

# ECS

Emergency Central Systems

**1-Ph - 3-Ph from 10 to 160 kVA**



## Applications

- Emergency and safety systems
- Emergency lighting
- Fire fighting
- Safety equipment

## Highlights

- Compliant with EN 50171
- On-line double conversion
- Paralleling up to 960 kVA

**BORRI**

# ECS

Emergency Central Systems

1-Ph - 3-Ph from 10 to 160 kVA



## 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).

## Operating modes

### 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)

Some loads are fed by the inverter or bypass, while other loads are switched on only upon mains failure.



E8000 ECS



INGENIO ECS

## E8031 ECS - E8033 ECS technical data

Rating (kVA)	10	15	20	30	40	50
Nominal power (kW)	9	13.5	18	27	36	45
Nominal power as per EN 50171 (kW)	7.5	11.3	15	22.5	30	37.5
UPS dimensions WxDxH (mm)	450x670x1200					
UPS weight (kg)	100	110	110	140	140	170
Battery configuration	External, 360 to 372 cells, VRLA (other options)					

### Input

Connection type	3/1-phase units: hardwired 4w (rectifier), 2w (bypass) 3/3-phase units: hardwired 4w (separate bypass input available on request)	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)	400 Vac 3-phase with neutral (rectifier)
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%	

### Output

Connection type	3/1-phase units: hardwired 2w 3/3-phase units: hardwired 4w	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	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, lagging or leading without power derating	
Overload capacity*	120% continuous; 150% for 10 min; 180% for 60 s	
Efficiency (AC/AC)**	Up to 98%	
Classification as per IEC/EN 62040-3	VFI-SS-111	

### Connectivity and function extensions

Front panel	Graphic display, mimic LED panel and keyboard, local EPO
Remote communication	Included: serial RS232 and USB; terminal block for battery breaker auxiliary contact. Optional: input terminal block (remote emergency power off, battery circuit breaker aux. cont., 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 function extensions	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; backfeed protection (standard with 10, 15 and 20 kVA ratings); 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 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Environmental aspects	IEC/EN 62040-4
Test and performance	IEC/EN 62040-3
Protection degree	IEC 60529
Marking	CE

## INGENIO ECS technical data

Rating (kVA)	60	80	100	125	160
Nominal power (kW)	60	80	100	125	160
Nominal power as per EN 50171 (kW)	50	67	83	104	133
UPS dimensions WxDxH (mm)	560x940x1800				
UPS weight (kg)	250	300	320	360	380
Battery configuration	External 360 to 372 cells, VRLA (other options)				

### Input

Connection type	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%

### Output

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; 180% for 60 s
Efficiency (AC/AC)**	Up to 99%
Classification as per IEC/EN 62040-3	VFI-SS-111

### Connectivity and function extensions

Front panel	Graphic display, mimic LED panel and keyboard, local EPO
Remote communication	Included: 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.). Optional: 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 function extension	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 and load-sync box (2 UPS systems); AO+EO mode kit; backfeed protection; other options on request

### System

Protection degree	IP 20
Colour	RAL 9005
Installation layout	Wall and side by side installation allowed
Accessibility	Front 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)	<60

### Standards and certifications

CPSS	EN 50171
Quality assurance, environment, health and safety	ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Environmental aspects	IEC/EN 62040-4
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Protection degree	IEC 60529
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