



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

BUREAU OF INDIAN STANDARDS

(Ministry of Consumer Affairs, Food & Public Distribution,
Govt. of India)

मानक भवन, 9 बहादुर शाह जफ़र मार्ग, नई दिल्ली - 110002
Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi - 110002
दूरभाष/Phone: +91-11-23230856/2323010131/23233375/23239402
ई-मेल/E-mail: registration@bis.gov.in
वेबसाइट/Website: <https://bis.gov.in/>, <https://www.crsbis.in/BIS/>

Our Ref: REGISTRATION /CRS-2021-6244/R-71018015

Dated: 2025-10-10
02:12:09

RENEWAL ID : 36480

Subject : RENEWAL OF LICENCE R-71018015 AS PER IS 16221 (Part 2):2015/IEC 62109-2 :2011 & IS 16169 :2014/IEC 62116 :2008

Rishabh Instruments Pvt. Ltd.
F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR, NASHIK, NASIK
MAHARASHTRA, India, 422007



Dear Sir/Madam,

With reference to your online application dated 10-10-2025 for renewal of the above mentioned licence; this is to inform you that the same has been renewed from **10-11-2025** to **09-11-2030**.

It may be noted that the said licence granted under clause (b) of sub section (2) of section 13 of the Act shall *expire* at the end of the period for which it is granted unless renewed or its renewal is deferred. You are, therefore, requested to apply for next renewal to BIS within three months before the expiration of the licence.

Thanking you.

Yours faithfully,

Registration Department
Bureau of Indian Standards,
9, Bahadur Shah Zafar Marg,
New Delhi-110002.
Telfax : +91-11-23230856
E-mail: registration@bis.gov.in

Note: This is a system generated letter. Hence signature is not required.
To verify authentication of letter, kindly scan the QR code on this letter.



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ई-मेल/E-mail: registration@bis.gov.in
वेबसाइट/Website: <https://bis.gov.in/>, <https://www.crsbis.in/BIS/>

Our Ref: Registration/CRS 2021-6244/R-71018015

Dated:21-Nov-2025

Subject : Revision of IS 16221 (Part 2):2015/IEC 62109-2 :2011 & IS 16169 :2014/IEC 62116 :2008

| | | |
|----------------------|--|---|
| Manufacturing Unit : | Rishabh Instruments Pvt. Ltd. F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR, NASHIK, NASIK, MAHARASHTRA, India-422007 |  |
|----------------------|--|---|

Dear Sir,

This has reference to your request for Revision of Standard **SR_1041** for the product **Utility-Interconnected Photovoltaic Inverters** as per **IS 16221 (Part 2):2015/IEC 62109-2 :2011 & IS 16169 :2014/IEC 62116 :2008** in Licence No. **R-71018015** already granted to you which is valid upto **09-Nov-2030**. It is intimated that the changeover to revised Standard i.e. **IS 16169: 2019/IEC 62116: 2014 & IS 17980: 2022/ IEC 62891:2020** for the Models as per details given below have approved w.e.f. **21-Nov-2025**:

| | |
|------------------|--|
| Product Category | Utility-Interconnected Photovoltaic Inverters |
| Product Name | Utility-Interconnected Photovoltaic Inverters |
| Models : | [Rishabh RADIUS->APV-S-34k-AE-TL-2SFXX-KA, APV-S-25k-AE-TL-2SFXX-KA, APV-S-20k-AE-TL-2/3SFXX-KA, APV-S-18k-AE-TL-2SFXX-KA, APV-S-15k-AE-TL-2SFXX-KA, APV-S-12k-AE-TL-1/2SFXX-KA, APV-S-10k-AE-TL-1/2SFXX-KA, APV-S-50k-AE-TL-3SFXX-KA, APV-S-34k-AE-TL-2SFXX-KA, APV-S-25k-AE-TL-2SFXX-KA, APV-S-20k-AE-TL-2/3SFXX-KA, APV-S-18k-AE-TL-2SFXX-KA, APV-S-15k-AE-TL-2SFXX-KA, APV-S-12k-AE-TL-1/2SFXX-KA, APV-S-10k-AE-TL-1/2SFXX-KA, APV-S-50k-AE-TL-3SFXX-KA] |
| Factory Address | F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR, NASHIK, NASIK, MAHARASHTR A, India-422007 |

1. Other terms and conditions of the Registration Scheme remain the same.
2. This letter is being issued with the approval of competent authority.

Kindly acknowledge receipt of this letter.

Thanking you,

Yours faithfully,
Aurosmita Kabiraj
(Scientist D)

Note: This is a system generated letter. Hence signature is not required.
To verify authentication of letter, kindly scan the QR code on this letter.
Please use BIS CARE APP for verification of R-No. under CRS.



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

BUREAU OF INDIAN STANDARDS

(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

मानक भवन, 9 बहादुर शाह जफर मार्ग, नई दिल्ली - 110002

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi - 110002

दूरभाष/Phone: +91-11-23230856/2323010131/23233375/23239402

ई-मेल/E-mail: registration@bis.gov.in

वेबसाइट/Website: <https://bis.gov.in/>, <https://www.crsbis.in/BIS/>

Our Ref: Registration/CRS 2021-6244/R-71018015

Date:10-11-2021

Subject : Licence Document

| | | |
|----------------------|--|---|
| Manufacturing Unit : | Rishabh Instruments Pvt. Ltd. F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR, NASHIK, NASIK MAHARASHTRA, India-422007 anjali.deore@rishabh.co.in 9342411534 |  |
|----------------------|--|---|

Dear Sir,

1. With reference to your Application, we are pleased to inform you that it has been decided to grant you licence as per details given below :

| | |
|---------------------------------------|---|
| Product Category: | Utility-Interconnected Photovoltaic Inverters |
| Product Name: | Utility-Interconnected Photovoltaic Inverters |
| IS NO : | IS 16221 (PART 2):2015/IEC 62109-2 :2011 & IS 16169 :2014/IEC 62116 :2008 |
| Brand (As Declared by Manufacturer) : | Rishabh RADIUS |
| Model : | [Brand -> Rishabh RADIUS, Models -> APV-S-10k-AE-TL-1/2SFXX-KA, APV-S-12k-AE-TL-1/2SFXX-KA, APV-S-15k-AE-TL-2SFXX-KA, APV-S-18k-AE-TL-2SFXX-KA, APV-S-20k-AE-TL-2/3SFXX-KA, APV-S-25k-AE-TL-2SFXX-KA, APV-S-34k-AE-TL-2SFXX-KA, APV-S-50k-AE-TL-3SFXX-KA] |
| Factory Address : | F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR, NASHIK, NASIK MAHARASHTRA, India-422007 |

2. The licence is being granted for your unit located at the address and for the brand and models mentioned at serial no 1 above.

3. The number assigned to this Licence is **R-71018015** which has been made operative from **10-11-2021** and is valid upto **09-11-2023** . The Licence Number should invariably be referred to in your future correspondence.

4. The rights and privileges under the licence shall not be exercised by any other factory / organization at any other location. This licence is not transferable. In the event of shifting of the manufacturing machinery from the registered premises to some other place use of the licence Number shall be stopped and BIS shall be informed.

5. The licensee shall comply with the provisions of the Act, rules and regulations framed thereunder and as amended from time to time.

6. The licensee shall follow the guidelines for the use of Standard Mark and labeling requirements as per Annex-I.

7. The licensee shall not use the licence in any manner which contravenes the provisions of Act, rules and regulations framed thereunder and as amended from time to time.

8. Upon expiry of validity, stoppage or suspension or cancellation of licence, you shall discontinue forthwith the self declaration of conformity to the relevant Indian Standard(s) and withdraw all promotional and advertising matter which contains any reference thereto.

9. For renewal of licence, the licensee shall have to apply to BIS three months in advance before expiration of the licence and application form for renewal is available on BIS website.

10. The licence is not transferable. Kindly acknowledge receipt of this letter.

Thanking you,

Yours faithfully,
(Peeyush Prakash)
Sc. C
Telfax : +91-11-23230856
E-mail: registration@bis.gov.in

