

ใบเสนอราคา (Quotation)

| | |
|--|--|
| นามลูกค้า/Customer Name : ที่อยู่/Address : โทรศัพท์/Tel & Fax : TAX ID : | เลขที่เอกสาร/No : วันที่/Date E-mail : sy.solare@gmail.com |
|--|--|

| Item | Description | Qty. | Unit | Unit Price (Baht) | Price Total |
|----------|---|------|------|-------------------|-------------|
| A | งานติดตั้งระบบ Solar Cell On Grid 5kWp,3Phase (HUAWED) | 1 | Lot | 199,000.00 | 199,000.00 |
| 1 | Grid Tie Inverter And Accessories | | | | |
| | - Huawei Inverter 5KW 3Phase SUN2000-5KTL-M1 | 1 | Set | | |
| | - Huawei Smart Power Censor 3Phase DTSU666-H W/CT | 1 | Set | | |
| | - Huawei Smart Dongle WLAN FE SDongleA-05 | 1 | Set | | |
| 2 | DC-AC Panel Board | | | | |
| | - Combiner Box Grid Tie 5KW 3Phase 2String | 1 | Set | | |
| 3 | Solar panel | | | | |
| | Solar Cell 550W Mono Half LONGI | 10 | Ea | | |
| 4 | Solar Panel Accessories | | | | |
| | - Rail 4200mm | 5 | Ea | | |
| | - Mid Clamp Kit 30-35mm. | 20 | Ea | | |
| | - End Clamp Kit 35mm. | 8 | Ea | | |
| | - L-Feet | 21 | Ea | | |
| | - Rail Splice Kit | 5 | Ea | | |
| | - Grounding Lug | 4 | Ea | | |
| | - Clip Cable | 10 | Ea | | |
| | - Grounding Clip | 20 | Ea | | |
| 5 | Conduit And Cable | | | | |
| | - PVC Conduit Dia.1/2" | 20 | m. | | |
| | - PVC Conduit Dia.3/4" | 20 | m. | | |
| | - Wireway 100x100mm. | 5 | m. | | |
| | PV Cable | | | | |
| | - PV-4sq.mm.RED | 50 | m. | | |
| | - PV-4sq.mm.BLACK | 50 | m. | | |
| | IEC-01 Cable | | | | |
| | - IEC-01 Cable 4Sq.mm. | 10 | m. | | |
| | - IEC-01 Cable 6Sq.mm. | 40 | m. | | |
| 6 | Grounding System | | | | |
| | - Ground Rod 5/8x10ft | 1 | Set | | |
| | - IEC-01 Cable 6Sq.mm. Green | 40 | m. | | |

เงื่อนไขการรับประกัน :

- 1.ราคาที่เสนอรวมงานทำแบบเพื่อขออนุญาต อ.1
- 2.ราคาที่เสนอรวมงานทำแบบและดำเนินการขออนุญาต กกพ.และขนานไฟฟ้ากับการไฟฟ้าส่วนภูมิภาค
- 3.Inverter รับประกัน 10 ปี
- 4.แผง Solar Cell รับประกัน 12 ปี(ประสิทธิภาพการผลิตพลังงานไฟฟ้าได้ไม่น้อยกว่า80%,25ปี ตามมาตรฐานผลิตภัณฑ์)
- 5.รับประกันงานติดตั้งและอุปกรณ์ไฟฟ้าต่างๆ 3 ปี
- 6.Service ถ้างแผงปีละ 1 ครั้งเป็นเวลา 3 ปี

หนึ่งแสนเก้าหมื่นเก้าพันบาทถ้วน

Total Amount 199,000.00

| | | |
|--|------------------|------------|
| Remark : งวดที่1เมื่อตกลงว่าจ้าง ชำระ 10% งวดที่2 เมื่อนำของเข้าหน้างาน ชำระ 30% งวดที่3 หลังจากติดตั้งแล้วเสร็จ พร้อมทดสอบระบบ ชำระ 60% | Vat 7% | |
| | Special Discount | |
| | Grand Total | 199,000.00 |

*หลังจากติดตั้งแล้วเสร็จ ดำเนินการขออนุญาตการไฟฟ้าและกกพ 30-45วันทำการ
หมายเลขบัญชี 109-1-15071-5 ธนาคารกสิกรไทย ชื่อบัญชี บริษัท เอสวายคอนเนค(ประเทศไทย)จำกัด



ผู้อนุมัติชื่อ

ผู้มีอำนาจลงนาม

REQUEST FOR APPROVAL (R.F.A.)

PROJECT : งานติดตั้ง Solar Cell PV Rooftop 5KwP, 3Phase
 OWNER : _____ Ref. No. : SY/...../RFA/MAT/EE/...../65
 CONTRACTOR : _____ No. of Page : _____
 DATE : _____ (Including this page)
 Function : Main Elec. San Air
 Lift Curtain Wall

