

Preliminary

# DRS3 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

**DRS3- 24 x**

12 : 12V OUT  
24 : 24V OUT  
48 : 48V OUT

BLANK : SPRING TERMINAL TYPE  
A : SCREW TERMINAL TYPE

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	EFF. (avg.)
<b>Single Output Models</b>							
DRS3-12(A)	85~264 VAC	66 WATTS	+ 12 VDC	5.5 A	86%	88%	87%
DRS3-24(A)	85~264 VAC	72 WATTS	+ 24 VDC	3 A	87%	89%	87%
DRS3-48(A)	85~264 VAC	72 WATTS	+ 48 VDC	1.5 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	40		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		
Isolation resistance	Input-Output, @ 500VDC	100			MΩ		
Ambient temperature	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		556,000	Hours		
		24V		580,000	Hours		
		48V		596,000	Hours		
Altitude during operation	EN 60950-1			5,000	m		
Dimension	Spring & Screw terminal type	L90 x W40.50 x D100			mm		
Cooling	Free air convection						
Installation position	Vertical ( other direction may derating using )						
Pollution degree		2					



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### 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		1450 / 750		mA
Rated input current	Vi : 85 VAC, Io nom			1700	mA
Line frequency	Vi nom, Io nom	47		63	Hz
Inrush current	Vi : 115 / 230 VAC , Io nom			30 / 60	A
Power dissipation	Vi : 230 VAC, Io nom		10.5		W
Leakage current	Input-Output			0.25	mA
	Input-FG			3.5	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	VDC
		24V	22.5	28.5	VDC
		48V	47	52.8	VDC
Rated continuous loading	Vi nom	12V	5.5 A @ 12Vdc / 4.4 A @ 15 Vdc		
		24V	3 A @ 24Vdc / 2.7 A @ 26.4 Vdc		
		48V	1.5 A @ 48Vdc / 1.36 A @ 52.8 Vdc		
Hold up time	Vi : 115 / 230 VAC , Io nom	15 / 50			ms
Turn on time	Vi nom, Io nom			2,000	ms
	Vi nom, Io nom → Capacitor load			2,000	ms
Rise time	Vi nom, Io nom			150	ms
	Vi nom, Io nom → 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		1,000	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 87%, 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	16.2	18	VDC
		24V	28.8	32.4	VDC
		48V	57.6	62.4	VDC
Output short circuit			Hiccup mode		
Degree of protection			IP20		

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### APPROVALS AND STANDARDS

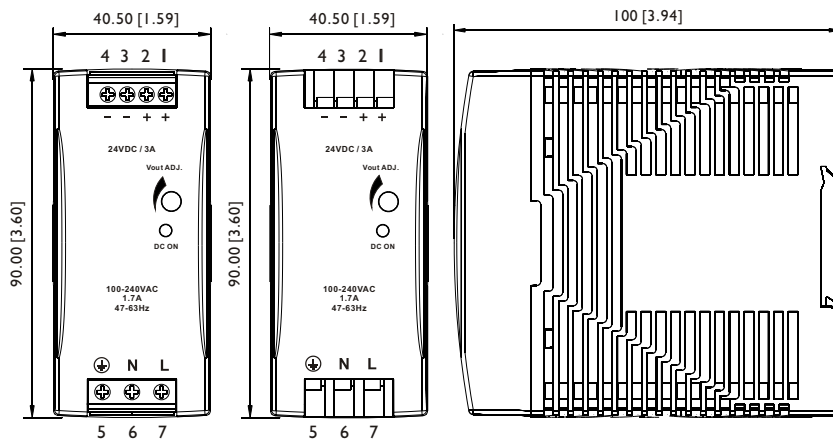
UL / cUL	UL 508 Listed
cTUVus	UL 60950-1
TUV	EN 60950-1
CE	EN 61000-6-3, EN 55032 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3, L / N-FG Level 4 EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11 ENV 50204 Level 2, EN 61204-3
Vibration resistance	meet IEC 60068-2-6 (Mounting on rail : 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	90 x 40.50 x 100 mm (3.54 x 1.59 x 3.94 inches)
Case material	Plastic
Weight	250 g
Packing	0.27 kg ; 40 pcs / 12 kg / 2.16 CUFT

