

FEATURES

- I/O Isolation 3000VAC
- MTBF > 250,000 Hours
- High Efficiency up to 80%
- EMC Complies with EN61000
- IEC61140 Safety Class II Approved
- Single, Dual, and Triple Output Models
- 85~265VAC, 47~440Hz Universal Input Range
- IEC / EN / UL 60950-1 Safety Standards Approved
- Operating Temperature 71°C (Refer to Derating Curve)
- PCB, DIN Rail, and Chassis Mounting Packages Available
- EMI Complies with EN55022, Class B and FCC part 15, level B



DESCRIPTION

The PSAQF30 series of AC/DC power supplies offers 30 Watts of output power in an encapsulated design. This series has single, dual, and triple outputs with a universal input range of 85 ~265VAC. Other features include continuous short circuit protection, over voltage protection, and output current limiting. These units are also EMC EN61000-4 (-2,-3,-4) and EMI EN55022 level B approved. The compliance to these EMI specifications minimizes system design time, cost, and eliminates the need for external filter components. The PSAQF30 series has IEC / EN / UL 60950-1 safety approvals which qualifies this product for worldwide markets. This series has a wide variety of applications including both commercial and industrial with a MTBF of 250,000 hours. Chassis mount and DIN rail options are also available for this series.

| SAFETY SPECIFICATIONS | | | |
|-----------------------|--------------------------------------|--|----------------------|
| SAFETY | | | |
| Safety Approvals | IEC/ EN / UL 60950-1 ⁽¹⁰⁾ | | |
| Conducted EMI | EN55022 Class B | | |
| Conducted EMC | Standard | Specification Requirement | Performance Criteria |
| | EN61000-4-2 | Air ±8KV Cont. ±4KV | B |
| | EN61000-4-3 | 80 ~ 1000MHz 10V/m 80% AM 1KHz modulation | A |
| | EN61000-4-4 | AC port ±2KV DC, SL, TL±2KV Not less than 1 min. | B |
| | EN61000-4-5 | 1.2/50µs (8/20µs) AC dif. ±1KV DC ±0.5KV | B |
| | EN61000-4-6 | 0.15 ~ 80MHz 10Vrms (functional earth ports included) 80% AM 1KHz modulation | B |
| | EN61000-4-11 | 30% 10ms 60% 100ms 95% 5000ms | B C C |



Wall Industries, Inc.

Rev. D

PSAQF30 Series
30 Watt
Single, Dual, and Triple Output
AC/DC Switching Power Supply

SPECIFICATIONS: PSAQF30 Series

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

| SPECIFICATIONS | TEST CONDITIONS | Min | Typ | Max | Unit | | |
|---|--|---|---------|------|---------------------|--------------------|---|
| INPUT (V_{in}) | | | | | | | |
| Operating Voltage Range | | 85 | | 265 | VAC | | |
| Input Frequency | | 47 | | 440 | Hz | | |
| Inrush Current | cold start at 25°C | 115VAC | | 20 | A | | |
| | | 230VAC | | 40 | A | | |
| Built-in Input Fuse | | 3.5A / 250VAC | | | | | |
| External Input Fuse (Recommended) | | 1.5A Slow – Blow Type | | | | | |
| OUTPUT (V_o) | | | | | | | |
| Output Voltage | | See Table | | | | | |
| Output Voltage Accuracy | Single & Dual Outputs | | | ±1.0 | ±2.0 | % | |
| | Dual Positive & Triple Outputs | Vo1 | | ±1.0 | ±2.0 | % | |
| | | Vo2&Vo3 | | ±3.0 | | % | |
| Load Regulation | I _o = min. to max. | Single Output Models | | ±0.5 | ±1.0 | % | |
| | | Dual Output Models | | ±2.5 | ±1.0 | % | |
| | | Triple Output Models | Vo1 | | ±2.5 | ±5.0 | % |
| | | | Vo2&Vo3 | | ±4.0 | ±5.0 | % |
| Line Regulation | V _{in} = min. to max. | | ±0.2 | ±1.0 | % | | |
| Cross Regulation (Dual Positives & Triple Outputs) | Measured output I _o = 20% to 100% of rated load. Other Outputs are set at 50% of rated load. | Vo1 | | ±2.0 | | % | |
| | | Vo2 | | ±5.0 | | % | |
| | | Vo3 | | ±5.0 | | % | |
| Output Power | | See Table | | | | | |
| Output Current | | See Table | | | | | |
| Ripple & Noise | 20MHz bandwidth | 3.3VDC & 5.0VDC Output Models | | 1.5 | 1.8 | % V _{p-p} | |
| | | Other Output Models | | 1.0 | 1.3 | % V _{p-p} | |
| Overshoot | | | | 5.0 | % | | |
| Hold-up Time | 115VAC, 60Hz | | 20 | | ms | | |
| PROTECTION | | | | | | | |
| Over Voltage Protection | Zener diode clamp | | 120 | | % of V _o | | |
| Current Limitation | 85VAC, Hiccup technique, automatic recovery | 105 | | | % | | |
| Short Circuit Protection | | Hiccup mode, indefinite (auto-recovery) | | | | | |
| GENERAL | | | | | | | |
| Efficiency | | See Table | | | | | |
| Switching Frequency | | | 100 | | KHz | | |
| Isolation Voltage | Input to output, 60 seconds | 3000 | | | VAC | | |
| Isolation Test Voltage | Input to output, flash tested for 1 second | 4700 | | | VDC | | |
| Isolation Resistance | Test Voltage = 500VDC | 100 | | | MΩ | | |
| ENVIRONMENTAL | | | | | | | |
| Operating Temperature | Ambient | -25 | | +71 | °C | | |
| Storage Temperature | | -40 | | +85 | °C | | |
| Humidity | | | | 95 | % | | |
| Cooling | | free air convection | | | | | |
| Temperature Coefficient | All Outputs | | ±0.02 | | %/°C | | |
| MTBF | MIL-HDBK-217F @ 25°C, Ground Benign | 250,000 hours | | | | | |
| PHYSICAL | | | | | | | |
| Weight | PCB Mounting (standard) | Approximately 6.24oz (177g) | | | | | |
| | Chassis Mounting Option (suffix "CM") | Approximately 6.74oz (191g) | | | | | |
| | DIN Rail Option (suffix "DN") | Approximately 8.64oz (245g) | | | | | |
| Dimensions (L x W x H) | PCB Mounting (standard) | 3.50" x 2.50" x 0.85" (88.9 x 63.5 x 21.5 mm) | | | | | |
| | Chassis Mounting (suffix "CM") | 4.41" x 2.51" x 1.01" (112 x 63.8 x 25.6 mm) | | | | | |
| | DIN Rail Option (suffix "DN") | 3.41" x 2.51" x 1.44" (112 x 63.8 x 36.6 mm) | | | | | |
| Flammability | | UL94V-0 | | | | | |
| Case Material | | Plastic resin and Fiberglass | | | | | |

MODEL SELECTION TABLES

| SINGLE OUTPUT MODELS | | | | | | | | | |
|----------------------|----------------|----------------|--------|------|------------------------------|-------|--------------|------------------|-----------------------|
| Model Number | Output Voltage | Output Current | | | Input Current ⁽²⁾ | | Output Power | Efficiency (typ) | Capacitive Load (max) |
| | | Min | Max | Peak | Nom | Max | | | |
| PSAQF-30S05 | 5 VDC | 600mA | 6000mA | ---- | 60mA | 557mA | 30W | 78% | 8000µF |
| PSAQF-30S12 | 12 VDC | 250mA | 2500mA | ---- | 60mA | 543mA | 30W | 80% | 3900µF |
| PSAQF-30S15 | 15 VDC | 200mA | 2000mA | ---- | 60mA | 543mA | 30W | 80% | 3900µF |
| PSAQF-30S24 | 24 VDC | 125mA | 1250mA | ---- | 60mA | 543mA | 30W | 80% | 1500µF |
| PSAQF-30S48 | 48 VDC | 63mA | 625mA | ---- | 60mA | 543mA | 30W | 80% | 1000µF |

| DUAL OUTPUT MODELS | | | | | | | | | | |
|--------------------|----------------|----------------|-------|--------|------------------------------|------|--------------|------------------|-----------------------|--------|
| Model Number | Output Voltage | Output Current | | | Input Current ⁽²⁾ | | Output Power | Efficiency (typ) | Capacitive Load (max) | |
| | | Min | Max | Peak | Nom | Max | | | | |
| PSAQF-30D12 | Output 1 | +12VDC | 130mA | 1300mA | ---- | 60mA | 565mA | 31.2W | 80% | 1500µF |
| | Output 2 | -12VDC | 130mA | 1300mA | ---- | | | | | 1500µF |
| PSAQF-30D15 | Output 1 | +15 VDC | 100mA | 1000mA | ---- | 60mA | 543mA | 30W | 80% | 1500µF |
| | Output 2 | -15VDC | 100mA | 1000mA | ---- | | | | | 1500µF |
| PSAQF-30D512 | Output 1 | *5 VDC | 300mA | 3000mA | 4500mA | 60mA | 572mA | 30W | 76% | 3900µF |
| | Output 2 | *12 VDC | 125mA | 1250mA | 1800mA | | | | | 60mA |

| TRIPLE OUTPUT MODELS | | | | | | | | | | | | |
|----------------------|----------------|----------------|--------|--------|------------------------------|------|--------------|------------------|-----------------------|--------|-------|--------|
| Model Number | Output Voltage | Output Current | | | Input Current ⁽²⁾ | | Output Power | Efficiency (typ) | Capacitive Load (max) | | | |
| | | Min | Max | Peak | Nom | Max | | | | | | |
| PSAQF-30T512 | Output 1 | *5 VDC | 600mA | 3000mA | 4500mA | 60mA | 572mA | 29.4W | 76% | 2200µF | | |
| | Output 2 | 12 VDC | 120mA | 600mA | 900mA | | | | | 60mA | 572mA | 1500µF |
| | Output 3 | -12 VDC | -120mA | -600mA | 900mA | | | | | 60mA | 572mA | 1500µF |
| PSAQF-30T512A | Output 1 | *5 VDC | 600mA | 3000mA | 4500mA | 60mA | 572mA | 30W | 76% | 2200µF | | |
| | Output 2 | 12 VDC | 200mA | 1000mA | 1500mA | | | | | 60mA | 572mA | 1500µF |
| | Output 3 | -12 VDC | -50mA | -250mA | 500mA | | | | | 60mA | 572mA | 1500µF |
| PSAQF-30T515 | Output 1 | *5 VDC | 300mA | 3000mA | 4500mA | 60mA | 572mA | 30W | 76% | 2200µF | | |
| | Output 2 | 15 VDC | 50mA | 500mA | 750mA | | | | | 60mA | 572mA | 1500µF |
| | Output 3 | -15 VDC | -50mA | -500mA | 750mA | | | | | 60mA | 572mA | 1500µF |
| PSAQF-30T5312P | Output 1 | *5 VDC | 900mA | 4500mA | 6000mA | 60mA | 588mA | 28.8W | 71% | 2200µF | | |
| | Output 2 | +3.3 VDC | 220mA | 1000mA | 1500mA | | | | | 60mA | 588mA | 2200µF |
| | Output 3 | +12 VDC | 50mA | 250mA | 500mA | | | | | 60mA | 588mA | 1500µF |
| PSAQF-30T3512P | Output 1 | *3.3 VDC | 800mA | 4000mA | 5300mA | 60mA | 483mA | 23.7W | 71% | 2200µF | | |
| | Output 2 | +5 VDC | 300mA | 1500mA | 2000mA | | | | | 60mA | 483mA | 2200µF |
| | Output 3 | +12 VDC | 50mA | 250mA | 500mA | | | | | 60mA | 483mA | 1500µF |

* Output floating (see note 7)

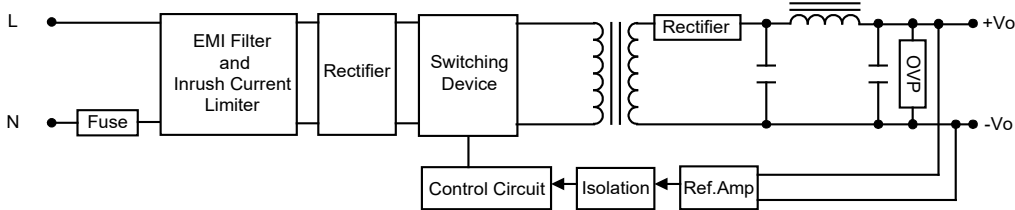
NOTES

1. For Ripple & Noise measurement the bandwidth is 0~20MHz.
2. Input Current is measured at 115VAC, 60Hz.
3. These power modules require a minimum output loading to maintain specified regulation.
4. Operation under no-load conditions will not damage these devices; however they may not meet all listed specifications.
5. Other input and output voltages may be available, please contact factory.
6. Peak current can't be drawn from all outputs at the same time.
7. Floating (or isolated) output of a power supply that is not connected to any other output.
8. To order the power module with chassis mounting style, please add a suffix "CM" (Ex: PSAQF-30S05CM).
9. To order the power module with DIN Rail style, please add a suffix "DN" (Ex: PSAQF-30S05DN).
10. This product is Listed to applicable standards and requirements by UL.

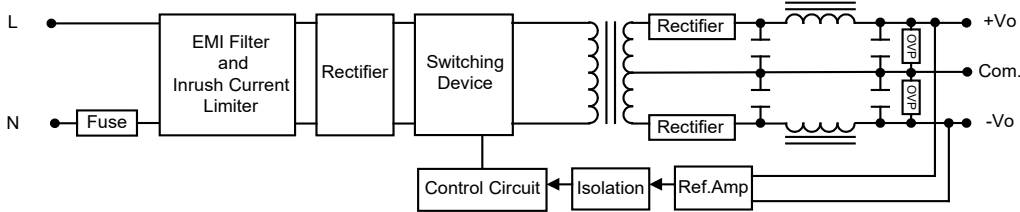
*Due to advances in technology, specifications subject to change without notice.

BLOCK DIAGRAMS

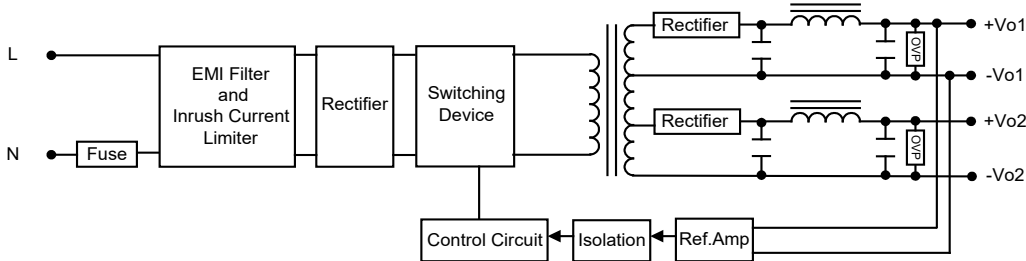
Single Output



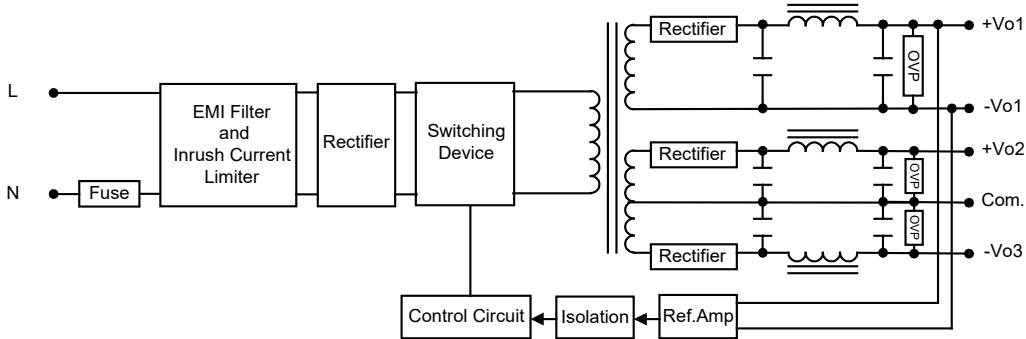
Dual Output 1



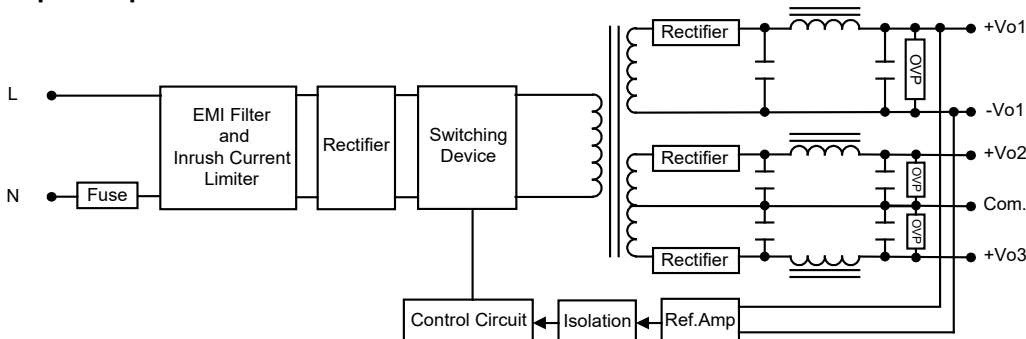
Dual Output 2



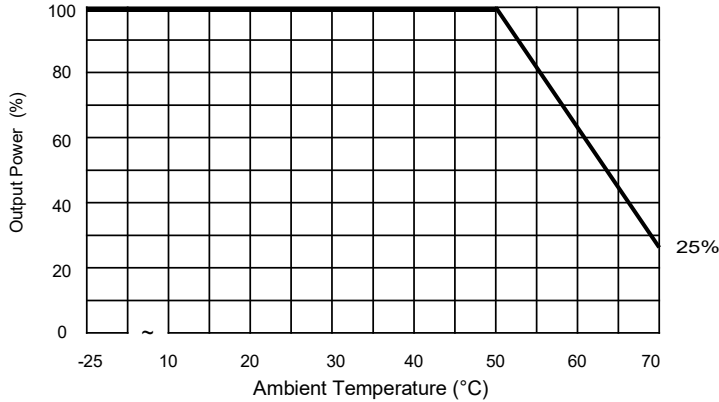
Triple Output 1



Triple Output 2



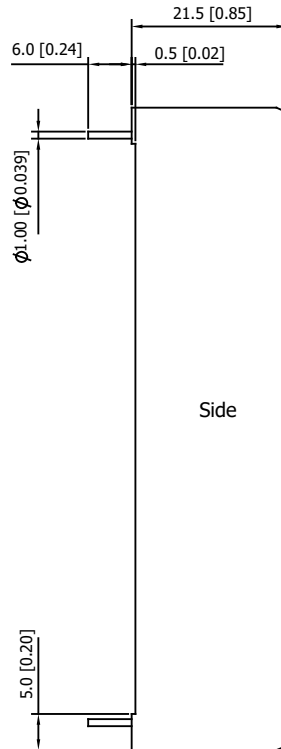
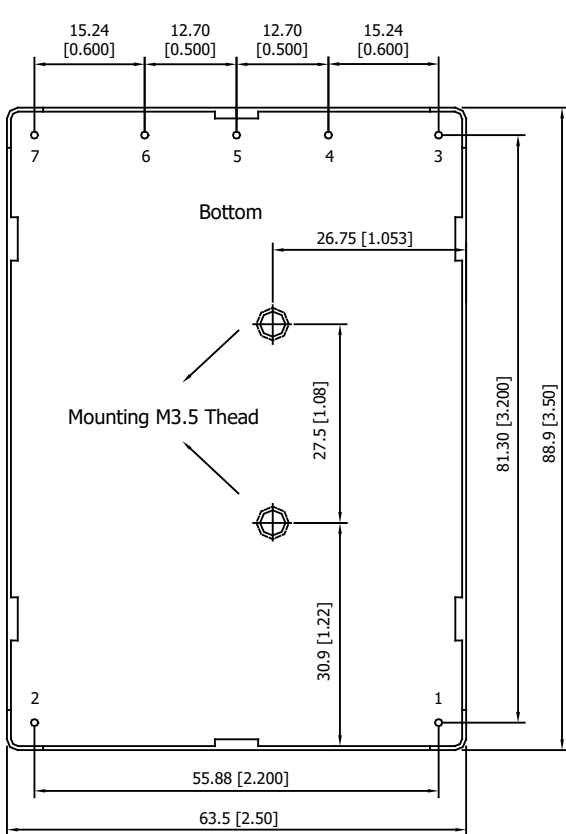
DERATING CURVE



MECHANICAL DRAWINGS

PCB Mounting (standard)

Unit: mm [inches]

