

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

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
Single Output Models						
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	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 +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	374,000		Hours
		24V	384,000		Hours
Altitude during operation	IEC 60068-2-13			4,850	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, AC in	88		264	VAC
	Io nom, DC in	120		375	VDC



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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	17		W
		24V	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	11.4	14.5	VDC
		24V	22.5	28.5	VDC
Rated continuous loading	Vi nom	12V	16 A @ 12Vdc / 13 A @ 14.5 Vdc		
		24V	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			1,000	ms
	Vi nom, Io nom → with 7000 μF CAP			1,500	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	18		VDC
		24V	35		VDC
Capacitor load	Vi nom, Io nom			7,000	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	12V	10	11.2	VDC
		24V	17.6	19.4	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom	12V	10	11.2	VDC
		24V	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
	Contact rating at 60VDC			0.3	A
Over voltage protection	Vi nom, 0.8 Io nom	12V	15	16.5	V
	(Shut-down protect)	24V	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			

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APPROVALS AND STANDARDS

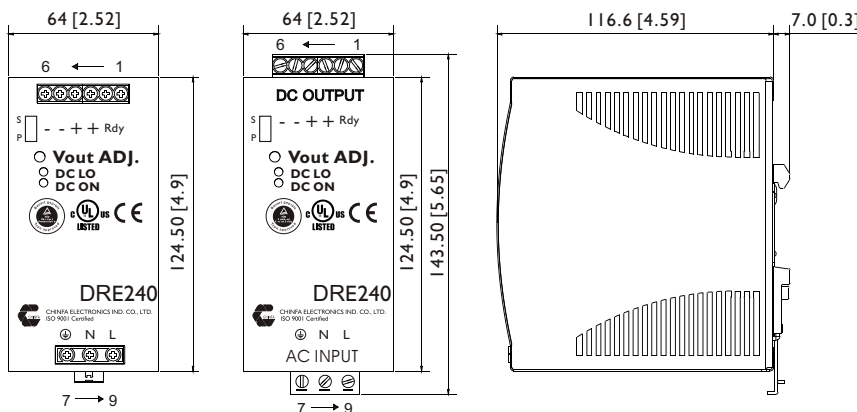
UL / cUL	UL 508 Listed UL 60950-1 Recognized ISA 12.12.01 (Class I, Division 2, Groups A, B, C and D)
TUV	EN 60950-1
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2 Class D, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3, 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.

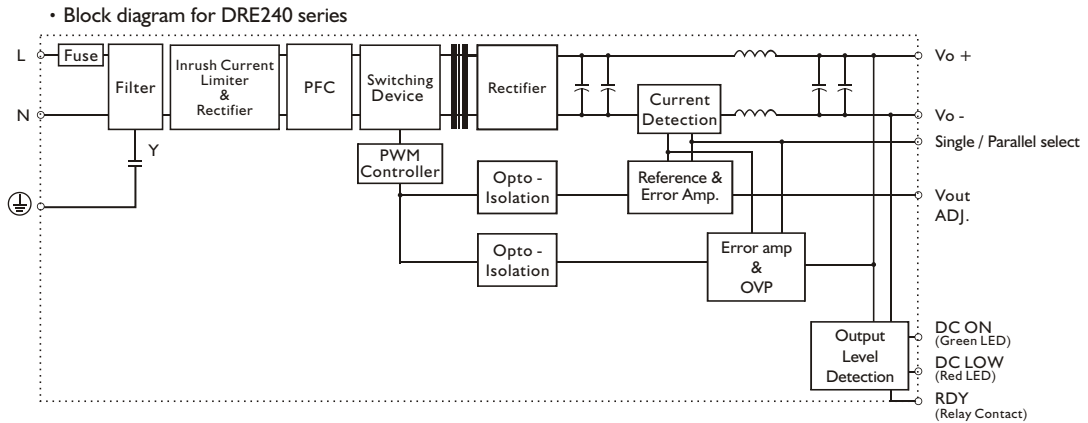
INSTALLATION

Ventilation / Cooling
Normal convection
All sides 25mm free space
For cooling recommended
Connector size range
Screw terminal:
AWG24-10 (0.2~4mm²) 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 (0.2~2.5mm²) 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

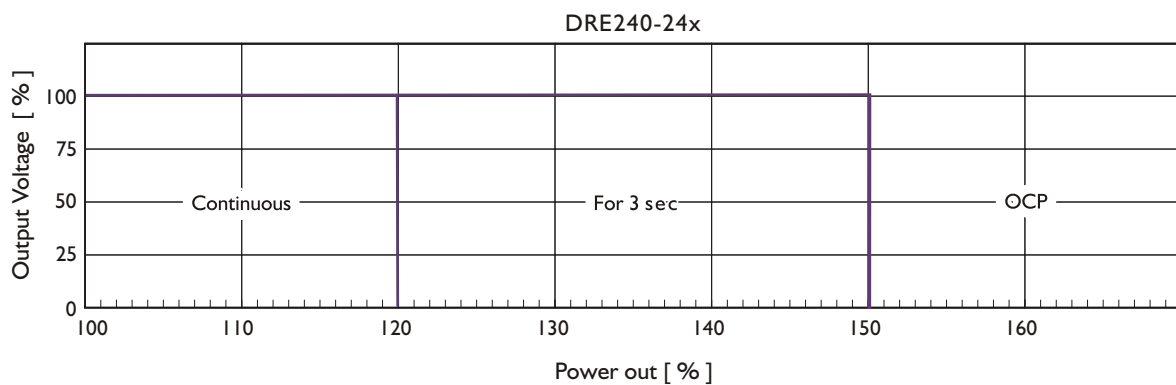
PIN ASSIGNMENT

PIN NO.	Designation		Description
1	OUT	RDY	A normal open relay contact for DC ON level control (Never connect except 24V model)
2		V +	Positive output terminal
3, 4		V -	Negative output terminal
5, 6		⊕	Ground this terminal to minimize high-frequency emissions
7	IN	N	Input terminals (neutral conductor, no polarity at DC input)
8		L	Input terminals (phase conductor, no polarity at DC input)
9	OTHER	DC ON	Operation indicator LED
		DC LO	DC LOW voltage indicator LED
		Vout ADJ.	Trimmer-potentiometer for Vout adjustment
		S / P	Single / Parallel select switch

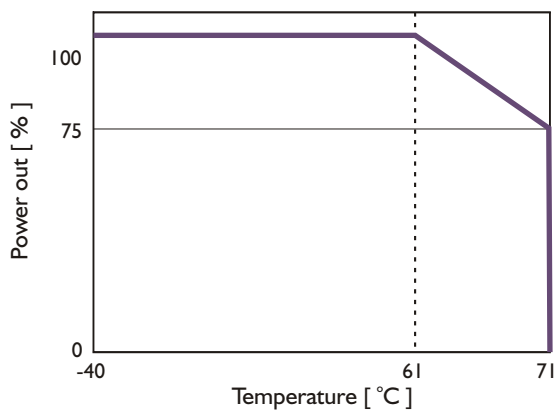
CIRCUIT SCHEMATIC



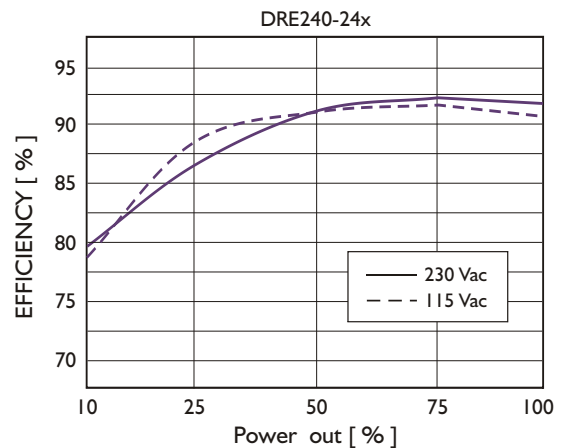
TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE



PEAK LOADING

