MEAN WELL MSP-450 series Single Output Medical Type Installation Guide

MSP-450 series
450W Single Output Medical Type

Contents

1 MSP-450 series Single Output Medical Type
2 Features:
3 SPECIFICATION
4 Mechanical Specification
5 Block Diagram
6 Function Description of CN100
7 Function Manual
8 Documents / Resources
8.1 References

MSP-450 series Single Output Medical Type

User's Manual

https://www.meanwell.com/Upload/PDF/Enclosed_Type_EN.pdf

GTIN CODE
https://www.meanwell.com/serviceGTIN.aspx

Features:

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 89.5%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuiit / Overload / Over voltage / Over temperature
- Built-in constant current limiting circuit
- Medical safety approved (MOOP level)
- Built-in cooling Fan ON-OFF control
- Built-in DC OK signal
- Built-in remote ON-OFF control
- Stand by 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.6W (Note.6)
- 5 years warranty

SPECIFICATION

MODEL		MSP-450-3.3	MSP-450-5	MSP-450-7.5	MSP-450-12	MSP-450-15	MSP-450-24	MSP-450-36	MSP-450-48
	DC VOLTAGE	3.3V	5V	7.5V	12V	15V	24V	36V	48V

OUTPUT	RATED CURRENT	90A	90A	60A	37.5A	30A	18.8A	12.5A	9.5A
	CURRENT RANGE	0 ~ 90A	0 ~ 90A	0 ~ 60A	0 ~ 37.5A	0 ~ 30A	0 ~ 18.8A	0 ~ 12.5A	0 ~ 9.5A
	RATED POWER	297W	450W	450W	450W	450W	451.2W	450W	456W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	80mVp-p	100mVp-p	120mVp-p	150mVp-p	150mVp-p	240mVp-p	240mVp-p
	VOLTAGE ADJ. RANGE	2.8 ~ 3.8V	4.3 ~ 5.8V	6.8 ~ 9V	10.2 ~ 13.8V	13.5 ~ 18V	21.6 ~ 28.8V	28.8 ~ 39.6V	40.8 ~ 55.2V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 100ms/230VAC 2500ms, 100ms/115VAC at full load							
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load							
INPUT	VOLTAGE RANGE Note.4	85 ~ 264VAC 120 ~ 370VDC							
	FREQUENCY RANGE	47 ~ 63Hz							
	POWER FACTOR (Typ.)	PF>0.95/230VAC PF>0.99/115VAC at full load							
	EFFICIENCY (Typ.)	80%	83%	86.5%	88%	89%	88%	89%	89.5%
	AC CURRENT (Typ.)	5A/115VAC 2.4A/230VAC							
	INRUSH CURRENT (Typ.)	35A/115VAC 70A/230VAC							
	LEAKAGE CURRENT	Earth leakage current < 300μA/264VAC , Touch leakage current < 100μA/264VAC							
PROTECTION	OVERLOAD	105 ~ 135% rated output power							
		Protection type : Constant current limiting, recovers automatically after fault condition is removed							
	OVER VOLTAGE	3.96 ~ 4.62V	6 ~ 7V	9.4 ~ 10.9V	14.4 ~ 16.8V	18.8 ~ 21.8V	30 ~ 34.8V	41.4 ~ 48.6V	57.6 ~ 67.2V
		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	5V STANDBY	5VSB : 5V@0.3A ; tolerance±5%, ripple : 50mVp-p(max.)
	DC OK SIGNAL	PSU turn on : 3.3 ~ 5.6V ; PSU turn off : 0 ~ 1V
	REMOTE CONTROL	RC+ / RC-: 4 ~ 10V or open = power on ; 0 ~ 0.8V or short = power off
	FAN CONTROL (Typ.)	Load 20±10% or RTH2≧50℃ Fan on
ENVIRONMENT	WORKING TEMP.	-40 ~ +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
SAFETY & EMC (Note 8)	SAFETY STANDARDS	ANSI/AAMI ES60601-1, IEC60601-1, EAC TP TC 004 approved; Design refer to BS EN/EN60601-1, BS EN/EN62368-1
	ISOLATION LEVEL	Primary-Secondary: 2×MOOP, Primary-Earth: 1×MOOP, Secondary-Earth: 1×MOOP
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC 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℃/ 70% RH
	EMC EMISSION	Compliance to BS EN/EN55011 (CISPR11) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN60601-1-2, BS EN/EN55035, EAC TP TC 020
OTHERS	MTBF	1171.9K hrs min. Telcordia SR-332 (Bellcore) ; 159.4K hrs min. MIL-HDBK-217F (25℃)
	DIMENSION	218*105*41mm (L*W*H)
	PACKING	1.19Kg; 12pcs/15.3Kg/0.82CUFT

