MEAN WELL NSP-3200 Series 3200W Power Supply with Single Output Instruction Manual

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UL62368-1 BS EN/EN62368-1 TPTC004 IEC62368-1

Preliminary
3200W Power Supply with Single OutputPreliminary
NSP-3200 series

Contents

NSP-3200 Series 3200W Power Supply with Single Output

Dimension
L …….. W ……H
325.8 * ……107…… 41 (1U) mm
12.8 * ……..4.21 ……..1.61(1U) inch

Features

- Universal AC input / Full range
- Built-in active PFC function
- High efficiency up to 94.5%
- Forced air cooling by built-in DC fan
- Output voltage level programmable
- Protections: Short circuit / Overload / Over voltage /Over temperature
- Design refer to SEMI F47
- Optional conformal coating
- 5 years warranty

Description

NSP-3200 is a 3.2KW single output enclosed type AC/DC power supply with 1U low profile and a high power density up to 37W/inch’. This series operates for 90-264VAC input voltage and offers the models with the DC output mostly demanded by the industry. Each model is cooled by the thermostatically controlled fan. Moreover, NSP-3200 provides vast design flexibility by equipping various built-in functions such as output programming, remote ON-OFF control, auxiliary power, and etc.

Applications

- Factory control or automation apparatus
- Test and measurement instrument

- Laser related machine
- Aging facility
- Digital broadcasting
- Constant current source

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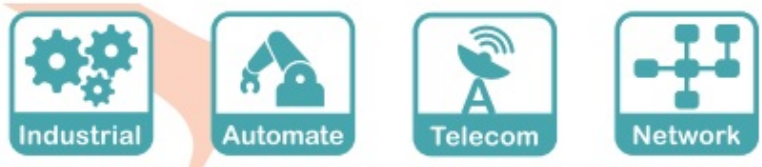
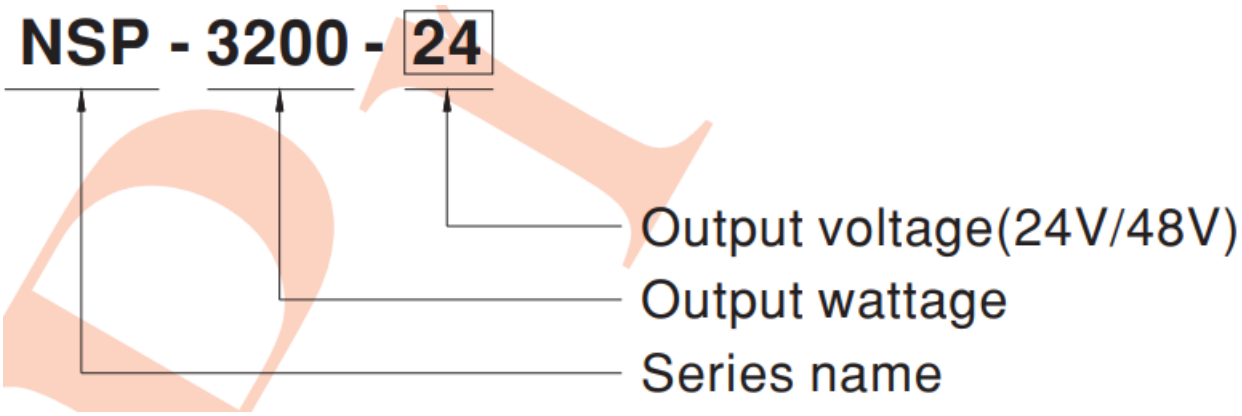


Model Encoding / Order Information



SPECIFICATION

MODEL		NSP-3200-24	NSP-3200-48
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	133A	67A
	CURRENT RANGE	0 ~ 133A	0 ~ 67A
	RATED POWER	3192W	3216W
	RIPPLE & NOISE (max.) Note.2,3	300mVp-p	480mVp-p
	VOLTAGE ADJ. RANGE	23.5 ~ 30V	47.5 ~ 58.8V
	VOLTAGE TOLERANCE Note.4	±1.0%	±1.0%

	LINE REGULATION		±0.5%	±0.5%
	LOAD REGULATION		±0.5%	±0.5%
	SETUP, RISE TIME		1500ms, 60ms/230VAC at full load	
	HOLD UP TIME (Typ.)		16ms / 230VAC at 70% load 8ms/230VAC at full load	
INPUT	**VOLTAGE RANGE Note.5**		90 ~ 264VAC 127 ~ 370VDC	
	FREQUENCY RANGE		47 ~ 63Hz	
	POWER FACTOR (Typ.)		0.97/230VAC at full load	
	EFFICIENCY (Typ.) Note.6		93.5%	94.5%
	AC CURRENT (Typ.)	**Note.5**	17A/230VAC	
	INRUSH CURRENT (Typ.)		COLD START 55A/230VAC	
	LEAKAGE CURRENT		<2mA / 230VAC	

PROTECTION	**OVERLOAD**	105 ~ 115% rated output power	
		Protection type : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover	
	OVER VOLTAGE	31.5 ~ 37.5V	63 ~ 75V
		Protection type : Shut down o/p voltage, re-power on to recover	
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	**OUTPUT VOLTAGE PROGRAMMABLE(PV)**	Adjustment of output voltage is allowable to 50 ~ 125% of nominal output voltage Please refer to the Function Manual in following pages	
	REMOTE ON-OFF CONTROL	By electrical signal or dry contact Power ON:short Power OFF:open. Please refer to the Function Manual in following pages	
	REMOTE SENSE	Compensate voltage drop on the load wiring up to 0.5V. Please refer to the Function Manual in following pages	
	AUXILIARY POWER	12V @ 0.8A, tolerance ±10%, ripple 450mVp-p	
	ALARM SIGNAL	Isolated TTL signal output for T-Alarm and DC-OK. Please refer to the Function Manual in following pages	

<table>
<tr><td rowspan="5">ENVIRONMENT</td><td>WORKING TEMP.</td><td colspan="3">-20 ~ +70°C (Refer to “Derating Curve”)</td></tr>
<tr><td>WORKING HUMIDITY</td><td colspan="3">20 ~ 90% RH non-condensing</td></tr>
<tr><td>STORAGE TEMP., HUMIDITY</td><td colspan="3">-40 ~ +85°C, 10 ~ 95% RH non-condensing</td></tr>
<tr><td>TEMP. COEFFICIENT</td><td colspan="3">±0.03%/°C (0 ~ 50°C)</td></tr>
<tr><td>VIBRATION</td><td colspan="3">10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes</td></tr>
<tr><td rowspan="5"></td><td>SAFETY STANDARDS</td><td colspan="3">UL62368-1, CSA C22.2 No. 62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved</td></tr>
<tr><td>WITHSTAND VOLTAGE</td><td colspan="3">I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC</td></tr>
<tr><td>ISOLATION RESISTANCE</td><td colspan="3">I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C/ 70% RH</td></tr>
<tr><td rowspan="5">EMC EMISSION</td><td>Parameter</td><td>Standard</td><td>Test Level / Note</td></tr>
<tr><td>Conducted</td><td>BS EN/EN55032 (CISPR32)</td><td>Class B</td></tr>
<tr><td>Radiated</td><td>BS EN/EN55032 (CISPR32)</td><td>Class A</td></tr>
<tr><td>Harmonic Current</td><td>BS EN/EN61000-3-2</td><td>—</td></tr>
<tr><td colspan="3"></td></tr>
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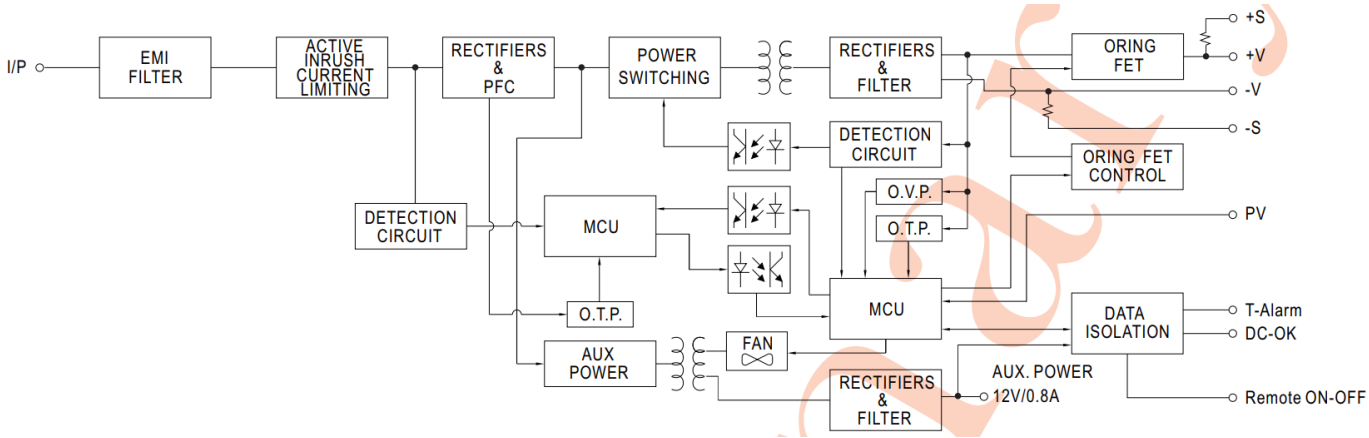
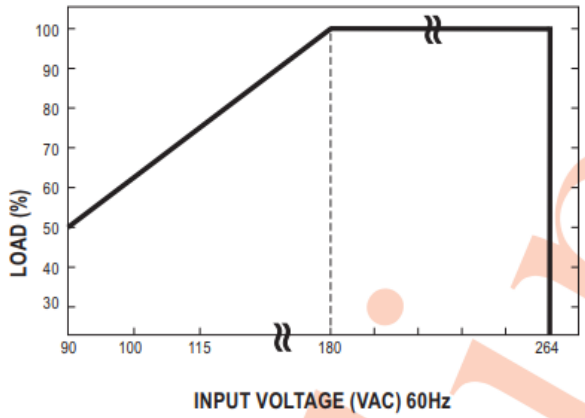
SAFETY & EMC (Note 8)		Voltage Flicker	BS EN/EN61000-3-3	──
	EMC IMMUNITY	BS EN/EN55024, BS EN/EN61000-6-2, design refer to SEMI F47		
		Parameter	**Standard**	**Test Level / Note**
		ESD	BS EN/EN61000-4-2	Level 3, 8KV air ; Level 2, 4KV contact
		Radiated	BS EN/EN61000-4-3	Level 3
		EFT / Burst	BS EN/EN61000-4-4	Level 3
		Surge	BS EN/EN61000-6-2	2KV/Line-Line 4KV/ Line-Earth
		Conducted	BS EN/EN61000-4-6	Level 3
		Magnetic Field	BS EN/EN61000-4-8	Level 4
		Voltage Dips and Interruptions	BS EN/EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods,>95% interruptions 250 periods
OTHERS	**MTBF**	K hrs min.Telcordia SR-332 (Bellcore) ; K hrs min.	MIL-HDBK-217F (25°C)	
	DIMENSION	325.8*107*41mm (L*W*H)		

	PACKING	Kg
NOTE	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.Under variable load application or parallel operation ripple of the output voltage may be higher than the SPEC at light load condition. It will go back to normal ripple level once the output load is more than 5%. 4. Tolerance : includes set up tolerance, line regulation and load regulation. 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 6. The efficiency is measured at 75% load. 7. If use PV signal to adjust Vo, under certain operating conditions, ripple noise of Vo might slightly go over rating defined in this specification. 8. 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 600mm*900mm 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 http://www.meanwell.com) 9. 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). ※ Product Liability Disclaimer For detailed information, please refer to **https://www.meanwell.com/serviceDisclaimer.aspx**	

BLOCK DIAGRAM



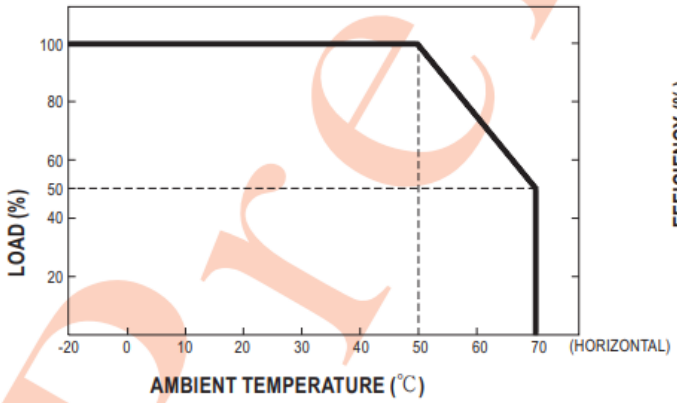
■ STATIC CHARACTERISTICS



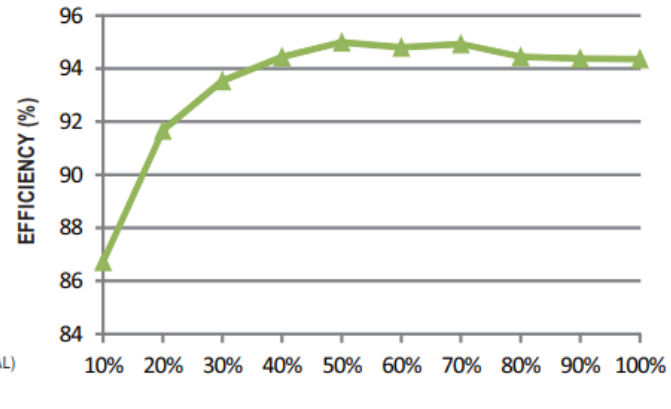
■ DERATING LOADs vs INPUT VOLTAGE

INPUT \ MODEL	24V	48V
180~264VAC	3192W 133A	3216W 67A
90VAC	1596W 66.5A	1608W 33.5A

■ DERATING CURVE



■ EFFICIENCY vs LOAD (48V MODEL)