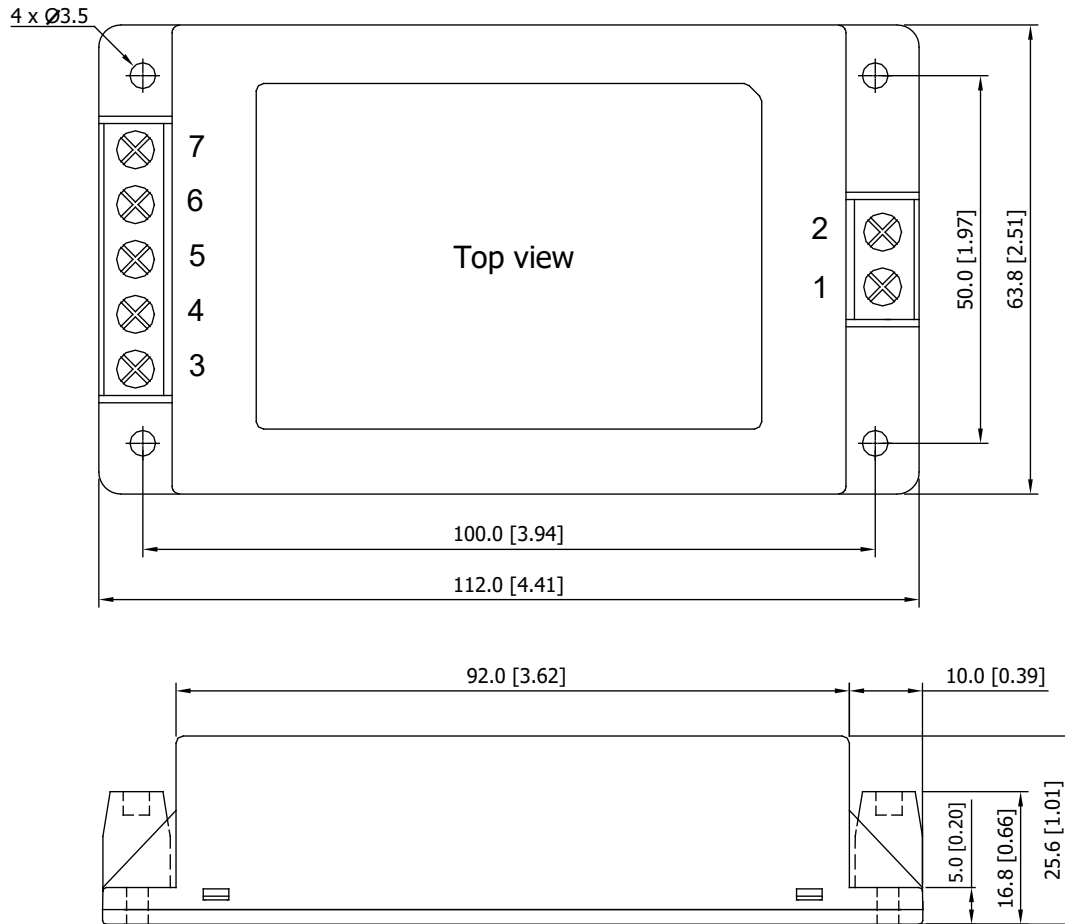


| Tolerance | Millimeters | Inches |
|-----------|-------------|------------|
| | X.X±0.5 | X.XX±0.02 |
| | X.XX±0.25 | X.XXX±0.01 |
| Pin | ±0.1 | ±0.004 |

| PIN CONNECTIONS | | | | | |
|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Pin | Single | Dual Output 1 | Dual Output 2 | Triple Output 1 | Triple Output 2 |
| 1 | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral |
| 2 | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line |
| 3 | +Vout | +Vout | +Vout2 | +Vout2 | +Vout2 |
| 4 | No Pin | No Pin | +Vout1 | +Vout1 | +Vout1 |
| 5 | -Vout | Common | -Vout2 | Common 2/3 | Common 2/3 |
| 6 | No Pin | No Pin | -Vout1 | -Vout1 | -Vout1 |
| 7 | No Connection | -Vout | NC | -Vout3 | +Vout3 |

Chassis Mount Option (add "CM" suffix)

Unit: mm [inches]

