SOLINTEG ACADEMY

EDA Series

# Solinteg Backup Box Introduction

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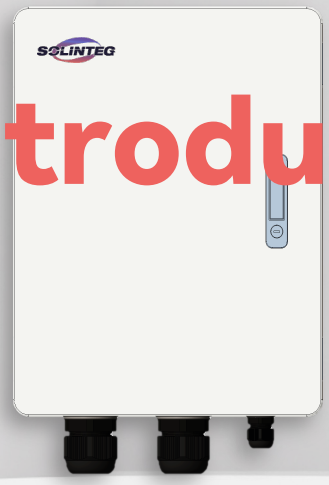
# 01

# Introduction & Features



# What is Backup Box?

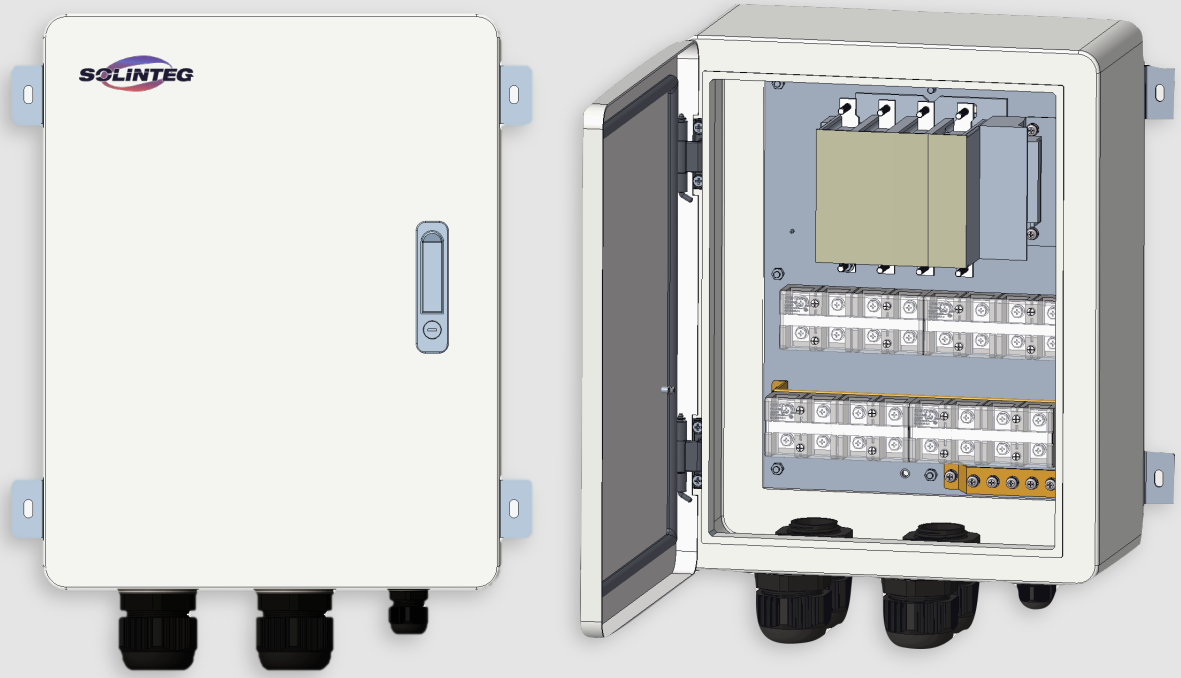
Backup Box is a control device developed by Solinteg to facilitate seamless switchover between on-grid and off-grid parallel applications. It ensures steady operation and enhances the overall reliability and resilience of the parallel hybrid energy system and diesel generator solutions.

When paired with Solinteg MHT25-50K series hybrid inverters, the backup box provides intelligent energy management and a more reliable power supply to loads in off-grid parallel situations.

There are three sizes of backup boxes covering diversity applications:

| Backup Box Models | Rated Current | Max Current |
|---|---|---|
| EDA-4115-01 | 115A | 1100A@10S |
| EDA-4225-01 | 225A | 1800A@10S |
| EDA-4400-01 | 400A | 3600A@10S |

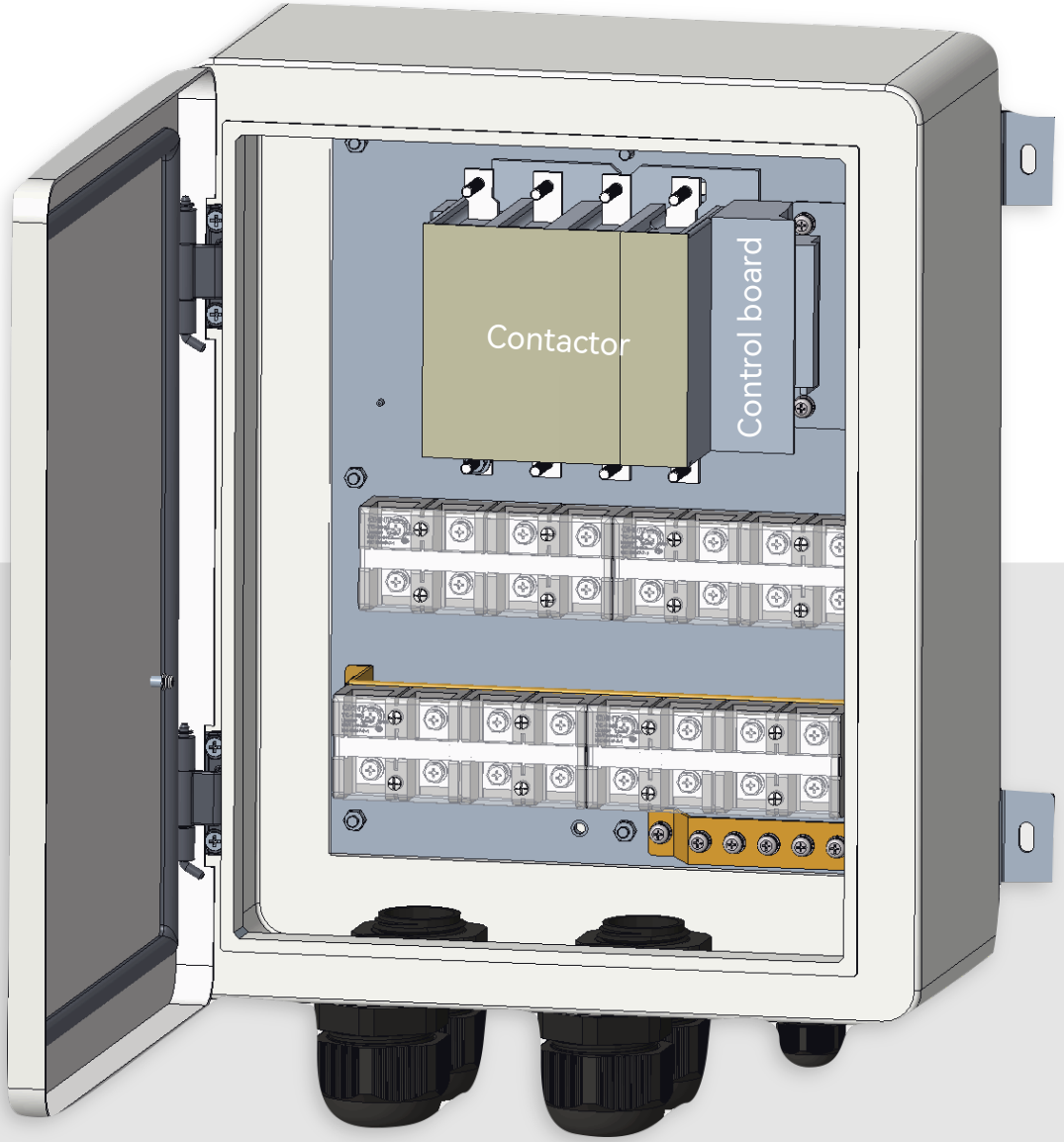
**115A | 225A | 400A**




**EDA Series - Solinteg Backup Box**

# Application Scope & Functions

The primary component in the backup box is an AC contactor and a control board. It is typically used in circuits with a frequency of 50Hz - or 60Hz frequency and a rated operating current ranging from 115A to 400A. This contactor is responsible for making and breaking circuits over long distances, frequently starting and stopping AC electric motors, and, in conjunction with thermal overload relays, protecting the circuit against overloads.




Standard
**Operation Temp.**

- -25~40℃

Standard
**Storage Temp.**

- -25~45℃

Standard
**Operation Altitude**

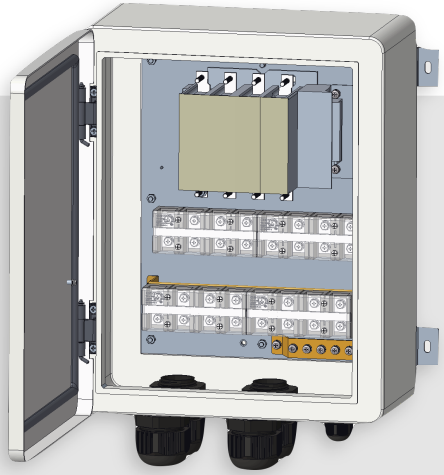
- ≤3000m

Standard
**Storage Humidity**

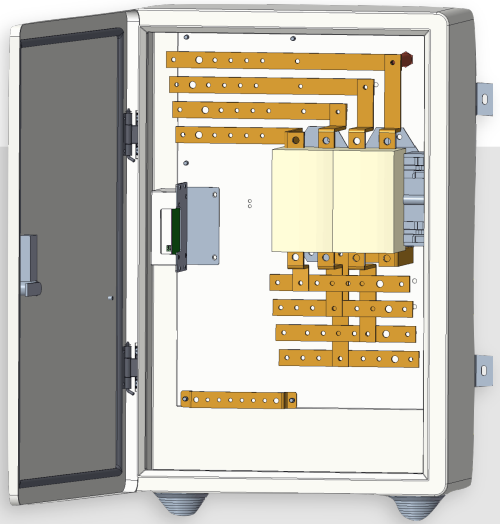
- < 95%, No condensation

# Key Features

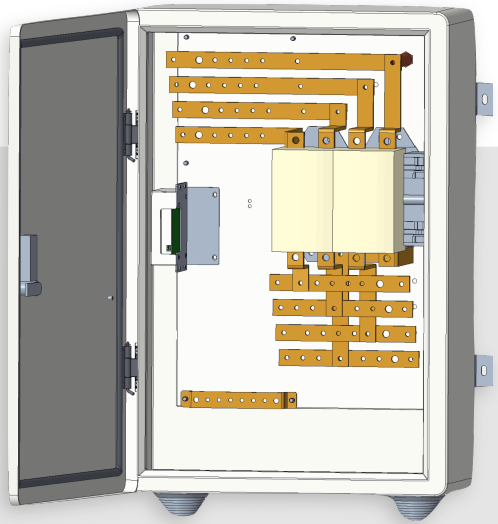
**Backup Boxes**
**115A/225A/400A**



115A



225A



400A

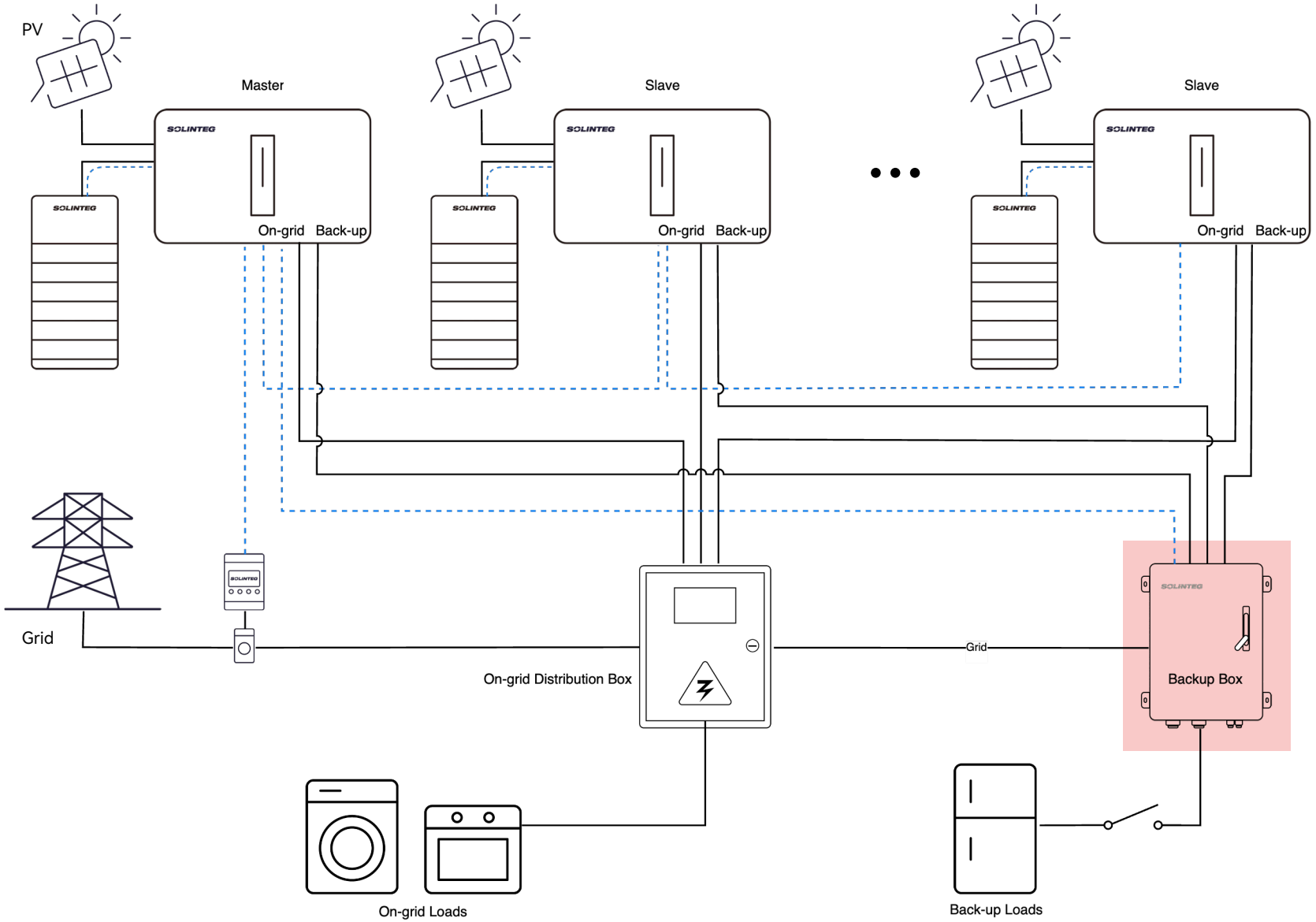
**More Connections**
The backup box ensures more inverters and loads connected to a large system for reliable operation.

**Full Backup**
The backup box secures full loads power supply even when power grid failures.

**Convenient Wiring**
The backup box provides convenient cable wiring when used in a large off-grid parallel system.

**Reliable Operation**
The backup box offers more reliable switching over from on and off-grid in a parallel system.

# Advantages of Backup Box in Parallel System




## System Advantages

### Parallel Performance

Parallel from 2 to 4 units of inverters depending on the backup box size and inverter models.

### Loads Versatility

Supports various load connections, including inductive loads, capacitive loads, motor loads, etc.

### 7 X 24H

Provides continuous power outage protection, and ensures your steady loads power supply.

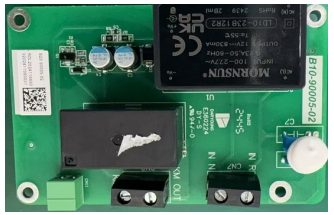
# 02

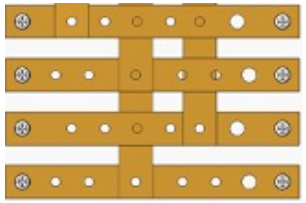
# Key Parameters

# Backup Box Key Components

For inverter to remote control the backup box, enhances control efficiency and precision

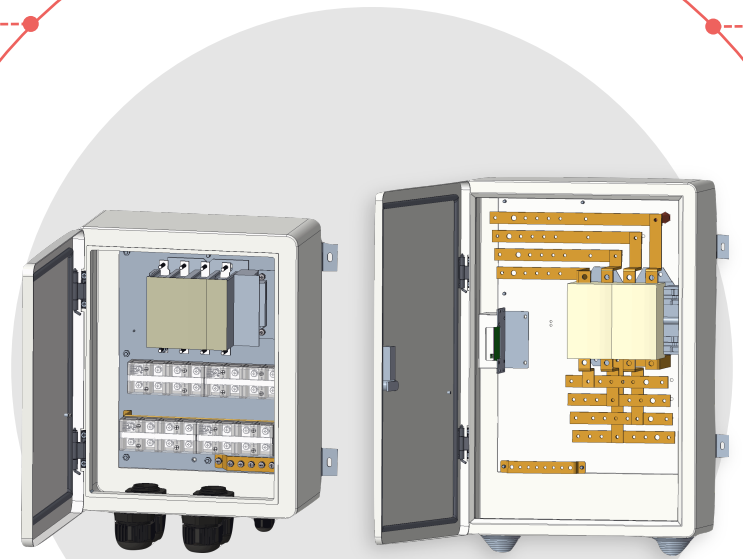
**Control board**





**Grid/Load/Inverter connection copper bar**

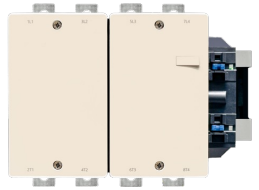
For convenient cable wiring



**Backup Box**

To improve IP protection

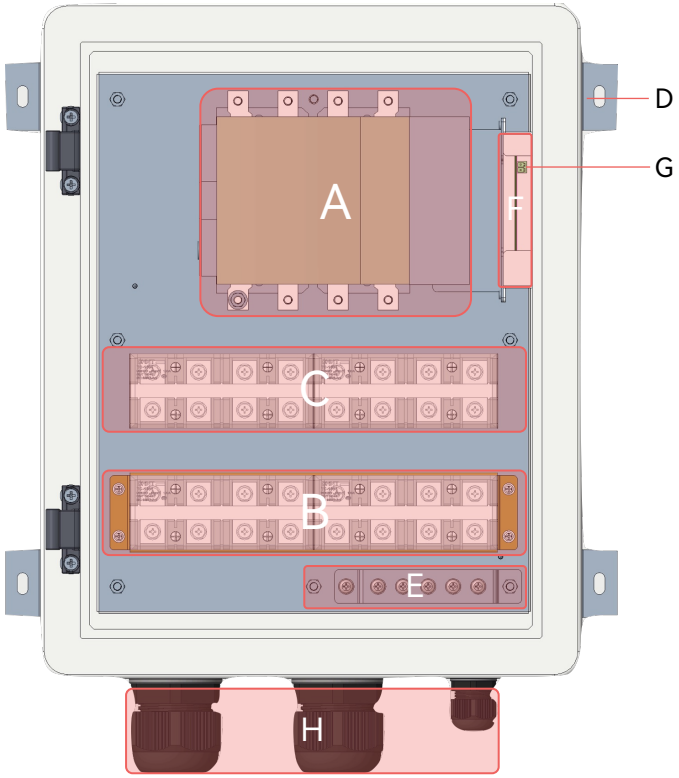
**Wall-mounted box**

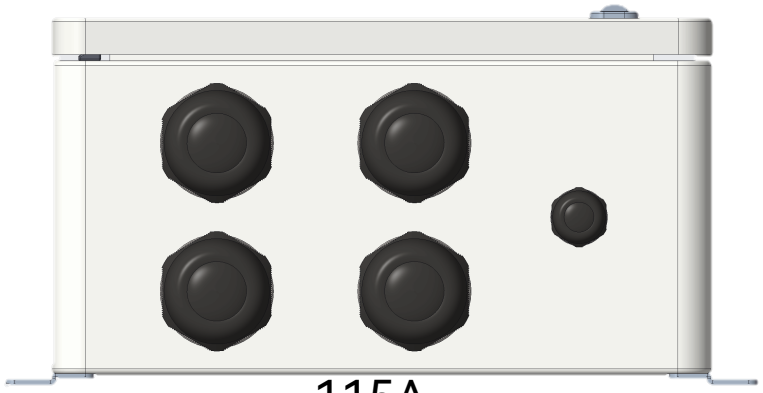


**AC contactor**

For strong load applicability, and effective breaking and arc extinguishing, ensuring reliable and safer operations

