GAPTEC®

THIS SERIES IS NOT recommended for new design-ins and this series is discontinued

Recommended alternative: 480ACDRN_SC series

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: -40°C to +70°C
- The efficiency is up to 94.5%
- High I/O isolation test voltage up to 3000VAC
- DC OK function
- Active PFC, PF>0.99
- 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.

SHORT CIRCUIT PROTECTED

100% RoHS compliant 6/6

c UL us

UL-61010-1 (E525601)
UL-62368-1 (E347551)

Common specifications

Short circut 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 • DC input	85 120		264 370	VAC VDC
Input Frequency		47		63	Hz
Input Current	115VAC 230VAC			5 2.5	A A
Inrush Current (Cold start)	115VAC 230VAC			3.15 3.15	A A
Power Factor	115VAC 230VAC	0.99 0.99			
Leakage Current	240VAC	< 0.8mA			
Hot Plug	Unavailable				
Maximum capacitive load	5.24V ≤20000uF, 48V ≤10000uF				

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) • 6.24V Output • 48V Output			 ≤50 ≤70	 mV 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		
Overcurrent Protection (230VAC, rated load)	• Normal temp. high temp. • Low temp.	110%-250% Io, the output turned off after working normally for 1s, self-recovery ≥105% Io, automatic recover after fault condition is removed
Over-voltage protection	• 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	230VAC,100% Io • Over-temperature protection start • Over-temperature protection release	90 °C Min. 60 °C Typ.

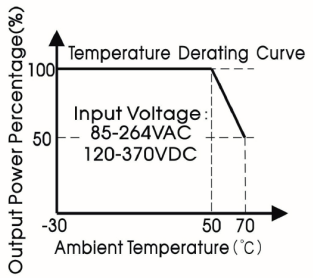
Isolation specifications					
Item	Test conditions	Min	Typ	Max	Units
Isolation Test	Electric strength test for 1min., leakage current <10mA				
	• Input - ⏚	2000			VAC
	• Input - output	3000			VAC
	• Output - ⏚	500			VAC
Insulation Resistance	At 500VDC				
	• Input - ⏚	100			MΩ
	• Input - output	100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

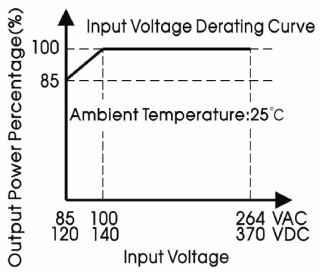
EMC specifications			
Emissions	CE	CISPR32/EN55032 CLASS B	
Emissions	RE	CISPR32/EN55032 CLASS B	
Emissions	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
Immunity	ESD	IEC/EN61000-4-2 Contact ±8KV, Air ±15KV	perf. Criteria A
Immunity	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
Immunity	EFT	IEC/EN61000-4-4 ±4KV	perf. Criteria A
Immunity	Surge	IEC/EN61000-4-5 line to line ±2KV/line to ground ±4KV	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 [µF, Max.]
UL (pending)	480ACDRH_24SC	480	24V	20A	24-28	94.5	4700
UL (pending)	480ACDRH_48SC	480	48V	10A	48-55	94.5	2700

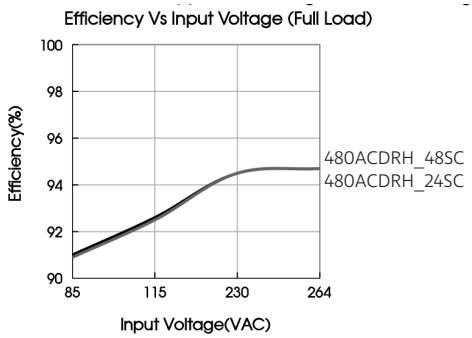
Typical characteristics

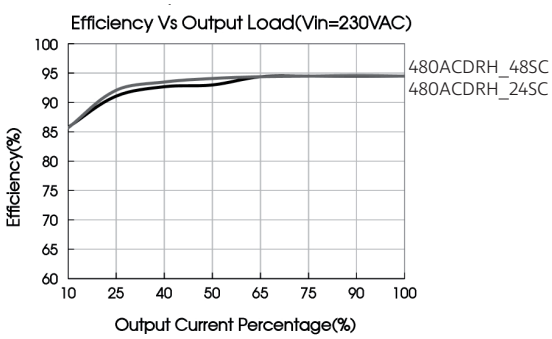




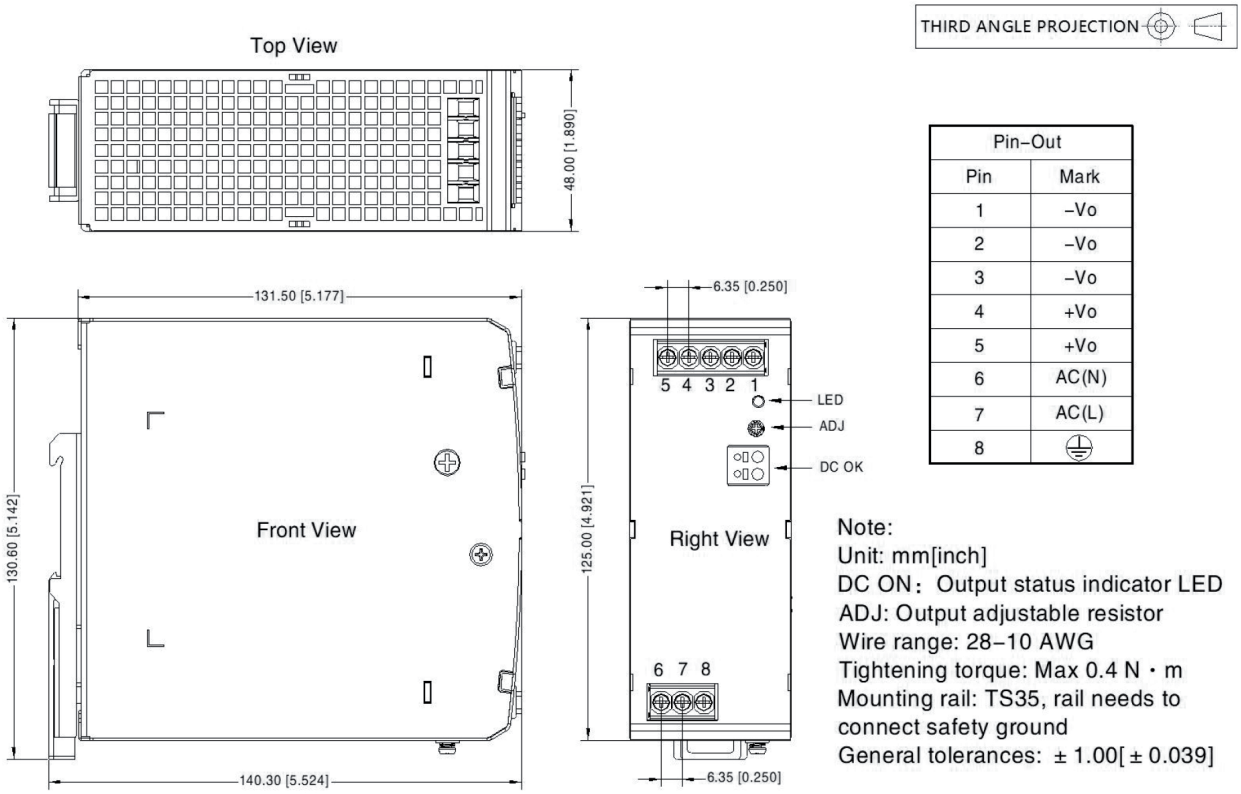
Note:
1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult our FAE.

Efficiency





Mechanical dimensions



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: ± 1.00[± 0.039]