WARRANTY PACK

METRO SOLAR

Thank you for choosing Metro Solar as your Solar PV installer. Enclosed is your solar installation paperwork for your records.

Please keep these documents in a safe spot, as they contain important maintenance information as well as your warranty paperwork.

Don't forget as a valued client, you are eligible for $100 if you refer a friend or family member to us and they choose Metro Solar as their solar provider. Once they are installed, we will forward you your $100.

Product and Service Warranty Basic Breakdown
(Whole of system Warranty)

Metro Solar Installation Warranty – 15 Years

Enphase Inverter Warranty – 15 Years

TopSola Panels Warranty – 12 Years

GraceSol Mounting System Warranty – 10 Years

Metro Solar Technical Team - 1300 289 326

Full product installation and operation manuals are available from our Website - www.metrosolar.com.au, on our manufacturers websites www.enphase.com.au and www.topsolar.com.au . All Documents are available upon request from our main office; please email info@metrosolar.com.au for the latest materials.

6 Raylee Place, Lynbrook VIC 3975
Ph: 1300 289 326
Fax: 1300 289 327

www.metrosolar.com.au
info@metrosolar.com.au

Metro Solar Installation Documentation

Customer:

Address:

Installation Date:

- Maintenance Schedule/Log ☐
- Installation Checklist ☐
- Commission Form ☐
- Performance Estimate ☐
- Wiring Diagram ☐
- Racking Data Sheet ☐
- Inverter Data Sheet ☐
- Panels Data Sheet ☐
- Warranties ☐
- Serial Numbers ☐
- Compliance Certificate ☐

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MAINTENANCE FOR GRID CONNECTED PV POWER SYSTEMS

Please note: Shut down the system before attempting to do any maintenance. Follow the shutdown procedure provided in this manual.
Your PV system is designed to produce power for many years. However to ensure its safe operation and maintain optimal performance regular maintenance is required. Below is a schedule of maintenance tasks which should be performed by a competent person.

Subsystem or component	Maintenance action	Frequency	Remarks
Site	Verify: (a) Cleanliness (accumulation of debris around and/or under array). (b) No shading of array.	Quarterly	Clean site as required Trim trees, if required
PV Modules	Verify cleanliness (accumulation of dust or fungus on array)	Quarterly	Clean if necessary – Use water only with a soft brush.
	Check for visual defects including — (a) fractures; (b) browning; (c) moisture penetration; and (d) frame corrosion	1 year	Modules with visual defects should be further inspected for performance and safety to determine the need for replacement
	Inspect junction boxes for — (a) tightness of connections; (b) water accumulation/build-up; (c) integrity of lid seals; (d) integrity of cable entrance, glands and/or conduit sealing; and (e) integrity of clamping devices. Verify bypass diodes.	1 year	Any defective seals, clamps and by pass diodes should be replaced
Wiring Installation	Verify mechanical integrity of conduits	5 year	Any damaged conduit should be replaced
	Verify insulation integrity of cables installed without conduit.	5 year	Any damaged conduit should be replaced
	Check junction boxes for— (a) tightness of connections; (b) water accumulation/build-up; (c) integrity of lid seals; (d) integrity of cable entrance and/or conduit sealing; and (e) integrity of clamping devices Verify: (i) Blocking diodes. (ii) Surge arresters for degradation.	1 year	Any defective seals, clamps blocking diodes and surge arresters should be replaced
	Check connections for — (a) tightness of connections; and (b) corrosion	1 year	
Electrical Characteristics	Measure open circuit voltages	1 year	
	Measure short circuit currents	1 year	
Protective Devices	Verify integrity of fuses	1 year	
	Verify operation of CBs and RCDs	1 year	

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	Verify operation of earth fault protection system	1 year	
	Verify operation of solar array isolation device	1 year	
Mounting Structures	Verify tightness and integrity of bolts and other fastening devices	1 year	
	Inspect for corrosion		

Maintenance Log

Date: _____
Description of work:

Signed: License #:

Date: _____
Description of work:

Signed: License #:

Date: _____
Description of work:

Signed: License #:

Date: _____
Description of work:

Signed: License #:

Date: _____
Description of work:

Signed: License #:

Date: _____
Description of work:

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Installed Equipment – Function and Operation

- Solar panels – Provides DC Power to the Inverter
- Inverter – Transforms DC power into AC power to allow connection to the power grid supplying the property.
- Frames – supports the solar panels in position
- Isolators/Circuit Breakers – allows you to isolate the system to protect anybody working on switchboards at the property.

SHUTDOWN PROCEDURE

Micro inverters (AC)

Shutdown procedure for your solar system:

1. Turn off circuit breaker located in the switchboard.

Start up procedure for your solar system:

1. Turn on circuit breaker located in the switchboard

Traditional inverters (DC)

Shutdown procedure for your solar system:

1. Turn off the solar supply main switch located in the switchboard.
2. Turn off the PV Array AC Isolator
3. Turn off the PV Array DC Isolator

Start up procedure for your solar system:

1. Turn on the PV Array DC Isolator located adjacent to the inverter
2. Turn on the PV Array AC isolator located adjacent to the inverter
3. Turn on the solar supply main switch located in the switchboard.

Please note: If the inverter is installed adjacent to the switchboard, you may not have a PV Array AC Isolator – skip this step.

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Faults

All system faults will be displayed on the Envoy interface. If your envoy is connected to the internet the fault report will be highlighted to Enphase automatically. If you would like to follow up the fault please contact Enphase or Metro Solar on the contact numbers provided.

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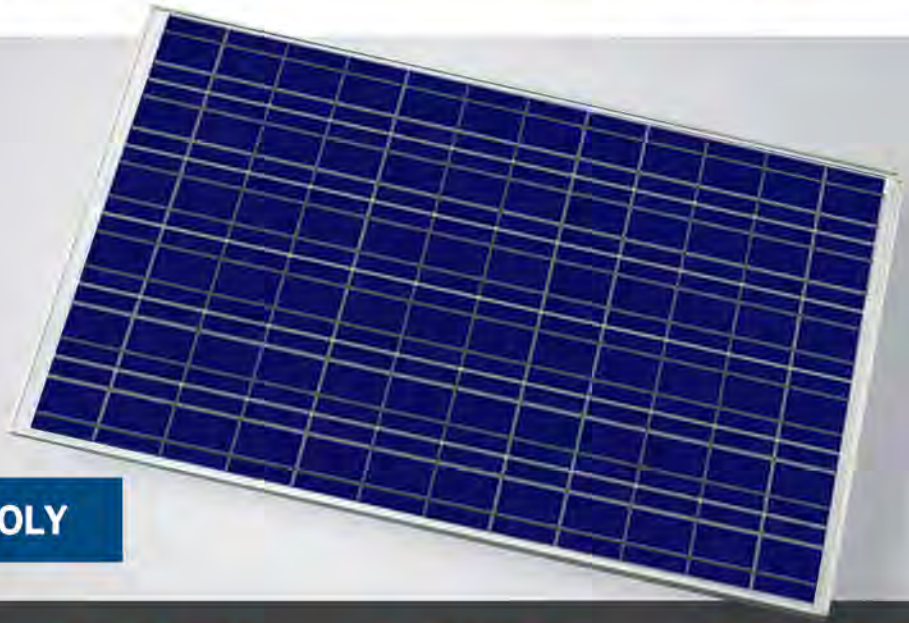
Topsola

www.topsolar.com.au
Australian Specification



TSM72 - 156 POLY

16% Industry Leading Module Efficiency

310W+ Positive Power Output up to 3%

12YRS Material & Workmanship Warranty

25YRS Limited Power Guarantee

- Industry Leading Conversion Efficiency
- High Salt Mist Resistance for Coastal Areas
- Excellent Temperature Coefficient for Better Output in High Temperatures of Australia
- Anti-reflective Coating Improves Light Absorption and Reduces Surface Dust for Higher Energy Output
- Excellent Performance Under Weak Light Conditions
- Fire Rated in Accordance with Latest Australian Standards

Buy with Confidence

Parent Company Hongrun Group
- Listed Public Company founded in 1994
- $150 million Market Capitalization
- Strong R&D culture holding many Patents

Worldwide Distribution

Major Global Solar Panel Brand
- Europe – Germany, Spain, UK
- North America – USA, Canada, Mexico
- Asia-Pacific – Australia, New Zealand, China

Unicredit Bankable

Accredited Utility Scale Project Manufacturer
- Bankability required for Major Project financing
- Independent recognition of highest quality control processes

Performance Underwritten by:

CHUBB

CHUBB GROUP OF INSURANCE COMPANIES

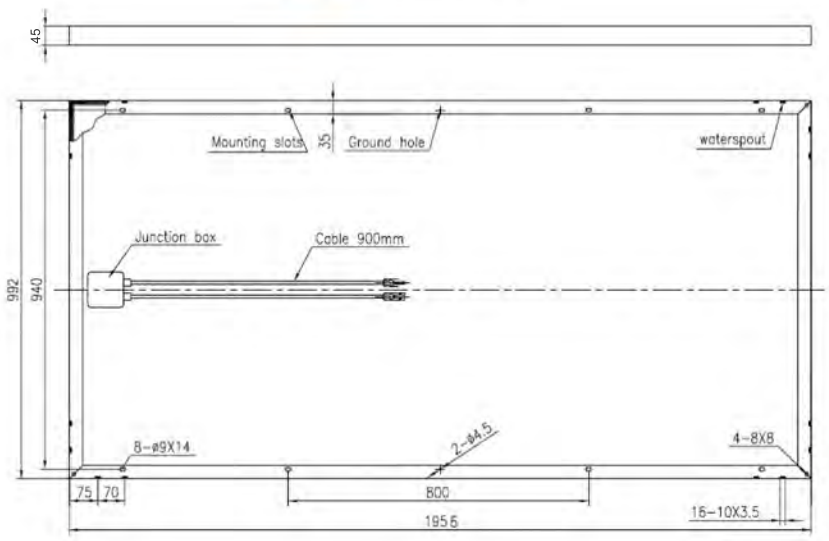
CE TÜVRheinland

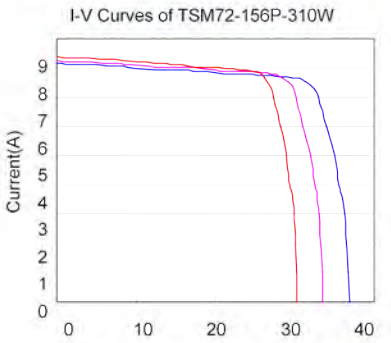
Topsola

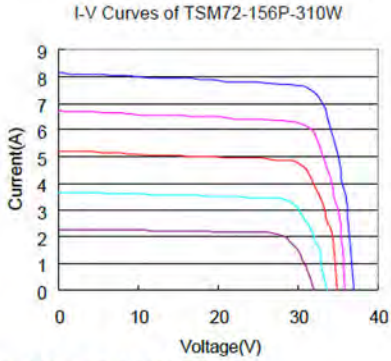
www.topsolar.com.au

Australian Specification

Dimensions







SPECIFICATION

Cell Type & Size	Poly 156mm x 156mm
Number of cells & connections	72 in series (6*12)
Weight	25.6 KG
Dimensions	1956 x 992 x 45 mm
Produced in accordance with	IEC61215Ed2 IEC61730 UL 1703
ROHS	IECQ 080000:2005

