



KADLU HV

Stackable Lithium-ion Battery System
Installation Manual

Contents

Statement	1
Safety handling of lithium batteries Guide	2
1 Introduction	4
1.1 Brief Introduction	4
1.2 Product Features	4
1.3 Product identity definition	5
2 Specification	6
2.1 System Performance Parameter	6
2.2 Battery Module	7
2.3 Controller	9
2.4 Base	12
3 Installation	15
3.1 Environmental Requirement	15
3.2 Recommended Installation clearance	16
3.3 Tools	17
3.4 Safety Gear	17
3.5 Unpacking inspection	18
3.6 Installation	19
4 Maintenance	28
4.1 Trouble Shooting	28
4.2 Replacement of main component	29
4.3 Battery Maintenance	29
5 Storage Recommendations	30
6 Shipment	30

Statement

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This product complies with the design requirements of environmental protection and personal safety. The storage, use and disposal of the products shall be carried out in accordance with the product manual, relevant contract or relevant laws and regulations.

Customer can check the related information on the website of UAB IGLU TECH when the product or technology is updated.

Web URL: <http://iglutech.eu/en/>

Please note that the product can be modified without prior notification.

Revision History

Date	Revision	Description	Owner
2025.02.07	V1.0	First Published	Dovydas
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2025.06.19	V1.3	Content correction	Revaz
2025.07.17	V1.4	Content correction	Dovydas
2025.08.07	V1.5	Content correction	Dovydas
2025.08.28	V1.6	Content correction	Revaz
2026.07.14	V1.7	Content correction	Revaz

Safety handling of lithium batteries Guide

Symbols



DANGER

- Battery strings will produce high voltage DC power and can cause a lethal voltage and electric shock.
- Only qualified person can perform the wiring of the battery strings.



WARNING

- Risk of battery system damage or personal injury.
- DO NOT pull out the connectors while the system is operating!
- De-energize from all multiple power sources and verify that there is no voltage.



CAUTION

- Risk of battery system failure or life cycle reduction.



Warning:

This product is a high voltage DC system, operated by authorized person only.



Danger:

Before installation or operation, you must read <User Menu> carefully.



Caution:

Before Connecting

- Please check the product and packing list first after unpacking, if the product is damaged or lack of parts, please contact the local retailer.
 - Before installation, be sure to cut off the grid power and make sure the battery is in the turned-off mode.
 - Do not mistake the positive and negative cables and ensure there are no short circuit connections to the external device.
 - It is prohibited to connect the battery to AC power directly.
 - Battery system must be well grounded.
 - Please ensure the electrical parameters of the battery system are compatible with related equipment.
- Keep the battery away from water and fire.

In Using

- If the battery system needs to be moved or repaired, the power must be cut off and ensure the battery is completely shut down.
- It is prohibited to connect the battery with different types of battery.
- It is prohibited to put the batteries working with faulty or incompatible inverter.
- It is prohibited to disassemble the battery (Warranty tab removed or damaged).
- In case of fire, only dry powder fire extinguishers can be used, liquid fire extinguishers are prohibited.
- Only IGLU staff or personnel authorized by IGLU are permitted to open, repair, or disassemble the battery. We are not responsible for any consequences or liabilities arising from violations of safety procedures or equipment safety standards.



Caution:

- Please read the user manual carefully (in the accessories).
- If the battery is stored for a long time, it is required to charge them every six months, and the SOC should be no less than 80%.
- Battery needs to be recharged within 12 hours, after fully discharged.
- Do not expose cable outside.
- All the battery terminals must be disconnected for maintenance.
- Please contact the supplier within 24 hours if there is something abnormal.
- The warranty claims are excluded for direct or indirect damage due to items above.

1 Introduction

1.1 Brief Introduction

KADLU HV is a high voltage battery storage system based on lithium iron phosphate battery, and it's one of the new energy storage products developed and produced by IGLU TECH, it can be used to support reliable power for various types of equipment and systems. KADLU HV is especially suitable for the application scene of high power, limited installation space, restricted load-bearing and long cycle life.

1.2 Product Features

- The whole module is non-toxic, non-polluting and environmentally friendly.
- Anode material is made from LiFePO_4 with safety performance and long cycle life.
- Battery management system (BMS) has protection functions including over-discharge, over-charge, over-current and high/low temperature.
- The system can automatically manage charge and discharge state and balance current and voltage of each cell.
- Flexible configuration, multiple battery modules can be in serial for expanding voltage and Capacity.
- Adopted natural cooling reduced the system's entire noise.
- The module has less self-consumption, up to 6 months without charging; no memory effect, excellent performance of shallow charge and discharge.
- Working temperature range is from -15°C to 55°C , with excellent discharge performance and cycle life.
- Small size and light weight, standard module is comfortable for installation and maintenance.

1.3 Product identity definition

Figure 1-1 Battery System nameplate

Rechargeable Lithium-ion Battery System (KADLU HV)
Controller Model: HVC2000
Operation Temp: -15°C~55°C
Input Current: 30A
Protection Class: I
IP Grade: IP55
Controller Model Type: Master/Secondary
☐ D ☐ S
Configuration/Nominal Voltage/Rated Capacity/Energy/System Model/Product design code
☐ 2P / 204.8Vdc / 50Ah / 10.24kWh / KHVH100
 (IPpP/41/149/102/[(IP325)55]E/-10/+50/90)
☐ 3P / 307.2Vdc / 50Ah / 15.36kWh / KHVH150
 (IPpP/41/149/102/[(IP325)55]E/-10/+50/90)
☐ 4P / 409.6Vdc / 50Ah / 20.48kWh / KHVH200
 (IPpP/41/149/102/[(IP325)45]E/-10/+50/90)
☐ 5P / 512.0Vdc / 50Ah / 25.60kWh / KHVH250
 (IPpP/41/149/102/[(IP325)55]E/-10/+50/90)
☐ 6P / 614.4Vdc / 50Ah / 30.72kWh / KHVH300
 (IPpP/41/149/102/[(IP325)55]E/-10/+50/90)
SN:|

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The example definition of SN: KHC102050D0122910001	
KHC	Product type
700	Voltage
050	Capacity
D01	Platform type
22	Year of production
8	Month of production
1	Day of production
0001	Production batch number

Figure 1-2 Battery module label

Product Name:
Rechargeable Lithium-ion Battery System (KADLU HV PACK)

Model:	KLHVG105P1
Rated Energy/Voltage:	5.12kWh/102.4Vdc
Rated Capacity:	50Ah
Operation Voltage Range:	89.6Vdc to 116.8Vdc
Input Current:	30A(0.6C)
Charging Temperature:	-5°C to 55°C
Discharging Temperature:	-15°C to 55°C
Dimension(W*D*H):	560*400*232mm
IP Grade:	IP55
Product design code:	IPpP/41/149/102/[(IP325)55]E/-10/+50/90

CAUTION

- Do not disassemble the battery pack.
- Do not immerse the battery pack in water.
- Do not short-circuit the battery.
- Do not leave the battery near by fire.

