

AC - DC Power Modules



Features:

- Universal input 85 to 264 V ac
- High efficiency up to 89%
- Short circuit protection
- Internal input filter

AC - DC Din rail mountable
60 W class 2 output
Industrial control equipment

Model List

Model No.	Input Voltage	Output Wattage	Output Voltage	Output Current	EFF. (Minimum)	EFF. (Typical)
Single Output Models						
DRAN60-05	85 to 264 V ac	50 W	+5 V dc	10,000 A	79%	77%
DRAN60-12		60 W	+12 V dc	5,000 A	86%	84%
DRAN60-24			+24 V dc	2,500 A	89%	86%

Specifications

All specifications typical at nominal line, full load, 25°C unless otherwise noticed

General						
Characteristics	Conditions	Minimum	Typical	Maximum	Unit	
Isolation Voltage	Input / output	3,000	-	-	V ac	
Isolation Resistance	Input / output, at 500 V dc	100	-	-	MΩ	
Ambient Temperature	Operating at Vi nom	-10	-	+71	°C	
Derating	Vi nom, from +61°C to +71°C	-	-	2.5	% / °C	
Storage Temperature	Non Operational	-25	-	+85	°C	
Relative Humidity	Vi nom, Io nom	20	-	95	% RH	
Dimension	L90 × W40.5 × D115	-	-	-	mm	
Cooling	Free air convection	-	-	-	-	
Case Material	Plastic	-	-	-	-	

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Input Specifications					
Characteristics	Conditions	Minimum	Typical	Maximum	Unit
Rated Input Voltage	Io nom	100	-	240	V ac
Input Voltage Range	Ta minimum to Ta maximum, AC in	85	-	246	
	Io nom DC in	90	-	375	V dc
Line Frequency	Vi nom, Io nom	47	-	63	Hz
Inrush Current	Io nom Vi : 115 V ac	-	-	30	A
	Vi : 230 V ac	-	-	60	

Output Specifications					
Characteristics	Conditions	Minimum	Typical	Maximum	Unit
Output Voltage Accuracy	Vi nom, Io minimum to Io nom	-	-	±1	%
Minimum Load	Vi nom	0	-	-	
Line Regulation	Io nom, Vi minimum to Vi maximum	-	-	0.5	
Load Regulation	Vi nom, Vi minimum to Io nom	-	-		
Turn on Time	After AC is applied to input at full resistive load	-	-	1,000	ms
Voltage Fall Time	Io nom, Vo = 95% to 10% rated voltage	-	-	150	
Voltage Rise Time	At full resistive load	-	-		
Hold up Time	Io nom Vi = 115 V ac	20	-	-	
	Vi = 230 V ac	30	-	-	
Ripple and Noise	Vi nom, Io nom, BW = 20 MHz	-	-	50	mV
Voltage Trim Range	Vi nom, Wo = 50 W maximum 5 V models	5	-	5.5	V dc
	Vi nom, Wo = 60 W maximum 12 V models	12	-	14	
	Vi nom, Wo = 60 W maximum 24 V models	24	-	28	
DC on Indicator Threshold at Start up	Vi nom, Io nom 5 V models	4	-	-	
	12 V models	9.6	-	-	
	24 V models	19.2	-	-	
Efficiency	Vi nom, Io nom, Po / Pi	Up to 89%, see model list			

Control and Protection						
Characteristics	Conditions		Minimum	Typical	Maximum	Unit
Rated Over Load Protection	Vi nom		110	-	150	%
Over Voltage Protection	Vi nom, Io nom	5 V models	6	-	6.8	V dc
	Vi nom, Io nom	12 V models	15	-	16.5	
	Vi nom, Io nom	24 V models	30	-	33	
Output Short Circuit	Vi nom, Io nom		Fold forward			

Approvals and Standards	
UL / cUL	UL508 Listed UL1310 Class 2 power supply (5 V, 12 V w/o class 2), UL60950-1 recognized
TUV	EN60950-1

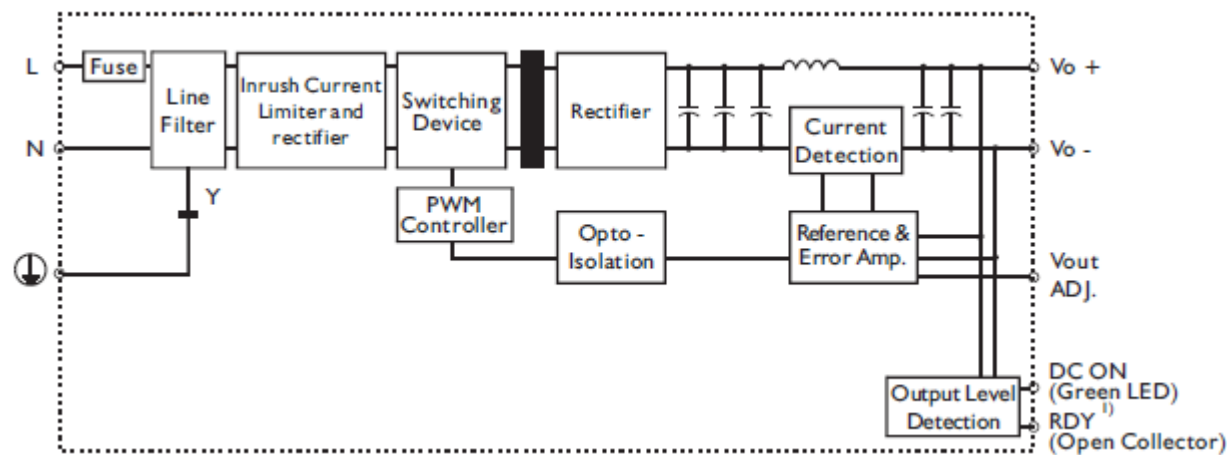
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Approvals and Standards	
CE	EN61000-6-3, EN55022 class B
	EN61000-3-2, EN61000-3-3
	EN61000-6-2, EN55024, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

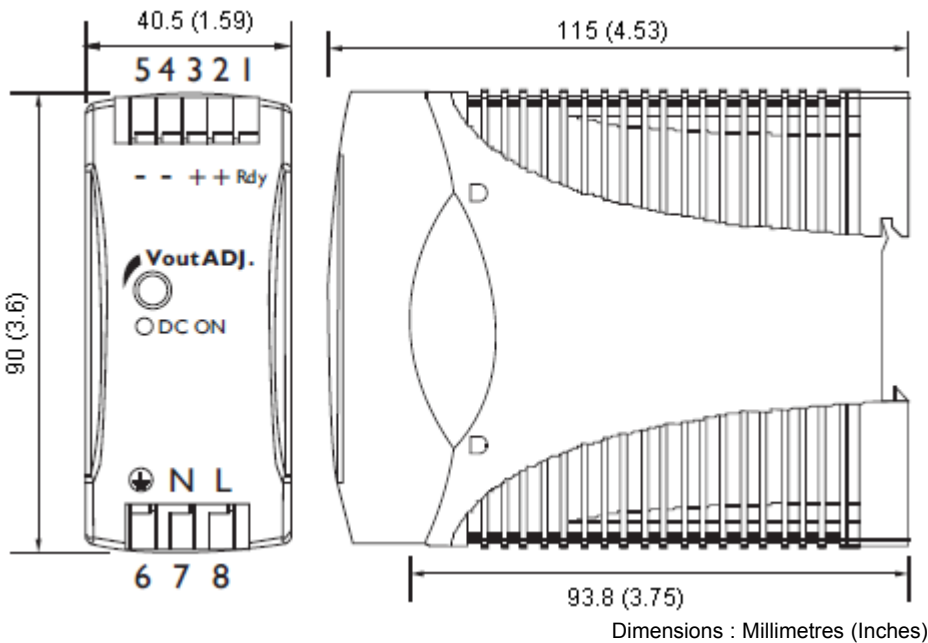
Circuit Schematic

Block diagram for DRAN60 series



Note: 1) For 24 V Model Only

Mechanism and Pin Configuration



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 25 mm / 1 inch free space
For cooling recommended
Connector size range
Solid : 0.2-2 mm (AWG24-14)
(use copper conductors only)

Physical Characteristics

Case Size : 90 × 40.5 × 115 mm 3.6 × 1.59 × 4.53 inches
Case Material : Plastic
Weight : 360 g



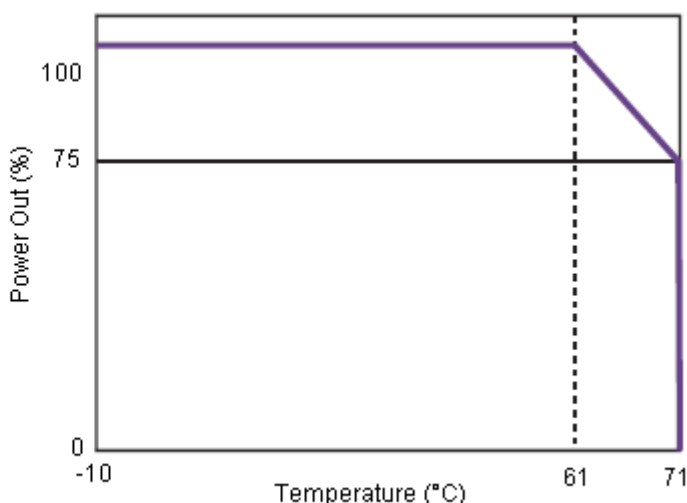
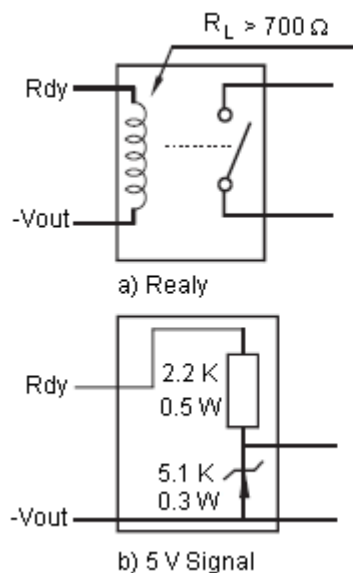
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Pin Assignment

Pin Number	Designation		Description
1	Out	RDY	DC OK output for relay (not connect except 24 V model)
2		+	Positive output terminal
3		+	Positive output terminal
4		-	Negative output terminal
5		-	Negative output terminal
6	In		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)
-	Other	Vout ADJ.	Trimmer-potentiometer for Vout adjustment
-		DC ON	Operation indicator LED

Figure 1 Rdy connection

Derating



Part Number Table

Description	Part Number
PSU, Din Rail, 60 W, 5 V	DRAN60-05
PSU, Din Rail, 60 W, 12 V	DRAN60-12
PSU, Din Rail, 60W, 24V	DRAN60-24

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