

**FIMER**



# Solar Inverter

# REACT2-BATT

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## Quick Installation Guide

In addition to what is explained in this quick installation guide, the safety and installation information provided in the product manual must be read and followed. The technical documentation for the product is available at the website.  
The device must be used in the manner described in the manual. If this is not the case the safety devices guaranteed by the inverter might be ineffective.

# 1. Labels and Symbols

The labels on the inverter show the markings, main technical data and the identification of the equipment and of the manufacturer.

**FIMER**

MODEL: **REACT2-BATT** **A**

Vdc max	575 V
Vdc operating range	170 - 575 V
Idc max (charge)	4,5 A
Idc max (discharge)	5,6 A
Whr <b>B</b>	4.0 kWh

-20 to +55 °C (\*)  
-4 to +131 °F (\*)

**IP54**

(\*) Out of 0 to +40 °C (+32 to +104 °F) temperature range, power derating occurs

**Contains Rechargeable Li-ion Battery**

**WARNING!**

- Refer to instruction manual for proper installation.
- Do not remove the cover. No user serviceable parts inside.
- Do not expose the unit to heating sources.
- Do not expose the unit to direct solar irradiation.
- Do not install or operate the unit in potentially explosive atmospheres.

- A)** Inverter/battery model  
**B)** Main technical data

**⚠ ATTENTION** – The labels attached to the equipment must NOT be removed, damaged, dirtied, hidden, etc...

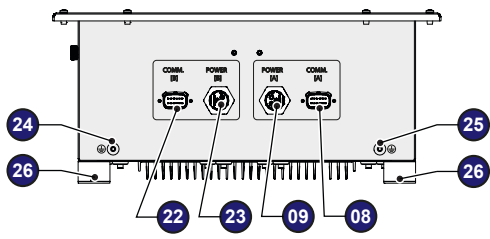
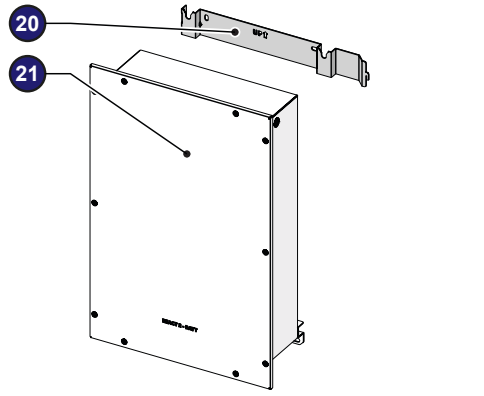
In the manual, and/or in some cases on the equipment, the danger or attention zones are indicated by signs, labels, symbols or icons.

## Symbols used in the guide and on the products

- Always refer to instruction manual
- General warning - Important safety information
- Hazardous voltage
- Hot surfaces
- Temperature range
- Positive and negative pole of the input voltage (DC)
- Always use safety clothing and/or personal safety devices
- Point of connection for grounding protection

# 2. Equipment Models and Components

The model of equipment to which this guide refers is REACT2-BATT. The principal components of the REACT2-BATT are shown in the figure and described in the following table:

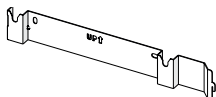


## Main components

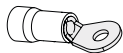
- 08** Battery communication connector COMM.[A]
- 09** Battery power connector POWER [A]
- 20** REACT2-BATT wall bracket
- 21** REACT2-BATT
- 22** Battery communication connector COMM.[B]
- 23** Battery power connector POWER [B]
- 24** REACT2-BATT external protective earth [B]
- 25** REACT2-BATT external protective earth [A]
- 26** REACT2-BATT wall attachment point

### 3. List of supplied components

Available components for REACT2-BATT	Qty
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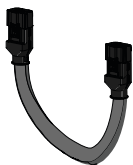
Bracket for REACT2-BATT wall mounting 1



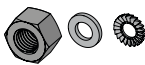
Cable lug for earth cable 2



REACT2-BATT power connection cable 1



REACT2-BATT signal connection cable 1



M5 hex nuts , M5 flat washer and M5 serrated lock washer for protective earth cable installation 1+1+1



Technical documentation 1

### 4. Safety precautions

Battery System provides a safe source of electrical energy when operated as intended and as designed.

