

DECLARAÇÃO DE CONFORMIDADE DOS MICROINVERSORES TSUNESS COM A PORTARIA INMETRO Nº 515 DE 10 DE NOVEMBRO DE 2023.

DECLARATION OF CONFORMITY OF TSUNESS MICROINVERTERS WITH INMETRO ORDINANCE No. 515 OF NOVEMBER 10, 2023.

TSUNESS CO LTD com sede no endereço 2nd Floor, Building 2, No. 55 Aigehao Road, Weitang Town, Xiangcheng District, Suzhou City, Jiangsu Province, China, **declara** que os microinversores **TSOL-MP3000, TSOL-MS2000 e TSOL-MX2250** estão em **conformidade** com a portaria **Inmetro Nº 515**, de 10 de novembro de 2023, que altera a Portaria Inmetro Nº 140, de 21 de março de 2022.

TSUNESS CO. LTD., headquartered at 2nd Floor, Building 2, No. 55 Aigehao Road, Weitang Town, Xiangcheng District, Suzhou City, Jiangsu Province, China, hereby declares that the microinverters TSOL-MP3000, TSOL-MS2000, and TSOL-MX2250 are in compliance with Inmetro Ordinance No. 515, of November 10, 2023, which amends Inmetro Ordinance No. 140, of March 21, 2022.

A portaria **INMETRO N. 515/2023**, estabelece critérios específicos para a segurança dos inversores fotovoltaicos. Conforme artigo **5.4.8** "os inversores on-grid devem extinguir ou interromper o arco em série em, no máximo, 2,5 s ou antes da energia do arco exceder 750 J, o que ocorrer primeiro, em todas as condições de operação" e conforme artigo **5.4.8.2** "para inversores on-grid com tensão de circuito aberto de até 120V e corrente de curto-circuito de até 20A, a funcionalidade de interrupção do arco elétrico pode ser dispensada, desde que a tecnologia de controle do equipamento garanta a extinção do arco elétrico, em todas as condições de operação."

Inmetro Ordinance No. 515/2023 establishes specific criteria for the safety of photovoltaic inverters. According to article 5.4.8, "on-grid inverters must extinguish or interrupt the series arc in a maximum of 2.5 seconds or before the arc energy exceeds 750 J, whichever occurs first, under all operating conditions." Furthermore, according to article 5.4.8.2, "for on-grid inverters with an open-circuit voltage of up to 120V and a short-circuit current of up to 20A, the electric arc interruption functionality may be waived, provided that the equipment's control technology ensures the extinction of the electric arc under all operating conditions."

Declaramos que a topologia do microinversor TSOL-MP3000 sempre atendeu aos artigos supramencionados da portaria Inmetro 515/2023 sendo recertificado em 31 de Julho de 2024. O microinversor TSOL-MS2000 teve sua topologia ajustada e foi recertificado em 31 de julho de 2024. Por fim, o microinversor TSOL-MX2250 foi desenvolvido e desde a primeira peça fabricada e exportada em conformidade com a portaria 515/2023, sendo certificado pela primeira vez em 25 de outubro de 2024.

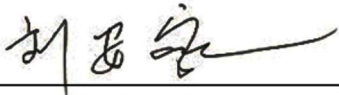
We declare that the topology of the TSOL-MP3000 microinverter has always complied with the aforementioned articles of Inmetro Ordinance 515/2023 and was recertified on July 31, 2024. The TSOL-MS2000 microinverter had its topology adjusted and was recertified on July 31, 2024. Finally, the TSOL-MX2250 microinverter was developed and, since the first unit manufactured and exported, has been in compliance with Ordinance 515/2023, certified for the first time on October 25, 2024.

Anexamos a primeira página de cada *Test Report* (relatório de ensaio), contendo os números, datas e normas atendidas, comprovando a conformidade com as exigências estabelecidas. Os *Test Reports* completos foram protocolados no INMETRO e estão à total disposição de qualquer concessionária mediante solicitação formal.

We are attaching the first page of each Test Report, containing the numbers, dates, and standards met, proving compliance with the established requirements. The complete Test Reports have been filed with INMETRO and are available to any concessionaire upon formal request.

Atesto a veracidade desta declaração, contendo 05 páginas, para os devidos fins.

I hereby certify the truthfulness of this declaration containing 05 pages, for all necessary purposes.