Emergency Situations

- If leaking, fire, wet, or damaged, switch off the breaker on the DC side and stay away from the battery.
- Do not touch the leaking liquid.
- Do not use water to extinguish the fire.
- Sand or dry powder extinguisher is usable.

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SN:|

The example definition of SN: KHF102050A0122910001	
KHF	Product type
102	Voltage
050	Capacity
A01	Platform type
22	Year of production
8	Month of production
1	Day of production
0001	Production batch number

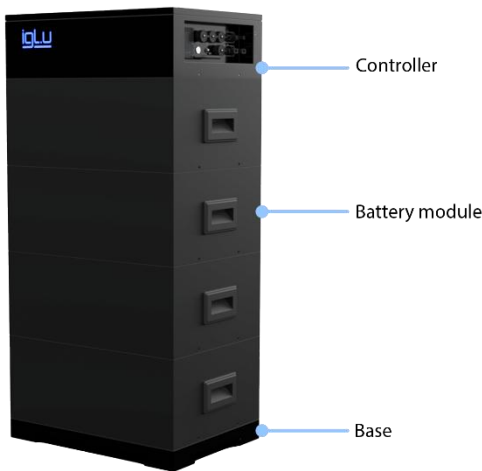
2 Specification

2.1 System Performance Parameter

Table 2-1 The parameter of KADLU HV system

System List	P6	P5	P4	P3	P2
Controller Model	HVC2000D	HVC2000D	HVC2000D	HVC2000D	HVC2000D
Module Type	LFP	LFP	LFP	LFP	LFP
Total Storing Energy [kWh]	30.72	25.60	20.48	15.36	10.24
Usable Capacity [kWh]	25.99	21.66	17.33	13	8.66
Recommend Depth of Discharge	80%	80%	80%	80%	80%
Max Depth of Discharge	100%	100%	100%	100%	100%
Module configuration	6 Series	5 Series	4 Series	3 Series	2 Series
Voltage Range Min-Max [Vdc]	537.6~700.8	448~584	358.4~467.2	268.8~350.4	179.2~233.6
Battery System Voltage [Vdc]	614.4	512	409.6	307.2	204.8
Battery System Capacity [Ah]	50	50	50	50	50
Battery System Charge Current [A] (Standard)	30	30	30	30	30
Battery System Discharge lower - Voltage [Vdc]	537.6	448	358.4	269.8	179.2
Battery System Discharge Current [A] (Standard)	30	30	30	30	30
Discharge Temperature [°C]	-15~55	-15~55	-15~55	-15~55	-15~55
Charge Temperature [°C]	-5~55	-5~55	-5~55	-5~55	-5~55
Storage Temperature [°C]	-15~55	-15~55	-15~55	-15~55	-15~55
Standard Charge & Discharge Power [kW]	18.43	15.36	12.28	9.21	6.14
Altitude [m]	≤2000	≤2000	≤2000	≤2000	≤2000
Ingress Protection (in stacked up state)	IP55	IP55	IP55	IP55	IP55
Size [mm] (WxDxH)	560*400*1620	560*400*1388	560*400*1156	560*400*924	560*400*692
Weight [kg]	336	284	232	180	128
Pack model name	KLHVG105P1	KLHVG105P1	KLHVG105P1	KLHVG105P1	KLHVG105P1
Battery Module Quantity (pcs)	6	5	4	3	2
Parallel connection	10 clusters	10 clusters	10 clusters	10 clusters	10 clusters

The following uses four battery modules as an example:



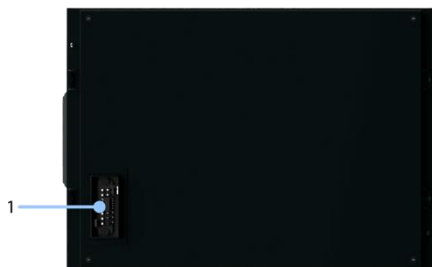
2.2 Battery Module



Table 2-2 Product parameters

Module Name	KLHVG105K2
Cell Technology	Li-ion (LFP)
Battery Module Energy (kWh)	5.12
Battery Module Voltage (Vdc)	102.4
Cell Capacity (Ah)	50
Battery Module Cell Quantity (pcs)	32
Working Voltage Range (Vdc)	89.6-116.8
Charge Current (Standard) [A]	30
Discharge Current (Standard) [A]	30
Dimensions (W*D*H, mm)	560*400*232
Communication Mode	CAN
Ambient Temperature (°C)	-15°C~55°C
IP Grade	IP55
Weight (kg)	52

KLHVG105P1 top interface



KLHVG105P1 bottom interface

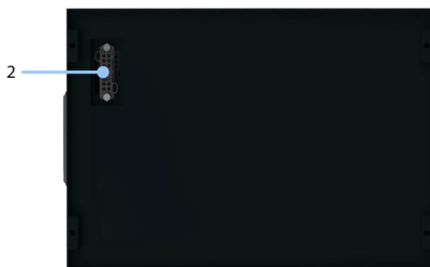
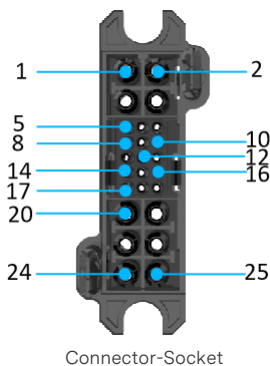
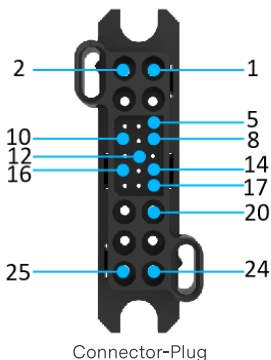


