

# DRE480 SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT



## FEATURES

- HIGH EFFICIENCY 94%
- BUILT-IN ACTIVE PFC
- 150% PEAK LOAD CAPABILITY
- SELV COMPONENTS DESIGN
- SHORT CIRCUIT PROTECTION
- PARALLEL FUNCTION
- 3 YEARS WARRANTY



## SELECTION CHART

### DRE 480 - 24 A

Wattage  $\left\{ \begin{array}{l} 24 : 24V \text{ OUT} \\ 48 : 48V \text{ OUT} \end{array} \right.$   $\left\{ \begin{array}{l} \text{SCREW TERMINALS TYPE} \end{array} \right.$

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
<b>Single Output Models</b>						
DRE480-24A	88 ~ 264 VAC	480 WATTS	+ 24 VDC	20A	91%	93%
DRE480-48A	88 ~ 264 VAC	480 WATTS	+ 48 VDC	10A	92%	94%

## 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, Io nom		90		KHz	
Isolation voltage	Input-Output	3,000 / 4,242			VAC / VDC	
	Input-PE	1,768 / 2,500			VAC / VDC	
	Output-PE	500 / 710			VAC / VDC	
Isolation resistance	Input-Output, @ 500VDC	100			MΩ	
Ambient temperature	Operating at Vi nom	-40		+ 71	°C	
Derating (see derating curve)	Vi nom, from +55 to +71°C			2.5	% / °C	
Storage temperature	Non operational	-40		+ 85	°C	
Relative humidity	Vi nom, Io nom	20		95	% RH	
Temperature coefficient	Vi nom, Io min			± 0.03	% / °C	
MTBF	Bellcore Issue 6 @40°C, GB	24V		440,000	Hours	
		48V		410,000	Hours	
Altitude during operation	EN 62368-1			5,000	m	
Dimension	Screw terminal type	L124.5 x W83.5 x D123.6			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	Io nom	100		240	VAC	
Input voltage range	Ta min ... Ta max, Io nom	AC in	88	264	VAC	
		DC in	120	375	VDC	

## SPECIFICATION

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### INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input current	Vi : 115 / 230 VAC, Io nom		4.8 / 2.4		A
Rated input current	Vi : 88 VAC, Io nom			6.5	A
Line frequency	Vi nom, Io nom	47		63	Hz
Inrush current	Vi : 115 / 230 VAC , Io nom			24 / 48	A
Power dissipation	Vi : 230 VAC, Io nom		37		W
Leakage current	Input-Output			0.25	mA
	Input-PE			3.5	mA
P.F.C (Active)	Vi : 115 / 230 VAC, Io nom		0.99 / 0.95		

### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy (Adjusted before shipment)	Vi nom, Io max	0		+ 1	%
Minimum load	Vi nom	0			%
Line regulation	Io nom, Vi min ...Vi max			± 1	%
Load regulation	Vi nom, Io min ...Io nom			± 1	%
Peak power (I)	Vi nom			720	W
Voltage trim range	Vi nom, 0.8 Io nom	24V	22.5	28	VDC
		48V	47	56	VDC
Rated continuous loading	Vi nom	24V	20 A @ 24Vdc / 17.1 A @ 28 Vdc		
		48V	10 A @ 48Vdc / 8.5 A @ 56 Vdc		
Hold up time	Vi : 115 / 230 VAC , Io nom	18			ms
Turn on time	Vi nom, Io nom			1,500	ms
	Vi nom, Io nom → with 10000 µF CAP			3,000	ms
Rise time	Vi nom, Io nom			150	ms
	Vi nom, Io nom → with 10000 µF CAP			500	ms
Fall time	Vi nom, Io nom			150	ms
Transient recovery time	Vi nom, I ~0.5 Io nom			2	ms
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			10,000	µF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	24V	17.6	19.4	VDC
		48V	37	43	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom	24V	17.6	19.4	VDC
		48V	37	43	VDC
Parallel operation	0.1 Io min ~0.9 Io max			3	unit
Efficiency	Vi nom, Io nom, Po / Pi		Up to 94%, See model list and typ efficiency curve		

NOTE 1 : 3 sec or 20% duty cycle max, and the average output power should not exceed the rated power.

### CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T8A / 250VAC internal			
Internal surge voltage protection	IEC 61000-4-5	Varistor			
Rated over load protection	Vi nom (see typ current limited curve)	110		150	%
Power Rdy (for 24V model only)	Threshold voltage of contact closed(at start up)	17.6		19.4	VDC
	Electrical isolation	500			VDC
Over voltage protection	Vi nom, 0.8 Io nom (Auto-restart protect)	24V	29	33	V
		48V	58	63	V
Output short circuit		Auto-restart			
Over temperature	Detect on heat sink, shut down O/P voltage, recovers automatically after temperature goes down.	100		110	°C
Degree of protection		IP20			

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### APPROVALS AND STANDARDS

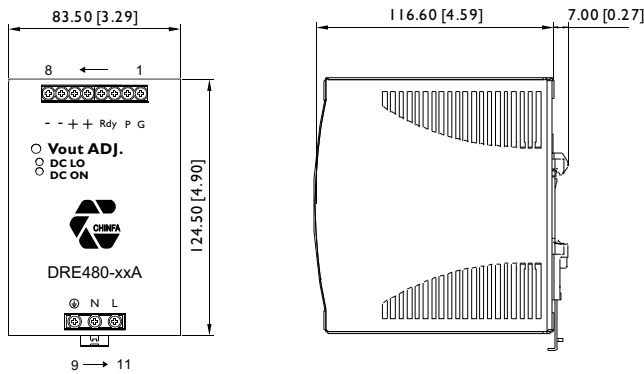
UL / cUL	UL 508 Listed, UL 121201 (Class I, Division 2, Groups A, B, C and D)
cTUVus	UL 62368-1
TUV	BS EN / EN 62368-1, EN 61558-1, EN 61558-2-16 (meet EN 60204-1)
CE	BS EN / EN 61000-6-3, BS EN / EN 55032 Class B, CISPR32, BS EN / EN 61000-3-2 Class A / D, BS EN / EN 61000-3-3 BS EN / EN 61000-6-2, BS EN / EN 55035, BS EN / EN 61000-4-2 Level 4, BS EN / EN 61000-4-3 Level 3 BS EN / EN 61000-4-4 Level 4, BS EN / EN 61000-4-5 Level 4 BS EN / EN 61000-4-6 Level 3, BS EN / EN 61000-4-8 Level 4, BS EN / EN 61000-4-11 DD ENV / ENV 50204 Level 2, BS EN / EN 61204-3
Vibration resistance	meet IEC 60068-2-6 (Mounting by rail : Random wave, 10-500 Hz, 2G, each along X, Y, Z axes 10 min / cycle, 60 min )
Shock resistance	meet IEC 60068-2-27 (Half sine wave, 4G, 22ms, 3 axes, 6 Faces, 3 times for each face)

### PHYSICAL CHARACTERISTICS

Case size	Screw terminal type	124.5 x 83.5 x 123.6 mm (4.9 x 3.29 x 4.87 inches)
Case material	Metal	
Weight	1500g	
Packing	1.6kg ; 16 pcs / 27kg / 2.01CUFT	

### MECHANISM & PIN CONFIGURATION

mm [inch]



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]

#### 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:

Input and output:

AWG20-10 (0.5~5mm<sup>2</sup>) flexible / solid cable.

Rdy and P. G. control:

AWG24-10 (0.2~4mm<sup>2</sup>) flexible / solid cable,

-Input connector can withstand torque at maximum 9 pound-inches.

-Output connector can withstand torque at maximum 5.5 pound-inches.

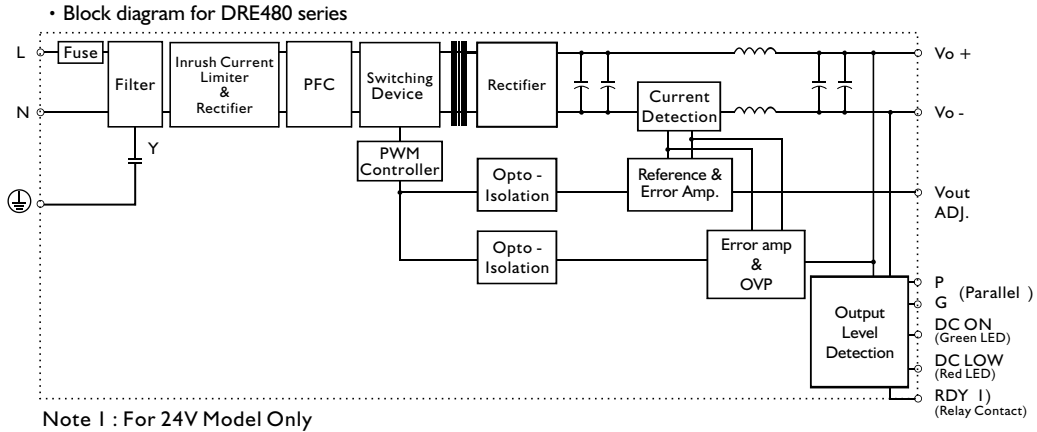
8 m/m stripping at cable end recommends

Use copper conductors only, 60 / 75°C

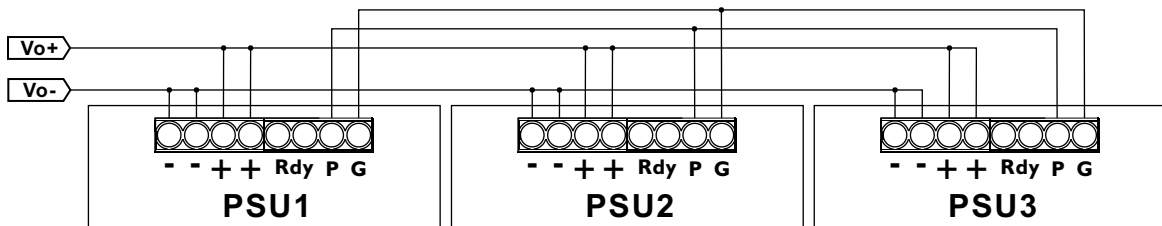
### PIN ASSIGNMENT

PIN NO.	Designation	Description
3	OUT	RDY
4		A normal open circuit of PhotoMOS Relay (24V model only)
5, 6		V +
7, 8		V -
9	IN	⊕
10		Ground this terminal to minimize high-frequency emissions
11		N
	OTHER	L
		Input terminals (neutral conductor, no polarity at DC input)
		L
		Input terminals (phase conductor, no polarity at DC input)
		DC ON
		Operation indicator LED
	DC LO	
	DC LOW voltage indicator LED	
	Vout ADJ.	
	Trimmer-potentiometer for Vout adjustment	
1	P	
	Parallel PIN for current share	
2	G	
	Parallel GND PIN for current share	

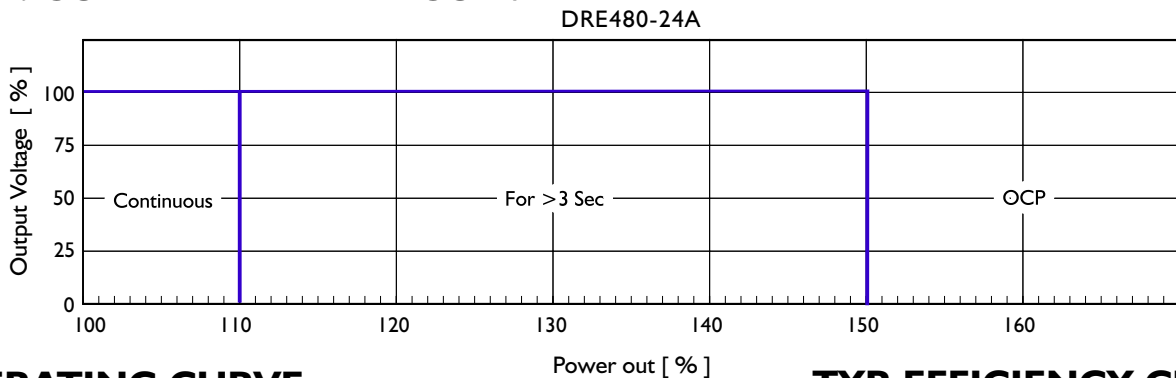
## CIRCUIT SCHEMATIC



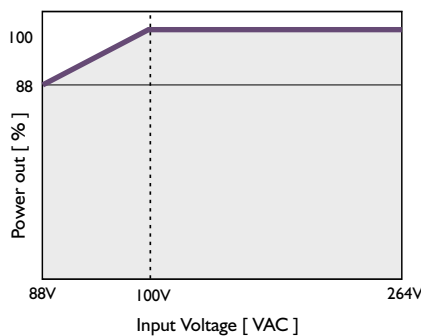
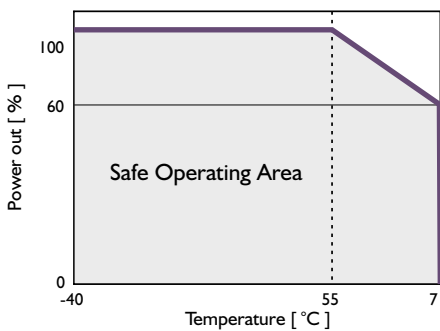
## Parallel Connection



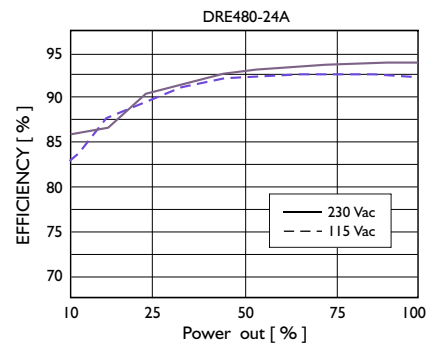
## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE



## PEAK LOADING