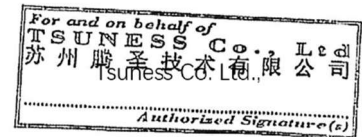


Mr. Andy Liu
CEO



Mr. Chenyang Pei
Product Director

Suzhou, China, February 2, 2025
Tsuness Co. Ltd.,



Headquarter

TSUNESS Co., Ltd

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Test Report - TSOL-MS2000

Report No.: BL-DG2470104-201

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RELATÓRIO DE TESTE
TEST REPORT

Número do aplicativo	PVP06034/24B-02
Application number:	
Candidato	TSUNESS Co., Ltd
Applicant:	
Endereço	2nd Floor, Building 2, No. 55 Aigehao Road, Weitang Town, Xiangcheng District, Suzhou City, Jiangsu Province, P.R. China
Address:	
Tipo de equipamento	Microinversor FV
Equipment Type:	
Nome do modelo	TSOL-MS2000
Model Name:	
Marca	
Brand Name:	
Avaliações	See copy of marking label and model list.
Ratings:	
Padrão de Teste	ABNT NBR 16149:2013, ABNT NBR 16150:2013, ABNT NBR IEC 62116:2012, with deviations of ORDINANCE No. 140, OF MARCH 21, 2022 and ORDINANCE No. 515, OF NOVEMBER 10, 2023
Test Standard:	
Data de chegada da amostra:	Jun. 26, 2023
Sample arrival date:	
Data do teste	Jun. 26, 2023 to Sep. 03, 2023 & Jul. 22, 2024 to Jul. 30, 2024
Test Date:	
Data de emissão	Jul. 31, 2024
Date of Issue:	

PUBLICADO POR / ISSUED BY:

Dongguan BALUN Testing Technology Co., Ltd.

Testado por	Verificado por
Tested by: Leo Sun	Checked by: Tao Zheng



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Template No.: TRP-DG- ABNT NBR 16149 (2022-01-01)

Addr: Room 104 204 205 Building 1 No. 6 Industrial South Road Songshan Lake District Dongguan Guangdong China

Test Report – TSOL-MP3000

Report No.: BL-DG2470103-201

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RELATÓRIO DE TESTE

TEST REPORT

Número do aplicativo	PVP06034/24B-01
Application number:	PVP06034/24B-01
Candidato	TSUNESS Co., Ltd
Applicant:	TSUNESS Co., Ltd
Endereço	2nd Floor, Building 2, No. 55 Aigehao Road, Weitang Town,
Address:	Xiangcheng District, Suzhou City, Jiangsu Province, P.R. China
Tipo de equipamento	Micro inverter
Equipment Type:	Micro inverter
Nome do modelo	TSOL-MP3000
Model Name:	TSOL-MP3000
Marca	
Brand Name:	
Avaliações	See copy of marking label and model list.
Ratings:	See copy of marking label and model list.
Padrão de Teste	ABNT NBR 16149:2013, ABNT NBR 16150:2013,
Test Standard:	ABNT NBR IEC 62116:2012, with deviations of ORDINANCE No. 140, OF MARCH 21, 2022 and ORDINANCE No. 515, OF NOVEMBER 10, 2023
Data do teste	Jun. 26, 2022 to Aug. 18, 2022&
Test Date:	Jul. 22, 2024 to Jul. 30, 2024
Data de emissão	Jul. 31, 2024
Date of Issue:	Jul. 31, 2024

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Add: Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

Test Report – TSOL-MX2250

Report No.: BL-DG24A0056-202

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RELATÓRIO DE TESTE
TEST REPORT

Número do aplicativo Application number:	PVP09031/24B-04
Candidato Applicant:	TSUNESS Co., Ltd
Endereço Address:	2nd Floor, Building 2, No. 55 Aigehao Road, Weitang Town, Xiangcheng District, Suzhou City, Jiangsu Province, P.R. China
Tipo de equipamento Equipment Type:	Microinversor FV
Nome do modelo Model Name:	TSOL-MX2250
Marca Brand Name:	
Avaliações Ratings:	See copy of marking label and model list.
Padrão de Teste Test Standard:	ABNT NBR 16149:2013, ABNT NBR 16150:2013, ABNT NBR IEC 62116:2012, with deviations of ORDINANCE No. 140, OF MARCH 21, 2022 and ORDINANCE No. 515, OF NOVEMBER 10, 2023
Data de chegada da amostra: Sample arrival date:	Sep. 09, 2024
Data do teste Test Date:	Sep. 09, 2024 to Oct. 23, 2024
Data de emissão Date of Issue:	Oct. 25, 2024

PUBLICADO POR / ISSUED BY:

Dongguan BALUN Testing Technology Co., Ltd.

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Simon Qi

