@ 1st year degradation less than 2.5%, 25 years power output 82.36% guaranteed.

Comprehensive Qualifications & Certifications

- ★ ISO 9001: 2015 Quality Management System
- ★ ISO 14001: 2015 Environment Management System

- ★ ISO 45001: 2018 Occupation Health Safety Management System



Features

- Light, Thin design**
5.7kg weight, 2.5mm thickness, match various requirements for low-load projects
- Ultra Flexible**
Ultra-thin silicon wafers with advanced organic polymer encapsulation materials, minimum bending radius reach 0.30m, fit all kinds of curved surface perfectly
- High Efficiency And Reliability**
Busbar-free design increases cell conversion efficiency, more power output can be achieved at low irradiance conditions
- Customizable**
Customized design for different scenarios
- Convenient Installation**
Easy installation and convenient transportation with lower cost
- Lead-free**
Eco-friendly PV design achieves lead-free MWT module without soldering materials

Mechanical Characteristics

Installation Module Dimension (L×W×H)	1840mmx1040mmx2.5mm
Weight	5.7 kg
Back material	Back Sheet(white)
Cell (quantity / material / type / dimensions)	126(21x6) / Mono / Half-cell
Encapsulant	POE
Frame	None
Junction box(Protection degree)	IP68
Cable (length/cross-section area)	Customizable / 4mm ²
Connector	MC4 Compatible
Bending radius	0.3m

Package

Transportation	Container Size	Quantity(pcs)	Quantity(per pallet)
Container	40' HQ	1104	46

Electrical Characteristics at Standard Test Conditions(STC)

Spec./Model	Unit	SPP365QHES	SPP370QHES	SPP375QHES	SPP380QHES	SPP385QHES
Max Power(Pm)	W	365	370	375	380	385
Power Tolerance	W	0-5				
Max Power Voltage(Vm)	V	34.9	35.1	35.3	35.5	35.7
Max Power Current(Imp)	A	10.46	10.54	10.62	10.70	10.78
Open-Circuit Voltage(Voc)	V	42.4	42.6	42.8	43.0	43.2
Short-Circuit Current(Isc)	A	11.09	11.16	11.23	11.30	11.38
Effective Module Efficiency(ηm)	%	20.7	21.0	21.2	21.5	21.8

STC: AM1.5, Irradiance 1000W/m², Module Temperature 25°C, Power Tolerance ±3%

Electrical Characteristics at Nominal Module Operating Temperature (NMOT)

Spec./Model	Unit	SPP365QHES	SPP370QHES	SPP375QHES	SPP380QHES	SPP385QHES
Max Power(Pm)	W	274	276	282	286	290
Max Power Voltage(Vm)	V	22.8	23.0	23.2	23.4	23.6
Max Power Current(Imp)	A	6.15	6.42	6.49	6.56	6.64
Open-Circuit Voltage(Voc)	V	39.9	40.1	40.2	40.5	40.7
Short-Circuit Current(Isc)	A	6.91	6.96	7.05	7.12	7.19

NMOT: Irradiance 800W/m², Ambient temperature 25°C, Wind Speed 1m/s

Temperature Coefficient

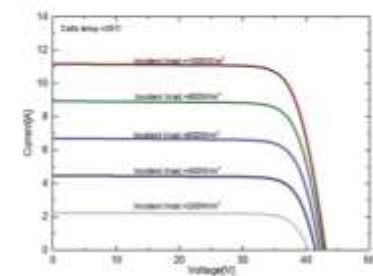
Nominal Module Operating Temperature	43±2°C
Temperature coefficient of Pmax	-0.38%/°C
Temperature coefficient of Voc	-0.26%/°C
Temperature coefficient of Isc	0.05%/°C

Operating Conditions

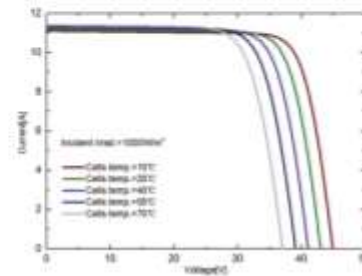
Max. system voltage	DC1500V(IEC)
Max. series fuse rating	15A
Operating temperature range	-40°C~+85°C

I-V Curve

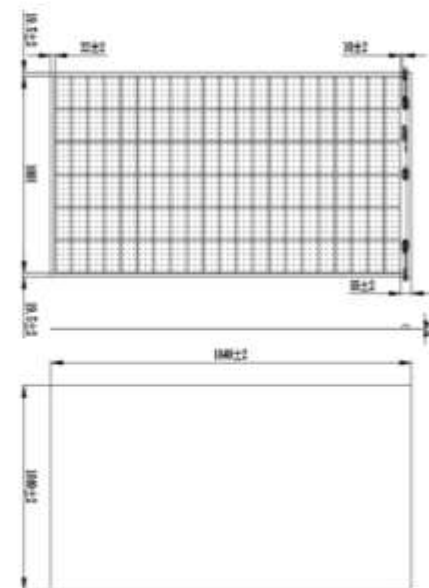
I-V Curves of SPP375QHES at different irradiance



I-V Curves of SPP375QHES at different cell temperature

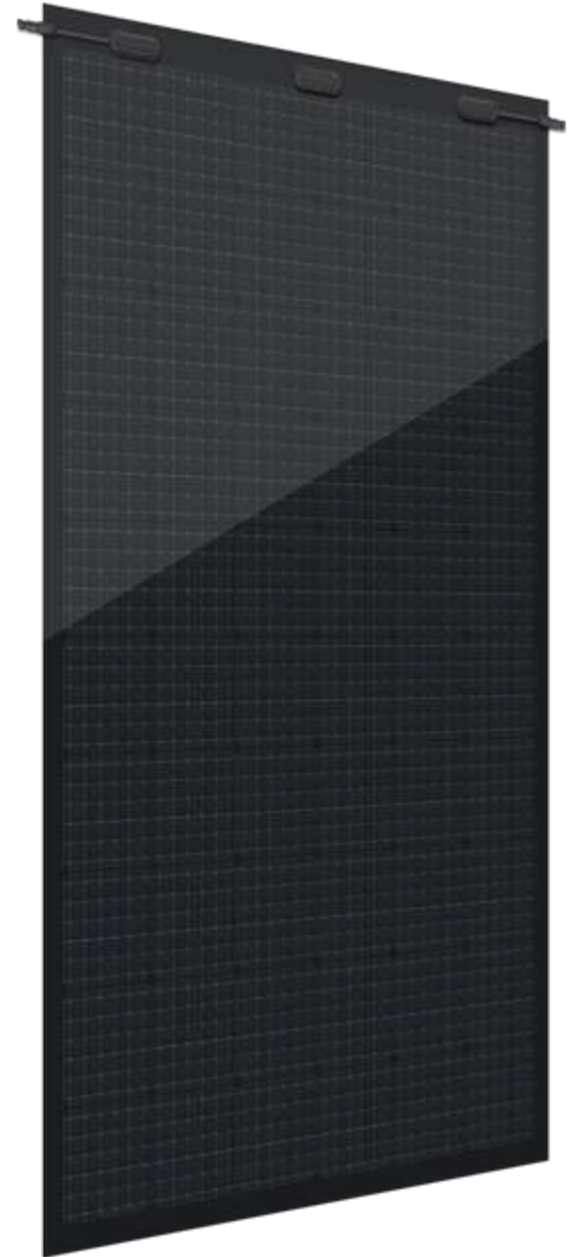
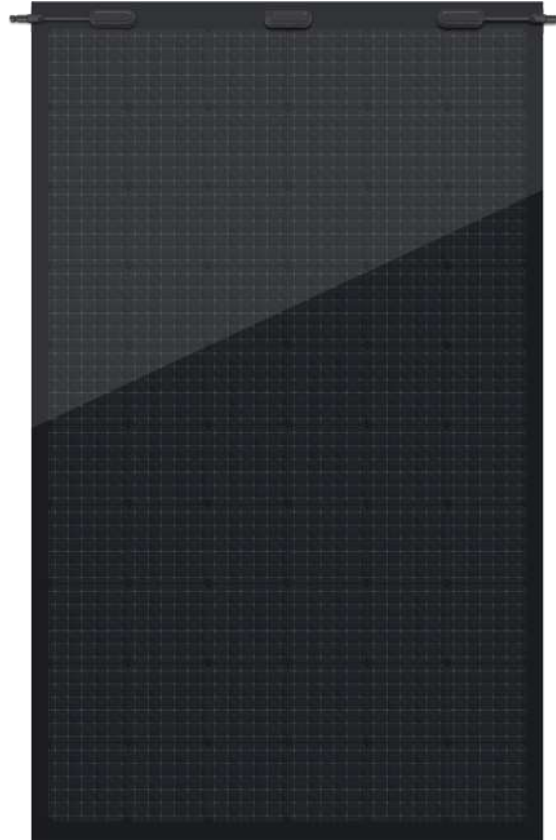


Module Size



MWT MONO PERC FLEXIBLE MODEL- FULL BLACK

Module efficiency up to 21.8%



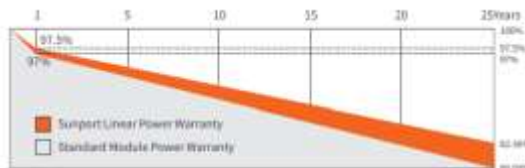


S-FLEX 6 II · 360-380W MWT Mono PERC Flexible Module

Reinsurance Coverage for 25 Years



Insured by LLOYD'S
LLOYD'S



※ 1st year degradation less than 2.5%, 25 years power output 82.36% guaranteed.

Comprehensive Qualifications & Certifications

- ISO 9001: 2015 Quality Management System
- ISO 14001: 2015 Environment Management System

- ISO 45001: 2018 Occupation Health Safety Management System



Features

- Full Black**
All black design for more elegant applications
- Light, Thin design**
5.7kg weight, 2.5mm thickness, match various requirements for low-load projects
- High Efficiency And Reliability**
Busbar-free design increases cell conversion efficiency, more power output can be achieved at low irradiance conditions
- Customizable**
Customized design for different scenarios
- Convenient Installation**
Easy installation and convenient transportation with lower cost
- Lead Free**
Eco-friendly PV design achieves lead-free MWT module without soldering materials

Electrical Characteristics at Standard Test Conditions(STC)

Spec/Model	Unit	SPP360QHES	SPP365QHES	SPP370QHES	SPP375QHES	SPP380QHES
Max-Power(Pm)	W	360	365	370	375	380
Power Tolerance	W			0-5%		
Max-Power Voltage(Vm)	V	34.7	34.9	35.1	35.3	35.5
Max-Power Current(Imp)	A	10.37	10.46	10.54	10.62	10.70
Open-Circuit Voltage(Voc)	V	42.4	42.5	42.8	43.0	43.2
Short-Circuit Current(Isc)	A	10.94	11.02	11.10	11.18	11.26
Module Efficiency(ηm)	%	20.4	20.7	21.0	21.2	21.5

STC: AM-1.5, Irradiation 1000W/m², Module Temperature 25°C · Power Tolerance ±3%

Electrical Characteristics at Nominal Module Operating Temperature (NMOT)

Spec/Model	Unit	SPP360QHES	SPP365QHES	SPP370QHES	SPP375QHES	SPP380QHES
Max-Power(Pm)	W	270	274	278	282	286
Max-Power Voltage(Vm)	V	32.6	32.8	33.0	33.2	33.4
Max-Power Current(Imp)	A	8.28	8.35	8.42	8.49	8.56
Open-Circuit Voltage(Voc)	V	39.7	39.9	40.1	40.3	40.5
Short-Circuit Current(Isc)	A	8.84	8.91	8.98	9.05	9.12

NMOT: Irradiation 800W/m², Ambient temperature 20°C, Wind Speed 1m/s

Temperature Coefficient

Nominal Module Operating Temperature	43±2°C
Temperature coefficient of Pmax	-0.36%/°C
Temperature coefficient of Voc	-0.28%/°C
Temperature coefficient of Isc	0.06%/°C

Operating Conditions

Max. system voltage	DC1500V(IEC)
Max. series fuse rating	18A
Operating temperature range	-40°C~+85°C
Connector	MC4 Compatible

Temperature Coefficient

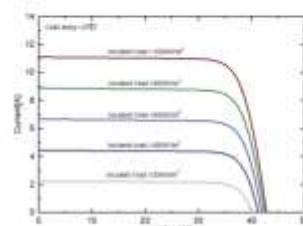
Nominal Module Operating Temperature	43±2°C
Temperature coefficient of Pmax	-0.36%/°C
Temperature coefficient of Voc	-0.28%/°C
Temperature coefficient of Isc	0.06%/°C

Mechanical Characteristics

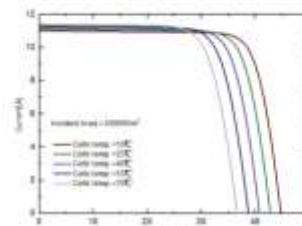
Installation Module Dimension (L×W×H)	1840mm×1040mm×2.5mm
Weight	5.7kg
Back material	Back Sheet(black)
Cell quantity / material / type / dimensions	126(21x6) / Mono / Half-cell
Encapsulant	POE
Frame	None
Junction box(Protection degree)	IP68
Cable (length/cross-section area)	Customizable / 4mm ²
Bending radius	0.3m

I-V Curve

I-V Curves of SPP370QHES at different irradiance



I-V Curves of SPP370QHES at different cell temperature



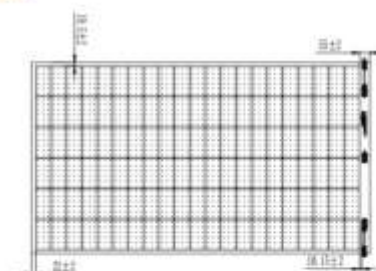
Operating Conditions

Max. system voltage	DC1500V(IEC)
Max. series fuse rating	18A
Operating temperature range	-40°C~+85°C
Connector	MC4 Compatible

Package

Container Size	Quantity(pcs)	Quantity(per pallet)
40' HQ	1104	46

Module Size



PRODUCTS

ESS

BATTERIES



A Wealth of Product Portfolios Covering Full Power Range

Certifications

The products have passed global main certifications such as IEC, UL, CE, UN38.3, etc.



