

The ESCB Series

Energy Storage Controller
& Bypass Panels

E24™

P321E



Energy Storage Controllers & Bypass Panels (ESCB) are at the heart of E24 Energy Storage Solutions. ESCBs include the intelligence to monitor all data from all energy sources, load and different building blocks of E24 Energy Storage Solutions to optimize operations, take safety measures and provide full data logging to the user.

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

E24™

Applications

The Energy Storage Controller and Bypass Panel (ESCB) is at the heart of E24 Energy Storage Solutions. The ESCB Connects to the Energy Storage Inverter (ESI), Energy Storage Battery Module (ESBM), optional PV solar system, and various meters and sensors.

The ESCB is the node of connection with the Customer utility and load. It also communicate via RS485 with all the Energy Storage Solution devices in order to optimize operations and notify the customer of any abnormalities via an optional cloud connection.

The ESCB 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

Once the utility main breaker size is programmed into the HMI, the ESCB will automatically lower the battery charging current in order to avoid tripping the main breaker. Furthermore, in the event where the load on any phase reaches the maximum current of the breaker, an email/sms is sent to the user before the main breaker trips.

Configurable energy intake

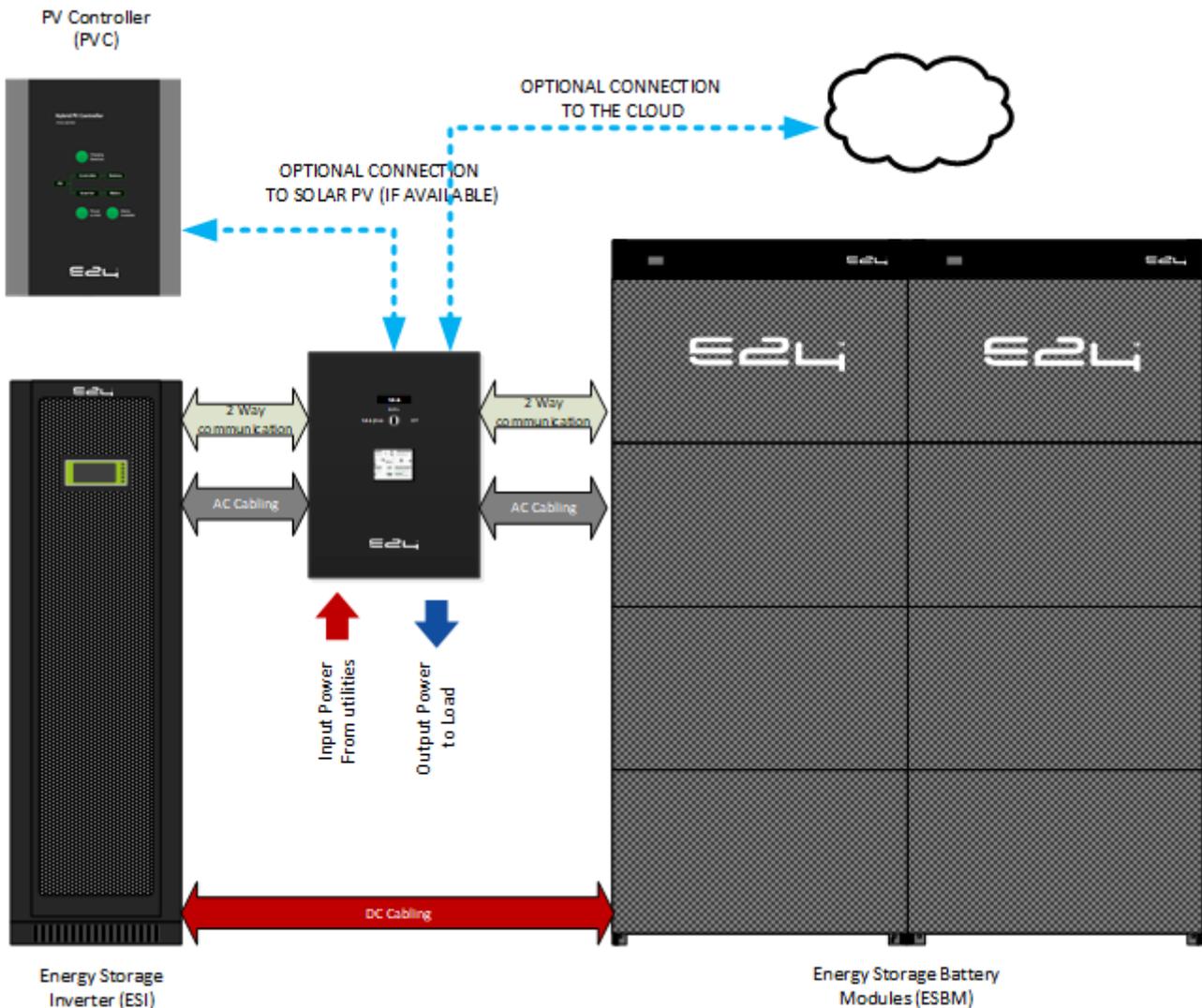
The ESCB knows if power supplied is coming from the auxiliary generator or from the mains. For each case, the user can program the maximum intake power at any time.

Data Logging and display

The ESCB logs all data from all input sources including solar to display on screen showing the energy flow.

Cloud Monitoring

The ESCB can be connected to the cloud through an optional cloud interface showing all data visible on the HMI directly on mobile or hand held device.



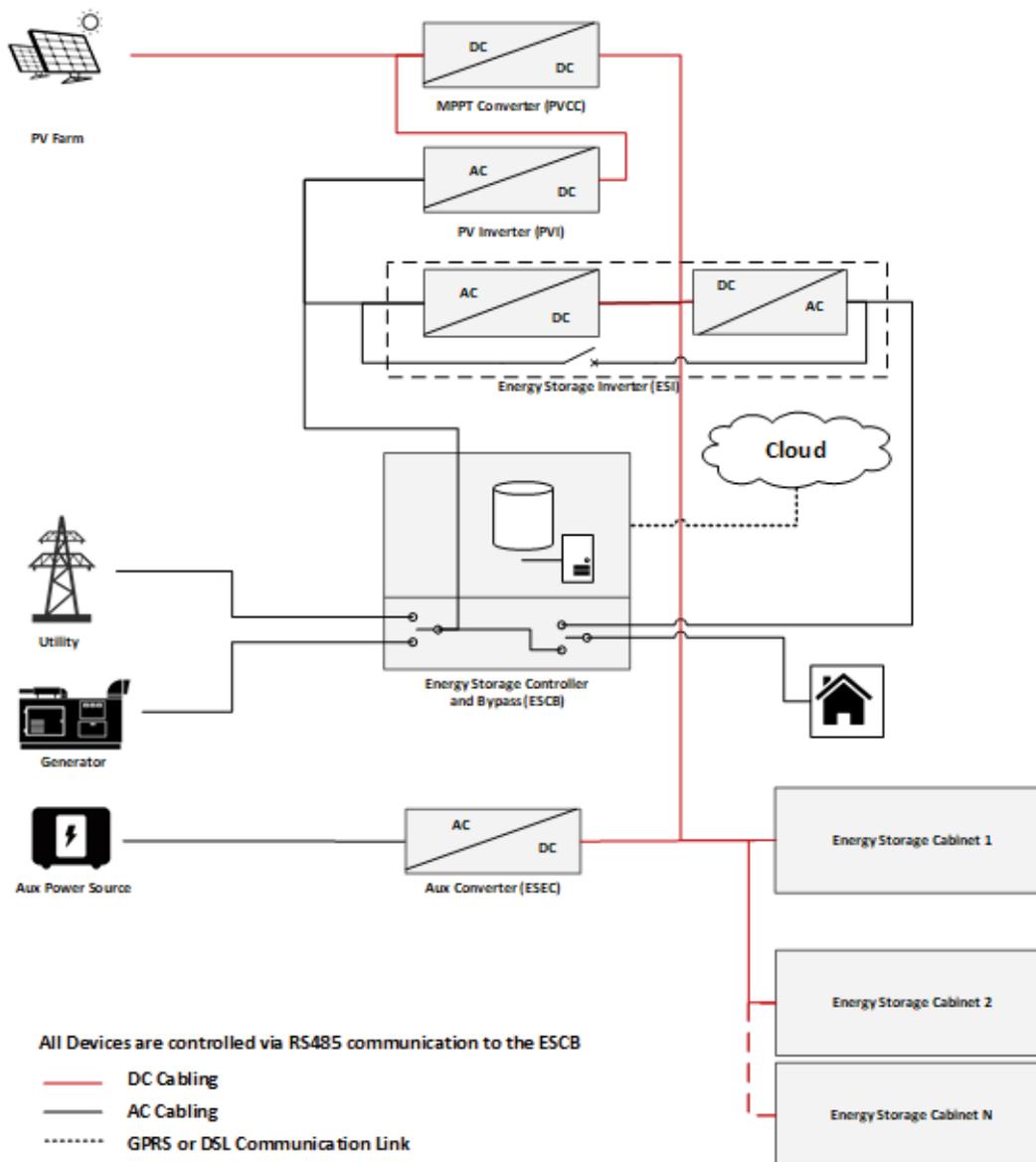
Operation

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

The ESCB controls the quality of the input power before supplying it the Energy Storage Inverter to constitute one more line of defence against power fluctuations. If voltage, frequency or phase permutation is incorrect, the ESCB 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 ESI, the ESCB will automatically start the generator and go in bypass mode while connecting the generator directly to the load. When the load is back within the power capabilities of the ESI, the ESCB will connect the load back to the ESI and shutdown the generator. The same procedure will be applied in the event where the ESCB detects any anomaly in the ESI.

The ESCB 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.



Technical Specifications

| | ESCB1-10KI | ESCB3-20KI | ESCB3-40KI | ESCB3-60KI | ESCB3-80KI | ESCB3-100KI | ESCB3-120KI | ESCB3-160KI |
|------------------------------------|--|-----------------|------------|------------|---------------|-------------|---------------|-------------|
| AC Input: | | | | | | | | |
| Acceptable AC Voltage (V): | 220 +/- 20% | 380/220 +/- 20% | | | | | | |
| Maximum Current (A): | 1x63 | 3x50 | 3x80 | 3x120 | 3x160 | 3x200 | 3x240 | 3x320 |
| Frequency (Hz): | 50/60 +/- 5% | | | | | | | |
| AC Output (Normal Mode) | | | | | | | | |
| AC output Voltage (V): | 220 +/- 1% | 380/220 +/- 1% | | | | | | |
| Maximum Current (A): | 1x41 | 3x27 | 3x54 | 3x82 | 3x109 | 3x136 | 3x164 | 3x218 |
| Maximum Power (kW): | 9 | 18 | 36 | 54 | 72 | 90 | 110 | 144 |
| Frequency (Hz): | 50/60Hz +/- 1% (Adjustable and Synchronized to Input) | | | | | | | |
| AC Output (Bypass Mode) | | | | | | | | |
| AC output Voltage: | 220 +/- 20% | 380/220 +/- 20% | | | | | | |
| Maximum Current (A): | 1x63 | 3x50 | 3x80 | 3x120 | 3x160 | 3x200 | 3x240 | 3x320 |
| Maximum Power (kW): | 12.5 | 29.7 | 47.5 | 71.3 | 95.0 | 118.8 | 142.6 | 190.0 |
| Frequency (Hz): | 50/60 Hz +/- 5% (synchronized with Utility or Generator Input) | | | | | | | |
| Mechanical Characteristics: | | | | | | | | |
| Weight (Kg) | 25 | 31 | 34 | 44 | 51 | 67 | 72 | 88 |
| Dimensions HxWxD (mm) | 800x600x270 | 800x600x270 | | | 1200x1000x300 | | 1600x1200x350 | |
| Footprint WxD (mm) | 600x270 | 600x270 | | | 1000x300 | | 1200x350 | |
| Standards: | | | | | | | | |
| Comply to: | IEC 60204-1, IEC 61439-1/2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, UL 508A, NEC 409 | | | | | | | |

| | ESCB3-200KI | ESCB3-240KI | ESCB3-280KI | ESCB3-320KI | ESCB3-400KI | ESCB3-480KI | ESCB3-560KI | ESCB3-640KI |
|------------------------------------|--|-----------------|-------------|-------------|---------------|-------------|-------------|-------------|
| AC Input: | | | | | | | | |
| Acceptable AC Voltage (V): | 220 +/- 20% | 380/220 +/- 20% | | | | | | |
| Maximum Current (A): | 3x400 | 3x475 | 3x550 | 3x630 | 3x790 | 3x945 | 3x1100 | 3x1260 |
| Frequency (Hz): | 50/60 +/- 5% | | | | | | | |
| AC Output (Normal Mode) | | | | | | | | |
| AC output Voltage (V): | 220 +/- 1% | 380/220 +/- 1% | | | | | | |
| Maximum Current (A): | 3x270 | 3x327 | 3x382 | 3x436 | 3x545 | 3x655 | 3x764 | 3x873 |
| Maximum Power (kW): | 180 | 216 | 252 | 288 | 360 | 432 | 504 | 576 |
| Frequency (Hz): | 50/60Hz +/- 1% (Adjustable and Synchronized to Input) | | | | | | | |
| AC Output (Bypass Mode) | | | | | | | | |
| AC output Voltage | 380/220 +/- 20% | | | | | | | |
| Maximum Current (A): | 3x400 | 3x475 | 3x550 | 3x630 | 3x790 | 3x945 | 3x1100 | 3x1260 |
| Maximum Power (kW): | 237.6 | 282.2 | 326.7 | 374.2 | 469.3 | 561.3 | 653.4 | 748.4 |
| Frequency (Hz): | 50/60 Hz +/- 5% (synchronized with Utility or Generator Input) | | | | | | | |
| Mechanical Characteristics: | | | | | | | | |
| Weight (Kg) | 101 | 127 | 145 | 166 | 175 | 181 | 192 | 208 |
| Dimensions HxWxD (mm) | 1600x1200x350 | 1800x1000x400 | | | 2000x1200x400 | | | |
| Footprint WxD (mm) | 1200x350 | 600x270 | | | 1200x400 | | | |
| Standards: | | | | | | | | |
| Comply to: | IEC 60204-1, IEC 61439-1/2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, UL 508A, NEC 409 | | | | | | | |

Ordering Information

| Ref Number | Description |
|-------------|--|
| ESCB1-10KI | Energy Storage Controller and Bypass Module, 9 KW, 220V, 50/60Hz |
| ESCB3-20KI | Energy Storage Controller and Bypass Module, 18 KW, 220V, 50/60Hz |
| ESCB3-40KI | Energy Storage Controller and Bypass Module, 36 KW, 220V, 50/60Hz |
| ESCB3-60KI | Energy Storage Controller and Bypass Module, 54 KW, 220V, 50/60Hz |
| ESCB3-80KI | Energy Storage Controller and Bypass Module, 72 KW, 220V, 50/60Hz |
| ESCB3-100KI | Energy Storage Controller and Bypass Module, 90 KW, 220V, 50/60Hz |
| ESCB3-120KI | Energy Storage Controller and Bypass Module, 108 KW, 220V, 50/60Hz |
| ESCB3-160KI | Energy Storage Controller and Bypass Module, 144 KW, 220V, 50/60Hz |
| ESCB3-200KI | Energy Storage Controller and Bypass Module, 180 KW, 220V, 50/60Hz |
| ESCB3-240KI | Energy Storage Controller and Bypass Module, 216 KW, 220V, 50/60Hz |
| ESCB3-280KI | Energy Storage Controller and Bypass Module, 252 KW, 220V, 50/60Hz |
| ESCB3-320KI | Energy Storage Controller and Bypass Module, 288 KW, 220V, 50/60Hz |
| ESCB3-400KI | Energy Storage Controller and Bypass Module, 360 KW, 220V, 50/60Hz |
| ESCB3-480KI | Energy Storage Controller and Bypass Module, 432 KW, 220V, 50/60Hz |
| ESCB3-560KI | Energy Storage Controller and Bypass Module, 504 KW, 220V, 50/60Hz |
| ESCB3-640KI | Energy Storage Controller and Bypass Module, 576 KW, 220V, 50/60Hz |



www.e24solutions.com



ISO 9001:2015



QUALITY STANDARD

