

Features

- ◆ Small and compact PCB construction
- ◆ Optional with chassis and cover
- ◆ Universal input 85–264 VAC,
- ◆ Output voltage adjustable
- ◆ Compliance to EN 61000-3-2 (PFC)
- ◆ EMI meets EN55022, Class B and FCC, Level B
- ◆ Short circuit and overvoltage protection
- ◆ International safety standards
- ◆ Industrial quality standard
- ◆ 3-year product warranty

not recommended for new design in



The TOL Series switching power supplies are the best choice for many space critical applications. They feature ultra-compact dimensions and a low profile. As an accessory a chassis and cover kit for self-installation is available for all models. To make installation even more simple, prewired mating output/input connectors with flying leads are also offered as an accessory. Compliance with international safety standards (CE/UL) and EMC specifications qualify this product for worldwide use. A very high reliability is guaranteed by the use of industrial quality grade components and excellent thermal management..

Models

Order Code	Output Power	Output Voltage	Output Current max.
TOL 10-05	10 Watt	5 VDC	2 A
TOL 10-12		12 VDC	0.9 A
TOL 10-24		24 VDC	0.5 A
TOL 15-05	15 Watt	5 VDC	3 A
TOL 15-12		12 VDC	1.3 A
TOL 15-24		24 VDC	0.7 A
TOL 30-05	30 Watt	5 VDC	6 A
TOL 30-12		12 VDC	2.5 A
TOL 30-24		24 VDC	1.3 A
TOL 50-05	50 Watt	5 VDC	10 A
TOL 50-12		12 VDC	4.3 A
TOL 50-24F		24 VDC	2.2 A (peak 3.0 A)*
TOL 75-05	75 Watt	5 VDC	15 A
TOL 75-12		12 VDC	6.3 A
TOL 75-24F		24 VDC	3.2 A (peak 4.5 A)*
TOL 100-05	100 Watt	5 VDC	20 A
TOL 100-12		12 VDC	8.5 A
TOL 100-24F		24 VDC	4.5 A (peak 6.3 A)*
TOL 100-48		48 VDC	2.1 A
TOL 150-05	150 Watt	5 VDC	30 A
TOL 150-12		12 VDC	13 A
TOL 150-24F		24 VDC	6.5 A (peak 9.1 A)*
TOL 150-48		48 VDC	3.3 A
TOL 300-12	300 Watt	12 VDC	27 A
TOL 300-24		24 VDC	14 A
TOL 300-48		48 VDC	6.3 A

Input Specifications

Input voltage range	85 – 264 VAC
Input frequency	47 – 63 Hz
Recommended circuit breaker (characteristic C) or slow blow fuse	10 – 150 Watt models: 6 A 300 Watt models: 10 A

Output Specifications

Output voltage adjustment range	±10 %
Regulation	– Input variation: 0.5 % max. – Load variation (10–100%): 0.8 % max.
Ripple and noise (20 Mhz Bandwidth)	5 VDC output models: 100 mV pp max. 12/24 VDC output models: 180 mV pp max. 48 VDC output models: 300 mV pp max. (TOL 300: 600 mV pp max)
Output current limitation (except for F versions)	105 % – 140 % of Inom.
Short circuit protection	– 10 to 30 Watt models: hiccup mode, indefinite (automatic recovery) – 50 to 300 Watt models: constant current (automatic recovery)
Overvoltage protection	115 – 135 % Vout nom.
Capacitive load	– TOL 10: 10'000 µF max. (24 Vout model: 2'000 µF) – TOL 15: 15'000 µF max. (24 Vout model: 6'000 µF) – other models: 18'000 µF max.

General Specifications

Temperature ranges	– Operating temperature: –10°C to +60°C (TOL 150: –10°C to +50°C) – Derating above +50°C: 3 %/K (TOL 150: 1.5 %/°C above 35°C) – Storage (non operating): –20°C to +70°C
Temperature coefficient	0.02 %/K
Efficiency	75 % typ.
Humidity (non condensing)	20 % – 90 % rel. H
Switching frequency	100 kHz typ. (PWM)
Hold-up time	20 ms typ. at full load
Isolation voltage	– Input / output: 3'000 VAC for 1min. – Input / FG (or case): 2'000 VAC for 1min. – Output / FG (or case): 500 VDC for 1min.
Isolation resistance	100 MOhm
Leakage current	0.6 mA RMS typ. / 230 VAC / 60 Hz
Electromagnetic compatibility (EMC) Emission	– Conducted input RI suppression: EN 55022, class B; FCC Part 15, level B – Harmonic current emissions: IEC/EN 61000-3-2, class D
Electromagnetic compatibility (EMC) Immunity	– Electrostatic discharge: IEC/EN 61000-4-2 8kV / 15kV – Surge immunity: IEC/EN 61000-4-5 2kV / 4kV
Environmental compliance	– Reach: www.tracopower.com/products/tol-reach.pdf – RoHS: RoHS directive 2002/95/EC

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

General Specifications

Safety standards	EN 60950-1, UL/cUL 1950 File e188913
Reliability, calculated MTBF (MIL-HDBK-217F, ground benign)	– TOL 10 / TOL 15: > 650'000 h at +25°C – TOL 30: > 500'000 h at +25°C – TOL 50 / TOL 75: > 375'000 h at +25°C – TOL 100 / TOL 150: > 350'000 h at +25°C TOL 300: > 260'000 h at +25°C
Remote ON/OFF (available as option for models TOL30/50/75/100/150/300)	On: 5 VDC (input resistance 1 KOhm) Off: 0 VDC or open circuit
Remote sensing (only TOL300 models)	– without sens line: prewired connector included – with sens line: use Molex housing/pin 67261-0400 / 67262 to connect sens line at P54
Vibration	IEC 60068-2-6, 5-10 Hz with 10mm amplitude 2 gn, 60 sweeps of 10-55 Hz, each axis
Shock resistance	IEC 60068-2-27, 20 gn each axis

Mating Connectors with prewired flying Leads (500mm Length)

OrderCode	Description	Pin no.	Wire Color	Cross-Section	AWG
TOL-C31	Input cable for all models (excl. TOL 300)	1	black	0.75mm ²	18
		3	white	0.75mm ²	18
		5	green	0.75mm ²	18
TOL-C41	TOL 10/15 output cable	1–2	black	0.4 mm ²	22
		3–4	red	0.4 mm ²	22
TOL-C42	TOL 30/50 output cable	1–2	black	0.75 mm ²	18
		3–4	red	0.75 mm ²	18
TOL-C61	TOL 75 output cable	1–3	black	0.4 mm ²	22
		4–6	red	0.4 mm ²	22
TOL-C62	TOL 150 output cable +	1–6	red	0.4 mm ²	22
TOL-C71	TOL 150 output cable –	1–7	black	0.4 mm ²	22
TOL-C81	TOL 100 output cable	1–4	black	0.4 mm ²	22
		5–8	red	0.4 mm ²	22

Chassis / Cover Kit

Order Code	For Models
TOL 10-MC	TOL 10-xx
TOL 15-MC	TOL 15-xx
TOL 30-MC	TOL 30-xx
TOL 50-MC	TOL 50-xx
TOL 75-MC	TOL 75-xx
TOL 100-MC	TOL 100-xx
TOL 150-MC	TOL 150-xx
TOL 300-MC	TOL 300-xx

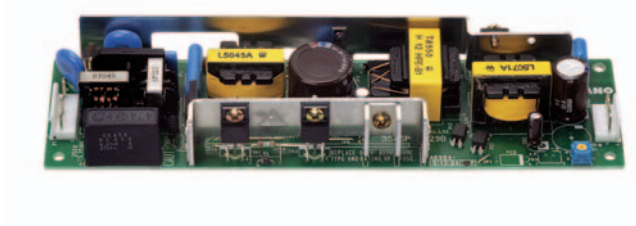
Mating Connectors (model information)

For Connection	JST (housing / pin)	MOLEX (housing / pin)
P1 – all models	VHR-5N / SVH-21T-P1.1	51144-0500 / 50539
P51 – TOL 10/15	XHP-4 / SXH-001T-P0.6	67261-0400 / 67262
P51 – TOL 30/50	VHR-4N / SVH-21T-P1.1	51144-0400 / 50539
P51 – TOL 75/150	VHR-6N / SVH-21T-P1.1	51144-0600 / 50539
P51 – TOL 100	VHR-8N / SVH-21T-P1.1	51144-0800 / 50539
P52 – TOL 150	VHR-7N / SVH-21T-P1.1	51144-0700 / 50539
P52/53 remote on/off	XHP-2 / SXH-001T-P0.6	67261-0200 / 67262
P54 – TOL 300 sens	XHP-4 / SXH-001T-P0.6	67261-0400 / 67262

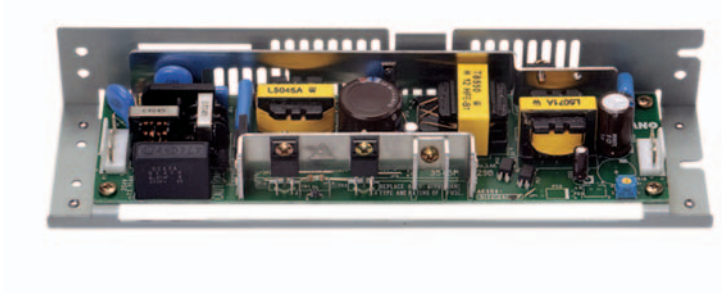
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One Power Supply - 3 Mounting Variations

TOL Standard open Frame Version



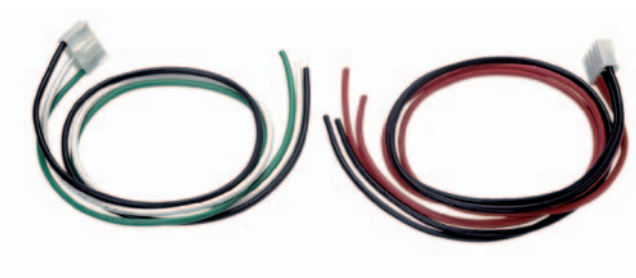
TOL Standard open Frame Version



TOL Standard open Frame Version

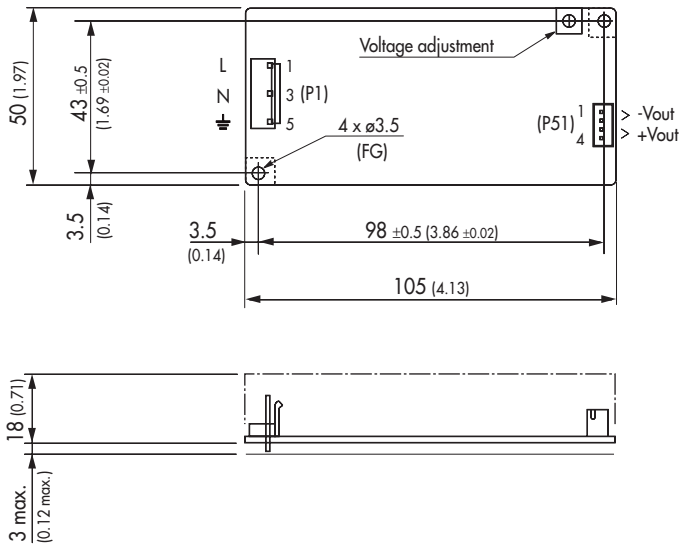


TOL Standard open Frame Version



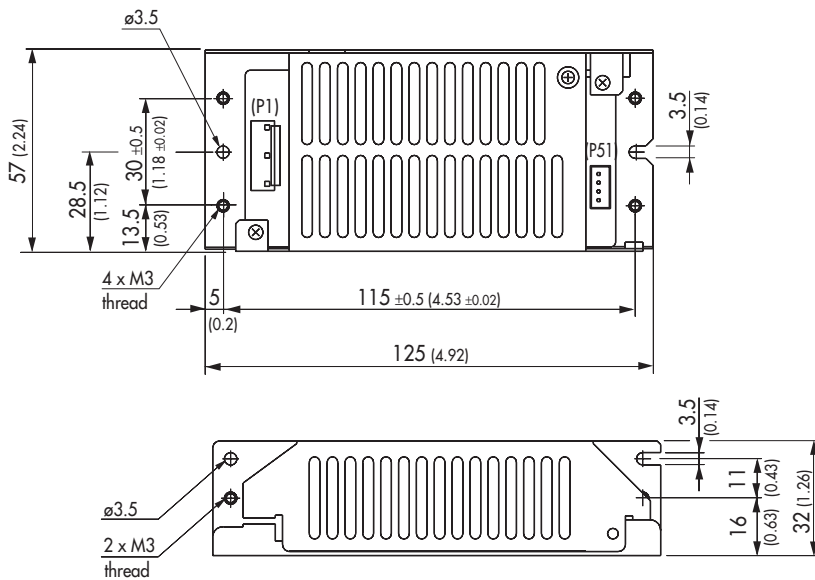
Outline Dimensions mm (inches)

TOL 10 standard open frame version



Weight 75 g (2.6 oz)

TOL 10 with chassis / cover option

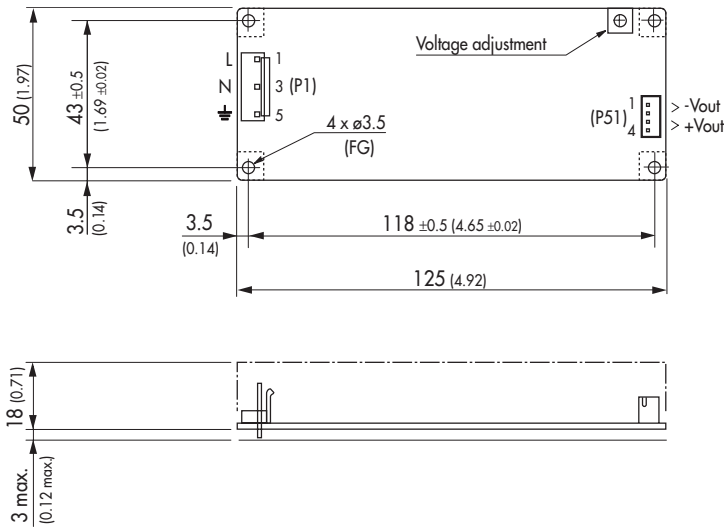


Weight 170 g (17.6 oz)

Specifications can be changed any time without notice.

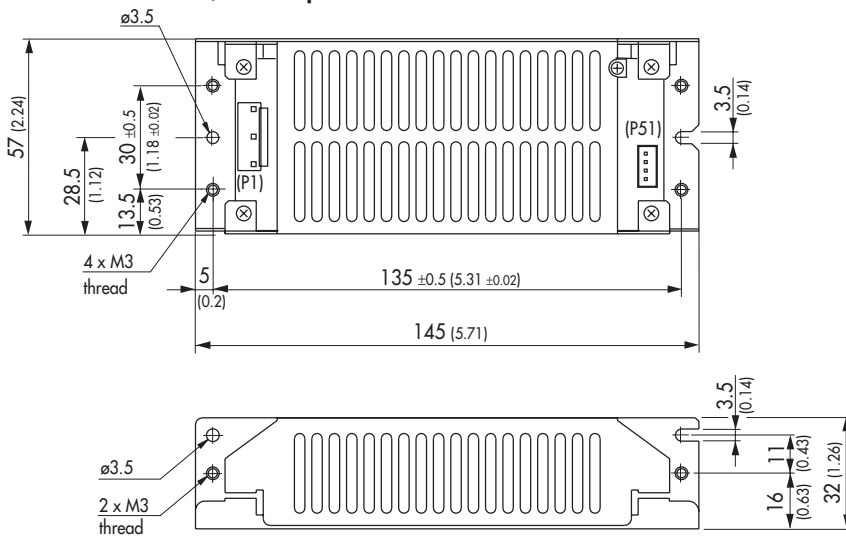
Outline Dimensions mm (inches)

TOL 15 standard open frame version



Weight 95 g (3.4 oz)

TOL 15 with chassis / cover option

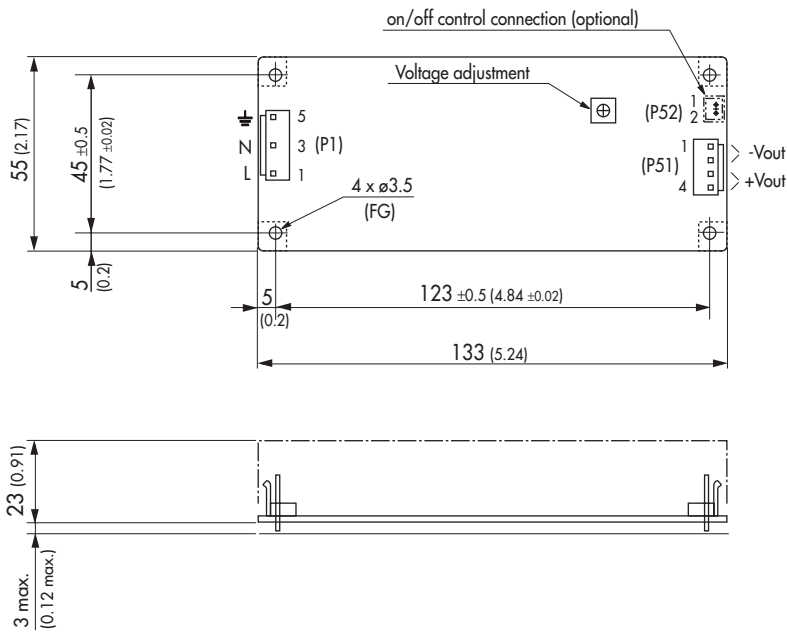


Weight 210 g (7.4 oz)

Specifications can be changed any time without notice.

