

Technical Report No.: 64.290.22.30766.01

Date: 2022-06-30

Client: **Name:** INVT Solar Technology (ShenZhen) Co., Ltd.

Address: 6th Floor, Block A, INVT Guangming Technology Building, Kejie Fourth Road, Shutianpu Community, Matian, Guangming District, 518000 Shenzhen, PEOPLE'S REPUBLIC OF CHINA

Factory: **Name:** Shenzhen INVT Electric Co., Ltd. Bao'an Branch Factory

Address: F1-F4, No.3 Building, Emerson Industrial Park, Fengtang Road, Tangwei Community, Fuhai, Bao'an District, Shenzhen City, Guangdong Province, 518103, P.R. China

Test object: **Product:** Hybrid Solar Inverter

Model: BD6KTR-RH3, BD8KTR-RH3, BD10KTR-RH3, BD12KTR-RH3, BD15KTR-RH3

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

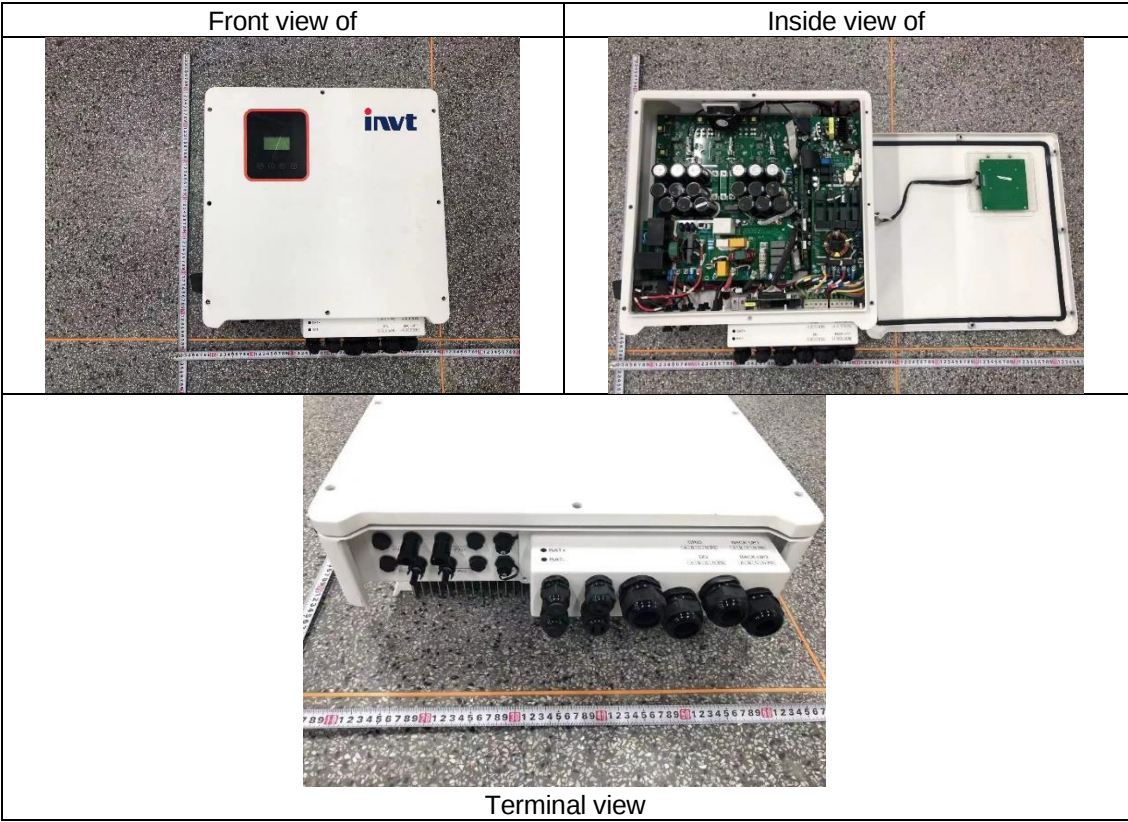
Purpose of examination: • Testing and evaluation according to the test specification

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)



1.2 Function

- (1) The Hybrid Solar Inverter is an isolated (internal industrial frequency transformer used) inverter which apply to converts the DC (direct current) supplied by a battery and PV into grid-compliant AC (alternating current). 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) DRM communication port is provide for remoted control
- (7) Software version: ARM: V1.03.08, DSP: V1.02.11

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	BD6KTR- RH3	BD8KTR- RH3	BD10KTR- RH3	BD12KTR- RH3	BD15KTR- RH3
Battery terminal parameters					
Rated battery DC voltage	200Vd.c.	250Vd.c.	300Vd.c.	350Vd.c.	400Vd.c.
Battery DC voltage range	125-600Vd.c.				
Max charging / discharging current	50 Ad.c.				
Maximum charge/discharge power	15000 W				
Battery type	Lithium-ion				
PV terminal parameters					
Max. Input Power	9000W	12000W	15000W	18000W	22500W
Maximum DC input voltage	1000Vd.c.				
MPPT Range	180~850Vd.c.				
MPPT Range (full load)	250~850 Vd.c.	330~850 Vd.c.	430~850 Vd.c.	510~850 Vd.c.	620~850 Vd.c.
Max. Input Current	2*13Ad.c.				
Isc PV	2*16 Ad.c.				2*25Ad.c.
Grid terminal parameters					
Rated output Power	6000W	8000W	10000W	12000W	15000W
Maximum continuous output apparent power	6600VA	8800VA	11000VA	13200VA	16500VA
Max. AC output current	9.5Aa.c.	12.7Aa.c.	15.9Aa.c.	19.1Aa.c.	23.8Aa.c.
Maximum continuous input apparent power	13200VA	17600VA	22000VA	26400VA	33000VA
Max. AC input current	19Aa.c.	25.5Aa.c.	31.9Aa.c.	38.2Aa.c.	47.6Aa.c.
Rated AC voltage	230/400Va.c., 3W+N+PE				
Rated AC frequency	50Hz				
Power factor	0.9 lagging to 0.9 leading				
Backup terminal parameters					
Rated apparent power	6000VA	8000VA	10000VA	12000VA	15000VA
Maximum continuous output apparent power	6600VA	8800VA	11000VA	13200VA	16500VA
Max. AC current	9.5Aa.c.	12.7Aa.c.	15.9Aa.c.	19.1Aa.c.	23.8Aa.c.
Rated AC voltage	230/400Va.c., 3W+N+PE				
Rated AC frequency	50Hz				

1.5 Rating Label

Hybrid Solar Inverter BD6KTR-RH3		
PV input port	Max. PV input power	9kW
	Max. PV input voltage	1000Vd.c.
	MPPT voltage range	180-850Vd.c.
	Full Power MPPT voltage range	250-850Vd.c.
	Max. PV input current	2*13Ad.c.
Battery input port	Isc PV(absolute maximum)	2*16Ad.c.
	Rated battery voltage	200V
	Battery voltage range	125V-600V
	Rated battery charge /discharge current	40/40Ad.c.
	Max. battery charge /discharge current	50/50Ad.c.
Grid output/input port	Battery type	Lithium-ion
	Rated grid voltage	3W+N+PE, 230/400V
	Rated grid frequency	50Hz/60Hz
	Rated output power	6000W
	Max. grid output apparent power	6600VA
Eps output port	Max. grid output current	9.5Aa.c.
	Max. grid input apparent power	13200VA
	Max. grid input current	19Aa.c.
	Rated EPS voltage	3W+N+PE, 230/400V
	Rated EPS frequency	50Hz/60Hz
General information	Max. EPS output apparent power	6600VA
	Max. EPS output current	9.5Aa.c.
	Adjustable cos (φ)	0.8ind...0.8cap
	Operating temperature range	-25.....+60℃
	Inverter topology	Non-Isolated
Ingress protection IP65		
Protective class I		
Overvoltage category II(PV),III(MAINS)		
Made in China		

Hybrid Solar Inverter BD8KTR-RH3		
PV input port	Max. PV input power	12kW
	Max. PV input voltage	1000Vd.c.
	MPPT voltage range	180-850Vd.c.
	Full Power MPPT voltage range	330-850Vd.c.
	Max. PV input current	2*13Ad.c.
Battery input port	Isc PV(absolute maximum)	2*16Ad.c.
	Rated battery voltage	250V
	Battery voltage range	125V-600V
	Rated battery charge /discharge current	40/40Ad.c.
	Max. battery charge /discharge current	50/50Ad.c.
Grid output/input port	Battery type	Lithium-ion
	Rated grid voltage	3W+N+PE, 230/400V
	Rated grid frequency	50Hz/60Hz
	Rated output power	8000W
	Max. grid output apparent power	8800VA
Eps output port	Max. grid output current	12.7Aa.c.
	Max. grid input apparent power	17600VA
	Max. grid input current	25.5Aa.c.
	Rated EPS voltage	3W+N+PE, 230/400V
	Rated EPS frequency	50Hz/60Hz
General information	Max. EPS output apparent power	8800VA
	Max. EPS output current	12.7Aa.c.
	Adjustable cos (φ)	0.8ind...0.8cap
	Operating temperature range	-25.....+60℃
	Inverter topology	Non-Isolated
Ingress protection IP65		
Protective class I		
Overvoltage category II(PV),III(MAINS)		
Made in China		

Hybrid Solar Inverter BD10KTR-RH3		
PV input port	Max. PV input power	15kW
	Max. PV input voltage	1000Vd.c.
	MPPT voltage range	180-850Vd.c.
	Full Power MPPT voltage range	430-850Vd.c.
	Max. PV input current	2*13Ad.c.
Battery input port	Isc PV(absolute maximum)	2*16Ad.c.
	Rated battery voltage	300V
	Battery voltage range	125V-600V
	Rated battery charge /discharge current	40/40Ad.c.
	Max. battery charge /discharge current	50/50Ad.c.
Grid output/input port	Battery type	Lithium-ion
	Rated grid voltage	3W+N+PE, 230/400V
	Rated grid frequency	50Hz/60Hz
	Rated output power	10000W
	Max. grid output apparent power	11000VA
Eps output port	Max. grid output current	15.9Aa.c.
	Max. grid input apparent power	22000VA
	Max. grid input current	31.9Aa.c.
	Rated EPS voltage	3W+N+PE, 230/400V
	Rated EPS frequency	50Hz/60Hz
General information	Max. EPS output apparent power	11000VA
	Max. EPS output current	15.9Aa.c.
	Adjustable cos (φ)	0.8ind...0.8cap
	Operating temperature range	-25.....+60℃
	Inverter topology	Non-Isolated
Ingress protection IP65		
Protective class I		
Overvoltage category II(PV),III(MAINS)		
Made in China		

