AC/DC Industrial Power Supply

- Slim profile, for DIN-rail mounting
- Alternative side-mounting for flat panels
- High power factor by active power correction
- Very high efficiency up to 94%
- Back power immunity
- 150% peak current for 4 s
- Operating temperature range: -40°C to +70°C max.
- Adjustable output voltage
- Short circuit and overload protection
- 3-year product warranty



UL 508 UL 60950-1 IEC 62368-1

This generation of DIN-rail power supplies combines the most efficient circuit topology with optimized cost/performance ratio for industrial environments and for electrical control cabinets. They have a very high efficiency of up to 94.0% which allows a very slim package design. The output voltage is adjustable from -2% to +17%. The case offers the potentially useful feature to fix the DIN-rail clip to the side wall for the mounting inside flat panels. Over a period of minimum 4 seconds they can operate with a boost power of 150%. The boost power facilitates the activation of stepper motors, solenoids or actuators. The units operate with a high power factor of up to 97% by active power factor correction which also keeps the input inrush current low. The TIB series are also available with other nominal power of 80, 240 or 480 Watt (+50% boost power). They come with the safety standard approvals for IEC/EN 60950-1, UL 60950-1 and UL 508.

Models					
Order Code	Output Power	Output Voltage	Output Current	Output Current	Efficiency
	max.	nom. (adjustable)	max.	peak	typ.
TIB 120-112		12 VDC (11.8 - 15.0 VDC)	10'000 mA	15'000 mA	94 %
TIB 120-124	120 W	24 VDC (23.5 - 28.0 VDC)	5'000 mA	7'500 mA	94 %
TIB 120-148		48 VDC (47.0 - 56.0 VDC)	2'500 mA	3'750 mA	94 %

Input Specificatio	ons		
Input Voltage			85 - 264 VAC (Full Range)
Input Frequency			45 - 65 Hz
Power Consumption	- At no load		2'200 mW typ.
Input Inrush Current	- At 230 VAC		30 A max.
	- At 115 VAC		15 A max.
Power Factor	- At 230 VAC		0.8 min. (Active Power Factor Correction)
	- At 115 VAC		0.97 min. (Active Power Factor Correction)
Recommended Input Fus	se		(The need of an external fuse has to be assessed in the final application.)
Output Specificat	ions		
Output Voltage Adjustme	nt		11.8 - 15.0 VDC
		24 VDC model:	23.5 - 28.0 VDC
		48 VDC model:	47.0 - 56.0 VDC
			(By trim potentiometer)
			Output power must not exceed rated power!
Voltage Set Accuracy			±0.25% max.
Regulation	- Input Variation (Vmin - Vmax)		0.1% max.
	- Load Variation (10 - 90%)		0.5% max.
Output Current peak			Peak Operation Power: 150% max.
			Peak Operation Time: 4 s max. (auto switch off)
			Off Time: 10 s typ.
			During peak operation, the unit continuously
			switches off the output voltage after 4 s and
D ' 1 1 1 1 1			restarts after approx. 10 s.
Ripple and Noise			100 mVp-p max.
(20 MHz Bandwidth)			100 mVp-p max.
<u> </u>		48 VDC model:	200 mVp-p max.
Capacitive Load			Infinite
Minimum Load			Not required
Temperature Coefficient			±0.02 %/K max.
Hold-up Time	- At 230 VAC		20 ms min.
	- At 115 VAC		20 ms min.
Start-up Time	- At 230 VAC		2'000 ms max.
	- At 115 VAC		2'000 ms max.
Short Circuit Protection			Continuous, Automatic recovery
Overload Protection			Constant Current Mode
			Switch off after 4 s delay, automatic restart
Output Current Limitation	1		155% min. of lout max.
Overvoltage Protection			117 - 158% of Vout nom.
			(depending on model)
			16 - 19 VDC (12 VDC model)
			32 - 35 VDC (24 VDC model)
			56 - 60 VDC (48 VDC model)
			(In case of an internal error a second voltage
			regulation loop keeps the output voltage at a save level, the power supply turnes off and tries to
			restart after 10 s.)
Transiant Desperse	Deals Variation		
Transient Response	- Peak Variation		800 mV max. (10% to 90% Load Step)
	- Response Time		2'000 μs typ. (10% to 90% Load Step)

Safety Specifica	ations	
Safety Standards	- IT / Multimedia Equipment	CSA-C22.2, No. 60950-1
		EN 60950-1
		EN 62368-1
		IEC 60950-1
		IEC 62368-1
		UL 60950-1
	- Industrial Control Equipment	UL 508
	- Measurement, Control & Lab.	EN 61010-1
		EN 61010-2-201
		IEC 61010-1
		IEC 61010-2-201
		UL 61010-1
		UL 61010-2-201
	- Certification Documents	www.tracopower.com/overview/tib120
Protection Class		Class I (Prepared): Connection to PE
Pollution Degree		PD 2
Over Voltage Category		OVC II

MI Emissions		EN 61000-6-3 (Generic Residential)
		EN 61204-3 (Low Voltage Power Supplies)
		EN 50121-3-2 (EMC for Rolling Stock)
		EN 50121-4 (Railway Application Signalling
	- Conducted Emissions	EN 55011 class B (internal filter)
		EN 55032 class B (internal filter)
	- Radiated Emissions	EN 55011 class B (internal filter)
		EN 55032 class B (internal filter)
	- Harmonic Current Emissions	EN 61000-3-2, class A
EMS Immunity		EN 50121-3-2 (EMC for Rolling Stock)
		EN 50121-4 (Railway Application Signalling
		EN 61000-6-2 (Generic Industrial)
		EN 61204-3 (Low Voltage Power Supplies)
	- 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, 10 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, ± 2 kV, perf. criteria B
		L to L: EN 61000-4-5, \pm 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, 30 A/m, perf. criteria A
	- Voltage Dips & Interruptions	230 VAC / 50 Hz: EN 61000-4-11
		20%, 250 periods, perf. criteria C
		30%, 25 periods, perf. criteria C
		60%, 10 periods, perf. criteria C
		>95%, 1 period, perf. criteria B
		>95%, 5 periods, perf. criteria C
		115 VAC / 60 Hz: EN 61000-4-11
		20%, 250 periods, perf. criteria C
		30%, 25 periods, perf. criteria C
		60%, 10 periods, perf. criteria C
		>95%, 1 period, perf. criteria B
		>95%, 5 periods, perf. criteria C
	- Voltage Sag Immunity	SEMI F47, criteria A

General Specifications			
Relative Humidity		95% max. (non condensing)	
Temperature Ranges	- Operating Temperature	-40°C to +70°C	

- Low Input Voltage - Not Voltage - Protection Mode - Protection Mode - Protection Mode - Protection Mode - Voltage - Voltage - Protection Mode - Voltage - Voltage - Protection Mode - Protection PE - Protection Mode - Protection PE - Protection Mode - Protection PE - Protection PE - Protection PE - Protection PE - Protection Mode - Protection Mode - Protection Mode - Protection PE - Protection Mode - Protection PE - Protection Mode - Protection PE - Mechanical Shock - Mecha	Power Derating	- High Temperature		2 %/K above 60°C (at standard operation)
1.5 %/V below 100 VAC (st peak point) Over Temperature Protection Switch Off - Protection Mode Caoling System Natural convection (20 LFM) Altitude During Operation 2'000 m max. Switching Frequency 70 - 100 kHz (PMM) Insulation System Reinforced Insulation Isolation Test Voltage - Input to Output 60 s 3'000 VAC - Input to Case or PE, 60 s 1'500 VDC - Output to Case or PE, 60 s 750 VDC Creepage - Input to Case or PE 4 mm min. - Input to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 4 mm min. - Input to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Dutput to Case or PE 1.5 mm min. - Dutput to Case or PE 1.5 mm min. - Dutput to Case or PE 1.5 mm min. - Dutput to Case or PE 1.5 mm min. - Dutput to Case or PE 1.5 mm min. - Dutput to Case or PE 1.5 mm min. - Input to Case or PE 1.5 mm min. - Barth Leakage Curent 3500 µA max. - Mechanical Shock EN 61373 </th <th></th> <th></th> <th></th> <th>3 %/K above 60°C (at peak power mode)</th>				3 %/K above 60°C (at peak power mode)
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Protection Switch Off Cooling System Cooling System Cooling Operation Switching Frequency Insulation System Switching Frequency Insulation System Isolation Test Voltage Input to Output, 60 s Output to Case or PE, 60 s Output to Case or P				1.5 %/V below 100 VAC (at peak power mode)
Cooling System Natural convection (20 LFM) Atitude During Operation 2'000 m max. Switching Frequency 70 - 100 kHz (PMM) Insulation System Reinforced Insulation Isolation Test Voltage - Input to Output, 60 s 3'000 VAC - Input to Case or PE, 60 s 1'500 VDC Creepage - Input to Case or PE, 60 s 750 VDC Creepage - Input to Case or PE 8 mm min. - Output to Case or PE 1.5 mm min. Clearance - Input to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. - Output to Case or PE 1.5 mm min. Leakage Current - Earth Leakage Current 3500 µA max. - Touch Current 310 µA max. 2 g, 3 axis, sine sweep, 10-55 Hz, 1 ' Environment - Vibration EN 61373 IEC 60086-2e7 2 g, 3 axis, sine sweep, 10-55 Hz, 1 ' Housing Material - Mechanical Shock EN 61373 IEC 60086-2e7 2 g, 3 axis, sine sweep,		- Protection Mode		Latch off
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24 VDC model: 21 - 23 VDC 48 VDC model: 42 - 46 VDC	Power OK Signal		10100	
48 VDC model: 42 - 46 VDC		- Trigger Threshold		
- Power OK Relay contact closed			48 VDC model:	
		- Power OK		Relay contact closed
- Power Off Relay contact open				
- Pin Specifications 30 VDC / 1 A max.		- Pin Specifications		
Status Indicator Also indicated by green LEDs: front a	Status Indicator			Also indicated by green LEDs: front and side

Environmental Compliance - REACH Declaration

- RoHS Declaration

www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant www.tracopower.com/info/rohs-declaration.pdf

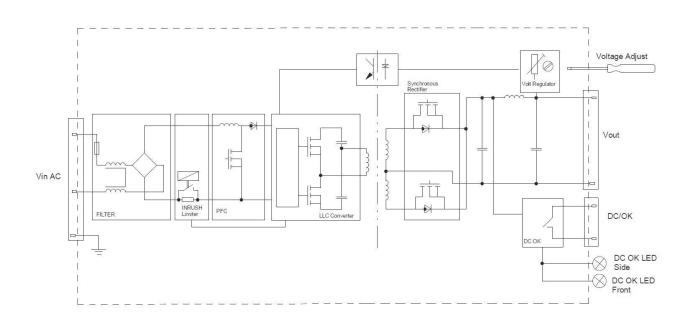
Exemptions: 6a, 6c, 7a, 7c-I, 7c-II (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)

www.tracopower.com/overview/tib120

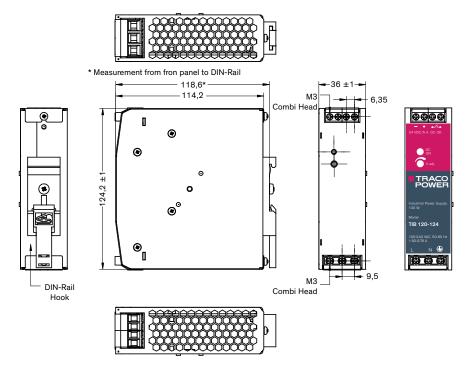
Supporting Documents

Overview Link (for additional Documents)

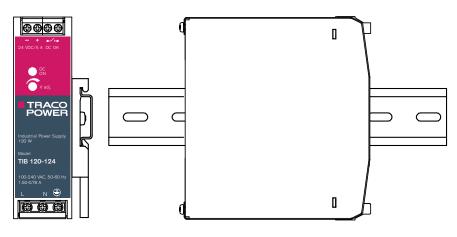
Blockdiagram



Outline Dimensions



Alternative side mounting



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Specifications can be changed without notice. Rev. September 29, 2021 Page 6 / 6