

# DRE240 SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT



## FEATURES

- HIGH EFFICIENCY 93%
- BUILT-IN ACTIVE P.F.C.
- 150% PEAK LOAD CAPABILITY
- SELV COMPONENTS DESIGN
- PARALLEL FUNCTION (SWITCH SELECTABLE)
- 3 YEARS WARRANTY



## SELECTION CHART

**DRE 240 - 24 x**

Wattage

12 : 12V OUT      A : SCREW TERMINALS  
24 : 24V OUT      B : DETACHABLE CONNECTOR

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
<b>Single Output Models</b>						
DRE240-12x	88 ~ 264 VAC	192 WATTS	+ 12 VDC	16A	89%	91%
DRE240-24x	88 ~ 264 VAC	240 WATTS	+ 24 VDC	10A	91%	93%

## 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		3000 / 4242			VAC / VDC
	Input-FG		1500 / 2121			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 +61 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	12V model		374000		Hours
		24V model		384000		Hours
Altitude during operation	IEC 60068-2-13				4850	m
Dimension	Screw terminal type		L124.5 x W64 x D123.6			mm
	Detachable connector type		L143.5 x W64 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

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

### INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input current	Vi : 115 / 230 VAC, Io nom		2.3 / 1.15		A
Rated input current	Vi : 88 VAC, Io nom			3.2	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	12V model	17		W
		24V model	16		W
Leakage current	Input-Output			0.25	mA
	Input-FG			3.5	mA
P.F.C. (Active)	Vi : 230VAC, Io nom		0.97		

### 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	single mode		± 1	%
		parallel mode		± 5	%
Peak power (I)	Vi nom			360	W
Voltage trim range	Vi nom, 0.8 Io nom	12V model	11.4	14.5	VDC
		24V model	22.5	28.5	VDC
Rated continuous loading	Vi nom	12V model	16 A @ 12Vdc / 13 A @ 14.5 Vdc		
		24V model	10 A @ 24Vdc / 8.4 A @ 28.5 Vdc		
Hold up time	Vi : 115 / 230 VAC , Io nom	25 / 30			ms
Turn on time	Vi nom, Io nom			1000	ms
	Vi nom, Io nom → with 7000 μF CAP			1500	ms
Rise time	Vi nom, Io nom			150	ms
	Vi nom, Io nom → with 7000 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	12V model	18		VDC
		24V model	35		VDC
Capacitor load	Vi nom, Io nom			7000	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	12V model	10	11.2	VDC
		24V model	17.6	19.4	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom	12V model	10	11.2	VDC
		24V model	17.6	19.4	VDC
Parallel operation	0.1 Io min ~ 0.9 Io max			3	unit
Efficiency	Vi nom, Io nom, Po / Pi		Up to 93%, 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		T5A / 250VAC internal			
Internal surge voltage protection	IEC 61000-4-5	Varistor			
Rated over load protection	Vi nom (see typ current limited curve)	120		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, Io nom (Shut-down protect)	12V model	14.5	17.5	V
		24V model	30	33	V
Output short circuit		shut-down protection, after 7s 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			

## SPECIFICATION

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

## APPROVALS AND STANDARDS

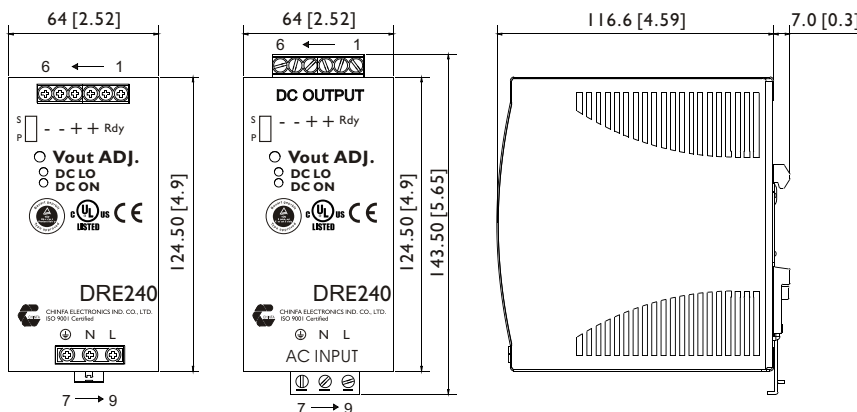
UL / cUL	UL 508 Listed UL 60950-1 Recognized
TUV	EN 60950-1, CB scheme
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2 Class D, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3, L / N-FG Level 4 EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11 ENV 50204 Level 2, EN 61204-3
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 64 x 123.6 mm (4.9 x 2.52 x 4.87 inches)
	Detachable connector type	143.5 x 64 x 123.6 mm (5.65 x 2.52 x 4.87 inches)
Case material		Metal
Weight		860g
Packing		0.96kg ; 20pcs / 20.5kg / 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]

### CONSTRUCTION

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

### INSTALLATION

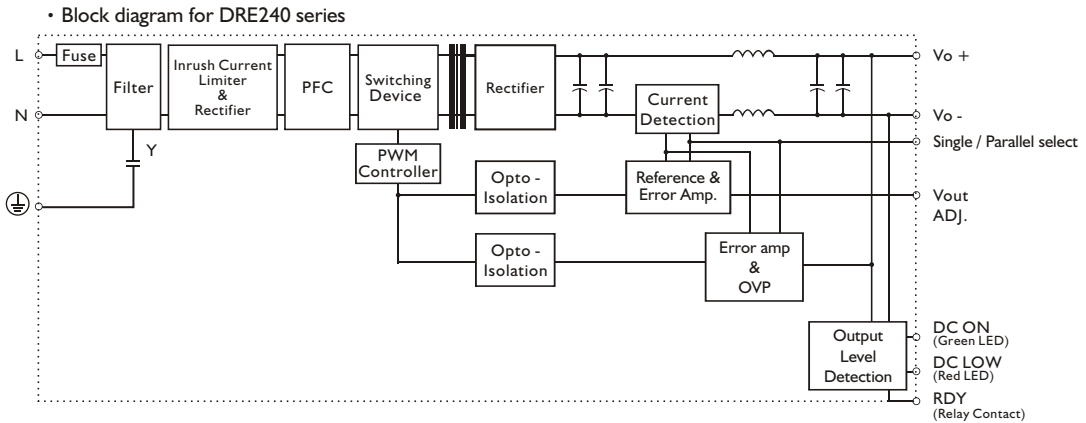
Ventilation / Cooling  
Normal convection  
All sides 25mm free space  
For cooling recommended

Connector size range  
Screw terminal:  
AWG24-10 (0.2~4mm<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  
Detachable connector:  
AWG24-12 (0.2~2.5mm<sup>2</sup>) flexible / solid cable,  
-Input connector can withstand torque at maximum 4.5 pound-inches.  
-Output connector can withstand torque at maximum 7 pound-inches.  
4~5 m/m stripping at cable end recommends  
Use copper conductors only, 60 / 75°C

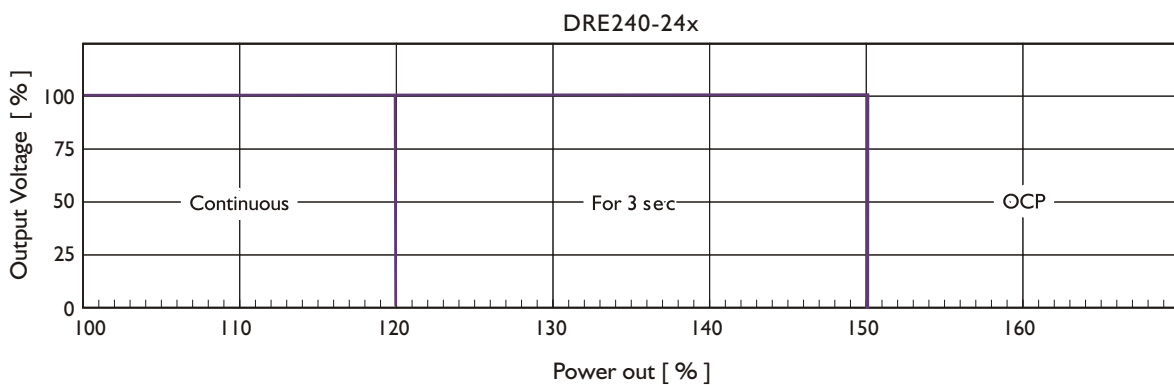
## PIN ASSIGNMENT

PIN NO.	Designation	Description
1	OUT	RDY
2		A normal open relay contact for DC ON level control (Never connect except 24V model)
3, 4		V +
5, 6		V -
7	IN	⊕
8		N
9		L
	OTHER	DC ON
		DC LO
		Vout ADJ.
		S / P
		Operation indicator LED
		DC LOW voltage indicator LED
		Trimmer-potentiometer for Vout adjustment
		Single / Parallel select switch

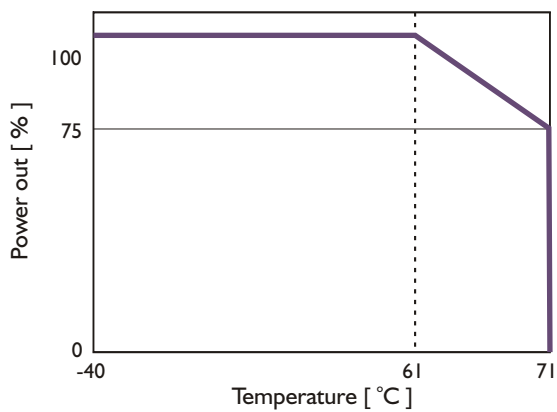
## CIRCUIT SCHEMATIC



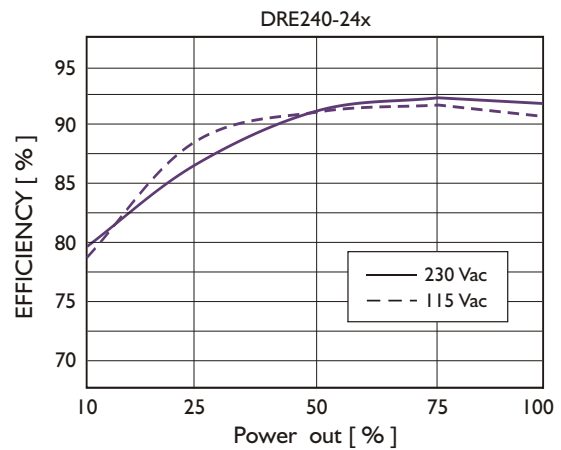
## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE



## PEAK LOADING

