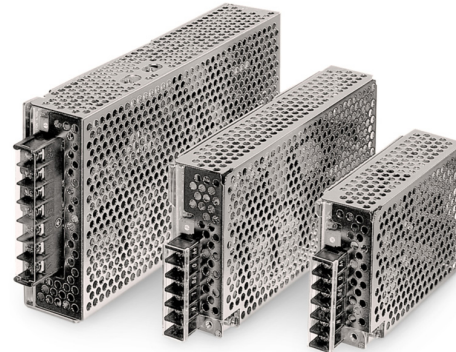


Features

- ◆ Compact boxed power supplies with screw terminal block
- ◆ Universal input 85-264 VAC, 50/60 Hz
- ◆ Short circuit and overvoltage protection
- ◆ High efficiency
- ◆ International safety approvals
- ◆ Industrial grade components
- ◆ 3-year product warranty

Obsolete

CE CB
Scheme



This range of compact switching power supplies are designed for all applications, where high reliability and long lifetime are important.

They provide excellent electric specifications and full compliance to international EMC and safety requirements.

Models

Order code	Output power	Output voltage	Output current max.		Efficiency	
			at 115 VAC	at 230 VAC	at 115 VAC	at 230 VAC
ESP 18-05SN ESP 18-12SN ESP 18-15SN ESP 18-24SN ESP 18-48SN <i>Obsolete discontinued March 2016</i>	18 Watt	5 VDC	3.0 A	3.6 A	75	75
		12 VDC	1.3 A	1.5 A	79	79
		15 VDC	1.0 A	1.2 A	80	80
		24 VDC	0.7 A	0.8 A	80	80
		48 VDC	0.35 A	0.4 A	80	80
ESP 36-05SN ESP 36-12SN ESP 36-15SN ESP 36-24SN ESP 36-48SN <i>Obsolete discontinued</i>	36 Watt	5 VDC	6.0 A	6.0 A	75	76
		12 VDC	2.6 A	3.0 A	78	79
		15 VDC	2.1 A	2.5 A	79	80
		24 VDC	1.4 A	1.5 A	80	81
		48 VDC	0.7 A	0.8 A	80	81
ESP 60-05SN ESP 60-12SN ESP 60-15SN ESP 60-24SN ESP 60-48SN <i>Obsolete discontinued</i>	60 Watt	5 VDC	10 A	10 A	73	75
		12 VDC	4.3 A	5.0 A	78	80
		15 VDC	3.5 A	4.0 A	79	81
		24 VDC	2.2 A	2.5 A	80	82
		48 VDC	1.1 A	1.1 A	80	82
ESP 75-05S ESP 75-12S ESP 75-15S ESP 75-24S ESP 75-48S <i>Obsolete discontinued December 2013</i>	75 Watt	5 VDC	15 A	15 A	78	81
		12 VDC	6.5 A	6.5 A	82	86
		15 VDC	5.2 A	5.2 A	83	87
		24 VDC	3.2 A	3.2 A	83	87
		48 VDC	1.6 A	1.6 A	83	87
ESP 100-05S ESP 100-12S ESP 100-15S ESP 100-24S ESP 100-48S <i>Obsolete discontinued</i>	100 Watt	5 VDC	20 A	20 A	80	82
		12 VDC	8.6 A	8.6 A	86	87
		15 VDC	7.0 A	7.0 A	84	86
		24 VDC	4.4 A	4.4 A	84	86
		48 VDC	2.2 A	2.2 A	84	86
ESP 150-05S ESP 150-12S ESP 150-15S ESP 150-24S ESP 150-48S	150 Watt	5 VDC	30 A	30 A	78	81
		12 VDC	13 A	13 A	82	86
		15 VDC	10 A	10 A	83	87
		24 VDC	6.5 A	6.5 A	83	87
		48 VDC	3.3 A	3.3 A	83	87

Input Specifications

Input voltage range	– nominal	115 – 230 VAC	
	– AC range (universal input)	85 – 264 VAC	
	– DC range	110 – 350 VDC	
Input frequency		47 – 63 Hz	
Input current (at full load)		$V_{in} = 115 \text{ VAC}$	$V_{in} = 230 \text{ VAC}$
	ESP 18 models:	0.23 A typ.	0.33 A typ.
	ESP 36 models:	0.40 A typ.	0.65 A typ.
	ESP 60 models:	0.72 A typ.	1.1 A typ.
	ESP 75 models:	0.45 A typ.	0.95 A typ.
	ESP 100 models:	0.65 A typ.	1.3 A typ.
	ESP 150 models:	0.85 A typ.	1.9 A typ.
Recommended circuit breaker characteristic C, or slow blow fuse	up to 75 Watt models:	5 A	
	100 & 150 Watt models:	10 A	
Start-up time	up to 60 Watt model:	100 ms max.	
	other models:	800 ms max. at 230 VAC, 1700 ms at 115 VAC	
Earth leakage current		750 μA max.	

Output Specifications

Output voltage adjustment range		$\pm 10 \%$	
Regulation	– Input variation	5 VDC models:	0.2 % max.
		other models:	0.1 % max.
	– Load variation (0–100%)	5 VDC models:	0.8 % max.
		$\leq 60 \text{ W}$, other models:	0.4 % max.
		$\geq 75 \text{ W}$, other models:	0.2 % max.
Temperature coefficient		0.02 %/K	
Minimum load		not required	
Ripple and noise (20Mhz Bandwidth) Measured with output Capacitors: 100 μF 100 μF Electrolytic and 0.1 μF film	5 VDC models:	120 mV p-p max.	
	12 – 24 VDC models:	150 mV p-p max.	
	48 VDC models:	200 mV p-p max.	
Output current limitation		105 – 120 % I_{nom} .	
Short circuit protection		indefinite, auto recovery	
Over voltage protection (Zener diode)		115 – 150 % $V_{out \text{ nom}}$.	
Capacitive load		10'000 μF	

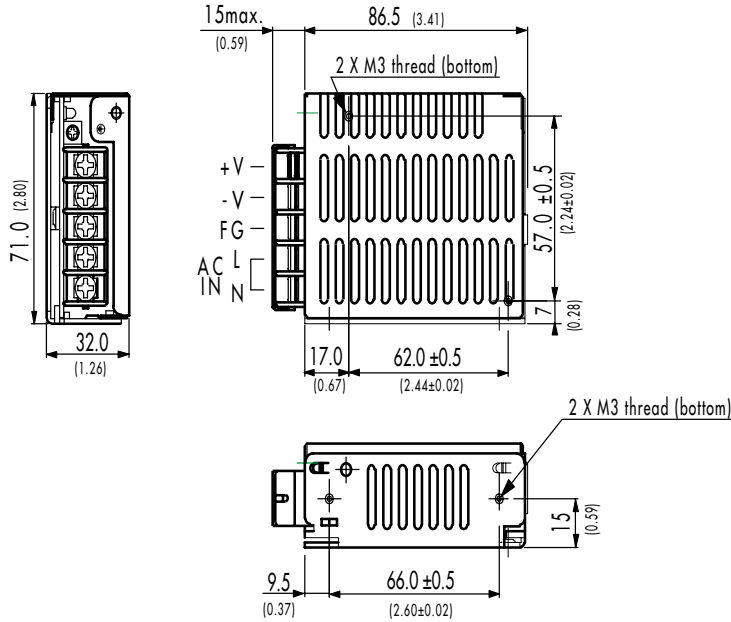
General Specifications

Temperature ranges	<ul style="list-style-type: none"> – Operating – Derating above +50°C all models – Storage (non operating) 	–10°C to +60°C 2 %/°C –20°C to +85°C
Humidity (non condensing)		85 % rel max.
Switching frequency		≤ 60 W models: 45 to 170 kHz (frequency modulation PFM) ≥ 75 W models: 120 kHz typ. (puls width modulation PWM)
Hold-up time	up to 60 Watt model: other models:	120 ms max. at 230 VAC, 20 ms at 115 VAC 40 ms typ.
Isolation voltage	<ul style="list-style-type: none"> – Input/ Output – Input/ Case – Output/ Case 	3'000 VAC 1'500 VAC 500 VAC
Reliability /calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	<ul style="list-style-type: none"> – ESP 18 & 36 models: – ESP 60 models: – other models 	>200'000 h >150'000 h >80'000 h
Electromagnetic compatibility (EMC), Emissions	<ul style="list-style-type: none"> – Conducted RI suppression – Harmonic current emissions 	EN 55022, class B, FCC part 15, level B IEC/EN 61000-3-2, (for ≥ 75 W models) class D equipment
Electromagnetic compatibility (EMC), Immunity (all single output models)	<ul style="list-style-type: none"> – Electrostatic discharge ESD – RF field immunity – Electrical fast transients/burst immunity – Surge – Voltage dip 	IEC/EN 61000-4-2 4 kV/ 8 kV IEC/EN 61000-4-3 10 mV/m IEC/EN 61000-4-4 1 kV IEC/EN 61000-4-5 1 kV/ 2 kV IEC/EN 61000-4-11
Safety standards		UL 60950, IEC/EN 60950-1
Safety approvals	<ul style="list-style-type: none"> – UL/cUL 60950 (1950) – CB report according to IEC 60950-1 	ESP 18 models: www.ul.com -> certifications -> File e188913 www.tracopower.com/products/esp18-cb.pdf ESP 36 models: new report pending ESP 60 models: www.tracopower.com/products/esp60-cb.pdf ESP 75 models: www.tracopower.com/products/esp75-cb.pdf ESP 100 models: www.tracopower.com/products/esp100-cb.pdf ESP 150 models: www.tracopower.com/products/esp150-cb.pdf
Degree of protection		class I
Environment	<ul style="list-style-type: none"> – Vibration – Shock 	sine sweep, 10–50Hz, 0.5mm, 1 min. cycle 3 axes each 30 min. 20 G (3 axes, 3 times)
Casing material		stainless steel

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

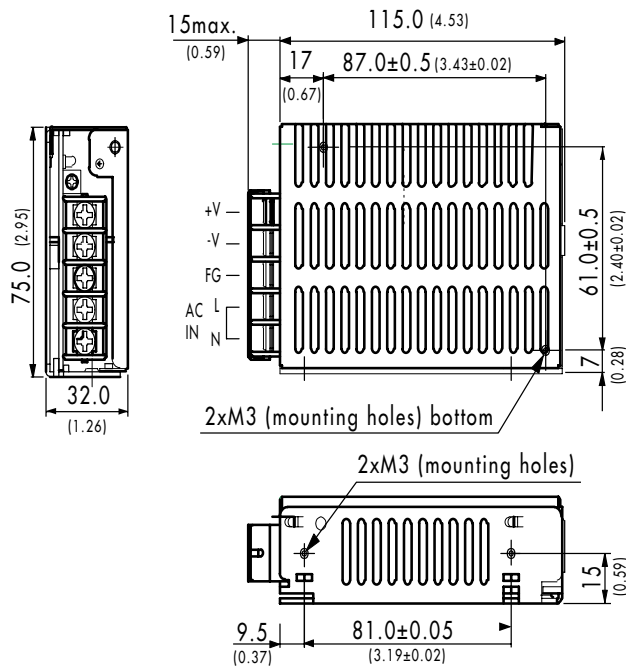
Outline Dimensions mm (inches)

ESP 18 models:



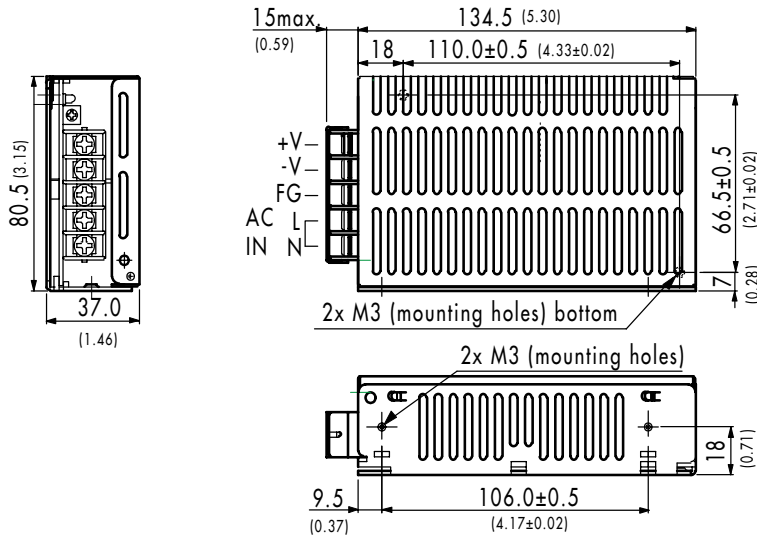
Weight ESP 18 200 g (0.44 lb)
 ESP 36 300 g (0.66 lb)

ESP 36 models:



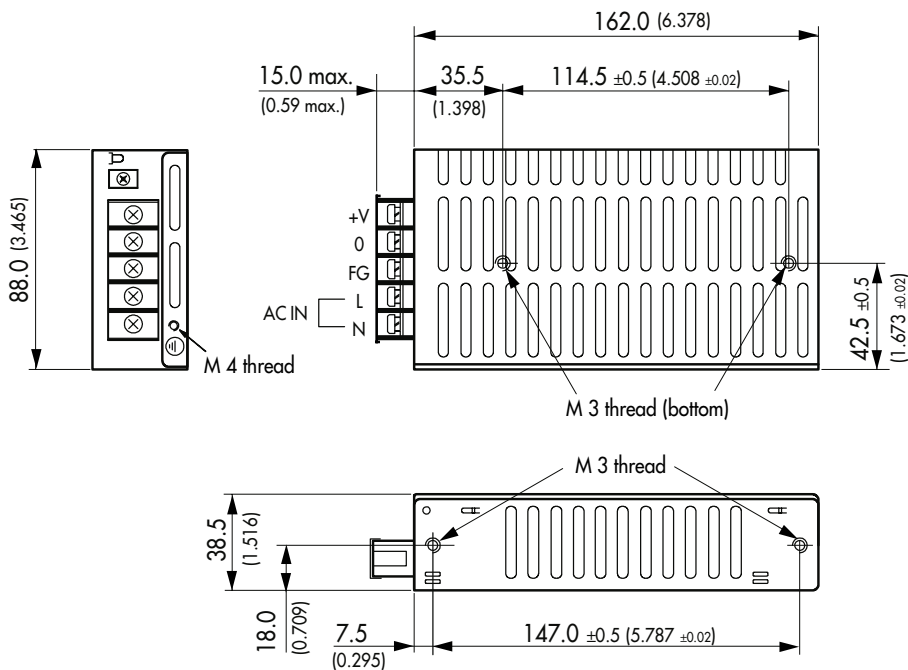
Outline Dimensions mm (inches)

ESP 60 models:



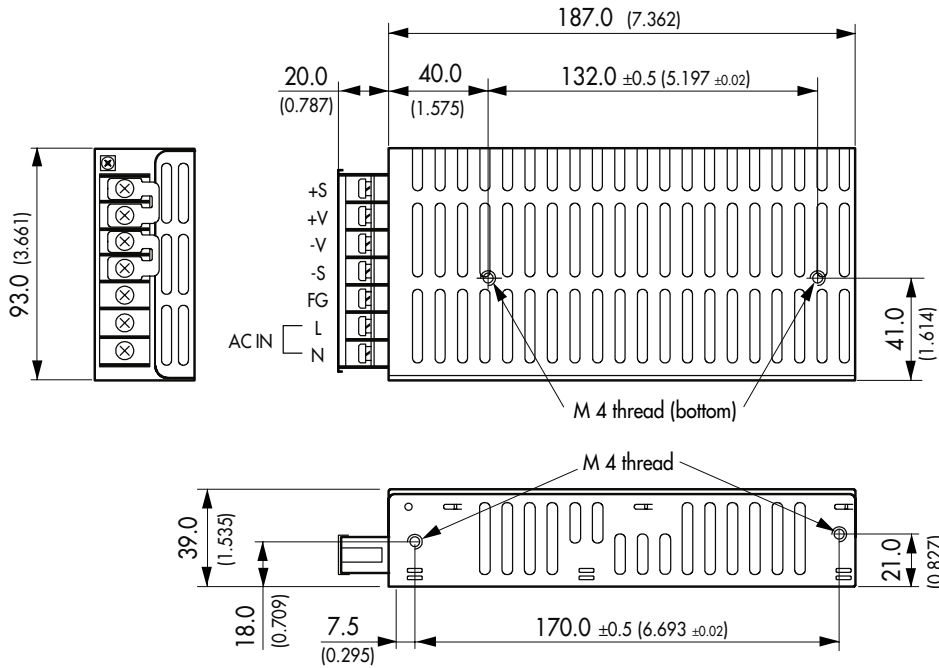
Weight	ESP 60 480 g (1.06 lb)
	ESP 75 490 g (1.08 lb)

ESP 75 models:



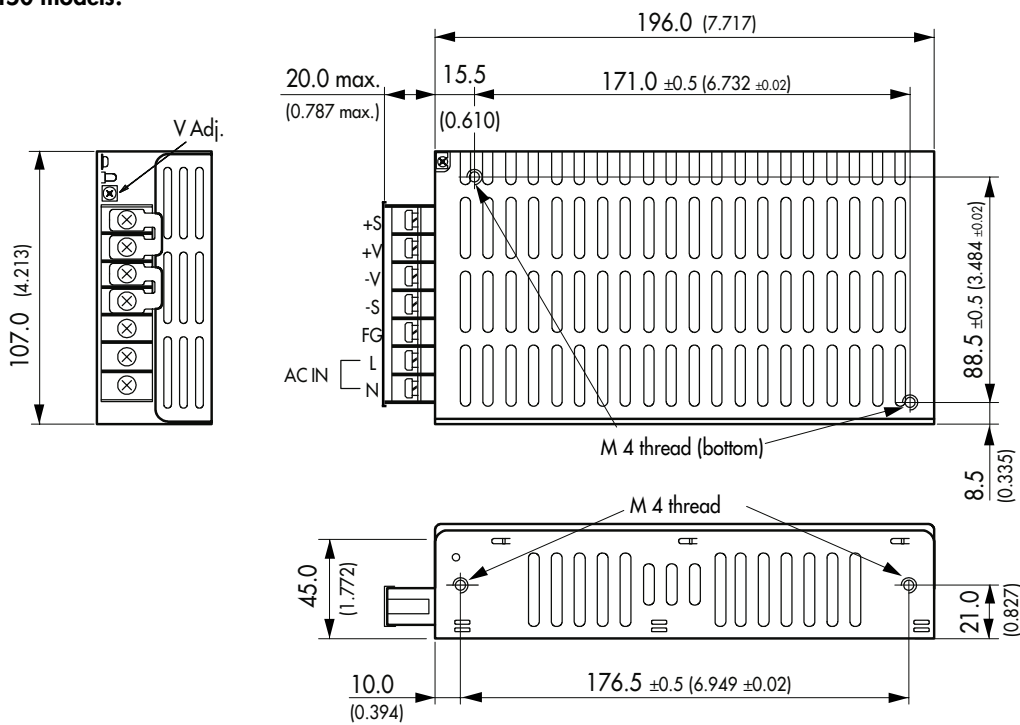
Outline Dimensions mm (inches)

ESP 100 models:



Weight	ESP 100	690 g (1.52 lb)
	ESP 150	900 g (1.98 lb)

ESP 150 models:



Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com