

ใบเสนอราคา (Quotation)

นามลูกค้า/Customer Name :	เลขที่เอกสาร/No
ที่อยู่/Address :	วันที่/Date :5/5/2566
โทรศัพท์/Tel & Fax :	
TAX ID :	E-mail : sy.solare@gmail.com

Item	Description	Qty.	Unit	Unit Price (Baht)	Price Total
<b>A</b>	<b>งานติดตั้งระบบ Solar Cell On Grid 20kWp,3Phase (HUAWEI)</b>	1	Lot	545,000.00	545,000.00
<b>1</b>	<b>Grid Tie Inverter And Accessories</b>				
	- Huawei Inverter 20KW 3Phase SUN2000-20KTL-M2	1	Set		
	- Huawei Smart Power Censor 3Phase DTSU666-H W/CT	1	Set		
	- Huawei Smart Dongle WLAN FE SDongleA-05	1	Set		
<b>2</b>	<b>DC-AC Panel Board</b>				
	- Combiner Box Grid Tie 20KW 3Phase 4String	1	Set		
<b>3</b>	<b>Solar panel</b>				
	Solar Cell 550W Mono Half LONGI	40	Ea		
<b>4</b>	<b>Solar Panel Accessories</b>				
	- Rail 4200mm	20	Ea		
	- Mid Clamp Kit 30-35mm.	80	Ea		
	- End Clamp Kit 35mm.	16	Ea		
	- L-Feet	84	Ea		
	- Rail Splice Kit	20	Ea		
	- Grounding Lug	8	Ea		
	- Clip Cable	40	Ea		
	- Grounding Clip	80	Ea		
<b>5</b>	<b>Conduit And Cable</b>				
	- PVC Conduit Dia.1/2"	80	m.		
	- PVC Conduit Dia.3/4"	40	m.		
	- Wireway 100x100 mm.	10	m.		
	PV Cable				
	- PV-4sq.mm.RED	100	m.		
	- PV-4sq.mm.BLACK	100	m.		
	IEC-01 Cable				
	- IEC-01 Cable 6Sq.mm.	20	m.		
	- IEC-01 Cable 10q.mm.	80	m.		
<b>6</b>	<b>Grounding System</b>				
	- Ground Rod 5/8x10ft	1	Set		
	- IEC-01 Cable 6Sq.mm. Green	60	m.		
	- IEC-01 Cable 10Sq.mm. Green	60	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 ดึงแผงปีละ 1 ครั้งเป็นเวลา 3 ปี					

ห้าแสนแปดหมื่นสามพันหนึ่งร้อยห้าสิบบาทถ้วน				Total Amount	545,000.00
Remark : งวดที่1เมื่อตกลงว่าจ้าง ชำระ 10%				Vat 7%	38,150.00
งวดที่2 เมื่อนำของเข้าหน้างาน ชำระ 30%				Special Discount	
งวดที่3 หลังจากติดตั้งแล้วเสร็จ พร้อมทดสอบระบบ ชำระ 60%				Grand Total	583,150.00

\*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 20KwP, 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 20KwP, 3Phase**

1 Solar PV Inverter On grid Tie	Brand: Hauwei	Model: SUN2000-20KTL-M2
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 Panel Board	Brand: Local	
8 AC Panel Board	Brand: Local	

**Subject**  Material \_\_\_\_\_ Set  Shop drawing \_\_\_\_\_ Set  
 \_\_\_\_\_ Set  Sample \_\_\_\_\_ Set  Catalog \_\_\_\_\_ 8 Set  
 \_\_\_\_\_ Set  Shop drawing \_\_\_\_\_ Set

**Attached**  Drawing No.: \_\_\_\_\_  
 Specification Ref. No.: \_\_\_\_\_  
 Others: \_\_\_\_\_

**Reference :** \_\_\_\_\_

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 : Elctrical 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 20kW, 3Phase

Brand : Huawei

Model : SUN2000-20KTL-M2

# SUN2000-12/15/17/20KTL-M2 Smart PV Controller



## Active Safety

AI Powered Arcing Protection



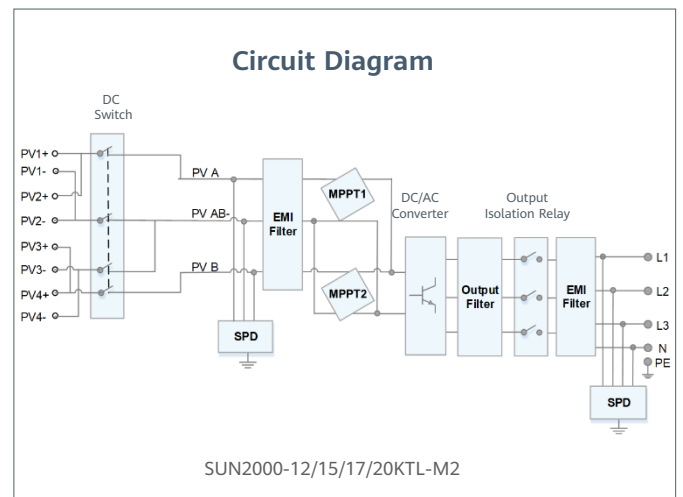
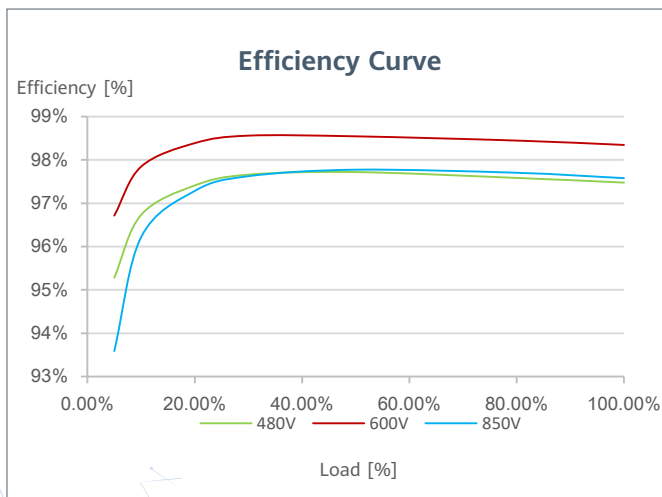
## Higher Yields

Up to 30% More Energy with Optimizer



## Flexible Communication

WLAN, Fast Ethernet, 4G  
Communication Supported



# SUN2000-12/15/17/20KTL-M2 Technical Specification

Technical Specification	SUN2000 -12KTL-M2	SUN2000 -15KTL-M2	SUN2000 -17KTL-M2	SUN2000 -20KTL-M2
<b>Efficiency</b>				
Max. efficiency	98.50%	98.65%	98.65%	98.65%
European weighted efficiency	98.00%	98.30%	98.30%	98.30%
<b>Input</b>				
Recommended max. PV power <sup>1</sup>	18,000 Wp	22,500 Wp	25,500 Wp	30,000 Wp
Max. input voltage <sup>2</sup>	1,080 V			
Operating voltage range <sup>3</sup>	160 V ~ 950 V			
Start-up voltage	200 V			
Rated input voltage	600 V			
Max. input current per MPPT	22 A			
Max. short-circuit current	30 A			
Number of MPP trackers	2			
Max. number of inputs	4			
<b>Output</b>				
Grid connection	Three phase			
Rated output power	12,000 W	15,000 W	17,000 W	20,000 W
Max. apparent power	13,200 VA	16,500 VA	18,700 VA	22,000 VA
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	20 A	25.2 A	28.5 A	33.5 A
Adjustable power factor	0.8 leading ... 0.8 lagging			
Max. total harmonic distortion	≤ 3 %			
<b>Features &amp; Protections</b>				
Input-side disconnection device	Yes			
Anti-islanding protection	Yes			
AC over-current protection	Yes			
AC short-circuit protection	Yes			
AC over-voltage protection	Yes			
DC reverse-polarity protection	Yes			
DC surge protection	TYPE II			
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11			
Residual current monitoring unit	Yes			
Arc fault protection	Yes			
Ripple receiver control	Yes			
Integrated PID recovery <sup>4</sup>	Yes			
<b>General Data</b>				
Operation temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F)			
Relative humidity	0 % RH ~ 100% RH			
Max. 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 (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)			
Weight (with mounting plate)	25 kg			
Dimensions (W x H x D) (incl. mounting plate)	525 x 470 x 262 mm (20.7 x 18.5 x 10.3 inch)			
Degree of protection	IP65			
<b>Optimizer Compatibility</b>				
DC MBUS compatible optimizer	SUN2000-450W-P			
<b>Standard Compliance (more available upon request)</b>				
Safety	EN/IEC 62109-1, EN/IEC 62109-2			
Grid connection standards	G98, G99, EN 50549, CEI 0-21, CEI 0-16, VDE-AR-N-4105, VDE-AR-N-4110, AS 4777.2, C10/11, ABNT, VFR 2019, RD 1699, RD 661, PO 12.3, TOR D4, IEC61727, IEC62116, DEWA			

\*1 Inverter max input PV power is 40,000 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 SUN2000-12~20KTL-M2 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)

## 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  $\leq 1$  W

Technical Specification	DDSU666-H	DTSU666-H	DTSU666-H 250A/50mA
<b>General Data</b>			
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)
<b>Power Supply</b>			
Power grid type	1P2W	3P4W	3P4W/3P3W
Input voltage (phase voltage)	176 Vac ~ 288 Vac		
Power consumption	$\leq 0.8$ W	$\leq 1$ W	$\leq 1$ W
<b>Measurement Range</b>			
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
<b>Measurement Accuracy</b>			
Voltage	$\pm 0.5$ %		
Current / Power / Energy	$\pm 1$ %		
Frequency	$\pm 0.01$ Hz		
<b>Communication</b>			
Interface	RS485		
Baud rate	9,600 bps		
Communication protocol	Modbus-RTU		
<b>Environment</b>			
Operating temperature range	-25 °C ~ 60 °C		
Storage temperature range	-40 °C ~ 70 °C		
Operating humidity	5 %RH ~ 95 %RH (non-condensing)		
<b>Others</b>			
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 <sup>1</sup>



## Simple

Plug & Play  
Support max. 10 devices



## Reliable

IP65  
Support auto reconnection

Technical Specification	SDongleA-05
<b>General Data</b>	
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
<b>Wireless Parameter</b>	
Supported standards & frequencies	802.11b/g/n (2.412G—2.484G)
<b>Environment</b>	
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.)
<b>Standard Compliance (more available upon request)</b>	
Certificate	SRRC, CE, RCM
<b>Inverter Compatibility</b>	
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

<sup>1</sup>: 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

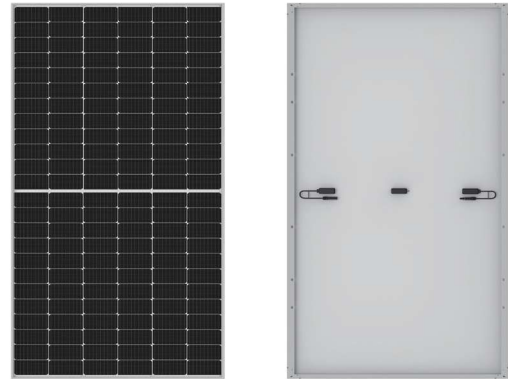
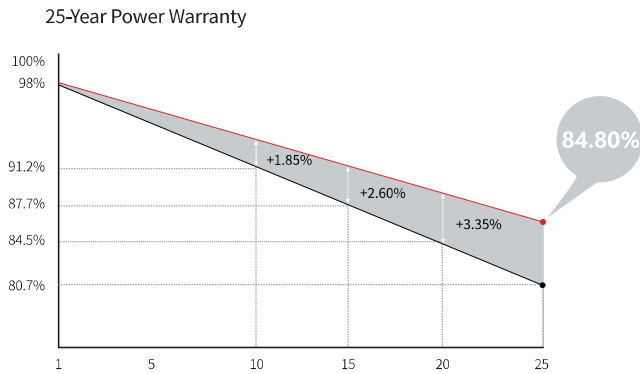
**0~+5W**  
POWER  
TOLERANCE

**<2%**  
FIRST YEAR  
POWER DEGRADATION

**0.55%**  
YEAR 2-25  
POWER DEGRADATION

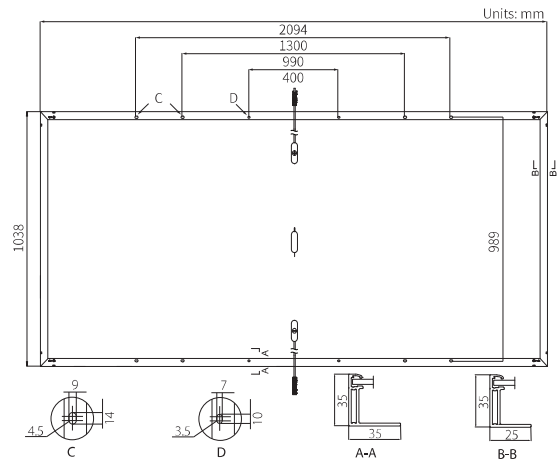
**HALF-CELL**  
Lower operating temperature

## Additional Value



## Mechanical Parameters

Cell Orientation	144 (6×24)
Junction Box	IP68, three diodes
Output Cable	4mm <sup>2</sup> , 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/m<sup>2</sup> 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

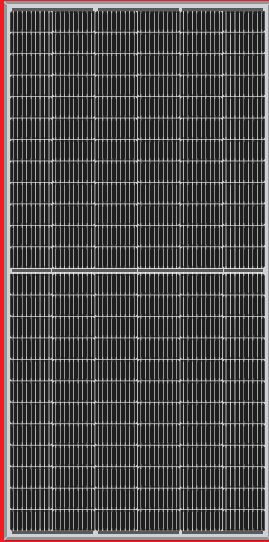
## Mechanical Loading

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)

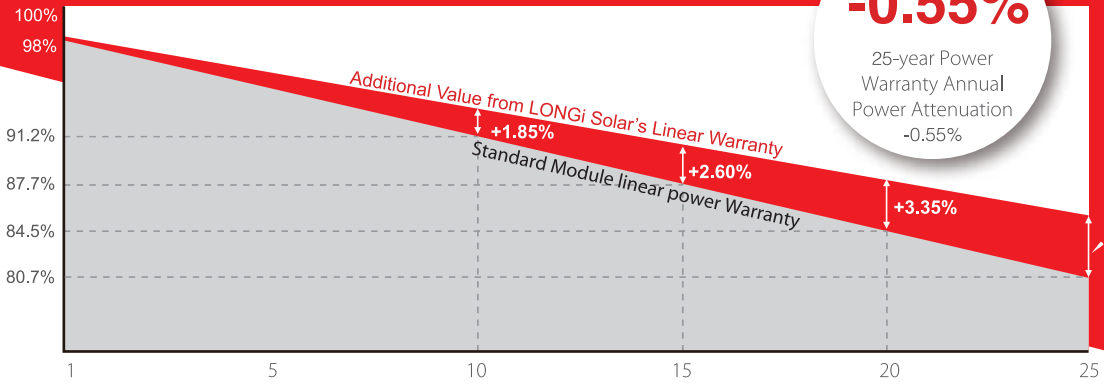
Temperature Coefficient of Isc	+0.048%/°C
Temperature Coefficient of Voc	-0.270%/°C
Temperature Coefficient of Pmax	-0.350%/°C

# 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

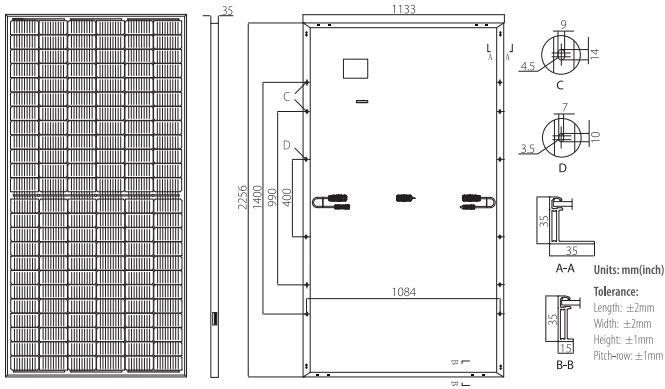


Room 801, Tower 3, Lujiazui Financial Plaza, No.826 Century Avenue, Pudong Shanghai, 200120, China  
Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGi Solar