(1) Contractor's Request Title: **ขออนุมัติใช้วัสดุและอุปกรณ์งานติดตั้ง Solar Cell PV Rooftop 5KwP, 3Phase**

| | | |
|--------------------------------------|---------------|--------------------------------------|
| 1 Solar PV Inverter On grid Tie | Brand: Hauwei | Model: SUN2000-5KTL-M1 |
| 2 Smart Power Sensor For Zero Export | Brand: Hauwei | Model: DTSU-666-H 3P4W |
| 3 Smart Dongle-WLAN-FE | Brand: Hauwei | Model: SDongleA-05 |
| 4 Solar Panel | Brand: LONGI | Model: LR4-72HPH-450M/LR5-72HPH-540M |
| 5 PV Cable | Brand: Link | Model: CB-1040X |
| 6 IEC-01 Cable | Brand: BCC | Model: : 450/750V 90 C 60227 IEC-01 |
| 7 DC-AC Combiner Box | Brand: Local | |

| Subject | Attached | Reference : |
|---|---|--|
| <input type="checkbox"/> Material _____ Set | <input type="checkbox"/> Sample _____ Set | <input type="checkbox"/> Drawing No.: _____ |
| <input type="checkbox"/> Shop drawing _____ Set | <input checked="" type="checkbox"/> Catalog _____ 7 Set | <input type="checkbox"/> Specification Ref. No.: _____ |
| <input type="checkbox"/> _____ Set | <input type="checkbox"/> Shop drawing _____ Set | <input type="checkbox"/> Others: _____ |

Remark : _____

(2) Attn: Best Medical (Phrae) Limited Parnner From: SY Electric System Limited Partnership

For Approval See note Acknowledge

Note: _____

Signature : _____
 (Mr.Seri Takerngphon)
 Position : _____ Electrical Engineer
 Date : _____ Time : _____

(3) Attn: Designer/Client From:

For Approval See note Acknowledge

Note: _____

Signature : _____
 (_____)
 Position : _____
 Date : _____ Time : _____

(4) Attn: Designer's Result/Comment : From: Designer/Client

Approved Resubmit
 Approved as note Not Approved

Note: _____

Signature : _____
 (_____)
 Position : _____
 Date : _____ Time : _____

(5) Attn: Contractor From:

Approved Resubmit
 Approved as note Not Approved

Note: _____

Signature : _____
 (_____)
 Position : _____
 Date : _____ Time : _____

Solar PV Inverter On grid Tie 5kW, 3Phase

Brand : Huawei

Model : SUN2000-5KTL-M1

Smart Energy Controller



Active Safety

AI Powered
Active Arcing Protection



Higher Yields

Up to 30% More Energy
with Optimizer



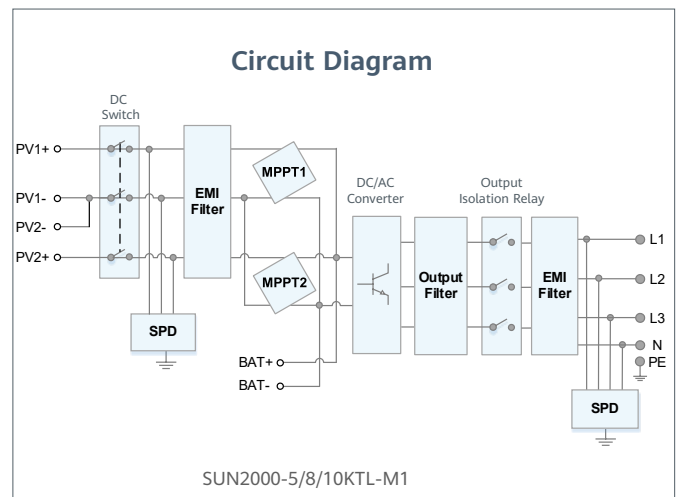
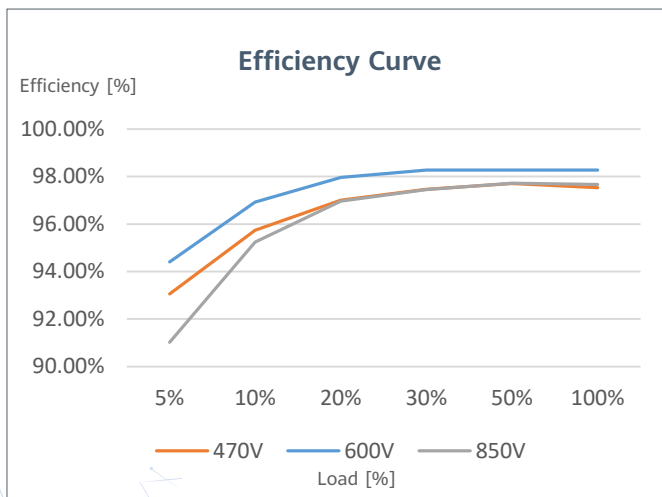
Battery Ready