Potentially hazardous circumstances such as excessive heat or electrolyte mist may occur under improper operating conditions, damage, misuse and/or abuse. The following safety precautions and the warning messages described in this Part must be observed.

**⚠ ATTENTION – HIGH VOLTAGE – ELECTRIC SHOCK HAZARD.**  
Do NOT open any cover of REACT2-BATT

#### 4.1 Organic Solvent Electrolyte

Cell components of Battery System contain organic solvent-based electrolyte. Breach of individual cells may allow some electrolyte to be released from the cell. Direct contact with the liquid electrolyte can cause skin irritation.

If contact with the liquid electrolyte occurs, follow the suggestions below to minimize the chance of injury:

- Flush eyes immediately with cold running water for at least 15 minutes.
- Rinse skin immediately with water for at least 15 minutes.
- Remove clothing if soiled.
- Seek immediate medical attention.

#### 4.2 Electrolyte Vent Product

Organic solvent electrolyte vent products are flammable. To avoid of flammable products, the following guidelines must be observed:

- Operate the Battery System under conditions only as specified
- Keep sparks, flames and smoking materials away from the Battery
- Do not incinerate, puncture or impact the Battery System.
- Do not solder or weld to the Battery System.

**⚠ ATTENTION – HAZARD.** The hazard warnings (set out below) are used to indicate risks or unsafe practices that CAN cause serious injury or death.

- DO NOT dismantle or disassemble any parts.
- DO NOT set light to or heat.
- DO NOT use or leave near a naked flame, boiler or heated places (beyond the temperature range indicated in the technical data).
- DO NOT wet with fresh or salt water.
- DO NOT create damaging impacts or drop.
- DO NOT use for other equipment.
- DO NOT touch directly if there is a leak of electrolyte material.
- DO NOT touch if it shows any breaks in the cover where any parts under voltage are visible.
- DO NOT use should a fault or any anomaly (such as in smell, heat, colour, smoke, shape or noise) be found.

**⚠ WARNING –** The warnings (set out below) are used to indicate risks or dangerous actions which COULD cause serious personal harm or damage to the product or property.

- Do not use with other inverter models if not expressly indicated by FIMER.
- Do not use if is leaking of electrolyte material.
- Do not use if anomalies are present. Should the battery unit have a bad smell, changes in colouring, deformation or other anomalous conditions during use (including charging and storage), do not use it.

**⚠ ATTENTION – CAUTION.** The caution messages (set out below) are used to indicate risks or dangerous actions which could cause serious harm to people or damage to property.

- Do not use or leave exposed to direct sunlight (or in a vehicle which is exposed to the sun). The REACT2-BATT could produce heat, smoke, breakages or flames. In addition, its performance might deteriorate and/ or it might have a shorter lifespan.

**⚠ ATTENTION –** Final installation of the equipment must not hinder access to any externally located disconnection devices.

# 5. Lifting and transport

## 5.1 Transport and handling

The road transport of dangerous goods is regulated by the ADR international agreement.

The Battery Unit is identified in the ADR document by the number UN 3480 (LITHIUM-ION BATTERIES) in hazard CLASS 9. The battery unit, in its original packing, is compliant for road transport.

The ambient temperature allowed for transport is from -5°C to +40°C. The manufacturer guarantees the characteristics of the REACT2-BATT only if the aforementioned condition is respected.

### • Transport of new batteries

The transport of Battery Units must comply with the general application of the ADR. For any exemptions, please refer to paragraphs 1.1.3.1 and 1.1.3.6 of the ADR document.

### • Transport of end-of-life batteries

Besides complying with the general application of the ADR, Battery Units which are transported for disposal must comply with the following guidelines:

Be packed in accordance with packing instruction P909 of 4.1.4.1 (original package of REACT2-BATT)

The packages shall bear the following indication: "LITHIUM BATTERIES FOR DISPOSAL", in addition to other labels and indications provided for in the ADR.

**READ THE MANUAL** – For further details, please refer to the ADR document: "European Agreement concerning the International Carriage of Dangerous Goods by Road", special regulation 377. Contact FIMER for further details regarding the correct battery unit disposal procedures.

## 5.2 Storage of REACT2-BATT

The storage period of the REACT2-BATT begins from the date, on which the product is produced by FIMER (the production date is indicated on the product label placed on the lateral surface of the chassis and expressed as week of production - Year of production). In order to guarantee the full operation of the system, REACT2-BATT shall be put into service within 6 months at most of the date of delivery by FIMER to the recipient of the goods. In order to reduce risks during storage of the REACT2-BATT it must be considered that:

- Do not stack more than 4 REACT2-BATT boxes.
- Keep the boxes upright. Do not store upside down or on the sides.
- Storage temperature shall be in the range of -20 to +25°C (6 month storage time) or -20 to +45°C (3 month storage time).
- Storage humidity shall be less than 80% RH non-condensing.
- Capacity degradation will occur depending on storage time, temperature, and humidity.
- To minimize capacity degradation, storing in a dry place with temperature less than 25°C.
- For the rules on storing the battery, refer to the regulations in force in the country concerned. In addition to the regulations in force in the Country of interest, the following recommendations should be followed:
- Store the Battery Unit in its original packing (including the pallet), in a dry, cool, well-ventilated environment and away from water.
- Do not open/tamper with the original packing.
- Do not crush/deform the packing.
- Equip the storage environment with appropriate PPE.
- Never leave the REACT2-BATT in places where these may be accidentally hit and damaged.
- Never leave the REACT2-BATT in areas with high fire risk or in high-temperature areas.
- In the static position, the strapped batteries can be stacked up to a maximum of 4 units.
- Handling and loading onto means of transport is only allowed with a stack of maximum 2 units.

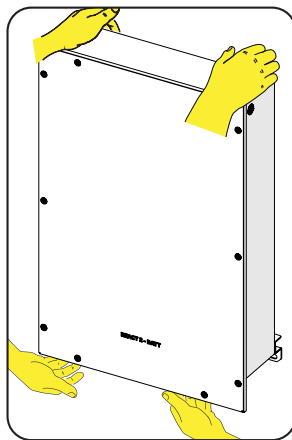
**ATTENTION** – In case of damage or visible deformation of the cover contact FIMER technical assistance service.

## 5.3 Lifting

FIMER usually stores and protects individual components by suitable means to make their transport and subsequent handling easier. Nonetheless, as a rule, it is necessary to turn to the experience of specialised staff to take charge of loading and unloading components.

Where indicated and/or available, eyebolts or handles, which can be used as anchorage points, are inserted and/or can be inserted. The means used for lifting must be suitable to bear the weight of the equipment.

Model	Weight (kg)	Lifting points
REACT2-BATT	50	4 (suggested in case of 2 operators)



**LIFTING** – The number of required operators necessary to lift the equipment must be in accordance to local regulations relating lifting limits per operator

## 5.4 Unpacking and checking

Bear in mind that the packaging elements (cardboard, cellophane, staples, adhesive tape, straps, etc.) may cause cuts and/or injuries if not handled with care. They should be removed by suitable means and not left in the hands of individuals who are not responsible (e.g. children).

The packaging components must be disposed of in accordance with the regulations in force in the country of installation.

When you open the package, check that the equipment is undamaged and make sure all the components are present.

**ATTENTION** – If any defect or damage is detected, please stop, contact the carrier and also promptly inform the FIMER Service

## 5.5 Disposal of battery unit

FIMER is responsible for the battery unit disposal. Contact the local FIMER service for further details.

