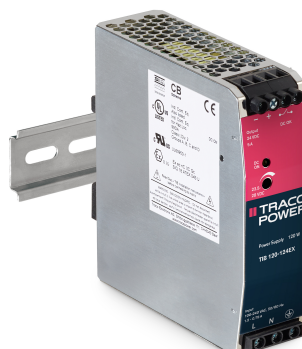


- UL Hazloc Class I, division 2 approval and ATEX certification
- SEMI F47 compliant for voltage sag immunity
- Rugged metal case with optional side-mounting
- Back power immunity
- 150% peak current for 4 s
- Operating Temp -40°C to +70°C (full load up to 60°C)
- Adjustable output voltage
- High Reliability: MTBF 1 mill hrs per IEC 61709
- Short circuit and overload protection
- 5-year product warranty



The TIB 120-EX family of next generation of 120 Watt din rail power supplies feature high efficiency operation of up to 94% enabling a slim design with alternative side-mounting for flat panels (DC OK Indicator on both front and side panel). These products certified to UL Hazloc Class 1 / Div 2, and ATEX (EN 60079-0, EN 60079-7, EN 60079-15) for operation in hazardous locations. These convection cooled power supplies have a -40°C to +60°C full load operating temperature range. 150% peak power for up to 4 seconds which is ideal for stepper motors, solenoids or actuators. The TIB 120-EX series has an important Back Power Immunity feature that helps protect against shut-down or malfunction with loads such as inductors and decelerating motors that can feed voltage back to the power supply. Outputs are radio-interference-suppressed to impede radiation at long output lines which reduces the common mode current to within limits of telecommunication ports. The series operate with a high power factor of up to 99% which also minimizes inrush current. Additional qualifications include IEC/EN/UL 60950-1, UL 508 and CB Report with EMC compliance to IEC/EN 61000-6-2 and IEC/EN 61000-6-3.

Models					
Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max.	Output Current peak	Efficiency typ.
TIB 120-112EX	120 W	12 VDC (11.8 - 15.0 VDC)	10'000 mA	15'000 mA	94 %
TIB 120-124EX		24 VDC (23.5 - 28.0 VDC)	5'000 mA	7'500 mA	94 %
TIB 120-148EX		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!
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 2000 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	CSA-C22.2, No 60950-1 EN 60950-1 IEC 60950-1 UL 60950-1
	- Industrial Control Equipment	UL 508
	- ATEX	EN 60079-0 EN 60079-15 EN 60079-7 EX II3G Ex nA nC IIC T4 GC
	- HazLoc	UL 121201
	- Certification Documents	Class I; Div 2; Groups A,B,C,D; T4 www.tracopower.com/overview/tib120-ex
Protection Class		Class I (Prepared): Connection to PE
Pollution Degree		PD 2
Over Voltage Category		OVC II

EMC Specifications

EMI 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, ± 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 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
	- Voltage Sag Immunity	SEMI F47, criteria A

General Specifications

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

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

Power Derating	- High Temperature	2 %/K above 60°C (at standard operation) 3 %/K above 60°C (at peak power mode)
	- Low Input Voltage	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	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 Output	8 mm min.
	- Input to Case or PE	4 mm min.
	- Output to Case or PE	1.5 mm min.
Clearance	- Input to Output	8 mm min.
	- Input to Case or PE	4 mm min.
	- Output to Case or PE	1.5 mm min.
Leakage Current	- Earth Leakage Current	3500 µA max.
	- Touch Current	310 µA max.
Reliability	- Calculated MTBF	1'450'000 h (IEC 61709)
Environment	- Vibration	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
		Aluminum (Chassis) Stainless Steel (Cover)
	- Mechanical Shock	Screw Terminal
Housing Material		For DIN-rails as per EN 50022-35x15/7.5
Connection Type		461 g
Mounting	- DIN Rail	0.8 K/W
Weight		
Thermal Impedance		
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	Relay Output
		12 VDC model: OK: 10.9 VDC, Off: 10.7 VDC
		24 VDC model: OK: 22.5 VDC, Off: 21.5 VDC
	- Power OK - Power Off - Pin Specifications	48 VDC model: OK: 45 VDC, Off: 43 VDC
		Relay contact closed
		Relay contact open 30 VDC / 1 A max.
Status Indicator		Also indicated by green LEDs: front and side
Environmental Compliance	- Reach	www.tracopower.com/info/reach-declaration.pdf
	- RoHS	www.tracopower.com/info/rohs-declaration.pdf

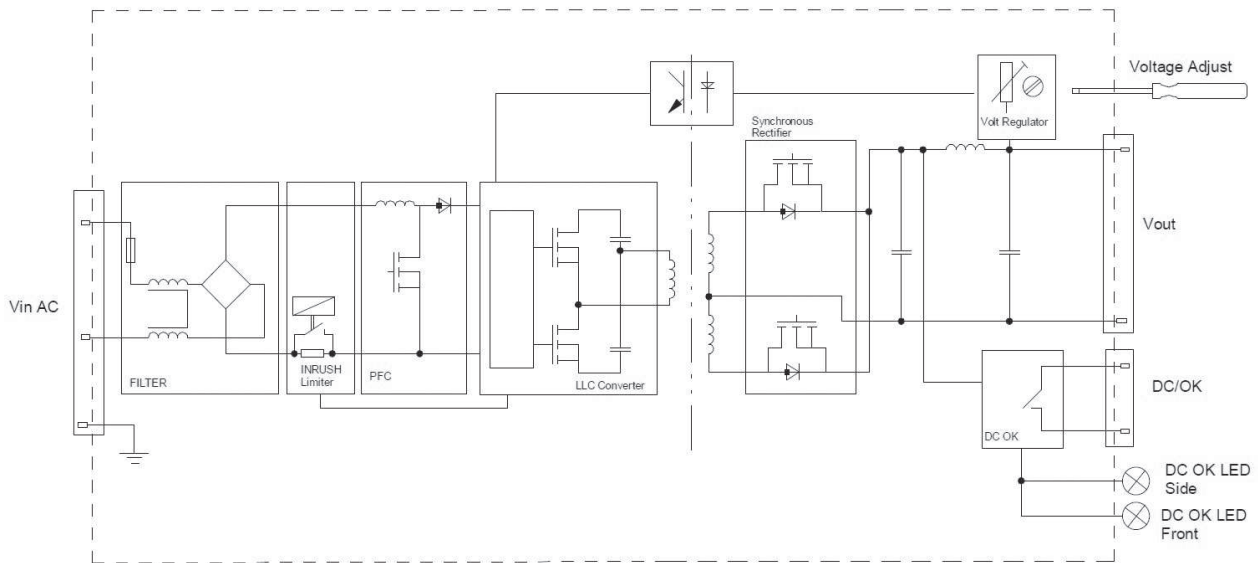
Supporting Documents

Overview Link (for additional Documents)

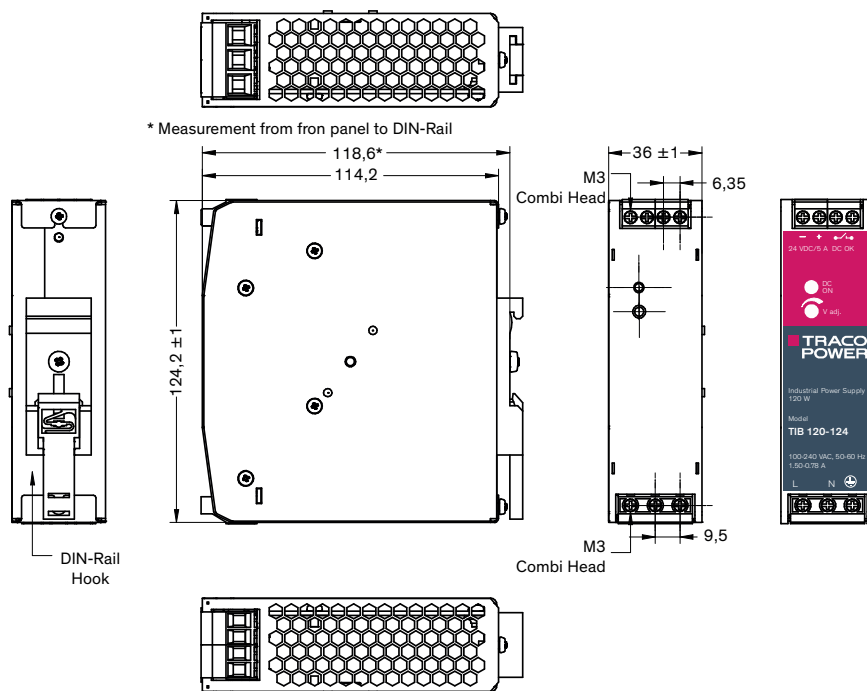
www.tracopower.com/overview/tib120-ex

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

Blockdiagram



Outline Dimensions



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

Alternative side mounting