Plug & Play battery interface ¹



Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported



¹. Will be compatible with HUAWEI smart string ESS in Q1, 2021

Technical Specification

| Technical Specification | SUN2000 -5KTL-M1 | SUN2000 -8KTL-M1 | SUN2000 -10KTL-M1 |
|--|---|---------------------|------------------------|
| Efficiency | | | |
| Max. efficiency | 98.4% | 98.6% | 98.6% |
| European weighted efficiency | 97.5% | 98.0% | 98.1% |
| Input (PV) | | | |
| Recommended max. PV power ¹ | 7,500 Wp | 12,000 Wp | 15,000 Wp |
| Max. input voltage ² | | 1,100 V | |
| Operating voltage range ³ | | 140 V ~ 980 V | |
| Start-up voltage | | 200 V | |
| Rated input voltage | | 600 V | |
| Max. input current per MPPT | | 11 A | |
| Max. short-circuit current | | 15 A | |
| Number of MPP trackers | | 2 | |
| Max. input number per MPP tracker | | 1 | |
| Input (DC Battery) | | | |
| Compatible Battery | HUAWEI Smart String ESS 5kWh – 30kWh | | |
| Operating voltage range | 600 V ~ 980 V | | |
| Max operating current | 16A | | |
| Max charge Power | 10,000 W | | |
| Max discharge Power | 5,500 W | 8,800 W | 10,000 W |
| Output (On Grid) | | | |
| Grid connection | Three-phase | | |
| Rated output power | 5,000 W | 8,000 W | 10,000 W |
| Max. apparent power | 5,500 VA | 8,800 VA | 11,000 VA ⁴ |
| Rated output voltage | 220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W / N+PE | | |
| Rated AC grid frequency | 50 Hz / 60 Hz | | |
| Max. output current | 8.5 A | 13.5 A | 16.9 A |
| Adjustable power factor | 0.8 leading ... 0.8 lagging | | |
| Max. total harmonic distortion | ≤ 3 % | | |
| Output (Backup Power via Backup Box-B1) | | | |
| Maximum apparent power | 3,300 VA | | |
| Rated output voltage | 220 V / 230 V | | |
| Maximum output current | 15 A | | |
| Power factor range | 0.8 leading ... 0.8 lagging | | |
| Features & Protections | | | |
| Input-side disconnection device | Yes | | |
| Anti-Islanding protection | Yes | | |
| DC reverse polarity protection | Yes | | |
| Insulation monitoring | Yes | | |
| DC surge protection | Yes, compatible with TYPE II protection class according to EN/IEC 61643-11 | | |
| AC surge protection | Yes, compatible with TYPE II protection class according to EN/IEC 61643-11 | | |
| Residual current monitoring | Yes | | |
| AC overcurrent protection | Yes | | |
| AC short-circuit protection | Yes | | |
| AC overvoltage protection | Yes | | |
| Arc fault protection | Yes | | |
| Ripple receiver control | Yes | | |
| Integrated PID recovery ⁵ | Yes | | |
| Battery reverse charging from grid | Yes | | |
| Nighttime Power Consumption | < 5.5W ⁶ | | |
| General Data | | | |
| Operating temperature range | -25 ~ + 60 °C (-13 °F ~ 140 °F) | | |
| Relative operating humidity | 0 %RH ~ 100 %RH | | |
| Operating altitude | 0 ~ 4,000 m (13,123 ft.) (Derating above 2000 m) | | |
| Cooling | Natural convection | | |
| Display | LED Indicators; Integrated WLAN + FusionSolar App | | |
| Communication | RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE; 4G / 3G / 2G via Smart Dongle-4G (Optional) | | |
| Weight (incl. mounting bracket) | 17 kg (37.5 lb) | | |
| Dimension (incl. mounting bracket) | 525 x 470 x 146.5 mm (20.7 x 18.5 x 5.8 inch) | | |
| Degree of protection | IP65 | | |
| Optimizer Compatibility | | | |
| DC MBUS compatible optimizer | SUN2000-450W-P | | |
| Standard Compliance (more available upon request) | | | |
| Certificate | EN/IEC 62109-1, EN/IEC 62109-2, IEC 62116 | | |
| Grid connection standards | G98, G99, EN 50438, CEI 0-21, VDE-AR-N-4105, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA 2.0 | | |

^{*1} Inverter max input PV power is 20,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.

^{*2} The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.

^{*3} Any DC input voltage beyond the operating voltage range may result in inverter improper operating.

^{*4} C10 / 11: 10,000 VA

^{*5} SUN2000-3~10KTL-M1 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly).

^{*6} <10 W when PID recovery function is activated
Version No.:01-(20190716)

Smart Power Sensor For Zero Export

Brand : Huawei

Model : DTSU-666-H 3P4W

Smart Power Sensor



Accurate

Class 1 measurement accuracy



Simple & Easy

LCD display, easy to set and check



Energy Efficient

Overall power consumption ≤ 1 W

| Technical Specification | DDSU666-H | DTSU666-H | DTSU666-H 250A/50mA |
|-------------------------------|--|--|--|
| General Data | | | |
| Dimension (H x W x D) | 100 x 36 x 65.5 mm (3.9 x 1.4 x 2.6 inch) | 100 x 72 x 65.5 mm (3.9 x 2.8 x 2.6 inch) | 100 x 72 x 65.5 mm (3.9 x 2.8 x 2.6 inch) |
| Mounting type | DIN35 Rail | | |
| Weight (including cables) | 1.2 kg (2.6 lb) | 1.5 kg (3.3 lb) | 1.5 kg (3.3 lb) |
| Power Supply | | | |
| Power grid type | 1P2W | 3P4W | 3P4W/3P3W |
| Input voltage (phase voltage) | 176 Vac ~ 288 Vac | | |
| Power consumption | ≤ 0.8 W | ≤ 1 W | ≤ 1 W |
| Measurement Range | | | |
| Line voltage | / | 304 Vac ~ 499 Vac | 304 Vac ~ 499 Vac |
| Phase voltage | 176 Vac ~ 288 Vac | | |
| Current | 0 ~ 100 A | 0 ~ 100 A | 0 ~ 250 A |
| Measurement Accuracy | | | |
| Voltage | ± 0.5 % | | |
| Current / Power / Energy | ± 1 % | | |
| Frequency | ± 0.01 Hz | | |
| Communication | | | |
| Interface | RS485 | | |
| Baud rate | 9,600 bps | | |
| Communication protocol | Modbus-RTU | | |
| Environment | | | |
| Operating temperature range | -25 °C ~ 60 °C | | |
| Storage temperature range | -40 °C ~ 70 °C | | |
| Operating humidity | 5 %RH ~ 95 %RH (non-condensing) | | |
| Others | | | |
| Accessories | RS485 Cable (10 m / 33 ft.) | | |
| | 1 CT 100A / 40mA (5 m / 16.4 ft.) | 3 CT 100A / 40mA (5 m / 16.4 ft.) | 3 CT 250A / 50mA (5 m / 16.4 ft.) |
| | | | |