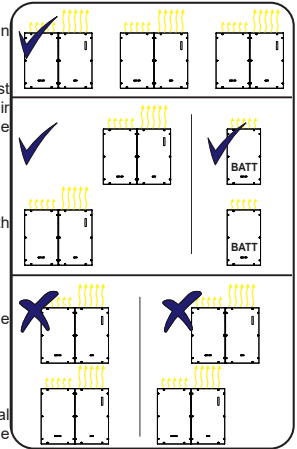
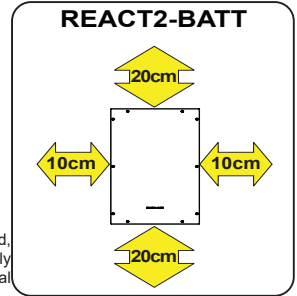
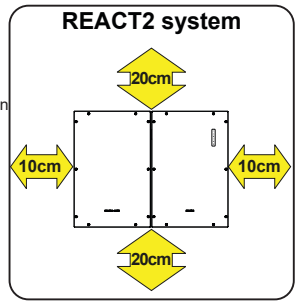
At the end of its life cycle, Battery Unit can be packed and transported by trained personnel in accordance with Chapter 1.3 ADR - See section "Transport of batteries at end of life".

In case the original packing of the Battery Unit is no longer available, you may request a new one by contacting the FIMER service.

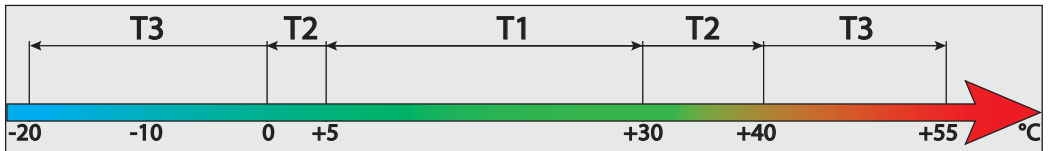
# 6. Choice of installation location

## 6.1 Environmental checks

- See characteristics and technical data paragraph to check the required environmental conditions (protection rating, temperature, humidity, altitude, etc.)
- The installation location shall be easily accessible
- Prevent access to the installation location by children
- Installation of the unit in a location exposed to solar rays makes the warranty void as it may cause:
  - power limitation phenomena in the battery unit
  - premature wear of the electrical/electromechanical components
  - premature wear of the mechanical components (gaskets)
  - reduction in performance, lifetime and possible damage of the battery unit
- Do not install in small closed rooms where air cannot circulate freely
- Always ensure that the flow of air around the battery unit is not blocked so as to prevent overheating.
- Do not install in locations where flammable substances or gases may be present
- Do not install on wooden walls or near flammable substances.
- Do not install in locations with a constant presence of water and/or high humidity level.
- Do not install in rooms where people live or where the prolonged presence of people or animals is expected, because of the noise that the system produces during operation. The level of the sound emission is heavily influenced by where the appliance is installed (for example: the type of surface around the inverter, the general properties of the room, etc.) and the quality of the electricity supply.
- Respect the minimum distances from objects around the battery unit that could prevent the inverter installation and restrict or block the air flow.
- The installation must take account of any electrical devices (e.g. lamps, switches, etc.) which must be at least 20cm from the equipment. These distances must be maintained also to facilitate the circulation of the air needed to cool the unit and to facilitate the operations to install/maintain hardware and software which is done by dismantling the covers placed on the front.
- Install vertically with a maximum inclination of 5° (forward or backward).
- Avoid electromagnetic interference that can compromise the correct operation of electronic equipment, with the consequent hazards
- Install on a wall or strong structure suitable to bear the weight
- Install at a height which takes into consideration the weight of the appliance and in a position which is suitable for servicing, unless suitable means are provided to carry out the operation



- The ambient temperature of the installation location should be between 5°C and 30°C to guarantee the optimal operation of the battery unit (REACT2-BATT). Here below are the functions available from the system on the basis of the ambient temperature:
  - T1 - Optimal operation of the REACT2 system
  - T2 - Correct operation of the REACT2 system with possible reduction of power
  - T3 - Operation limited to the inverter part only. Management of the battery is disabled.



**⚠ ATTENTION** – Final installation of the battery unit must not compromise access to any externally located disconnection devices.

# 7. Assembly Instruction

**⚠ ATTENTION** – To avoid risks of electrical shock, all installation and wiring operations must be carried out with the DC disconnect switch internal and external (if present, applying LOTO procedures on it) to OFF position and with the external AC disconnect switch to OFF position (applying LOTO procedures on it).

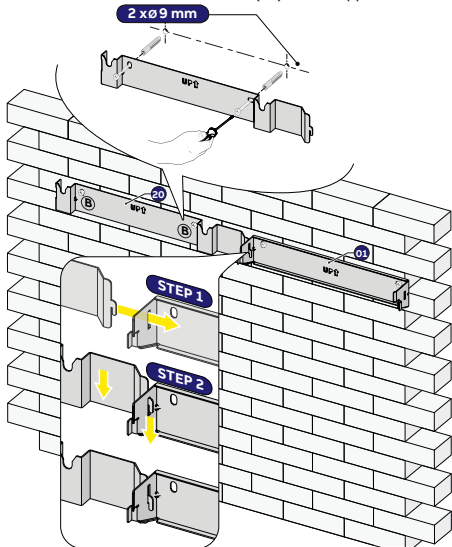
**⚠ ATTENTION** – During installation, do not place the equipment with its front facing towards the ground.

**📖 READ THE MANUAL** – The underlying procedure is related to the side-by-side installation of REACT2-BATT. Alternatively, it is possible to install the REACT2-BATT separately and at greater distances using the "REACT2-XL-CABLE-KIT" cable kit (2 meter cables length).

• Position the REACT2-BATT bracket (20) so that it is perfectly level on the wall and use it as a drilling template. To align the two brackets use the reference point and follow the steps as in the picture.

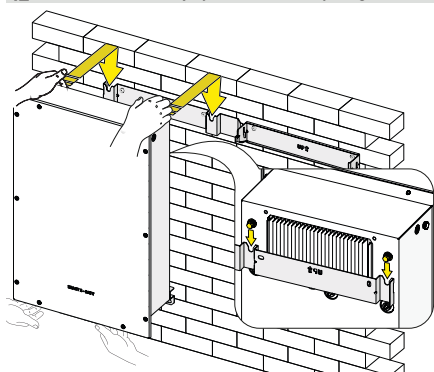
• It is the installer's responsibility to choose an appropriate type of screw anchors for the attachment points. The choice must be based on the type of support (wall, frame or other support), the type of anchors to be used, and their ability to support 4 times the inverter's weight (4x50Kg=200Kg). Depending on the type of anchor chosen, drill the required 2 holes **B** to mount the bracket.

• Install the REACT2-BATT bracket (20) to the support.

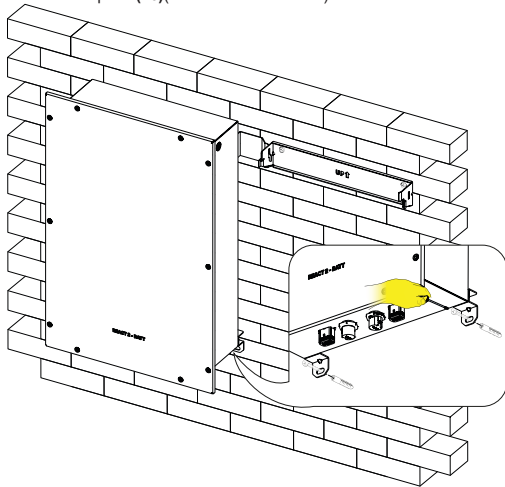


• Lift the REACT2-BATT up to the bracket and insert the heads of two anchor points (present on the back of the battery unit) into the slots **T** on the bracket (20).

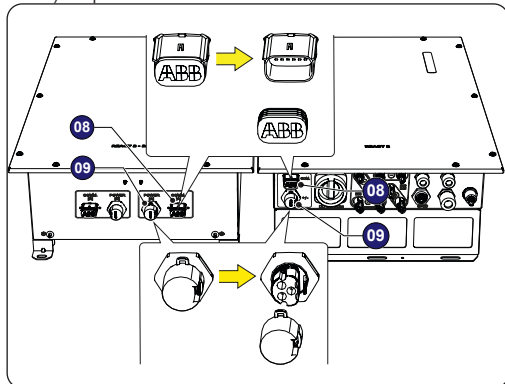
**⚠ LIFTING** – Risk of injury due to the heavy weight of the equipment.



• Hang up the lower part of the REACT2-BATT to the wall using the two wall attachment point (26) (holes diameter 11 mm).

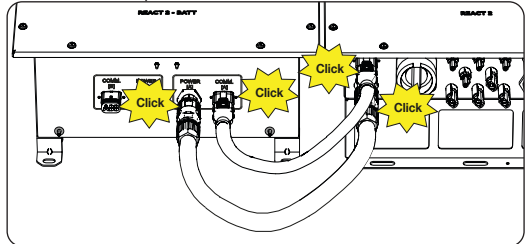


• Remove the caps from the battery and inverter connectors (if present).  
 - To remove the battery signal connectors (08) simply pull it.  
 - To remove the battery power connectors (09) press the latch (highlighted in red) and pull it off.



• Connect the two battery cables between inverter and battery unit (supplied inside the REACT2-UNO box).

• Give each cable a pull test to confirm the connection is secure.



To execute all external grounding connection, follow the procedure described below:

1. Make a jumper earth cable using the two cable lugs supplied (minimum cross-section not less than 4mm<sup>2</sup>). The cable must be long enough to connect the REACT2-UNO external protective earth (11) to the REACT2-BATT external protective earth [A] (25).

2. From among the components supplied, find the M5 nut, M5 flat washer and M5 serrated lock washer.

3. Install the earth cables following the below installation sequence

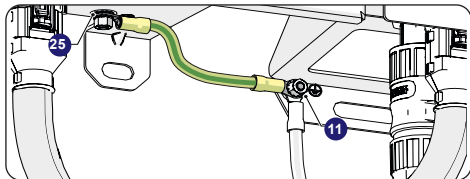
**Installation sequence:**

- knurled washers
- external protective earth cable
- jumper earth cable
- flat washer
- M5 nut (torque of 4.1 Nm)

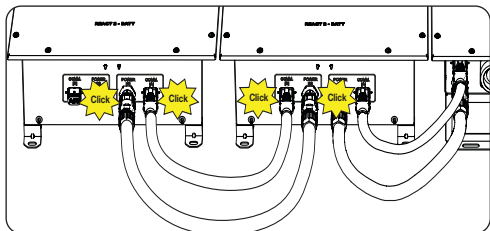
4. Connection on REACT2-BATT external protective earth [A] (25). Follow the below installation sequence

**Installation sequence:**

- knurled washers
- jumper earth cable
- flat washer
- M5 nut (torque of 4.1 Nm)



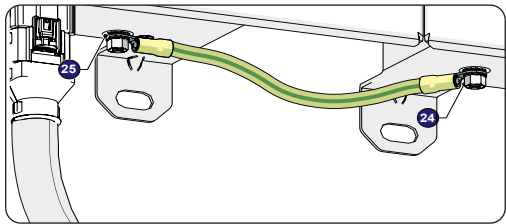
- Remove the caps from the battery units connectors (if present).
  - To remove the battery signal connect (08) (22) simply pull it.
  - To remove the battery power connectors (09) (23) press the latch (highlighted in red) and pull it off.
- Connect the two battery cables between battery units (supplied inside the REACT2-BATT box).
- Give each cable a pull test to confirm the connection is secure.



