

SOLAR'S MOST TRUSTED



REC ALPHA PURE-R SERIES

PRODUCT SPECIFICATIONS

COMPACT PANEL SIZE

9 A PANEL CURRENT
COMPATIBLE WITH MLPE

430 WP
223 $\frac{W}{M^2}$



ELIGIBLE



LEAD FREE
ROHS COMPLIANT

EXPERIENCE



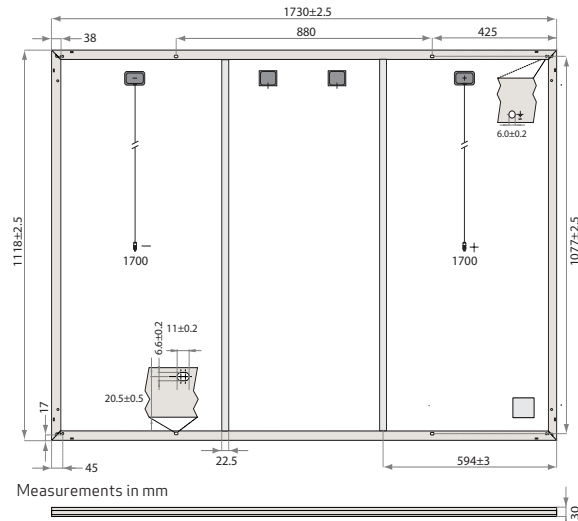
PERFORMANCE

REC ALPHA PURE-R SERIES

PRODUCT SPECIFICATIONS

GENERAL DATA

Cell type:	80 half-cut REC heterojunction cells with lead-free, gapless technology
Glass:	3.2 mm solar glass with anti-reflective surface treatment in accordance with EN 12150
Backsheet:	Highly resistant polymer (black)
Frame:	Anodized aluminum (black)
Junction box:	4-part, 4 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors:	Stäubli MC4 PV-KBT4/KST4 (4 mm ²) in accordance with IEC 62852, IP68 only when connected
Cable:	4 mm ² solar cable, 1.7 + 1.7 m in accordance with EN 50618
Dimensions:	1730 x 1118 x 30 mm (1.93 m ²)
Weight:	21.5 kg
Origin:	Made in Singapore



ELECTRICAL DATA

Product Code*: RECxxxAA Pure-R

	400	410	420	430
Power Output - P _{MAX} (Wp)	400	410	420	430
Watt Class Sorting - (W)	0/+10	0/+10	0/+10	0/+10
Nominal Power Voltage - V _{MPP} (V)	48.8	49.4	50.0	50.5
Nominal Power Current - I _{MPP} (A)	8.20	8.30	8.40	8.52
Open Circuit Voltage - V _{OC} (V)	58.9	59.2	59.4	59.7
Short Circuit Current - I _{SC} (A)	8.80	8.84	8.88	8.91
Power Density (W/m ²)	207	212	218	223
Panel Efficiency (%)	20.7	21.2	21.8	22.3
Power Output - P _{MAX} (Wp)	305	312	320	327
Nominal Power Voltage - V _{MPP} (V)	46.0	46.6	47.1	47.6
Nominal Power Current - I _{MPP} (A)	6.64	6.70	6.80	6.88
Open Circuit Voltage - V _{OC} (V)	55.5	55.8	56.0	56.3
Short Circuit Current - I _{SC} (A)	7.11	7.16	7.20	7.24

Values at standard test conditions (STC: air mass AM 1.5, irradiance 1000 W/m², temperature 25°C), based on a production spread with a tolerance of P_{MAX}, V_{OC} & I_{SC} ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m², temperature 20°C, windspeed 1 m/s). * Where xxx indicates the nominal power class (P_{MAX}) at STC above.

