

# The ESC Series

## Energy Storage Controller Panels

E24™

P320E



Energy Storage Controllers (ESC) are the main controllers in E24's e-Home solution. ESCs provide protection, alarms, and takes several measures to ensure the load is properly powered without any interruptions and the system is well protected and maintained.

ESCBs also include bypass functionality allowing the Energy Storage system to bypass itself in case of a failure.

E24™

# Applications

Energy Storage Controllers (ESC) are the main controllers in E24's e-Home solution. The ESCB Connects to the Energy Storage Hybrid Inverter (ESIM01), Energy Storage Battery Module (ESBM), and to the solar panels (optional).

The ESCB is the node of connection with the Customer utility and load. The ESC constantly monitors the load and protects the system from overloads by bypassing the output for several minutes .

The ESC also plays an important safety role of automatically disconnecting the utility or generator input if the quality of the power is outside preset conditions.

In case of failure of any device that may jeopardize available power to the load, the ESCB is capable of instantly bypassing the system to provide the load with power directly from the utility in a manner to avoid power interruption.

# Unmatched Features

## Auto-Bypass

Load is powered directly from the utility in case of any device malfunction (automatic Bypass system).

## Utility Trip Protection

The ESC will issue an alarm once the utility main breaker trips. The alarm will not stop until the breaker is made again.

## Overload Protection

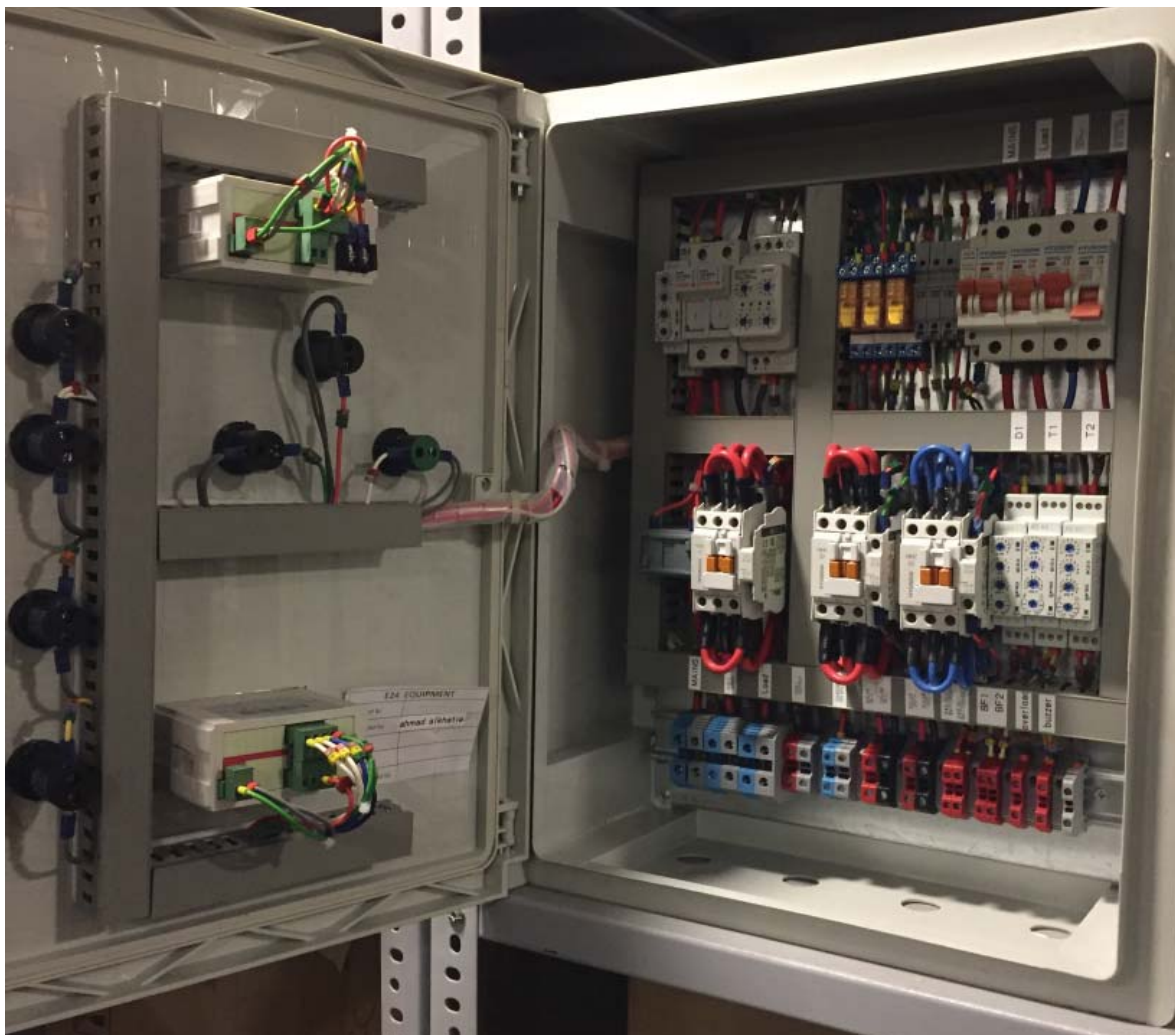
The ESC protects the system from overloads by bypassing the output in case of severe overloads.

## Battery Protection

The ESC protects the battery bank by bypassing the output in the event where the battery bank level is very low. It also disconnects the output of the solar panels from the ESIM01 hybrid inverter in case the batteries are full.

## Standards

The ESC Series complies with the requirements of the following standards: IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, UL 508A, NEC 409.



# Operation

The Energy Storage Controller Panel (ESC) is the last device before supplying power to the load as per the below Single Line Diagram.

The ESC controls the quality of the input power before supplying it to the Energy Storage Hybrid Inverter to constitute one more line of defence against power fluctuations. If voltage, frequency or phase permutation is incorrect, the ESC will disconnect the utility or generator supply and send a notification to user.

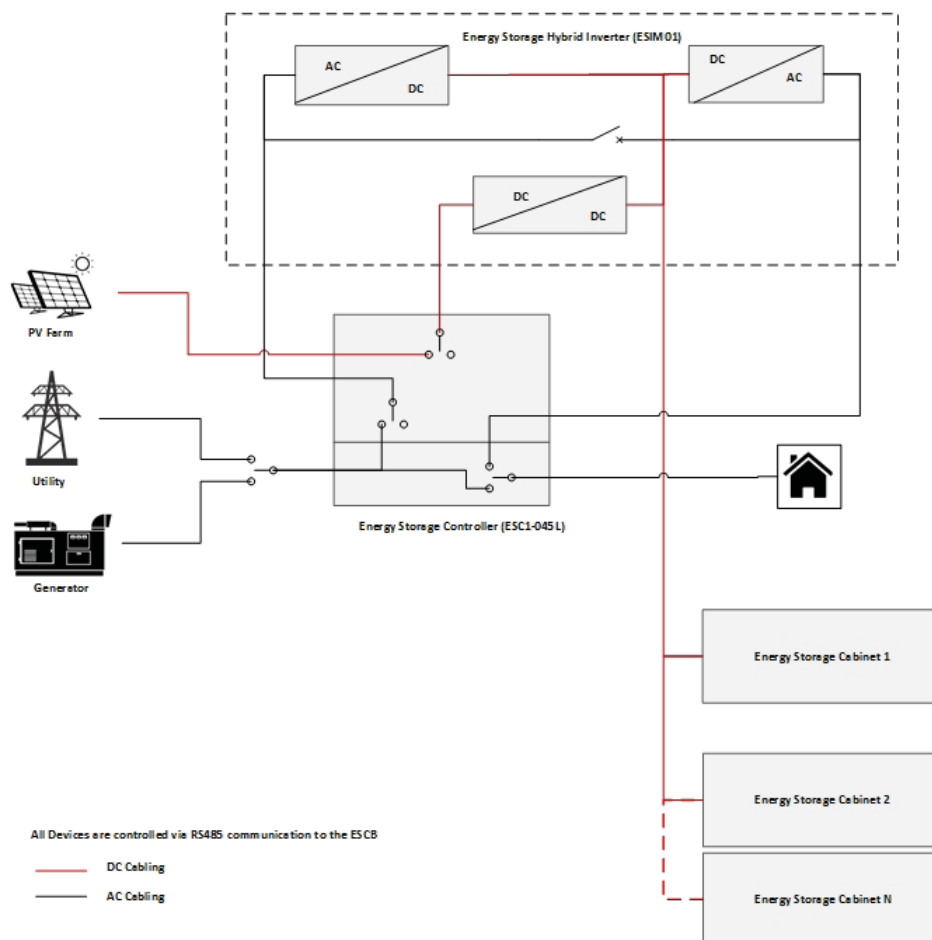
In the event where the load exceeds the power capability of the ESIM01, the ESC will automatically start the generator and go into bypass mode while connecting the generator directly to the load. When the load is back within the power capabilities of the ESIM01,

the ESC will connect the load back to the ESIM01 and shutdown the generator. The same procedure will be applied in the event where the ESC detects any anomaly in the ESIM01.

The ESC also monitors the battery bank charge level and automatically starts the generator in order to charge the battery bank in case the battery charge level falls below a certain threshold. It also disconnects the output of the solar panels from the ESIM01 hybrid inverter in case the batteries are fully charged in order to provide extra protection for the bank.

Note that the generator start feature is an add-on feature to the ESC controller.

**Energy Storage Solution Topology**



# Technical Specifications

	ESC1-045L	ESC1-045LG
<b>AC Input:</b>		
Acceptable AC Voltage (V):	220 +/- 20%	
Maximum Current (A):	1x30	
Frequency (Hz):	50/60 +/- 5%	
<b>AC Output (Normal Mode)</b>		
AC output Voltage (V):	220 +/- 1%	
Maximum Current (A):	1x30	
Maximum Power (kW):	6	
Frequency (Hz):	50/60Hz +/- 1% (Adjustable and Synchronized to Input)	
<b>AC Output (Bypass Mode)</b>		
AC output Voltage:	220 +/- 20%	
Maximum Current (A):	1x63	
Maximum Power (kW):	12.5	
Frequency (Hz):	50/60 Hz +/- 5% (synchronized with Utility or Generator Input)	
<b>Mechanical Characteristics:</b>		
Weight (Kg)	15	19
Dimensions HxWxD (mm)	400x500x270	400x600x270
Footprint WxD (mm)	400x270	400x270
<b>Add-On Features:</b>		
Generator Control	No	Yes

# Ordering Information

Ref Number	Description
ESC1-045L	Solar and Energy Storage Controller, Single Phase 45A , 240V, 50/60Hz (Lite)
ESC1-045LG	Solar and Energy Storage Controller, Single Phase 45A , 240V, 50/60Hz, with Generator Control Feature (Lite)



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