

Technical Report No.: 64.290.22.31063.01

Date: 2023-02-28

Client: INVT Solar Technology (ShenZhen) Co., Ltd.
6th Floor, Block A INVT Guangming Technology Building Kejie
Fourth Road, Shutianpu Community, Matian Guangming District
518000 Shenzhen PEOPLE'S REPUBLIC OF CHINA

Factory: Shenzhen INVT Electric Co., Ltd. (Baoan Factory)
4th to 1st floors of Emerson Industrial Park, No. 3, Fengtang Avenue,
Tangwei Community, Fuhai Street, Baoan District, Shenzhen

Test object: **Product:** Solar Inverter
Model: iMars XG3KTL-1M, iMars XG3KTL-2M, iMars
XG3.68KTL, iMars XG4KTL, iMars XG4.2KTL, iMars
XG4.6KTL, iMars XG5KTL, iMars XG6KTL, iMars
XG7KTL, iMars XG7KTL1, iMars XG8KTL, iMars
XG8KTL1, iMars XG10KTL, iMars XG10KTL1

Test specification: EN 50549-1:2019/AC:2019

Purpose of examination: • Testing and evaluation according to the test specification

Test result: The test results show that the presented product is in compliance
with the above listed test specifications.

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question. It does not imply a general statement regarding the quality of products from regular production. For further details please see testing and certification regulation, chapter A-3.4.

1. Description of the test object

1.1 Picture(s)



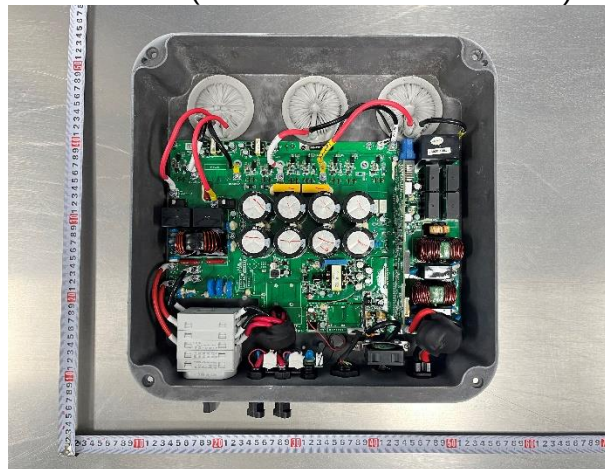
Overall view (LCD cover board)



Overall view (alternative LED cover board)



Terminal view



Internal view

1.2 Function

1. The unit is non-isolated (transformerless) solar inverter for connection with public low voltage grid. The unit is defined as type A generator according to Regulation (EU) 2016/631 (NC RfG);
2. If certain functions are not permitted by local regulation, the function shall be disabled by hardware or software setting (if applicable) by the manufacturer before putting into the market. For example, it's not permissible to draw electricity from the grid and then feed it back in order to claim statutory reimbursement in some nations;

3. Low voltage electrical installations shall comply with national and local regulation. Only qualified electricians are allowed to install and maintain the converter;
4. In order to protect the inverter, user and installer, external DC and AC circuit breaker shall be equipped for all source port (battery, AC grid) at the end-use application.
5. The unit has below reactive power control modes, shall comply with national and local regulation:
 - 1) Q setpoint mode
 - 2) Q(U) mode
 - 3) Cos ϕ setpoint mode
 - 4) Cos ϕ (P)
6. RS 485-1 communication port is provide for remoted control;
7. Software version:V1.0
8. LED panel or LCD panel can be optionally chosen by client.

1.3 Consideration of the foreseeable use

- ☐ Not applicable
☒ Covered through the applied standard
☐ Covered by the following comment*
☐ Covered by attached risk analysis

1.4 Technical Data

Model	iMars XG3KTL- 1M	iMars XG3KTL- 2M	iMars XG3.68K TL	iMars XG4KTL	iMars XG4.2KT L
PV input terminal parameters					
Maximum input voltage	600 Vd.c.				
MPPT voltage range	80-580 Vd.c.				
MPPT voltage range (full load)	190-480 Vd.c.	120-480 Vd.c.	135-480 Vd.c.	145-480 Vd.c.	150-480 Vd.c.
Number of MPPT circuits	1	2	2	2	2
Maximum number of input string per tracker	1	1/1	1/1	1/1	1/1
Maximum continuous input current	20 Ad.c.	20/20 Ad.c.	20/20 Ad.c.	20/20 Ad.c.	20/20 Ad.c.
Isc PV	26 Ad.c.	26/26 Ad.c.	26/26 Ad.c.	26/26 Ad.c.	26/26 Ad.c.

AC output rating					
Rated output voltage	230 Va.c.				
Rated output frequency	50 Hz				
Maximum continuous output current	15 Aa.c.	15 Aa.c.	16 Aa.c.	20 Aa.c.	21 Aa.c.
Rate output active power	3000 W	3000 W	3680 W	4000 W	4200 W
Maximum output apparent power	3300 VA	3300 VA	3680 VA	4400 VA	4620 VA
Power factor	0.9 inductive ... 0.9 capacitive				

Model	iMars XG4.6KT L	iMars XG5KTL	iMars XG6KTL	iMars XG7KTL	iMars XG7KTL1
PV input terminal parameters					
Maximum input voltage	600 Vd.c.				
MPPT voltage range	80-580 Vd.c.				
MPPT voltage range (full load)	160-480 Vd.c.	170-480 Vd.c.	190-480 Vd.c.	230-480 Vd.c.	230V-480 Vd.c.
Number of MPPT circuits	2	2	2	2	2
Maximum number of input string per tracker	1/1	1/1	1/1	1/1	1/2
Maximum continuous input current	20/20 Ad.c.	20/20 Ad.c.	20/20 Ad.c.	20/20 Ad.c.	28/14 Ad.c.
Isc PV	26/26 Ad.c.	26/26 Ad.c.	26/26 Ad.c.	26/26 Ad.c.	36.4/18.2 Ad.c.
AC output rating					
Rated output voltage	230 Va.c.				
Rated output frequency	50 Hz				
Maximum continuous output current	23 Aa.c.	25 Aa.c.	30 Aa.c.	35 Aa.c.	35 Aa.c.
Rate output active power	4600 W	5000 W	6000 W	7000 W	7000 W
Maximum output apparent power	5000 VA	5500 VA	6600 VA	7700 VA	7700 VA
Power factor	0.9 inductive ... 0.9 capacitive				

Model	iMars XG8KTL	iMars XG8KTL1	iMars XG10KTL	iMars XG10KTL1
PV input terminal parameters				
Maximum input voltage	600 Vd.c.			
MPPT voltage range	80-580 Vd.c.			
MPPT voltage range (full load)	250-480 Vd.c.	250-480 Vd.c.	290-480 Vd.c.	290-480 Vd.c.

Number of MPPT circuits	2	2	2	2
Maximum number of input string per tracker	1/1	1/2	1/1	1/2
Maximum continuous input current	20/20 Ad.c.	28/14 Ad.c.	20/20 Ad.c.	28/14 Ad.c.
Isc PV	26/26 Ad.c.	36.4/18.2 Ad.c.	26/26 Ad.c.	36.4/18.2 Ad.c.
AC output rating				
Rated output voltage	230 Va.c.			
Rated output frequency	50 Hz			
Maximum continuous output current	40 Aa.c.	40 Aa.c.	45.5 Aa.c.	45.5 Aa.c.
Rate output active power	8000 W	8000 W	10000 W	10000 W
Maximum output apparent power	8800 VA	8800 VA	10000 VA	10000 VA
Power factor	0.9 inductive ... 0.9 capacitive			

1.5 Rating Label

invt Grid-tied Solar Inverter	
iMars XG3KTL-1M	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A
Isc PV	26A
AC Output	
Nominal Voltage	230V
Max. Current	15A
Rated Power	3000W
Max. Output Power	3300VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
 	
Made in China	
INVT Solar Technology (Shenzhen) Co.,Ltd.	

invt Grid-tied Solar Inverter	
iMars XG3KTL-2M	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	15A
Rated Power	3000W
Max. Output Power	3300VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
 	
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invt Grid-tied Solar Inverter	
iMars XG3.68KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	16A
Rated Power	3680W
Max. Output Power	3680VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
 	
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invt Grid-tied Solar Inverter	
iMars XG4KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	20A
Rated Power	4000W
Max. Output Power	4400VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
	
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invt Grid-tied Solar Inverter	
iMars XG4.2KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	21A
Rated Power	4200W
Max. Output Power	4620VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
	
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invt Grid-tied Solar Inverter	
iMars XG4.6KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	23A
Rated Power	4600W
Max. Output Power	5000VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
	
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invt Grid-tied Solar Inverter	
iMars XG5KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	25A
Rated Power	5000W
Max. Output Power	5500VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
	
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invt Grid-tied Solar Inverter	
iMars XG6KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	30A
Rated Power	6000W
Max. Output Power	6600VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
	
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invt Grid-tied Solar Inverter	
iMars XG7KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	35A
Rated Power	7000W
Max. Output Power	7700VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
	
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invt		Grid-tied Solar Inverter
iMars XG7KTL1		
DC Input		
Vmax. PV	600V	
MPPT Range	80V-580V	
Max. Current	28A/14A	
Isc PV	36.4A/18.2A	
AC Output		
Nominal Voltage	230V	
Max. Current	35A	
Rated Power	7000W	
Max. Output Power	7700VA	
Frequency	50Hz/60Hz	
Power factor range	0.80un~0.80ov	
Environment		
Temperature	-30°C ~ +60°C	
Protective Class	I	
Inverter topology	Non-isolated	
Ingress protection	IP66	
		
		
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invt		Grid-tied Solar Inverter
iMars XG8KTL		
DC Input		
Vmax. PV	600V	
MPPT Range	80V-580V	
Max. Current	20A/20A	
Isc PV	26A/26A	
AC Output		
Nominal Voltage	230V	
Max. Current	40A	
Rated Power	8000W	
Max. Output Power	8800VA	
Frequency	50Hz/60Hz	
Power factor range	0.80un~0.80ov	
Environment		
Temperature	-30°C ~ +60°C	
Protective Class	I	
Inverter topology	Non-isolated	
Ingress protection	IP66	
		
		
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INVT Solar Technology (Shenzhen) Co.,Ltd.		

invt		Grid-tied Solar Inverter
iMars XG8KTL1		
DC Input		
Vmax. PV	600V	
MPPT Range	80V-580V	
Max. Current	28A/14A	
Isc PV	36.4A/18.2A	
AC Output		
Nominal Voltage	230V	
Max. Current	40A	
Rated Power	8000W	
Max. Output Power	8800VA	
Frequency	50Hz/60Hz	
Power factor range	0.80un~0.80ov	
Environment		
Temperature	-30°C ~ +60°C	
Protective Class	I	
Inverter topology	Non-isolated	
Ingress protection	IP66	
		
		
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invt Grid-tied Solar Inverter	
iMars XG10KTL	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	20A/20A
Isc PV	26A/26A
AC Output	
Nominal Voltage	230V
Max. Current	45.5A
Rated Power	10000W
Max. Output Power	10000VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
 	
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INVT Solar Technology (Shenzhen) Co.,Ltd.	

invt Grid-tied Solar Inverter	
iMars XG10KTL1	
DC Input	
Vmax. PV	600V
MPPT Range	80V-580V
Max. Current	28 /14 Ad.c.
Isc PV	36.4/18.2Ad.c
AC Output	
Nominal Voltage	230V
Max. Current	45.5A
Rated Power	10000W
Max. Output Power	10000VA
Frequency	50Hz/60Hz
Power factor range	0.80un~0.80ov
Environment	
Temperature	-30°C ~ +60°C
Protective Class	I
Inverter topology	Non-isolated
Ingress protection	IP66
 	
Made in China	
INVT Solar Technology (Shenzhen) Co.,Ltd.	

2. Order

2.1 Date of Purchase Order, Customer's Reference

2022-09-16

2.2 Test Sample(s)

- Reception date(s): 2022-09-16
- Location(s) of reception: TÜV SÜD Testing Center, D1 building, No. 63 Chuangqi Road, Shilou Town, Panyu District, Guangzhou 511447, P.R. China
- Condition of test sample(s): Intact

2.3 Date(s) of Testing

2022-09-17 to 2023-02-27

2.4 Location(s) of Testing

TÜV SÜD Testing Center, D1 building, No. 63 Chuangqi Road, Shilou Town, Panyu District, Guangzhou 511447, P.R. China

2.5 Points of Non-Compliance or Exceptions of the Test Procedure

- None

3. Test Results

- Decision rule according to IEC Guide 115:2021, clause 4.4.3, 4.5.1 was applied.

3.1 Positive Test Results

Test specification(s)	Report no. / Rev. No.	Date	Remark
Grid Code compliance	64.290.22.31063.01	2023-02-28	N/A

4. Remarks

4.1 General

The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.

5. Documentation

- None

6. Summary

The test specifications are met.

Technical Report



Product Service

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

Tested by:

Lucas Lu

Lucas Lu

printed name, function & signature

Approved by:

Kennen Wang

Kennen Wang

printed name, function & signature



--- End of Report ---