

ZAS-05

Zasilacz 5V, wtyczkowy

Zasilacz impulsowy, wtyczkowy 230V AC / 5V DC 3A do urządzeń firmy BitStream.

- Napięcie wyjściowe - 5V DC
- Prąd wyjściowy maks. - 3A
- Moc - 15W
- Zakres napięć wejściowych - 90 ~ 264V AC 135 ~ 370V DC
- Wymiary - 79x54x33mm
- Rodzaj zabezpieczeń - przeciwprzeciążeniowe, przeciwprzepięciowe



WYMIARY I WARUNKI PRACY

Parametr	
Wymiary (mm)	79 x 54 x 33
Waga	210 g
Temperatura pracy	0 – 50 °C
Wilgotność środowiska pracy	20 - 90% RH

PARAMETRY ELEKTRYCZNE

Parametr	
Moc	15 W
Zakres napięć wejściowych	90 ~ 264V AC 135 ~ 370V DC
Zabezpieczenie przeciwprzeciążeniowe	110 – 150% mocy wyjściowej
Zabezpieczenie przeciwprzepięciowe	105 – 135 % napięcia wyjściowego

BEZPIECZEŃSTWO

Parametr	
Normy bezpieczeństwa	EN 60950-1
Kompatybilność elektromagnetyczna EMC	EN 55022 Klasa B, EN 61000-4-2/3/4/5/6/8/11, EN 61000-3-2,3



BITSTREAM Sp. z o.o.

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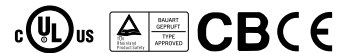
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■ Features :

- Universal AC input/Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- NEC class 2 / LPS compliant
- Built in DC OK active signal
- LED indicator for power on
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 years warranty

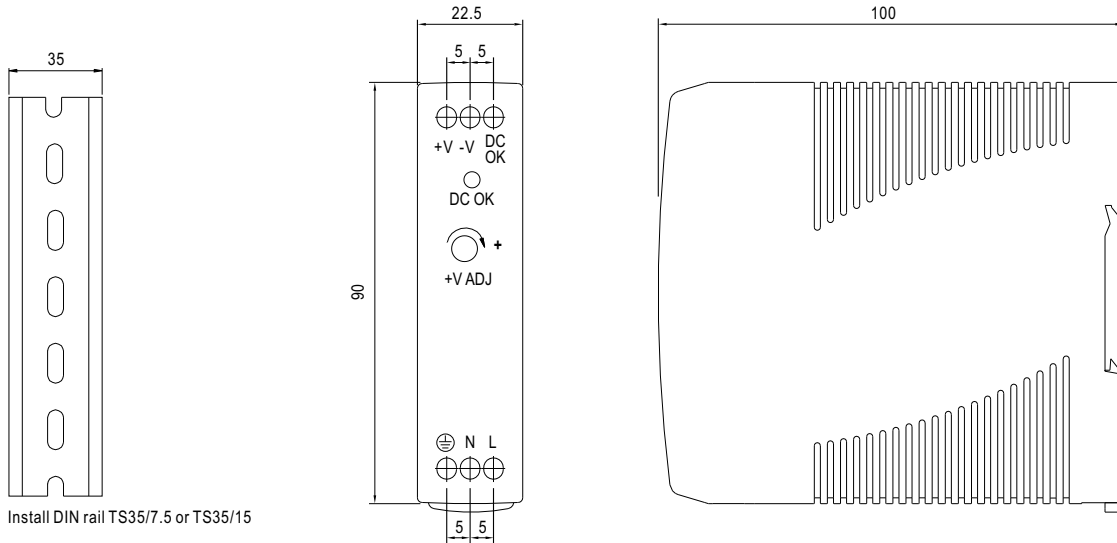


SPECIFICATION

MODEL	MDR-20-5	MDR-20-12	MDR-20-15	MDR-20-24	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V
	RATED CURRENT	3A	1.67A	1.34A	1A
	CURRENT RANGE	0 ~ 3A	0 ~ 1.67A	0 ~ 1.34A	0 ~ 1A
	RATED POWER	15W	20W	20W	24W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	120mVp-p	120mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME Note.5	500ms, 30ms/230VAC	1000ms, 30ms/115VAC at full load		
HOLD UP TIME (Typ.)	50ms/230VAC	20ms/115VAC at full load			
INPUT	VOLTAGE RANGE	85 ~ 264VAC	120 ~ 370VDC		
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	76%	80%	81%	84%
	AC CURRENT (Typ.)	0.55A/115VAC	0.35A/230VAC		
	INRUSH CURRENT (Typ.)	COLD START 20A/115VAC	40A/230VAC		
	LEAKAGE CURRENT	<1mA / 240VAC			
PROTECTION	OVERLOAD	105 ~ 160% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
		Protection type : Shut down o/p voltage, re-power on to recover			
FUNCTION	DC OK ACTIVE SIGNAL (max.)	3.75 ~ 6V / 50mA	9 ~ 13.5V / 40mA	11.5 ~ 16.5V / 40mA	18 ~ 27V / 20mA
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)			
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV EN60950-1 approved, NEC class 2 / LPS compliant			
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC			
	EMI CONDUCTION & RADIATION	Compliance to EN55011, EN55022 (CISPR22), EN61204-3 Class B			
	HARMONIC CURRENT	Compliance to EN61000-3-2, -3			
	EMS IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024, EN61000-6-1, EN61204-3, light industry level, criteria A			
OTHERS	MTBF	236.9K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	22.5*90*100mm (W*H*D)			
	PACKING	0.19Kg; 72pcs/14.7Kg/0.91CUFT			
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time. 				

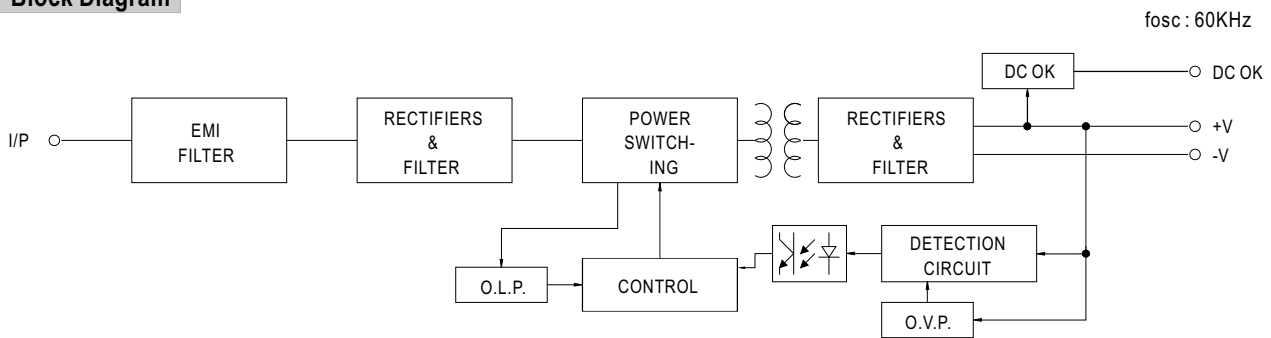
■ Mechanical Specification

Case No. 956 Unit:mm



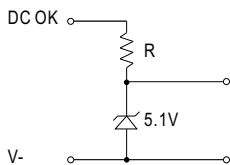
Install DIN rail TS35/7.5 or TS35/15

■ Block Diagram



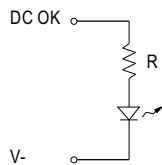
■ Application of DC OK Active Signal

(a) 5V signal



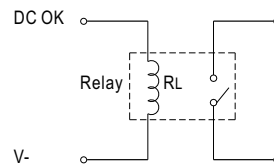
Model	R
5V	≥ 200Ω
12V	≥ 1.5KΩ
15V	≥ 2KΩ
24V	≥ 3.9KΩ

(b) LED



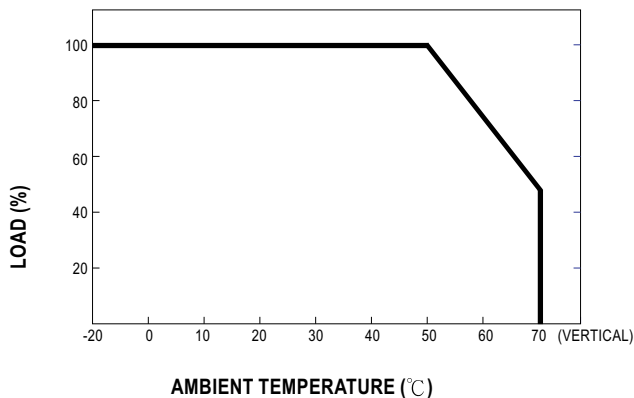
Model	R
5V	≥ 1KΩ
12V	≥ 2.4KΩ
15V	≥ 3KΩ
24V	≥ 4.7KΩ

(c) Relay

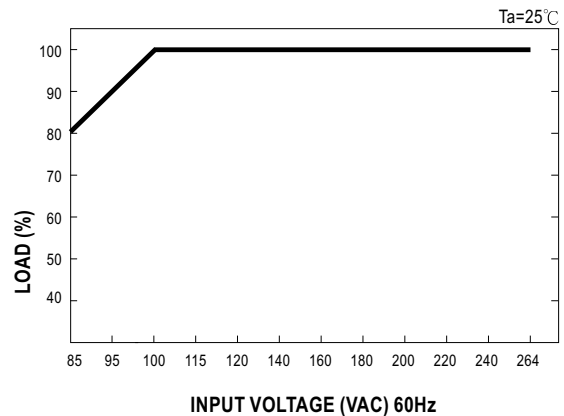


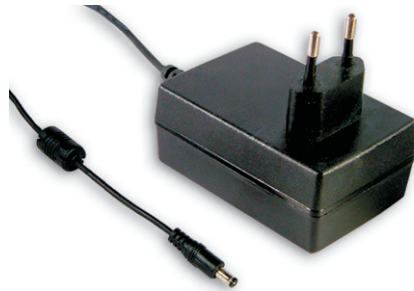
Model	RL
5V	≥ 120Ω
12V	≥ 700Ω
15V	≥ 700Ω
24V	≥ 1.2KΩ

■ Derating Curve



■ Output Derating VS Input Voltage




■ Features :

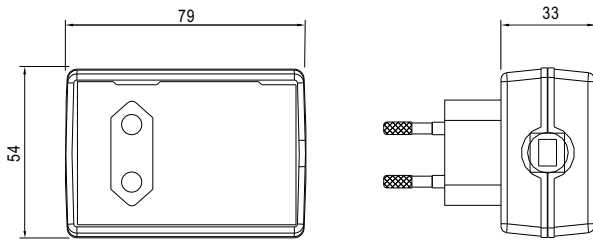
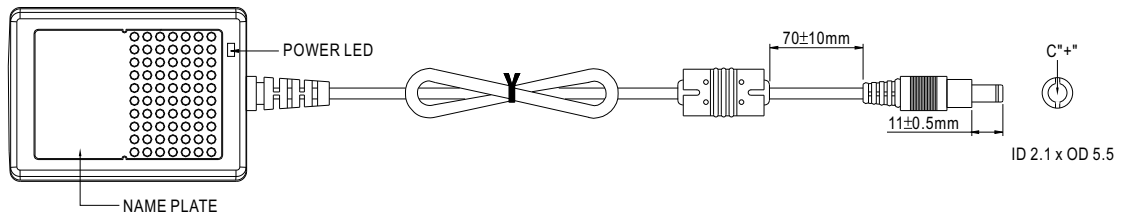
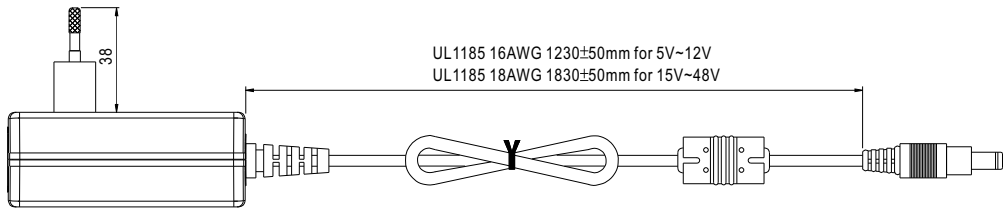
- Universal AC input / Full range
- No load power consumption < 0.3W
- ErP step2 compliant
- Meet EISA 2007 (Energy Independence and Security Act)
- 2 pole EURO plug
- Class II power (without earth pin)
- Protections: Short circuit / Over load / Over voltage
- Fully enclosed plastic case
- LED indicator for power on
- Approvals: TUV / CB / CE
- Pass LPS
- 2 years warranty


SPECIFICATION

ORDER NO.		GS18E05-P1J	GS18E07-P1J	GS18E09-P1J	GS18E12-P1J	GS18E15-P1J	GS18E18-P1J	GS18E24-P1J	GS18E28-P1J	GS18E48-P1J
OUTPUT	SAFETY MODEL NO.	GS18E05	GS18E07	GS18E09	GS18E12	GS18E15	GS18E18	GS18E24	GS18E28	GS18E48
	DC VOLTAGE <small>Note.2</small>	5V	7.5V	9V	12V	15V	18V	24V	28V	48V
	RATED CURRENT	3.0A	2.0A	2.0A	1.50A	1.20A	1.0A	0.75A	0.64A	0.375A
	CURRENT RANGE	0 ~ 3.0A	0 ~ 2.0A	0 ~ 2.0A	0 ~ 1.50A	0 ~ 1.20A	0 ~ 1.0A	0 ~ 0.75A	0 ~ 0.64A	0 ~ 0.375A
	RATED POWER (max.)	15W	15W	18W	18W	18W	18W	18W	18W	18W
	RIPPLE & NOISE (max.) <small>Note.3</small>	50mVp-p	80mVp-p	80mVp-p	80mVp-p	100mVp-p	150mVp-p	180mVp-p	240mVp-p	240mVp-p
	VOLTAGE TOLERANCE <small>Note.4</small>	±5.0%	±5.0%	±5.0%	±3.0%	±3.0%	±3.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION <small>Note.5</small>	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LOAD REGULATION <small>Note.6</small>	±5.0%	±5.0%	±5.0%	±3.0%	±3.0%	±3.0%	±2.0%	±2.0%	±2.0%
SETUP, RISE, HOLD UP TIME	500ms, 20ms, 50ms/230VAC 500ms, 20ms, 15ms/115VAC at full load									
INPUT	VOLTAGE RANGE	90 ~ 264VAC 135 ~ 370VDC								
	FREQUENCY RANGE	47 ~ 63Hz								
	EFFICIENCY (Typ.)	79.5%	82%	83%	85%	85%	85%	86%	86.5%	87%
	AC CURRENT	0.5A / 100VAC								
	INRUSH CURRENT (max.)	45A / 230VAC								
LEAKAGE CURRENT(max.)	0.25mA / 240VAC									
PROTECTION	OVERLOAD	110 ~ 150% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	105 ~ 135% rated output voltage Protection type : Clamp by zener diode, output short								
ENVIRONMENT	WORKING TEMP.	0 ~ +50°C (Refer to "Derating Curve")								
	WORKING HUMIDITY	20% ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)								
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes									
SAFETY & EMC <small>(Note. 7)</small>	SAFETY STANDARDS	TUV EN60950-1 approved								
	WITHSTAND VOLTAGE	I/P-O/P:4242VDC								
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH								
	EMC EMISSION	Compliance to EN55022, EN61000-3-2,3								
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, light industry level, criteria A								
OTHERS	MTBF	500Khrs min. MIL-HDBK-217F(25°C)								
	DIMENSION	79*54*33mm (L*W*H)								
	PACKING	210g ; 60pcs / 13.5kg / CARTON								
CONNECTOR	PLUG	See page2								
	CABLE	See page2								
NOTE	1.All parameters are specified at 230VAC input, rated load, 25°C 70% RH ambient. 2.DC voltage: The output voltage set at point measure by plug terminal & 50% load. 3.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf & 47uf capacitor. 4.Tolerance: includes set up tolerance, line regulation, load regulation. 5.Line regulation is measured from low line to high line at rated load. 6.Load regulation is measured from 20% to 100% rated load 7.The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives.									

Mechanical Specification

Unit:mm

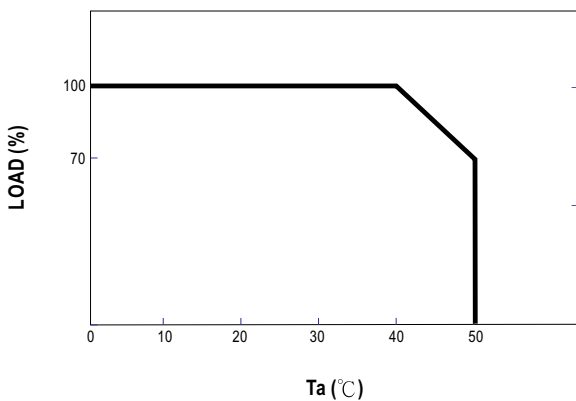


Plug Assignment

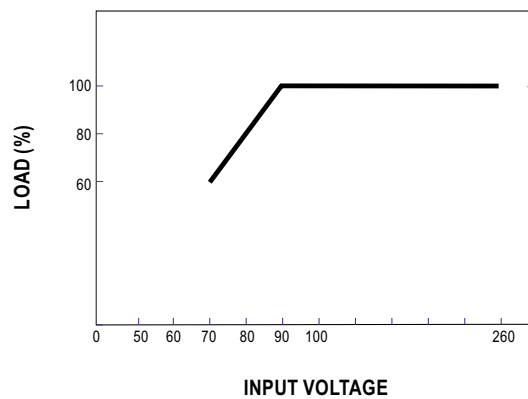
Standard plug: P1J

P1J	
P/N	OUTPUT
CENTER	+

Derating Curve



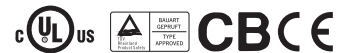
Static Characteristics





■ Features :

- Universal AC input/Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Built in DC OK active signal
- LED indicator for power on
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 years warranty

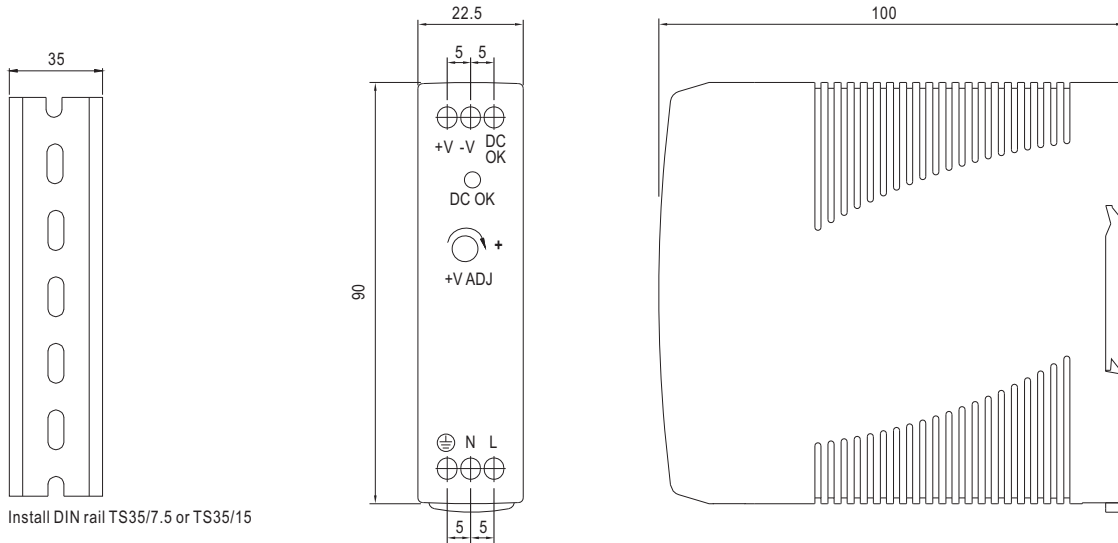


SPECIFICATION

MODEL	MDR-20-5	MDR-20-12	MDR-20-15	MDR-20-24	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V
	RATED CURRENT	3A	1.67A	1.34A	1A
	CURRENT RANGE	0 ~ 3A	0 ~ 1.67A	0 ~ 1.34A	0 ~ 1A
	RATED POWER	15W	20W	20W	24W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	120mVp-p	120mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
	VOLTAGE TOLERANCE Note.3	± 2.0%	± 1.0%	± 1.0%	± 1.0%
	LINE REGULATION	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	LOAD REGULATION	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	SETUP, RISE TIME Note.5	500ms, 30ms/230VAC 1000ms, 30ms/115VAC at full load			
HOLD UP TIME (Typ.)	50ms/230VAC 20ms/115VAC at full load				
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	76%	80%	81%	84%
	AC CURRENT (Typ.)	0.55A/115VAC 0.35A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 20A/115VAC 40A/230VAC			
	LEAKAGE CURRENT	<1mA / 240VAC			
PROTECTION	OVERLOAD	105 ~ 160% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
		Protection type : Shut down o/p voltage, re-power on to recover			
FUNCTION	DC OK ACTIVE SIGNAL (max.)	3.75 ~ 6V / 50mA	9 ~ 13.5V / 40mA	11.5 ~ 16.5V / 40mA	18 ~ 27V / 20mA
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to "Derating Curve")			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 50°C)			
	VIBRATION	Component: 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV EN60950-1 approved			
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH			
	EMC EMISSION	Compliance to EN55011, EN55022 (CISPR22), EN61204-3 Class B, EN61000-3-2,-3			
	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-1, EN61204-3, light industry level, criteria A			
OTHERS	MTBF	236.9K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	22.5*90*100mm (W*H*D)			
	PACKING	0.19Kg; 72pcs/14.7Kg/0.91CUFT			
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time. 				

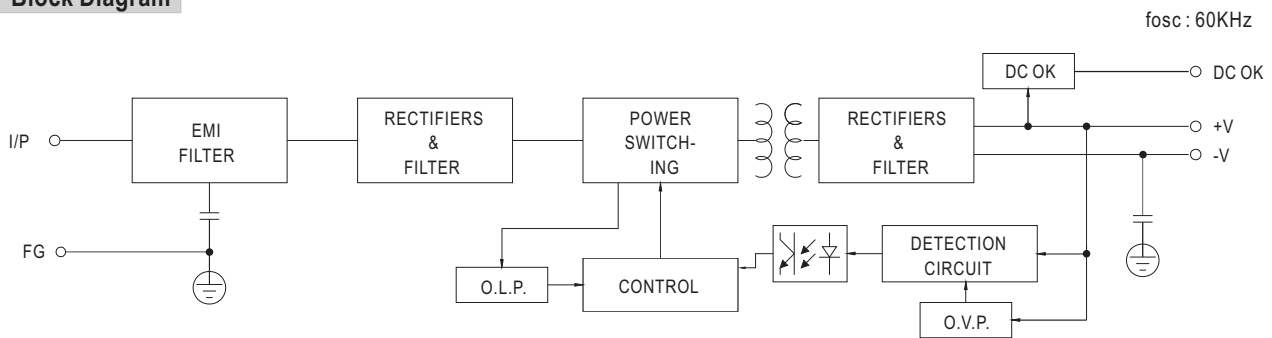
Mechanical Specification

Case No. 956 Unit:mm



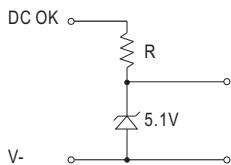
Install DIN rail TS35/7.5 or TS35/15

Block Diagram



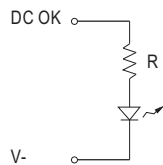
Application of DC OK Active Signal

(a) 5V signal



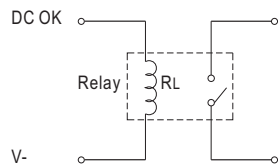
Model	R
5V	$\geq 200 \Omega$
12V	$\geq 1.5K \Omega$
15V	$\geq 2K \Omega$
24V	$\geq 3.9K \Omega$

(b) LED



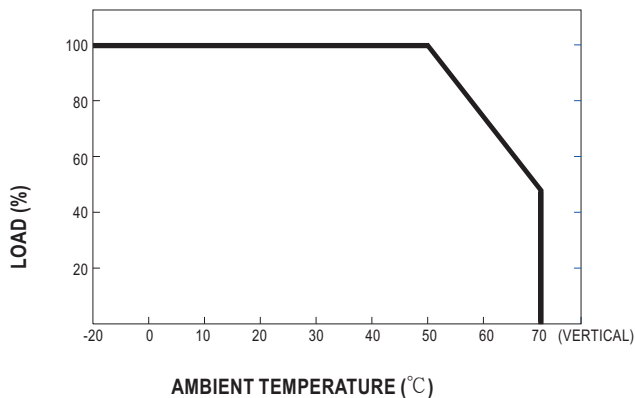
Model	R
5V	$\geq 1K \Omega$
12V	$\geq 2.4K \Omega$
15V	$\geq 3K \Omega$
24V	$\geq 4.7K \Omega$

(c) Relay

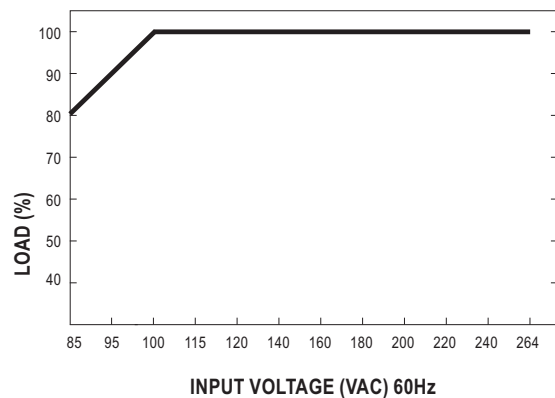


Model	RL
5V	$\geq 120 \Omega$
12V	$\geq 700 \Omega$
15V	$\geq 700 \Omega$
24V	$\geq 1.2K \Omega$

Derating Curve



Output Derating VS Input Voltage





■ Features :

- Universal AC input/Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Isolation class II
- LED indicator for power on
- 100% full load burn-in test
- 3 years warranty



SPECIFICATION

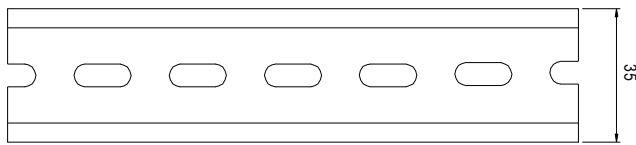
MODEL	DR-30-5	DR-30-12	DR-30-15	DR-30-24	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V
	RATED CURRENT	3A	2A	2A	1.5A
	CURRENT RANGE	0 ~ 3A	0 ~ 2A	0 ~ 2A	0 ~ 1.5A
	RATED POWER	15W	24W	30W	36W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	120mVp-p	120mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	100ms, 30ms/230VAC 100ms, 30ms/115VAC at full load			
HOLD UP TIME (Typ.)	100ms/230VAC 21ms/115VAC at full load				
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	74%	81%	82%	83%
	AC CURRENT (Typ.)	0.88A/115VAC 0.48A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 15A/115VAC 30A/230VAC			
PROTECTION	OVERLOAD	105 ~ 160% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
ENVIRONMENT	WORKING TEMP.	-20 ~ +60°C (Refer to output load derating curve)			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)			
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved, Design refer to EN50178			
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC			
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms/500VDC			
	EMI CONDUCTION & RADIATION	Compliance to EN55011, EN55022 (CISPR22) Class B			
	HARMONIC CURRENT	Compliance to EN61000-3-2, -3			
OTHERS	EMM IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A			
	MTBF	441.5K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	78*93*56mm (W*H*D)			
	PACKING	0.27Kg; 48pcs/14Kg/1.02CUFT			
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 				

Mechanical Specification

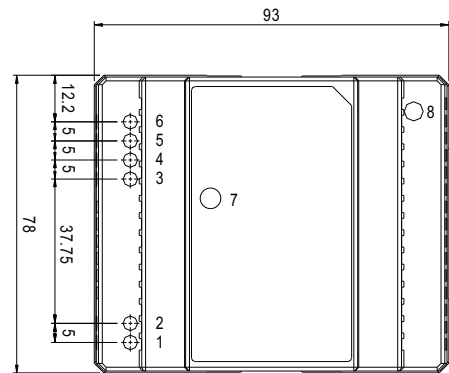
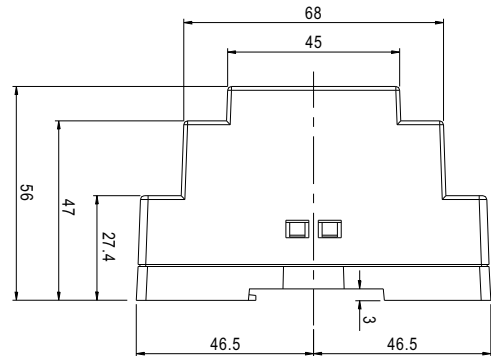
Case No. 918B Unit:mm

Terminal Pin No. Assignment

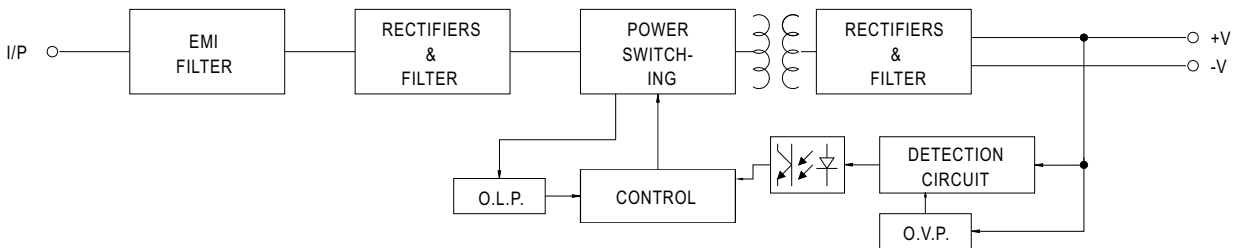
Pin No.	Assignment	Pin No.	Assignment
1	AC/N	5,6	-V
2	AC/L	7	LED
3,4	+V	8	+V ADJ.



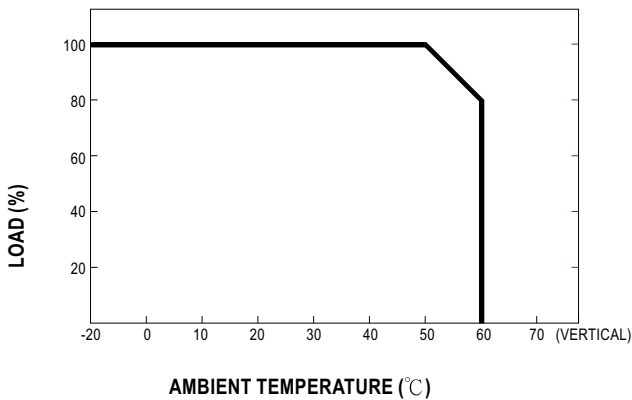
ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15



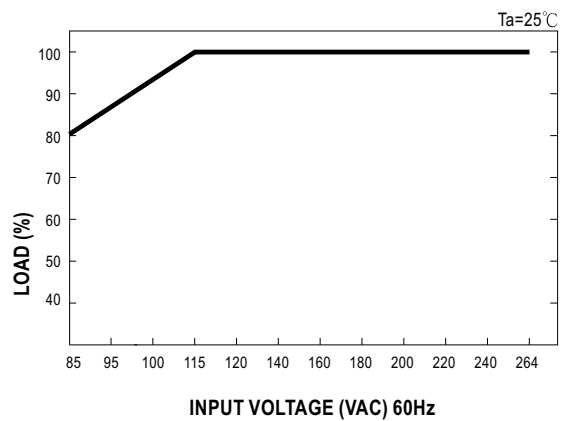
Block Diagram



Derating Curve



Output Derating VS Input Voltage



ZAS-02

Zasilacz impulsowy 48V, desktop

Zasilacz impulsowy, desktop 230V AC, 220V DC / 48V DC 0,5A do urządzeń firmy BitStream.

- Napięcie wyjściowe - 48V DC
- Prąd wyjściowy maks. - 520 mA
- Moc - 25W
- Zakres napięć wejściowych - 90 ~ 264V AC 135 ~ 370V DC
- Wymiary - 93x54x36mm
- Rodzaj zabezpieczeń - przeciwprzeciążeniowe, przeciwprzepięciowe



WYMIARY I WARUNKI PRACY

Parametr	
Wymiary (mm)	94 x 54 x 36
Waga	230 g
Temperatura pracy	0 – 50 °C
Wilgotność środowiska pracy	20 - 90% RH

PARAMETRY ELEKTRYCZNE

Parametr	
Moc	25 W
Zakres napięć wejściowych	90 ~ 264V AC 135 ~ 370V DC
Zabezpieczenie przeciwprzeciążeniowe	110 – 150% mocy wyjściowej
Zabezpieczenie przeciwprzepięciowe	105 – 135 % napięcia wyjściowego

BEZPIECZEŃSTWO

Parametr	
Normy bezpieczeństwa	EN 60950-1
Kompatybilność elektromagnetyczna EMC	EN 55022 Klasa B, EN 61000-4-2/3/4/5/6/8/11, EN 61000-3-2,3

BITSTREAM Sp. z o.o.

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Tel. +48 81 743 86 43, Fax +48 81 442 02 98

info@bitstream.com.pl

www.bitstream.com.pl

ZAS-48-25-W-C

Zasilacz Zasilacz 48V, wtyczkowy

Zasilacz impulsowy, wtyczkowy 230V AC, 220V DC / 48V DC 0,5A do urządzeń firmy BitStream.

- Napięcie wyjściowe - 48V DC
- Prąd wyjściowy maks. - 520 mA
- Moc - 25W
- Zakres napięć wejściowych - 90 ~ 264V AC 135 ~ 370V DC
- Wymiary - 79x54x33mm
- Rodzaj zabezpieczeń - przeciwprzeciążeniowe, przeciwprzepięciowe



WYMIARY I WARUNKI PRACY

Parametr	
Wymiary (mm)	79 x 54 x 33
Waga	210 g
Temperatura pracy	0 – 50 °C
Wilgotność środowiska pracy	20 - 90% RH

PARAMETRY ELEKTRYCZNE

Parametr	
Moc	25 W
Zakres napięć wejściowych	90 ~ 264V AC 135 ~ 370V DC
Zabezpieczenie przeciwprzeciążeniowe	110 – 150% mocy wyjściowej
Zabezpieczenie przeciwprzepięciowe	105 – 135 % napięcia wyjściowego

BEZPIECZEŃSTWO

Parametr	
Normy bezpieczeństwa	EN 60950-1
Kompatybilność elektromagnetyczna EMC	EN 55022 Klasa B, EN 61000-4-2/3/4/5/6/8/11, EN 61000-3-2,3

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v1.01

DNR Series



- Up to 90% Efficiency
- Wide Adjustment Range
- Parallel Function
- DC Standby Versions
- Full Power from $-40\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$
- Connector Options
- 3 Year Warranty

Specification

Input

Input Voltage	<ul style="list-style-type: none"> • 90-132/180-264 VAC, auto select, 210-375 VDC (DNR120AS, DNR240PS) • 90-264 VAC, 120-375 VDC (DNR480PS)
Input Frequency	<ul style="list-style-type: none"> • 47-63 Hz
Input Current	<ul style="list-style-type: none"> • See tables
Inrush Current	<ul style="list-style-type: none"> • 24/48 A at 115/230 VAC (DNR120) • 30/60 A at 115/230 VAC (DNR240) • 25/50 A at 115/230 VAC (DNR480)
Power Factor	<ul style="list-style-type: none"> • 0.7 typical (DNR120, DNR240) • 0.9 typical (DNR480)
Earth Leakage Current	<ul style="list-style-type: none"> • 0.8 mA max
Input Protection	<ul style="list-style-type: none"> • T3.15A, 250 VAC (DNR120) • T6.3A, 250 VAC (DNR240) • T10A, 250 VAC (DNR480)

Output

Output Voltage	<ul style="list-style-type: none"> • See tables
Output Voltage Trim	<ul style="list-style-type: none"> • See tables
Initial Set Accuracy	<ul style="list-style-type: none"> • $\pm 1\%$
Minimum Load	<ul style="list-style-type: none"> • No minimum load required
Start Up Delay	<ul style="list-style-type: none"> • $< 1\text{ s}$ (may increase at low temperature extremes)
Start Up Rise Time	<ul style="list-style-type: none"> • $< 150\text{ ms}$
Hold Up Time	<ul style="list-style-type: none"> • 25/30 ms at 115/230 VAC
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max
Load Regulation	<ul style="list-style-type: none"> • $\pm 1\%$ ($\pm 5\%$ for units in parallel)
Parallel Operation	<ul style="list-style-type: none"> • A maximum of 3 units can be paralleled (not with standby system). Total power available is 90% of the rated current of each unit. Minimum load per unit 10%. Redundancy module DPM10 available for load currents up to 10 A, contact sales.
Transient Response	<ul style="list-style-type: none"> • 4% max deviation recovering to within 1% in 2 ms for a 50% load change
Ripple & Noise	<ul style="list-style-type: none"> • 50 mV pk-pk (DNR120) • 100 mV pk-pk (DNR240, DNR480) • 20 MHz bandwidth (may increase at low temperature extremes)
Oversvoltage Protection	<ul style="list-style-type: none"> • Output clamps at 125-140% Vnom, auto recovery
Overload Protection	<ul style="list-style-type: none"> • 105-145% constant current, auto recovery
Temp. Coefficient	<ul style="list-style-type: none"> • $\pm 0.03\%/^{\circ}\text{C}$

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation	<ul style="list-style-type: none"> • 3000 VAC Input to Output • 1500 VAC Input to Ground • 500 VAC Output to Ground
Switching Frequency Signals	<ul style="list-style-type: none"> • See table • DC ON indicator Green LED, DC LOW indicator Red LED, DC OK: 24 V and standby models
MTBF	<ul style="list-style-type: none"> • 430 kHrs typical Bellcore, Issue 6 at $+40\text{ }^{\circ}\text{C}$, GB
DIN Rail	<ul style="list-style-type: none"> • Compatible with TS35/7.5 or TS35/15

Environmental

Operating Temperature	<ul style="list-style-type: none"> • DNR120: $-35\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+60\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-30\text{ }^{\circ}\text{C}$ • DNR240: $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+60\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-35\text{ }^{\circ}\text{C}$ • DNR480: $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+55\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-35\text{ }^{\circ}\text{C}$ (see derating curves)
Cooling	<ul style="list-style-type: none"> • Convection-cooled with 25mm free space all sides
Operating Humidity	<ul style="list-style-type: none"> • 20-95% RH, non-condensing
Storage Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
Shock	<ul style="list-style-type: none"> • 15 g, 11 ms, 3 axes, 6 faces, 3 shocks per face
Vibration	<ul style="list-style-type: none"> • 2 g, 10 Hz to 500 Hz, along X, Y & Z axis, 60 min/axis, mounted on rail

EMC & Safety

Emissions	<ul style="list-style-type: none"> • EN55022, class B conducted & radiated
Harmonic Currents	<ul style="list-style-type: none"> • EN61000-3-2, class A
Voltage Flicker	<ul style="list-style-type: none"> • EN61000-3-3
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 4 Perf Criteria A
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4, level 4 Perf Criteria A
Surge	<ul style="list-style-type: none"> • EN61000-4-5, installation class 3, Perf Criteria A
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6, level 3 Perf Criteria A
Magnetic Field	<ul style="list-style-type: none"> • EN61000-4-8, level 4 Perf Criteria A
Dips & Interruptions	<ul style="list-style-type: none"> • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms Perf Criteria A, A, B
Safety Approvals	<ul style="list-style-type: none"> • EN60950-1 UL508 UL60950-1, cUL60950-1 Pollution Degree 2, CE Mark, UL60950-1 Overvoltage Category II, UL508 Overvoltage Category III, ANSI/ISA 12.12.01. (Class 1, Division 2, Groups A,B,C and D)

Models and Ratings

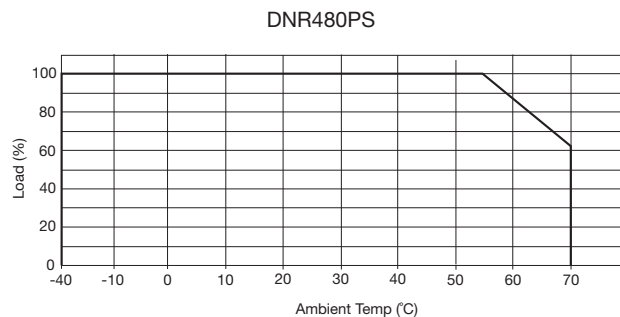
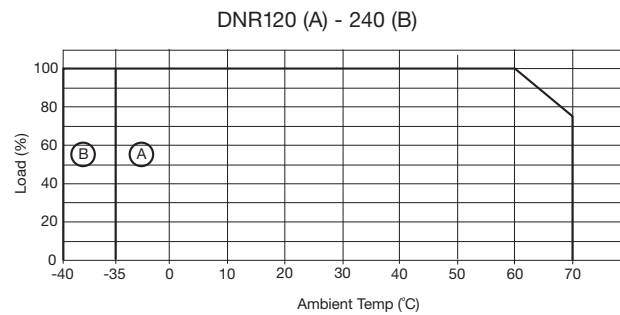
DNR120-480 XP

Output Voltage	Input Current (typ.)		Output Voltage Trim	Output Current	Efficiency (typ.)	Typical Switching Frequency	Model Number
	115 VAC	230 VAC					
12 V	2.20 A	0.83 A	11.4-14.5 V	10.0 A	84%	80 kHz	DNR120AS12-I ^(1,2)
24 V	2.20 A	0.83 A	22.5-28.5 V	5.0 A	86%	80 kHz	DNR120AS24-I ^(1,2)
48 V	2.20 A	0.83 A	45.0-55.0 V	2.5 A	87%	80 kHz	DNR120AS48-I ^(1,2)
24 V	4.00 A	1.55 A	22.5-28.5 V	10.0 A	89%	40 kHz	DNR240PS24-I ^(1,2)
48 V	4.00 A	1.55 A	47.0-56.0 V	5.0 A	90%	40 kHz	DNR240PS48-I ^(1,2)
24 V	4.90 A	2.50 A	22.5-28.5 V	20.0 A	89%	65 kHz	DNR480PS24-I ^(1,2)
48 V	4.90 A	2.50 A	47.0-56.0 V	10.0 A	90%	65 kHz	DNR480PS48-I ^(1,2)

Notes

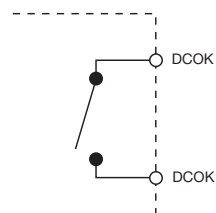
1. Add suffix 'D' for detachable connector option.
2. For DC standby, remove '-I' and add '#' to the end of the model number.

Derating Curves



DC OK

Volt free contact closed when voltage at unit output is within specification. In standby system configured as shown this voltage may be provided by the PSU or battery.



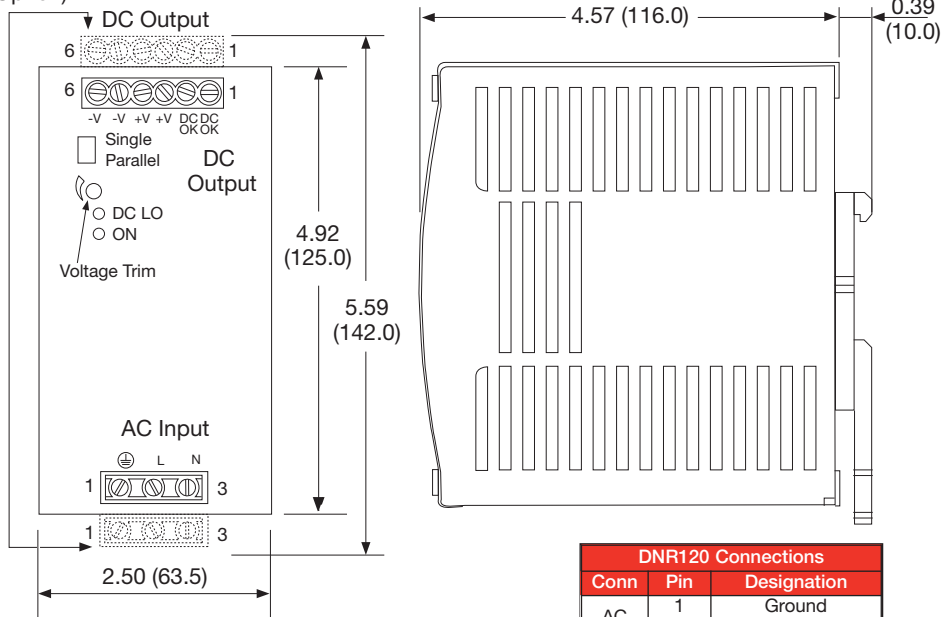
Open = Output fail
Closed = Output good

Contact Rating: 0.3 A at 60 VDC
500 VDC isolation

Mechanical Details

120 W Models

Optional detachable connector ('D' Option)



Notes

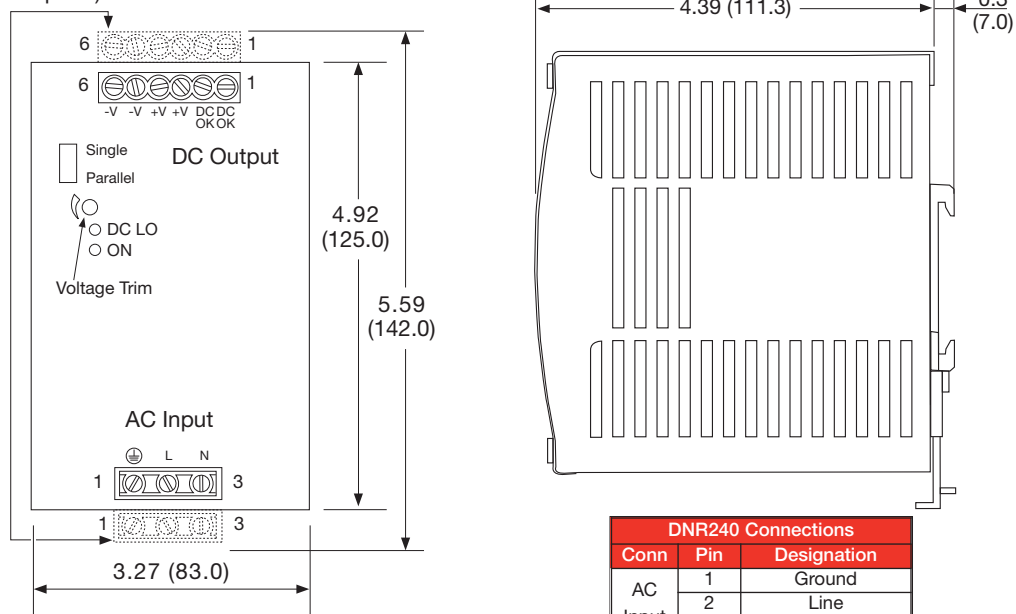
1. All dimensions in inches (mm).
2. Weight 2.0 lb (920 g) approx.
3. Tolerance: ± 0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

DNR120 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Line
	3	Neutral
DC Output	1	DC OK *
	2	DC OK *
	3	Positive
	4	Negative
	5	Negative
	6	Negative

* 24 V & standby models only.

240 W Models

Optional detachable connector ('D' Option)



Notes

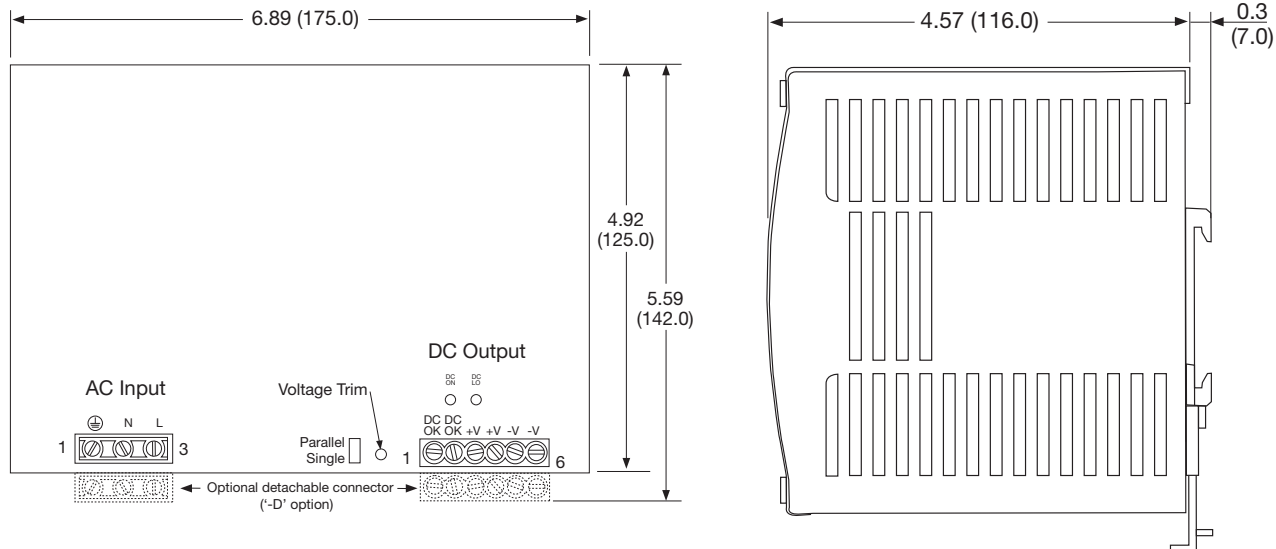
1. All dimensions in inches (mm).
2. Weight 3.0 lb (1360 g) approx.
3. Tolerance: ± 0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

DNR240 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Line
	3	Neutral
DC Output	1	DC OK*
	2	DC OK*
	3	Positive
	4	Positive
	5	Negative
	6	Negative

* 24 V & standby models only.

Mechanical Details

480 W Models



Notes

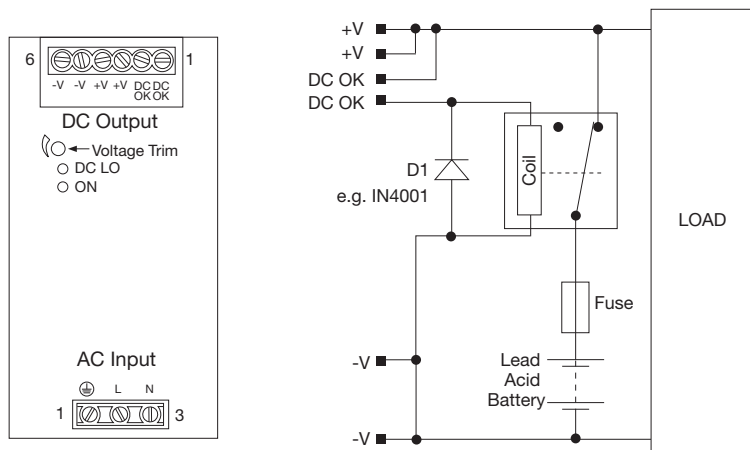
1. All dimensions in inches (mm).
2. Weight 4.2 lb (1920 g) approx.
3. Tolerance: ± 0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24 AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

DNR480PS Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Neutral
	3	Line
DC Output	1	DC OK*
	2	DC OK*
	3	Positive
	4	Positive
	5	Negative
	6	Negative

* 24 V and standby models only.

Standby Versions

Maximum current drain from battery by PSU when inactive 22 mA.



DNR120-480 Connections					
Conn	Pin	Designation	Conn	Pin	Designation
AC Input	1	Ground	DC Output	1	DC OK
	2	Line		2	DC OK
	3	Neutral		3	Positive
			4	Positive	
			5	Negative	
			6	Negative	

Notes

1. Suffix # indicates DC standby version.
2. With AC in, unit provides power to the load and to charge the battery. The DC OK signal acts by sensing a voltage on +V and holds the relay closed.
3. With loss of AC in, battery voltage is present on +V. DC OK signal holds the relay closed. Battery supplies power to the load.
4. As the battery discharges, its voltage falls. When this falls below the level shown in the table the DC OK signal switches off to allow the relay to open to disconnect and protect the battery.

Output Set Voltages For Standby Versions				
Model ⁽¹⁾	Voltage	DC OK Signal Off	Current	DC OK Shutoff
DNR120AS12#	13.6 V	10.30-11.30 V	8.8 A	10.8 V $\pm 5\%$
DNR120AS24#	27.2 V	21.10-22.10 V	4.4 A	21.6 V $\pm 5\%$
DNR120AS48#	54.5 V	42.70-43.70 V	2.2 A	43.2 V $\pm 5\%$
DNR240PS24#	27.2 V	21.10-22.10 V	8.8 A	21.6 V $\pm 5\%$
DNR240PS48#	54.5 V	42.70-43.70 V	4.4 A	43.2 V $\pm 5\%$
DNR480PS24#	27.2 V	21.10-22.10 V	17.6 A	21.6 V $\pm 5\%$
DNR480PS48#	54.5 V	42.70-43.70 V	8.8 A	43.2 V $\pm 5\%$

DNR Series



- Up to 90% Efficiency
- Wide Adjustment Range
- Parallel Function
- DC Standby Versions
- Full Power from $-40\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$
- Connector Options
- 3 Year Warranty

Specification

Input

Input Voltage	<ul style="list-style-type: none"> • 90-132/180-264 VAC, auto select, 210-375 VDC (DNR120AS, DNR240PS) • 90-264 VAC, 120-375 VDC (DNR480PS)
Input Frequency	<ul style="list-style-type: none"> • 47-63 Hz
Input Current	<ul style="list-style-type: none"> • See tables
Inrush Current	<ul style="list-style-type: none"> • 24/48 A at 115/230 VAC (DNR120) • 30/60 A at 115/230 VAC (DNR240) • 25/50 A at 115/230 VAC (DNR480)
Power Factor	<ul style="list-style-type: none"> • 0.7 typical (DNR120, DNR240) • 0.9 typical (DNR480)
Earth Leakage Current	<ul style="list-style-type: none"> • 0.8 mA max
Input Protection	<ul style="list-style-type: none"> • T3.15A, 250 VAC (DNR120) • T6.3A, 250 VAC (DNR240) • T10A, 250 VAC (DNR480)

Output

Output Voltage	<ul style="list-style-type: none"> • See tables
Output Voltage Trim	<ul style="list-style-type: none"> • See tables
Initial Set Accuracy	<ul style="list-style-type: none"> • $\pm 1\%$
Minimum Load	<ul style="list-style-type: none"> • No minimum load required
Start Up Delay	<ul style="list-style-type: none"> • $< 1\text{ s}$ (may increase at low temperature extremes)
Start Up Rise Time	<ul style="list-style-type: none"> • $< 150\text{ ms}$
Hold Up Time	<ul style="list-style-type: none"> • 25/30 ms at 115/230 VAC
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max
Load Regulation	<ul style="list-style-type: none"> • $\pm 1\%$ ($\pm 5\%$ for units in parallel)
Parallel Operation	<ul style="list-style-type: none"> • A maximum of 3 units can be paralleled (not with standby system). Total power available is 90% of the rated current of each unit. Minimum load per unit 10%. Redundancy module DPM10 available for load currents up to 10 A, contact sales.
Transient Response	<ul style="list-style-type: none"> • 4% max deviation recovering to within 1% in 2 ms for a 50% load change
Ripple & Noise	<ul style="list-style-type: none"> • 50 mV pk-pk (DNR120) • 100 mV pk-pk (DNR240, DNR480) • 20 MHz bandwidth (may increase at low temperature extremes)
Overvoltage Protection	<ul style="list-style-type: none"> • Output clamps at 125-140% V_{nom}, auto recovery
Overload Protection	<ul style="list-style-type: none"> • 105-145% constant current, auto recovery • 120-165% constant current (DNR240)
Temp. Coefficient	<ul style="list-style-type: none"> • $\pm 0.03\%/^{\circ}\text{C}$

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation	<ul style="list-style-type: none"> • 3000 VAC Input to Output • 1500 VAC Input to Ground • 500 VAC Output to Ground
Switching Frequency	<ul style="list-style-type: none"> • See table
Signals	<ul style="list-style-type: none"> • DC ON indicator Green LED, • DC LOW indicator Red LED • DC OK: 24 V and standby models
MTBF	<ul style="list-style-type: none"> • 430 kHrs typical Bellcore, Issue 6 at $+40\text{ }^{\circ}\text{C}$, GB
DIN Rail	<ul style="list-style-type: none"> • Compatible with TS35/7.5 or TS35/15

Environmental

Operating Temperature	<ul style="list-style-type: none"> • DNR120: $-35\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+60\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-30\text{ }^{\circ}\text{C}$ • DNR240: $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+60\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-35\text{ }^{\circ}\text{C}$ • DNR480: $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+55\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-35\text{ }^{\circ}\text{C}$ (see derating curves)
Cooling	<ul style="list-style-type: none"> • Convection-cooled with 25mm free space all sides
Operating Humidity	<ul style="list-style-type: none"> • 20-95% RH, non-condensing
Storage Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
Shock	<ul style="list-style-type: none"> • 15 g, 11 ms, 3 axes, 6 faces, 3 shocks per face
Vibration	<ul style="list-style-type: none"> • 2 g, 10 Hz to 500 Hz, along X, Y & Z axis, 60 min/axis, mounted on rail

EMC & Safety

Emissions	<ul style="list-style-type: none"> • EN55022, class B conducted & radiated
Harmonic Currents	<ul style="list-style-type: none"> • EN61000-3-2, class A
Voltage Flicker	<ul style="list-style-type: none"> • EN61000-3-3
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 4 Perf Criteria A
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4, level 4 Perf Criteria A
Surge	<ul style="list-style-type: none"> • EN61000-4-5, installation class 3, Perf Criteria A
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6, level 3 Perf Criteria A
Magnetic Field	<ul style="list-style-type: none"> • EN61000-4-8, level 4 Perf Criteria A
Dips & Interruptions	<ul style="list-style-type: none"> • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms Perf Criteria A, A, B
Safety Approvals	<ul style="list-style-type: none"> • EN60950-1 UL508 UL60950-1, cUL60950-1 Pollution Degree 2, CE Mark, UL60950-1 Overvoltage Category II, UL508 Overvoltage Category III, ANSI/ISA 12.12.01. (Class 1, Division 2, Groups A,B,C and D)

Models and Ratings

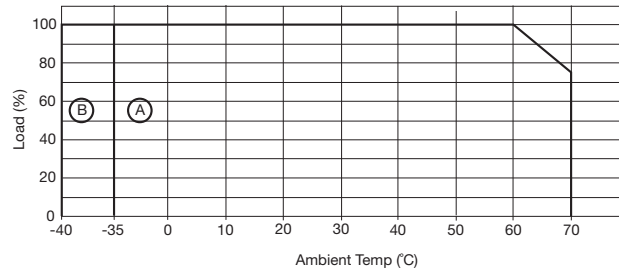
Output Voltage	Input Current (typ.)		Output Voltage Trim	Output Current	Efficiency (typ.)	Typical Switching Frequency	Model Number
	115 VAC	230 VAC					
12 V	2.20 A	0.83 A	11.4-14.5 V	10.0 A	84%	80 kHz	DNR120AS12-I ^(1,2)
24 V	2.20 A	0.83 A	22.5-28.5 V	5.0 A	86%	80 kHz	DNR120AS24-I ^(1,2)
48 V	2.20 A	0.83 A	45.0-55.0 V	2.5 A	87%	80 kHz	DNR120AS48-I ^(1,2)
24 V	4.00 A	1.55 A	22.5-28.5 V	10.0 A	89%	40 kHz	DNR240PS24-I ^(1,2)
48 V	4.00 A	1.55 A	47.0-56.0 V	5.0 A	90%	40 kHz	DNR240PS48-I ^(1,2)
24 V	4.90 A	2.50 A	22.5-28.5 V	20.0 A	89%	65 kHz	DNR480PS24-I ^(1,2)
48 V	4.90 A	2.50 A	47.0-56.0 V	10.0 A	90%	65 kHz	DNR480PS48-I ^(1,2)

Notes

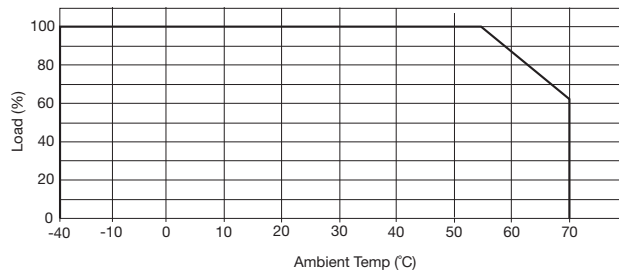
1. Add suffix 'D' for detachable connector option.
2. For DC standby, remove '-I' and add '#' to the end of the model number.

Derating Curves

DNR120 (A) - 240 (B)

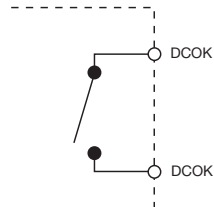


DNR480PS



DC OK

Volt free contact closed when voltage at unit output is within specification. In standby system configured as shown this voltage may be provided by the PSU or battery.



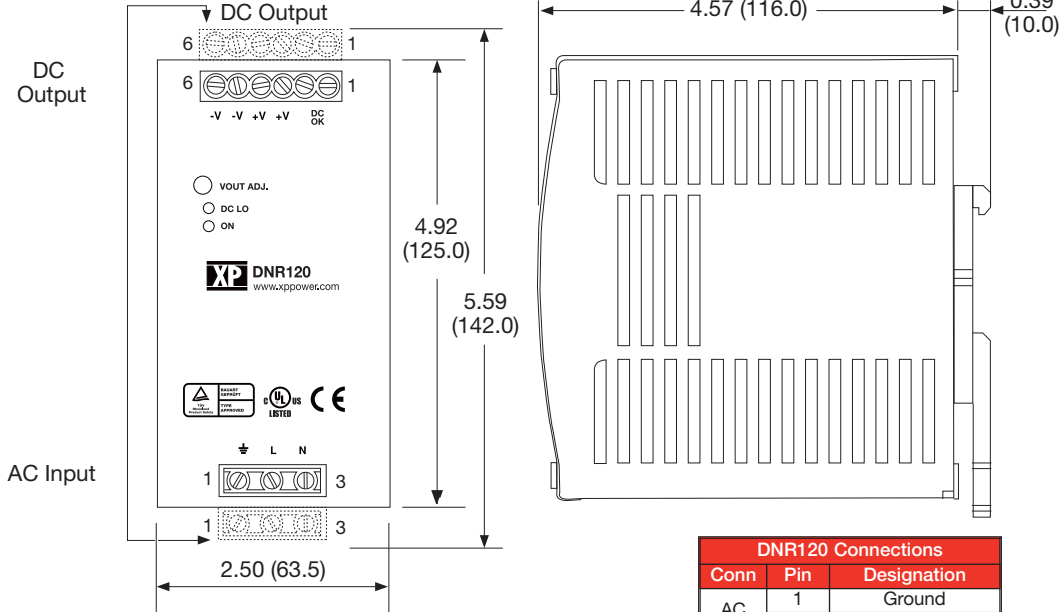
Open = Output fail
Closed = Output good

Contact Rating: 0.3 A at 60 VDC
500 VDC isolation

Mechanical Details

120 W Models

Optional detachable connector ('D' Option)



DNR120 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Line
	3	Neutral
DC Output	1	DC OK *
	2	DC OK *
	3	Positive
	4	Positive
	5	Negative
	6	Negative

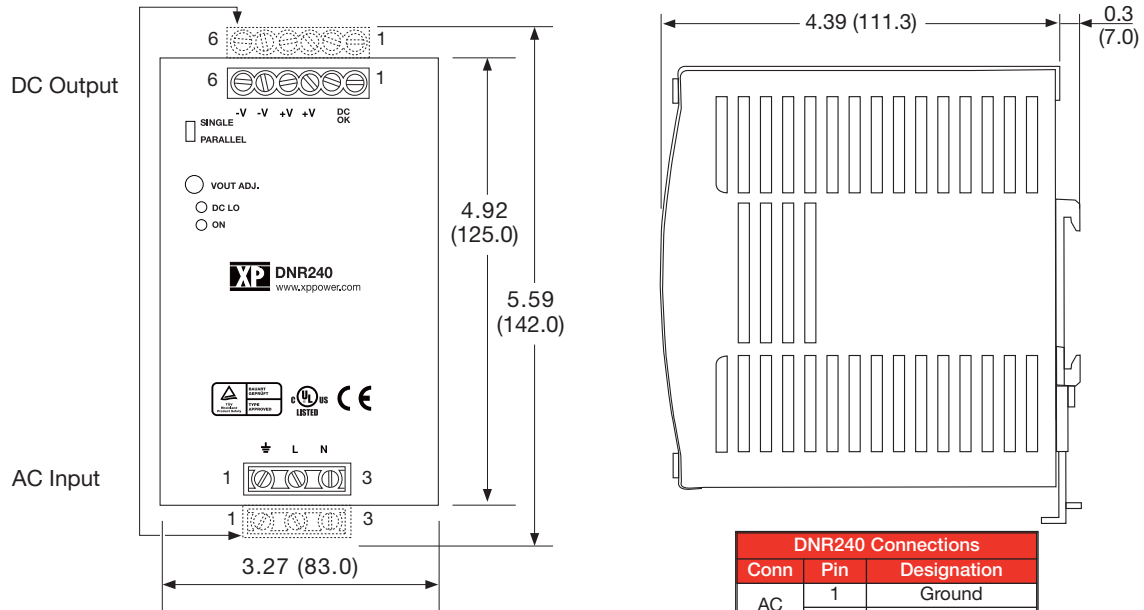
* 24 V & standby models only.

Notes

1. All dimensions in inches (mm).
2. Weight 2.0 lb (920 g) approx.
3. Tolerance: ±0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

240 W Models

Optional detachable connector ('D' Option)



DNR240 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Line
	3	Neutral
DC Output	1	DC OK*
	2	DC OK*
	3	Positive
	4	Positive
	5	Negative
	6	Negative

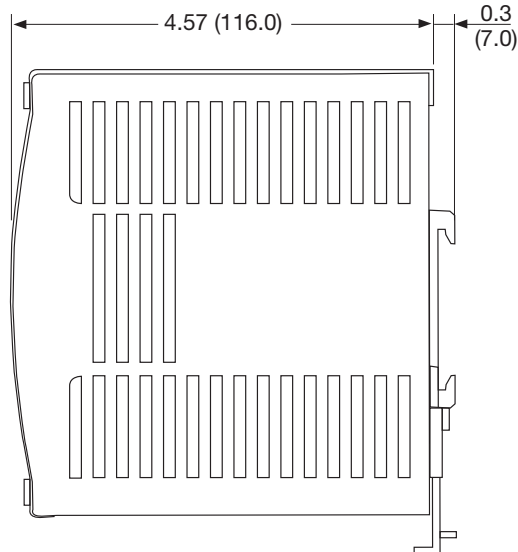
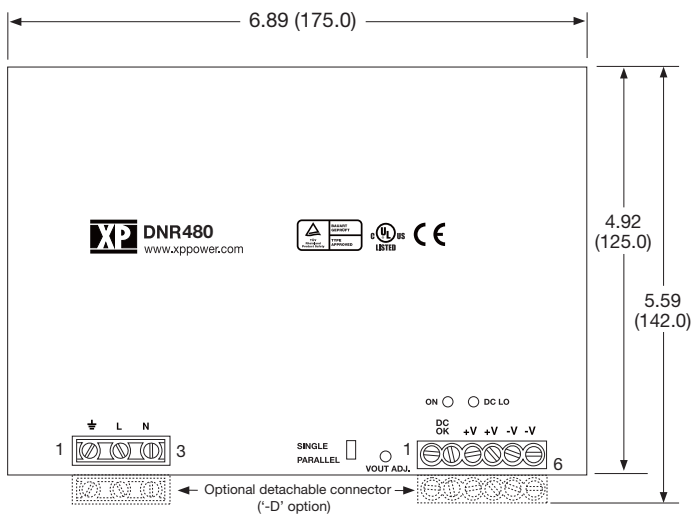
* 24 V & standby models only.

Notes

1. All dimensions in inches (mm).
2. Weight 3.0 lb (1360 g) approx.
3. Tolerance: ±0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

Mechanical Details

480 W Models



Notes

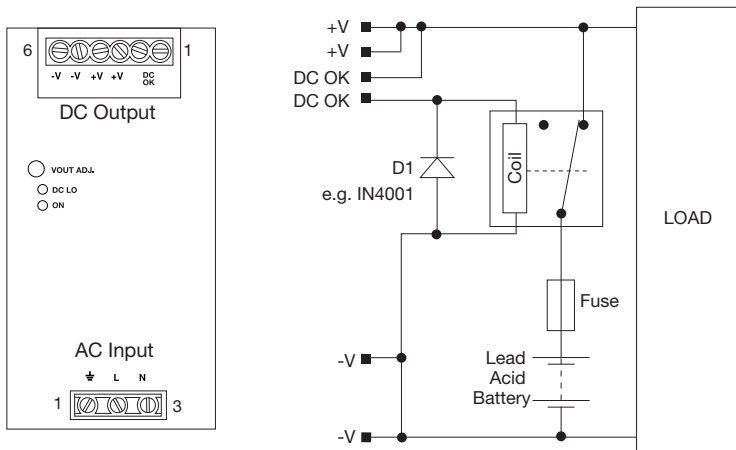
1. All dimensions in inches (mm).
2. Weight 4.2 lb (1920 g) approx.
3. Tolerance: ±0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24 AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

DNR480PS Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Neutral
	3	Line
DC Output	1	DC OK*
	2	DC OK*
	3	Positive
	4	Positive
	5	Negative
	6	Negative

* 24 V and standby models only.

Standby Versions

Maximum current drain from battery by PSU when inactive 22 mA.



DNR120-480 Connections					
Conn	Pin	Designation	Conn	Pin	Designation
AC Input	1	Ground	DC Output	1	DC OK
	2	Line		2	DC OK
	3	Neutral		3	Positive
			4	Positive	
			5	Negative	
			6	Negative	

Notes

1. Suffix # indicates DC standby version.
2. With AC in, unit provides power to the load and to charge the battery. The DC OK signal acts by sensing a voltage on +V and holds the relay closed.
3. With loss of AC in, battery voltage is present on +V. DC OK signal holds the relay closed. Battery supplies power to the load.
4. As the battery discharges, its voltage falls. When this falls below the level shown in the table the DC OK signal switches off to allow the relay to open to disconnect and protect the battery.

Output Set Voltages For Standby Versions				
Model ⁽¹⁾	Voltage	DC OK Signal Off	Current	DC OK Shutoff
DNR120AS12#	13.6 V	10.30-11.30 V	8.8 A	10.8 V ±5%
DNR120AS24#	27.2 V	21.10-22.10 V	4.4 A	21.6 V ±5%
DNR120AS48#	54.5 V	42.70-43.70 V	2.2 A	43.2 V ±5%
DNR240PS24#	27.2 V	21.10-22.10 V	8.8 A	21.6 V ±5%
DNR240PS48#	54.5 V	42.70-43.70 V	4.4 A	43.2 V ±5%
DNR480PS24#	27.2 V	21.10-22.10 V	17.6 A	21.6 V ±5%
DNR480PS48#	54.5 V	42.70-43.70 V	8.8 A	43.2 V ±5%



■ Features :

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.93
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508 (industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 years warranty

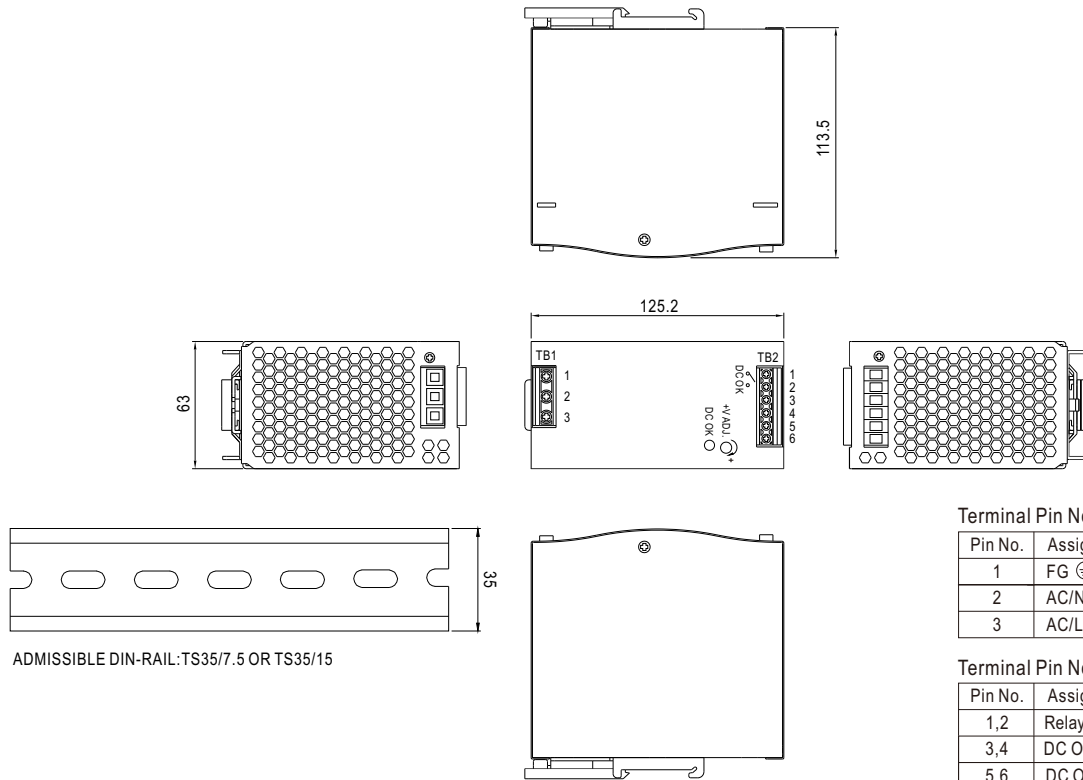


SPECIFICATION

MODEL		SDR-240-24	SDR-240-48
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	10A	5A
	CURRENT RANGE	0 ~ 10A	0 ~ 5A
	RATED POWER	240W	240W
	PEAK CURRENT	15A	7.5A
	PEAK POWER <small>Note.6</small>	360W (3sec.)	
	RIPPLE & NOISE (max.) <small>Note.2</small>	100mVp-p	120mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
	VOLTAGE TOLERANCE <small>Note.3</small>	± 1.0%	± 1.0%
	LINE REGULATION	± 0.5%	± 0.5%
	LOAD REGULATION	± 1.0%	± 1.0%
	SETUP, RISE TIME	1500ms, 60ms/230VAC	3000ms, 60ms/115VAC at full load
HOLD UP TIME (Typ.)	20ms/230VAC	20ms/115VAC at full load	
INPUT	VOLTAGE RANGE	88 ~ 264VAC	124 ~ 370VDC
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	0.93/230VAC	0.99/115VAC at full load
	EFFICIENCY (Typ.) <small>Note.8</small>	94%	
	AC CURRENT (Typ.)	2.6A/115VAC	1.3A/230VAC
	INRUSH CURRENT (Typ.)	33A/115VAC	65A/230VAC
LEAKAGE CURRENT	<1mA/ 240VAC		
PROTECTION	OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery >150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	
	OVER VOLTAGE	29 ~ 33V	56 ~ 65V
	OVER TEMPERATURE	95°C ± 5°C (TSW : detect on heatsink of power switch) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	DC OK REALY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load	
ENVIRONMENT	WORKING TEMP. <small>Note.5</small>	-25 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 95% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 50°C)	
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6	
SAFETY & EMC <small>(Note 4)</small>	SAFETY STANDARDS	UI508, TUV EN60950-1 approved;(meet EN60204-1)	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C / 70% RH	
	EMC EMISSION	Compliance to EN55011, EN55022 (CISPR22), EN61204-3 Class B, EN61000-3-2,-3	
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2 (EN50082-2), EN61204-3, heavy industry level, criteria A, SEMI F47, GL approved	
	MTBF	169.3K hrs min.	MIL-HDBK-217F (25°C)
	DIMENSION	63*125.2*113.5mm (W*H*D)	
	PACKING	1.03Kg; 12pcs/13.4Kg/1.06CUFT	
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended. 6. 3 seconds max., please refer to peak loading curves. 7. Derating may be needed under low input voltage. Please check the derating curve for more details. 8. After 30 minutes of burn-in. 		

Mechanical Specification

Case No. 979A Unit:mm



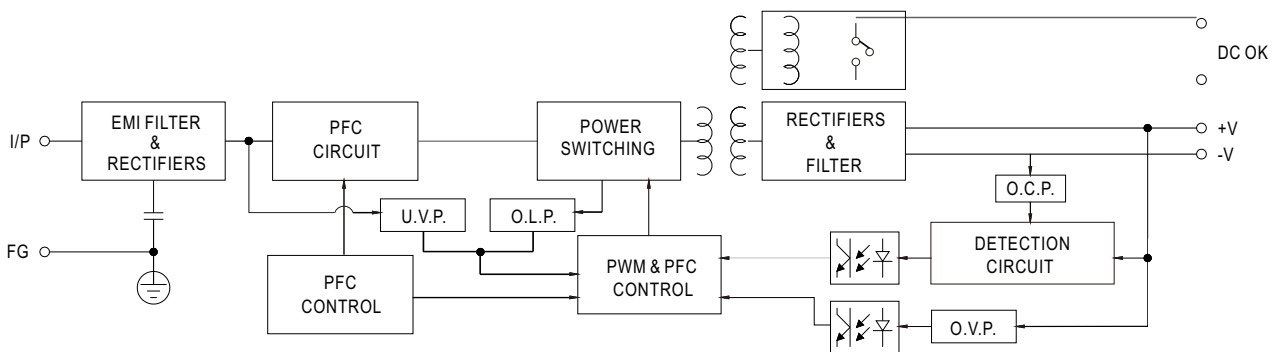
Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2	Relay Contact
3,4	DC OUTPUT +V
5,6	DC OUTPUT -V

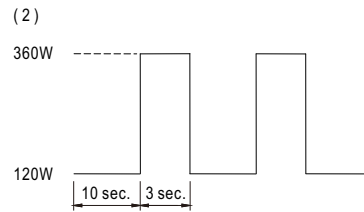
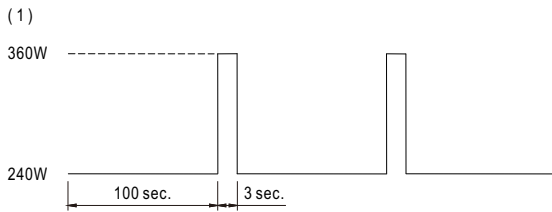
Block Diagram



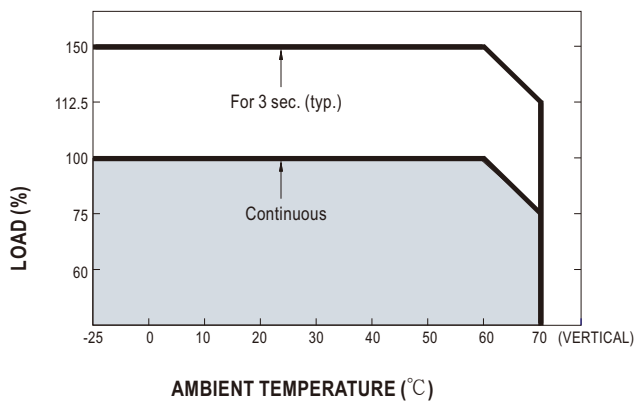
DC OK Relay Contact

Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

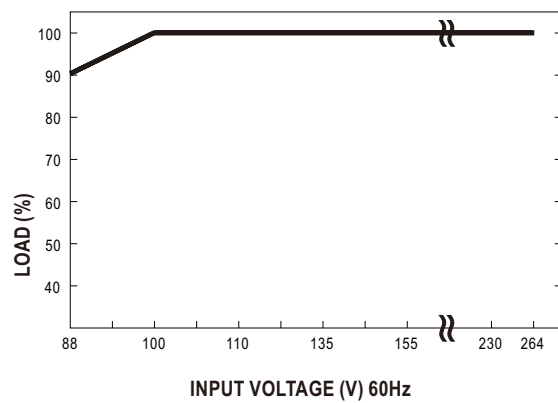
■ Peak Loading



■ Derating Curve



■ Output derating VS input voltage



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[SDR-240-24](#) [SDR-240-48](#)



■ Features :

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.94
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 years warranty

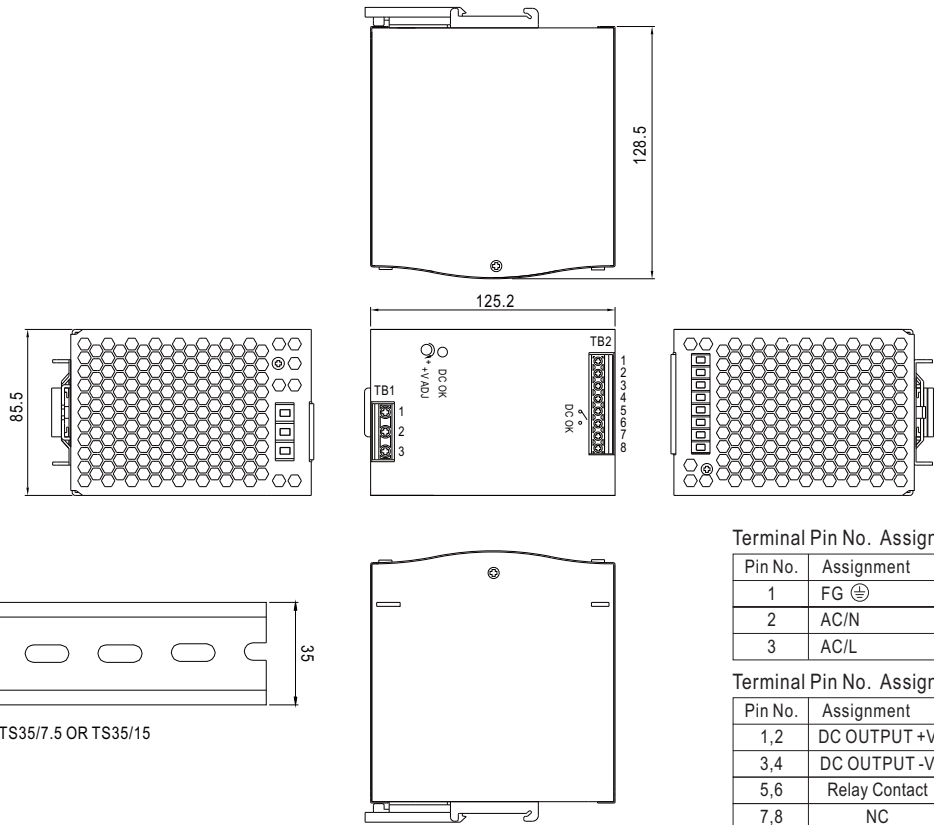


SPECIFICATION

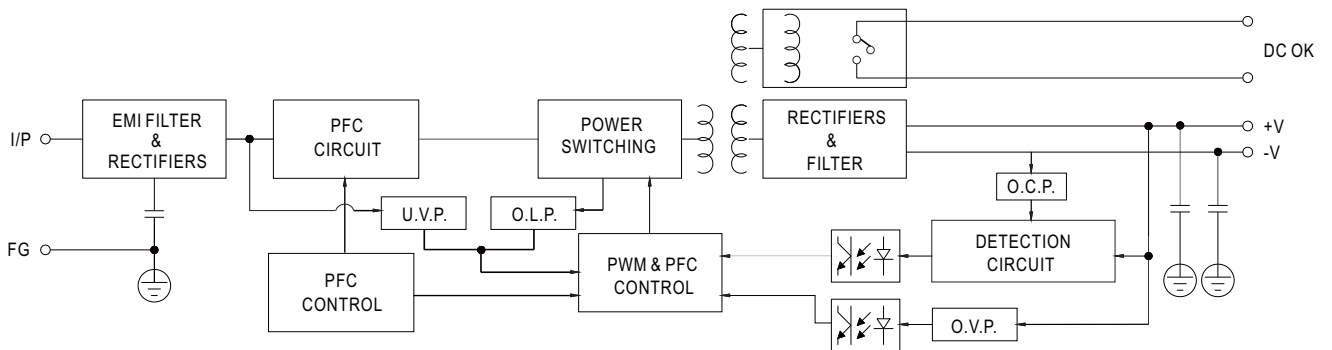
MODEL		SDR-480-24	SDR-480-48
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	20A	10A
	CURRENT RANGE	0 ~ 20A	0 ~ 10A
	RATED POWER	480W	480W
	PEAK CURRENT	30A	15A
	PEAK POWER <small>Note.6</small>	720W (3sec.)	
	RIPPLE & NOISE (max.) <small>Note.2</small>	100mVp-p	120mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
	VOLTAGE TOLERANCE <small>Note.3</small>	± 1.2%	± 1.0%
	LINE REGULATION	± 0.5%	± 0.5%
	LOAD REGULATION	± 1.0%	± 1.0%
	SETUP, RISE TIME	1500ms, 150ms/230VAC 3000ms, 150ms/115VAC at full load	
HOLD UP TIME (Typ.)	14ms/230VAC at full load		
INPUT	VOLTAGE RANGE <small>Note.7</small>	90 ~ 264VAC 127 ~ 370VDC	
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	0.94/230VAC	0.99/115VAC at full load
	EFFICIENCY (Typ.)	94%	
	AC CURRENT (Typ.)	5A/115VAC	2.5A/230VAC
	INRUSH CURRENT (Typ.)	40A/115VAC	80A/230VAC
	LEAKAGE CURRENT	<0.8mA / 240VAC	
PROTECTION	OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery >150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	
	OVER VOLTAGE	29 ~ 33V	56 ~ 65V
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	DC OK REALY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load	
ENVIRONMENT	WORKING TEMP. <small>Note.5</small>	-25 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 95% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 50°C)	
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6	
SAFETY & EMC <small>(Note 4)</small>	SAFETY STANDARDS	UL508, TUV EN60950-1, EAC TP TC 004 approved ; (meet EN60204-1)	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C / 70% RH	
	EMC EMISSION	Compliance to EN55011, EN55032 (CISPR32), EN61204-3 Class B, EN61000-3-2,-3, EAC TP TC 020	
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2 (EN50082-2), EN61204-3, heavy industry level, criteria A, EAC TP TC 020, SEMI F47, GL approved	
OTHERS	MTBF	112.9K hrs min. MIL-HDBK-217F (25°C)	
	DIMENSION	85.5*125.2*128.5mm (W*H*D)	
	PACKING	1.6Kg; 8pcs/13.8Kg/0.9CUFT	
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended. 6. 3 seconds peak power max. and the average output power should not exceed the rate power. 7. Derating may be needed under low input voltage. Please check the derating curve for more details. 8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). 		

Mechanical Specification

Case No.984A Unit:mm



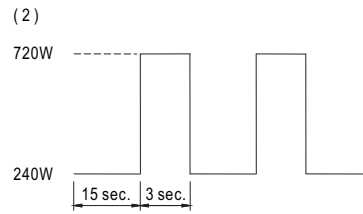
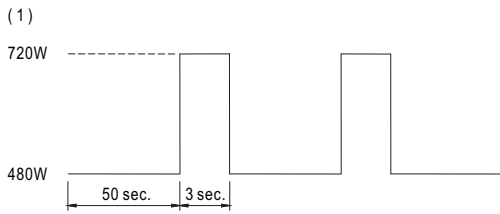
Block Diagram



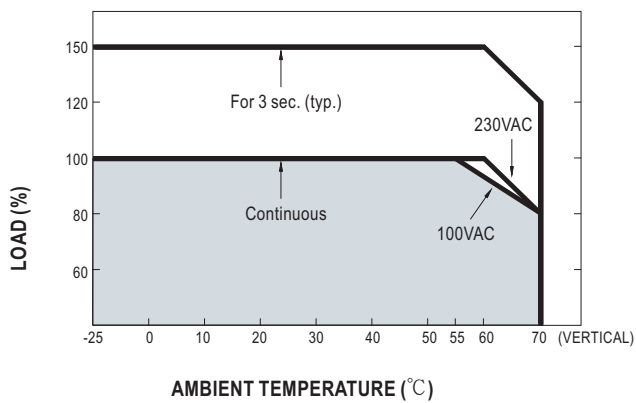
DC OK Relay Contact

Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

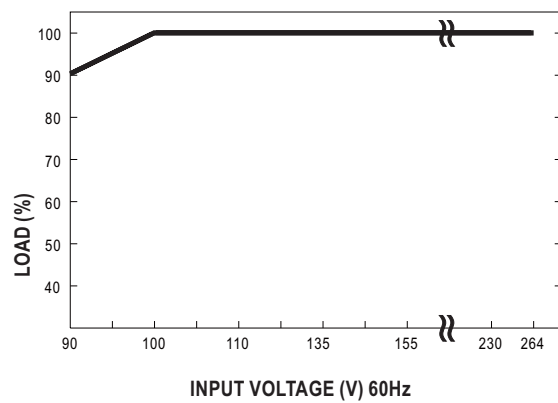
■ Peak Loading



■ Derating Curve



■ Output derating VS input voltage





■ Features :

- Universal AC input/Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- LED indicator for power on
- DC OK relay contact
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 years warranty

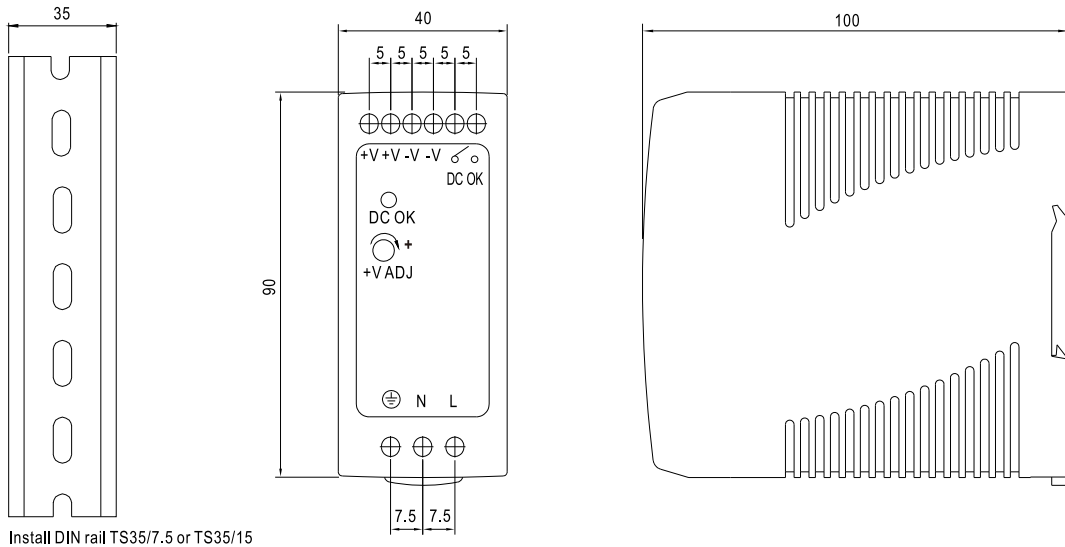


SPECIFICATION

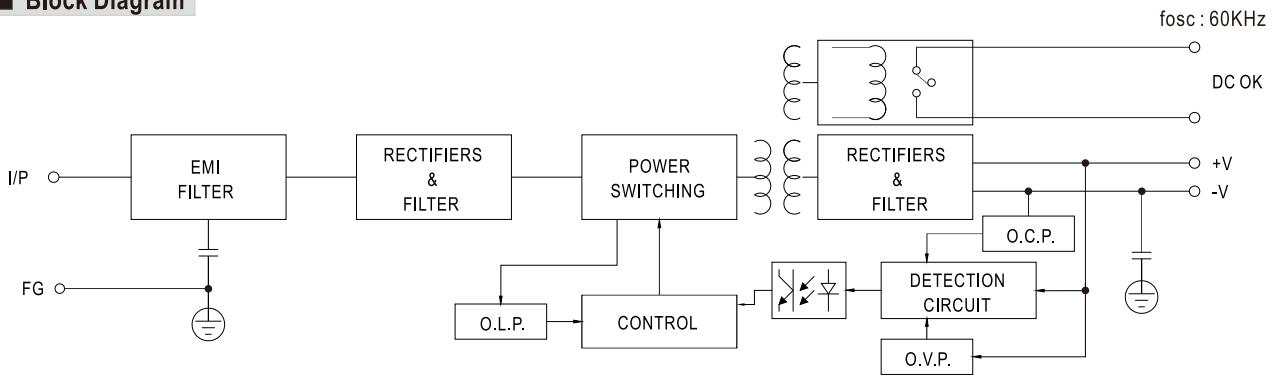
MODEL	MDR-40-5	MDR-40-12	MDR-40-24	MDR-40-48	
OUTPUT	DC VOLTAGE	5V	12V	24V	48V
	RATED CURRENT	6A	3.33A	1.7A	0.83A
	CURRENT RANGE	0 ~ 6A	0 ~ 3.33A	0 ~ 1.7A	0 ~ 0.83A
	RATED POWER	30W	40W	40.8W	39.8W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	120mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	5 ~ 6V	12 ~ 15V	24 ~ 30V	48 ~ 56V
	VOLTAGE TOLERANCE Note.3	± 2.0%	± 1.0%	± 1.0%	± 1.0%
	LINE REGULATION	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	LOAD REGULATION	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	SETUP, RISE TIME Note.5	500ms, 30ms/230VAC 500ms, 30ms/115VAC at full load			
HOLD UP TIME (Typ.)	50ms/230VAC 20ms/115VAC at full load				
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	78%	86%	88%	88%
	AC CURRENT (Typ.)	1.1A/115VAC 0.7A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC 60A/230VAC			
	LEAKAGE CURRENT	<1mA / 240VAC			
PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	6.25 ~ 7.25V	15.6 ~ 18V	31.2 ~ 36V	57.6 ~ 64.8V
		Protection type : Shut down o/p voltage, re-power on to recover			
FUNCTION	DC OK SIGNAL	Relay contact rating(max.): 30V/1A resistive			
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to "Derating Curve")			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 50°C)			
	VIBRATION	Component : 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ; Mounting : Compliance to IEC60068-2-6			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, UL60950-1, TUV EN60950-1 approved			
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C / 70% RH			
	EMC EMISSION	Compliance to EN55011, EN55022 (CISPR22), EN61204-3 Class B, EN61000-3-2,-3			
	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A			
OTHERS	MTBF	301.7K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	40*90*100mm (W*H*D)			
	PACKING	0.3Kg; 42pcs/13.6Kg/0.82CUFT			
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com) 5. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time. 				

Case No.962A Unit:mm

Mechanical Specification



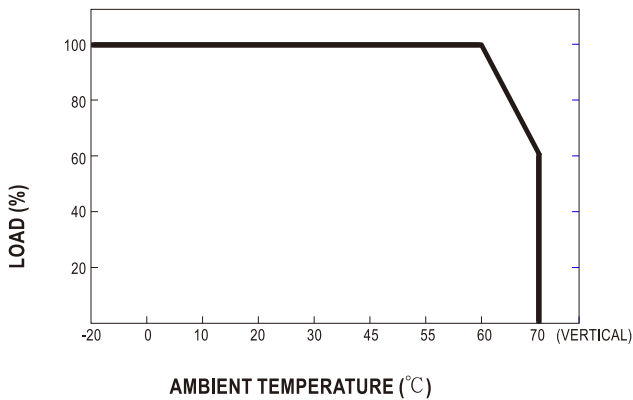
Block Diagram



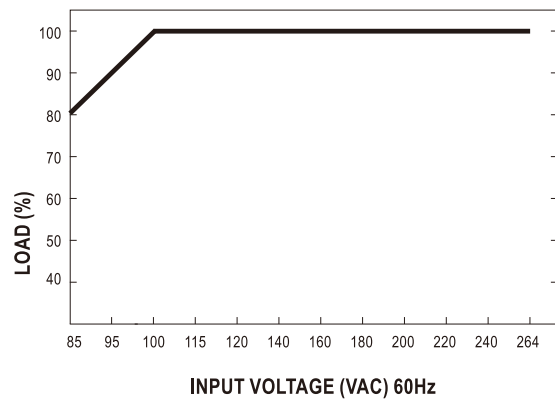
DC OK Relay Contact

Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

Derating Curve



Output Derating VS Input Voltage





■ Features :

- Universal AC input/Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Class I, Div 2 Hazardous Locations T4
- LED indicator for power on
- DC OK relay contact
- No load power consumption < 0.75W
- 100% full load burn-in test
- 3 years warranty

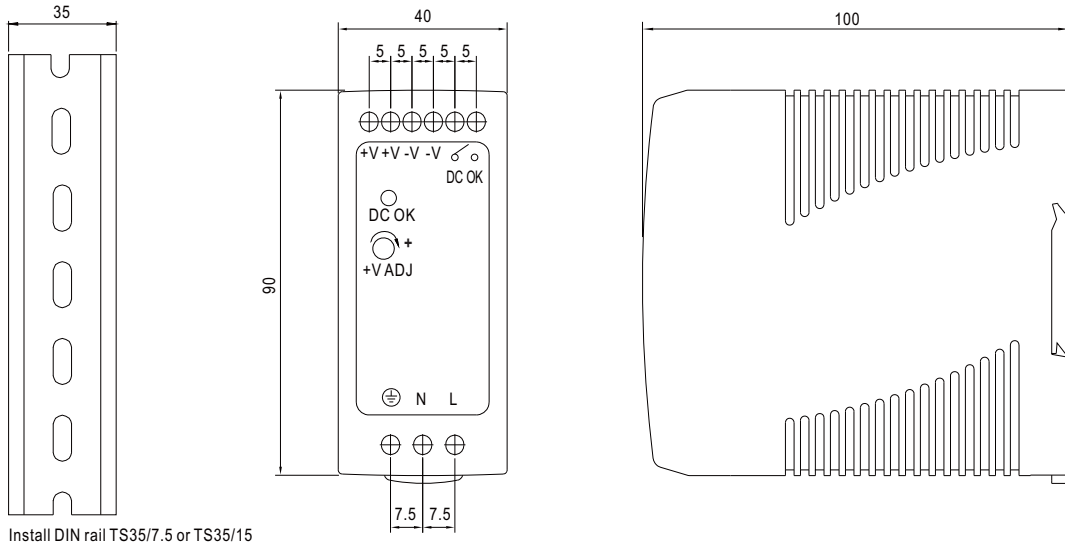


SPECIFICATION

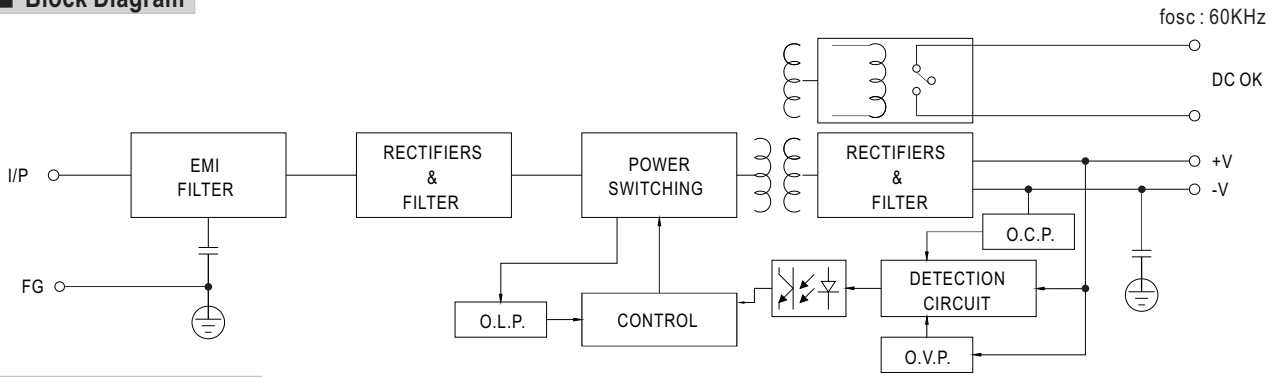
MODEL	MDR-60-5	MDR-60-12	MDR-60-24	MDR-60-48	
OUTPUT	DC VOLTAGE	5V	12V	24V	48V
	RATED CURRENT	10A	5A	2.5A	1.25A
	CURRENT RANGE	0 ~ 10A	0 ~ 5A	0 ~ 2.5A	0 ~ 1.25A
	RATED POWER	50W	60W	60W	60W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	120mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	5 ~ 6V	12 ~ 15V	24 ~ 30V	48 ~ 56V
	VOLTAGE TOLERANCE Note.3	± 2.0%	± 1.0%	± 1.0%	± 1.0%
	LINE REGULATION	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	LOAD REGULATION	± 1.5%	± 1.0%	± 1.0%	± 1.0%
	SETUP, RISE TIME Note.5	500ms, 30ms/230VAC 500ms, 30ms/115VAC at full load			
HOLD UP TIME (Typ.)	50ms/230VAC 20ms/115VAC at full load				
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	78%	86%	88%	87%
	AC CURRENT (Typ.)	1.8A/115VAC 1A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC 60A/230VAC			
	LEAKAGE CURRENT	<1mA / 240VAC			
PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	6.25 ~ 7.25V	15.6 ~ 18V	31.2 ~ 36V	57.6 ~ 64.8V
		Protection type : Shut down o/p voltage, re-power on to recover			
FUNCTION	DC OK SIGNAL	Relay contact rating(max.): 30V/1A resistive			
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to "Derating Curve")			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 50°C)			
	VIBRATION	Component : 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ; Mounting : Compliance to IEC60068-2-6			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, UL60950-1, TUV EN60950-1, Class I, Div. 2 Group A, B, C, D Hazardous Locations T4 approved			
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C / 70% RH			
	EMC EMISSION	Compliance to EN55011, EN55032 (CISPR32), EN61204-3 Class B, EN61000-3-2,-3			
	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A			
OTHERS	MTBF	299.2K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	40*90*100mm (W*H*D)			
	PACKING	0.33Kg; 42pcs/14.8Kg/0.82CUFT			
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)</p> <p>5. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.</p>				

Case No.962A Unit:mm

Mechanical Specification



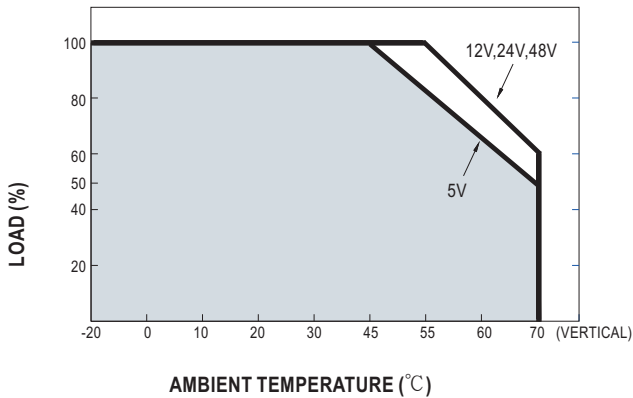
Block Diagram



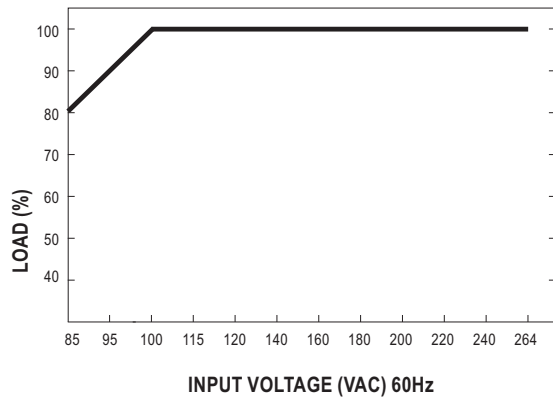
DC OK Relay Contact

Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

Derating Curve



Output Derating VS Input Voltage



DNR Series



- Up to 90% Efficiency
- Wide Adjustment Range
- Parallel Function
- DC Standby Versions
- Full Power from $-40\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$
- Connector Options
- 3 Year Warranty

Specification

Input

Input Voltage	<ul style="list-style-type: none"> • 90-132/180-264 VAC, auto select, 210-375 VDC (DNR120AS, DNR240PS) • 90-264 VAC, 120-375 VDC (DNR480PS)
Input Frequency	<ul style="list-style-type: none"> • 47-63 Hz
Input Current	<ul style="list-style-type: none"> • See tables
Inrush Current	<ul style="list-style-type: none"> • 24/48 A at 115/230 VAC (DNR120) • 30/60 A at 115/230 VAC (DNR240) • 25/50 A at 115/230 VAC (DNR480)
Power Factor	<ul style="list-style-type: none"> • 0.7 typical (DNR120, DNR240) • 0.9 typical (DNR480)
Earth Leakage Current	<ul style="list-style-type: none"> • 0.8 mA max
Input Protection	<ul style="list-style-type: none"> • T3.15A, 250 VAC (DNR120) • T6.3A, 250 VAC (DNR240) • T10A, 250 VAC (DNR480)

Output

Output Voltage	<ul style="list-style-type: none"> • See tables
Output Voltage Trim	<ul style="list-style-type: none"> • See tables
Initial Set Accuracy	<ul style="list-style-type: none"> • $\pm 1\%$
Minimum Load	<ul style="list-style-type: none"> • No minimum load required
Start Up Delay	<ul style="list-style-type: none"> • $< 1\text{ s}$ (may increase at low temperature extremes)
Start Up Rise Time	<ul style="list-style-type: none"> • $< 150\text{ ms}$
Hold Up Time	<ul style="list-style-type: none"> • 25/30 ms at 115/230 VAC
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max
Load Regulation	<ul style="list-style-type: none"> • $\pm 1\%$ ($\pm 5\%$ for units in parallel)
Parallel Operation	<ul style="list-style-type: none"> • A maximum of 3 units can be paralleled (not with standby system). Total power available is 90% of the rated current of each unit. Minimum load per unit 10%. Redundancy module DPM10 available for load currents up to 10 A, contact sales.
Transient Response	<ul style="list-style-type: none"> • 4% max deviation recovering to within 1% in 2 ms for a 50% load change
Ripple & Noise	<ul style="list-style-type: none"> • 50 mV pk-pk (DNR120) • 100 mV pk-pk (DNR240, DNR480) • 20 MHz bandwidth (may increase at low temperature extremes)
Overvoltage Protection	<ul style="list-style-type: none"> • Output clamps at 125-140% Vnom, auto recovery
Overload Protection	<ul style="list-style-type: none"> • 105-145% constant current, auto recovery
Temp. Coefficient	<ul style="list-style-type: none"> • $\pm 0.03\%/^{\circ}\text{C}$

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation	<ul style="list-style-type: none"> • 3000 VAC Input to Output • 1500 VAC Input to Ground • 500 VAC Output to Ground
Switching Frequency Signals	<ul style="list-style-type: none"> • See table • DC ON indicator Green LED, DC LOW indicator Red LED, DC OK: 24 V and standby models
MTBF	<ul style="list-style-type: none"> • 430 kHrs typical Bellcore, Issue 6 at $+40\text{ }^{\circ}\text{C}$, GB
DIN Rail	<ul style="list-style-type: none"> • Compatible with TS35/7.5 or TS35/15

Environmental

Operating Temperature	<ul style="list-style-type: none"> • DNR120: $-35\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+60\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-30\text{ }^{\circ}\text{C}$ • DNR240: $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+60\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-35\text{ }^{\circ}\text{C}$ • DNR480: $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$, derate linearly from $+55\text{ }^{\circ}\text{C}$ at $2.5\%/^{\circ}\text{C}$, start up at $-35\text{ }^{\circ}\text{C}$ (see derating curves)
Cooling	<ul style="list-style-type: none"> • Convection-cooled with 25mm free space all sides
Operating Humidity	<ul style="list-style-type: none"> • 20-95% RH, non-condensing
Storage Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
Shock	<ul style="list-style-type: none"> • 15 g, 11 ms, 3 axes, 6 faces, 3 shocks per face
Vibration	<ul style="list-style-type: none"> • 2 g, 10 Hz to 500 Hz, along X, Y & Z axis, 60 min/axis, mounted on rail

EMC & Safety

Emissions	<ul style="list-style-type: none"> • EN55022, class B conducted & radiated
Harmonic Currents	<ul style="list-style-type: none"> • EN61000-3-2, class A
Voltage Flicker	<ul style="list-style-type: none"> • EN61000-3-3
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 4 Perf Criteria A
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4, level 4 Perf Criteria A
Surge	<ul style="list-style-type: none"> • EN61000-4-5, installation class 3, Perf Criteria A
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6, level 3 Perf Criteria A
Magnetic Field	<ul style="list-style-type: none"> • EN61000-4-8, level 4 Perf Criteria A
Dips & Interruptions	<ul style="list-style-type: none"> • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms Perf Criteria A, A, B
Safety Approvals	<ul style="list-style-type: none"> • EN60950-1 UL508 UL60950-1, cUL60950-1 Pollution Degree 2, CE Mark, UL60950-1 Overvoltage Category II, UL508 Overvoltage Category III, ANSI/ISA 12.12.01. (Class 1, Division 2, Groups A,B,C and D)

Models and Ratings

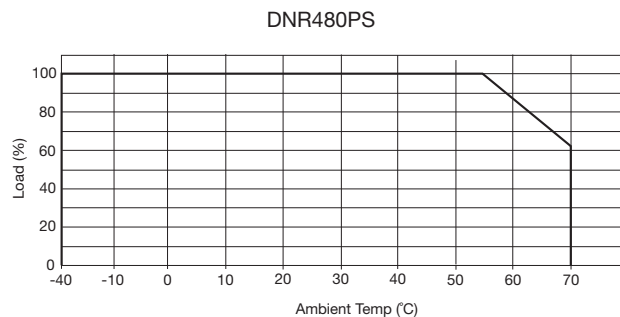
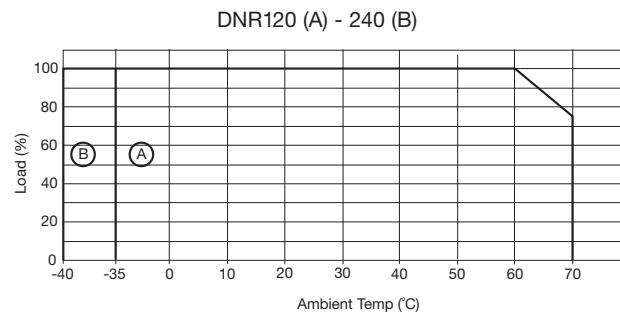
DNR120-480 XP

Output Voltage	Input Current (typ.)		Output Voltage Trim	Output Current	Efficiency (typ.)	Typical Switching Frequency	Model Number
	115 VAC	230 VAC					
12 V	2.20 A	0.83 A	11.4-14.5 V	10.0 A	84%	80 kHz	DNR120AS12-I ^(1,2)
24 V	2.20 A	0.83 A	22.5-28.5 V	5.0 A	86%	80 kHz	DNR120AS24-I ^(1,2)
48 V	2.20 A	0.83 A	45.0-55.0 V	2.5 A	87%	80 kHz	DNR120AS48-I ^(1,2)
24 V	4.00 A	1.55 A	22.5-28.5 V	10.0 A	89%	40 kHz	DNR240PS24-I ^(1,2)
48 V	4.00 A	1.55 A	47.0-56.0 V	5.0 A	90%	40 kHz	DNR240PS48-I ^(1,2)
24 V	4.90 A	2.50 A	22.5-28.5 V	20.0 A	89%	65 kHz	DNR480PS24-I ^(1,2)
48 V	4.90 A	2.50 A	47.0-56.0 V	10.0 A	90%	65 kHz	DNR480PS48-I ^(1,2)

Notes

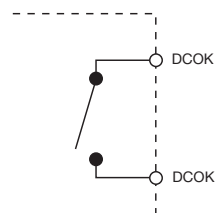
1. Add suffix 'D' for detachable connector option.
2. For DC standby, remove '-I' and add '#' to the end of the model number.

Derating Curves



DC OK

Volt free contact closed when voltage at unit output is within specification. In standby system configured as shown this voltage may be provided by the PSU or battery.



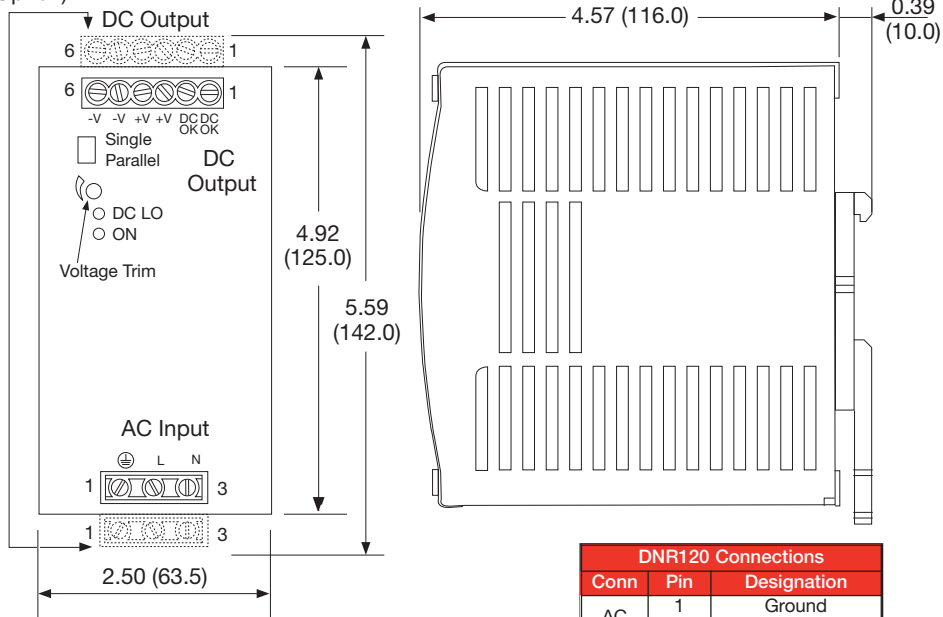
Open = Output fail
Closed = Output good

Contact Rating: 0.3 A at 60 VDC
500 VDC isolation

Mechanical Details

120 W Models

Optional detachable connector ('D' Option)



Notes

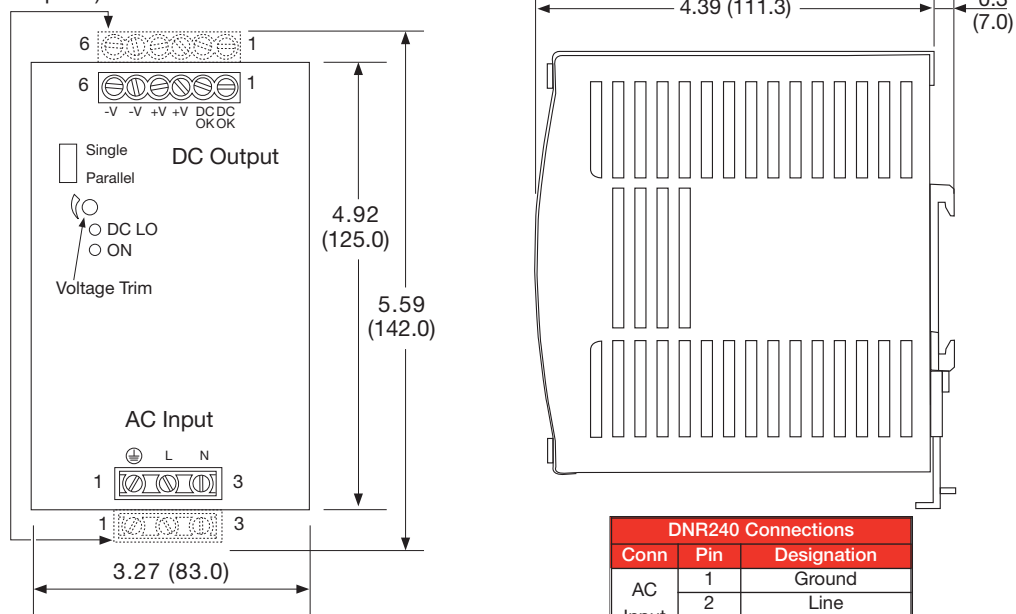
1. All dimensions in inches (mm).
2. Weight 2.0 lb (920 g) approx.
3. Tolerance: ± 0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

DNR120 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Line
	3	Neutral
DC Output	1	DC OK *
	2	DC OK *
	3	Positive
	4	Negative
	5	Negative
	6	Negative

* 24 V & standby models only.

240 W Models

Optional detachable connector ('D' Option)



Notes

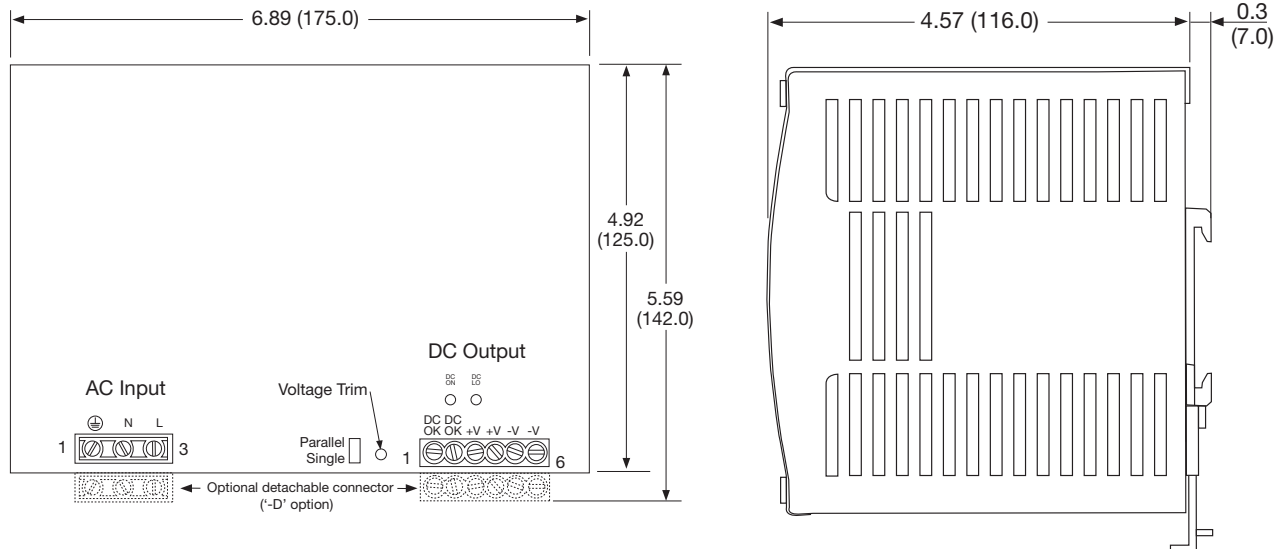
1. All dimensions in inches (mm).
2. Weight 3.0 lb (1360 g) approx.
3. Tolerance: ± 0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

DNR240 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Line
	3	Neutral
DC Output	1	DC OK*
	2	DC OK*
	3	Positive
	4	Positive
	5	Negative
	6	Negative

* 24 V & standby models only.

Mechanical Details

480 W Models



Notes

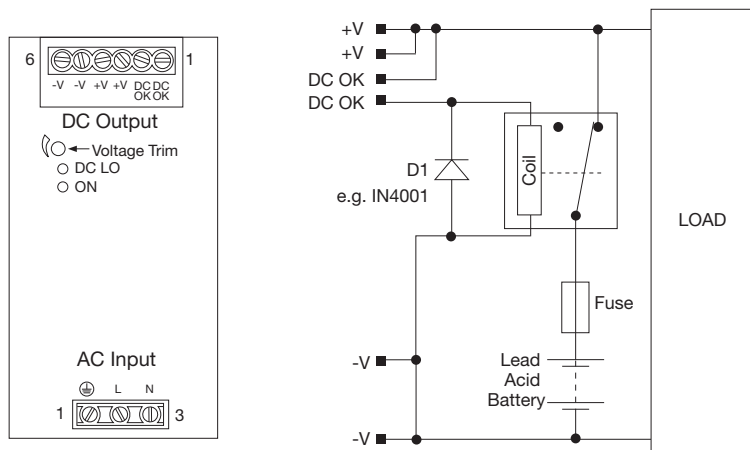
1. All dimensions in inches (mm).
2. Weight 4.2 lb (1920 g) approx.
3. Tolerance: ± 0.02 (0.5) maximum.
4. Screw terminal: 10-24 AWG cable size. Detachable connector version: 14-24 AWG cable size.
5. Connection screw maximum torque: Input: 9 lbs-in (1.0 Nm), Output: 5.5 lbs-in (0.6 Nm)

DNR480PS Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Neutral
	3	Line
DC Output	1	DC OK*
	2	DC OK*
	3	Positive
	4	Positive
	5	Negative
	6	Negative

* 24 V and standby models only.

Standby Versions

Maximum current drain from battery by PSU when inactive 22 mA.



DNR120-480 Connections					
Conn	Pin	Designation	Conn	Pin	Designation
AC Input	1	Ground	DC Output	1	DC OK
	2	Line		2	DC OK
	3	Neutral		3	Positive
			4	Positive	
			5	Negative	
			6	Negative	

Notes

1. Suffix # indicates DC standby version.
2. With AC in, unit provides power to the load and to charge the battery. The DC OK signal acts by sensing a voltage on +V and holds the relay closed.
3. With loss of AC in, battery voltage is present on +V. DC OK signal holds the relay closed. Battery supplies power to the load.
4. As the battery discharges, its voltage falls. When this falls below the level shown in the table the DC OK signal switches off to allow the relay to open to disconnect and protect the battery.

Output Set Voltages For Standby Versions				
Model ⁽¹⁾	Voltage	DC OK Signal Off	Current	DC OK Shutoff
DNR120AS12#	13.6 V	10.30-11.30 V	8.8 A	10.8 V $\pm 5\%$
DNR120AS24#	27.2 V	21.10-22.10 V	4.4 A	21.6 V $\pm 5\%$
DNR120AS48#	54.5 V	42.70-43.70 V	2.2 A	43.2 V $\pm 5\%$
DNR240PS24#	27.2 V	21.10-22.10 V	8.8 A	21.6 V $\pm 5\%$
DNR240PS48#	54.5 V	42.70-43.70 V	4.4 A	43.2 V $\pm 5\%$
DNR480PS24#	27.2 V	21.10-22.10 V	17.6 A	21.6 V $\pm 5\%$
DNR480PS48#	54.5 V	42.70-43.70 V	8.8 A	43.2 V $\pm 5\%$