

# DRS5 SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT



## FEATURES

- UNIVERSAL INPUT 85~264VAC
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- HIGH EFFICIENCY UP TO 89%
- HIGH AVERAGE EFFICIENCY MEET ErP
- LOW STANDBY POWER CONSUMPTION
- 3 YEARS WARRANTY



## MODEL LIST

**DRS5- 24 x**

12 : 12V OUT  
24 : 24V OUT  
48 : 48V 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.)	EFF. (avg.)
<b>Single Output Models</b>							
DRS5-12x	85~264 VAC	114 WATTS	+ 12 VDC	9.5 A	85%	87%	87%
DRS5-24x	85~264 VAC	120 WATTS	+ 24 VDC	5 A	87%	89%	87%
DRS5-48x	85~264 VAC	120 WATTS	+ 48 VDC	2.5 A	87%	89%	87%

## 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		65		KHz		
Isolation voltage	Input-Output	3,000 / 4,242			VAC / VDC		
	Input-FG	1,768 / 2,500			VAC / VDC		
	Output-FG	500 / 710			VAC / VDC		
Isolation resistance	Input-Output, @ 500VDC	100			MΩ		
Ambient temperature (see derating curve)	Operating at Vi nom	-25		+ 71	°C		
Derating (see derating curve)	Vi nom, from +51°C 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		490,000	Hours		
		24V		551,000	Hours		
		48V		575,000	Hours		
Altitude during operation	IEC 62368-1			5,000	m		
Dimension	Screw terminal type	L124.5 x W34.2 x D123.6			mm		
	Detachable connector type	L143.5 x W34.2 x D123.6			mm		
Cooling	Free air convection						
Installation position	Vertical ( other direction may derating using )						
Pollution degree				2			

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CHINFA ELECTRONICS IND. CO., LTD.  
ISO 9001 Certified

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## SPECIFICATION

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

### INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Rated input voltage	Io nom		100		240	VAC
Absolute input max. range	Ta min ... Ta max, Io nom	AC in	85		264	VAC
		DC in	120		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom			2200 / 1300		mA
Rated input current	Vi : 85 VAC, Io nom				2900	mA
Line frequency	Vi nom, Io nom		47		63	Hz
Inrush current	Vi : 115 / 230 VAC , Io nom				15 / 40	A
Power dissipation	Vi : 230 VAC, Io nom	12V		18		W
		24V		17		W
		48V		16		W
Leakage current	Input-Output				0.25	mA
	Input-FG				2	mA
Standby power consumption	Vi nom, Io = 0A				0.5	W

### 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	%
Voltage trim range	Vi nom, 0.8 Io nom	12V	11.4		15.6	V
		24V	22.5		28.5	V
		48V	47		52.8	V
Rated continuous loading	Vi nom	12V	9.5 A @ 12Vdc / 7.3 A @ 15.6 Vdc			
		24V	5 A @ 24Vdc / 4.21 A @ 28.5 Vdc			
		48V	2.5 A @ 48Vdc / 2.27 A @ 52.8 Vdc			
Hold up time	Vi : 115 / 230 VAC , Io nom		16 / 70			ms
Turn on time	Vi nom, Io nom				1,500	ms
	Vi nom, Io nom → with Capacitor load				2,000	ms
Rise time	Vi nom, Io nom				150	ms
	Vi nom, Io nom → with Capacitor load				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 1 second	12V	22			VDC
		24V	35			VDC
		48V	63			VDC
Capacitor load	Vi nom, Io nom	12V & 24V			3,500	μF
		48V			1,600	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	12V	9.6		10.8	VDC
		24V	19.2		21.6	VDC
		48V	38.4		43.2	VDC
Efficiency	Vi nom, Io nom, Po / Pi		Up to 89%, See model list and typ efficiency curve			

### 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)		140			%
Over voltage protection	Vi nom, 0.8 Io nom (Auto Recovery)	12V	15.8		17.4	VDC
		24V	28.8		32.4	VDC
		48V	55.2		62.4	VDC
Output short circuit			Hiccup mode			
Degree of protection			IP20			

## SPECIFICATION

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## APPROVALS AND STANDARDS

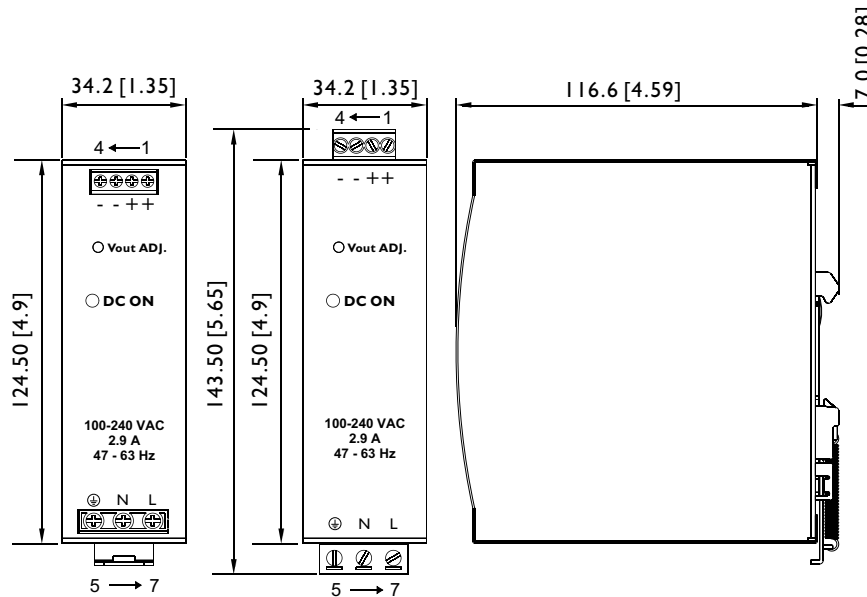
UL / cUL cTUVus	UL 508 Listed UL 62368-1
TUV	BS EN / EN 62368-1
CE	BS EN / EN 61000-6-3, BS EN / EN 55032 Class B, BS EN / EN 61000-3-2, BS EN / EN 61000-3-3 BS EN / EN 61000-6-2, BS EN / EN 55035, BS EN / EN 61000-4-2 Level 4, BS EN / EN 61000-4-3 Level 3 BS EN / EN 61000-4-4 Level 4, BS EN / EN 61000-4-5 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, CISPR 32
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	Screw terminal type	124.5 x 34.2 x 123.6 mm (4.9 x 1.58 x 4.87 inches)
	Detachable connector type	143.5 x 34.2 x 123.6 mm (5.65 x 1.58 x 4.87 inches)
Case material	Metal	
Weight	500g	
Packing	0.55kg ; 24pcs / 14.1kg / 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

