






| UNIT CODE | DESCRIPTION |
|----------------|--|
| MED-PS 200-12V | 200 Watt, 12 Volt, Single Output Medical (MOOP level) Power Supply with Active PFC Function |

| SPECIFICATIONS | | |
|---------------------------------|--------------------|---|
| AC Input | DC Output | Approvals |
| Universal AC input 85 ~ 264V | +12VDC @ 0 ~ 16.7A |      |

Features at a Glance:

- Medical safety certified, MOOP level
- Built-in active PFC function, PF>0.95
- Withstands 300VAC surge for 5 seconds
- Low leakage current <300µA/264VAC
- No load power consumption < 0.5W
Standby 5V @ 0.3A
- 1U low profile case: 38mm
- Protection: Short circuit, Overload,
Over voltage and Over temperature
- Built-in constant current limiting circuit and
remote sense function (ON/OFF control)
- Working temperature range -40°C ~ +70°C
105°C long-life electrolytic capacitors
- Cooling by natural (free air) convection
- Certificates: UL / CUL / CB / CE
- Safety standards: ANSI/AAMI ES60601-1,
IEC60601-1 approved
- EMC standards: Class B level
(see following pages for complete EMC details)
- MTBF: 209.4K hrs min. *MIL-HDBK-217F (25°C)*
- Case: 902E
- Weight: 1.69 lbs (0.77 Kgs)
- Dimensions: 7.83 x 3.85x 1.49 inches (LxWxH)
199 x 98 x 38mm (LxWxH)
- 5 year warranty



The MED-PS 200 series are highly reliable power supplies designed to meet the rigorous requirements for medical applications and are an excellent choice for non-patient contact instruments and equipment. MED-PS 200-12 is a 200 Watt AC/DC, efficient (88%), enclosed, 1U medical type power supply, with active PFC, that complies with international medical safety regulations (MOOP level).

Standard functions include built-in remote ON/OFF control, protections for short circuit, overload (constant current mode), over voltage, and over temperature, low leakage current ($\leq 300\mu A$), extremely low no-load power consumption (<0.5W) and 1U low profile (38mm). This series Global certificates of compliance meeting UL/ CUL/ CB/ CE medical safety requirements ensure users' safety. EMI emissions: Class B Level, compliant.

Suitable applications include medical and diagnostic equipment requiring low leakage current such as lab and analysis equipment, monitoring equipment, MRI & X-ray machines, CT Scanners, chemical or biological detection equipment, as well as any system requiring low, no-load, power consumption.

| | | |
|----------|-------|-----------|
| Pricing: | 1 ~ 9 | \$ 199.00 |
| | 10+ | 178.50 |
| | 25+ | 149.00 |

Release & Application Notes



■ 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)
- Built-in remote ON-OFF control
- Standby 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.5W (Note.6)
- 5 years warranty



SPECIFICATION

| 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.) Note.2 | 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 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 | ±1.5% | ±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 Note.5 | 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 Note.7 | 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 | |
| | 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.) | | | | | | | | |
| | REMOTE CONTROL | RC+/RC- : 4 ~ 10V or open = power on ; 0 ~ 0.8V or short = power off | | | | | | | | |
| ENVIRONMENT | WORKING TEMP. | -40 ~ +70°C (Refer to "Derating Curve") | | | | | | | | |
| | 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 approved | | | | | | | | |
| | 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 EN55011 (CISPR11) Class B, EN61000-3-2,-3 | | | | | | | | |
| | EMC IMMUNITY | Compliance to EN61000-4-2,3,4,5,6,8,11, EN60601-1-2 | | | | | | | | |
| OTHERS | MTBF | 209.4K hrs min. MIL-HDBK-217F (25°C) | | | | | | | | |
| | DIMENSION | 199*98*38mm (L*W*H) | | | | | | | | |
| | PACKING | 0.77Kg; 18pcs/14.9Kg/0.9CUFT | | | | | | | | |
| NOTE | <ol style="list-style-type: none"> 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. 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. | | | | | | | | | |