Smart Dongle-WLAN-FE

Brand : Huawei

Model : SDongleA-05

Smart Dongle-WLAN-FE



Smart

WLAN & Fast Ethernet (FE) communication
Support 3rd-party monitoring system ¹



Simple

Plug & Play
Support max. 10 devices



Reliable

IP65
Support auto reconnection

| Technical Specification | SDongleA-05 |
|--|--|
| General Data | |
| Max. Devices Supported | 10 |
| Max. Inverters Supported | 10 |
| Connection interface | USB |
| Ethernet Interface | 10/100M Ethernet |
| Installation | Plug-and-play |
| Indicator | LED Indicator |
| Dimensions (W * H * D) | 146 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch) |
| Weight | 90 g (0.2 lb.) |
| Degree of protection | IP65 |
| Power consumption (typical) | 2.5 W |
| Operation Mode | STA |
| Encryption Algorithm | Encryption Mechanism: WPA/WPA2 Encryption: TKIP/CCMP/AES |
| Wireless Parameter | |
| Supported standards & frequencies | 802.11b/g/n (2.412G—2.484G) |
| Environment | |
| Operating temperature range | -30 °C to +65 °C (-22 °F to 149 °F) |
| Relative humidity range | 5 - 95% RH |
| Storage temperature range | -40°C to +70°C (-40 °F to 158 °F) |
| Max. operating altitude | 4,000 m (13,123 ft.) |
| Standard Compliance (more available upon request) | |
| Certificate | SRRC, CE, RCM |
| Inverter Compatibility | |
| Supported Master Inverter Model | SUN2000-2/3/4/4.6/5/6KTL-L1 SUN2000-5/6KTL-M1 SUN2000-8/10/12/15/17/20KTL-M2 SUN2000-29.9/36/40KTL-M3 SUN2000-5/6/8/10/12/15/17/20KTL-M0 |

¹: 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.

Solar Panel

Brand : LONGI

Model : LR4-72HPH-450M/LR5-72HPH-540M

Hi-MO **4m**

LR4-72HPH 430~460M

- Suitable for ground power plants and distributed projects
- Advanced module technology delivers superior module efficiency
 - M6 Gallium-doped Wafer
 - 9-busbar Half-cut Cell
- Excellent outdoor power generation performance
- High module quality ensures long-term reliability

12

12-year Warranty for
Materials and Processing

25

25-year Warranty for Extra
Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730

ISO 9001:2008: ISO Quality Management System

ISO 14001:2004: ISO Environment Management System

TS62941: Guideline for module design qualification and type approval

OHSAS 18001: 2007 Occupational Health and Safety

LONGI



21.2%
MAX MODULE
EFFICIENCY

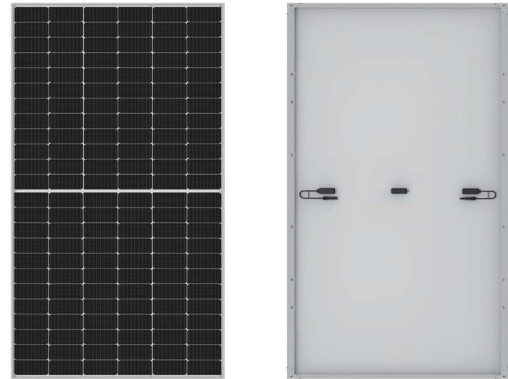
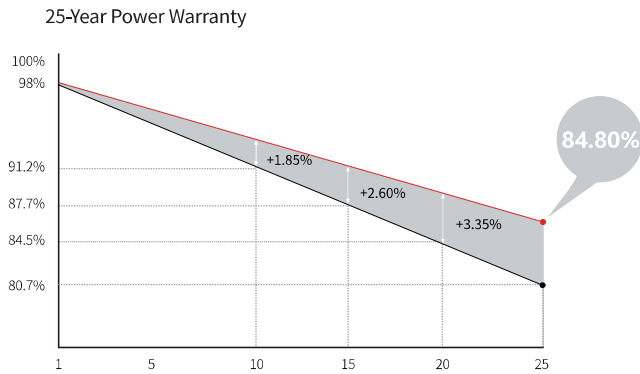
0~+5W
POWER
TOLERANCE

<2%
FIRST YEAR
POWER DEGRADATION

0.55%
YEAR 2-25
POWER DEGRADATION

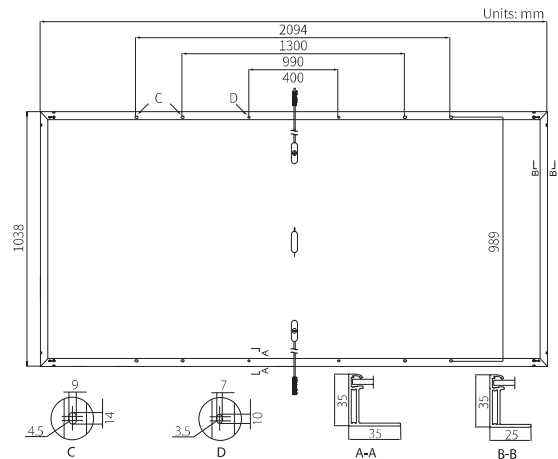
HALF-CELL
Lower operating temperature

Additional Value



Mechanical Parameters

| | |
|------------------|--|
| Cell Orientation | 144 (6×24) |
| Junction Box | IP68, three diodes |
| Output Cable | 4mm ² , 1400mm length can be customized |
| Connector | EVO2 |
| Glass | Single glass, 3.2mm coated tempered glass |
| Frame | Anodized aluminum alloy frame |
| Weight | 23.5kg |
| Dimension | 2094×1038×35mm |
| Packaging | 30pcs per pallet / 150pcs per 20' GP / 660pcs per 40' HC |



Electrical Characteristics STC : AM1.5 1000W/m² 25°C Test uncertainty for Pmax: ±3%

| | 430 | 435 | 440 | 445 | 450 | 455 | 460 |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Power Class | 430 | 435 | 440 | 445 | 450 | 455 | 460 |
| Maximum Power (Pmax/W) | 430 | 435 | 440 | 445 | 450 | 455 | 460 |
| Open Circuit Voltage (Voc/V) | 48.5 | 48.7 | 48.9 | 49.1 | 49.3 | 49.5 | 49.7 |
| Short Circuit Current (Isc/A) | 11.31 | 11.39 | 11.46 | 11.53 | 11.60 | 11.66 | 11.73 |
| Voltage at Maximum Power (Vmp/V) | 40.7 | 40.9 | 41.1 | 41.3 | 41.5 | 41.7 | 41.9 |
| Current at Maximum Power (Imp/A) | 10.57 | 10.64 | 10.71 | 10.78 | 10.85 | 10.92 | 10.98 |
| Module Efficiency(%) | 19.8 | 20.0 | 20.2 | 20.5 | 20.7 | 20.9 | 21.2 |

Operating Parameters

| | |
|------------------------------------|------------------|
| Operational Temperature | -40°C ~ +85°C |
| Power Output Tolerance | 0 ~ +5 W |
| Voc and Isc Tolerance | ±3% |
| Maximum System Voltage | DC1500V (IEC/UL) |
| Maximum Series Fuse Rating | 20A |
| Nominal Operating Cell Temperature | 45±2°C |
| Protection Class | Class II |
| Fire Rating | UL type 1 or 2 |

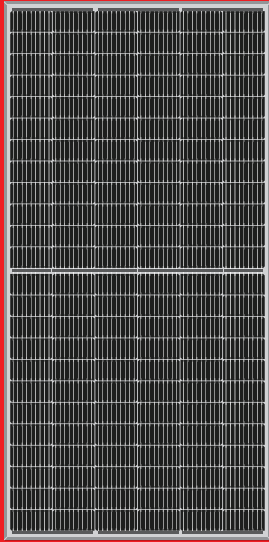
Mechanical Loading

| | |
|-----------------------------------|--------------------------------------|
| Front Side Maximum Static Loading | 5400Pa |
| Rear Side Maximum Static Loading | 2400Pa |
| Hailstone Test | 25mm Hailstone at the speed of 23m/s |

Temperature Ratings (STC)

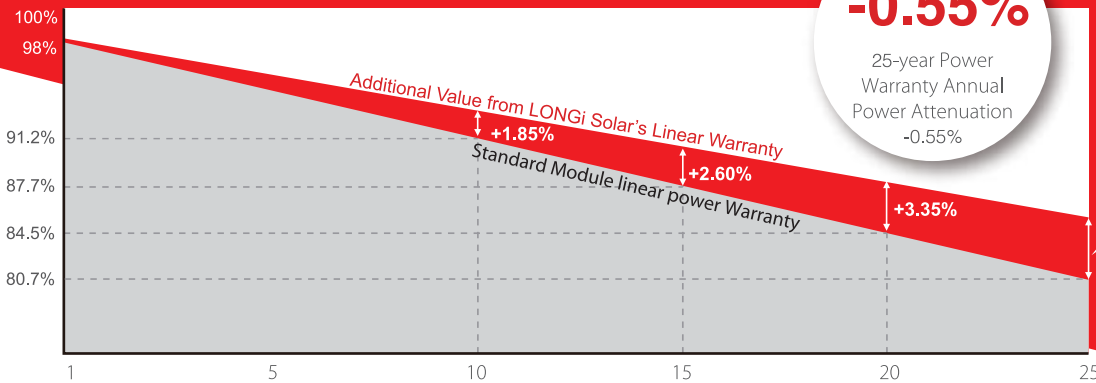
| | |
|---------------------------------|------------|
| Temperature Coefficient of Isc | +0.048%/°C |
| Temperature Coefficient of Voc | -0.270%/°C |
| Temperature Coefficient of Pmax | -0.350%/°C |

LR5-72HPH 525~545M



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

12-year Warranty for Materials and Processing;
25-year Warranty for Extra Linear Power Output



-0.55%

25-year Power
Warranty Annual
Power Attenuation
-0.55%

+4.10%

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730
ISO 9001:2008: ISO Quality Management System
ISO 14001:2004: ISO Environment Management System
TS62941: Guideline for module design qualification and type approval
OHSAS 18001: 2007 Occupational Health and Safety



* Specifications subject to technical changes and tests.
LONGi Solar reserves the right of interpretation.

Positive power tolerance (0 ~ +5W) guaranteed

High module conversion efficiency (up to 21.3%)

Slower power degradation enabled by Low LID Mono PERC technology: first year <2%, 0.55% year 2-25

Solid PID resistance ensured by solar cell process optimization and careful module BOM selection

Reduced resistive loss with lower operating current

Higher energy yield with lower operating temperature

Reduced hot spot risk with optimized electrical design and lower operating current

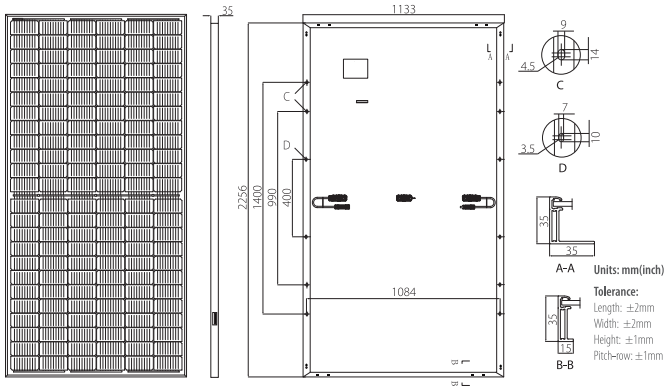
LONGi

Room 801, Tower 3, Lujiazui Financial Plaza, No.826 Century Avenue, Pudong Shanghai, 200120, China
Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGi Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi have the sole right to make such modification at anytime without further notice; Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.

LR5-72HPH 525~545M

Design (mm)



Mechanical Parameters

Cell Orientation: 144 (6×24)
Junction Box: IP68, three diodes
Output Cable: 4mm², 300mm in length,
length can be customized
Glass: Single glass
3.2mm coated tempered glass
Frame: Anodized aluminum alloy frame
Weight: 27.2kg
Dimension: 2256×1133×35mm
Packaging: 31pcs per pallet
155pcs per 20'GP
620pcs per 40'HC

Operating Parameters

Operational Temperature: -40°C ~ +85°C
Power Output Tolerance: 0 ~ +5 W
Voc and Isc Tolerance: ±3%
Maximum System Voltage: DC1500V (IEC/UL)
Maximum Series Fuse Rating: 25A
Nominal Operating Cell Temperature: 45±2°C
Safety Protection Class: Class II
Fire Rating: UL type 1 or 2

Electrical Characteristics

Test uncertainty for Pmax: ±3%

| Model Number | LR5-72HPH-525M | | LR5-72HPH-530M | | LR5-72HPH-535M | | LR5-72HPH-540M | | LR5-72HPH-545M | |
|----------------------------------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|
| | STC | NOCT | STC | NOCT | STC | NOCT | STC | NOCT | STC | NOCT |
| Testing Condition | | | | | | | | | | |
| Maximum Power (Pmax/W) | 525 | 392.1 | 530 | 395.8 | 535 | 399.5 | 540 | 403.3 | 545 | 407.0 |
| Open Circuit Voltage (Voc/V) | 49.05 | 45.98 | 49.20 | 46.12 | 49.35 | 46.26 | 49.50 | 46.41 | 49.65 | 46.55 |
| Short Circuit Current (Isc/A) | 13.65 | 11.04 | 13.71 | 11.09 | 13.78 | 11.15 | 13.85 | 11.20 | 13.92 | 11.25 |
| Voltage at Maximum Power (Vmp/V) | 41.20 | 38.36 | 41.35 | 38.50 | 41.50 | 38.64 | 41.65 | 38.78 | 41.80 | 38.92 |
| Current at Maximum Power (Imp/A) | 12.75 | 10.23 | 12.82 | 10.28 | 12.90 | 10.34 | 12.97 | 10.40 | 13.04 | 10.46 |
| Module Efficiency(%) | 20.5 | | 20.7 | | 20.9 | | 21.1 | | 21.3 | |

STC (Standard Testing Conditions): Irradiance 1000W/m², Cell Temperature 25°C, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/s

Temperature Ratings (STC)

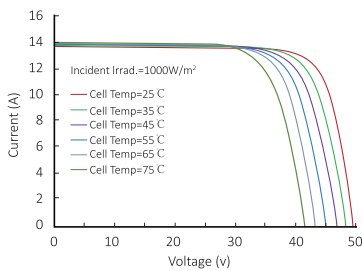
| | |
|---------------------------------|------------|
| Temperature Coefficient of Isc | +0.048%/°C |
| Temperature Coefficient of Voc | -0.270%/°C |
| Temperature Coefficient of Pmax | -0.350%/°C |

Mechanical Loading

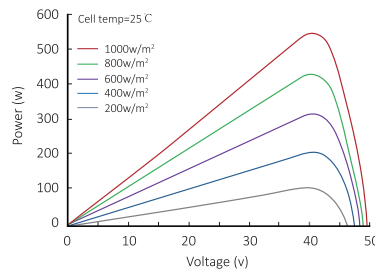
| | |
|-----------------------------------|--------------------------------------|
| Front Side Maximum Static Loading | 5400Pa |
| Rear Side Maximum Static Loading | 2400Pa |
| Hailstone Test | 25mm Hailstone at the speed of 23m/s |

I-V Curve

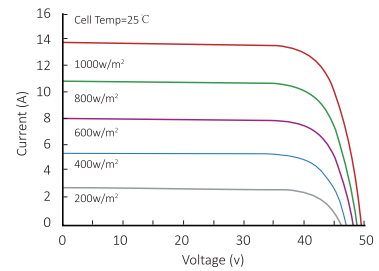
Current-Voltage Curve (LR5-72HPH-530M)



Power-Voltage Curve (LR5-72HPH-530M)



Current-Voltage Curve (LR5-72HPH-530M)



LONGI

Room 801, Tower 3, Lujiazui Financial Plaza, No.826 Century Avenue, Pudong Shanghai, 200120, China
Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGI Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGI have the sole right to make such modification at anytime without further notice; Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.

PV Cable

Brand : LINK

Model : CB-1040X



SOLAR CABLE

CATALOG 2020-2021





SOLAR CABLE

(Photovoltaic Cable)



STANDARD

- EN 50618:2014
- IEC 62930:2017
- EN 60288, Class 5
- DIN VDE 0295 Class 5
- TÜV Approvals
- RoHs compliant

ELECTRICAL CHARACTERISTIC

| | |
|-----------------------------------|---|
| Nominal Voltage U ₀ /U | AC 1000/1000V, DC 1500/1500V |
| Max. DC voltage | 1800V (conductor-conductor, non-earth system, circuit not under load) |
| AC Test Voltage | 6.5 KV |
| DC Test Voltage | 15 KV |
| Min. Surface resistance of sheath | 10 ⁹ Ω |
| Electrical tests | according EN50618:2014 |

TEMPERATURE

| | |
|-------------------------------|------------------|
| Max. temperature at conductor | -40°C to + 120°C |
| Temperature Range | -40°C to + 90°C |

TECHINICAL SPECIFICATION

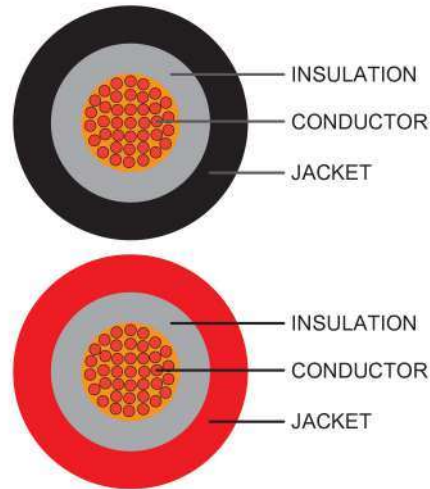
| Size (mm ²) | Conductor Diameter (N/mm) | Insulation Thickness (mm) | Insulation Diameter (mm) | Jacket Thickness (mm) | Jacket Diameter (mm) | Conductor Resistance at 20°C (Ω/km) | Insulation Resistance at 20°C (MΩ/km) | Rated Current at 60°C (A) |
|-------------------------|---------------------------|---------------------------|--------------------------|-----------------------|----------------------|-------------------------------------|---------------------------------------|---------------------------|
| 2.5 | 50/0.25 | 0.80 | 3.65±0.2 | 0.80 | 5.80±0.3 | ≤ 8.21 | ≥ 690 | 41 |
| 4 | 56/0.30 | 0.80 | 4.20±0.2 | 0.80 | 6.05±0.3 | ≤ 4.85 | ≥ 580 | 55 |
| 6 | 84/0.30 | 0.80 | 4.90±0.2 | 0.80 | 6.50±0.3 | ≤ 3.10 | ≥ 500 | 70 |
| 10 | 84/0.4 | 0.80 | 5.75±0.2 | 0.80 | 8.66±0.3 | ≤ 1.95 | ≥ 420 | 98 |
| 16 | 126/0.4 | 0.80 | 7.55±0.2 | 0.90 | 10.10±0.3 | ≤ 1.24 | ≥ 340 | 132 |

ORDER INFORMATION

| Part Number | Description | Length | Package |
|-------------|---|------------|------------|
| CB-1025X | Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC), 1x2.5 mm ² , (Black or Red) | 100/1000 m | Box./Roll. |
| CB-1040X | Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC), 1x4 mm ² , (Black or Red) | 100/1000 m | Box./Roll. |
| CB-1060X | Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC), 1x6 mm ² , (Black or Red) | 100/1000 m | Box./Roll. |
| CB-1100X | Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC), 1x10 mm ² , (Black or Red) | 100/1000 m | Box./Roll. |
| CB-1160X | Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC), 1x16 mm ² , (Black or Red) | 100/1000 m | Box./Roll. |

X=Color : B (Black) , R(Red)

Add "-1" at the end of the P/N = 100 m / Box.



CABLE CONSTRUCTION

| | |
|---------------------|---|
| Conductor Material | Fine wire stranded tinned copper according EN 60288 Class 5 |
| Insulation Material | Halogen free, Copolymer Electron beam cross-linked polyethylene (XLPE) |
| Jacket Material | Halogen free, Copolymer Electron beam cross-linked polyethylene (XLPE) with FR-LSZH |
| Jacket Color | Red or Black |

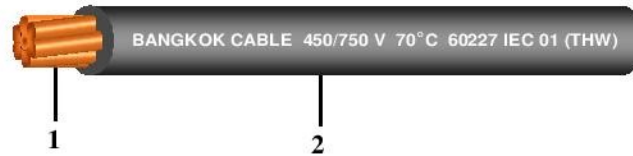
IEC-01 Cable Cable

Brand : BCC

Model : 450/750V 90 ° C 60227 IEC-01

450/750 V 70°C 60227 IEC 01 (THW)

SINGLE-CORE NON-SHEATHED CABLE WITH RIGID CONDUCTOR



Construction

1. Conductor : Solid or circular stranded annealed copper
2. Insulation : Polyvinyl chloride (PVC)
Black, Light Blue, Brown, Grey, Green/Yellow
or other colours

Reference Standard :

TIS 11 Part 3-2553



Classification

- Maximum conductor temperature : 70°C
Rated voltage : 450/750 V
AC test voltage : 2,500 V

Application

- Use for general purpose
- For installation in raceway and shall be protected water into raceway
- Do not install in duct in ground or direct burial in ground

| Products code | Conductor | | | Thickness of insulation mm | Overall diameter | | Insulation resistance at 70°C MΩ.km (Min.) | Current rating in free air A | Cable weight kg/km (Approx.) | Standard length m |
|---------------|---|------------------------|--------------------------|-------------------------------|-------------------|-------------------|---|---------------------------------|---------------------------------|----------------------|
| | Cross-sectional area mm ² | No. of wires (Min.) | Diameter mm (Approx.) | | Lower limit mm | Upper limit mm | | | | |
| C6KY013V1012 | 1.5 | 1 | 1.36 | 0.7 | 2.6 | 3.2 | 0.011 | 21 | 21 | 100/C |
| C6KY013V4012 | 1.5 | 7 | 1.53 | 0.7 | 2.7 | 3.3 | 0.010 | 21 | 22 | 100/C |
| C6KY014V1012 | 2.5 | 1 | 1.75 | 0.8 | 3.2 | 3.9 | 0.010 | 29 | 33 | 100/C |
| C6KY014V4012 | 2.5 | 7 | 1.98 | 0.8 | 3.3 | 4.0 | 0.009 | 29 | 34 | 100/C |
| C6KY015V1012 | 4 | 1 | 2.21 | 0.8 | 3.6 | 4.4 | 0.0085 | 37 | 48 | 100/C |
| C6KY015V2012 | 4 | 7 | 2.49 | 0.8 | 3.8 | 4.6 | 0.0077 | 37 | 50 | 100/C |
| C6KY016V1012 | 6 | 1 | 2.70 | 0.8 | 4.1 | 5.0 | 0.0070 | 48 | 68 | 100/C |
| C6KY016V2012 | 6 | 7 | 3.09 | 0.8 | 4.3 | 5.2 | 0.0065 | 48 | 72 | 100/C |
| C6KY017V1012 | 10 | 1 | 3.50 | 1.0 | 5.3 | 6.4 | 0.0070 | 67 | 110 | 100/C |
| C6KY017V2012 | 10 | 7 | 3.99 | 1.0 | 5.6 | 6.7 | 0.0065 | 67 | 120 | 100/C |
| C6KY018V2012 | 16 | 7 | 5.01 | 1.0 | 6.4 | 7.8 | 0.0050 | 92 | 180 | 100/C |
| C6KY019V2012 | 25 | 7 | 6.30 | 1.2 | 8.1 | 9.7 | 0.0050 | 127 | 280 | 100/C |
| C6KY010W2012 | 35 | 7 | 7.55 | 1.2 | 9.0 | 10.9 | 0.0043 | 157 | 380 | 100/C |
| C6KY011W2011 | 50 | 19 | 8.75 | 1.4 | 10.6 | 12.8 | 0.0043 | 191 | 510 | 500/D |
| C6KY012W2011 | 70 | 19 | 10.50 | 1.4 | 12.1 | 14.6 | 0.0035 | 244 | 720 | 500/D |
| C6KY013W2011 | 95 | 19 | 12.35 | 1.6 | 14.1 | 17.1 | 0.0035 | 297 | 990 | 500/D |
| C6KY014W2011 | 120 | 37 | 13.93 | 1.6 | 15.6 | 18.8 | 0.0032 | 345 | 1,220 | 500/D |
| C6KY015W2011 | 150 | 37 | 15.47 | 1.8 | 17.3 | 20.9 | 0.0032 | 397 | 1,510 | 500/D |
| C6KY016W2011 | 185 | 37 | 17.29 | 2.0 | 19.3 | 23.3 | 0.0032 | 453 | 1,880 | 500/D |
| C6KY017W2011 | 240 | 37 | 19.89 | 2.2 | 22.0 | 26.6 | 0.0032 | 535 | 2,470 | 500/D |
| C6KY018W2011 | 300 | 61 | 22.23 | 2.4 | 24.5 | 29.6 | 0.0030 | 617 | 3,080 | 500/D |
| C6KY019W2011 | 400 | 61 | 25.20 | 2.6 | 27.5 | 33.2 | 0.0028 | 741 | 3,930 | 300/D |

C = Packing in coil

D = Packing in drum

DC-AC Combiner Box

Brand : LOCAL

Model : DC-AC Combiner Box 5kW,3Phase

