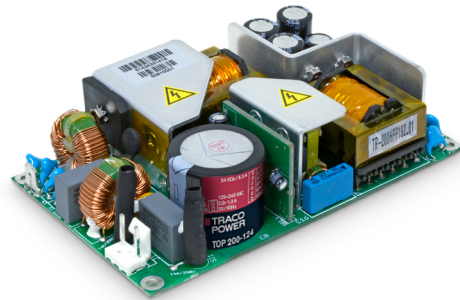


- Highest power density in 5.0" x 3.0" footprint
- Supplies 200 W (convection cooling!)
- Highest efficiency up to 95%
- Operating temperature range -25°C to +70°C
- Universal input 85 – 264 VAC
- Compliance with EN 61000-3-2
- Power Back immunity
- Low leakage current
- Protection class I and class II
- 3-year product warranty



The new TOP 200 Series AC/DC Power Supplies feature the highest power rating in the industry standard 3.0" x 5.0" (76.2 x 127 mm) footprint. They can supply up to 200 W output power with convection cooling over an industrial operating temperature range of -25°C to +70°C. This performance could be realized by a state of the art design providing an extremely high efficiency of >90 % which eliminates the need for a dedicated power supply cooling fan.

Compliance with global safety and EMC standards qualify these power supplies for worldwide markets. Approved for Class I and Class II applications, these switchers are suitable for industrial and IT systems but also for consumer products. High reliability is provided by use of industrial quality grade components and an excellent thermal management. This product offers an interesting power supply solution for many space and cost critical applications in commercial and industrial electronic equipment.

### Models

Order Code	Output Power max.	Output Voltage nom.	Output Current max.	Efficiency typ.
TOP 200-112	200 W	12 VDC	16'000 mA	93 %
TOP 200-115		15 VDC	13'000 mA	93 %
TOP 200-124		24 VDC	8'300 mA	95 %
TOP 200-148		48 VDC	4'200 mA	95 %

### Options

<b>on demand</b> (backorder with MOQ non stocking item)	- Encased version: <a href="http://www.tracopower.com/overview/top200c">www.tracopower.com/overview/top200c</a>
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### Input Specifications

Input Voltage		Operational Range: <b>85 - 264 VAC</b> (Full Range) Rated Range: <b>100 - 240 VAC</b> (Full Range)
Input Frequency		Operational Range: <b>47 - 63 Hz</b> Certified: <b>50/60 Hz</b>
Power Consumption	- No load & $V_{in} = 230$ VAC - No load & $V_{in} = 115$ VAC	<b>4'000 mW max.</b> <b>5'300 mW max.</b>
Input Inrush Current	- At 230 VAC	<b>40 A max.</b>
Power Factor	- At 230 VAC	<b>0.98 min.</b> (Active Power Factor Correction)
Input Protection		<b>T 4 A</b> (Internal Fuse in L & N)
Recommended Input Fuse		<b>6'000 mA</b> (slow blow)  (The need of an external fuse has to be assessed in the final application.)

### Output Specifications

Voltage Set Accuracy		<b>±3% max.</b>
Regulation	- Input Variation ( $V_{min} - V_{max}$ ) - Load Variation (0 - 100%)	<b>1% max.</b> <b>1% max.</b>
Ripple and Noise (20 MHz Bandwidth)		12 VDC model: <b>120 mVp-p max.</b> 15 VDC model: <b>120 mVp-p max.</b> 24 VDC model: <b>120 mVp-p max.</b> 48 VDC model: <b>150 mVp-p max.</b>
Capacitive Load		12 VDC model: <b>15'000 <math>\mu</math>F max.</b> 15 VDC model: <b>15'000 <math>\mu</math>F max.</b> 24 VDC model: <b>4'000 <math>\mu</math>F max.</b> 48 VDC model: <b>1'000 <math>\mu</math>F max.</b>
Minimum Load		<b>Not required</b>
Temperature Coefficient		<b>±0.02 %/K max.</b>
Hold-up Time	- At 230 VAC - At 115 VAC	<b>10 ms min.</b> <b>10 ms min.</b>
Start-up Time	- At 230 VAC - At 115 VAC	<b>2'000 ms max.</b> <b>3'000 ms max.</b>
Short Circuit Protection		<b>Automatic recovery</b> <b>60% typ. of I<sub>out</sub> nom.</b>
Overload Protection		<b>Foldback Mode</b>
Output Current Limitation		<b>120 - 150% of I<sub>out</sub> max.</b>
Overvoltage Protection		<b>150% typ. of V<sub>out</sub> nom.</b> (depending on model) <b>20 V typ.</b> (12 V <sub>out</sub> model) <b>25 V typ.</b> (15 V <sub>out</sub> model) <b>35 V typ.</b> (24 V <sub>out</sub> model) <b>60 V typ.</b> (48 V <sub>out</sub> model)
Transient Response	- Peak Variation - Response Time	<b>600 mV max.</b> (10% to 90% Load Step) <b>20'000 <math>\mu</math>s max.</b> (10% to 90% Load Step)

### Safety Specifications

Standards	- IT / Multimedia Equipment	<b>EN 60950-1</b> <b>EN 62368-1</b> <b>IEC 60950-1</b> <b>IEC 62368-1</b> <b>UL 60950-1</b>
	- Certification Documents	<a href="http://www.tracopower.com/overview/top200">www.tracopower.com/overview/top200</a>
Protection Class		<b>Class I &amp; II (Prepared): Reinforced Insulation</b>
Pollution Degree		<b>PD 2</b>
Over Voltage Category		<b>OVC II</b>

All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

## EMC Specifications

EMI (Emissions)	<ul style="list-style-type: none"> <li>- Conducted Emissions</li> <li>- Radiated Emissions</li> <li>- Harmonic Current Emissions</li> </ul>	EN 61000-6-3 (Generic Residential) EN 55032 class B (internal filter) EN 55032 class B (internal filter) EN 61000-3-2, class A (conductive plane to be connected to safety earth to meet all EMI specifications)
EMS (Immunity)	<ul style="list-style-type: none"> <li>- RF Electromagnetic Field</li> <li>- EFT (Burst) / Surge</li> <li>- Conducted RF Disturbances</li> <li>- PF Magnetic Field</li> <li>- Voltage Dips &amp; Interruptions</li> </ul>	EN 61000-4-3, 20 V/m, perf. criteria A EN 61000-4-4, ±2 kV, perf. criteria B L to L: EN 61000-4-5, ±1 kV, perf. criteria B L to PE: EN 61000-4-5, ±2 kV, perf. criteria B EN 61000-4-6, 10 Vrms, perf. criteria A Continuous: EN 61000-4-8, 100 A/m, perf. criteria A 230 VAC / 50 Hz: EN 61000-4-11 20%, 250 periods, perf. criteria A 30%, 25 periods, perf. criteria A 60%, 10 periods, perf. criteria B >95%, 1 period, perf. criteria B 115 VAC / 60 Hz: EN 61000-4-11 20%, 250 periods, perf. criteria A 30%, 25 periods, perf. criteria B 60%, 10 periods, perf. criteria B >95%, 1 period, perf. criteria B
EMC / Environmental	- Certification Documents	<a href="http://www.tracopower.com/overview/top200">www.tracopower.com/overview/top200</a>

## General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	<ul style="list-style-type: none"> <li>- Operating Temperature</li> <li>- Storage Temperature</li> </ul>	-25°C to +70°C -40°C to +80°C
Power Derating	<ul style="list-style-type: none"> <li>- High Temperature</li> <li>- Low Input Voltage</li> </ul>	2 %/K above 40°C (12 & 15 Vout models) 2 %/K above 50°C (24 & 48 Vout models) 1 %/V below 115 VAC (12 & 15 Vout models) 1.5 %/V below 108 VAC (24 & 48 Vout models)
Cooling System		Natural convection (20 LFM)
Remote Control	<ul style="list-style-type: none"> <li>- Voltage Controlled Remote</li> <li>- Current Controlled Remote</li> </ul>	See application note: <a href="http://www.tracopower.com/overview/top200">www.tracopower.com/overview/top200</a> See application note: <a href="http://www.tracopower.com/overview/top200">www.tracopower.com/overview/top200</a>
Altitude During Operation		2'000 m max.
Regulator Topology		LLC Converter
Switching Frequency		100 kHz typ. (PWM)
Insulation System		Reinforced Insulation
Isolation Test Voltage	<ul style="list-style-type: none"> <li>- Input to Output, 60 s</li> <li>- Input to Case or PE, 60 s</li> <li>- Output to Case or PE, 60 s</li> </ul>	3'000 VAC 1'500 VAC 500 VAC
Creepage	<ul style="list-style-type: none"> <li>- Input to Output</li> <li>- Input to Case or PE</li> <li>- Output to Case or PE</li> </ul>	7 mm min. 4 mm min. 1 mm min.
Clearance	<ul style="list-style-type: none"> <li>- Input to Output</li> <li>- Input to Case or PE</li> <li>- Output to Case or PE</li> </ul>	5 mm min. 2.5 mm min. 0.5 mm min.
Isolation Resistance	- Input to Output, 500 VDC	100 MΩ min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	1'500 pF typ.
Leakage Current	<ul style="list-style-type: none"> <li>- Earth Leakage Current</li> <li>- Touch Current</li> </ul>	500 μA max. 100 μA max.
Reliability	- Calculated MTBF	(see application note)

All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

Environment	- Vibration	IEC 60068-2-6 3 axis, sine sweep, 10-55 Hz, 0.075 mm
	- Mechanical Shock	IEC 60068-2-27 15 g, 3 axis, half sine, 11 ms
Housing Type		Open Frame
Mounting Type		Chassis Mount
Connection Type		Pin Connector
Weight		360 g
Power Back Immunity		12 VDC model: <b>16 V max.</b> (18 V for 1 s) 15 VDC model: <b>20 V max.</b> (23 V for 1 s) 24 VDC model: <b>35 V max.</b> (40 V for 1 s) 48 VDC model: <b>63 V max.</b> (68 V for 1 s)
Environmental Compliance	- REACH Declaration	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a> REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	<a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> Exemptions: 7a, 7c-I (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule))
	- SCIP Reference Number	127e15dd-c33c-4469-8c0f-3977268632f2

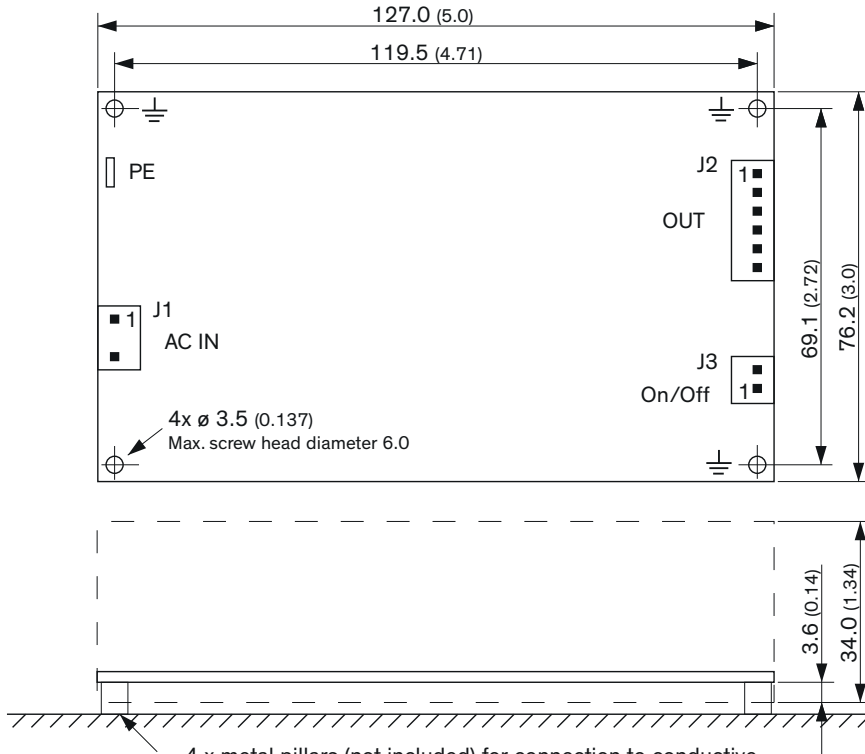
### Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/top200](http://www.tracopower.com/overview/top200)

All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

**Outline Dimensions**



4 x metal pillars (not included) for connection to conductive plate in order to meet all EMC specifications  
 Minimum height: 5.0 (0.2), max. diameter: 6.0 (0.25)

Mounting screw tightening torque: 0.9 - 1.1 Nm

Dimensions in mm (inch)  
 Tolerances: ±0.2 (±0.008)

Input	
J1	
Pin	Function
1	AC (L)
2	AC (N)

Output	
J2	
Pin	Function
1-3	+ Vout
4-6	- Vout

On / Off	
J3	
Pin	Function
1	-
2	+