

DESIGN – PRODUCTION – SALES – ASSEMBLY – SERVICE
 RENEWABLE AND DC&AC RESERVE
 BACKUP POWER SUPPLY SYSTEMS



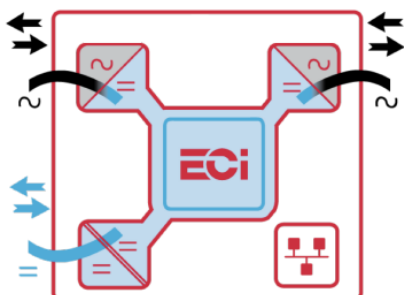
MODULAR MULTIDIRECTIONAL CONVERTERS - MODULAR AC&DC UPS

Let`See What We Do?

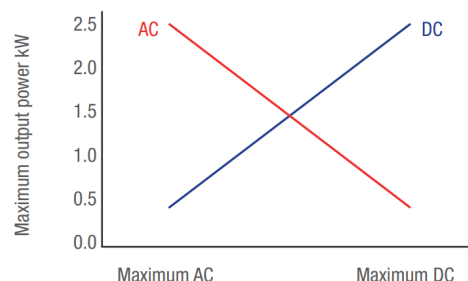
Modular Multidirectional Converter is a fully bidirectional power converter. Each module is equipped with three ports – two AC and one DC – all capable of functioning both as input or output. This allows securing the AC & DC loads and charging the batteries simultaneously.

Modular Multidirectional Converter is also the right choice for energy management applications such as:

- Grid reinjection,
- Peak shavings,
- Phase balancing or
- Innovative solutions based on energy sharing via a DC distribution.



At the heart of each module lies a DC energy buffer, utilizing energy from any source to power necessary loads. The total output power is dynamically shared (real-time) between the loads and the batteries. It's that simple! No configuration is required, you are totally autonomous.



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Main Features:

- Secure AC & DC loads
- Modular design
- Hot-swappable
- Power: 1,2kW modules up to 35kW per system;
2,7kW modules up to 2MW per system
- Highest power density
- Single-phase system
- Three-phase system
- Internal static switch
- Transfer time 0 msec
- 19" Rack Design
- Compact, easy to install and operate
- Internal or external battery
- User-friendly monitoring

Availability:

- N+1 Redundancy
- Galvanically isolated
- Local and remote control
- Overvoltage protection for system and modules
- Enable the additional power extension

Economic Efficiency:

- Using the existing battery
- Low Mean Time to Repair (MTTR)
- Reduction in service costs
- High performance alongside low volume and weight
- All-inclusive system

Applications:

- Power Utilities
- Renewable
- Industry
- Telecom
- Datacom
- Infrastructure

Modular Multidirectional Converters – Modular AC&DC UPS

Technical Specification

Module model	10- 48/230	25 – 48/230	25 – 48/277	25 – 110/230	25 – 380/230
AC INPUT DATA					
Nominal Voltage / Current	230Vac / 4,6A	230Vac / 11,7A	208Vac / 13,8A 230Vac / 12,5A 277Vac / 10,4A	230Vac / 11,8A 240Vac / 11,0A 277Vac / 9,5A	120Vac / 13A 230Vac / 11,7A
Voltage range	150-265Vac		150-293Vac		90-295Vac
Power factor / THD	>99% / <3%				
Frequency	50Hz (47/53Hz) / 60Hz (57-63Hz)				