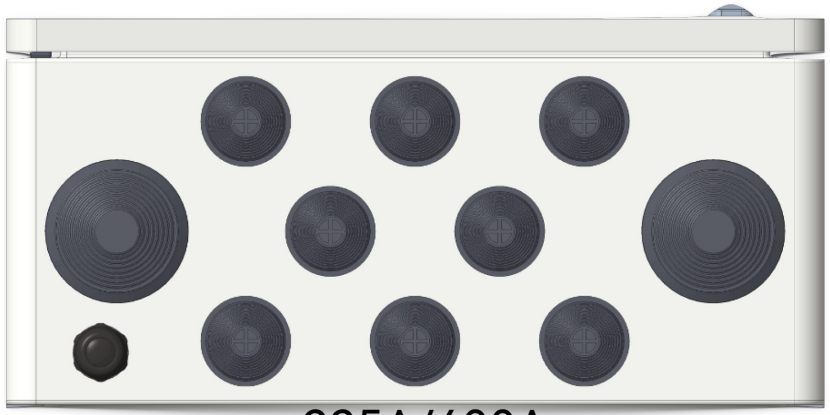
# Backup Box All-round Introduction



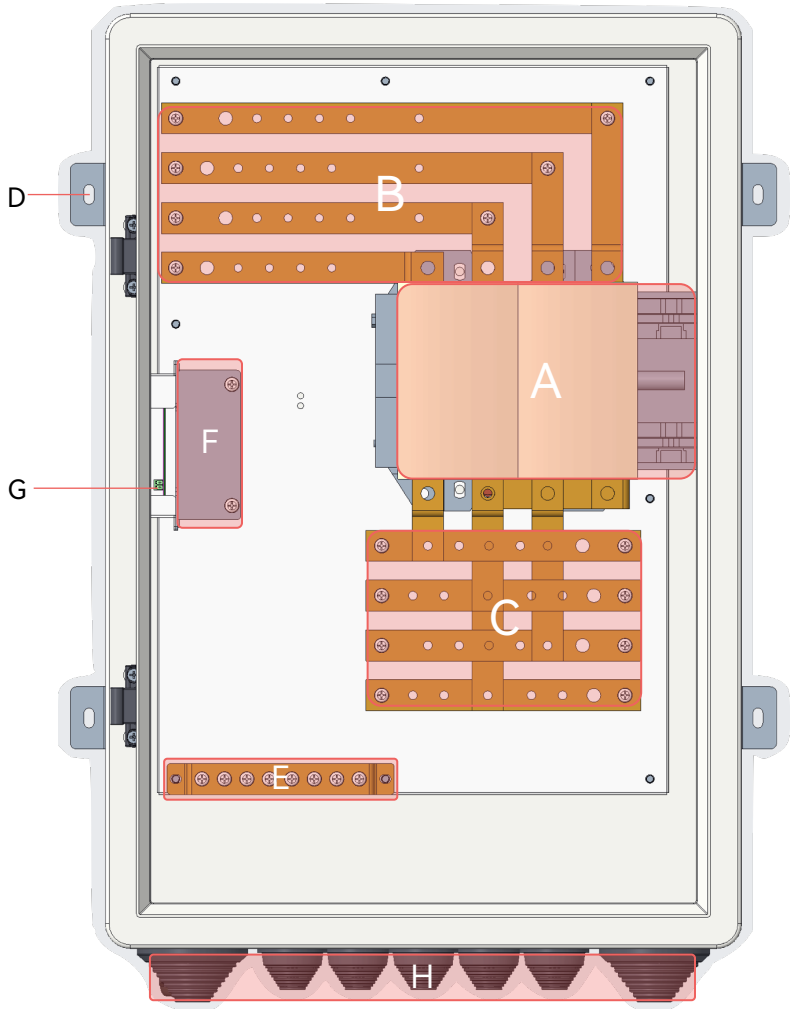



115A

| No. | Definition |
|---|---|
| A | AC contactor + Control board |
| B | For Grid and inverter On-grid side connection |
| C | For Load and inverter Back-up side connection |
| D | Ear clamp for mounting |
| E | Grounding terminals |
| F | PCBA control board |
| H | Cable inlet holes |



225A/400A



# Key Parameters

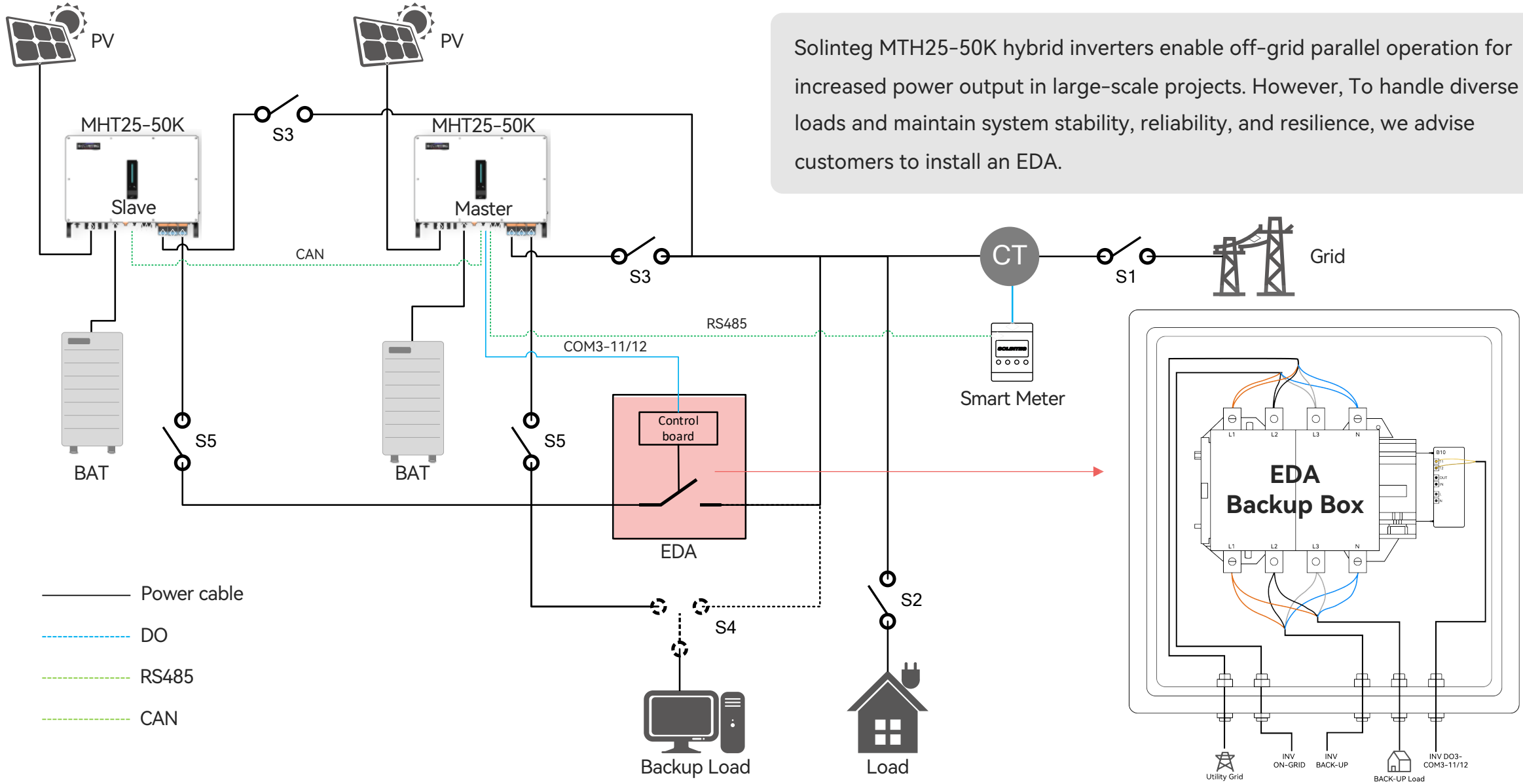
| Model | | EDA-4115-00/01/02 | EDA-4225-00/01/02 | EDA-4400-00/01/02 |
|---|---|---|---|---|
| Inverter Configuration | | | | |
| No. of connection inverters | MHT-25K-100 | 2 | 4 | 4 |
| | MHT-30K-100 | 2 | 3 | 4 |
| | MHT-36K-100 | 1 | 3 | 4 |
| | MHT-40K-100 | 1 | 2 | 4 |
| | MHT-50K-100 | 1 | 2 | 4 |
| Electrical Parameter | | | | |
| Rated voltage [V] | | | 3L/N/PE; AC 380/400 | |
| Rated current [A] | AC-3; 415V | 115 | 225 | 400 |
| Rated power [kW] | | 50 | 100 | 200 |
| Rated frequency [Hz] | | | 50/60 | |
| Switch time [ms] | | | < 50 | |
| General Data | | | | |
| Dimensions [W*L*H mm] | | 456*570*230 | 566*800*255 | 566*800*255 |
| Weight [Kg] | | 20 | 37 | 40 |
| Control signal | | | DI (in the control board) | |
| Operating temperature [℃] | | | -25 ~ 40 | |
| Relative humidity [%] | | | ≤50% relative humidity at +40℃ | |
| Operating altitude [m] | | | ≤3000 | |

# 03

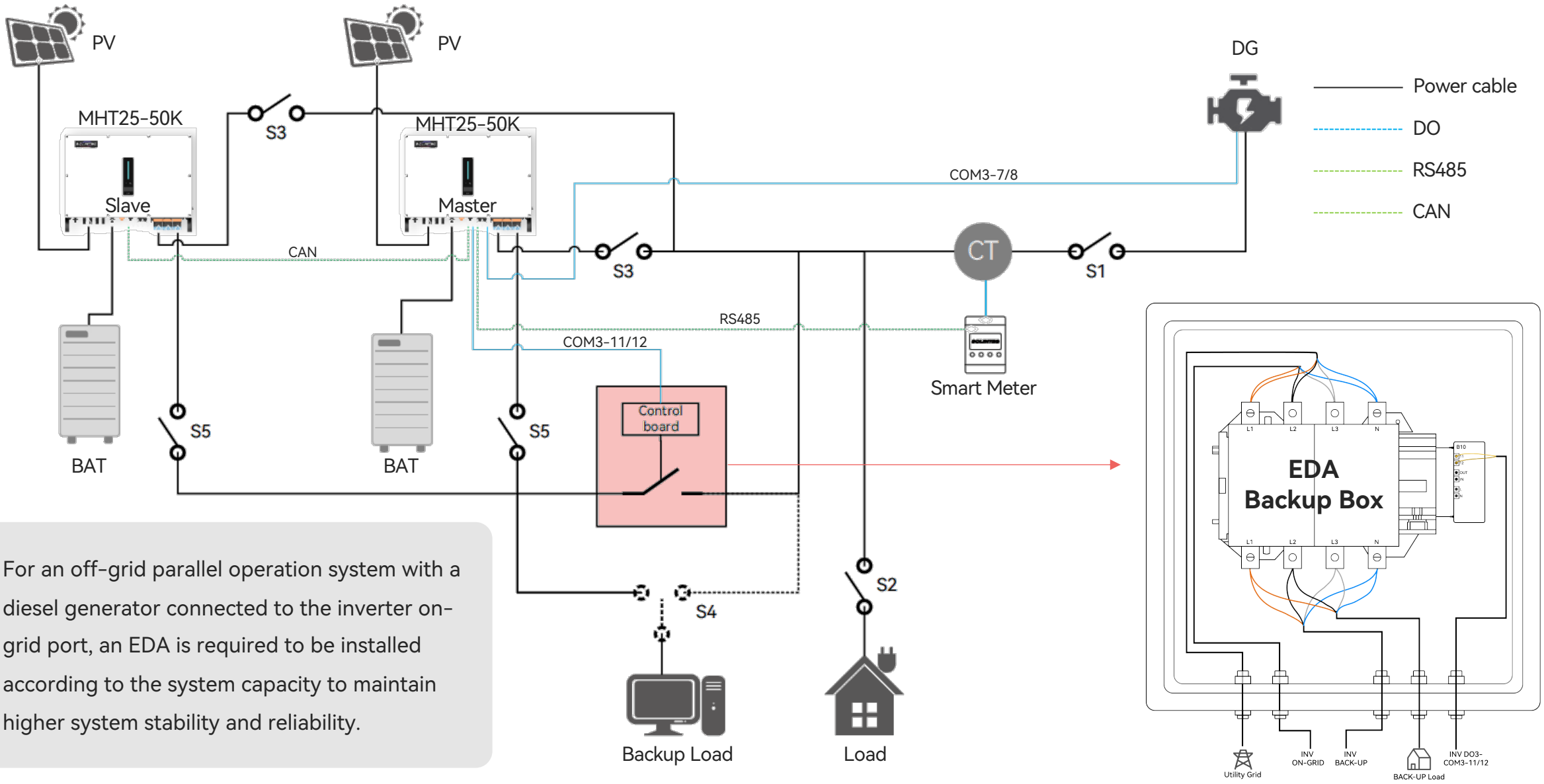
# Applications & Solutions

# Application1-Parallel System without DG

Solinteg MTH25-50K hybrid inverters enable off-grid parallel operation for increased power output in large-scale projects. However, To handle diverse loads and maintain system stability, reliability, and resilience, we advise customers to install an EDA.

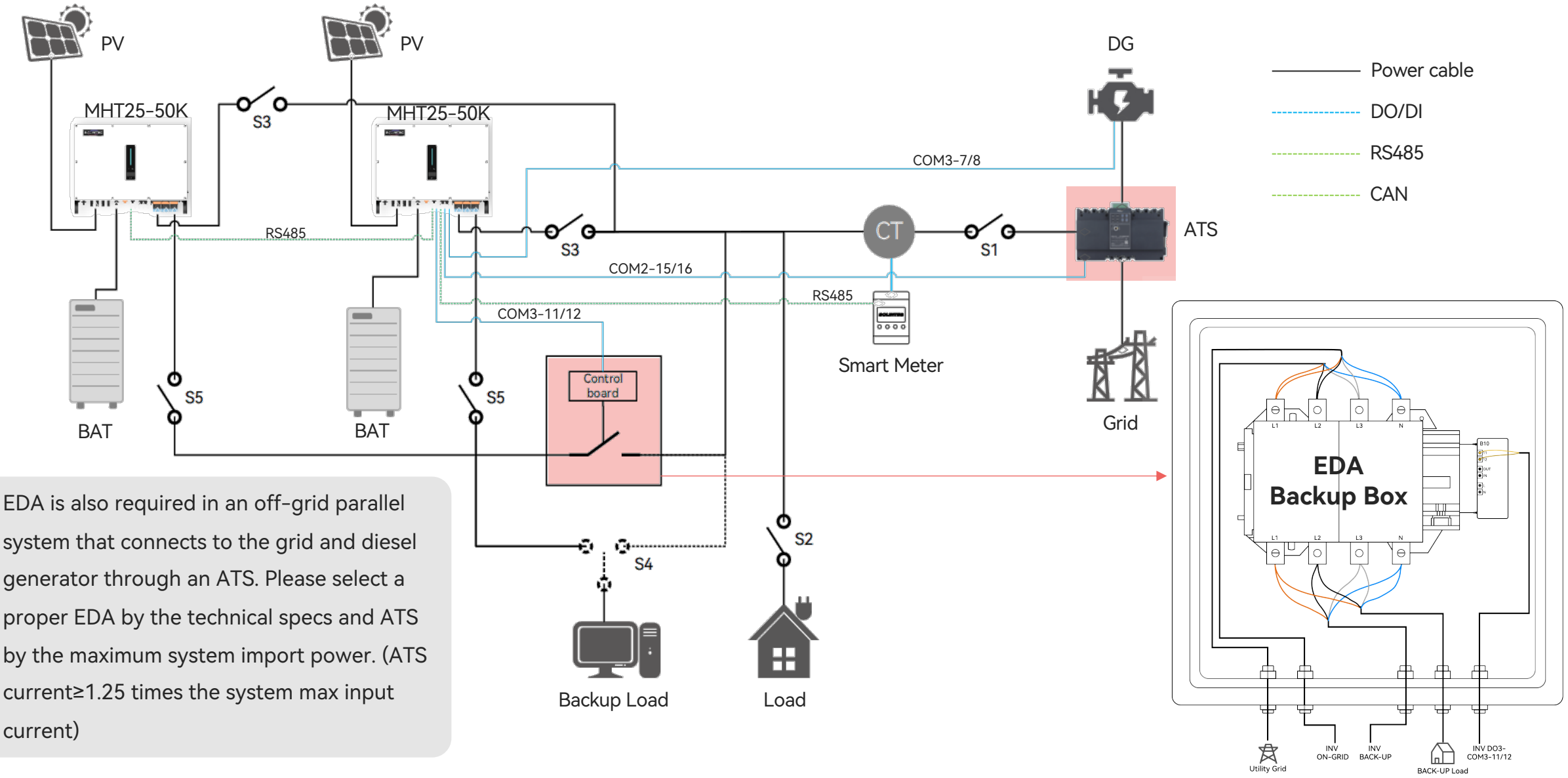


# Application2-Parallel System with DG Only




For an off-grid parallel operation system with a diesel generator connected to the inverter on-grid port, an EDA is required to be installed according to the system capacity to maintain higher system stability and reliability.

# Application3-Parallel System with DG & Grid

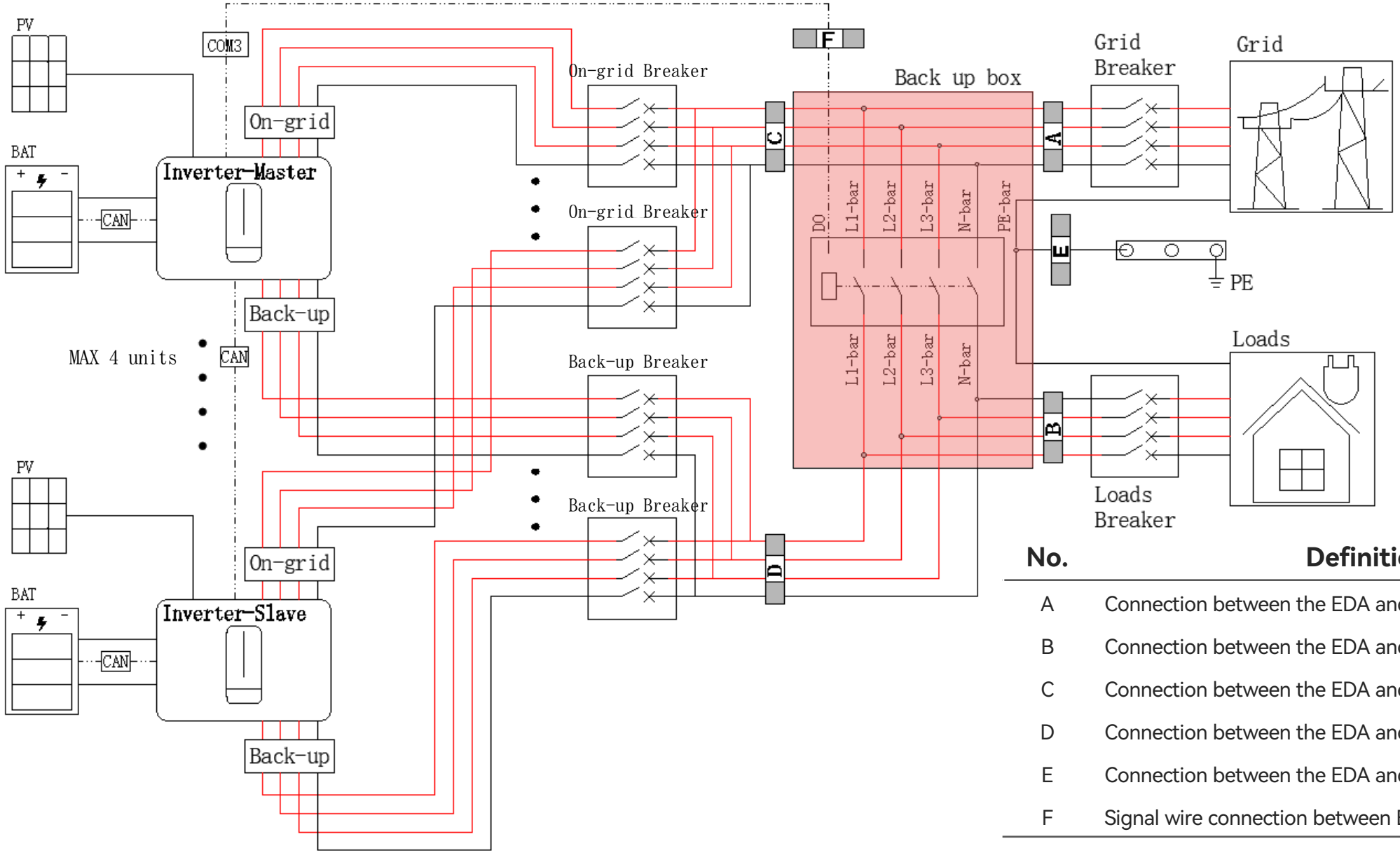



EDA is also required in an off-grid parallel system that connects to the grid and diesel generator through an ATS. Please select a proper EDA by the technical specs and ATS by the maximum system import power. (ATS current≥1.25 times the system max input current)

# 04

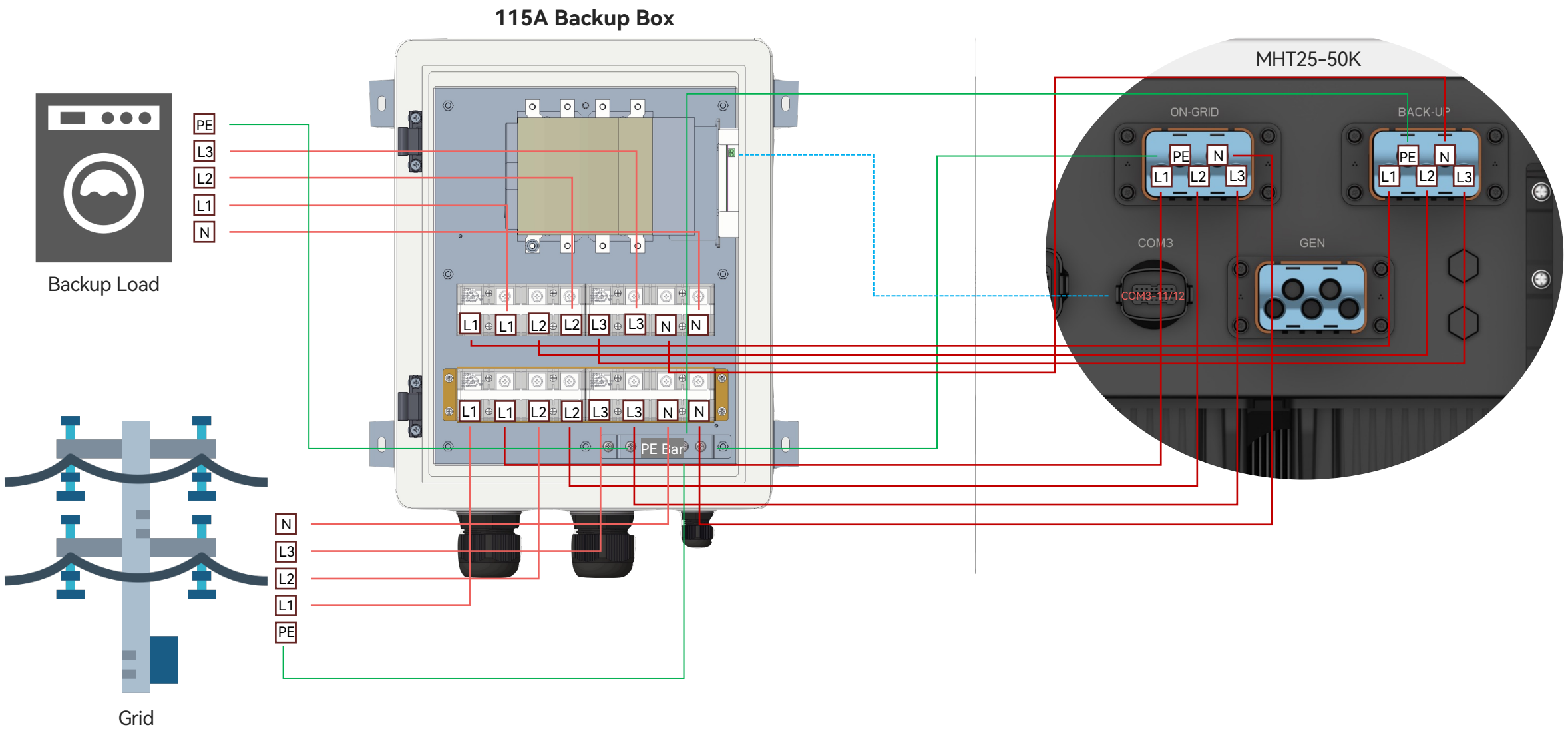
# Installation & Wiring

# Back-up Box Application in Parallel System

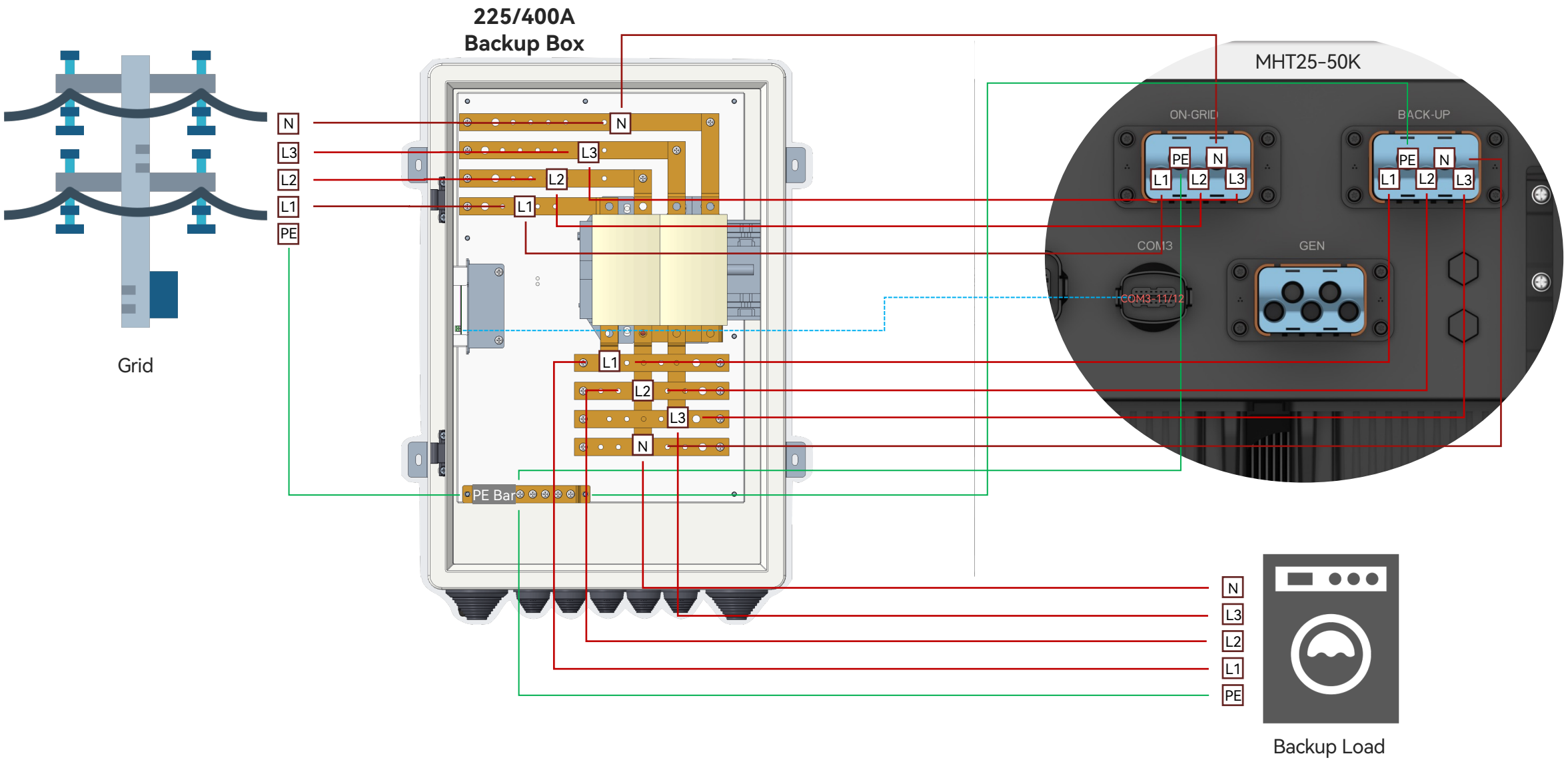



| No. | Definition |
|---|---|
| A | Connection between the EDA and DB of the grid |
| B | Connection between the EDA and DB of the load |
| C | Connection between the EDA and inverter on-grid side |
| D | Connection between the EDA and inverter back-up side |
| E | Connection between the EDA and grounding copper bar |
| F | Signal wire connection between EDA and master inverter |

# EDA Backup Box Wiring-115A



# EDA Backup Box Wiring-225/400A



# Recommended Cable Specs

| Name | Cable Hole | | | 3+2 Core AC Cable | | |
|---|---|---|---|---|---|---|
| Model | Name | Quantity | Aperture(mm) | Cross-section of Cable | Cable Diameter(mm) | Quantity |
| **Grid side/On-grid load** | | | | | | |
| EDA-4115-01 | S1 | 1/1 | 32-38 | 3*25 $mm^2$+2*16$mm^2$<br>3*35 $mm^2$+2*16$mm^2$ | 32-38 | 1/1 |
| EDA-4225-01 | | 1/1 | 70 | 3*70 $mm^2$+2*35$mm^2$<br>3*95 $mm^2$+2*50$mm^2$ | 39-50 | 1/1 |
| EDA-4400-01 | | 1/1 | 70 | 3*185 $mm^2$+2*95$mm^2$<br>3*240 $mm^2$+2*120$mm^2$ | 59-69 | 1/1 |
| **Inverter On-grid side/Back-up side** | | | | | | |
| EDA-4115-01 | S2 | 1/1 | 32~38 | 3*25 $mm^2$+2*16$mm^2$ | 32~38mm | 1/1 |
| EDA-4225-01 | | 4/4 | 40 | 3*35 $mm^2$+2*16$mm^2$ | | 2/2* |
| EDA-4400-01 | | 4/4 | 40 | | | 4/4 |
| **Signal control cable** | | | | | | |
| All Backup Box | S3 | 1 | 13~18 | 2*1.0$mm^2$ or 2*1.5$mm^2$ | 13-15 | 1 |

*The suggestion is based on two parallel 50kW inverters. For smaller power inverters, the cable numbers may vary according to the specific inverter power.



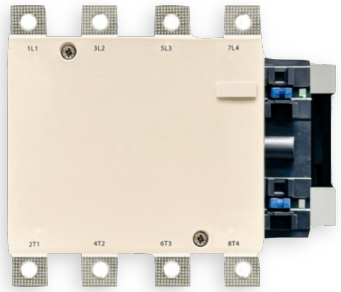
# 05

# Appendix

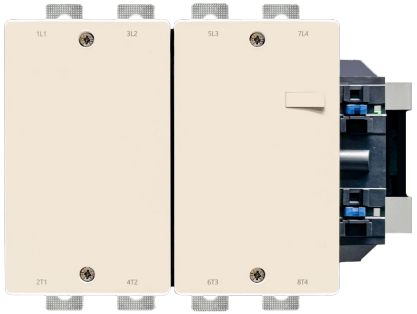
# EDA Lists & Parallel Capabilities

Besides the backup box, we also provide other tailored accessories for paralleling solutions. Here's a list of other products in the EDA series.