Table 2-3 Interface Definition

Item	Name	Definition
1	Connector-Socket	Battery module output and communication interface
2	Connector-Plug	Battery module output and communication interface



Connector-Socket



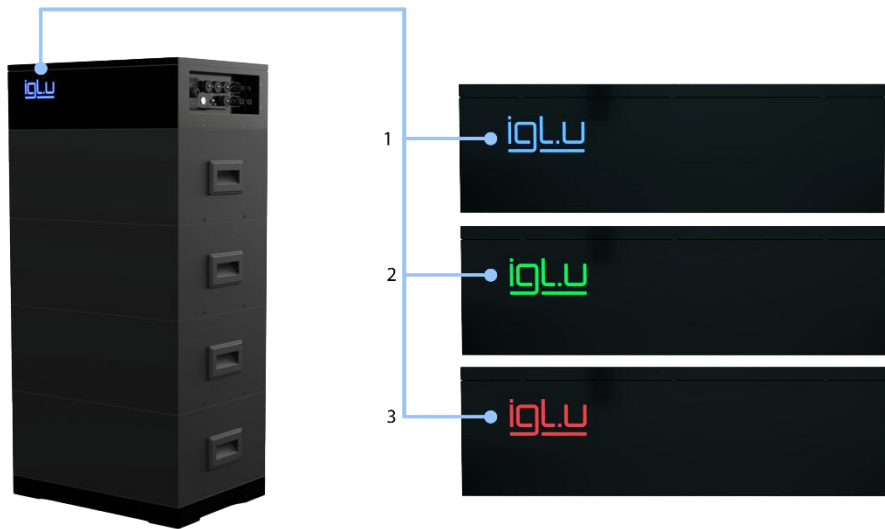
Connector-Plug

Table 2-4 Port Definition

Pin NO.	Connector-Socket	Connector-Plug
1	Module positive	Module negative
2	Module positive	Module negative
5	H+	H+
8	VCC+	VCC+
10	VCC -	VCC -
12	DI1	DO1
14	CAN-H	CAN-H
16	CAN-L	CAN-L
17	H-	H-
20	PE	PE
24	Negative output	Negative output
25	Negative output	Negative output

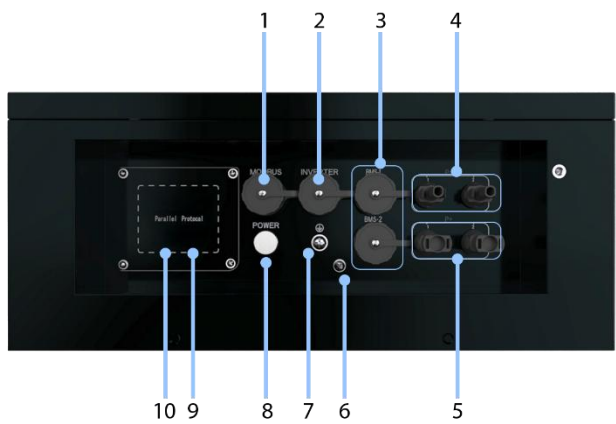
2.3 Controller

Controller Front interface

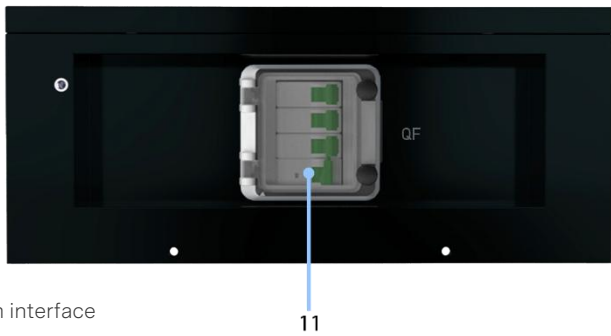


Item	Name	Definition
1	BLUE	SOC Battery from 50% to 100%
2	GREEN	SOC Battery from 25% to 50%
3	RED	SOC Battery from 0% to 25%
4	FLASHING RED	ALARM

Controller right interface



Controller left interface



Controller bottom interface

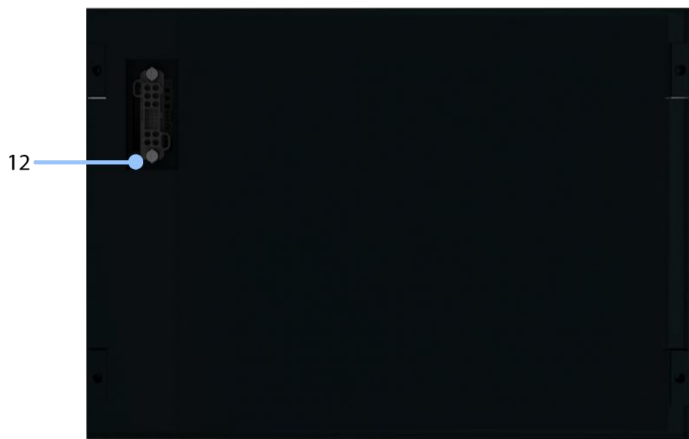
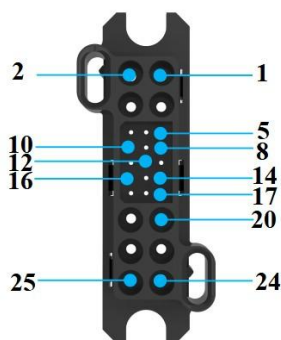


Table 2-7 Interface Definition

Item	Name	Definition
1	MODBUS to inverter	Modbus communication port of the inverter
2	Inverter communication port	Connect to the communication port of the inverter
3	BMS communication port	RJ45 port used to connect the upper computer and parallel Ethernet communication port
4	P- output terminal	Connect battery system with Inverter negative terminal
5	P+ output terminal	Connect battery system with Inverter positive terminal
6	Not used	-
7	Ground point	PE connecting point
8	Power switch	Power switch Indicates the battery activation switch
9	Parallel dip switch of battery	Dip switch for battery parallel dip switch
10	CAN DIP switch	Dip switch for the CAN protocol circuit with inverter
11	DC Breaker	The master switch of the battery system
12	Connector-Plug	Battery module output and communication interface