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DC INPUT DATA					
Nominal voltage / Range	48Vdc / 40-60	48Vdc / 40-60	48Vdc / 32-63	110Vdc / 90-150	336Vdc / 200-430
Nominal current	22,4A (at 48Vdc and 1000W output)	53,4A (at 48Vdc and 2400W output)	53,5A	24,3A (at 110Vdc and 2500W output)	8A / 5A (at 336Vdc and 2500W/1500W output)
Max. input current (15 sec) / voltage ripple	34A / <10mV RMS	66,8A / <10mV RMS	66,8A / <10mV RMS	30,3A / <10mV RMS	9,9A / <250mV RMS
AC OUTPUT DATA					
Efficiency AC to AC (EPC) / DC to AC / AC to DC	96% / >93% / >93%		96% / >93,7% / >93,7%		96% / >94,5% / >94,5%
Nominal voltage / Adjustable	230V / 200-240V		208/230/277V / 208-277V	230/240/277V / 200-277V	120/208/220/230/240V
Frequency / accuracy	50/60Hz / 0,03%				
Nominal output power @ Module	1,25kVA / 1,2kW (1kW AC load, 0,2kW DC load)	3kVA / 2,7kW (2,4kW AC load, 0,3kW DC load)	3kVA / 2,7kW (2,4kW AC load, 0,3kW DC load)	3kVA / 2,7kW (2,5kW AC load, 0,2kW DC load)	3kVA / 2,7kW @ 230Vac 1,7kVA / 1,7kW @ 120Vac (at AC full load, 0,2kW DC load)
Nominal output power @ Shelf	1,25kVA / 1,2kW (1kW AC load, 0,2kW DC load)	3kVA / 2,7kW (2,4kW AC load, 0,3kW DC load)	3kVA / 2,7kW (2,4kW AC load, 0,3kW DC load)	3kVA / 2,7kW (2,5kW AC load, 0,2kW DC load)	3kVA / 2,7kW @ 230Vac 1,7kVA / 1,7kW @ 120Vac (at AC full load, 0,2kW DC load)
Nominal output power @ Shelf	6kW @ Shelf 38kW maximum	10,8kW @ Shelf 2MW maximum			
Short time overload capacity	150% 15 sec.	125% 15 sec.			
Admissible load power facto	Full power rating from 0 inductive to 0 capacitive				
Total harmonic distortion (resistive load)	<3%				
Load impact recovery time (10%- 90%)	≤0,4ms				
Nominal current	5,4A @ 230Vac	13A @ 230Va	13,2A @ 208V / 13,1A @ 230V / 10,8A @ 277V	13,1A @ 230V / 12,5A @ 240 V / 10,8A @ 277V	13A @ 120Vac and 230vac
Crest factor at nominal power	3:1 for load PF≤0,7				
AC output voltage stability	±1% from 10% to 100% load				

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DC OUTPUT DATA					
Nominal voltage / range	1,2kW	2,7kW	2,7kW	2,7kW @ 230Vac 1,7kW @ 120Vac	
Maximum current at 48Vdc	20,8A	50A	24,3A	7A / 4,2A	
Reverse polarity protection	YES				
Efficiency AC to DC	>93%	>93,7%	>94,5%		
Max. voltage interruption / total transient voltage duration (max)	0sec / 0sec				
GENERAL					
Cooling	Forced				
MTBF	200 000hrs	240 000hrs			
Dielectric strength DC/A	4300Vdc		2100Vdc		
Operating temperature / Relative Humidity	-20 to +65°C / 95% for 96hrs per year	-40 to +65°C / 95% for 96hrs per year	-20 to +65°C / 95% for 96hrs per year		
Cabinet	800x800x2000+100 mm, IP45, RAL7035, or different				
Safety	EN62040-1	IEC62040-1 / EN62040-1 Edition 201	EN60950-EN62040-1-UL1778-IEC62109/1-IEC62109/2	IEC/EN60950, IEC/EN62040-1, IEC/EN62477-1	EN60950-EN62040-1-UL1778-IEC62109/1-IEC62109/2
EMC	EN61000-4-2 / EN61000-4-3 / EN61000-4-4 / EN61000-4-5 / EN61000-4-6 / EN61000-4-8 ETSI EN300386 v1.9.1		EN300386V1.6.1 / EN61000-1-2-3-4	EN61000-4-2 / EN61000-4-3 / EN61000-4-4 / EN61000-4-5 / EN61000-4-6 / EN61000-4-8 ETSI EN300386 v1.9.1	

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