PHYSICAL CHARACTERISTICS

Operating temperature	-40C to +85C
Pressure Rating	≤ 5400 Pa
Wind Rating	60m/s(200 kg/sq.m)
Hail Impact Survivability Test	227g steel ball fall down from 0.9m height

ELECTRICAL CHARACTERISTICS

STC Maximum Power (Pmax)	310W
STC Open circuit voltage (Voc)	45.50V
Maximum power voltage (Vmp)	37.00V
Short circuit current (Isc)	8.85A
Maximum power current (Imp)	8.38A
Module efficiency	16.00%
Maximum system voltage	600V(UL)/1000V(IEC)DC
Series fuse rating	15 A
Connector	MC4 Specification
Junction Box	IP65 Rated (6 diodes)

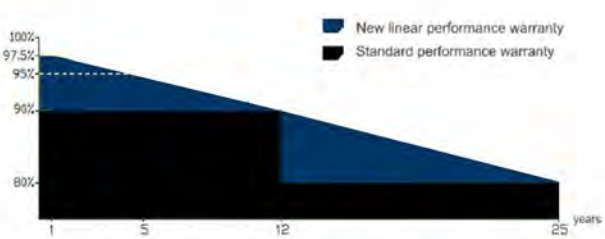
STC: Irradiance 1000w/m2, module temperature 25°C, AM=1.5

TEMPERATURE COEFFICIENTS

Normal Operating Cell Temp	47°C + 2°C
Temperature coefficient of Isc	+0.05%°C
Temperature coefficient of Voc	-0.27%°C
Temperature coefficient of Pm	-0.45%°C

PACKING CONFIGURATION

Container	40 HQ
Pallets per container	22
Pieces per container	572



SECTION 1.1

Limited Warranty

Shanghai Topsolar Green Energy Co., Ltd. (hereafter "Topsolar") provides hereby following limited warranty on the terrestrial photovoltaic modules produced by it ("modules" hereafter), according to the items stipulated below.

SECTION 1.2

Limited Warranty Of Material and Workmanship ("Product Warranty" Hereafter)

Topsolar warants that the modules are free from defects in material and workmanship under normal conditions of use, installation, and maintenance, within a period of 12 years as from the date of delivery. If a module is found defective in material and for workmanship, Topsolar will, at its sole discretion, repair or replace the module, or refund the purchase price within the above specified period. Repair, replacement, and refund of the purchase price are the only and exclusive perfonnances guaranteed under this Product Warranty which is limited to the above specified period.

SECTION 1.3

Limied Warranty of Output ("Output Warranty" Hereafter)

Topsolar warrants that if (a) module delivers less than 90% of the minimal output specified at delivery within a period of 12 years as from the date of delivery. Or (b) a module delivers less than 80% of the minimal output specified at delivery within a period of 25 years as from the date of delivery, Topsolar will, at its sole discretion, repair or replace the module, or deliver additional module(s) to compensate the loss of the output, provided that such a loss of output is attributable to defects in material and for workmanship by the diagnosis of Topsolar. Repair, replacement, and additional delivery are the only and exclusive performances guaranteed under this Output Warranty which is limited to the above specified period(s)

SECTION 1.4

Warranty Exclusions and Limitations

The above limited warranties are not applicable in case Topsolar detemines, at its sole discretion, that the module has been incorrectly operated, or inappropriately used, or exposed to accidents, or damaged by misuse, by modification, by unsuitable installation or use, by negligence with storage, transport or handling, or repaired or modified-in whatever manner- by anyone other than Topsolar or its authorized third party. Further exclusions of the limited warranties include defects:

- Caused by outer impacts, e.g. defective equipment part, appliances, system components like bypass diodes, connecting cables, inverters, or the like, which have been coupled with the module by anyone other than Topsolar, or caused by defective system design, configuration, or installation planning;
- Caused by faulty wiring or installation, or faulty handling during these work;

- Caused by operation in inappropriate environment or With inappropriate methods, which deviate from the instructions in product specification, operational manual and label;
- Caused by Other external impacts such as mud on the front glass, pollution or damage due to smoke, salt, acid rain, etc;
- Caused by use on mobile objects such as automobiles, Ship, etc;
- Caused by force ofnature, force majeure, or Other unforeseeable circumstances outside ofthe range ofthe influence ofTopsolar, for instance, earthquake, typhoon, whirlwind, volcanic eruption, flood, lightening, snow damage, etc.

The above warranties replace as well as exclude all Other explicit or implicit warranties- including but not only including-those from commercial law(s) and those ofthe suitability for a particular application, and all Other obligations and liabilities on the part ofTopsolar, unless those warranties, obligations and liabilities disclaimed herein are otherwise explicitly pledged by Topsolar in written form. Topsolar is not liable for any incidental, consequential, or punitive losses and for damages.

SECTION 2.1

General Terms

Topsolar reserves the right to deliver another type of module With difference in Size, form, color, and or output ifthe type ofthe reclaimed module is no longer produced at the time of complaint. The repair, replacement, or additional delivery ofthe module neither renews nor extends the period ofthe warranties. The replaced module is the property ofTopsolar.

SECTION 2.2

Obtaining Warranty Performance

If "the Customer" feels he/she has a justified claim covered by this limited Warranty. He/she must immediately notify the (a)dealer, Who sold the PV-modules, or(b) any authorized Topsolar distributor, ofthe claim in writhing, or (c) send such notification directly to Topsolar. Together With the notification "the Customer" should enclose evidence ofthe date ofsale on which the Solar Products have been purchased. If applicable, "the Customer's" dealer or distributor will give advice on handling the claim.

In case of a proven defect within the first ten years after the date of sale to the original end-user, Topsolar will repair or replace the defective product. All kinds of claimed modules are collected and warehoused at no cost at the Site of Topsolar distributor. They will be collected several times during the year by Topsolar. The limited Warranties do not cover any transportation costs for return ofthe PV-modules, or for reshipment of any repaired or replaced PV-modules, or cost associated With installation, removal or reinstallation of the PV-modules. Warranty claims will not be honored ifthe type of serial number ofthe PV-modules have been altered, removed or made illegible.

SECTION 2.3

Severability

If a part, provision or clause ofthis Limited Warranty, or the application thereof to any person or circumstance, is held invalid, void or unenforceable, such holding shall not affect and shall leave all Other parts, provisions, clauses or applications ofthis Limited Warranty, and to this end such Other parts, provisions, clauses or applications ofthis Limited Warranty shall be treated as severable.

SECTION 2.4

Disputes

No action, regardless ofform, arising out ofor in any way connected With this Limited Warranty, maybe brought against Topsolar more than one (I) year after the cause of action has accrued. In case of discrepancy in a warranty-claim, a first-class international test-institute such as Fraunhofer ISE in Freiburg/Germany or TUV Rheinland in Cologne/Germany shall be involved to judge the Claim finally.

SECTION 2.5

Claims

Ifyou believe that a Claim is unambiguously justified, please inform Topsolar immediately. Information on how to assert a claim and on how to return the module is enclosed here. Topsolar accepts no delivery of a reclaimed module without the explicit request from Topsolar itself.

This edition is a bi-lingual English and Germany edition. Ifthere is any discrepancy between the English and Germany version. the English version shall prevail.

Envoy Communications Gateway™

The Enphase **Envoy® Communications Gateway** provides network access to the solar array enabling comprehensive monitoring and management of an Enphase system.

Solar professionals and system owners can easily check the status of their Enphase System using the Envoy's LCD display or get more detailed performance data via Enlighten® Software, included with purchase of Envoy.

SMART

- Includes web-based monitoring and control
- Integrates with smart energy devices
- Automatically upgrades and sends performance data

SIMPLE

- Plug and play installation
- Flexible network configuration
- No additional AC wiring required

SCALABLE

- Residential or commercial ready out of the box
- Supports up to 600 microinverters

enphase® ENERGY

C US

INTERFACE	
Power Line Communications	Enphase proprietary
Local Area Network (LAN)	10/100 auto-sensing, auto-negotiating, 802.3

LAN CONNECTION OPTIONS	
Cable Assembly, Ethernet, RJ45, Orange, 10ft	Included with ENV-120-01 and ENV-120-02
Power line communication bridge pair	Included with ENV-120-01
Wireless N USB adapter (802.11b/g/n)	Included with ENV-120-02

POWER REQUIREMENTS	
AC supply	120 VAC, 60 Hz
Power consumption	2.5 watts typical, 7 watts maximum

CAPACITY	
Number of microinverters polled	Recommended up to 600

MECHANICAL DATA	
Dimensions (WxHxD)	222.5 mm x 112 mm x 43.2 mm (8.8” x 4.4” x 1.7”)
Weight	340 g (12 oz.)
Ambient temperature range	-40ºC to +65ºC (-40º to 149ºF)
Cooling	Natural convection—no fans
Enclosure environmental rating	Indoor NEMA 1

FEATURES	
Standard warranty term	Two years
Compliance	UL 60950-1, EN 60950-1, CSA22.2 No. 60950-1 and IEC 60950-1, FCC Part 15 Class B
API available	System-level production data

To learn more about Enphase Microinverter technology, visit **enphase.com**

Enphase Microinverters

Enphase® M250

The Enphase Energy Microinverter System improves energy harvest, increases reliability, and dramatically simplifies design, installation, and management of solar power systems.

The Enphase System includes the microinverter, the Enphase® Envoy, and Enlighten,® Enphase's monitoring and analysis software.

PRODUCTIVE
- Optimised for higher-power modules
- Maximises energy production
- Minimises impact of shading, dust, and debris

SMART
- Quick and simple design, installation, and management
- 24/7 monitoring and analysis

RELIABLE
- 4th-generation product
- More than one million hours of testing
- System availability greater than 99.8%

SAFE
- Extra low-voltage DC reduces fire risk
- No single point of system failure
- Easy installation with Engage Cable

[e] enphase ENERGY

CE

INPUT DATA (DC)	Model: M250-60-230-S22	Model: M250-72-2LN-S2
Recommended input power (STC)	210 - 310 W	210 - 310 W
Maximum input DC voltage	48 V [Note 1]	60 V
Peak power tracking voltage	27 V - 39 V	27 V - 48 V
Operating range	16 V - 48 V	16 V - 60V
Min/Max start voltage	22 V / 48 V	22 V / 48 V
Max DC short circuit current	15 A	15 A
OUTPUT DATA (AC)		
Peak output power	258 W	258 W
Rated output power	250 W	250 W
Rated output current	1.09 A	1.09 A
Nominal voltage	230 V	230 V
Nominal frequency	50.0 Hz	50.0 Hz
Power factor	>0.95	>0.95
Maximum units per 20 A branch circuit	14 (Ph + N), 42 (3Ph + N)	14 (Ph + N), 42 (3Ph + N)
Maximum units per cable section	14 (Ph + N), 24 (3Ph + N)	14 (Ph + N), 24 (3Ph + N)
AC backfeed current to module	0 mA	0 mA
EFFICIENCY		
EN 50530 (EU) efficiency	95.7%	95.7%
Static MPPT efficiency (weighted, reference EN50530)	99.6%	99.5%
Night time power consumption	0.055 W	0.065 W
MECHANICAL DATA		
External operating temperature range (ambient)	-40°C to +65°C	
Internal operating temperature range	-40°C to +85°C	
Enclosure environmental rating	Outdoor - IP67	
Connector type	MC4	
Dimensions (WxHxD)	179 mm x 217 mm x 28 mm (with bracket)	
Weight	1.66 kg	
Cooling	Natural convection - No fans	
FEATURES		
Compatibility	60-cell PV Modules [Note 2]	60- or 72-cell PV Modules
Communication	Power line communication	
Monitoring	Enlighten Manager and MyEnlighten monitoring options	
Transformer design	High frequency transformers, galvanically isolated	
Compliance	AS4777, C10/11, CEI_0-21, EN50438, EN62109-1, EN62109-2, ERDF-NOI-RES_13E_V5, G59/2, G83/2, VDE-0126-1-1 + A1, VDE AR-N 4105	
Automatic disconnect	Automatic disconnect according to OVE / ÖNORM E 8001-4-712	

Note 1: Recommended maximum DC operating input voltage. The M250-60-230-S22 may be used with PV modules with Voc up to 51 V under limited circumstances. Contact Enphase Energy technical support for details and approval.

Note 2: Compatibility may be extended to modules with higher cell counts under limited circumstances. Contact Enphase Energy technical support for details and approval.

To learn more about Enphase microinverter technology, visit enphase.com/au.

Enphase Energy M250 Microinverter
10-Year Limited Warranty - Australia & New Zealand

Important note: This warranty is additional to your statutory rights

This Enphase Limited Warranty applies in addition to the guarantees, rights and remedies conferred by the consumer laws in your jurisdiction. The Enphase Limited Warranty does not exclude, affect or limit those guarantees, rights or remedies except to the extent that their application may lawfully be excluded or limited.

The following paragraph relates to goods supplied in Australia only:

Our goods come with guarantees that cannot be excluded under the *Australian Consumer Law*. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

You may also be able to seek a remedy from us in relation to consumer guarantees for goods supplied in New Zealand.

Enphase Energy Inc. ("Enphase") has developed a highly reliable microinverter, designated as the M250 Series ("Microinverter"), that is designed to withstand normal operating conditions when used for its originally intended purpose in compliance with the Enphase User Manual made available with the originally shipped system. The Enphase limited warranty ("Limited Warranty") covers defects in workmanship and materials of the Enphase Microinverter ("Defective Product") for a period of ten (10) years from the date of original purchase of such Microinverter at point of sale to the system owner (the "Warranty Holder") the originally-installed end user location (the "Warranty Period") in Australia or New Zealand.

During the Warranty Period, the Limited Warranty is transferable to a different owner ("Transferee") as long as the Microinverter remains installed at the originally-installed end user location ("Original Location") and the Transferee submits to Enphase a "Change of PV Ownership Form" and applicable Transfer Fee within 30 days from the date of transfer to the Transferee. This submission is a requirement for continued Limited Warranty coverage. The Transfer Fee is set forth in the Change of PV Ownership Form, and is subject to reasonable adjustment from time to time (as determined at Enphase's discretion). The Change of PV Ownership Form and payment instructions are available at http://www.enphase.com/warranty. Enphase reserves the right to provide separate warranties that shall govern with respect to Microinverters installed in specific regions as set forth on our website at http://www.enphase.com/warranty.

During the Warranty Period, if Enphase establishes, through inspection, the existence of a defect that is covered by the Limited Warranty, Enphase will at its option, and subject to the terms, exclusions and limitations set out in this warranty, either (1) repair or replace the Defective Product free of charge, or (2) issue a credit or refund for the Defective Product to the Warranty Holder of the system in an amount up to its actual value at the time the Warranty Holder notifies Enphase of the defect, as determined by Enphase.

If Enphase elects to repair or replace the Defective Product, Enphase will, at its option, use new and/or reconditioned parts in repairing or replacing the Defective Product. Enphase reserves the right to use parts or products of original or improved design in the repair or replacement of Defective Product. If Enphase repairs or replaces a Defective Product, the Limited Warranty continues on the repaired or

replacement product for the remainder of the original Warranty Period or ninety (90) days from the date of Enphase's return shipment of the repaired or replacement product, whichever is later. The Limited Warranty covers both parts and labor necessary to repair the Defective Product (if Enphase elects to repair the Defective Product), but does not include labor costs related to (1) un-installing the Defective Product or (2) if applicable, re-installing a repaired or replacement product. To the extent applicable, the Limited Warranty also covers the costs of shipping a repaired or replacement product from Enphase, via a non-expedited freight carrier selected by Enphase, to locations within Australia or New Zealand. The Limited Warranty does not cover, and Enphase will not be responsible for, shipping damage or damage caused by mishandling by the freight carrier and any such damage is the responsibility of the freight carrier.

To obtain repair or replacement service, credit or refund (as applicable) under this Limited Warranty, the Warranty Holder must comply with the following policy and procedure:

- All Defective Product must be returned to Enphase with a Return Merchandise Authorization Number (RMA) which Warranty Holder must request from Enphase. Before requesting the RMA, however, the Warranty Holder must contact an Enphase technical support representative to evaluate and troubleshoot the problem while the Enphase Microinverter is in the field, since many problems can be solved in the field.

- If in-field troubleshooting does not solve the problem, Warranty Holder may request the RMA number, which request must include the following information:
  - Proof-of-purchase of the Defective Product in the form of (1) the dated purchase receipt from the original purchase of the product at point of sale to the end user, or (2) the dated dealer invoice or purchase receipt showing original equipment manufacturer (OEM) status, or (3) the dated invoice or purchase receipt showing the product exchanged under warranty
  - Model number of the Defective Product.
  - Serial number of the Defective Product.
  - Detailed description of the defect.
  - Shipping address for return of the repaired or replacement product (as applicable).

- If in-field troubleshooting of the Enphase Microinverter is not able to be accomplished because the Envoy device does not exist or is not operational, and the unit is determined upon receipt and testing by Enphase personnel as being fully operational (no trouble found) the Warranty Holder will incur a AUD $200 handling fee.

- All Defective Product authorized for return must be returned in the original shipping container or other packaging that is equally protective of the product.

- The Warranty Holder bears all expenses associated with initial claims under this Limited Warranty. However, Enphase will reimburse the Warranty Holder for postage costs incurred in the event that the Warranty Holder has made a valid claim under this warranty and posts the product to Enphase. Please retain proof of postage expenses incurred in order for such costs to be reimbursed.

- The returned Defective Product must not have been disassembled or modified without the prior written authorization of Enphase.

Enphase Microinverters are designed to withstand normal operating conditions and typical wear and tear when used for their original intent and in compliance with the installation and operating instructions supplied with the original equipment. The Limited Warranty does not apply to, and Enphase will not be responsible for, any defect in or damage to any Enphase Microinverter: (1) that has been misused, neglected, tampered with, altered, or otherwise damaged, either internally or externally; (2) that has been improperly installed, operated, handled or used, including use under conditions for which the product was not designed, use in an unsuitable environment, or use in a manner contrary to the Enphase User Manual

or applicable laws or regulations; (3) that has been subjected to fire, water, generalized corrosion, biological infestations, acts of God, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the Enphase Microinverter specifications, including high input voltage from generators or lightning strikes; (4) that has been subjected to incidental or consequential damage caused by defects of other components of the solar system; or (5) if the original identification markings (including trademark or serial number) of such Microinverter have been defaced, altered, or removed. This Limited Warranty does not cover cosmetic, technical or design defects, or shortcomings which do not materially influence or affect the energy production or degrade form, fit, or function of the Enphase Microinverter. The Limited Warranty does not cover costs related to the removal, installation or troubleshooting of the Warranty Holder's electrical systems. The Limited Warranty does not extend beyond the original cost of the Enphase Microinverter. To the extent permissible under the Australian Consumer Law, Enphase expressly reserves the right to novate or assign its rights and obligations under this warranty agreement to a third party with the demonstrated expertise and requisite resources needed to effectively discharge the obligations hereunder.

TO THE EXTENT PERMITTED BY LAW ENPHASE WILL NOT BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, COSTS OR EXPENSES HOWEVER ARISING, WHETHER IN CONTRACT OR TORT, INCLUDING WITHOUT LIMITATION ANY ECONOMIC LOSSES OF ANY KIND, ANY LOSS OR DAMAGE TO PROPERTY, OR ANY PERSONAL INJURY.

This warranty is offered by Enphase Energy, Inc.

Contact Details: Enphase Energy, Inc.
Attn: Customer Support
1420 N. McDowell Blvd.
Petaluma, CA 94954
(707) 763-7000
support@enphaseenergy.com

For in country support in Australia or New Zealand please contact Enphase Customer Support at http://enphase.com/global/au/ or by telephone at (03) 8669-1663.

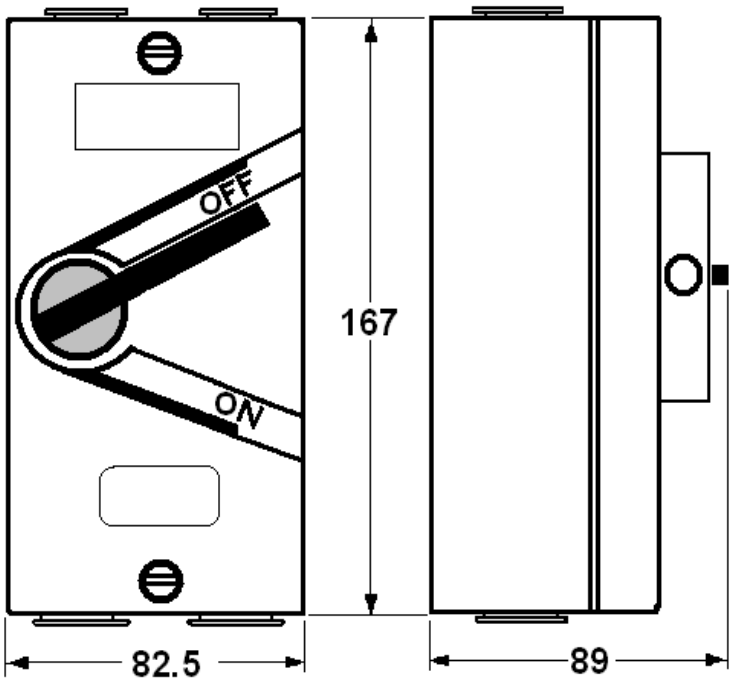
The grant of this Limited Warranty by Enphase is conditioned upon agreement by the Warranty Holder and any permitted Transferee to the terms, conditions and requirements herein.

Spec Sheet: IPW20

- **Description:** IPW weatherproof isolators are ideal for motor safety isolation with 4 threaded gland entries and a degree of protection to IP66. IPW isolators are ideally suited for outdoor applications such as isolation of air conditioning units.
- The 20A 500V AC series are available in 1P ***IPW201***, and 3P ***IPW203***
- **Application:** Motor isolator safety switches, motor disconnectors and air conditioning isolators.
- **Certification:** IEC EN 60947.3, AC22B, AS3133 "M" Rated 160/180A
- **Features:**
  - High visibility ON/OFF indication
  - High strength locking screws
  - Made from UV Resistant Polycarbonate, IP66
  - Phase connections up to 25mm^2 cable, E and N 16mm^2 cable
  - Pad-lockable handle with front and rear entries
  - Ample cable space for the large cables

Dimensions & Ratings

Free air thermal current *(Ith)*	20A
Enclosed thermal current *(Ithe)*	20A
Rated insulation voltage *(Ui)*	500V
Rated operational voltage *(Ue)*	415V
Dielectric properties	1kV
IEC947.3	
Rated operational current	
at 415V AC-21A	20A
at 415V AC-22A	20A
AS3133	
Rated operational current	
Locked rotor 3 Ø, "M" rating	120A
Locked rotor 1 Ø, "M" rating	140A
Short time withstand current *(I_{cw})*	0.76kA
Short-circuit making capacity *(I_{cm})*	1.5kA
Mechanical Endurance with current	1,500
Mechanical Endurance without current	8,500
Degree of Protection	IP66
Conduit Entries	4 x M25
Padlock max diameter	6mm
Max. Cable Size mm^2 *(Mains)*	25
Max. Cable Size mm^2 *(N / E)*	16
Weight 1P	0.48kg
Weight 3P	0.56kg



Power Distribution

NHP

MOD6

The complete range of consumer switchboards and switchgear

www.nhp.com.au/mod6

MOD6

The MOD6 range of consumer switchboards and switchgear is specifically designed for domestic and commercial installations.

- EXTENSIVE NHP BACKUP AND SUPPORT
- FLEXIBLE RANGE
- SINGLE MODE RCBO OPTION
- FAULT RATING OF 6 kA
- SURFACE OR FLUSH MOUNT
- MOST COMMON SIZES
- WHITE OR TRANSPARENT DOORS

NHP have released a flexible range to cater for the ever changing demands in switchboard design. MOD6 has a standard fault rating of 6 kA for the miniature circuit breakers in single, double and triple pole configurations. Safety switches are available in various models with the option of a single module RCBO that fits inside a consumer switchboard.

The consumer switchboards are available in the most common sizings including a single row 18 module board. These boards are offered as flush or surface mount with a choice of a white or transparent door.

MOD6 is now part of the extensive NHP product range backed by NHPs technical support and excellence in providing quality products for the electrical market.

CONTENTS

MCBs

6 kA 1 POLE MINIATURE CIRCUIT BREAKERS

CAT. No.	DESCRIPTION	MOD WIDTH
MOD6 1 06	MCB 6 kA 1 P 6 A C CURVE MOD6	1
MOD6 1 10	MCB 6 kA 1 P 10 A C CURVE MOD6	1
MOD6 1 16	MCB 6 kA 1 P 16 A C CURVE MOD6	1
MOD6 1 20	MCB 6 kA 1 P 20 A C CURVE MOD6	1
MOD6 1 25	MCB 6 kA 1 P 25 A C CURVE MOD6	1
MOD6 1 32	MCB 6 kA 1 P 32 A C CURVE MOD6	1
MOD6 1 40	MCB 6 kA 1 P 40 A C CURVE MOD6	1
MOD6 1 50	MCB 6 kA 1 P 50 A C CURVE MOD6	1
MOD6 1 63	MCB 6 kA 1 P 63 A C CURVE MOD6	1

MOD6 1

6 kA 2 POLE MINIATURE CIRCUIT BREAKERS

CAT. No.	DESCRIPTION	MOD WIDTH
MOD6 2 06	MCB 6 kA 2 P 6 A C CURVE MOD6	2
MOD6 2 10	MCB 6 kA 2 P 10 A C CURVE MOD6	2
MOD6 2 16	MCB 6 kA 2 P 16 A C CURVE MOD6	2
MOD6 2 20	MCB 6 kA 2 P 20 A C CURVE MOD6	2
MOD6 2 25	MCB 6 kA 2 P 25 A C CURVE MOD6	2
MOD6 2 32	MCB 6 kA 2 P 32 A C CURVE MOD6	2
MOD6 2 40	MCB 6 kA 2 P 40 A C CURVE MOD6	2
MOD6 2 50	MCB 6 kA 2 P 50 A C CURVE MOD6	2
MOD6 2 63	MCB 6 kA 2 P 63 A C CURVE MOD6	2

MOD6 2

6 kA 3 POLE MINIATURE CIRCUIT BREAKERS

CAT. No.	DESCRIPTION	MOD WIDTH
MOD6 3 06	MCB 6 kA 3 P 6 A C CURVE MOD6	3
MOD6 3 10	MCB 6 kA 3 P 10 A C CURVE MOD6	3
MOD6 3 16	MCB 6 kA 3 P 16 A C CURVE MOD6	3
MOD6 3 20	MCB 6 kA 3 P 20 A C CURVE MOD6	3
MOD6 3 25	MCB 6 kA 3 P 25 A C CURVE MOD6	3
MOD6 3 32	MCB 6 kA 3 P 32 A C CURVE MOD6	3
MOD6 3 40	MCB 6 kA 3 P 40 A C CURVE MOD6	3
MOD6 3 50	MCB 6 kA 3 P 50 A C CURVE MOD6	3
MOD6 3 63	MCB 6 kA 3 P 63 A C CURVE MOD6	3

MOD6 3

TECHNICAL DATA (MCBs)

1 P, 2 P & 3 P MCBs

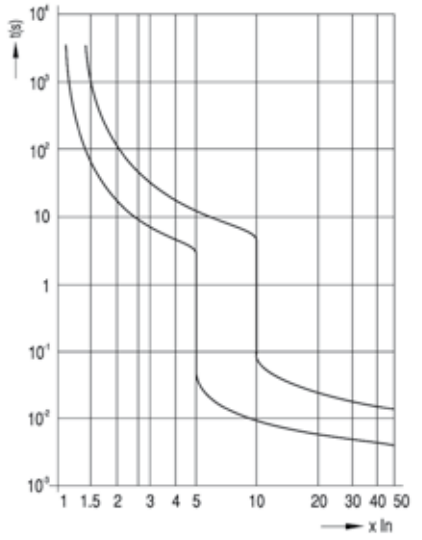
Approval no.		N17481
Standards (Australia / New Zealand / International)		IEC 60898
Tripping characteristics		C
Nominal current		0 - 63 A
Calibration temperature		30 °C
Number of poles		1 / 2 / 3
Nominal voltage	AC 1 P	240 V
	AC 2 P / 3 P	415 V
	DC 1 P	48 V DC
	DC 2 P (poles in series)	110 V DC
Frequency		50/60 Hz
Max voltage between two wires		250/440 V
Min service voltage		12 V
Dielectric class		3
Isolation application (IEC 60947-2)		yes
Rated insulation voltage	pollution degree 2	500 V
	pollution degree 3	400 V
Impulse withstand test voltage		6 kV
Insulation resistance		10,000 mOhm
Dielectric rigidity		2.5 kV
Vibration resistance		3 g
Endurance	electrical	10,000
	mechanical	20,000
Utilisation category		A
Protection degree	outside enclosure	IP 20
	inside enclosure	IP 40
Self extinguishing degree (UL94)		V 2
Tropicalisation (IEC 60068-2)		-55 / 95 % RH
Operating temperature		-22 / +55 °C
Storage temperature		-55 / +55 °C
Temperature derating		Refer NHP
Terminal capacity (top and bottom) min / max		1 / 25 mm
Terminal torque		4.5 Nm
Busbar systems		Fork or Pin
Accessories		No
Dimensions		76 (H) 86 (L) 18 (W)
Weight		120 g per pole

SHORT CIRCUIT CAPACITY AC IN KA

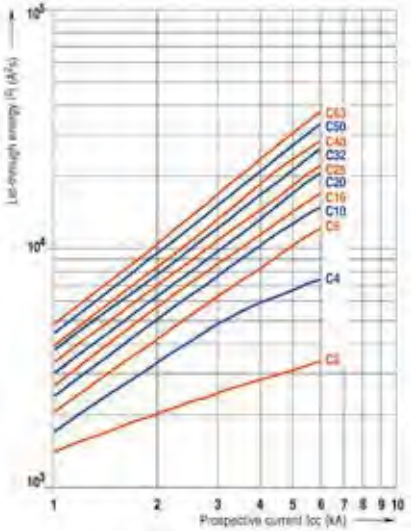
Icn	1 P	6
	2 P	6
	3 P	6
Ics (service)		100 % Icn

CURVES

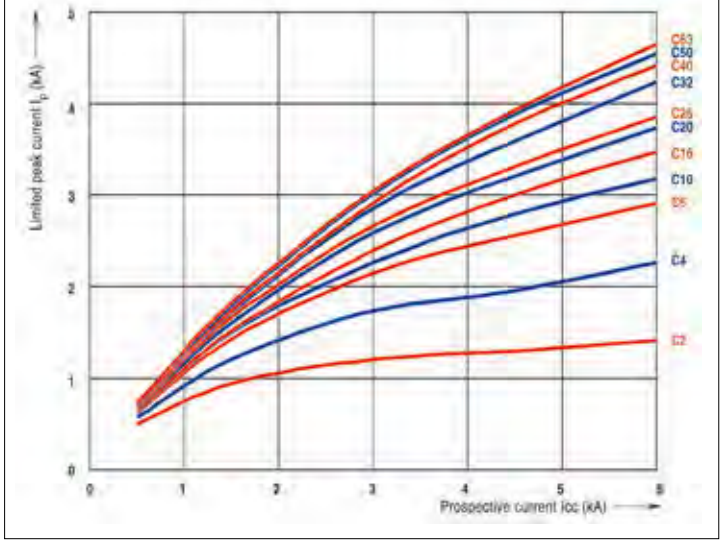
TRIPPING CURVE



I²t LET THROUGH ENERGY



Id LIMITED PEAK CURRENT



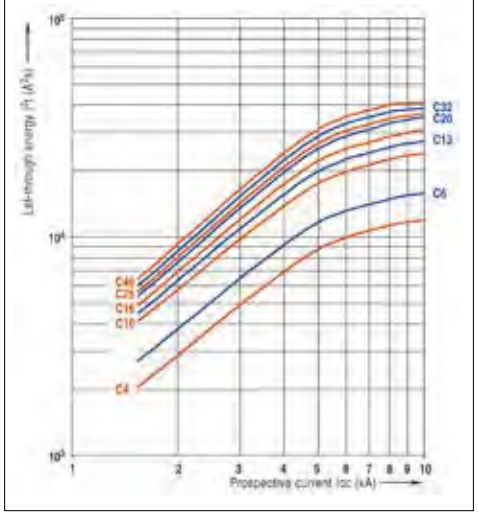
TECHNICAL DATA (RCDs)



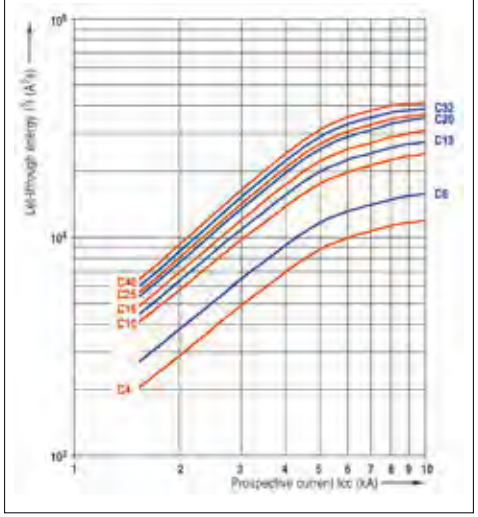
		RCCBs	2 POLE RCBOs	1 POLE RCBOs
Approval no.		N17482	N17482	N21915
Standards		IEC 61008 - 1	IEC 6009 - 1	IEC 6009 - 1
Magnetic tripping characteristics		-	C	C
Residual tripping characteristics		-	AC	AC/A
Tripping time at rated current		-	300	300
Rated current		40 - 63	10 - 32	10 - 32
Rated residual current		30 mA	30 mA	30 mA
Calibration temperature		30 °C	30 °C	30 °C
Rated voltage	2 P 4 P	240 V 415 V	240 V -	240 V (1 P) -
Frequency		50 / 60	50 / 60	50 / 60
Maximum service voltage		2 P=265, 4 P=455	255	255
Minimum service voltage		2 P=110, 4 P=190	100	100
Power supply		Top / Bottom	Top / Bottom	Bottom
Selectivity class			3	3
Residual making and breaking capacity		500 A	7500 A	7500 A
Short circuit capacity		-	6 kA	6 kA
Isolation application (IEC 60947-2)		Yes	Yes	Yes
Insulation resistance		1,000	1,000	1,000
Insulation voltage		500	500	500
Dielectric rigidity		2,500	2,500	2,500
Vibration resistance		1.5 g	1.5 g	1.5 g
Endurance	electrical mechanical	10,000 20,000	10,000 20,000	10,000 20,000
Protection degree	outside inside enclosure	IP 20 IP 40	IP 20 IP 40	IP 20 IP 40
Self extinguishing degree (UL 94)		V 2	V 2	V 2
Tropicalisation (IEC 60068-2)		+55 °C / 95 % RH	+55 °C / 95 % RH	+55 °C / 95 % RH
Operating temperature		-5 / +55 °C	-25 / +55 °C	-5 / +55 °C
Storage temperature		-25 / +70 °C	-5 / +70 °C	-25 / +70 °C
Terminal capacity (top & bottom) min / max		1.5 / 50 mm	1 / 25 mm	1 / 25 mm
Terminal torque (top / bottom)		5 / 5	3 / 4	3
Busbar systems		Yes	Yes	Yes
Accessories		No	No	No
Dimensions		76 (H) 86 (L) 36/72 (W)	76 (H) 86 (L) 36 (W)	76 (H) 112 (L) 18 (W)
Weight		2 P=250, 4 P=368	250	350

