TRACO POWER

Industrial Power Supplies

TIB 480 Series, 480 Watt

- **Slim profile, for DIN-rail mounting**
- **Alternative side-mounting for flat panels**
- **High power factor by active power correction**
- **Very high efficiency up to 95%**
- **Back power immunity**
- **150% peak current for 4 sec.**
- **Operating temperature range: –40°C to +70°C max.**
- **Adjustable output voltage**
- **DC–OK indicator**
- **Short circuit and overload protection**
- **Class I, division 2 approval and ATEX certification for EX models**
- **5-year product warrant for EX models**

CE CB Scheme SIQ Type Approved Bauart Geprüft c UL us UL508 c TÜV us UL60950-1 Ex ATEX II3G

Other output power of same series:
www.tracopower.com/overview/tib

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 95.0% 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 99% by active power factor correction which also keeps the input inrush current low. The TIB series are also available with lower nominal power of 80, 120 or 240 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.)	Efficiency (typ.)
TIB 480-124	480 W	24 VDC (23.5–28.0)	20 A	95.0 %
TIB 480-124EX				
TIB 480-148	480 W	48 VDC (47.0–56.0)	10 A	95.0 %
TIB 480-148EX				

Input Specifications

Input voltage	– nominal ranges – effective ranges		100 – 240 VAC 85 – 264 VAC (below 90 VAC a derating of 3%/V is required)
Input voltage frequency			45 – 65 Hz
Standby power cunsumption			4.8/3.8 W (115/230 VAC)
Power Factor Correction (PFC)			0.99/0.97 (115/230 VAC)
Harmonic limits	– acc. EN 61000-3-2		class A, D
Inrush current			15/30 A max. (115/230 VAC)

Output Specifications

Output voltage adjustment [1]		24 Vout models: 48 Vout models:	23.5 – 28.0 V 47.0 – 56.0 V
Regulation	– Input variation – Load variation (10–90 %)		0.1 % max. 0.5 % max.
Temperature coefficient			0.02 %/K
Hold-up time			20 ms min.
Start-up time			2 s max.
Ripple and Noise (20MHz bandwidth)		24 Vout models: 48 Vout models:	100 mVp-p max. 200 mVp-p max.
Output overvoltage protection (OVP) [2]		24 Vout models: 48 Vout models:	32 – 35 V 56 – 60 V
Power back immunity [3]			< OVP level
Operation	– Nominal operation – Peak power operation – Constant current (cc)		100 % of Iout nom. 105 – 150 % of Iout nom. > 155 % of Iout nom.
Duty cycle [4] (for peak and cc mode)	– Threshold – CC or peak opeartion timer – normal operation / off period		> 105 % 4 s max. (switch off) 10 s typ. (automatic restart after switch off or peak and cc operation timer reset)
Short circuit			Switch off after 4s delay, automatic restart
DC OK signal	– Threshold for Vout – DC ON – DC OFF	24 Vout models: 48 Vout models:	on: > 22.5 V typ., off: < 21.5 V typ. on: > 45 V typ., off: < 43 V typ. relay contact closed, 1 A max., < 100 mOhm (also indicated by green LEDs: front and side) relay contact open, 30 V max.

[1] Output voltage can be adjusted as indicated. However, output power has to be maintained at nominal value. This means the output nominal current has to be reduced in accordance with the increase of output voltage.

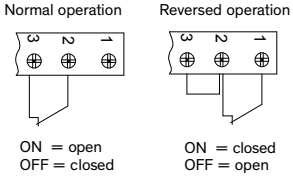
[2] In case of an internal error a second voltage regulation loop keeps the output voltage at a save level, the power supply turns off and restarts after typ. 10 seconds.

[3] 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.

