




Sierra is the world's first multidirectional power converter. The industrial version of this solution offers many new features within a unique module!

 Telecom
  Datacom
  Mass transport
  Industry
  Power Utilities
  Renewable


**AC In**  
230, 240 & 277 Vac

**DC In**  
110 Vdc

**AC Out**  
230, 240 & 277 Vac

**DC Out**  
110 Vdc

**Power**  
3 kVA  
2.7 kW

  
up to 2 MW

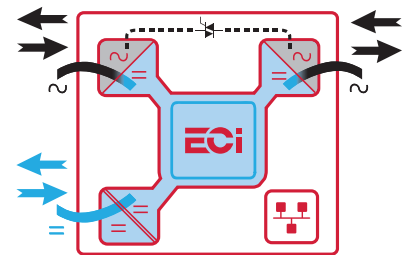
## Applications

Designed for **110 Vdc infrastructures**, this solution can be installed in **industrial plants** and **marine environments** for instance.

You don't use 110 Vdc? Discover our versions designed for 48Vdc infrastructures on our website.

## Technology

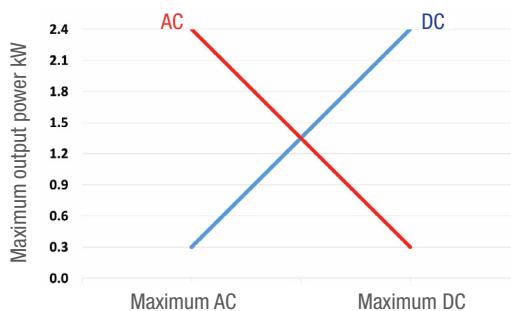
Sierra is the world's first **fully bidirectional** power converter. The **three ports** (two AC and one DC) built into each module can all function as **input** and **output**. This means that you can use it to **secure AC & DC loads** and charge **batteries** at the same time.



Sierra 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.

## How it works?

At the heart of each module, there is a DC **energy buffer**. It uses the energy that comes, whatever its source, to feed what needs it. The total output power is **shared live** between the loads and the batteries. It's that simple! No configuration is required, you are totally autonomous.



### Key features:

- Secure AC & DC loads
- Modular (2.7 kW to 2 MW)
- Highest power density
- Hot-swappable capacity
- Compact, easy to install and operate
- User-friendly monitoring

The total output power per module is 2.7 kW, limited to 2.5 kW for each AC or DC port.

## Versions

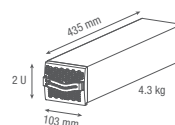
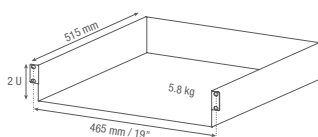
4 modules can be integrated into 2U high shelves to provide up to 10.8 kW (AC + DC):



Illustrations are non-binding and may include customized fittings.

# Sierra 25 - 110/230-277

General	
Part Number: Module / Shelf / Shelf without Isolation	T721D50201 / T724D50010 / T724D50000
Cooling / Audible noise	Fan forced cooling / <65db @1meter
MTBF	240 000 hrs (MIL-217-F) at 30°C ambient and 80% load
Dielectric strength DC/AC	2100 Vdc
RoHS / Material (casing)	Compliant / Aluzinc steel
Operating T° / Relative Humidity (RH) non-condensing	Tested according ETS300-019-2-3 Class 3.1 -20°C to 65°C, power de-rating from 40°C to 65°C / Max RH 95% for 96 hours per year
Storage T° / Relative Humidity (RH) non-condensing	Tested according ETS300-019-2-1 Class 1.2 -40°C to 70°C / Max RH 95% for 96 hours per year
Public transport T°/Relative Humidity (RH) non-condensing	Tested according ETS300-019-2-2 Class 3.1 -40°C to 70°C / Max RH 95% for 96 hours per year
Vibration	GR63 office vibration 0 to 100 hz-0.1 g / transport vibration 5-100 Hz 0.5 g 100 to 500 hz-1.5 g / Drop test
Altitude above sea without de-rating of power	< 1500 m / derating > 1500 m – 0.8 % per 100 m / max 4000 m
Power	
AC Input Data	
Nominal voltage / Current	230 Vac / 11.8 A, 240 Vac / 11.0 A and 277 Vac / 9.5 A
Voltage range	150 - 293 Vac (De-rating from 195 to 150 Vac)
Brownout	1600 W @150 Vac / 2500 W @195 Vac linear decreasing
Power factor / THD	> 0.99 / < 3%
Frequency (Synchronization range)	50 Hz (47 - 53 Hz) or 60 Hz (57 - 63 Hz)
DC Input Data	
Nominal voltage (range)	110 Vdc (90 - 150 Vdc) <sup>1</sup> , derating starts @89 Vdc
Nominal current (at 110 Vdc and 2500 W output)	24.3 A
Maximum input current (for 15 seconds) / voltage ripple	30.3 A / < 10 mV RMS
Reverse polarity protection	Yes
AC Output Data	
Efficiency AC to AC (EPC) / DC to AC / AC to DC	> 96% / > 93.7% / > 93.7%
Nominal voltage <sup>2</sup> / Current (User selectable)	230 Vac / 13.1 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)
Frequency / frequency accuracy	50 or 60 Hz / 0.03%
Nominal Output power	3 kVA / 2.5 kW at 230 Vac (at AC full load, still 200 W available for DC load)
Short time overload capacity	125% (15 seconds)
Admissible load power factor	Full power rating from 0 inductive to 0 capacitive
Total harmonic distortion (resistive load)	< 3%
Load impact recovery time (10% - 90%)	≤ 0.4 ms
Nominal current	13 A @ 230 Vac
Crest factor at nominal power	3 : 1 for load P.F. ≤ 0.7
Short circuit clear up capacity < 20 ms at AC input / On battery	109 Arms for 20 ms / 34 Arms for 20 ms
Short circuit current after > 20 ms	22.5 A for 15 s
AC output voltage stability	±1% from 10% to 100% load
Static / Dynamic voltage regulation	±1% between 10% and 100% load / <5% from 0 to 100% to 0 load impact (100 ms)
DC Output Data	
Nominal voltage (range)	110 Vdc (90 - 150 Vdc)
Maximum power	2.5 kW <sup>3</sup> (at DC full load, still 200 W available for AC output)
Maximum current at 110 Vdc	24.3 A
Efficiency AC to DC	> 93.7%
Max. Voltage interruption / total transient voltage duration (max)	0 sec / 0 sec
Signaling & Supervision	
Display	Synoptic LEDs on module and touchscreen with Inview S and Inview X
Supervision / Part number	Inview ranges: Inview X - T602004200 and Inview S - T602004100
Remote ON / OFF	At rear terminal of the shelf
Battery Monitoring / Part number	MBB - HV (Measure Box Battery) - 6 dry contacts and 8 digital Inputs / T602006380
Safety & EMC	
Electrical Safety	IEC/EN 60950, IEC/EN 62040-1, IEC/EN 62477-1
EMC	EN 61000-4-2 / EN 61000-4-3 / EN 61000-4-4 / EN 61000-4-5 / EN 61000-4-6 / EN 61000-4-8 ETSI EN 300386 v1.9.1



- 1 Permanent 2500 W / de-rating apply based on internal heatsink T°
- 2 Operation within lower voltage networks leads to de-rating of power performances.
- 3 AC output load is the highest priority. Even if AC output is fully loaded (2.5 kW), still 200 W is available for DC output.

Sierra 25 - 110/230-277 - Datasheet - v1.4 Specifications can change without notice. New data will be updated on our website: [www.cet-power.com](http://www.cet-power.com).

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