Section 11

AC TO DC SERIES
NON-ISOLATED BULK POWER 3.5" X 5"

Pioneer's Modular PFC Product Series can also be used in applications where 400VDC non-isolated single output bulk power converter is required. With PFC, output power can be maintained with a 30% reduction in RMS line current. Other advantages include improved hold-up performance, reduced line harmonics (for 1φ input only), and insensitivity to voltage and frequency variations. Because they effectively eliminate harmonic currents, the converters are ideal for applications where neutral wire current exceeds recommended ratings due to waveform distortion caused by the typical off-line units.

Additional benefit of the bulk power converter is that it eliminates the need for switches and jumpers to adapt the supply for 110VAC or 220VAC operation, creating a "Universal Input" power unit. The input voltage on the bulk PFC converter is boosted to provide a nominal 400VDC output for conventional pulse width modulated (PWM) power supplies or distributed DC bus network. It meets the most stringent international safety and EMI standards, including the IEC555-2 which limits line current harmonic content to less than 5% (for 1φ input only).

With wide input range, the bulk power series can deliver up to 10,000 watts. Operating temperature ranges from 0°C to +50°C at full load. Improvements in electrical and heat transfer technology allow component stresses to be kept well within manufacturers' rating, insuring high reliability.

MODEL	PM3526	PM3529	PM35210	PM35211	PM35212	PM35213	PM35214	PM35215
MAX POWER	1000W	2000W	2500W	3000W	3500W	4000W	4500W	5000W
OUTPUT	Iout	Iout	Iout	Iout	Iout	Iout	Iout	Iout
250V	4.0A	8.0A	10.0A	12.0A	14.0A	16.0A	18.0A	20.0A
300V	3.3A	6.6A	8.3A	10	11.7A	13.2A	15.0A	16.6A
380V	2.6A	5.2A	6.5A	7.9A	9.2A	10.5A	13.0A	13.0A
400V	2.5A	5.0A	6.3A	7.5A	8.8A	10.0A	11.3A	12.6A
Dimensions	3.5"	5"	12" (15.5")	3.5"	5" 12"	3.5"	5"	15.5"
AC INPUT	90V	To	264V	180V	To 264V	180V	To	264V

Product Matrix

Notes:
1. **All Models are available in Single Phase.**
2. **4kW to 5kW Models are available with 400VAC or 480VAC nominal AC Input 3φ**
3. **Call factory for Three Phase Model.**
4. **250V and 300V outputs require special AC Input. Call factory.**

Configuration Description

The converters are housed in a self-contained, forced-air, cooled enclosures. The DC output is brought out to a 6-32 screw terminal and is protected by an internal fuse. The AC input is via a 8-32 screw terminal barrier block and is protected by an internal fuse. Optional interface connections, where required, are available on a connector.

Features:

- Power Factor (> 0.99) Corrected
- 0°C to +50°C at Full Load
- Input and Output Fuses
- Over Voltage Protection
- Over Temperature Protection
- Self-contained Forced Air Cooling

SPECIFICATION

Inputs

RANGE:
90 to 264VAC, 1φ or 3φ
180 to 264, 1φ or 3φ
365 to 528, 3φ
FREQUENCY: 47 to 63 Hz.
INPUT CURRENT: Depends on Output Power, Number of Phases and PFC 0.99 or 0.95.
POWER FACTOR:
0.99 @ Full Load, 1φ
0.95 @ Full Load, 3φ
HARMONIC CURRENT: < 5%, 1φ only
EFFICIENCY: 92% Typical @ full load and 240VAC
INTERNAL FUSE: Input fuses are provided
INITIAL OUTPUT LOAD CONDITION: No load should be applied during initial AC start-up. Output load should be enabled using the Logic Inhibit signal after the AC is applied.

Environmental

AUDIBLE NOISE: 63dBA/70dbA max at 1 meter
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

VOLTAGE: 400 VDC nominal with ±5% tolerance. Output load should be enabled using the Logic Inhibit signal, 2 sec after the AC is applied.
OUTPUT POWER: See Product Matrix
P-P RIPPLE AND NOISE:
15V peak (10Hz to 100KHz Bandwidth).
HOLD-UP ENERGY: When the AC input is removed from the converter, depending on the output power, 86-300 Joules minimum are available on the output.
OUTPUT FUSING: Provided per output requirement.

Internal Protection

OVER VOLTAGE PROTECTION: The over voltage circuitry limits the maximum output voltage that the converter produces. **Note:** Peak value of AC Input voltage will appear at the output even if the converter is operating or not. This circuit protects only control loop failures.
OVER TEMPERATURE PROTECTION: The over temperature circuitry shuts off the boost converter in the event of an over temperature condition. It will restart automatically after cool down. **Note:** Peak value of AC Input voltage will appear at the output even if the converter is operating or not.

Safety

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