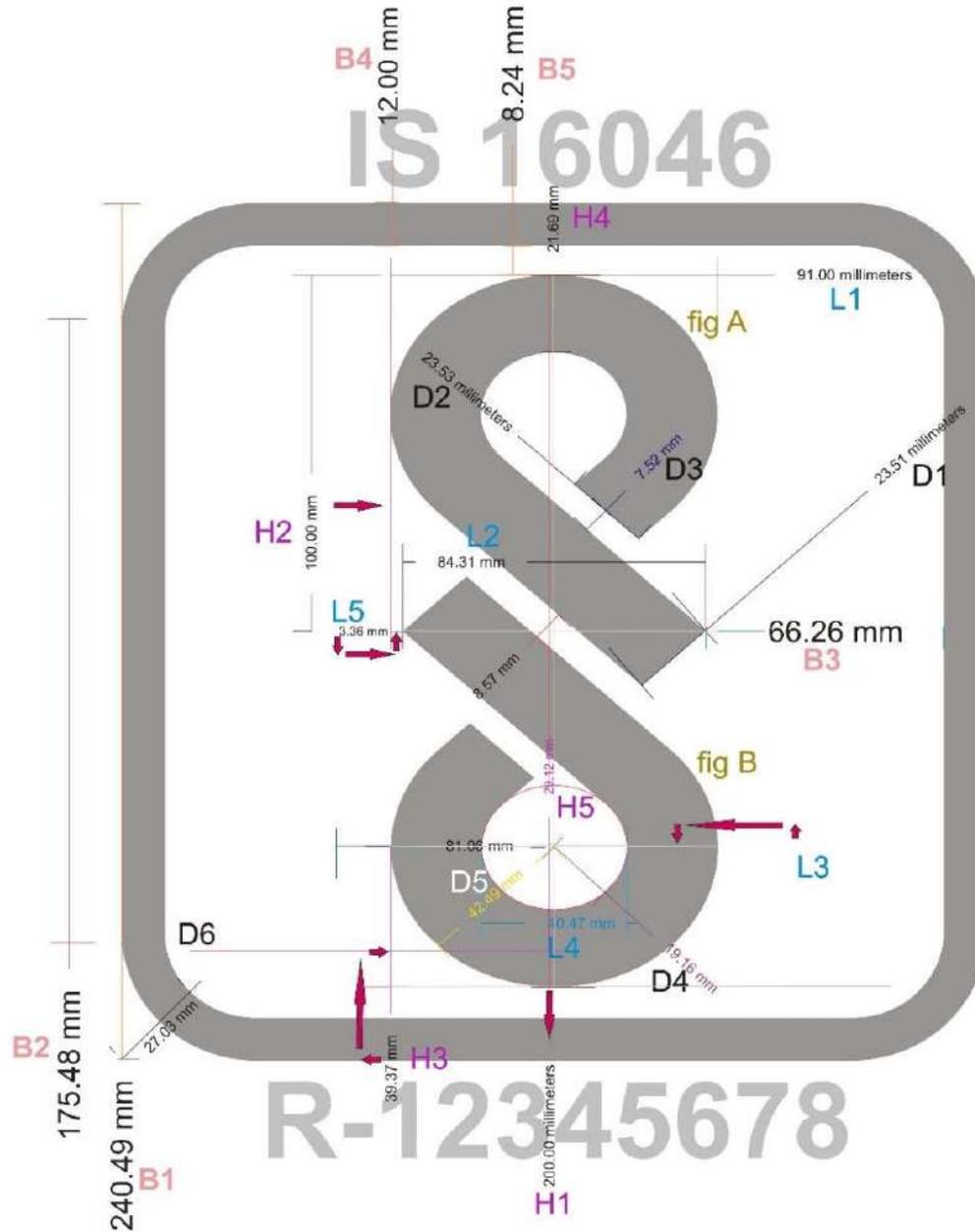
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To verify authentication of letter, kindly scan the QR code on this letter.

Annex - 1

The guidelines for use of Standard Mark for Scheme-C are per 3(1) of BIS (Conformity Assessment) Regulations,2017 are given below:

- i) The monogram of the 'Standard Mark' consists of the pictorial representation, drawn in the exact style as indicated in the figure in the figure in Annexure I. Its photographic reduction and enlargement is permitted.
- ii)The 'Standard Mark' can be displayed in single colour or multi-colour as per the details given below. The colour scheme for the Standard Mark to be used in multi colour shall be use as indicated below.
- iii) The licensee shall display the 'Standard Mark' on the article and/or the packaging, as the case may be, in a manner so as to be easily visible. It shall be legible, indelible and non-removable. Further, the durability of marking shall be as per the provisions of the relevant Indian Standard, wherever applicable. The display of IS number, Registration number and words shall not be less than Arial font size 6.
- iv) Any device with a integrated display screen may present the Standard Mark electronically (e-labelling) in lieu of a physical presentation on the product.

Measurement for the Self Declaration of Conformity(SDoC) mark



All dimensions in Millimeters

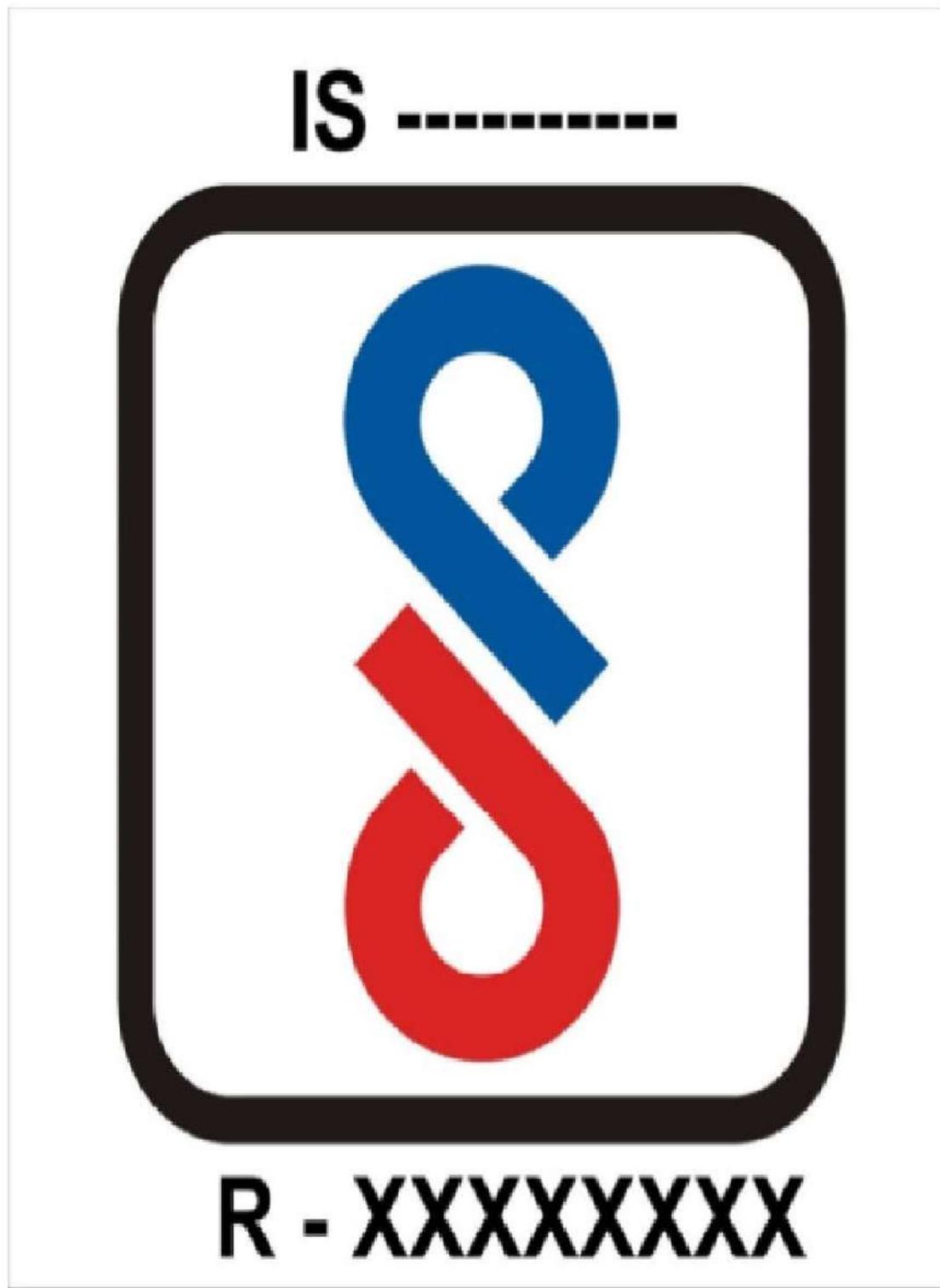
| | |
|----|--------|
| H1 | 200 |
| H2 | 100 |
| H3 | 39.3 |
| H4 | 21.6 |
| H5 | 17.7 |
| L1 | 91.0 |
| L2 | 84.3 |
| L3 | 25.2 |
| L4 | 40.4 |
| L5 | 3.36 |
| D1 | 23.5 |
| D2 | 23.5 |
| D3 | 7.52 |
| D4 | 19.6 |
| D5 | 42.4 |
| D6 | 8.57 |
| B1 | 240.49 |
| B2 | 175.48 |
| B3 | 66.26 |
| B4 | 12.00 |
| B5 | 8.24 |

For multicolour Standard Mark the colour scheme shall be - Red, Blue and Black.

- a) For printing purposes, colours shall be "Oriental Blue" and "Monopol Red" as per IS 1222:1992, 'Ink, duplicating for twin cylinder rotary machines (third revision)'
- b) For sign board purposes, colours shall be "French Blue" (No.166) Red" (No.537) as per IS 5:1994 "Colours for ready mixed paints and enamels (fourth revision)".

For single colour Standard Mark, there is no restriction in the choice of the colour.

The font style and size used is Arial-85 pt.



For details information on BIS, consult the e-BIS Portal (www.manakonline.in).
Please use BIS CARE APP for verification of ISI-marked goods and hallmarked gold jewellery.