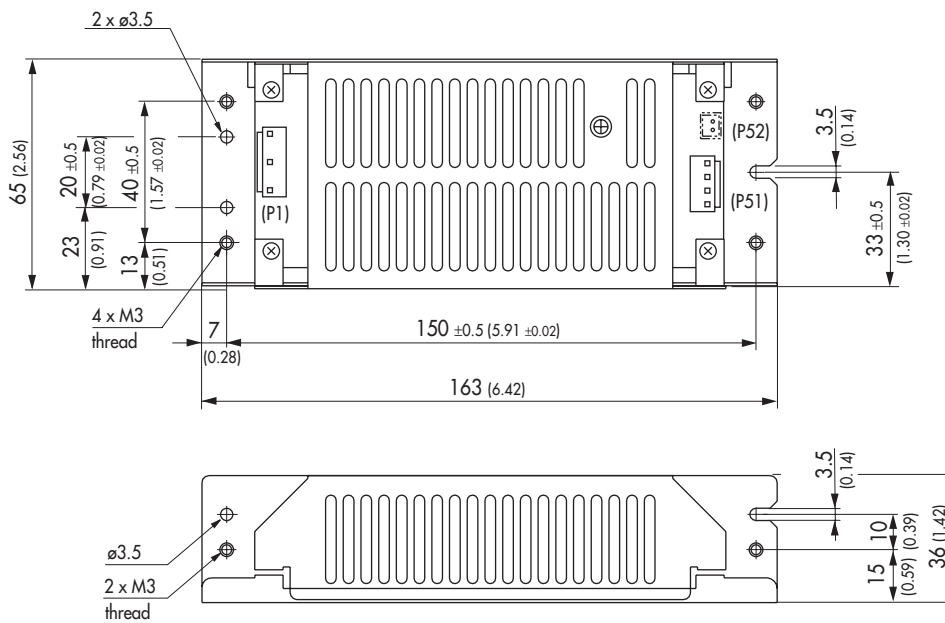
Outline Dimensions mm (inches)

TOL 30 standard open frame version



Weight 200 g (7.1 oz)

TOL 30 with chassis / cover option

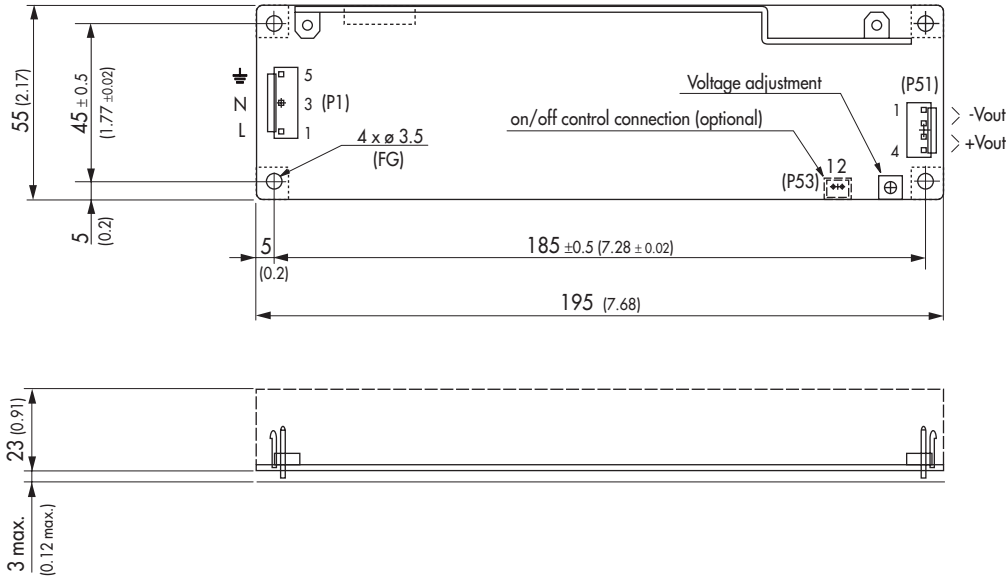


Weight 280 g (9.9 oz)

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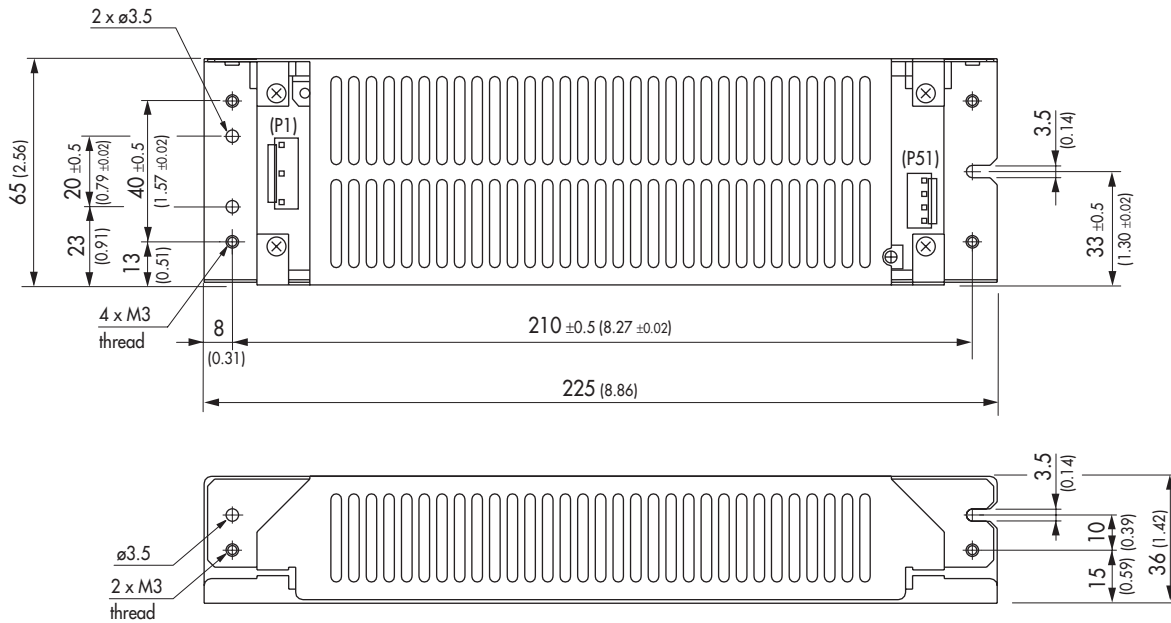
Outline Dimensions mm (inches)

TOL 50 standard open frame version



Weight 210 g (7.4 oz)

TOL 50 with chassis / cover option

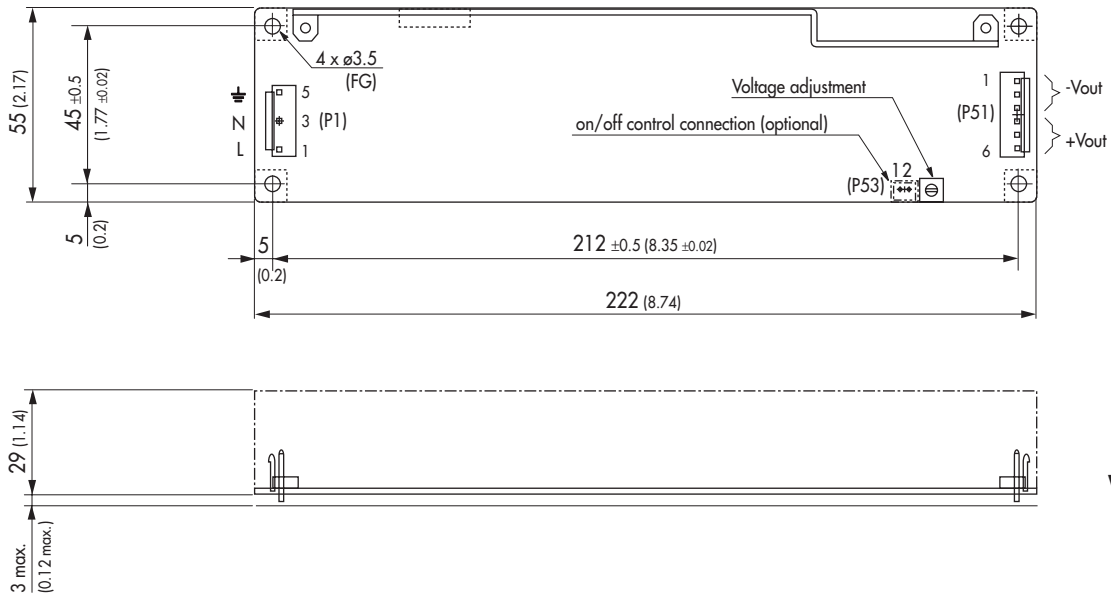


Weight 410 g (14.5 oz)

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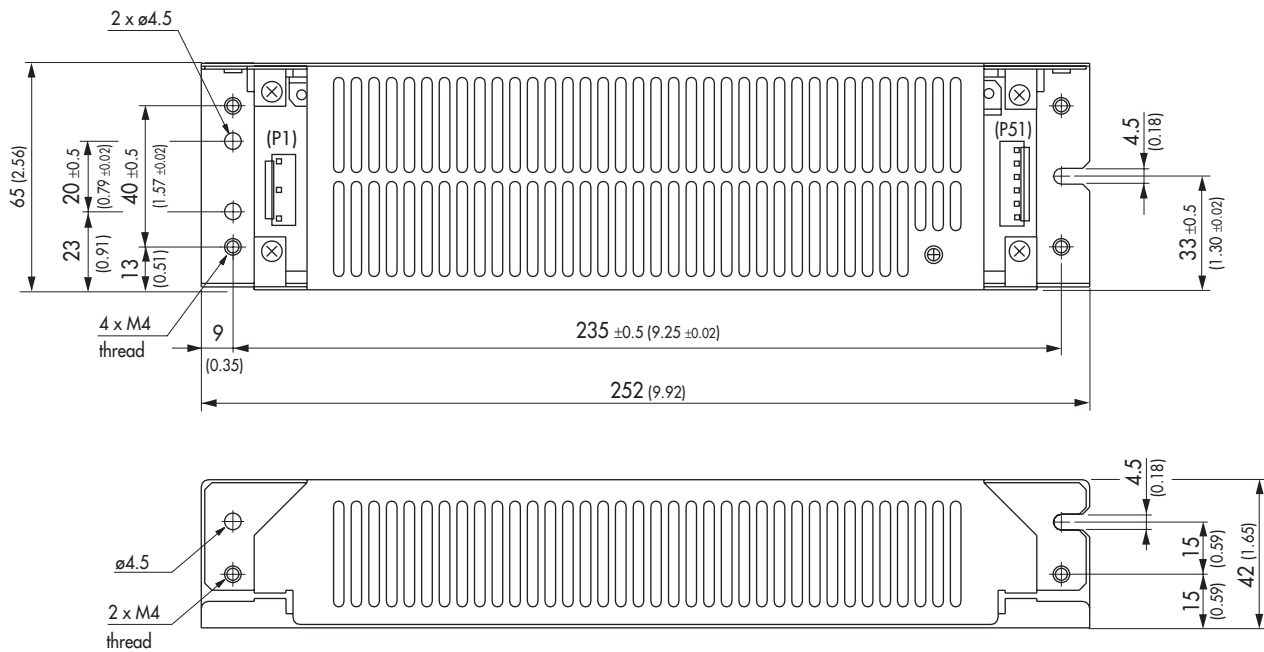
Outline Dimensions mm (inches)

