

### 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



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 (20Mhz Bandwidth)	5VDC output models: 100 mV pp max. 12/24VDC output models: 180 mV pp max. 48VDC output models: 300 mV pp max. (TOL 300: 600mV 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	– TOL10: 10'000 µF max. (24 Vout model: 2'000 µF) – TOL15: 15'000 µF max. (24 Vout model: 6'000 µF) – other models: 18'000 µF max.

### General Specifications

Temperature ranges	– Operating temperature: –10 °C...+60°C (TOL150: –10°C...+50°C) – Derating above 50°C: 3%/K (TOL150: 1.5 %/°C above 35°C) – Storage (non operating): –20°C...+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 MΩ
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

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, UL /cUL 1950 File E188913
Reliability, calculated MTBF (MIL-HDBK217E)	– TOL10 / TOL15: > 650'000 h @ 25°C – TOL30: > 500'000 h @ 25°C – TOL50 / TOL75: > 375'000 h @ 25°C – TOL100 / TOL150: > 350'000 h @ 25°C TOL300: > 260'000 h @ 25°C
Remote ON /OFF (available as option for models TOL30/50/75/100/150/300)	On: 5 VDC (input resistance 1 KOhm) Off: 0V 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 <sup>2</sup>	18
		3	white	0.75mm <sup>2</sup>	18
		5	green	0.75mm <sup>2</sup>	18
TOL-C41	TOL 10/15 output cable	1–2	black	0.4 mm <sup>2</sup>	22
		3–4	red	0.4 mm <sup>2</sup>	22
TOL-C42	TOL 30/50 output cable	1–2	black	0.75 mm <sup>2</sup>	18
		3–4	red	0.75 mm <sup>2</sup>	18
TOL-C61	TOL 75 output cable	1–3	black	0.4 mm <sup>2</sup>	22
		4–6	red	0.4 mm <sup>2</sup>	22
TOL-C62	TOL 150 output cable +	1–6	red	0.4 mm <sup>2</sup>	22
TOL-C71	TOL 150 output cable –	1–7	black	0.4 mm <sup>2</sup>	22
TOL-C81	TOL 100 output cable	1–4	black	0.4 mm <sup>2</sup>	22
		5–8	red	0.4 mm <sup>2</sup>	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

### Chassis / Cover Kit

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
P51 – 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

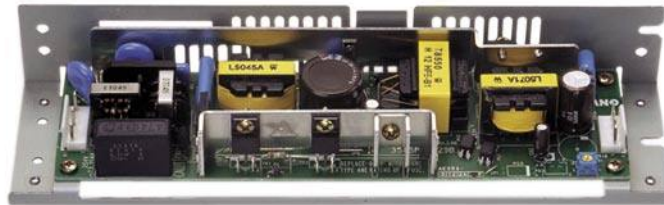
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**One Power Supply - 3 Mounting Variations**

TOL Standard open Frame Version



TOL Standard open Frame Version



TOL Standard open Frame Version

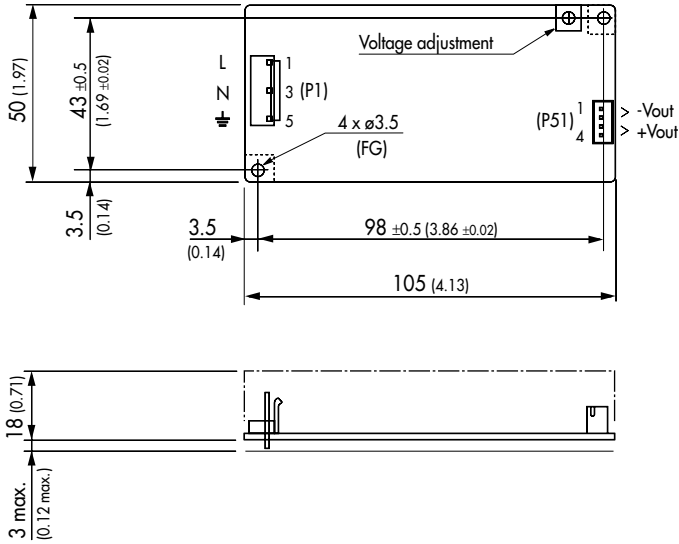


TOL Standard open Frame Version



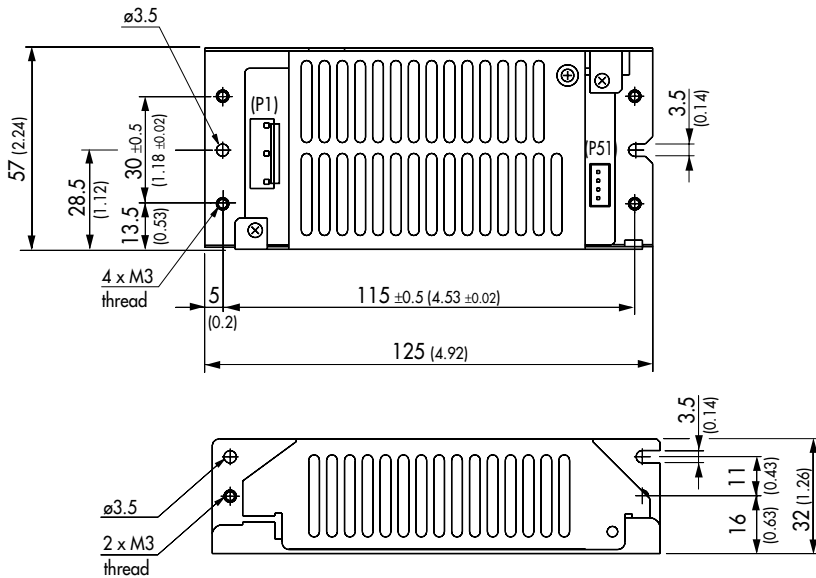
**Outline Dimensions mm (inches)**

**TOL 10 standard open frame version**



**Weight** 75 g (2.6 oz)

**TOL 10 with chassis / cover option**

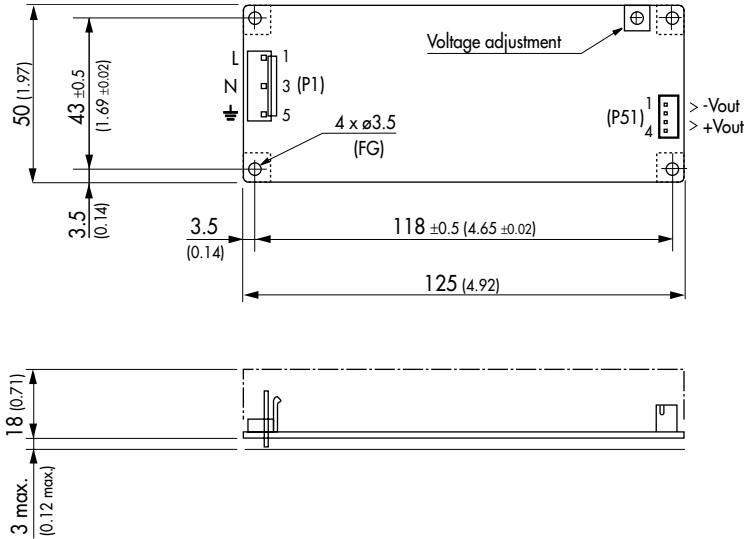


**Weight** 170 g (17.6 oz)

Specifications can be changed without notice

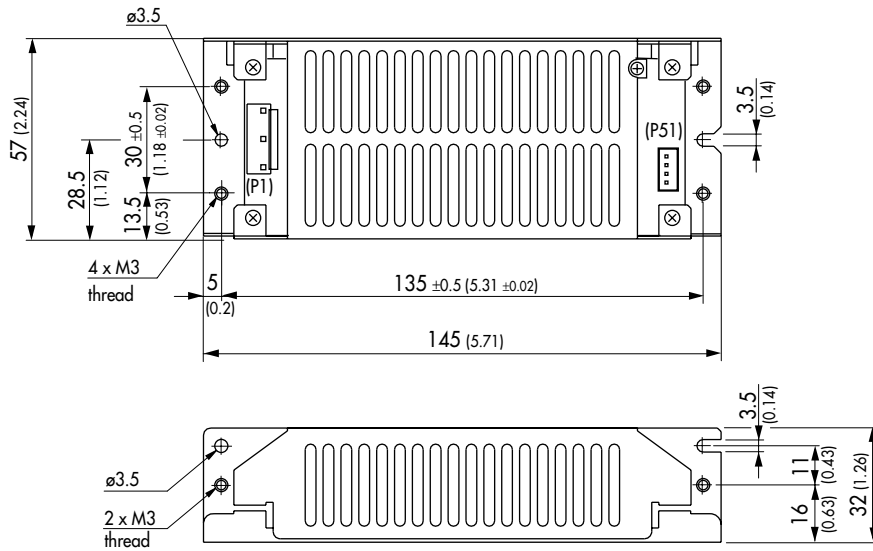
**Outline Dimensions mm (inches)**

**TOL 15 standard open frame version**



**Weight** 95 g (3.4 oz)

**TOL 15 with chassis / cover option**

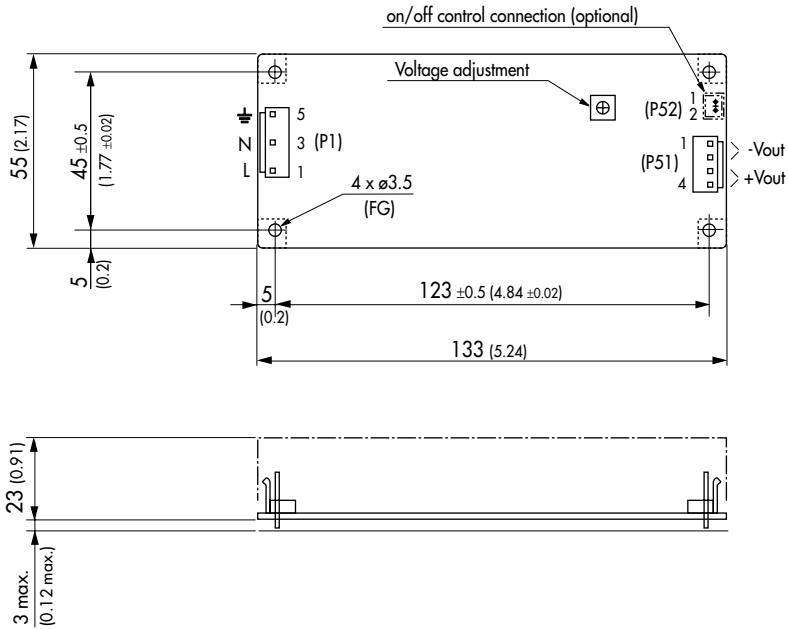


**Weight** 210 g (7.4 oz)

Specifications can be changed without notice

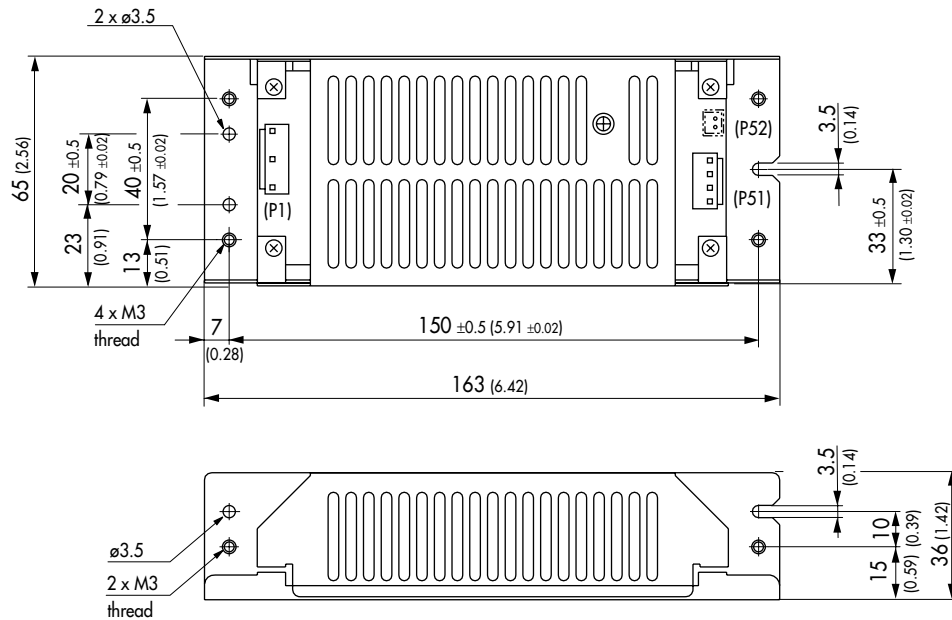
**Outline Dimensions mm (inches)**

**TOL 30 standard open frame version**



**Weight** 200 g (7.1 oz)

**TOL 30 with chassis / cover option**

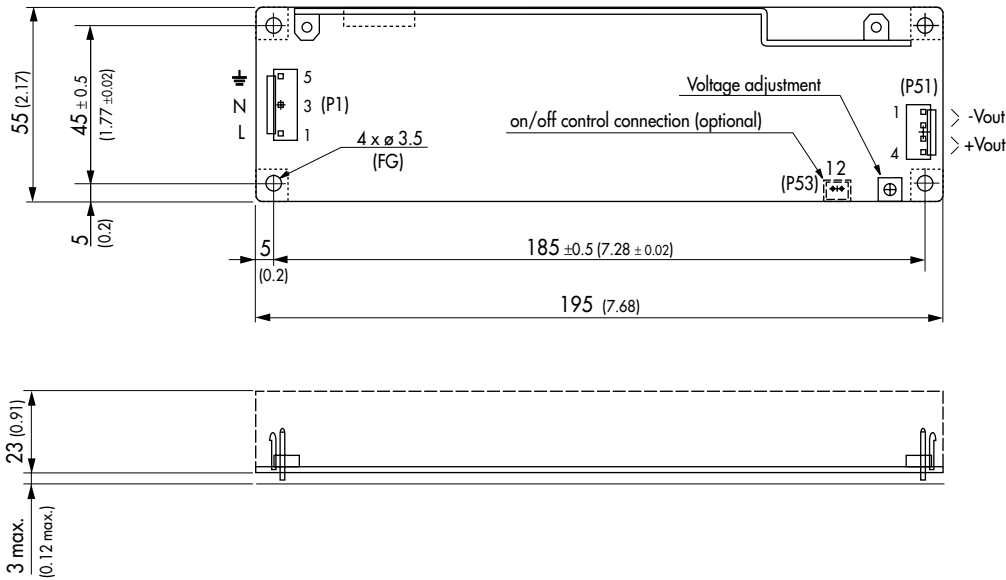


**Weight** 280 g (9.9 oz)

Specifications can be changed without notice

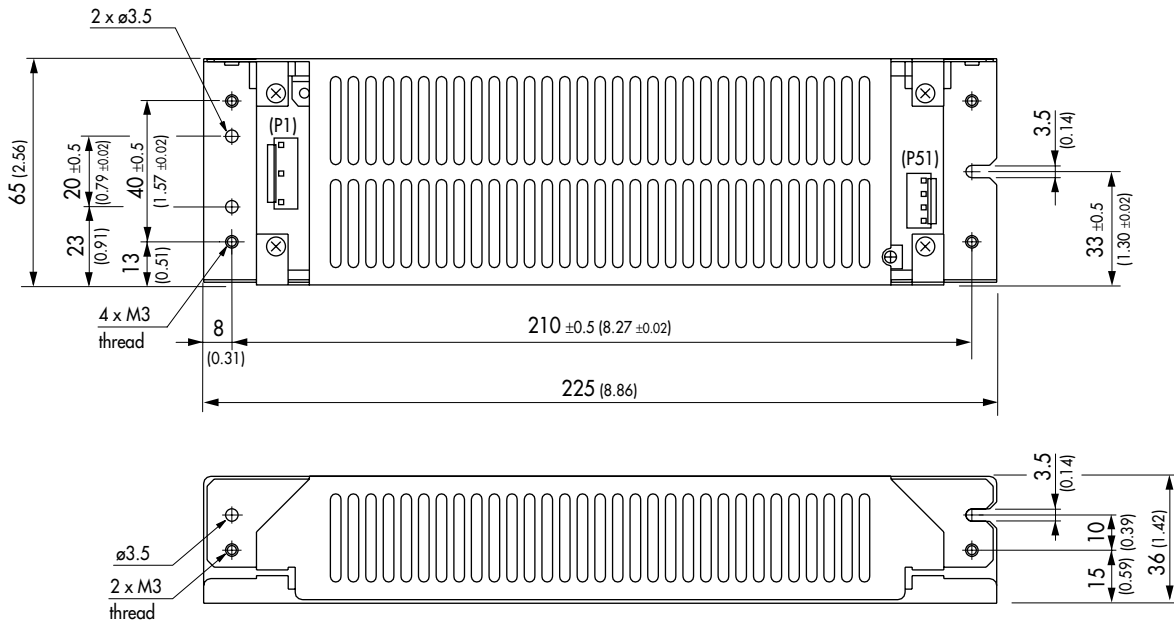
**Outline Dimensions mm (inches)**

**TOL 50 standard open frame version**



**Weight** 210 g (7.4 oz)

**TOL 50 with chassis / cover option**



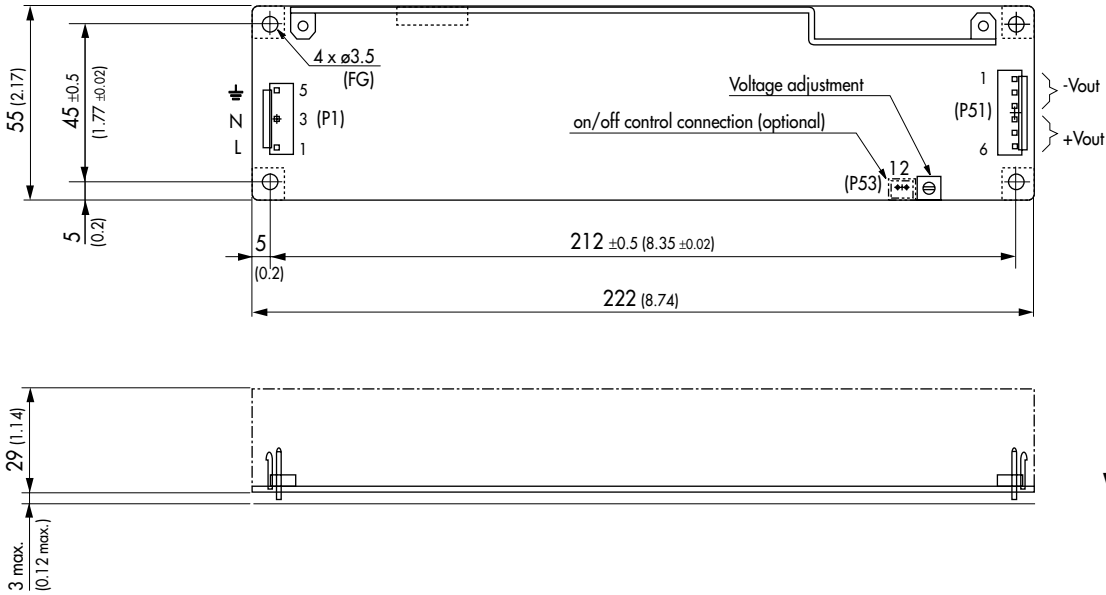
**Weight** 410 g (14.5 oz)

Specifications can be changed without notice



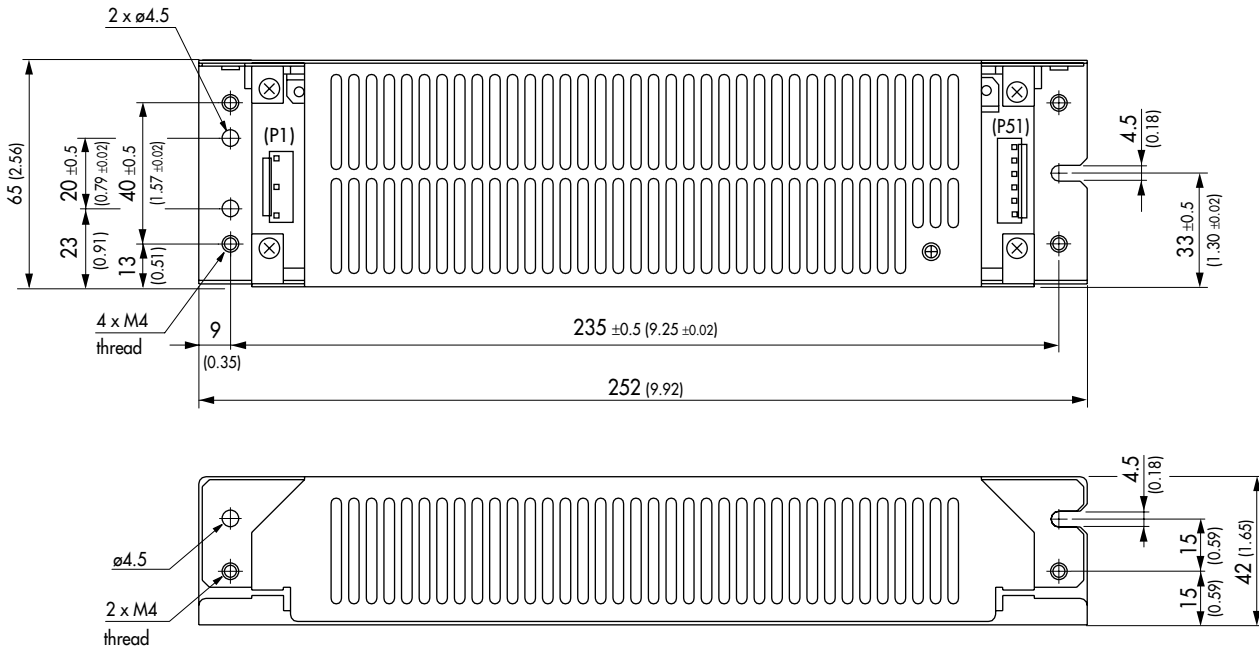
**Outline Dimensions mm (inches)**

**TOL 75 standard open frame version**



**Weight** 290 g (10.2 oz)

**TOL 75 with chassis / cover option**

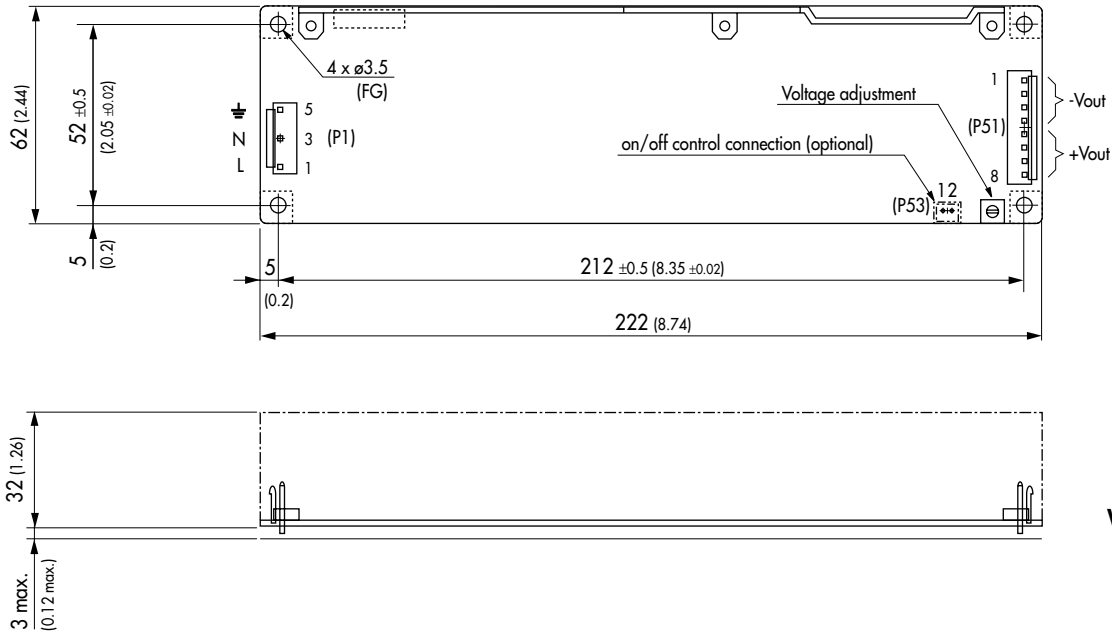


**Weight** 520 g (18.3 oz)

Specifications can be changed without notice

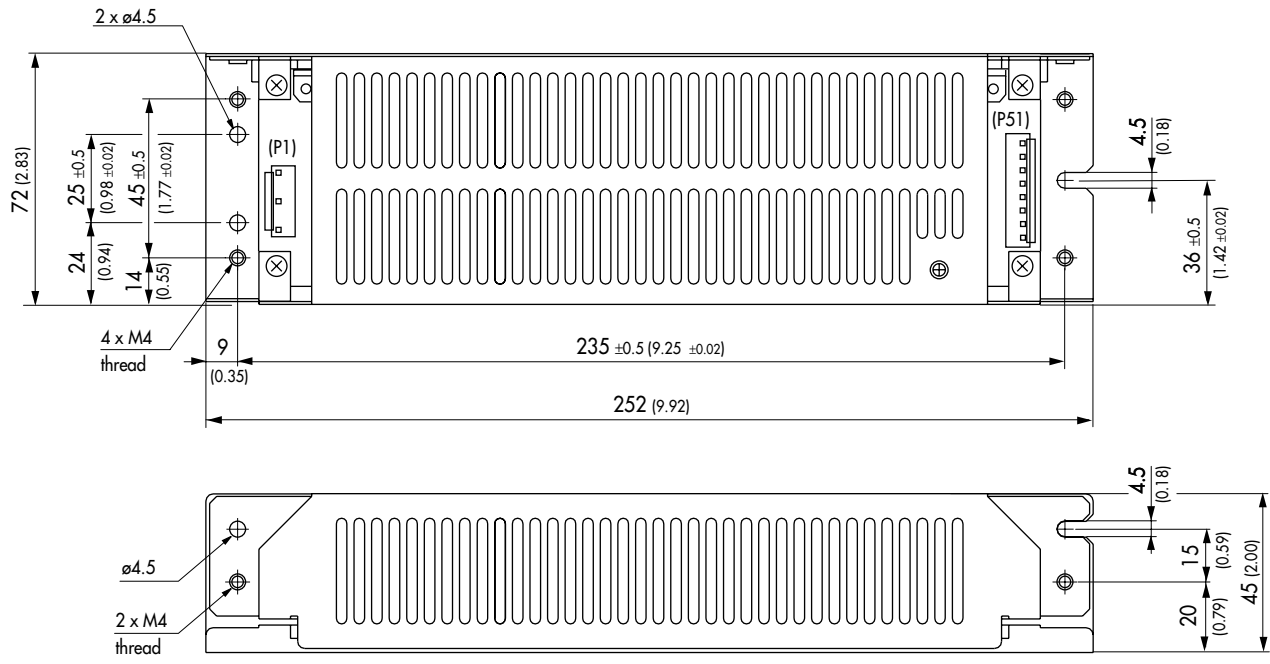
**Outline Dimensions mm (inches)**

**TOL 100 standard open frame version**



**Weight** 380 g (13.4 oz)

**TOL 100 with chassis / cover option**

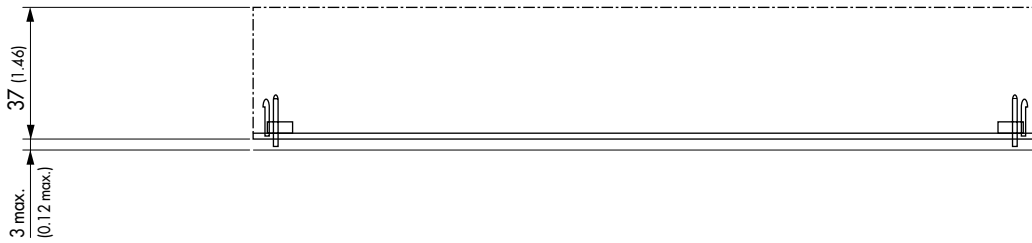
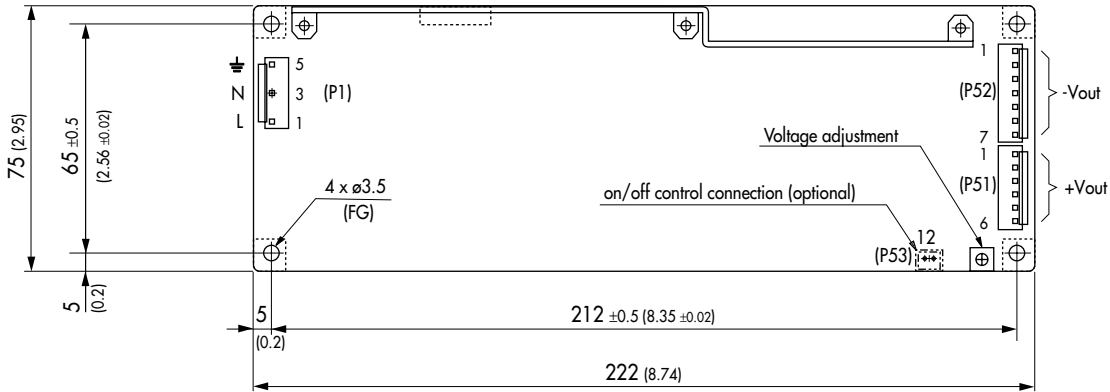


**Weight** 680 g (24.0 oz)

Specifications can be changed without notice

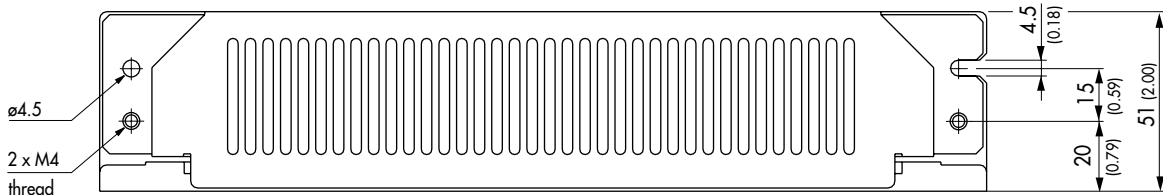
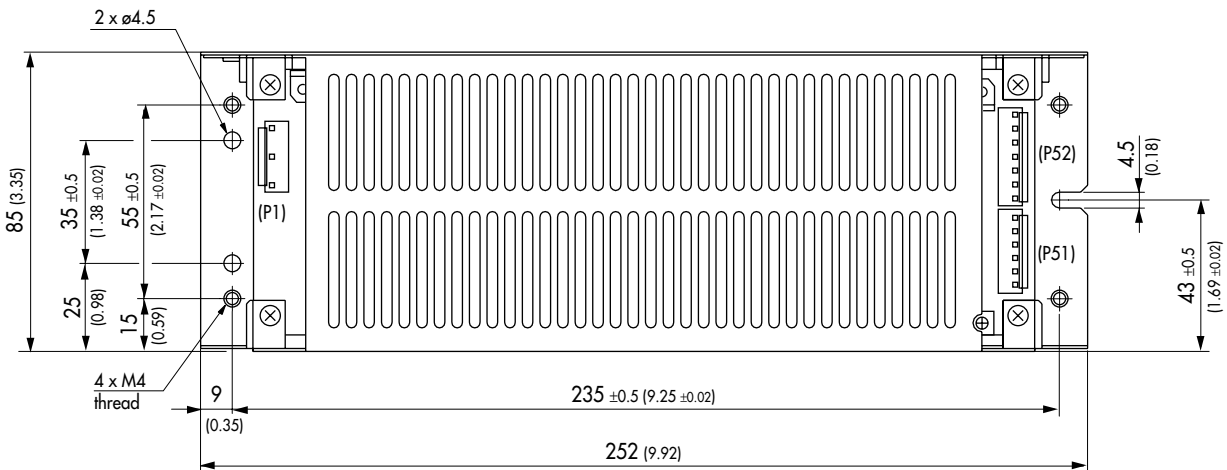
**Outline Dimensions mm (inches)**

**TOL 150 standard open frame version**



**Weight** 500 g (17.5 oz)

**TOL 150 with chassis / cover option**

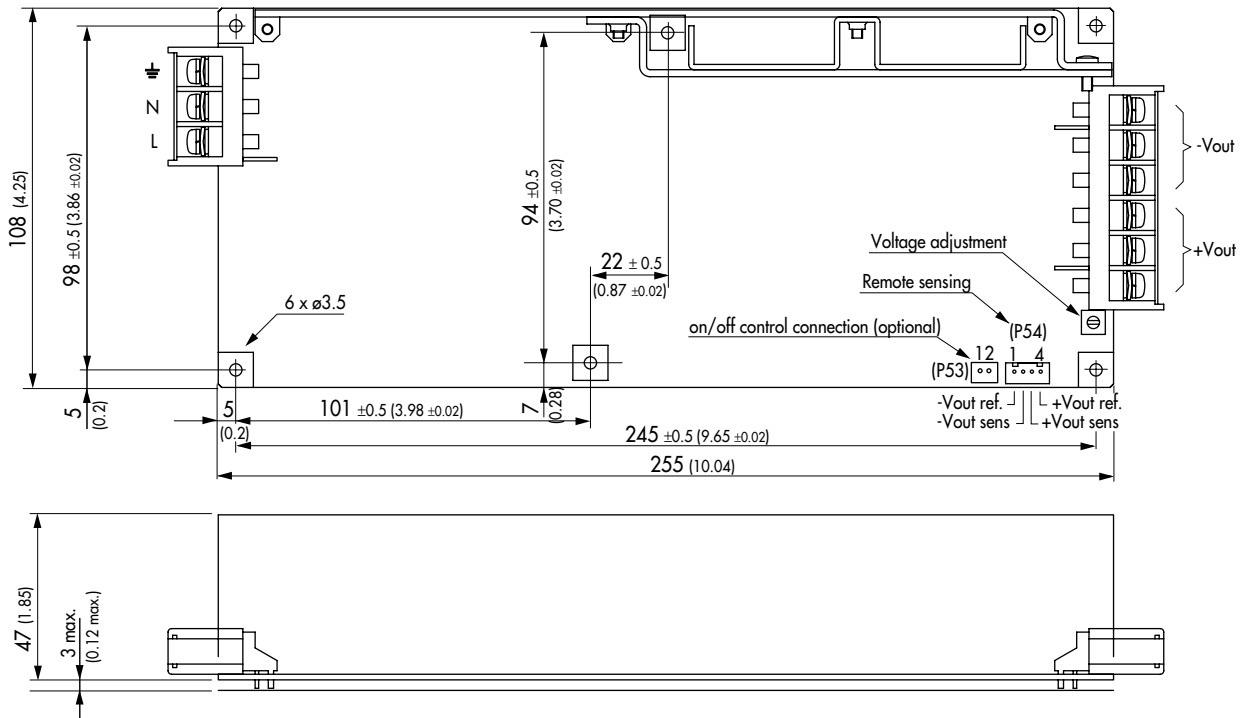


**Weight** 830 g (29.5 oz)

Specifications can be changed without notice

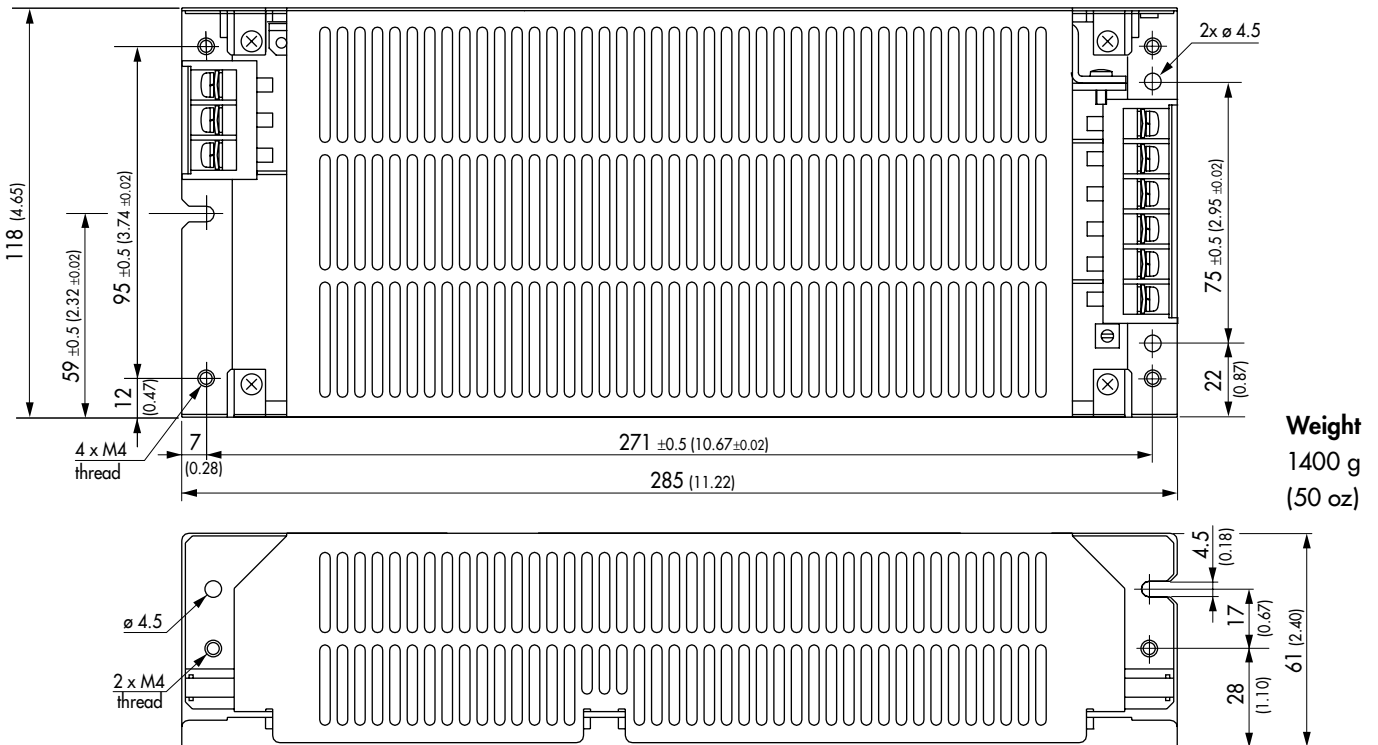
**Outline Dimensions mm (inches)**

**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 without notice