National Institute of Solar Energy

(An autonomous Institute of Ministry of New & Renewable Energy)

Gurugram-Faridabad Road, Gwalpahari, Gurugram-122003

Ph. 0124-2579251 (CSC), Fax: 0124-2579207

Email id: csc.nise.mnre@gmail.com

Test Report

| | | |
|----|--|---|
| 1. | Service Request No. | 14/1618 |
| 2. | Requested By (Name & Address of the organization) | M/S RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR, NASHIK, MAHARASHTRA, PIN-422007 |
| 3. | Details of the test item | |
| | a) Nomenclature | Utility type Inverter/GI |
| | b) Capacity | 10 kW |
| | c) Manufactured By | M/S RISHABH INSTRUMENTS PVT. LTD. |
| | d) Model / Type No. | APV-S-10K-AE-TL-1SFXX-KA |
| | e) Serial No. | RI-2018095173 |
| | f) Testing procedure | Prototype submitted by client |
| | g) Testing parameters | ✓ Inverter efficiency test - as per IS/IEC 61683 "Photovoltaic systems – Power conditioners – Procedure for measuring efficiency" |
| 6. | Date of Submission of Samples | 15/10/2018 |
| 7. | Condition of samples on receipt | Good |
| 8. | Date of Completion of Tests | 13/11/2018 |

MAJOR EQUIPMENTS USED

| S.No. | Equipment Used | Model | Calibration Agency/Report Reference | Last calibration date |
|-------|--|-------------|-------------------------------------|-----------------------|
| 1 | Solar array simulator | ETS600*25D- | Calibrated from ERTL(N) | 05/04/2018 |
| 2 | Power Analyzer | WT 1800 | Calibrated from ERTL(N) | 09/04/2018 |
| 3 | Digital Oscilloscope, Tektronix TDS210 | DPO | Calibrated from ERTL(N) | 23/03/2018 |
| 4 | AC power source | 61704 | Calibrated from ERTL(N) | 04/04/2018 |

Kamlesh S. Saharan

Tested By

Date.....

[Signature]

Authorized Signatory

Date.....



[Signature]
Issued By 16/11/2018

Date.....

National Institute of Solar Energy

(An autonomous Institute of Ministry of New & Renewable Energy)

Gurugram-Faridabad Road, Gwalpahari, Gurugram-122003

Ph. 0124-2579251 (CSC), Fax: 0124-2579207

Email id: csc.nise.mnre@gmail.com

Test Report

| | | |
|-----------------------|---|--|
| 1. | Service Request No. | 15/1618 |
| 2. | Requested By (Name & Address of the organization) | M/S RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR, NASHIK, MAHARASHTRA, PIN-422007 |
| 3. | Details of the test item | |
| | a) Nomenclature | Utility type Inverter/GI |
| | b) Capacity | 12 kW |
| | c) Manufactured By | M/S RISHABH INSTRUMENTS PVT. LTD. |
| | d) Model / Type No. | APV-S-12K-AE-TL-1SFXX-KA |
| | e) Serial No. | RI-2018085156 |
| | f) Testing procedure | Prototype submitted by client |
| g) Testing parameters | ✓ Inverter efficiency test - as per IS/IEC 61683 "Photovoltaic systems – Power conditioners – Procedure for measuring efficiency" | |
| 6. | Date of Submission of Samples | 15/10/2018 |
| 7. | Condition of samples on receipt | Good |
| 8. | Date of Completion of Tests | 13/11/2018 |

MAJOR EQUIPMENTS USED

| S.No. | Equipment Used | Model | Calibration Agency/Report Reference | Last calibration date |
|-------|--|-------------|-------------------------------------|-----------------------|
| 1 | Solar array simulator | ETS600*25D- | Calibrated from ERTL(N) | 05/04/2018 |
| 2 | Power Analyzer | WT 1800 | Calibrated from ERTL(N) | 09/04/2018 |
| 3 | Digital Oscilloscope, Tektronix TDS210 | DPO | Calibrated from ERTL(N) | 23/03/2018 |
| 4 | AC power source | 61704 | Calibrated from ERTL(N) | 04/04/2018 |

Kamlesh
Sharma
Tested By

Date.....

[Signature]
Authorized Signatory

Date.....

[Signature]
Issued By
16/11/2018

Date.....

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(An autonomous Institute of Ministry of New & Renewable Energy)

Gurugram-Faridabad Road, Gwalpahari, Gurugram-122003

Ph. 0124-2579251 (CSC), Fax: 0124-2579207

Email id: csc.nise.mnre@gmail.com

Test Report

| | | |
|-----------------------|--|--|
| 1. | Service Request No. | 17/1618 |
| 2. | Requested By (Name & Address of the organization) | M/S RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR, NASHIK, MAHARASHTRA, PIN-422007 |
| 3. | Details of the test item | |
| | a) Nomenclature | String Inverter (PV + Grid Export) |
| | b) Capacity | 25 KW |
| | c) Manufactured By | M/S RISHABH INSTRUMENTS PVT. LTD. |
| | d) Model / Type No. | APV-S-25 K-AE-TL-2SFXX-KA |
| | e) Serial No. | RI-2018065086 |
| | f) Testing procedure | Prototype submitted by client |
| g) Testing parameters | <ul style="list-style-type: none"> ✓ Inverter efficiency test - as per IS/IEC 61683 "Photovoltaic systems –Power conditioners –Procedure for measuring efficiency" ✓ MPPT efficiency test and overall system efficiency as per En 50530 ✓ Islanding test –as per IS 16169/ IEC 62116 "Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters" ✓ Grid parallel operation test - as per CEI IEC 61727 "Photovoltaic (PV) systems -Characteristics of the utility interface" ✓ Environmental test as per IEC 60068-2 (1, 2, 14, 30) | |
| 6. | Date of Submission of Samples | 15/10/2018 |
| 7. | Condition of samples on receipt | Good |
| 8. | Date of Completion of Tests | 4/01/2019 |

MAJOR EQUIPMENTS USED

| S.No. | Equipment Used | Model | Calibration Agency/Report | Last calibration |
|-------|--|----------------|---------------------------|------------------|
| 1 | Solar array simulator | ETS600*25D-PVE | Calibrated from ERTL(N) | 05/04/2018 |
| 2 | Power Analyzer | WT 1800 | Calibrated from ERTL(N) | 09/04/2018 |
| 3 | Digital Oscilloscope, Tektronix TDS210 | DPO | Calibrated from ERTL(N) | 23/03/2018 |
| 4 | AC power source | 61704 | Calibrated from ERTL(N) | 04/04/2018 |

Kambh

Tested By

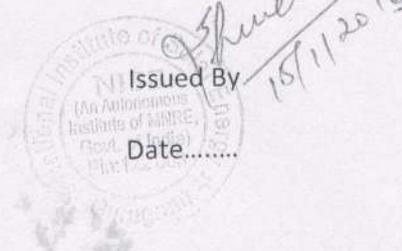
Date.....

[Signature]

Authorized Signatory

Date.....

Issued By *[Signature]*
Date.....
15/11/2019



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(An autonomous Institute of Ministry of New & Renewable Energy)

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Ph. 0124-2579251 (CSC), Fax: 0124-2579207

Email id: csc.nise.mnre@gmail.com

Test Report

| | | |
|-----------------------|--|--|
| 1. | Service Request No. | 16/1618 |
| 2. | Requested By (Name & Address of the organization) | M/S RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR, NASHIK, MAHARASHTRA, PIN-422007 |
| 3. | Details of the test item | |
| | a) Nomenclature | String Inverter (PV + Grid Export) |
| | b) Capacity | 34 KW |
| | c) Manufactured By | M/S RISHABH INSTRUMENTS PVT. LTD. |
| | d) Model / Type No. | APV-S-34 K-AE-TL-2SFXX-KA |
| | e) Serial No. | RI-2018095169 |
| | f) Testing procedure | Prototype submitted by client |
| g) Testing parameters | <ul style="list-style-type: none"> ✓ Inverter efficiency test - as per IS/IEC 61683 "Photovoltaic systems –Power conditioners –Procedure for measuring efficiency" ✓ MPPT efficiency test and overall system efficiency as per En 50530 ✓ Islanding test –as per IS 16169/ IEC 62116 "Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters" ✓ Grid parallel operation test - as per CEI IEC 61727 "Photovoltaic (PV) systems -Characteristics of the utility interface" ✓ Environmental test as per IEC 60068-2 (1, 2, 14, 30) | |
| 6. | Date of Submission of Samples | 15/10/2018 |
| 7. | Condition of samples on receipt | Good |
| 8. | Date of Completion of Tests | 4/01/2019 |

MAJOR EQUIPMENTS USED

| S.No. | Equipment Used | Model | Calibration Agency/Report | Last calibration |
|-------|--|----------------|---------------------------|------------------|
| 1 | Solar array simulator | ETS600*25D-PVF | Calibrated from ERTL(N) | 05/04/2018 |
| 2 | Power Analyzer | WT 1800 | Calibrated from ERTL(N) | 09/04/2018 |
| 3 | Digital Oscilloscope, Tektronix TDS210 | DPO | Calibrated from ERTL(N) | 23/03/2018 |
| 4 | AC power source | 61704 | Calibrated from ERTL(N) | 04/04/2018 |

Kamlesh

Tested By

Date.....

[Signature]
15.1.19

Authorized Signatory

Date.....



National Institute of Solar Energy

(An Autonomous Institute of Ministry of New & Renewable Energy)

Gurugram-Faridabad Road, Gwalpahari, Gurugram-122003

Ph. 0124-2579251 (CSC), Fax: 0124-2579207

Email id: csc.nise.mnre@gmail.com

Test Report

| | | |
|----|--|--|
| 1. | Service Request No. | 01/2820 |
| 2. | Requested By (Name & Address of the organization) | M/S RISHABH INSTRUMENTS PVT. LTD. F-31, MIDC, SATPUR, NASHIK, MAHARASHTRA, PIN-422007 |
| 3. | Details of the test item | |
| | a) Nomenclature | String Inverter (PV + Grid Export) |
| | b) Capacity | 50 KW |
| | c) Manufactured By | M/S RISHABH INSTRUMENTS PVT. LTD. |
| | d) Model / Type No. | APV-S-50k-AE-TL-3SFXX-KA |
| | e) Serial No. | RI-200100001 |
| | f) Testing procedure | Prototype submitted by the client |
| | g) Testing parameters | <ul style="list-style-type: none"> ✓ Inverter efficiency test - as per IS/IEC 61683 "Photovoltaic systems –Power conditioners –Procedure for measuring efficiency" ✓ MPPT efficiency test and overall system efficiency as per EN 50530 ✓ Islanding test –as per IS 16169/ IEC 62116 "Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters" ✓ Grid parallel operation test - as per CEI IEC 61727 "Photovoltaic (PV) systems -Characteristics of the utility interface" ✓ Environmental test as per IEC 60068-2 (1, 2, 14, 30) |
| 6. | Date of Submission of Samples | 28/09/2020 |
| 7. | Condition of samples on receipt | Good |
| 8. | Date of Completion of Tests | 7/12/2020 |

MAJOR EQUIPMENTS USED

| S.No. | Equipment Used | Model | Calibration Agency/Report | Last calibration |
|-------|--------------------------------|----------------|--------------------------------------|------------------|
| 1 | Solar array simulator | ETS600*25D-PVE | Calibrated from ERTL(N) | 17/09/2019 |
| 2 | Solar array simulator | 62000H | Calibrated from Belz Calibration Lab | 02/07/2019 |
| 3 | Power Analyzer | WT 1800 | Calibrated from ERTL(N) | 20/08/2019 |
| 4 | Digital Oscilloscope, Keysight | DSOX3034T | Calibrated from ERTL(N) | 29/05/2019 |
| 5 | AC power source | 61845 | Calibrated from Belz Calibration Lab | 05/07/2019 |
| 6 | RLC Load | ACLT-3820H | Calibrated from Belz Calibration Lab | 04/07/2019 |

Tested By
Raman Dewesh
Date.....

Reviewed By
Kambal
Date.....10/12/2020

Authorized Signatory
[Signature]
Date.....10/12/2020

Issued By
[Signature]
Date.....10/12/2020





TC-6168

Test Report

Rishabh Instruments Pvt. Ltd.

REPORT NUMBER : 4789753990.1.1-NABL-S1

PROJECT NUMBER : 4789753990.1.1

ULR NUMBER : ULR-TC616821100000713F



Select the applicable test

locations:

LOCATION 1:

UL India Private Limited,
Laboratory building, Kalyani
Platina Campus, Sy.no.129/4,
EPIP Zone, Phase II, Whitefield,
Bangalore - 560 066
P:91-80-41384400

LOCATION 2:

UL India Private Limited,
Oak building, Kalyani Platina
Campus, Sy.No.129/4,
EPIP Zone, Phase II, Whitefield,
Bangalore, Karnataka - 560 066

LOCATION 3:

UL India Private Limited, 30/A, I
Stage, Vishveshwarya Industrial
Estate, Doddanekkundi Industrial
Area, Bangalore - 560048



TEST DISCIPLINE: ELECTRONICS
PRODUCT GROUP: OTHERS

General details

| | | | |
|--|--|-----------------|----------------|
| Customer / Applicant | Rishabh Instruments Pvt. Ltd. F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR, NASHIK, NASIK, MAHARASHTRA, India - 422007 | | |
| Manufacturer | Rishabh Instruments Pvt. Ltd. F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR, NASHIK, NASIK, MAHARASHTRA, India - 422007 | | |
| Program | NABL | | |
| Item Under Test | Power Invertors for use in Photovoltaic Power Systems(Grid Tie Inverter) | | |
| Model | APV-S-50k-AE-TL-3SFXX-KA (Representative Model) APV-S-10k-AE-TL-1/2SFXXKA, APV-S-12k-AE-TL-1/2SFXXKA, APV-S-15k-AE-TL-2SFXX-KA, APV-S-18k-AE-TL-2SFXX-KA, APV-S-20k-AE-TL-2/3SFXXKA, APV-S-25k-AE-TL-2SFXX-KA, APV-S-34k-AE-TL-2SFXX-KA (Series Models) | | |
| Number of Samples | 03 No's | | |
| UL Sample Identification | 3775260, 3775259, 3775258 | | |
| Manufacturer Serial Number (if any) | RI-2012184377, RI-2012184378, RI-2012196747 | | |
| Condition of IUT on receipt | Good | | |
| Date of Receipt | 1 April 2021 | | |
| Applicable Standard | IEC 62109-1: 2010 IEC 62109-2 : 2011 | | |
| Date of Testing (Start date) | 30 April 2021 | End Date | 31 August 2021 |
| UL general^ ambient condition | Temperature in °C | | 23 ±5°C |
| | Relative humidity in % | | <70 % |
| Date of Issue | 21 September 2021 | | |

12-LO-F0851, Issue 20.0

UL India Private Limited
 Registered Office: Kalyani Platina - Block I, 3rd Floor
 No. 24, EPIP Zone, Phase II, Whitefield, Bangalore - 560066, India
 T: 91.80.4138.4400 / F: 91.80.2841.3759 / W: ul.com
 CIN: U74200KA1997PTC023189



| | |
|-----------------------|------------------|
| Test In-charge | Manjunath Kumbar |
|-----------------------|------------------|

Fill in the rows with information or add hyphen (-)

| | |
|-------------------------|-----------------------------|
| Project Engineer | Engineering Manager |
| Reviewed by | Authorized signatory |

Disclaimer

The issuance of this report in no way implies Listing, Classification or Recognition by UL and does not authorize the use of UL Listing, Classification or Recognition Marks or any other reference to UL on the product or system. UL authorizes the above named company to reproduce this Report provided it is reproduced in its entirety. UL's name or marks cannot be used in any packaging, advertising, promotion or marketing relating to the data in this Report, without UL's prior written permission. The results of testing in this report apply only to the sample product/item, which was tested. UL Lab has not participated in the sample selection for Electrical, Electronics, Mechanical, Radiology and Chemical disciplines, with exception to Chemical lab, Gurugram. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties. The applicable standard ambient condition supersedes the lab general ambient conditions and are recorded in datasheets available in the lab. Decision rule for statement(s) of conformity is based on IEC Guide 115 Clause 4.4.3 Procedure 2 "Accuracy Method".

12-LO-F0851, Issue 20.0

UL India Private Limited
Registered Office: Kalyani Platina - Block I, 3rd Floor
No. 24, EPIP Zone, Phase II, Whitefield, Bangalore - 560066, India
T: 91.80.4138.4400 / F: 91.80.2841.3759 / W: ul.com
CIN: U74200KA1997PTC023189



General Remarks

This test report relates to the test sample submitted and list of documents attached. This report includes the tests from IEC 62109-1: 2010 & IEC 62109-2 : 2011 and hence this is a combined report.

All applicable test from standard. All tests performed on the Lead model 50kW as per MNRE series guidelines and series models will be covered under lead model testing considering maximum rated unit tested.

List of Attachments

- Appendix A: List of Critical Component
- Appendix B: List of Test and Engineering Rationale
- Appendix C: MNRE series guideline declaration
- Appendix D: HV routine test declaration
- Appendix E: Photos of Equipment

Description of Item under Test (IUT)

Power Inverters for use in Photovoltaic Power Systems(50kW Grid Tie Inverter)

Summary of Test Results

| Sr. No. | TEST REQUIREMENTS | CLAUSE | VERDICT |
|---------|--|--------|---------|
| 1 | General testing requirements | 4.0 | P |
| 2 | Marking and documentation | 5.0 | P |
| 3 | Environmental requirements and conditions | 6.0 | P |
| 4 | Protection against electric shock and energy hazards | 7.0 | P |
| 5 | Protection against mechanical hazards | 8.0 | P |
| 6 | Protection against fire hazards | 9.0 | P |
| 7 | Protection against sonic pressure hazards | 10.0 | P |
| 8 | Protection against liquid hazards | 11.0 | N/A |
| 9 | Protection against chemical hazards | 12.0 | N/A |
| 10 | Physical requirements | 13.0 | P |
| 11 | Components | 14.0 | P |

P: Meets the requirements F: Does not meet the requirement NA: Not applicable

12-LO-F0851, Issue 20.0

UL India Private Limited
Registered Office: Kalyani Platina - Block I, 3rd Floor
No. 24, EPIP Zone, Phase II, Whitefield, Bangalore - 560066, India
T: 91.80.4138.4400 / F: 91.80.2841.3759 / W: ul.com
CIN: U74200KA1997PTC023189

Declaration of Conformity



Applicant: Rishabh Instruments Pvt. Ltd.
F-31, MIDC, Satpur,
422007 Nashik
India

Product type: Solar Inverter

Model: APV-S-Series

Rating: see page 2

A representative test sample of above stated model passed the tests according to:

Standard: IEC 62109-1:2010, EN 62109-1:2010
IEC 62109-2:2011, EN 62109-2:2011

Report no: 20PP143-05, 20PP143-06

Certificate no: 20-129-00

Date of issue: 2020-06-15

DECLARATION

Kiwa Primara GmbH
Gewerbestraße 28
87600 Kaufbeuren
Germany
Tel. +49 8341 99726-0
info@primara.net
www.kiwa.de

Michael Schugg

- Digitally signed | see <http://ca.primara.net> for more details -

Michael Schugg





Technical Data

| | | | | |
|-----------------------|-------------------------------|------------------------|--------------------------|-------------------|
| | APV-S-XXk-XE-TL-XXXXX-XX | | | |
| Model/Type(s): | 10k-AE-TL1 | 10k-AE-TL2 | 12k-AE-TL1 | 12k-AE-TL2 |
| Input Voltage: | 250Vdc-800Vdc, 1000Vdc max | | | |
| MPPT range: | 350V-800V | | 420V-800V | 350V-800V |
| Input current: | Max. 33,7A | Max. 2x16,9A | Max. 33,7A | Max. 2x16,9A |
| Output Voltage: | 230/400Vac, 3Ph+N+PE, 50/60Hz | | | |
| Output current: | Nom. 14,4A Max. 16A | | Nom. 17,3A Max. 19,2A | |
| Output power: | 10kW | | 12kW | |
| Model/Type(s): | 15k-AE-TL2 | 18K-AE-TL2 | 20k-AE-TL-2 | 20k-AE-TL3 |
| Input Voltage: | 250Vdc-800Vdc, 1000Vdc max | | | |
| MPPT range: | 390V-800V | 470V-800V | 350V- 800V | |
| Input current: | Max. 2x22,5A | Max. 2x22,5A | Max 2x33,7A | Max. 3x22,5A |
| Output Voltage: | 230/400Vac, 3Ph+N+PE, 50/60Hz | | | |
| Output current: | Nom. 21,6A Max. 24A | Nom. 26A Max. 28,9A | Nom. 28,9A Max. 32A | |
| Output power: | 15kW | 18kW | 20kW | |
| Model/Type(s): | 10k-EE-TL1 | 15k-EE-TL1 | 20k-EE-TL1 | |
| Input Voltage: | 250Vdc-800Vdc, 1000Vdc max | | | |
| MPPT range: | 560V-800V | | | |
| Input current: | Max. 20,2A | Max. 30,4 | Max. 40,5 | |
| Output Voltage: | 230/400Vac, 3Ph+N+PE, 50/60Hz | | | |
| Output current: | Nom. 14,4A Max. 16A | Nom. 21,6A Max. 24A | Nom. 28,9A Max. 32A | |
| Output power: | 10kW | 15kW | 20kW | |

| | | | |
|---|--|---|--|
| Prüfbericht - Nr.: 19631660 003 <i>Test Report No.:</i> | | Seite 1 von 11 Page 1 of 11 | |
| Auftraggeber: <i>Client:</i> | | Rishabh Instruments Pvt. Ltd. F-31 MIDC, Satpur, Nashik 422007, India. | |
| Gegenstand der Prüfung: <i>Test item:</i> | | Grid Tie 3 Phase Solar Inverter | |
| Bezeichnung: <i>Identification:</i> | APV-S-10K-AE-TL- 2SFXX-KA | Serien-Nr.: <i>Serial No.:</i> | RI-2018045062 |
| Wareneingangs-Nr.: <i>Receipt No.:</i> | 1803312339 | Eingangsdatum: <i>Date of receipt:</i> | 2018.04.16 |
| Prüfart: <i>Testing location:</i> | TÜV Rheinland (India) Pvt. Ltd. 27/B, 2nd Cross Road, Electronic City Phase I, Bangalore - 560 100, Karnataka, India. | | |
| Prüfgrundlage: <i>Test specification:</i> | Rated Output Efficiency measurement with Grid load as per customer requirement in accordance with table 1 of IEC 61683:1999. | | |
| Prüfergebnis: <i>Test Result:</i> | Refer section " Summary of testing" | | |
| Prüflaboratorium: <i>Testing Laboratory:</i> | TÜV Rheinland (India) Pvt. Ltd. 27/B, 2nd Cross Road, Electronic City Phase I, Bangalore - 560 100, Karnataka, India. | | |
| geprüft/tested by: | | kontrolliert/reviewed by: | |
|  | |  | |
| 2018.05.21 Amruth Meharwade / Sr. Engineer | | 2018.05.21 Manjunath.K / Asst. Manager | |
| <small>Datum Date</small> | <small>Name/Stellung Name/Position</small> | <small>Unterschrift Signature</small> | <small>Datum Date</small> |
| | | | <small>Name/Stellung Name/Position</small> |
| | | | <small>Unterschrift Signature</small> |
| Sonstiges/Other Aspects: | | | |
| According to the customer's requirement, the rated output efficiency measurement test conducted with grid load. This report consists of 11 pages including the following attachments: Attachment 1: Photo Document Attachment 2: Customer Declaration Attachment 3: Declaration for Rishabh Instruments Pvt. Ltd. as manufacturer Test report no. 19631660 001 issued on 2018.04.27 have been amended to report 19631660 002 as per customer declaration. Only, Output Voltage Range added in Rating label. Manufacturer changed as Rishabh Instruments Pvt. Ltd. Referring to attachment 3 and report 19631660 003 is issued. There is no change in product, either electrical/ mechanical aspect. | | | |
| Abkürzungen: | | Abbreviations: | |
| P(ass) = | entspricht Prüfgrundlage | P(ass) = | passed |
| F(ail) = | entspricht nicht Prüfgrundlage | F(ail) = | failed |
| N/A = | nicht anwendbar | N/A = | not applicable |
| N/T = | nicht getestet | N/T = | not tested |
| | | EUT = | Equipment under test |
| Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i> | | | |



Efficiency Testing

TEST REPORT
EFFICIENCY TESTING

| | |
|--|---|
| Report reference No | 19631660 003 |
| Tested by (printed name and signature)..... | (see cover page) |
| Approved by (printed name and signature)..... | (see cover page) |
| Date of issue | (see cover page) |
| Testing Laboratory Name | TÜV Rheinland (India) Pvt. Ltd. |
| Address | 27/B, 2nd Cross Road, Electronic City Phase I, Bangalore - 560 100, Karnataka, India. |
| Applicant's Name | Rishabh Instruments Pvt. Ltd. |
| Address | F-31 MIDC, Satpur, Nashik 422007, India. |
| Test specification | |
| Standard | IEC 61683:1999 |
| Test procedure..... | QMA 36.201.01 |
| Non-standard test method | N/A |
| Test Report Form No. | TUVR_EFF_R1 |
| TRF originator..... | TUVR |
| Master TRF | 2009.08.20 |
| Copyright © 2008 TUVR PSQ for Conformity Testing and Certification of Electrical Equipment. All rights reserved. | |
| This publication may be reproduced in whole or in part for non-commercial purposes as long as the TUVR is acknowledged as copyright owner and source of the material. TUVR takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. | |
| Test item description..... | Grid Tie 3 Phase Solar Inverter |
| Manufacturer..... | Rishabh Instruments Pvt. Ltd. |
| Model and/or type reference..... | APV-S-10K-AE-TL-2SFXX-KA |
| Serial number..... | RI-2018045062 |
| Rating(s) | <u>D.C. INPUT:</u> Max. Input Voltage: 1000V MPPT Voltage Range: 350 – 800V Max. Input Current: 2 X 22.5A <u>A.C. OUTPUT:</u> Nominal Power: 10kW Nominal Voltage: 3 X 400V Output Voltage Range: 320...480V Nominal Output Current: 14.4A Nominal Frequency: 50 / 60Hz Temperature Range: -25°C / 60°C Waterproof Class: IP65 |



Efficiency Testing

Copy of marking plate:

| | |
|---|---|
| RISHABH INSTRUMENTS PVT LTD | |
|  | F-31, MIDC, Satpur, Nashik - 422007 |
| | Ph: +91 2532202019 |
| | Email: inverters@rishabh.co.in |
| D.C. INPUT | |
| Max . Input Voltage | 1000V |
| MPPT Voltage Range | 350- 800V |
| Max.Input Current | 2x22.5 A |
| A.C. OUTPUT | |
| Nominal Power | 10 KW |
| Nominal Voltage | 3x400V |
| Output Voltage Range | 320...480V |
| Nominal Output Current | 14.4A |
| Nominal Frequency | 50/60Hz |
| Temperature Range | - 25 ^o /60 C |
| Waterproof Class | IP65 |
| GRID TIE 3 PHASE SOLAR INVERTER | |
| Model: |  |
| APV-S-10K-AE-TL-2SFXX-KA | |
| Sr No :RI-2018045062 | |

General product information:

EUT is a Grid Tie 3 Phase Solar Inverter.

Summary of testing:

This report covers Efficiency Tests undertaken as per customer's specifications with reference to the listed standards.

Efficiency measurements performed with three input voltages:

1. Minimum rated input voltage.
2. Inverter's Nominal Voltage.
3. 90% of the inverter's maximum I/p voltage.

(Ref. Table 1, 2 & 3 in this report)

EUT continues to work after test and no physical damages were observed.

Efficiency Testing

Particulars: test item vs. test requirements

Operating condition: Input DC: 0-1000V/30A Array simulator – 2 Nos.
Load : 3Ph-N, Phase voltage 230V 50Hz Grid utility.

Condition of the equipment at the time of receipt.....: Good

Test case verdicts

Test case does not apply to the test object ...: N/A

Test item does meet the requirement: P(Pass)

Test item does not meet the requirement: F(Fail)

Testing

Date of receipt of test item: 2018.04.16

Date(s) of performance of test: 2018.04.18

Attachments:

Attachment 1: Photo Document

Attachment 2: Customer Declaration

Attachment 3: Declaration for Rishabh Instruments Pvt. Ltd. as manufacturer.



Declaration of Conformity



DECLARATION

Applicant: Rishabh Instruments Pvt. Ltd.
F-31, MIDC, Satpur,
422007 Nashik
India

Product type: Solar Inverter

Model: APV-S-15k-AE-TL2 | APV-S-18k-AE-TL2 | APV-S-20k-EE-TL1

Rating: 15kW | 18kW | 20kW

A representative test sample of above stated model passed the tests according to:

Standard: IEC 61683:1999

Report no: 20PP143-03

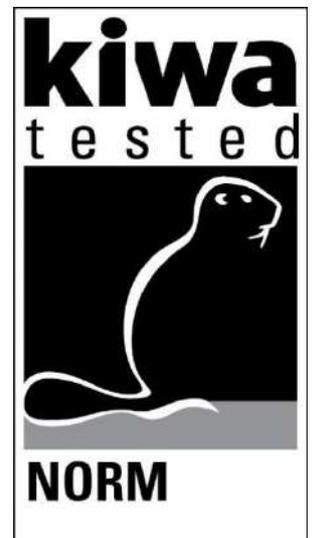
Certificate no: 20-073-00

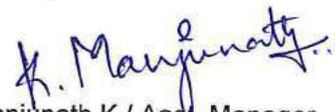
Date of issue: 2020-04-21

Jürgen Seegger

- Digitally signed | see <http://ca.primara.net> for more details -

Jürgen Seegger



| | | | |
|---|--|---|--|
| Prüfbericht - Nr.: 19631661 003 | | Seite 1 von 11 | |
| <i>Test Report No.:</i> | | <i>Page 1 of 11</i> | |
| Auftraggeber: <i>Client:</i> | Rishabh Instruments Pvt. Ltd. F-31 MIDC, Satpur, Nashik 422007, India. | | |
| Gegenstand der Prüfung: <i>Test item:</i> | Grid Tie 3 Phase Solar Inverter | | |
| Bezeichnung: <i>Identification:</i> | APV-S-20K-AE-TL- 2SFXX-KA | Serien-Nr.: <i>Serial No.:</i> | RI-2018045074 |
| Wareneingangs-Nr.: <i>Receipt No.:</i> | 1803312339 | Eingangsdatum: <i>Date of receipt:</i> | 2018.04.16 |
| Prüfört: <i>Testing location:</i> | TÜV Rheinland (India) Pvt. Ltd. 27/B, 2nd Cross Road, Electronic City Phase I, Bangalore - 560 100, Karnataka, India. | | |
| Prüfgrundlage: <i>Test specification:</i> | Rated Output Efficiency measurement with Grid load as per customer requirement in accordance with table 1 of IEC 61683:1999. | | |
| Prüfergebnis: <i>Test Result:</i> | Refer section " Summary of testing" | | |
| Prüflaboratorium: <i>Testing Laboratory:</i> | TÜV Rheinland (India) Pvt. Ltd. 27/B, 2nd Cross Road, Electronic City Phase I, Bangalore - 560 100, Karnataka, India. | | |
| geprüft/tested by: | | kontrolliert/reviewed by: | |
|  | |  | |
| 2018.05.21 | Amruth Meharwade / Sr. Engineer | 2018.05.21 | Manjunath.K / Assl. Manager |
| <small>Datum Date</small> | <small>Name/Stellung Name/Position</small> | <small>Datum Date</small> | <small>Name/Stellung Name/Position</small> |
| | <small>Unterschrift Signature</small> | | <small>Unterschrift Signature</small> |
| Sonstiges/Other Aspects: | | | |
| <p>According to the customer's requirement, the rated output efficiency measurement test conducted with grid load. This report consists of 11 pages including the following attachments: Attachment 1: Photo Document Attachment 2: Customer Declaration Attachment 3: Declaration for Rishabh Instruments Pvt. Ltd. as manufacturer Test report no. 19631660 001 issued on 2018.04.27 have been amended to report 19631660 002 as per customer declaration. Only, Output Voltage Range added in Rating label. Manufacturer changed as Rishabh Instruments Pvt. Ltd. Referring to attachment 3 and report 19631660 003 is issued. There is no change in product, either electrical/ mechanical aspect.</p> | | | |
| Abkürzungen: | | Abbreviations: | |
| P(ass) | = entspricht Prüfgrundlage | P(ass) | = passed |
| F(ail) | = entspricht nicht Prüfgrundlage | F(ail) | = failed |
| N/A | = nicht anwendbar | N/A | = not applicable |
| N/T | = nicht getestet | N/T | = not tested |
| | | EUT | = Equipment under test |
| <p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i></p> | | | |

Efficiency Testing

TEST REPORT
EFFICIENCY TESTING
Report reference No : 19631661 003

Tested by
 (printed name and signature)..... : (see cover page)

Approved by
 (printed name and signature)..... : (see cover page)

Date of issue : (see cover page)

Testing Laboratory Name : TÜV Rheinland (India) Pvt. Ltd.

Address : 27/B, 2nd Cross Road, Electronic City Phase I,
 Bangalore - 560 100, Karnataka, India.

Applicant's Name : Rishabh Instruments Pvt. Ltd.

Address : F-31 MIDC, Satpur,
 Nashik 422007, India.

Test specification :

Standard : IEC 61683:1999

Test procedure..... : QMA 36.201.01

Non-standard test method : N/A

Test Report Form No. : TUVR_EFF_R1

TRF originator : TUVR

Master TRF : 2009.08.20

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Test item description..... : Grid Tie 3 Phase Solar Inverter

Manufacturer..... : Rishabh Instruments Pvt. Ltd.

Model and/or type reference..... : APV-S-20K-AE-TL-2SFXX-KA

Serial number..... : RI-2018045074

Rating(s) : D.C. INPUT:

Max. Input Voltage : 1000V

MPPT Voltage Range : 350 – 800V

Max. Input Current : 2 X 33.7A

A.C. OUTPUT:

Nominal Power : 20kW

Nominal Voltage : 3 X 400V

Output Voltage Range : 320... 480V

Nominal Output Current: 28.9A

Nominal Frequency : 50 / 60Hz

Temperature Range : -25°C / 60°C

Waterproof Class : IP65



Efficiency Testing

Copy of marking plate:

| | |
|---|---|
| RISHABH INSTRUMENTS PVT LTD | |
|  | F-31, MIDC, Satpur, Nashik - 422007 |
| | Ph: +91 2532202019 |
| | Email: inverters@rishabh.co.in |
| D.C. INPUT | |
| Max . Input Voltage | 1000V |
| MPPT Voltage Range | 350- 800V |
| Max.Input Current | 2x33.7 A |
| A.C. OUTPUT | |
| Nominal Power | 20 KW |
| Nominal Voltage | 3x400V |
| Output Voltage Range | 320...480V |
| Nominal Output Current | 28.9A |
| Nominal Frequency | 50/60Hz |
| Temperature Range | - 25 ^o /60 C |
| Waterproof Class | IP65 |
| GRID TIE 3 PHASE SOLAR INVERTER | |
| Model: APV-S-20K-AE-TL-2SFXX-KA Sr No :RI-2018045074 |  |

General product information:

EUT is a Grid Tie 3 Phase Solar Inverter.

Summary of testing:

This report covers Efficiency Tests undertaken as per customer's specifications with reference to the listed standards.

Efficiency measurements performed with three input voltages:

1. Minimum rated input voltage.
2. Inverter's Nominal Voltage.
3. 90% of the inverter's maximum l/p voltage.

(Ref. Table 1, 2 & 3 in this report)

EUT continues to work after test and no physical damages were observed.



Efficiency Testing

Particulars: test item vs. test requirements

Operating condition: Input DC: 0-1000V/30A Array simulator – 2 Nos.
Load : 3Ph-N, Phase voltage 230V 50Hz Grid utility.

Condition of the equipment at the time of receipt.....: Good

Test case verdicts

Test case does not apply to the test object ...: N/A

Test item does meet the requirement: P(Pass)

Test item does not meet the requirement: F(Fail)

Testing

Date of receipt of test item: 2018.04.16

Date(s) of performance of test: 2018.04.18

Attachments:

Attachment 1: Photo Document

Attachment 2: Customer Declaration

Attachment 3: Declaration for Rishabh Instruments Pvt. Ltd. as manufacturer.



UL INTERNATIONAL ITALIA S.r.l.
 Via delle Industrie, 6 – 20061 Carugate (MI) – Italy
 T:: +39 02 92503501
 W:: www.ul-europe.com



TEST REPORT N. 18-4788442306.1.1.SIC

This report shall not be reproduced except in full without the written approval for authorization of UL International Italia laboratory

Tested by :
 Title :
 Checked by :
 Title :

| | |
|---|---------------|
| Issued | on 07/05/2018 |
| Sample received | on 26/03/2013 |
| <i>[Signature]</i> P.I. Francesco DeNisi Lab. Technician | on 03/05/2013 |
| <i>[Signature]</i> Eng. Dario Rivoltella Laboratory Manager | on 07/05/2018 |

THE TEST RESULTS PRESENTED IN THIS REPORT RELATE ONLY TO THE ITEM TESTED sample not selected by UL INTERNATIONAL ITALIA - Samples ID 1597390

| | | | |
|---------------|--|------------------|--|
| Applicant: | RISHABH INSTRUMENTS PVT. LTD PARSHWA F – 31 MIDC SATPUR NASHIK 422007 India | | |
| Test of: | Degree of protection (IP 65) | Standard: | EN 60529 (1991) + A1 (2000) |
| Product: | Inverter | Trade Mark: | RISHABH |
| Type/Mod: | APV-S-20K-EE-TL-1SFXX-KA | Manufacturer: | RISHABH INSTRUMENTS PVT. LTD PARSHWA F – 31 MIDC SATPUR NASHIK 422007 India |
| Serial number | RI-2018045046 | Production date: | --- |