## 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

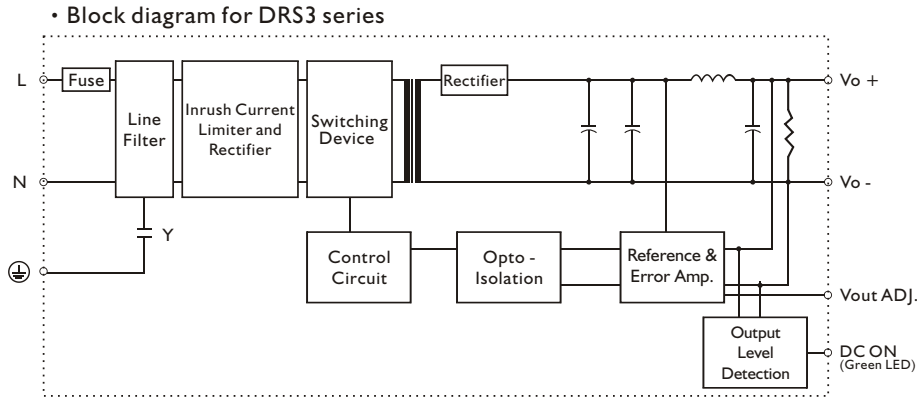
Ventilation / Cooling  
Normal convection  
All sides 25mm free space  
For cooling recommended  
Connector size range  
Spring terminal:  
AWG24-14 (0.2~2mm<sup>2</sup>) flexible / solid cable,  
10 m/m stripping at cable end recommends  
Screw terminal:  
AWG26-12 (0.2~2.5mm<sup>2</sup>) flexible / solid cable,  
connector can withstand torque at maximum 5  
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]

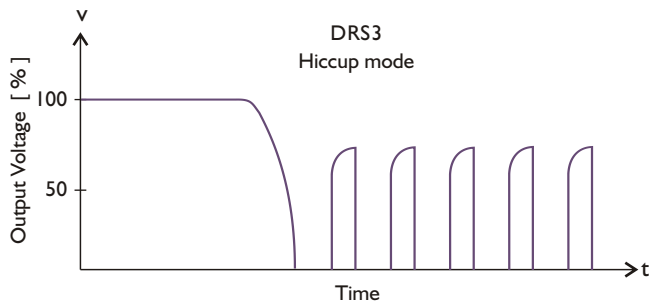
## PIN ASSIGNMENT

PIN NO.	Designation	Description
1, 2	OUT	V + Positive output terminal
3, 4		V - Negative output terminal
5	IN	⊕ 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	Vout ADJ. Trimmer-potentiometer for Vout adjustment
		DC ON Operation indicator LED

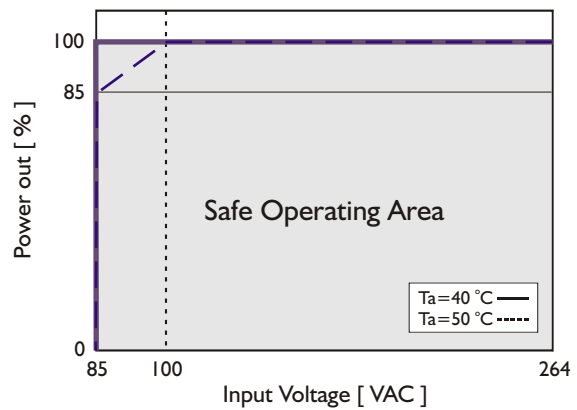
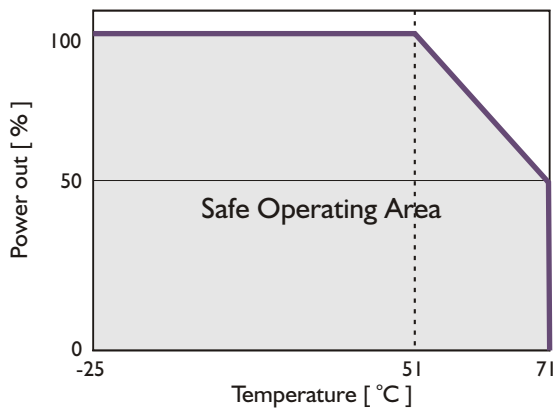
## CIRCUIT SCHEMATIC



## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE

