



Prüfbericht / Verification report

Baugleichheitsprüfung zwischen den in der Original-Lizenz und OEM-Lizenz abgedeckten Produkten / System identity check between the products covered in the original licence and products covered by the CO-Licence

(zum Zweck der OEM Zertifizierung bezüglich Netzintegration / For the purpose of OEM certification regarding grid integration)

Labor / Laboratory:	Intertek Testing Services Shanghai. Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China.
Bericht-Nr. / Report no.	221201552SHA-001
Ausstellungsdatum / Date of issue	2022-12-27
Geprüft durch / Checked by:	Cain Meng/ Test Engineer
Freigegeben durch / Approved by:	Billy Chen/ Reviewer
Original-Zertifikatinhaber / Original licence holder	NingBo Deye Inverter Technology Co., Ltd. No. 26 South YongJiang Road, Daqi, Beilun, NingBo, China
CO-Lizenzinhaber / CO-licence holder	Apex Solar Energy Technology GmbH Reisholzer Werftstr. 76, Düsseldorf, 40589 Germany
Bewertung der Baugleichheitsprüfung / Verdict of system identity check	<input checked="" type="checkbox"/> konform / conform <input type="checkbox"/> Nicht konform / not conform
Bemerkung / Remark	-----
Prüfzeitraum / Date (s) of performance of verification:	2022-12-16 ~ 2022-12-26

1 Gegenstand der Begutachtung / Evaluation object:

	Original-Lizenz / Original licence	OEM-Lizenz / OEM licence
Produkttyp / Product type	Hybrid-Wechselrichter (PV Wechselrichter mit DC-gekoppelte Speicher)/ Hybrid inverter (PV inverter with DC-coupled storage)	
Handelsmarke / Trademark		
Typenbezeichnung / Type designation	SUN-6K-SG04LP3-EU, SUN-8K-SG04LP3-EU, SUN-10K-SG04LP3-EU, SUN-12K-SG04LP3-EU	APEX-E-P3-6KL, APEX-E-P3-8KL, APEX-E-P3-10KL, APEX-E-P3-12KL

2 Auflistung der zugrunde gelegten Dokumente / Listing of provided documents:

Hauptzertifikat Nr. / Main certificate no.	22SHD1013-01 22SHD1014-01
Prüfbericht Nr. / Test report no.	220701547SHA-001 220701547SHA-002 220701547SHA-003

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3 Firmware Version / Firmware version:

Original-Lizenz / Original licence (Informationen dem Prüfbericht entnommen / Information taken from test report)	OEM-Lizenz / OEM licence (Informationen dem Prüfmuster entnommen / Information taken from test sample)	Berwertung, Anmerkung / Verdict, Remark
Ver C00D (Communication Board); Ver 1023 (Control Board)	Ver C00D (Communication Board); Ver 1023 (Control Board)	Pass, the firmware version is identical

Anmerkung / Note:

4 Typenschild / type label:

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Do not touch the terminal or remove the shell within 5 minutes after all power is disconnected. - Keep the equipment well ventilated. - To avoid electric shock and warranty void, do not remove covers. - No operator serviceable component inside. <p style="font-size: 8px;">Add: No.26 South Yongqiang Road, Daqi, Beilun, Ningbo, China</p>	Product type		Hybrid inverter	Enclosure		IP65	Ambient Temperature		-40~60°C (>45°C derating)	Protection Level		Class I	Over Voltage Category		III (AC), II (DC)	Inverter topology		Non-isolated	Battery Voltage Range	48Vd.c.(40V~60V)	Battery Charge Current	240Ad.c.Max	AC Input Voltage	3LN/PE 230/400Va.c.	AC Input Frequency	50/60Hz	AC Input Rated Current	17.4Aa.c.	Rated AC Input Power	12000W	PV Input Voltage	550V(160V~800V)	MPPT Input Range	200Vd.c.-650Vd.c.	PV Input Current	26Ad.c.=13Ad.c.	Max. PV Input Power	15600W	Max. PV I _{sc}	34Ad.c.=17Ad.c.	AC Output Voltage	3LN/PE 230/400Va.c.	AC Output Frequency	50/60Hz	Max. AC output Current	19.1Aa.c.	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(zum Zweck der OEM Zertifizierung bezüglich Netzintegration / For the purpose of OEM certification regarding grid integration)