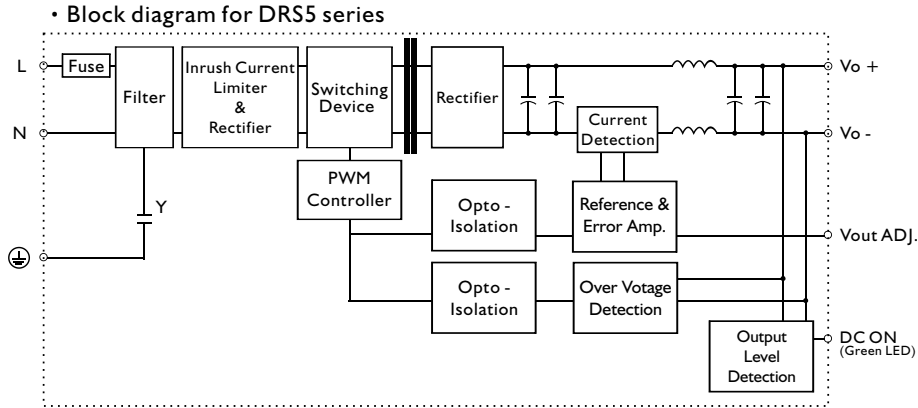
- Ventilation / Cooling
  - Normal convection
  - All sides 25mm free space
  - For cooling recommended
- Connector size range
  - Screw terminal:
    - AWG24-10 (0.2~5.2mm<sup>2</sup>) flexible / solid cable,
    - Input connector can withstand torque at maximum 5.5 pound-inches.
    - Output connector can withstand torque at maximum 9 pound-inches.
  - 8 m/m stripping at cable end recommends
- Detachable connector:
  - AWG24-12 (0.2~3.3mm<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.
  - 6~7 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]

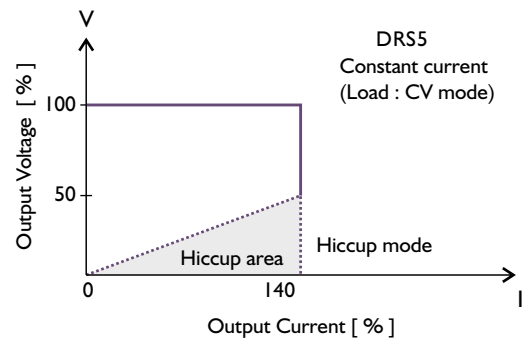
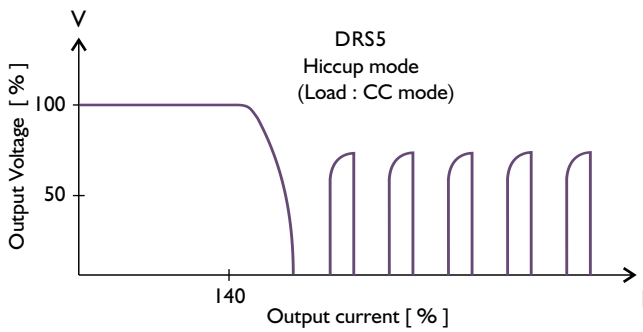
## PIN ASSIGNMENT

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

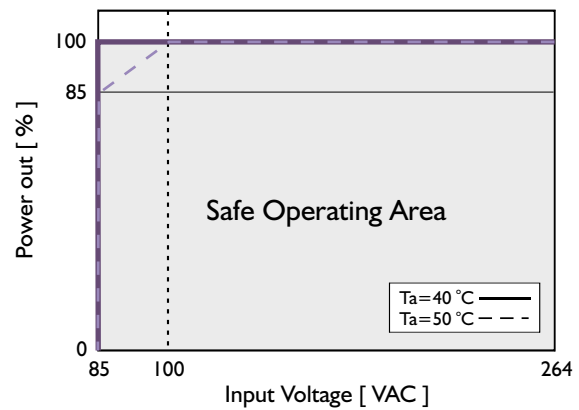
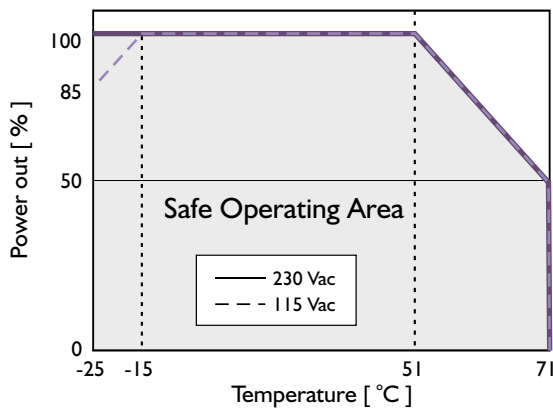
## CIRCUIT SCHEMATIC



## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE

