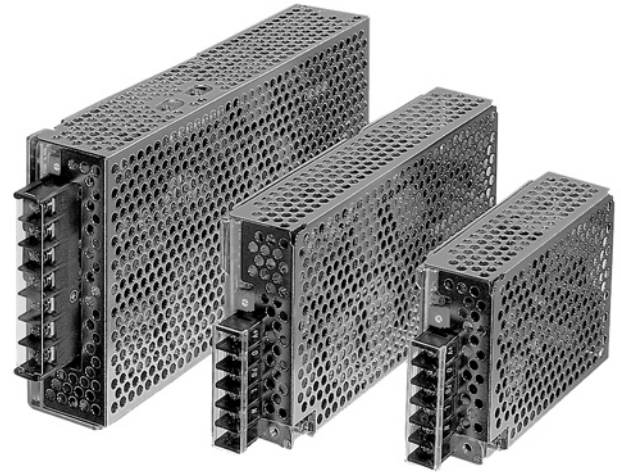


### Features

- ◆ 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
- ◆ 3-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 18-03SN	18 Watt	3.3 VDC	3.6 A
ESP 18-05SN		5 VDC	3.6 A
ESP 18-12SN		12 VDC	1.5 A
ESP 18-15SN		15 VDC	1.2 A
ESP 18-24SN		24 VDC	0.8 A
ESP 18-48SN		48 VDC	0.4 A
ESP 36-03SN	36 Watt	3.3 VDC	7.0 A
ESP 36-05SN		5 VDC	7.0 A
ESP 36-12SN		12 VDC	3.0 A
ESP 36-15SN		15 VDC	2.5 A
ESP 36-24SN		24 VDC	1.5 A
ESP 36-48SN		48 VDC	0.8 A
ESP 60-03SN	60 Watt	3 VDC	12 A
ESP 60-05SN		5 VDC	12 A
ESP 60-12SN		12 VDC	5.5 A
ESP 60-15SN		15 VDC	4.4 A
ESP 60-24SN		24 VDC	2.5 A
ESP 60-48SN		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 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)		V <sub>in</sub> = 115 VAC    V <sub>in</sub> = 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)		V <sub>in</sub> = 115 VAC    V <sub>in</sub> = 230 VAC
	ESP 18 Single output	12 A typ.    24 A typ.
	ESP 18 Multioutput	5.5 A typ.    14 A typ.
	ESP 36 Single output	13 A typ.    35 A typ.
	ESP 36 Multioutput	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		V <sub>in</sub> = 115 VAC    V <sub>in</sub> = 230 VAC
	ESP 18 Single output	100 ms max.    100 ms max.
	ESP 18 Multioutput	200 ms max.    200 ms max.
	ESP 36 Single output	100 ms max.    100 ms max.
	ESP 36 Multioutput	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.

### Output Specifications

Output voltage adjustment range – Single output models		±10 %
– Multioutput 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 % I <sub>nom</sub> .
Overload protection mode	ESP 18 – 80	Fold back
	ESP 100 / 150	Constant current
Over voltage protection (only output 1)		110 – 130 % V <sub>out</sub> nom.
Capacitive load		10'000 µF

