

# ECS EMERGENCY CENTRAL SYSTEMS from 10 to 160 kVA







ECS - EMERGENCY CENTRAL SYSTEMS BROCHURE

# YOUR CRITICAL POWER SOLUTION PARTNER.

The Borri Group has been developing and building uninterruptible power systems since 1932 and is a global provider of power electronics systems and solutions for harsh industrial and demanding critical power requirements.

— Borri's R&D vast expertise in all facets of firmware, power electronics and mechanical design provides innovative solutions for tomorrows problems in Industrial and Critical Power applications.

— The company prides itself on its first-class service and superior engineering disciplines. To ensure sustained quality, Borri manages all its processes in house from feed studies to design, production and after sales service technology.

— Based in Bibbiena, Italy with over 20,000 m<sup>2</sup> production area, Borri operates across all five continents with subsidiaries in USA, Canada, Germany, UAE, India and Malaysia.

— It has also established a strong distributor network, able to deliver on site support and technical guidance indicative of our own capabilities.



## Critical Power Solutions

Designing and building mission critical UPS's 1- and 3-Phase up to 21 MW.



## Industrial Power Solutions

Designing, engineering and building customised AC and DC power supply systems for harsh industrial applications.



## Service

Borri team of experts support you to the highest standards no matter where you are in the world.



# EMERGENCY CENTRAL SYSTEMS 1- and 3-PHASE

# ECS

from 10 kVA ——— to 160 kVA





## Applications



Emergency  
and safety systems



Emergency  
lighting



Fire fighting



Safety equipment

### Compliant with EN 50171

Ensuring a setup and  
maintenance cost reduction  
and easier periodical checks.

### High recharge current

Battery charger  
providing 80% autonomy  
within 12 hours.

### High overload capacity

Designed to withstand  
120% permanent power  
overload capability.

Emergency Central Systems designed in compliance to the international EN 50171 standard,  
supplying uninterrupted quality power to emergency and safety installations.

Suitable for emergency and safety systems, emergency lighting, fire fighting and  
safety equipment.

**ECS:** designed to guarantee power supply to your safety system in case of mains supply failure.

### Compliance to EN 50171 standard

- 120% permanent power overload capability.
- Batteries with 10 years life expectancy.
- Acid proof battery cabinets and racks.
- Battery polarity reversal protection.
- Deep discharge protection.
- Short circuit protection.
- Battery charger to provide 80% autonomy within 12 hours.
- Battery charger temperature compensation.
- IP20 metal enclosure as per EN 60598-1.

### Features and benefits

- Green Conversion technology, providing high efficiency and UPS components' life extension.
- Compact transformer free design for small footprint.
- Easy access for fast maintenance and low MTTR.

### Main options

- AO+EO mode kit.
- Isolation transformer.
- Separate rectifier and bypass input for E8000 ECS 3-phase output models.
- Parallel kit.
- Backfeed protection (standard with 10, 15 and 20 kVA ratings).



E8000 ECS 10-20 kVA



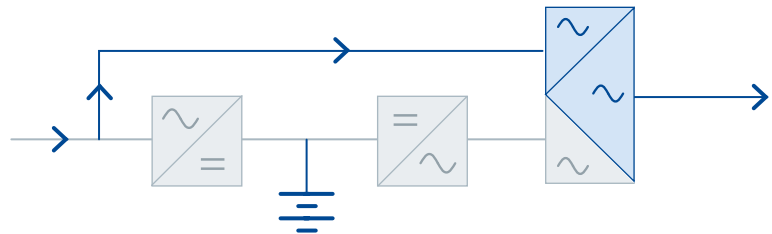
INGENIO ECS 100-160 kVA



# Operating mode

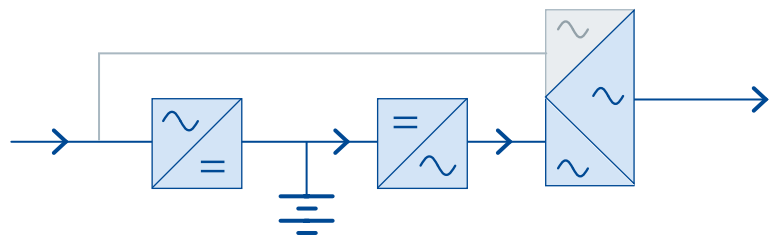
## Changeover mode - Always On (AO)

Loads are normally fed by the bypass line, during a mains failure the inverter takes over the load without interruption.