Table 2-8 Controller Connector-Plug Definition

NO	Definition
1	Battery Positive
2	Battery Positive
5	H+
8	VCC+
10	VCC -
12	DO1
14	CAN-H
16	CAN-L
17	H-
20	PE
24	Battery Negative output
25	Battery Negative output



Controller Connector-Plug

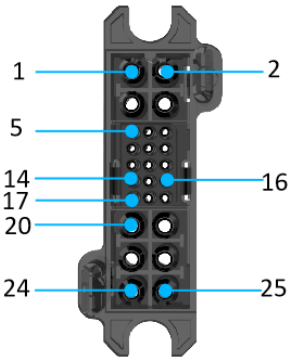
2.4 Base

Base top interface



Table 2-9 Interface Definition

NO	Definition
1	Negative
2	Negative
5	H-
14	CAN-H
16	CAN-L
17	H-
20	PE
24	Negative output
25	Negative output



⚠ CAUTION

When the DC breaker is tripped off because of over current or short circuit, must wait after 30min to turn on it again, otherwise may cause the breaker damage.



Power Switch: Generally, when it is at ON state, you can't turn it off during normal running condition.

Danger:

Ensure the Power Switch is turned on before waking up the battery. Otherwise, it will affect automatic checking process and cause danger.

Danger:

DO NOT turn off the "Power Switch" during normal running condition, only in emergency case it could be turned off directly.

Definition of "Inverter" RJ45 communication port pin.

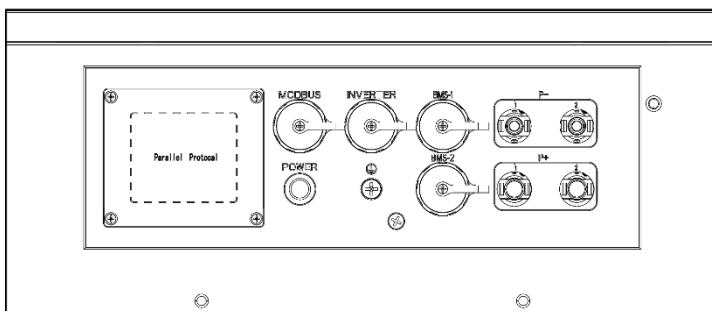


Table 2-9 Interface Definition

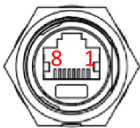
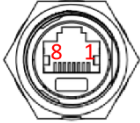
Inverter communication port		
 Inverter	No.	Name
	1	/
	2	/
	3	ISO-GND
	4	Inverter-CAN H
	5	Inverter-CAN L
	6	/
	7	/
	8	/

Table 2-10 Interface Definition

Modbus communication port		
Modbus 	No.	Name
	1	RS485-A
	2	RS485-B
	3	/
	4	/
	5	/
	6	/
	7	/
	8	/

3 Installation

3.1 Environmental Requirement



3.1.1 Cleaning

The battery system has high-voltage connectors, and environmental conditions can affect the isolation performance of the system. Before installation and system power is on, the dust and iron scurf must be removed to keep a clean environment. And the environment must have certain anti-dust ability. Dust and humidity conditions shall be periodically checked during the system continuous operation.



3.1.2 Temperature

KADLU HV system working temperature range: -15°C~55°C. Optimum temperature: 15°C~30°C; Caution: Out of the working temperature range will cause the battery system over / low temperature alarm or protection which may lead to the cycle life reduction.



3.1.3 Cooling System

It is essential to equip a cooling system to keep the battery system in a relevant temperature range. Caution: Out of the working temperature range will cause the battery system over / low temperature alarm or protection which may lead to the cycle life reduction.



3.1.4 Heating System

Danger: The module comes with a heating system. If the temperature is below 0°C and charging needs to be started, the heating system will be activated first, and the battery pack will be heated to 10°C before charging. It is necessary to turn on the heating system first. Caution: Out of the working temperature range will cause the battery system over / low temperature alarm or protection which may lead to the cycle life reduction.



3.1.5 Fire-extinguisher System

The room must be equipped with a fire-extinguisher system for safety purposes. The fire system needs to be regularly checked to be in normal condition. Referring to the use and maintenance requirements, please follow local fire equipment guidance.



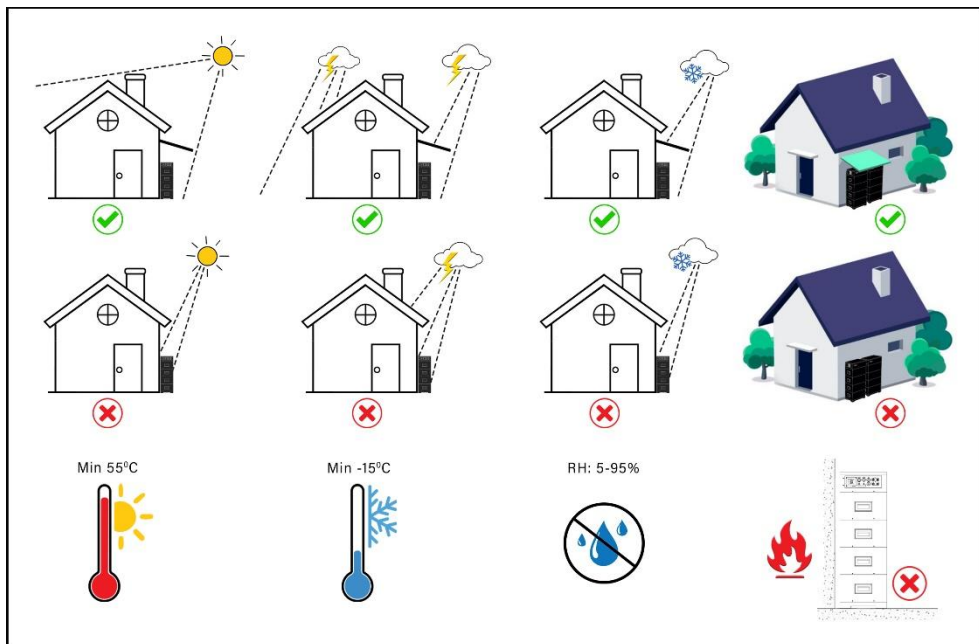
3.1.6 Grounding System

Make sure the grounding point for battery system is stable and reliable before the battery installation. If the battery system is installed in an independent equipment cabin (e.g. container), we must make sure the grounding of the cabin is stable and reliable.