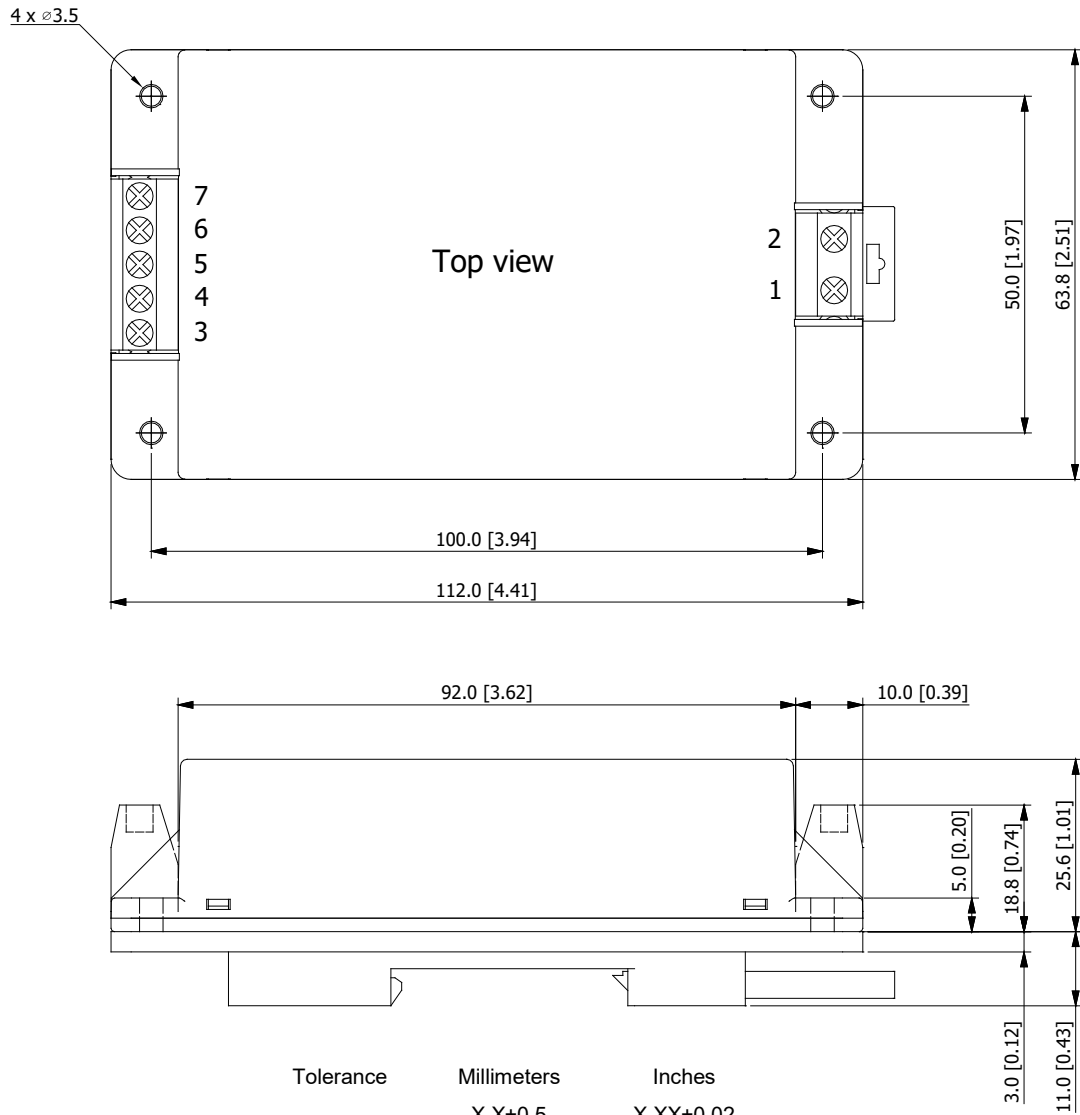


| Tolerance | Millimeters | Inches |
|-----------|-------------|------------|
| | X.X±0.5 | X.XX±0.02 |
| | X.XX±0.25 | X.XXX±0.01 |
| Pin | ±0.1 | ±0.004 |

| PIN CONNECTIONS | | | | | |
|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Pin | Single | Dual Output 1 | Dual Output 2 | Triple Output 1 | Triple Output 2 |
| 1 | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral |
| 2 | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line |
| 3 | +Vout | +Vout | +Vout2 | +Vout2 | +Vout2 |
| 4 | No Connection | No Connection | +Vout1 | +Vout1 | +Vout1 |
| 5 | -Vout | Common | -Vout2 | Common 2/3 | Common 2/3 |
| 6 | No Connection | No Connection | -Vout1 | -Vout1 | -Vout1 |
| 7 | No Connection | -Vout | NC | -Vout3 | +Vout3 |

DIN Rail Option (add "DN" suffix)

Unit: mm [inches]



| Tolerance | Millimeters | Inches |
|-----------|-------------|------------|
| | X.X±0.5 | X.XX±0.02 |
| | X.XX±0.25 | X.XXX±0.01 |
| Pin | ±0.1 | ±0.004 |

| PIN CONNECTIONS | | | | | |
|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Pin | Single | Dual Output 1 | Dual Output 2 | Triple Output 1 | Triple Output 2 |
| 1 | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral | AC (N) - AC Neutral |
| 2 | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line | AC (L) - AC Line |
| 3 | +Vout | +Vout | +Vout2 | +Vout2 | +Vout2 |
| 4 | NC | No Connection | +Vout1 | +Vout1 | +Vout1 |
| 5 | -Vout | Common | -Vout2 | Common 2/3 | Common 2/3 |
| 6 | No Connection | No Connection | -Vout1 | -Vout1 | -Vout1 |
| 7 | No Connection | -Vout | NC | -Vout3 | +Vout3 |



COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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