TRACO POWER

AC/DC Power Supply

TOP 200 Series, 200 Watt

- **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**



UL 60950-1 IEC 62368-1

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

on demand (backorder with MOQ non stocking item)	- Encased version: www.tracopower.com/overview/top200c

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Input Specifications

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

Output Specifications

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

Safety Specifications

Standards	- IT / Multimedia Equipment		EN 60950-1 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1
	- Certification Documents		www.tracopower.com/top200-safety-cert/
Protection Class			Class I & II (Prepared): Reinforced Insulation
		See application note:	www.tracopower.com/info/protection-class.pdf
Energy Source	- Output, acc. to 62368-1		ES1
Power Source	- Output, acc. to 62368-1		PS3

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

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Pollution Degree			PD 2
Over Voltage Category			OVC II

EMC Specifications

EMI (Emissions)			EN 61000-6-3 (Generic Residential)
	- Conducted Emissions		EN 55032 class A (internal filter)
			EN 55032 class B (internal filter)
	- Radiated Emissions		EN 55032 class A (internal filter)
			EN 55032 class B (internal filter)
	- Harmonic Current Emissions		EN 61000-3-2, class A
			(conductive plane to be connected to safety earth to meet all EMI specifications)
EMS (Immunity)	- RF Electromagnetic Field		EN 61000-4-3, 20 V/m, perf. criteria A
	- EFT (Burst) / Surge		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
	- Conducted RF Disturbances		EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous:	EN 61000-4-8, 100 A/m, perf. criteria A
	- Voltage Dips & Interruptions	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		www.tracopower.com/top200-emc-cert/

General Specifications

Relative Humidity			95% max. (non condensing)
Temperature Ranges	- Operating Temperature		–25°C to +70°C
	- Storage Temperature		–40°C to +80°C
Power Derating	- High Temperature		2.0 %/K above 40°C (12 & 15 Vout models)
			2.0 %/K above 50°C (24 & 48 Vout models)
	- Low Input Voltage		1.0 %/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	- Voltage Controlled Remote	See application note:	www.tracopower.com/top200-remote/
	- Current Controlled Remote	See application note:	www.tracopower.com/top200-remote/
Altitude During Operation			2'000 m max.
Regulator Topology			LLC Converter
Switching Frequency			100 kHz typ. (PWM)
Insulation System			Reinforced Insulation
Isolation Test Voltage	- Input to Output, 60 s		3'000 VAC
	- Input to Case or PE, 60 s		1'500 VAC
	- Output to Case or PE, 60 s		500 VAC
Creepage	- Input to Output		7 mm min.
	- Input to Case or PE		4 mm min.
	- Output to Case or PE		1 mm min.
Clearance	- Input to Output		5 mm min.
	- Input to Case or PE		2.5 mm min.
	- Output to Case or PE		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.

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

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Leakage Current	- Earth Leakage Current		500 µA max.
	- Touch Current		100 µA max.
Reliability		See application note:	www.tracopower.com/top200-mtbf/
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:	16 V max. (18 V for 1 s)
		15 VDC model:	20 V max. (23 V for 1 s)
		24 VDC model:	35 V max. (40 V for 1 s)
		48 VDC model:	63 V max. (68 V for 1 s)
Environmental Compliance	- REACH Declaration		www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration		www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7(a), 7(c)-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

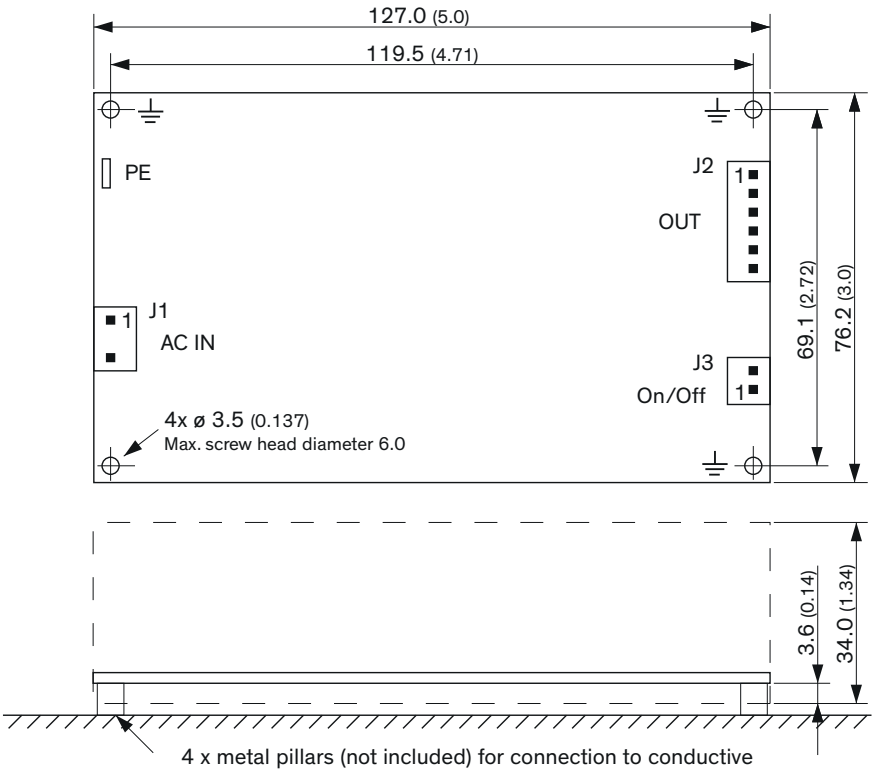
Additional Information

Supporting Documents	www.tracopower.com/overview/top200
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf
Service Portal	www.tracoserviceportal.com

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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	+

Input Connector
PCB terminal: Molex 41791-26-62-4030
Terminal Housing: Molex 2139-09-50-3031
Crimp Terminal: Molex 2478-08-52-0072

Output Connector
PCB terminal: Molex 2139-26-60-4060
Terminal Housing: Molex 2139-09-50-3061
Crimp Terminal: Molex 2478-08-52-0072

On/Off Connector
PCB terminal: Molex KK 22-27-2021
Terminal Housing: Molex KK 22-01-2025
Crimp Terminal: Molex KK 08-50-0032

Note: The size of the wires has to be assessed in the final application.

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