High Quality Modular&Stacked Lithium Battery System 256V 100AH with 6000 cycles



Main Features

-  Top brand cells CATL or BAK
-  Cells cycle times 6000 cycles, 5 years warranty, 10+ years life design
-  High density, small size and weight
-  Big charge and discharge current, suitable for solar storage system
-  LCD display with communication port(CAN/RS485/RS232).
-  Smart BMS can communicate with SAKO High Voltage solar Inverter

MODEL	SK-256V100AH
Battery Module	SK-256V100AH
No. of Module	5
Normal Capacity(25°C, 0.2C)	100Ah (25.6KWh)
Battery Type	LiFePO4
Voltage window (Vdc)	224~292V
Float Charge Voltage(Vdc)	280.0V
Max.continue discharge current	100A
Max.pulse discharge current (A)	150A 1Sec.
Max.continue charge current (A)	50A
Cycle life(+25°C 0.2C 100%DOD)	>6000 Cycles
Terminal	Double M8
Cell brand	CATL or BAK
IP degree	IP20
Storage temperature	0°C~ 30°C
Storage duration	6 months at 25°C
Safety standard	UN38.3,MSDS,CE
Communication function	RS485/CAN
PROTECTION	
Protection	Overcharge protection、Overdischarge protection、Overcurrent protection、Shortcircuit protection、Overtemperature protection
AMBIENT	
Noise(dB)	< 40dB (1 meter)
Working Temperature	-10°C~ +50°C
Humidity	0~95% (no condensation)
Sea Level(m)	≤1500
DIMENSION (Following data is for 1pc*basement only)	
L×W×H (products size) mm	703*490*1152
Weight(NW Kg)	345

High Quality Modular&Stacked Lithium Battery System 307.2V 100AH with 6000 cycles



Main Features

-  Top brand cells CATL or BAK
-  Cells cycle times 6000 cycles, 5 years warranty, 10+ years life design
-  High density, small size and weight
-  Big charge and discharge current , suitable for solar storage system
-  LCD display with communication port(CAN/RS485/RS232).
-  Smart BMS can communicate with SAKO High Voltage solar inverter



MODEL	SK-307.2V100AH
Battery Module	SK-307.2V100AH
No. of Module	6
Normal Capacity(25℃ , 0.2C)	100Ah (30.72KWh)
Battery Type	LiFePO4
Voltage window (Vdc)	268.8~350.4V
Float Charge Voltage(Vdc)	336.0V
Max.continue discharge current	100A
Max.pulse discharge current (A)	150A 1Sec.
Max.continue charge current (A)	50A
Cycle life(+25℃ 0.2C 100%DOD)	>6000 Cycles
Terminal	Double M8
Cell brand	CATL or BAK
IP degree	IP20
Storage temperature	0℃~ 30℃
Storage duration	6 months at 25℃
Safety standard	UN38.3,MSDS,CE
Communication function	RS485/CAN
PROTECTION	
Protection	Overcharge protection- Overdischarge protection- Overcurrent protection- Shortcircuit protection- Overtemperature protection
AMBIENT	
Noise(dB)	< 40dB (1 meter)
Working Temperature	-10℃~ +50℃
Humidity	0~95% (no condensation)
Sea Level(m)	≤1500
DIMENSION (Following data is for 1pc*basement only)	
L×W×H (products size) mm	703*490*1344
Weight(NW Kg)	404



&Stacked
em
100 cycles

AK
les, 5 years warranty, 10+ years life design
d weight
current, suitable for solar storage system
ication port(CAN/RS485/RS232).
ate with SAKO High Voltage solar inverter



MODEL	SK-409.6V100AH
Battery Module	SK-409.6V100AH
No. of Module	8
Normal Capacity(25°C , 0.2C)	100Ah (40.96KWh)
Battery Type	LiFePO4
Voltage window (Vdc)	358.4~467.2V
Float Charge Voltage(Vdc)	441.6V
Max.continue discharge current	100A
Max.pulse discharge current (A)	150A 1Sec.
Max.continue charge current (A)	50A
Cycle life(+25°C 0.2C 100%DOD)	>6000 Cycles
Terminal	Double M8
Cell brand	CATL or BAK
IP degree	IP20
Storage temperature	0°C ~ 30°C
Storage duration	6 months at 25°C
Safety standard	UN38.3,MSDS,CE
Communication function	RS485/CAN
PROTECTION	
Protection	Overcharge protection, Overdischarge protection, Overcurrent protection, Shortcircuit protection, Overtemperature protection
AMBIENT	
Noise(dB)	< 40dB (1 meter)
Working Temperature	-10°C ~ +50°C
Humidity	0~95% (no condensation)
Sea Level(m)	≤1500
DIMENSION (Following data is for 1pc*basement only)	
L×W×H (products size) mm	703*490*1728
Weight(NW Kg)	520



Commercial & Industrial ESS Solutions

CLiS commercial and industrial energy storage solutions adopt industry-leading modular system configuration, flexibly suit various C&I scenarios, and supports multi-mode operation. The solutions can facilitate peak shaving, time of use to relieve peak load, enhance grid reliability and improve power quality, bringing "higher profit, safe and reliable, and intelligent O&M" to customers.

Powermax-M3440

Non-Walk-In
Containerized ESS solutions



3440kWh



286.72kWh



17.92kWh

Specifications

System	Module
Configuration	1P20S
Rated Voltage	64V
Rated Capacity	280Ah
Rated Energy	17.92kWh
Voltage Range	56-72V
Ingress Rating	IP20
Weight	140kg
Dimensions	516*950*234mm
Cycle Life	≥6000

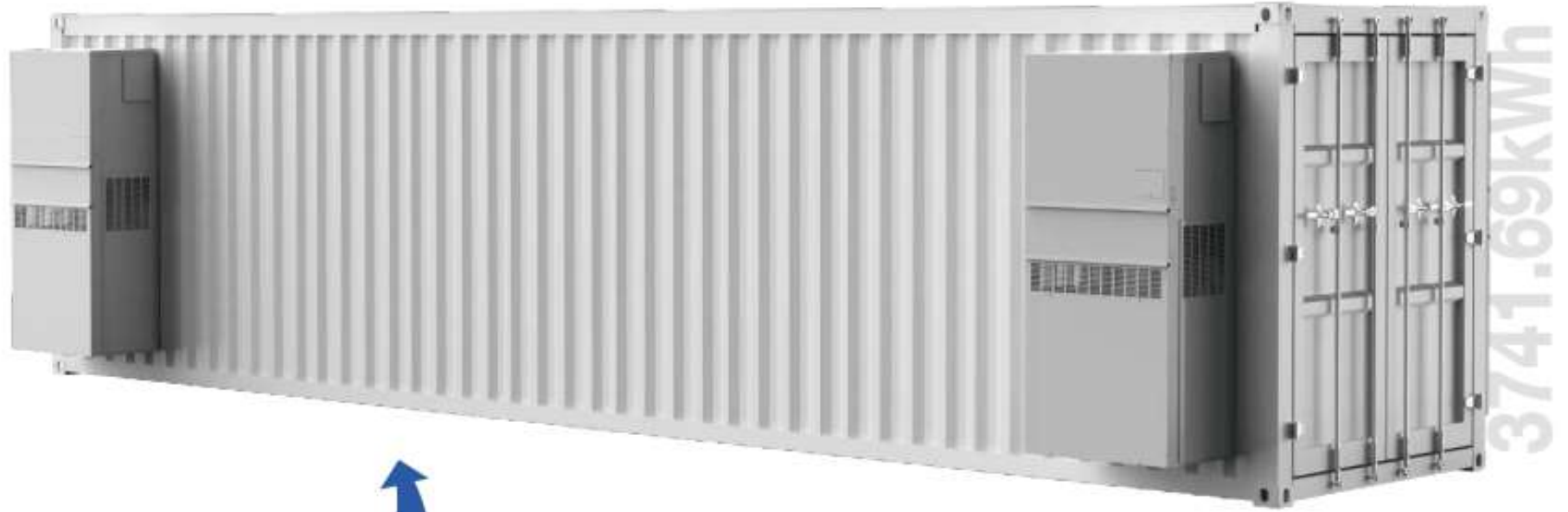
System	Rack
Configuration	2P160S
Rated Voltage	512V
Rated Capacity	560Ah
Rated Energy	286.72kWh
Voltage Range	448-576V
Ingress Rating	IP20
Weight	2800kg
Dimensions	1200*1030*2300mm
Cycle Life	≥6000

System	Bank
Configuration	12 racks + combiner + control
Rated Voltage	512V
Rated Capacity	6720Ah
Rated Energy	3440kWh
Voltage Range	448-576V
Ingress Rating	IP54 / NEMA3R
Weight	42t
Dimensions	12192*2438*2896mm
Cycle Life	≥6000



Powermax-M3741

Walk-In
Containerized ESS solutions



3741.69kWh



10.75kWh



311.80kWh

Specifications

System	Module	System	Rack	System	Bank
Configuration	1P12S	Configuration	1P348S	Configuration	12 racks + combiner + control
Rated Voltage	38.4V	Rated Voltage	1113.6V	Rated Voltage	1113.6V
Rated Capacity	280Ah	Rated Capacity	280Ah	Rated Capacity	3360Ah
Rated Energy	10.75kWh	Rated Energy	311.80kWh	Rated Energy	3741.69kWh
Voltage Range	33.6-43.2V	Voltage Range	974.4-1252.8V	Voltage Range	974.4-1252.8V
Ingress Rating	IP20	Ingress Rating	IP20	Ingress Rating	IP54
Weight	75kg	Weight	2500kg	Weight	35t
Dimensions	480*224*588mm	Dimensions	1611*600*2500mm	Dimensions	12192*2438*2896mm
Cycle Life	≥6000	Cycle Life	≥6000	Cycle Life	≥6000



PRODUCTS

INVERTERS





SUNIN residential Three phase hybrid Energy Storage inverter



Product features

Friendly & flexible

- Support diesel generator access;
- Support full power discharge, automatic management of battery charge and discharge

Economical & practical

- It is more economical to support multiple operating modes;
- Can be as a UPS for the important loads when power off;

Safe & reliable

- Passed IEC/EN 62109-1/-2, IEC/EN 62477-1, IEC/EN 61000-6-1/-6-3, European grid connection: EN50549-1,
- German grid connection: VDE4105/0124, UK grid connection: G99, South Africa: NRS997-2-1:2017 test certification;

STORAGE SOLAR SYSTEM



Technical specification	SUNIN 8KH3	SUNIN 10KH3	SUNIN 12KH3
Input (PV)			
Max power(kW)	12	15	18
Max. DC voltage(V)		1,000	
MPPT voltage range(V)		180-850	
Max input current of single MPPT(A)		13	
MPPT tracker/strings	2/1	2/1	2/1
AC output			
Rated output power(kVA)	8	10	12
Max. output current(A)	12.7	15.9	19.1
Grid voltage/range(V)		400/360-440	
Frequency (Hz)		50 /60	
Power factor		0.8lagging-0.8leading	
THDi		<3%	
AC output topology		3W+N+PE	
Battery			
Battery voltage range(V)		125-600	
Max. charging voltage(V)		600	
Full battery voltage(V)	250	300	350
Rated charge/discharge current(A)	40	40	40
Battery type		Lithium /Lead-acid	
Communication interface		CAN/RS485	
EPS output			
Rated power(kVA)	8.8	11	13.2
Rated output voltage(V)		400	
Max. output current(A)	12.7	15.9	19.1
Rated frequency(Hz)		50 /60	
Automatic switching time(ms)		<20	
THDu		<2%	
Overload capacity		110%, 30S/120%, 10S/150%, 0.02S	
General data			
Battery charge /discharge efficiency	96.6%	96.7%	96.8%
DC Max. efficiency	97.9%	98.2%	98.2%
Europe efficiency	97.2%	97.5%	97.5%
MPPTefficiency	99.5%	99.5%	99.5%
Ingress protection		IP65	
Noise emission(dB)		<35	
Operation temperature		-25℃ ~ 60℃	
Cooling		Natural	
Relative Humidity		0 ~95% (non-condensing)	
Altitude		2,000m (>2,000 Derating)	
DimensionsW*D*H(mm)		530*200*600	
Weight(kg)		29	
Isolation transformer		No	
Self-consumption(W)		<3	
Display and communication			
Display		LCD	
Interface_RS485/Wifi/4G/ CAN/DRM		Yes / Opt / Opt / Yes / Yes	
Safety standard		IEC/EN62109-1/-2, IEC/EN62477-1	
EMC		IEC/EN 61000-6-1, IEC/EN 61000-6-3	
On-grid		Europe: EN50549-1, Germany: VDE4105/0124, UK: G99, South Africa: NRS 097-2-1:2017	

Smart BMS supports communication with different brand of hybrid inverter

..... Green Energy
..... Smart Inverter **Expert**

IoT Monitoring Platform

Smart mobile "core" life

- CO-2 induced environmental analysis
- Daily and total energy generation in kWh
- Actual DC input voltage, current and power
- Actual AC output voltage, current and power
- Inverter temperature
- Historical (daily, weekly, monthly) power curve
- Power losses due to weather induced effects
- Optional limitation of power output
- Online switch for the inverter start stop

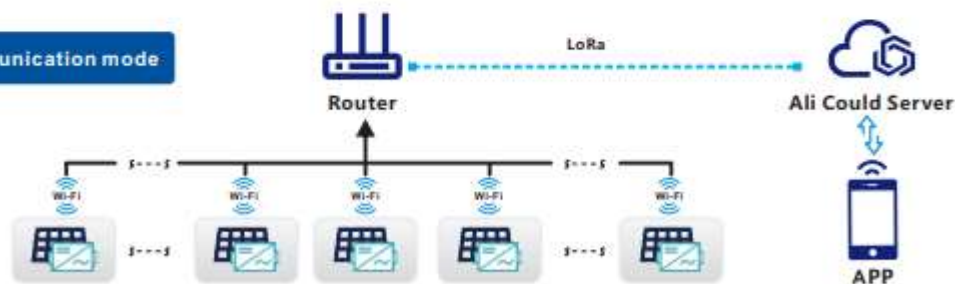


MICRO INVERTER



WVC-300(Life)

Communication mode



- ☼ CO-2 induced environmental analysis
- 🕒 Daily and total energy generation in kWh
- Ⓜ Actual DC input voltage, current and power
- Ⓜ Actual AC output voltage, current and power
- 🌡 Inverter temperature
- 🔊 Optional limitation of power output
- 🕒 Online switch for the inverter start stop
- 📊 Historical (daily, weekly, monthly) power curve

model	WVC-300
Recommend use panels	1*375Watt
Output voltage mode	120/230V Auto switch
PV Open circuit voltage	33-60VDC
Operating voltage range	22-60V
Starting voltage range	22-60V
short-circuit current	15A
Maximum working current	13.7A