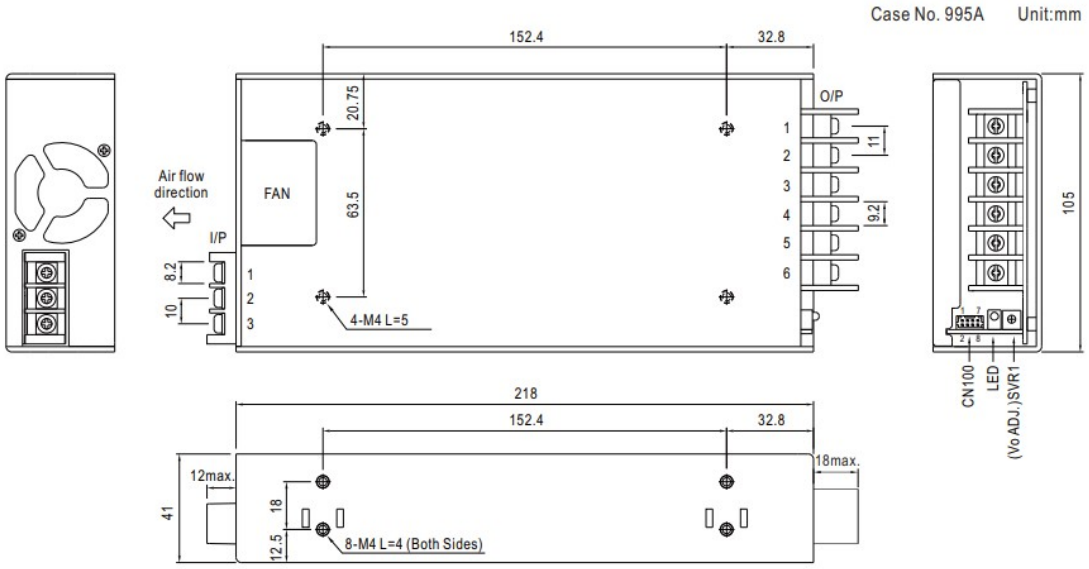
NOTE

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. Tolerance : indudes set up tolerance, line regulation and load reguiation
4. Derating may be needed under low input voltages. Please check the derating curve for more details.
5. Length of set up time is measured at first cold start. Tuming ON/OFF the power supply may lead to increase of the set up time.

6. No load power consumption<0.5W when RC- & RG+ (CN100 pin1,2) 0 ~ 0.8V or short
7. When the input voltage is less than 40VAG, the SPS may exhibit degradation of performance. The final product manufacturers must re-confirm this deviation that does not affect basic safety or essential performance.
8. The power supply is considered a componert which wil be installed into a final equipment. All the EMG tests are been exectted by mounting the unit on 2 360mm”360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that stil meets EMC directives. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supples.”(as available on https://www.meanwel.com/Upload/PDF/EMI_statemert_en.pdf)
9. The ambient temperature derating of 3.5’C/1000m with faniess models and of 5’C/1000m with fan models for operating alttude higher than 2000m(500t)

Product Liabilty Disclaimer : For detalled information, please refer to
https://www.meanwell.comiserviceDisdaimer.aspx

