



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



## Technology

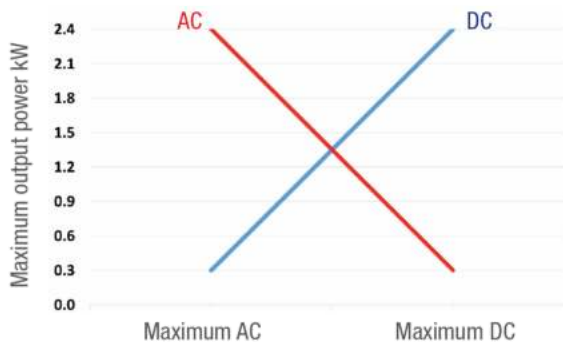
Sierra is the world's first **fully bidirectional** power converter. The **three ports** (two AC and one DC) built into each module can all function as **input** and **output**. This means that you can use it to **secure AC & DC loads** and charge **batteries** at the same time.

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 2.4 kW for each AC or DC port.

## Versions

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



**Subrack System** is a 5U high solution including the Inview S monitoring, the AC & DC distribution and the manual by-pass.

Illustrations are non-binding and may include customized fittings.

## General

Part Number	T721730201
Cooling / Audible noise	Fan forced cooling / <65db @1meter
MTBF	240 000 hrs (MIL-217IF)
Dielectric strength DC/AC	4300 Vdc
RoHS	Compliant
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
Material (casing)	Zinc coated steel

## Power

## AC Input Data

Nominal voltage / Current	230 Vac / 11.7 A
Voltage range	150 - 265 Vac (De-rating from 185 to 150 Vac)
Brownout	1600 W @ 150 Vac / 2700 W @ 190 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)	48 Vdc (40 - 60 Vdc) <sup>1</sup>
Nominal current (at 48 Vdc and 2400 W output)	53.4 A
Maximum input current (for 15 seconds) / voltage ripple	66.8 A / < 10 mV RMS

## AC Output Data

Efficiency AC to AC (EPC) / DC to AC / AC to DC	> 96% / > 93.7% / > 93.7%
Nominal voltage <sup>2</sup> (Adjustable)	230 Vac (200 - 240 Vac)
Frequency / frequency accuracy	50 or 60 Hz / 0.03%
Nominal Output power (VA) / (W)	3 kVA / 2.7 kW (at 2400 W AC load, still 300 W available for 48V DC output)
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 at AC input / On battery	109 A / 34 Arms for 20 ms
Short circuit current after > 20 ms	22.5 A for 15 seconds
AC output voltage stability	±1% from 10% to 100% load

## DC Output Data

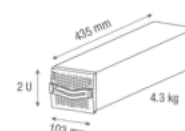
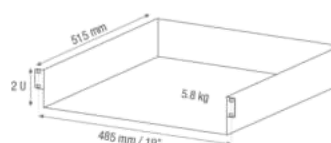
Nominal voltage (range)	53.5 Vdc (44 - 60 Vdc)
Maximum power	2.7 kW <sup>3</sup>
Maximum current at 48 Vdc	50 A
Reverse polarity protection	YES
Efficiency AC to DC	> 93.7%
Max. Voltage interruption / total transient voltage duration (max)	0 sec / 0 sec

## Signaling &amp; Supervision

Display	Synoptic LED
Supervision / Part number	Inview ranges: Inview S - T302004100 and Inview GW - T602004000
Remote on / off	On rear terminal of the shelf through Inview
Battery Monitoring / Part number	MBB (Measure Box Battery) - 6 dry contacts and 8 digital Inputs / T302006000

## Safety &amp; EMC

Electrical Safety	EN60950-EN62040-1
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 2700 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 (2.4 kW), still 300 W is available for DC output.