



#### ■ 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  |            |             |              |              |              |              |              |
| PROTECTION            | LEAKAGE CURRENT Note.7       | Earth leakage current < 300 $\mu$ A/264VAC , Touch leakage current < 100 $\mu$ A/264VAC  |            |             |              |              |              |              |              |
|                       | OVERLOAD                     | 105 ~ 135% rated output power<br>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, EAC TP TC 004 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, EAC TP TC 020   |            |             |              |              |              |              |              |
|                       | EMC IMMUNITY                 | Compliance to EN61000-4-2,3,4,5,6,8,11, EN60601-1-2, EAC TP TC 020   |            |             |              |              |              |              |              |
| 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"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1<math>\mu</math>f &amp; 47<math>\mu</math>f parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>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 <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</li> <li>5. Derating may be needed under low input voltages. Please check the derating curve for more details.</li> <li>6. No load power consumption&lt;0.5W when RC+ &amp; RC- (CN100 pin1,2) 0 ~ 8V or short.</li> <li>7. Touch current was measured from primary input to DC output.</li> <li>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).</li> </ol> |            |             |              |              |              |              |              |

■ Mechanical Specification

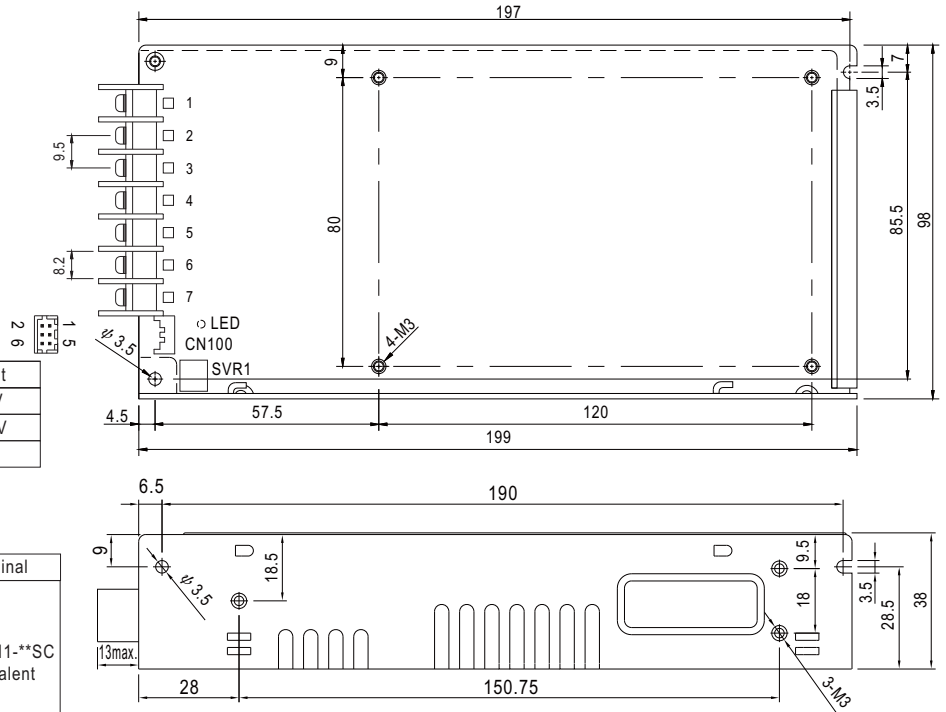
Case No.902E Unit:mm

Terminal Pin No. Assignment

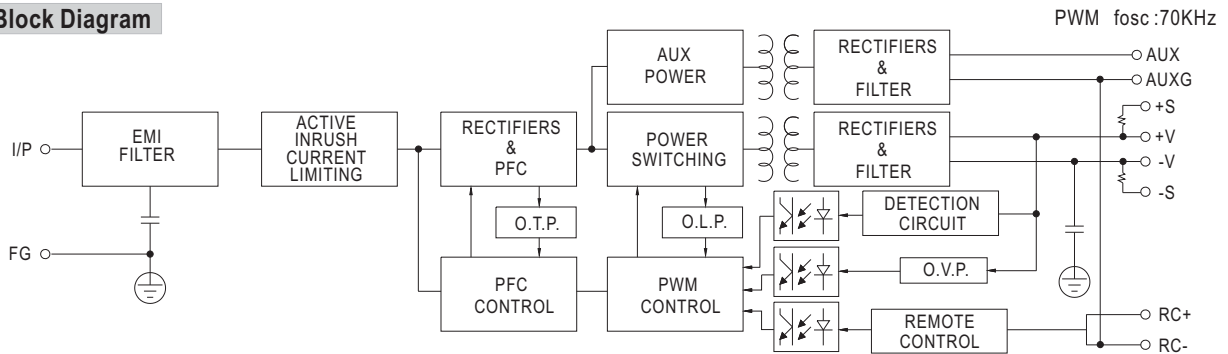
| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4,5     | DC OUTPUT -V |
| 2       | AC/N       | 6,7     | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |

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

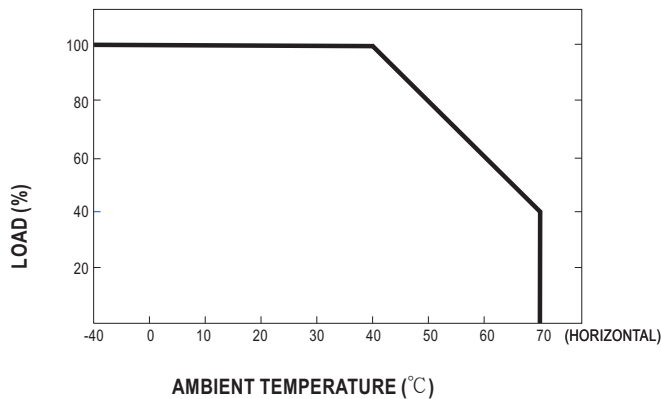
| Pin No. | Assignment | Mating Housing                | Terminal                       |
|---------|------------|-------------------------------|--------------------------------|
| 1       | RC+        | HRS DF11-6DS<br>or equivalent | HRS DF11-**SC<br>or equivalent |
| 2       | RC-        |      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



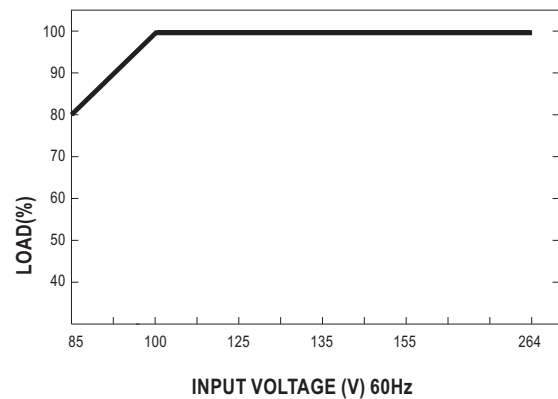
■ Block Diagram



■ 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            |

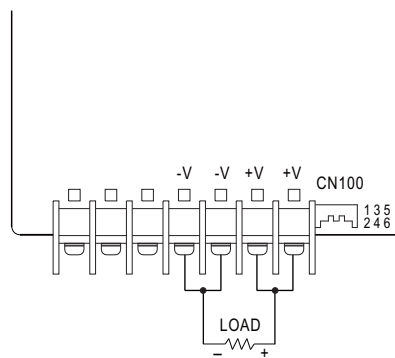
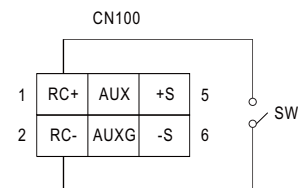


Fig 1.1



#### 2.Remote Sense

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

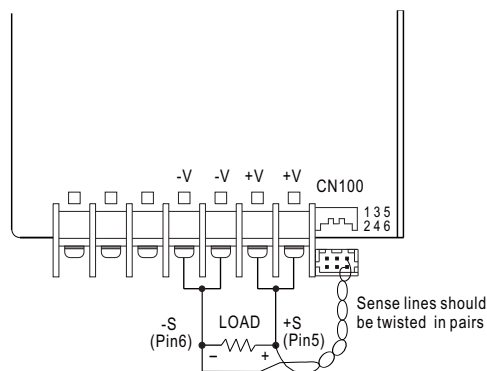


Fig 2.1