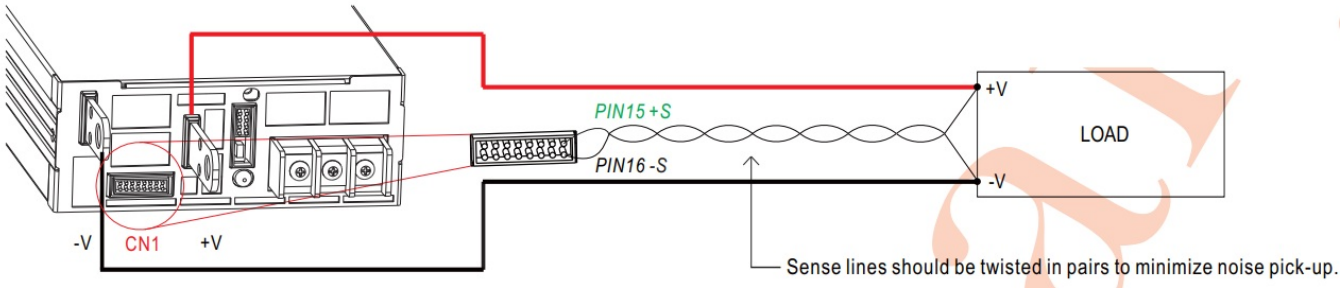
◎ The curve above is measured at 230VAC.

FUNCTION MANUAL

1. Voltage Drop Compensation

1.1 Remote Sense

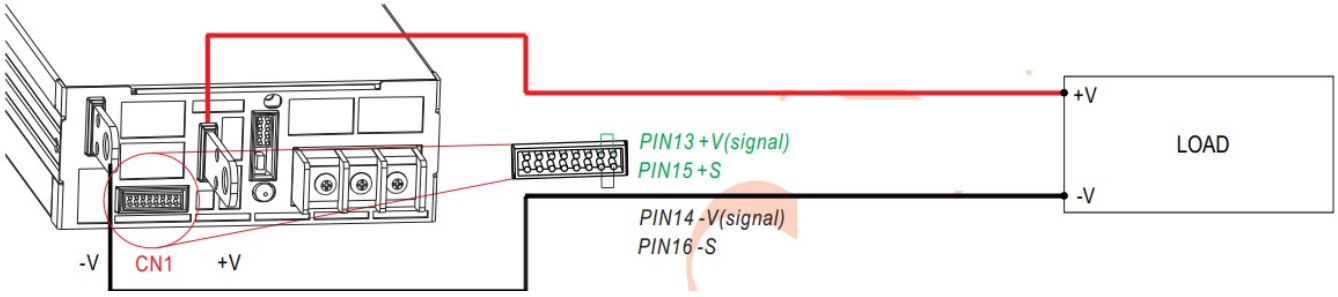
※ The Remote Sense compensates voltage drop on the load wiring up to 0.5V



◎ The +S signal should be connected to the positive terminal of the load whereas -S signal to the negative terminal.

1.2 Local Sense

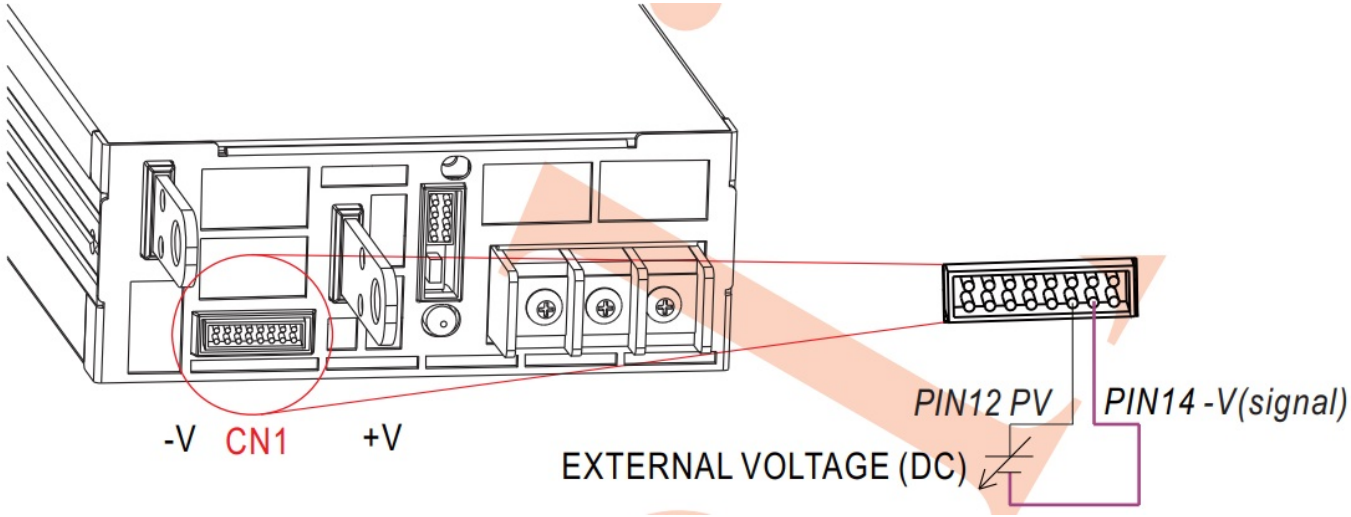
※ The +S,-S have to be connected to the +V(signal), -V(signal), respectively, as the following diagram, in order to get the correct output voltage if Remote Sense is not used.



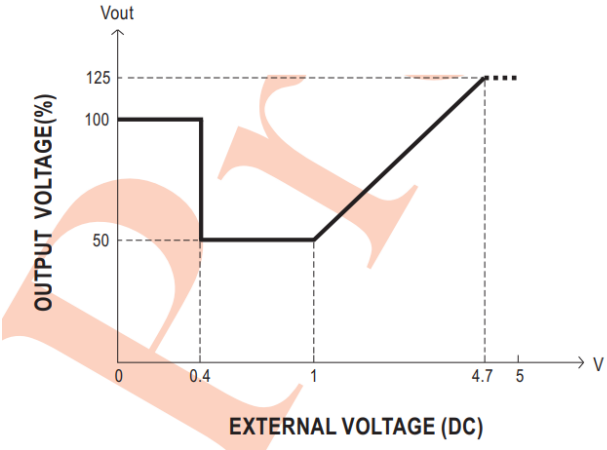
2. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

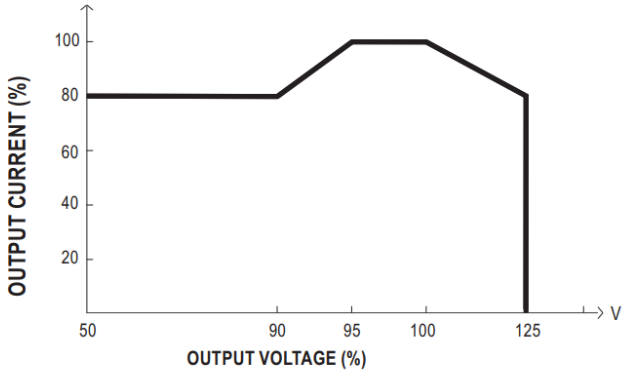
※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 50~125% of the nominal voltage by applying

EXTERNAL VOLTAGE.



◎ For Remote Sense / Local Sense, please refer to “Voltage Drop Compensation” section.



