POLLOCK INDUSTRIES

Technical Data Sheet

# 300 Watt, 12 Volt, Medical Safety Certified Single Output Power Supply with PFC

| UNIT CODE | DESCRIPTION |
|---|---|
| MED-PS 300-12V | 300 Watt, 12 Volt, Single Output Medical Power Supply with Active PFC Function |

| SPECIFICATIONS | | |
|---|---|---|
| AC Input | Output | Approvals |
| Universal AC input<br>85 ~ 264V | +12VDC @ 0 ~ 27A | |

## 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: 41mm

Protection: Short circuit; Overload;
Over voltage; Over temperature

Built-in: Constant current limiting circuit;
Remote ON-OFF control; DC OK signal;
Cooling fan with ON-OFF control

Working temperature range -40ºC ~ +70ºC

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: 176K hrs min. *MIL-HDBK-217F (25ºC)*

Case: 980A

Weight: 1.69 lbs (0.77 Kgs)

Dimensions: 7.83 x 4.13x 1.61 inches (LxWxH)
199 x 105 x 41mm (LxWxH)

5 year warranty

Release & Application Notes

**The MED-PS 300 series are medium power, highly reliable power supplies deigned to meet the rigerous demands of the medical device and equipment markets. These are 300 Watt, compact, efficient, AC/DC enclosed medical type power supplies that comply 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. Additionally, with low leakage current (≦300μA), extremely low no-load power consumption (<0.6W), 1U low profile (41mm). This series meet the high quality requirements for medical applications and are an excellent choice for non-patient contact instruments and equipmet. Global certificates of compliance meeting UL/ CUL/ CB/ CE medical safety requirements ensure users' safety. EMI, 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 leakage current and/or low, no-load, power consumption.**

| Pricing: | 1 ~ 9 | $ 229.00 |
|---|---|---|
| | 10+ | 206.50 |
| | 25+ | 184.50 |

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# Pollock Industries

300W Single Output Medical Type

# MPS-300 Series

## 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
- Built-in constant current limiting circuit
- 1U low profile 41mm
- Medical safety approved (MOOP level)
- Built-in cooling fan ON-OFF control
- Built-in DC OK signal
- 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

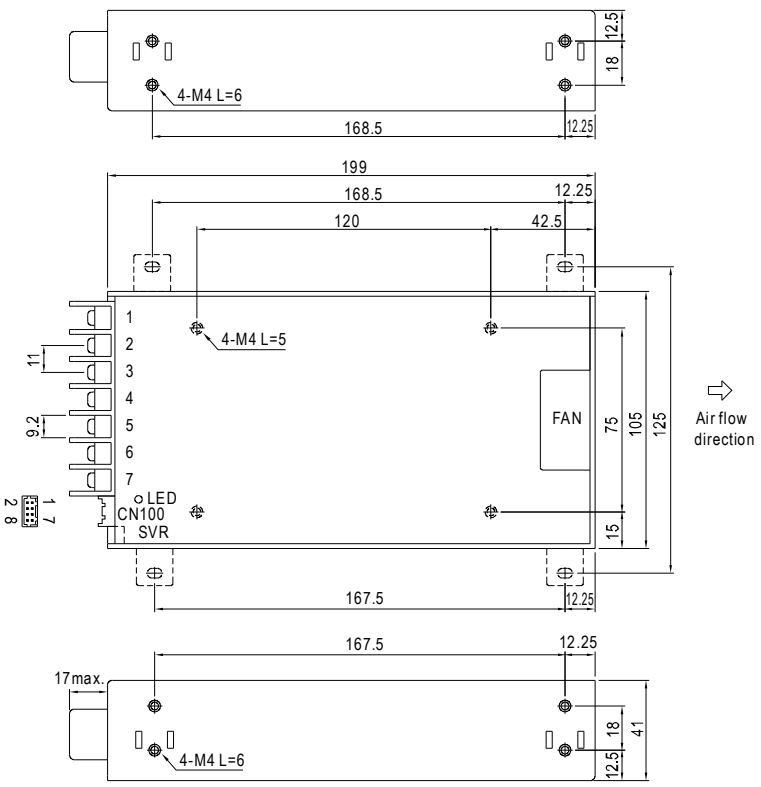
| MODEL | | MSP-300-3.3 | MSP-300-5 | MSP-300-7.5 | MSP-300-12 | MSP-300-15 | MSP-300-24 | MSP-300-36 | MSP-300-48 |
|---|---|---|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 3.3V | 5V | 7.5V | 12V | 15V | 24V | 36V | 48V |
| | RATED CURRENT | 60A | 60A | 40A | 27A | 22A | 14A | 9A | 7A |
| | CURRENT RANGE | 0 ~ 60A | 0 ~ 60A | 0 ~ 40A | 0 ~ 27A | 0 ~ 22A | 0 ~ 14A | 0 ~ 9A | 0 ~ 7A |
| | RATED POWER | 198W | 300W | 300W | 324W | 330W | 336W | 324W | 336W |
| | 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 | ±2.5% | ±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, 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% | 82% | 86% | 88% | 88% | 87% | 88% | 89% |
| | AC CURRENT (Typ.) | 4.5A/115VAC 2.25A/230VAC | | | | | | | |
| | INRUSH CURRENT (Typ.) | 35A/115VAC 70A/230VAC | | | | | | | |
| | LEAKAGE CURRENT | Earth leakage current < 450μA/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 turns on : 3.3 ~ 5.6V ; PSU turns off : 0 ~ 1V | | | | | | | |
| | REMOTE CONTROL | RC+ / RC-: 4 ~ 10V or open = power on ; 0 ~ 0.8V or short = power off | | | | | | | |
| | FAN CONTROL (Typ.) | Load 35±15% 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 | | | | | | | |
| | TEMP. COEFFICIENT | ±0.03%/℃ (0 ~ 50℃) | | | | | | | |
| | 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℃ / 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 | 176Khrs min. MIL-HDBK-217F (25℃) | | | | | | | |
| | DIMENSION | 199*105*41mm (L*W*H) | | | | | | | |
| | PACKING | 0.95Kg;15pcs/15.3Kg/0.69CUFT | | | | | | | |

**NOTE**

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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 pin4,6) 0 ~ 8V or short.

## ■ Mechanical Specification

Case No.980A Unit:mm



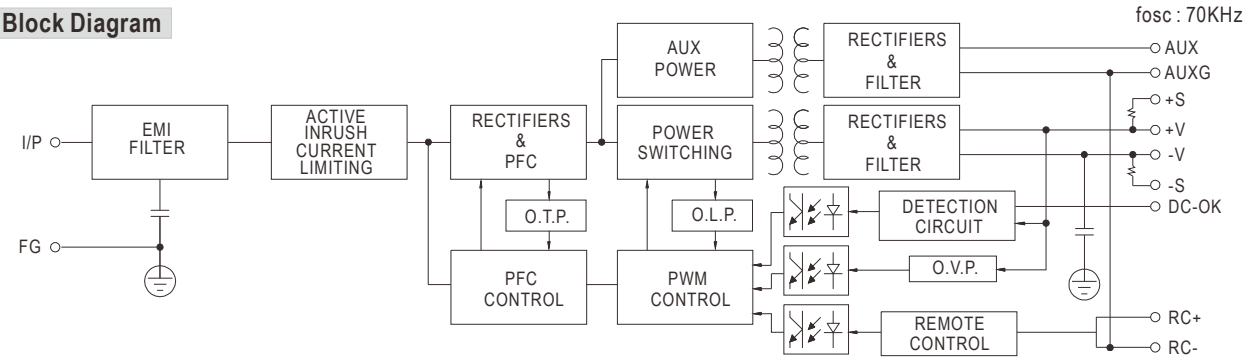

Terminal Pin No. Assignment

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

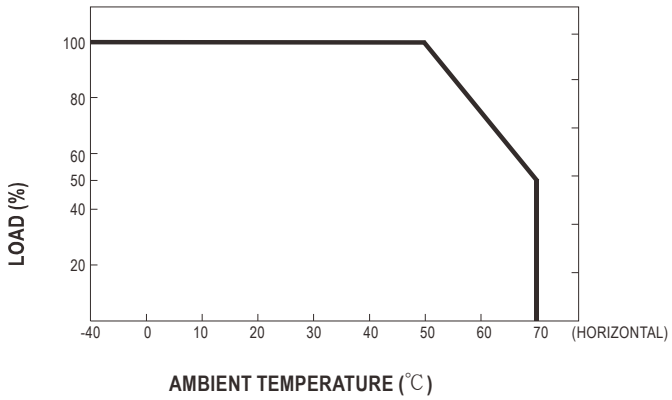
Connector Pin No. Assignment (CN100) :
HRS DF11-8DP-2DS or equivalent

