

- 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
- 3-year product warranty



UL 508 UL 60950-1 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 90-112	90 W	12 VDC (12.0 - 16.0 VDC)	7'500 mA	90 %
TBLC 90-124		24 VDC (24.0 - 28.0 VDC)	3'750 mA	90 %

Input Specifications

Input Voltage	85 - 264 VAC (Full Range)
Input Frequency	47 - 63 Hz
Power Consumption	- At no load 500 mW max. (Ready to meet ErP directive)
Input Inrush Current	- At 230 VAC 50 A max. - At 115 VAC 25 A max.
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!
Regulation	- Input Variation (Vmin - Vmax) 0.3% max. - Load Variation (10 - 90%) 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 60 ms min. - At 115 VAC 15 ms min.
Start-up Time	- At 230 VAC 1'000 ms max. - At 115 VAC 1'000 ms max.
Short Circuit Protection	Continuous, Automatic recovery 70 - 90% of Iout nom. (12 Vout model) 120 - 200% of Iout nom. (24 Vout model)
Overload Protection	Foldback Mode
Output Current Limitation	105 - 130% of Iout max.
Overvoltage Protection	125 - 150% of Vout nom.
Transient Response	- Peak Variation 400 mV max. (10% to 90% Load Step) - Response Time 1000 µs typ. (10% to 90% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment EN 60950-1 IEC 60950-1 UL 60950-1 - Industrial Control Equipment UL 508 - Household EN 60335-1 IEC 60335-1 - Machines Equipment EN 60204 - Power Installation EN 50178 - Measurement, Control & Lab. EN 61010-1 (pending) - Power Transformers EN 61558-2-8 EN 61558-2-16 - Converter System EN 62477 IEC 62477 - Certification Documents www.tracopower.com/overview/tbhc90
Protection Class	Class II (Prepared): Reinforced Insulation
Pollution Degree	PD 2
Over Voltage Category	OVC II

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

EMC Specifications

EMI Emissions		EN 61000-6-3 (Generic Residential)
		EN 61204-3 (Low Voltage Power Supplies)
- Conducted Emissions		EN 55011 class B (internal filter)
		EN 55014-1 (internal filter)
		EN 55032 class B (internal filter)
- Radiated Emissions		EN 55011 class B (internal filter)
		EN 55014-1 (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

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges		-25°C to +70°C
	- Operating Temperature	+70°C max.
	- Case Temperature	-40°C to +85°C
	- Storage Temperature	
Power Derating		2.5 %/K above 55°C
	- High Temperature	2 %/V below 100 VAC
	- Low Input Voltage	
Cooling System		Natural convection (20 LFM)
Altitude During Operation		5'000 m max. (Lower altitude required for IEC61558-1 & 60335 of 3000 m)
Switching Frequency		60 - 87 kHz (PWM)
Insulation System		Reinforced Insulation
Isolation Test Voltage		3'000 VAC
	- Input to Output, 60 s	
Creepage		4.5 mm min.
	- Input to Output	
Clearance		3.7 mm min.
	- Input to Output	
Leakage Current		250 μ A max.
	- Touch Current	
Reliability		1'900'000 h (IEC 61709)
	- Calculated MTBF	
Environment		IEC 60068-2-6
	- Vibration	2 g, 3 axis, sine sweep, 3x60 min, 10-150 Hz
		IEC 60068-2-27
	- Mechanical Shock	30 g, 3 axis, half sine, 11 ms
Case Ingress Protection		IP 20 (acc. IEC 60529)
Housing Material		Plastic (UL 94 V-2 rated)
Connection Type		Screw Terminal
Mounting		For DIN-rails as per EN 50022 (snap-on with self locking spring) (included)
	- DIN Rail	
Weight		280 g

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

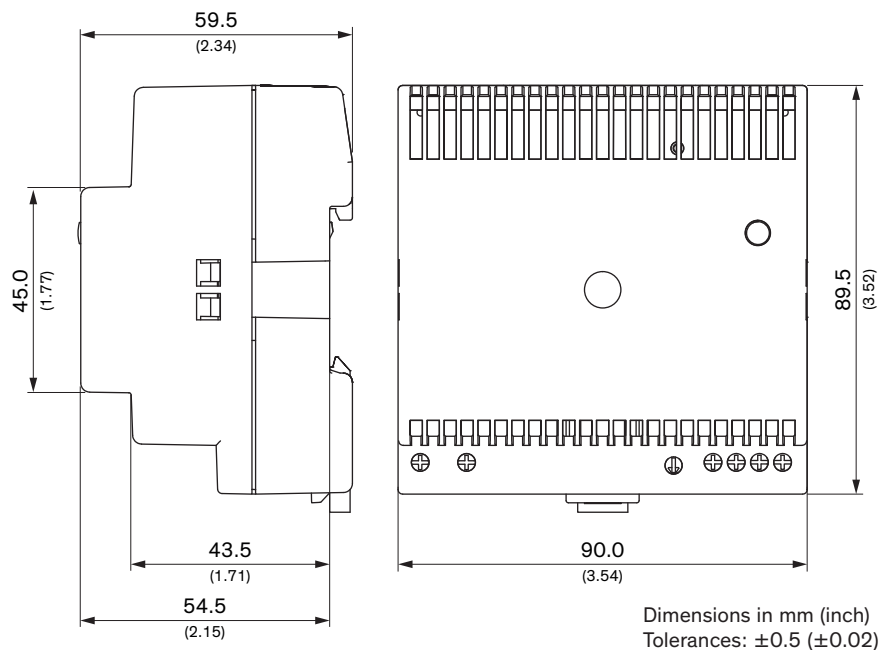
Thermal Impedance	1.8 K/W
Status Indicator	Indicated by green LED
Environmental Compliance	- Reach www.tracopower.com/info/reach-declaration.pdf - RoHS www.tracopower.com/info/rohs-declaration.pdf

Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/tbhc90

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 double terminal	AWG 20 - 14 0.5 - 2.5 mm ² max.	0.5 Nm