

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

* Peak current for max. 10sec

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: 300 Watt models:	6 A 10 A

Output Specifications

Output voltage adjustment range	± 10 %	
Regulation	– Input variation – Load variation (10 – 100%)	0.5 % max. 0.8 % max.
Ripple and noise (20Mhz Bandwidth)	5VDC output models: 12/24VDC output models: 48VDC output models:	100 mV pp max. 180 mV pp max. 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: – 50 to 300 Watt models:	hiccup mode, indefinite (automatic recovery) constant current (automatic recovery)
Overvoltage protection	115 – 135 % Vout nom.	
Capacitive load	– TOL10 – TOL15 – other models	10'000 µF max. (24 Vout model: 2'000 µF) 15'000 µF max. (24 Vout model: 6'000 µF) 18'000 µF max.

General Specifications

Temperature ranges	– Operating temperature – Derating above 50°C – Storage (non operating)	–10 °C...+60°C (TOL150: –10°C...+50°C) 3%/K (TOL150: 1.5 %/°C above 35°C) –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 – Input / FG (or case) – Output / FG (or case)	3'000 VAC for 1 min. 2'000 VAC for 1 min. 500 VDC for 1 min.
Isolation resistance	100 MOhm	
Leakage current	0.6 mA RMS typ. / 230 VAC / 60 Hz	
Electromagnetic compatibility (EMC) Emission	– Conducted input RI suppression – Harmonic current emissions	EN 55022, class B; FCC Part 15, level B IEC / EN 61000-3-2, class D
Electromagnetic compatibility (EMC) Immunity	– Electrostatic discharge – Surge immunity	IEC / EN 61000-4-2 8kV / 15kV 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-HDBK-217E)	– TOL10 / TOL15: – TOL30: – TOL50 / TOL75: – TOL100 / TOL150: TOL300:	> 650'000 h @ 25°C > 500'000 h @ 25°C > 375'000 h @ 25°C > 350'000 h @ 25°C > 260'000 h @ 25°C
Remote ON /OFF (available as option for models TOL30/50/75/100/150/300)	On: Off:	5 VDC (input resistance 1 KOhm) 0V or open circuit
Remote sensing (only TOL300 models)	– without sens line: – with sens line:	prewired connector included 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

Harness

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

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



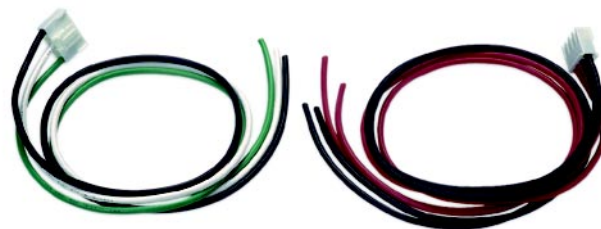
TOL open Frame with L - Bracket for Chassis Mounting



TOL with L - Bracket and Cover (Chassis / Cover Kit)

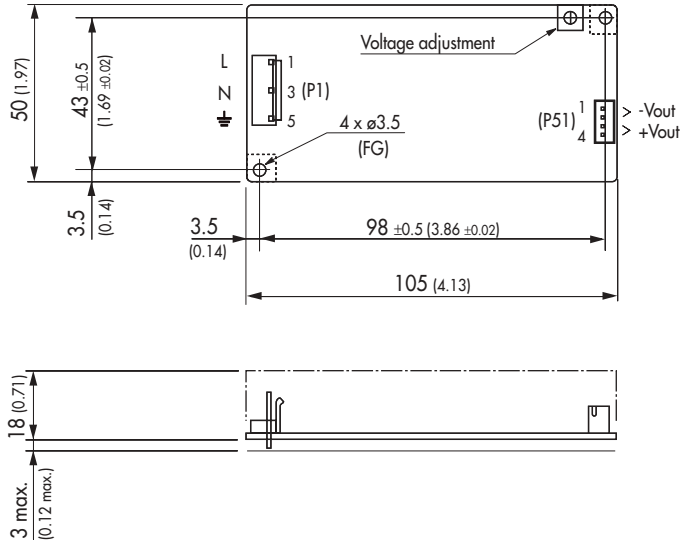


Mating Connectors with prewired flying Leads (500mm Length)



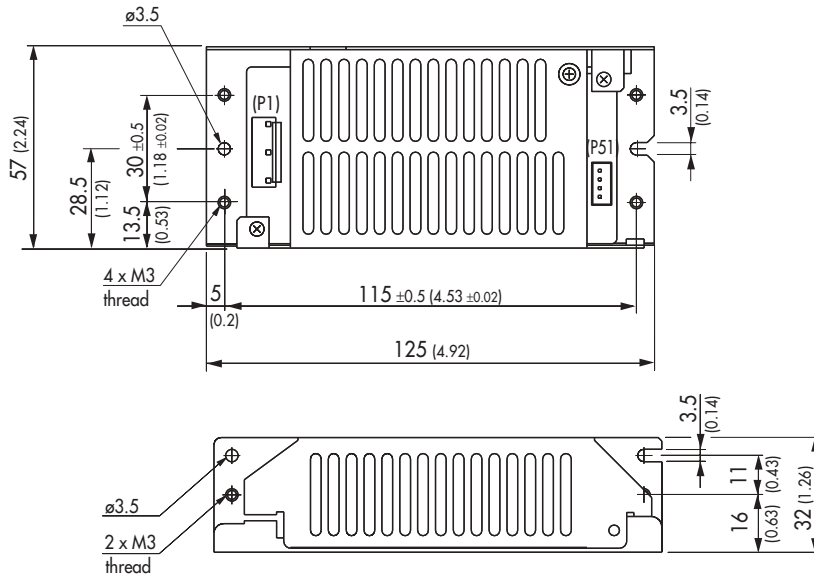
Outline Dimensions mm (inches)

TOL 10 standard open frame version



Weight
75 g (2.6 oz)

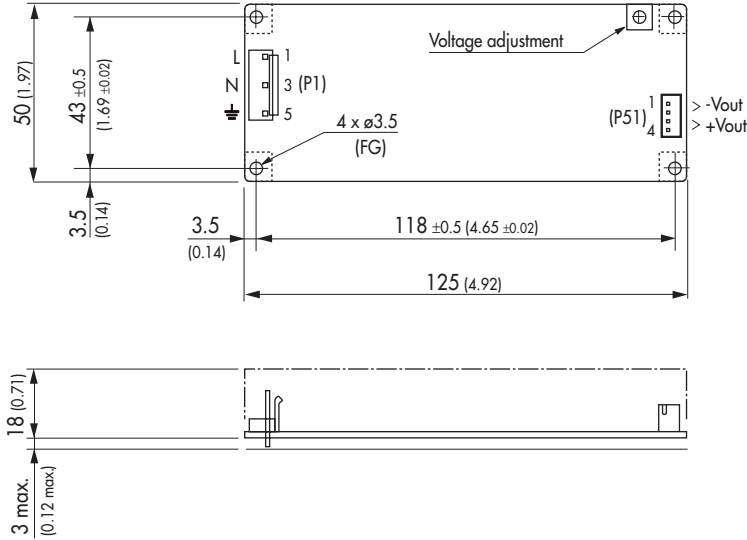
TOL 10 with chassis / cover option



Weight
170 g (17.6 oz)

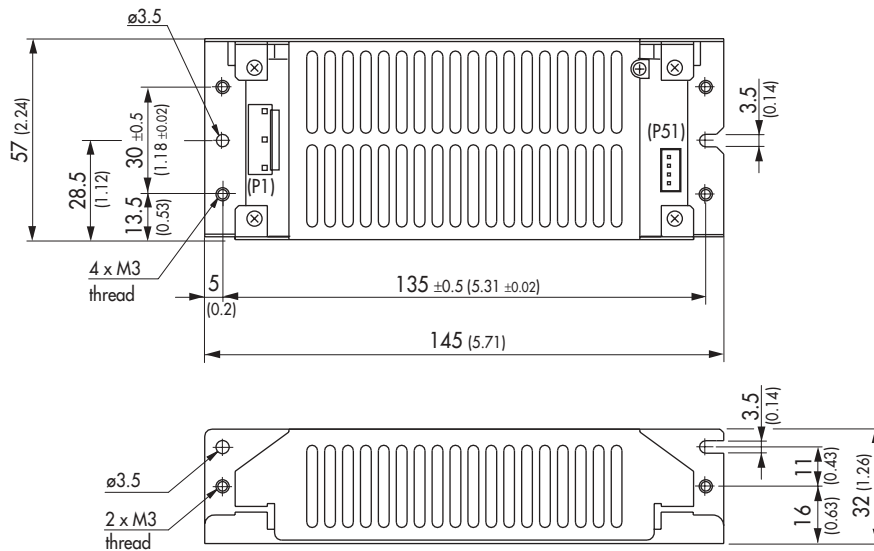
Outline Dimensions mm (inches)

TOL 15 standard open frame version



Weight
95 g (3.4 oz)

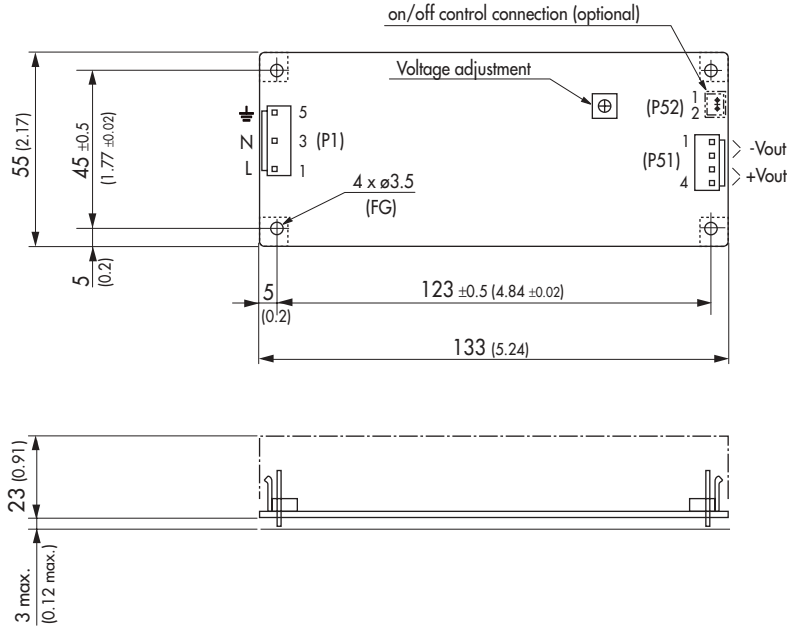
TOL 15 with chassis / cover option



Weight
210 g (7.4 oz)

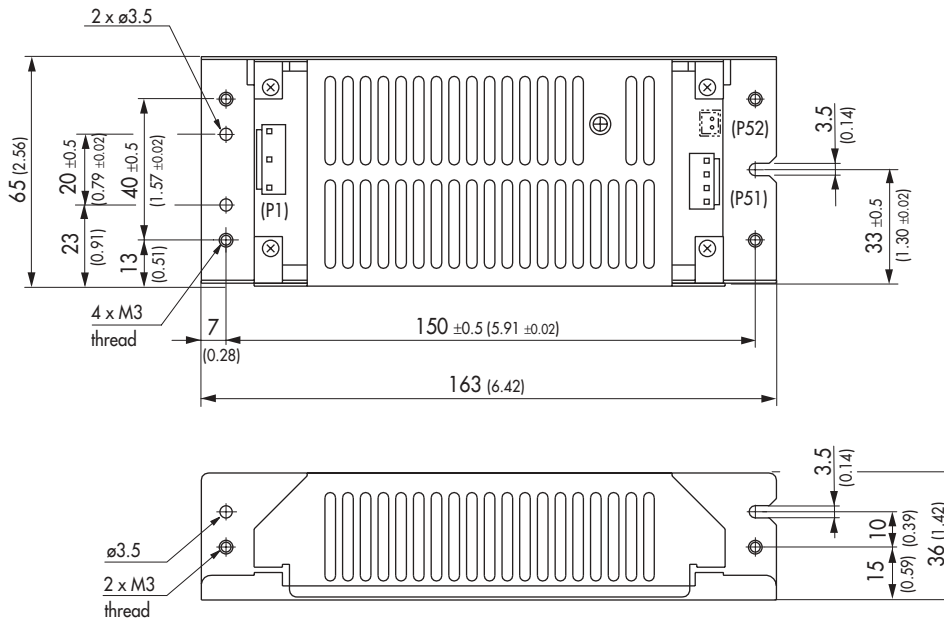
Outline Dimensions mm (inches)

TOL 30 standard open frame version



Weight
200 g (7.1 oz)

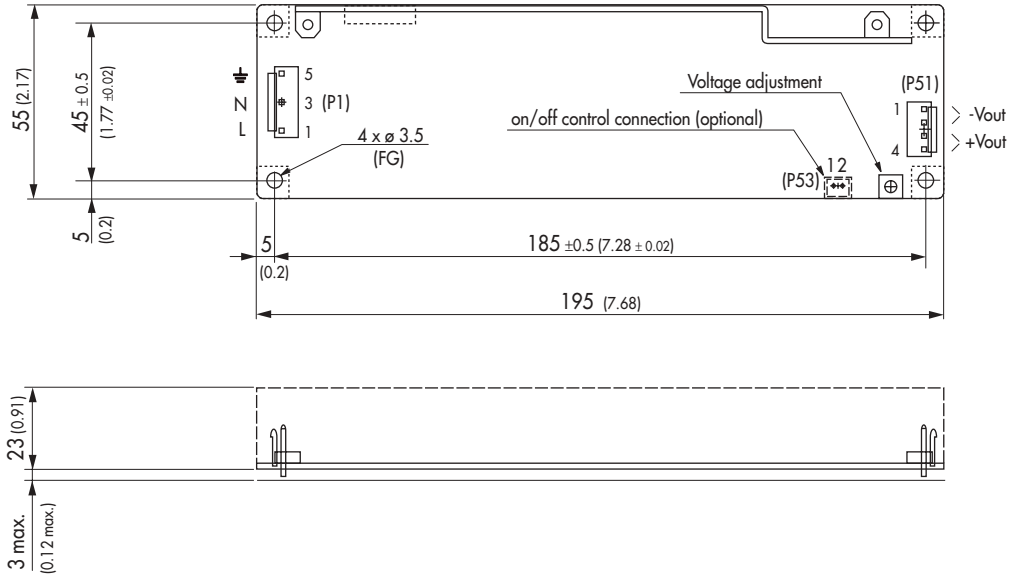
TOL 30 with chassis / cover option



Weight
280 g (9.9 oz)