Output parameters	@120V	@230V
Output peak power	310Watt	310Watt
Rated output power	300Watt	300Watt
Output current	2.5A	1.3A
AC voltage range	85-160VAC	180-280VAC
AC frequency range	48-51Hz/58-61Hz	48-51Hz/58-61Hz
Power factor	>95%	>95%
Number of branch connections.	15PCS (Single)	25PCS (Single)

Output efficiency	@120V	@230V
Static MPPT efficiency	99.5%	99.5%
Max output efficiency	95%	95%
Loss of power at night	<0.5W	<0.5W
Total current harmonics	<5%	<5%

Appearance and technical features

Temperature range	-20°C to +50°C
Size (LxWxH)	165mmx176mmx38mm
Net amount	0.82kg
Waterproof grade	Ip65 NEMA3R
Heat dissipation mode	Self-cooling
Communication mode	Wi-Fi
Power transmission mode	Reverse transmission, Load priority
monitoring system	APP
Electromagnetic Detection	EN61000-6-1:2007 EN6100-6-3:2007+A1:2011+AC:2012
Power Grid standard	EN50549-1, EN 50549-2, NBR 16149:2013, UL1741
Power grid detection	IEC/EN 62109-1, IEC/EN 62109-2, IEC 62116, IEEE 1547
Certificate	CE , Patented technology

Packing weight

Specifications	Each (Packing)	Box (15PCS)
weight	1.28 KG	19.5 KG
Size	245x202x60mm	450x395x345mm

..... Green Energy Expert

..... Smart Inverter Expert

MICRO INVERTER

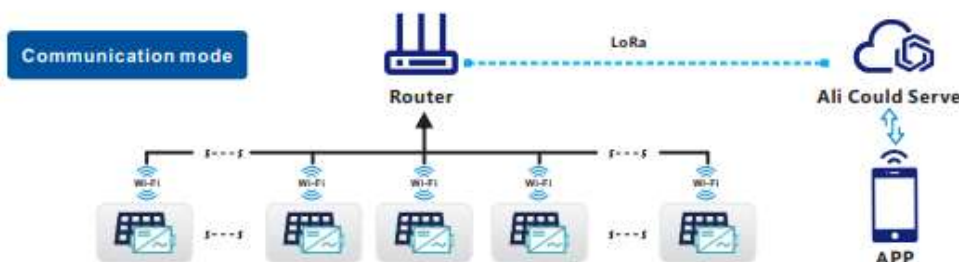


WVC-350(Life)

IoT Monitoring Platform

Smart mobile "core" life

- CO-2 induced environmental analysis
- Daily and total energy generation in kWh
- Actual DC input voltage, current and power
- Actual AC output voltage, current and power
- Inverter temperature
- Historical (daily, weekly, monthly) power curve
- Power losses due to weather induced effects
- Optional limitation of power output
- Online switch for the inverter start stop



- ☼ CO-2 induced environmental analysis
- ☺ Daily and total energy generation in kWh
- Ⓜ Actual DC input voltage, current and power
- Ⓜ Actual AC output voltage, current and power
- 🌡 Inverter temperature
- 🔌 Optional limitation of power output
- 🕒 Online switch for the inverter start stop
- 📊 Historical (daily, weekly, monthly) power cu

model	WVC-350
Recommend use panels	1*435Watt
Output voltage mode	120/230V Auto switch
PV Open circuit voltage	33-60VDC
Operating voltage range	22-60V
Starting voltage range	22-60V
short-circuit current	18A
Maximum working current	16A

Output parameters	@120V	@230V
Output peak power	350Watt	350Watt
Rated output power	330Watt	330Watt
Output current	2.91A	1.52A
AC voltage range	85-160VAC	180-265VAC
AC frequency range	48-51Hz/58-61Hz	48-51Hz/58-61Hz
Power factor	>95%	>95%
Number of branch connections.	15PCS (Single)	25PCS (Single)

Output efficiency	@120V	@230V
Static MPPT efficiency	99.5%	99.5%
Max output efficiency	95%	95%
Loss of power at night	<0.5W	<0.5W
Total current harmonics	<5%	<5%

Appearance and technical features

Temperature range	-20°C to +50°C
Size (L×W×H)	165mm×176mm×38mm
Net amount	0.82kg
Waterproof grade	Ip65 NEMA3R
Heat dissipation mode	Self-cooling
Communication mode	Wi-Fi
Power transmission mode	Reverse transmission, Load priority
monitoring system	APP
Electromagnetic Detection	EN61000-6-1:2007 EN6100-6-3:2007+A1:2011+AC:2012
Power Grid standard	EN50549-1, EN 50549-2, NBR 16149:2013, UL1741
Power grid detection	IEC/EN 62109-1, IEC/EN 62109-2, IEC 62116, IEEE 1547
Certificate	CE, CEC, ETL

Packing weight

Specifications	Each (Packing)	Box (15PCS)
weight	1.28 KG	19.5 KG
Size	245×202×60mm	450×395×345mm

Green Energy Smart Inverter Expert

MICRO INVERTER



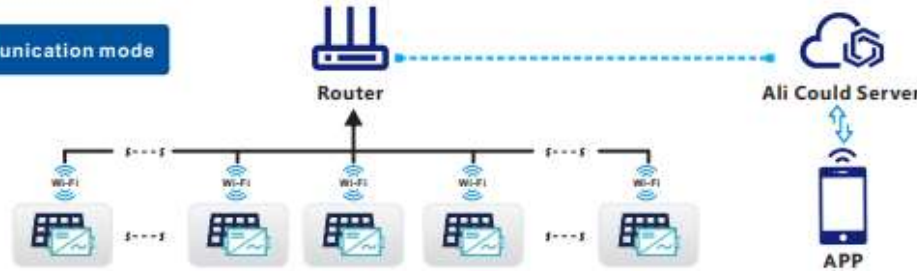
IoT Monitoring Platform Smart mobile "core" life

- CO-2 induced environmental analysis
- Daily and total energy generation in kWh
- Actual DC input voltage, current and power
- Actual AC output voltage, current and power
- Inverter temperature
- Historical (daily, weekly, monthly) power curve
- Power losses due to weather induced effects
- Optional limitation of power output
- Online switch for the inverter start stop



WVC-600(Life)

Communication mode



- ☹️ CO-2 induced environmental analysis
- 🕒 Daily and total energy generation in kWh
- Ⓜ️ Actual DC input voltage, current and power
- 📊 Actual AC output voltage, current and power
- 🌡️ Inverter temperature
- 🔌 Optional limitation of power output
- 🔌 Online switch for the inverter start stop
- 📈 Historical (daily, weekly, monthly) power curve

model	WVC-600
Recommend use panels	2*375Watt
Output voltage mode	120/230V
PV Open circuit voltage	33-60VDC
Operating voltage range	22-60V
Starting voltage range	22-60V
short-circuit current	2*15A
Maximum working current	2*12A

Output parameters	@120V	@230V
Output peak power	600Watt	600Watt
Rated output power	580Watt	580Watt
Output current	5A	2.6A
AC voltage range	85-160VAC	180-280VAC
AC frequency range	48-51Hz/58-61Hz	48-51Hz/58-61Hz
Power factor	>95%	>95%
Number of branch connections.	6PCS (Single)	12PCS (Single)

Output efficiency	@120V	@230V
Static MPPT efficiency	99.5%	99.5%
Max output efficiency	95%	95%
Loss of power at night	<0.5W	<0.5W
Total current harmonics	<5%	<5%

Appearance and technical features

Temperature range	-20°C to +50°C
Size (L×W×H)	283mm×200mm×41.6mm
Net amount	1.56kg
Waterproof grade	Ip65 NEMA3R
Heat dissipation mode	Self-cooling
Communication mode	Wi-Fi
Power transmission mode	Reverse transmission, Load priority
monitoring system	APP
Electromagnetic Detection	EN61000-6-1:2007 EN6100-6-3:2007+A1:2011+AC:2012
Power Grid standard	EN50549-1, EN 50549-2, NBR 16149:2013, UL1741
Power grid detection	IEC/EN 62109-1, IEC/EN 62109-2, IEC 62116, IEEE 1547
Certificate	CE, CEC, ETL

Packing weight

Specifications	Each (Packing)	Box (5PCS)
weight	2.4KG	11.5KG
Size	342×240×115mm	440×380×260mm

PRODUCTS OPTIMIZER & MONITORING SYSTEM





SP-1 Solar Optimizer

The application scenarios of this product are various types of solar power systems, which can collect the data (such as power, voltage, current, temperature) of solar modules in real time, and the data is summarized at the communication gateway and uploaded to the server. At the same time, the product has the function of actively and quickly shutting off the output of the corresponding solar module when necessary. In addition, Maximum Power Point Tracking (MPPT) optimizes the power output of solar modules in real time to increase power generation.



Solar Optimizer



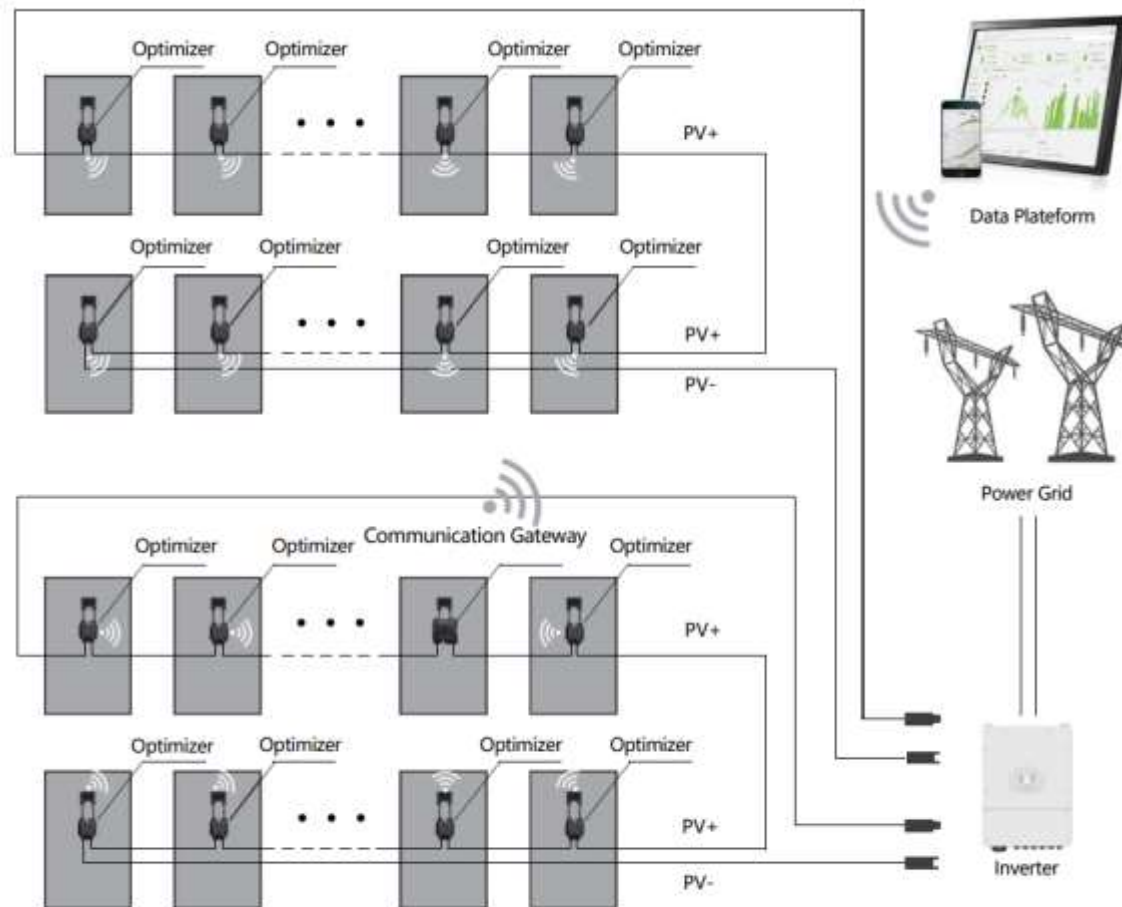
Communication Gateway



Data Platform

SP-G Communication Gateway

The solar wireless communication gateway communicates with the solar optimizer wirelessly, and can receive the data blocks collected by the solar optimizer and issue system configuration commands to the solar optimizer. At the same time, it communicates with the server continuously through 4G and Wifi, uploading the collected data blocks and receiving the configuration commands issued by the server. In a breakthrough, the gateway adopts a 1500V system withstand voltage and a fully sealed design, which can obtain electricity from the solar modules.



Data Platform

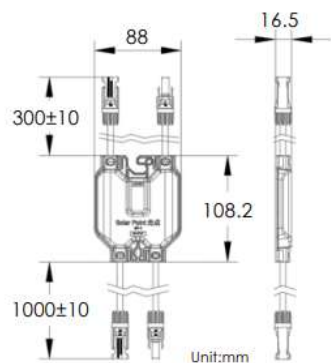
The data platform is a solar power station monitoring system developed based on the Internet, which is used to display, analyze, store and summarize the solar power station data uploaded by the communication gateway, so that users can remotely and in real time understand the operation of the power station, deal with faults in time, improve the safety of the power station and save operation and maintenance costs.

Solar Optimizer

SP-1 Solar Optimizer Datasheet

SP-1 Functions Optional:

1. Monitoring+Rapid Shutdown
2. Monitoring+Rapid Shutdown+MPPT



SPECIFICATION

1.Size	108.2x88.0x16.5mm
2.Weight	360g
3.Input cable length(customizable)	300mm(+)/300mm(-)
4.Output cable length(customizable)	1000mm(+)/1000mm(-)
5.Connector	MC4/MC4 compatible
6.Ingress protection	IP68

ELECTRIC PERFORMANCE PARAMETERS

1.Rated Power	<0.3W
2.Working Temperature Range	-40°C~+85°C
3.Input Voltage Range	8~60V
4.Maximum Input Current	20A
5.Maximum Input Power	700W
6.Communication Method	wireless
7.Maximum Communication Distance	100m
8.Maximum System Voltage	1500V
9.Current Detection Accuracy	±0.1A
10.Voltage Detection Accuracy	±0.2V
11.Temperature Detection Accuracy	±2°C



REAL-TIME MONITORING

Minute-level data monitoring, millisecond-level data response. Even if it is thousands of miles away, it is possible to grasp the power generation status of solar modules in real time through multiple channels like website.



SAFE AND RAPID SHUTDOWN

After the smart device detects a high-risk power generation abnormality, it will actively shut down the output of the solar module within milliseconds, giving priority to the safety of personnel and systems.



LONG WORKING YEARS

Selected and reliable components, double standard test conditions, daily working power is less than 0.3W, and strive to guarantee the same working life as solar modules.



OPTIMIZATION AND IMPROVEMENT

MPPT to ensure the maximum power output of solar modules. Recover the power loss of solar modules caused by factors such as shadow occlusion and different solar cell attenuation.



EXCEPTION AND TIMELY RESPONSE

More and more perfect data model, accurate determination of abnormal components, rapid diagnosis of abnormal factors, and notification of power station owners.



EASY INSTALLATION PROCESS

The different appearance design of the input and output ends, the one-to-one matching of equipment and solar modules, and the use of MC4 compatible connectors greatly simplify the installation process.

Solar Optimizer

SP-G Communication Gateway Datasheet



SPECIFICATION

1.Size	158x150x37mm
2.Server communication method	4G/WIFI
3.Optimizer communication method	2.4GHz
4.Maximum number of nodes	500
5.eSIM /SIM	√
6.Weight	800g
7.Inlet length (customizable)	300mm(+)/300mm(-)
8.Outlet length (customizable)	300mm(+)/300mm(-)
9.Connector	MC4/MC4 compatible
10.Protection level	IP68
11.Intelligent optimization function	Monitoring and Shut down

ELECTRIC PERFORMANCE PARAMETERS

1.Rated Power	<0.5W
2.Working current	<50mA
3.Range of working temperature	-40℃~+85℃
4.Input voltage range	-0.3~50V
5.Maximum input current	20A
6.Maximum input power	700W
7.Communication method	wireless
8.Maximum communication distance	100m
9.Maximum system voltage	1500V
10.Current detection accuracy	±0.1A
11.Voltage detection accuracy	±0.2V
12.Temperature detection accuracy	±2℃

POWERED BY SOLAR MODULE

The product meets the withstand voltage design of the 1500V system, and also meets the IP67 protection level. It can take power from the solar module at any potential difference in the power station, ensuring the optimal communication state while saving power.

FLEXIBLE NETWORKING

Realize the independent networking and real-time communication of up to 500 solar optimizers, and also meet the requirement of adding or removing a single node optimizer to the network. The communication channel supports customization to prevent the gateway from being interfered by other wireless frequencies in the working environment.

LONG WORKING YEARS

Selected reliable components, double standard test conditions, daily working current is less than 50mA, rated power is less than 0.5W, and strive to guarantee the same working life as solar modules.

WIDE RANGE OF COMMUNICATION METHODS

Support 4G (SIM card, eSIM) and WIFI multiple ways to establish stable TCP communication with the server. IP address, port number, communication interval support customization.

EMBEDDED SMART MODULE

The communication gateway is embedded with a solar optimizer circuit, which can complete the power generation data collection of the power supply solar module. At the same time, you can turn on or shut off the output of the power supply solar module.

EXCELLENT COMMUNICATION ABILITY

In solar power station, the 2.4GHz frequency band can communicate with solar optimizers within a radius of 50m~100m to maintain a packet loss rate of less than 1%.

Solar Optimizer

ATHENA600 Solar Optimizer Datasheet-MPPT Function



FEATURES

- Based on advanced chips, eliminate panel level mismatch
- Retrieve 3%~25% power generation loss
- Solve the mismatch issues caused by different variations
- 30% Long string installation available due to Voltage Limiting
- Apply to all types of modules
- $\Delta < 10^{\circ}\text{C}$ Anti-Hotspot, more safer and durable

INPUT PARAMETER

1.Maximum Input Power	460W	600W
2.Operating Voltage Range	9~55V	3~70V
3.MPPT Operating Range	13~50V	8~70V
4.Maximum Input Current	15A/Scalable	15A/Scalable
5.Over-current Protection	16A	18A
6.Over-temperature Protection	150°C	160°C

OUTPUT PARAMETER

1.Maximum Output Current	15A	17A
2.Theoretical Maximum Output Voltage	55V	65 V
3.Output Voltage Limiting Threshold	42V/Adjustable	42V/Adjustable
4.Total Maximum String Voltage	1500V	1500V
5.72 Type Module String@1500 V	36 Modules	36 Modules
6.72 Type Module String@1100 V	26 Modules	26 Modules
7.72 Type Module String@1000 V	24 Modules	24 Modules

OUTPUT PARAMETER

1.Peak Conversion Efficiency	99.5%	99.5%
2.Power Consumption@5 A	0.9W	0.9W
3.Power Consumption@8 A	1.4W	1.4W
4.Power Consumption@12 A	2.9W	2.9W
5.Power Consumption@15 A	3.8W	3.8W

SPECIFICATIONS

1.Dimensions (L×W×H)		
2.Weight	105*105*20 mm	105*105*20 mm
3.Input cable length	200mm(+)/200mm(-)	200mm(+)/200mm(-)
4. Output cable length	1000mm(+)/1000mm(-)	1000mm(+)/1000mm(-)
5.Connector	MC4/MC4 compatible	MC4/MC4 compatible
6.Operating Temperature	-40~+85°C	-40~+85°C
7.Range Protection Rating	IP65	IP65

FUNCTION

Solar Optimizer

PV-XL1B-002 Solar Optimizer Datasheet-MPPT Function



FEATURES

- Based on advanced chips, eliminate panel level mismatch
- Retrieve 3%~25% power generation loss
- Solve the mismatch issues caused by different variations
- 30% Long string installation available due to Voltage Limiting
- Apply to all types of modules
- $\Delta < 10^{\circ}\text{C}$ Anti-Hotspot, more safer and durable

INPUT PARAMETER

1.Maximum Input Power	460W	600W
2.Operating Voltage Range	9~55V	3~70V
3.MPPT Operating Range	13~50V	8~70V
4.Maximum Input Current	15A/Scalable	15A/Scalable
5.Over-current Protection	16A	18A
6.Over-temperature Protection	150°C	160°C

OUTPUT PARAMETER

1.Maximum Output Current	15A	17A
2.Theoretical Maximum Output Voltage	55V	65 V
3.Output Voltage Limiting Threshold	40V/Adjustable	40V/Adjustable
4.Total Maximum String Voltage	1500V	1500V
5.72 Type Module String@1500 V	37 Modules	37 Modules
6.72 Type Module String@1100 V	27 Modules	27 Modules
7.72 Type Module String@1000 V	25 Modules	25 Modules

OUTPUT PARAMETER

1.Peak Conversion Efficiency	99.59%	99.59%
2.Power Consumption@5 A	0.9W	0.9W
3.Power Consumption@8 A	1.4W	1.4W
4.Power Consumption@12 A	2.9W	2.9W
5.Power Consumption@15 A	3.8W	3.8W

SPECIFICATIONS

1.Dimensions (L×W×H)		
2.Weight	106*105*22 mm	106*105*22 mm
3.Input cable length	700mm(+)/700mm(-)	700mm(+)/700mm(-)
4.Outrput cable length	1000mm(+)/1000mm(-)	1000mm(+)/1000mm(-)
5.Connector	MC4/MC4 compatible	MC4/MC4 compatible
6.Operating Temperature	-40~+85°C	-40~+85°C
7.Range Protection Rating	IP68	IP68

FUNCTION

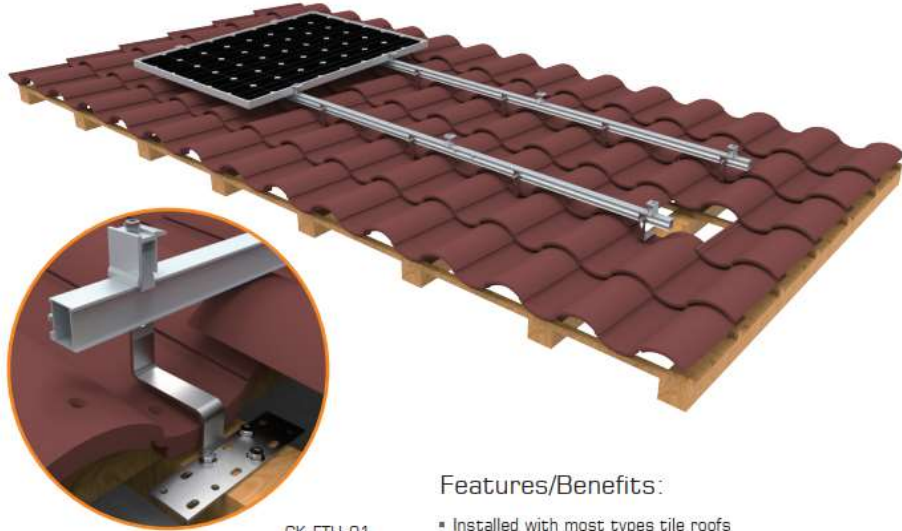


PRODUCTS

ROOF FIXING

SYSTEMS

Pantile Mount Side Fixing



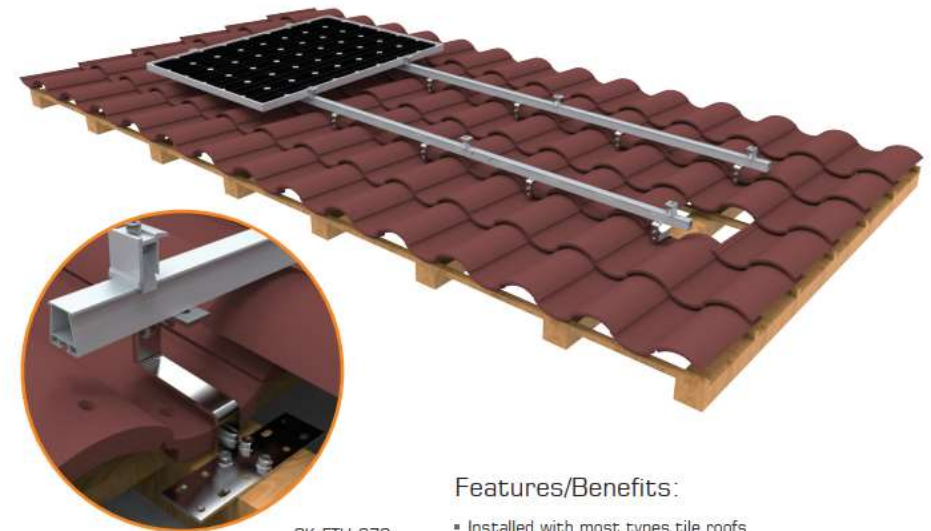
CK-FTH-01

Features/Benefits:

- Installed with most types tile roofs
- Portrait & Landscape orientation
- Pre-assembled
- Made of SUS 304
- Height adjustable
- Easy installation



Pantile Mount Bottom Fixing



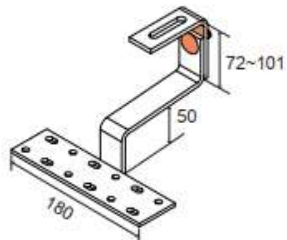
CK-FTH-073

Features/Benefits:

- Installed with most types tile roofs
- Portrait & Landscape orientation
- Pre-assembled
- Made of SUS 304
- Height adjustable
- Easy installation
- Firmly bottom fixing

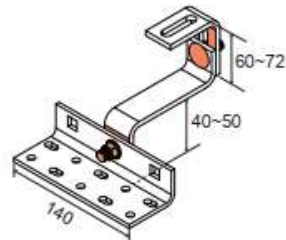


Height adjustable over tile



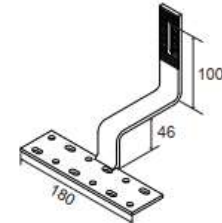
CK-FTH-073

Height adjustable from bottom



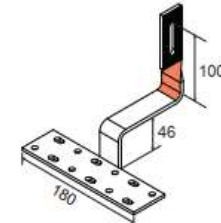
CK-FTH-09V

Portrait Orientation



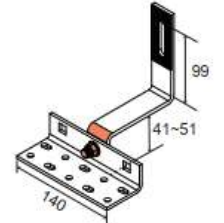
CK-FTH-01

Landscape Orientation



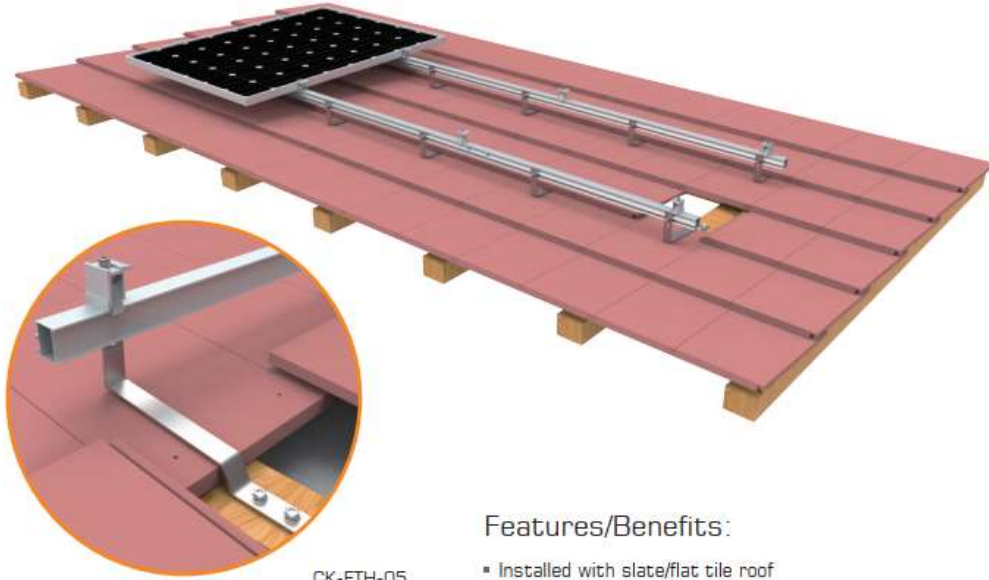
CK-FTH-01B

Height Adjustable



CK-FTH-09

Flat Tile Mount



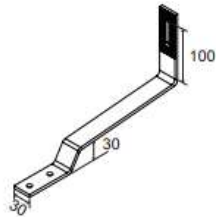
CK-FTH-05

Features/Benefits:

- Installed with slate/flat tile roof
- Portrait & Landscape orientation
- Pre-assembled
- Made of SUS 304
- Height adjustable
- Easy installation

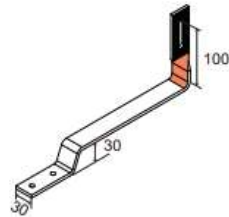


Portrait orientation



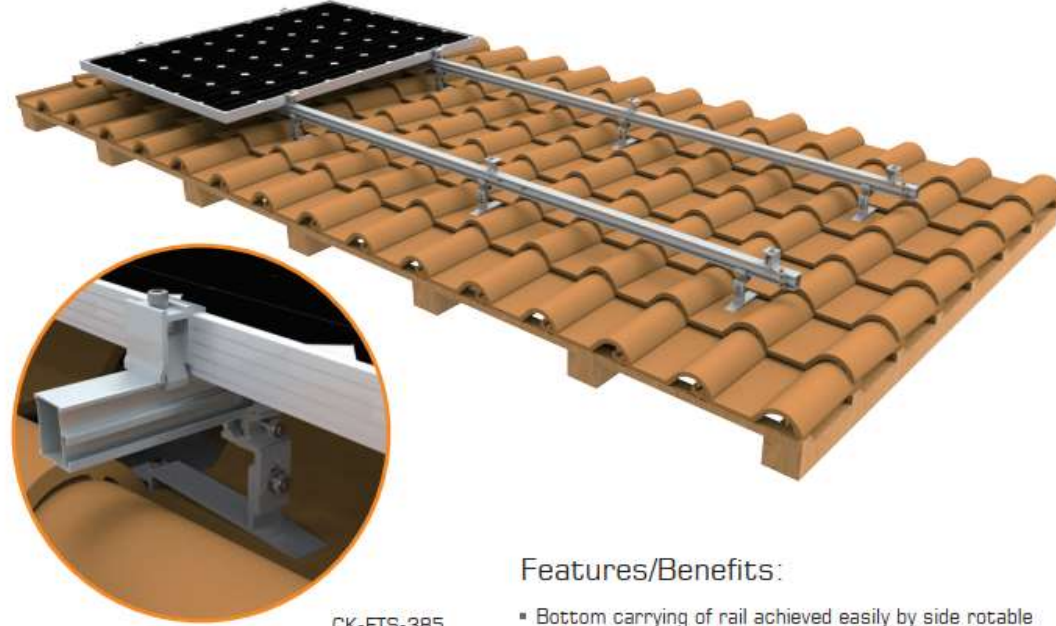
CK-FTH-05

Landscape orientation



CK-FTH-05B

Crown Mount



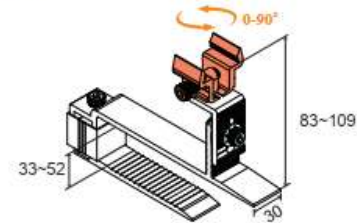
CK-FTS-385

Features/Benefits:

- Bottom carrying of rail achieved easily by side rotatable
- Module orientation switched easily by rotatable adapter
- Made of AL 6005-T5
- High-class surface anodizing
- Pre-assembled
- Height adjustable

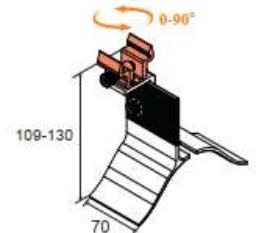


Tulip Mount



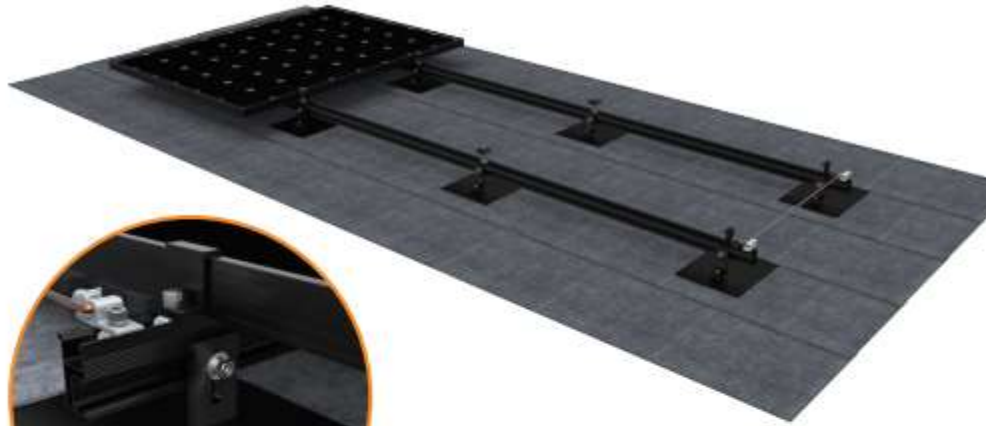
CK-FTS-385

Arc Mount



CK-FTS-360

Asphalt Shingle Mount



CK-FTS-162T2-5

Features/Benefits:

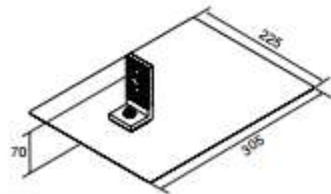
- Installed with Asphalt Shingle Roof
- Portrait and Landscape orientation
- Made of AL 6005-T5
- High-class surface anodizing
- Pre-assembled
- Waterproof silicon rubber and flashing integrated
- Easy installation



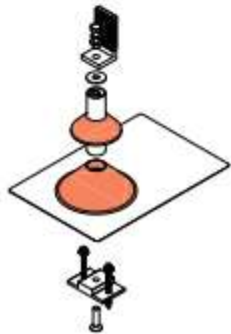
Intertek
5010190
Certified to UL 508, MIL-STD-883C



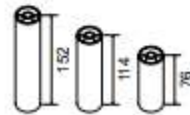
Specification



Silicon rubber



Height options



05

RAD Mount



CK-FTS-167R537-1-70

Features/Benefits:

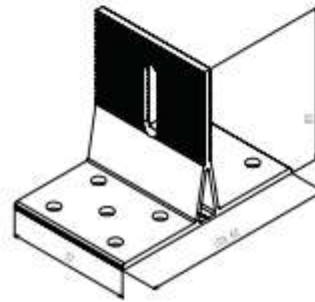
- Installed with any type asphalt shingle roof
- Portrait and Landscape orientation
- Made of AL 6005-T5
- High-class surface anodizing
- Pre-assembled
- Waterproof butyl rubber
- Easy installation



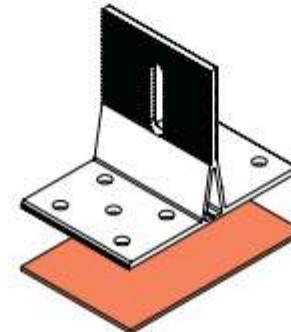
Intertek
5010190
Certified to UL 508, MIL-STD-883C



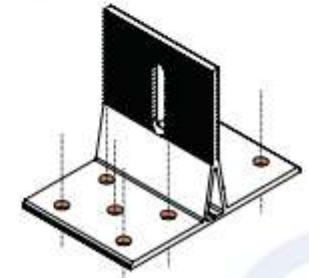
Specification



Butyl Rubber



Hole options



06

Stainless Steel Hooks

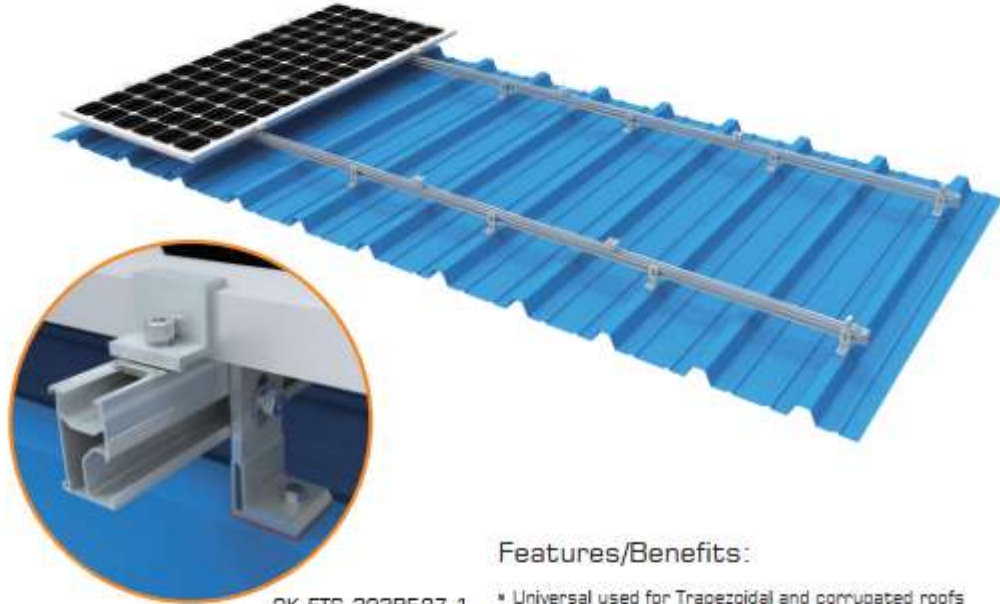
Type No.	Image	Technical	Dimensions	Tile Roof Type
CK-FTH-01			H1=46 H2=100 W=180	
CK-FTH-78			H1=66~98 H2=101 W=180	
CK-FTH-09			H1=41~51 H2=99 W=140	
CK-FTH-01B			H1=46 H2=100 W=180	
CK-FTH-09B			H1=41~51 H2=99 W=140	
CK-FTH-73			H1=50 H2=72~101 W=180	
CK-FTH-09V			H1=40~50 H2=60~72 W=140	
CK-FTH-05			H1=30 H2=100 W=30	
CK-FTH-05B			H1=30 H2=100 W=30	

Aluminium Hooks

Type No.	Image	Technical	Dimensions	Tile Roof Type
CK-FTH-19			H1=85 W1=305 W2=225	
CK-FTH-20			H1=85 H2=152/114/76 H3=252/214/176 W1=340 W2=325	
CK-FTH-167			H1=85 W1=109.60 W2=70	
CK-FTH-323			H1=115 H2=39-57	
CK-FTH-329			H1=110 H2=52	
CK-FTH-385			H1=83.5-109.5 H2=33-52	

Pantile	Roman tile	Flat tile	Asphalt Shingle

L Feet Mount



CK-FTS-202R587-1

Features/Benefits:

- Universal used for Trapezoidal and corrugated roofs
- Portrait or Landscape orientation
- Pre-assembled
- Made of high class material AL6005-T5
- Pre-Applied EPDM pad



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Length Options



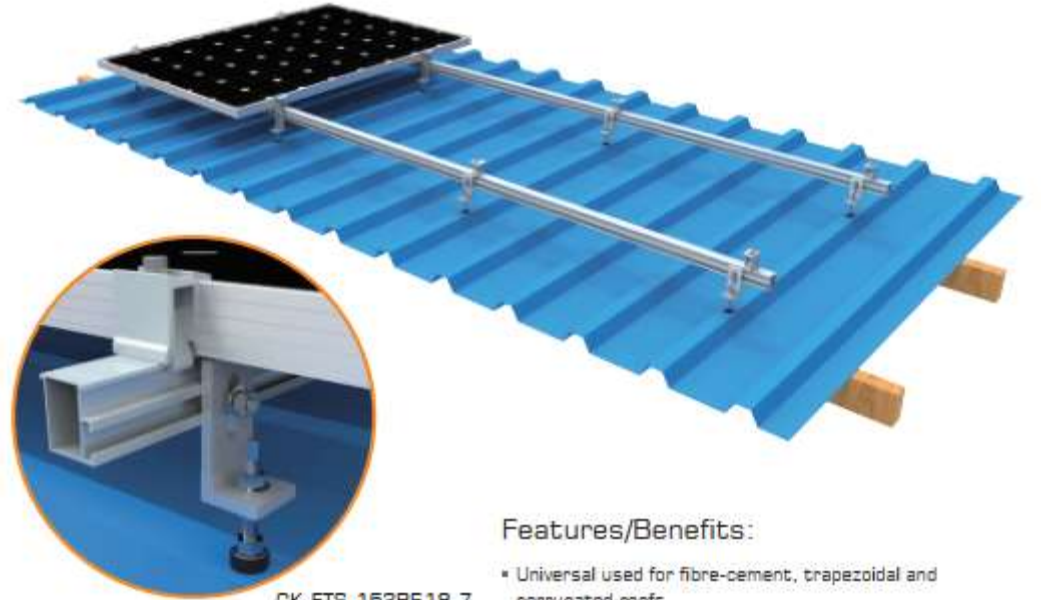
Apply with Hanger Bolt



Work with roof clamps



Hanger Bolt Mount



CK-FTS-162R518-7

Features/Benefits:

- Universal used for fibre-cement, trapezoidal and corrugated roofs
- Portrait or Landscape orientation
- Pre-assembled
- Made of high class material AL6005-T5
- Height adjustable and help to increase power generation



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5010190
Certificate to UL 580, 501, 1904, 2700



