



480ACDRH_SC Series

480W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated Industrial DIN Rail Power Supply

AC-DC Converter 480 Watt

- ⊕ Universal 85- 264VAC or 120- 370VDC Input voltage
- ⊕ Accepts AC or DC input (dual-use of same terminal)
- ⊕ Operating ambient temperature range: -30°C to +70°C
- ⊕ The efficiency is up to 94%
- ⊕ High I/O isolation test voltage up to 3000VAC
- ⊕ DC OK function
- ⊕ Active PFC, PF>0.95
- ⊕ Low ripple & noise
- ⊕ Output short circuit, over-current, over-voltage, over-temperature protection
- ⊕ DIN rail TS-35/7.5 or 15 mountable
- ⊕ Ultra slim design with 48mm width
- ⊕ Safety according to IEC/EN/UL62368, UL61010, UL508

The 480ACDRH_SC series is featuring a cost-effective, energy efficient green power supply solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise for industrial control equipment, machinery, and other industrial equipment in a variety of harsh environments. These light weight AC-DC converters have an extremely compact design and the standard rail installation for space saving. With good EMC performance, compliant with international IEC/EN/UL62368, UL61010, UL508 standards for EMC and safety.



| Common specifications | |
|---|---|
| Short circuit protection: (Recovery time < 3s after the short circuit disappear.) | Constant current, continuous, self-recovery |
| Operation temperature range: | -30°C~+70°C |
| Storage temperature range: | -40°C ~+85°C |
| Storage humidity range: | 10 ~ 95 %RH (Non-condensing) |
| Operating humidity range: | 20 ~ 90 %RH (Non-condensing) |
| Power Derating: | Operating temperature derating • +50°C to +70°C 2.5 %/°C min. Input voltage derating • 85VAC-100VAC 1.0 %/VAC min. |
| Safety standards: | Meet IEC/EN/UL62368/UL61010/UL508 |
| Safety Class: | CLASS I |
| MTBF(MIL-HDBK-217F@25°C): | >300,000 hours |
| Case material: | Metal (AL1100, SPCC) and Plastic (PC940) |
| Cooling: | Free air convection |
| Dimensions: | 131.50 x 48.00 x 125.00 mm |
| Weight: | 980g Typ. |

| Input specifications | | | | | | |
|-----------------------------|-----------------|---------|-----|-----|-------|--|
| Item | Test conditions | Min | Typ | Max | Units | |
| Input Voltage Range | • AC input | 85 | | 264 | VAC | |
| | • DC input | 120 | | 370 | VDC | |
| Input Frequency | | 47 | | 63 | Hz | |
| Input Current | 115VAC | | | 5 | A | |
| | 230VAC | | | 2.5 | A | |
| Inrush Current (Cold start) | 115VAC | | 20 | | A | |
| | 230VAC | | 40 | | A | |
| Power Factor | 115VAC | 0.99 | | | | |
| | 230VAC | 0.95 | | | | |
| Leakage Current | 240VAC | < 0.8mA | | | | |
| Hot Plug | Unavailable | | | | | |

| Output specifications | | | | | | |
|-------------------------|--|-----|-------|-----|-------|--|
| Item | Test conditions | Min | Typ | Max | Units | |
| Output voltage accuracy | Full load range | | ±1.0 | | % | |
| Line regulation | Rated load | | ±0.5 | | % | |
| Load regulation | 0% - 100% load | | ±1.0 | | % | |
| Ripple & noise* | 20MHz bandwidth (peak-to-peak value) • 24V Output • 48V Output | | | 100 | mV | |
| | | | | 120 | mV | |
| | | | | | | |
| Temperature Coefficient | | | ±0.03 | | %/°C | |
| Switching frequency | | | 100 | | KHz | |
| Minimum Load | | 0 | | | % | |
| DC OK Signal | 30VDC/1A Max. | | | | | |
| Hold-up Time | 230VAC | 16 | 22 | | ms | |
| | | | | | | |

*The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

Example:

480ACDRH_48SC

480 = 480 Watts; AC = AC-DC; DR = Din Rail; H = Case style; 24 = Vout; S = Single Output; C = PFC (Power Factor Correction)

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta = 25°C, humidity <75% RH with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on our company corporate standards;
3. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see „Features“ and „EMC“;
6. The out case needs to be connected to PE (⬇) of system when the terminal equipment in operating;
7. The output voltage can be adjusted by the ADJ, clockwise to increase;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment.

480ACDRH_SC Series

480W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated Industrial DIN Rail Power Supply

| Protection specifications | | |
|--|--|---|
| Over-current Protection (230VAC, rated load) | <ul style="list-style-type: none"> Normal temp. high temp. Low temp. | 110%-150% Io, the output turned off after working normally for 1s, self-recovery $\geq 105\%$ Io, automatic recover after fault condition is removed |
| Over-voltage protection | <ul style="list-style-type: none"> 24V Output 48V Output | 29-35V(Output voltage turn off or clamp, re-power on for recover or automatic recover) 56-60V(Output voltage turn off or clamp, re-power on for recover automatic recover) |
| Over-temp. protection | <ul style="list-style-type: none"> 230VAC,100% Io Over-temperature protection start Over-temperature protection release | 90 °C Min. 60 °C Typ. |

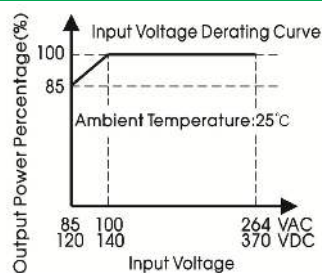
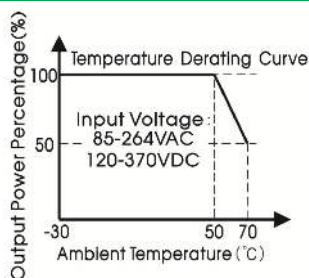
| Isolation specifications | | | | | |
|--------------------------|---|------|-----|-----|-------|
| Item | Test conditions | Min | Typ | Max | Units |
| Isolation Test | Electric strength test for 1min., leakage current <10mA | | | | |
| | • Input - ↓ | 2000 | | | VAC |
| | • Input - output | 3000 | | | VAC |
| | • Output - ↓ | 500 | | | VAC |
| Insulation Resistance | At 500VDC | | | | |
| | • Input - ↓ | 100 | | | MΩ |
| | • Input - output | 100 | | | MΩ |
| | • Output - ↓ | 100 | | | MΩ |

| EMC specifications | | | |
|--------------------|---|---|------------------|
| Emissions | CE | CISPR32/EN55032 CLASS B | |
| Emissions | RE | CISPR32/EN55032 CLASS B | |
| Emissions | Harmonic current | IEC/EN61000-3-2 CLASS A and CLASS D | |
| Immunity | ESD | IEC/EN61000-4-2 Contact ± 6 KV/Air ± 8 KV | perf. Criteria A |
| Immunity | RS | IEC/EN61000-4-3 10V/m | perf. Criteria A |
| Immunity | EFT | IEC/EN61000-4-4 ± 2 KV | perf. Criteria A |
| Immunity | Surge | IEC/EN61000-4-5 line to line ± 2 KV/line to ground ± 4 KV | perf. Criteria A |
| Immunity | CS | IEC/EN61000-4-6 10Vr.m.s | perf. Criteria A |
| Immunity | Voltage dips, short interruptions and voltage variations immunity | IEC/EN61000-4-11 0%, 70% | perf. Criteria B |

Product Selection Guide

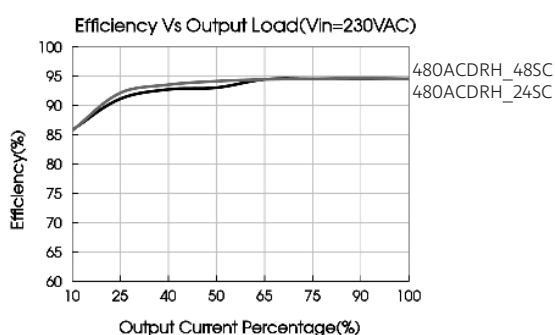
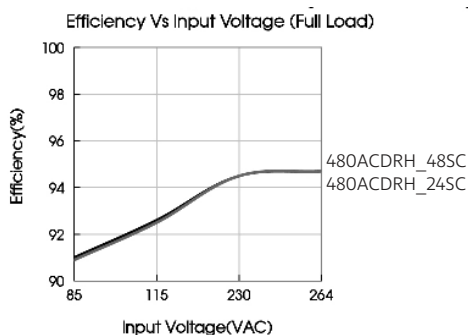
| Certification | Part Number | Power [W] | Nominal Output [Vo, VDC] | Rated Current [Io/A] | Output Voltage Adjustable [Range, V]* | Efficiency at 230VAC [% , Typ.] | Capacitive Load [μ F, Max.] |
|---------------|---------------|-----------|--------------------------|----------------------|---------------------------------------|---------------------------------|----------------------------------|
| UL (pending) | 480ACDRH_24SC | 480 | 24V | 20A | 24-28 | 94 | 4700 |
| UL (pending) | 480ACDRH_48SC | 480 | 48V | 10A | 48-55 | 94 | 2700 |

Typical characteristics



- Note:
- With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;
 - This product is suitable for applications using natural air cooling; for applications in closed environment please consult our FAE.

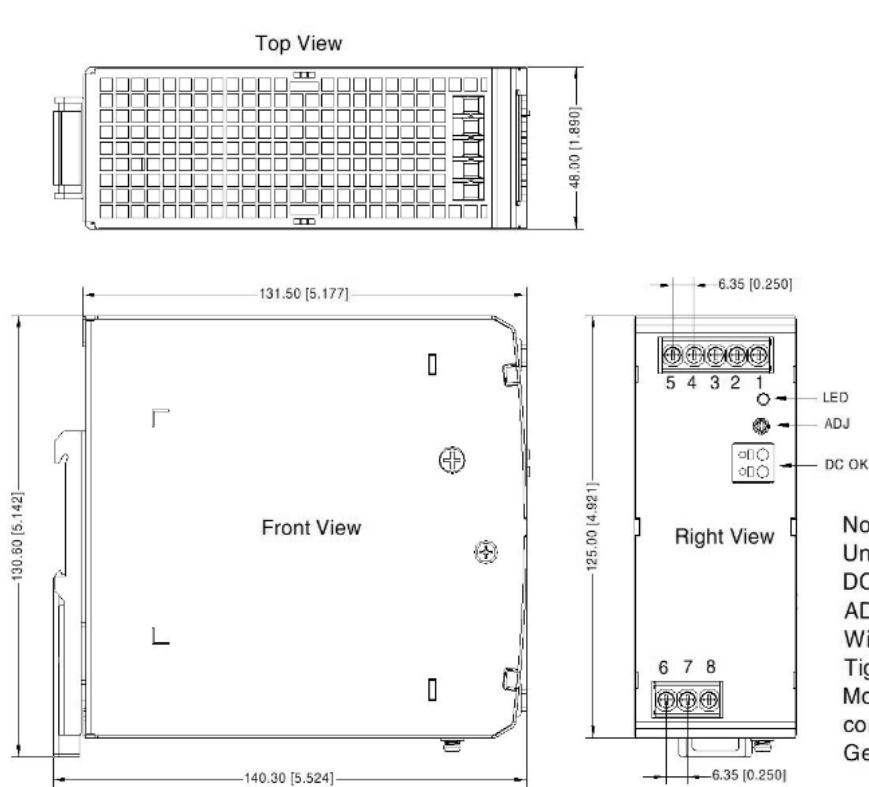
Efficiency



480ACDRH_SC Series

480W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated
Industrial DIN Rail Power Supply

Mechanical dimensions



THIRD ANGLE PROJECTION

| Pin-Out | |
|---------|-------|
| Pin | Mark |
| 1 | -Vo |
| 2 | -Vo |
| 3 | -Vo |
| 4 | +Vo |
| 5 | +Vo |
| 6 | AC(N) |
| 7 | AC(L) |
| 8 | |

Note:
Unit: mm[inch]
DC ON: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: 28-10 AWG
Tightening torque: Max 0.4 N · m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: $\pm 1.00 [\pm 0.039]$