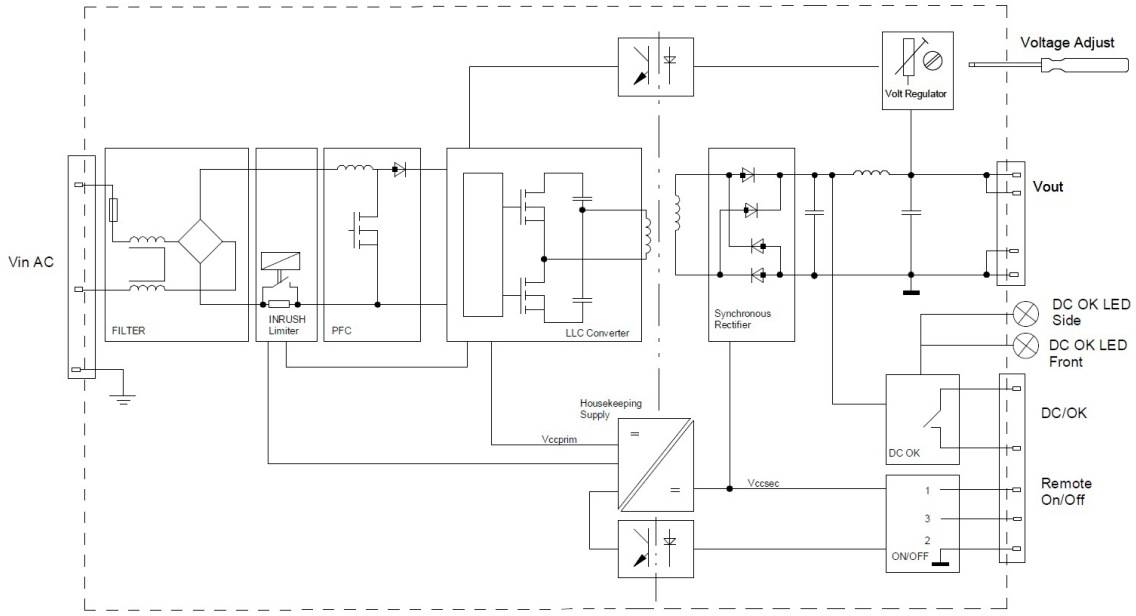
[4] In case of overload or short circuit, the unit switches the output voltage off after 4 seconds and tries to restart every typ. 10 seconds.

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

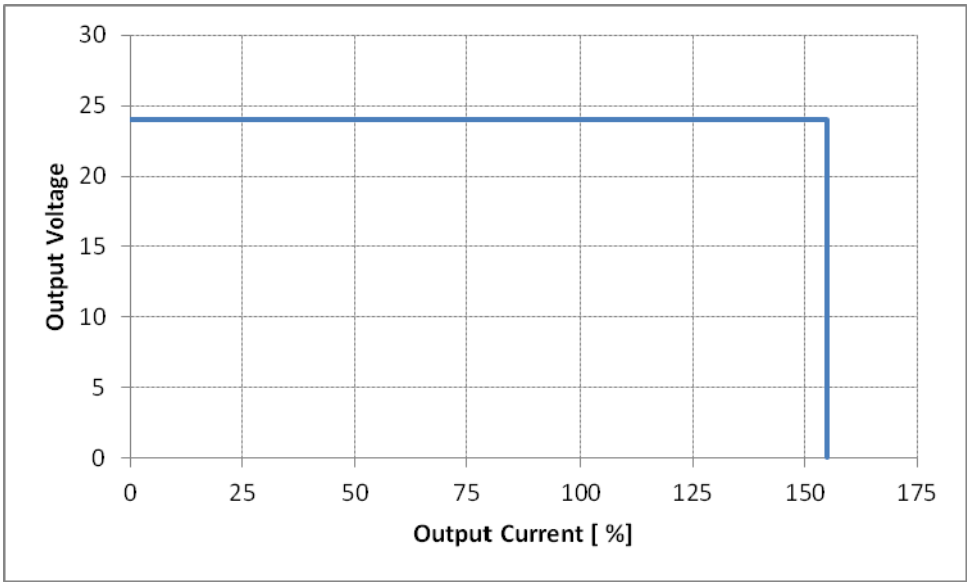
General Specifications

Operating temperature range			–40°C to +70°C max.
Derating		24 Vout models: 48 Vout models:	2 %/K above +60°C 1.4 %/K above +55°C
Cooling			convection cooling, no internal fan
Overtemperature protection			switch off at overtemperature
Humidity (non condensing)			5–95 % rel. H max.
Altitude during operation			2000 m max.
Isolation Voltage	– Input/Ouput – Input/Chassis – Ouput/Chassis		4250 VDC 1500 VDC 750 VDC
Creapage Clearance	– Input/Ouput – Input/Chassis – Output/Chassis		8 mm 4 mm 1.5 mm
MTBF (acc. to IEC 61709 at 25°C)			> 1'000'000 h
Safety standards	– Information technology equipment – Safety low voltage switchgear and controlgear – ATEX for hazardous location (EX models only) – UL HazLoc (EX models only) – Certification documents		IEC/EN 60950-1, UL 60950-1 CSA 22.2 No 60950-1-03 UL 508 EN 60079-0, EN 60079-7, EN 60079-15 (EX II3G Ex ec nC IIC GC) Class I, Division 2 www.tracopower.com/overview/tib
Electromagnetic compatibility (EMC), Emissions			EN 61000-6-3, EN 61204-3
	– Conducted emission input		EN 55032, EN 55011 class B
	– Radiated RI emission		EN 55032, EN 55011 class B
Electromagnetic compatibility (EMC), Immunity			EN 61000-6-2, EN 61204-3
	– Railway applications signalling apparatus		EN 50121-4
	– Railway applications rolling stock apparatus		EN 50121-3-2
	– Electrostatic discharge (ESD)		IEC/EN 61000-4-2 4 kV/8 kV criteria A
	– Radiated RF field immunity		IEC/EN 61000-4-3 10 V/m criteria A
	– Electrical fast transient / burst immunity		IEC/EN 61000-4-4 2 kV criteria B
	– Surge immunity		IEC/EN 61000-4-5 1 kV/2 kV criteria B
	– Immunity to conducted RF disturbances		IEC/EN 61000-4-6 10 V criteria A
	– Power frequency field immunity		IEC/EN 61000-4-8 30 A/m criteria A
	– Mains voltage dips and interruptions		IEC/EN 61000-4-11 criteria B/C
	– Voltage sag immunity		SEMI F47 (230 VAC) criteria A
Environment	– Railway applications shock and vibration only fulfilled with optional DIN Rail Clip TIB-RMK01 – Vibration acc. IEC 60068-2-6-3 – Shock acc. IEC 60068-2-27		according EN 61373 www.tracopower.com/products/tib-rmk01.pdf 3 axis, 2 g sine sweep, 10–55 Hz, 11 okt/min 3 axis, 25 g half sine, 11 ms
Enclosure material	– Chassis / Cover		aluminium / stainless steel
Mounting	– DIN-rail mounting		for DIN-rails as per EN 50022-35×15/7.5
Environmental compliance	– Reach – RoHS		www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU
Connection			screw terminals
Remote On/Off	– contact rating		The unit can be controlled by external relay contact or open collector signal. open: 15 V; leakage current max 100 µA close: 0.3 V; max drop at 15 mA
	– signal assignement		