TOL 75 standard open frame version



Weight 290 g (10.2 oz)

TOL 75 with chassis / cover option

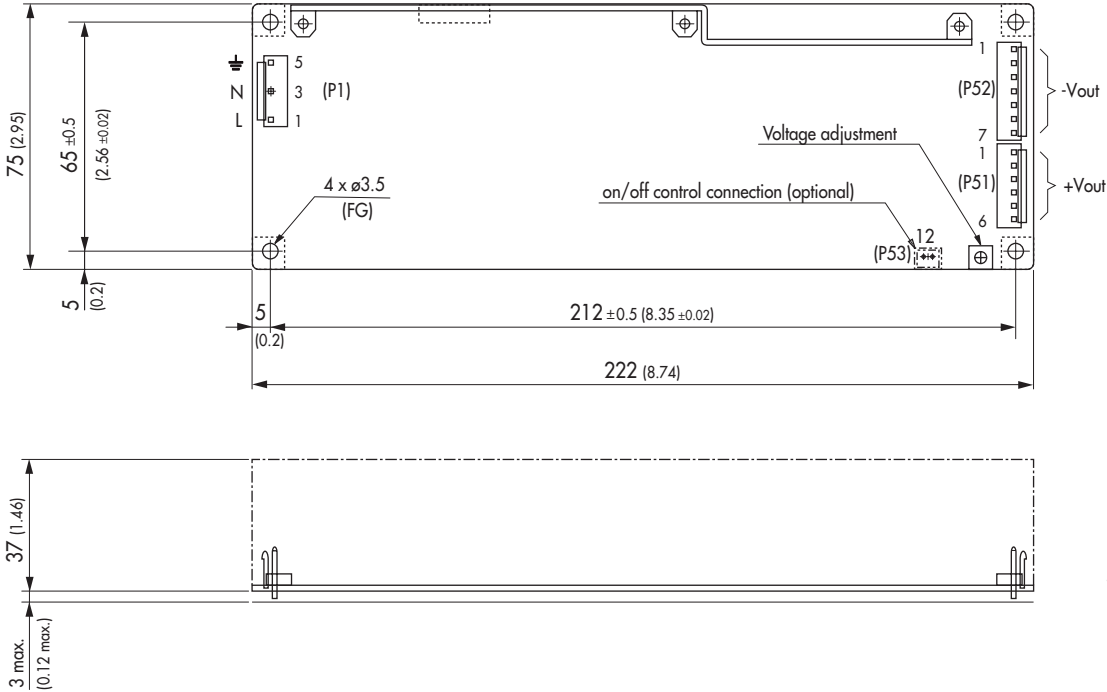


Weight 520 g (18.3 oz)

Specifications can be changed any time without notice.

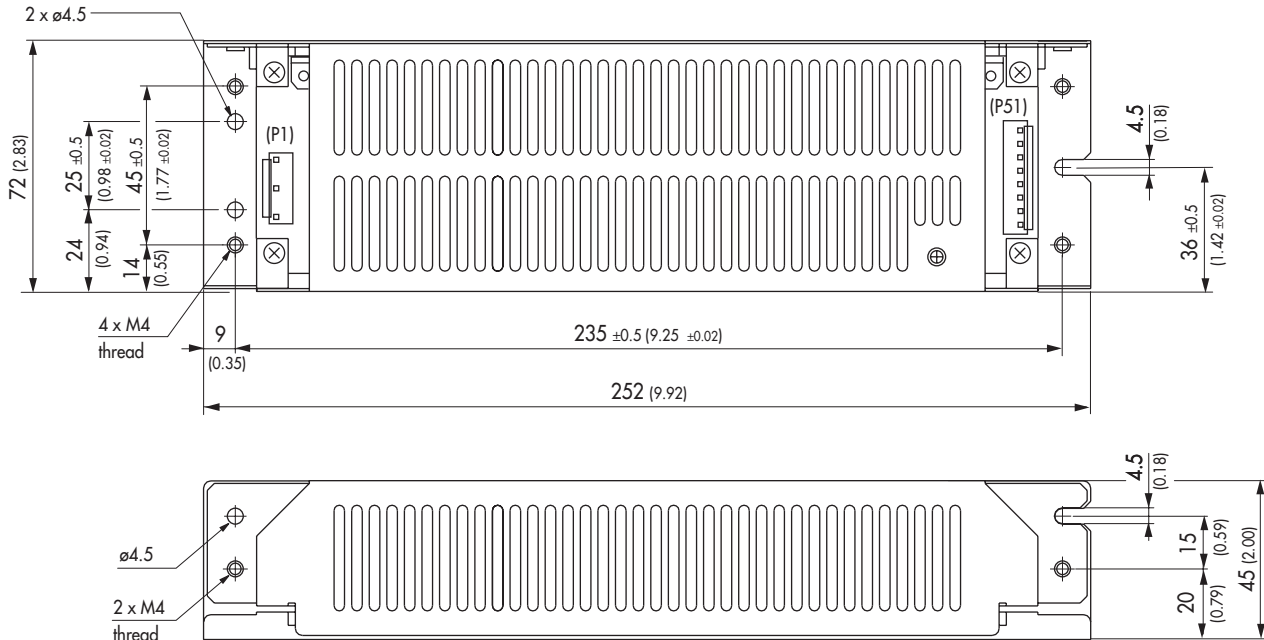
Outline Dimensions mm (inches)

TOL 100 standard open frame version



Weight 380 g (13.4 oz)

TOL 100 with chassis / cover option

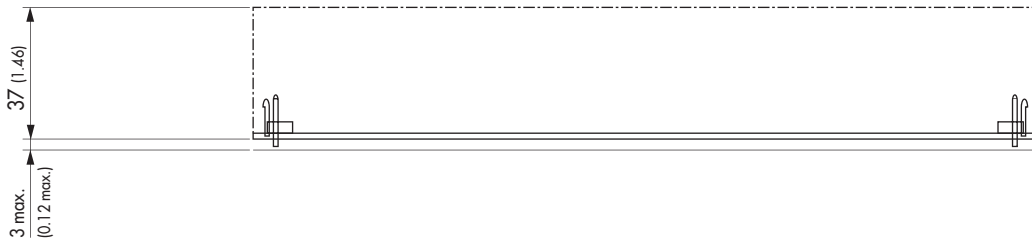
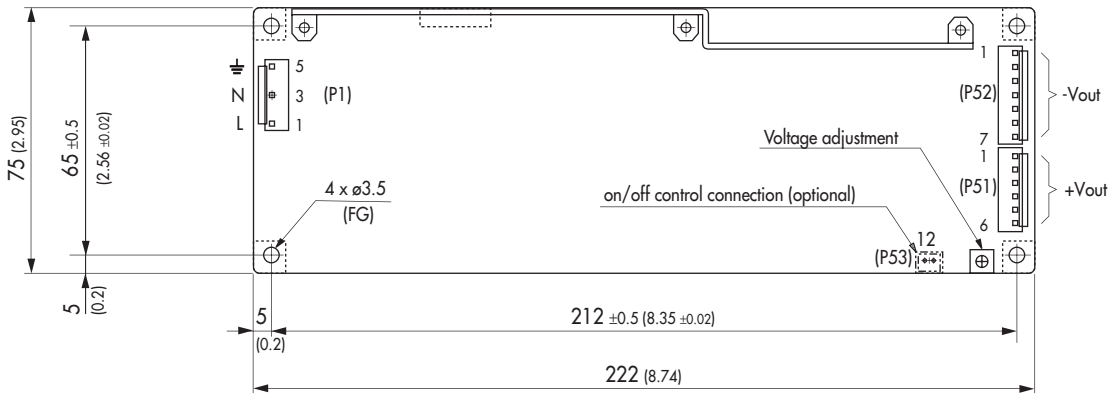


Weight 680 g (24.0 oz)

Specifications can be changed any time without notice.

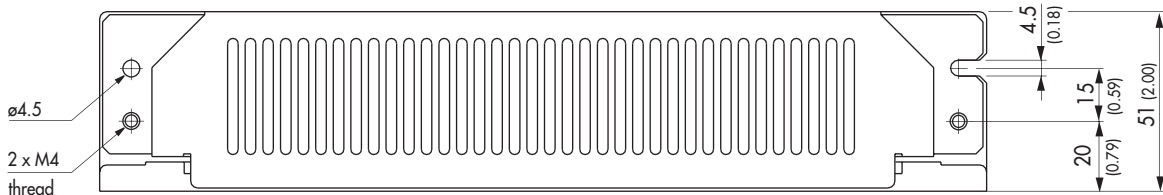
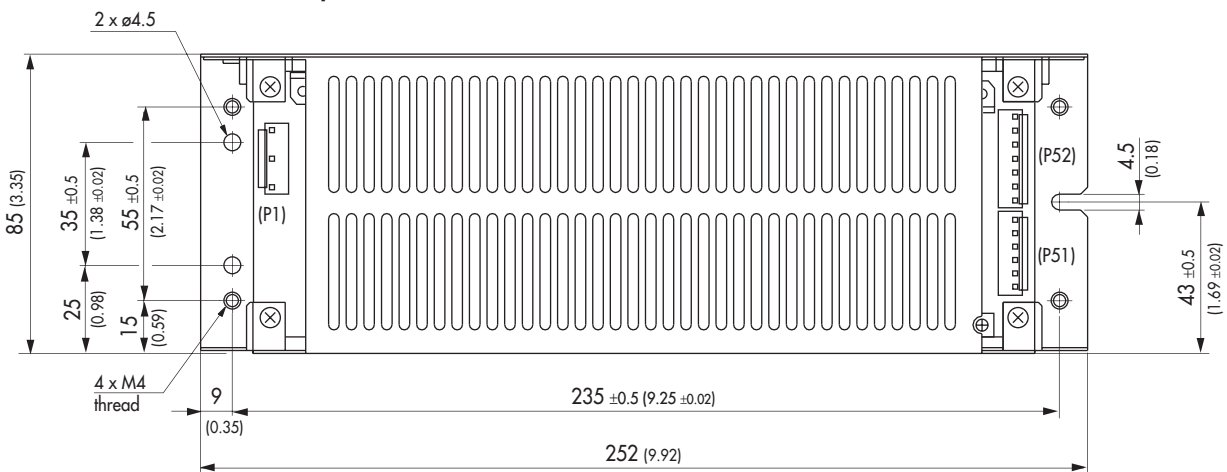
Outline Dimensions mm (inches)

TOL 150 standard open frame version



Weight 500 g (17.5 oz)

TOL 150 with chassis / cover option

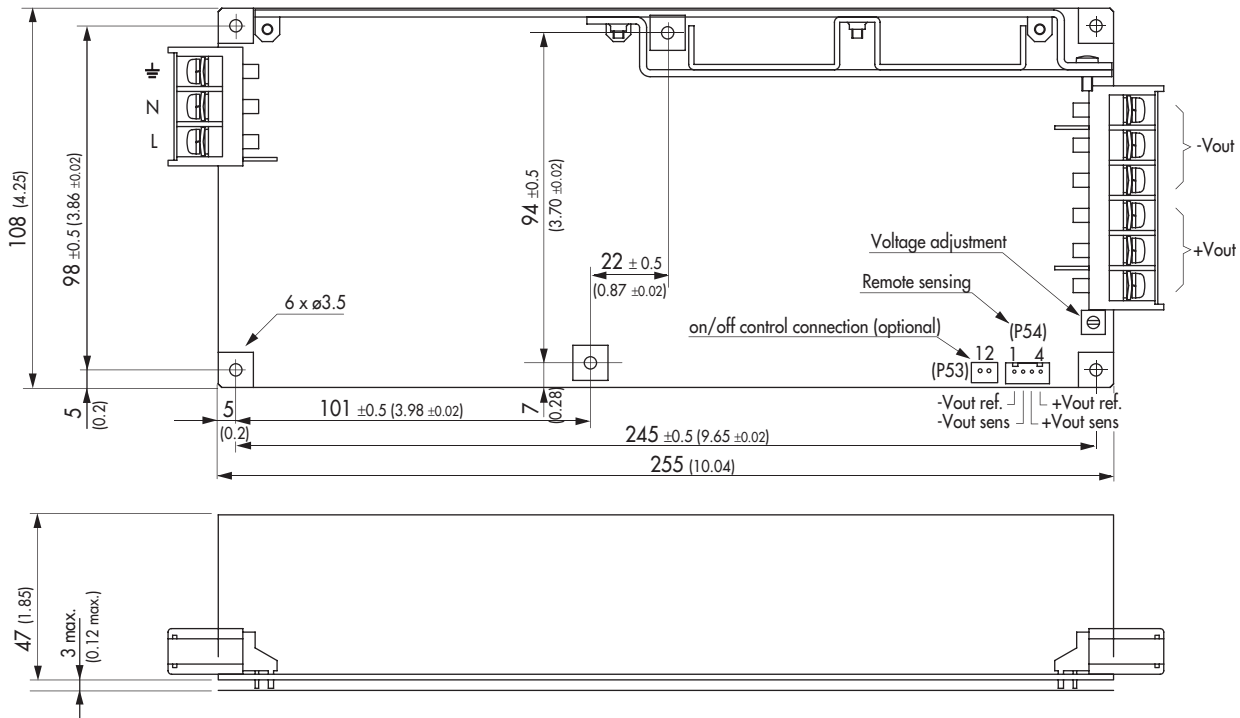


Weight 830 g (29.5 oz)

Specifications can be changed without notice

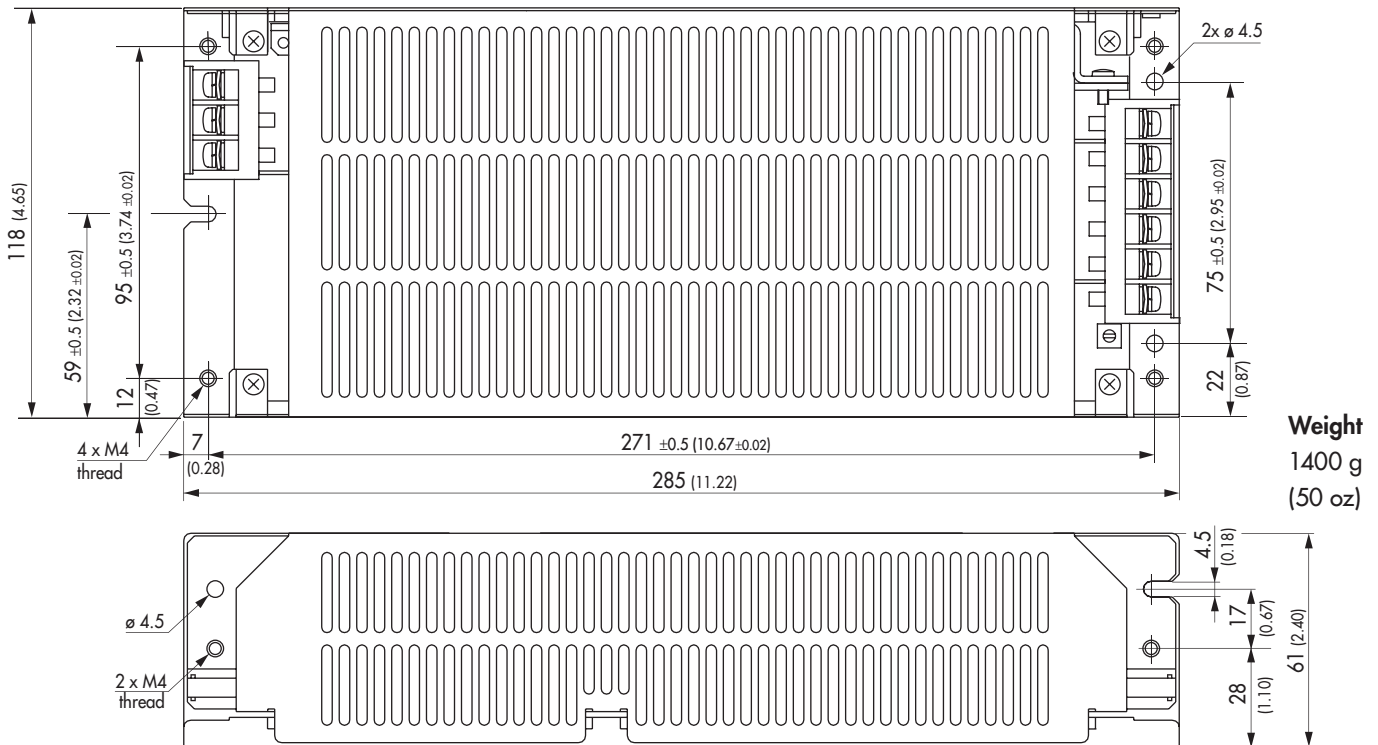
Outline Dimensions mm (inches)

TOL 300 standard open frame version



Weight
1000 g
(35 oz)

TOL 300 with chassis / cover option



Weight
1400 g
(50 oz)

Specifications can be changed any time without notice.