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

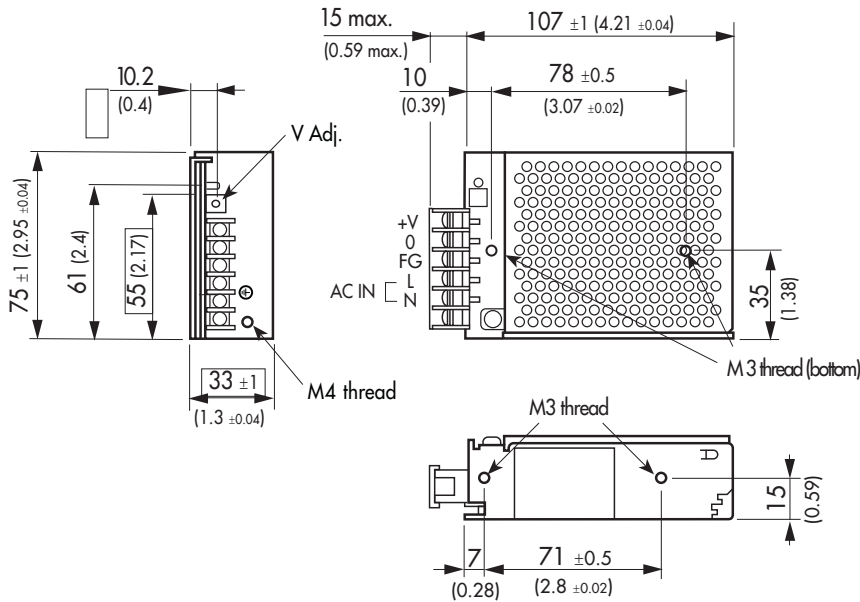
**General Specifications**

Temperature ranges	<ul style="list-style-type: none"> <li>– Operating</li> <li>– Derating above +50°C all models</li> <li>– Storage (non operating)</li> </ul>	–10°C to +60°C 5 %/°C –20°C to +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 all other models	100 kHz typ. (frequency modulation PFM) 100 kHz typ. (puls width modulation PWM)																						
Hold-up time	ESP 18 Single output ESP 18 Multioutput ESP 36 Single output ESP 36 Multioutput ESP 50 ESP 60 ESP 75 ESP 80 ESP 100 ESP 150	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><math>V_{in} = 115 \text{ VAC}</math></td> <td style="width: 50%;"><math>V_{in} = 230 \text{ VAC}</math></td> </tr> <tr> <td>15 ms typ.</td> <td>70 ms typ.</td> </tr> <tr> <td>20 ms typ.</td> <td>120 ms typ.</td> </tr> <tr> <td>20 ms typ.</td> <td>120 ms typ.</td> </tr> <tr> <td>30 ms typ.</td> <td>150 ms typ.</td> </tr> <tr> <td>60 ms typ.</td> <td>80 ms typ.</td> </tr> <tr> <td>20 ms typ.</td> <td>120 ms typ.</td> </tr> <tr> <td>40 ms typ.</td> <td>50 ms typ.</td> </tr> <tr> <td>60 ms typ.</td> <td>80 ms typ.</td> </tr> <tr> <td>50 ms typ.</td> <td>70 ms typ.</td> </tr> <tr> <td>40 ms typ.</td> <td>60 ms typ.</td> </tr> </table>	$V_{in} = 115 \text{ VAC}$	$V_{in} = 230 \text{ VAC}$	15 ms typ.	70 ms typ.	20 ms typ.	120 ms typ.	20 ms typ.	120 ms typ.	30 ms typ.	150 ms typ.	60 ms typ.	80 ms typ.	20 ms typ.	120 ms typ.	40 ms typ.	50 ms typ.	60 ms typ.	80 ms typ.	50 ms typ.	70 ms typ.	40 ms typ.	60 ms typ.
$V_{in} = 115 \text{ VAC}$	$V_{in} = 230 \text{ VAC}$																							
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50 ms typ.	70 ms typ.																							
40 ms typ.	60 ms typ.																							
Isolation voltage	<ul style="list-style-type: none"> <li>– Input/ Output</li> <li>– Input/ Case</li> <li>– Output/ Case</li> </ul>	3'000 VAC 1'500 VAC 500 VAC																						
Reliability /calculated MTF (MIL-HDBK-217F, @+25°C, ground benign)	<ul style="list-style-type: none"> <li>– ESP 18/ 36/ 60/ 75 (single output)</li> <li>– ESP 18/ 36/ 50/ 80 (multioutput)</li> <li>– ESP 100 / 150</li> </ul>	>200'000 h >150'000 h >80'000 h																						
Electromagnetic compatibility (EMC), Emissions	<ul style="list-style-type: none"> <li>– Conducted RI suppression</li> <li>– Harmonic current emissions</li> </ul>	EN 55022, class B, FCC part 15, level B IEC/EN 61000-3-2, class D equipment (ESP 50/ 75/ 80/ 100/ 150 only)																						
Electromagnetic compatibility (EMC), Immunity (all single output models)	<ul style="list-style-type: none"> <li>– Electrostatic discharge ESD</li> <li>– RF field immunity</li> <li>– Electrical fast transients/burst immunity</li> </ul>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">IEC/EN 61000-4-2</td> <td style="width: 50%;">4 kV / 8 kV</td> </tr> <tr> <td>IEC/EN 61000-4-3</td> <td>10 mV / m</td> </tr> <tr> <td>IEC/EN 61000-4-4</td> <td>1 kV</td> </tr> </table>	IEC/EN 61000-4-2	4 kV / 8 kV	IEC/EN 61000-4-3	10 mV / m	IEC/EN 61000-4-4	1 kV																
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IEC/EN 61000-4-4	1 kV																							
Electromagnetic compatibility (EMC), Immunity (all multioutput models)	<ul style="list-style-type: none"> <li>– Electrostatic discharge ESD</li> <li>– RF field immunity</li> <li>– Electrical fast transients/burst immunity</li> <li>– Surge</li> </ul>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">IEC/EN 61000-4-2</td> <td style="width: 50%;">8 kV / 15 kV</td> </tr> <tr> <td>IEC/EN 61000-4-3</td> <td>10 mV / m</td> </tr> <tr> <td>IEC/EN 61000-4-4</td> <td>2 kV</td> </tr> <tr> <td>IEC/EN 61000-4-5</td> <td>1 kV/ 2 kV</td> </tr> </table>	IEC/EN 61000-4-2	8 kV / 15 kV	IEC/EN 61000-4-3	10 mV / m	IEC/EN 61000-4-4	2 kV	IEC/EN 61000-4-5	1 kV/ 2 kV														
IEC/EN 61000-4-2	8 kV / 15 kV																							
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IEC/EN 61000-4-5	1 kV/ 2 kV																							
Safety standards		UL 1950, IEC/EN 60950-1																						
Safety approvals	<ul style="list-style-type: none"> <li>– UL/cUL 60950-1</li> <li>– CB report according to IEC 60950-1</li> </ul>	<a href="http://www.ul.com">www.ul.com</a> -> certifications -> File E141988 (Dual output models and ESP 75/ 100/ 150 in process) <a href="http://www.tracopower.com/products/esp18-cb.pdf">www.tracopower.com/products/esp18-cb.pdf</a> (only ESP 18 single output models) <a href="http://www.tracopower.com/products/esp60-cb.pdf">www.tracopower.com/products/esp60-cb.pdf</a> <a href="http://www.tracopower.com/products/esp75-cb.pdf">www.tracopower.com/products/esp75-cb.pdf</a> <a href="http://www.tracopower.com/products/esp100-cb.pdf">www.tracopower.com/products/esp100-cb.pdf</a> <a href="http://www.tracopower.com/products/esp150-cb.pdf">www.tracopower.com/products/esp150-cb.pdf</a> (ESP 36 single output models pending)																						
Casing material		Stainless steel																						

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

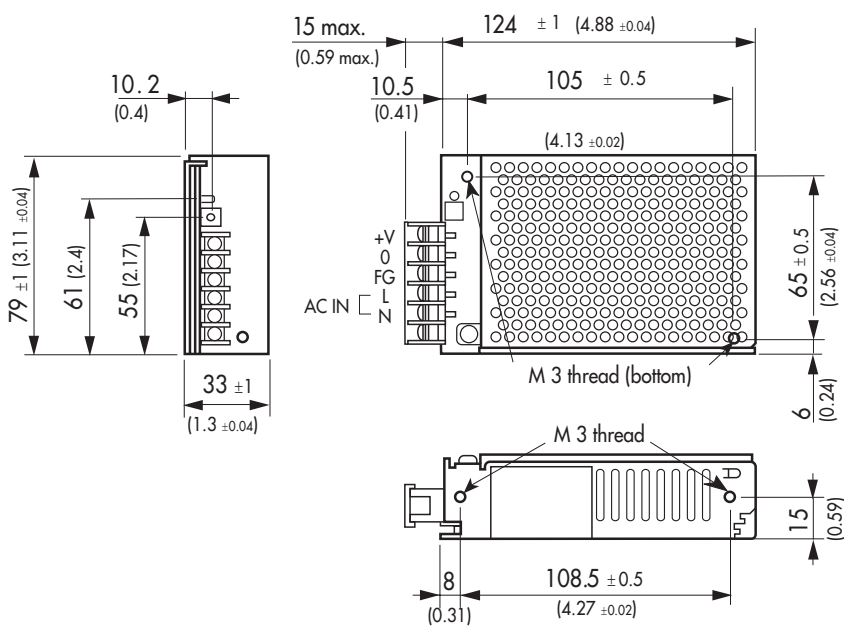
**Outline Dimensions mm (inches)**

**ESP 18 Single output**



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

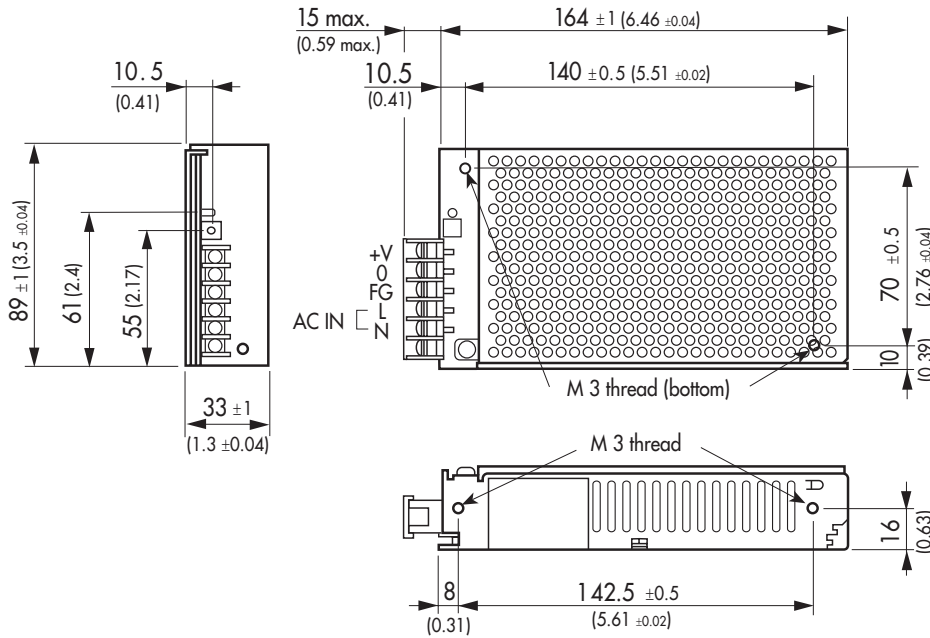
**ESP 36 Single output**



Specifications can be changed any time without notice.

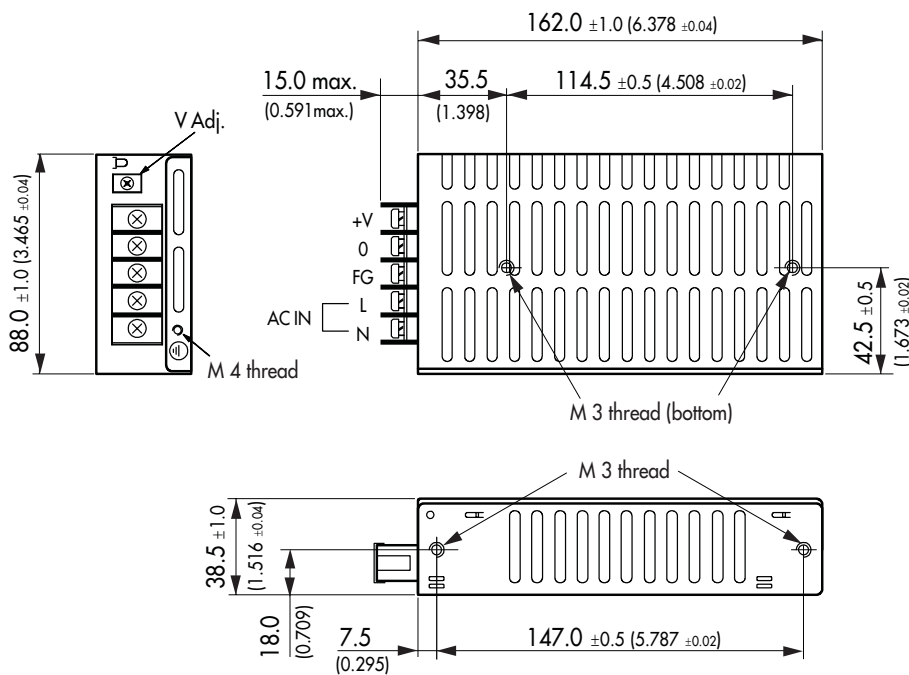
**Outline Dimensions mm (inches)**

**ESP 60 Single output**



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

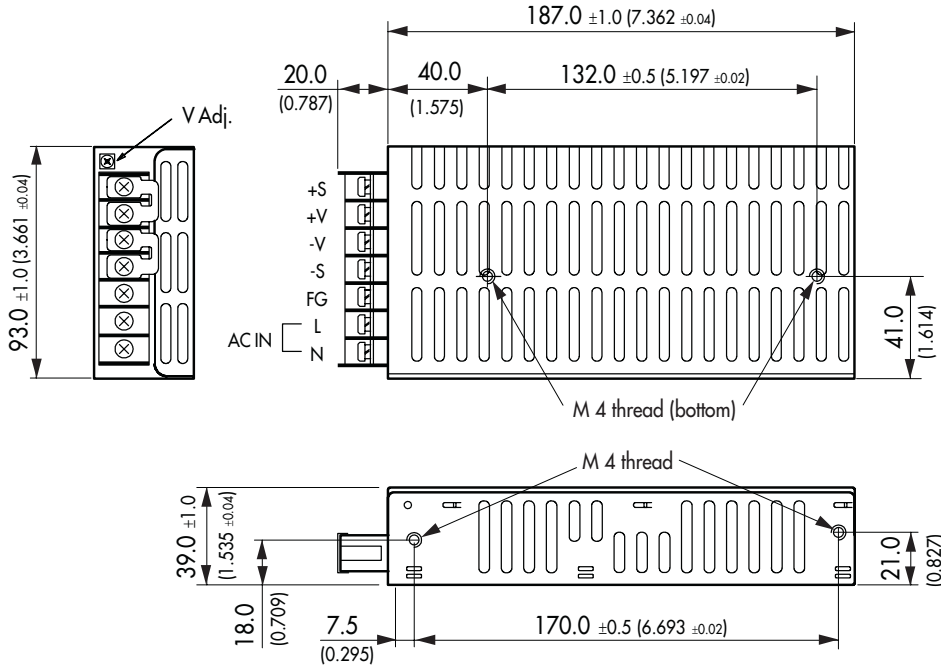
**ESP 75 Single output**



Specifications can be changed any time without notice.

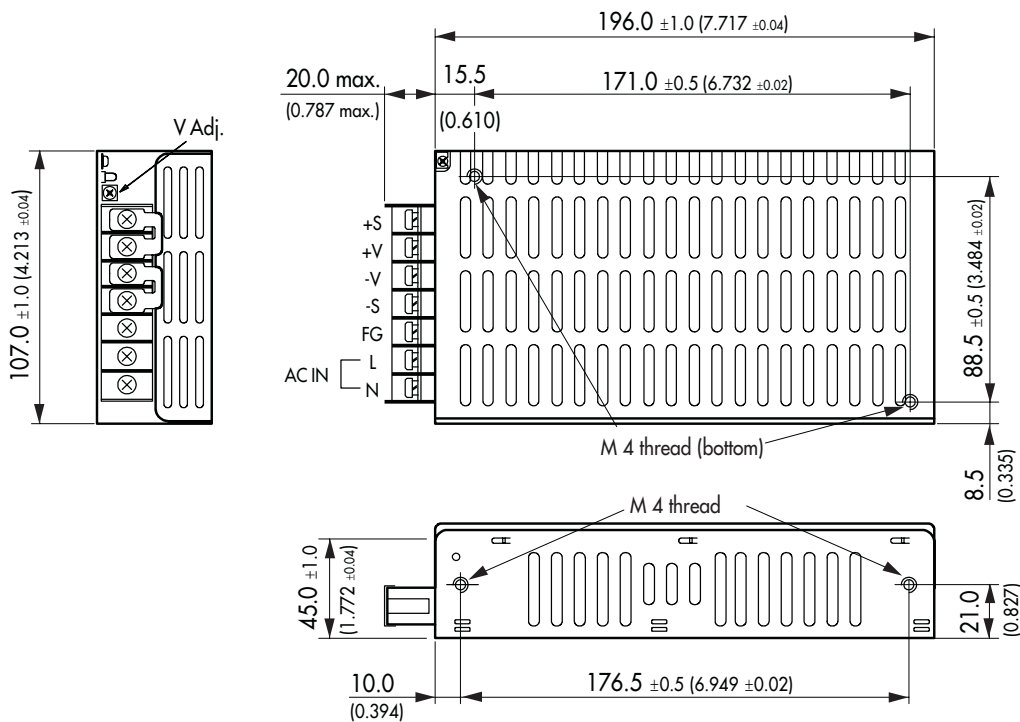
**Outline Dimensions mm (inches)**

**ESP 100 Single output**



<b>Weight</b>	ESP 100	690 g (1.52 lb)
	ESP 150	900 g (1.98 lb)

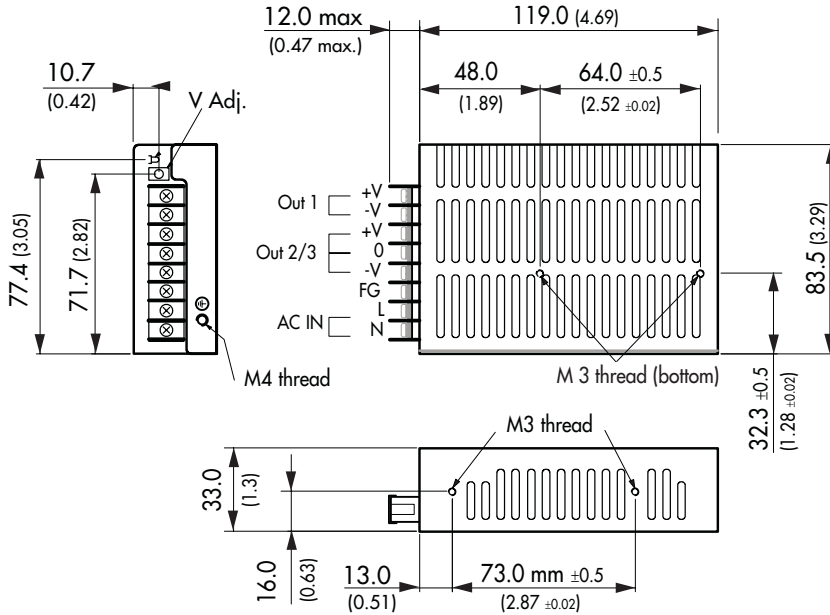
**ESP 150 Single output**



Specifications can be changed any time without notice.

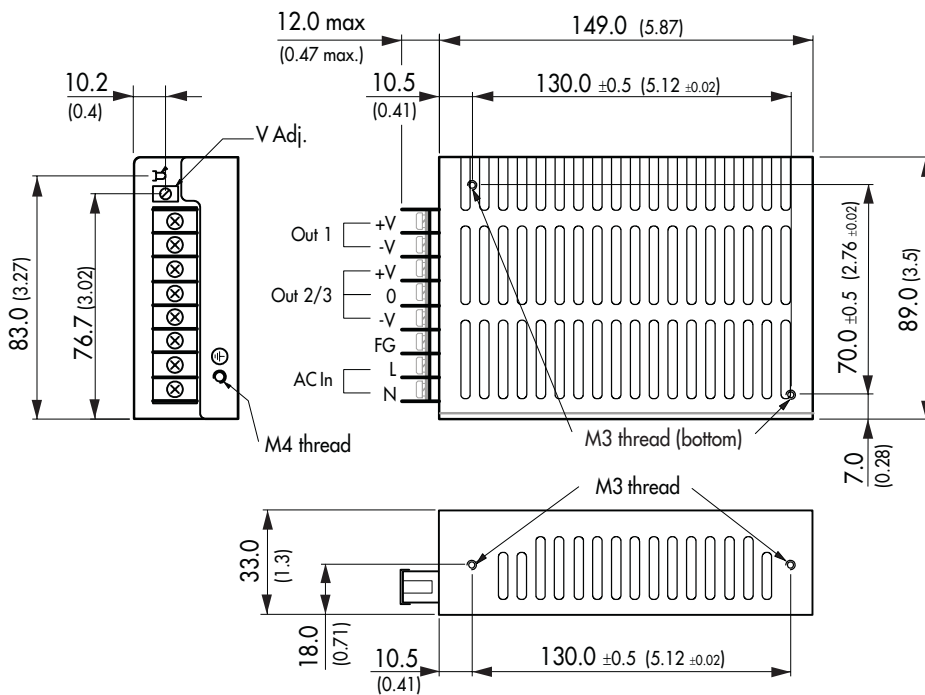
**Outline Dimensions mm (inches)**

**ESP 18 Multioutput**



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

**ESP 36 Multioutput**

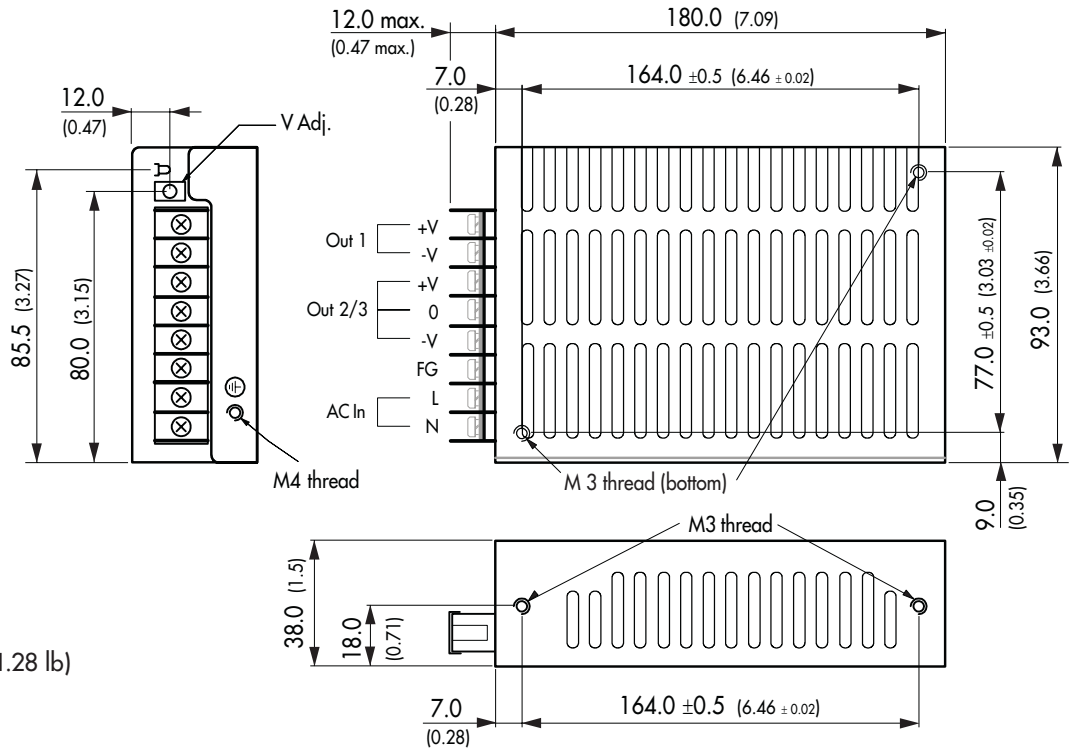


Specifications can be changed any time without notice.

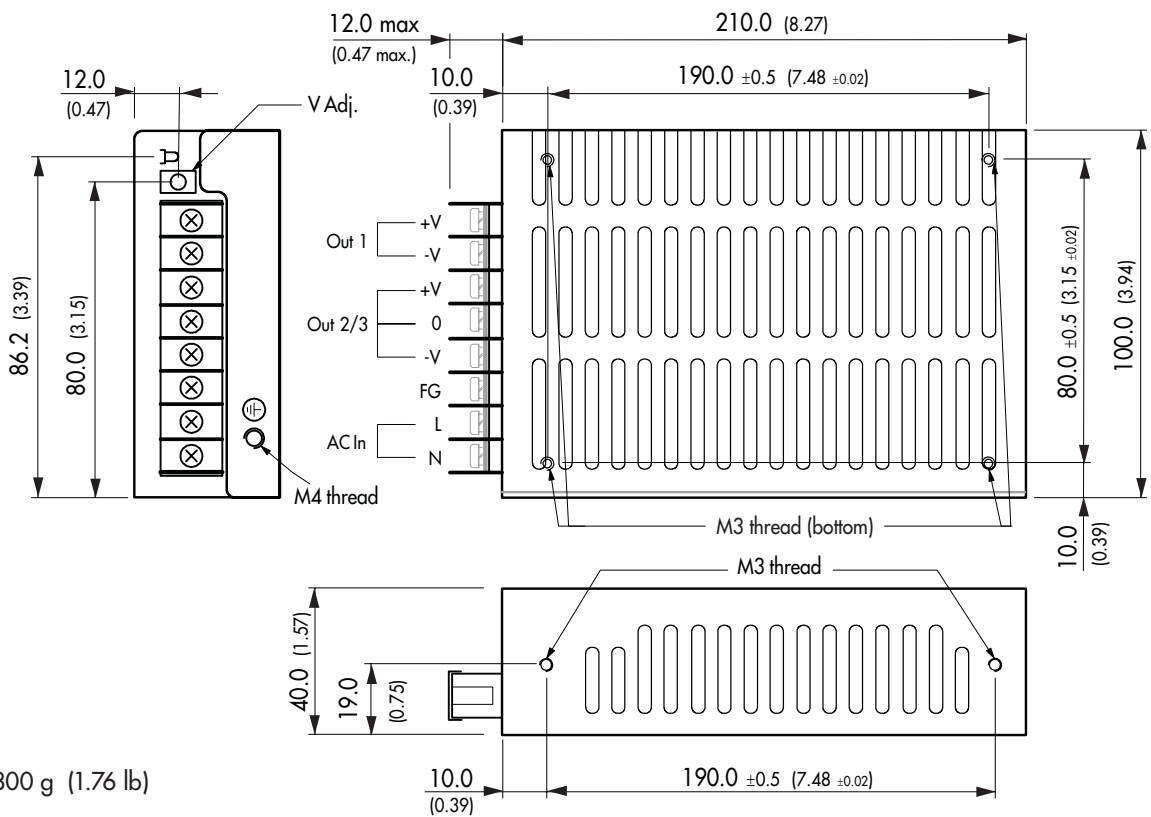


**Outline Dimensions mm (inches)**

**ESP 50 Multioutput**



**ESP 80 Multioutput**



Specifications can be changed any time without notice.