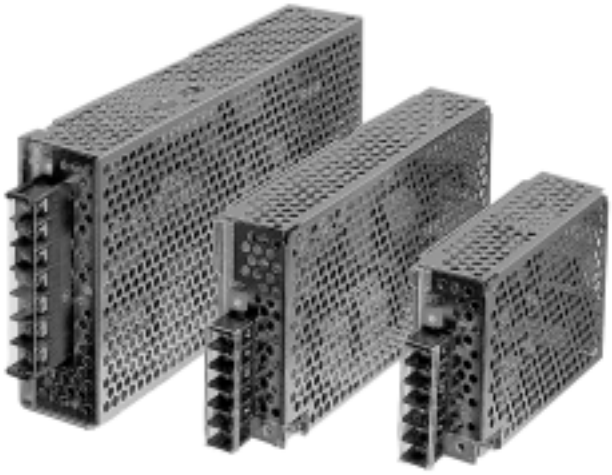
Switching Power Supplies

ESP Series 18 - 150 Watt

Features

- Compact boxed Power Supplies with Screw Terminal Block
- Single, Dual and Triple Output Models
- Universal Input 85-264 VAC, 50/60 Hz
- EMI / EMC Compliance with EN 50081-1 and EN 50082-1
- Short Circuit and Overvoltage Protection
- High Efficiency
- International Safety Approvals
- Industrial Grade Components
- 2 Year Product Warranty



This range of very 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 the European EMC and Low Voltage Directive. Universal input and international safety approvals qualify these power supplies for worldwide use.
With their low profile case and screw terminal block they are easy to install in any equipment.

Models with Single Output

Ordercode	Output Power	Output Voltage	Output Current max.
ESP 18-03S	18 Watt	3.3 VDC	3.6 A
ESP 18-05S		5 VDC	3.6 A
ESP 18-12S		12 VDC	1.5 A
ESP 18-15S		15 VDC	1.2 A
ESP 18-24S		24 VDC	0.8 A
ESP 18-48S		48 VDC	0.4 A
ESP 36-03S	36 Watt	3.3 VDC	7.0 A
ESP 36-05S		5 VDC	7.0 A
ESP 36-12S		12 VDC	3.0 A
ESP 36-15S		15 VDC	2.5 A
ESP 36-24S		24 VDC	1.5 A
ESP 36-48S		48 VDC	0.8 A
ESP 60-03S	60 Watt	3 VDC	12 A
ESP 60-05S		5 VDC	12 A
ESP 60-12S		12 VDC	5.5 A
ESP 60-15S		15 VDC	4.4 A
ESP 60-24S		24 VDC	2.5 A
ESP 60-48S		48 VDC	1.4 A

Models with Single Output

Ordercode	Output Power	Output Voltage	Output Current max.
ESP 75-05S	75 Watt	5 VDC	15.0 A
ESP 75-12S		12 VDC	6.5 A
ESP 75-15S		15 VDC	5.2 A
ESP 75-24S		24 VDC	3.2 A
ESP 75-48S		48 VDC	1.6 A
ESP 100-05S	100 Watt	5 VDC	20 A
ESP 100-12S		12 VDC	8.6 A
ESP 100-15S		15 VDC	7.0 A
ESP 100-24S		24 VDC	4.4 A
ESP 100-48S		48 VDC	2.2 A
ESP 150-05S	150 Watt	5 VDC	30 A
ESP 150-12S		12 VDC	13 A
ESP 150-15S		15 VDC	10 A
ESP 150-24S		24 VDC	6.5 A
ESP 150-48S		48 VDC	3.3 A

Models with Multioutput

Ordercode	Output Power	Output1 (floating)	Output 2	Output 3
ESP 18-122D	18 Watt	12 VDC / 1.2 A	12 VDC / 0.6 A	
ESP 18-153D		15 VDC / 1.0 A	15 VDC / 0.5 A	
ESP 18-0522T		5 VDC / 2.0 A	+12 VDC / 0.5 A	-12 VDC / 0.5 A
ESP 18-0533T		5 VDC / 2.0 A	+15 VDC / 0.45 A	-15 VDC / 0.45 A
ESP 36-122D	36 Watt	12 VDC / 2.2 A	12 VDC / 1.2 A	
ESP 36-153D		15 VDC / 1.8 A	15 VDC / 1.0 A	
ESP 36-0522T		5 VDC / 4.0 A	+12 VDC / 1.2 A	-12 VDC / 0.6 A
ESP 36-0533T		5 VDC / 4.0 A	+15 VDC / 1.0 A	-15 VDC / 0.5 A
ESP 50-0522T	50 Watt	5 VDC / 6.0 A	+12 VDC / 2.0 A	-12 VDC / 1.0 A
ESP 50-0533T		5 VDC / 6.0 A	+15 VDC / 1.4 A	-15 VDC / 1.0 A
ESP 80-0522T	80 Watt	5 VDC / 10 A	+12 VDC / 3.0 A	-12 VDC / 1.5 A
ESP 80-0533T		5 VDC / 10 A	+15 VDC / 2.4 A	-15 VDC / 1.2 A

Do not exceed specified max. output power ratings

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

Input Specifications

Input voltage range		85 – 264 VAC	
	only for ESP 18 / 36 / 60	110 – 350 VDC	
Input frequency		47 – 63 Hz	
Input current (at full load)		Vin = 115 VAC	Vin = 230 VAC
	ESP 18	0.36 A typ.	0.24 A typ.
	ESP 36	0.7 A typ.	0.48 A typ.
	ESP 50	0.7 A typ.	0.3 A typ.
	ESP 60	1.2 A typ.	0.75 A typ.
	ESP 75	0.95 A typ.	0.45 A typ.
	ESP 80	1.2 A typ.	0.5 A typ.
	ESP 100	1.3 A typ.	0.65 A typ.
	ESP 150	1.9 A typ.	0.85 A typ.
Inrush current at 25°C (< 2ms)		Vin = 115 VAC	Vin = 230 VAC
	ESP 18 Single output	12 A typ.	24 A typ.
	ESP 18 Mulioutput	5.5 A typ.	14 A typ.
	ESP 36 Single output	13 A typ.	35 A typ.
	ESP 36 Mulioutput	15 A typ.	30 A typ.
	ESP 50	10 A typ.	20 A typ.
	ESP 60	16 A typ.	45 A typ.
	ESP 75	16 A typ.	39 A typ.
	ESP 80	15 A typ.	30 A typ.
	ESP 100	15 A typ.	25 A typ.
	ESP 150	13 A typ.	31 A typ.
Start-up time		Vin = 115 VAC	Vin = 230 VAC
	ESP 18 Single output	100 ms max.	100 ms max.
	ESP 18 Mulioutput	200 ms max.	200 ms max.
	ESP 36 Single output	100 ms max.	100 ms max.
	ESP 36 Mulioutput	100 ms max.	100 ms max.
	ESP 50	1500 ms max.	600 ms max.
	ESP 60	100 ms max.	100 ms max.
	ESP 75	1700 ms max.	800 ms max.
	ESP 80	1500 ms max.	500 ms max.
	ESP 100	1600 ms max.	800 ms max.
	ESP 150	1600 ms max.	740 ms max.

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

Output Specifications

Output voltage adjustment range	– Single output models		± 10 %
	– Mulioutput models (Output 1)		+ 5 % / – 0%
		(Output 2 & 3)	± 3 % (Factory set / fixed)
Regulation	– Input variation		± 0.5 % max.
	– Load variation (10 – 90 %)		± 1.0 % max.
Ripple and noise (20Mhz Bandwidth)			75 mV pk-pk max.
Output current limitation			105 – 120 % Inom.
Overload protection mode		ESP 18 – 80	Fold back
		ESP 100 / 150	Constant current
Over voltage protection (only output 1)			110 – 130 % Vout nom.
Capacitive load			10'000 µF

General Specifications

Temperature ranges	– Operating		– 10 °C…+60 °C ambient temp. max.
	– Derating above 50°C all models		5% / °C
	– Storage (non operating)		– 20 °C…+85 °C
Temperature coefficient			0.02 % / °C
Efficiency			70 – 87 % (depending on model)
Humidity (non condensing)			85 % rel max.
Switching frequency		ESP 18 / 36 / 50 / 60	100 kHz typ. (frequency modulation PFM)
		all other models	100 kHz typ. (puls width modulation PWM)

Hold-up time	Vin = 115 VAC	Vin = 230 VAC
ESP 18 Single output	15 ms typ .	70 ms typ.
ESP 18 Mulioutput	20 ms typ.	120 ms typ.
ESP 36 Single output	20 ms typ.	120 ms typ.
ESP 36 Mulioutput	30 ms typ.	150 ms typ.
ESP 50	60 ms typ.	80 ms typ.
ESP 60	20 ms typ.	120 ms typ.
ESP 75	40 ms typ.	50 ms typ.
ESP 80	60 ms typ.	80 ms typ.
ESP 100	50 ms typ.	70 ms typ.
ESP 150	40 ms typ.	60 ms typ.

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

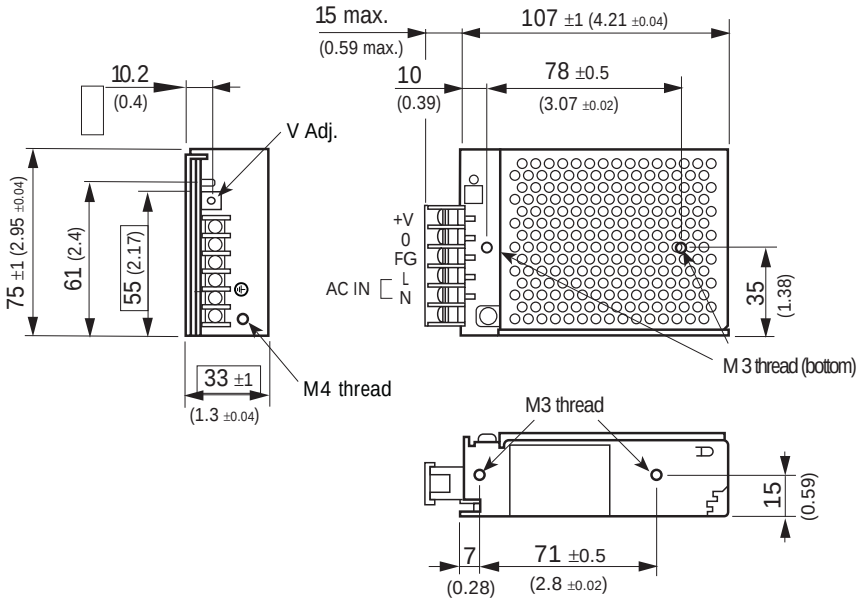
General Specifications

Isolation voltage	– Input / Output	3‘000 VAC
	– Input / Case	1‘500 VAC
	– Outpu / Case	500 VAC
Reliability / calculated MTBF (MIL-HDBK-217E)		
	– ESP 18 / 36 / 60 / 75 (single output)	> 200‘000 h @ 25°C
	– ESP 18 / 36 / 50 / 80 (multioutput)	> 150’000 h @ 25°C
	– ESP 100 / 150	> 80’000 h @ 25°C
ELectromagnetic compatibility (EMC), Emissions		
	– Conducted RI suppression	EN 55022, class B, FCC part 15, level B
	– Harmonic current emissions	IEC / EN 61000-3-2, class D equipment (ESP 50 / 75 / 80 / 100 / 150 only)
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
ELectromagnetic compatibility (EMC), Immunity (all multioutput models)		
	– Electrostatic discharge ESD	IEC / EN 61000-4-2 8 kV / 15 kV
	– RF field immunity	IEC / EN 61000-4-3 10 mV / m
	– Electrical fast transients / burst immunity	IEC / EN 61000-4-4 2 kV
	– Surge	IEC / EN 61000-4-5 1 kV / 2 kV
Safety standards		UL 1950, IEC 60950, EN 60950
Safety approval		cUL / UL (E141988) (Dual output models and ESP 75 / 100 / 150 in process)
Case material		Stainless steel