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

## ■ Block Diagram

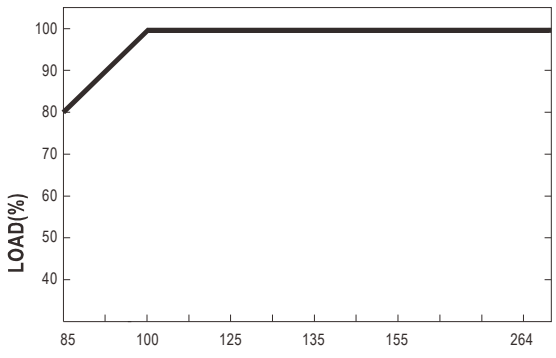



## ■ Derating Curve




AMBIENT TEMPERATURE (℃)

## ■ Output Derating VS Input Voltage




INPUT VOLTAGE (V) 60Hz

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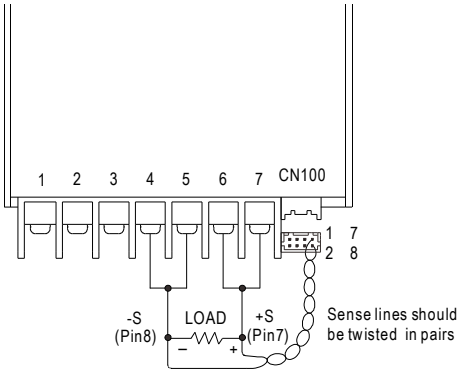
## ■ Function Description of CN100

| Pin No. | Function | Description |
|---|---|---|
| 1 | AUX | Auxiliary voltage output, 4.75~5.25V, reference to pin 2(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". |
| 2 | AUXG | Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V). |
| 3 | DC-OK | DC-OK signal is a TTL level signal, referenced to pin5(DC-OK GND). High when PSU turns on. |
| 4 | RC- | Remote control ground. |
| 5 | GND | This pin connects to the negative terminal(-V). Return for DC-OK signal output. |
| 6 | RC+ | Turns the output on and off by electrical or dry contact between pin 4 (RC-), Short: Power OFF, Open: Power ON. |
| 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 to 0.5V.



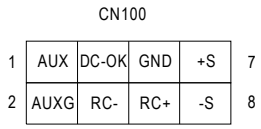
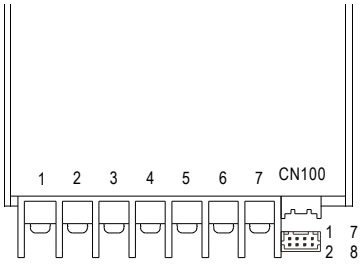




Fig 1.1

**2.DC-OK Signal**

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

| Between DC-OK(pin6) and GND(pin4) | Output Status |
|---|---|
| 3.3 ~ 5.6V | ON |
| 0 ~ 1V | OFF |



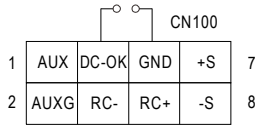




Fig 2.1

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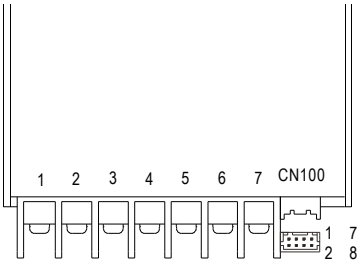
**3.Remote Control**

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

| Between RC+(pin3) and RC-(pin5) | Output Status |
|---|---|
| SW ON (Short) | OFF |
| SW OFF (Open) | ON |



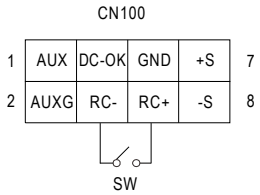




Fig 3.1

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