

DRA480* SERIES

FOR DC BACKUP SYSTEM
AC - DC DIN RAIL MOUNTABLE POWER SUPPLY
INDUSTRIAL CONTROL EQUIPMENT



FEATURES

- ACTIVE PFC FUNCTION
- UNIVERSAL INPUT VOLTAGE
- SELV COMPONENTS DESIGN
- 3 YEARS WARRANTY



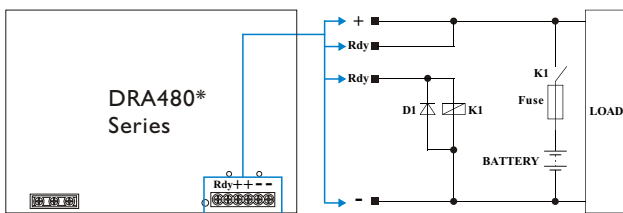
SELECTION CHART

DRA 480 - 24 A *

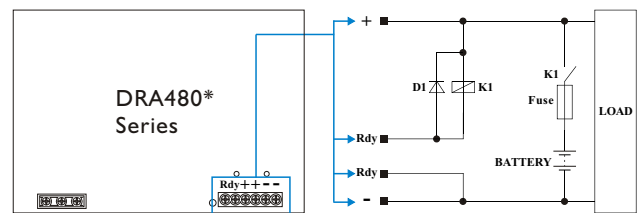
Wattage ——— | 24 : 27.2V OUT | DC Backup System
| 48 : 54.5V OUT | SCREW TERMINAL

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
Single Output Models						
DRA480-24A*	90 ~ 264 VAC	480 WATTS	+ 27.2 VDC	17.6 A	86%	89%
DRA480-48A*	90 ~ 264 VAC	480 WATTS	+ 54.5 VDC	8.8 A	87%	90%



DRA480* Series For DC Backup System Application



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Note :

1. The suffix "*" is part of the model number, which specifies the product is designed and pre-trim for low-cost DC backup power system with external Lead-Acid battery, Relay and Fuse.
2. The manufacturer is liable neither for the external components nor the damage to the power supply causing by external components.
3. The total consumption current including loading and battery charging current should not exceed the maximum rated current of power supply.
4. The operation concept of DC backup power system :
 - A. When AC power alive : The "Rdy" is close circuit to active the external Relay . The power supply feeds current into the external loads and charges through Relay to the external battery as well.
 - B. When AC power interrupted : The "Rdy" is remain close circuit to maintain the external Relay remain active, the external battery supply current to the external loads.
 - C. When Battery power low : The "Rdy" become open circuit and the external Relay become inactive to disconnect the battery from external loads.



SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL					
Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, lo nom		60		KHz
Isolation voltage	Input-Output	3,000 / 4,242			VAC / VDC
	Input-FG	1,500 / 2,121			VAC / VDC
	Output-FG	500 / 710			VAC / VDC
	Input-Output, @ 500VDC	100			MΩ
Ambient temperature	Operating at Vi nom	-40		+ 71	°C
Derating (see derating curve)	Vi nom, from +56 to +71°C			2.5	% / °C
Storage temperature	Non operational	-40		+ 85	°C
Relative humidity	Vi nom, lo nom	20		95	% RH
Temperature coefficient	Vi nom, lo min			± 0.03	% / °C
MTBF	Bellcore Issue 6 @40°C, GB	24V	453,000		Hours
		48V	499,000		Hours
Altitude during operation	EN 60950-1			5,000	m
Dimension	Screw terminal type	L124.5 x W175.5 x D125			mm
Cooling	Free air convection				
Installation position	Vertical (other direction may derating using)				
Pollution degree			2		
INPUT SPECIFICATIONS					
Characteristics	Conditions	min.	typ.	max.	unit
Rated input voltage	lo nom		115 / 230		VAC
Absolute input max. range	Ta min ... Ta max, lo nom	AC in	90	264	VAC
		DC in	120	375	VDC
Input current	Vi : 115 / 230 VAC, lo nom		4.9 / 2.5		A
Rated input current	Vi : 90 / 180 VAC, lo nom			7 / 3.5	A
Line frequency	Vi nom, lo nom	47		63	Hz
Inrush current	Vi : 115 / 230 VAC , lo nom			25 / 50	A
Power dissipation	Vi : 230 VAC, lo nom	24V	63		W
		48V	60		W
Leakage current	Input-Output			0.25	mA
	Input-FG			3.5	mA
Power factor (Active)	Vi : 115 / 230VAC, lo nom		0.99 / 0.97		
OUTPUT SPECIFICATIONS					
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy (Adjusted before shipment)	Vi nom, lo max	0		± 1	%
Minimum load	Vi nom	0			%
Line regulation	lo nom, Vi min ...Vi max			± 0.5	%
Load regulation	Vi nom, lo min ...lo nom			± 1	%
Voltage trim range	Vi nom, 0.8 lo nom	24V	22.5	28.5	VDC
		48V	47	56	VDC
Hold up time	Vi : 115 / 230 VAC , lo nom	25 / 30			ms
Turn on time	Vi nom, lo nom			1,000	ms
	Vi nom, lo nom → with 7000 μF CAP			1,500	ms
Rise time	Vi nom, lo nom			150	ms
	Vi nom, lo nom → with 7000 μF CAP			500	ms
Fall time	Vi nom, lo nom			150	ms
Transient recovery time	Vi nom, 1 ~0.5 lo nom			2	ms

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OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Ripple & noise	Vi nom, Io nom, BW = 20MHz			100	mV
Power back immunity	Vi nom, Io nom	24V	35		VDC
		48V	63		VDC
Capacitor load	Vi nom, Io nom			7,000	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	24V	21.2	22.2	VDC
		48V	42.8	43.8	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom	24V	21.1	22.1	VDC
		48V	42.7	43.7	VDC

CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T10A / 250VAC internal			
Internal surge voltage protection	IEC 61000-4-5	Varistor			
Rated over load protection	Vi nom	105		125	%
Power Rdy	Rdy Close indicator threshold at start up	24V	21.2	22.2	VDC
		48V	42.8	43.8	VDC
Power Rdy	Rdy Open indicator threshold after start up	24V	21.1	22.1	VDC
		48V	42.7	43.7	VDC
	Electrical isolation	500			VDC
	Contact rating at 60VDC			0.3	A
Over voltage protection	Vi nom, 0.8 Io nom (Auto Recovery)	24V	30	33	V
		48V	60	66	V
Output short circuit		Fold forward			
Degree of protection		IP20			

APPROVALS AND STANDARDS

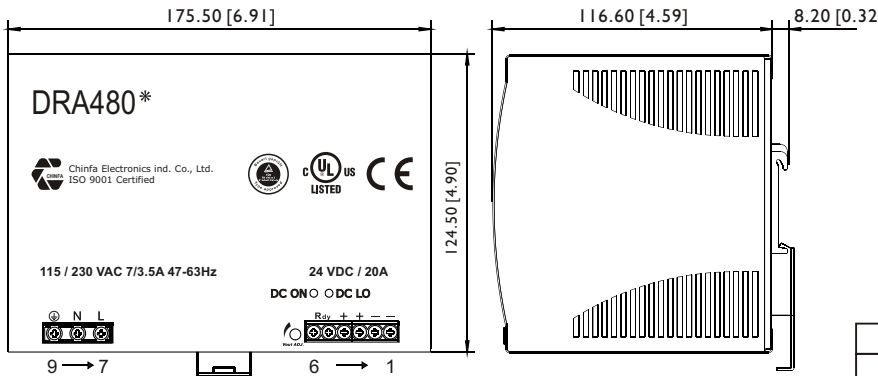
UL / cUL	UL 508 Listed UL 60950-1 Recognized ISA 12.12.01 (Class I, Division 2, Groups A, B, C and D)
TUV	EN 60950-1 EN 61558-1, EN 61558-2-16 (meet EN 60204-1)
CE	EN 61000-6-3, EN 55032 Class B, EN 61000-3-2 Class D, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3, L / N-FG Level 4 EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11 ENV 50204 Level 2, EN 61204-3
CCC	GB4943.1, GB9254, GB17625.1
Vibration resistance	meet IEC 60068-2-6 (Mounting on rail : 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)

PHYSICAL CHARACTERISTICS

Case size	124.5 x 175.5 x 125 mm (4.9 x 6.91 x 4.92 inches)
Case material	Metal
Weight	1920 g
Packing	2.3 kg ; 8 pcs / 20 kg / 2.35 CUFT

MECHANISM & PIN CONFIGURATION

mm [inch]



CONSTRUCTION

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail.

INSTALLATION

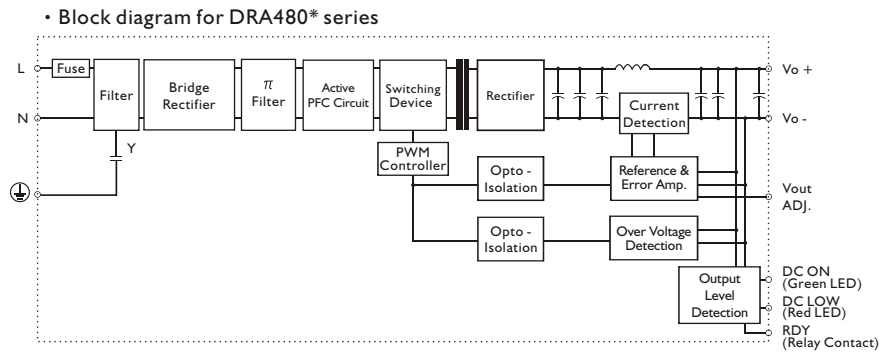
Ventilation / Cooling
Normal convection
All sides 25mm free space
For cooling recommended
Connector size range
Screw terminal:
AWG24-10(0.2~4mm²) flexible / solid cable,
-Input connector can withstand torque at maximum 9pound-inches.
-Output connector can withstand torque at maximum 5.5pound-inches.
8 m/m stripping at cable end recommends
Use copper conductors only, 60 / 75°C

GENERAL TOLERANCE	
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]
120.00[4.72] - 400.00[15.75]	±0.80[0.03]

PIN ASSIGNMENT

PIN NO.	Designation	Description
1, 2	V -	Negative output terminal
3, 4	V +	Positive output terminal
5, 6	RDY	A normal open circuit of PhotoMOS Relay
7	L	Input terminals (phase conductor, no polarity at DC input)
8	N	Input terminals (neutral conductor, no polarity at DC input)
9	⊕	Ground this terminal to minimize high-frequency emissions
OTHER	DC ON	Operation indicator LED
	DC LO	DC LOW voltage indicator LED
	Vout ADJ.	Trimmer-potentiometer for Vout adjustment

CIRCUIT SCHEMATIC



DERATING CURVE