3.1.7 Requirements for Installation Location

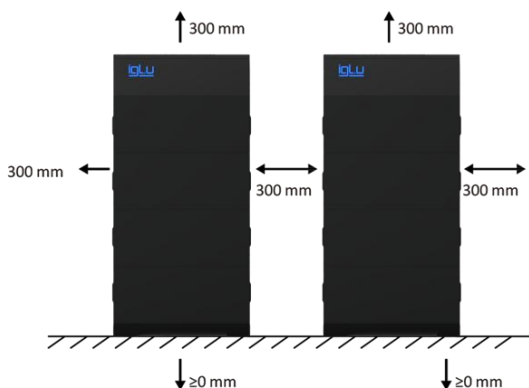
- A solid support surface must be available (e.g., concrete or masonry).
- The installation location must be inaccessible to children.
- The installation location must be suitable for the weight and dimensions of KADLU HV.
- The installation location must not be exposed to direct solar irradiation.
- Keep away from metal conductive dust.
- Keep away from water source, heat source and inflammable and explosive articles.
- The installation location must not be close to the fire.
- The operating temperature should be between -15 °C ~ +55 °C.
- The ambient humidity should be between 5-95%.



3.2 Recommended Installation clearance



Please note that the battery should be installed with a minimum safe clearance from the surrounding equipment or battery. Please refer to the minimum clearance diagram below.



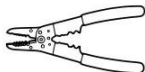
Space Requirements	
Min. clearance from left side	300 mm
Min. clearance from right side	300 mm
Min. clearance above KADLU HV system	300 mm
Min. clearance between side-by-side KADLU HV system	300 mm
Min. clearance from back	5~40 mm
Clearance at the bottom	0 mm

3.3 Tools

The tools in the following table could be needed during the installation.



Network Wire Clamp



Wire Stripper



Crimping Pliers



Flat-Head Screwdriver



Torque Wrench



Wire Stripper



Crimping Pliers



Wrench



Tape Measure



Drill



Pen



Phillips Screwdriver Bit

NOTE:

Use properly insulated tools to prevent accidental electric shock or short circuits.

If insulated tools are not available, cover the entire exposed metal surfaces with available insulated alternatives, except their tip, with electrical tape.

3.4 Safety Gear

It is recommended to wear the following safety gear when dealing with the battery system.



Insulated gloves



Safety goggles



Safety shoes

3.5 Unpacking inspection

When the equipment arrives at the installation site, loading and unloading should be performed according to the rules and regulations, to prevent from being exposed under sunlight. Battery should not be installed in direct sunlight. Please refer to Section 3.3.

- Before unpacking, the total number of packages shall be indicated according to the shipping list attached to each package, and the case shall be checked for good condition.
- In the process of unpacking, handle with care and protect the surface coating of the object.
- Open the package, the installation personnel should read the technical documents, verify the list, according to the configuration table and packing list, ensure objects are complete and intact, if the internal packing is damaged, should be examined and recorded in detail.

Packing list is as follows:

NOTE: The four battery modules are used as reference, and the shipment is subject to actual conditions.

Item	Specification	Quantity	Figure	Remarks
KADLU HV Controller	Model: HVC01-0700-050-R2A 560x400x170	1 PCS		
KADLU HV PACK	Model: KLHVG105P1, 102.4Vdc 50Ah 560x400x232	4 PCS		According to customer selection of electricity configuration
KADLU HV Base	Model: KADLU HV Base 560x400x58	1 PCS		Foot cups are shipped without mounting on the base
CH00	Communication cable to inverter, 1.5M	2 PCS		
	Ground cable, 1.5M	1 PCS		
CH01	Positive power cable, 1.5M	1 PCS		
	Negative power cable, 1.5M	1 PCS		
User Manual	A5, Color printing	1 PCS	/	
Screw	Cross recessed countersunk head, M4x12	20 PCS		Each battery module is packaged with 4 pcs

Accessory	Screw, M6x12	2 PCS		
	Wall mounted bracket	2 PCS		
	RJ45 Waterproof wiring terminal	3 PCS		
	Expansion Anchor Bolt (M6x60)	2 PCS		The hole diameter is 8mm and the depth is 60mm

3.6 Installation

Installation steps

Step1	Installation preparation	1. The environment is meeting all environmental requirements: "3.1.1~3.1.6"
Step2	Mechanical installation	1. Determine KADLU HV system placement
		2. Place the base
		3. Install battery module
		4. Install Controller
		5. Install hangers
		6. Mark the System configuration
Step3	Battery system self-test	1. Switch on the DC breaker of the Controller
		2. Switch on the "POWER" switch
		3. Press the "POWER" button for about 3S
		4. Check the system output voltage
		5. Shut down the battery system
Step4	Connecting inverter	1. Connect output Power Cable to the inverter
		2. Connect the output communication cable to the inverter
		3. Select Protocol
		4. Allocate dip switches
		5. Connect dry contact communication cable

3.6.1 Installation preparation

- Make sure the environment is meeting all technical requirements: “3.1.1~3.1.6”
- Prepare equipment and tools for installation.
- Confirm that the DC breaker is in the OFF state to ensure that it is no live operation.

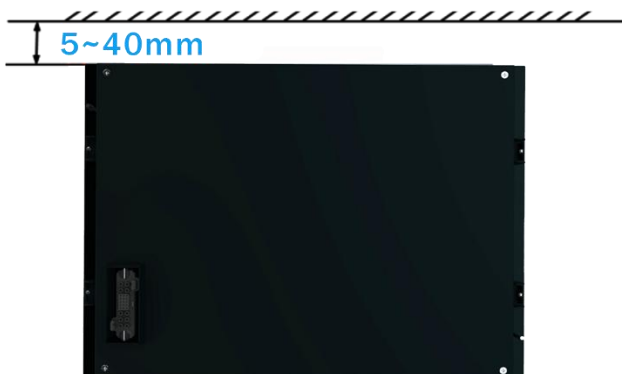
3.6.2 Mechanical installation

3.6.2.1 Place the base

- Choose an appropriate place to set base.
- Take the Controller and base from the package out.
- Loose the four screws with screwdriver.