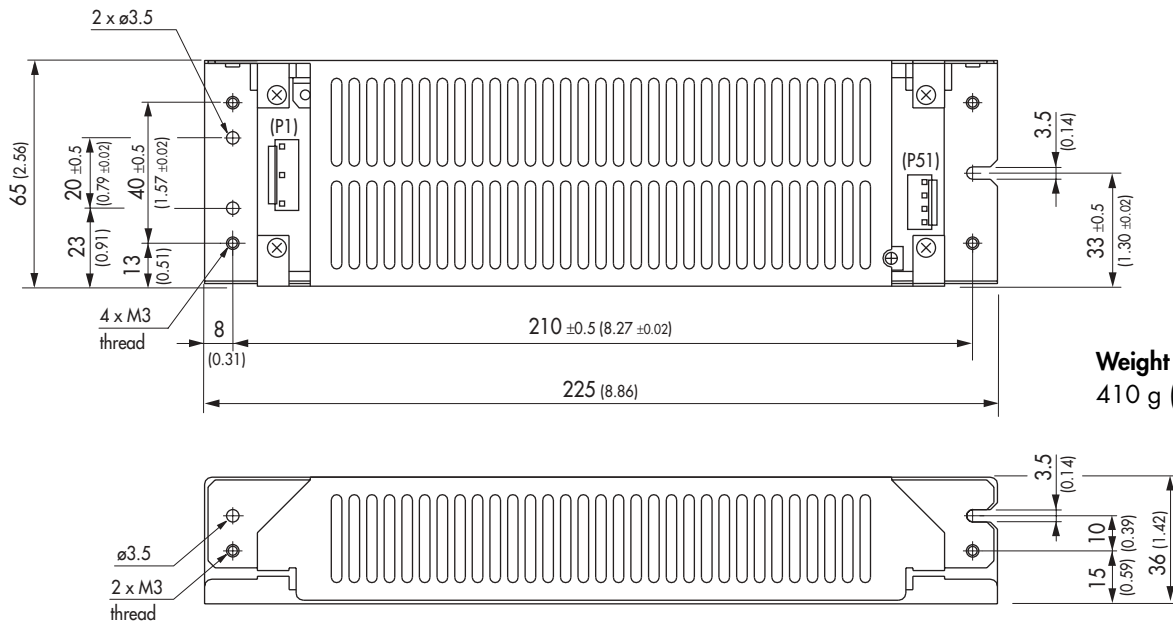
Outline Dimensions mm (inches)

TOL 50 standard open frame version



Weight
210 g (7.4 oz)

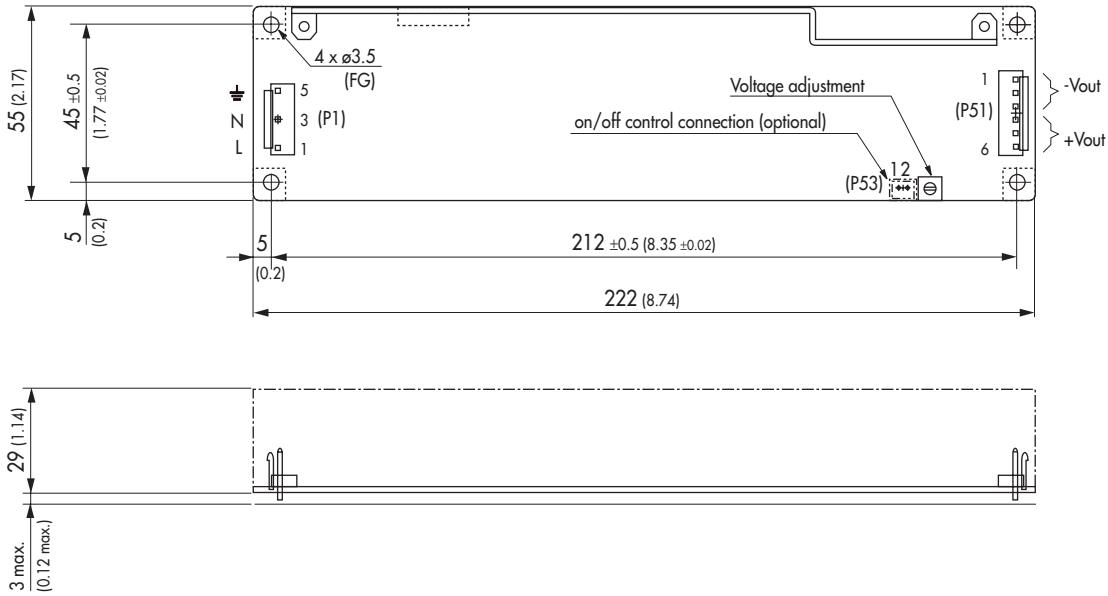
TOL 50 with chassis / cover option



Weight
410 g (14.5 oz)

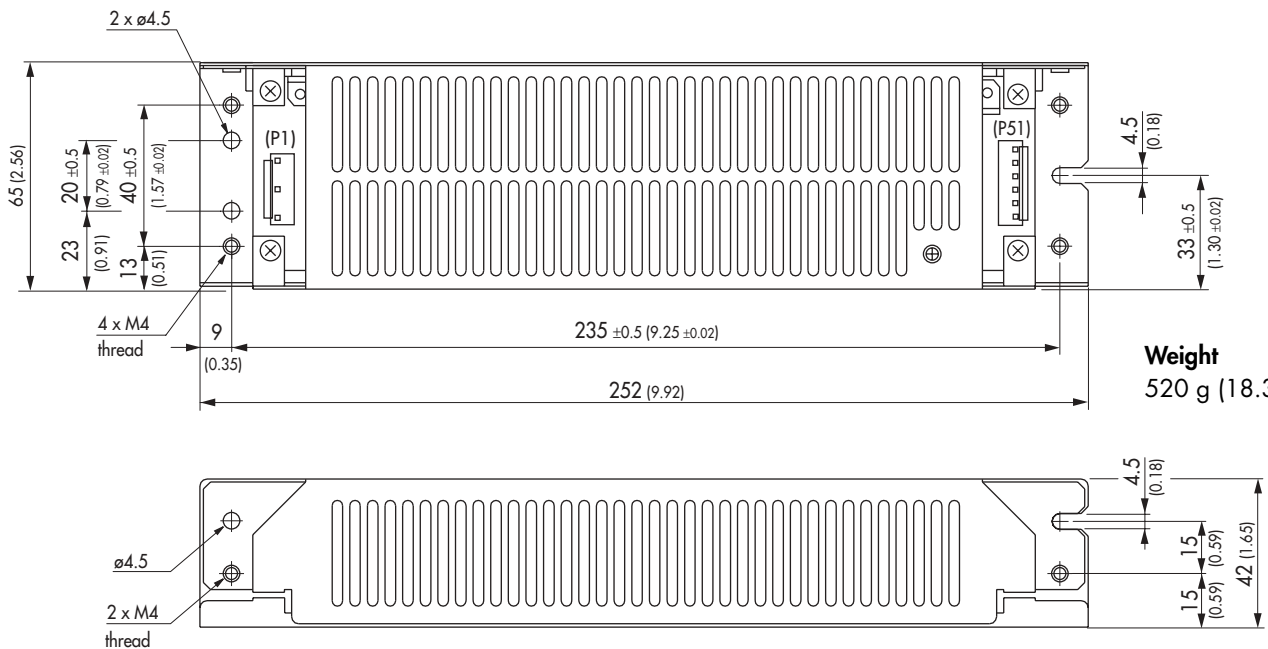
Outline Dimensions mm (inches)

TOL 75 standard open frame version



Weight
290 g (10.2 oz)

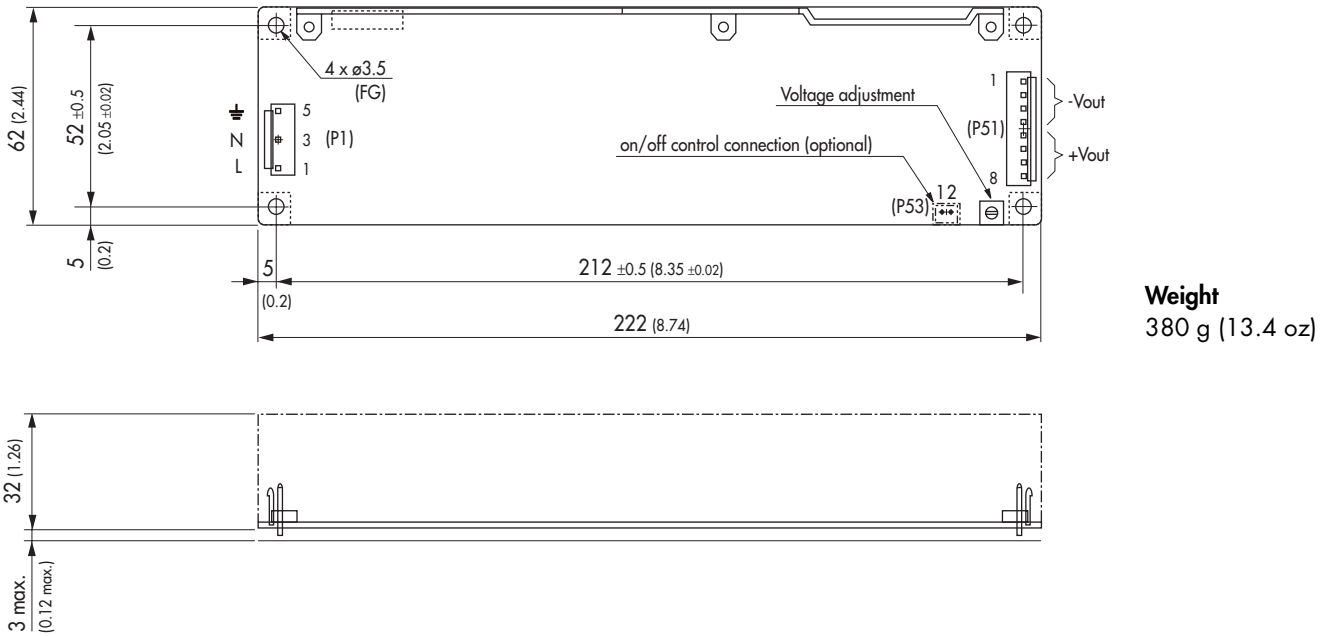
TOL 75 with chassis / cover option



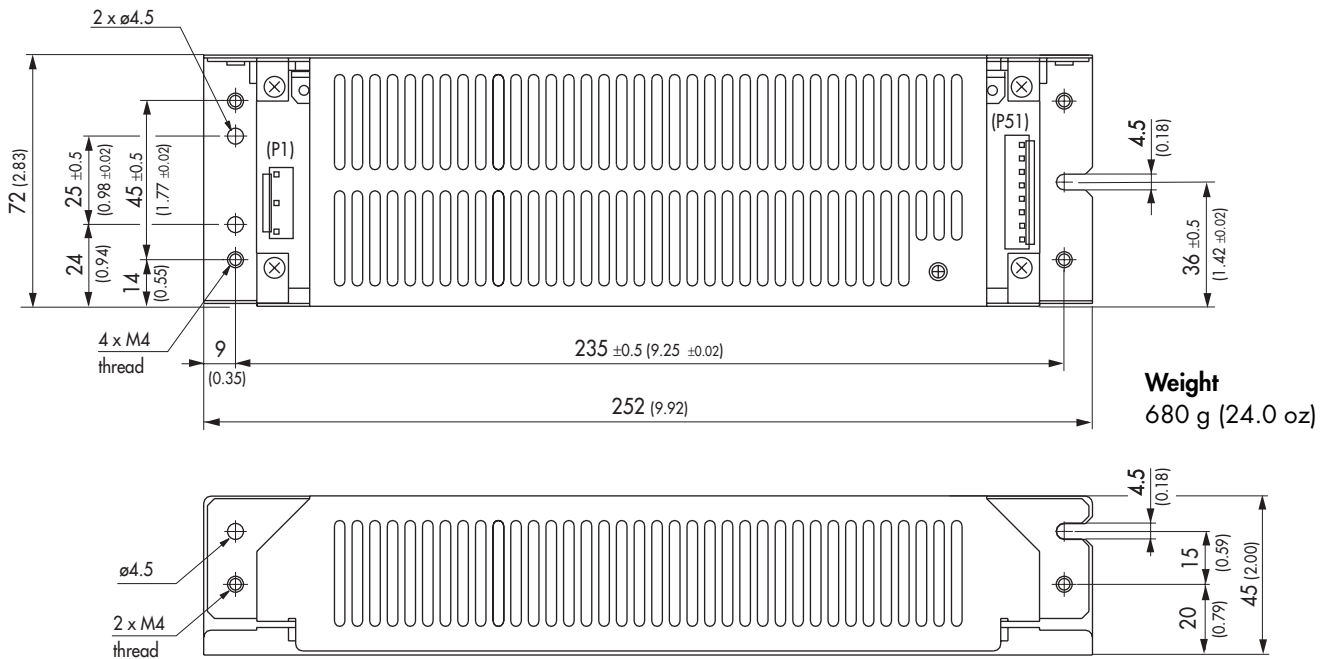
Weight
520 g (18.3 oz)

Outline Dimensions mm (inches)

TOL 100 standard open frame version

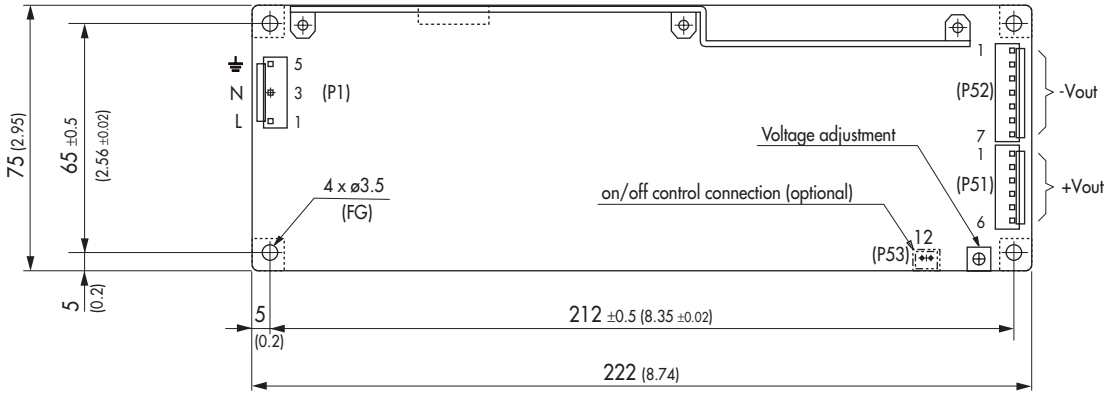


TOL 100 with chassis / cover option

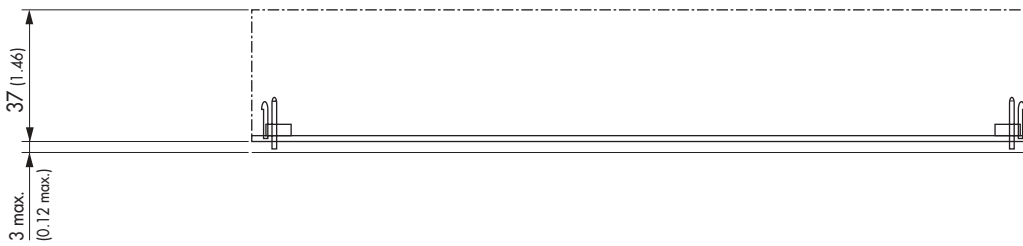


Outline Dimensions mm (inches)

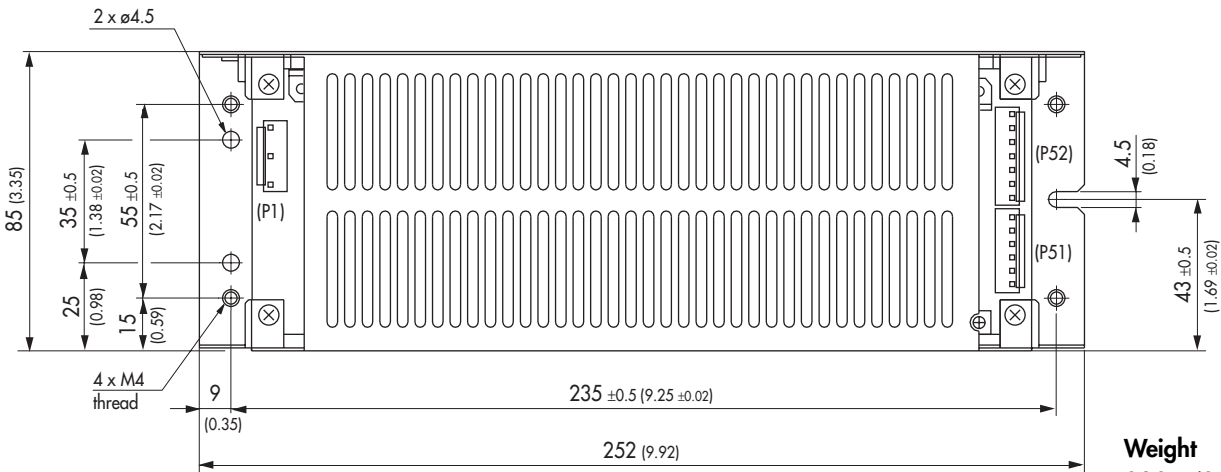
TOL 150 standard open frame version



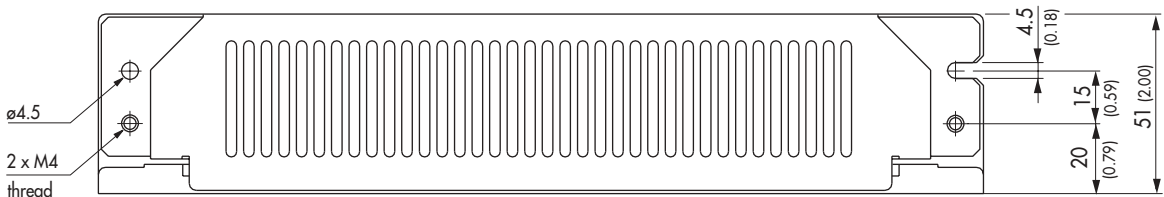
Weight
500 g (17.5 oz)



TOL 150 with chassis / cover option

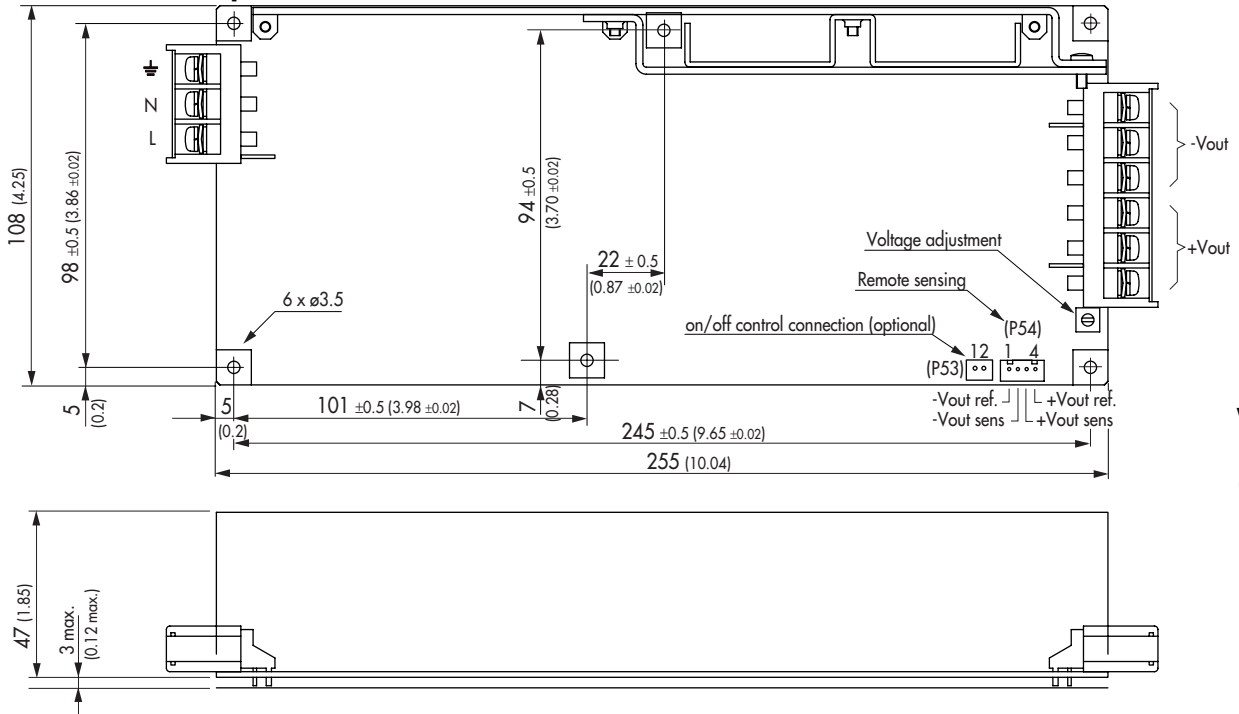


Weight
830 g (29.5 oz)



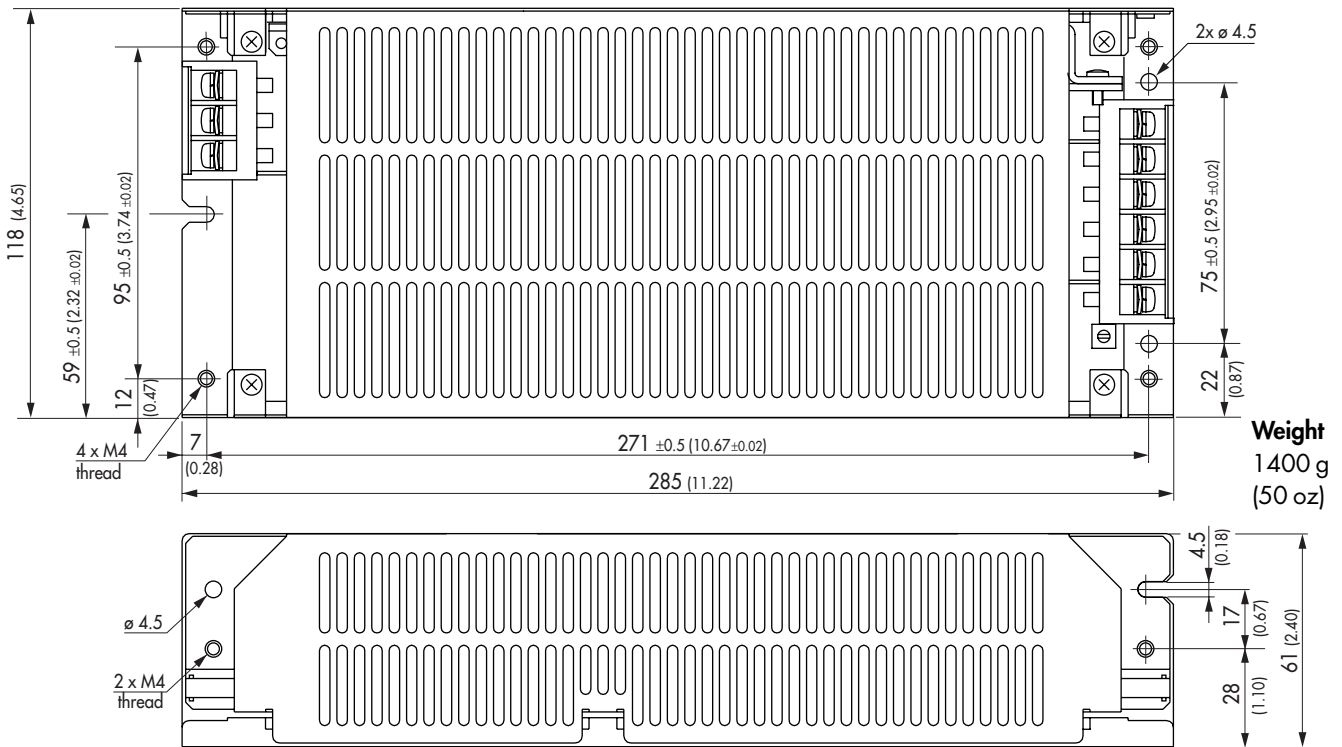
Outline Dimensions mm (inches)

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