

#### **Industrial Power Supplies**

#### TIB 080 Series, 80 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 90%
- 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 warrenty for EX-models

















Other output power of same series:

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.)	Efficiency (typ.)
TIB 080-112	80 W	12 VDC (11.8-15.0)	6.7 A	88.0 %
TIB 080-112EX				
TIB 080-124	80 W	24 VDC (23.5-28.0)	3.4 A	90.0 %
TIB 080-124EX				
TIB 080-148	80 W	48 VDC (47.0-56.0)	1.7 A	90.0 %
TIB 080-148EX				

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Input Specification				
Input voltage	- nominal ranges		100 – 240 VAC	
	<ul> <li>effective ranges</li> </ul>		85 – 264 VAC (below 90 VAC a derating of 3%/V is required)	
Input voltage frequency			45 – 65 Hz	
Standby power cunsumption			<b>0.9/1.45 W</b> (115/230 VAC)	
Power Factor Correction (PFC)			<b>0.48/0.48</b> (115/230 VAC)	
Harmonic limits			class A	
Inrush current	acc, LIN 01000-0-2		15/30A max. (115/230 VAC)	
			13/30A max. (113/230 VAC)	
Output Specificati				
Output voltage adjustmer	it 1)	12 Vout models: 24 Vout models:	11.8 – 15.0 V 23.5 – 28.0 V	
		48 Vout models:		
Regulation	– Input variation		0.1 % max.	
regulation	<ul><li>Load variation (10–90 %)</li></ul>		0.5 % max.	
Temperature coefficient			0.02 %/K	
Hold-up time			<b>20/160</b> ms min. (115/230 VAC)	
Start-up time			2s max.	
Ripple and Noise (20MHz bandwidth)		12 & 24 Vout models:	100 mVp-p max.	
		48 Vout models:	200 mVp-p max.	
Output overvoltage protection (OVP) <sup>2)</sup>		12 Vout models:	16 – 19 V	
		24 Vout models: 48 Vout models:		
Davis a la alcinamo unito 3)		46 Vout models:	< OVP level	
Power back immunity 3)	Al I I I			
Operation	<ul><li>Nominal operation</li><li>Peak power operation</li></ul>		100 % of lout nom. 105 – 150 % of lout nom.	
	- Constant current (cc)		> 155 % of lout nom.	
Duty cycle <sup>4)</sup>	- Threshold		> 105 %	
(for peak and cc mode)	- CC or peak opeartion timer		4 s max. (switch off)	
	<ul><li>normal operation / off period</li></ul>		6 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	12 Vout models:	on: > 10.9 V typ., off: < 10.7 V typ.	
		24 Vout models: 48 Vout models:	on: > 22.5 V typ., off: < 21.5 V typ. on: > 45 V typ., off: < 43 V typ.	
	– DC ON	40 vout models:	relay contact closed, 1 A max., < 100 mOhn	
			(also indicated by green LEDs: front and side)	
	– DC OFF		relay contact open, 30 V max.	

<sup>1)</sup> 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.

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

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<sup>&</sup>lt;sup>2)</sup> 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. 6 seconds.

<sup>&</sup>lt;sup>3)</sup> 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.

<sup>&</sup>lt;sup>4)</sup> In case of overload or short circuit, the unit switches the output voltage off after 4 seconds and tries to restart every typ. 6 seconds.



