LISTING REPORT/INSPECTION PROCEDURE

620 Old Peachtree Road NW, Suite 100, Suwanee, GA 30024 USA (770) 570-1800

Test Report Number: SHES251202355331

A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of

- Energy Storage Systems and Equipment – ANSI/CAN/UL 9540:2023, Third Edition, dated June 28, 2023

Issuing Laboratory .....:	SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Address.....:	588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Applicant (Certificate Holder).....:	Shanghai PYTES Energy Co., Ltd.
Address.....:	No. 3492 Jinqian Road, Qingcun Town, Fengxian District, Shanghai, 201400, China
Contact Details .....:	Zhang Lin Phone: +86 13104603326 E-mail: lin_zhang_lz@pytesgroup.com
Manufacturer.....:	Shanghai PYTES Energy Co., Ltd.
Address.....:	No. 3492 Jinqian Road, Qingcun Town, Fengxian District, Shanghai, 201400, China
Contact Details .....:	Zhang Lin Phone: +86 13104603326 E-mail: lin_zhang_lz@pytesgroup.com
Factory.....:	Shanghai PYTES Energy Co., Ltd.
Address.....:	No. 3492 Jinqian Road, Qingcun Town, Fengxian District, Shanghai, 201400, China
Contact Details .....:	Zhang Lin Phone: +86 13104603326 E-mail: lin_zhang_lz@pytesgroup.com

Product Type.....:	**DC Energy Storage System**
Trademark .....:	**PYTES**
Product description.....:	The products covered by this report are permanently connected DC Energy Storage System for use in household or electric power systems. The units are suitable for installation in indoor / outdoor locations. The installation should be in accordance with the National Electrical Code, NFPA 70 and Installation of Stationary Energy Storage Systems, NFPA 855.
Model Number(s) .....:	**HV48100 SE 1P8S ESS, HV48100 SE 1P9S ESS, HV48100 SE 1P10S ESS, HV48100 SE 1P11S ESS, HV48100 SE 1P12S ESS, HV48100 SE 1P13S ESS, HV48100 SE 1P14S ESS, HV48100 SE 1P15S ESS, HV48100 SE 2P3S ESS, HV48100 SE 2P4S ESS, HV48100 SE 2P5S ESS, HV48100 SE 2P6S ESS, HV48100 SE 2P7S ESS, HV48100 SE Lite 1P8S ESS, HV48100 SE Lite 1P9S ESS, HV48100 SE Lite 1P10S ESS, HV48100 SE Lite 1P11S ESS, HV48100 SE Lite 1P12S ESS, HV48100 SE Lite 1P13S ESS, HV48100 SE Lite 1P14S ESS, HV48100 SE Lite 1P15S ESS, HV48100 SE Lite 2P3S ESS, HV48100 SE Lite 2P4S ESS, HV48100 SE Lite 2P5S ESS, HV48100 SE Lite 2P6S ESS, HV48100 SE Lite 2P7S ESS**
Model Differences.....:	All models have identical mechanical and electrical construction. The model difference between “HV48100 SE 1P8S ESS” and “HV48100 SE Lite 1P8S ESS” is that “HV48100 SE 1P8S ESS” equipped with a fire protection system, “HV48100 SE Lite 1P8S ESS” not equipped. The same with all of the models without “Lite” and with “Lite”. The model difference of “1P8S-1P15S”, “2P3S-2P7S” defines the number of series and parallel connections. “1P” indicates 1 parallel of modules and 1 high-voltage box, “2P” indicates 2 parallels of modules and 2 high-voltage boxes, “3S-15S” indicates the number of battery modules in each series.

Electrical Ratings .....: HV48100 SE 1P8S~HV48100 SE 1P15S ESS includes:

1 series of batteries HV48100 SE BMU8-BMU15 and Battery box HV48100 SE OC.

Battery Type LFP,

Battery Voltage Range:

1P8S 380Vdc~460.8Vdc,
1P9S 427.5Vdc~518.4Vdc,
1P10S 475Vdc~576Vdc,
1P11S 522.5Vdc~633.6Vdc,
1P12S 570Vdc~691.2Vdc,
1P13S 617.5Vdc~748.8Vdc,
1P14S 665Vdc~806.4Vdc,
1P15S 712Vdc~864Vdc,

Max Charge / Discharge Current: 50A,

Max Energy Output: 5.12kWh*n (n=8~15),

Charge Temperature: 0~57°C, Discharge Temperature: -18~57°C, 6000 cycles.

HV48100 SE 2P3S~HV48100 SE 2P7S ESS includes:

2 series of batteries HV48100 SE BMU3-BMU7 and Battery box HV48100 SE OC.

Battery Type LFP,

Battery Voltage Range:

2P3S 142.5Vdc~172.8Vdc,
2P4S 190Vdc~230.4Vdc,
2P5S 237.5Vdc~288Vdc,
2P6S 285Vdc~345.6Vdc,
2P7S 332.5Vdc~403.2Vdc,

Max Charge / Discharge Current: 50A*2,

Max Energy Output: 5.12kWh*2*n (n=3~7),

Charge Temperature: 0~57°C, Discharge Temperature: -18~57°C, 6000 cycles.