Deye

Model No: SUN-10K-SG04LP3-EU

Product type	Hybrid inverter
Enclosure	IP65
Ambient Temperature	-40-60°C (>45°C derating)
Protection Level	Class I
Over Voltage Category	III (AC), II (DC)
Inverter topology	Non-isolated

Charge Mode

Battery Voltage Range	48Vd.c.(40V-60V)
Battery Charge Current	210Ad.c.Max
AC Input Voltage	3L/N/PE 230/400Va.c.
AC Input Frequency	50/60Hz
AC Input Rated Current	14.5Aa.c.
Rated AC Input Power	10000W
PV Input Voltage	550V(160V~800V)
MPPT Input Range	200Vd.c.-650Vd.c.
PV Input Current	26Ad.c.+13Ad.c.
Max. PV Input Power	13000W
Max. PV I _{sc}	34Ad.c.+17Ad.c.

Utility-Interactive

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
Max. AC output Current	15.9Aa.c.
AC Output Rated Power	10000W
Max. Apparent Power	11000VA
AC Output Power Factor	0.8 leading to 0.8 lagging
Max. AC I _{sc}	75Aa.c.
Battery Discharge Voltage Range	40V-60Vd.c.
Battery Discharge Current	210Ad.c.Max
Battery Discharge Power	10000W

Stand Alone

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
AC Output Rated Current	14.5Aa.c.
Max. AC Output Current	21.7Aa.c.Max
Max. Apparent Power	11000VA
Max. Continuous AC Passthrough	45Aa.c.
Peak Output Power	20000W 10Seconds
Battery Discharge Voltage Range	40V-60Vd.c.
Max. Discharge Current	210Ad.c.Max

This Grid support interactive inverter complies with IEC/EN 62109-1, IEC/EN 62109-2



CAUTION:

- High voltage, warning electric shock!
- The capacitors store hazardous energy. Do not touch the terminal or remove the shell within 5 minutes after all power is disconnected.
- Keep the equipment well ventilated.
- To avoid electric shock and warranty void, do not remove covers.
- No operator serviceable component inside.

Add: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China

APEX

Model No.: APEX-E-P3-10KL

Product type	Hybrid inverter
Enclosure	IP65
Ambient Temperature	-40-60°C (>45°C derating)
Protection Level	Class I
Over Voltage Category	III (AC), II (DC)
Inverter topology	Non-isolated

Charge Mode

Battery Voltage Range	48Vd.c.(40V-60V)
Battery Charge Current	210Ad.c.Max
AC Input Voltage	3L/N/PE 230/400Va.c.
AC Input Frequency	50/60Hz
AC Input Rated Current	14.5Aa.c.
Rated AC Input Power	10000W
PV Input Voltage	550V(160V~800V)
MPPT Input Range	200Vd.c.-650Vd.c.
PV Input Current	26Ad.c.+13Ad.c.
Max. PV Input Power	13000W
Max. PV I _{sc}	34Ad.c.+17Ad.c.

Utility-Interactive

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
Max. AC output Current	15.9Aa.c.
AC Output Rated Power	10000W
Max. Apparent Power	11000VA
AC Output Power Factor	0.8 leading to 0.8 lagging
Max. AC I _{sc}	75Aa.c.
Battery Discharge Voltage Range	40V-60Vd.c.
Battery Discharge Current	210Ad.c.Max
Battery Discharge Power	10000W

Stand Alone

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
AC Output Rated Current	14.5Aa.c.
Max. AC Output Current	21.7Aa.c.Max
Max. Apparent Power	11000VA
Max. Continuous AC Passthrough	45Aa.c.
Peak Output Power	20000W 10Seconds
Battery Discharge Voltage Range	40V-60Vd.c.
Max. Discharge Current	210Ad.c.Max

This Grid support interactive inverter complies with IEC/EN 62109-1, IEC/EN 62109-2



CAUTION:

- High voltage, warning electric shock!
- The capacitors store hazardous energy. Do not touch the terminal or remove the shell within 5 minutes after all power is disconnected.
- Keep the equipment well ventilated.
- To avoid electric shock and warranty void, do not remove covers.
- No operator serviceable component inside.

Add: No.76, Reisholzer Werft Road, Duesseldorf, Germany 40589

Prüfbericht / Verification report

Baugleichheitsprüfung zwischen den in der Original-Lizenz und OEM-Lizenz abgedeckten Produkten / System identity check between the products covered in the original licence and products covered by the CO-Licence

(zum Zweck der OEM Zertifizierung bezüglich Netzintegration / For the purpose of OEM certification regarding grid integration)

Deye

Model No: SUN-8K-SG04LP3-EU

Product type	Hybrid inverter
Enclosure	IP65
Ambient Temperature	-40-60°C (>45°C derating)
Protection Level	Class I
Over Voltage Category	III (AC), II (DC)
Inverter topology	Non-isolated

Charge Mode

Battery Voltage Range	48Vd.c.(40V-80V)
Battery Charge Current	190Ad.c.Max
AC Input Voltage	3L/N/PE 230/400Va.c.
AC Input Frequency	50/60Hz
AC Input Rated Current	11.6Aa.c.
Rated AC Input Power	8000W
PV Input Voltage	550V(160V-800V)
MPPT Input Range	200Vd.c.-650Vd.c.
PV Input Current	13Ad.c.+13Ad.c.
Max. PV Input Power	10400W
Max. PV I _{sc}	17Ad.c.+17Ad.c.

Utility-Interactive

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
Max. AC output Current	12.8Aa.c.
AC Output Rated Power	8000W
Max. Apparent Power	8800VA
AC Output Power Factor	0.8 leading to 0.8 lagging
Max. AC I _{sc}	75Aa.c.
Battery Discharge Voltage Range	40V-60Vd.c.
Battery Discharge Current	190Ad.c.Max
Battery Discharge Power	8000W

Stand Alone

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
AC Output Rated Current	11.6Aa.c.
Max. AC Output Current	17.4Aa.c.Max
Max. Apparent Power	8800VA
Max. Continuous AC Passthrough	45Aa.c.
Peak Output Power	16000W 10Seconds
Battery Discharge Voltage Range	40V-60Vd.c.
Max. Discharge Current	190Ad.c.Max

This Grid support interactive inverter complies with IEC/EN 62109-1, IEC/EN 62109-2



CAUTION:

- High voltage, warning electric shock!
- The capacitors store hazardous energy. Do not touch the terminal or remove the shell within 5 minutes after all power is disconnected.
- Keep the equipment well ventilated.
- To avoid electric shock and warranty void, do not remove covers.
- No operator serviceable component inside.

Add: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China

APEX

Model No.: APEX-E-P3-8KL

Product type	Hybrid inverter
Enclosure	IP65
Ambient Temperature	-40-60°C (>45°C derating)
Protection Level	Class I
Over Voltage Category	III (AC), II (DC)
Inverter topology	Non-isolated

Charge Mode

Battery Voltage Range	48Vd.c.(40V-60V)
Battery Charge Current	190Ad.c.Max
AC Input Voltage	3L/N/PE 230/400Va.c.
AC Input Frequency	50/60Hz
AC Input Rated Current	11.6Aa.c.
Rated AC Input Power	8000W
PV Input Voltage	550V(160V-800V)
MPPT Input Range	200Vd.c.-650Vd.c.
PV Input Current	13Ad.c.+13Ad.c.
Max. PV Input Power	10400W
Max. PV I _{sc}	17Ad.c.+17Ad.c.

Utility-Interactive

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
Max. AC output Current	12.8Aa.c.
AC Output Rated Power	8000W
Max. Apparent Power	8800VA
AC Output Power Factor	0.8 leading to 0.8 lagging
Max. AC I _{sc}	75Aa.c.
Battery Discharge Voltage Range	40V-60Vd.c.
Battery Discharge Current	190Ad.c.Max
Battery Discharge Power	8000W

Stand Alone

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
AC Output Rated Current	11.6Aa.c.
Max. AC Output Current	17.4Aa.c.Max
Max. Apparent Power	8800VA
Max. Continuous AC Passthrough	45Aa.c.
Peak Output Power	16000W 10Seconds
Battery Discharge Voltage Range	40V-60Vd.c.
Max. Discharge Current	190Ad.c.Max

This Grid support interactive inverter complies with IEC/EN 62109-1, IEC/EN 62109-2



CAUTION:

- High voltage, warning electric shock!
- The capacitors store hazardous energy. Do not touch the terminal or remove the shell within 5 minutes after all power is disconnected.
- Keep the equipment well ventilated.
- To avoid electric shock and warranty void, do not remove covers.
- No operator serviceable component inside.

Add: No.76, Reisholzer Werft Road, Duesseldorf, Germany 40589

Prüfbericht / Verification report

Baugleichheitsprüfung zwischen den in der Original-Lizenz und OEM-Lizenz abgedeckten Produkten / System identity check between the products covered in the original licence and products covered by the CO-Licence

(zum Zweck der OEM Zertifizierung bezüglich Netzintegration / For the purpose of OEM certification regarding grid integration)

Deye

Model No: SUN-6K-SG04LP3-EU

Product type	Hybrid inverter
Enclosure	IP65
Ambient Temperature	-40-60°C (>45°C derating)
Protection Level	Class I
Over Voltage Category	III (AC), II (DC)
Inverter topology	Non-isolated

Charge Mode

Battery Voltage Range	48Vd.c.(40V-60V)
Battery Charge Current	150Ad.c.Max
AC Input Voltage	3L/N/PE 230/400Va.c.
AC Input Frequency	50/60Hz
AC Input Rated Current	8.7Aa.c.
Rated AC Input Power	6000W
PV Input Voltage	550V(160V~800V)
MPPT Input Range	200Vd.c.-650Vd.c.
PV Input Current	13Ad.c.+13Ad.c.
Max. PV Input Power	7800W
Max. PV I _{sc}	17Ad.c.+17Ad.c.

Utility-Interactive

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
Max. AC output Current	9.6Aa.c.
AC Output Rated Power	6000W
Max. Apparent Power	6600VA
AC Output Power Factor	0.8 leading to 0.8 lagging
Max. AC I _{sc}	75Aa.c.
Battery Discharge Voltage Range	40V-60Vd.c.
Battery Discharge Current	150Ad.c.Max
Battery Discharge Power	6000W

Stand Alone

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
AC Output Rated Current	8.7Aa.c.
Max. AC Output Current	13Aa.c.Max
Max. Apparent Power	6600VA
Max. Continuous AC Passthrough	45Aa.c.
Peak Output Power	12000W 10Seconds
Battery Discharge Voltage Range	40V-60Vd.c.
Max. Discharge Current	150Ad.c.Max

This Grid support interactive inverter complies with IEC/EN 62109-1, IEC/EN 62109-2



CAUTION:

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- Keep the equipment well ventilated.
- To avoid electric shock and warranty void, do not remove covers.
- No operator serviceable component inside.

Add: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China

APEX

Model No.: APEX-E-P3-6KL

Product type	Hybrid inverter
Enclosure	IP65
Ambient Temperature	-40-60°C (>45°C derating)
Protection Level	Class I
Over Voltage Category	III (AC), II (DC)
Inverter topology	Non-isolated

Charge Mode

Battery Voltage Range	48Vd.c.(40V-60V)
Battery Charge Current	150Ad.c.Max
AC Input Voltage	3L/N/PE 230/400Va.c.
AC Input Frequency	50/60Hz
AC Input Rated Current	8.7Aa.c.
Rated AC Input Power	6000W
PV Input Voltage	550V(160V~800V)
MPPT Input Range	200Vd.c.-650Vd.c.
PV Input Current	13Ad.c.+13Ad.c.
Max. PV Input Power	7800W
Max. PV I _{sc}	17Ad.c.+17Ad.c.

Utility-Interactive

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
Max. AC output Current	9.6Aa.c.
AC Output Rated Power	6000W
Max. Apparent Power	6600VA
AC Output Power Factor	0.8 leading to 0.8 lagging
Max. AC I _{sc}	75Aa.c.
Battery Discharge Voltage Range	40V-60Vd.c.
Battery Discharge Current	150Ad.c.Max
Battery Discharge Power	6000W

Stand Alone

AC Output Voltage	3L/N/PE 230/400Va.c.
AC Output Frequency	50/60Hz
AC Output Rated Current	8.7Aa.c.
Max. AC Output Current	13Aa.c.Max
Max. Apparent Power	6600VA
Max. Continuous AC Passthrough	45Aa.c.
Peak Output Power	12000W 10Seconds
Battery Discharge Voltage Range	40V-60Vd.c.
Max. Discharge Current	150Ad.c.Max

This Grid support interactive inverter complies with IEC/EN 62109-1, IEC/EN 62109-2



CAUTION:

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- To avoid electric shock and warranty void, do not remove covers.
- No operator serviceable component inside.

Add: Reisholzer Wertfstr. 76, Düsseldorf, 40589 Germany

Anmerkung / Note:

All the ratings are identical.

Prüfbericht / Verification report

Baugleichheitsprüfung zwischen den in der Original-Lizenz und OEM-Lizenz abgedeckten Produkten / System identity check between the products covered in the original licence and products covered by the CO-Licence

(zum Zweck der OEM Zertifizierung bezüglich Netzintegration / For the purpose of OEM certification regarding grid integration)

5 Auflistung der kritischen Komponenten / Listing of the critical components:

Original-Lizenz / Original licence	OEM-Lizenz / OEM licence	Bewertung, Anmerkung / Verdict, Remark
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Anmerkung / Note:

all components in the Original- and OEM-licence models are identical, except the enclosure parts, which have no influence on the certified electrical property of the models).

Prüfbericht / Verification report

Baugleichheitsprüfung zwischen den in der Original-Lizenz und OEM-Lizenz abgedeckten Produkten / System identity check between the products covered in the original licence and products covered by the CO-Licence

(zum Zweck der OEM Zertifizierung bezüglich Netzintegration / For the purpose of OEM certification regarding grid integration)