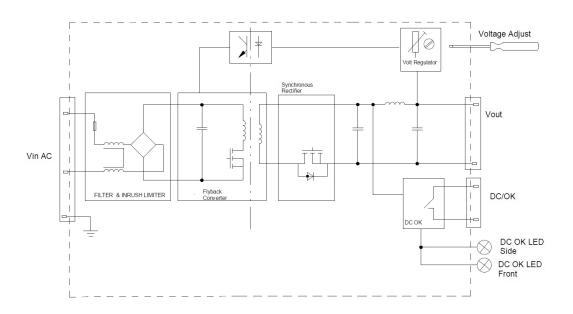


Operating temperature range		-40°C to +70°C max.		
Derating		2 %/K above +60°C		
Cooling		convection cooling, no internal fan		
Overtemperature protection		switch off at overtemperature		
Humidity (non condensing)		5–95 % rel. H max.		
Altitude during operation		2000 m max.		
Isolation Voltage	<ul><li>Input/Ouput</li><li>Input/Chassis</li><li>Ouput/Chassis</li></ul>	4250 VDC 1500 VDC 750 VDC		
Creepage Clearance	<ul><li>Input/Ouput</li><li>Input/Chassis</li><li>Output/Chassis</li></ul>	8 mm 4 mm 1.5 mm		
MTBF (acc. to IEC 61709 at 2	25°C)	> 1'950'000 h		
Safety standards	<ul> <li>Information technology equipment</li> <li>Safety low voltage switchgear and controlgear</li> <li>ATEX for hazardous location (EX models only)</li> <li>UL HazLoc (EX models only)</li> </ul>	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 II Ex ec nC IIC GC) Class I, Division 2		
Electromagnetic compatibi	ility (EMC), Emissions  - Conducted emission input  - Radiated RI emission	EN 61000-6-3, EN 61204-3 EN 55032, EN 55011 class B EN 55032, EN 55011 class B		
Electromagnetic compatibi	lity (EMC), Immunity  Railway applications signalling apparatus Railway applications rolling stock apparatus Electrostatic discharge (ESD) Radiated RF field immunity Electrical fast transient / burst immunity Surge immunity Immunity to conducted RF disturbances Power frequency field immunity Mains voltage dips and interruptions Voltage sag immunity	IEC/EN 61000-4-3 10 V/m control iEC/EN 61000-4-4 2 kV control iEC/EN 61000-4-5 1 kV/2 kV control iEC/EN 61000-4-6 10 V control iEC/EN 61000-4-8 30 A/m control iEC/EN 61000-4-11 control iEC/EN 61000-4-	riteria A riteria A riteria B riteria B riteria A riteria A riteria B/C riteria A	
Environment	Railway applications shock and vibration     Vibration acc. IEC 60068-2-6-3	according EN 61373 3 axis, 2 g sine sweep, 10-55 Hz, 11 okt/min 3 axis, 25 g half sine, 11 ms		
	- Shock acc. IEC 60068-2-27	- Units, 20 g half sine, 11 ms		
Enclosure material	- Shock acc. IEC 60068-2-27 - Chassis - Cover	aluminium stainless steel		
	- Chassis	aluminium	5/7.5	
Enclosure material  Mounting  Environmental compliance	<ul><li>Chassis</li><li>Cover</li><li>DIN-rail mounting</li></ul>	aluminium stainless steel	5/7.5	

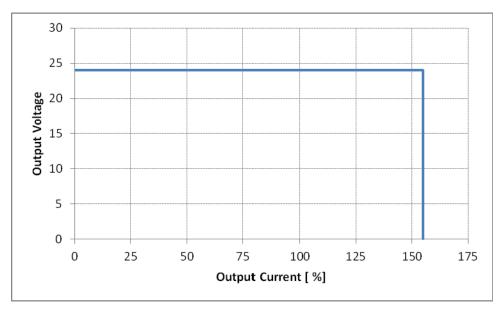
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## **Function Specification**



## **Output Characteristic**



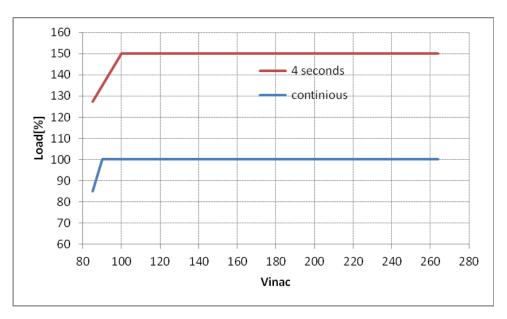
**Characteristic:** Output voltage vs output current for overload conditions until switch off after 4 s at nominal input voltages

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

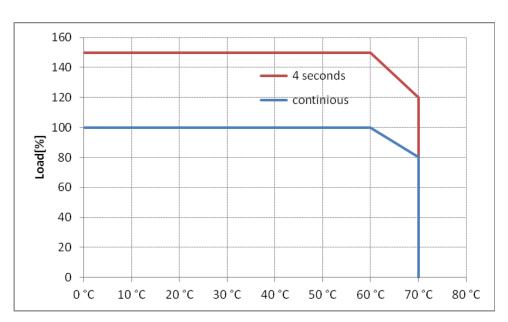
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# Output Characteristic (continued)



**Derating:** max load vs input voltage



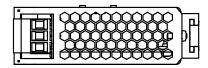
**Derating:** Load vs ambient temperature

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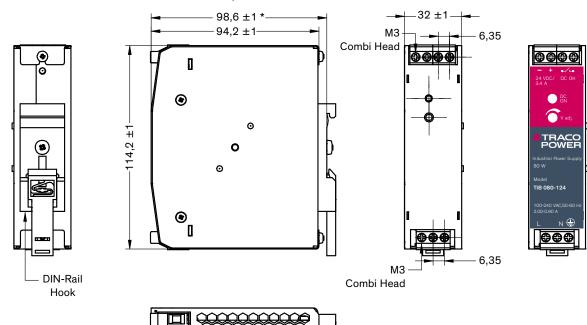
Weight: 367g (12.95 oz)



## **Outline Dimensions**



\* Measurement from fron panel to DIN-Rail



#### Alternative side mounting:

