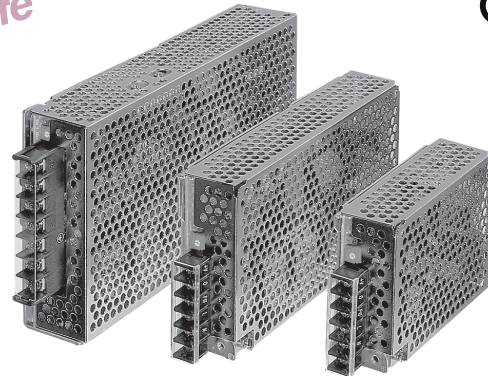


Features

- ◆ 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 | |
| Not recommended for new design in | 18 Watt | ESP 18-05SN | 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 |
| Not recommended | 36 Watt | ESP 36-05SN | 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 |
| Not recommended | 60 Watt | ESP 60-05SN | 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 |
| Not recommended | 75 Watt | ESP 75-05S | 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 |
| Not recommended | 100 Watt | ESP 100-05S | 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 |
| Not recommended | 150 Watt | ESP 150-05S | 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 – AC range (universal input) – DC range | 115 – 230 VAC 85 – 264 VAC 110 – 350 VDC | | | | | | | | | | | | | | | | | | | | | |
| Input frequency | | 47 – 63 Hz | | | | | | | | | | | | | | | | | | | | | |
| Input current (at full load) | | <table border="0"> <tr> <td></td> <td>$V_{in} = 115 \text{ VAC}$</td> <td>$V_{in} = 230 \text{ VAC}$</td> </tr> <tr> <td>ESP 18 models:</td> <td>0.23 A typ.</td> <td>0.33 A typ.</td> </tr> <tr> <td>ESP 36 models:</td> <td>0.40 A typ.</td> <td>0.65 A typ.</td> </tr> <tr> <td>ESP 60 models:</td> <td>0.72 A typ.</td> <td>1.1 A typ.</td> </tr> <tr> <td>ESP 75 models:</td> <td>0.45 A typ.</td> <td>0.95 A typ.</td> </tr> <tr> <td>ESP 100 models:</td> <td>0.65 A typ.</td> <td>1.3 A typ.</td> </tr> <tr> <td>ESP 150 models:</td> <td>0.85 A typ.</td> <td>1.9 A typ.</td> </tr> </table> | | $V_{in} = 115 \text{ VAC}$ | $V_{in} = 230 \text{ VAC}$ | 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. |
| | $V_{in} = 115 \text{ VAC}$ | $V_{in} = 230 \text{ VAC}$ | | | | | | | | | | | | | | | | | | | | | |
| 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: 100 & 150 Watt models: | 5 A 10 A | | | | | | | | | | | | | | | | | | | | | |
| Start-up time | up to 60 Watt model: other models: | 100 ms max. 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 – Load variation (0–100%) | <table border="0"> <tr> <td>5 VDC models:</td> <td>0.2 % max.</td> </tr> <tr> <td>other models:</td> <td>0.1 % max.</td> </tr> <tr> <td>5 VDC models:</td> <td>0.8 % max.</td> </tr> <tr> <td>$\leq 60 \text{ W}$, other models:</td> <td>0.4 % max.</td> </tr> <tr> <td>$\geq 75 \text{ W}$, other models:</td> <td>0.2 % max.</td> </tr> </table> | 5 VDC models: | 0.2 % max. | other models: | 0.1 % max. | 5 VDC models: | 0.8 % max. | $\leq 60 \text{ W}$, other models: | 0.4 % max. | $\geq 75 \text{ W}$, other models: | 0.2 % max. |
| 5 VDC models: | 0.2 % max. | | | | | | | | | | | |
| other models: | 0.1 % max. | | | | | | | | | | | |
| 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: 12 - 24 VDC models: 48 VDC models: | 120 mV p-p max. 150 mV p-p max. 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 | | | | | | | | | | |

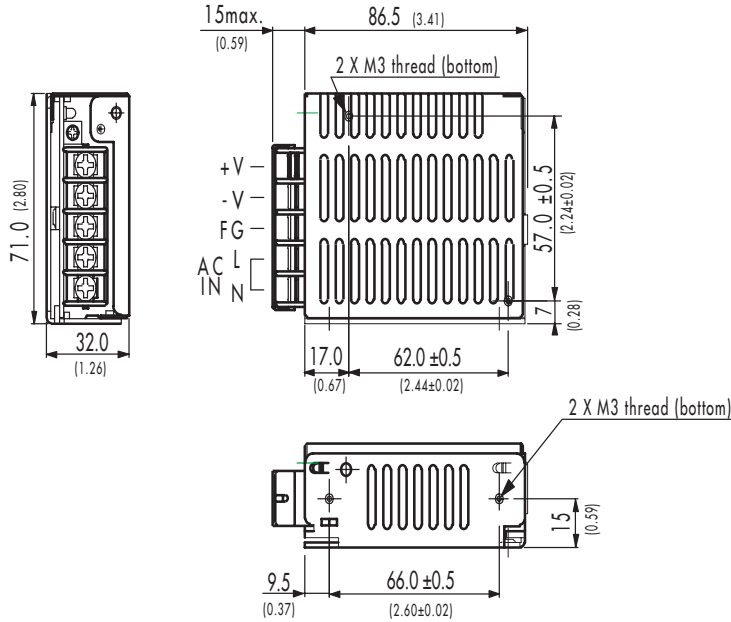
General Specifications

| | | |
|--|---|--|
| 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.

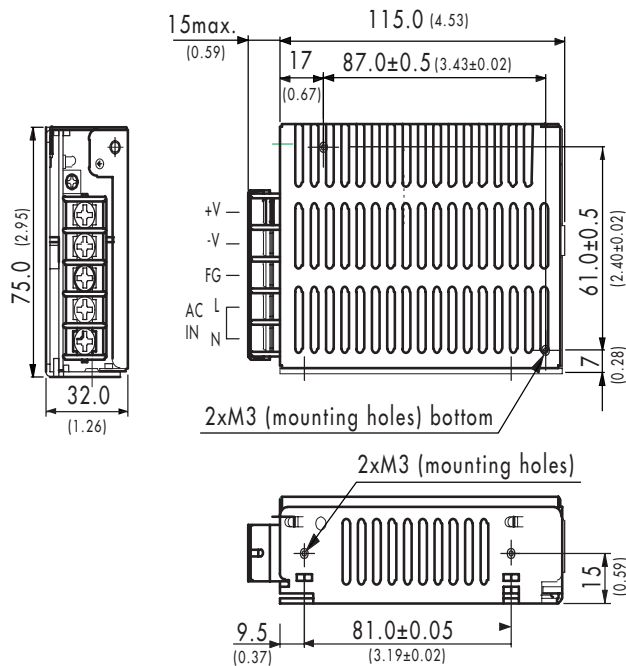
Outline Dimensions mm (inches)

ESP 18 models:



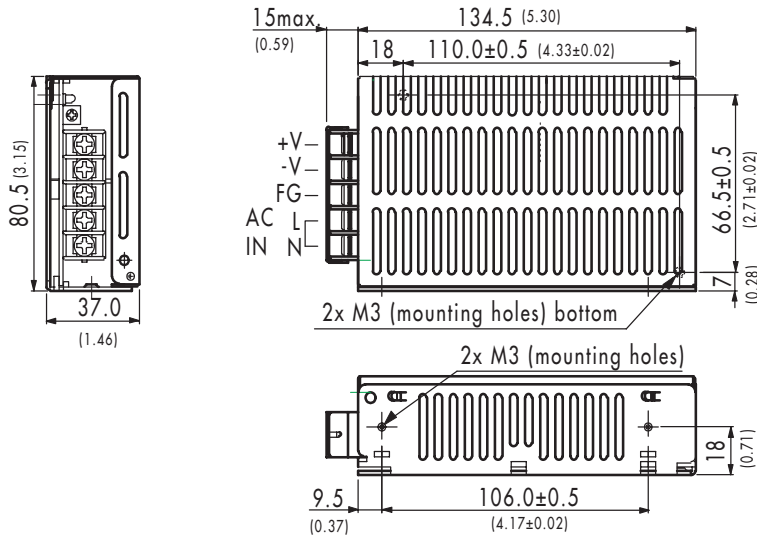
Weight ESP 18 200 g (0.44 lb)
 ESP 36 300 g (0.66 lb)

ESP 36 models:



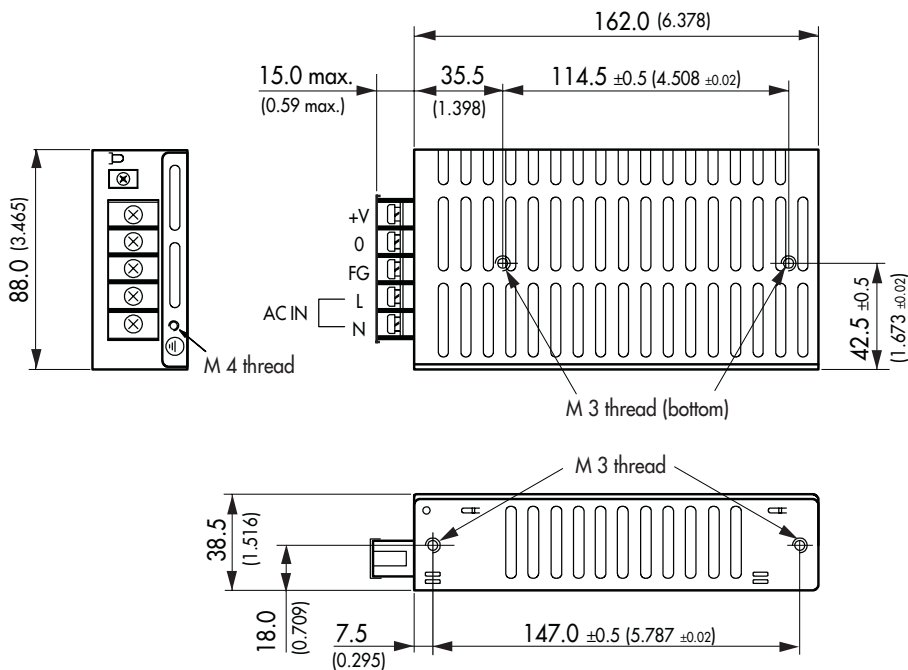
Outline Dimensions mm (inches)

ESP 60 models:



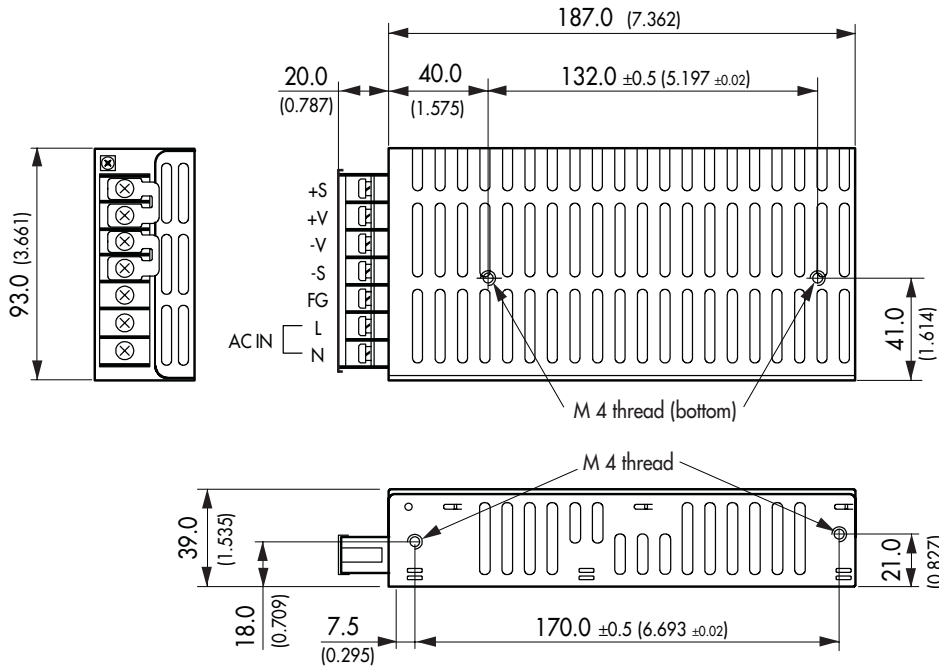
Weight ESP 60 480 g (1.06 lb)
 ESP 75 490 g (1.08 lb)

ESP 75 models:



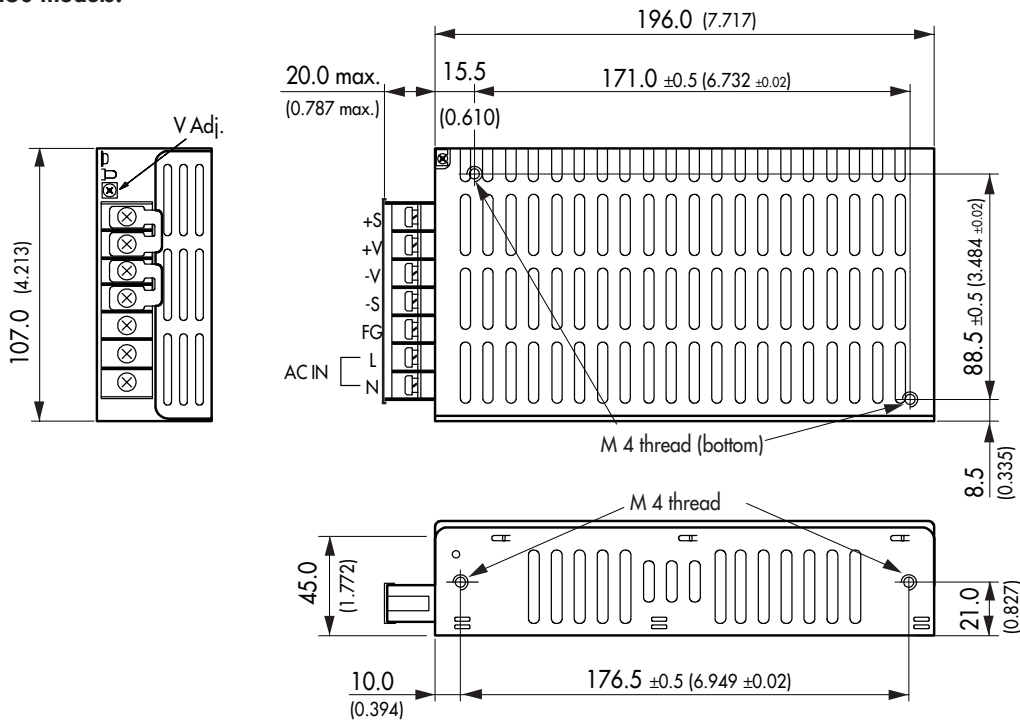
Outline Dimensions mm (inches)

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