TRACO POWER

AC/DC Industrial Power Supply

TBLC 25 Series, 25 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 25-105	20 W	5 VDC (5.0 - 5.5 VDC)	4'000 mA	82 %
TBLC 25-112	24 W	12 VDC (12.0 - 16.0 VDC)	2'000 mA	86 %
TBLC 25-124	25 W	24 VDC (24.0 - 28.0 VDC)	1'050 mA	87 %

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 & Vin = 230 VAC		300 mW max. (Ready to meet ErP directive)
	- No load & Vin = 115 VAC		300 mW max.
Input Inrush Current	- At 230 VAC		30 A max.
	- At 115 VAC		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		5 VDC model:	5.0 - 5.5 VDC
		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			±1% max.
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
			120 - 200% of Iout nom.
Overload Protection			Constant Current 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		2'000 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		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
			EN 61010-2-201
			IEC 61010-1
			IEC 61010-2-201
	- Power Transformers		EN 61558-2-8
			EN 61558-2-16
	- Converter System		EN 62477
			IEC 62477
	- Certification Documents		www.tracopower.com/overview/tblc25
Protection Class			Class I & II (Prepared): Reinforced Insulation
		See application note:	www.tracopower.com/info/protection-class.pdf
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 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 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/tblc25

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

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		50 - 125 kHz (PWM)
Insulation System		Reinforced Insulation
Isolation Test Voltage	- Input to Output, 60 s	3'000 VAC
Creepage	- Input to Output	7.1 mm min.
Clearance	- Input to Output	7.1 mm min.
Leakage Current	- Touch Current	250 µA 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		110 g
Thermal Impedance	- Case to Ambient	4.7 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	e9eb8adf-2436-4632-a75c-b8a77eb433d6

Additional Information

Supporting Documents	www.tracopower.com/overview/tblc25
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf

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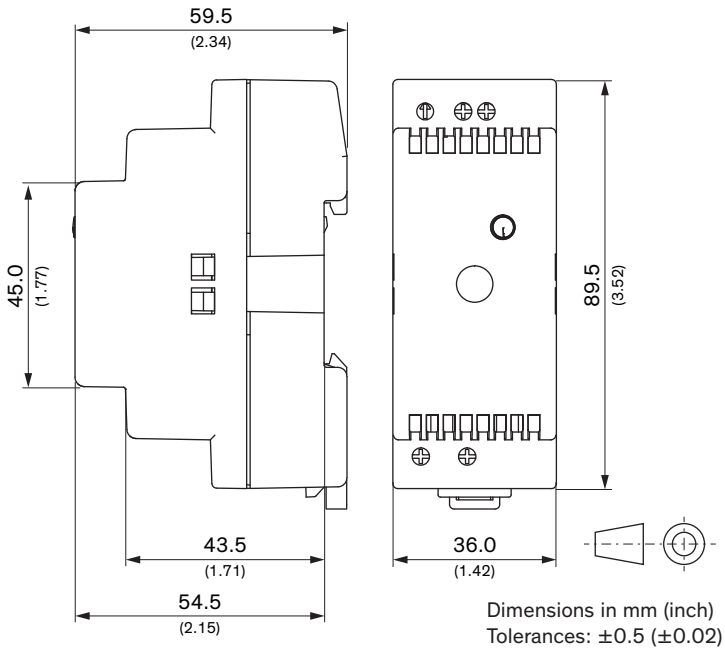
Outline Dimensions



Dimensions in mm (inch)
Tolerances: ±0.5 (±0.02)

Wiring		
Description	**Wire size**	**Torque**
AC Input all models: L, N only (2 pin terminal)	AWG 20 - 14 0.5 - 2.5 mm² max.	0.5 Nm
DC Output single terminal	AWG 20 - 14 0.5 - 2.5 mm² max.	0.5 Nm