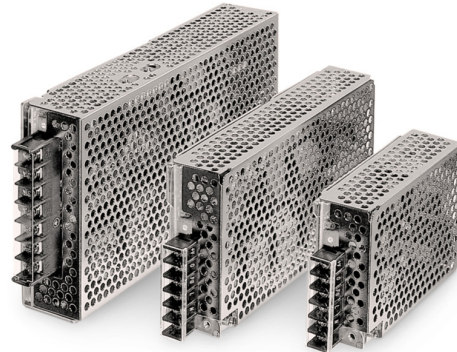


Features

- ◆ 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
Obsolete discontinued March 2016	ESP 18-05SN	18 Watt	5 VDC	3.0 A	3.6 A	75	75
	ESP 18-12SN		12 VDC	1.3 A	1.5 A	79	79
	ESP 18-15SN		15 VDC	1.0 A	1.2 A	80	80
	ESP 18-24SN		24 VDC	0.7 A	0.8 A	80	80
	ESP 18-48SN		48 VDC	0.35 A	0.4 A	80	80
Obsolete discontinued March 2016	ESP 36-05SN	36 Watt	5 VDC	6.0 A	6.0 A	75	76
	ESP 36-12SN		12 VDC	2.6 A	3.0 A	78	79
	ESP 36-15SN		15 VDC	2.1 A	2.5 A	79	80
	ESP 36-24SN		24 VDC	1.4 A	1.5 A	80	81
	ESP 36-48SN		48 VDC	0.7 A	0.8 A	80	81
Obsolete discontinued March 2016	ESP 60-05SN	60 Watt	5 VDC	10 A	10 A	73	75
	ESP 60-12SN		12 VDC	4.3 A	5.0 A	78	80
	ESP 60-15SN		15 VDC	3.5 A	4.0 A	79	81
	ESP 60-24SN		24 VDC	2.2 A	2.5 A	80	82
	ESP 60-48SN		48 VDC	1.1 A	1.1 A	80	82
Obsolete discontinued December 2013	ESP 75-05S	75 Watt	5 VDC	15 A	15 A	78	81
	ESP 75-12S		12 VDC	6.5 A	6.5 A	82	86
	ESP 75-15S		15 VDC	5.2 A	5.2 A	83	87
	ESP 75-24S		24 VDC	3.2 A	3.2 A	83	87
	ESP 75-48S		48 VDC	1.6 A	1.6 A	83	87
Obsolete discontinued December 2013	ESP 100-05S	100 Watt	5 VDC	20 A	20 A	80	82
	ESP 100-12S		12 VDC	8.6 A	8.6 A	86	87
	ESP 100-15S		15 VDC	7.0 A	7.0 A	84	86
	ESP 100-24S		24 VDC	4.4 A	4.4 A	84	86
	ESP 100-48S		48 VDC	2.2 A	2.2 A	84	86
Obsolete discontinued December 2013	ESP 150-05S	150 Watt	5 VDC	30 A	30 A	78	81
	ESP 150-12S		12 VDC	13 A	13 A	82	86
	ESP 150-15S		15 VDC	10 A	10 A	83	87
	ESP 150-24S		24 VDC	6.5 A	6.5 A	83	87
	ESP 150-48S		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 VAC	V _{in} = 230 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

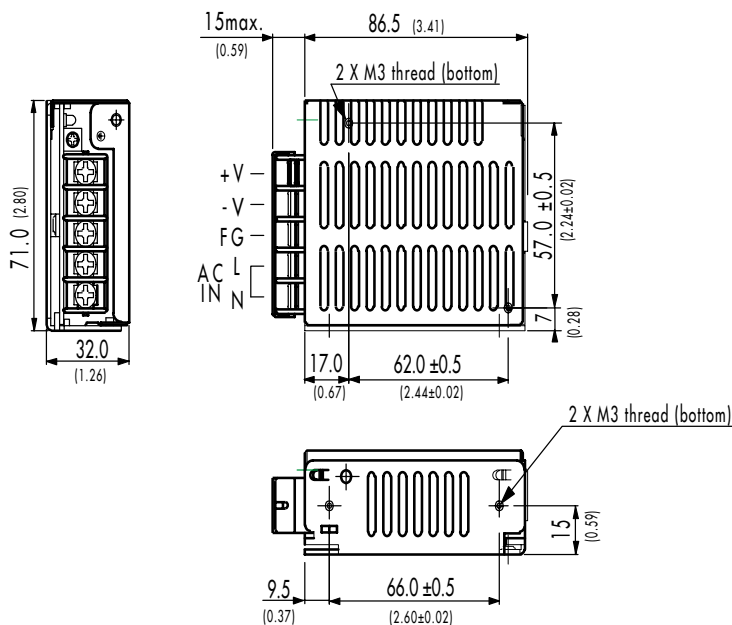
Output voltage adjustment range			±10 %
Regulation	– Input variation	5 VDC models:	0.2 % max.
		other models:	0.1 % max.
	– Load variation (0–100%)	5 VDC models:	0.8 % max.
		≤ 60 W, other models:	0.4 % max.
		≥ 75 W, other models:	0.2 % max.
Temperature coefficient			0.02 %/K
Minimum load			not required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

General Specifications

Temperature ranges	– Operating	–10°C to +60°C
	– Derating above +50°C all models	2 %/°C
	– Storage (non operating)	–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:	120 ms max. at 230 VAC, 20 ms at 115 VAC
	other models:	40 ms typ.
Isolation voltage	– Input/ Output	3'000 VAC
	– Input/ Case	1'500 VAC
	– Output/ Case	500 VAC
Reliability /calculated MTBF (MIL-HDBK217F, at +25°C, ground benign)	– ESP 18 & 36 models:	>200'000 h
	– ESP 60 models:	>150'000 h
	– other models	>80'000 h
Electromagnetic compatibility (EMC), 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)		
– Electrostatic discharge ESD		IEC/EN 61000-4-2 4 kV/ 8 kV
– RF field immunity		IEC/EN 61000-4-3 10 mV/m
– Electrical fast transients/burst immunity		IEC/EN 61000-4-4 1 kV
– Surge		IEC/EN 61000-4-5 1 kV/ 2 kV
– Voltage dip		IEC/EN 61000-4-11
Safety standards		UL 60950, IEC/EN 60950-1
Safety approvals	– UL/cUL 60950 (1950)	www.ul.com -> certifications -> File e188913
	– CB report	www.tracopower.com/products/esp18-cb.pdf
	according to IEC 60950-1	new report pending
	ESP 18 models:	www.tracopower.com/products/esp60-cb.pdf
	ESP 36 models:	www.tracopower.com/products/esp75-cb.pdf
	ESP 60 models:	www.tracopower.com/products/esp100-cb.pdf
	ESP 75 models:	www.tracopower.com/products/esp150-cb.pdf
	ESP 100 models:	
	ESP 150 models:	
Degree of protection		class I
Environment	– Vibration	sine sweep, 10–50Hz, 0.5mm, 1 min. cycle 3 axes each 30 min.
	– Shock	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.

ESP 18 models:

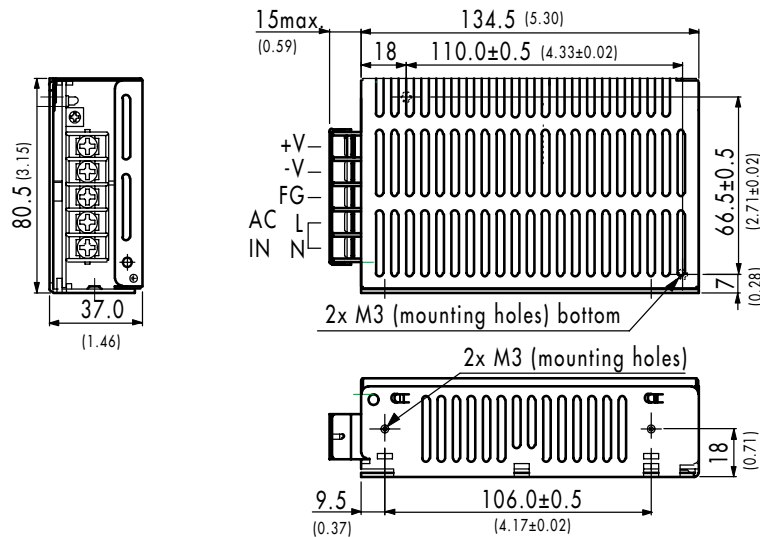


Weight	ESP 18	200 g (0.44 lb)
	ESP 36	300 g (0.66 lb)

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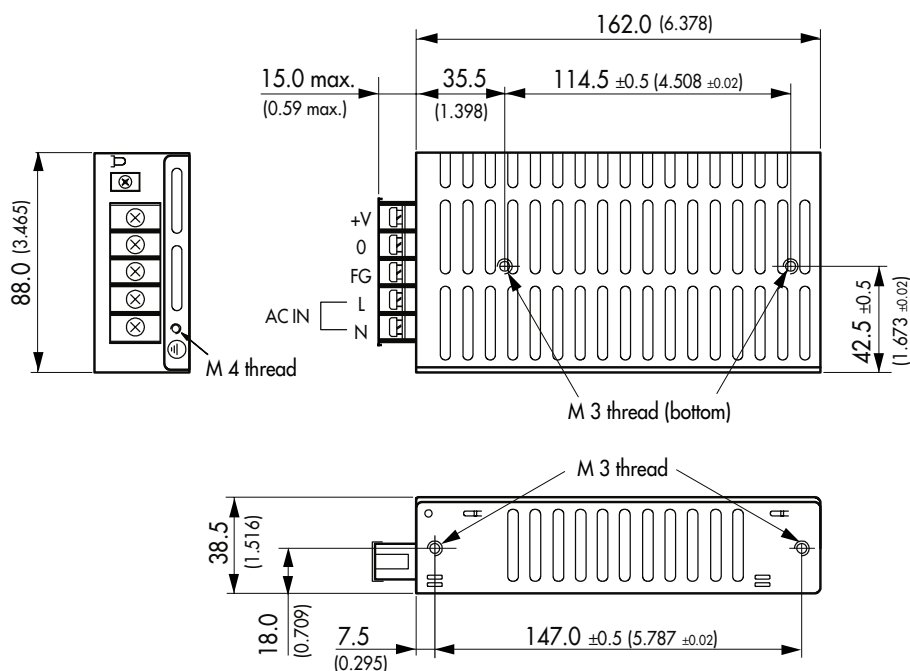
Outline Dimensions mm (inches)

ESP 60 models:



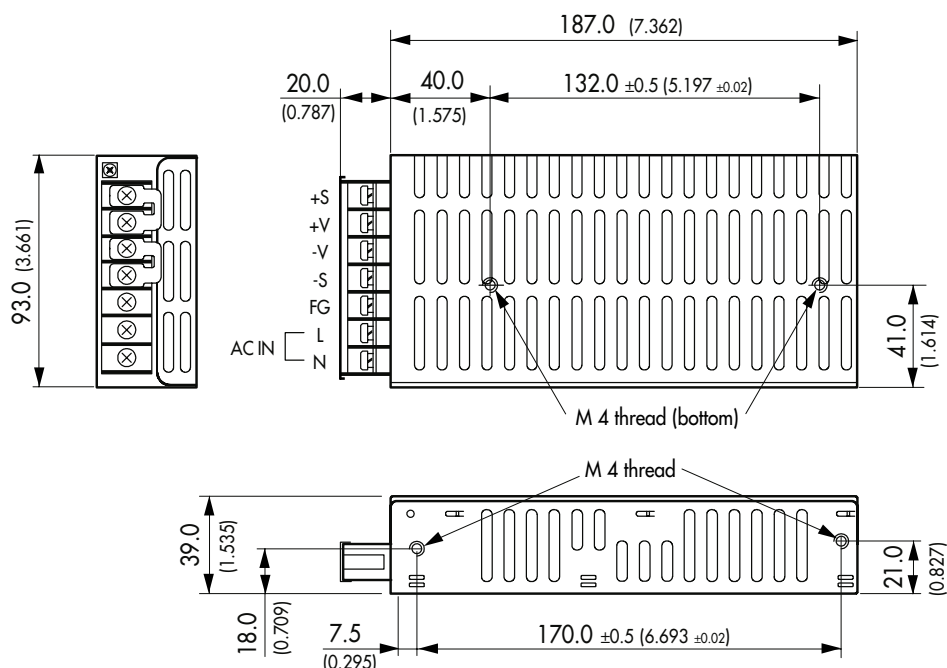
Weight	ESP 60	480 g (1.06 lb)
	ESP 75	490 g (1.08 lb)

ESP 75 models:



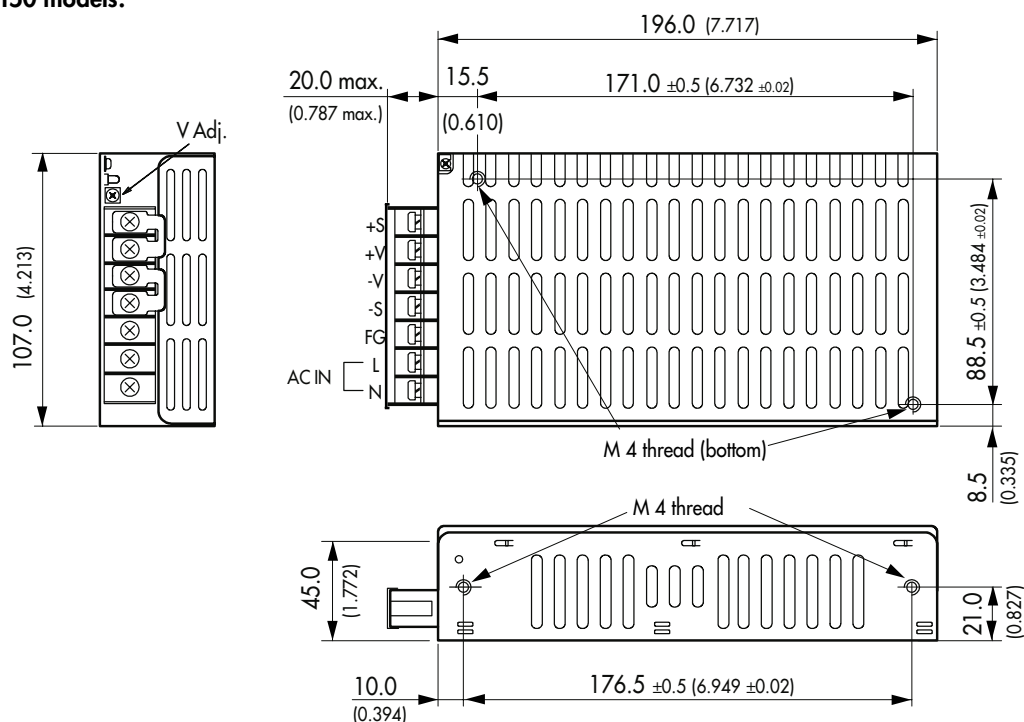
Outline Dimensions mm (inches)

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

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