

- 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



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	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 500 mW max. (Ready to meet ErP directive) 500 mW max.
Input Inrush Current	- At 230 VAC - At 115 VAC 50 A max. 25 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 70 - 90% of $I_{out\ nom.}$ (12 Vout model) 120 - 200% of $I_{out\ nom.}$ (24 Vout model)
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 400 mV max. (10% to 90% Load Step) 1'000 µs typ. (10% to 90% Load Step)

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

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/tbhc90
Protection Class	Class I & II (Prepared): Reinforced Insulation See application note: www.tracopower.com/info/protection-class.pdf	
Class 2 Power Units	UL 1310 (24 Vout model only)	
Pollution Degree	PD 2	
Over Voltage Category	OVC II	

EMC Specifications

EMI (Emissions)	- Conducted Emissions - Radiated Emissions - Harmonic Current Emissions	EN 61000-6-3 (Generic Residential) EN 61204-3 (Low Voltage Power Supplies) 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) 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) EN 61000-3-2, class A
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All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

EMS (Immunity)		EN 61000-6-2 (Generic Industrial)
		EN 61204-3 (Low Voltage Power Supplies)
- Electrostatic Discharge - RF Electromagnetic Field - EFT (Burst) / Surge - Conducted RF Disturbances - PF Magnetic Field - Voltage Dips & Interruptions - Voltage Sag Immunity	Air:	EN 61000-4-2, ± 8 kV, perf. criteria B
	Contact:	EN 61000-4-2, ± 4 kV, perf. criteria B
		EN 61000-4-3, 10 V/m, perf. criteria A
		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
		EN 61000-4-6, 10 Vrms, perf. criteria A
	Continuous:	EN 61000-4-8, 30 A/m, perf. criteria A
	230 VAC / 50 Hz:	EN 61000-4-11
		30%, 25 periods, perf. criteria A
EMC / Environmental		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
		SEMI F47, criteria A
		www.tracopower.com/overview/tbhc90

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		5'000 m max. (Lower altitude required for IEC61558-1 & 60335 of 3000 m)
Regulator Topology		Flyback Converter
Switching Frequency		60 - 87 kHz (PWM)
Insulation System		Reinforced Insulation
Isolation Test Voltage	- Input to Output, 60 s	3'000 VAC
Creepage	- Input to Output	4.5 mm min.
Clearance	- Input to Output	3.7 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		280 g
Thermal Impedance	- Case to Ambient	1.8 K/W typ.
Status Indicator		Indicated by green LED

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Environmental Compliance - REACH Declaration

www.tracopower.com/info/reach-declaration.pdf

- RoHS Declaration

REACH SVHC list compliant

REACH Annex XVII compliant

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

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Additional Information

Supporting Documents

www.tracopower.com/overview/tbhc90

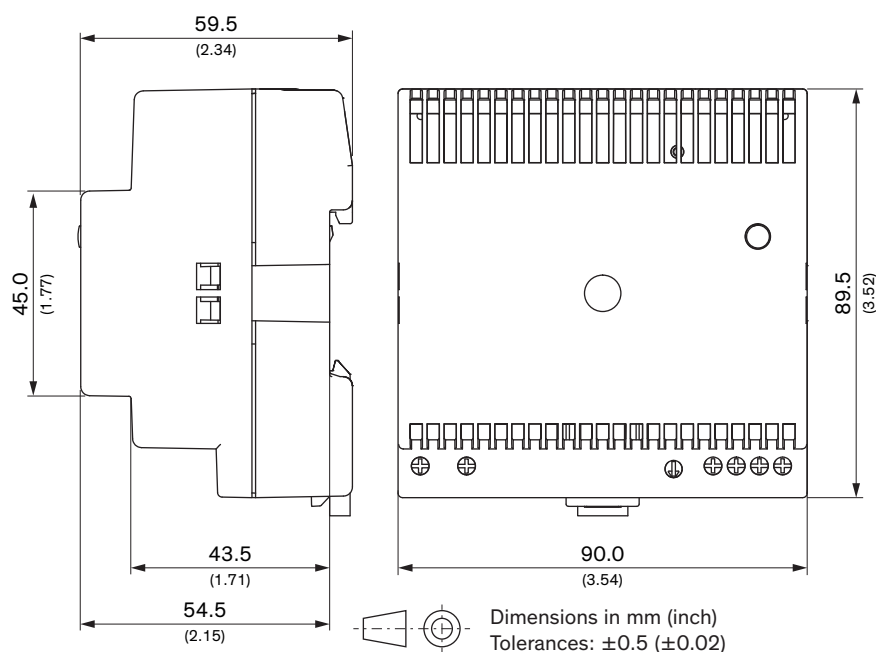
Frequently Asked Questions

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