

# CLASS E

- 400% Startup Capacity
- Long Backup Time
- Special for Three Phase Motorized Equipment such as Elevator
- Galvanic Isolation with Input Stabilizer



## Features

- High efficiency
- RFI / EMI filtering
- Free contact relay
- Earth fault detection
- Vocal alarm (optional)
- Pure sine wave output
- GSM modem (optional)
- Hot swappable battery
- IEC 62040-3 compliant
- Manual by-pass switch
- Site wiring fault protection
- Power generator compatible
- Two separate power outputs
- Remote LCD panels (optional)
- User friendly, informative LCD
- Heavy-duty and high MTBF design
- Inverter / charger short circuit protection
- Fully digitized microprocessor-controlled
- UPS powers and transformers overheat protection
- LAN support and remote managed via SNMP (optional)
- Battery over / under voltage and reverse polarity protection
- Protection against positive feedback (input to output connection)
- Adjustable charge current, input voltage and frequency by software
- More than eight programmable NO-NC free contact relays (optional)
- Three-phase to three-phase and single-phase to three-phase models
- SCM (Spot Charging Management) and Advanced Battery Management

For the first time in the world, Hyundai offers an amazing UPS with 400% starting current that provides the customer with the assurance that elevators won't stop functioning during blackouts.

Using fuel power generators as emergency backup supply for elevators (i.e. being able to operate in a short delay), implies keeping oil, water and body of the generator warm.

These generators create also a considerable acoustic nuisance. The Hyundai Class E UPS supplies up to 10 HP elevator motor and related equipments for hours.

A second independent output can supply staircase lights, automatic driveway gates and security equipment, simultaneously.

The SE3 Single-Phase to Three-Phase UPS is a special model that enables you to operate the elevators in environments with no three-phase mains or if the power cannot supply the needed current to operate them. The internal power parts of the E Class units are designed as parallel redundant, so that in case of internal power problems, the output power reduces 6 KVA, instead of causing damages to the entire unit.

Uninterruptible Power Supply Energy Efficiency Label		
Manufacturer / Licensor	Hyundai Corporation	
Brand	<b>HYUNDAI</b>	
Model	SE1- 1230	
Nominal Power kW <sup>1</sup> / kVA <sup>2</sup>	8.4 / 12	
Mode of Operation		
Conversion Efficiency Categories <sup>3</sup>		
Energy Losses kWh / year <sup>4</sup>	750.9	712.6

<sup>1</sup> At resistive load  
<sup>2</sup> At non-linear load according to EN/IEC 62040-3  
<sup>3</sup> The conversion efficiency was determined by the worst-case efficiency at the loading levels tested  
<sup>4</sup> Energy losses at resistive continuous load with 50% of nominal power operated at the normal mode

\* Energy losses for: SE2-1230 Normal mode: 750.9 kWh/y; By-pass mode: 712.6 kWh/y  
 SE2-1830 Normal mode: 1126.2 kWh/y; By-pass mode: 1068.9 kWh/y  
 SE3-1830 Normal mode: 1126.2 kWh/y; By-pass mode: 1068.9 kWh/y

## Applications

- Elevators
- Three-phase motorized equipment

## Technical data sheet

<b>Construction</b>					
Model catalogue reference	SE1-1230	SE2-1230	SE2-1830	SE3-1830	Unit
Model rating	8400/12000		12600/18000		W/VA
UPS Dimensions W*D*H	570*445*1050		660*445*1050		mm
Weight (approx.)	123	153	156	165	kg
<b>Environmental</b>					
Storage temperature	-20 to 70				°C
Operating temperature	0 to 40				°C
Altitude	<3000				m
Relative humidity	0 to 95 Without condensation				%
Degree of protection (IEC 60529)	20				IP
Normal mode acoustic noise at 1 m	<55				dBA
Stored mode acoustic noise at 1 m	<55				dBA
<b>Electrical input</b>					
Rated input voltage	300/315 to 420/440				V
Rated input frequency	50±5% (Adjustable by front panel from ±1% to ±6%)				Hz
Rated input current	19	28		A r.m.s.	
Maximum continuous input current	27	40		A r.m.s.	
Number of input phases	3		3/1		Phase (s)
<b>Efficiency</b>					
Efficiency input/output	>98				%
<b>Synchronization</b>					
Range of frequency Synchronization	50±5% (Adjustable by front panel from ±1% to ±6 %)				Hz
Acceptable voltage difference	30				%
Maximum phase error	6				degrees
<b>Battery Characteristics</b>					
Charging profile	Advanced IU characteristics				
Charging current	15	30 (Adjustable by front panel from 15 to 60)		A	
<b>Galvanic isolations</b>					
DC to AC isolation type	Magnetic with iron transformer				
<b>Electromagnetic compatibility</b>					
Immunity & emission	IEC 62040-2				
<b>Protections</b>					
Battery over/under voltage and quantity	Audible alarm and LCD display				
Battery disconnection	Audible alarm and LCD display				
Battery connection inrush current	With DC soft start				
Battery reverse polarity	Audible alarm and LCD display				
Normal mode overload	Shutdown after audible alarm and LCD display				
Stored energy mode overload	Shutdown after audible alarm and LCD display				
Output short circuit	Shutdown after audible alarm and LCD display				
Earth fault	Audible alarm and LCD display				
Overheat protection	Audible alarm and LCD display and sometimes shutdown				
Positive feedback (input to output connection)	Audible alarm and LCD display				
Sag/spike/surge protection	With 3*480 Joules / 6000A VDR suppressors				
Over voltage	Micro controller and another protection with the hardware				

## Technical data sheet (Continue)

<b>Waveform</b>		
Normal mode waveform	Sinusoidal	
Stored energy mode waveform	Sinusoidal	
Transfer normal mode/stored energy	<3	ms
Response time	<1	ms
<b>Electrical output characteristics - static characteristics - normal mode</b>		
Rated output voltage	380/400	
Output voltage variation	±10	
Nominal output frequency	50	
Synchronized output frequency variation	50±5% (Adjustable by front panel from ±1% to ±6%)	
Synchronized input to output phase error	<6	
Rated output apparent power	12000	18000
Linear load rated active power	8400	12600
Linear load rated active power	8400	12600
Output short circuit current capability	400	
Startup capacity	400 (for at least 6 sec)	
Special load type	Elevator up to 7.5 HP	Elevator up to 10 HP
Range of load power factor permitted	No limit on load power factor	
Number of output phases	Three	
Output voltage dc component	< 1E-12	
<b>Electrical output characteristics - dynamic characteristics - normal mode</b>		
Mode changes dynamic output voltage variation	0.00	%
load changes dynamic output voltage variation	<10	%
<b>Electrical output characteristics - static characteristics - stored energy mode</b>		
Rated output voltage	380/400	
Output voltage variation	±1.0	
Nominal output frequency	50	
Synchronized output frequency variation	50±0.001 (free running)	
Rated output apparent power	12000	18000
Linear load rated active power	8400	12600
Non-linear load rated active power	8400	12600
Linear load total voltage distortion	<3	
Non-linear load total voltage distortion	<5	
Load crest factor	3:1	
Output short circuit current capability	400	
Start up capacity	400 (for at least 6 sec)	
Special load type	Elevator up to 7.5 HP	Elevator up to 10 HP
Range of load power factor	No limit on load power factor	
Number of output phases	Three	
Output voltage dc component	< 1E-12	
<b>Electrical output characteristics - dynamic characteristics - stored energy mode</b>		
Mode changes dynamic output voltage variation	0.00	
Load changes dynamic output voltage variation	<3	
<b>Output Programmable Power connectors</b>		
Primary power connection	Rated power output terminals	
Secondary power connection	Rated power output terminals	
<b>Remote Control and monitoring</b>		
RS-232 serial port	For windows 95/98/XP/2000	
TCP/IP	SNMP optional LAN adaptor GSM optional modem network monitoring	
Free contacts	Standard relay 24VDC/250VAC 1A Optional 8-channel free-contact 24VDC/250VAC 1A relays	
Remote panel	Optional monitoring and control LCD device	