

# Power Routing

230 VAC



**Sierra is the world's first multidirectional power converter. This solution offers many new features within a unique module!**



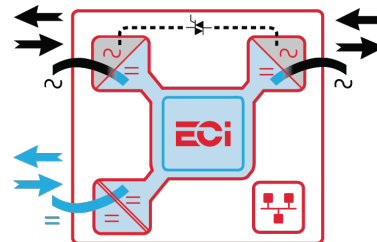
## Description

POWER ROUTING is the last product range designed by CE+T Power. Using the ECI technology, this new product range offer unique solution for multiple application in the critical power backup industry. The new power module Sierra 3 kVA/2.4 kW combines both AC input feed and DC input feed and simultaneously provides dynamic output power backup to secure AC loads as well as DC loads 48VDC and battery charging.

POWER ROUTING range offers single phase or three phase AC input and both DC output and AC output from 2.4 kW up to 72 kW of power with any mix load capabilities between DC and AC. Unlimited applications are now possible using POWER ROUTING product platform. New features available such has 3 phase balancing on AC input, peak shaving, battery test,..

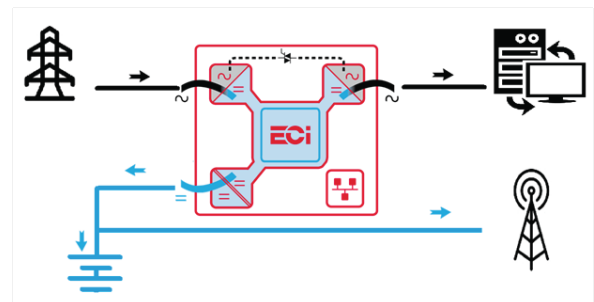
## Features

- + High efficiency (DC to AC > 93.5%)
- + Compact design
- + Dual output AC and DC critical load
- + Dual input sources (AC & DC) with wide AC input range 150 Vac to 265 Vac
- + Transfer time reduced to 0



### Applications

When AC input is present, the SIERRA power solution feeds AC load via a double conversion to provide full sinus stabilized 230 VAC and at the same time SIERRA feed DC loads + battery charging with a regulated 48 VDC voltage.

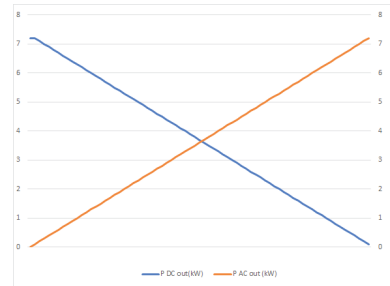


## Modular multidirectional power converter "SIERRA":

The 3 ports converter "SIERRA" provides power for DC and AC outputs from AC input. Extremely compact and efficient, associates with an intelligent monitoring "INVIEW" the POWER ROUTING is the new industry standard for critical backup for DC loads and AC loads. No more need of rectifier, inverter and static switch here is the "all in one" power module. On AC input failure, SIERRA feeds AC load from the battery.

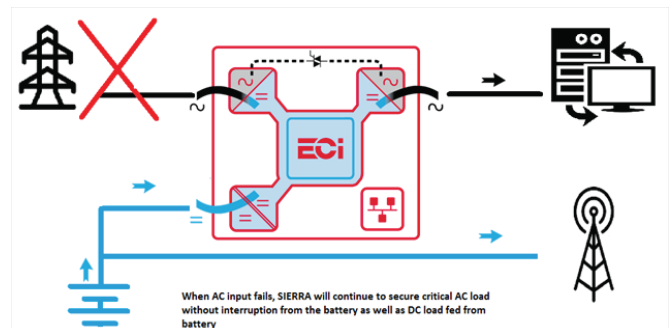
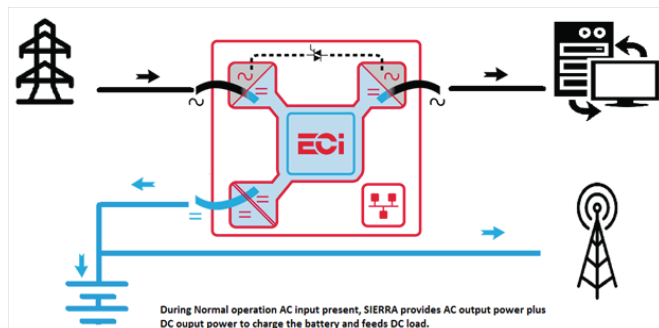
## SIERRA 3 ports bidirectional converter

Each SIERRA module can supply 2.4 kW on any DC or AC output ports. Thanks to AC input stage rated to 2.7 kW offering power excess for battery charging with AC load 2.4 kW.



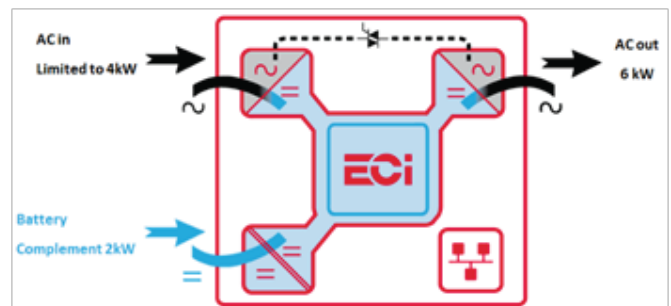
## POWER ROUTING offers new operation mode

### 1. Hybrid power system for critical backup AC and DC critical loads



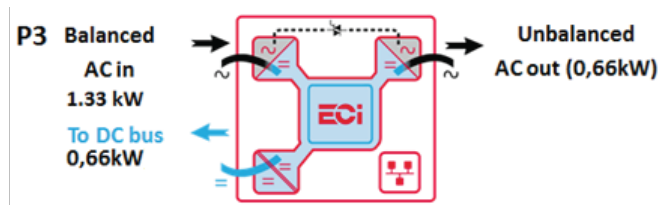
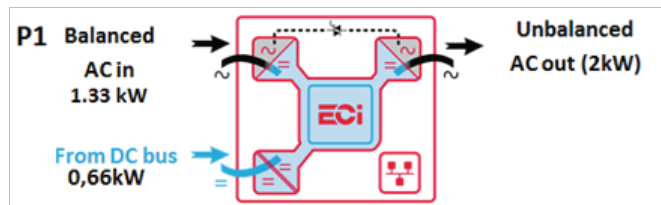
### 2. Peak shaving

The parameter allows to define the limit of power taken from AC input. If the total load DC+ AC exceeds the preset limits the system will compensate with the DC source (battery).



### 3. 3 phase balancing

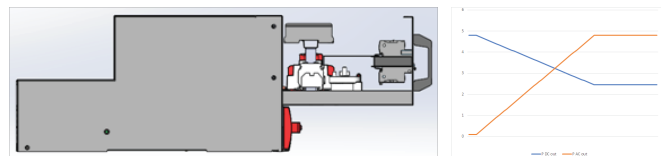
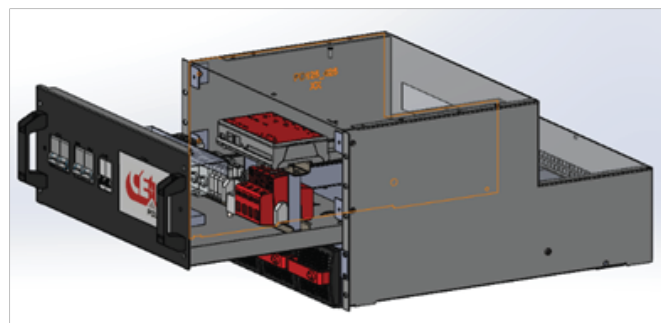
Both DC loads and AC are perfectly balanced on AC input. Failure of one phase will balance the load to the last 2 phases to 2 kW in the example below.



