

# DRA60 SERIES



AC - DC DIN RAIL MOUNTABLE  
60W CLASS 2 OUTPUT  
INDUSTRIAL CONTROL EQUIPMENT

## FEATURES

- AC/DC POWER MODULE
- UNIVERSAL INPUT 90~265VAC
- HIGH EFFICIENCY UP TO 86%
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 2 YEARS WARRANTY

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (typ.)	EFF. (min.)
<b>Single Output Models</b>						
DRA60-05	90~265 VAC	50 WATTS	+ 5 VDC	10000 mA	80%	78%
DRA60-12	90~265 VAC	60 WATTS	+ 12 VDC	5000 mA	84%	80%
DRA60-24	90~265 VAC	60 WATTS	+ 24 VDC	2500 mA	86%	84%
DRA60-48	90~265 VAC	60 WATTS	+ 48 VDC	1250 mA	86%	83%

## 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		50			KHz
Isolation voltage	Input / Output		3,000			VAC
Isolation resistance	Input / Output, @ 500VDC		100			MΩ
Ambient temperature	Operating at Vi nom, Io 70% ... 100%		-10		+ 50	°C
Case temperature	Operating at Vi nom, Io nom				+ 85	
Derating	Vi nom, Io nom + 51 to + 71°C				2	% / °C
Storage temperature	Non operational		-25		+ 85	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40			167,000		Hrs
Relative humidity	Vi nom, Io nom				90	% RH
Dimension	L90 x W40.5 x D115					mm
Cooling	Free air convection					
Case material	Plastic					
INPUT SPECIFICATIONS						
Characteristics	Conditions		min.	typ.	max.	unit
Rated input voltage	Io nom		100		240	VAC
Input voltage range	Ta min ... Ta max, Io nom	AC in	90		265	VAC
		DC in	120		370	VDC
Line frequency	Vi nom, Io nom		47		63	Hz
Inrush current	Io nom	Vi : 115VAC			21	A
		Vi : 230VAC			42	A

## SPECIFICATION

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

### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	$V_i$ nom, $I_o$ min ... $I_o$ nom			$\pm 2$	%
Minimum load	$V_i$ nom	0			%
Line regulation	$I_o$ nom, $V_i$ min ... $V_i$ max			$\pm 1$	%
Load regulation	$V_i$ nom, $I_o$ min ... $I_o$ nom			$\pm 2$	%
Transient recovery time	50% load step changed		300		$\mu$ S
Temperature coefficient	$V_i$ nom, $I_o$ min			$\pm 0.02$	% / °C
Ripple & noise	$V_i$ nom, $I_o$ nom, BW = 20MHz			50	mV
Hold up time	$V_i = 115$ VAC, $I_o$ nom	20			ms
	$V_i = 230$ VAC, $I_o$ nom	75			ms
Voltage trim range	$V_i$ nom, $I_o$ nom	5V model	5	5.5	VDC
		12V model	12	14	VDC
		24V model	24	28	VDC
		48V model	44	55	VDC
DC ON indicator	$V_i$ nom, $I_o$ nom	Green LED			
Efficiency	$V_i$ nom, $I_o$ nom, $P_o / P_i$	Up to 86%. See model list			

### CONTROL AND PROTECTION

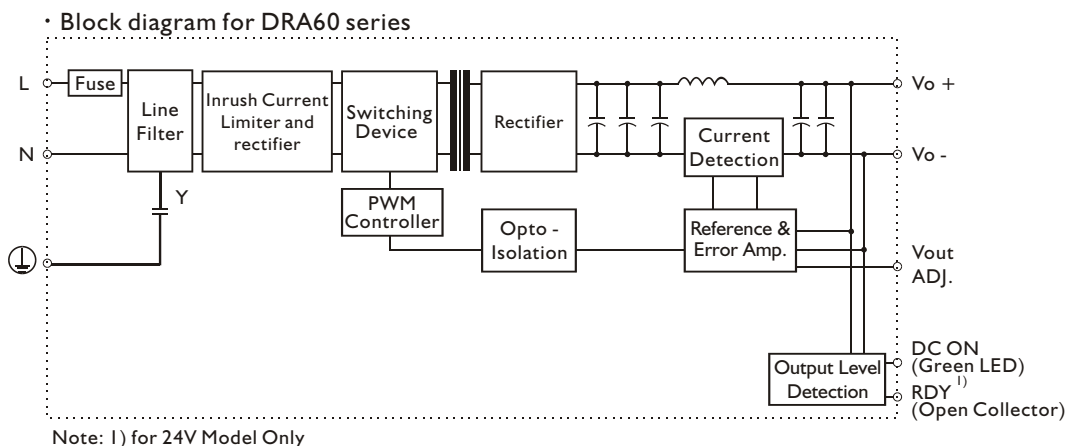
Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T2A / 250VAC internal			
Rated over load protection	$V_i$ nom	105		125	%
Power Rdy (24V model only) 1)	Threshold	20	22	24	VDC
Output short circuit	$V_i$ nom, $I_o$ nom	Hiccup mode			

Note 1): Pls see fig1 for Rdy connection.

### APPROVALS AND STANDARDS

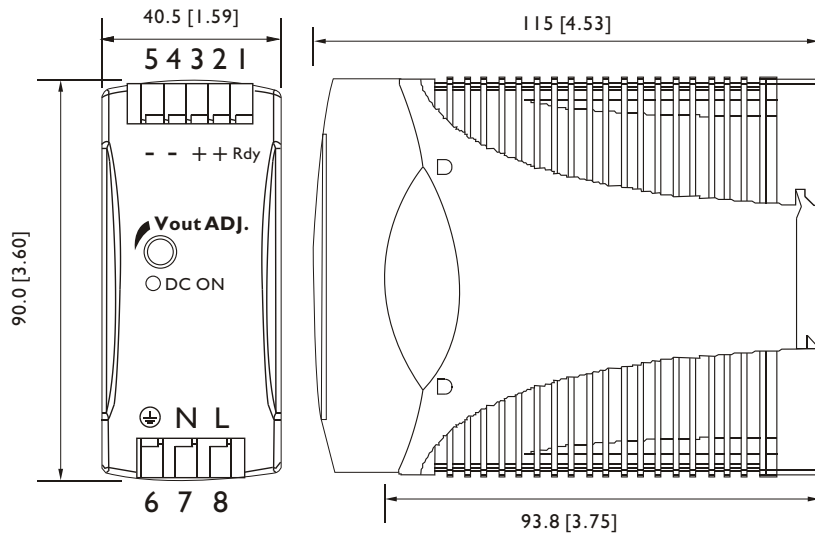
UL / cUL	UL1950, UL508 Listed, Class 2 (Only 5V w/o Class 2)
TUV	EN60950
CE	EN50081-1 / EN55022 class B for EMI
	EN50082-1 / EN55024 for EMS

### CIRCUIT SCHEMATIC



## 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  
 Solid: 0.2-2.0mm<sup>2</sup> (AWG24-14)  
 (use copper conductors only)

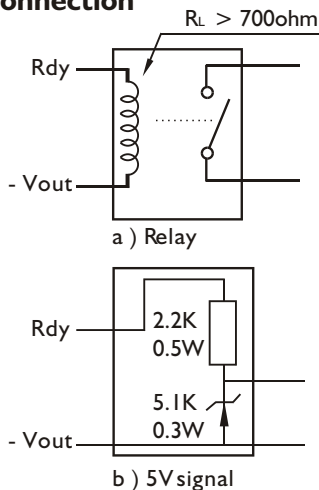
## PHYSICAL CHARACTERISTICS

CASE SIZE	90 x 40.5 x 115 mm 3.6 x 1.59 x 4.53 inches
CASE MATERIAL	Plastic
WEIGHT	360g

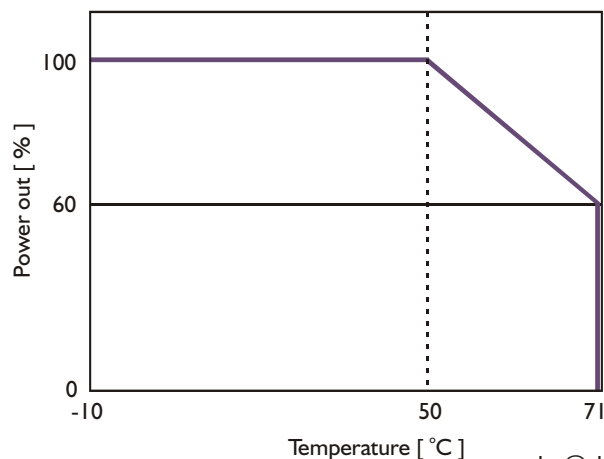
## PIN ASSIGNMENT

PIN NO.	Designation	Description
1	RDY	DC OK output for relay (not connect except 24V model)
2	+	Positive output terminal
3	+	Positive output terminal
4	-	Negative output terminal
5	-	Negative output terminal
6	⊕	Ground this terminal to minimize high-frequency emissions
7	N	Input terminals (neutral conductor, no polarity at DC input)
8	L	Input terminals (phase conductor, no polarity at DC input)
	Vout ADJ.	Trimmer-potentiometer for Vout adjustment
	DC ON	Operation indicator LED

Fig. 1 Rdy connection



## DERATING



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Derating	Vi nom, Io nom + 51 to + 71°C				2	% / °C
Storage temperature	Non operational		-25		+ 85	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40			167,000		Hrs
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Minimum load	$V_i$ nom	0			%
Line regulation	$I_o$ nom, $V_i$ min ... $V_i$ max			$\pm 1$	%
Load regulation	$V_i$ nom, $I_o$ min ... $I_o$ nom			$\pm 2$	%
Transient recovery time	50% load step changed		300		$\mu$ S
Temperature coefficient	$V_i$ nom, $I_o$ min			$\pm 0.02$	% / °C
Ripple & noise	$V_i$ nom, $I_o$ nom, BW = 20MHz			50	mV
Hold up time	$V_i = 115$ VAC, $I_o$ nom	20			ms
	$V_i = 230$ VAC, $I_o$ nom	75			ms
Voltage trim range	$V_i$ nom, $I_o$ nom	5V model	5	5.5	VDC
		12V model	12	14	VDC
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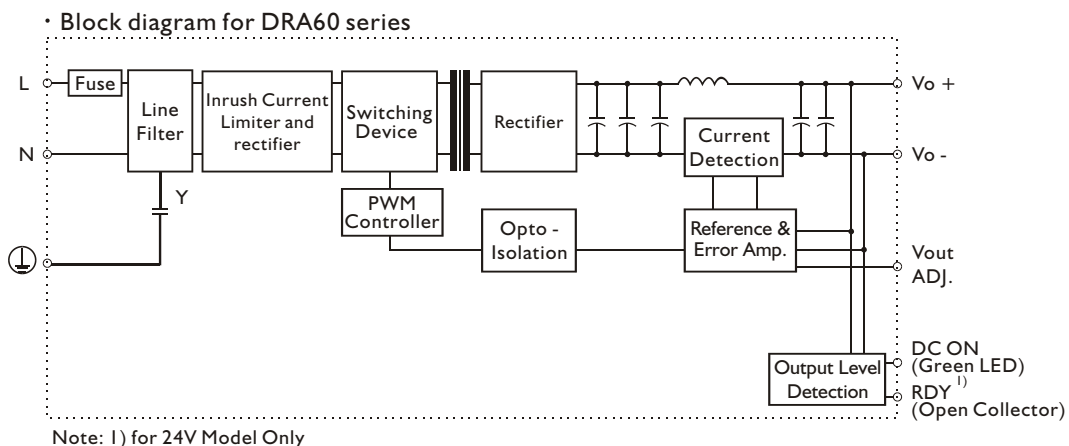
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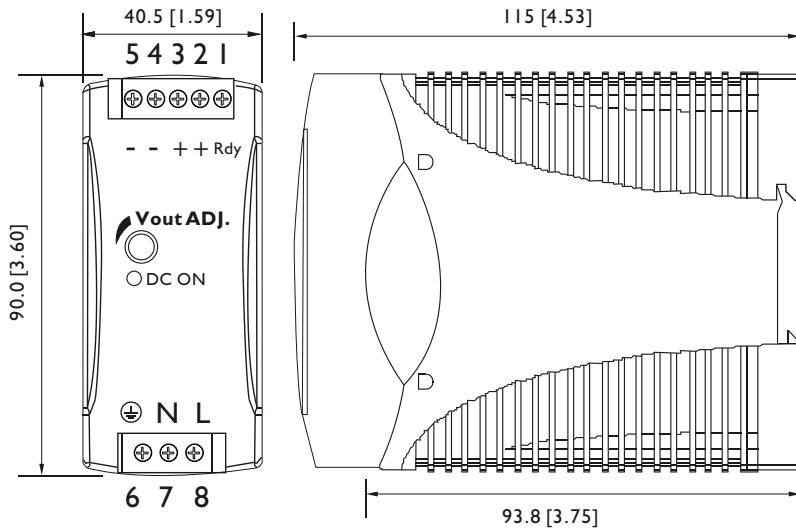
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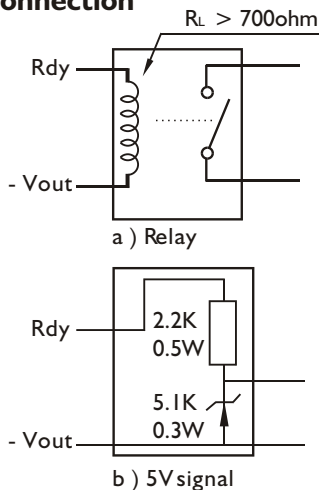
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