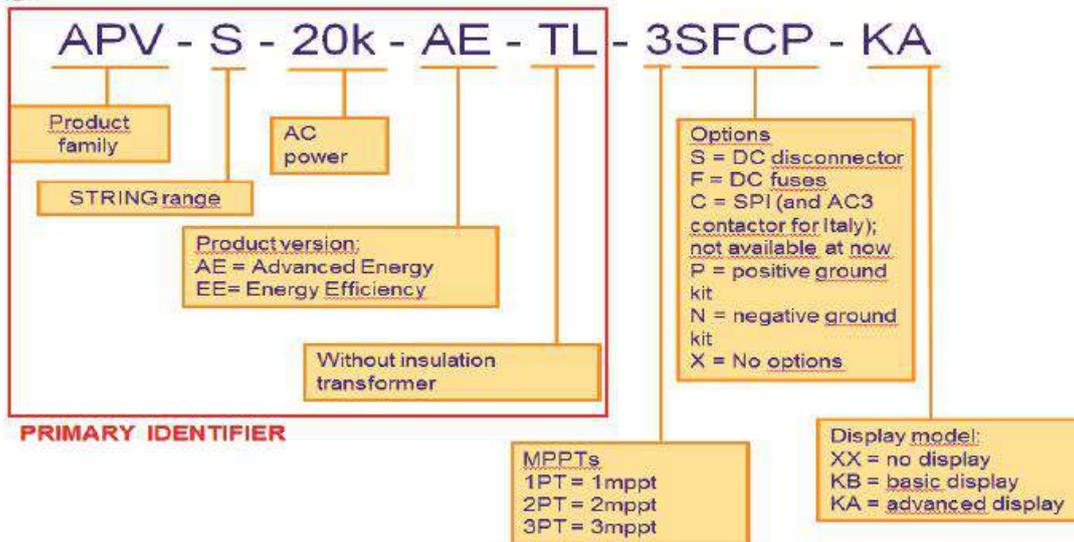


The model tested **APV-S-20K-EE-TL-1SFXX-KA**, cover all the models constructed as noted below. Between different models only differences, not related to the mechanical construction, are present. The BOOST stage is not covered by the IP65 rating.

| Product family | String range | AC power | Version | No insulation transformer | MPPT | DC SWITCH | DC FUSES | SPI | GND KIT | Display model |
|----------------|--------------|----------|---------|---------------------------|------|-----------|----------|-----|---------|---------------|
| APV | S | 10k | AE | TL | 1 | S | F | C | P | KA |
| | | 12k | | | 2 | X | X | X | N | KB |
| | | 15k | | | 3 | | | | X | XX |
| | | 18k | | | | | | | | |
| 20k | | | | | | | | | | |
| APV | S | 10k | EE | TL | 1 | S | F | C | P | KB |
| | | 15k | | | | X | X | X | N | |
| | | 20k | | | | | | | X | XX |



Product's identification



Amendment to original Test Report:

The original Test report Ref. No. 13-0427, dated 16/05/2013 was modified with this Test Report Ref. No. 18-4788442306.1.1.SIC, dated 2018-11-29 includes the following changes, which were NOT considered technical modifications:

- a) change of applicant, trade mark and manufacturer names (see page 1 of this Test Report);
- b) marking plate with new trade mark and manufacturer (see page 1 of this Test Report)
- c) new product identification table (see page 2 of this Test Report)

All other ratings, components and constructions remain same as previous indicated into original test report Ref. No. 13-0427, dated 16/05/2013.

See Annex 1 at page 7 of this Test Report Ref. No. 18-4788442306.1.1.SIC containing customer Self declaration.



Certificate No. : TC-5389

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

(Accredited by the National Accreditation Board for Testing and Calibration Laboratories, Govt. of India)

ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

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Web : http://www.erda.org



TEST REPORT

ULR NO.: TC538919000006960F

SHEET: 01 OF 06

| | | |
|---|--|---|
| NAME AND ADDRESS OF CUSTOMER RISHABH INSTRUMENTS PVT. LTD. PLOT NO. F-31, MIDC, SATPUR, NASHIK - 422007. MAHARASHTRA | TEST REPORT NO.: RP-1819-046842 DATE: 28/02/2019 | |
| | CUSTOMER REF. NO. | DATED |
| | Letter | 27/01/2019 |
| | DATE OF SAMPLE RECEIPT 15/02/2019 | DATE OF TESTING 15/02/2019 to 27/02/2019 |
| SAMPLE DESCRIPTION MAIN ELECTRONICS COMPARTMENT OF UTILITY TYPE INVERTER/GI Rating: D.C. Input: Max. Input Voltage: 1000V, MPPT Voltage Range: 450-800/520-800V, Max. Input Current: 2 x 33.7A A.C. Output: Nominal Power: 25/34kW Nominal Voltage: 3 x 415 V Nominal Output Current: 36.2/49.1A Nominal Frequency: 50/60Hz. Temperature Range: -25°C/60°C Waterproof Class: IP65 Containing: Electronics, PCB | SAMPLE IDENTIFICATION ERDA sample code no.: ERDA-00301548 Sr. No.: RI-2019025405 Model: APV-S-25K/34K-AE-TL-2SFXX-KA Type Designation: Rish Radius APV-S 34kW/25kW Manufacturer: M/s. Rishabh Instruments Pvt. Ltd. | |
| TEST DETAILS 1.0 IP 65 tests Enclosures: i) Photograph No.: 1819-017547/00301548/A to D (Total 4 nos.) ii) Drg. No.: i) S759058 (Rev.00) (Sheet 1 of 2) & (Sheet 2 of 2) ii) 15001002 (Rev.00) (Sheet 1 of 3), (Sheet 2 of 3) & (Sheet 3 of 3) (Total 5 sheet) Test Witnessed By: Mr. Prashant Chalse (Executive R & D) of M/s. Rishabh Instruments Pvt. Ltd. Note: IP 65 tests was carried out only on Main Electronics Compartment of Solar Inverter as declared by the customer. Remarks: Sample conforms to the requirement of IP 65 tests as per the standard. | TEST SPECIFICATION IS/IEC 60529:2001 | |
|  PREPARED BY |  CHECKED BY |  (G.SOM) APPROVED BY |

- Note:** 1. This report relates only to the particular sample received for testing in good condition at ERDA, Vadodara.
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 3. Publication of this report requires prior permission in writing from Director, ERDA.
 4. Only the tests asked for by the customer have been carried out.
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TC 2732484





Certificate No. : TC-5389

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E-mail : erda@erda.org

Web : http://www.erda.org

**TEST REPORT**

ULR-TC538921000000989F

SHEET 01 OF 07

| | | |
|--|--|---|
| NAME AND ADDRESS OF CUSTOMER RISHABH INSTRUMENTS PVT. LTD. H.O. & WORKS: F-31, M.I.D.C., SATPUR, NASHIK - 422007. MANUFACTURED BY: M/s. RISHABH INSTRUMENTS PVT. LTD. | TEST REPORT NO.: RP-2021-025979 | |
| | DATE OF ISSUE: 13/01/2021 | |
| | CUSTOMER REF. NO. Letter | DATED 11/01/2021 |
| | DATE OF SAMPLE RECEIPT 11/01/2021 | DATE OF TESTING 11/01/2021 to 12/01/2021 |
| SAMPLE DESCRIPTION MAIN ELECTRONICS COMPARTMENT OF GRID TIE 3 PHASE SOLAR INVERTER Rating: DC INPUT Max. input voltage: 1000V MPPT voltage range: 520-800V, Max. input current: 3 x 33.7A AC OUTPUT Nominal power: 50kW, Nominal voltage: 3 x 400V, Nominal output current: 72.2A, Nominal frequency: 50/60Hz, Temperature range: -25/60°C, Waterproof class: IP65 Containing: PCBs | SAMPLE IDENTIFICATION ERDA sample code no.: ERDA-00397858 Type Designation: Rish radius APV-S 50kW Sr. No.: RI-21010001 Model: APV-S-50k-AE-TL-3SFXX-KA | |
| TEST DETAILS 1.0 IP 65 tests Enclosures: i) Photograph No.: 2021-010038/00397858/A to D (Total 4 Nos.) ii) Drg. No. : As per SHEET 02 OF 07. Test witnessed by: Mr. Prashant Chalse (Executive-Engineer) from M/s. RISHABH INSTRUMENTS PVT. LTD. Note: i) IP 65 tests was carried out only on the main electronics compartment. ii) Sealant was applied on top cable glands of main electronics compartment. Remarks: Sample conforms to the requirement of IP 65 tests as per the standard. | TEST SPECIFICATION IS/IEC 60529:2001 | |
| PREPARED BY | CHECKED BY | APPROVED BY (N.KARKARE) |

- Note:**
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TC 3049644





QVC CERT

STANDARDIZING THE WORLD

2-B, Civil Lines, Yukti Business Centre, Near Old Session Court,
Ambala City - 134003, Haryana, India

CERTIFICATE OF CONFORMITY

No. QVC/CE/LVD/2023-24/225

Applicant & Manufacturer: **RISHABH INSTRUMENTS LIMITED**

Address: **F31 MIDC, SATPUR, NEAR CEAT TYRES, SATPUR NASHIK, NASHIK - 422007, MAHARASHTRA, INDIA**

Product(s): **PHOTOVOLTAIC INVERTER(s)**

Model(s): **APV-S-10k-AE-TL-1/2SFXX-KA, APV-S-12k-AE-TL-1/2SFXX-KA, APV-S-15k-AE-TL-2SFXX-KA, APV-S-18k-AE-TL-2SFXX-KA, APV-S-20k-AE-TL-2/3SFXX-KA, APV-S-25k-AE-TL-2SFXX-KA, APV-S-34k-AE-TL-2SFXX-KA, APV-S-50k-AE-TL-3SFXX-KA, NEO/PVSA/APV-S-03K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-05K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-07K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-08K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-09K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-10K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-12K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-15K-AE-TL-1/2MSFXXXX, NEO/PVSA/APV-S-18K-AE-TL-2MSFXXXX, NEO/PVSA/APV-S-20K-AE-TL-2MSFXXXX**

Applicable Directive(s): **LOW VOLTAGE DIRECTIVE 2014/35/EU
ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2014/30/EU**

Applicable Standard(s): **IEC/EN 61000-6-1:2016, IEC/EN 61000-6-2:2016, IEC/EN 61000-6-3:2020, IEC/EN 61000-6-4:2018, IEC/EN 61000-3-2:2018, IEC/EN 61000-3-3:2013, IEC/EN 61000-3-4:2013, IEC/EN 61000-3-11:2017, IEC/EN 61000-3-12:2011 & IEC 60255-27:2023**

Technical Doc. Reference: **TECHNICAL CONSTRUCTION FILE: TCF/RIPL/LVD/EMC-01**

Based on successful review of technical construction file documentation of the above-mentioned products, QVC hereby confirms, conformity of the above-mentioned product(s) with the requirements of **Low Voltage Directive 2014/35/EU** and **Electromagnetic Compatibility Directive 2014/30/EU**.

The product liability rests with the manufacturer or his representative in accordance with applicable Directives and standards, after fulfilling of the relevant EU legislation requirements, the manufacturer shall affix to each device of the above referenced models, the CE-Mark according to this example:



Issued Date: 18/08/2023

Expiry Date: 17/08/2026



Authorized Signatory



| | | | |
|---------------|-------------|---------------|--------------------------------------|
| Number | 15638 Rev.0 | Replaces | Declaration of Conformity 17/07/2013 |
| Issued | 09/04/2018 | First edition | 17/07/2013 |
| Report number | PKC0002686 | Page | 1 of 1 |

Certificate of Type Testing Conformity

License holder: Rishabh Instruments PVT. Ltd.
F-31, MIDC, Satpur, Nashik – 422007, Maharashtra, India

Production site 1: Rishabh Instruments PVT. Ltd.
F-31, MIDC, Satpur, Nashik – 422007, Maharashtra, India

Production site 2: Rishabh Instruments PVT. Ltd.
C-6, Nice Area, Satpur, Nashik – 422005, Maharashtra, India

Product: Photovoltaic (PV) inverter

Models: APV-S-20k-AE-TL-2 Y₁Y₂Y₃Y₄-Y₅Y₆; APV-S-20k-AE-TL-3 Y₁Y₂Y₃Y₄-Y₅Y₆;
APV-S-20k-EE-TL-1 Y₁Y₂Y₃Y₄-Y₅Y₆; APV-S-18k-AE-TL-2 Y₁Y₂Y₃Y₄-Y₅Y₆;
APV-S-15k-AE-TL-2 Y₁Y₂Y₃Y₄-Y₅Y₆; APV-S-15k-EE-TL-1 Y₁Y₂Y₃Y₄-Y₅Y₆;
APV-S-12k-AE-TL-1 Y₁Y₂Y₃Y₄-Y₅Y₆; APV-S-12k-AE-TL-2 Y₁Y₂Y₃Y₄-Y₅Y₆;
APV-S-10k-AE-TL-1 Y₁Y₂Y₃Y₄-Y₅Y₆; APV-S-10k-AE-TL-2 Y₁Y₂Y₃Y₄-Y₅Y₆;
APV-S-10k-EE-TL-1 Y₁Y₂Y₃Y₄-Y₅Y₆

Remarks:
Y1 = S circuit breaker DC; Y2 = F fuses DC; Y3 = SPI; Y4 = N ground kit pole N;
Y4 = P ground kit pole P; Y5Y6 = KA advanced display; Y5Y6 = KB basic display;
X = absent

The products can be considered complying to the type testing based upon the following aspects and found in conformity with the EMC Directive 2004/108/EC:

- IEC 61000-6-2; IEC 61000-6-2/EC; IEC 61000-6-2/IS1
Electromagnetic compatibility (EMC) –
Part 6-2: Generic standards – Immunity for industrial environments
- IEC 61000-6-3; IEC 61000-6-3/A1
Electromagnetic compatibility (EMC) –
Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments

This type testing certificate is only valid for the sample tested with the configuration described on the test report.

Extended models are based on the tested sample with extension in rated output power.

Test reports nr.: 131801LP; 131803LP.

This type testing certificate does not include the Initial and the Periodic Inspection of the production samples.

This certificate is issued in accordance with the Kiwa Cermet Italia regulations for Product Certification. Publication of the certificate is allowed.

Chief Operating Officer
Giampiero Belcredi



Member of the IECCE CB-Scheme

CERTIFICATE

Kiwa Cermet Italia S.p.A.

Società con socio unico, soggetta all'attività di direzione e coordinamento di Kiwa Italia Holding Srl

Via Cadriano, 23

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www.kiwa.it

www.kiwacermet.it



Certificate of Compliance

CERTIFICATE

Applicant: Rishabh Instruments Pvt. Ltd.
F-31, MIDC, Satpur
422007 Nashik
India

Product: PV Inverter with integrated utility interface

Model: APV-S-10k-AE-TL1, APV-S-10k-AE-TL2, APV-S-12k-AE-TL1,
APV-S-12k-AE-TL2, APV-S-15k-AE-TL2, APV-S-18k-AE-TL2,
APV-S-20k-AE-TL2, APV-S-20k-AE-TL3, APV-S-10k-EE-TL1,
APV-S-15k-EE-TL1, APV-S-20k-EE-TL1

Intended use:

Automatic disconnection device with three-phase mains surveillance in accordance with IEC 61727 and IEC 62116 for photovoltaic systems with three-phase parallel coupling via an inverter in the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverter.

Applied standards and guidelines:

IEC 61727:2004

Photovoltaic (PV) Systems – Characteristics of the utility interface

IEC 62116:2008

Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters

The safety concept of an aforementioned representative product corresponds at the time of issue of this certificate to the valid safety specifications for the specified use in accordance with regulations.

Report No: 20PP143-01
20PP143-02

Certificate No: 20-074-00

Date of issue: 2020-04-21

Tanja Rottach

- Digitally signed | see <http://ca.kiwa-deutschland.de> for more details -

Tanja Rottach
Certification

Declaration of Conformity



Applicant: Rishabh Instruments Pvt. Ltd.
F-31, MIDC, Satpur,
422007 Nashik
India

Product type: Solar Inverter

Model: APV-S-Series

Rating: see page 2

A representative test sample of above stated model passed the tests according to:

Standard: IEC 60068-2-1:2007-03
IEC 60068-2-2:2007-07
IEC 60068-2-14:2009-01
IEC 60068-2-30:2005-08

Report no: 20PP143-07

Certificate no: 20-131-00

Date of issue: 2020-06-15

DECLARATION

Kiwa Primara GmbH
Gewerbestraße 28
87600 Kaufbeuren
Germany
Tel. +49 8341 99726-0
info@primara.net
www.kiwa.de

Nadiya Trushnikova

- Digitally signed | see <http://ca.kiwa-deutschland.de> for more details -

Nadiya Trushnikova





Technical Data

| | | | | |
|-----------------------|-------------------------------|------------------------|--------------------------|-------------------|
| | APV-S-XXk-XE-TL-XXXXX-XX | | | |
| Model/Type(s): | 10k-AE-TL1 | 10k-AE-TL2 | 12k-AE-TL1 | 12k-AE-TL2 |
| Input Voltage: | 250Vdc-800Vdc, 1000Vdc max | | | |
| MPPT range: | 350V-800V | | 420V-800V | 350V-800V |
| Input current: | Max. 33,7A | Max. 2x16,9A | Max. 33,7A | Max. 2x16,9A |
| Output Voltage: | 230/400Vac, 3Ph+N+PE, 50/60Hz | | | |
| Output current: | Nom. 14,4A Max. 16A | | Nom. 17,3A Max. 19,2A | |
| Output power: | 10kW | | 12kW | |
| Model/Type(s): | 15k-AE-TL2 | 18K-AE-TL2 | 20k-AE-TL-2 | 20k-AE-TL3 |
| Input Voltage: | 250Vdc-800Vdc, 1000Vdc max | | | |
| MPPT range: | 390V-800V | 470V-800V | 350V- 800V | |
| Input current: | Max. 2x22,5A | Max. 2x22,5A | Max 2x33,7A | Max. 3x22,5A |
| Output Voltage: | 230/400Vac, 3Ph+N+PE, 50/60Hz | | | |
| Output current: | Nom. 21,6A Max. 24A | Nom. 26A Max. 28,9A | Nom. 28,9A Max. 32A | |
| Output power: | 15kW | 18kW | 20kW | |
| Model/Type(s): | 10k-EE-TL1 | 15k-EE-TL1 | 20k-EE-TL1 | |
| Input Voltage: | 250Vdc-800Vdc, 1000Vdc max | | | |
| MPPT range: | 560V-800V | | | |
| Input current: | Max. 20,2A | Max. 30,4 | Max. 40,5 | |
| Output Voltage: | 230/400Vac, 3Ph+N+PE, 50/60Hz | | | |
| Output current: | Nom. 14,4A Max. 16A | Nom. 21,6A Max. 24A | Nom. 28,9A Max. 32A | |
| Output power: | 10kW | 15kW | 20kW | |