



MEAN WELL MSP-200 Series 200W Single Output Medical Type Owner's Manual

[Home](#) » [MEAN WELL](#) » MEAN WELL MSP-200 Series 200W Single Output Medical Type Owner's Manual 

Contents

- 1 MEAN WELL MSP-200 Series 200W Single Output Medical Type
- 2 Product Information
- 3 Specifications
- 4 Product Usage Instructions
 - 4.1 1. Installation
 - 4.2 2. Operating Temperature and Humidity
 - 4.3 3. Safety
 - 4.4 4. Protection Features
- 5 FEATURES:
- 6 GTIN CODE
- 7 SPECIFICATION
- 8 Mechanical Specification
- 9 Block Diagram
- 10 Derating Curve
- 11 Output Derating VS Input Voltage
- 12 Function Description of CN100
- 13 Function Manual
- 14 Frequently Asked Questions (FAQ)
 - 14.1 Q: What are the dimensions of the product?
 - 14.2 Q: What is the weight of the product?
 - 14.3 Q: What is the packaging information?
 - 14.4 Q: What is the MTBF (Mean Time Between Failures) of the product?
- 15 Documents / Resources
 - 15.1 References
- 16 Related Posts



Owner's Manual



Product Information

Specifications

- Product Name: 200W Single Output Medical Type
- Series: MSP-200
- Input Voltage: Universal AC input / Full range
- Power Factor (PF): >0.95
- Efficiency: Up to 89%
- Surge Input: Withstands 300VAC for 5 seconds
- Protections: Short circuit, Overload, Over voltage, Over temperature
- Cooling: Free air convection
- Constant Current Limiting Circuit: Built-in
- Profile: 1U low profile (38mm)
- Safety Approval: Medical safety approved (MOOP level)
- Remote ON-OFF Control: Built-in
- Standby Power: 5V at 0.3A
- Remote Sense Function: Built-in

- No Load Power Consumption: <0.95/230VAC, <0.99/115VAC at full load

Product Usage Instructions

1. Installation

To install the product, follow the steps below:

1. Select a suitable location for the product.
2. Ensure proper ventilation around the product.
3. Connect the product to the power source using the provided universal AC input.
4. If required, use the built-in remote ON-OFF control to turn the product on or off.
5. Verify that the product is securely installed and connected.

2. Operating Temperature and Humidity

The product can operate within a temperature range of -40°C to +70°C. It is important to refer to the provided Derating Curve for temperature-dependent performance. The working humidity range is 20% to 90% RH non-condensing.

3. Safety

The product has been approved for medical safety standards and complies with ANSI/AAMI ES60601-1, IEC60601-1, EAC TP TC 004, BS EN/EN60601-1, and BS EN/EN62368-1. It is recommended to follow all safety guidelines provided in the user manual.

4. Protection Features

The product is equipped with several protection features:

- Short Circuit Protection: Automatically activates when a short circuit is detected and recovers automatically after the fault condition is removed.
- Overload Protection: Activates when the output power exceeds 105-135% of the rated output power.
- Over Voltage Protection: Shuts down the output voltage and recovers after re-powering.
- Over Temperature Protection: Activates when the product exceeds the specified temperature range.

FEATURES:

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 89%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- 1U low profile 38mm
- Medical safety approved (MOOP level)

- 






- ANSI/AAMI ES60601-1 IEC60601-1 TPTC004

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

MODEL		MSP-200-3.3	MSP-200-5	MSP-200-7.5	MSP-200-12	MSP-200-15	MSP-200-24	MSP-200-36	MSP-200-48
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	15V	24V	36V	48V
	RATED CURRENT	40A	35A	26.7A	16.7A	13.4A	8.4A	5.7A	4.3A
	CURRENT RANGE	0 ~ 40A	0 ~ 35A	0 ~ 26.7A	0 ~ 16.7A	0 ~ 13.4A	0 ~ 8.4A	0 ~ 5.7A	0 ~ 4.3A
	RATED POWER	132W	175W	200.3W	200.4W	201W	201.6W	205.2W	206.4W
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	90mVp-p	100mVp-p	120mVp-p	150mVp-p	150mVp-p	250mVp-p	250mVp-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 <small>Note.3</small>	±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	±1.5%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 50ms/230VAC 2500ms, 50ms/115VAC at full load							
HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load								
INPUT	VOLTAGE RANGE <small>Note.5</small>	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%	84%	86%	88%	88%	88%	89%	89%
	AC CURRENT (Typ.)	2.2A/115VAC 1.1A/230VAC							
	INRUSH CURRENT (Typ.)	35A/115VAC 70A/230VAC							
	LEAKAGE CURRENT <small>Note.7</small>	Earth leakage current < 300 μ A/264VAC , Touch leakage current < 100 μ A/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							
	5V STANDBY	5VSB : 5V@0.3A ; tolerance ±5%, ripple : 50mVp-p(max.)							
FUNCTION	REMOTE CONTROL	RC+/RC- : 4 ~ 10V or open = power on ; 0 ~ 0.8V or short = power off							
	WORKING TEMP.	-40 ~ +70°C (Refer to "Derating Curve")							
ENVIRONMENT	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, 5G 10min./1cycle, 60min. each along X, Y, Z axes							
SAFETY & EMC (Note 4)	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							
	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°C / 70% RH							
	EMC EMISSION	Compliance to BS EN/EN55011 (CISPR11) Class B, BS EN/EN61000-3-2, -3, EAC TP TC 020							
OTHERS	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2, 3, 4, 5, 6, 8, 11, BS EN/EN55035, BS EN/EN60601-1-2, EAC TP TC 020							
	MTBF	1609.5K hrs min. Telcordia SR-332 (Bellcore) ; 186.2K hrs min. MIL-HDBK-217F (25°C)							
	DIMENSION	199*98*38mm (L*W*H)							
	PACKING	0.77Kg; 18pcs/14.9Kg/0.87CUFT							

MODEL		MSP-200-3.3	MSP-200-5	MSP-200-7.5	MSP-200-12	MSP-200-15	MSP-200-24	MSP-200-36	MSP-200-48
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	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, 5G 10min./1cycle, 60min. each along X, Y, Z axes							
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	ISOLATION LEVEL	Primary-Secondary: 2×MOOP, Primary-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°C / 70% RH							
	EMC EMISSION	Compliance to BS EN/EN55011 (CISPR11) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020							
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OTHERS	MTBF	1609.5K hrs min. Telcordia SR-332 (Bellcore) ; 186.2K hrs min. MIL-HDBK-217F (25°C)							
	DIMENSION	199*98*38mm (L*W*H)							
	PACKING	0.77Kg; 18pcs/14.9Kg/0.87CUFT							

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 : 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. 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 <http://www.meanwell.com>)
 5. Derating may be needed under low input voltages. Please check the derating curve for more details.
 6. No load power consumption<0.5W when RC+ & RC- (CN100 pin1,2) 0 ~ 8V or short.
 7. Touch current was measured from primary input to DC output.
 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).
- ※ Product Liability Disclaimer For detailed information, please refer to <https://www.meanwell.com/serviceDisclaimer.aspx>

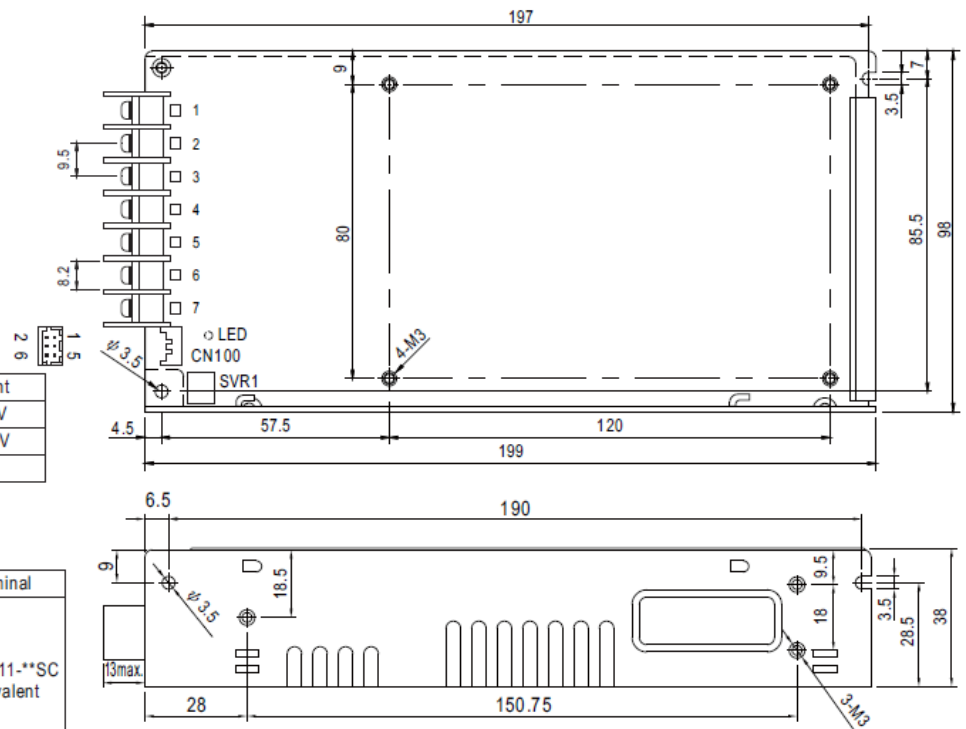
Mechanical Specification

Terminal Pin No. Assignment

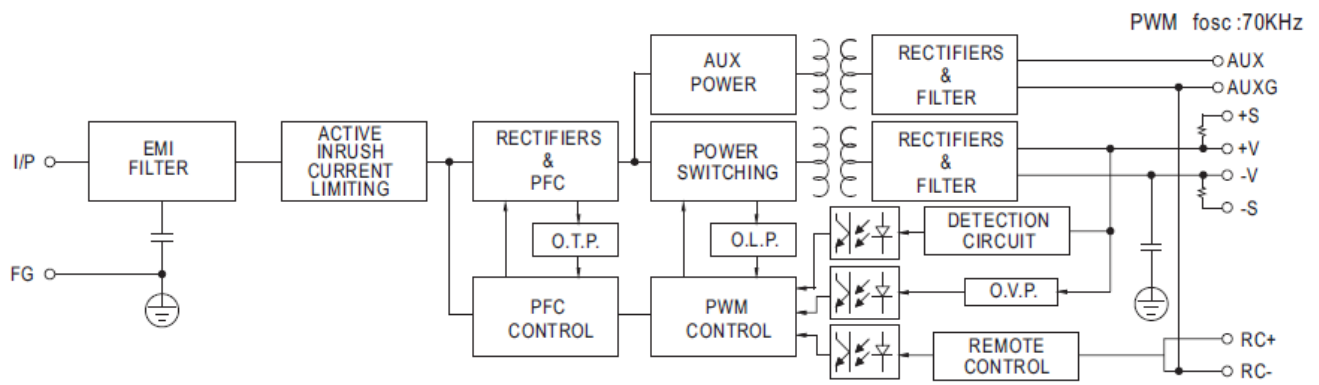
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	4,5	DC OUTPUT -V
2	AC/N	6,7	DC OUTPUT +V
3	FG		

Connector Pin No. Assignment (CN100) :
HRS DF11-6DP-2DS or equivalent

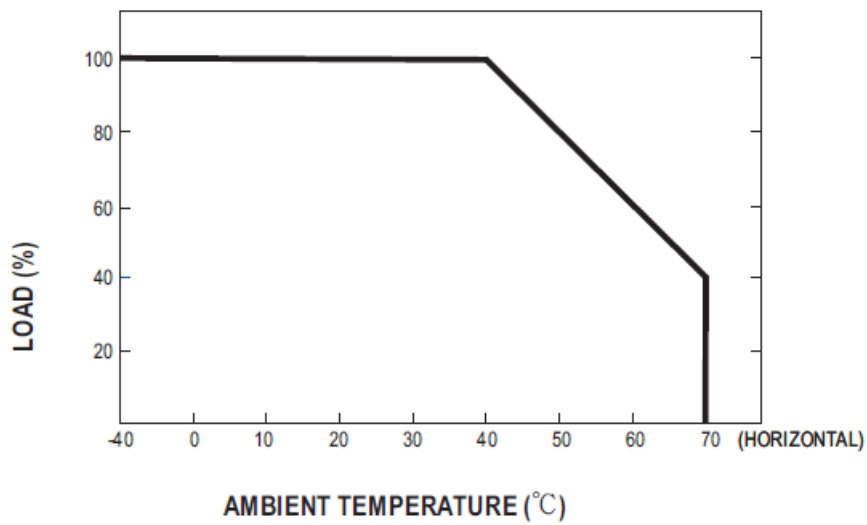
Pin No.	Assignment	Mating Housing	Terminal
1	RC+	HRS DF11-6DS or equivalent	HRS DF11-6SC or equivalent
2	RC-		
3	AUX		
4	AUXG		
5	+S		
6	-S		



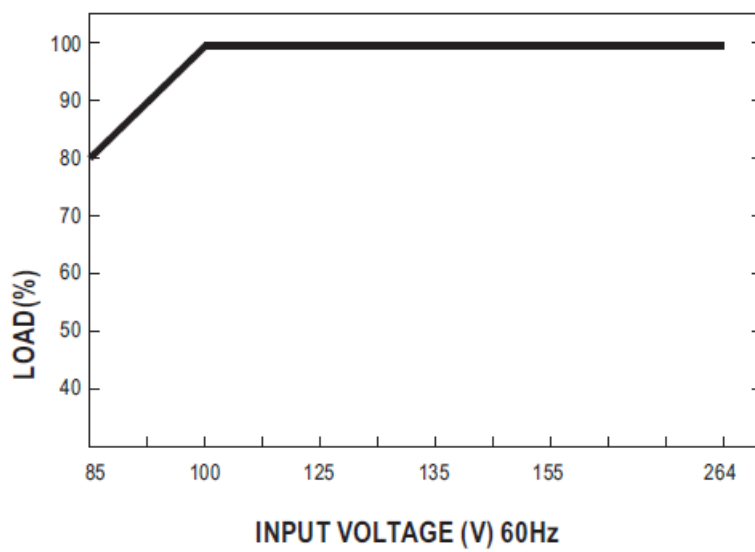
Block Diagram



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, reference to pin 4(AUXG). The maximum load current is 0.3A. This output has the built-in oring diodes and 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	+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.
6	-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 Control

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

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

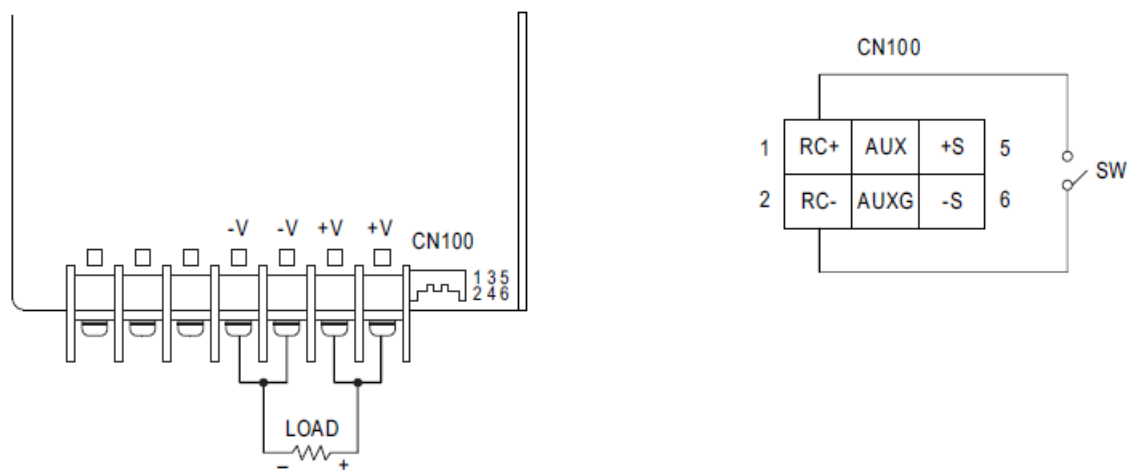
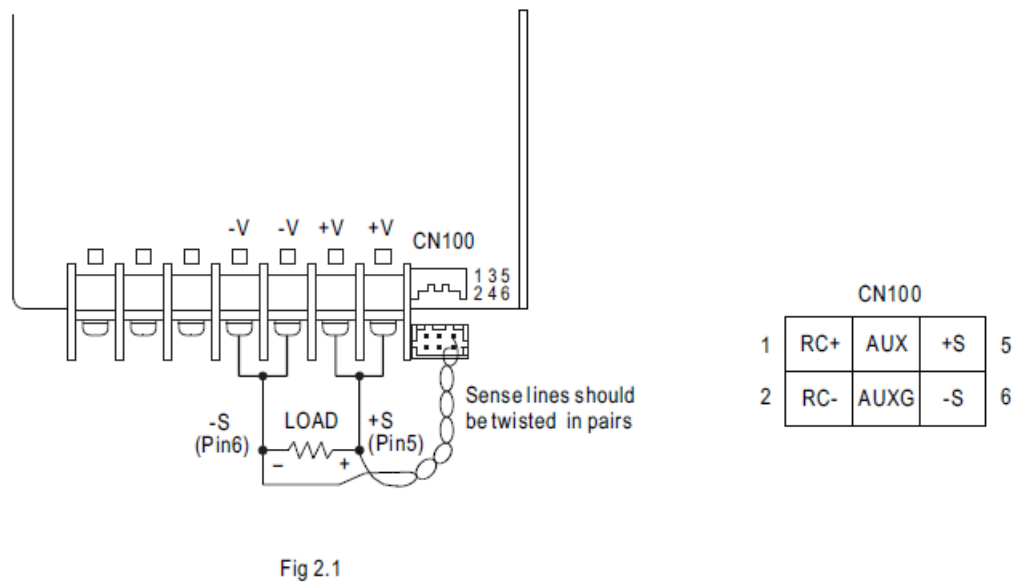


Fig 1.1

2. Remote Sense

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



Downloaded from [Arrow.com](https://www.arrow.com).

File Name:MSP-200-SPEC 2022-09-20

Frequently Asked Questions (FAQ)

Q: What are the dimensions of the product?

A: The dimensions of the product are 199mm (length) x 98mm (width) x 38mm (height).

Q: What is the weight of the product?

A: The weight of the product is 0.77kg.


Q: What is the packaging information?

A: The product is packed in a box with a weight of 14.9kg and a volume of 0.87 cubic feet. Each box contains 18 units.

Q: What is the MTBF (Mean Time Between Failures) of the product?

A: The MTBF of the product is 1609.5K hours minimum according to Telcordia SR-332 (Bellcore) and 186.2K hours minimum according to MIL-HDBK-217F (25).

Documents / Resources

	<p>MEAN WELL MSP-200 Series 200W Single Output Medical Type [pdf] Owner's Manual MSP-200 Series 200W Single Output Medical Type, MSP-200, Series 200W Single Output Medical Type, 200W Single Output Medical Type, Output Medical Type, Medical Type</p>
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References

- [MEAN WELL Switching Power Supply Manufacturer](#)
- [Global Trade Item Number \(GTIN\)-MEAN WELL Switching Power Supply Manufacturer](#)
- [User Manual](#)