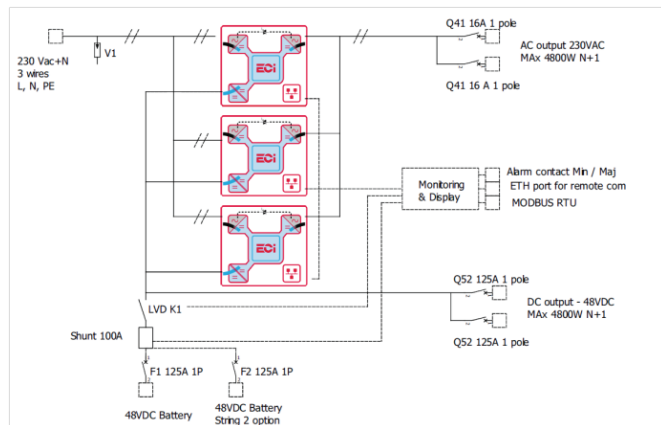
### 4. Power routing solution 19 rack model

Single phase 19" rack mount CE+T Power Routing Rack

MODEL	
19 inches rack mount Depth: 525 mm Height: 6RU	9 kVA / 7.2 kW - 6 kVA / 4.8 kW (N+1) Power Core Rack Single phase
POWER	
AC INPUT	
Voltage range AC single phase	150 Vac – 265 Vac
Maximum current AC	29 A – 37 A
Frequency	47- 53 Hz / 57- 63 Hz
Power factor	> 0.99
DC INPUT	
Voltage range AC out	200 - 240 Vac
Voltage range DC out	40 – 61 VDC
Max output power AC	4.8 kW (N+1) max 7.2 kW / 9 kVA
Max output power DC	4.8 kW (N+1) max 7.2 kW
AC output power factor	0.8
Frequency	50 Hz , 60 Hz
LVD (option)	125 A
AC output breaker	2 x 16 A 1 pole
DC output breaker	2 x 125 A
BATTERY breaker	2 x 125 A for 2 string



Single line "POWER ROUTING" power core 4.8 kW N+1





## GENERAL

Operating T° and relative humidity	-20°C to +65°C* and 5 to 95% non-condensing (derating 40 to 65°)
Storage T° and relative humidity	-40°C to +85°C and 0 to 95% non-condensing

## POWER

### AC INPUT

Nominal voltage line to neutral (range)	230 Vac (150 - 265 Vac) Derating from 185 to 150 Vac
Nominal current at 230 Vac @ 7200 W	32.6 A
Frequency (Synchronization range)	50 Hz (47 - 53 Hz) or 60 Hz (57 - 63 Hz)
Power factor / THD	> 0.99 above 50% load / < 3%

### DC INPUT

Nominal voltage (range)	48 Vdc (40 - 60 Vdc)
Nominal current at 48 Vdc	2 Battery breaker of 125 A each
Maximum current (for 15 seconds)	187.5 A

### AC OUTPUT

Nominal voltage (selectable)	230 Vac (200 - 240 Vac)
Frequency (inverter mode)	50 Hz or 60 Hz depending on AC input
Maximum power permanent / overload (15 sec)	9 kVA / 11.25 kVA
Maximum current permanent / overload (15 sec)	39 A / 48 A
Voltage THD	< 1.5% resistive load
Voltage stability	±1% from 10 to 100% load
Current short circuit with AC in / on DC battery	109 A for 20 ms / 34 A RMS for 20 ms per module.
Efficiency AC to AC (EPC) / DC to AC	> 96% / > 93.7%

### DC OUTPUT

Nominal voltage (range)	53.5 Vdc (44 - 60 Vdc)
Maximum power	Maximum DC output power 6 kW (125 A)
Maximum current at 48 Vdc	125 A
Reverse polarity protection	YES
Efficiency AC to DC	> 93.7%

## Safety & EMC

Electrical Safety	EN60950-EN62040-1
EMC	EN300386V1.6.1 / EN61000-1-2-3-4
Environment	ETSI 300119:2-1 class 1.2 :2-2 class 2.3 & 2-3 class 3.2
Dielectric isolation DC / AC	4300 V

\*Derating from 40°C to 65°C.

\*\* AC output load has higher priority. If AC load is 1 kW, DC power maximum is around 1.6 kW, depending on AC input voltage.