

- Slim profile, for DIN-rail mounting
- Alternative side-mounting for flat panels
- Very high efficiency up to 90%
- Back power immunity
- 150% peak current for 4 s
- Operating temperature range:  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  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 90.0% 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 by active power factor correction which also keeps the input inrush current low. The TIB series are also available with higher nominal power of 120, 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 080-112	80 W	12 VDC (11.8 - 15.0 VDC)	6'700 mA	10'050 mA	88 %
TIB 080-124		24 VDC (23.5 - 28.0 VDC)	3'400 mA	5'100 mA	90 %
TIB 080-148		48 VDC (47.0 - 56.0 VDC)	1'700 mA	2'550 mA	90 %

Input Specifications		
Input Voltage		85 - 264 VAC (Full Range)
Input Frequency		45 - 65 Hz
Power Consumption	- At no load	1'450 mW typ.
Input Inrush Current	- At 230 VAC	30 A max.
	- At 115 VAC	15 A max.
Power Factor	- At 230 VAC	0.48 min.
	- At 115 VAC	0.48 min.
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	160 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 6 s.)
Transient Response	- Peak Variation	600 mV max. (10% to 90% Load Step)
	- Response Time	2'500 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 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1 UL 508
	- Industrial Control Equipment	EN 61010-1
	- Measurement, Control & Lab.	EN 61010-2-201 IEC 61010-1 IEC 61010-2-201 UL 61010-1 UL 61010-2-201
	- Certification Documents	<a href="http://www.tracopower.com/overview/tib080">www.tracopower.com/overview/tib080</a>
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, $\pm 8$ kV, perf. criteria A Contact: EN 61000-4-2, $\pm 4$ kV, perf. criteria A
	- RF Electromagnetic Field	EN 61000-4-3, 10 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, $\pm 2$ kV, perf. criteria B L to L: EN 61000-4-5, $\pm 1$ kV, perf. criteria B L to PE: EN 61000-4-5, $\pm 2$ 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

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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		60 - 75 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	1'950'000 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
	- Mechanical Shock	
Housing Material		Aluminum (Chassis) Stainless Steel (Cover)
Connection Type		Screw Terminal
Mounting	- DIN Rail	For DIN-rails as per EN 50022-35×15/7.5
Weight		367 g
Thermal Impedance		1.81 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	Relay Output 12 VDC model: 10.5 - 11.1 VDC 24 VDC model: 21 - 23 VDC 48 VDC model: 42 - 46 VDC
		Relay contact closed
		Relay contact open
	- Power OK	30 VDC / 1 A max.
	- Power Off	
	- Pin Specifications	
Status Indicator		Also indicated by green LEDs: front and side

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Environmental Compliance - REACH Declaration

[www.tracopower.com/info/reach-declaration.pdf](http://www.tracopower.com/info/reach-declaration.pdf)

REACH SVHC list compliant

REACH Annex XVII compliant

[www.tracopower.com/info/rohs-declaration.pdf](http://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.)