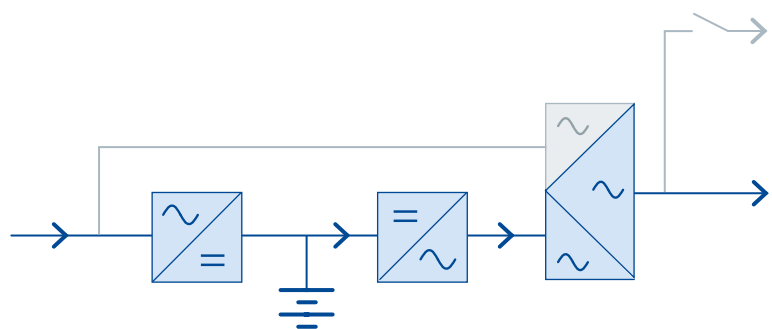
## Mode without interruption - Always On (AO)

Loads are normally fed by the inverter output.



## Changeover mode with additional control switching device for partial switching of the load - Always On + Emergency Only (AO+EO)

The "Always on" part of the load is fed continuously whilst the "Emergency Only" part is only fed upon mains failure.



## E8031 ECS - E8033 ECS technical data

Rating (kVA)	10	15	20
Nominal Power (kW)	9	13.5	18
Nominal power as per EN 50171 (kW)	7.5	11.3	15
UPS dimensions WxDxH (mm)	450x670x1200		
UPS weight (kg)	100	110	110
Battery configuration	External, 360 to 372 cells, VRLA (other options)		
<b>Input</b>			
Connection type	3/1-phase units: hardwired 4w (rectifier), 2w (bypass) 3/3-phase units: hardwired 4w (separate bypass input available on request)		
Nominal voltage	400 Vac 3-phase with neutral (rectifier) 220/230/240 Vac (3/1-phase bypass)		
Voltage tolerance	-20%, +15% (rectifier); ±10% (bypass)		
Frequency and range	50/60 Hz, 45 to 65 Hz		
Power factor	0.99		
Current distortion (THDi)	<4%		
<b>Output</b>			
Connection type	3/1-phase units: hardwired 2w 3/3-phase units: hardwired 4w		
Nominal voltage	3/1-phase units: 220/230/240 Vac 1-phase 3/3-phase units: 380/400/415 Vac 3-phase with neutral		
Frequency	50/60 Hz		
Voltage regulation	Static: ±1% ; Dynamic: IEC/EN 62040-3 Class 1		
Power factor	Up to 0.9, without power derating		
Overload capacity*	120% continuous, 150% for 10 min, >150% for 100 ms		
Efficiency (AC/AC)**	Up to 98%		
Classification by IEC/EN 62040-3	VFI-SS-111		

### Connectivity and function extensions

Front panel	Graphic display, mimic LED panel and keyboard, local EPO
Remote communication	<b>Included:</b> serial RS232 and USB; terminal block for battery breaker auxiliary contact. <b>Optional:</b> input terminal block (remote emergency power off, external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.), SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet), ModBus-RTU (RS485), from ModBus-RTU to PROFIBUS DP adapter; SPDT contact relay board; remote system monitoring panel; UPS managing and server shutdown software
Optional features	Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; load-sync for single UPS; AO+EO mode kit; separate input for rectifier and bypass line (for 3-phase output models); parallel kit; other options on request

### System

Protection degree	IP 20
Colour	RAL 7016
Installation layout	10 cm wall-gap, side by side installation allowed
Accessibility	Front and top access, bottom cable entry

\*as per EN 50171 \*\*as per IEC/EN 62040-3

## Other features

### Environmental

Operating temperature range	0°C to +40°C
Storage temperature range	-10°C to +70°C
Altitude (AMSL)	< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
Audible noise at 1 m (dBA)	< 52

### Standards and certifications

CPSS	EN 50171
Quality assurance, environment, health and safety	ISO 9001:2015, ISO 14001:2015, BS OHSAS 18001:2007
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Environment aspects	IEC/EN 62040-4
Test and performance	IEC/EN 62040-3
Protection degree	IEC 60529
Marking	CE

## INGENIO ECS technical data

Rating (kVA)	30	40	60	80	100	125	160
Nominal Power (kW)	30	40	60	80	100	125	160
Nominal power as per EN 50171 (kW)	25	33.3	50	67	83	104	133
UPS dimensions WxDxH (mm)	465x650x1230		560x940x1505		560x940x1800		
UPS weight (kg)	120	140	210	225	320	360	380
Battery configuration	External, 360 to 372 cells, VRLA (other options)						
<b>Input</b>							
Connection type	Hardwired 4w		Hardwired 4w (rectifier), 4w (bypass)				
Nominal voltage	400 Vac 3-phase with neutral (rectifier) 380/400/415 Vac 3-phase with neutral (bypass)						
Voltage tolerance	-20%, +15% (rectifier); ±10% (bypass)						
Frequency and range	50/60 Hz, 45 to 65 Hz						
Power factor	>0.99						
Current distortion (THDi)	<3%						
<b>Output</b>							
Connection type	Hardwired 4w						
Nominal voltage	380/400/415 Vac 3-phase with neutral						
Frequency	50/60 Hz						
Voltage regulation	Static: ±1% ; Dynamic: IEC/EN 62040-3 Class 1						
Power factor	Up to 1, without power derating						
Overload capacity*	120% continuous, 150% for 10 min, >150% for 100 ms						
Efficiency (AC/AC)**	Up to 99%						
Classification by IEC/EN 62040-3	VFI-SS-111						
<b>Connectivity and function extensions</b>							
Front panel	Graphic display, mimic LED panel and keyboard, local EPO						
Remote communication	<b>Included:</b> serial RS232 and USB; backfeed protection monitoring contact, input terminal block (remote emergency power off, battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.). <b>Optional:</b> SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet), ModBus-RTU (RS485), from ModBus-RTU to PROFIBUS DP adapter; SPDT contact relay board; remote system monitoring panel; UPS managing and server shutdown software						
Optional features	Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, load-sync for single UPS; AO+EO mode kit; backfeed protection; other options on request						
<b>System</b>							
Protection degree	IP 20						
Colour	RAL 9005						
Installation layout	10 cm wall-gap, side by side installation allowed		Wall and side by side installation allowed				
Accessibility	Front and top access, bottom cable entry				Front access, bottom cable entry		

\*as per EN 50171 \*\*as per IEC/EN 62040-3

## Other features

<b>Environmental</b>	
Operating temperature range	0°C to +40°C
Storage temperature range	-10°C to +70°C
Altitude (AMSL)	< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
Audible noise at 1 m (dBA)	< 60
<b>Standards and certifications</b>	
CPSS	EN 50171
Quality assurance, environment, health and safety	ISO 9001:2015, ISO 14001:2015, BS OHSAS 18001:2007
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Environment aspects	IEC/EN 62040-4
Test and performance	IEC/EN 62040-3
Protection degree	IEC 60529
Marking	CE

# SERVICE

Customer's expectation defines Borri's priority from the early analysis of the project requirements to a worldwide commissioning and service. Many thousands of systems have been successfully installed and maintained globally, with continuous support from a highly trained team of expert, certified technicians and engineers. From the professional set-up of Borri's training centre or on site, the training and service team stand ready to provide support and contribute to tailored training at Borri or on site. You can be assured of Borri support to the highest standards no matter where in the world you are.



## Planning, installation, commissioning

Borri assist you in every single step of your project. Our R&D team can analyse and develop solutions to a wide range of edge system requirements.



## Analytical tests

Borri undertakes a series of analytical tests in order to guarantee higher efficiency and continuity to your system operation.



## Repair & spare parts

All spare parts supplied by Borri are original, tested and guaranteed to be fully compliant with Borri solutions.



## Remote monitoring

Guardian Net remote monitoring system allows you to detect any deviation from optimum operation and trigger proper and immediate response, so that anomalies don't evolve into issues.



## Maintenance

Preventive maintenance guarantees uninterrupted operations and optimised system efficiency.



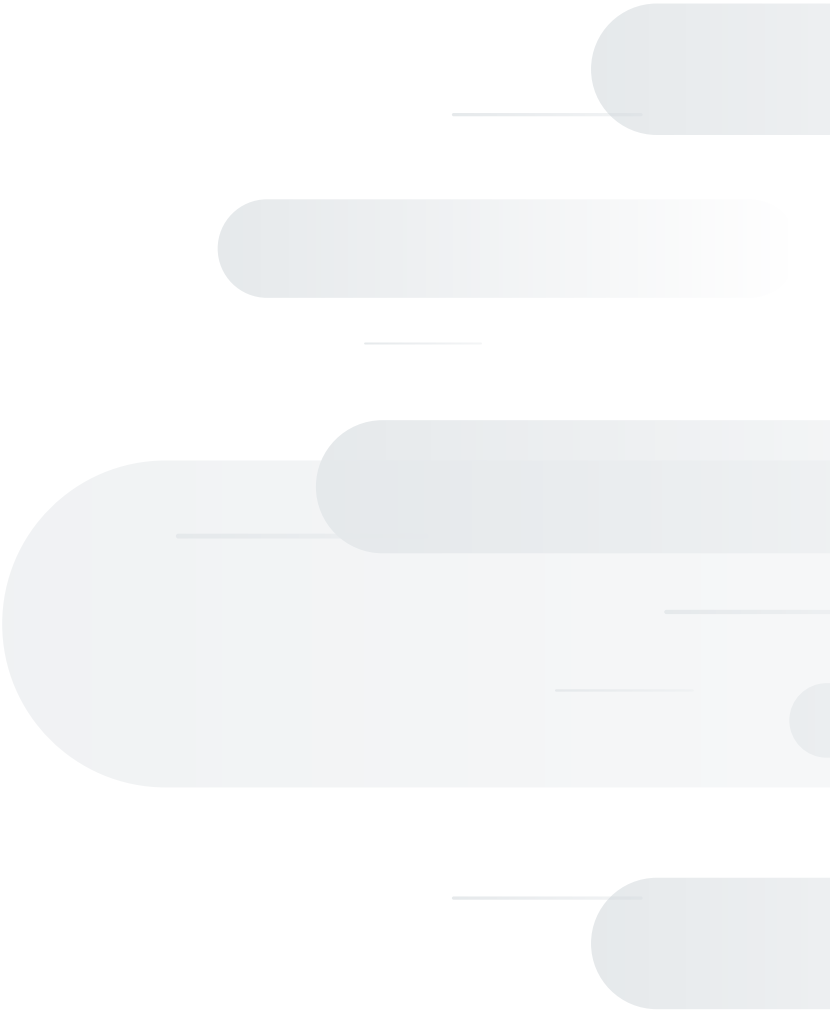
## Battery tests

Batteries have a limited time life and their proper maintenance is of high importance to guarantee efficiency to the UPS and avoid potential failures. Borri delivers high quality and performing batteries to assure smooth operations.



## Training

Borri offers distributors and customers a service training structured in 3 levels. Courses can be held in Borri training centres or on-site.



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Due to our policy of continuous development, data in this document is subject to change without notice and becomes contractual only after written confirmation



[www.borri.it](http://www.borri.it)

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