

# SIERRA 25-380 CONVERTER SHELF - ECI



Sierra is the world's first multidirectional power converter.  
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**  
380 Vdc

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

**DC Out**  
380 Vdc

**Power**  
3 kVA  
2.7 kW

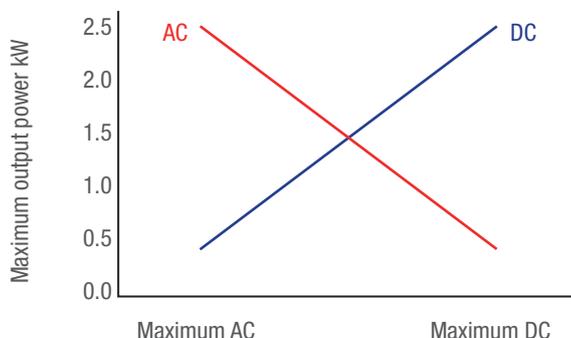
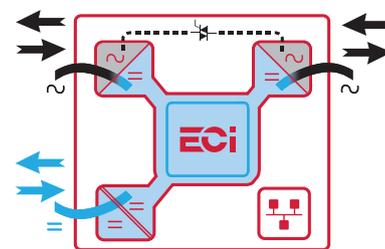
  
up to  
2 MW

## 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.

## 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.



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

## Versions

This Sierra version is designed for **380 Vdc** and available in **230, 240 and 277 Vac**.

4 modules can be integrated into 2U high shelves to provide up to 10.8 kW:



## 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

Illustrations are non-binding and may include customized fittings.

# SIERRA 25-380 CONVERTER SHELF - ECI

## General

Part Number: Module / Shelf / Shelf without Isolation	T721D70201 / T724D70010 / T724D70000
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, Full power from -40°C to +40°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
Maximum Altitude	2000 m, de-rating above 1500 m at 0.8% per 100 m
Type of compatible battery chemistry	Lead-based (Lead-acid, Lead carbon, Pure lead) and Li-Ion (LFP, NMC, NCA, LTO, LCO, LMO)
Country of origin	Belgium / India / China

## Power

### AC Input Data

Nominal voltage / Current	230 Vac / 4 x 14 A and 277 Vac / 4 x 11.5 A
Voltage range	150 – 293 Vac (derating from 150 to 195 Vac)
Brownout	1600 W @150 Vac / 2500 W @195 Vac linear decreasing
Power factor / THD	0.8 / < 3%
Frequency (Synchronization range)	50 Hz (47 – 53 Hz) or 60 Hz (57 – 63 Hz)

### DC Input Data

Nominal voltage (range)	336 Vdc (200 – 400 Vdc) <sup>1</sup> , derating from 200 – 260 Vdc
Nominal current at 336 Vdc and 2500 W / 1500 W	4 x 8 A
Maximum input current (for 15 seconds) / voltage ripple	4 x 9.9 A / < 250 mV RMS
Reverse polarity protection	Yes

### AC Output Data

Efficiency AC to AC (EPC) / DC to AC / AC to DC	> 96% / > 94.5% / > 94.5%
Nominal voltage <sup>2</sup> / Current (User selectable)	230 Vac / 4 x 13 A and 277 Vac / 4 x 10.8 A (200 – 277 Vac)
Frequency / frequency accuracy	50 or 60 Hz / 0.03%
Nominal Output power	4 x 3 kVA / 4 x 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	4 x 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	4 x 104 Arms for 20 ms / 4 x 30.2 Arms for 20 ms
Short circuit current after > 20 ms	4 x 18.6 Arms for 15 s
Short circuit current with inrush current mode activated <sup>3</sup>	4 x 34.9 Arms for 500 ms
AC output voltage stability	±1% from 10% to 100% load

### DC Output Data

Nominal voltage (range)	336 Vdc (200 – 400 Vdc) <sup>1</sup> , derating from 200 – 260 Vdc
Nominal power	4 x 2.5 kW <sup>4</sup> (at DC full load, still 200 W available for AC output)
Maximum current at 380 Vdc and 4 X 2500 W / 4 X 1500 W	4 x 8 A
Efficiency AC to DC	> 94.5%
Max. Voltage interruption / total transient voltage duration (max)	0 sec / 0 sec

## Signaling & Supervision

Display	Synoptic LED
Supervision / Part number	Inview ranges: Inview X - T602004200, Inview S - T602004100 and Inview GW - T602004000
Remote ON / OFF	At rear terminal of the shelf
Battery Monitoring / Part number	MBB (Measure Box Battery) - 6 dry contacts and 8 Digital Inputs / T302006000

## Safety & EMC

Safety	IEC62109-1 / IEC62109-2 / UL1778
Protective Class	Class I
Pollution Degree	Degree II
Over Voltage Category	OVC II
EMI/EMC	FCC Part 15 class A, CISPR 32 Class A, IEC61000-4-2/3/4/5/6 ETSI300386
Environment	ETSI300019
NEBS	GR3108 class 2
Ingress Protection	IP20 <sup>5</sup>

- 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 Value based on design calculation, subject to confirmation by validation testing.
- 4 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.
- 5 IP20 on front surface during installation in the built-in product.

SIERRA 25-380 CONVERTER SHELF - ECI - Datasheet - v1.0 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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