

Preliminary

# DRD40 SERIES

DC - DC DIN RAIL MOUNTABLE POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT



## FEATURES

- 3:1 WIDE INPUT RANGE
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- REMOTE ON / OFF
- LOW PROFILE
- 3 YEARS WARRANTY



## MODEL LIST

MODEL NO.	INPUT VOLTAGE	INPUT CURRENT		OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
		(typ.)	(max.)					
<b>Single Output Models</b>								
DRD40-05	10-32 VDC	1.6 A	3.8 A	30 WATTS	+ 5 VDC	6 A	79%	81%
DRD40-09	10-32 VDC	1.8 A	4.5 A	36 WATTS	+ 9 VDC	4 A	80%	82%
DRD40-12	10-32 VDC	2.1 A	5 A	40 WATTS	+ 12 VDC	3.4 A	82%	84%
DRD40-15	10-32 VDC	2.1 A	5 A	40 WATTS	+ 15 VDC	2.7 A	82%	84%
DRD40-24	10-32 VDC	2.1 A	5 A	40 WATTS	+ 24 VDC	1.7 A	83%	85%

## 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		300	KHz
Isolation voltage	Input-Output	1,500			VDC
Isolation resistance	Input-Output, @ 500VDC	100			MΩ
Ambient temperature	Operating at Vi nom	-40		+ 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	5V	576,000		Hours
		9V	560,000		Hours
		12V	568,000		Hours
		15V	580,000		Hours
		24V	605,000		Hours
Altitude during operation	IEC 60068-2-13			4,850	m
Dimension			L91 x W53 x D56.5		mm
Cooling	Free air convection				
Installation position	Vertical ( other direction may derating using )				
Pollution degree				2	

### INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	10	24	32	VDC
No load input current	Vi nom, Io = 0			40	mA
Input voltage w/o damage	Io nom			40	VDC
Startup voltage	Io nom		9.6		VDC
Input filter	Pi type				



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### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	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	5V	4.75	5.5	VDC
		9V	8.55	9.9	VDC
		12V	11.4	13.8	VDC
		15V	14.25	16.5	VDC
		24V	22.8	27.6	VDC
Rated continuous loading	Vi nom	5V	6 A @ 5Vdc / 5.4 A @ 5.5 Vdc		
		9V	4 A @ 9Vdc / 3.6 A @ 9.9 Vdc		
		12V	3.4 A @ 12Vdc / 2.9 A @ 13.8 Vdc		
		15V	2.7 A @ 15Vdc / 2.4 A @ 16.5 Vdc		
		24V	1.7 A @ 24Vdc / 1.45 A @ 27.6 Vdc		
Startup time	Vi nom, Io nom			50	ms
Transient recovery time	Vi nom, I~0.5 Io nom			1	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz			100	mV
Power back immunity	Vi nom, Io nom	5V	7.5		VDC
		9V	15		VDC
		12V	18		VDC
		15V	22		VDC
		24V	35		VDC
Capacitor load	Vi nom, Io nom	5V		3,500	μF
		9V		2,200	μF
		12V, 15V		1,000	μF
		24V		470	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	5V	3.5	4.5	VDC
		9V	6.8	8.1	VDC
		12V	9	10.8	VDC
		15V	11	13.5	VDC
		24V	19.2	21.6	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom	5V	3.5	4.5	VDC
		9V	6.8	8.1	VDC
		12V	9	10.8	VDC
		15V	11	13.5	VDC
		24V	19.2	21.6	VDC
Efficiency	Vi nom, Io nom, Po / Pi	Up to 85%, See model list and typ efficiency curve			

### CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T6.3A / 125VDC internal			
Internal surge voltage protection	IEC 61000-4-5	Varistor			
Rated over load protection	Vi nom (see typ current limited curve)	110		145	%
Over voltage protection	Vi nom, 0.8 Io nom (Auto Recovery)	5V	5.75	6.5	VDC
		9V	10.35	11.7	VDC
		12V	14.4	16.2	VDC
		15V	17.25	19.5	VDC
		24V	28.8	32.4	VDC
Remote ON / OFF	ON : opened or 8 ~ 10VDC applied, reference to input GND OFF : -0.3 ~ 2VDC applied, reference to input GND				
Output short circuit		Current limited (Auto-recovery)			
Degree of protection		IP20			

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### APPROVALS AND STANDARDS

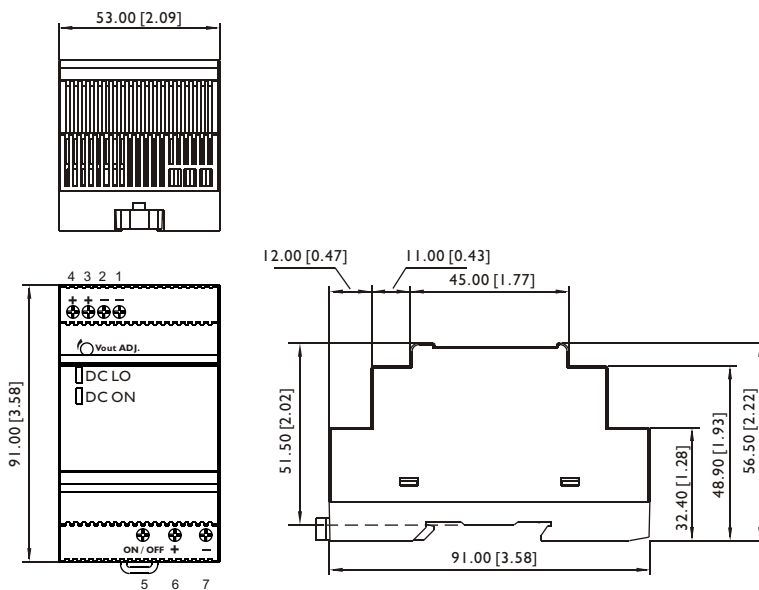
UL / cUL	UL 508
cTUVus	UL 60950-1
TUV	EN 60950-1
CE	EN 61000-6-3, EN 55022 Class B EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4 EN 61000-4-5, EN 61000-4-6, EN61000-4-8, ENV 50204, EN 61204-3
Vibration resistance	meet IEC 60068-2-6 (Mounting on rail : 10-500 Hz, 2G, along X, Y, Z each 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	91 x 53 x 56.5 mm (3.58 x 2.09 x 2.22 inches)
Case material	Plastic
Weight	180g
Packing	0.24kg ; 64pcs / 14kg / 2.28CUFT

## 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; no tools required even to remove

### INSTALLATION

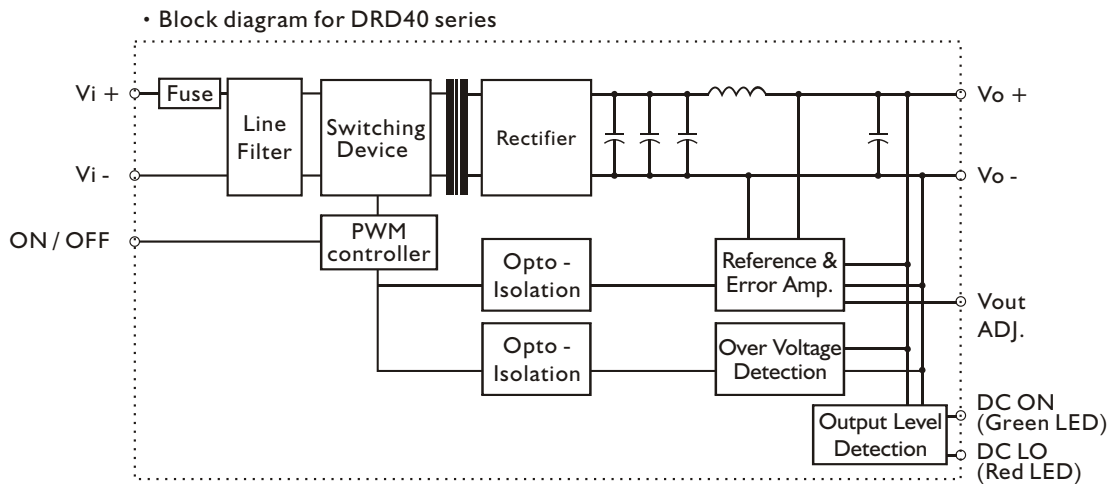
Ventilation / Cooling  
Normal convection  
All sides 25mm free space  
For cooling recommended  
Connector size range  
AWG24-12 (0.2~2.5mm<sup>2</sup>) flexible / solid cable  
-Connector can withstand torque at maximum 6 pound-inches.  
7 m/m stripping at cable end recommends.  
Use copper conductors 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]

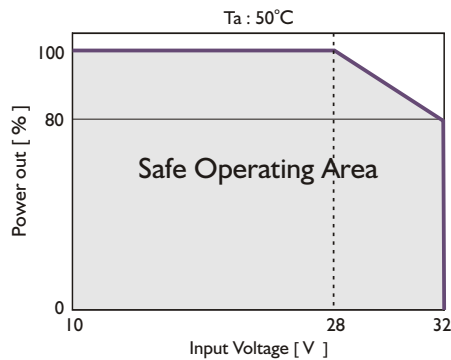
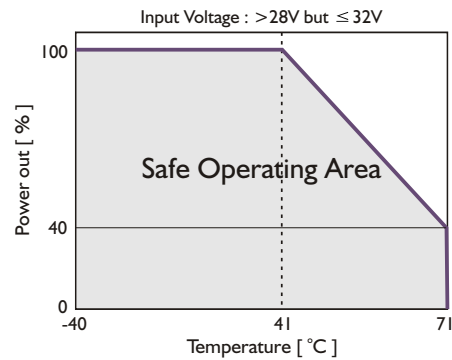
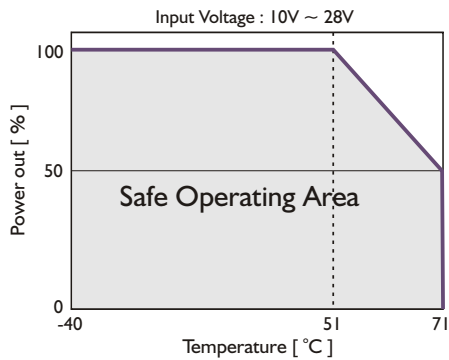
## PIN ASSIGNMENT

PIN NO.	Designation	Description
1, 2	OUT	- Negative output terminal
3, 4		+ Positive output terminal
5	IN	ON / OFF Remote ON / OFF terminal
6		+ Positive input terminal
7	OTHER	- Negative input terminal
		Vout ADJ. Trimmer-potentiometer for Vout adjustment
		DC ON Operation indicator LED
		DC LO DC Low indicator LED

## CIRCUIT SCHEMATIC



## DERATING CURVE



## DERATING AND EFFICIENCY CURVE