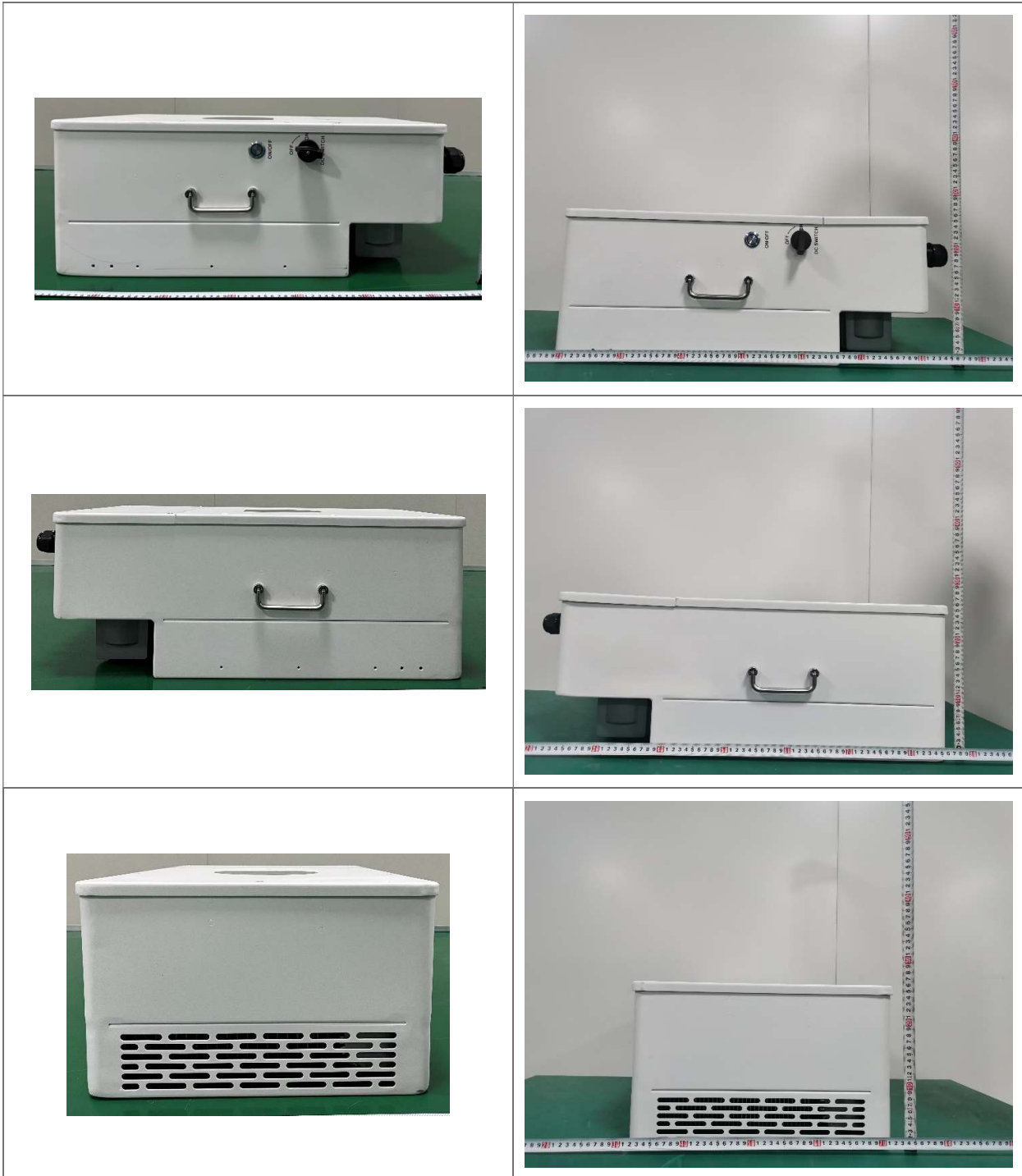
6 Foto der Einheit / Photo of the unit:

<p style="text-align: center;">Original-Lizenz / Original licence (Informationen dem Prüfbericht entnommen / Information taken from test report)</p>	<p style="text-align: center;">OEM-Lizenz / OEM licence (Informationen dem Prüfmuster entnommen / Information taken from test sample)</p>
	
	

Prüfbericht / Verification report

Baugleichheitsprüfung zwischen den in der Original-Lizenz und OEM-Lizenz abgedeckten Produkten / System identity check between the products covered in the original licence and products covered by the CO-Licence

(zum Zweck der OEM Zertifizierung bezüglich Netzintegration / For the purpose of OEM certification regarding grid integration)





Anmerkung / Note: