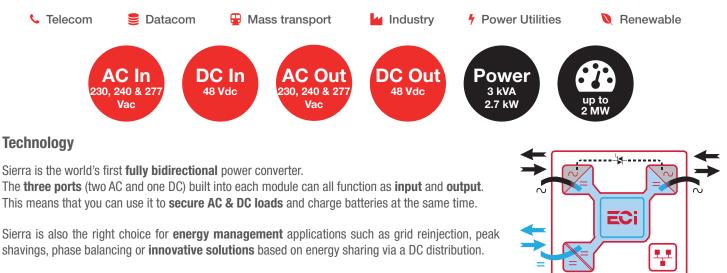


# Sierra 25 - 48/230-277

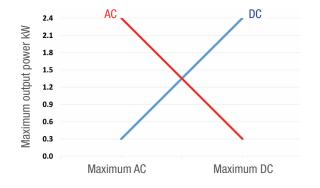


# Sierra is the world's first multidirectional power converter. This solution offers many new features within a unique module!



### 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
- Extended AC input range 150 293 Vac
- Re-inforce coating for harsh environment conditions
- User-friendly monitoring

The total output power per module is 2.7 kW, limited to 2.4 kW for each AC or DC port.

### Version

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 - 48/230-277

Part Number: Module / Shelf     T721D0201 / 1724790000       Cooling / Audbib noise     Fan forced cooling / 406 bit noise       Part forced cooling / 406 bit noise     Fan forced cooling / 406 bit noise       Delectric strength DC/AC     4000 Vide       Add S Material (casing)     Compilant / Audzino steel       Operating T* / Relative Humidity (RH) non-condensing     Tested according ETS300-019-2-3 Class 3.1       Storage T* / Relative Humidity (RH) non-condensing     Tested according ETS300-019-2-3 Class 3.1       Public transport T*/Relative Humidity (RH) non-condensing     Tested according ETS300-019-2-3 Class 3.1       Vibration     Close CPC / Max H1985 for 610 more per var       Public transport T*/Relative Humidity (RH) non-condensing     Tested according ETS300-019-2-3 Class 3.1       Vibration     Close CPC / Max H1985 for 610 more per var       Add public transport T*/Relative Humidity (RH) non-condensing     Tested according CPS300-018-2-2 Class 3.1       Vibration     Close TPC / Max H1985 for 610 more per var       Vibration     Close TPC / Max H1985 for 610 more per var       Vibration     Close TPC / Max H1985 for 610 more per var       Vibration     Close TPC / Max H1985 for 610 more per var       Oper Close T*/Relative Humidity (RH) non-condensing     Tested according ETS300-0192.2<	General	
Cooling / Addible noiseFan Greed cooling / Addib 81 IntererMTBF240 000 hr (MuLC)77-(j) 230°C ambient and 20% loadDelectric strength DC/AC4300 VdcRoth / Material (casing)Complant / Muzine steelCoperating T / Feldative Humidity (RH) non-condensing-20°C to 65°C, power de-rating forn 40°C to 25°C / Max RH 95% for 96 hours per yearPublic transport T/Relative Humidity (RH) non-condensing-20°C to 65°C, power de-rating forn 40°C to 25°C / Max RH 95% for 96 hours per yearPublic transport T/Relative Humidity (RH) non-condensing-20°C to 65°C, power de-rating forn 40°C to 25°C / Max RH 95% for 96 hours per yearPublic transport T/Relative Humidity (RH) non-condensing-40°C to 70°C / Max RH 95% for 96 hours per yearPublic transport T/Relative Humidity (RH) non-condensing-40°C to 70°C / Max RH 95% for 96 hours per yearPublic transport transport vibration 5-100 Hz 0.5 g 100 to 500 hz -1.5 g///////////////////////////////		T721D30201 / T724730000
NTEF     240 000 hrs (ML:217-B) 30°C ambient and 80% load       Polebchic strongh DCAC     4300 Vd6       Operating T / Folative Humidity (RH) non-condensing     Tested according ETS300-018-2-3 Class 3.1       Storge T / Relative Humidity (RH) non-condensing     Tested according ETS300-018-2-1 Class 1.2       Storge T / Relative Humidity (RH) non-condensing     Tested according ETS300-018-2-1 Class 1.2       Vibration     Tested according ETS300-018-2-2 Class 3.1       Cord to T / C/ NAR RH 95% hold bours per year     Cord to T / C/ NAR RH 95% hold bours per year       Public transport T/Relative Humidity (RH) non-condensing     Tested according ETS300-018-2-2 Class 3.1       Altitude above sea without de-rating of power     < 00 Clo To T / C/ NAR RH 95% hold bours per year		