Mechanical Specification

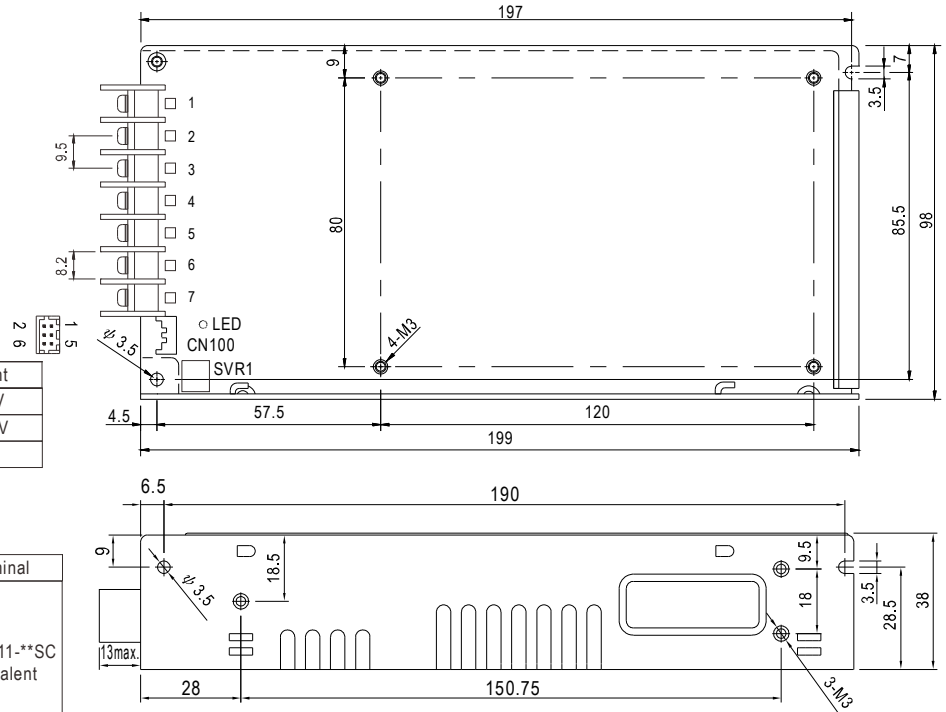
Case No.902E Unit:mm

Terminal Pin No. Assignment

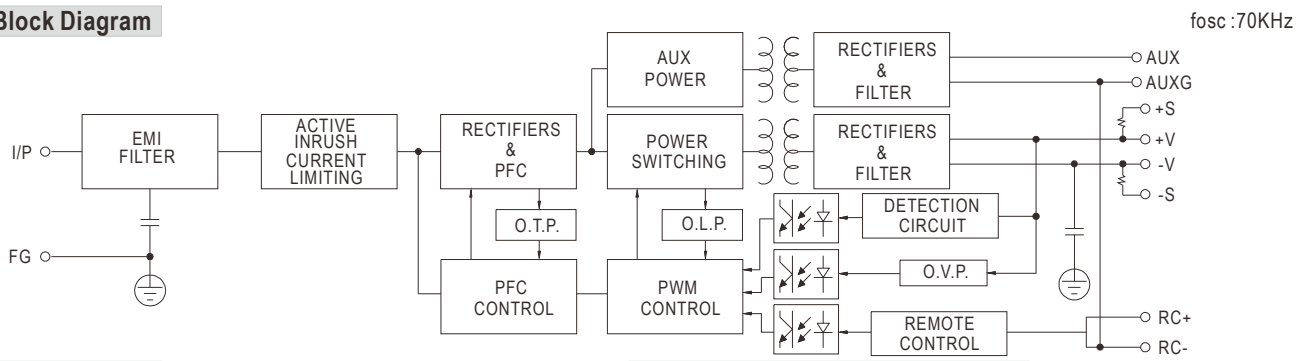
| Pin No. | Assignment | Pin No. | Assignment |
|---------|------------|---------|--------------|
| 1 | AC/L | 4,5 | DC OUTPUT -V |
| 2 | AC/N | 6,7 | DC OUTPUT +V |
| 3 | FG | | |

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-**SC or equivalent |
| 2 | RC- | | |
| 3 | AUX | | |
| 4 | AUXG | | |
| 5 | +S | | |
| 6 | -S | | |

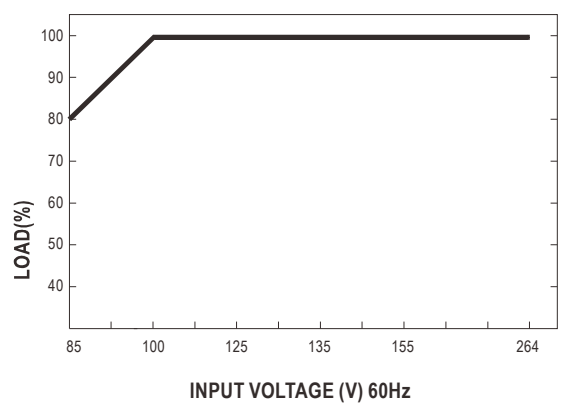
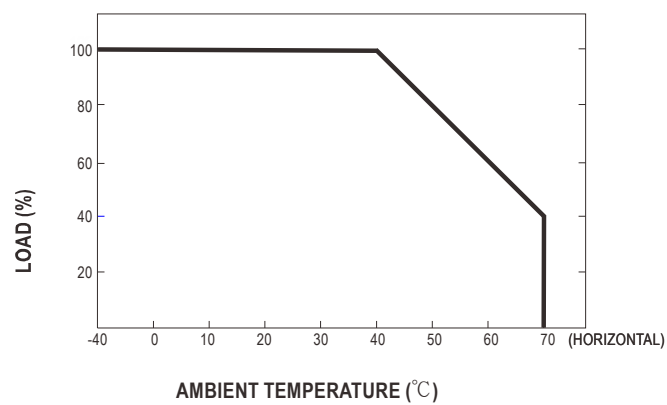


Block Diagram



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 |

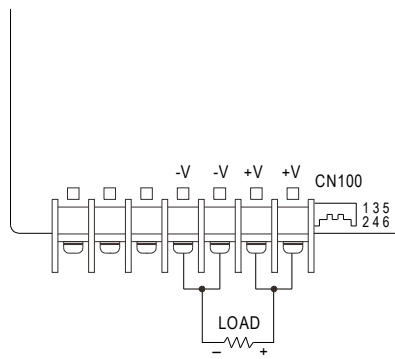
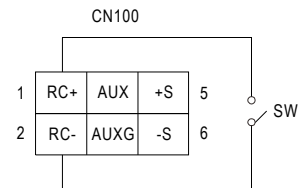


Fig 1.1



2.Remote Sense

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

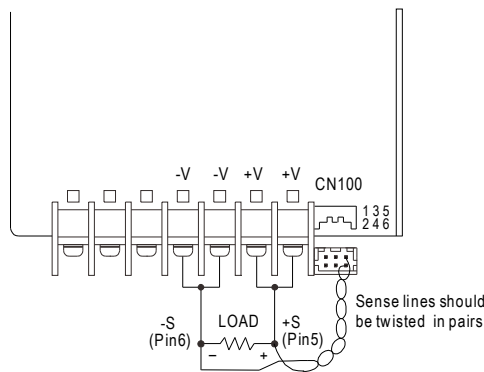


Fig 2.1