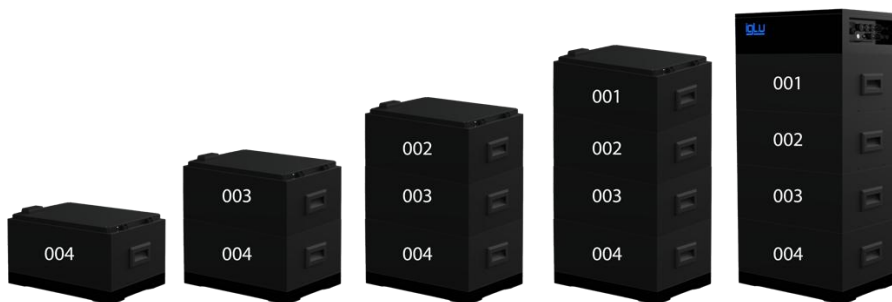
- Put the installed base and feet along the wall and keep the distance of 30~70 mm between the wall and the base.



3.6.2.2 Battery module and controller installation

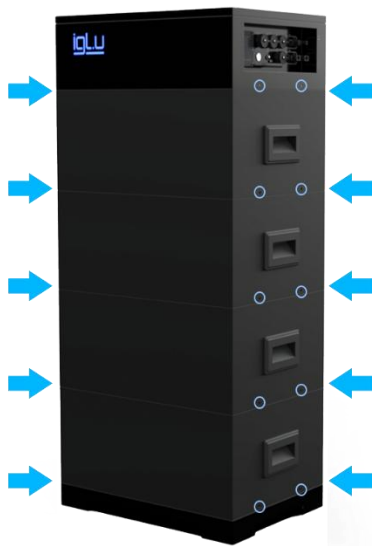
- Install all the KLHVG105P1 modules and controller on the base from bottom to up, follow the sequence 004~001. Referring to the following figure

Warning: Single battery module is 52kg. It's necessary to arrange more than 1 person to install battery module if without lifting equipment, more than 2 persons when install battery module in higher position.

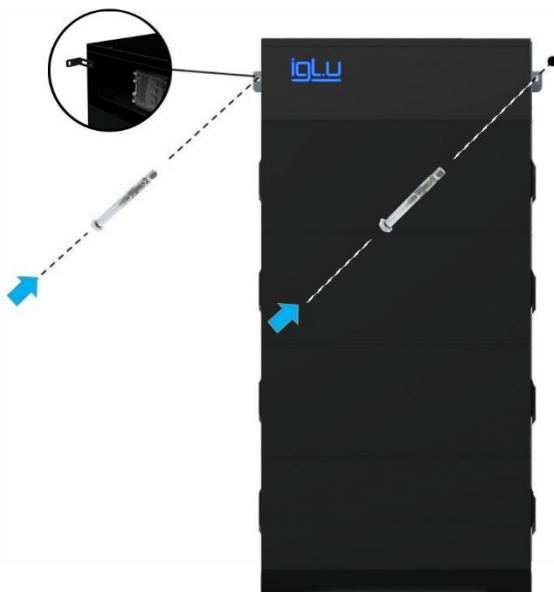


Warning: Battery module ΔV of Single cluster should be less than 0.15V at first installation.

- Fix the connection between the battery module and the base, between battery modules and between controller and battery module. To do this, insert the screws (M4x12) through the holes on them, using a screwdriver and tighten them.



- Hold the hanger (wall part) where it intends to be mounted on the wall and mark the position of the drill holes. Please pay attention that there may be power cables or other supply lines (e.g., gas or water) routed in the wall. Ensure that no lines are laid in the wall, which could be damaged when drilling holes. Set the hanger aside and drill the marked holes.
- Insert screw anchors into the drill holes if the support surface requires them.
- Secure the hanger using screws (recommended M6x60).
- Fix the four hangers (wall parts and controller parts) with M6X12 bolts and nuts, using a cylinder screwdriver to tighten it.



- Mark the System configuration.

iglu

Rechargeable Lithium-ion Battery System (KADLU HV)
 Controller Model: HVC2000D
 Operation Temp: -15°C~55°C
 Input Current: 30A
 Protection Class: I
 IP Grade: IP55

Configuration/Nominal Voltage/Rated Capacity/Energy/System Model/Product design code

☐	2P / 204.8Vdc / 50Ah / 10.24kWh / KHVH100DSET IFpP/41/149/102/[(IP32S)2S]E/-10+50/90
☐	3P / 307.2Vdc / 50Ah / 15.36kWh / KHVH150DSET IFpP/41/149/102/[(IP32S)3S]E/-10+50/90
☐	4P / 409.6Vdc / 50Ah / 20.48kWh / KHVH200DSET IFpP/41/149/102/[(IP32S)4S]E/-10+50/90
☐	5P / 512.0Vdc / 50Ah / 25.60kWh / KHVH250DSET IFpP/41/149/102/[(IP32S)5S]E/-10+50/90
☐	6P / 614.4Vdc / 50Ah / 30.72kWh / KHVH300DSET IFpP/41/149/102/[(IP32S)6S]E/-10+50/90

SN: 
 K H C 700 050 D01 22 8 1 0001

CE   iglu TECH, UAB
 Ukmerges g. 364-3, LT-14188 Vilnius
<https://iglutech.eu/en/>

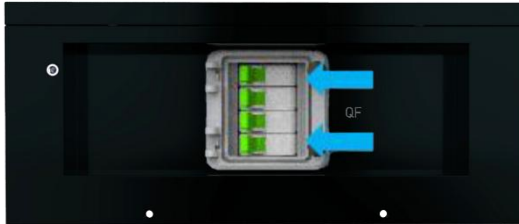


☒ 2P / 204.8Vdc / 50Ah / 10.24kWh / KHVH100DSET
 IFpP/41/149/102/[(IP32S)2S]E/-10+50/90

Example

3.6.3 Battery system self-test

3.6.3.1 Switch the Controller "DC BREAKER" to the "ON" state.



3.6.3.2 Press the "POWER" button for about 3S. "POWER" button will light green color. It will start self-test mode, wait for about 1 minute. During self-test contactor will trigger.



3.6.3.3 Use a multimeter to measure the output voltage on the positive and negative ports of the Controller

3.6.3.4 The output voltage should conform to the voltage range in the table "Table 2-1 The parameter of KADLU HV system". Otherwise, the system will not be working properly.

Use a multimeter to check the output voltage is within the normal range.

- **Danger:** The voltage of the battery is too high, please pay attention to do self-protection during the measurement.

3.6.4 Shut down the system.

- Switch off the “POWER” switch.



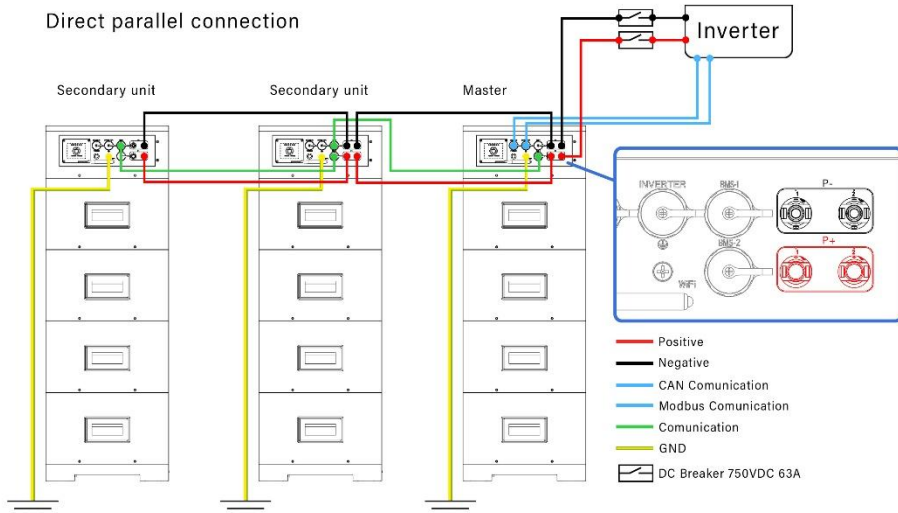
Press and hold on 35

- Switch the Controller “DC BREAKER” to the "OFF" state.

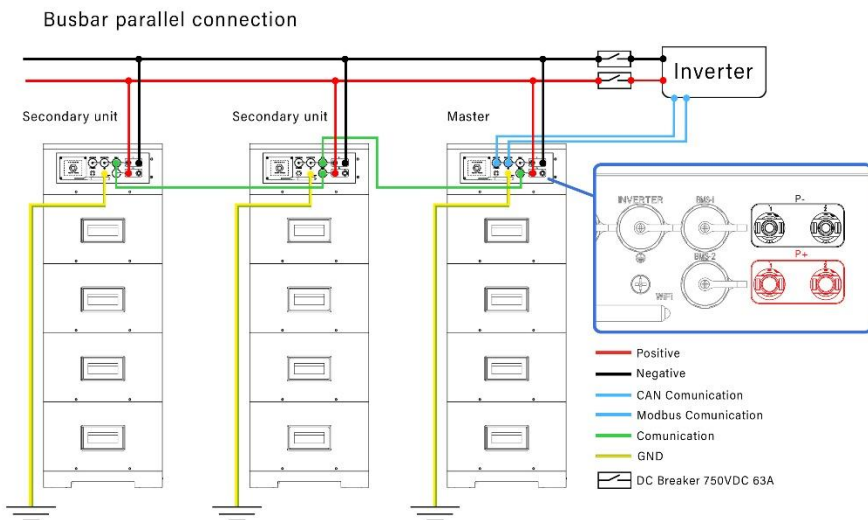


3.6.5 Connecting inverter

Taking 4 battery modules as an example for a single cluster



Connection mode -1
($20 \cdot n$ kWh, Output Power 12kW, n =Number of parallel clusters)
(Battery ΔV of clusters should be less than 3V at first Parallel installation)



Connection mode -2
($20 \cdot n$ kWh, Output Power $12 \cdot n$ kW, n =Number of parallel clusters)
(Battery ΔV of clusters should be less than 3V at first Parallel installation)

⚠ CAUTION

Caution: A external DC Breaker that operates both positive and negative conductors simultaneously between the Controller and inverter on the power cable is recommended. After waking up the Controller and ensure that the Controller is pre-charged, you can turn on it.

Danger:

Please confirm that the battery system is in the off state before connecting. It maybe causes electric shock to personnel and damage to the inverter if connect the battery directly without power off.

- Both ends of the power cable are equipped with MC4 connectors, such as single use, the positive power cable and negative power cable one end connector cut, crimped another provided by the inverter (such as parallel use, the positive power cable and negative power cable can be directly connected to the P+ and P- of on the another Controller).

If that power cable is not long enough, please find another power cable of the same specification, the length cannot be longer than 3m.



Connect output Power Cable to the inverter.



P-, connect to inverter DC- terminal

P+, connect to inverter DC+ terminal



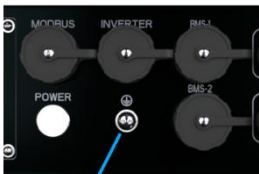
Connect the output communication cable to the inverter RJ45 CAN port.

- (1) Take off the RJ45 waterproof cover.
- (2) Pass the communication cable through the RJ45 wiring cover.
- (3) Plug the communication cable to the corresponding RJ45 port.
- (4) Tighten RJ45 wiring cover.





Connect External grounding Cable to the inverter.



Connect inverter to ground point



WARNING

Double check all the power cables and communication cable. Make sure the voltage of the Inverter is in the same level with the battery system.

- (1) Switch on the inverter, to make sure all the power equipment can work normally.
- (2) Start the battery system.



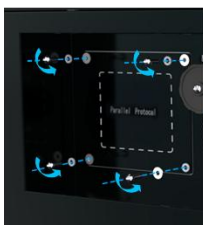
Select Protocol

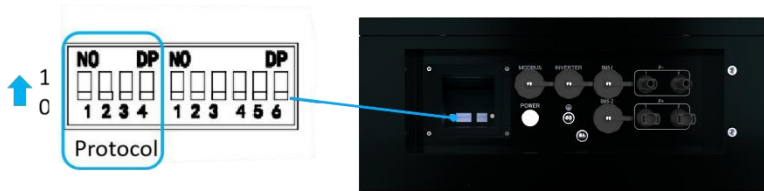
The controller is equipped with multiple built-in programs to follow up on the corresponding protocol for inverter model selection.

- (1) Remove 4 screws through screwdriver and then remove the cover plate.
- (2) Set Protocol dial reference dial table.

Protocol DIP switch Settings

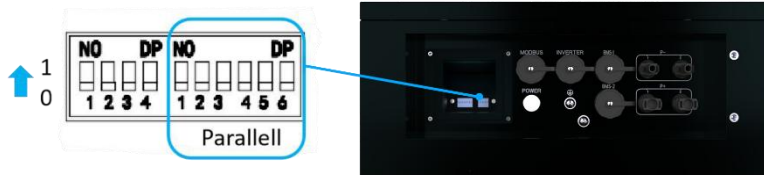
Manufacturer	Set
IGLU TECH HV Protocol	1000
.....	





Allocate dip switches.

The KADLU HV can be used as a single cluster as well as clusters (in parallel) mode.



	Master	Slave 1	Slave 2	Slave 3	Slave 4	Slave 5	Slave 6
1 Master 0 Secondary unit	000001						
1 Master 1 Secondary unit	100001	100000					
1 Master 2 Secondary unit	010001	100000	010000				
1 Master 3 Secondary unit	110001	100000	010000	110000			
1 Master 4 Secondary unit	001001	100000	010000	110000	001000		
1 Master 5 Secondary unit	101001	100000	010000	110000	001000	101000	
1 Master 6 Secondary unit	011001	100000	010000	110000	001000	101000	011000

4 Maintenance

4.1 Trouble Shooting



DANGER

The KADLU HV battery system is a high voltage DC system, operated by professional and authorized person only. Before checking the failure, must check all the cables connection. Switches are right or not, and if the battery system can be woken up normally.

No	Problem	Possible Reason	Solution
1	The battery has no voltage output, and "POWER" Light is off.	The DC breaker of the Controller didn't be turned on	Turn on the DC breaker of Controller
2		The "POWER" switch of the Controller box was not switched on	Switch on the "POWER" button
3		Battery is in sleep state	Long press the "POWER" button for about 3S
4		The fuse in the Controller box is faulty	Replace fuse
5		Battery gets into over-discharged protection	Charge the battery to relieve the protection state
6	The battery has no voltage output, but "POWER" is on	The relay in Controller is faulty	Replace a new Controller directly
7	When the battery is connected to the inverter, the DC breaker trips automatically	The circuit between the battery and the inverter has a short circuit point	Check for short circuits between the battery and the inverter. Also, check whether the inverter is faulty.
8	Communication failure between battery and inverter	The wrong battery model type is selected on the inverter	Select the correct battery model type on the inverter
9		Communication cable interruption	Replace communication cable
10		PIN error in communication cable between inverter and battery	Replace with the cable corresponding to the CAN signal (the battery side CAN is 4H5L)
11		Error dialing code on the control box	On the dialing board, use the normal protocol to dial the code

4.2 Replacement of main component



DANGER

The KADLU HV battery system is a high voltage DC system, only can be operated by professional and authorized person.

4.2.1 Replacement of Controller

4.2.1.1 Turn off the whole battery system. Ensure the Negative terminal and Positive terminal have no power.

4.2.1.2 Remove the four screws on the Controller, then remove the Controller from the system.



4.2.1.3 Change a new Controller. Then fix four screws.

4.3 Battery Maintenance



The maintenance of battery only can be operated by professional and authorized person.
you need turn off the battery system firstly when you do some maintenance items.

4.3.1 Voltage Inspection

[Periodical Maintenance] Check the voltage of battery system through the monitor software. Check whether the system voltage is normal or not. For example: Check Single cell's voltage is out of a rated range or not.

4.3.2 SOC Inspection

[Periodical Maintenance] Check the SOC of battery system through the monitor software. Check if the SOC of battery string is normal or not.

4.3.3 Cables Inspection

[Periodical Maintenance] Visual inspect all the cables of battery system. Check if the cables have broken, aging, getting loose or not.

4.3.4 Balancing

[Periodical Maintenance] The battery system will become unbalanced if have not be charged fully for a long time. Solution: Preform the balancing maintenance (fully charged) every 3 months. Generally, this maintenance progress needs to be completed when external devices such as monitor software and battery, and inverter are in good communication.

4.3.5 Output Relay Inspection:

[Periodical Maintenance] Under low load condition (low current), control the output relay OFF and ON to hear the relay has click voice, that's mean this relay can off and on normally.

5 Storage Recommendations

- It is recommended that batteries not be stored for a long period. They should be used soon after being deployed onsite. The batteries should be handled according to the following requirements.

Required Storage Temperature	Actual Storage Temperature	Recharge Interval	Remarks
$-15^{\circ}\text{C} < T \leq 55^{\circ}\text{C}$	$T \leq -15^{\circ}\text{C}$	Not allowed	Not reaching the time for recharge: Use the batteries as soon as possible. Reaching the time for recharge: Recharge the batteries.
	$-15^{\circ}\text{C} < T \leq -10^{\circ}\text{C}$	6 months	
	$-10^{\circ}\text{C} < T \leq +25^{\circ}\text{C}$	12 months	
	$25^{\circ}\text{C} < T \leq 35^{\circ}\text{C}$	9 months	
	$35^{\circ}\text{C} < T \leq 55^{\circ}\text{C}$	6 months	
	$55^{\circ}\text{C} < T$	Not allowed	

6 Shipment

Battery module will pre-charge to 50% SOC or according to customer requirement before shipment. The remaining capacity of battery cells is determined by the storage time and condition after shipment.

- The battery modules meet the UN38.3 certificate standard.
- In particular, special rules for the carriage of goods on the road and the current dangerous goods law, specifically ADR (European Convention on the International Carriage of Dangerous Goods by Road), as amended, must be observed.



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