- Install an earth cable between the protective grounding connection points on the two REACT2-BATTs  
To execute all external grounding connection, follow the procedure described below:
  1. From among the components supplied, find the M5 nut, M5 flat washer and M5 serrated lock washer and two cable lugs. Make a jumper earth cable using the two cable lugs supplied (minimum cross-section not less than 4mm<sup>2</sup>). The cable must be long enough to connect the REACT2-BATT external protective earth [B] (24) to the REACT2-BATT external protective earth [A] (25).
  2. Connect the cable on REACT2-BATT external protective earth [B] (24) of the first REACT2-BATT installed.
  3. Connect the other side of the cable on REACT2-BATT external protective earth [A] (25).
- For both connection follow the below installation sequence

**Installation sequence:**

- knurled washers
- grounding jumper (one side)
- Flat washer
- M5 nut (torque of 4.1 Nm)



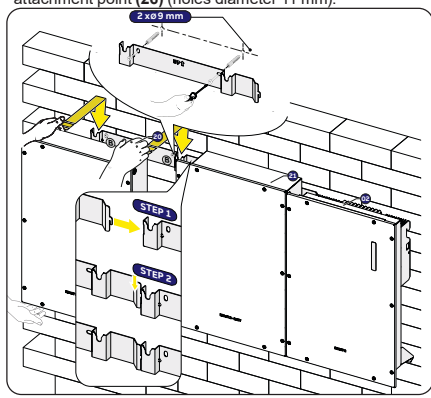
## 8. Mounting Instruction - multi battery systems

**⚠ ATTENTION** – To avoid risks of electrical shock, all installation and wiring operations must be carried out with the DC disconnect switch internal and external (if present, applying LOTO procedures on it) to OFF position and with the external AC disconnect switch to OFF position (applying LOTO procedures on it).

- Position the REACT2-BATT bracket (20) so that it is perfectly level on the wall and use it as a drilling template. To align the two brackets use the reference point and follow the steps as in the picture.
- It is the installer's responsibility to choose an appropriate type of screw anchors for the attachment points. The choice must be based on the type of support (wall, frame or other support), the type of anchors to be used, and their ability to support 4 times the inverter's weight (4x50Kg=200Kg). Depending on the type of anchor chosen, drill the required 2 holes B to mount the bracket.
- Install the REACT2-BATT bracket (20) to the support.
- Lift the REACT2-BATT up to the bracket and insert the heads of two anchor points (present on the back of the battery unit) into the slots on the bracket (20).

**⚠ LIFTING** – Risk of injury due to the heavy weight of the equipment.

- Hang up the lower part of the REACT2-BATT to the wall using the two wall attachment point (26) (holes diameter 11 mm).



# 9. Characteristics and technical data

Battery Unit	REACT2 - BATT
Modules manufacturer	Samsung
Battery type	Li-Ion
Total energy	4 kWh
Maximum battery voltage (Vdc max)	575 V
Battery voltage range (Vdc operating range)	170...575 V
Maximum DC charge current (Idc max charge)	4.5 A for each battery installed
Maximum DC discharge current (Idc,max discharge)	5.6 A for each battery installed
Deep of discharge (DoD)	95%
N° of battery unit that can be connected to the REACT2-UNO inverter	1, 2, 3
Charge power	1.6 kW, 3.2 kW, 4.8 kW
Discharge power	2 kW, 3.6 kW, 3.6 kW (REACT2-3.6-TL-OUTD) 2 kW, 4 kW, 5 kW (REACT2-5.0-TL-OUTD)
Environmental	
Environmental protection rating	IP54 (suggested indoor installation for preserving battery life time)
Ambient temperature range	-20...+55°C (out of 0...+40°C temperature range, battery will be disabled)
Suggested ambient temperature	+5...+30°C
Storage temperature	-20...+25°C (6 months) or -20...+45°C (3 months)
Relative humidity	4...100 % condensing
Physical	
Cooling	Natural
Dimension (H x W x D)	740 mm x 490 mm x 229 mm
Weight	50 kg
Mounting system	Wall bracket
Safety	
Protective class	I
Marking	CE
Safety	IEC 62619, UN38.3, UN3480



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[fimer.com](http://fimer.com)

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