Mechanical Specification



AC Input Terminal Pin No. Assignment

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

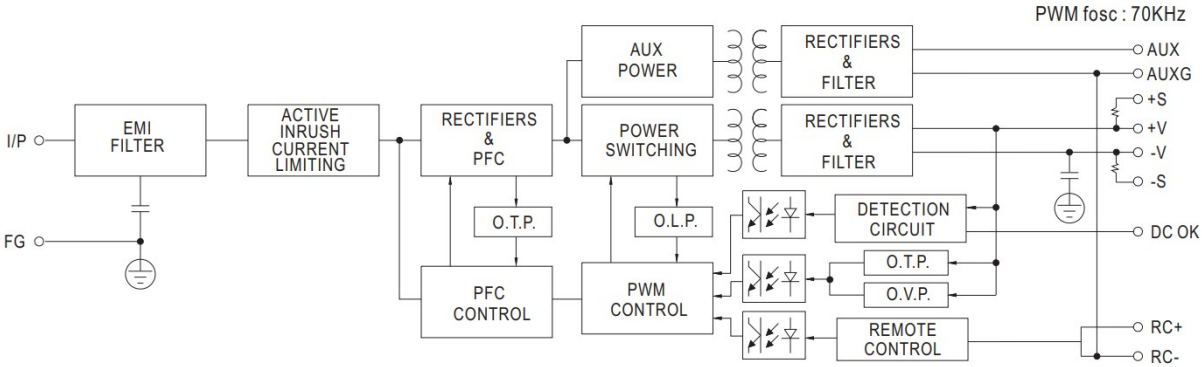
DC Output Terminal Pin No. Assignment

Pin No.	Assignment
1~3	-V
4~6	+V

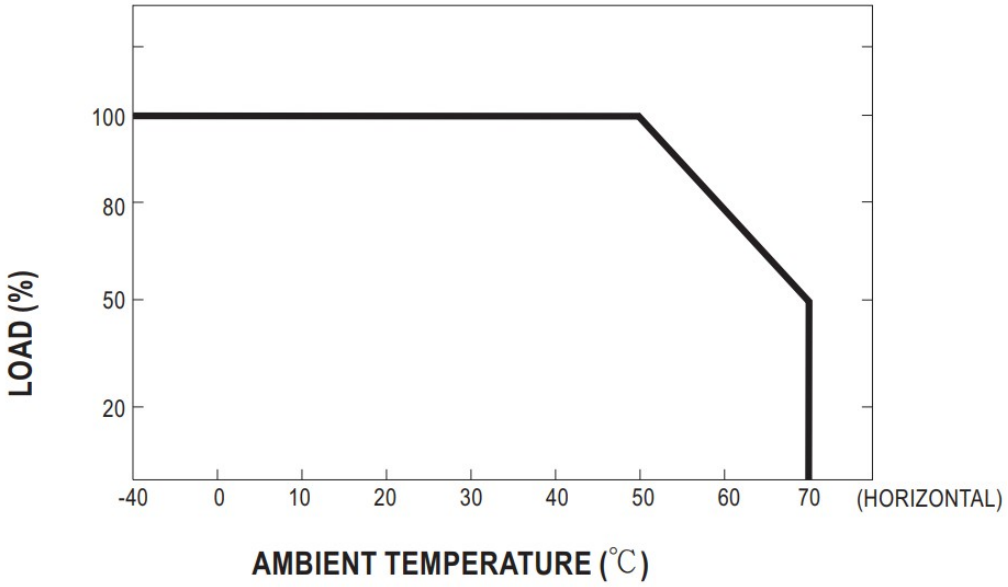
Connector Pin No. Assignment(CN100) : HRS DF11-8DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	RC+	5	DC-OK	HRS DF11-8DS or equivalent	HRS DF11-**SC or equivalent
2	RC-	6	GND		
3	AUX	7	+S		
4	AUXG	8	-S		