## Controller

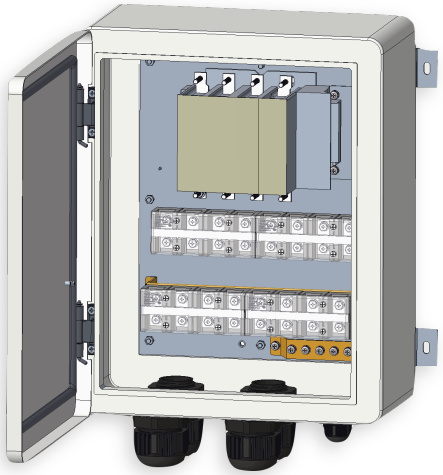


115A | 225A

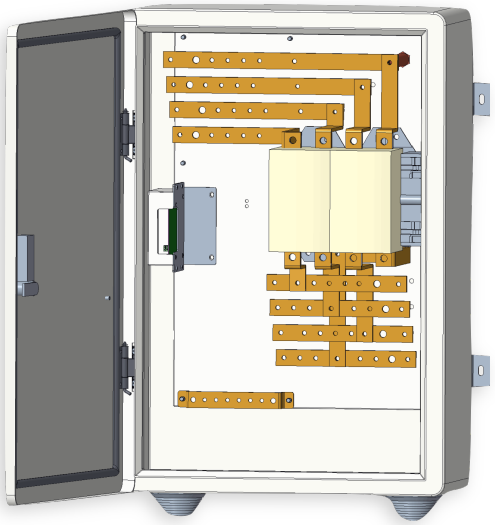


400A

## Backup Box



115A



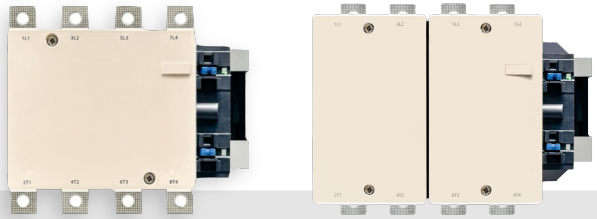
225A | 400A

## Backup Cabinet

115 | 225 | 400A

| Name | Model | Inverter Power | Parallel Numbers | Inverter Power | Parallel Numbers |
|---|---|---|---|---|---|
| Controller<br>Backup Box<br>Backup Cabinet | 115A | MHT50kW | 1 | MHT25-30kW | 2 |
| | 225A | MHT50kW | 2 | MHT25-30kW | 4/3 |
| | 400A | MHT50kW | 4 | MHT25-30kW | 4 |

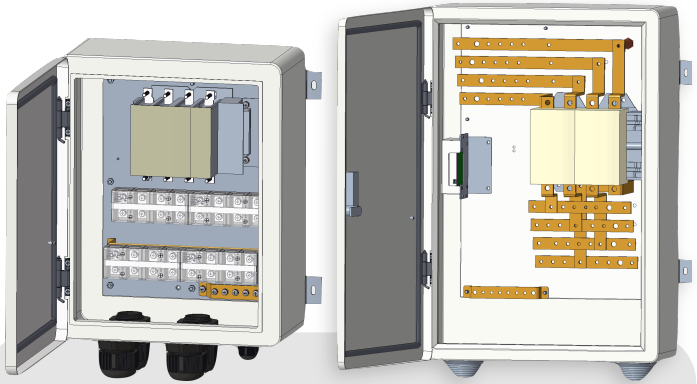
# EDA Differences



EDA
## Controller

- Control unit(Contactor + control board)
- Grid and load connection terminals
- Control signal connection terminals

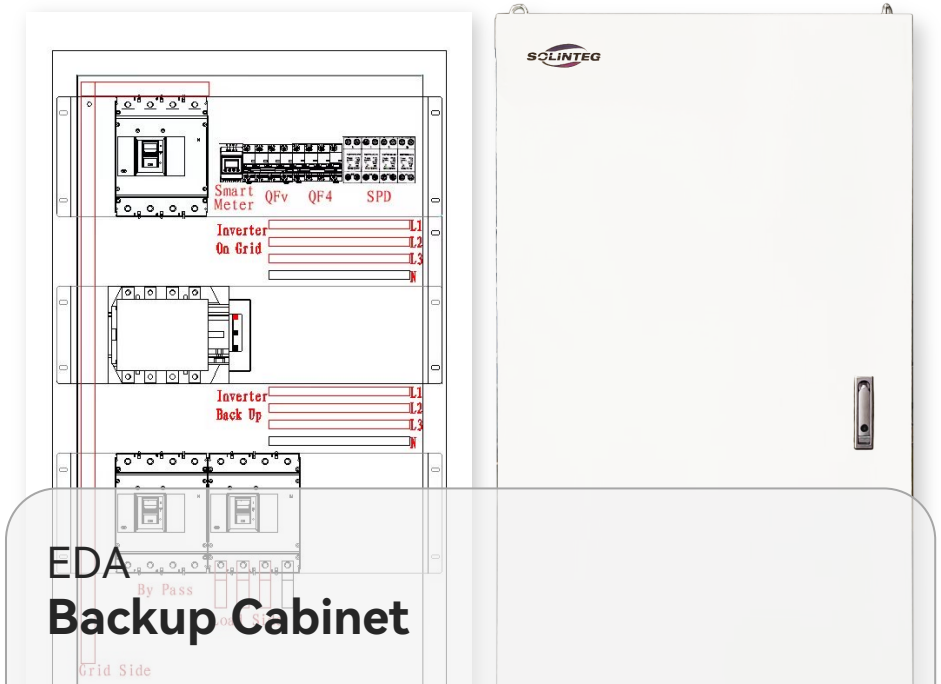
< 10kg



EDA
## Backup Box

- Control unit(Contactor + control board)
- Grid, load, and **inverter** connection terminals
- Control signal connection terminals
- **Wall-mounted box**

< 40kg




EDA
## Backup Cabinet

- Control unit(Contactor + control board)
- Grid, load, and inverter connection terminals
- Control signal connection terminals
- **Grid and load control switch**
- **Bypass switch**
- **Surge protection device**
- **Smart meter**
- **Floor-standing cabinet**

> 200kg

# Q&A-Differences Between EDA & ATS

| | EDA(Backup Box) | ATS |
|---|---|---|
| **Purchase Channel** | From Solinteg | From Market |
| **Main Components** | AC Contactor & Control Board | Switch (Automatic/Manual) |
| **Suitable Inverters** | MHT25-50K & M2HT25-50K | Integ M series |
| **Control Signal** | Yes (DO) | No |
| **Switch Time** | Faster ( < 50ms) | Slower ( > 100ms) |
| **Switching Mode** | Switching is remotely controlled by the inverter, with the operation logic aligned with the inverter. | Switching is conducted by detecting whether the live line has power. |
| **Working Principle** | A contactor is an automatically controlled electrical switch used to make or break the main circuit of an electric motor or load, utilizing electromagnetic force to achieve the closure or opening of the switch. | ATS is mainly used in emergency power supply systems to automatically disconnect the load circuit from one power source and switch it to another power source. |
| **Application Scenario** | Contactors are often used to control large electrical loads, such as starting and stopping motors. | ATS is suitable for situations requiring a continuous power supply and provides an alternative source for switching, ensuring the uninterrupted operation of critical loads. |

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# THANK YOU

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