Pioneer Magnetics
POWER WITH INTELLECT

The Leader of High Power Switching Power Supplies

LIQUID COOLED HIGH POWER 8.5kW AC TO DC SINGLE OUTPUT

RoHS Compliant

Pioneer introduces a new line of liquid cooled power supplies. The hallmark of this series is High Efficiency, High Power with full Output Power of 8.5kW with 3P AC input ranging from 365V to 528V with Nominal 480VAC 3P and 180V to 264V with 240VAC Nominal 3P. This liquid cooled product series support 0.95 PF with 3P Input and has Efficiency >90% for outputs greater than 40V at nominal line and full load.

The liquid cooled series is designed to support both standalone and parallel configurations. The models are configured in standard I/O interfaces with quick liquid disconnects with no spill. The Premium Quality front ends are ruggedized and are reliable for high performance designed in a 2U compact package with dimensions 3.42″ x 5.8″ x 15.5″.

With Optimum power density of 27.64watts/in^3, excluding the I/O interface and water connection, these units also have built-in protection from electrical over-loads and over temperature. Optionally, the units are designed with Intelligent Communication Interface using CAN, I2C, RS232 or RS485 Interfaces.

A single unit provides continuous full power over ambient operating temperatures of 0°C to +50°C using an aluminum plate with 1/4" stainless steel barb for liquid cooling using 0.5g/m water flow at 40°C max inlet temperature. The 8.5kW liquid cooled unit is available in three different configurations depending on the selected output voltage as listed below in the Product Matrix.

Product Matrix:

Model	PM37218A	Model	PM37218A	Model	PM37218A
Max Power	8.5kW	Max Power	8.5kW	Max Power	8.5kW
Vout	Iout	Vout	Iout	Vout	Iout
<40V	High Current	40V to 100V	Medium Current	100V to 400V	Low Current
24V	355A	40V	215A	100V	85A
28V	305A	48V	175A	150V	57A
30V	285A	60V	140A	200V	43A
32V	265A	75V	115A	250V	34A
36V	235A	90V	95A	300V	28A
40V	215A	100V	85A	350V	24A
				400V	21A
Dimensions	3.42″ x 5.8″ x 15.5″		3.42″ x 5.8″ x 15.5″		3.42″ x 5.8″ x 15.5″
3P Vin	480VAC or 240VAC		480VAC or 240VAC		480VAC or 240VAC

Features:

- Power Factor 0.95
- Ambient 0°C to +50°C at Full Load
- Outputs Fully Floating
- Overcurrent Protection
- Overvoltage Protection
- Remote Sense
- Over Temperature Protection
- Max Inlet Liquid Temperature +40°C
- Built-in Input Fuses

Options

- (-128L) DC OK with LED indicator
- (-1CL) AC Fail with LED indicator
- (-2T) Unit enable/disable (Available in 4 Different Configurations)
- (-6B) Single wire current sharing
- (-20C) Isolation FETs
- (-25) Constant current limit
- (-33) Current monitor
- (-60/61) Voltage and Current Programming Using 0 to 5V Signal
- Intelligent Interface, CAN, I^{2}C, RS232 and RS285

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SPECIFICATIONS

Inputs

RANGE: 365 to 528VAC 3P, 480VAC Nominal. 180 to 264VAC 3P, 240VAC Nominal
FREQUENCY: 47 to 63 Hz.
POWER FACTOR: 0.95 @ Full Load.
EFFICIENCY: > 90% for outputs greater than 40 volts at nominal line and full load.

Output

POWER: 8.5kW Max
VOLTAGE & CURRENT: See Product Matrix
REMOTE SENSE: Compensates for up to 5% drop between the power supply and load with nominal voltage setting.
POLARITY: Output is isolated. It may be referenced plus/minus as required.
STATIC REGULATION: Line: ±0.25% over full line range. Load: ±0.25% from zero to full load.
VOLTAGE STABILITY: ±0.1% for 24-hr period after 30-minute warm up.
P-P RIPPLE: 1% Voutpp, 5% to 100% load
MINIMUM LOAD: Not Required.

Internal Protection

OVER VOLTAGE PROTECTION: 115% ±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: 105% to 110% of full load.
OVER TEMPERATURE PROTECTION: In the event of an over temperature condition, the unit automatically shuts down. Unit recovers automatically after it cools down.
INPUT FUSES: Three built in fuses are provided.

Safety, EMI and EMC

SAFETY: TUV to EN60950-1. CE Mark (LVD)
EMI: Conducted & Radiated: EN55022 Level A
EMC: EN50082-1

Environmental

AUDIBLE NOISE: < 40dBA at 1m max
MAX INLET WATER TEMPERATURE: +40°C
AMBIENT TEMPERATURE: 0°C to +50°C.
HUMIDITY: 20% to 95% non-condensing.
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: Cold Plate to liquid cooling. Min Liquid Flow Rate 0.5g/m

Mechanical

DIMENSIONS: Case: 5.8" x 3.42" x 15.5". Excluding the I/O Connectors.
WATER CONNECTION: ¼" Barb
WEIGHT: 16lbs.
MOUNTING: Mounting holes are provided at the input section.
I/O CONNECTORS: All Electrical and Water Connections are provided at the same end. This includes the DC Bus Bars for output voltage, 4 Position connector block for AC 3P input, DB15 for Options, Dipswitch for Intelligent Communication Set up and ¼" stainless steel tubing for water.

Option Description

(-1CL) POWER FAIL: Upon loss of AC line, signal goes from low to high before loss of output regulation. LED on is good and off indicates failure.
(-2T) LOGIC INHIBIT: Less than 0.5 volts will inhibit the supply. Two volts or more or an open circuit will enable the supply.
(-6B) CURRENT SHARING: Allows two or more similar power supply main outputs to load share using a single wire.
(-20C) FET ISOLATION: Built in isolation FETs in the positive output line to prevent a failed power supply from affecting the bus.
(-25) CURRENT LIMIT: Power Supply limits at maximum output current during a short circuit load condition. Current limit set between 95% and 105%. Short circuit is set between 90% to 110%
(-33) CURRENT MONITOR: The current monitor signal is referenced to the negative output. It is accurate to within +/- 10%, from 10% to 100% load. The analog signal 0V to 5V is proportional to the load when increased from no load to maximum load.

Applications

Typical uses of liquid cooling are found in many applications such as supercomputers, radar transmitters and receivers, test equipment, industrial, broadcast, metal and chemical manufacturing applications that depend on regulated and highly reliable DC current power supplies.

8.5kW Liquid Cooled Power Supply, 9/2/15
Pioneer Magnetics' reserves the right to change the specifications at any time without prior notice. It is Pioneer Magnetics' policy to improve products as new techniques and components become available.
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