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: 4mm<sup>2</sup>, 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
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/m<sup>2</sup>, Cell Temperature 25°C, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/s

## Temperature Ratings (STC)

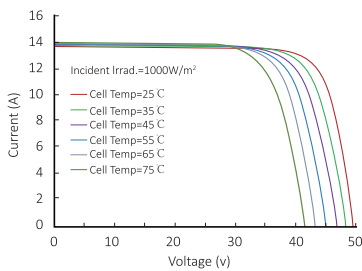
Temperature Coefficient of Isc	+0.048%/°C
Temperature Coefficient of Voc	-0.270%/°C
Temperature Coefficient of Pmax	-0.350%/°C

## Mechanical Loading

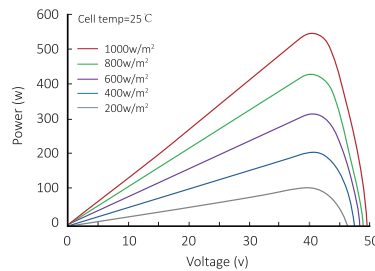
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

## I-V Curve

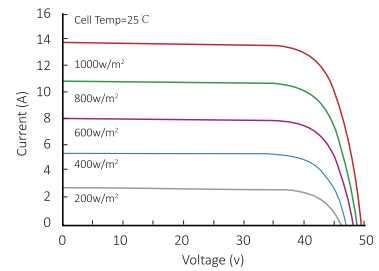
Current-Voltage Curve (LR5-72HPH-530M)



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

## IEC-01 Cable Cable

Brand : BCC

Model : 450/750V 90 ° C 60227 IEC-01





# SOLAR CABLE

## CATALOG 2020-2021





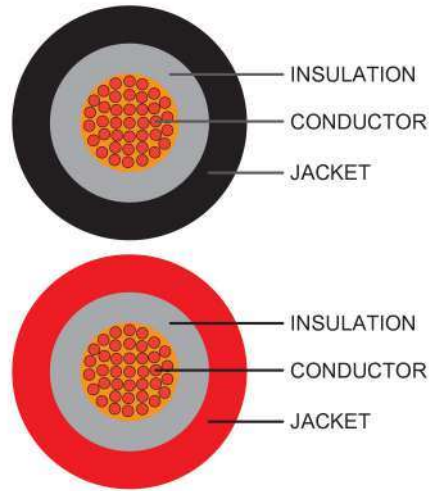
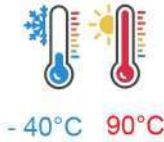


# SOLAR CABLE

## (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 <sub>0</sub> /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 <sup>9</sup> Ω
Electrical tests	according EN50618:2014

### TEMPERATURE

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

### 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

### TECHINCAL SPECIFICATION

Size (mm <sup>2</sup> )	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

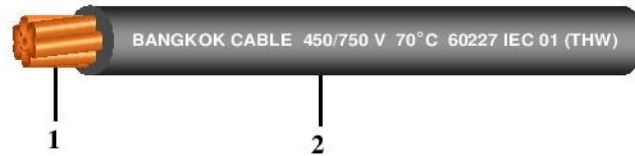
Part Number	Description	Length	Package
CB-1025X	Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC), 1x2.5 mm <sup>2</sup> , (Black or Red)	100/1000 m	Box./Roll.
CB-1040X	Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC), 1x4 mm <sup>2</sup> , (Black or Red)	100/1000 m	Box./Roll.
CB-1060X	Solar Cable, H1Z2Z2-K, (1.5/1.5KV DC),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

# 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 <sup>2</sup>	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 Panel Board

Brand : LOCAL

Model : DC Panel Board PV-4String





## AC Panel Board

Brand : LOCAL

Model : AC Panel Board 20kW