Function Specification

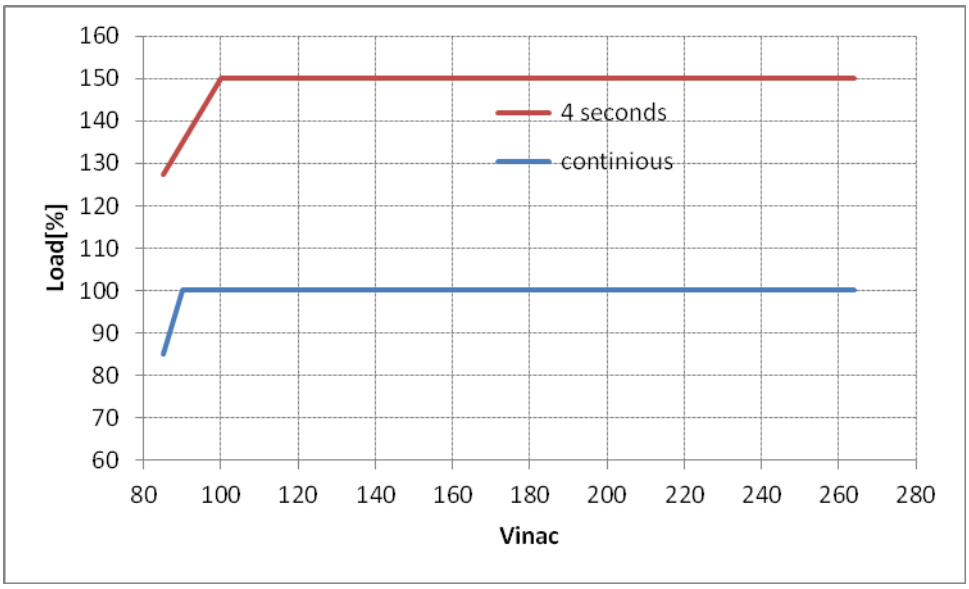


Output Characteristic

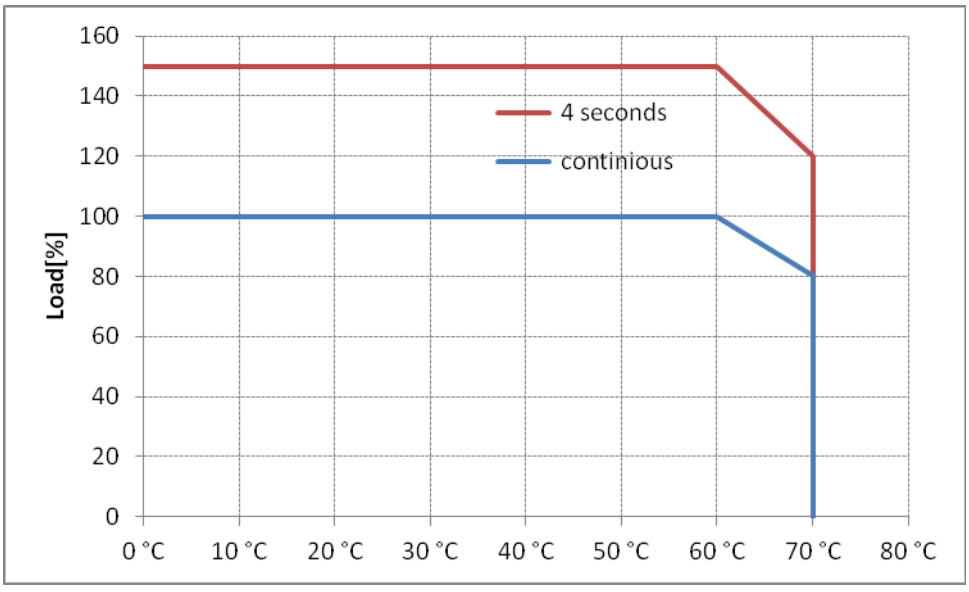


Characteristic: Output voltage vs output current for overload conditions until switch off after 4 s at nominal input voltages

Output Characteristic (continued)

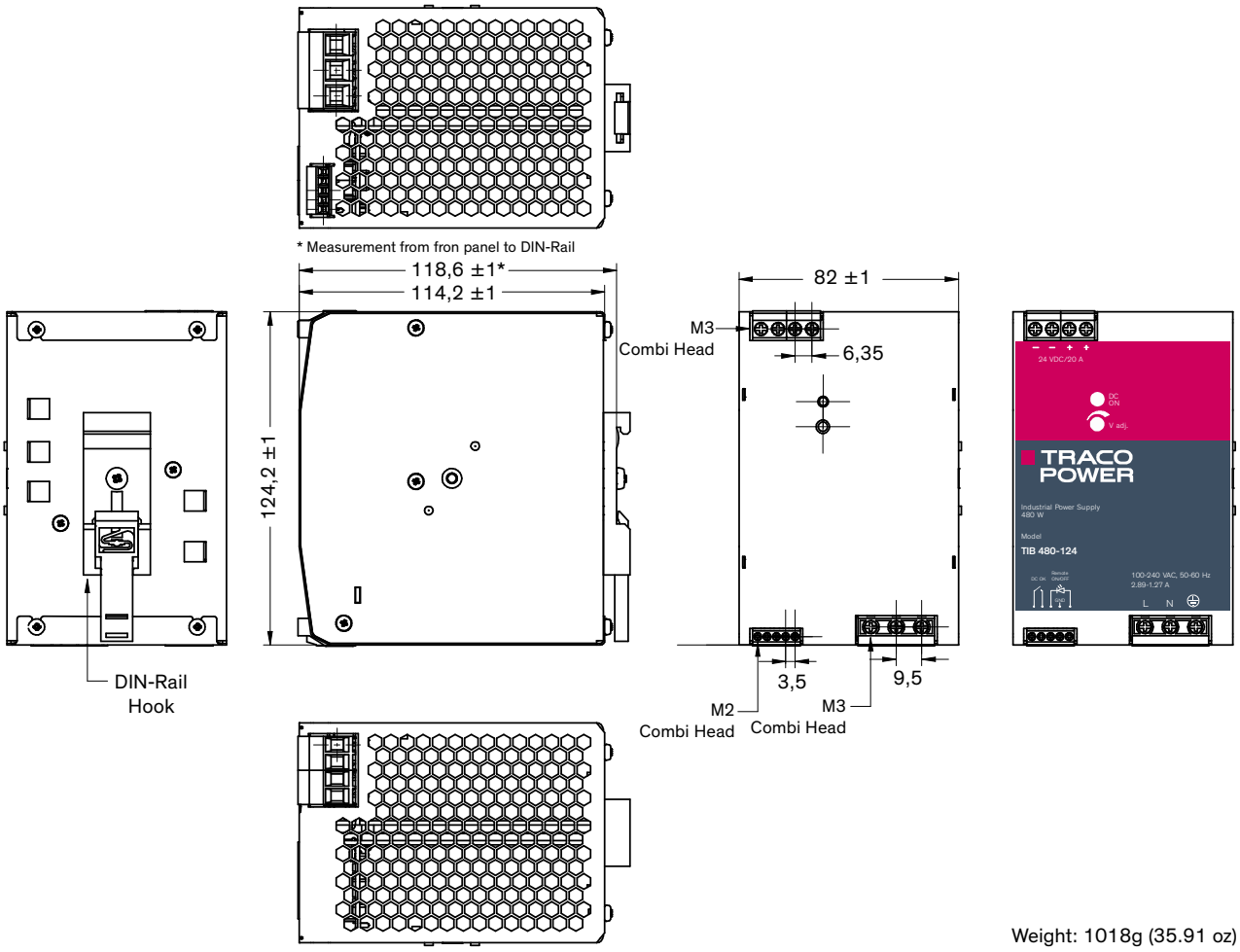


Derating: max load vs input voltage



Derating: Load vs ambient temperature

Outline Dimensions



Weight: 1018g (35.91 oz)

Alternative side mounting: