

AC/DC Industrial Power Supply

TBLC 50 Series, 50 Watt

- High power density in low profile case, module depth < 55 mm
- Suitable for mounting in domestic installation panels
- Very high efficiency and low standby power -> compliance to ECO-Standard
- Low output ripples and spikes
- Suitable for household appliance and industrial application
- For distributed power
- Operating temperature range: -25°C to +70°C
- UL 508 listed
- UL 1310 class II, NEC class 2 compliance
- 3-year product warranty



UL 508 UL 60950-1 IEC 60335-1
IEC 60950-1

This new DIN-Rail mounting power supplies are designed for industrial and residential applications. They are lower cost than the existing TBL range, with similar electrical specifications. Additionally, they fully comply to the new standby power and efficiency requirements (ECO Standard). They are intended for connecting as class II devices, so the safety earth connection is not required. They are mountable in flat racks due to their small dimensions in depth. Their dimensions comply to the DIN 43880 standard.

Models				
Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TBLC 50-112	48 W	12 VDC (12.0 - 16.0 VDC)	4'000 mA	88 %
TBLC 50-124	50 W	24 VDC (24.0 - 28.0 VDC)	2'100 mA	89 %

Input Specifications

Input Voltage	Operational Range: 85 - 264 VAC (Full Range) Rated Range: 100 - 240 VAC (Full Range)
Input Frequency	Operational Range: 47 - 63 Hz Certified: 50/60 Hz
Power Consumption	- No load & $V_{in} = 230$ VAC - No load & $V_{in} = 115$ VAC 300 mW max. (Ready to meet ErP directive) 300 mW max.
Input Inrush Current	- At 230 VAC - At 115 VAC 30 A max. 15 A max.
Input Protection	T 2 A / 250 VAC (Internal Fuse in L)
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: 12.0 - 16.0 VDC 24 VDC model: 24.0 - 28.0 VDC (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy	±0.5% max.
Regulation	- Input Variation ($V_{min} - V_{max}$) - Load Variation (10 - 90%) 0.3% max. 0.3% max.
Ripple and Noise (20 MHz Bandwidth)	50 mVp-p max.
Minimum Load	Not required
Temperature Coefficient	±0.02 %/K max.
Hold-up Time	- At 230 VAC - At 115 VAC 60 ms min. 15 ms min.
Start-up Time	- At 230 VAC - At 115 VAC 1'000 ms max. 1'000 ms max.
Short Circuit Protection	Continuous, Automatic recovery 120 - 200% of $I_{out\ nom.}$
Overload Protection	Constant Current Mode
Output Current Limitation	105 - 130% of $I_{out\ max.}$
Overvoltage Protection	125 - 150% of $V_{out\ nom.}$
Transient Response	- Peak Variation - Response Time 700 mV max. (10% to 90% Load Step) 5'000 µs typ. (10% to 90% Load Step)

Safety Specifications

Standards	- IT / Multimedia Equipment - Industrial Control Equipment - Household - Machines Equipment - Power Installation - Measurement, Control & Lab. - Power Transformers - Converter System - Certification Documents	EN 60950-1 IEC 60950-1 UL 60950-1 UL 508 EN 60335-1 IEC 60335-1 EN 60204 EN 50178 EN 61010-1 EN 61010-2-201 IEC 61010-1 IEC 61010-2-201 EN 61558-2-8 EN 61558-2-16 EN 62477 IEC 62477 www.tracopower.com/overview/tbhc50
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All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

Protection Class	Class I & II (Prepared): Reinforced Insulation
Class 2 Power Units	UL 1310 NEC Class 2
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)
- Conducted Emissions	EN 55011 class A (internal filter) EN 55011 class B (internal filter) EN 55014-1 (internal filter) EN 55032 class A (internal filter) EN 55032 class B (internal filter)
- Radiated Emissions	EN 55011 class A (internal filter) EN 55011 class B (internal filter) EN 55014-1 (internal filter) EN 55032 class A (internal filter) EN 55032 class B (internal filter)
- Harmonic Current Emissions	EN 61000-3-2, class A
EMS (Immunity)	EN 61000-6-2 (Generic Industrial) EN 61204-3 (Low Voltage Power Supplies)
- Electrostatic Discharge	Air: EN 61000-4-2, ± 8 kV, perf. criteria B Contact: EN 61000-4-2, ± 4 kV, perf. criteria B
- 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 A 60%, 10 periods, perf. criteria B >95%, 1 period, perf. criteria A 115 VAC / 60 Hz: EN 61000-4-11 30%, 25 periods, perf. criteria B 60%, 10 periods, perf. criteria B >95%, 1 period, perf. criteria B
- Voltage Sag Immunity	SEMI F47, criteria A
EMC / Environmental	- Certification Documents www.tracopower.com/overview/tblc50

General Specifications

Relative Humidity	95% max. (non condensing)
Temperature Ranges	- Operating Temperature: -25°C to +70°C - Case Temperature: +70°C max. - Storage Temperature: -40°C to +85°C
Power Derating	- High Temperature: 2.5 %/K above 55°C - Low Input Voltage: 2 %/V below 100 VAC
Cooling System	Natural convection (20 LFM)
Altitude During Operation	4'800 m max. (Lower altitude required for IEC61558-1 & 60335 of 3000 m)
Regulator Topology	Flyback Converter
Switching Frequency	80 - 105 kHz (PWM)
Insulation System	Reinforced Insulation
Isolation Test Voltage	- Input to Output, 60 s: 3'000 VAC
Creepage	- Input to Output: 5 mm min.

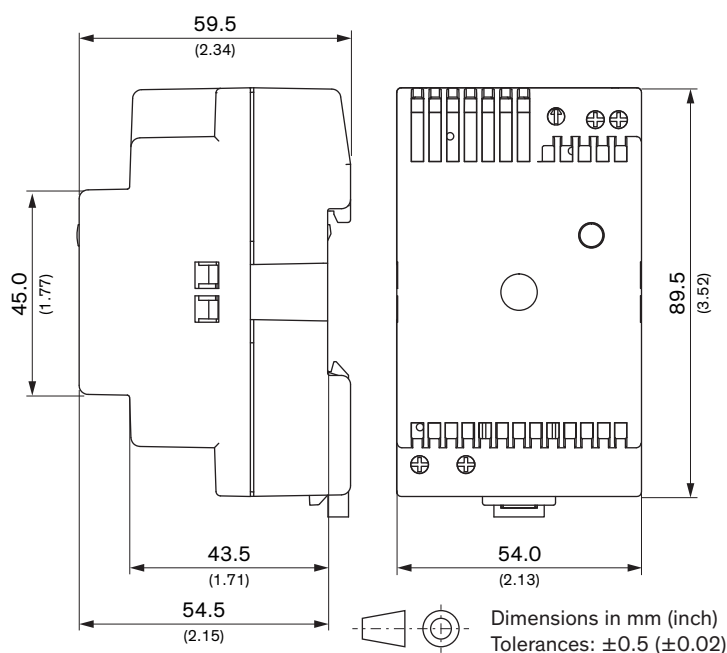
All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

Clearance	- Input to Output	4.6 mm min.
Leakage Current	- Touch Current	250 μ A max.
Reliability	- Calculated MTBF	1'900'000 h (IEC 61709)
Environment	- Vibration	IEC 60068-2-6 2 g, 3 axis, sine sweep, 3x60 min, 10-150 Hz
	- Mechanical Shock	IEC 60068-2-27 30 g, 3 axis, half sine, 11 ms
Case Ingress Protection		IP 20 (acc. IEC 60529)
Housing Material		Plastic (UL 94 V-2 rated)
Housing Type		Plastic Case
Mounting Type		DIN-Rail Mount (EN 60715 - 35x7.5mm/35x15mm)
Connection Type		Screw Terminal
Weight		180 g
Thermal Impedance	- Case to Ambient	1.42 K/W typ.
Status Indicator		Indicated by green LED
Environmental Compliance	- REACH Declaration	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7(a), 7(c)-I (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)
	- SCIP Reference Number	e3d192c9-0dc3-454c-adb3-c1615c03e807

Additional Information

Supporting Documents	www.tracopower.com/overview/tbhc50
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf

Outline Dimensions



Wiring		
Description	Wire size	Torque
AC Input all models: L, N only (2 pin terminal)	AWG 20 - 14 0.5 - 2.5 mm ² max.	0.5 Nm
DC Output single terminal	AWG 20 - 14 0.5 - 2.5 mm ² max.	0.5 Nm