CURVES

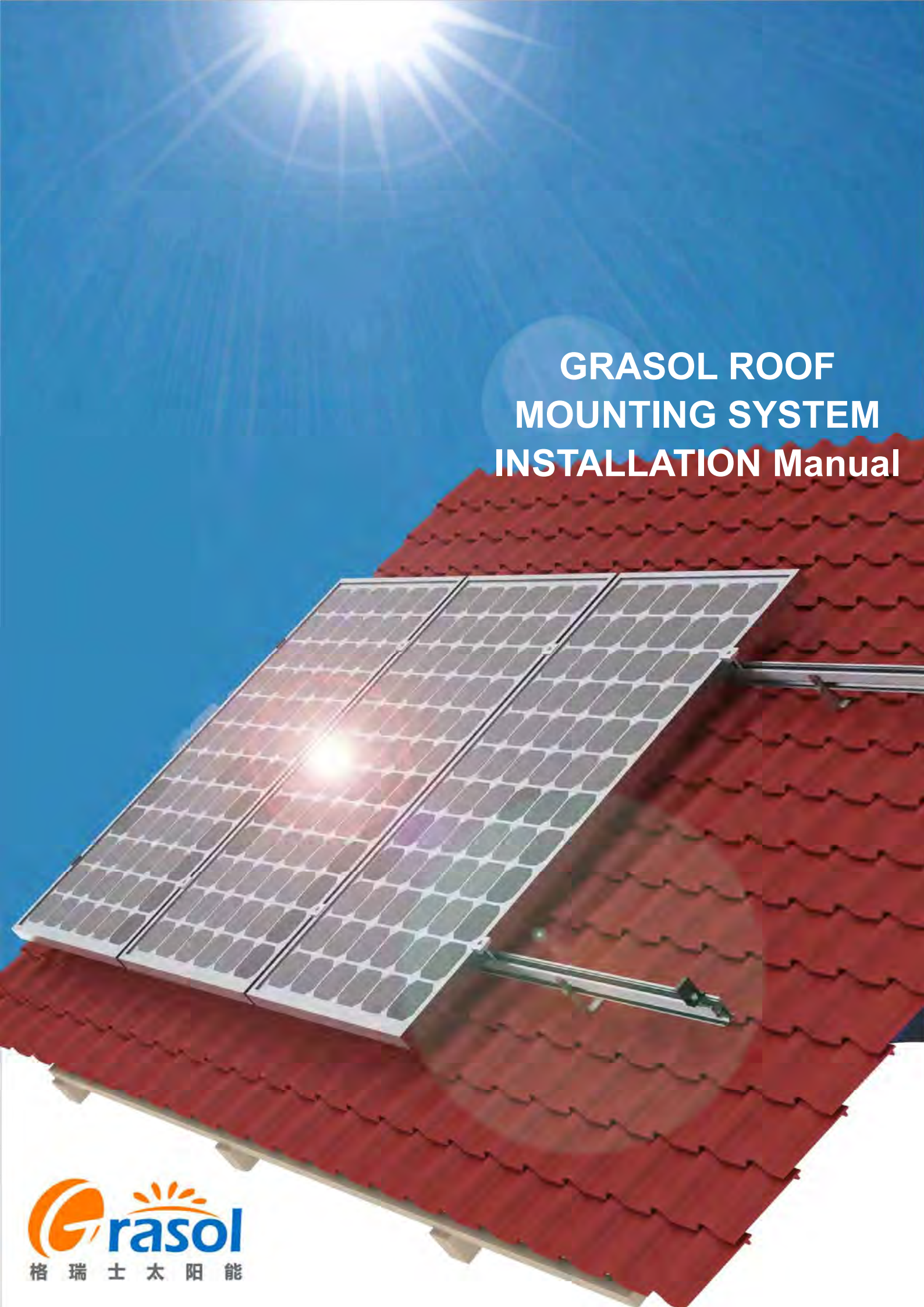
I²t LET THROUGH ENERGY 2 POLE RCBOs



I²t LET THROUGH ENERGY 1 POLE RCBOs



GRASOL ROOF MOUNTING SYSTEM INSTALLATION Manual



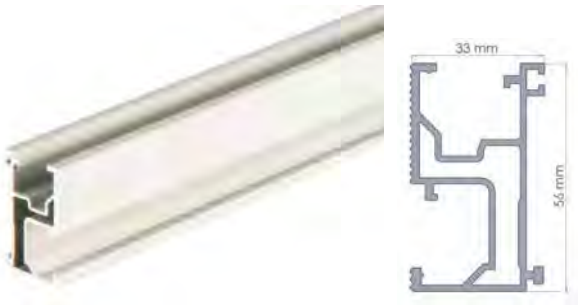
Grasol
格瑞士太阳能

5. Components Description

GR Rail

- ✓ hold each panel row
- ✓ length can be customized
- ✓ 6005-T5 extruded aluminum

Standard Rail Length	
808~826mm wide panels	990~1020mm wide panels
2560mm	
3405mm	4200mm



GR Rail Splice Kit

- ✓ Extend GR Rail to any length as required by the quantity or width of the solar panels

Inter Clamp Kit for Framed Modules

- ✓ Fit between two panels
- ✓ Fastened with a 6mm Allen key
- ✓ Standard pre-assembly for the usual panels with thickness 30, 35, 40, 46, 50, 57mm

End Clamp Kit for Framed Modules

- ✓ Hold the edge of each end panels
- ✓ Fastened with a 6mm Allen key
- ✓ Standard pre-assembly for the usual panels with thickness 30, 35, 40, 46, 50, 57mm

Adjustable End Clamp Kit

- ✓ Hold the edge of each end panels
- ✓ Fastened with a 6mm Allen key
- ✓ Adjustable for the panels with thickness from 25~60mm

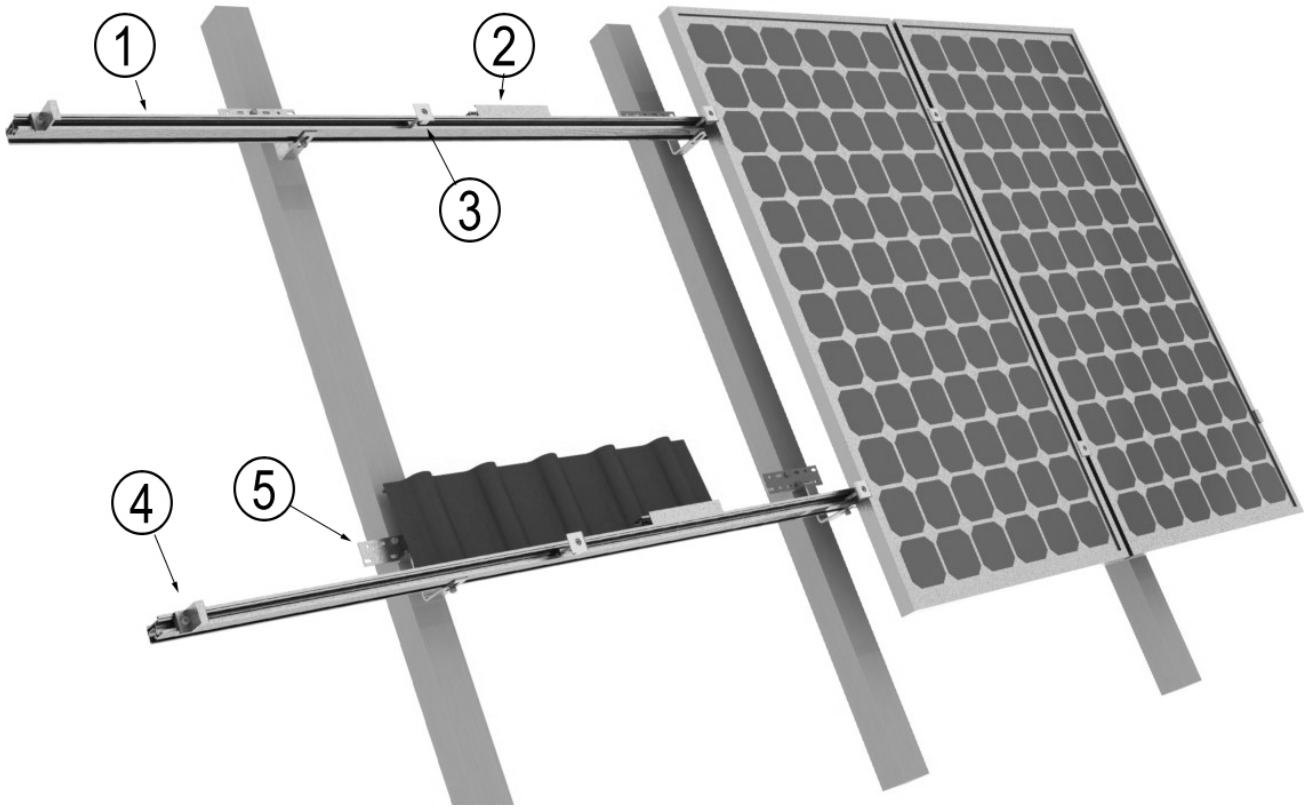
XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.
Phone: 0086-592-5239037 Fax: 0086-592-5732132
Web: www.gracesolar.com Mail: info@gracesolar.com

Variety of Roof Hook	
Stainless Steel Roof Hook 1 # ✓ Fix to the rafter below Roman tile roof ✓ Include 3pcs st6.3x80 wood screws	
Stainless Steel Roof Hook 2 # ✓ Fix to the rafter below flat tile roof ✓ Include 2pcs st6.3x80 wood screws	
Stainless Steel Roof Hook 3 # ✓ Side fix to the rafter below Roman tile roof ✓ Include 3pcs st6.3x80 wood screws	
Stainless Steel Roof Hook 4# ✓ Fix to the rafter on slate tile roof ✓ Include 3pcs st6.3x80 wood screws	
Aluminum Tin Roof Hook 5# ✓ Fix to the purlin on tin roof ✓ Include 1pcs st6.3x80 wood screws	
Stainless Steel Roof Hook 6# ✓ Fix to the rafter below Roman tile roof ✓ Include 3pcs st6.3x80 wood screws	
Accessories	
Grounding Clip ✓ Installed under two panels ✓ Stainless Steel 304	
Grounding Lug ✓ Aluminum Lay-in lug to connect wires ✓ Pre-assembly	
Copper Grounding Lug ✓ Copper Lay-in lug to connect wires ✓ Pre-assembly ✓ Excellent electric conductivity	

6.System overview

All components of the system are listed below. The version and quantities of the parts can vary, depending of

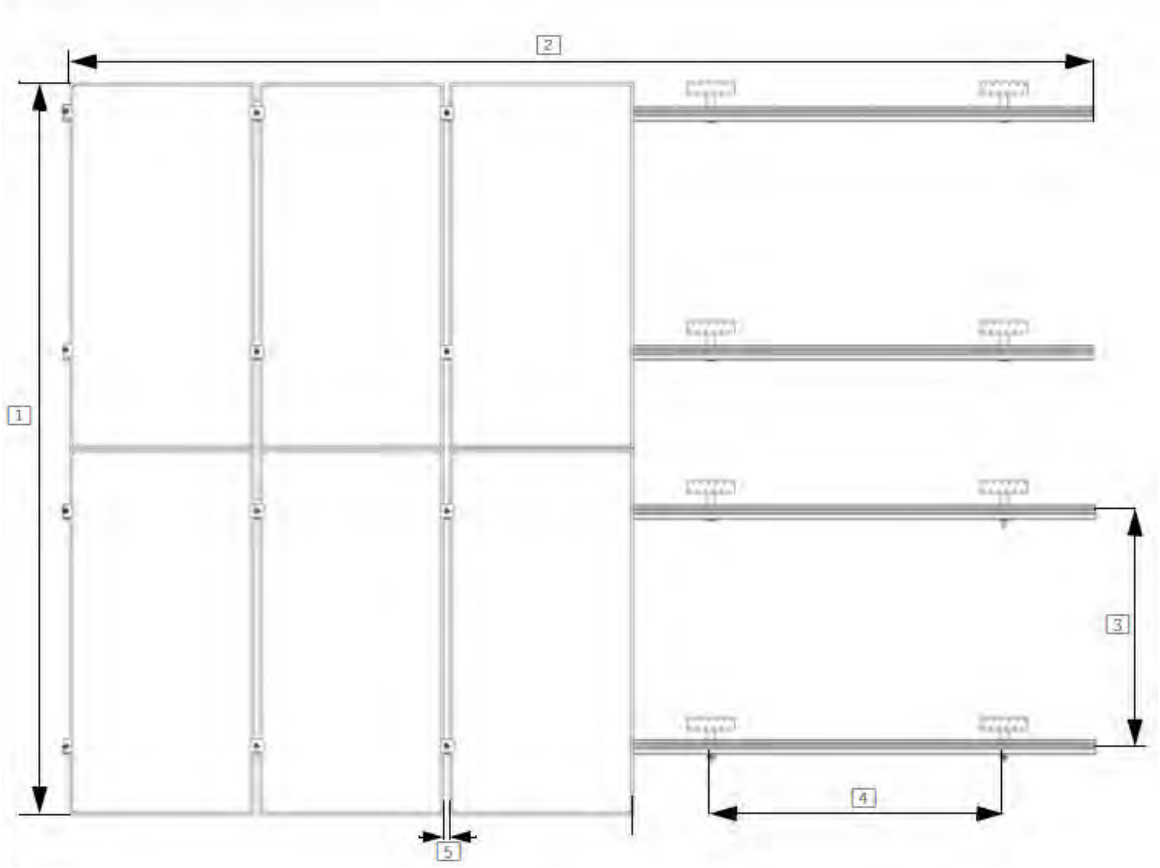
- Type of roof
- Number of modules
- Type of module
- Site specifics



① GS Rail	② GS Rail Splice
③ Inter Clamp	④ End Clamp
⑤ Roof hook	

7. Designing the module field

Below, the distances between roof connections for a portrait installation are specified. Clamp-on roof hooks need to be installed in specific distances, depending on the distance of rafters and the stoical conditions.



1. Height of the module field: module height x number of modules vertically
2. Width of the module field: number of modules horizontally x (width of the module + 18 mm)+32 mm
3. Distance between roof connections vertically (according to the clamping points pre-defined by the module producer): Quarter-points of the modules, about 1/2 of module height.
4. Distance between roof connections horizontally: Depending on the distance between rafters and on the static requirements (please see the ***Chapter 8*** on page 11).
5. Distance between modules: 17 mm

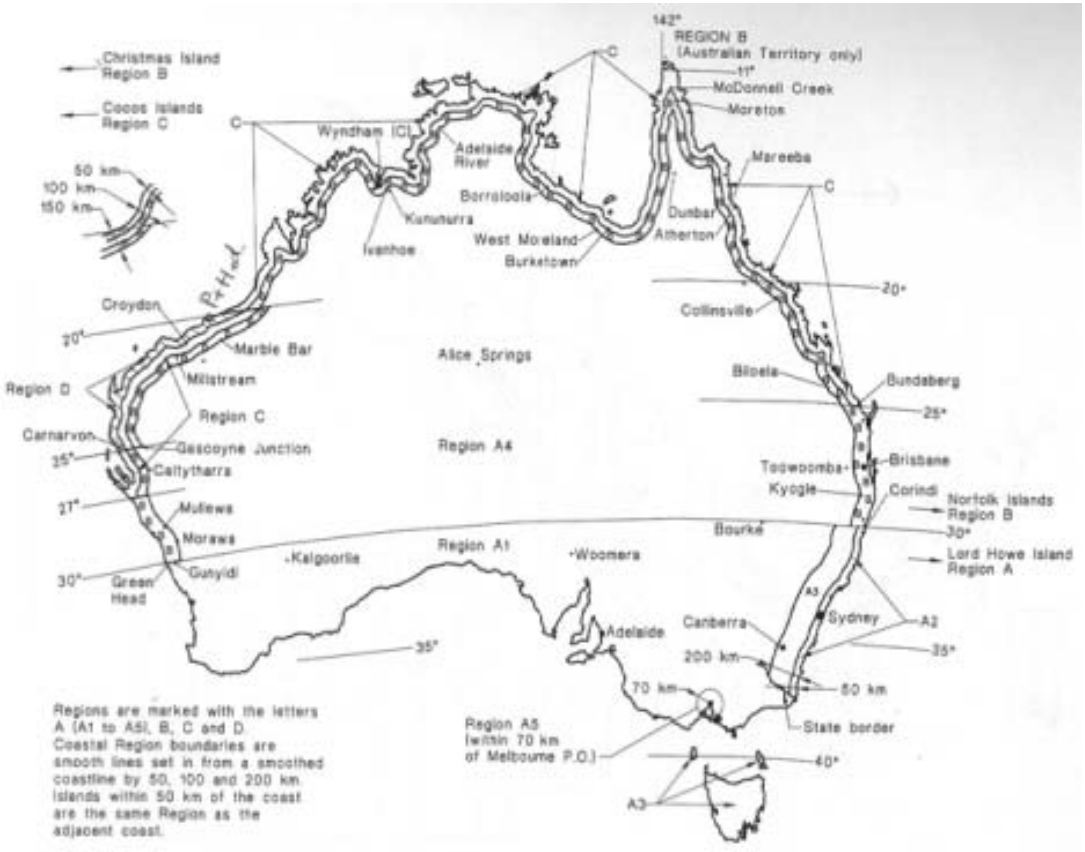
When positioning the modules, please take into consideration

- That the values above are
- That dimensions of tiles or other roof covering and the position of the rafters define the precise actual horizontal distance between roof connections
- That the distance between roof laths defines the precise actual vertical distance between roof connections.

8.CODE-COMPLIANT AS/NZS 1170 PLANNING

8.1 Determine the wind region of your installation site

Region Definition:



Wind regions are pre defined for all of Australia by Australian Standard 1170. The Wind Region has nothing to do with surrounding topography or buildings.

• Most of Australia is designated Region A which indicates a Regional Ultimate Basic Wind Velocity of 45msec.

• Some areas are designated Region B (57msec). Local authorities will advise if this applies in your area.

• Region C areas (66msec) are generally referred to as Cyclonic and are generally limited to northern coastal areas. Most Region C zones end 100km inland.

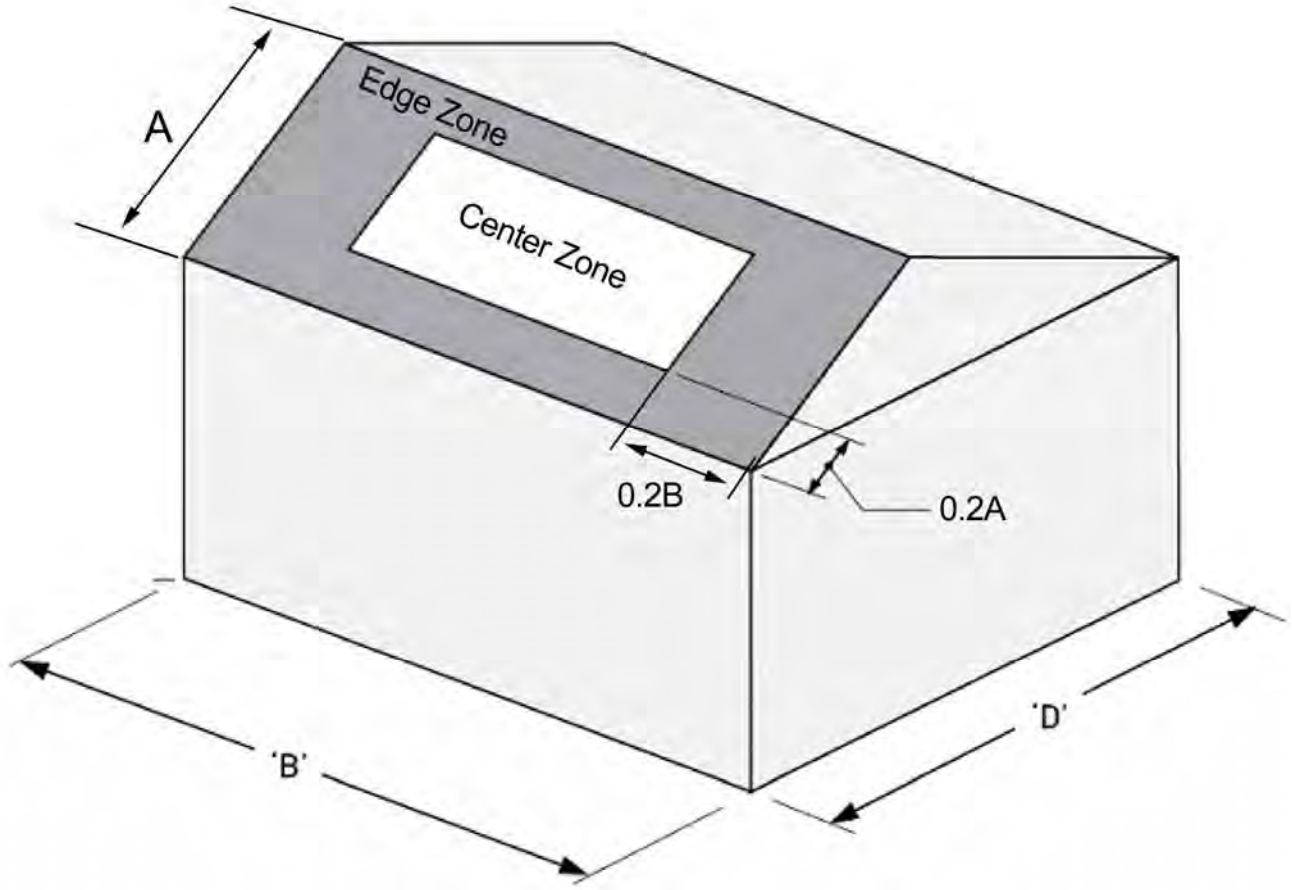
• Region D (80msec) Australia's worst Cyclonic Region between Carnarvon and Pardoo in Western Australia.

8.2. Determine the height of the of your installation site

This document provides sufficient information for Grace solar system installation height less than 20 meters. If your installation site is more than 20 meters in height, please contact Grace solar to obtain engineering data to support your installation.

8.3 Determine Roof Installation Roof Areas

Grace solar system can be installed anywhere on a roof but fixing centers are required to be reduced at ridges and edges. The diagram below shows the area of higher wind loadings within 0.2A and 0.2Bof a roof edge ridge (where A and B are the planned dimension of the building).



Center Zone Edge Zone

The following table will help you determine the maximum rail support spacing for your project. Also note that if the roof slope is less than 10 degree the reduction on spacing does not apply.

8.4 Determine the Maximum Rail Support Spacing

a. Please use the following table to determine the GR Rail support spacing for tile roof installations.

1970mm Long Panels fixed to Tiled Roof								
Installation Height	**Region A (mm)**		**Region B (mm)**		**Region C (mm)**		**Region D (mm)**	
Max area of one panel	**3.0m²**		**2.5m²**		**2.0m²**		**1.5m²**	
Roof Area	**Center Zone**	**Edge Zone**	**Center Zone**	**Edge Zone**	**Center Zone**	**Edge Zone**	**Center Zone**	**Edge Zone**
5 Meters	2130	1500	1690	1200	1380	980	1080	
10 Meters	1940	1370	1540	1090	1260	890	990	
15 Meters	1840	1230	1460	980	1190	800	940	
20 Meters	1740		1380		1130		890	

- ✓ The above figures are based on modules lengths of up to 1970mm, maximum weight of 15Kg/m²
- ✓ 1650mm modules requires 2 rails with fixing as per table above
- ✓ The above spacing applies for fixing through thin sheet purlins (greater than 1.0mm thickness) or a minimum embedment of 50mm into timber purlins.
- ✓ Tile brackets should fixed to the rafter using two 12g mounting screws (M6x80mm)
- ✓ For 35mm embedment into timber of fixings into 0.55mm thickness steel for regions A+B remain unchanged. For regions C reduce the spacing by 15%. For region D reduce the spacing by 35%.
- ✓ In case the wooden rafters/trusses you wish to mount on are too thin and the screws would be too close to the edge of the rafters please pre-drill with a 3~4mm drill in order to avoid the splitting of the timber (or use the side mount roof hook).

b. Please use the following table to determine the base rail support spacing for Tin roof installations.

1970mm Long Panels fixed to Tin Roof								
Installation Height	**Region A (mm)**		**Region B (mm)**		**Region C (mm)**		**Region D (mm)**	
Max area of one panel	**3.0m²**		**2.5m²**		**2.0m²**		**1.5m²**	
Roof Area	**Center Zone**	**Edge Zone**	**Center Zone**	**Edge Zone**	**Center Zone**	**Edge Zone**	**Center Zone**	**Edge Zone**
5 Meters	2130	1110	1390	690	940	470	580	
10 Meters	1940	1010	1270	630	860	430	530	
15 Meters	1840	950	1200	590	810	400	500	
20 Meters	1740		1140		770		470	

- ✓ The above figures are based on modules lengths of up to 1970mm, maximum weight of 15Kg/m²
- ✓ 1650mm modules requires 2 rails with fixing as per table above
- ✓ The above spacing applies for fixing through thin sheet purlins (greater than 0.75mm thickness) or a minimum embedment of 50mm into timber purlins.

- ✓ The L Feet should be fixed to the purlins under using one 12g mounting screw (M6x80mm) through sheet metal roofs with desk rubber.
- ✓ For 35mm embedment into timber of fixing into 0.55mm thickness steel the max panel length should be reduced to 1700mm and the max spacing reduced by 20%.
- ✓ Please note that the screws provided with our products are designed for mounting into wooden structures.

8.5 Verify acceptable Rail End Overhang

Rail End Overhang must equal 50 percent or less of foot spacing. Thus, if foot spacing is 1200mm, the Rail End Over hang can be up to 600mm. In this case, two feet can support a rail of as much as 2400mm (1200mm between the feet and 600mm of overhang at each end).

8.6 Determine Roof slope

Grace solar system can be used for roof slope up to 60 degrees. Please verify the Installation site roof slope should be between 0 degrees and 60 degrees.

DOME
CONSULTING (Aust)

Dome Consulting (Aust) Pty Ltd
Suite 12.10 401 Docklands Drive
Docklands Vic 3008

Phone +61 3 9420 9777
mail@dome.com.au
www.dome.com.au
ABN: 32 146 605 870

Our Ref: LTR/10732/2/AV

CERTIFICATE

12th March 2013

This is to certify that at the request of Xiamen Grace Solar Technology Co. Ltd, Dome Consulting (Aust) Pty Ltd have reviewed the componentry used for the installation of Sunrack Solar Panels to existing roof structures.

The elements which were to be checked include:

- ***Supporting panel rail***
- ***Mounting clips***
- ***Roof hooks***
- ***Adapters***
- ***Fixing screws and bolts***
- ***Tri-angle systems***

The check included a review of Australia wide wind loading conditions including Cyclonic conditions, in accordance to AS1170.2/Amdt2/2012.12.24.

Solar Panel Restrict on 'D6' Conditions - Refer to the AMDT2 DEC 2012.

The general arrangement of the rails and supports for regions throughout Australia is to be provided by Xiamen Grace Solar Technology Co. Ltd and to comply with Dome Consulting (Aust) Pty Ltd Structural Report 10732-001 Dated 20/06/2012.

The review has determined that all the above mentioned supporting componentry was found to be acceptable.

Should you have any further queries please do not hesitate to contact me.

Yours faithfully,
FOR & ON BEHALF OF DOME CONSULTING PTY LTD

Robert Cilia
BE (Civil) RBP RPEQ TBP

DOME
CONSULTING (Aust)

Dome Consulting (Aust) Pty Ltd
Suite 12.10 401 Docklands Drive
Docklands Vic 3008

Phone +61 3 9420 9777
mail@dome.com.au
www.dome.com.au
ABN: 32 146 605 870

Our Ref: LTR/10732-2R-GRACE-000

June 2014

ENGINEERING CERTIFICATE

This is to certify that at the request of Xiamen Grace SolarTechnology co.,Ltd, Dome Consulting (Aust.) Pty Ltd have reviewed the componentry used in the Xiamen Grace SolarTechnology co.,Ltd.

KlipLok Roof Brackets Installation Guide - Dated 2014-06-25

The elements which were to be checked include:

Standard Seam Roof Hook 7# A
Standard Seam Roof Hook SK7-110
Standard Seam Roof Hook SK7-A
GD-Rail
GD-Rail Splice Kit
Inter Clamp Kit for Framed Modules
End Clamp Kit for Framed Modules
Adjustable Front Leg
Adjustable RearLeg

The check included a review of all regions of Australia wind loading conditions including Cyclonic conditions, in accordance to AS1170.2/Amdt2/2012.12.24.

The design and documentation has determined that all supporting componentry in the above mentioned documentation was found to be acceptable.

Should you have any further queries please do not hesitate to contact me.

Yours faithfully,
FOR & ON BEHALF OF DOME CONSULTING PTY LTD

Robert Cilia
BE (Civil) RBP RPEQ TBP

10. Warranty

Xiamen Grace Solar Technology Co., Ltd. warrants that its Grace Solar Panel Mounting System is free from defects in materials and workmanship for a period of 10 years from the date on which the Frame is purchased from Grace Solar, on the terms set out in this warranty.

In the event that the Frame does not conform to this warranty during the Warranty Period, Grace Solar will, at its option, either repair or replace the Frame or pay the cost of having the Frame repaired or replaced. To the extent permitted by law, Grace Solar's total liability under this warranty will in no circumstances exceed the repair or replacement of the Frame or payment of the cost of having the Frame repaired or replaced. In the event of replacement of the Frame, any remaining part of the Warranty Period will be transferred to the replacement Frame.

This warranty will not apply to any defect or damage to the Frame arising directly or indirectly from:

1. Shipment or storage of the Frame;
2. Improper installation, maintenance, repair or use of the Frame;
3. Normal wear and tear;
4. Misuse, neglect, abuse, accidental damage or modification to the Frame;
5. Failure to observe the instructions set out in the System Manual; or
6. Power failure, power surges, lightning, fire, explosion, flood, extreme weather conditions, environmental disasters or other causes outside Grace Solar's control, as determined by Grace Solar in its sole discretion.

This warranty does not cover, and under no circumstances will Grace Solar be liable for, any costs associated with the removal, shipping, handling or re-installation of the Frame or the costs of sending personnel to any site to repair or replace the Frame.

This warranty is only provided to the original purchaser of the Grace Solar panels mounting system (Purchaser) or, where the Purchaser is an installer or builder who on-supplies the Frame to another party, to that other party (End-User). This warranty is not transferable.

Where an End-User wants make a claim under this warranty, the End-User must in the first instance contact the installer or builder from whom the Frame was purchased.

This warranty will not apply to any claims received by Grace Solar after the expiration of the Warranty Period.

Grace Solar makes no warranties, express or implied, other than the warranties made herein, and specifically disclaim all other warranties, representations and conditions to the extent permitted by law. To the extent permitted by law, in no circumstances will Grace Solar be liable for direct, indirect, special or consequential damages arising from a defective Frame or for any damage or injury to persons or property. Grace Solar's aggregate liability, if any, in damages or otherwise, will not exceed the invoice value of the Frame at the time of purchase from Grace Solar.

Any provision contained in this warranty which is prohibited or unenforceable in any jurisdiction will be deemed to be ineffective to the extent of such prohibition or unenforceability and will not invalidate the remaining provisions nor affect the validity or enforceability of that provision in any other jurisdiction.

End