		
Hybrid Solar Inverter BD12KTR-RH3		
PV input port	Max. PV input power	18kW
	Max. PV input voltage	1000Vd.c.
	MPPT voltage range	180-850Vd.c.
	Full Power MPPT voltage range	510-850Vd.c.
	Max. PV input current	2*13Ad.c.
Battery input port	Isc PV(absolute maximum)	2*16Ad.c.
	Rated battery voltage	350V
	Battery voltage range	125V-600V
	Rated battery charge /discharge current	40/40Ad.c.
	Max. battery charge /discharge current	50/50Ad.c.
Grid output/input port	Battery type	Lithium-ion
	Rated grid voltage	3W+N+PE, 230/400V
	Rated grid frequency	50Hz/60Hz
	Rated output power	12000W
	Max. grid output apparent power	13200VA
Eps output port	Max. grid output current	19.1Aa.c.
	Max. grid input apparent power	26400VA
	Max. grid input current	38.2Aa.c.
	Rated EPS voltage	3W+N+PE, 230/400V
	Rated EPS frequency	50Hz/60Hz
General information	Max. EPS output apparent power	13200VA
	Max. EPS output current	19.1Aa.c.
	Adjustable cos (φ)	0.8ind...0.8cap
	Operating temperature range	-25.....+60℃
	Inverter topology	Non-Isolated
	Ingress protection	IP65
	Protective class	I
	Overvoltage category	II(PV),III(MAINS)
		
		
Made in China		

		
Hybrid Solar Inverter BD15KTR-RH3		
PV input port	Max. PV input power	22.5kW
	Max. PV input voltage	1000Vd.c.
	MPPT voltage range	180-850Vd.c.
	Full Power MPPT voltage range	620-850Vd.c.
	Max. PV input current	2*13Ad.c.
Battery input port	Isc PV(absolute maximum)	2*25Ad.c.
	Rated battery voltage	400V
	Battery voltage range	125V-600V
	Rated battery charge /discharge current	40/40Ad.c.
	Max. battery charge /discharge current	50/50Ad.c.
Grid output/input port	Battery type	Lithium-ion
	Rated grid voltage	3W+N+PE, 230/400V
	Rated grid frequency	50Hz/60Hz
	Rated output power	15000W
	Max. grid output apparent power	16500VA
Eps output port	Max. grid output current	23.8Aa.c.
	Max. grid input apparent power	33000VA
	Max. grid input current	47.6Aa.c.
	Rated EPS voltage	3W+N+PE, 230/400V
	Rated EPS frequency	50Hz/60Hz
General information	Max. EPS output apparent power	16500VA
	Max. EPS output current	23.8Aa.c.
	Adjustable cos (φ)	0.8ind...0.8cap
	Operating temperature range	-25.....+60℃
	Inverter topology	Non-Isolated
	Ingress protection	IP65
	Protective class	I
	Overvoltage category	II(PV),III(MAINS)
		
		
Made in China		



2 Order

2.1 Date of Purchase Order, Customer's Reference

2021-08-02, 2022-06-22

2.2 Test Sample(s)

- Reception date(s): 2021-08-02, 2022-06-22
- Location(s) of reception: TÜV SÜD Testing Center, D1 building, No. 63 Chuangqi Road, Shilou Town, Panyu District, Guangzhou 511447, China
- Condition of test sample(s): Intact

2.3 Date(s) of Testing

2022-02-19 to 2022-05-19, 2022-06-22 to 2022-06-28

2.4 Location(s) of Testing

TÜV SÜD Testing Center, D1 building, No. 63 Chuangqi Road, Shilou Town, Panyu District, Guangzhou 511447, 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:	64.290.22.30766.01	2022-06-30	-

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.

4.2 The co-license certificate application is based on the following main license certificate:

Certificate No.: D 115385 0004 Rev. 00

Report No.: 64.290.21.30682.01

License holder: Shenzhen Megarevo Technology Co., Ltd.

Model No.: R6KH3, R8KH3, R10KH3, R12KH3, R15KH3

(for model BD6KTR-RH3, BD8KTR-RH3, BD10KTR-RH3, BD12KTR-RH3, BD15KTR-RH3 in co-license)

5 Documentation

- None

6 Summary

The test specifications are met.

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

Tested by:

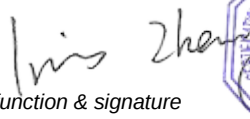
Yuneng Chen



printed name, function & signature

Approved by:

Iris Zheng



printed name, function & signature



--- End of Report ---