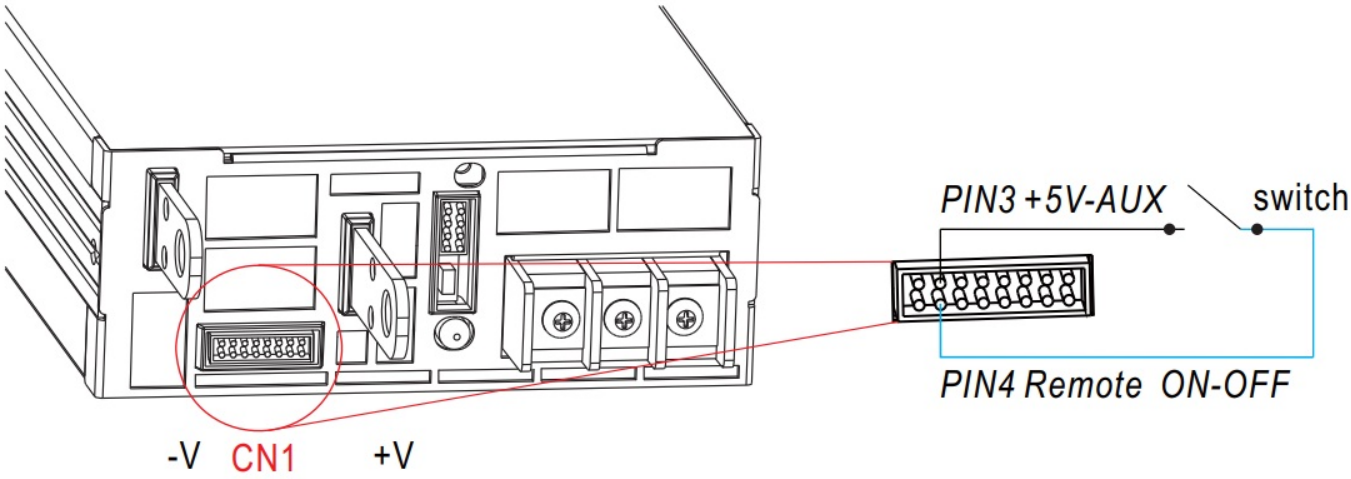


The rated current should change with the Output Voltage Programming accordingly.

For Remote Sense / Local Sense, please refer to “Voltage Drop Compensation” section.

3. Remote ON-OFF Control

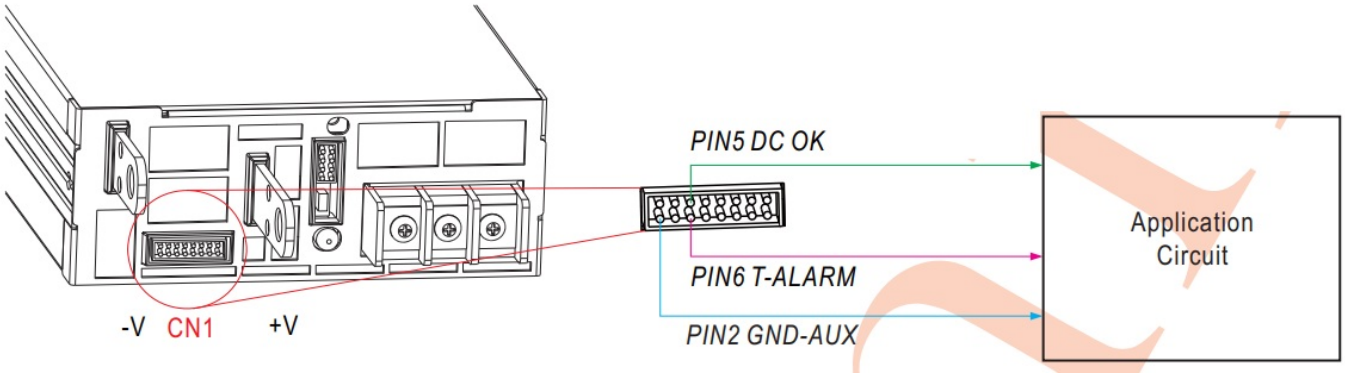
※ The power supply can be turned ON/OFF individually or along with other units by using the “Remote ON-OFF” function.



