TRACO POWER

AC/DC Industrial Power Supply

TCI 130 Series, 130 Watt

- **Conduction cooled design approach**
- **Fanless operation with up to 100% output power**
- **Operating temperature range –30°C to +80°C**
- **I/O reinforced isolation 4250 VAC**
- **Over voltage category (OVC III)**
- **High efficiency up to 92%**
- **Operating up to 5000 m altitude**
- **Internal EN 55032 conducted class B filter**
- **Protection class I prepared**
- **3-year product warranty**

UL 62368-1 IEC 62368-1

The TCI 130 is a 130 Watt conduction cooled AC/DC encased power supply series with a 4250 VAC reinforced isolation system. Traco Power's new TCI line focuses on maximizing the proficiency of conduction cooled systems as it offers superior temperature behavior when mounted on a metal chassis or baseplate. This way the TCI 130 can deliver up to 100% of the maximum output power without the need for a fan. Excellent efficiency of up to 91% allows the TCI series to operate from –30 to +50°C without derating, while going up to +80°C with either load derating or forced cooling. They also meet OVC III requirements and can operate at up to 5000 m altitude. Active power factor correction, EMC characteristics dedicated for applications in industrial/automation and test & measurement fields and high reliability make the new TCI line an ideal solution for any demanding industrial application.

Models

Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max. (Forced air / Conduction cooling)	Output Current max. (Natural convection)	Efficiency typ.
TCI 130-112-J	130 W	12 VDC (10.8 - 13.2 VDC)	10'833 mA	9'917 mA	90 %
TCI 130-124-J		24 VDC (21.6 - 26.4 VDC)	5'417 mA	5'000 mA	90 %
TCI 130-148-J		48 VDC (43.2 - 52.8 VDC)	2'708 mA	2'604 mA	91 %

Options

TCI 130-DC	- Optional Cable: www.tracopower.com/overview/tci130-dc
TCI-AC1	- Optional Cable: www.tracopower.com/overview/tci-ac1
on demand (backorder with MOQ non stocking item)	- Optional models with U-Bracket

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Input Specifications

Input Voltage		Operational Range:	90 - 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		300 mW max. (Ready to meet ErP directive)
	- No load & Vin = 115 VAC		300 mW max.
Input Current	- Full load & Vin = 230 VAC		1'000 mA max.
	- Full load & Vin = 115 VAC		2'000 mA max.
Input Inrush Current	- At 230 VAC		85 A max.
	- At 115 VAC		50 A max.
Power Factor	- At 230 VAC		0.9 min. (Active Power Factor Correction)
	- At 115 VAC		0.9 min. (Active Power Factor Correction)
Input Protection			T 4 A / 250 VAC (Internal Fuse in L & N)
Recommended Input Fuse			(The need of an external fuse has to be assessed in the final application.)

Output Specifications

Output Voltage Adjustment			±10% (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy			±2% max.
Regulation	- Input Variation (Vmin - Vmax)		1% max.
	- Load Variation (10 - 100%)		1% max.
Ripple and Noise (20 MHz Bandwidth)		12 VDC model:	160 mVp-p max. (w/ 0.1 µF ceramic || 47 µF KY)
		24 VDC model:	240 mVp-p max. (w/ 0.1 µF ceramic || 47 µF KY)
		48 VDC model:	340 mVp-p max. (w/ 0.1 µF ceramic || 47 µF KY)
Capacitive Load		12 VDC model:	4'000 µF max.
		24 VDC model:	1'000 µF max.
		48 VDC model:	330 µF max.
Minimum Load			Not required
Temperature Coefficient			±0.05 %/K max.
Hold-up Time	- At 230 VAC		27 ms min.
	- At 115 VAC		8 ms min.
Start-up Time	- At 230 VAC		1'350 ms max.
	- At 115 VAC		1'000 ms max.
Short Circuit Protection			Continuous, Automatic recovery (Level 1, nom.) Latch (Level 2, instantaneous high current)
Output Current Limitation			117 - 196% of Iout max.
Overvoltage Protection			108 - 130% of Vout nom.
Transient Response	- Response Deviation		3% typ. / 5% max. (25% to 100% Load Step)
	- Response Time		500 µs typ. / 750 µs max. (25% to 100% Load Step)

Safety Specifications

Standards	- IT / Multimedia Equipment		EN 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents		www.tracopower.com/overview/tci130
Protection Class			Class I (Prepared): Connection to PE
		See application note:	www.tracopower.com/info/protection-class.pdf
Pollution Degree			PD 2
Over Voltage Category			OVC II OVC III