MAXIMUM RATINGS

Operational temperature:	-40 ... +85°C
System voltage:	1000 V
Test load (front):	+7000 Pa (713 kg/m ²)*
Test load (rear):	-4000 Pa (407 kg/m ²)*
Series fuse rating:	25 A
Reverse current:	25 A

* See installation manual for mounting instructions.
Design load = Test load / 1.5 (safety factor)

WARRANTY

	Standard	REC ProTrust
Installed by an REC Certified Solar Professional	No	Yes
System Size	All	≤25 kW 25-500 kW
Product Warranty (yrs)	20	25
Power Warranty (yrs)	25	25
Labor Warranty (yrs)	0	25
Power in Year 1	98%	98%
Annual Degradation	0.25%	0.25%
Power in Year 25	92%	92%

The REC ProTrust Warranty is only available on panels purchased through an REC Certified Solar Professional installer. Warranty conditions apply. See www.recgroup.com for more details.

CERTIFICATIONS

IEC 61215:2016, IEC 61730:2016, UL 61730	
IEC 62804	PID
IEC 61701	Salt Mist
IEC 62716	Ammonia Resistance
ISO 11925-2	Ignitability (EN 13501-1 Class E)
IEC 62782	Dynamic Mechanical Load
IEC 61215-2:2016	Hailstone (35mm)
IEC 62321	Lead-free acc. to RoHS EU 863/2015
IEC 61730-2:2016	Fire Class C (as per UL790)
ISO 14001, ISO 9001, IEC 45001, IEC 62941	



TEMPERATURE RATINGS*

Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P _{MAX} :	-0.24 %/°C
Temperature coefficient of V _{OC} :	-0.24 %/°C
Temperature coefficient of I _{SC} :	0.04 %/°C

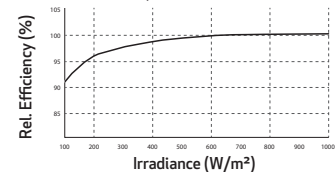
*The temperature coefficients stated are linear values

DELIVERY INFORMATION

Panels per pallet:	33
Panels per 40 ft GP/high cube container:	858 (26 pallets)
Panels per 13.6 m truck:	924 (28 pallets)

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



Available from:



Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

REC Solar PTE. LTD.
20 Tuas South Ave. 14
Singapore 637312
post@recgroup.com
www.recgroup.com



SOLAR'S MOST TRUSTED



PREMIUM QUALITY EMPOWERING WARRANTY

REC solar panels are widely renowned in the industry for their high product quality, supported by a very low warranty claims rate. This strength allows REC to confidently offer warranty terms that empower consumers.



REC WARRANTY

REC's ProTrust Warranty package covers product, performance, and labor – and is exclusively offered by REC Certified Solar Professional installers*. This means unprecedented savings, more economic security, and greater energy autonomy for consumers.



PRODUCT

Covers panel defects and promises superior quality for at least 20 years. All panels are eligible for a **+5 year product warranty extension**, as part of the REC ProTrust Warranty.

PERFORMANCE

Ensures that REC panels perform exactly as expected to – every year for 25 years. Higher warranted power and higher annual yields, enable greater ROI predictability.

LABOR

Unique to the REC ProTrust Warranty, this gives added protection in the unlikely event that an REC panel needs to be serviced.

The table below provides an overview of REC value-adding warranties by system size, applicable to all products:

REC warranty type	REC PROTRUST WARRANTY		REC'S LEADING STANDARD WARRANTY
Installer group	Exclusive to REC Certified Solar Professional installers*		All installers
System size	<25 kW	25-500 kW	Any
Product Warranty (years)	25	25	20
Performance Warranty (years)	25	25	25
Labor Warranty (years)	25	10	0

*Installations must be registered via REC SunSnap app or REC ProPortal (subject to warranty conditions)


The following table provides an overview of REC's 25-year Performance Warranty by product, applicable to panels delivered to REC customers on or after October 1, 2018:

Product Family	PERFORMANCE WARRANTY		
	Year 1 minimum power	Year 2-25 maximum annual degradation	Guaranteed % of nameplate power in year 25
REC Alpha	98.0%	0.25%	92.0%
REC N-Peak 3		0.5%	86.0%
REC TwinPeak 5			

Visit the REC Download Center for details of each product's warranty conditions: www.recgroup.com/warranty

EC Declaration of Conformity



<i>Issuer's name and address:</i>	REC SOLAR PTE. LTD. 20 Tuas South Avenue 14 SINGAPORE 637312 SINGAPORE					
<i>Product:</i>	Crystalline silicon terrestrial photovoltaic modules					
<i>Type designation:</i>	RECxxxTP4* RECxxxTP5* RECxxxNP* RECxxxNP* RECxxxAA* RECxxxAA Pure* RECxxxAA Pure-R*	REC TwinPeak 4* Series REC TwinPeak 5* Series REC N-Peak* Series; REC N-Peak 2* Series; REC Alpha* Series; REC Alpha Pure* Series; REC Alpha Pure-R* Series;				
*indicates type/name can include the suffix 'Black', e.g., RECxxxTP4 Black.						
<p>The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:</p> <p style="text-align: center;">2014/35/EU (relating to electrical safety - Low Voltage Directive)</p> <p>2015/65/EU (relating to the restrictions of hazardous substances - RoHS) (for REC Alpha Pure and Alpha Pure-R variants only)</p> <p style="text-align: center;">"Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits".</p> <p>The technical documentation and full compliance with the standards listed below proves the conformity of the product with the requirements of the above-mentioned EC Directive and its conformity with the safety requirements of the EC Low-Voltage Directive 2014/35/EU:</p> <p style="text-align: center;">EN IEC 61730-1 (VDE 0126-30-1):2018-10; EN IEC 61730-1:2018+AC:2018 EN IEC 61730-2 (VDE 0126-30-2):2018-10; EN IEC 61730-2:2018+AC:2018</p> <p>The product also fulfills the requirements of:</p> <p style="text-align: center;">IEC 61730-1:2016 IEC 61730-2:2016</p> <p><u>Remark:</u> The VDE Testing and Certification Institute, Merianstr. 28, 63069 Offenbach (Germany), has tested and certified the product(s) according to these standards:</p> <table style="width: 100%; margin-top: 20px;"> <tr> <td style="width: 40%;">Certificate No.</td> <td>40046983</td> </tr> <tr> <td>File Reference</td> <td>5017538-3972-0001 / 302177</td> </tr> </table> <p>This declaration is issued under the sole responsibility of the manufacturer and loses its validity if the product is misused or modified without proper authorization from REC.</p> <div style="text-align: right; margin-top: 50px;">  Wee Kay Hwa – Chief Operating Officer Singapore, November 22, 2022 </div>			Certificate No.	40046983	File Reference	5017538-3972-0001 / 302177
Certificate No.	40046983					
File Reference	5017538-3972-0001 / 302177					

ZEICHENGENEHMIGUNG MARKS APPROVAL

REC SOLAR PTE. LTD.
20 Tuas South Avenue 14
Singapore 637312
Singapore

ist berechtigt, für ihr Produkt /
is authorized to use for their product

Terrestrische Photovoltaik-Module mit Silizium-Solarzellen
Crystalline silicon terrestrial photovoltaic modules

die hier abgebildeten markenrechtlich geschützten Zeichen
für die ab Blatt 2 aufgeführten Typen zu benutzen /
the legally protected Marks as shown below for the types referred to on page 2 ff.



Geprüft und zertifiziert nach /
Tested and certified according to

DIN EN 61215-1 (VDE 0126-31-1):2017-05; EN 61215-1:2016
DIN EN 61215-1-1 (VDE 0126-31-1-1):2018-06; EN 61215-1-1:2016
DIN EN 61215-2 (VDE 0126-31-2):2019-02; EN 61215-2:2017+AC:2017+AC:2018
DIN EN IEC 61730-1 (VDE 0126-30-1):2018-10; EN IEC 61730-1:2018+AC:2018
DIN EN IEC 61730-2 (VDE 0126-30-2):2018-10; EN IEC 61730-2:2018+AC:2018

Das Produkt erfüllt auch die Anforderungen nach /
The product also fulfills the requirements of

IEC 61215-1:2016
IEC 61215-1-1:2016
IEC 61215-2:2016
IEC 61730-1:2016
IEC 61730-2:2016

Befristet zum / *valid until*: 2024-03-31

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute
Zertifizierungsstelle / *Certification*

J. Richter

VDE Zertifikate sind nur gültig bei Veröffentlichung unter:
VDE certificates are valid only when published on:

Aktenzeichen: 5017538-3972-0001 / 305063

File ref.:

Ausweis-Nr. 40046983

Blatt 1

Certificate No.

Page

Weitere Bedingungen siehe Rückseite und Folgeblätter /
further conditions see overleaf and following pages

Offenbach, 2017-09-15

(letzte Änderung / updated 2023-02-28)

<http://www.vde.com/zertifikat>

<http://www.vde.com/certificate>

Name und Sitz des Genehmigungs-Inhabers / Name and registered seat of the Certificate holder
REC SOLAR PTE. LTD., 20 Tuas South Avenue 14, SINGAPORE 637312, SINGAPORE

Aktenzeichen / File ref.
5017538-3972-0001 / 305063 / CB1 / FB

letzte Änderung / updated Datum / Date
2023-02-28 2017-09-15

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Zeichengenehmigungsausweises Nr. 40046983.
This supplement is only valid in conjunction with page 1 of the Certificate No. 40046983.

Terrestrische Photovoltaik-Module mit Silizium-Solarzellen *Crystalline silicon terrestrial photovoltaic modules*

Typ(en) / Type(s)

A)	RECxxxTP2	REC TwinPeak 2 Series
A)	RECxxxTP2M	REC TwinPeak 2 Mono Series
A)	RECxxxTP3M	REC TwinPeak 3 Mono Series
B)	RECxxxTP2S 72	REC TwinPeak 2S 72 Series
B)	RECxxxTP2SM 72	REC TwinPeak 2S Mono 72 Series
B)	RECxxxNP 72	REC N-Peak 72 Series
B)	RECxxxTP3SM 72	REC TwinPeak 3S Mono 72 Series
C)	RECxxxTP2S 72 XV	REC TwinPeak 2S 72 XV Series
C)	RECxxxTP2SM 72 XV	REC TwinPeak 2S Mono 72 XV Series
C)	RECxxxNP 72 XV	REC N-Peak 72 XV Series
C)	RECxxxTP3SM 72 XV	REC TwinPeak 3S Mono 72 XV Series
D)	RECxxxNP	REC N-Peak Series
E)	RECxxxAA	REC Alpha Series
F)	RECxxxAA 72	REC Alpha 72 Series
G)	RECxxxAA 72 XV	REC Alpha 72 XV Series
H)	RECxxxTP Plus	REC TwinPeak Plus Series
I)	RECxxxNP Plus	REC N-Peak Plus Series
J)	RECxxxTP4	REC TwinPeak 4 Series
K)	RECxxxAA Pure	REC Alpha Pure Series
K)	RECxxxAA Pure-P	REC Alpha Pure-P Series
L)	RECxxxNP2	REC N-Peak 2 Series
M)	RECxxxAA Pure-R	REC Alpha Pure-R Series
N)	RECxxxNP3	REC N-Peak 3 Series
O)	RECxxxTP5	REC TwinPeak 5 Series
P)	RECxxxAA Pure 2	REC Alpha Pure 2 Series

Struktur der Typenbezeichnung

Optional kann der Typ am Ende jeden der folgenden Zusätze bzw. deren Kombination enthalten: ECO, BLK, BLK2, IQ, Black, -W.

Structure of typename

Optional the type can also include at the end any of the following suffixes, or a combination of these: ECO, BLK, BLK2, IQ, Black, -W.

Fortsetzung siehe Blatt 3 /
continued on page 3

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
REC SOLAR PTE. LTD., 20 Tuas South Avenue 14, SINGAPORE 637312, SINGAPORE

Aktenzeichen / *File ref.*

5017538-3972-0001 / 305063 / CB1 / FB

letzte Änderung / *updated*

2023-02-28

Datum / *Date*

2017-09-15

Dieses Beiblatt ist Bestandteil des Zeichengenehmigungsausweises Nr. 40046983.

This supplement is part of the Certificate No. 40046983.

Terrestrische Photovoltaik-Module mit Silizium-Solarzellen *Crystalline silicon terrestrial photovoltaic modules*

Fertigungsstätte(n)

Place(s) of manufacture

Referenz/*Reference*

30022474

REC SOLAR PTE. LTD.
20 Tuas South Avenue 14
SINGAPORE 637312
SINGAPORE

Name und Sitz des Genehmigungs-Inhabers / Name and registered seat of the Certificate holder

REC SOLAR PTE. LTD., 20 Tuas South Avenue 14, SINGAPORE 637312, SINGAPORE

Aktenzeichen / File ref.

5017538-3972-0001 / 305063 / CB1 / FB

letzte Änderung / updated

2023-02-28

Datum / Date

2017-09-15

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Zeichengenehmigungsausweises Nr. 40046983.

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Genehmigung zum Benutzen des auf Seite 1 abgebildeten markenrechtlich geschützten Zeichens des VDE:

Grundlage für die Benutzung sind die Allgemeinen Geschäftsbedingungen (AGB) der VDE Prüf- und Zertifizierungsinstitut GmbH (www.vde.com\AGB-Institut). Das Recht zur Benutzung erstreckt sich nur auf die bezeichnete Firma mit den genannten Fertigungsstätten und die oben aufgeführten Produkte mit den zugeordneten Bezeichnungen. Die Fertigungsstätte muss so eingerichtet sein, dass eine gleichmäßige Herstellung der geprüften und zertifizierten Ausführung gewährleistet ist.

Die Genehmigung ist so lange gültig wie die VDE-Bestimmungen gelten, die der Zertifizierung zugrunde gelegen haben, sofern sie nicht auf Grund anderer Bedingungen aus der VDE Prüf- und Zertifizierungsordnung (PM102) zurückgezogen werden muss.

Der Gültigkeitszeitraum einer VDE-GS-Zeichengenehmigung kann auf Antrag verlängert werden. Bei gesetzlichen und / oder normativen Änderungen kann die VDE-GS-Zeichengenehmigung ihre Gültigkeit zu einem früheren als dem angegebenen Datum verlieren.

Produkte, die das Biozid Dimethylfumarat (DMF) enthalten, dürfen gemäß der Kommissionsentscheidung 2009/251/EG nicht mehr in den Verkehr gebracht oder auf dem Markt bereitgestellt werden.

Der VDE-Zeichengenehmigungsausweis wird ausschließlich auf der ersten Seite unterzeichnet.

Approval to use the legally protected Mark of the VDE as shown on the first page:

Basis for the use are the general terms and conditions of the VDE Testing and Certification Institute (www.vde.com\terms-institute). The right to use the mark is granted only to the mentioned company with the named places of manufacture and the listed products with the related type references. The place of manufacture shall be equipped in a way that a constant manufacturing of the certified construction is assured.

The approval is valid as long as the VDE specifications are in force, on which the certification is based on, unless it is withdrawn according to the VDE Testing and Certification Procedure (PM102E).

The validity period of a VDE-GS-Mark Approval may be prolonged on request. In case of changes in legal and / or normative requirements, the validity period of a VDE-GS-Mark Approval may be shortened.

Products containing the biocide dimethylfumarate (DMF) may not be marketed or made available on the EC market according to the Commission Decision 2009/251/EC.

The approval is solely signed on the first page.