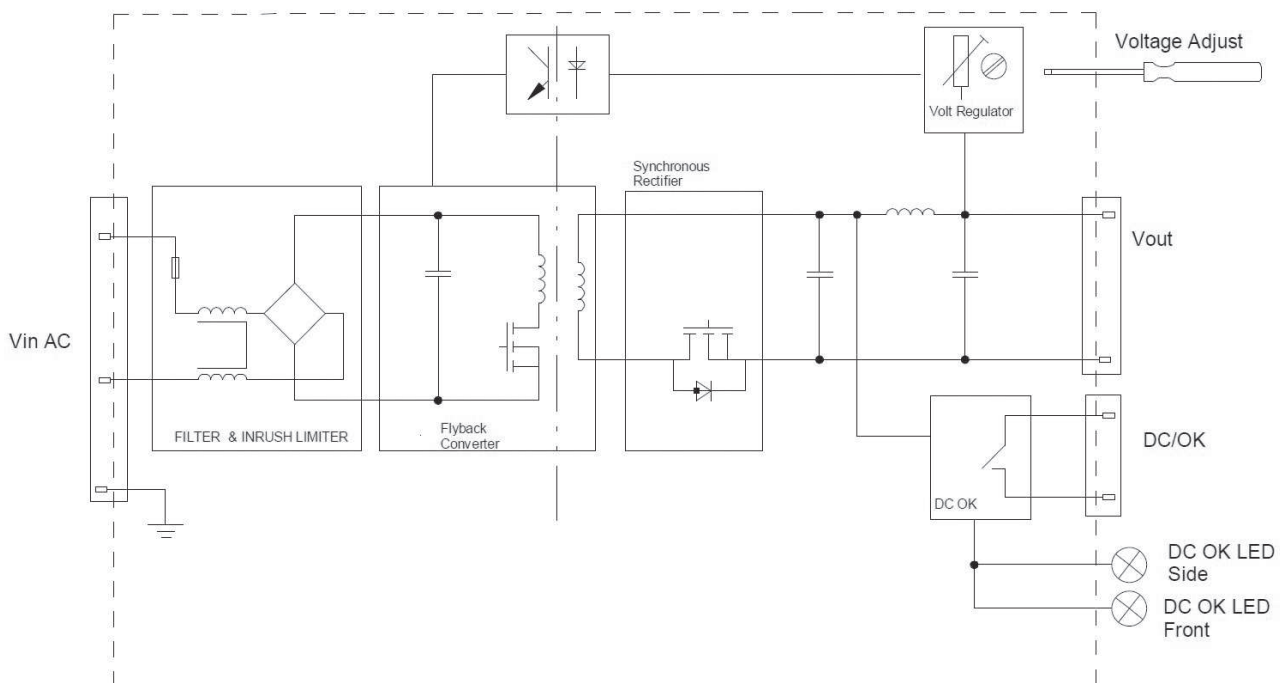
- RoHS Declaration

## Supporting Documents

Overview Link (for additional Documents)

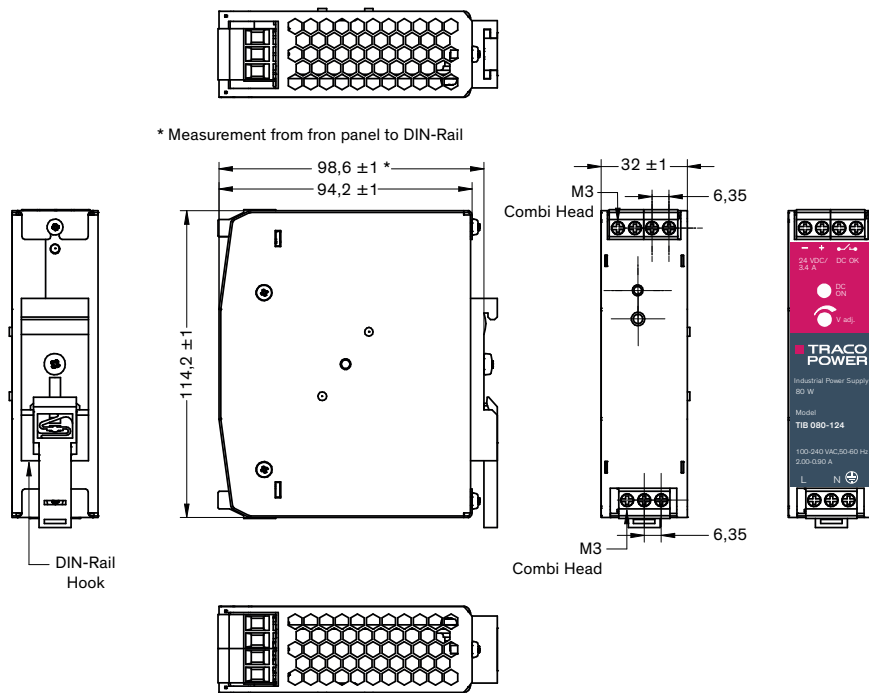
[www.tracopower.com/overview/tib080](http://www.tracopower.com/overview/tib080)

## Blockdiagram



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

### Outline Dimensions



### Alternative side mounting