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

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EMC Specifications

EMI (Emissions)	- Conducted Emissions		EN 55032 class A (internal filter) EN 55032 class B (internal filter)
	- Radiated Emissions		EN 55032 class A (internal filter)
	- Harmonic Current Emissions		EN 61000-3-2, class A
EMS (Immunity)			EN 55035 (Multimedia)
	- Electrostatic Discharge	Air:	EN 61000-4-2, ±8 kV, perf. criteria A
		Contact:	EN 61000-4-2, ±4 kV, perf. criteria A
	- RF Electromagnetic Field		EN 61000-4-3, 3 V/m, perf. criteria A
	- EFT (Burst) / Surge		EN 61000-4-4, ±1 kV, perf. criteria A
		L to L:	EN 61000-4-5, ±1 kV, perf. criteria A
		L to PE:	EN 61000-4-5, ±2 kV, perf. criteria A
	- Conducted RF Disturbances		EN 61000-4-6, 3 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous:	EN 61000-4-8, 1 A/m, perf. criteria A
	- Voltage Dips & Interruptions	230 VAC / 50 Hz:	EN 61000-4-11 30%, 25 periods, perf. criteria A >95%, 250 periods, perf. criteria B
		115 VAC / 60 Hz:	EN 61000-4-11 30%, 25 periods, perf. criteria A >95%, 250 periods, perf. criteria B
EMC / Environmental	- Certification Documents		www.tracopower.com/overview/tci130

General Specifications

Relative Humidity			90% max. (non condensing)
Temperature Ranges	- Operating Temperature		−30°C to +80°C
	- Storage Temperature		−30°C to +80°C
Power Derating	- High Temperature		Depending on model
	- Low Input Voltage		2 %/V below 100 VAC
		See application note:	www.tracopower.com/overview/tci130
Over Temperature Protection Switch Off	- Protection Mode		115°C min. / 120°C typ. / 125°C max. (Automatic recovery at 90°C typ.)
	- Measurement Point		Internal IC temperature
Cooling System			Forced air (with external fan, 8 CFM) Natural convection (20 LFM) Conduction Cooling (with a 300 x 300 x 3.0 mm aluminum plate)
Altitude During Operation			4'000 m max. (for OVC III) 5'000 m max. (for OVC II)
Regulator Topology			QR Flyback Converter
Switching Frequency			45 - 76 kHz (PWM, PFM) (Above 25% load PWM is used, below 25% load PFM is used) 60 kHz typ. (PWM, PFM) (Above 25% load PWM is used, below 25% load PFM is used)
Insulation System			Reinforced Insulation
Working Voltage (rated)			391 VAC
Isolation Test Voltage	- Input to Output, 60 s		4'250 VAC (6'000 VDC)
	- Input to Case or PE, 60 s		2'830 VAC (4'000 VDC)
	- Output to Case or PE, 60 s		1'500 VAC (2'121 VDC)
Isolation Resistance	- Input to Output, 500 VDC		100 MΩ min.
Leakage Current (at 264 VAC / 63 Hz)	- Earth Leakage Current		750 µA max.
Distance Through Isolation			7.1 mm
Reliability	- Calculated MTBF		400'000 h (MIL-HDBK-217F, ground benign)
Washing Process			Not allowed

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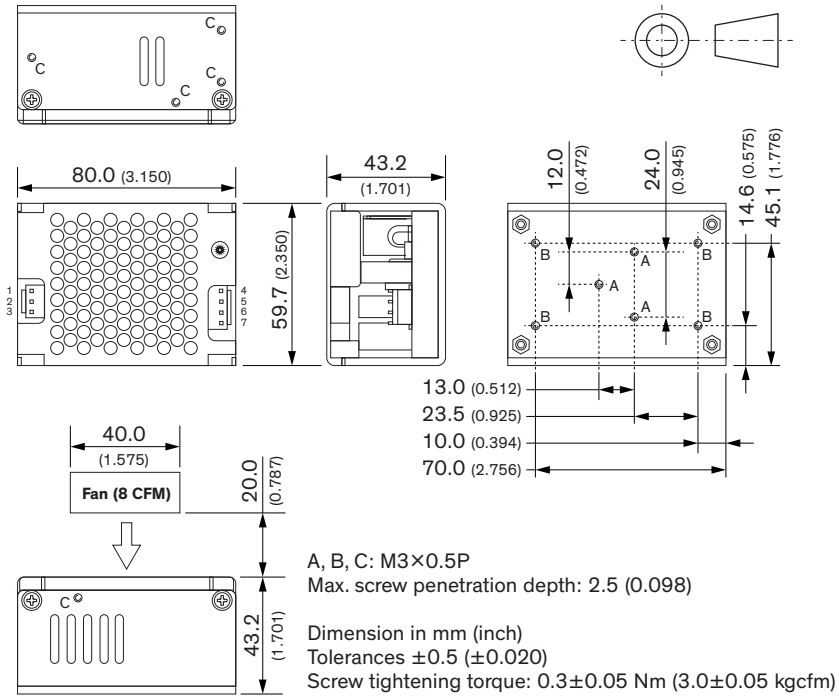
Environment	- Vibration	IEC 60068-2-6 2 g, 3 axis, 60 min, 10-500 Hz, 10 min/cycle
	- Mechanical Shock	IEC 60068-2-27 50 g, 3 axis, half sine, 11 ms
Housing Material		Aluminum
Potting Material		Silicone (UL 94 V-0 rated) (the converter is partly potted on the bottom)
Housing Type		Metal Case
Mounting Type		Chassis Mount
Connection Type		Pin Connector
Weight		292 g (for standard version) 280 g (for optional U-Bracket models)
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	4cf2bfa3-142d-4255-a827-ca241ce874db

Additional Information

Supporting Documents	www.tracopower.com/overview/tci130
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf

Outline Dimensions

Standard version



A, B, C: M3×0.5P
Max. screw penetration depth: 2.5 (0.098)

Dimension in mm (inch)
Tolerances ±0.5 (±0.020)
Screw tightening torque: 0.3±0.05 Nm (3.0±0.05 kgcfm)

Pin connectors

Input		Output	
Pin	**Function**	**Pin**	**Function**
1	AC (N)	**4-5**	+Vout
2	No Pin	**6-7**	–Vout
3	AC (L)		

Case

(no dedicated connector)	
Pos	**Function**
A	For mounting on chassis only
B	For mounting on PCB or chassis, and connecting PE
C	For connecting PE only

Input: JST series
mates with JST crimp terminal: SVH-41T-P1.1 or Equivalent
and terminal housing: VHR-3N or Equivalent

Output: JST series
mates with JST crimp terminal: SVH-41T-P1.1 or Equivalent
and terminal housing: VHR-4N or Equivalent

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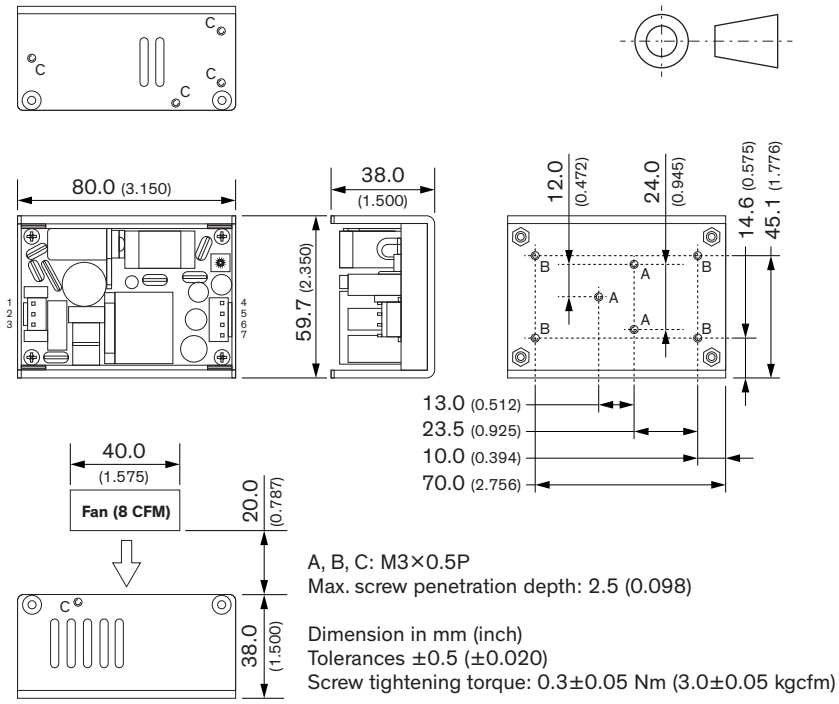
Optional version with U-Bracket



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Dimension in mm (inch)
Tolerances ±0.5 (±0.020)
Screw tightening torque: 0.3±0.05 Nm (3.0±0.05 kgcfm)

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and terminal housing: VHR-4N or Equivalent

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