Delectic strength DCAG     4300 Vds       RoHS / Material (casing)     Compliant / Aluzine steel       Operating T / Relative Humidity (RH) non-condensing     -20°C to 65°C, power de-rating from 40°C to 65°C fow RH 95% for 96 hours per year       Storage T / Relative Humidity (RH) non-condensing     -40°C to 70°C / Max RH 95% for 96 hours per year       Public transport T/Relative Humidity (RH) non-condensing     -40°C to 70°C / Max RH 95% for 96 hours per year       Alticude above sea without de-rating of power     -40°C to 70°C / Max RH 95% for 96 hours per year       Alticude above sea without de-rating of power     -500°C / Max RH 95% for 96 hours per year       Alticude above sea without de-rating of power     -500°C / Max RH 95% for 96 hours per year       Nominal voltage (current)     230 Vac / 118 A, 240 Vac / 110 A and 277 Vac / 9.5 A       Voltage range     150° - 238 Vac (derating from 195 to 150 Vac)       Brownout     160° V9150 Vac / 2400 W 9155 Vac insear decreasing       Power factor / THD     50.40°C / 51 Jo r 60 Hz (0.57 - 63 Hz)       Colput Data     -       Act Output Data     54.4 A       Maximum input current (for 15 seconds) / voltage ripple     68.8 / < 10 wT M RMS		
PichE / Material (casing)     Compliant / Auzine steel       Operating T' / Relative Humidity (RH) non-condensing     -20°C to BCC, power de-rating from Ad°C to CSC / Max RH 95% for 96 hours per year       Storage T' / Relative Humidity (RH) non-condensing     -20°C to BCC, fower de-rating from Ad°C to CSC / Max RH 95% for 96 hours per year       Public transport T'/Relative Humidity (RH) non-condensing     -40°C to 70°C / Max RH 95% for 96 hours per year       AdV to 70°C / Max RH 95% for 96 hours per year     -40°C to 70°C / Max RH 95% for 96 hours per year       Advice a without de-rating of power     < 100°C / Max RH 95% for 96 hours per year		
Operating T* / Relative Humidity (RH) non-condensing     Tested according ETS300-019-2-3 Class 31 -207 Cb 807C, DMax RH 95% for 96 hours per year       Storage T* / Relative Humidity (RH) non-condensing     Tested according ETS300-019-2-1 Class 11 -40°Cb 70°Cb 70	-	
Operating 1* / Realtive Humidity (HH) non-condensing     -20* Cto BS*C, power de-rating from 40* Cto BS*C / Max RH 95% for 98 hours per year       Storage 1* / Relative Humidity (RH) non-condensing     -40* Cto 70* C7 / Max RH 95% for 98 hours per year       Public transport Tr/Relative Humidity (RH) non-condensing     -40* Cto 70* C7 / Max RH 95% for 98 hours per year       Vibration     -40* Cto 70* C7 / Max RH 95% for 98 hours per year       Altitude above sea without de-rating of power     <00* C1 no 70* C7 / Max RH 95% for 98 hours per year		
Storage Ir / Headow Fundmalay (HM) floh-condensing     -40°C to 70°C / Max RH 95% for 96 hours per year       Public transport Tr/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     GR83 office vibration to to 100 hz-0.1 g / transport vibration 5-100 Hz 0.5 g 100 to 500 hz-1.5 g       Alittude above sea without de-rating of power     <1500 m / derating > 1500 m - 0.8 % per 100 m / max 4000 m       AC Input Data     -       Mominal voltage (current)     200 Vac / 11.8 A, 240 Vac / 11.0 A and 277 Vac / 9.5 A       Voltage range     150 - 200 Vac / 2400 W @1155 Vac / 2400 W @1155 Vac / 9.5 A       Power factor / THD     > 0.99 / < 3%	Operating T° / Relative Humidity (RH) non-condensing	-20°C to 65°C, power de-rating from 40°C to 65°C / Max RH 95% for 96 hours per year
Public transport Pr/Healtive Humidity (HH) non-condensing	Storage T° / Relative Humidity (RH) non-condensing	-40°C to 70°C / Max RH 95% for 96 hours per year
Vioration     // Drop test     a to be above a validou de-rating of power     < 1500 m / derating > 1500 m - 0.8 % per 100 m / max 4000 m       AC Input Data       Norminal voltage (current)     230 Vac/ 11.8 A, 240 Vac / 11.0 A and 277 Vac / 9.5 A       Voltage range     150 - 293 Vac (derating from 195 to 150 Vac)       Brownout     150 - 293 Vac (derating from 195 to 150 Vac)       Prequency (Synchronization range)     50 Hz (47 - 53 Hz) or 60 Hz (57 - 63 Hz)       DC Input Data     Mominal current     54.4 A       Maximum input current (for 15 seconds) / voltage ripple     66.8 A / < 10 mV RMS     Reverse polarity protection       Reverse polarity protection     Yes     200 Vac / 13.4 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)       Frequency (Synchronization range)     20 Vac / 13.4 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)       Frequency Arcurent (User selectable)     230 Vac / 13.4 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)       Frequency Arcurenzy     50 or 60 Hz (0.03%     200 Vac / 13.4 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)       Short time overhoad capacity     12 S5% (15 seconds)     200 Vac / 13.5 A and 277 Vac / 10.8 A (200 - 277 Vac)       Short time overhoad capacity     20 Vac / 13.5 A (200 Vac / 13.5 A (200 - 277 Vac)     200 Vac / 13.5 A (200 Vac / 13.5 A (	Public transport T°/Relative Humidity (RH) non-condensing	-40°C to 70°C / Max RH 95% for 96 hours per year
AC Input Data   230 Vac / 11.8 A, 240 Vac / 11.0 A and 277 Vac / 9.5 A     Voltage range   150 - 293 Vac (derating from 195 to 150 Vac)     Brownout   1600 W @150 Vac / 2400 W @155 Vac linear decreasing     Power factor / THD   > 0.99 / < 3%	Vibration	
Nominal voltage (current)230 Vac / 11.8 Å, 240 Vac / 11.0 Å and 277 Vac / 9.5 ÅVoltage range150 - 293 Vac (derating from 195 to 150 Vac)Brownout1600 W 9150 Vac / 2400 W 9159 Vac linear decreasingPower factor / THD> 0.99 / < 3%	Altitude above sea without de-rating of power	< 1500 m / derating > 1500 m - 0.8 % per 100 m / max 4000 m
Voltage range150 - 293 Vac (derating from 195 to 150 Vac)Brownout1600 W @150 Vac / 2400 W @155 Vac linear decreasingPower factor / THD> 0.99 / < 3%	AC Input Data	
Brownout   1600 W @150 Vac / 2400 W @195 Vac linear decreasing     Power factor / THD   > 0.99 / < 3%	Nominal voltage (current)	230 Vac / 11.8 A, 240 Vac / 11.0 A and 277 Vac / 9.5 A
Power factor / THD   > 0.99 / < 3%	Voltage range	150 - 293 Vac (derating from 195 to 150 Vac)
Frequency (Synchronization range)50 Hz (47 - 53 Hz) or 60 Hz (57 - 63 Hz)DC Input DataDominal voltage (range)48 Vdc (32 - 63 Vdc)', derating starts @44 VdcMominal current54 4.AMaximum input current (for 15 seconds) / voltage ripple66.8 A / < 10 mV RMSReverse polarity protectionYesAC Output DataEfficiency AC to AC (EPC) / DC to AC / AC to DC> 96% / > 93.7% / > 93.7%Nominal voltage '/ Current (User selectable)230 Vac / 13.1 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)Frequency / frequency accuracy50 or 60 Hz / 0.03%Nominal Voltage' / Current (User selectable)230 Vac / 13.1 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)Short time overload capacity125% (15 seconds)Admisible load power factorFull power rating from 0 inductive to 0 capacitiveTotal harmonic distortion (resistive load)< 3%Load impact recovery time (10% - 90%)0.4 msNominal current13 A @ 230 VacCrest factor at nominal power3: 1 for load PF. \$ 0.7Short circuit current after > 20 ms at AC input / On battery105 Arms for 20 ms / 31.5 Arms for 20 msShort circuit current after > 20 ms at AC input / On battery105 Arms for 20 ms / 31.5 Arms for 20 msOrbitalic voltage regulation±1% from 10% to 100% loadStatic / Dynamic voltage regulation53.5 Vdc (44 - 60 Vdc)Mominal voltage (range)53.5 Vdc (44 - 60 Vdc)Maximum power2.4 KW (41 DC full load, still 300 W available for AC Load)Maximum current at 48 Vdc50 A <td>Brownout</td> <td>1600 W @150 Vac / 2400 W @195 Vac linear decreasing</td>	Brownout	1600 W @150 Vac / 2400 W @195 Vac linear decreasing
DC Input Data     Nominal voltage (range)   48 Vdc (32 - 63 Vdc) <sup>1</sup> , derating starts @44 Vdc     Nominal current   54.4 A     Maximum input current (for 15 seconds) / voltage ripple   66.8 A / < 10 mV RMS	Power factor / THD	> 0.99 / < 3%
Nominal voltage (range)     48 Vdc (32 - 63 Vdc) <sup>1</sup> , derating starts @44 Vdc       Nominal current     54.4 A       Maximum input current (for 15 seconds) / voltage ripple     66.8 A / < 10 mV RMS	Frequency (Synchronization range)	50 Hz (47 - 53 Hz) or 60 Hz (57 - 63 Hz)
Nominal voltage (range)     48 Vdc (32 - 63 Vdc) <sup>1</sup> , derating starts @44 Vdc       Nominal current     54.4 A       Maximum input current (for 15 seconds) / voltage ripple     66.8 A / < 10 mV RMS	DC Input Data	
Nominal current   54.4 A     Maximum input current (for 15 seconds) / voltage ripple   66.8 A / < 10 mV RMS		48 Vdc (32 - 63 Vdc)1, derating starts @44 Vdc
Maximum input current (for 15 seconds) / voltage ripple   66.8 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 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 <sup>3</sup> 3 kVA / 2.4 kW @ 230 Vac (at AC full load, still 300 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%		
AC Output Data     Efficiency AC to AC (EPC) / DC to AC / AC to DC   > 96% / > 93.7% / > 93.7%     Nominal voltage? / 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 <sup>3</sup> 3 kVA / 2.4 kW @ 230 Vac (at AC full load, still 300 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%		
Efficiency AC to AC (EPC) / DC to AC / AC to DC   > 96% / > 93.7% / > 93.7%     Nominal voltage² / 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 power³   3 kVA / 2.4 kW @ 230 Vac (at AC full load, still 300 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%		
Nominal voltage² / Current (User selectable)230 Vac / 13.1 A, 240 Vac / 12.5 A and 277 Vac / 10.8 A (200 - 277 Vac)Frequency / frequency accuracy50 or 60 Hz / 0.03%Nominal Output power³3 kVA / 2.4 kW @ 230 Vac (at AC full load, still 300 W available for DC Load)Short time overload capacity125% (15 seconds)Admissible load power factorFull power rating from 0 inductive to 0 capacitiveTotal harmonic distortion (resistive load)< 3%		> 060/ /> 02 70/ /> 02 70/
Frequency / frequency accuracy   50 or 60 Hz / 0.03%     Nominal Output power <sup>3</sup> 3 kVA / 2.4 kW @ 230 Vac (at AC full load, still 300 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%		
Nominal Output power33 kVA / 2.4 kW @ 230 Vac (at AC full load, still 300 W available for DC Load)Short time overload capacity125% (15 seconds)Admissible load power factorFull power rating from 0 inductive to 0 capacitiveTotal harmonic distortion (resistive load)< 3%		
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%		
Admissible load power factorFull power rating from 0 inductive to 0 capacitiveTotal harmonic distortion (resistive load)< 3%		
Total harmonic distortion (resistive load)   < 3%		x ,
Load impact recovery time (10% - 90%)≤ 0.4 msNominal current13 A @ 230 VacCrest factor at nominal power3 : 1 for load P.F. ≤ 0.7Short circuit clear up capacity < 20 ms at AC input / On battery	•	
Nominal current13 A @ 230 VacCrest factor at nominal power3 : 1 for load P.F. ≤ 0.7Short circuit clear up capacity < 20 ms at AC input / On battery		
Crest factor at nominal power3 : 1 for load P.F. ≤ 0.7Short circuit clear up capacity < 20 ms at AC input / On battery		
Short circuit clear up capacity < 20 ms at AC input / On battery		
Short circuit current after > 20 ms19.6 A for 15 sAC output voltage stability±1% from 10% to 100% loadStatic / Dynamic voltage regulation±1% between 10% and 100% load / <5% from 0 to 100% to 0 load impact (100 ms)	· ·	
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)		
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)     53.5 Vdc (44 - 60 Vdc)     Maximum power   2.4 kW (at DC full load, still 300 W available for AC Load)     Maximum current at 48 Vdc   50 A     Efficiency AC to DC   > 93.7%     Max. Voltage interruption / total transient voltage duration (max)   0 sec / 0 sec		
Nominal voltage (range)53.5 Vdc (44 - 60 Vdc)Maximum power2.4 kW (at DC full load, still 300 W available for AC Load)Maximum current at 48 Vdc50 AEfficiency AC to DC> 93.7%Max. Voltage interruption / total transient voltage duration (max)0 sec / 0 sec		
Maximum power   2.4 kW (at DC full load, still 300 W available for AC Load)     Maximum current at 48 Vdc   50 A     Efficiency AC to DC   > 93.7%     Max. Voltage interruption / total transient voltage duration (max)   0 sec / 0 sec		53 5 Vdc (44 - 60 Vdc)
Maximum current at 48 Vdc 50 A   Efficiency AC to DC > 93.7%   Max. Voltage interruption / total transient voltage duration (max) 0 sec / 0 sec		
Efficiency AC to DC   > 93.7%     Max. Voltage interruption / total transient voltage duration (max)   0 sec / 0 sec		
Max. Voltage interruption / total transient voltage duration (max) 0 sec / 0 sec		
	-	
	Signaling & Supervision	
		Supertial EDs on module and touchearean with Inview S and Inview V
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 (Measure Box Battery) - 6 dry contacts and 8 digital Inputs / T602006000		
		וויובמסטוש באיש מונפואן - ט עוא כטוונגניש מונט ס טואַנגע וווישענט / דטטבטטטטט
Safety & EMC		
Safety EN60950-EN62040-1-UL1778-IEC62109/1-IEC62109/2	-	
EMC EN300386V1.6.1 / EN61000-1-2-3-4		
Environment GR3108 class 2 for outdoor	Environment	GR3108 class 2 for outdoor

5.8 kg 0 465 mm / 19"





1 2 3

Permanent 2400 W / de-rating apply based on internal heatsink T° Operation within lower voltage networks leads to de-rating of power performances 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.

Sierra 25 - 48/230-277 - Datasheet - v1.8 Specifications can change without notice. New data will be updated on our website: <u>www.cet-power.com</u>. The present equipment is protected by several international patents, trademarks and copyrights.

