REGIONE MARCHE
PROV. DI ANCONA
SIROLO

INTERVENTI IN ATTIVITÀ LIBERA
ai sensi del D.Lgs. 190/2024 - Allegato A, Sezione I, lettera t

OGGETTO:

PROGETTO IMPIANTO ACCUMULO ELETTROCHIMICO STANDALONE DENOMINATO "SIROLO BESS" DI POTENZA IN IMMISSIONE E PRELIEVO PARI A 8.200 kW SITO NEL COMUNE DI SIROLO (AN)

LOCALITÀ:

Via Betellico

ELABORATO:

Schede tecniche dei componenti

Progettazione	*Codice*	*Elaborato N*	*Scala*		*Data*
P.D.	REL	02	NA	Schede tecniche dei componenti	03/2026

REVISIONI

Rev	*Data*	*Descrizione*	*Eseguito*	*Verificato*	*Approvato*
00	03/2026	Istanza AEL	M.Esposito	M.Esposito	V.Palumbo

PROPONENTE

Trinasolar

TRINA SOLAR ITALY SYSTEMS S.R.L.
P.IVA 10784100967
Piazza Borromeo 14, 20123 Milano, Italia

PROGETTISTA:

ORDINE INGEGNERI ANCONA
Ing. PALUMBO Vincenzo
civile ed ambientale
A - 775
SEZIONE A

VINCENZO PALUMBO

Model: LUNA2000-5015-2S
Smart String Grid Forming ESS



All-architecture Safety

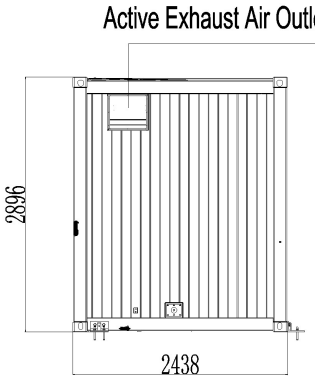
All-scenario Grid forming

All-lifecycle Cost-effectiveness

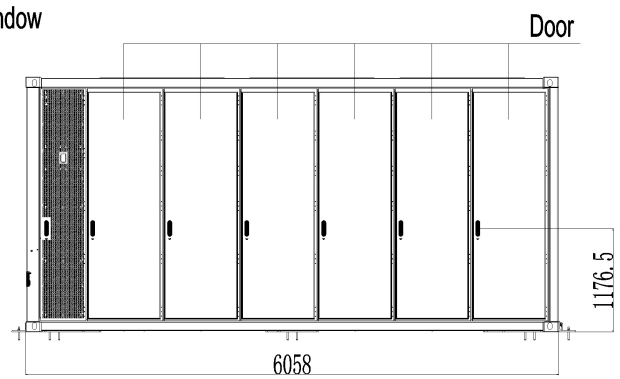
All-rounder Digitalization

Battery Container	
Model	LUNA2000-5015-2S
DC Rated Voltage	1,331.2 V
DC Max. Voltage	1,500 V
Nominal Energy Capacity	5,015 kWh
Charge & Discharge Rate	≤ 0.5 CP
Rated Power	2,507.5 kW
Dimension (W x H x D)	6,058 x 2,896 x 2,438 mm
Weight	< 43 t
Operation Temperature Range	-30°C ~ 55°C
Storage Temperature Range	-40°C ~ 60°C
Relative Humidity	0 ~ 100% (Non-condensing)
Max. Operating Altitude	4,700 m
Cooling Method	Liquid Cooling
Fire Suppression System	Water Sprinkler, NOVEC 1230
Communication Interface	Ethernet / SFP
Communication Protocol	Modbus TCP
Protection Degree	IP55
Anti-corrosion Degree	C5-Medium
Standards Compliance	
RoHS, IEC62477-1, IEC62040-1, IEC61000-6-2, IEC62933-5-2, UL9540A, IEC62619, UN38.3, etc.	
Battery Pack	
Cell Material	LFP
Number of Cell	104
Nominal Capacity	314 Ah / 104.49 kWh
Protection Degree	IP65
Weight	< 710 kg
Dimensions (W x H x D)	785 x 249 x 2135 mm

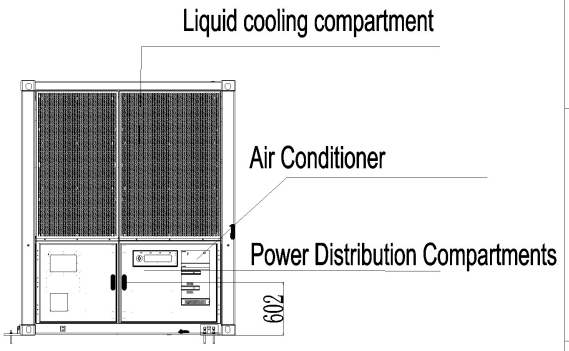
REV	ECA NO.	DESCRIPTION



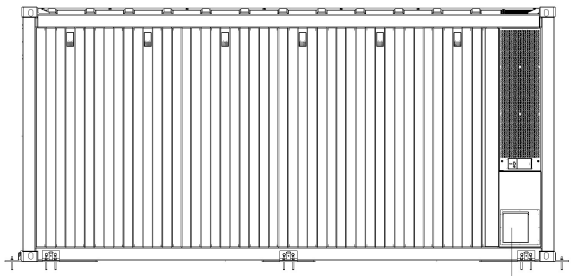
Right View



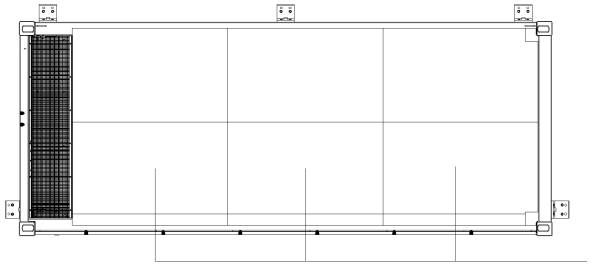
Front View



Left View

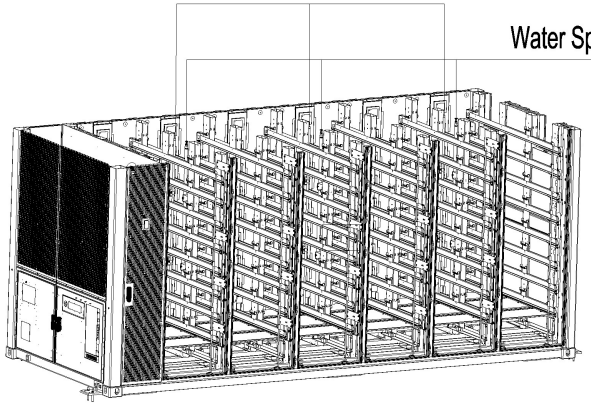


Back View



Top view

Active Air Exhaust Intake Window



Note: For reference only

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HUAWEI DIGITAL POWER TECHNOLOGIES CO., LTD.

TITLE: Layout Diagram of Smart String ESS

DRAW:wang.jiabin	DATE:2024-01-10	UNIT'S:	DWG NO:
CHKD:jiangzhishun	DATE:2024-01-10	FINISH:	
STAD:dingyu	DATE:2024-01-10	MASS(Kg):	PART NO: REV
APPD:quyuan	DATE:2024-01-10	SCALE:	
PRODUCT:		SHEET: 1 OF 2	MAT'L:

A3

Smart String ESS
Battery Pack & Smart Rack Controller



Battery Pack[1]	
General	
Cell Material	LFP
Pack Configuration	18S 1P
Rated Voltage	57.6 V
Nominal Capacity	280 Ah / 16.13 kWh
Supported Charge & Discharge Rate	≤ 1 C
Weight	≤ 140 kg
Dimensions (W x H x D)	442 x 307 x 660 mm



Smart Rack Controller[1]	
Battery Side	
Rated Voltage	1,209.6 V
Operating Voltage Range	40 V ~ 1,400 V
Rated Power Voltage Range	1,075 V ~ 1,320 V
Min. Start Voltage	350 V
Bus Side	
Max. DC Voltage	1,500 V
Rated Voltage	1,250 V
Rated Current	275.2 A
Rated Power	344,000 W
General	
Dimensions (W x H x D)	600 x 270 x 820 mm
Weight	≤ 90 kg
Cooling Method	Smart Air Cooling
Protection Degree	IP66

1 - Applies to LUNA2000-2.0MWH / 1.0MWH series models.

Model: LUNA2000-213KTL-H0
Smart PCS



Max. Efficiency 99%

Modular Design

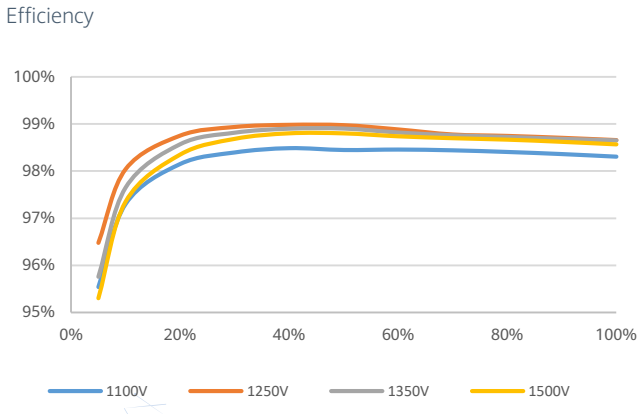
IP66 Protection

Built-in Intelligent Active Breaking Device

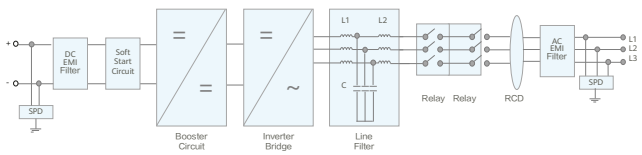
Dual-stage Architecture

Smart Grid Forming Algorithm

Efficiency Curve



Circuit Diagram



LUNA2000-213KTL-H0

Model: LUNA2000-213KTL-H0

Technical Specifications

Efficiency	
Max. Efficiency	99.01%
DC Side	
Rated DC Voltage	1,331 V
Max. DC Voltage	1,500 V
Operating DC Voltage Range	800 V ~ 1,500 V
Rated Power Operating Voltage Range	1100V-1500V
Max. DC Current	218.5 A
Max. Number of Inputs	1
AC Side	
Rated AC Active Power	213,000 W @40°C; 192,000 W @50°C
Max. Apparent Power	236,400 VA
Rated AC Voltage	800 V
Rated AC Grid Frequency	50 Hz / 60 Hz
Max. AC Current	170.6 A
Adjustable Power Factor Range	-1 ... +1
Max. Total Harmonic Distortion	THD_i ≤ 1.5% (Rated)
Protection	
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
Insulation Resistance Detection	Yes
Residual Current Protection	Yes
DC Surge Protection	Type II
AC Surge Protection	Type II
Communication	
Display	LED Indicators, WLAN + APP
USB	Yes
Communication Protocol	Ethernet, CAN
General	
Dimension (W x H x D)	875 x 865 x 365 mm
Weight	≤ 110 kg
Operating Temperature Range	-25°C ~ 60°C
Cooling Method	Smart Air Cooling
Max. Operating Altitude without Derating	4,700 m
Relative Humidity	0 ~ 100% (Non-condensing)
DC Connector	OT / DT Terminal
AC Connector	OT / DT Terminal
Protection Degree	IP66
Anti-corrosion Degree	C5-Medium
Topology	Transformerless
Standards Compliance	
GB/T 34120, GB/T 34133, IEC/EN62477-1, etc.	

DCBOX-9/5-H0
DC LV Panel

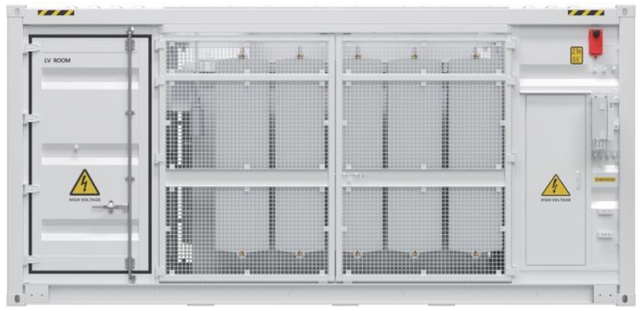


Electrical	
Max. Input Voltage	1,500 V
Nominal Input Voltage	1,200 V
Max. Branch Current for Battery Rack Side	321 A
Max. Branch Current for PCS Side	193 A
Number of DC Circuit Breaker	14
Max. Input Number of Battery Rack	9
Max. Input Number of PCS	5
Max. Convergence Capacity	5 x 193 A
Protection	
DC Overcurrent Protection	Yes
Environment	
Operating Temperature Range	-30°C ~ 60°C
Relative Humidity	0 ~ 100% (Non-condensing)
Max. Operating Altitude	4,000 m
General	
Cable Entries	Top in for PCS & Bottom in for Battery Rack
Dimensions (W x H x D)	2,040 x 1,415 x 975 mm
Weight (Without Smart PCS)	≤ 750 kg
DC Connector / AC Connector	OT Terminal
Protection Degree	IP55
Installation Options	Grounding

1 -The DCBOX can work with the LUNA2000-200KTL series models.

Smart Transformer Station

JUPITER-11000K/7000K/3000K-HD1(Built-in SACU)



Simple

Prefabricated and Pre-tested, No Internal Cabling Needed Onsite
Compact 20' HC Container Design for Easy Transportation

Efficient

High Efficiency Transformer for Higher Yields
Lower Self-consumption for Higher Yields

Safe

Meets IEC 61641; Up to Class C arcing protection on LV side; Update the function for MV protection; Change to upward arc discharge; Meets IEC 62271-202 IAC-A

Smart

Real-time Detection of Transformer, LV Panel and RMU
High Precision Sensor of LV Electricity Parameters
Remote Control of ACB and MV Circuit Breaker

Reliable

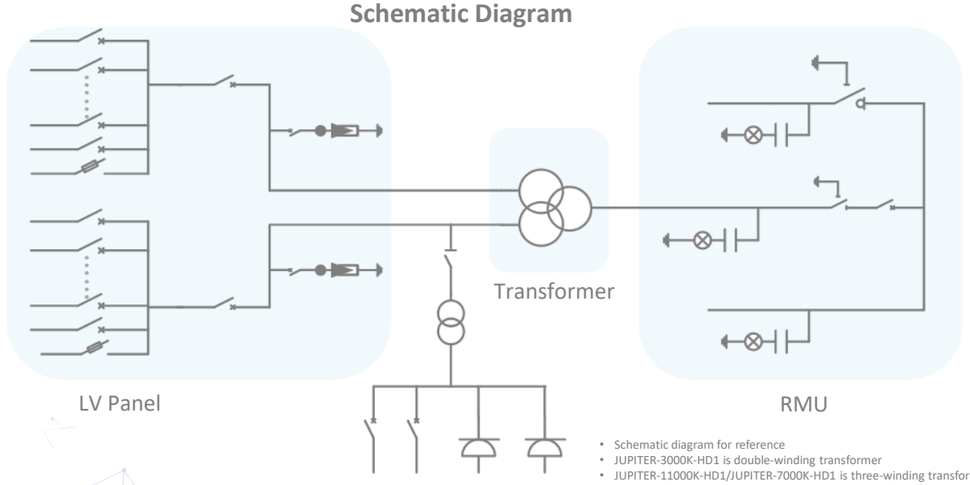
Robust Design against Harsh Environments
Optimal Cooling Design for High Availability and Easy O&M; Comprehensive Tests from Components; Device to Solution

Environmental Protection

STS Can support natural ester vegetable oils Environmentally friendly
Oil-free sump design, Simplify O&M
Natural gas insulation, free of F-gases, is more environmental friendly.
Voltage ≤24KV

1. More detailed AC power of STS, please refer to the de-rating curve.
2. General output voltage levels for the Italian market (more available upon request):
a) 30 kV for internal distribution in High Voltage connected plants
b) 36 kV for specific High Voltage connections (available only for JUPITER-3000K-HD1 and JUPITER-7000K-HD1)
c) 20 kV for Medium Voltage connections with adjusted short circuit impedance (see CEI 0-16 §8.5.13)
3. Natural Gas Insulated, up to 24 kV, the switchgear contains the insulating gas Clean Air 0543. Clean Air is a natural gas (Natural-Origin-Gas) according to IEC 62271-4.
4. Extra expense needed for optional features which standard product doesn't contain, more options upon request.
5. When ambient temperature ≥55°C, awning shall be equipped for STS on site by customer.
6. For higher operating altitude, please consult with Huawei.

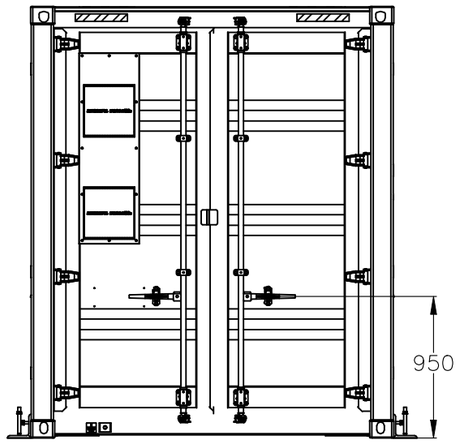
Schematic Diagram



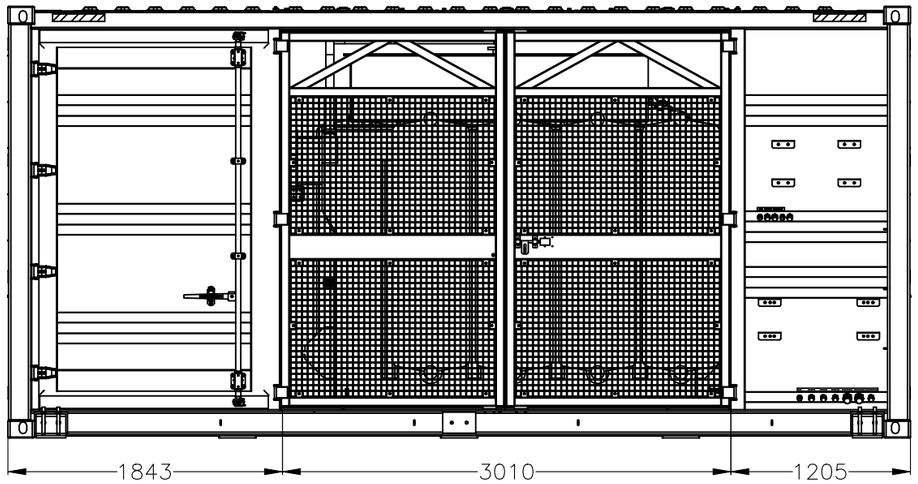
- Schematic diagram for reference
- JUPITER-3000K-HD1 is double-winding transformer
- JUPITER-11000K-HD1/JUPITER-7000K-HD1 is three-winding transformer
- Only the DVC solution is shown in the figure., the CVC solution is optional

Technical Specifications	JUPITER-11000K-HD1(built-in SACU)	JUPITER-7000K-HD1(built-in SACU)	JUPITER-3000K-HD1(built-in SACU)
Input			
Available Inverters / PCS	SUN2000-506KTL-H1		
Max. MCCB inputs	24	16	8
Max. LV AC Inputs	24	16	8
AC Power	11,040 kVA @40°C[1]	7,360 kVA @40°C[1]	3,680 kVA @40°C[1]
Rated Input Voltage	1000 V		
LV Panel Segregation	Form 2b		
LV Main Switches	ACB (4,000 A, 2 x 1 pcs)	ACB (2,900 A, 2 x 1 pcs)	ACB (2,900 A, 1 x 1 pcs)
LV Main Switches	MCCB (400 A, 2 x 12 pcs)	MCCB (400 A, 2 x 8 pcs)	MCCB (400 A, 8 pcs)
Output			
Rated Output Voltage	30 kV[2a]	30 kV[2a], 36 kV[2b]	20 kV[2c], 30 kV[2a], 36 kV[2b]
Frequency	50 Hz		
Transformer Type	Oil-immersed, Conservator Type		
Transformer Cooling Type	Mineral Oil: ONAN or Natural Ester: KNAN		
Transformer Tappings	± 2 x 2.5%		
Transformer Oil Type	Mineral Oil (PCB Free) or Natural ester oil (Optional)		
Transformer Vector Group	Dy11-y11		Dy11
Transformer Min. Peak Efficiency Index	Tier 1 or Tier 2 In Accordance with EN 50588-1		
RMU Type	SF6 Gas Insulated or Natural Gas Insulated[3]		
RMU Transformer Protection Unit	MV Vacuum Circuit Breaker Unit		
RMU Cable Incoming / Outgoing Unit	Direct Cable Unit or Cable Load Break Switch Unit		
Auxiliary Transformer	Dry Type Transformer, Single-phase, 5 kVA, Single-phase, li0 (standard) 50kVA, Three-phase, Dyn11 (Optional)		
Output Voltage of Auxiliary Transformer	400/230/220/210V		
Protection			
Transformer Detection & Protection	Oil Level, Oil Temperature, Oil Pressure and Buchholz		
Protection Degree of MV & LV Room	IP 54		
Internal Arcing Fault of STS	Standard IAC A 20 kA 1s (standard) or IAC A 25 kA 1s (Optional)		
MV Arc Releasing	MV Upward Arc Releasing for Higher Safety, Meets IEC 62271-202 IAC-A		
LV Arc Releasing	Meets IEC 61641 up to Class C arcing protection on LV side		
MV Relay Protection	DVC/CVC Standard 50/51, 50N/51N DVC High Standard 50/51, 50N/51N, 87, 50BF, 51G, Inrush Blocking, Watchdog, 49T (External trip), FR (Optional) CVC High Standard 50/51, 50N/51N, 49, 86, 27, 59, 79, 74, 59N, 50BF, Inrush Blocking, Watchdog, 49T(External Trip), FR (Optional)		
LV Overvoltage Protection	Type I+II		
Anti-corrosion Protection	C5-M		
Feature			
2 kVA UPS	Optional[4]		
MV Surge Arrester for Transformer	Optional[4]		
IMD License	Optional[4]		
General			
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20' HC ISO Container)		
Weight	< 28 t	< 23 t	< 17 t
Operating Temperature Range	-25°C ~ 60°C[5]		
Relative Humidity	0% ~ 95% (Non-condensing)		
Max. Operating Altitude	1,000 m[6]		
MV-LV AC Connections	Prewired and Pretested, No Internal Cabling Onsite		
LV & MV Room Cooling	Smart Cooling without Air-across for Higher Availability		
Communication	Modbus TCP, Preconfigured with SmartACU		
Standards Compliance			
IEC 62271-202, EN 50708-1, IEC 60076, IEC 62271-200, IEC 61439-1			

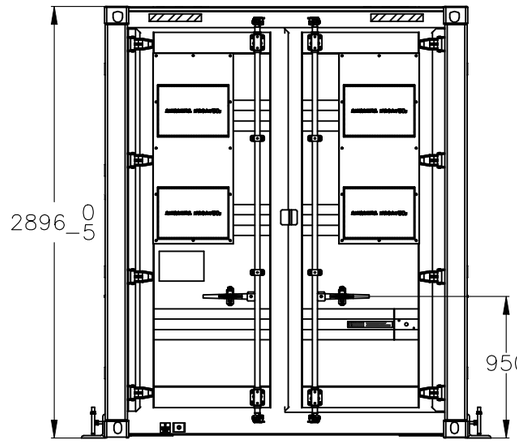
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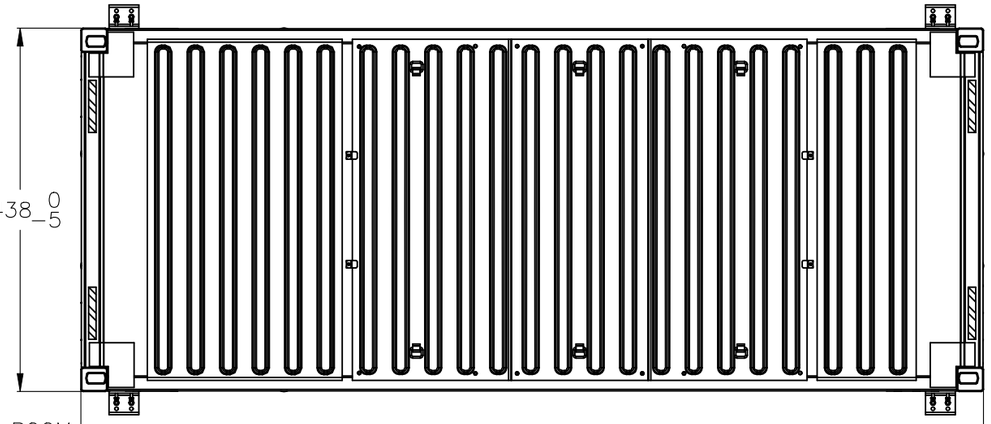
Right side view



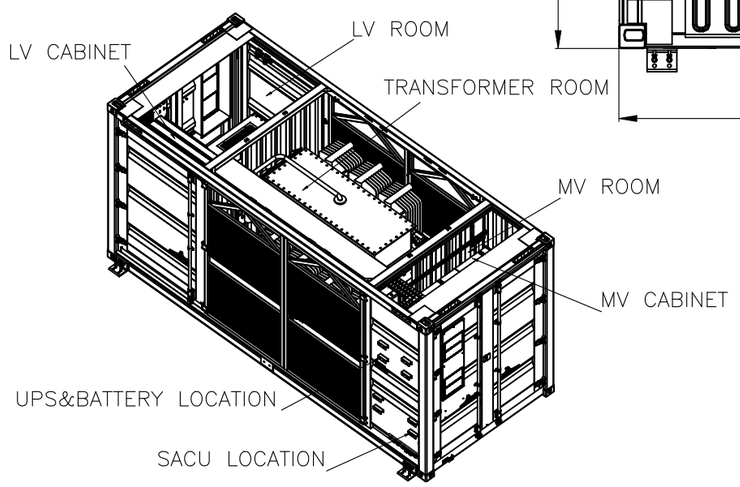
Front view



Left side view



Top view



RELEASE LEVEL: Production Release

FILE NAME:

.X		HUAWEI TECHNOLOGIES Co. LTD			TITLE: Layout drawing for JUPITER-3000K		
.XX							
.XXX		ANG	DRAW: li fengguang	2023-01-13	UNIT'S:	DWG NO.: DKBA21095775_ZZ.ASM	
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			STAD: zhou peng	2023-01-13	MASS(Kg):	PART NO.:	REV
			APPD: wang xishan	2023-01-13	SCALE:		A
			PRODUCT: JUPITER-3000K		SHEET: 1 OF 1	MAT'L:	

Model: DTS-200K-D0
Distribution Transformer



Electrical	
AC Power	210 kVA@ 400 Vac / 4 kVA@ 110 Vac
Rated Input Voltage	800 Vac
Max. Input Current at Nominal Voltage	151.6 A
Rated Output Voltage	400V (3P) /110V (1P)
Rated Frequency	50 / 60 Hz
Transformer Type	Dry Type
Transformer Cooling Type	AF
Transformer Vectoring Group	Dyn11yn11
Transformer Tappings	± 2 x 2.5%
Transformer Winding	Al
Transformer Insulation Class	H
Transformer Impedance (at 145°C)	4% (±10%) @50Hz / 4.8% (±10%) @60Hz
Transformer No-load Loss	≤ 500 W (+15%)
Transformer Load Loss	≤ 3,044 W (+15%)
Cablings	
Number of outputs	Five MCCBs, each connected to two outputs
Cabling mode	Routed in and out from the bottom
Protection	
Protection Degree	IP 55
LV SPD	Type II
Transformer Protection	Transformer Temperature Protection
Environment	
Operating Temperature Range	- 30℃ ~ 55℃
Relative Humidity	0% ~ 95% (Non-condensing)
Max. Operating Altitude	4,000 m
General	
Dimensions (W x H x D)	900 x 2,100 x 1,200 mm
Weight	< 1.3 t
Communication Mode	Dry Contacts
Cooling Type	Smart Cooling without Air-across for Higher Availability
Standards Compliance	
IEC 60076, IEC 61439	