

ePowerControl ES/ES+

Energy Storage controller



PRODUCT DESCRIPTION

ePowerControl ES/ES+ is an advanced energy management system dedicated specifically for hybrid setups that combine battery energy storage systems (BESS) with diverse energy sources, including PV, gensets.

It employs an advanced control algorithm to oversee battery charging strategies, with the goals of **maximizing PV utilization, prolonging battery life, and minimizing expenses associated with diesel fuel.**

PRODUCT FEATURES

eConf² : Intuitive commissioning interface & pre-configured communication drivers library:

configuration via any local web browser for quick setup and commissioning, with a drop-down list of common devices for faster configuration.

Log: View and download error logs and setpoints history from the "Logs" page for easy diagnosis.

Power Flow Graph: Real-time visualization of energy flows between sources and loads, enabling quick monitoring, trend analysis, and troubleshooting through live power data and device statuses.

Advanced BESS integration

- **Blackstart capability** : Restore power from blackout using BESS (with genset if applicable).
- **SoC Target** : Set and maintains desired state of charge levels.
- **SoC Equalize** : Balances state of charge across battery cells.

Flexible genset start/stop

Provides user-selectable strategies for managing the generator's automatic start/stop behavior when the BESS acts as the grid-forming unit. Includes automatic blackstart and grid reconnection capabilities for enhanced reliability.

Reliable data logging

Ensuring data security, it enables reliable acquisition and logging from all on-site devices. Secure local storage and an embedded database maintain data integrity, supported by GPS clock integration.

PRODUCT BENEFITS

1. **Guaranteed interoperability with a large number of devices** (inverters, EV chargers, ESS, gensets controllers, meters, sensors, etc..). Integrates with MODBUS TCP/RTU and offers additional protocol support upon request¹.
2. **Multi-Brand compatibility:** ensures a homogeneous and uniform management of your installations by mixing different brands for more flexibility during project design & engineering phases.
3. **Effortless commissioning:** reduced commissioning time and cost with an user-friendly configuration interface
4. **Intelligent breaker control for reliable power management** : Based on real-time data like SoC, load, grid interaction and generator load.

Optimized PV integration with grid feed-in management (grid-tied only)

Control active and reactive power at the PCC to optimize PV penetration **while ensuring zero export to the grid**, avoiding penalties from the grid operator. It also allows setting **Maximum Export limits** and **Minimum Import thresholds**.

Virtual synchronous generator (VSG) integration

Implements VSG mode to improve grid stability and facilitate seamless transitions while ensuring grid reliability during the integration of renewable energy sources.

Smart control : (grid-tied only) Efficiently manage your systems with dynamic setpoints for :

- Scheduled time of use management based on week days for both BESS and gensets.
- Peak shaving via BESS or gensets.
- Self consumption

Data export & visualisation

Multiple ways for data export and visualisation available:

- **Locally**, through Elum's eConf² platform, via USB or Embedded Modbus Server (to connect to 3rd party Modbus master).
- **Remotely**, using Elum ePowerMonitor³ or compatible third-party monitoring platforms (FTP push, API integration).

¹. Refer to [the compatibility list](#) for more details

². is a user-friendly tool for configuring Elum loggers and controllers, find more details here : [eConf](#).

³. is a data-visualization platform for managing multi-energy sites, find more details here : [ePM](#).

TECHNICAL SPECIFICATIONS

GENERAL INFORMATION	ES	ES +
Dimensions (mm)	101 x 27 x 128	132 x 122 x 87
Weight (without accessories)	0.3 kg	1.4 kg
Maximum capacity (indicative solar kWp) Maximum BESS capacity	100 kWp 100 kWh	300 kWp 300 kWh
Max. number of devices	42	185
PV inverters	16	120
BESS	16	16
Genset	1	32
Meters	4	12
IO Modules	5	5
Grid Connections (point of injection)	1	4
Standards	IEC-60068-2-27, IEC 61000-4-2/3/4/6/8, UL 60950-1, IK10, UL508A	
Installation	DIN rail mounting	
Protection class for optional wall mounting kit)	IP 66	
AMBIENT CONDITIONS		
Temperature	-10°C to 60°C	-40°C to 70°C
Humidity	5% to 95% (non condensing)	
POWER SUPPLY		
Input parameters	12 to 24 VDC, 480 mA @ 12 VDC, 225 mA @24 VDC	
Power consumption (max)	20W	50W
UPS	Optional - 19,2 / 28.8 / 76,8 / 172.8 / 288 Wh (Up to 24h autonomy)	
COMMUNICATION & SECURITY		
Compatible protocols	Modbus TCP/RTU ¹ (Other protocols can be configured upon request)	
Available ports	2 x serial (RS485/RS422/RS232) 1 x LAN (RJ45 - 100 Mbps) 1 x USB 2.0-A	4 x serial (RS485/RS422/RS232) 3 x LAN (RJ45 - 1,000 Mbps) 1 x VGA / 2 x USB 2.0-A
Cellular modem	Optional - LTE/HSPA+/GSM/GPRS/EDGE/EV-DO	
Remote access	eConf ² / ePowerMonitor ³ / 3rd party Monitoring Platforms (FTP Push)	
OTHER INTERFACES		
Extensions (I/Os, RS485, weather station)	2 modules max	4 modules max
Power measurement	From compatible meter models only ¹	
DATA ACQUISITION		
Collected data	Active / reactive power, current, voltage, ... ⁴	
Equipment alarms (with ePowerMonitor ³)	Mail & web notifications, configurable thresholds on all read variables	
Cloud storage granularity	10 minutes for data on ePowerMonitor ³ , 5 minutes for data on some third party platforms, real-time for alarms ⁵	
Control loop duration	Default 5 seconds, can be optimized to 1s or 500ms depending on system configuration and number of connected devices	
Data Storage	8GB (up to 256GB) - >100 days of data stored	32GB (up to 256GB) - >100 days of data stored
Data Export	USB CSV export/FTP/FTPS standard, EnergySoft, QOS, Meteocontrol	

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2. is a user-friendly tool for configuring Elum loggers and controllers.

3. is a data-visualization platform for managing multi-energy sites.

4. Sample list. Data will be in accordance with the connected device.

5. Varies based on equipment communication protocols and physical connectivity.