HV48100 SE Lite 1P8S~HV48100 SE Lite 1P15S ESS includes:

1 series of batteries HV48100 SE BMU8-BMU15 / Battery box HV48100 SE OC Lite.

Battery Type LFP,

Battery Voltage Range:

1P8S 380Vdc~460.8Vdc,

	1P9S 427.5Vdc~518.4Vdc, 1P10S 475Vdc~576Vdc, 1P11S 522.5Vdc~633.6Vdc, 1P12S 570Vdc~691.2Vdc, 1P13S 617.5Vdc~748.8Vdc, 1P14S 665Vdc~806.4Vdc, 1P15S 712Vdc~864Vdc, Max Charge / Discharge Current: 50A, Max Energy Output: 5.12kWh*n (n=8~15), Charge Temperature: 0~57°C, Discharge Temperature: -18~57°C, 6000 cycles. HV48100 SE Lite 2P3S~ HV48100 SE Lite 2P7S ESS includes: 2 series of batteries HV48100 SE BMU3-BMU7 / Battery box HV48100 SE OC Lite. Battery Type LFP, Battery Voltage Range: 2P3S 142.5Vdc~172.8Vdc, 2P4S 190Vdc~230.4Vdc, 2P5S 237.5Vdc~288Vdc, 2P6S 285Vdc~345.6Vdc, 2P7S 332.5Vdc~403.2Vdc, Max Charge / Discharge Current: 50A*2, Max Energy Output: 5.12kWh*2*n (n=3~7), Charge Temperature: 0~57°C, Discharge Temperature: -18~57°C, 6000 cycles.
Other Ratings.....:	IP55
Accessories.....:	N/A

Testing Laboratory .....:	Suzhou Institute of Product Quality Supervision and Inspection
Address.....:	2/F North C, Building 2, No.50, North Guandu Road, Wuzhong District, Suzhou, Jiangsu, China
Date of receipt of test item.....:	2025-11-30
Date(s) of performance of tests .....:	2026-01-05 to 2026-01-10
Certification Conditions (X Condition) .....:	The DC Energy Storage System is to be installed in accordance with the National Electrical Code NFPA 70 (National Electric Code) or CSA C22.1 (Canadian Electric Code) and Installation of Stationary Energy Storage Systems, NFPA 855 by end user.
Component Conditions (U Condition) .....:	N/A

CO-LISTING PAGE

CO-LISTING APPLICANT I

Applicant's Name: _____

Address: _____

_____

Primary Contact: _____

Phone: _____

Email: _____

Product Correlation:

Basic Models	Co-Listed Models	Note any differences between Basic and Co-Listed models

CO-LISTING APPLICANT II

Applicant's Name: _____

Address: _____

_____

_____

Primary Contact: _____

Phone: _____

Email: _____

Product Correlation:

Basic Models	Co-Listed Models	Note any differences between Basic and Co-Listed models

GENERAL INFORMATION

Components
Components used in the covered products must be those outlined in the latest edition of the Listing Report.

Listing Marking
This report along with a valid certificate authorizes the certificate holder to use the Listing Marking of SGS North America only on products covered by this report and in accordance with the Product Certification Program Policy Handbook.

Production Line Tests
Manufacturing and Production Tests shall be performed as required by this Report.

Responsibility of the Manufacturer and Factory
1) It is the manufacturer and factory's responsibility to restrict the use of markings which reference SGS to those products which are found by the manufacturers own inspection to comply with the product description in this report. This includes reference to SGS directly and/or indirectly.

2) During hours in which the factory is in operation, the SGS inspector shall be given unlimited access to any portion of the premises where the product and/or parts are being produced, assembled, inspected and labeled; and to the test area designated for routine tests. The SGS inspector shall be permitted to inspect and subject the products to prescribed tests prior to shipment any product bearing or intended to bear marking referencing SGS.

3) The factory shall provide all required testing equipment and facilities including trained personnel for conducting all routine tests that are to be performed at the factory. These shall be available when needed so that the inspection work can proceed without delays.

Follow up Inspections
As part of the SGS Follow-Up inspection, it is required that an inspector periodically visit the factory location(s) and select for examination and/or testing, the most recent production sample of the product covered in the Listing Report.

SGS Inspector
1) A product which is found by the SGS inspector to have features which make it unacceptable to bear marking referencing SGS shall be corrected if the listing marking is to be used. The inspector shall carefully check additional production for such features until conditions are considered normal.

2) A product which does not comply with the provisions of the listing report shall have all reference to SGS removed. If the rejection of the product is questioned by the factory representative, it may be put on hold in separate area of location pending appeal. The factory shall satisfy the inspector that all marks referencing SGS are removed from the rejected material or finished product. Factory shall destroy product and or turn over to inspector for destruction.

3) All discrepancies between the product and the listing report shall be immediately stated to the attention of the factory representative. This shall be noted in the follow-up inspection report as a discrepancy.

GENERAL CONSTRUCTIONAL REQUIREMENTS TO BE VERIFIED

Construction Details - This section specifies construction and component details in addition to the critical components table which are to be verified during factory follow-up inspections.

1. Mechanical Assembly – A wiring device shall be prevented from any turning that can apply tension to conductor connections, result in damage to the conductor, or otherwise adversely affect the assembly. Friction alone between the mating parts of the assembly shall not be acceptable to prevent turning.

2. Corrosion – All bare metal parts are protected against corrosion by coating, painting, plating or other means specifically identified in the specific construction details unless these metal parts inherently possess such properties to resist corrosion.

3. Accessibility of Live Parts – All uninsulated live parts in primary circuitry are housed within a metallic enclosure constructed without openings unless otherwise described in the construction details.

4. Grounding – All dead-metal parts external or within the enclosure that are exposed to contact during normal or any servicing operation are connected to the equipment grounding terminal. The methods of protective bonding and grounding of an ESS shall be in accordance with Article 250 of NFPA 70 or Section 9 of IEEE C2 as applicable to where the system is located. When sizing the protective bonding and grounding wire, the rating and fault current path of all sources of supply connected to the equipment or system shall be considered. In Canada, the methods of bonding and grounding of an ESS shall be in accordance with Section10 and 36 of CSA C22.1.

5. Conductor Protection - Conductors that pass over edges or through openings in metal shall be secured from contacting the edges or be protected from cutting and abrasion. For sheet metal less than 1.1 mm thick, protection shall be provided by one of the following methods:
   (a) rolling the edge of the metal not less than 120 degrees;
   (b) a bushing or grommet of a material other than rubber at least 1.2 mm thick; or
   (c) glass sleeving at least 0.25 mm thick.

6. Internal Wiring – UL/CUL listed. Internal wiring shall be routed, supported, clamped or secured in a manner that reduces the likelihood of excessive strain on wire and on terminal connections; loosening of terminal connections: and damage of conductor insulation.

7. Wire Connectors – UL/CUL listed of UL486A-486B.

8. Heat Shrinkable Tubing – UL recognized of materials, covered on wire connectors.

9. Marking and Labeling Systems – Pressure-sensitive labels and nameplates of the permanent type (Type P) that are secured by adhesive shall be in accordance with CSA C22.2 No. 0.15 or UL 969, suitable for damp locations and rated min. 60 °C when applied on Canopy.

10. Installation, Operating and Safety Instructions – Instructions for installation and use of this product are provided by the manufacturer as required by the standards.

11. Opening and/or knockout – Opening and/or knockout for conduit or armored cable will be provided in field, then suitable conduit hubs shall be used to guarantee minimum 12.7mm spacing to wall shall be guaranteed.

12. Field wiring – The field wiring for different part of system will not be provided by Manufacturer, so suitable wire size and number shall be chosen according to National Electrical Code, NFPA 70, the Canadian Electrical Code, Part I Safety Standard for Electrical Installations, C22.1, or the National Electrical Safety Code, IEEE C2 as applicable to where the system is located.

ROUTINE TESTS FOR MANUFACTURING AND PRODUCTION

The manufacturer shall perform the following Manufacturing and Production Tests on 100% of equipment produced which has both hazardous live parts and accessible conductive parts.

Required Tests

Dielectric Voltage Withstand Test
Grounding Continuity Test
Check of Safety Controls

Dielectric Voltage Withstand Test

A dielectric withstand test as outlined in the Dielectric Voltage Withstand Test in Section 32 shall be conducted on 100 % production of ESS with working voltage exceeding 60 Vdc or 30 Vrms/42.4 Vpeak.

Section 32:

The dielectric voltage withstand test is an evaluation of the electrical spacings and insulation associated with the hazardous voltage circuits within the DUT.
Circuits at 42.4Vpeak / 30Vrms or 60Vdc or higher shall be subjected to a dielectric withstand voltage in accordance with the “Determining clearances using required withstand voltage” clause of UL 62368-1/CSA C22.2 No. 62368-1.
Exception No. 1: Semiconductors or similar electronic components liable to be damaged by application of the test voltage shall be bypassed or disconnected.
Exception No. 2: The dielectric voltage withstand test need not be conducted on integral ESS, fuel cells, and inverter systems, etc. that have already been evaluated in accordance with their individual standard requirements. Only those electrical parts external to the tested systems and their connections not previously evaluated need to be tested.

The voltage applied during the dielectric voltage withstand test is to be applied between the hazardous voltage circuits of the DUT and accessible non-current carrying conductive parts.
The voltage applied during the dielectric voltage withstand test is also to be applied between the hazardous voltage charging circuit and the enclosure/accessible non-current carrying conductive parts of the DUT.
The voltages applied during the dielectric voltage withstand test shall be applied for a minimum of 1 min.
The test equipment shall consist of a 500VA or larger capacity transformer, the output voltage, which is variable and which is essentially sinusoidal if using ac test method, a dc output if using a dc test method. There is no trip current setting for the test equipment since the test is checking for insulation breakdown, which results in a large increase of current. Setting a trip current may result in a false failure of this test, as it is not necessarily indicative of insulation breakdown.
Exception: A 500VA or larger capacity transformer need not be used if the transformer is provided with a voltmeter that directly measures the applied output potential.

There shall be no evidence of a dielectric breakdown (breakdown of insulation resulting in a short through insulation/arcing over electrical spacings) as evidenced by an appropriate signal from the dielectric withstand test equipment as a result of the applied test voltage. Corona discharge or a single momentary discharge is not regarded as dielectric breakdown (i.e. insulation breakdown).

Exception No. 1: The time for the production Dielectric Withstand Test can be reduced to 1s.
Exception No. 2: Testing can be conducted on subassemblies of the system.
Exception No. 3: Testing can be waived if conducted as part of the specific technology evaluation (i.e. tested per UL 1973, etc.).

Grounding Continuity Test

Method

The grounding and bonding system of an ESS shall be subjected to a check using an impedance measuring device. The measurements shall occur between any two locations of the grounding and bonding system.
No resistance measurements of the grounding and bonding system shall exceed 0.1Ω or if using the test method in (d), the compliance criteria shall be in accordance with IEC 60364-4-41.

The impedance of the system grounding and bonding circuit shall be determined using one of the following methods:

a) The circuit between the grounding terminal and the part to be grounded is measured using impedance measuring equipment;
b) In accordance with the Continuity of the Equipment Grounding Circuit section, Section 18.2 of NFPA 79 (voltage drop measurement of the circuit using a 10 A low voltage supply source); or
c) In accordance with test in the “Resistance of the Protective Bonding System” clause, Clause 5.6.6 of UL 62368-1/CSA C22.2 No. 62368-1 (measuring voltage drop in circuit using a low voltage supply source providing a current based upon circuit protection rating).
d) The fault loop impedance measurement in accordance with IEC 60364-4-41.

In Canada, the circuit under test is referred to as the bonding circuit per CSA C22.1.

Exception: This testing can be waived if it is determined that the ESS construction and production methods to ensure good grounding and bonding of the system production can be determined through a review of production practices. However, if any point of the grounding system is maintained through a single fastener, a ground bond test shall be conducted.

Check of safety controls

Energy storage systems shall be subjected to 100% production screening to determine that any active controls utilized for safety are functioning.
Exception: This check of the safety controls can be conducted on subassemblies or components of the system before final assembly

PHOTOGRAPHS

DC Energy Storage System
HV48100 SE 1P8S~1P15S ESS, HV48100 SE 2P3S~2P7S ESS,
HV48100 SE Lite 1P8S~1P15S ESS, HV48100 SE Lite 2P3S~2P7S ESS

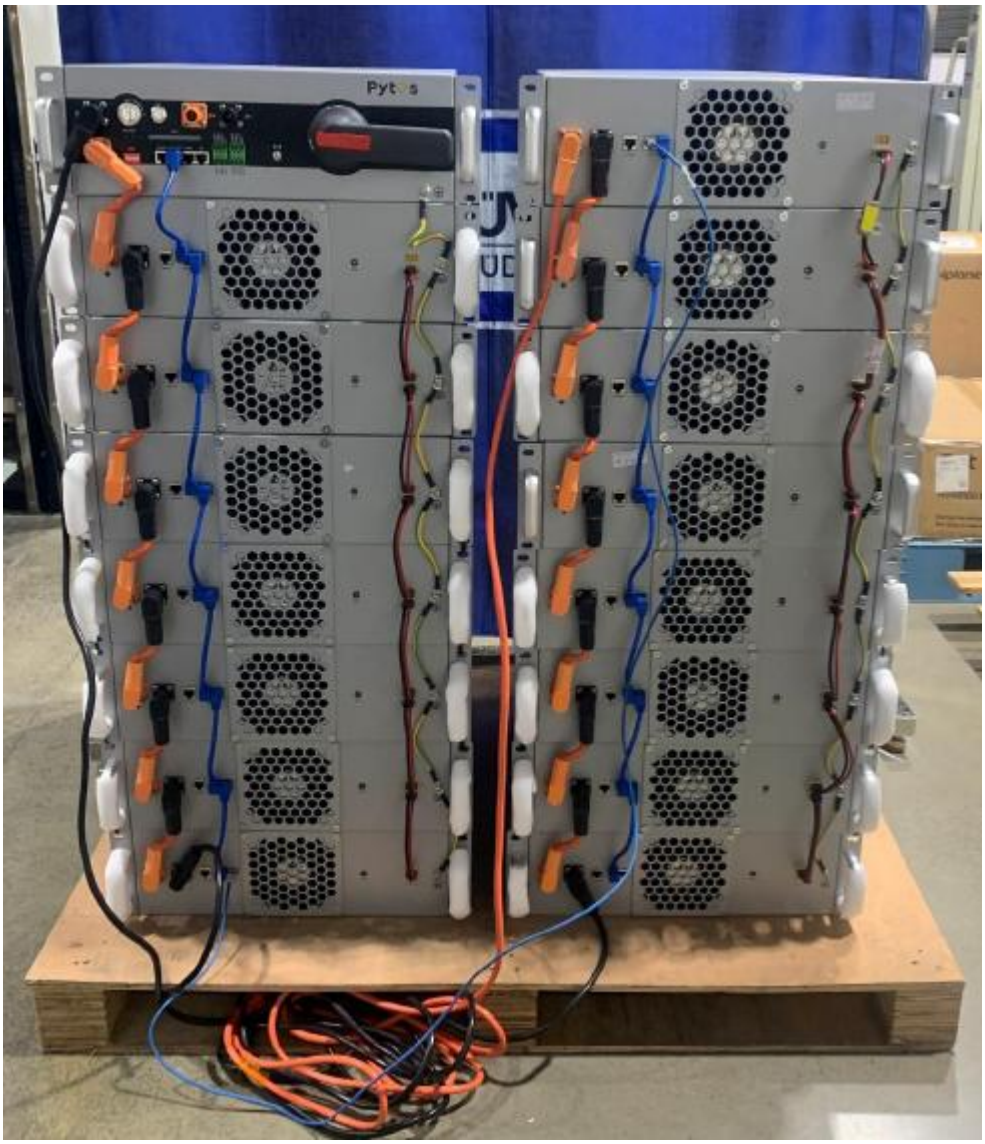
Photo 1: DC Energy Storage System (representative model HV48100 SE 1P15S ESS)

Photo 2: DC Energy Storage System (representative model HV48100 SE Lite 1P15S ESS)

Photo 3: Internal View of DC Energy Storage System (representative model HV48100 SE 1P15S ESS)

Photo 4: Internal View of DC Energy Storage System (representative model HV48100 SE Lite 1P12S ESS)

Photo 5: Rechargeable Li-ion Battery System (representative model HV48100 SE BMU-15)



CRITICAL COMPONENTS

The following components are considered “critical” in terms of this certification and must be verified during factory inspections. No substitutions or alternate components are allowed unless specifically as stated in this report.

Photo No.	Item No.	Component name	Manufacturer / trademark	Type/model	Technical data	Standard	Mark(s) of conformity
5	1-1	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-3	Battery Type LFP, Nominal Voltage 153.6Vdc, Max Charge / Discharge Current 50A, Max Energy Output 15.36kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-2	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-4	Battery Type LFP, Nominal Voltage 204.8Vdc, Max Charge / Discharge Current 50A, Max Energy Output 20.48kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-3	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-5	Battery Type LFP, Nominal Voltage 256Vdc, Max Charge / Discharge Current 50A, Max Energy Output 25.6kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-4	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-6	Battery Type LFP, Nominal Voltage 307.2Vdc, Max Charge / Discharge Current 50A, Max Energy Output 30.72kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-5	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-7	Battery Type LFP, Nominal Voltage 358.4Vdc, Max Charge / Discharge Current 50A, Max Energy Output 35.84kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)

5	1-6	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-8	Battery Type LFP, Nominal Voltage 409.6Vdc, Max Charge / Discharge Current 50A, Max Energy Output 40.96kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-7	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-9	Battery Type LFP, Nominal Voltage 460.8Vdc, Max Charge / Discharge Current 50A, Max Energy Output 46.08kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-8	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-10	Battery Type LFP, Nominal Voltage 512Vdc, Max Charge / Discharge Current 50A, Max Energy Output 51.2kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-9	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-11	Battery Type LFP, Nominal Voltage 563.2Vdc, Max Charge / Discharge Current 50A, Max Energy Output 56.32kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-10	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-12	Battery Type LFP, Nominal Voltage 614.4Vdc, Max Charge / Discharge Current 50A, Max Energy Output 61.44kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-11	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-13	Battery Type LFP, Nominal Voltage 665.6Vdc, Max Charge / Discharge Current 50A, Max Energy Output 66.56kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)
5	1-12	Rechargeable Li-ion Battery System	PYTES	HV48100 SE BMU-14	Battery Type LFP, Nominal Voltage 716.8Vdc, Max Charge / Discharge Current 50A, Max Energy Output 71.68kWh,	CAN/UL 1973:2022	cTUVus (Certificate No.: U10 003364 0023 Rev. 01)

ANNUAL RE-TESTING OF UNLISTED COMPONENTS

The unlisted components on this page are uncontrolled (not falling under a third party certification program) and require periodic retesting and/or evaluation.

Note to SGS Follow Up Inspector: The inspection office will notify you in writing when these components must be selected and sent to the Lab indicated below for re-evaluation.

Ship the samples to:

The unlisted components covered by this report and are required to be re-tested/evaluated are shown in the following table:

PHOTO #	ITEM #	DESCRIPTION	MFR	TYPE/ MODEL	RATING

VERIFICATION PROCESS			
Test Standard:			
Frequency of Testing:		No. of Test Samples:	

Clause No.	TEST	PARAMETERS

MARKINGS

The following markings are required:

Copy of marking plate:

Pytes

DC Energy Storage System

HV48100 SE 1P8S-1P15S ESS

Battery Type	LFP
Battery Voltage Range	1P8S 380Vd.c.-460.8Vd.c. 1P9S 427.5Vd.c.-518.4Vd.c. 1P10S 475Vd.c.~576Vd.c. 1P11S 522.5Vd.c.-633.6Vd.c. 1P12S 570Vd.c.-691.2Vd.c. 1P13S 617.5Vd.c.-748.8Vd.c. 1P14S 665Vd.c.-806.4Vd.c. 1P15S 712Vd.c.-864Vd.c.
Battery Max. Charge/Discharge Current	50A
Battery Maximum Energy Output	5.12kWh*n(n=8~15)
Duty cycle	6000 Cycles
Standard Charge Temperature	0°C - 57°C
Standard Discharge Temperature	-18°C - 57°C
Max. Weight	1139kg
Battery Ingress Protection	IP55
Max. Efficiency	97.5%

This system is UL 9540 certified under Test Report No.SHES251202355331

*Suitable for Use in Residential Non-Habitable Spaces.

*The components of the system:

Battery:Pytes,HV48100 SE(BMU-8~BMU-15)

Cabinet:HV48100 SE OC

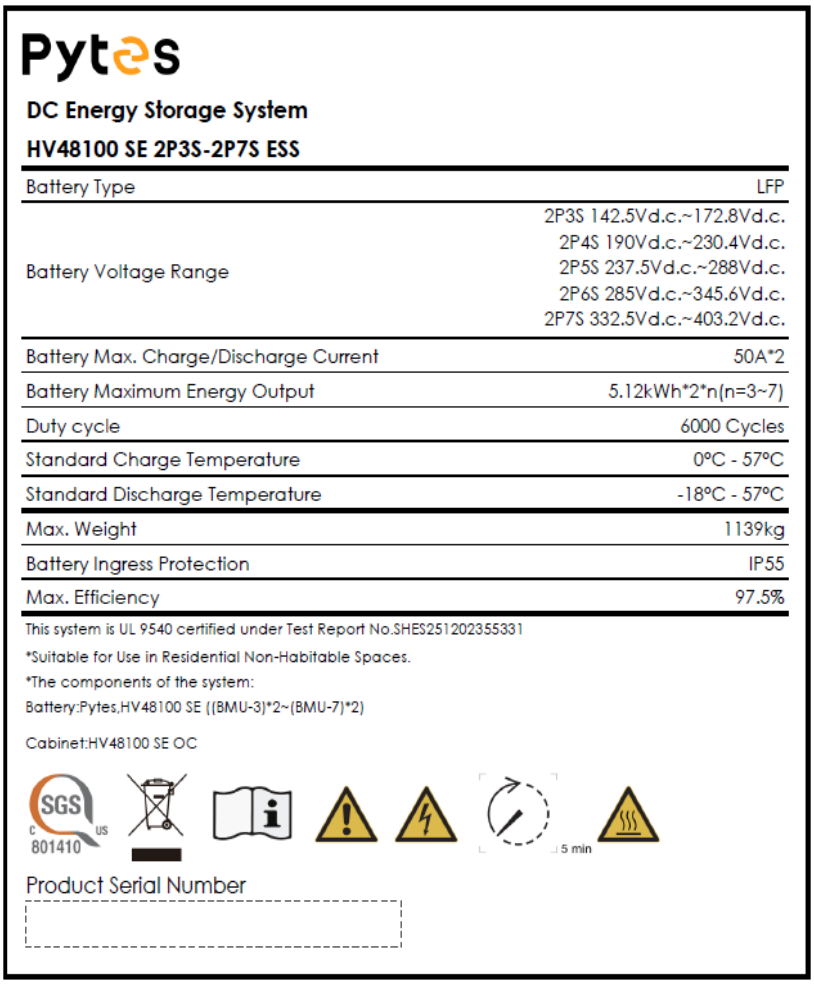
SGS c US 801410

5 min

Product Serial Number

1. Label is attached on the side surface of enclosure and visible after installation.
2. IP55 for the system.

Copy of marking plate:



1. Label is attached on the side surface of enclosure and visible after installation.
2. IP55 for the system.

Copy of marking plate:

Pytes

DC Energy Storage System

HV48100 SE Lite 1P8S-1P15S ESS

Battery Type	LFP
Battery Voltage Range	1P8S 380Vd.c.-460.8Vd.c. 1P9S 427.5Vd.c.-518.4Vd.c. 1P10S 475Vd.c.~576Vd.c. 1P11S 522.5Vd.c.-633.6Vd.c. 1P12S 570Vd.c.-691.2Vd.c. 1P13S 617.5Vd.c.-748.8Vd.c. 1P14S 665Vd.c.-806.4Vd.c. 1P15S 712Vd.c.-864Vd.c.
Battery Max. Charge/Discharge Current	50A
Battery Maximum Energy Output	5.12kWh*n(n=8~15)
Duty cycle	6000 Cycles
Standard Charge Temperature	0°C - 57°C
Standard Discharge Temperature	-18°C - 57°C
Max. Weight	1139kg
Battery Ingress Protection	IP55
Max. Efficiency	97.5%

This system is UL 9540 certified under Test Report No.SHES251202355331

*Suitable for Use in Residential Non-Habitable Spaces.

*The components of the system:

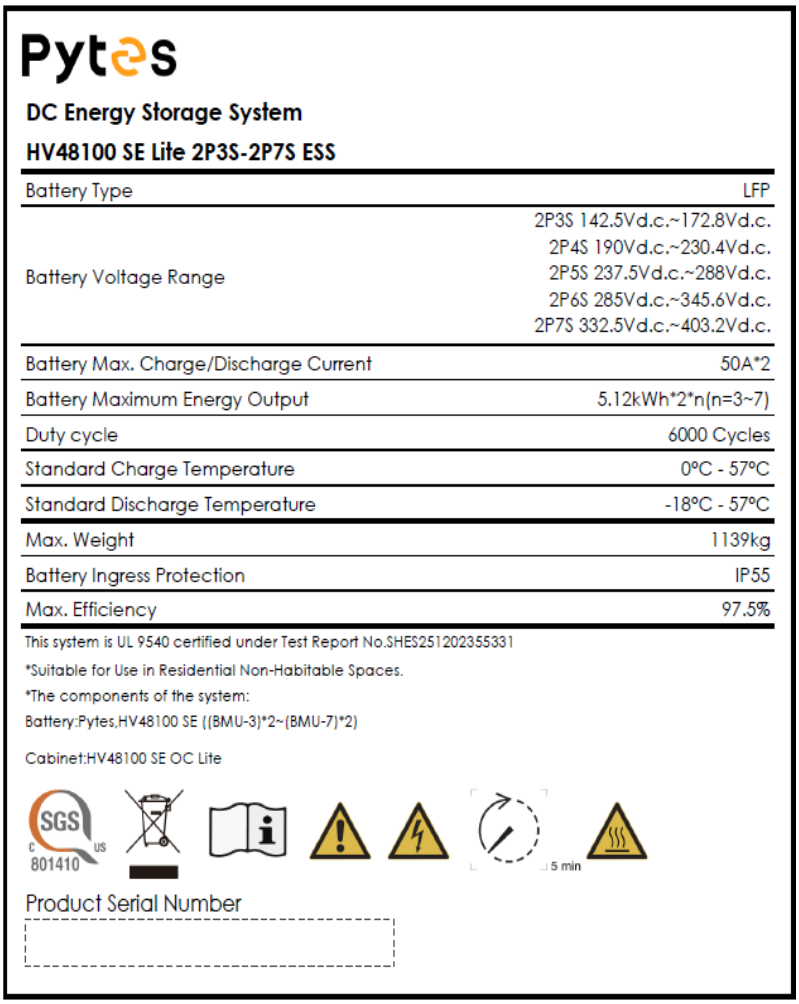
Battery:Pytes,HV48100 SE(BMU-8~BMU-15)

Cabinet:HV48100 SE OC Lite

Product Serial Number

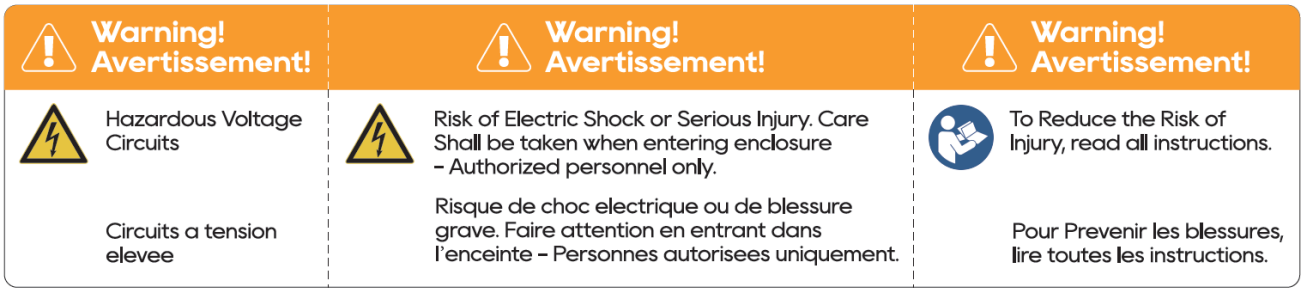
1. Label is attached on the side surface of enclosure and visible after installation.
2. IP55 for the system.

