



480ACDRT_SC series

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

AC-DC Converter 480 Watt

- ⊕ 3-Phase 340~550VAC wide range input (2-phase operation possible)
- ⊕ Protection: Short Circuit/Overload/Over Voltage/Over Temperature
- ⊕ Built-in Constant Current Limiting Circuit
- ⊕ Built-in Passive PFC Function
- ⊕ DC Output Voltage Adjustable

The 480ACDRT_SC series are designed with metal housing and for three phase system with wide range from 340VAC to 550 VAC.

The series offer built-in constant current limiting circuit and active PFC function, and operating in wide temperature range.

They are suitable for industrial-related applications such as industrial control, semiconductor fabrication equipment, and factory automation etc.



| Common specifications | |
|---------------------------|--|
| Operation temperature: | -30°C~+70°C (Refer to „Derating Curve“) |
| Storage temperature: | -40°C ~+85°C |
| Storage humidity: | 10 ~ 95 %RH (Non-condensing) |
| Operating humidity: | 20 ~ 95 %RH (Non-condensing) |
| Vibration: | Component: 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to EC60068-2-6 |
| Safety standards: | UL508, IEC62368-1 AS/NZS 62368 1, approved, Design refer to BS EN/EN62368-1 |
| Withstand voltage: | I/P-O/P:3kVAC I/P-FG:2kVAC O/P-FG:0.5kVAC O/P-DC OK (optional): 0.5kVAC |
| Isolation resistance: | I/P-O/P, I/P-FG, O/P-FG >100M Ohms / 500VDC / 25 / 70% RH |
| MTBF(MIL-HDBK-217F@25°C): | >1174,000 hrs (Min.) Telcordia SR-332 (Bellcore); 108.3K hrs (Min.) |
| Dimensions: | 85.5mm x 129mm x 125mm |
| Weight: | 1510g Typ. |

| Input specifications | | | | | |
|-----------------------------|--|-----|-------------|-----|-------|
| Item | Test conditions | Min | Typ | Max | Units |
| Input Voltage Range | Three-Phase 340 ~ 550VAC (Dual phase operation possible) 480 ~ 780VDC | | | | |
| Input Frequency | | 47 | | 63 | Hz |
| Input Current | 400VAC 500VAC | | 0.85 0.7 | | A |
| Inrush Current (Cold start) | | | 50 | | A |
| Power Factor | 400VAC at full load 500VAC at full load | | 0.9 0.88 | | |
| Leakage Current | 530VAC | | < 3.5mA | | |

Example:
480ACDRT_245C
 480 = 480 Watts; AC = AC-DC; DR = Din Rail; T = 3-Phase input;
 48 = Vout; S = Single Output; C = PFC (Power Factor Correction)

| Output specifications | | | | | |
|-------------------------|---|-----|-------|-----|-------|
| Item | Test conditions | Min | Typ | Max | Units |
| Voltage tolerance | Full load range | | ±1.0 | | % |
| Line regulation | | | ±0.5 | | % |
| Load regulation | | | ±1.0 | | % |
| Ripple & noise* | 20MHz bandwidth (peak-to-peak value) | | | 150 | mVp-p |
| Temperature Coefficient | (0-50°C) | | ±0.03 | | %/°C |
| Setup, rise time | 1200ms, 60ms/400VAC at full load 800ms, 60ms/500VAC at full load | | | | |
| Hold-up Time | 20ms I 400VAC at full load 20ms I 500VAC at full load | | | | |
| Efficiency (typ.) | 92.5% 480ACDRT_245C 93.0% 480ACDRT_485C | | | | |
| Over load | 105 ~ 130% rated output power Protect on type: Constant current limiting, unit will hiccup after 3 sec., re-power on to recover. | | | | |
| Over voltage | 29~33V 480ACDRT_245C 56~65V 480ACDRT_485C Protection type: Shut down o/p voltage, re-power on to recover. | | | | |
| Over temperature | Shut down o/p voltage, recovers automatically after temperature goes down | | | | |

Note:

- All parameters NOT specially mentioned at 400VAC input, rated load and 25°C of ambient temperature.
- Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
- Tolerance: includes set up tolerance, line regulation and load regulation.
- Dual phase operation is allowed under certain derating to output load. Please refer to derating curves for details.
- Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.
- The ambient temperature derating of 3.5 °C/1000m for operating altitude higher than 2000m (6500ft).
- The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to „EMI testing of component power supplies.“ equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform EMC tests, please refer to „EMI testing of component power supplies.“

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EMC specifications

Emissions BS EN/EN55032(CISPR32)/BS EN/EN61204-3

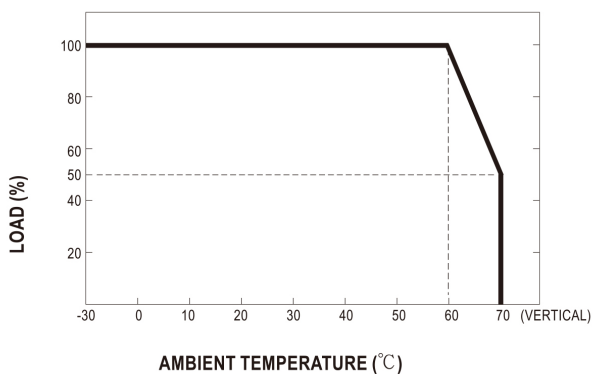
Immunity BS EN/EN61000-4-2, 3, 4, 5, 6, 8

Product Selection Guide

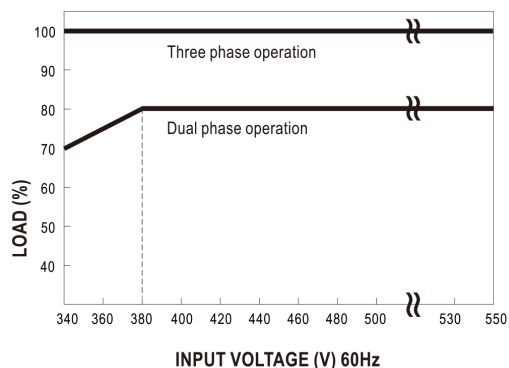
| Certification | Part Number | Rated Power [W] | Nominal Output [Vo, VDC] | Rated Current [Io/A] | Output Voltage Adjustable [Range, V]* | Efficiency [%] |
|---------------|---------------|-----------------|--------------------------|----------------------|---------------------------------------|----------------|
| UL | 480ACDRT_24SC | 480 | 24V | 20A | 24-28 | 92.5 |
| UL | 480ACDRT_48SC | 480 | 48V | 10A | 48-55 | 93.0 |

Typical characteristics

Deduction Curve And Temperature



Minus Output And Input Voltage Curves

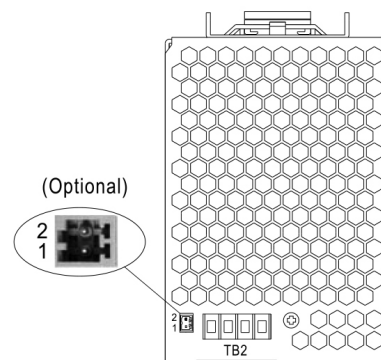


DC OK relay contact

| | |
|------------------------|--|
| Contact Close | PSU turns on / DC OK. |
| Contact Open | PSU turns off / DC Fail. |
| Contact Ratings (max.) | 60VDC/0.3A, 30VDC/1A, 30VAC/0.5A resistive load. |

Control Pin (Optional) : DINKLE ECH250R-02P or equivalent (CN25)

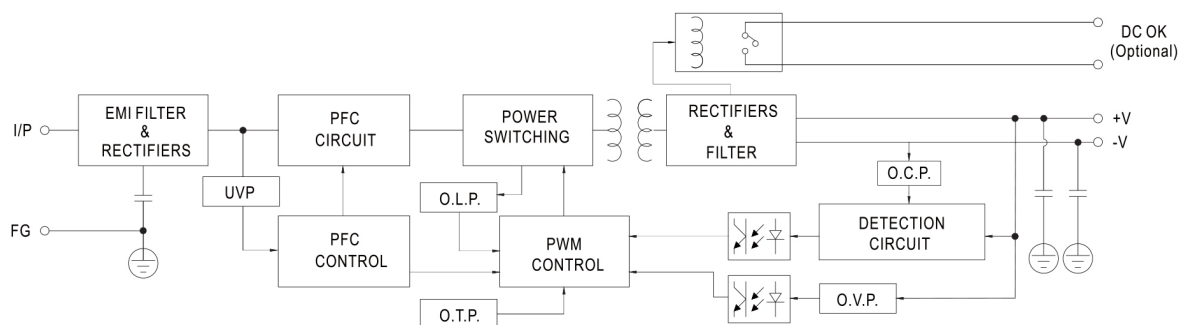
| Pin No. | Assignment | Mating Housing | Wire Diameter |
|---------|---------------------|---|---------------------------------------|
| 1,2 | DC OK Relay Contact | Dinkle ESC250V-02P or equivalent (Including in the package) | 0.081~0.517mm ² (20~28AWG) |



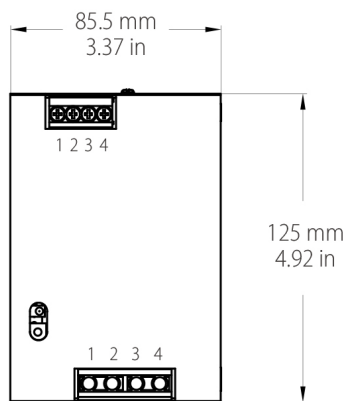
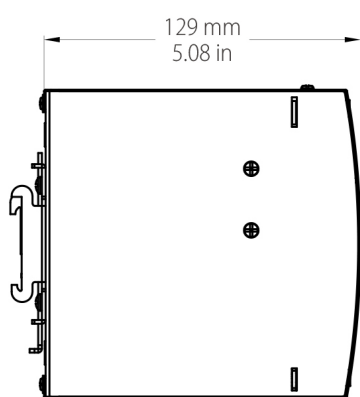
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Block Diagram



Mechanical dimensions



Input

| No. | Description |
|-----|-------------|
| 1 | PE ⊕ |
| 2 | AC/L3 |
| 3 | AC/L2 |
| 4 | AC/L1 |

Output

| No. | Description |
|-----|--------------|
| 1,2 | DC OUTPUT +V |
| 3,4 | DC OUTPUT -V |