HYUNDAI

RACKMOUNT IoT SERIES
10-20KVA
Voltage 3-3; 3-1; 1-1

Key features

• High frequency online True double-conversion design with high adaptability to harsh mains conditions

• Dual-core DSP control and 3- level technology enables precise and reliable control

• High efficiency results in energy saving; Real PF1.0 can provide more power in the same space

• Adjustable charging current and flexible battery configuration

• Start-able without battery

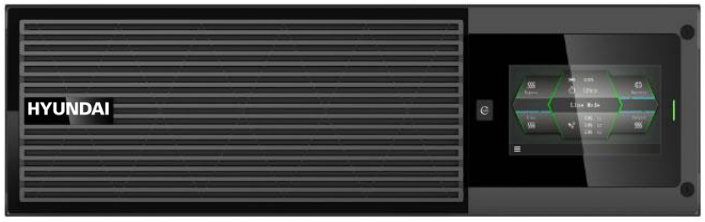
• Smart charging method to expand battery life time

• 3-3 is default model and can be configure as 3-1 or 1-1 model to meet utility and load wiring. 3-3 model can be configure as single source input or dual source input for utility and bypass

• Built-in OVCD protection, short circuit protection, fan lock detection, over temperature detection, overvoltage-undervoltage detection, low battery, overload warning to enhance the product reliability

• RS232/USB HID enable monitoring on UPS without software installation

• Embedded Ethernet port solution provide safe network connection to Cloud which will meet the increasing IoT trend (optional). Real time operation monitoring. Reduce the responsive time on product failure as Cloud push the exact information to end user and service people at the same time



• Create value added service opportunities based on digitalization transformation

• Allow the monitoring of the UPS online through any internet connected device. To ensure users information is safe and protected, these connectivity is compliant with IEC standard cybersecurity and GDPR regulation.

• WLAN module for IoT connection (optional)

• Mobile APP for monitoring, configuration, reach to 30 devices. Support Android/iOS (optional)

• Color touch LCD 5" or Dot matrix LCD 90° rotatable manually, display with gravity sensors, support to 10 languages for easy installation and service. Programmable LCD display for quick UPS parameters, access, warning and updated customizable messages.

LED with alarms and sounds when wrong shutdown, low battery, overload, fault..

• Low audible noise at typical load

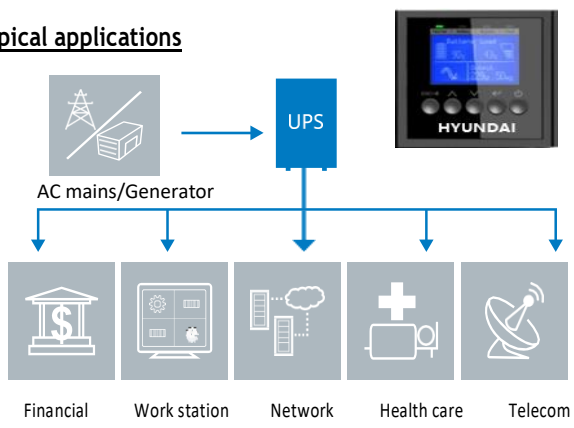
• Programemable outlet group will extend backup time for most critical equipment (optional - PDU model)

• Standard EBM (Extra Battery Module) with cable connection. Automatic detect additional EBM quantity will simplyfy EBM installation for IT users.

• Upgraded network card compliance with IEC standard cybersecurity.

• MBP+PDU with load segment control (optinal)

Typical applications



Product specification

3phase online Rackmount IoT series 10KVA-20KVA

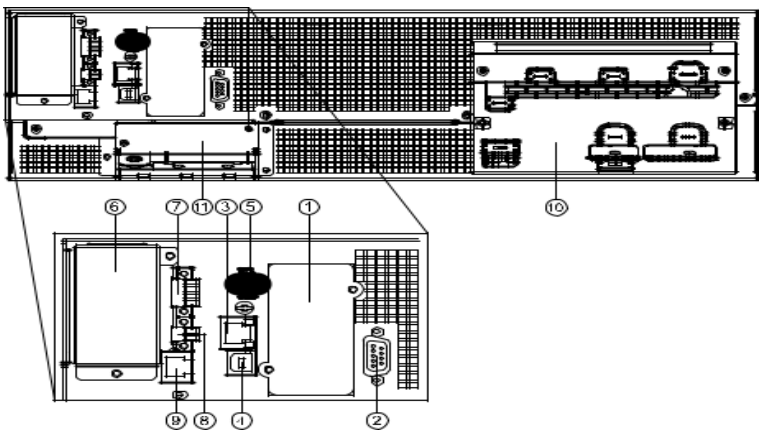
Model name	Specification	HD-10KR3-U	HD-15KR3-U	HD-20KR3-U
General	Technology	True online double conversion technology		
	Design	Rack-mount 3U		
	Phase	3-3; Can be configured as 3-1 or 1-1		
	Capacity	10kVA/10kW	15kVA/15kW	20kVA/20kW
Efficiency	Double coversion mode with 100% load	96%		97%
	ECO mode	98%		99%
Input performance	Rated voltage	3 phase 380/400/415Vac		
	Voltage range	160-300V(273-520V) 100% load; 100-160V(173-273V) derating to 50% load linearly		
	Rated frequency	50Hz/60Hz		
	Frequency range	40~70Hz; 45Hz-55Hz or 54Hz-66Hz(@ load>60%)		
	PF	>0.995		
	THDi	<3% linear load; <5% non linear load		
	Main input rated current	22A	35A	43A
	Bypass input Rated current	16A	24A	31A
Input connection	Wiring/socket	L1/L2/L3/N/PE or L/N/PE hardware terminnal connection		
Output performance	Rated voltage	220/230/240V or 380/400/415V		
	Voltage accuracy	±1%		
	Rated frequency	50Hz/60Hz		
	Frequency range	Synchronized with utility in main mode; ±0.1% in battery mode		
	Maximum PF	1.0		
	THDu	<1% linear load; <5% non linear load		
	Transfer time	0ms		
	Crest ratio	max 3:1		
	Overload(inverter mode)	100%<load≤105% continuous 105%< load ≤125% for 10 minutes transfer to Bypass 125<load≤150% for 1minute transfer to Bypass >150% for 500ms minutes transfer to Bypass		
Output connection	Wiring/socket	L1/L2/L3/N/PE or L/N/PE hardware terminnal connection		
	Load segment control	Optional (need MBP model)		
Battery	Voltage	192VDC(192~240VDC adjustable)	±240VDC(480VDC)	
	Type	VRLA 12VDC(Valve-Regulated Sealed Lead-Acid maintenance free battery)		
	Backup time	Depend on the capacity of battery		
	Charging current	2A(0-13A adjustable)		
	External battery module	Maximum connect 6 modules		
	Battery management	Automatic battery test, warning before the end of useful battery life, Energy Metering. Automatic equalized and float charging control, charger dormancy control, improving the reliability of charger and extending the battery life.		
	CVCF	Yes (derating to 60% load)		

Operating	Parallel	Optional (up to 3)
	Operating modes	Online, battery, bypass, manual bypass, high efficiency
	Protections	Built-in OVCD protection, short circuit protection, fan lock detection, over temperature detection, overvoltage-undervoltage detection, low battery, overload warning to enhance the product reliability. Protection by Aptomat and Fuse Auto transfer to bypass when UPS overload and fault. Protect software and hardware effectively with the function of self-diagnosing code errors, checking, and storing UPS historical data
	Display control	LCD display with Management and monitoring UPS operations, load, backup time, voltage, frequency, battery, fault..
		LED with alarms and sounds when wrong shutdown, low battery, overload, fault..
	Communications	RS232 with UPS management program via RS232 computer connection protocol. Auto shutdown or control PC/server before UPS stops working. Support Android/iOS. Monitoring & shutdown software for Vmware, Hyper-V, Citrix Xen, Windows, Linux...
HMI	Display	Color touch LCD 5" or Dot matrix LCD, rotatable 90⁰
	Language	10 languages, default English
	USB	USB 2.0 with HID
	RS232	Yes (DB9)
	Dry in/out	1 programble dry in; 1 programble dry out
	EPO	Emergency Power Off
	Inteligent slot	Yes (for long card)
	SNMP Network card EMP card	Remotely manage the UPS by using a network management system to control and help to protect the system via the network (Optional -SNMP/NMC long card); Environmental temperature and humidity monitoring device (Optional - EMP card)
	Modbus card	Optional- CMC/Modbus Long Card
	Dry contactor card	Optional - AS400 Long Card
	WLAN module	Optional - HDMI type
	Ethernet port for IoT	Optional, Easy to setup the Safe connection to Cloud. Connect to Cloud through MQTT protocol
	Monitor software	Winpower software license via RS232, configuration to 30 missions
Physical performance	Dimension(W*D*H)MM	438*559*129(power module, 3U)
	Net weight(KG)	23.8 / 24.8
	IP protection level	IP20
Environment	Operating temperature	0-50ºC (power derating to 50% @40-50ºC)
	Storage temperature	-15°C ~ 40°C(without battery)
	Relative Humidity	0-95%
	Operating Altitude	0~4000m（the load derating 1 % every up 100m @1000~4000m）
	Acoustic Noise	<55dB @ typical load with battery fully charged
Certification		CE, IEC/EN62040
EMS	ESD/RS/EFT/Surge	IEC/EN 61000-4-2; IEC/EN 61000-4-3; IEC/EN 61000-4-4; IEC/EN 61000-4-5
Accessory	Maintenance bypass switch	(Optional - MBP model)
	Input/output power cable	Yes
	EBM cable	Yes (in EBM)
	USB/RS232 cable	Yes
	Tower Feet	N/A
	Rack ear	Yes
	Manual	Yes

HYUNDAI BATTERY RACK (EBM) SPECIFICATION

MODEL	BR16-9A	BR20-9A
BATTERY SYSTEM		
Battery type	VRLA 12VDC (sealed lead-acid maintenance free battery) with explosion-proof valve	
Typical battery recharging time	3h (to 90% of full capacity)	
Typical battery life	3-5 years, depend on discharging cycle and ambient temperature	
System voltage	192Vdc	±240Vdc
Battery quantity	16PCS (3U)	40PCS (6U)
Capacity	7AH/9AH	
PHYSICAL		
Battery Rack design	The battery cabinet is made of powder-coated iron. Safely suitable for electrical appliances	
Dimension W*D*H (mm)	438*559*129(3U)	438*559*129(*2)
Net weight (kg)	51.8	60.5 *2
ENVIRONMENT		
Safety	CE	
Operating environment	0ºC - 40ºC	
Relative humidity	0-95% (non condensing)	
Noise level	<55dB at 1m	

Rear panel



1. Intelligent slot
2. RS232
3. Ethernet port (RJ45, for IoT function)
4. USB
5. Wireless (HDMI, For IoT function)
6. Parallel port (optional by factory, default is no)
7. DRY in/out
8. EPO
9. RJ45 (for EBM detection/RT MBP detection)
10. AC input/output port (terminal block)
11. External battery port (terminal block)