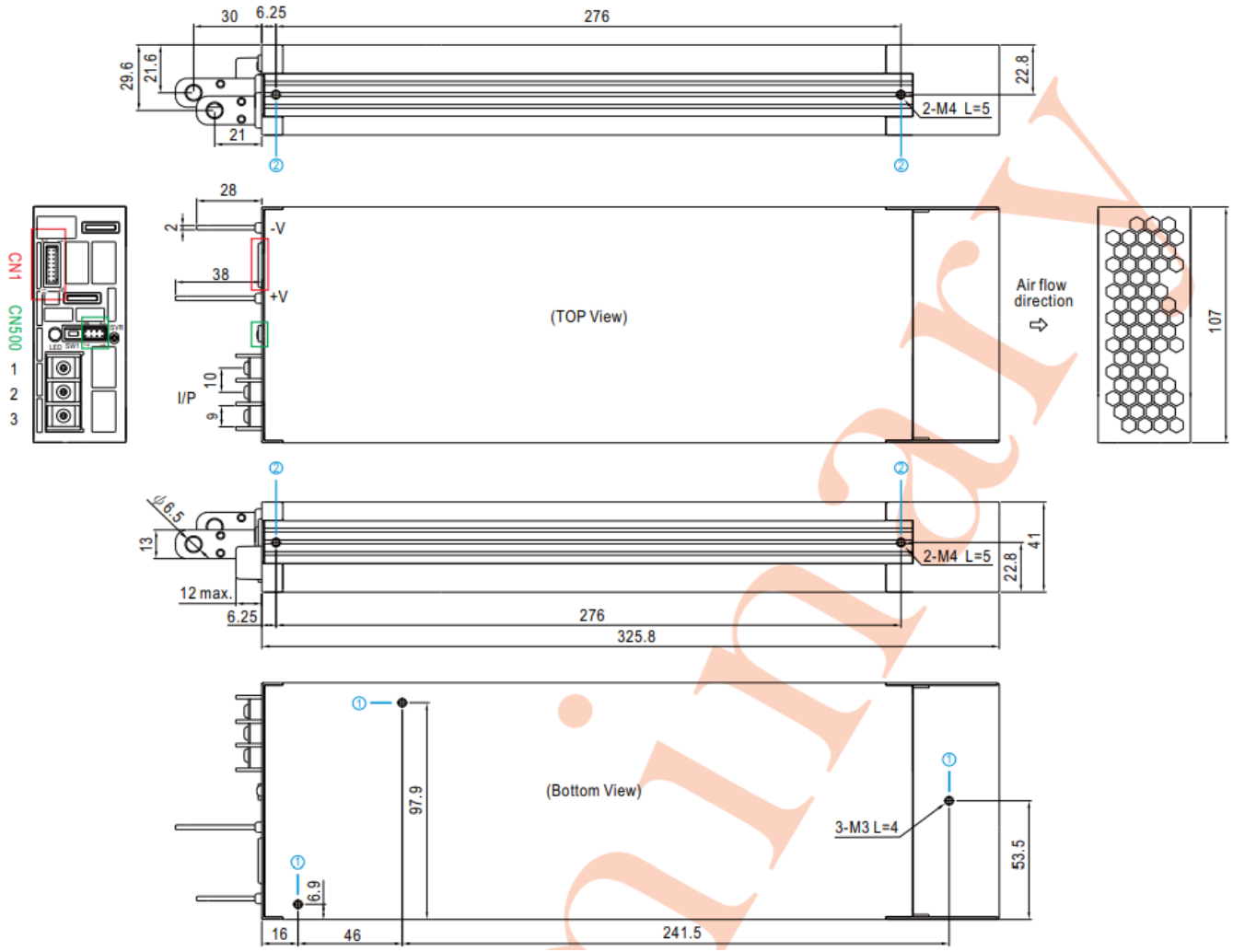
Between Remote ON-OFF and +5V-AUX	Power Supply Status
Switch Short	ON
Switch Open	OFF

4. Alarm Signal Output

※ There are 2 alarm signals, DC OK and T-ALARM, in TTL signal form, on CN1. These signals are isolated from output. The maximum sink current is 10mA.

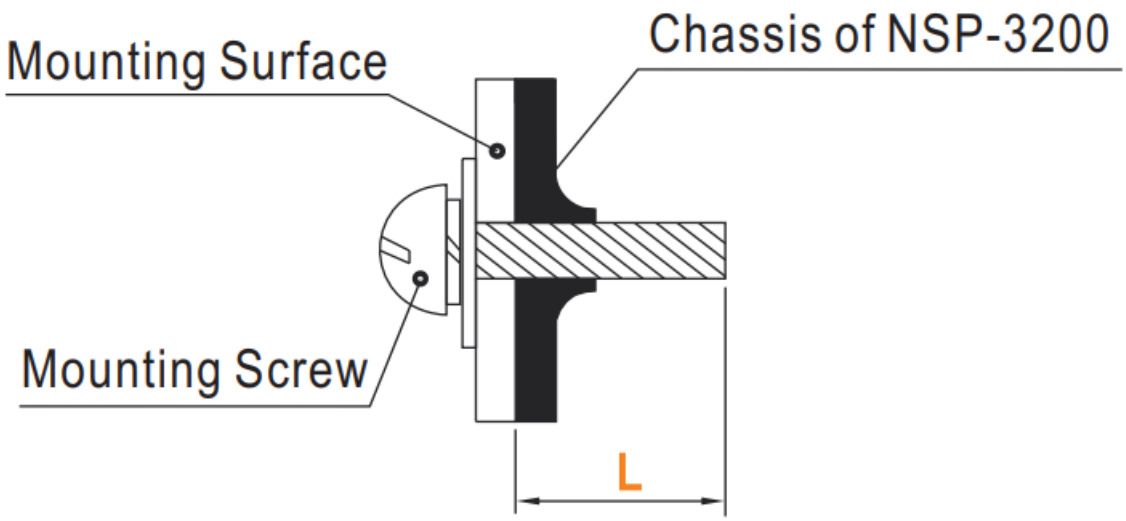


MECHANICAL SPECIFICATION



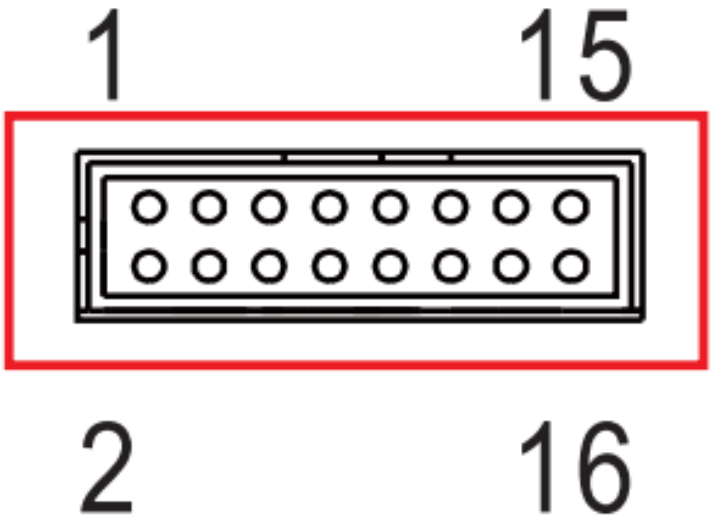
※ Mounting Instruction

Hole No.	Recommended Screw Size	MAX. Penetration Depth **L**	Recommended mounting torque
1	M3	4mm	6~8Kgf-cm
2	M4	5mm	7~10Kgf-cm



※ Control Pin No. Assignment(CN501) : HRS DF11-16DP-2DS or equivalent

Mating Housing	HRS DF11-16DS or equivalent
Terminal	HRS DF11-**SC or equivalent



Pin No.	Function	Description
1	+12V-AUX	Auxiliary voltage output, 10.6~13.2V, referenced to GND-AUX (pin2). The maximum load current is 0.8A. This output has the built-in “Oring diodes” and is not controlled by “Remote ON-OFF”.
2	GND-AUX	Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V).
3	+5V-AUX	This pin is use for remote ON-OFF usage only.
4	Remote ON-OFF	The unit can turn the output ON/OFF by electrical signal or dry contact between *Remote ON/OFF* and *+5V-AUX*. (Note.2) Short (4.5 ~ 5.5V) : Power ON ; Open (0 ~ 0.5V) : Power OFF ; The maximum input voltage is 5.5V.
5	DC-OK	High (4.5 ~ 5.5V) : When the Vout ≦80%±5%. Low (-0.1 ~ 0.5V) : When Vout ≧80%±5%. The maximum sourcing current is 10mA and only for output. (Note.2)

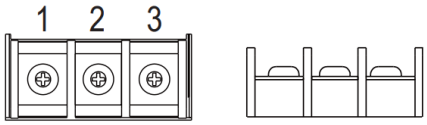
6	T-ALARM	High (4.5 ~ 5.5V) : When the internal temperature exceeds the limit of temperature alarm, or when Fan fails. Low (-0.1 ~ 0.5V) : When the internal temperature is normal, and when Fan works normally. The maximum sourcing current is 10mA and only for output(Note.2)
7,8,9,10,11	NC	For standard model: Retain for future use.
12	PV	Connection for output voltage programming. (Note.1)
13	+V (Signal)	Positive output voltage signal. It is for local sense; it cannot be connected directly to the load.
14	-V (Signal)	Negative output voltage signal. It is for local sense and certain function reference; it cannot be connected directly to the load.
15	+S	Positive sensing for remote sense.
16	-S	Negative sensing for remote sense.

Note1: Non-isolated signal, referenced to [-V(signal)].
Note2: Isolated signal, referenced to GND-AUX.

❖ LED Status Indicators

LED	Description
Green	The power supply functions normally.
Red	The LED will present a constant red light when the abnormal status (OTP, OLP, fan fail and charging timeout) arises.
Red (Flashing)	The LED will flash with the red light when the internal temperature reaches 60°C; under this condition, the unit still operates normally without entering OTP. (In the meantime, an alarm signal will be sent out through the PMBus interface.)

※ AC Input Terminal Pin No. Assignment

Pin No.	Assignment	Diagram	Maximum mounting torque
1	FG 		8Kgf-cm
2	AC/N		
3	AC/L		

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

Documents / Resources

	MEAN WELL NSP-3200 Series 3200W Power Supply with Single Output [pdf] Instruction Manual NSP-3200 Series 3200W Power Supply with Single Output, NSP-3200 Series, 3200W Power Supply with Single Output, Power Supply with Single Output, Supply with Single Output, Single Output, Output

References

- TÜV Rheinland - Home | US | TÜV Rheinland
- MEAN WELL Switching Power Supply Manufacturer
- Installation Manual-MEAN WELL Switching Power Supply Manufacturer
- Product Liability Disclaimer-MEAN WELL Switching Power Supply Manufacturer