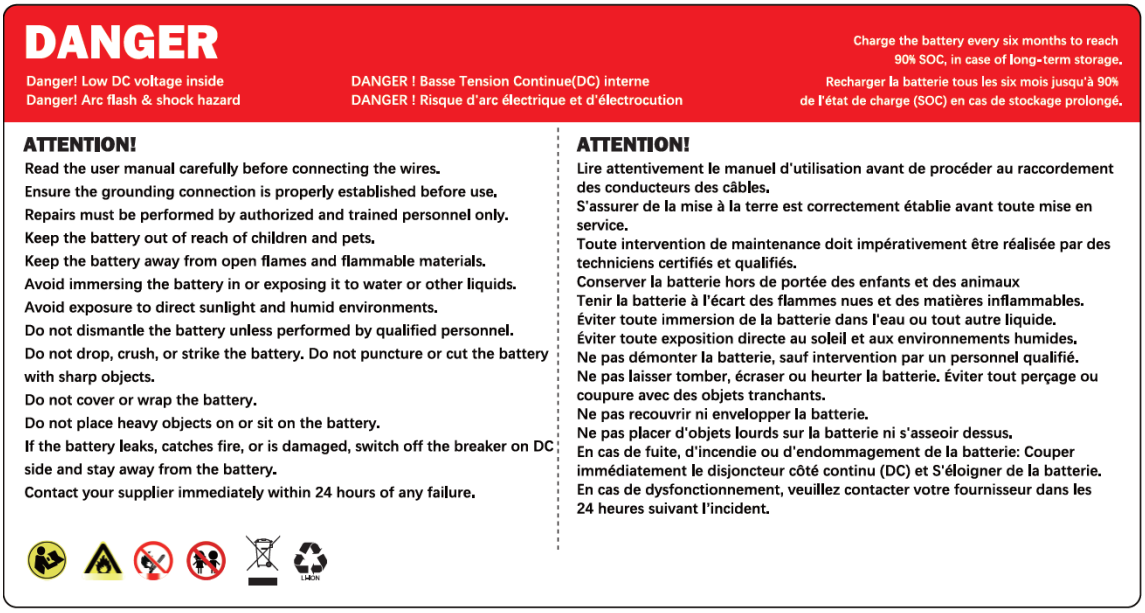
Copy of marking plate:



1. Label is attached on the side surface of enclosure and visible after installation.
2. IP55 for the system.

Safety Markings





Note:
1. The marking is affixed to canopy. SGS NA Listed Mark shall be at least 5 mm high. Other letters should be at least 2.4 mm high.
2. The "CAUTION" shall be at least 3.2mm high; The remaining letters shall not be less than 1.6mm high.
3. The S/N number should be pasted on every end product, every S/N number denotes the date code or other dating of manufacture.

ILLUSTRATIONS

The System Manual is as follows with products packaging:

User Manual Energy Storage Systems HV48100 SE ESS Series Version 1.0.

1 Safety Instructions

2 Overview

3 Battery Installation
3.1 Checking before the installation
3.2 Preparing tools and instruments
3.3 Installation space requirements

4 Electrical Connection
4.1 Internal connections of the battery
4.2 External electrical connections of the battery

5 System Start Up

6 Troubleshooting & Maintenance

SUMMARY OF TEST RESULTS

The following tests were performed:

ANSI/CAN/UL 9540:2023 (Dated June 28, 2023)

Section	Test Description
13	Electrical Spacings and Separation of Circuits
22	Noise Levels
30	Normal Operations Test
32	Dielectric Voltage Withstand Test
34	Equipment Grounding and Bonding Test
35	Insulation Resistance Test
36	Electromagnetic Immunity Tests
41.2	Outdoors installations subject to moisture exposure

Results of the tests indicate the specimens conform to the test criteria that were found to be applicable.

Battery Part:
ANSI//UL1973:2022: Test Report No. 64.280.25.60508.01 on October 20th of 2025, which issued by TUV SUD.
ANSI/CAN/UL 9540A: 2019: Test Report of Module Level No.5061925025712-00 on December 1st of 2025, which issued by TUV SUD.
ANSI/CAN/UL 9540A: 2019: Test Report of Unit Level No. 5061925025713-00 on January 4th of 2026, which issued by TUV SUD.

System:
Electromagnetic Immunity tests of the system:

Test Report No. WPHM260025 on February 10th of 2026, which issued by Suzhou Institute of Product Quality Supervision and Inspection.

Noise level tests of the system:

Test Report No. WPHM260024 on February 10th of 2026, which issued by Suzhou Institute of Product Quality Supervision and Inspection.

REVISION TABLE

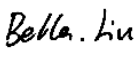
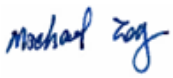
The following changes have been made to this Report:

Revision No.	Date	Project No.	Revision prepared by	Page	Description of Change
--				None	First issuance

CONCLUSION

Samples of the products covered by this Report have been found to comply with the applicable requirements of

- Energy Storage Systems and Equipment – ANSI/CAN/UL 9540:2023 Third Edition, dated June 28, 2023

Report Prepared by:	Report Reviewed by:	Report Reviewed and Approved by:
		
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