

DREI 20 SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY
INDUSTRIAL CONTROL EQUIPMENT



FEATURES

- HIGH EFFICIENCY 91%
- BUILT-IN ACTIVE PFC
- 150% PEAK LOAD CAPABILITY
- SELV COMPONENTS DESIGN
- PARALLEL FUNCTION (SWITCH SELECTABLE)
- 3 YEARS WARRANTY



SELECTION CHART

DREI 20 - 24 x

Wattage

12 : 12V OUT
24 : 24V OUT

A : SCREW TERMINAL TYPE

B : DETACHABLE CONNECTOR TYPE

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
Single Output Models						
DREI20-12x	88 ~ 264 VAC	120 WATTS	+ 12 VDC	10 A	88%	90%
DREI20-24x	88 ~ 264 VAC	120 WATTS	+ 24 VDC	5 A	89%	91%

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			100		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
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		465,000		Hours
		24V		480,000		Hours
Altitude during operation	EN 62368-1				5,000	m
Dimension	Screw terminal type		L124.5 x W40 x D123.6			mm
	Detachable connector type		L143.5 x W40 x D123.6			mm
Cooling	Free air convection					
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
		DC in	120		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom			1.2 / 0.6		A
Rated input current	Vi : 88 VAC, Io nom				1.8	A

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INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
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	13.5		W
		24V	12		W
Leakage current	Input-Output			0.25	mA
	Input-FG			3.5	mA
Power factor (Active)	Vi : 230VAC, Io nom		0.96		

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			180	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	10 A @ 12Vdc / 8.2 A @ 14.5 Vdc		
		24V	5 A @ 24Vdc / 4.2 A @ 28.5 Vdc		
Hold up time	Vi nom, Io nom	30			ms
Turn on time	Vi nom, Io nom			1,000	ms
	Vi nom, Io nom → with 7000 μ F CAP			1,500	ms
Rise time	Vi nom, Io nom			150	ms
	Vi nom, Io nom → with 7000 μ F CAP			500	ms
Fall time	Vi nom, Io nom			150	ms
Transient recovery time	Vi nom, I ~ 0.5 Io nom			3	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	μ F
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 91%, See model list and typ efficiency curve			

NOTE 1 : The time is 60 seconds and duty cycle is about 45 %, the average output power should not exceed the rated power.

CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T3.15A / 250VAC internal			
Internal surge voltage protection	IEC 61000-4-5	Varistor			
Rated over load protection	Vi nom (see typ current limited curve)	160			%
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 60 VDC			0.3	A
Over voltage protection	Vi nom, 0.8 Io nom (Shut-down protect)	12V	15	16.5	V
		24V	30	33	V
Output short circuit		Hiccup mode			
Over temperature	Detect on heat sink, shut down O/P voltage, recovers automatically after temperature goes down.	90		100	°C
Degree of protection		IP20			

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APPROVALS AND STANDARDS

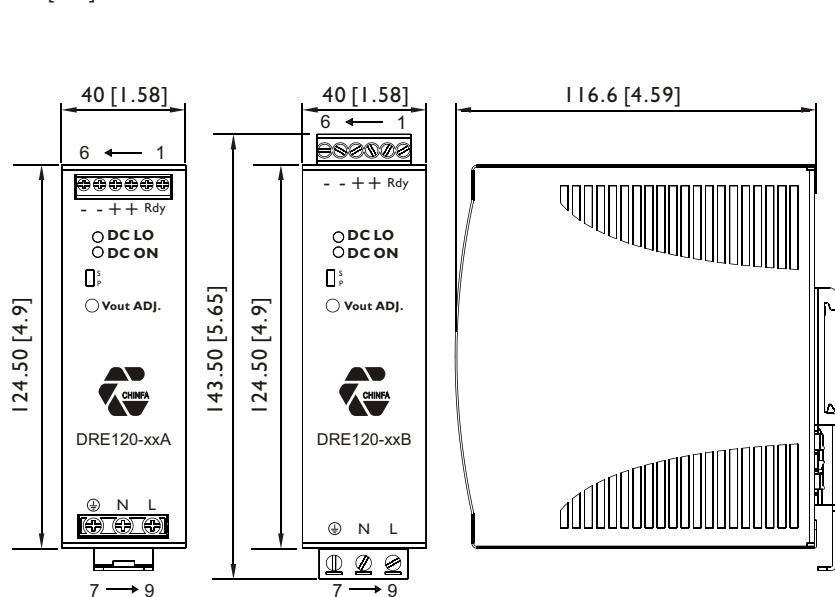
UL / cUL	UL 508 Listed UL 60950-1 Recognized ISA 12.12.01 (Class I, Division 2, Groups A, B, C and D)
TUV	EN 62368-1, EN 61558-1, EN 61558-2-16 (meet EN 60204-1)
cTUVus	UL 62368-1
CE	EN 61000-6-3, EN 55032 Class B, EN 61000-3-2 Class D, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 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
Vibration resistance	meet IEC 60068-2-6 (Mounting on 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 40 x 123.6 mm (4.9 x 1.58 x 4.87 inches)
	Detachable connector type	143.5 x 40 x 123.6 mm (5.65 x 1.58 x 4.87 inches)
Case material	Metal	
Weight	610g	
Packing	0.65kg ; 24pcs / 16.5kg / 2.01CUFT	

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 9 pound-inches.
-Output connector can withstand torque at maximum 6 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

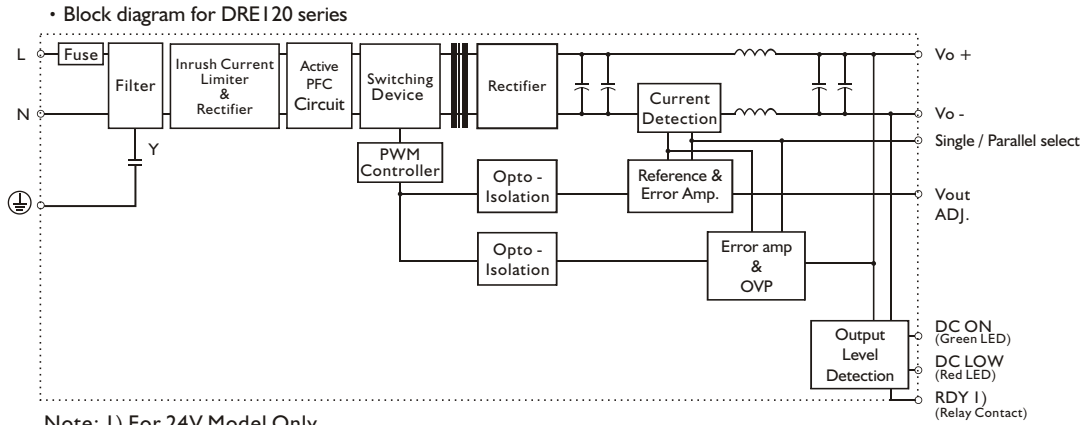
GENERAL TOLERANCE

0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

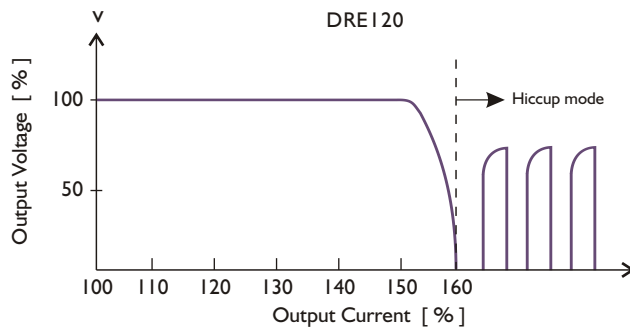
PIN ASSIGNMENT

PIN NO.	Designation		Description
1	OUT	RDY	A normal open circuit of PhotoMOS Relay (24V model only)
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		DC ON	Operation indicator LED
	OTHER	DC LO	DC LOW voltage indicator LED
		Vout ADJ.	Trimmer-potentiometer for Vout adjustment
		S / P	Single / Parallel select switch

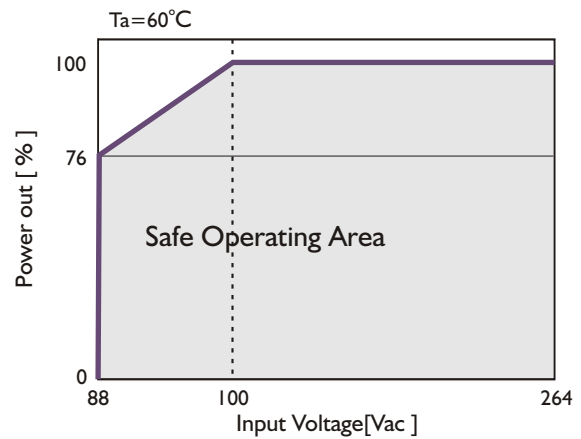
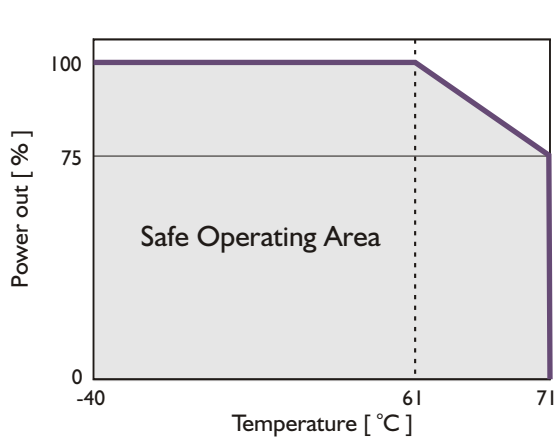
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

