

- 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



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

### Safety Specifications

Safety 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  <a href="http://www.tracopower.com/overview/tbhc50">www.tracopower.com/overview/tbhc50</a>
Protection Class		<b>Class I &amp; II (Prepared): Reinforced Insulation</b>

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

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 B (internal filter) EN 55014-1 (internal filter)
- Radiated Emissions	EN 55032 class B (internal filter) 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, $\pm 8$ kV, perf. criteria B Contact: EN 61000-4-2, $\pm 4$ kV, perf. criteria B
- RF Electromagnetic Field	EN 61000-4-3, 10 V/m, perf. criteria A
- EFT (Burst) / Surge	EN 61000-4-4, $\pm 2$ kV, perf. criteria B L to L: EN 61000-4-5, $\pm 1$ kV, perf. criteria B L to PE: EN 61000-4-5, $\pm 2$ 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	- Operating Temperature: $-25^{\circ}\text{C}$ to $+70^{\circ}\text{C}$ - Case Temperature: $+70^{\circ}\text{C}$ max. - Storage Temperature: $-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$
Power Derating	- High Temperature: 2.5 %/K above $55^{\circ}\text{C}$ - 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)
Switching Frequency	80 - 105 kHz (PWM)
Insulation System	Reinforced Insulation
Isolation Test Voltage	3'000 VAC
Creepage	5 mm min.
Clearance	4.6 mm min.
Leakage Current	250 $\mu\text{A}$ max.
Reliability	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)

All specifications valid at nominal voltage, resistive full load and  $+25^{\circ}\text{C}$  after warm-up time, unless otherwise stated.

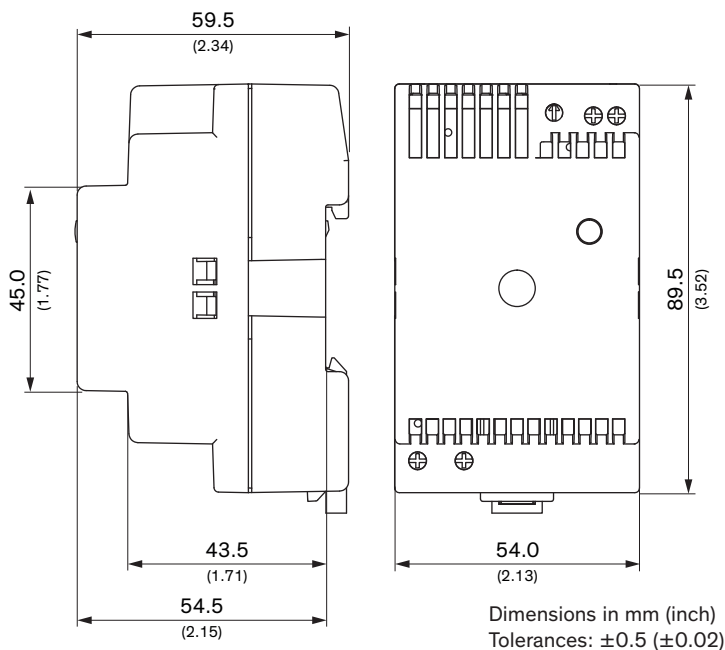
Housing Material	Plastic (UL 94 V-2 rated)
Housing Type	Plastic Case
Mounting Type	DIN-Rail Mount (EN 60715 - 35x7.5mm/35x15mm)
Connection Type	Screw Terminal
Weight	180 g
Thermal Impedance - Case to Ambient	1.42 K/W typ.
Status Indicator	Indicated by green LED
Environmental Compliance - REACH Declaration	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a> REACH SVHC list compliant REACH Annex XVII compliant
- RoHS Declaration	<a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> Exemptions: 7a, 7c-I (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)

### Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/tbhc50](http://www.tracopower.com/overview/tbhc50)

### Outline Dimensions



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