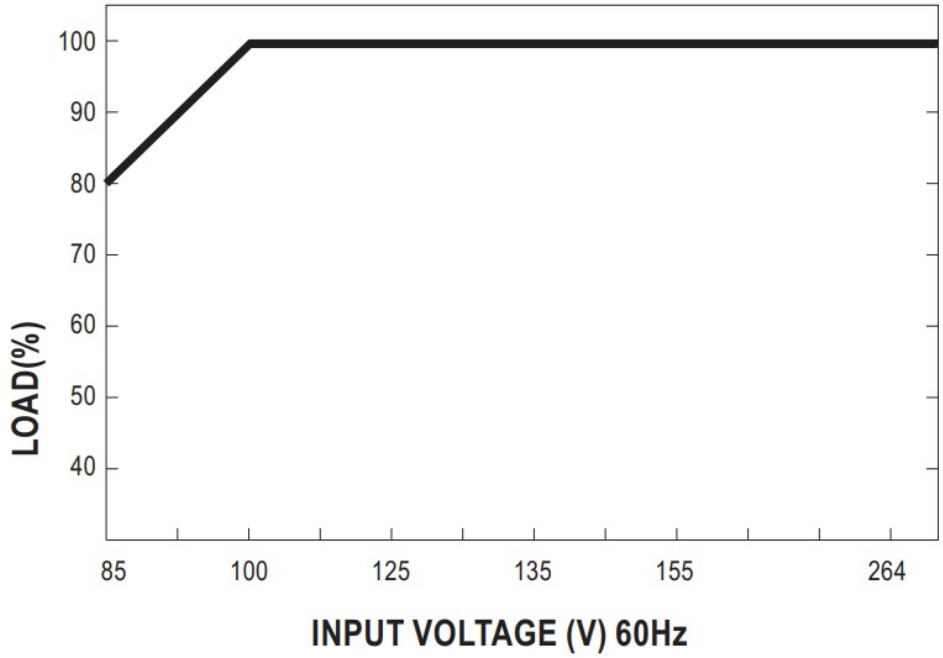
Block Diagram



Derating Curve



Output Derating VS Input Voltage



Function Description of CN100

Pin No.	Function	Description
1	RC+	Turns the output on and off by electrical or dry contact between pin 2 (RC-), Short: Power OFF, Open: Power ON.
2	RC-	Remote control ground.
3	AUX	Auxiliary voltage output, 4.75~5.25V, referenced to pin 4(AUXG). The maximum load current is 0.3A. This output is not controlled by the “remote ON/OFF control”.
4	AUXG	Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).
5	DC-OK	DC-OK Signal is a TTL level signal, referenced to pin6(DC-OK GND). High when PSU turns on.
6	GND	This pin connects to the negative terminal(-V). Return for DC-OK signal output.
7	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
8	-S	Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.

Function Manual

1.Remote Sense

The remote sensing compensates voltage drop on the load wiring up t0 0.5V.

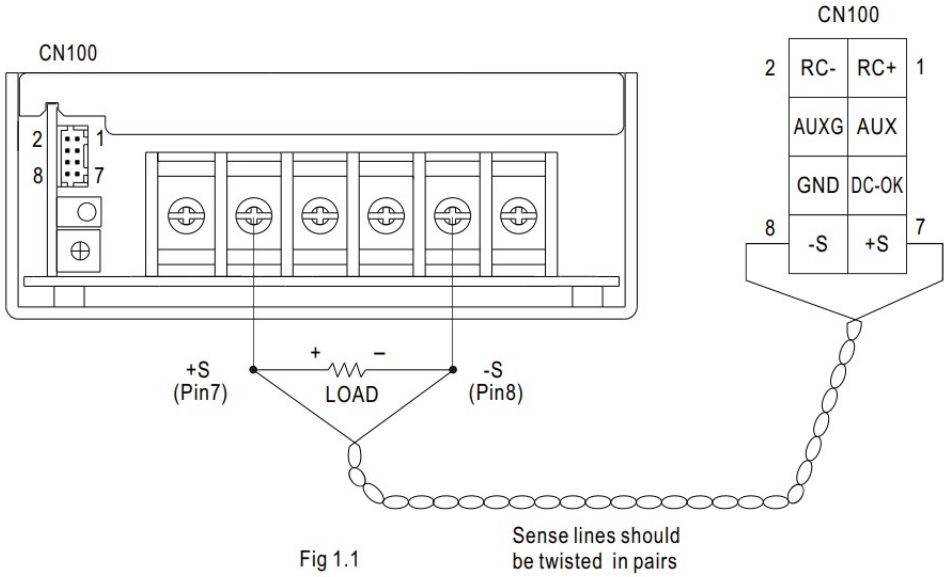


Fig 1.1

2.DC-OK Signal

DC-OKsignal is a TTL level signal. High when PSU turns on.

Between DC-OK(pin5) and GND(pin6)	Output Status
3.3 ~ 5.6V	ON
0 ~ 1V	OFF

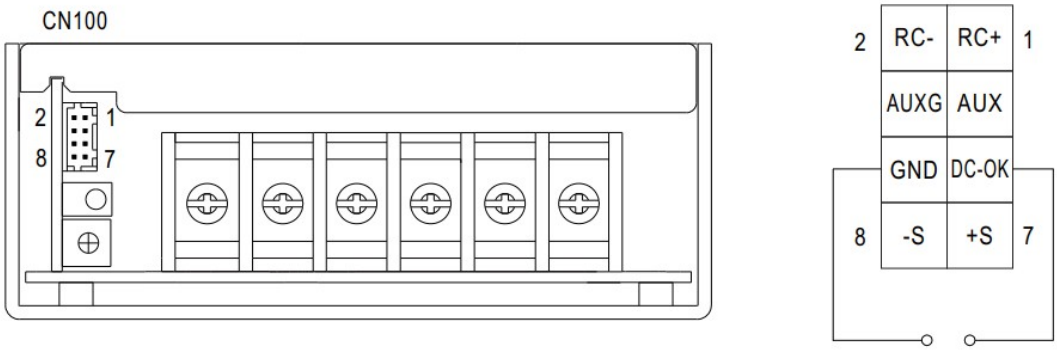


Fig 2.1

3.Remote Control

The PSU can be turned ON/OFF by using the “Remote Control” function.

Between RC+(pin1) and RC-(pin2)	Output Status
SW ON (Short)	OFF
SW OFF (Open)	ON

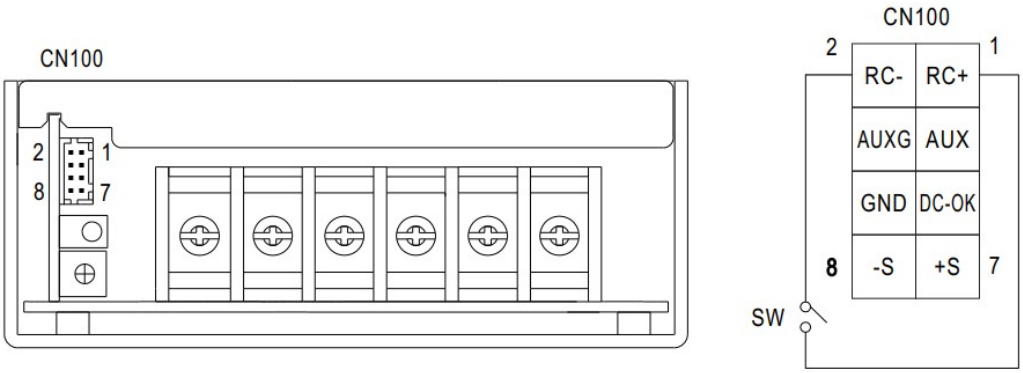


Fig 3.1

Documents / Resources

	MEAN WELL MSP-450 series Single Output Medical Type [pdf] Installation Guide MSP-450 series Single Output Medical Type, MSP-450 series, Single Output Medical Type, Out put Medical Type, Medical Type, Type

References

- **User Manual**