For Wooden Rafter



CK-HS-003-B1200/250/300

For Steel Purlin



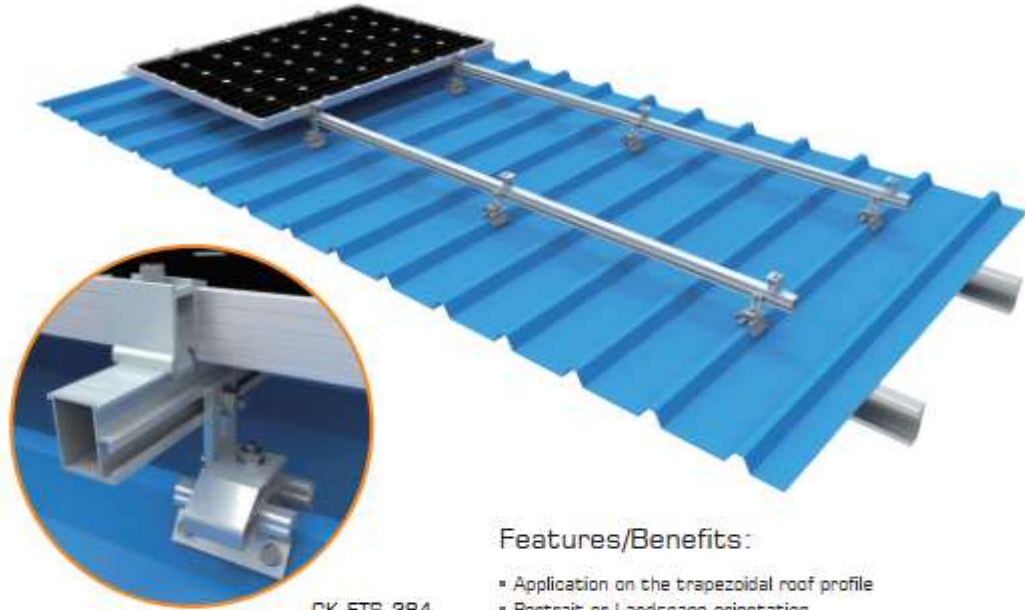
CK-HS-001-C120/160/200

Combined with Alu Plate



CK-FTS-233-B200/C200

Trapezoidal Clamp Mount



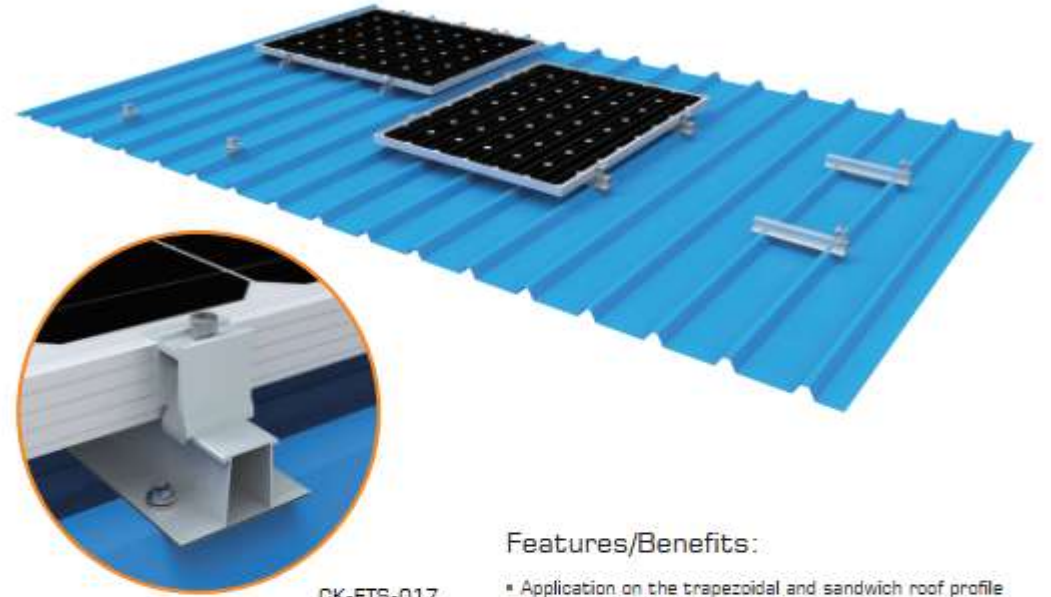
CK-FTS-384



Features/Benefits:

- Application on the trapezoidal roof profile
- Portrait or Landscape orientation
- Made of high class material AL6005-T5
- Every size of module array possible
- Components configured completely, no need extra parts purchasing
- Share the roof loading

Rail-Free Mount



CK-FTS-017



Features/Benefits:

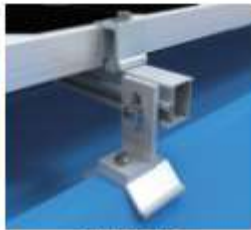
- Application on the trapezoidal and sandwich roof profile
- Portrait orientation
- Made of high class material AL6005-T5
- Lower Costing & Fast fixing
- Fix on ribs only ,no need drill purlin
- Pre-assembled with EPDM pad

Top Drilling

Side Drilling



CK-FTS-320



CK-FTS-352



CK-FTS-381



CK-FTS-395

Different height for option

Portrait&Landscape Orientation



CK-FTS-016



CK-FTS-017



CK-FTS-024

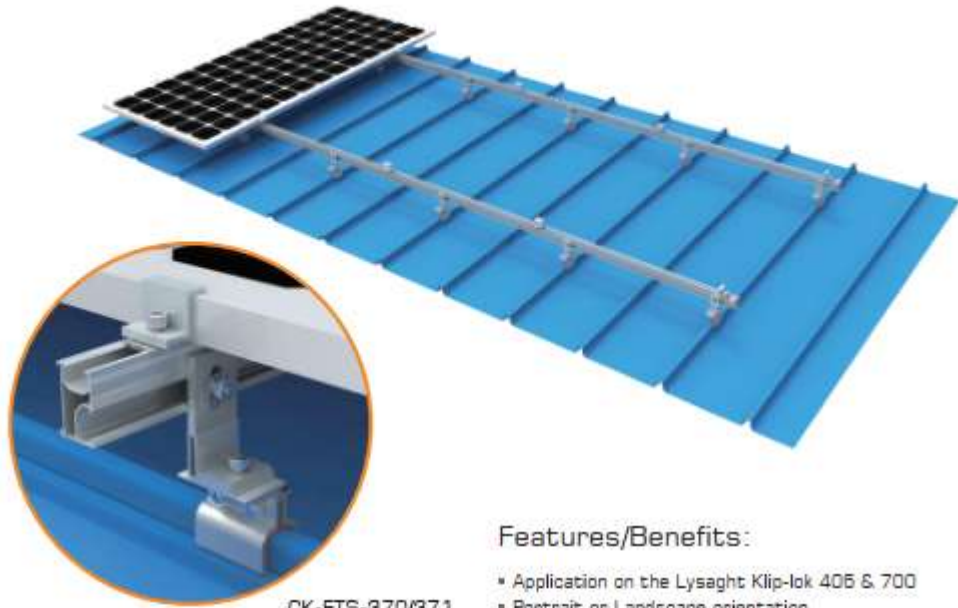


CK-FTS-022



CK-FTS-012

Lysaght Klip-lok Mount



CK-FTS-870/371

Features/Benefits:

- Application on the Lysaght Klip-lok 406 & 700
- Portrait or Landscape orientation
- Made of high class material AL6005-T5
- Every size of module array possible
- Share the roof loading
- Non-penetration installation



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Klip-lok Series



CK-FTS-370

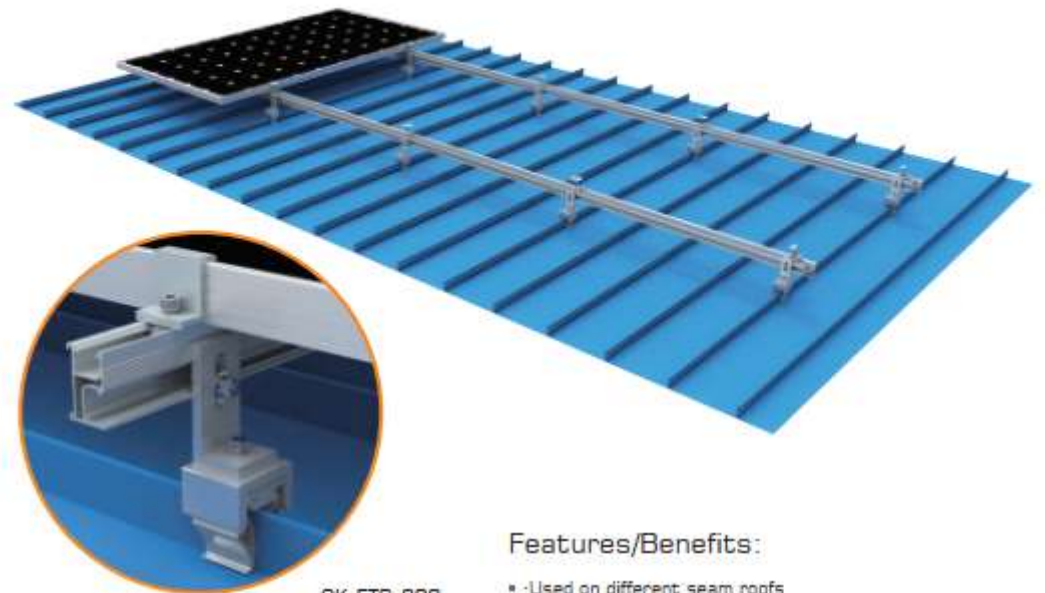


CK-FTS-442



CK-FTS-444

E-LOCK Mount



CK-FTS-388

Features/Benefits:

- Used on different seam roofs
- Portrait and Landscape orientation
- Made of high class material AL6005-T5
- One bolts fixing, saving installation time and process
- Unique design with non-penetrating solutions



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Customized Shapes For Roofing Profiles



CK-FTS-387



CK-FTS-376



CK-FTS-388

Tilt Mount



Features/Benefits:

CK-FTS-BL200/340/500

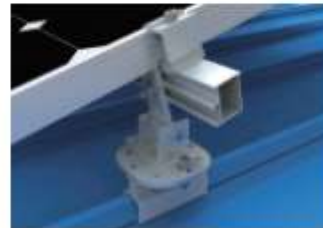
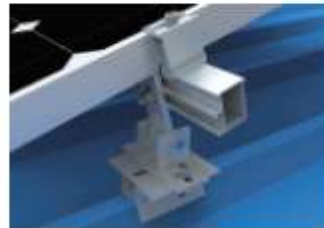
- Application on trapezoidal profile and Concrete cement roofs
- Portrait or Landscape orientation
- Made of high class material AL6005-T5
- Different tilt options
- Optimizing the tilt to increase power generations



L footing

Combined with roof clamp

Free direction possible



Standing Seam Clamps

Type No.	Image	Profile reference	Material
CK-FTS-371			AL 6005-T5
CK-FTS-370			AL 6005-T5
CK-FTS-442			AL 6005-T5
CK-FTS-444			AL 6005-T5
CK-FTS-441			AL 6005-T5
CK-FTS-331			AL 6005-T5
CK-FTS-422			AL 6005-T5
CK-FTS-443			AL 6005-T5

Ballast I-2 Mount



CK-BT21

Features/Benefits:

- Most universal for commercial flat roofs
- 1 panel Landscape orientation & East to West
- 10°, 15°, 20°, 25°, 30° tilted angle available
- Various modules configurations are possible
- Made of AL 6005-T5
- Highly class anodizing on surface treatment
- Pre-assembly and foldable
- Non-penetration to roof and light weight roof loading

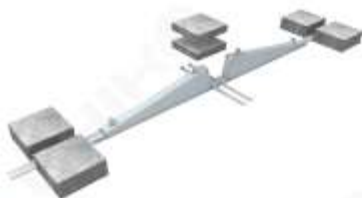


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Australon
STANDARD
AS 1173

East to West Configurations:



Ballast I-3 Mount



CK-BT31

Features/Benefits:

- Most universal for commercial flat roofs
- 1 panel Portrait & 2 panels Landscape orientation
- 10°, 15°, 20°, 25°, 30° tilted angle available
- Various modules configurations are possible
- Made of AL 6005-T5
- Highly class anodizing on surface treatment
- Pre-assembly and foldable
- Non-penetration to roof and light weight roof loading



Intertek
5010190
Certified to UL 1009, IEC 61704-1/2



Australon
STANDARD
AS 1173

Customized Configurations



Ballast III Mount



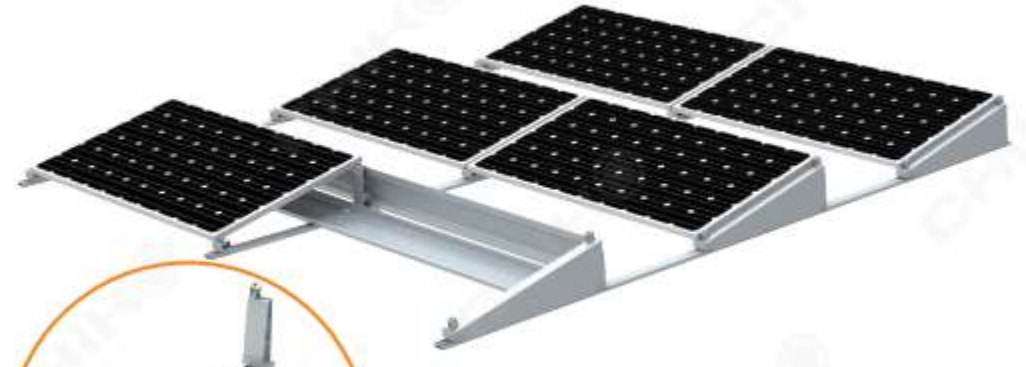
CK-BL-3

Features/Benefits:

- Most cost-effective for commercial flat roofs
- 1 panel Landscape orientation
- 10°, 15°, 20°, 25°, 30° tilted angle available
- Various modules configurations are possible
- Made of Aluminum
- 1 step installation
- Non-penetration to roof and light weight roof loading



Ballast VI Mount



CK-BL-6

Features/Benefits:

- Most universal for commercial flat roofs
- 1 panel Landscape orientation & East to West
- Fixed tilt angle at 12°
- Made of AL 6005-T5
- Highly class anodizing on surface treatment
- Only 1 tools installation needed for all fixing
- Pre-assembly
- Non-penetration to roof and light weight roof loading



Simple Installations



Ballast Placement Options



Adjustable Aluminum Triangular Mount



CK-ATT-BL

Features/Benefits:

- Most cost-effective for commercial flat roofs
- 1 panel Portrait orientation
- 10°-30° tilted angle adjustable
- Made of AL 6005-T5
- Highly class anodizing on surface treatment
- Pre-assembly and foldable
- Non-penetration to roof and light weight roof loading



Fixed Aluminum Triangular Mount



CK-FTT-BL

Features/Benefits:

- Most universal for commercial flat roofs
- 1 panel Portrait orientation
- 10°, 15°, 20°, 25° tilted angle available
- Made of AL 6005-T5
- Highly class anodizing on surface treatment
- Pre-assembly and foldable
- Non-penetration to roof with Lower cost



Angle Adjustable by moving the concrete distance



Degree	Concrete Distance(D/mm)
15°	2556
20°	2394
25°	2157
30°	1681

Tilt Mount On Metal Sheet










Classic Rail

Rail & Splice Kit



 #540 Rail 4200,3200,2100mm	 Rail Splice Kit Spec:200mm
 #541 Rail 4200,3200,2100mm	 Rail Splice Kit Spec:200mm
 #537 Rail 4200,3200,2100mm	 Rail Splice Kit Spec:200mm
 #539 Rail 4200,3200,2100mm	 Rail Splice Kit Spec:200mm











Mid Clamp & End Clamp

 Mid clamp: 30/33/35/38/40mm	 End clamp: 30/33/35/38/40mm
 Black mid clamp: 30/33/35/38/40mm	 Black end clamp: 30/33/35/38/40mm
 Adjustable grounding mid clamp: 30~40mm	 Adjustable end clamp: 30~40mm
 Black adjustable grounding mid clamp: 30~40mm	 Black adjustable grounding end clamp: 30~40mm

Infit Rail

Rail & Splice Kit

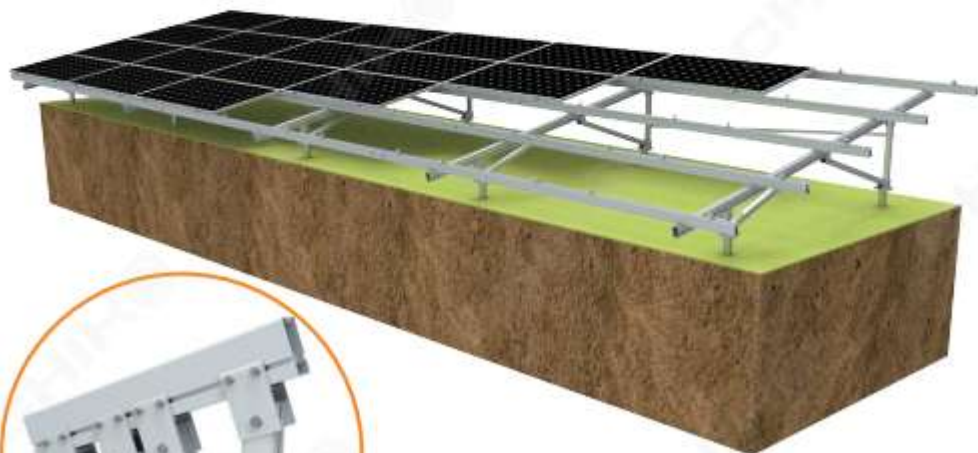


 #516 Rail 4200mm,3200mm,2100mm	 #516 Rail Splice Kit Spec:150mm
 #517 Rail 4200mm,3200mm,2100mm	 #517 Rail Splice Kit Spec:150mm
 #518 Rail 4200mm,3200mm,2100mm	 #518 Rail Splice Kit Spec:150mm
 #519 Rail 4200mm,3200mm,2100mm	 #519 Rail Splice Kit Spec:150mm
 #520 Rail 4200mm,3200mm,2100mm	 #520 Rail Splice Kit Spec:150mm

Mid Clamp & End Clamp

 Mid clamp 30/33/35/38/40mm	 End Clamp 30/33/35/38/40mm
 Adjustable Mid Clamp 30~40mm	 Adjustable End Clamp 30~40mm

Aluminum T2VC Mount

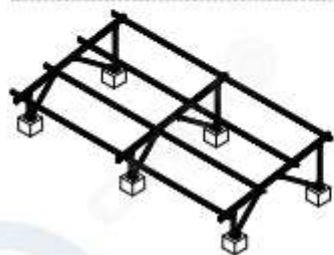


Features/Benefits:

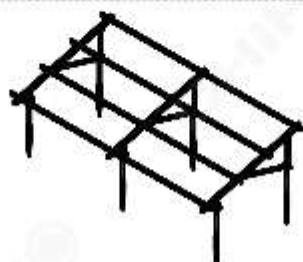
- "V" support design, improve the stability
- Pre-assembly and foldable
- Portrait or Landscape orientation
- Made of AL6005-T5, Highly class anodizing
- Customized arrays and height are possible
- Foundation works with Concrete & Ground Screw & Anchor



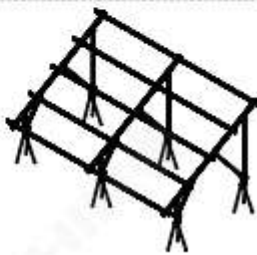
Foundation Application



Concrete



Ground screw



Anchor

Steel U2V Mount

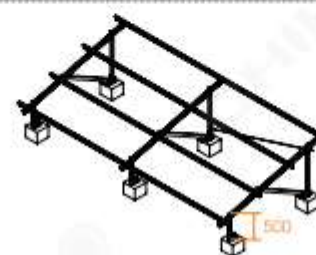


Features/Benefits:

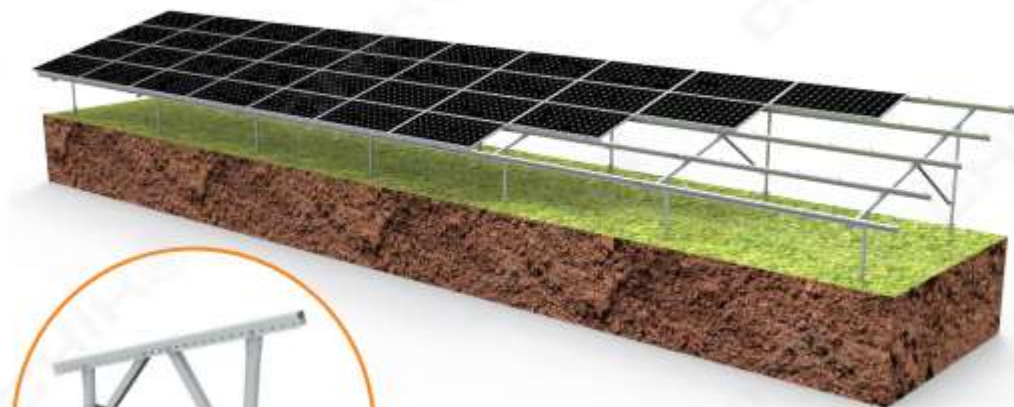
- "V" support design, improve the stability
- Pre-assembly and foldable
- Portrait or Landscape orientation
- Made of Q235B/Q355B, Hot Dip galvanizing
- Customized arrays and height are possible
- Foundation works with Concrete & Ground Screw & Anchor



Height Customization



Steel Pipe Mount

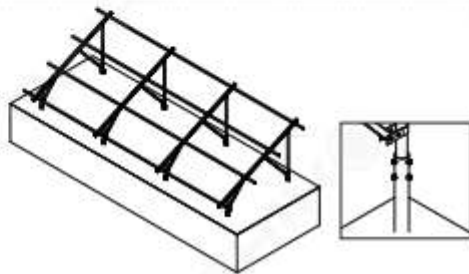
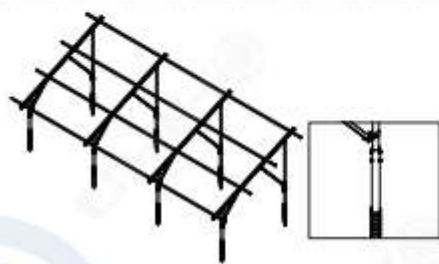


Features/Benefits:

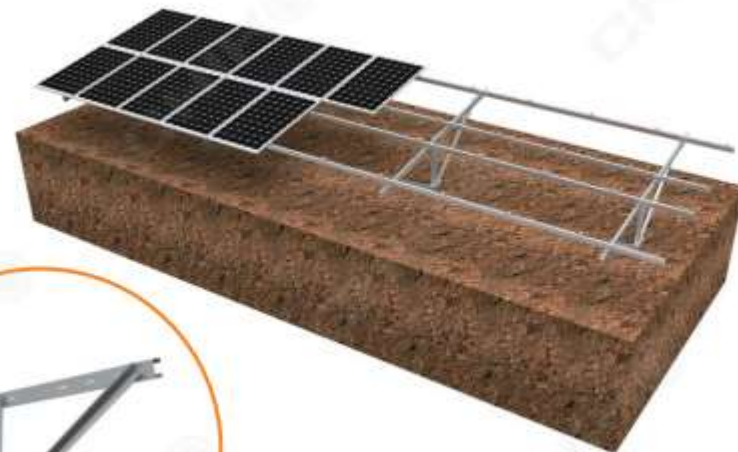
- Specially pipe support
- Pre-assembly and foldable
- Portrait or Landscape orientation
- Made of Q235B/Q355B, Hot Dip galvanizing
- Customized arrays and height are possible
- Foundation works with Concrete & Ground Screw & Anchor



Foundation Application



Pile-Driven Mount

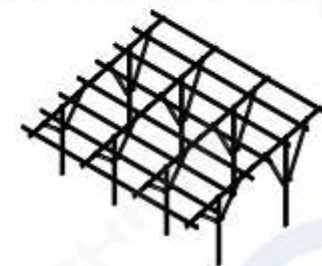
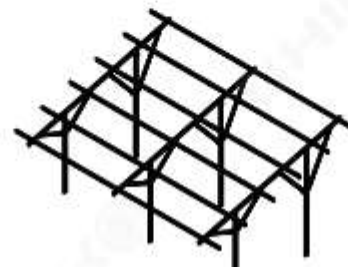
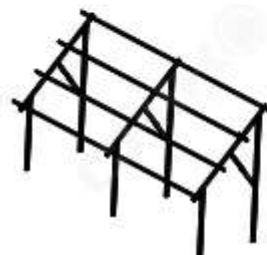


Features/Benefits:

- Ramming Installation concept
- Effective for large scale solar plant
- Portrait or Landscape orientation
- Both aluminum and steel are options
- Customized arrays and height are possible
- Foundation with pile only or combined with cement pouring



Larger Arrays

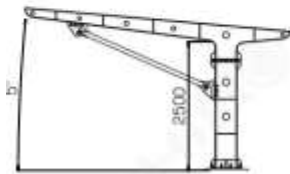


Single Pole Carport

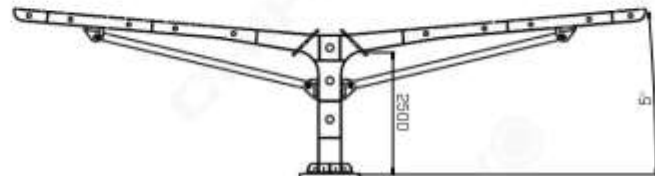


Features/Benefits:

- Mostly used for commercial parking lots
- Single pole, No obstacles between cars
- Portrait or Landscape orientation
- Made of Q355B, Hot Dip galvanizing or painting
- Double sides parking is available
- Water-proof option is provided
- Customized arrays and height are possible
- Strong calculation supported



1 Side Parking



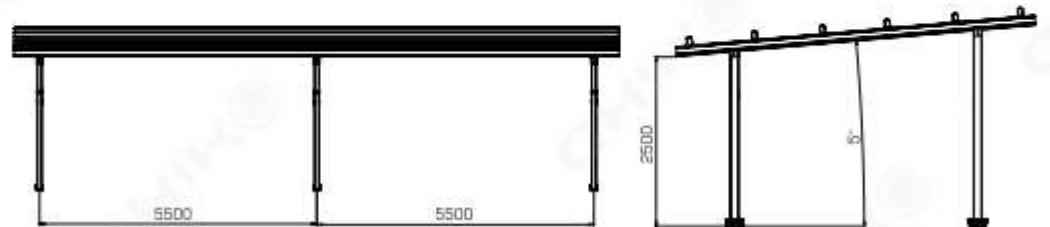
2 Sides Parking

Four Poles Carport



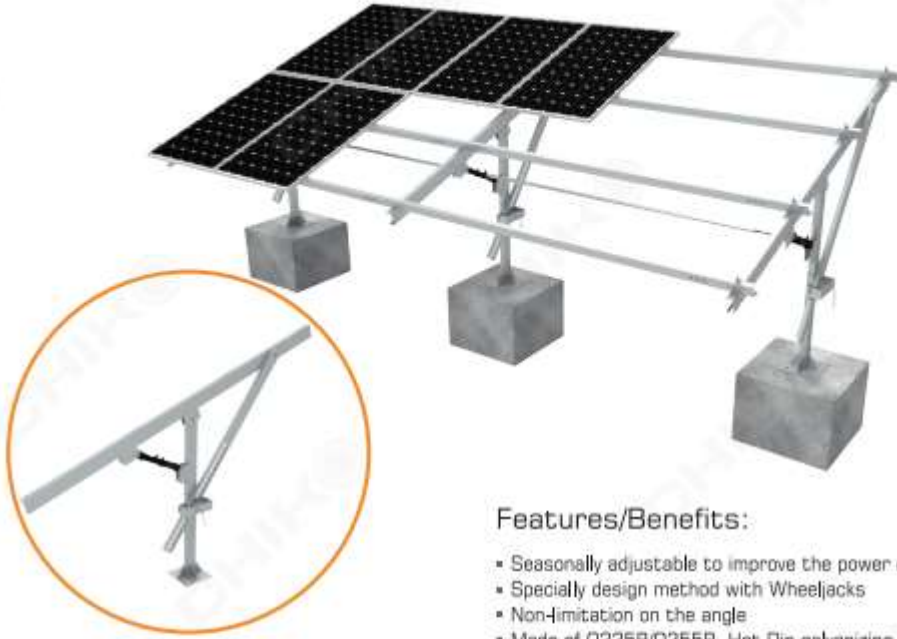
Features/Benefits:

- Mostly used for home parking lots
- Four Poles, 2 cars parking
- Portrait or Landscape orientation
- Both aluminum and steel are available
- Effective and convenient on installation
- Water-proof option is provided
- Customized arrays and height are possible
- Strong calculation supported



4 Cars Parking

Adjustable Steel Ground Mount

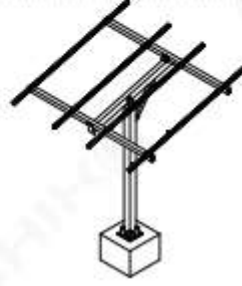
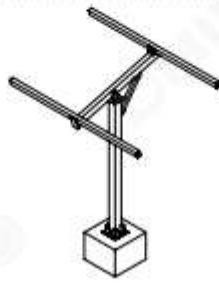


Features/Benefits:

- Seasonally adjustable to improve the power output
- Specially design method with Wheeljacks
- Non-limitation on the angle
- Made of Q235B/Q355B, Hot Dip galvanizing
- Foundation works with both Concrete & Pile
- Enable the adjusting capacity 4MW/2persons per day



Customized Design



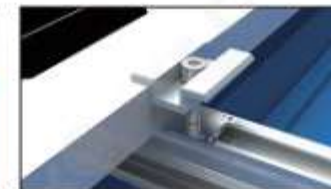
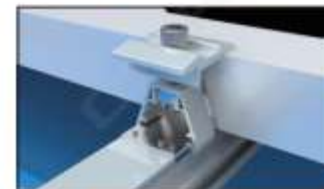
ROOFTOP EARTHING

This product is designed to bond solar PV modules to mounting structures and create an electrical path to ground.

Earthing Clip



		CK-GTC-R5A CHIKO Grounding Clip (Closed 8.5mm)
		CK-GTC-R5B CHIKO Grounding Clip (Open 8.5mm)
		CK-GTC-R3C CHIKO Grounding Clip (Open 12mm)
		CK-GTC-R3D CHIKO Grounding Clip for Ballast
		CK-GTC-R3D CHIKO Grounding Clip for Ground Mount
		CK-GTC-R3D CHIKO Grounding Clip For T Mid Clamps
		CK-SB2-1 CHIKO Grounding Lug



Ground screw type I with flange I

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter (mm)	Length(mm)	Thickness(mm)
CK-GS-F1-1200-3.0T	76	1200	3.0
CK-GS-F1-1600-3.0T	76	1600	3.0
CK-GS-F1-2000-3.0T	76	2000	3.0
CK-GS-F1-2500-3.0T	76	2500	3.0
CK-GS-F1-1200-3.5T	76	1200	3.5
CK-GS-F1-1600-3.5T	76	1600	3.5
CK-GS-F1-2000-3.5T	76	2000	3.5
CK-GS-F1-2500-3.5T	76	2500	3.5

Ground screw type I with flange II

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter (mm)	Length(mm)	Thickness(mm)
CK-GS-F2-1200-3.0T	76	1200	3.0
CK-GS-F2-1600-3.0T	76	1600	3.0
CK-GS-F2-2000-3.0T	76	2000	3.0
CK-GS-F2-2500-3.0T	76	2500	3.0
CK-GS-F2-1200-3.5T	76	1200	3.5
CK-GS-F2-1600-3.5T	76	1600	3.5
CK-GS-F2-2000-3.5T	76	2000	3.5
CK-GS-F2-2500-3.5T	76	2500	3.5

Ground screw type II with flange I

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter(mm)	Length(mm)	Thickness(mm)
CK-GSY-76F1-24-1200-3.0T	76	1200	3.0
CK-GSY-76F1-24-1600-3.0T	76	1600	3.0
CK-GSY-76F1-24-2000-3.0T	76	2000	3.0
CK-GSY-76F1-24-2500-3.0T	76	2500	3.0
CK-GSY-76F1-24-1200-3.5T	76	1200	3.5
CK-GSY-76F1-24-1600-3.5T	76	1600	3.5
CK-GSY-76F1-24-2000-3.5T	76	2000	3.5
CK-GSY-76F1-24-2500-3.5T	76	2500	3.5

Ground screw type II with flange II

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter(mm)	Length(mm)	Thickness(mm)
CK-GSY-76F2-24-1200-3.0T	76	1200	3.0
CK-GSY-76F2-24-1600-3.0T	76	1600	3.0
CK-GSY-76F2-24-2000-3.0T	76	2000	3.0
CK-GSY-76F2-24-2500-3.0T	76	2500	3.0
CK-GSY-76F2-24-1200-3.5T	76	1200	3.5
CK-GSY-76F2-24-1600-3.5T	76	1600	3.5
CK-GSY-76F2-24-2000-3.5T	76	2000	3.5
CK-GSY-76F2-24-2500-3.5T	76	2500	3.5

Adjustable ground screw type I without flange

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter(mm)	Length(mm)	Thickness(mm)
CK-GST-76N-1200-3.0T	76	1200	3.0
CK-GST-76N-1600-3.0T	76	1600	3.0
CK-GST-76N-2000-3.0T	76	2000	3.0
CK-GST-76N-2500-3.0T	76	2500	3.0
CK-GST-76N-1200-3.5T	76	1200	3.5
CK-GST-76N-1600-3.5T	76	1600	3.5
CK-GST-76N-2000-3.5T	76	2000	3.5
CK-GST-76N-2500-3.5T	76	2500	3.5

Adjustable ground screw type II without flange

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter(mm)	Length(mm)	Thickness(mm)
CK-GST-N16-1200-3.0T2	76	1200	3.0
CK-GST-N16-1600-3.0T2	76	1600	3.0
CK-GST-N16-2000-3.0T2	76	2000	3.0
CK-GST-N16-2500-3.0T2	76	2500	3.0
CK-GST-N16-1200-3.5T2	76	1200	3.5
CK-GST-N16-1600-3.5T2	76	1600	3.5
CK-GST-N16-2000-3.5T2	76	2000	3.5
CK-GST-N16-2500-3.5T2	76	2500	3.5

Adjustable ground screw flange I

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter(mm)	Length(mm)	Thickness(mm)
CK-AFP-76F1-500-3.0T	200	500	3.0
CK-AFP-76F1-800-3.5T	200	800	3.5

Adjustable ground screw flange II

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Diameter(mm)	Length(mm)	Thickness(mm)
CK-AFP-76F2-500-3.0T	200	500	3.0
CK-AFP-76F2-800-3.5T	200	800	3.5

Anchor foundation

- Material steel Q235B
- High class hot galvanized 80 μ

Item No.	Description
CK-NK-03	Anchor foundation with 3 pipes
CK-NK-06	Anchor foundation with 6 pipes
CK-NK-12	Anchor foundation with 12 pipes



Cable Clip



CK-FSC-CP1/2/3

CK-FSC-CP1 PV cable clips 2.5 Hold one or two 2.5mm² solar cable
 CK-FSC-CP2 PV cable clips 4.0 Hold one or two 4.0mm² solar cable
 CK-FSC-CP3 PV cable clips 6.0 Hold one or two 6.0mm² solar cable

- Package 8000 PCS/CTN
- Weight 17.8 kg
- Made of stainless steel SUS304



CK-FSC-CP4/5

CK-FSC-CP4 PV cable clips 90°/180° 4.0 Hold one or two 4.0mm² solar cable
 CK-FSC-CP5 PV cable clips 90°/180° 6.0 Hold one or two 6.0mm² solar cable

- Package 8000 PCS/CTN
- Weight 17.8 kg
- Made of stainless steel SUS304



CK-FSC-CP6

CK-FSC-CP6 PV cable clips to hold 3-4 cables, 3cables/6mm², 4cables/4mm²

- Package 8000 PCS/CTN
- Weight 17.6 kg
- Made of stainless steel SUS304



CK-FSP-CP-01

CK-FSP-CP-01 PV cable clips to hold 4-6 cables.
 4cables/10mm², 4cables/8mm², 5-6 cables/6mm².

- Package 4000 PCS/CTN
- Weight 10 kg
- Made of plastic



CK-FSC-CP1/2/3/4/5



CK-FSC-CP6



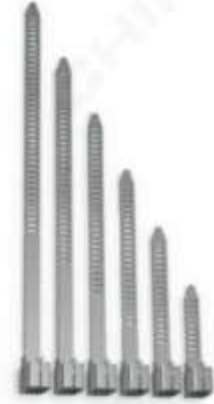
CK-FSP-CP-01

Stainless steel cable tie

- Various length available
- Stainless Steel SUS304
- Unique buckle locking mechanism
- Fast & easy installation

Material in high quality SUS304			
Item	Width (mm)	Length (mm)	Package (pcs/pkg)
CK-FSC-TA-150	4.6	150	100
CK-FSC-TA-200	4.6	200	100
CK-FSC-TA-250	4.6	250	100
CK-FSC-TA-300	4.6	300	100
CK-FSC-TA-350	4.6	350	100

- Package 5000 PCS/CTN



PV Connector

CK-0807-A/B, CK-0807-2A/2B, CK-0808-3A/3B PV Junction Box adopts crowned spring and has automatic locking mechanism on plugs to ensure solid connection between contact and connector. Connector plug (negative) is equipped with buttons that are symmetric at the bottom to ensure the convenience of removal. Such removal does not need any extra instruments, therefore, can make sure that the plug is intact.

This product with easy usage, is more convenient to use than similar products. In addition, the product also complies with DIN V VDE V0126-3.



PV CONNECTOR



CK-0807-A/B-02
MC4 Single Connector
500 SETS/PKG



CK-0807-2A/2B-02
MC4 2-Branch Connector
100 SETS/PKG



CK-0807-3A/3B-02
MC4 3-Branch Connector
100 SETS/PKG

PROJECT REFERENCE

PV Cable

CHIKO Photovoltaic Cable

- Conductor : Tinned annealed copper
- Insulation : 120°CXLPE, black
- Jacket : 120°CXLPE, black
- voltage 600/1000V temperature 120°C
- Specifically designed for connecting photovoltaic system components inside and outside of building and equipment with high mechanical requirements and extreme weather conditions . For permanent installations.
- Cable made of electron-beam cross-linked insulation and coating; high resistance against heat, cold, oil, abrasion, ozone, UV and weather; with improved reaction in case of fire: low smoke, halogen free, flame free, flame retardant; flexible, easy to strip, very low space requirement, extremely mechanically robust, very long lifetime.



Construction

Type	Conductor		Insulation Standard Thickness	Insulation Standard Dia.	Jacket Standard Thickness	Outer Dia.	Conductor resistance (20°C)	Max. Current Carrying Capacity
	Construction	Conductor Dia.						
mm ²	N/mm	(approx)mm	mm	mm	mm	mm	Ω/KM	A/mm
1.5	50/0.25±0.006	1.58	0.90	3.38 ± 0.1	1.10	5.5 ± 0.2	13.7	30
2.5	50/0.25±0.006	2.04	0.85	3.74 ± 0.1	0.90	5.5 ± 0.2	8.21	41
4.0	56/0.30±0.006	2.99	0.85	4.29 ± 0.1	0.90	6.0±0.2	5.09	55
6.0	84/0.30±0.006	3.17	0.85	4.87 ± 0.1	1.05	7.0±0.2	3.39	70

Electrical Properties

Item	Units	Specification
Conductor resistance (20°C)	Ω / km	—
Insulation resistance (90°C)	Ω / cm	≥ 10 ¹²
Withstand voltage	V / 5min	AC6500
Lifetime	Year	≥ 25years
Min. Bending Radius		5D



CHIKO Photovoltaic Cable

Item	Description	Package(Meter/Roll)
CK-0809-1.5	PV cable 1.5mm ²	250
CK-0809-2.5	PV cable 2.5mm ²	250
CK-0809-4.0	PV cable 4.0mm ²	100
CK-0809-6.0	PV cable 6.0mm ²	200
CK-0809-10.0	PV cable 10.0mm ²	100



Project Size: 2KW Installation Site: USA



Project Size: 13KW Installation Site: USA



Project Size: 7KW Installation Site: USA



Project Size: 3MW Installation Site: Australia



Project Size: 200KW Installation Site: USA



Project Size: 650KW Installation Site: UAE



Project Size: 8KW Installation Site: Netherland



Project Size: 15KW Installation Site: Netherland



Project Size: 12KW Installation Site: Netherland



Project Size: 12MW Installation Site: Hungary



Project Size: 1MW Installation Site: Panama



Project Size: 3MW Installation Site: Japan

A low-angle, upward-looking photograph of several modern skyscrapers with glass facades. The buildings are dark against a light sky, and some windows are illuminated from within. A white rectangular box is superimposed over the center of the image, containing text.

CdTe Power Glass
= Construction Curtain Wall
= Generates with Low Light



Apple Park

Project Location: Cupertino, California, U.S.A.

Total Investment: USD 5 billion

Floor Area: 720,000m²

Installed Capacity: 17MW

Project Type: Rooftop BIPV

Designer: Norman Foster (U.K.)

Apple's new headquarters building is the world's largest rooftop solar photovoltaic power station, and it is also the last of Steve Jobs' legacy for future generations. Equipped with CdTe solar power glass technology, the Apple headquarters has emerged as a new landmark in Silicon Valley. Apple Park is basically powered by solar modules and other renewable energy sources, and the roof of this ring-shaped mega structure is completely covered in solar panels. A micro grid was installed in the complex, and it can generate 17 MW of electricity and meet 75% of energy demand by relying on the solar power grid alone.

Applications of CdTe solar power
glass around the world

SOLAR POWER GLASS

- ❖ These photovoltaic glasses can generate electricity like photovoltaic panels.
- ❖ These glasses are used as building materials for walls and windows.
- ❖ The applications in construction are very numerous.



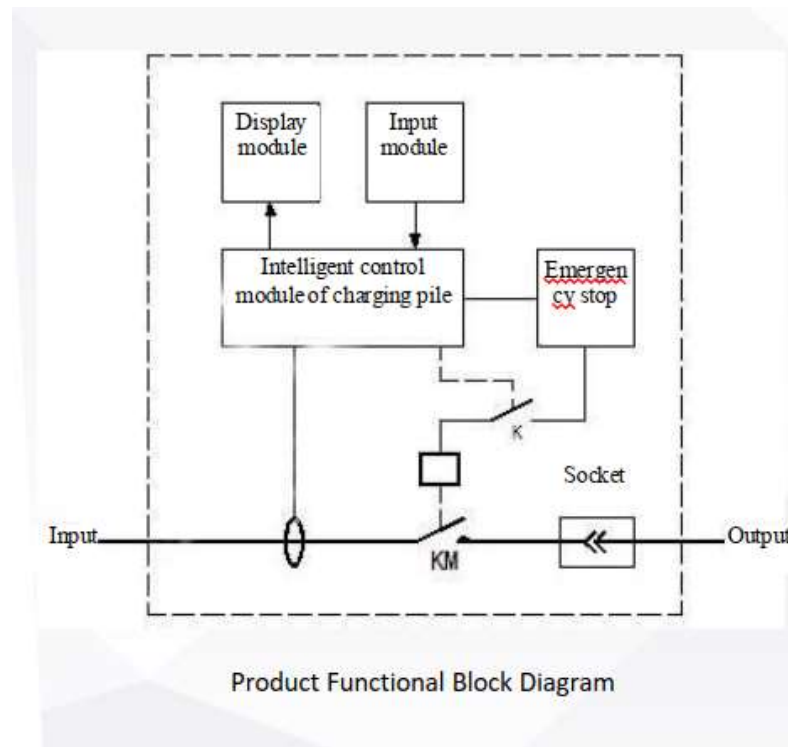
Car Recharger (EV)

WALLBOX 22kW | 32A



The wallbox is designed for charging electric and hybrid vehicles with 1- and 3-phase alternating current (AC).

The wallbox may only be used in conjunction with vehicle inlets that comply with standards and are designed for this purpose in Accordance with IEC 62196-2 (type 2 plug).



Input:	3-phase 380V 50Hz
Standby consumption:	< 3W
Charging plug:	IEC62196-2 type 2
Output:	Max. 22kW 3-phase 400V
Charging current:	8A / 10A / 13A / 16A /32A
Residual current detection:	RCD type B all-currentsensitive
Contact resistance:	≤0.3mΩ (L/N)
Insulation resistance:	500MΩ (L,000V AC)
Contact temperature rise:	≤50K
Charging mode:	IEC 62196-2, IEC 61851-1
Operating humidity:	5%...95% non condensing
Flammability class:	UL94 V-0
Protective functions:	Overvoltage, undervoltage, overcharging and overheating protection, fault current detection, PE detection
Pull-off force:	45N...80N
Plugging cycles:	≥10.000x (Load-free)
Cooling method:	Convection
Housing:	ABS + PC housing material
Dimensions:	310x161x79.8mm
Installation:	Wall mounting
Protection type:	IP65
Operating temperature:	-30°C...+55°C
Charging cable:	5m length, 5*6mm ² +1*0.75mm ²
Weight:	3.500g

Thank You

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