

**Certificate Number:** AZ 69020144

**Page:** 0001



## CERTIFICATE OF SUITABILITY

**Authorised marking:** TUV020144E

*This is to certify that TÜV Rheinland Australia Pty Ltd as accredited by JAS-ANZ in accordance with ISO/IEC Guide 65 has examined for compliance with certification standards, the electrical equipment described hereunder and authorises the certificate holder to affix the above mentioned mark to products of the same type; or the Regulatory Compliance Mark (RCM) provided that the requirements of all relevant parts of AS/NZS 4417 applicable to the article are fulfilled*

**CERTIFICATE HOLDER:**

Power - One Italy S.p.A.  
Via S. Giorgio, 642  
52028 Terranuova Bracciolini, Arezzo,  
Italy

**DESCRIPTION OF EQUIPMENT**

**Declared class:**

Non-declared

**Product:**

Solar or Wind Grid-tied Inverter (three-phase)

**Trade Name / Manufacturer:**

ABB

**Model Number:**

TRIO-20.0-series ; TRIO-27.6-series.

Models detail information refer to CONTINUATION SHEET 1-2.

**Ratings:**

Ratings detail information refer to CONTINUATION SHEET 1-2.

**Standard:**

AS 4777.2-2005  
AS 4777.3-2005  
AS/NZS 3100:2009+A1+A2+A3  
IEC 62109-1:2010  
IEC 62109-2:2011

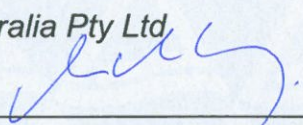
**Issue Date:**

03/07/2015

**Expiry Date:**

03/07/2020

*Signed for and on behalf of TÜV Rheinland Australia Pty Ltd*

  
Billy Chu



Acc. No. Z2870404AA  
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**Certificate Number:** AZ 69020144

Page: 0002



## CERTIFICATE OF SUITABILITY

Authorised marking: TUV020144E

### CONTINUATION SHEET 1

**Model Number:**

TRIO-20.0-TL-OUTD-400; TRIO-20.0-TL-OUTD-S2-400;  
TRIO-20.0-TL-OUTD-S2X-400; TRIO-20.0-TL-OUTD-S2F-400;  
TRIO-20.0-TL-OUTD-S1J-400; TRIO-20.0-TL-OUTD-S2J-400;  
TRIO-27.6-TL-OUTD-400; TRIO-27.6-TL-OUTD-S2-400;  
TRIO-27.6-TL-OUTD-S2X-400; TRIO-27.6-TL-OUTD-S2F-400;  
TRIO-27.6-TL-OUTD-S1J-400; TRIO-27.6-TL-OUTD-S2J-400;  
TRIO-27.6-TL-OUTD-400-W; TRIO-20.0-TL-OUTD-400-W.

**Ratings:**

All models: 400VAC 3Ø, 50 Hz, Class I, -25 to +60°C, IP65.

TRIO-20.0-TL-OUTD-(blank)/(S2)/(S2X)/(S2F)/(S1J)/(S2J)-400:

VDC max: 1000 V, MPPT: 200-950 V d.c.,

IDC max: 2 x 25 A (2 MPPT), ISC: 2 x 30 A, IAC max: 33 A,

maximum continuous Power PAC nom: 20,000 W @45°C.

TRIO-27.6-TL-OUTD-(blank)/(S2)/(S2X)/(S2F)/(S1J)/(S2J)-400:

VDC max: 1000 V, MPPT: 200-950 V d.c.,

IDC max: 2 x 32 A (2 MPPT), ISC: 2 x 40 A, IAC max: 45 A,

maximum continuous Power PAC nom: 27,600 W @45°C.

**Issue Date:** 03/07/2015

**Expiry Date:** 03/07/2020

*Signed for and on behalf of TÜV Rheinland Australia Pty Ltd*

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Billy Chu



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**Certificate Number:** AZ 69020144

Page: 0003



## CERTIFICATE OF SUITABILITY

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### CONTINUATION SHEET 2

Ratings (cont'):

TRIO-20.0-TL-OUTD-400-W:

VDC max: 1000 V, MPPT: 190-950 Vd.c., IDC max: 50 A,  
1 MPPT, ISC: 60 A, IAC max: 33 A,  
maximum continuous Power PAC nom: 20,000 W @45°C.

TRIO-27.6-TL-OUTD-400-W:

VDC max: 1000 V, MPPT: 190-950 V d.c., IDC max: 64 A,  
1 MPPT, ISC: 80 A, IAC max: 45 A,  
maximum continuous Power PAC nom: 27,600 W @45°C.

Remarks:

Models with suffix "-S2" have an integrated AC and DC switches;

Models with suffix "S2F" same as "S2" but have additionally quick fit DC connectors and string fuses;

1 overvoltage surge arrester in AC and 2 in DC circuits;

Models with suffix "-S2X" same as "S2F" but have additionally 1 overvoltage surge arrester in AC and 2 in DC circuits;

Models with suffix "-S1J" same as "S2F" but have additionally 1 DC overvoltage surge arrester and, can only work with parallel inputs;

Models with suffix "-S2J" same as "S2F" but have additionally 2 DC overvoltage surge arresters;

Models with suffix "-W" identifies wind model, without DC connectors.

Issue Date: 03/07/2015

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### CONTINUATION SHEET 3

(Modification 1)

Updating the certificate to include the following alternative components:

#### Alternative AC/DC Switch:

Manufacturer: Santon;

Type: X100.40D4-(B)-69.60.4-X382;

Rating: AC22B, 600Va.c., 50A ; DC21B, 1000Vd.c., 40A;

Top. -40°C to 70°C; UL94 V-0;

Marking: KEMA-KEUR 2151827.02 (according IEC 60947-3);

Note: To be used with baseplate SWITCH BRACKET

XAB.V0L43.0DG.

#### Alternative Terminal Block (Positive and Negative)

for Models "S2X", "S2F":

Manufacturer: ABB;

Type: ZS25 Series;

Rating: 1000V, 76A; T(max) 110°C; UL94 V-0;

Marking: Test with Equipment , UL (E60645);

Note: according to UL file, for voltage rating 1000V Model

No. ZS25 shall be used together with spacer Model No. CS-R1.

Manufacturer: CHENGDU RELIANCE ELECTRIC CO LTD;

Type: RAK16-S;

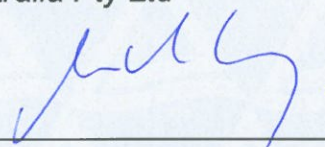
Rating: 1000V, 85A; T(max) 125°C; UL94 V-0;

Marking: Test with Equipment , UL (E306887).

Issue Date: 28/09/2015

Expiry Date: 03/07/2020

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Acc. No. Z2870404AA  
www.jas-anz.org/register

**Certificate Number:** AZ 69020144

Page: 0005



## CERTIFICATE OF SUITABILITY

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### CONTINUATION SHEET 4

(Modification 1)

Alternative DC Surge Protection Modules for Models "S2X":

Manufacturer: Dehn;

Type: 952 519;

Rating: Type 2; 1000Vd.c.; Voltage protection 4kV;

V-0; T(max) +80°C;

Marking: Test with Equipment, UL (E319777).

Manufacturer: ABB;

Type: OVR PV 40-1000 P TS BW TWIN QS;

Rating: Type 2; 1000Vd.c.; Voltage protection 3.8kV; V-0;

Marking: Test with Equipment.

Alternative Studs:

Zinc Iron studs;

Item Number: XAI.V0L03.2; XAI.V0L05.1; XAI.V0L06.1;

XAI.V0L07.3; XAI.V0L08.2; XAI.V0L10.1.

Alternative Positive Side Input Fuses Board

for Models "S2F" and "S2X":

ZGN.V0L29.0 layout;

ZGN.V0L29.0SD TRIO-27.6-xx Schematic Diagram;

ZGN.V0R29.0SD TRIO-20.0-xx Schematic Diagram;

Cables are soldered on the fuse boards (and 8 connectors have been removed).

Issue Date: 28/09/2015

Expiry Date: 03/07/2020

*Signed for and on behalf of TÜV Rheinland Australia Pty Ltd*

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**Certificate Number:** AZ 69020144

Page: 0006



## CERTIFICATE OF SUITABILITY

Authorised marking: TUV020144E

### CONTINUATION SHEET 5

(Modification 1)

Alternative Negative Side Input Fuses Board

for Models "S2F" and "S2X":

ZGN.V0L31.0 layout;

ZGN.V0L31.0SD TRIO-27.6-xx Schematic Diagram;

ZGN.V0R31.0SD TRIO-20.0-xx Schematic Diagram;

Cables are soldered on the fuse boards (and 8 connectors have been removed).

Alternative internal shielding plate assembling fan:

Al-Zn shielding plate;

Item Number: XEE.V0L13.3.

Alternative Spacers in the Wiring Box:

Not insulated spacers;

Item Number: XAI.V0L13.1 Alternative: XAI.V0L10.1.

Alternative String Combiner, Enclosure:

Item Number: XEE.V0L07.7.

Updating the certificate to include the following optional component:

Differential choke ZCB.00184.0 assembled in order to solve paralleling mode operation issue;

Power-One Item Number ZCB.00184.0;

Drawing: ZCB.00184.0DG.

Issue Date: 28/09/2015

Expiry Date: 03/07/2020

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**Certificate Number:** AZ 69020144

Page: 0007



## CERTIFICATE OF SUITABILITY

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### CONTINUATION SHEET 6

(Modification 1)

Updating the certificate to include following alternative construction:

Various modifications to fully meet EN 61000-6-3 requirements (Configuration #1, #2 & #3):

#### Configuration # 1

Inverter Section:

- Differential Choke, Item Number ZCB.00184.0: added;
- Capacitor C24, C25, C26 & C27 assembled on the AC Filter Board: removed.

String Combiner Section, Fuse Control Board:

- Resistor rated 100 ohm, 1 W, in series to each capacitor C150, C151 & C148 towards Protective Earth: added;
- Position C149 on the Fuse Control Board: Capacitor, Y2 type, rated 220 pF added.

String Combiner Section, Assembly Wiring, Item Number ZLH.V0L29.0 between Fuse Control Board and Positive Side Input Fuse Board:

- Toroidal Core, Ferrite, Item Number XCR.00063: added.

#### Configuration # 2

Inverter Section:

- Differential Choke, Item Number ZCB.00184.0: added;
- Capacitor C24, C25, C26 & C27 assembled on the AC Filter Board: removed.

Issue Date: 28/09/2015

Expiry Date: 03/07/2020

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**Certificate Number:** AZ 69020144

Page: 0008



## CERTIFICATE OF SUITABILITY

Authorised marking: TUV020144E

### CONTINUATION SHEET 7

(Modification 1)

Configuration # 2 (continue)

String Combiner Section, Fuse Control Board:

C150, C151 & C148 towards Protective Earth: added;

- Resistor rated 100 ohm, 1 W, in series to each capacitor;

- Position C149 on the Fuse Control Board: Resistor, rated 221 ohm, 1W: added.

String Combiner Section, Assembly Wiring,

Item Number ZLH.V0L29.0 between Fuse Control Board

and Positive Side Input Fuse Board:

- Toroidal Core, Ferrite, Item Number XCR.00063: added.

Configuration # 3

Inverter Section:

- Differential Choke, Item Number ZCB.00184.0: added;

- Capacitor C24, C25, C26 & C27 assembled on the AC Filter Board: removed.

String Combiner Section, Fuse Control Board:

- Position C149 on the Fuse Control Board: Resistor, rated 221 ohm, 1W: added.

String Combiner Section, Assembly Wiring,

Item Number ZLH.V0L29.0 between Fuse Control Board

and Positive Side Input Fuse Board:

- Toroidal Core, Ferrite, Item Number XCR.00063: added.

Issue Date: 28/09/2015

Expiry Date: 03/07/2020

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**Certificate Number:** AZ 69020144

Page: 0009



## CERTIFICATE OF SUITABILITY

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CONTINUATION SHEET 8

(Modification 2):

Added additional standard: AS/NZS 4777.2:2015 which is superseded the standards AS 4777.2:2005 and AS 4777.3:2005.

Updated the certificate to include reference to the following standards:

AS/NZS 4777.2:2015;

IEC 62109-1:2010 (Ed. 1.0); and

IEC 62109-2:2011 (Ed. 1.0).

Added the Rating information for power factor range:  
> 0.995 (Adjustable: 0.8 inductive to 0.8 capacitive).

Issue Date: 18/07/2016

Expiry Date: 03/07/2020

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