

Section 8

## 1U LOW PROFILE AC TO DC SINGLE OUTPUT

Pioneer's introduces a 1U Low Profile High Efficiency PFC Series that provide full output power with 1φ AC Input. Designed to support both standalone and parallel configurations, these models are configured in standard Non-Plug and Hot Plug I/O interfaces. The Premium Quality front ends are rugged, reliable, designed for high performance and come in the low profile 1U x 5" package. With power density up to 25watts/in<sup>3</sup>, these units are featured with internal forced air-cooling and built-in protection from electrical over-loads.

A single module provides continuous full power over operating temperatures of 0°C to +50°C, from a Single AC Input line.

### Product Matrix

MODEL	PM3326	PM3327	PM3328	PM3329	PM33210	PM33211	PM33212
<b>MAX POWER</b>	1000W	1200W	1500W	2000W	2500W	3000W	3500W
<b>Vout</b>	lout	lout	lout	lout	lout	lout	lout
<b>12V</b>	73A	N/A	N/A	N/A	N/A	N/A	N/A
<b>15V</b>	67A	N/A	N/A	N/A	N/A	N/A	N/A
<b>24V</b>	42A	50A	63A	N/A	N/A	N/A	N/A
<b>28V</b>	36A	43A	54A	73A	N/A	N/A	N/A
<b>32V</b>	30A	38A	47A	63A	73A	N/A	N/A
<b>40V</b>	25A	30A	37A	50A	63A	75A	N/A
<b>48V</b>	21A	25A	31A	42A	52A	63A	73A
<b>54V</b>	18A	22A	28A	37A	46A	56A	65A
<b>60V</b>	17A	20A	25A	36A	42A	50A	67A
<b>Hot Plug</b>	1.62"		X	5"	X	17"	
<b>AC Input</b>	180VAC		To		264VAC		

Notes: Input Current Formula:  $1\phi \text{ Iin} = \text{Pout}/(\text{Vin} \times \text{Efficiency} \times 0.99\text{PFC})$

### Features:

- ◆ Power Factor Correction
- ◆ 0°C to +50°C at Full Load
- ◆ De-rated @ 70°C
- ◆ Standard 1U x 5" Case
- ◆ Outputs Fully Floating
- ◆ Over Current Protection
- ◆ Over Voltage Protection
- ◆ Remote Sense
- ◆ Over Temperature Protection
- ◆ Internal Forced Air Cooling

### Options:

- ◆ (-128L) DC OK with LED indicator
- ◆ (-1CL) AC Fail with LED indicator
- ◆ (-2T) Unit enable/disable
- ◆ (-5LO) ±10% Output voltage adjust
- ◆ (-6B) Single wire current sharing
- ◆ (-20C) Isolation diodes
- ◆ (-25) Constant current limit
- ◆ (-33) Current monitor

Note: Refer to Section 26 for list of all standard options

## SPECIFICATION

### Inputs

**RANGE:** 180 to 264 VAC, 1 $\phi$ .  
**FREQUENCY:** 47 to 63 Hz.  
**POWER FACTOR:** 0.99 @ Full Load  
**INRUSH CURRENT:** < 25A when averaged over 1/2 cycle.  
**HARMONIC CURRENT:** < 5%  
**INTERNAL FUSE:** Provided

### Environmental

**AUDIBLE NOISE:** 68.5dBA at 1 meter for a single unit and 73.5dBA for a rack.  
**TEMPERATURE:** Operating: 0°C to +50°C at full load. Storage: -55°C to +85°C.  
**HUMIDITY:** 20% to 95% non-condensing.  
**ALTITUDE:** Operating: 5,000 feet. De-rates to 70% at 15,000 feet. Non-Operating: To 30,000 feet.  
**VIBRATION:** Operating: From 5 to 27 Hz, 0.02 in double amplitude; from 27 Hz to 500 Hz, 0.75G, 3 Axes, 3 min per octave sweep, dwell 15 min at resonance. Non-operating: From 5 to 17 Hz, 0.10 in double amplitude, from 17 to 500Hz, 1.5G peak; 3 axes, 5 min per octave sweep; dwell 15 min at resonance.  
**SHOCK:** Operating: 5G, half sine, 11msec, 3 axes. Non-Operating: 15G, half sine, 11msec, 3 axes.  
**COOLING:** Forced air, internal fan. Airflow exits at connector end. Reverse airflow available.

### Output

**ADJUSTMENT RANGE:** +5% to -10% of nominal output voltage.  
**POLARITY:** Output is isolated. It may be referenced plus/minus as required.  
**REMOTE SENSE:** Compensates for up to 0.5V total loop drop, in the output line.  
**STATIC REGULATION:**  
Line:  $\pm 0.25\%$  over full line range.  
Load:  $\pm 0.25\%$  zero load to full load.  
**VOLTAGE STABILITY:**  $\pm 0.1\%$  for 24 hour period after 30 minute warm up.  
**TEMP COEFFICIENT:**  $\pm 0.02\%/^{\circ}\text{C}$  from 0°C to +50°C.  
**P-P RIPPLE AND NOISE:** 1% (20Hz to 50MHz Bandwidth).  
**MINIMUM LOAD:** Not Required.  
**TURN ON DELAY:** 1sec max from application of AC line.

### Internal Protection

**OVER VOLTAGE PROTECTION:** 125%  $\pm 5\%$  of nominal. OVP shutdown is latched until the input line is removed for 30 seconds and then reapplied. OVP sensing is done at the output terminals.  
**OVER CURRENT PROTECTION:** Current Limit Point: 110% to 120% of full load.  
**SHORT CIRCUIT CURRENT:** Fold back type to 40%-80% of full rated current. Unit will recover when overload is removed.  
**REVERSE VOLTAGE PROTECTION:** Protected to rated load with the fan running.  
**OVER TEMPERATURE PROTECTION:** The unit automatically shuts down in the event of an over temperature condition. After cool down, unit recovers automatically.

### Safety

**SAFETY:** UL1950, CSA22.2 No 950 and TUV to EN60950. CE Mark (LVD)  
**EMI:** Conducted & Radiated: EN55022 Level A  
CE Certification is Optional

