


# POLLOCK INDUSTRIES

## Technical Data Sheet

200 Watt, 24 Volt, Medical Safety Certified  
Single Output Power Supply with PFC

UNIT CODE	DESCRIPTION
MED-PS 200-24	200 Watt, 24 Volt, Single Output Medical Power Supply with Active PFC Function

SPECIFICATIONS		
AC Input	DC Output	Approvals
Universal AC input 85 ~ 264V	+24VDC @ 0 ~ 8.4A	

### 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  
     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 hours: 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 200-24 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. Additionally, with low leakage current ( $\cong 300\mu\text{A}$ ), extremely low no-load power consumption (<0.5W), 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 leakage current and/or low, no-load, power consumption.

<b>Pricing:</b>	1 ~ 9	\$ 199.00
	10+	178.50
	25+	149.00

[Release & Application Notes](#)

POLLOCK INDUSTRIES, INC. 81 Butternut Road, White River, VT 05001  
 toll-free 1-866-665-5434 (603) 888-2467 power@electracool.com



■ 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

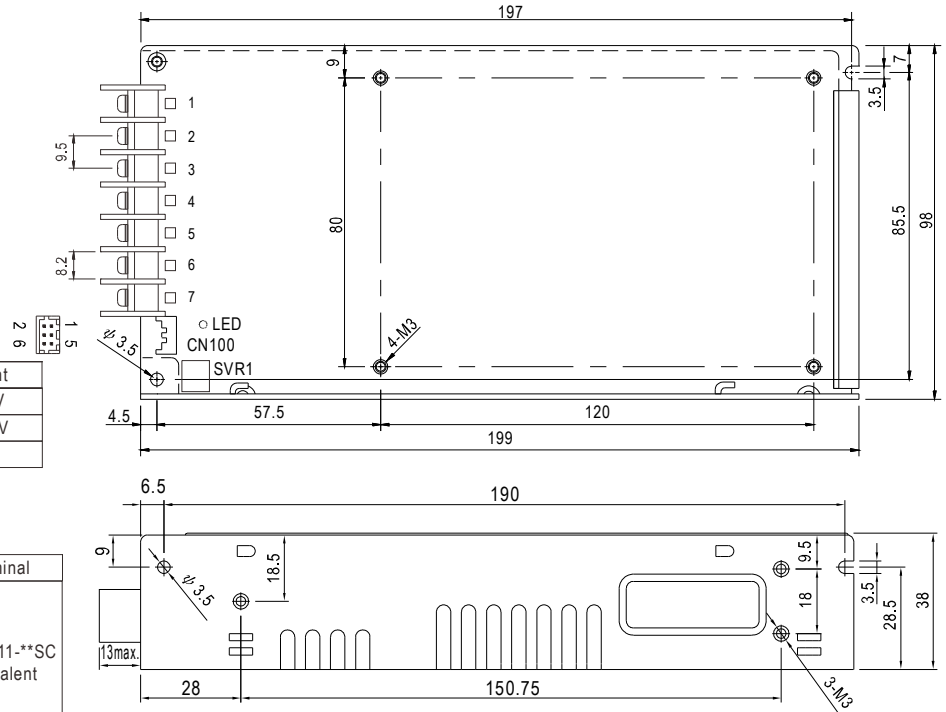


**SPECIFICATION**

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 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"> <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 0.1uf &amp; 47uf 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. 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> </ol>									

**Mechanical Specification**

Case No.902E Unit:mm



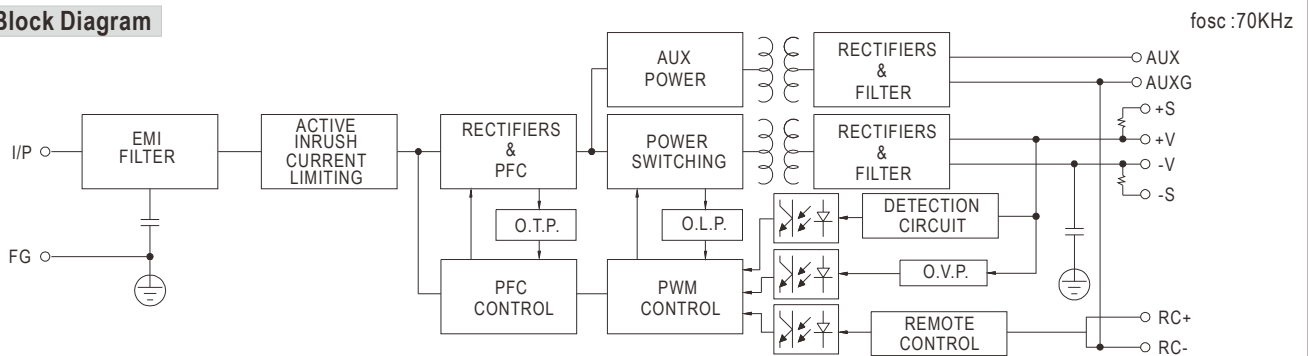
Terminal Pin No. Assignment

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

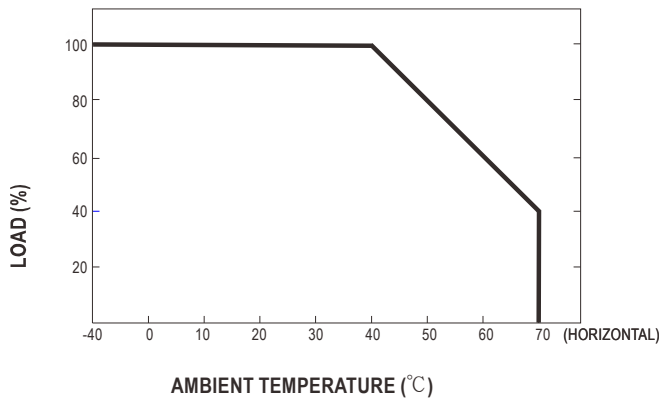
Connector Pin No. Assignment (CN100) :  
HRS DF11-6DP-2DS or equivalent

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		

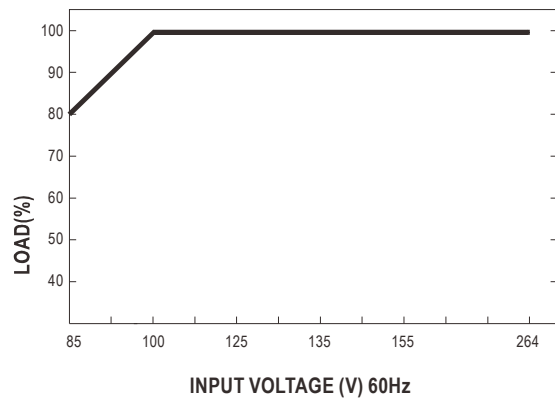
**Block Diagram**



**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

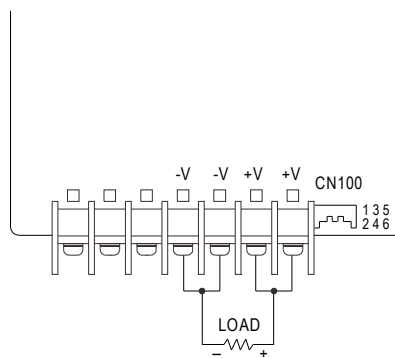
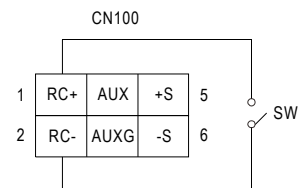


Fig 1.1



**2.Remote Sense**

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

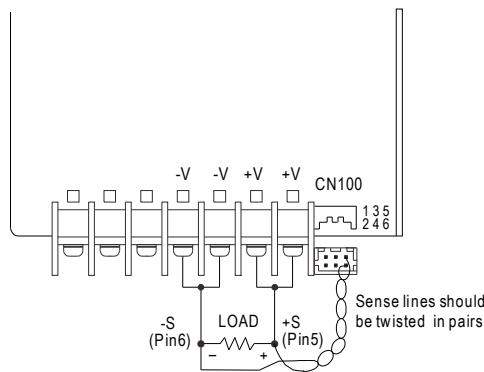


Fig 2.1

