

DNR Series



- High Efficiency
- Rugged Design for Industrial Applications
- Wide Adjustment Range
- DC OK 24 V Models
- Optional Parallel Function
- Connector Options
- Full Power to 60 °C

Specification

Input

Input Voltage	<ul style="list-style-type: none"> • 90-264 VAC • 93-132/186-264 VAC: switch-selectable 120 W models and auto-ranging 240 W models • 120-370 VDC: 5-60 W • 210-370 VDC: 120-240 W
Input Frequency	<ul style="list-style-type: none"> • 47-63 Hz
Inrush Current	<ul style="list-style-type: none"> • 5-18 W: 10/18 A at 115/230 VAC • 30 W: 20/40 A at 115/230 VAC • 60 W: 30/60 A at 115/230 VAC • 120 W: 24/48 A at 115/230 VAC • 240 W: 30/60 A at 115/230 VAC
Power Factor	<ul style="list-style-type: none"> • Meets EN61000-3-2 for class A equipment
Earth Leakage Current	<ul style="list-style-type: none"> • 0.8 mA max

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"> • <1000 ms
Start Up Rise Time	<ul style="list-style-type: none"> • <150 ms
Hold Up Time	<ul style="list-style-type: none"> • 5 W: 30/130 ms at 115/230 VAC • 10 W: 25/100 ms at 115/230 VAC • 18 W: 20/75 ms at 115/230 VAC • 30 W: 20/30 ms at 115/230 VAC • 60 W: 20/30 ms at 115/230 VAC • 120 & 240 W: 25/30 ms at 115/230 VAC
Line Regulation	<ul style="list-style-type: none"> • $\pm 1\%$ max
Load Regulation	<ul style="list-style-type: none"> • $\pm 2\%$ max ($\pm 5\%$ for units in parallel, 120 & 240 W models - see note 1)
Transient Response	<ul style="list-style-type: none"> • 300 μs for a 50% load change
Ripple & Noise	<ul style="list-style-type: none"> • 100 mV pk-pk. 20 MHz BW
Overvoltage Protection	<ul style="list-style-type: none"> • Output clamps at 120-145% Vnom
Overload Protection	<ul style="list-style-type: none"> • 105-145% constant current
Short Circuit Protection	<ul style="list-style-type: none"> • 5-18 W: Trip and restart (Hiccup mode) • 30-240 W: Constant power / constant current
Temperature Coefficient	<ul style="list-style-type: none"> • $\pm 0.03\%$ / °C

General

Efficiency	<ul style="list-style-type: none"> • See tables
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"> • 100 KHz typical
Signals	<ul style="list-style-type: none"> • DC ON indicator LED Green: All models • DC LOW indicator LED Red: 5-18, 120 & 240 W models • DC OK: 24 V 30-240 W models
MTBF	<ul style="list-style-type: none"> • 200 kHrs typical per MIL-HDBK-217F GF, 40 °C

Environmental

Operating Temperature	<ul style="list-style-type: none"> • -10 °C to +70 °C, derate linearly from 60 °C at 2.5% / °C (3.0% / °C for 5-18 W models) see derating curves
Cooling	<ul style="list-style-type: none"> • Convection-cooled
Operating Humidity	<ul style="list-style-type: none"> • 20-95% RH, non-condensing
Storage Temperature	<ul style="list-style-type: none"> • -25 °C to +85 °C
Shock	<ul style="list-style-type: none"> • 4 G, 22 ms, X, Y & Z axis
Vibration	<ul style="list-style-type: none"> • 1 G, 10 Hz to 500 kHz, along X, Y & Z axis

EMC & Safety

Emissions	<ul style="list-style-type: none"> • EN55022, level B conducted
Harmonic Currents	<ul style="list-style-type: none"> • EN61000-3-2, class A
Voltage Flicker	<ul style="list-style-type: none"> • EN61000-3-3 amendments 1 & 2
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 3 Perf Criteria B*
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 3 Perf Criteria B*
Surge	<ul style="list-style-type: none"> • EN61000-4-5, level 3 Perf Criteria B*
Dips & Interruptions	<ul style="list-style-type: none"> • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms Perf Criteria A, B, B
Safety Approvals	<ul style="list-style-type: none"> • EN60950, UL508, CE Mark, for models approved to UL1310 - see note 6

*DNR120 Level 2

Models and Ratings

Output Voltage	Output Voltage Trim	Current	Typical Efficiency	Model Number
5.0 V	4.5-5.75 V	1.00 A	69%	DNR05US05 ^(6,4)
12.0 V	10.8-13.8 V	0.42 A	72%	DNR05US12 ^(6,4)
15.0 V	13.5-17.25 V	0.34 A	72%	DNR05US15 ^(6,4)
24.0 V	21.6-28.8 V	0.21 A	72%	DNR05US24 ^(6,4)
5.0 V	4.5-5.75 V	2.00 A	73%	DNR10US05 ^(6,4)
12.0 V	10.8-13.8 V	0.84 A	75%	DNR10US12 ^(6,4)
15.0 V	13.5-17.25 V	0.67 A	76%	DNR10US15 ^(6,4)
24.0 V	21.6-28.8 V	0.42 A	76%	DNR10US24 ^(6,4)
5.0 V	4.5-5.75 V	3.00 A	75%	DNR18US05 ^(6,4)
12.0 V	10.8-13.8 V	1.50 A	77%	DNR18US12 ^(6,4)
15.0 V	13.5-17.25 V	1.20 A	77%	DNR18US15 ^(6,4)
24.0 V	21.6-28.8 V	0.75 A	77%	DNR18US24 ^(6,4)
5.0 V	5.0-5.5 V	6.00 A	79%	DNR30US05 ⁽⁴⁾
12.0 V	12.0-14.0 V	2.50 A	84%	DNR30US12 ^(6,4)
24.0 V	24.0-28.0 V	1.25 A	86%	DNR30US24 ^(6,4)
48.0 V	48.0-55.0 V	0.625 A	86%	DNR30US48 ^(6,4)
5.0 V	5.0-5.5 V	10.00 A	79%	DNR60US05 ⁽⁴⁾
12.0 V	12.0-14.0 V	5.00 A	86%	DNR60US12 ⁽⁴⁾
24.0 V	24.0-28.0 V	2.50 A	89%	DNR60US24 ^(6,4)
48.0 V	48.0-55.0 V	1.25 A	89%	DNR60US48 ^(6,4)
12.0 V	11.4-14.5 V	10.00 A	84%	DNR120LS12 ^(1,2,3)
24.0 V	22.5-30.0 V	5.00 A	86%	DNR120LS24 ^(1,2,3)
48.0 V	45.0-55.0 V	2.50 A	87%	DNR120LS48 ^(1,2,3)
24.0 V	22.5-28.5 V	10.00 A	89%	DNR240PS24-I ⁽³⁾
48.0 V	47.0-56.0 V	5.00 A	90%	DNR240PS48-I ⁽³⁾

Notes

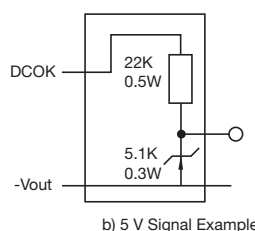
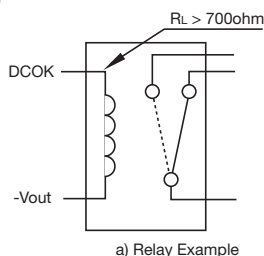
1. Add suffix '-I' to DNR120 model number for parallel function, (240 W models have parallel function as standard). A maximum of 3 units can be paralleled. Total power available is 90% of the rated current of each unit.
2. Replace 'L' in the model number with 'P' for PFC input, e.g. DNR120PS12-I.
3. Add suffix '-D' for detachable connector option - available on 120 & 240 W models only.
4. Add suffix '-S' for spring clamp option on 5-60 W models.
5. 30-240 W models are suitable for battery-charging applications.
6. Approved to UL1310.

DC OK

30-60 W Models

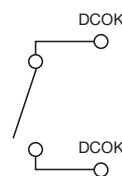
Output good = 24 V

Output not good = 0 V



120-240 W Models

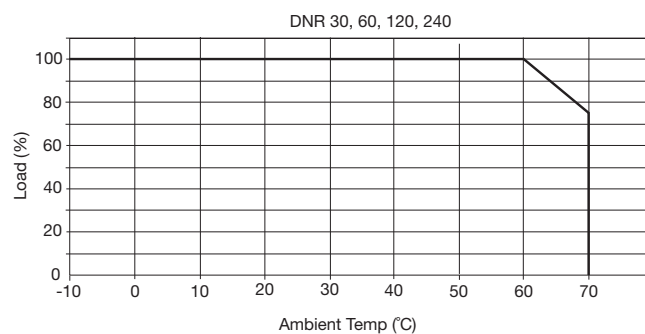
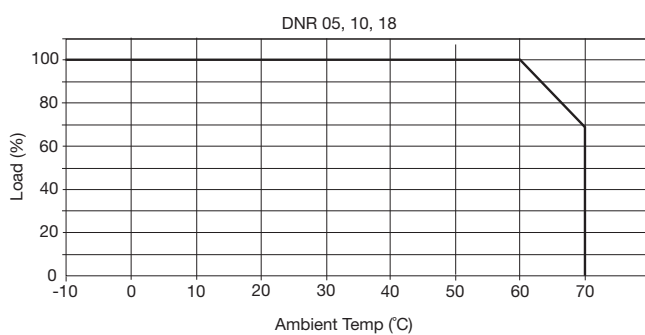
- volt free contact normally open



Open = Output fail
Closed = Output good

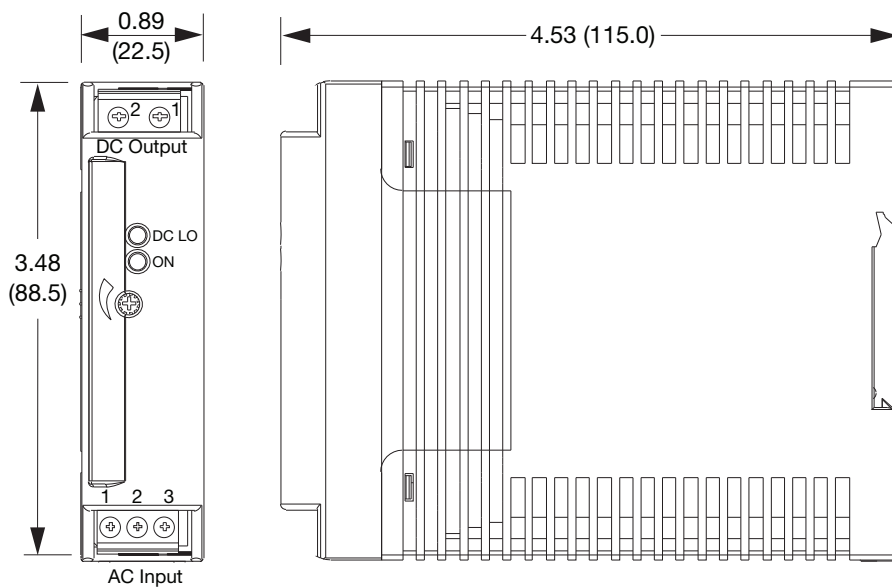
Available on 24 V models, 30-240 W only.

Derating Curves



Mechanical Details

5, 10, 18 W Models

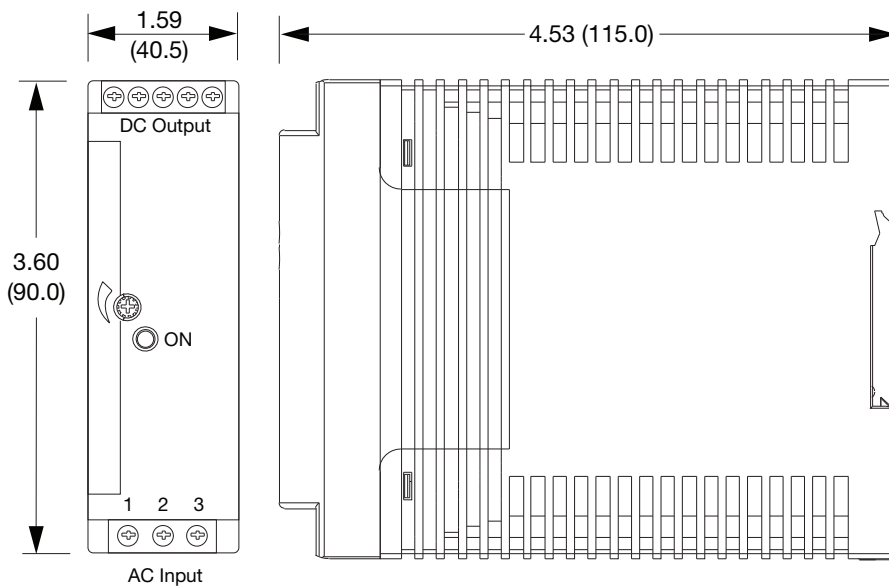


DNR05, 10, 18 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Neutral
	3	Line
DC Output	1	Positive
	2	Negative

Notes

- 1. All dimensions in inches (mm).
- 2. Weight 0.33 lb (150 g) approx.

30/60 W Models



DNR30/60 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Neutral
	3	Line
DC Output	1	DC OK*
	2	Positive
	3	Positive
	4	Negative
	5	Negative

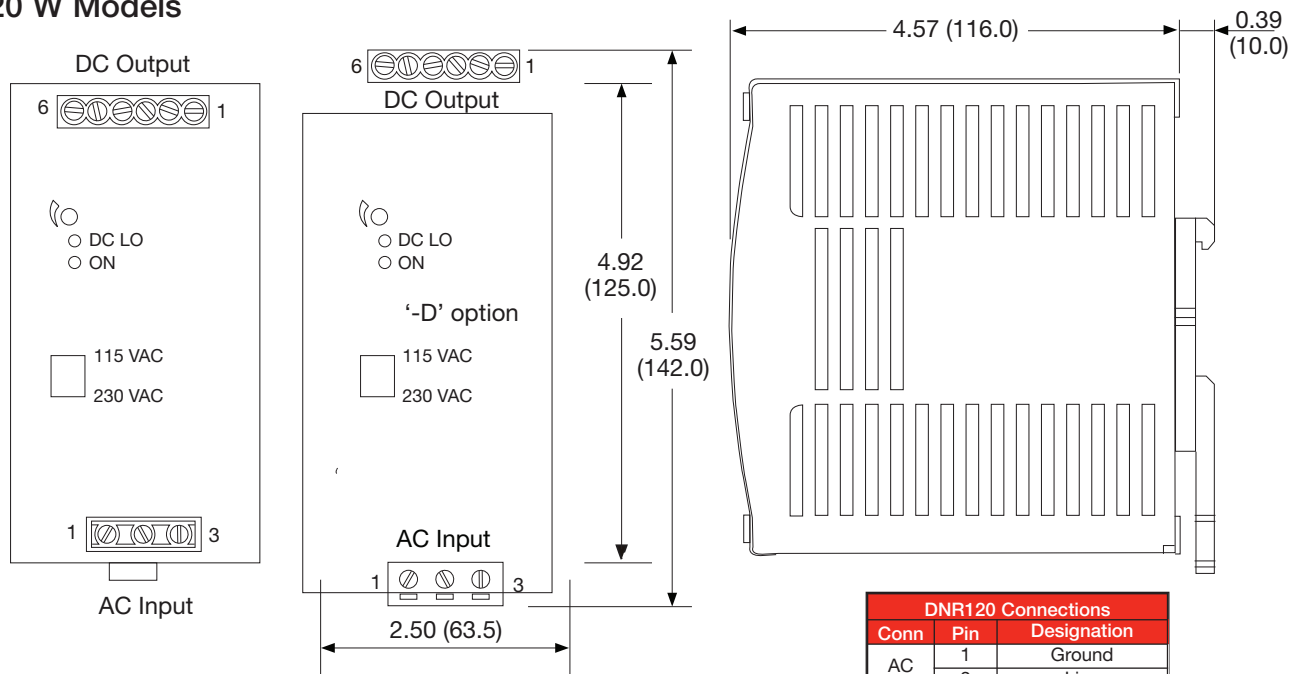
Notes

- 1. All dimensions in inches (mm).
- 2. Weight 0.6 lb (275 g) approx.

* 24 V models only.

Mechanical Details

120 W Models



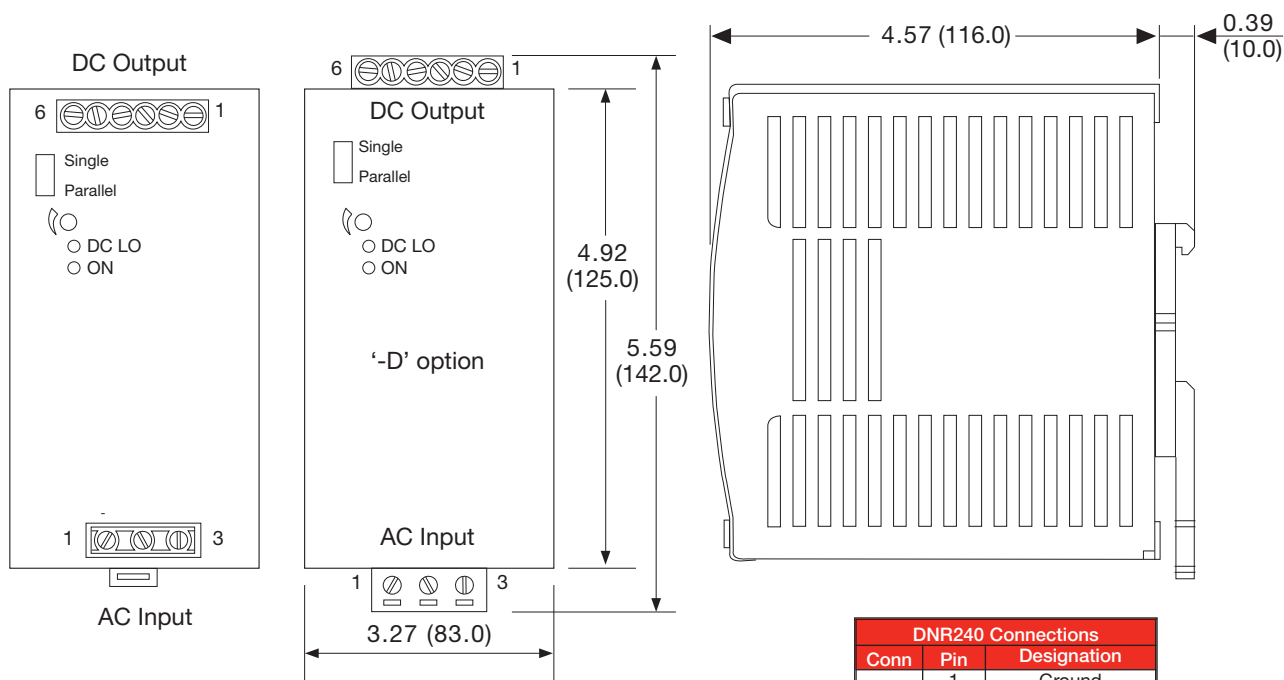
DNR120 Connections		
Conn	Pin	Designation
AC Input	1	Ground
	2	Line
	3	Neutral
DC Output	1	DC OK *
	2	DC OK *
	3	Positive
	4	Positive
	5	Negative
	6	Negative

* 24 V models only.

Notes

1. All dimensions in inches (mm).
2. Weight 1.4 lb (630 g) approx.

240 W Models



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 models only.

Notes

1. All dimensions in inches (mm).
2. Weight 3.0 lb (1360 g) approx.