LRS-100N2 series

100W Single Output High Peak Power Supply

User's Manual
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CNS15598-1 | IS 13252 (except for 48V) | Note.5 | GB 4943.1 | UL62368-1 | EN61558-1, EN61558-2-16, EN62368-1, EN60335-1 | TP TC004 | IEC62368-1, IEC61558-1, IEC61558-2-16, IEC60335-1

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Features

- Universal AC input / Full range
- Withstand 300VAC surge input for 5 second
- Up to 200% peak power capability
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Miniature size and 1U low profile
- Compliance to IEC/BS EN/EN61558-1 and 62368-1
- Operating altitude up to 4000 meters
- Withstand 5G vibration test
- LED indicator for power on
- No load power consumption<0.5W
- Over voltage category Ⅲ(OVC Ⅲ)
- High operating temperature up to 70℃
- High efficiency, long life and high reliability
- 3 years warranty

Applications

- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus
- For inductive and capacitive load

GTIN CODE

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Description

LRS-100N2 series is a 100W single-output enclosed type power supply with 30mm of low profile design. Adopting the full range 85~264VAC input, the entire series provides an output voltage line of 12V, 24V, 36V and 48V. In addition to the high efficiency up to 90.5%, the design of metallic mesh case enhances the heat dissipation of LRS-100N2 that the whole series operates from -30℃ through 70℃ under air convection without a fan. Delivering an extremely low no load power consumption (less than 0.5W), it allows the end system to easily meet the worldwide energy requirement. LRS-100N2 has the complete protection functions and 5G anti-vibration capability; it is complied with the international safety regulations such as TUV BS EN/EN62368-1, BS EN/EN61558-1/-2-16, UL62368-1, BS EN/EN60335-1 and GB4943. LRS-100N2 series serves as a high price-to-performance power supply solution for various industrial applications. Moreover, LRS-100N2 can provide 200% short-duration peak power for motor applications and electromechanical loads requiring much higher power during start-up.

Model Encoding

LRS - 100 N2 - 24

- 24 → Output voltage(12/24/36/48V)
- N2 → 2 times peak power
- 100 → Output power
- LRS → Series name

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SPECIFICATION

MODEL		LRS-100N2-12	LRS-100N2-24	LRS-100N2-36	LRS-100N2-48
OUTPUT	DC VOLTAGE	12V	24V	36V	48V
	RATED CURRENT	8.5A	4.2A	2.8A	2.1A
	CURRENT RANGE	0 ~ 8.5A	0 ~ 4.2A	0 ~ 2.8A	0 ~ 2.1A
	RATED POWER	102W	100.8W	100.8W	100.8W
	RIPPLE & NOISE (max.) Note.2	120mVp-p	150mVp-p	200mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	10.2 ~ 13.8V	21.6 ~ 28.8V	32.4 ~ 39.6V	43.2 ~ 52.8V
	VOLTAGE TOLERANCE	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	500ms, 30ms/230VAC 500ms,30ms/115VAC at full load			
	HOLD UP TIME (Typ.)	55ms/230VAC 10ms/115VAC at full load			
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 373VDC (Withstand 300VAC surge for 5sec. Without damage)			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	88%	90%	90%	90.5%
	AC CURRENT (Typ.)	2.1A/115VAC 1.2A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 55A/230VAC			
	LEAKAGE CURRENT	<0.75mA / 240VAC			
PROTECTION	OVER LOAD	Output power >105% rated for more than 5 seconds then shut down o/p voltage, re-power on to recover			
		Ouput power >200% rated, hiccup mode, recovers automatically after fault condition is removed			
	OVER VOLTAGE	13.8 ~ 16.2V	28.8 ~ 33.6V	41.4 ~ 48.6V	55.2 ~ 64.8V
		Protection type : Shut down o/p voltage, re-power on to recover			
ENVIRONMENT	WORKING TEMP.	-30 ~ +70℃ (Refer to "Derating Curve")			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH non-condensing			
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)			
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes			
	OVER VOLTAGE CATEGORY	Ⅲ: IEC/BS EN/EN61558-1/-2-16 4000 meters approved, Compliance to BS EN/EN60664-1, BS EN/EN62477-1, altitude up to 4000 meters Ⅱ: UL 62368-1, TUV BS EN/EN62368-1, IEC62368-1 approved, altitude up to 5000 meters; TUV BS EN/EN60335-1, IEC 60335-1 approved, altitude up to 4000 meters			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	CB: IEC62368-1, IEC61558-1, IEC61558-2-16, IEC60335-1 TUV: BS EN/EN62368-1, BS EN/EN61558-1/-2-16, BS EN/EN60335-1 UL: UL62368-1 CQC: GB4943.1 BSMI: CNS15598-1 EAC: TP TC 004, S/NZS62368.1(by CB) BIS: IS 13252(Part1):2010/IEC 60950-1:2005(except for 48V) RCM: Designed refer to AS/NZS 61558.1/2.16, AS/NZS62368.1			
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC I/P-FG:2KVAC O/P-FG:1.25KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH			
	EMC EMISSION	Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN55014, BS EN/EN61000-3-2 Class A(≤80% Load), BS EN/EN61000-3-3, BSMI CNS15936, EAC TP TC 020			
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN61000-6-2 (BS EN/EN50082-2),BS EN/EN55035, heavy industry level, EAC TP TC 020			
OTHERS	MTBF	2802.6K hrs min. Telcordia SR-332 (Bellcore) ; 536.6Khrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	129*97*30mm (L*W*H)			
	PACKING	0.35Kg ; 40pcs/15Kg/0.92CUFT			

NOTE

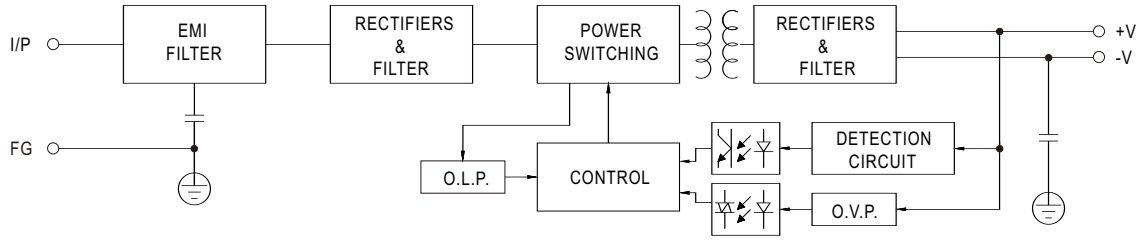
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time.
4. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. 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 https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)
5. RCM is on voluntary basis and meets relevant IEC or AS/NZS standards complying with AS/NZS 4417.1.

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

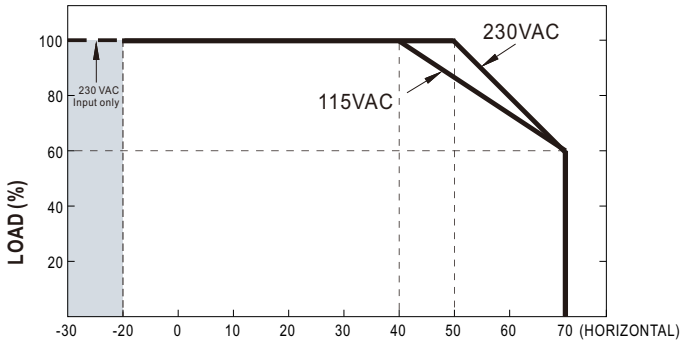
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■ Block Diagram

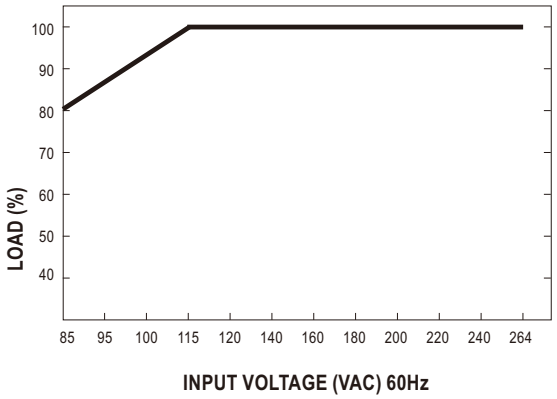
fosc : 65KHz



■ Derating Curve



■ Static Characteristics



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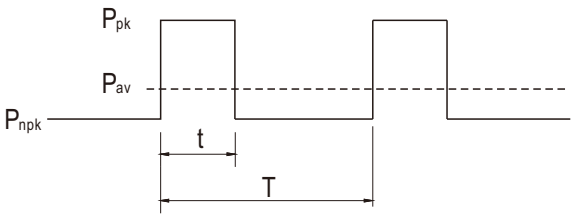
■ Function Manual

1.Peak Power

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leqslant P_{rated}$$

$$Duty = \frac{t}{T} \times 100\% \leqslant 35\%$$

$t \leqslant 5$ sec



P_{av} : Average output power (W)

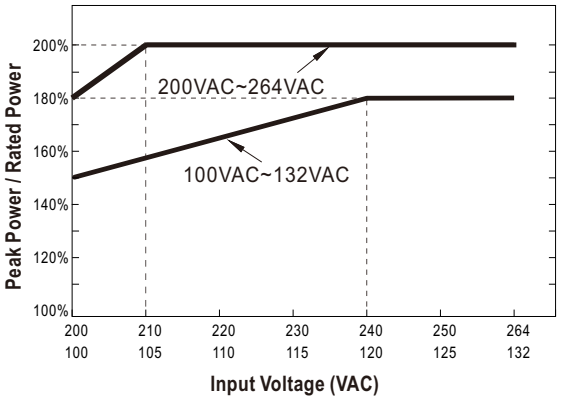
P_{pk} : Peak output power (W)

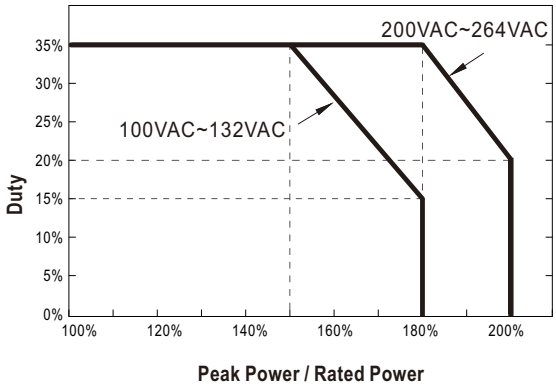
P_{npk} : Non-peak output power (W)

P_{rated} : Rated output power (W)

t : Peak power width (sec)

T : Period (sec)





For example (24 model)

V_{in}=220VAC, Duty_max=10%

$P_{av}=P_{rated}$=100W

P_{pk}=200W

t≤5sec

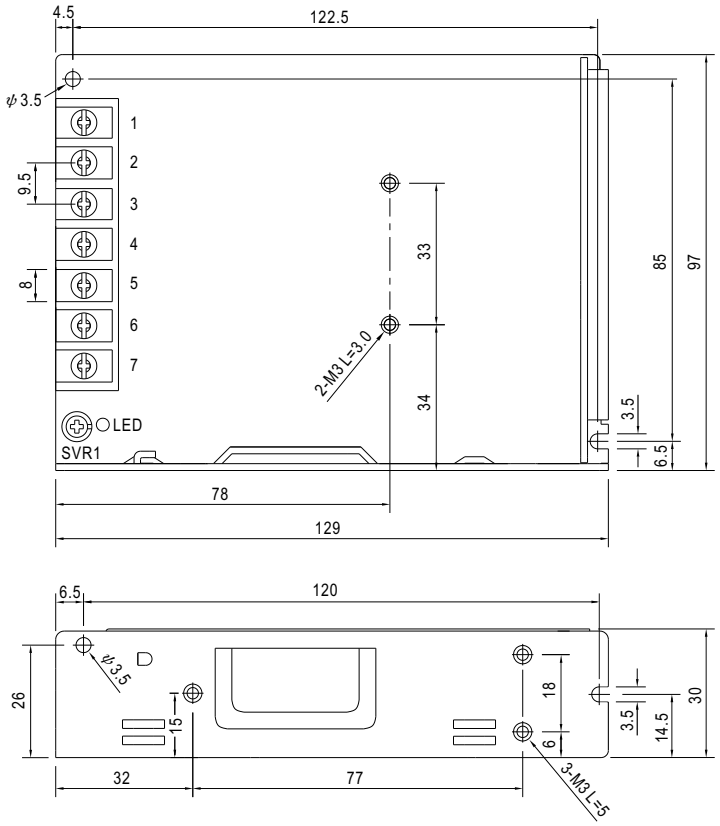
$$T \geq \frac{5sec}{10\%} = 50sec$$

$$P_{npk} \leq \frac{TP_{av}-tP_{pk}}{T-t} = 89.6W$$

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■ Mechanical Specification

Case No.238A Unit:mm Tolerance:±1



Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	4,5	DC OUTPUT -V
2	AC/N	6,7	DC OUTPUT +V
3	FG ⏚		

■ Installation Manual

Please refer to : http://www.meanwell.com/manual.html

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