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

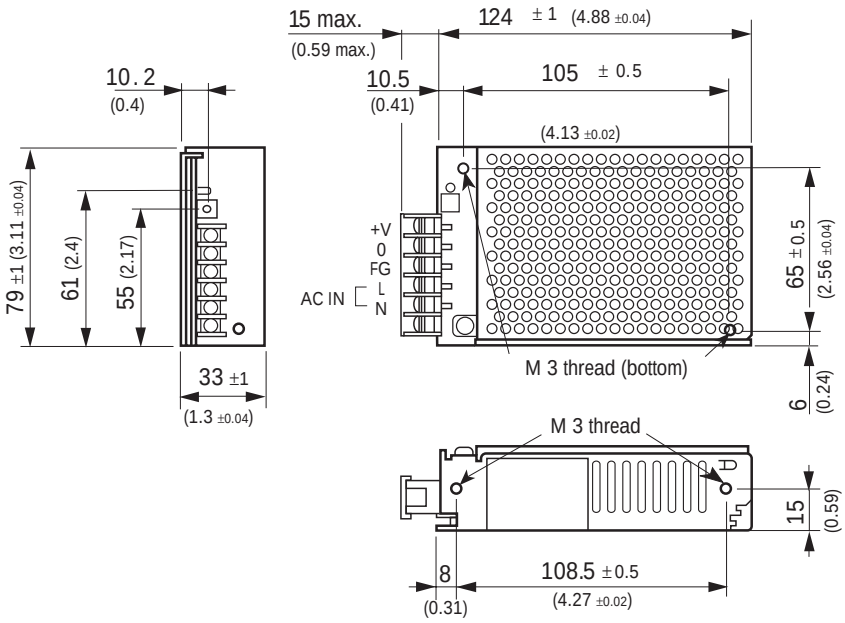
Outline Dimensions mm (inches)

ESP 18 Single output



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

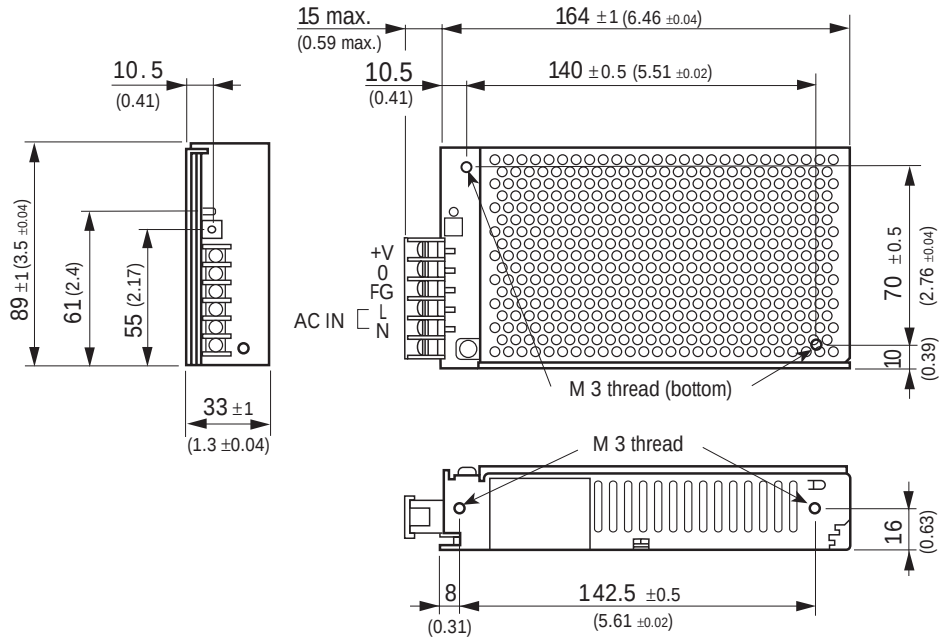
ESP 36 Single output



Specifications can be changed without notice

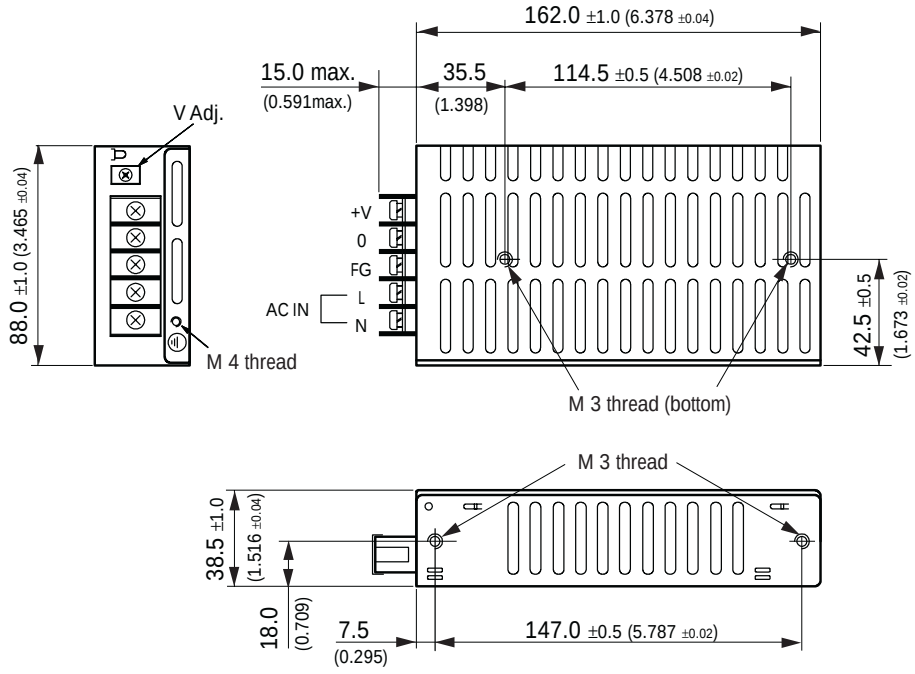
Outline Dimensions mm (inches)

ESP 60 Single output



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

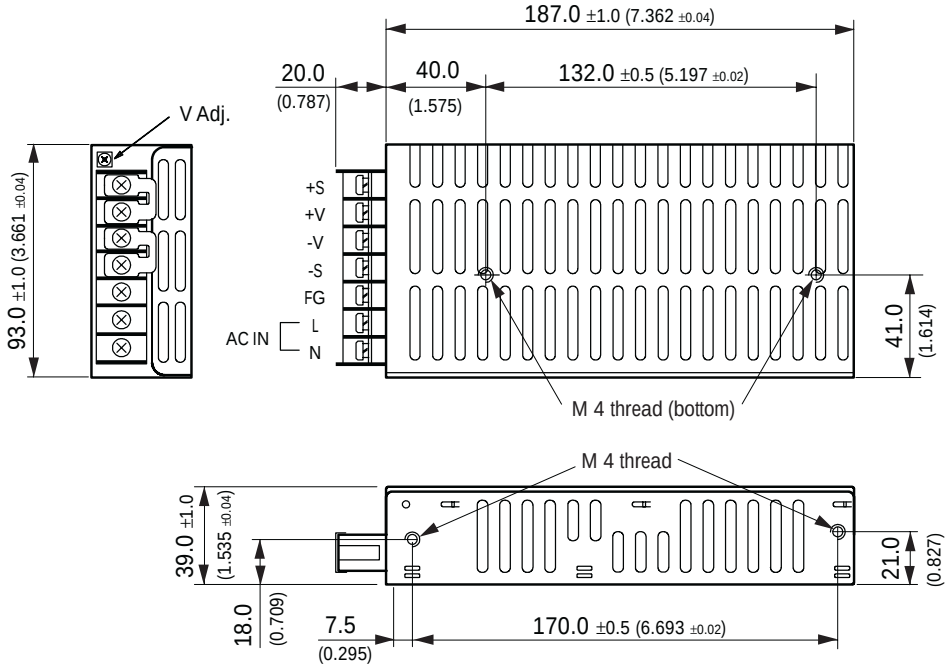
ESP 75 Single output



Specifications can be changed without notice

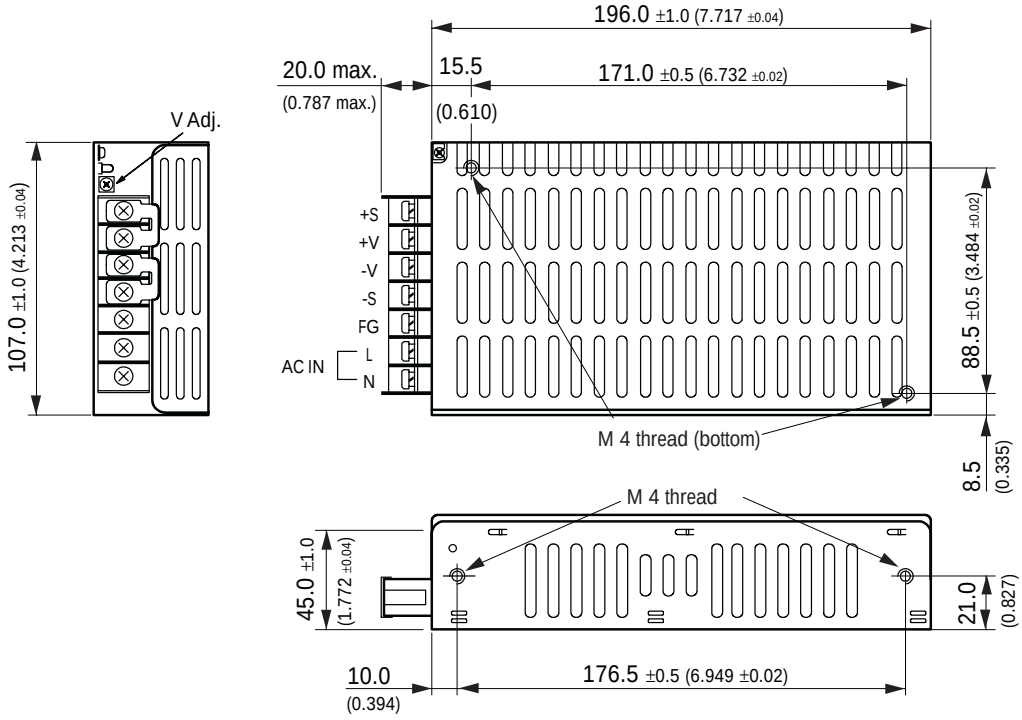
Outline Dimensions mm (inches)

ESP 100 Single output



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

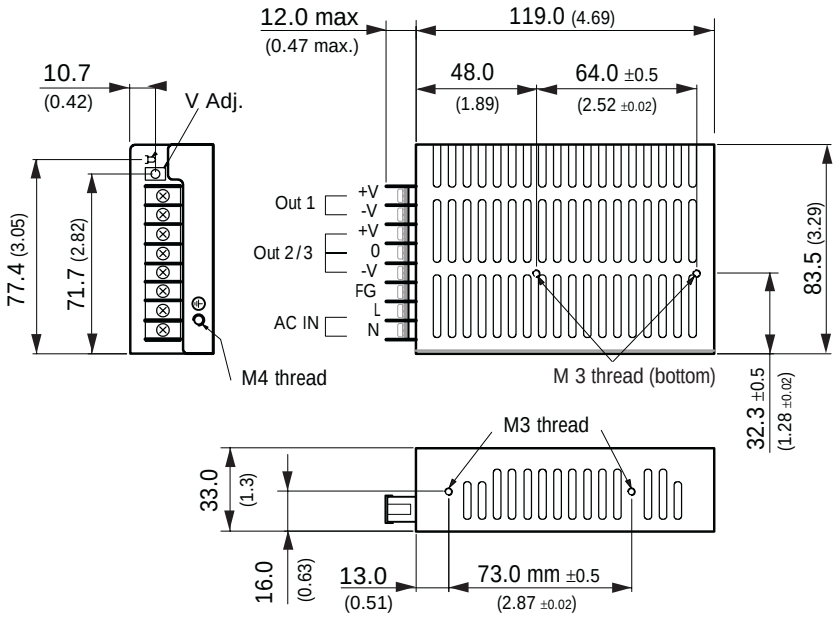
ESP 150 Single output



Specifications can be changed without notice

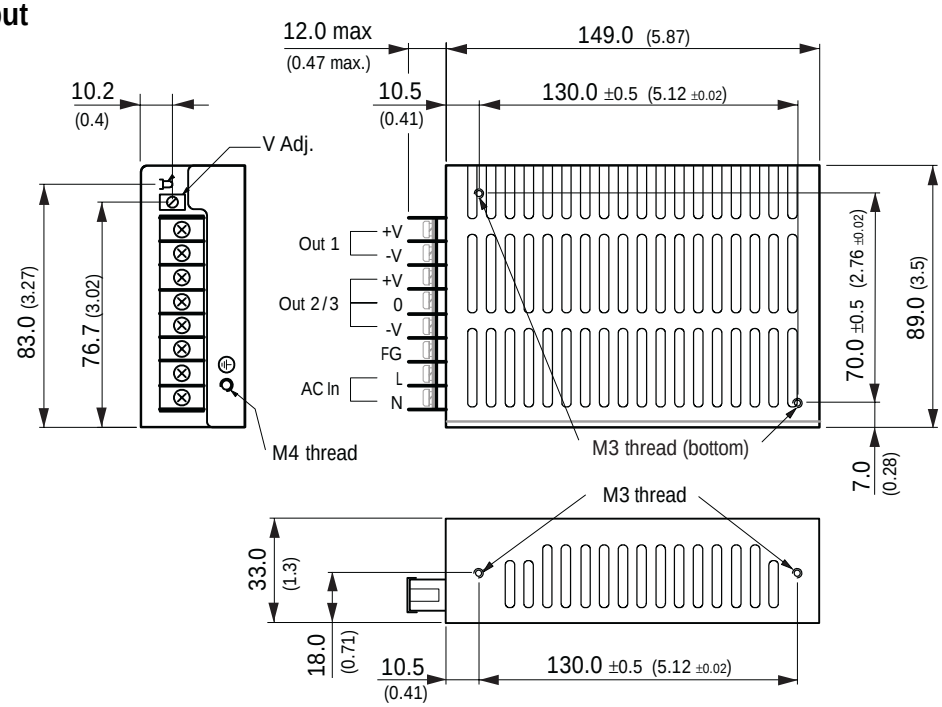
Outline Dimensions mm (inches)

ESP 18 Multioutput



Weight **ESP 18** 240 g (0.53 lb)
ESP 36 380 g (0.84 lb)

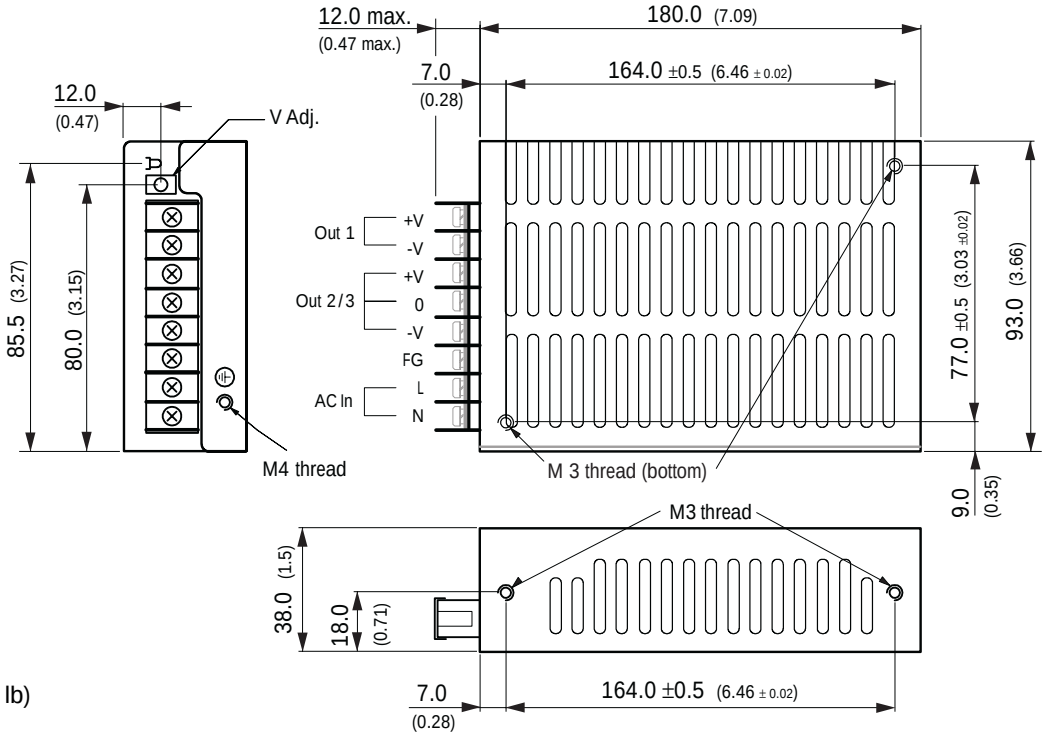
ESP 36 Multioutput



Specifications can be changed without notice

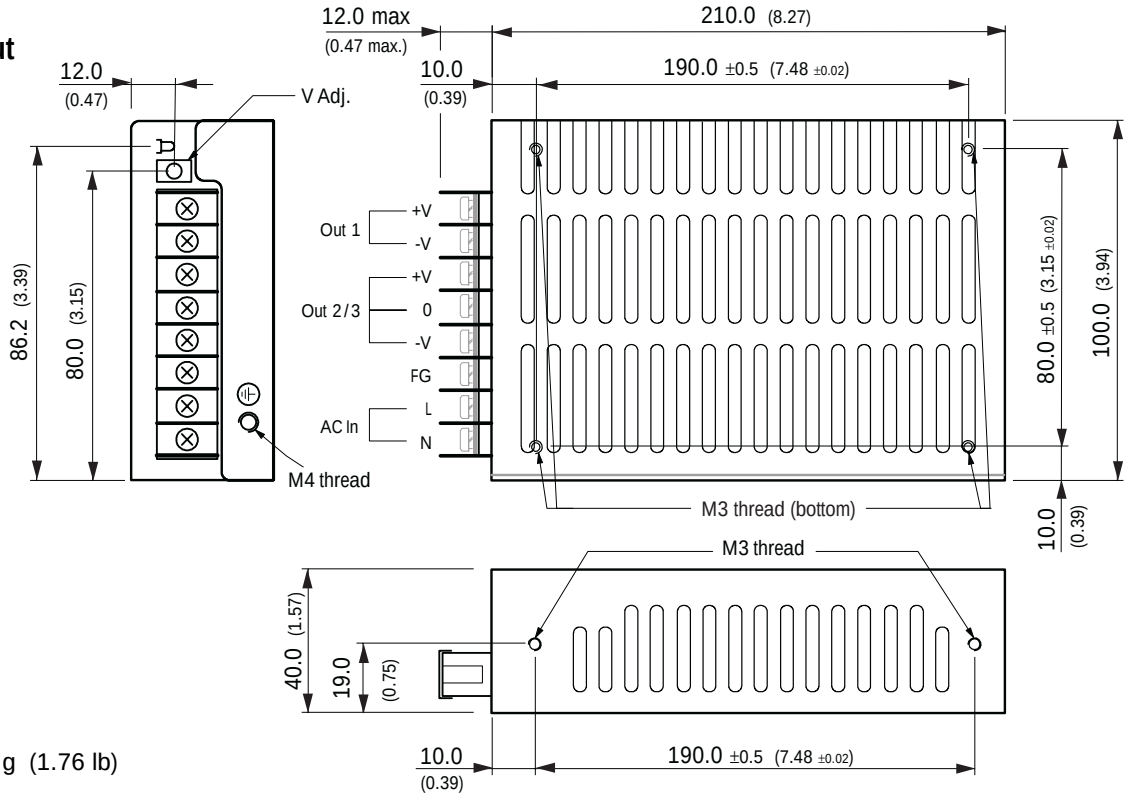
Outline Dimensions mm (inches)

ESP 50 Multioutput



Weight **ESP 50** 580 g (1.28 lb)

ESP 80 Multioutput



Weight **ESP 80** 800 g (1.76 lb)

Specifications can be changed without notice