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TRACO POWER

Industrial Power Supplies

TSL Series 30 - 480 Watt

Features

- Easy snap-on mounting on DIN-Rails
- Universal Input 93–264 VAC, 50/60 Hz
- Standard Models with 12, 24 and 48 VDC
- Output Voltage adjustable
- Low Output Ripple and Noise
- High Efficiency
- Overload Protection
- Parallel Operation possible
- CE Compliance to European EMC and Low Voltage Directive
- Compliance to EN 61000-3-2 (PFHC)
- Conducted Emissions to EN55011, Class B and FCC Part 15, Level B
- Noise Immunity to EN 50082-2
- Safety Approvals to IEC 60950, EN 60950 (SELV), UL/cUL 1950, UL 508
- 3 Year Product Warranty

This product is end of life
For details see www.tracopower.com/overview/tsl

end of life



This range of compact switching power supplies has been designed for applications in harsh industrial environments. With excellent electrical specifications and a high immunity against electrical disturbances they provide a reliable power source for sensitive loads in industrial process control equipments, machine tools or other electronic equipment exposed to difficult factory floor conditions. Adjustable output voltage and constant current regulation make these power supplies also suitable for battery charger applications.

Models

Ordercode	Input Voltage range	Output Power max.	Output Voltage nom.	Output Current max.
TSL 030-112 **TSL 030-124**	93-264 VAC Universal input	30 W	**12 VDC** **24 VDC**	**2.5 A** **1.25 A**
TSL 060-112 **TSL 060-124**	93-264 VAC Universal input	60 W	**12 VDC** **24 VDC**	**5.0 A** **2.5 A**
***TSL 120-124 (P)** ***TSL 120-148 (P)**	93-132 VAC / 187-264 VAC Autorange	120 W	**24 VDC** **48 VDC**	**5.0 A** **2.5 A**
***TSL 240-124 (P)** ***TSL 240-148 (P)**	93-132 VAC / 187-264 VAC Autorange	240 W	**24 VDC** **48 VDC**	**10 A** **5.0 A**
***TSL 480-124 (P)** ***TSL 480-148 (P)**	93-132 VAC / 187-264 VAC Autorange	480 W	**24 VDC** **48 VDC**	**20 A** **10 A**

*If compliance to EN61000-3-2 (PFHC/Power Factor Harmonic Current) is required option P is available for these models.

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Input Specifications

Input voltage range	– TSL 030, TSL 060	93 – 264 VAC
	– TSL 120 … TSL 480	93 – 132 VAC / 187 – 264 VAC
Input frequency		47 – 63 Hz

Input current at full load (typ.)	115 VAC	230 VAC
– TSL 030	0.5 A	0.3 A
– TSL 060	1.1 A	0.65 A
– TSL 120	1.9 A	1.2 A
– TSL 240	3.5 A	1.7 A
– TSL 480	7.2 A	3.5 A

Inrush current (< 2 ms)	115 VAC	230 VAC
– TSL 030	< 17.5 A	< 35 A
– TSL 060	< 24 A	< 48 A
– TSL 120	< 24 A	< 48 A
– TSL 240	< 35 A	< 69 A
– TSL 480	< 33 A	< 65 A

Output Specifications

Output voltage adj. range	– 12 VDC models	12 – 14 VDC
	– 24 VDC models	24 – 28 VDC
	– 48 VDC models	48 – 52 VDC
		48 – 55 VDC on request (Option-BC)
Regulation	– Input variation	± 0.2 % max.
	– Load variation (10–90%)	± 0.3 % max. (± 1.5 % in parallel operation)
Ripple and Noise (20MHz Bandwidth)		< 50 mV pk-pk
Electronic short circuit protection		current limitation at 110 % typ. (constant current, automatic restart)
Parallel operation User selectable standard operation mode or parallel operation mode (see TSL instruction manual)		5 units max.
Overvoltage protection, triggerpoint at		140 % typ. Vout nom.

Hold-up time	115 VAC	230 VAC
– TSL 030 … TSL 120	min. 25 ms	min. 30 ms
– TSL 240	min. 20 ms	min. 40 ms
– TSL 480	min. 15 ms	min. 25 ms

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

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General Specifications

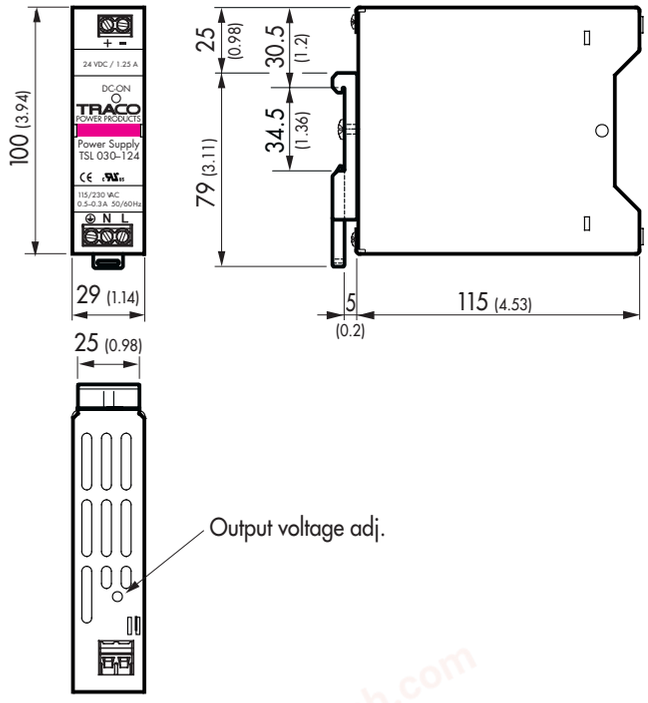
Temperature ranges	– Operating	– 25 °C...+70 °C ambient temp. max.
	– Derating above 60 °C	2% /°C
	– Storage (non operating)	– 25 °C...+ 85 °C
Humidity (non condensing)		95 % rel H max.
Temperature coefficient		0.02 % / °C
Switching frequency		80 kHz typ. (Pulswidth modulation)
Efficiency	– TSL 030 ... TSL 120	85 % typ.
	– TSL 240	90 % typ.
	– TSL 480	88 % typ.
Isolation		according to EN 60950, UL 1950, UL 508C
Reliability, calculated MTBF (MIL-HDBK-217E)	– TSL 030/ 060	516000 h @ 35°C /500000 h @ 35°C
	– TSL 120/ 240	447000 h @ 35°C /365000 h @ 35°C
	– TSL 480	287000 h @ 35°C
Safety standards		IEC 60950, EN 60950 (SELV), UL/cUL 1950, UL 508C
Safety approvals		UL/cUL 1950 recognized, File E181381 UL 508 C listed, File E210002 CB-Scheme
Electromagnetic compatibility (EMC), Emissions – Conducted RI suppression		EN 50081-1 / EN 50081-2 EN 55011 class B, EN 55022 class B, FCC part 15, level B
120W – 480W models with option P – Harmonic current emissions (PFHC)		EN 61000-3-2, Class A EN 61000-3-2, Class D (50% – 100% load)
Electromagnetic compatibility (EMC), Immunity		EN 50082-2
– Electrostatic discharge (ESD)		IEC / EN 61000-4-2 4 kV / 8 kV
– Radiated RF field immunity		IEC / EN 61000-4-3 10 V / m
– Electrical fast transient / burst immunity		IEC / EN 61000-4-4 2 kV
– Surge immunity		IEC / EN 61000-4-5 2 kV / 4 kV
– Immunity to conducted RF disturbances		IEC / EN 61000-4-6 10 V
– Power frequency field immunity		IEC / EN 61000-4-8 30 A / m
Safety class		Degree of Protection 1 (IEC 536)
Case protection		IP 20 (IEC 529)
Enclosure material		Steel / Aluminium
Mounting (snap-on with selflocking spring)		35 mm DIN-rails as per EN 50022
Connection		Screw terminals (60 – 480 W models with double terminals for output)

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

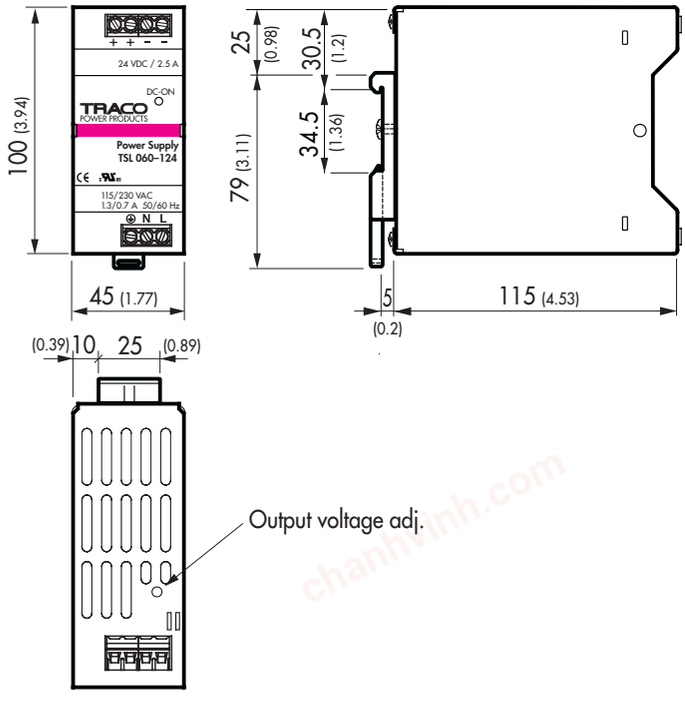
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Outline Dimensions mm (inches)

TSL 030



TSL 060



Weight:

TSL 030	310 g (0.68 lb)
TSL 060	400 g (0.88 lb)

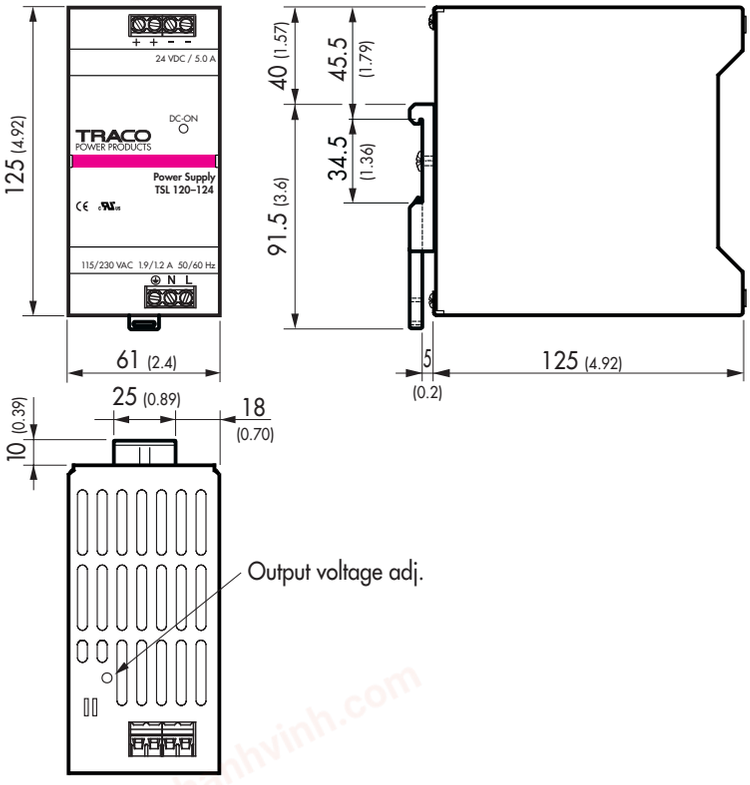
Tolerances: ±0.5 mm (±0.02)

Specifications can be changed without notice

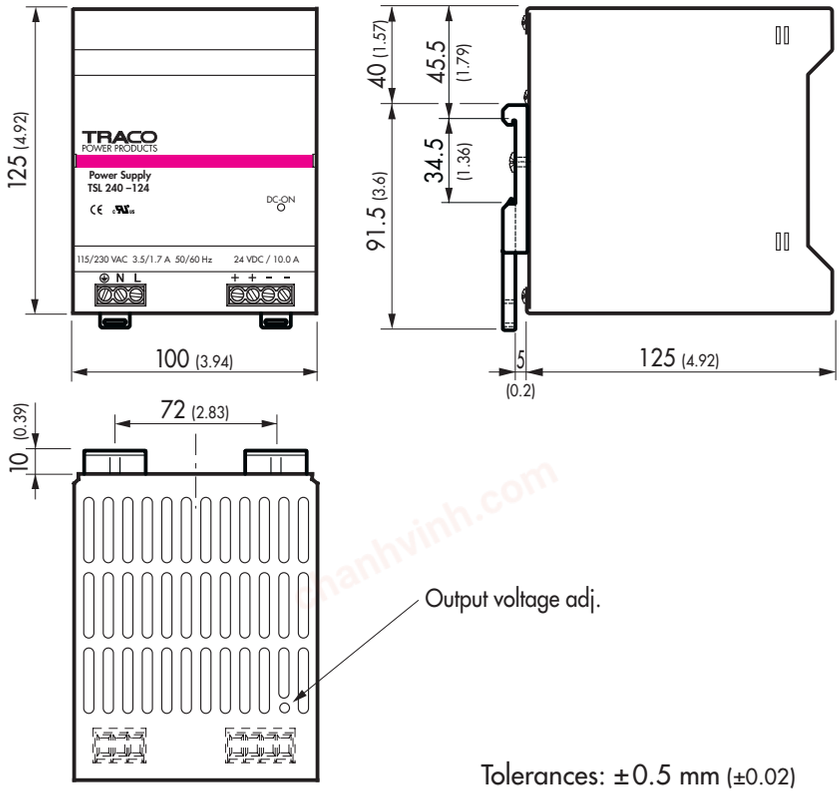
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Outline Dimensions mm (inches)

TSL 120



TSL 240



Weight:

TSL 120	720 g (1.59 lb)
TSL 120P	900 g (1.98 lb)
TSL 240	1020 g (2.25 lb)
TSL 240P	1350 g (2.98 lb)

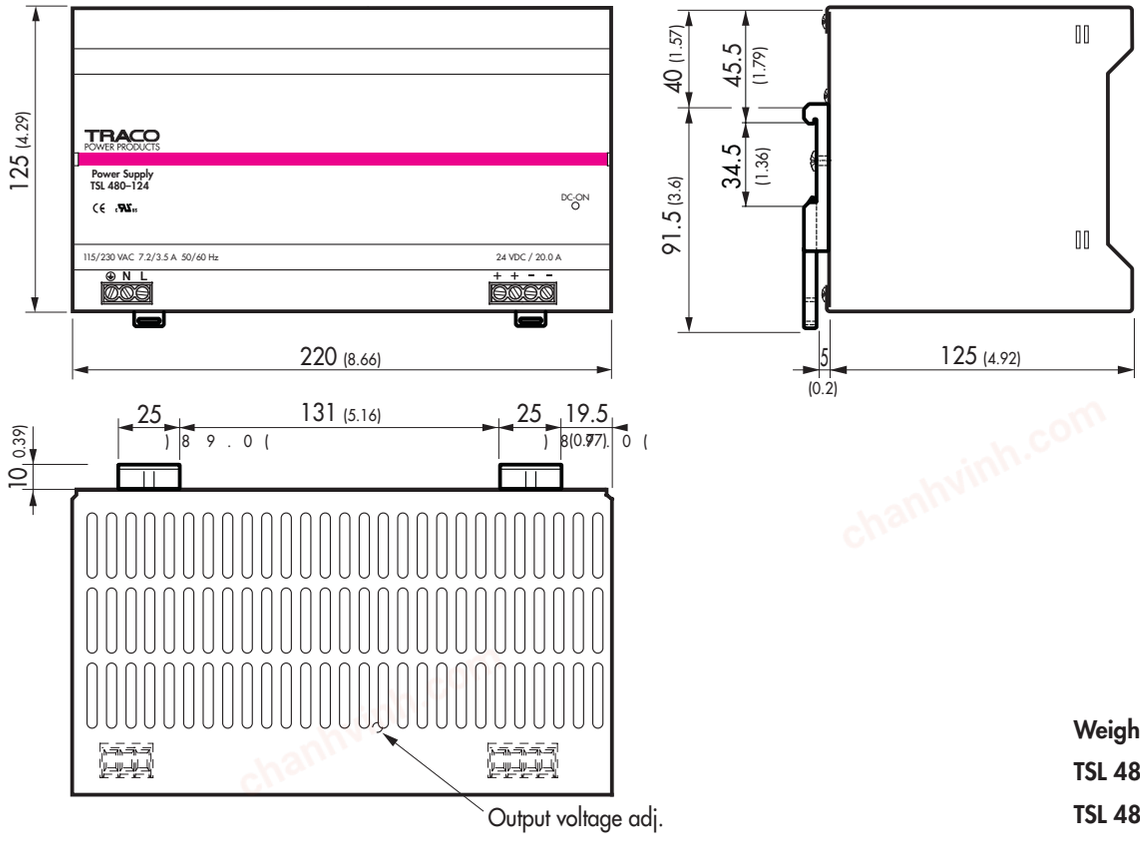
Tolerances: ±0.5 mm (±0.02)

Specifications can be changed without notice

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Outline Dimensions mm (inches)

TSL 480



Weight:

TSL 480 1950 g (4.30 lb)

TSL 480P 2500 g (5.51 lb)

Tolerances: ±0.5 mm (±0.02)