

- 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



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 max.	Output Voltage nom. (adjustable)	Output Current max.	Output Current peak	Efficiency typ.
TIB 120-112	120 W	12 VDC (11.8 - 15.0 VDC)	10'000 mA	15'000 mA	94 %
TIB 120-124		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 Specifications

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 Fuse		(The need of an external fuse has to be assessed in the final application.)

Output Specifications

Output Voltage Adjustment		12 VDC model: 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 restarts after approx. 10 s.
Ripple and Noise (20 MHz Bandwidth)	12 VDC model:	100 mVp-p max.
	24 VDC model:	100 mVp-p max.
	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		155% min. of Iout 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 turns off and tries to restart after 10 s.)
Transient Response	- Peak Variation	800 mV max. (10% to 90% Load Step)
	- Response Time	2'000 µs typ. (10% to 90% Load Step)

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

Safety Specifications

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

EMC Specifications

EMI Emissions	- Conducted Emissions - Radiated Emissions - Harmonic Current 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) EN 55011 class B (internal filter) EN 55032 class B (internal filter) EN 55011 class B (internal filter) EN 55032 class B (internal filter) EN 61000-3-2, class A
EMS Immunity	- Electrostatic Discharge - RF Electromagnetic Field - EFT (Burst) / Surge - Conducted RF Disturbances - PF Magnetic Field - Voltage Dips & Interruptions - Voltage Sag 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) Air: EN 61000-4-2, ± 8 kV, perf. criteria A Contact: EN 61000-4-2, ± 4 kV, perf. criteria A EN 61000-4-3, 10 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, 30 A/m, perf. criteria A 230 VAC / 50 Hz: EN 61000-4-11 30%, 25 periods, perf. criteria C 60%, 10 periods, perf. criteria C >95%, 1 period, perf. criteria B >95%, 5 periods, perf. criteria C 20%, 250 periods, perf. criteria C 115 VAC / 60 Hz: EN 61000-4-11 30%, 25 periods, perf. criteria C 60%, 10 periods, perf. criteria C >95%, 1 period, perf. criteria B >95%, 5 periods, perf. criteria C 20%, 250 periods, perf. criteria C SEMI F47, criteria A

General Specifications

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

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Power Derating	- High Temperature - Low Input Voltage	2 %/K above 60°C (at standard operation) 3 %/K above 60°C (at peak power mode) 3 %/V below 90 VAC (at standard operation) 1.5 %/V below 100 VAC (at peak power mode)
Over Temperature Protection Switch Off	- Protection Mode	Latch off
Cooling System		Natural convection (20 LFM)
Altitude During Operation		2'000 m max.
Switching Frequency		70 - 100 kHz (PWM)
Insulation System		Reinforced Insulation
Isolation Test Voltage	- Input to Output, 60 s - Input to Case or PE, 60 s - Output to Case or PE, 60 s	3'000 VAC 1'500 VDC 750 VDC
Creepage	- Input to Output - Input to Case or PE - Output to Case or PE	8 mm min. 4 mm min. 1.5 mm min.
Clearance	- Input to Output - Input to Case or PE - Output to Case or PE	8 mm min. 4 mm min. 1.5 mm min.
Leakage Current	- Earth Leakage Current - Touch Current	3500 µA max. 310 µA max.
Reliability	- Calculated MTBF	1'450'000 h (IEC 61709)
Environment	- Vibration - Mechanical Shock	EN 61373 IEC 60068-2-6 2 g, 3 axis, sine sweep, 10-55 Hz, 11 oct/min EN 61373 IEC 60068-2-27 25 g, 3 axis, half sine, 11 ms
Housing Material		Aluminum (Chassis) Stainless Steel (Cover)
Connection Type		Screw Terminal
Mounting	- DIN Rail	For DIN-rails as per EN 50022-35x15/7.5
Weight		461 g
Thermal Impedance		0.8 K/W
Power Back Immunity		12 VDC model: 19 V max. 24 VDC model: 35 V max. 48 VDC model: 60 V max. (When external voltage is supplied above set output voltage and below OVP threshold, the power supply will function normally without switch off or destruction, even if external voltage is applied continuously.)
Power OK Signal	- Trigger Threshold - Power OK - Power Off - Pin Specifications	12 VDC model: 10.5 - 11.1 VDC 24 VDC model: 21 - 23 VDC 48 VDC model: 42 - 46 VDC Relay Output Relay contact closed Relay contact open 30 VDC / 1 A max.
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

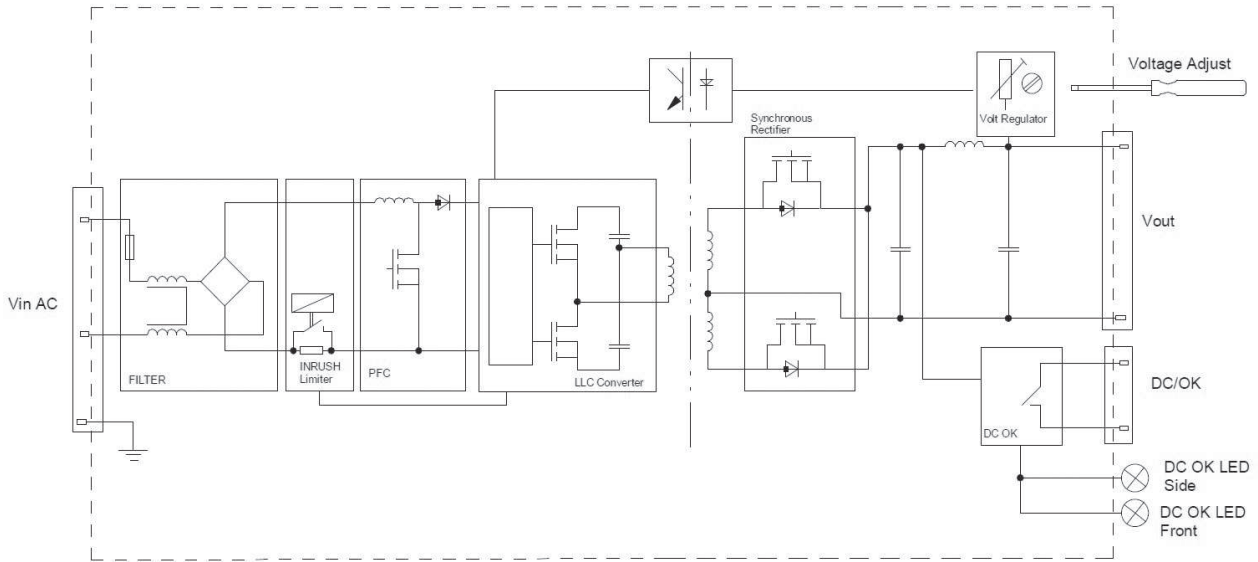
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Supporting Documents

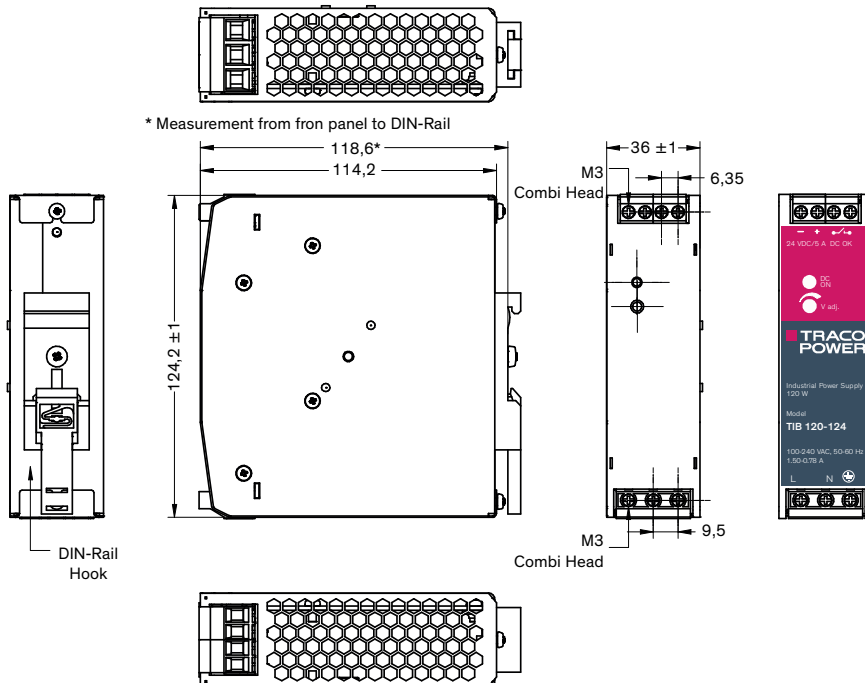
[Overview Link](#) (for additional Documents)

www.tracopower.com/overview/tib120

Blockdiagram



Outline Dimensions



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

Alternative side mounting

