



Espey Mfg. & Electronics

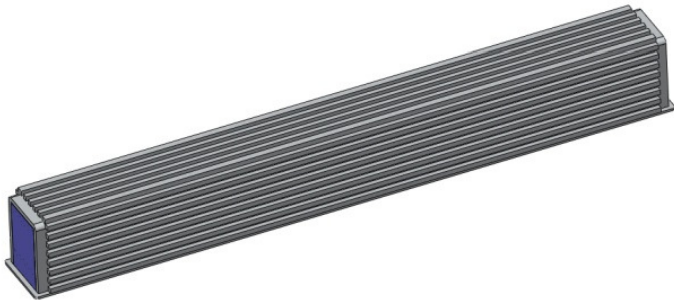
MAC Stick

(Modular AC Power Stick)

6-28-10

Espey MAC Stick

MAC Stick - *Modular AC Power Stick*



Features:

Ruggedized Military Vehicle AC Inverter

500 W Output Power

Pure Sine 120VAC 60 Hz Single Phase Output

Isolated Output

Overload Protected

Configurable and Expandable

Natural Convection Cooled

Sealed, dust proof, water immersion to 6 feet

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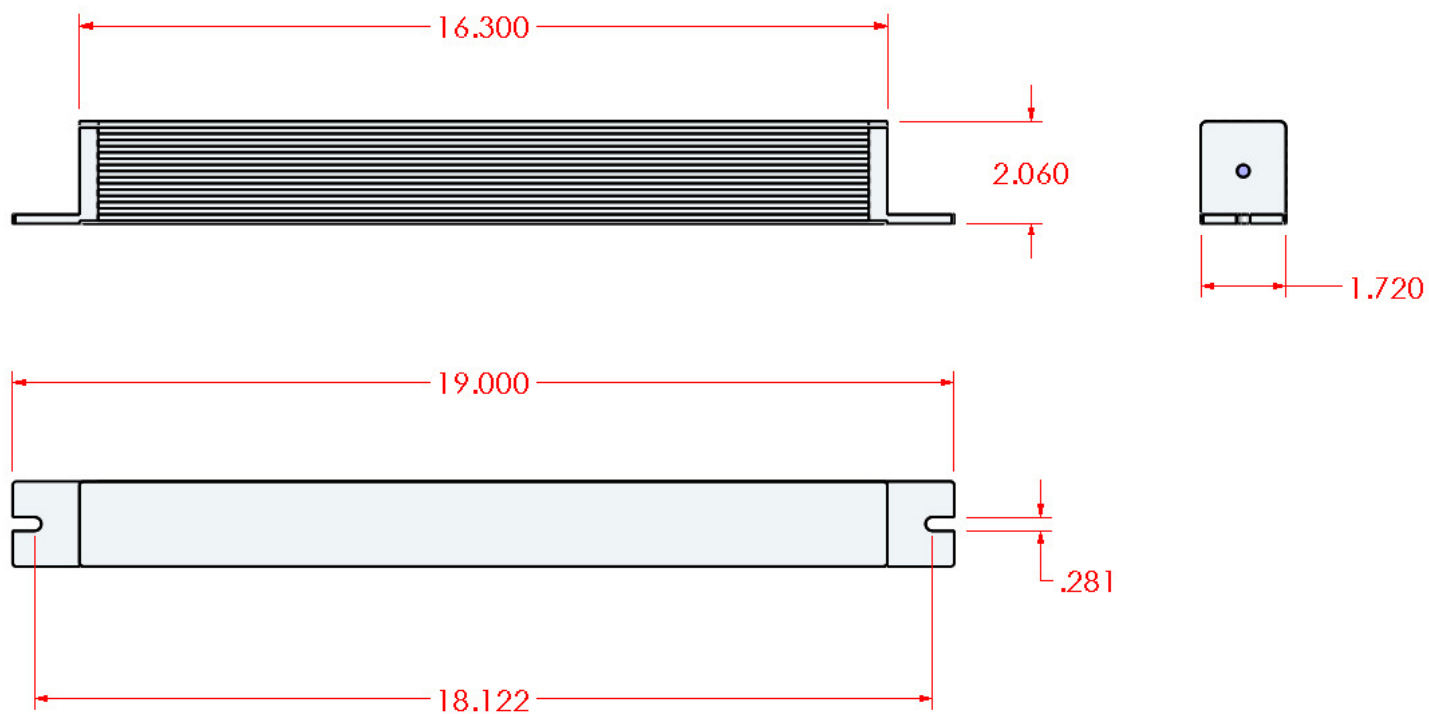
Specifications	
Input Power	Mil-STD-1275, 28VDC
Output Voltage	120VAC 60 Hz Single Phase
Output Waveform:	Pure Sine
No-Load Current Draw	<100mA (0 A with switch or contactor options)
Efficiency	90%
Input Overvoltage Shutdown	Yes
Input Undervoltage Shutdown	Yes
Overload Shut Down	Yes, Voltage Foldback
Thermal Shutdown	Yes
Short Circuit Protection	Yes
EMI/EMC	MIL-STD-461

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Specifications	
Operating Temperature	-40 to +50C
Shock and Vibration	MIL-STD-810
Operating Altitude	15,000 Ft
Immersion	MIL-STD-810, 6 foot Immersion
Sand and Dust	MIL-STD-810
Fluids	MIL-STD-810
Fungus	MIL-STD-810
Weight (lb) (Base Stick)	5 lb
Dimensions (in) (Base Stick)	16.03 x 1.72 x 2.06

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MOUNTING DIMENSIONS




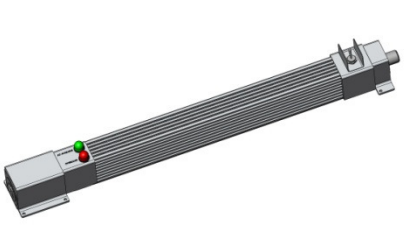
(Shown with Cable Entry End Caps)

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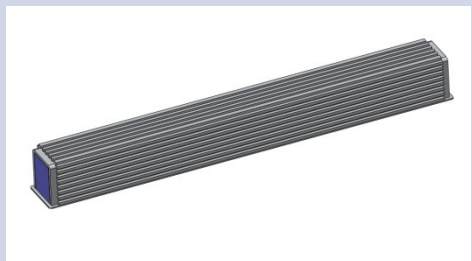
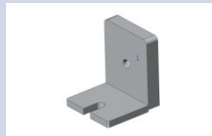



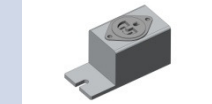
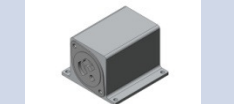
OUTPUT POWER	
Mounting Configuration	
Deck or Rack Mounted Natural Convection 50°C Ambient	300W Each Module
Deck, Rack or Breaker Box Mounted Forced Air 10 Lin-Ft/Min 50°C Ambient	500W Each Module
MAC 4-Pak with Integrated Fan 50°C Ambient	500W Each Module, 2KW total

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Existing Technology Comparison:

	Sensata, MIL-24/300NQ NSN 6130-01-435-0020	Espey MAC Stick (shown with same features: switch, LED indication and outlet)
		
Output Power (Watts Cont.)	300 @ 25°C, 225 @ 50°C	500 @ 25C, 300 @ 50C
Output Current (Amps AC)	Up to 2.5	Up to 4.1
Weight (lbs)	14	6
Volume (in ³)	410	94
Dimensions (LxWxH, in)	12.5 x 6.25 x 5.25	24.5 x 1.75 x 2.2

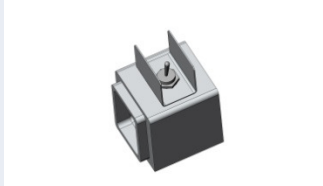
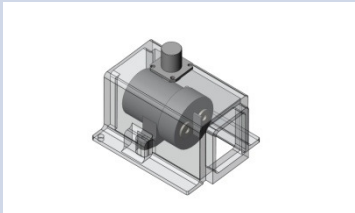
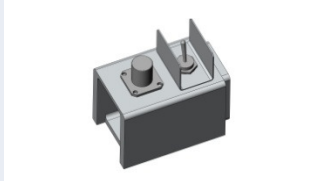
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Configuration Table		
		Base MAC Stick, Single Unit
End Cap Options		
End Mount 	Side Mount 	Cable Entry End Cap (AC or DC) Provided with cable, any length, un-terminated or terminated (See Cable Termination Options)
End Mount 	Side Mount 	DC Connector End Cap Circular Mil, Ring Lug Studs
End Mount 	Side Mount 	AC Connector End Cap Circular Mil, NEMA Three Prong, or Custom

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Configuration Table - Continued

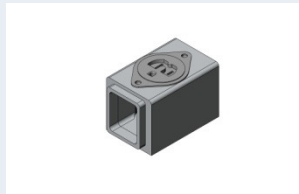
DC Accessory Modules

	<p>Manual DC Disconnect Switch (DC Breaker Optional) Mount between MAC Stick and End Cap or add End Caps and locate any where</p>
	<p>DC Disconnect Relay Remotely Operated , enable with 24V Signal Mount between MAC Stick and End Cap or add End Caps and locate any where</p>
	<p>Remote DC Disconnect Switch Locate at AC Convenience outlet or any where</p>
	<p>Custom Possibilities:</p> <ul style="list-style-type: none">- Battery Packs for Hold up Power-DC Source "OR" Diodes

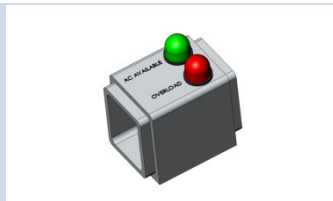
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Configuration Table - Continued

AC Accessory Modules



AC Connector
Circular Mil, NEMA Three Prong, or Custom
Add to AC End Caps to provide multiple outlets



AC Power Available and Overload Indicator
LED Indicators for "AC Available" and "Overload"

Custom Possibilities:
- Terminal Blocks, Fuses, Breakers
- Paralleling modules to connect multiple units together,...

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Configuration Table - Continued

DC Cable Termination Options



Un –Terminated Cable

Any length, shielded or unshielded, (wire to rack terminal block, breaker/fuse panel, in-line connectors,...)



Circular Mil

MIL-C-5015 or any Circular Mil Standard Connector



NATO 28V DC Connector

Custom Possibilities: Any available Termination

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Configuration Table - Continued

AC Cable Termination Options



Un –Terminated Cable,
Any length (wire to rack terminal block, breaker/fuse panel,
in-line connectors,...)



Circular Mil. MIL-C 5015
MIL-C 5015 or any Circular Mil Standard Connector



YC-15
NEMA Standard Three Prong
Molded Lead Cords most any syle or length



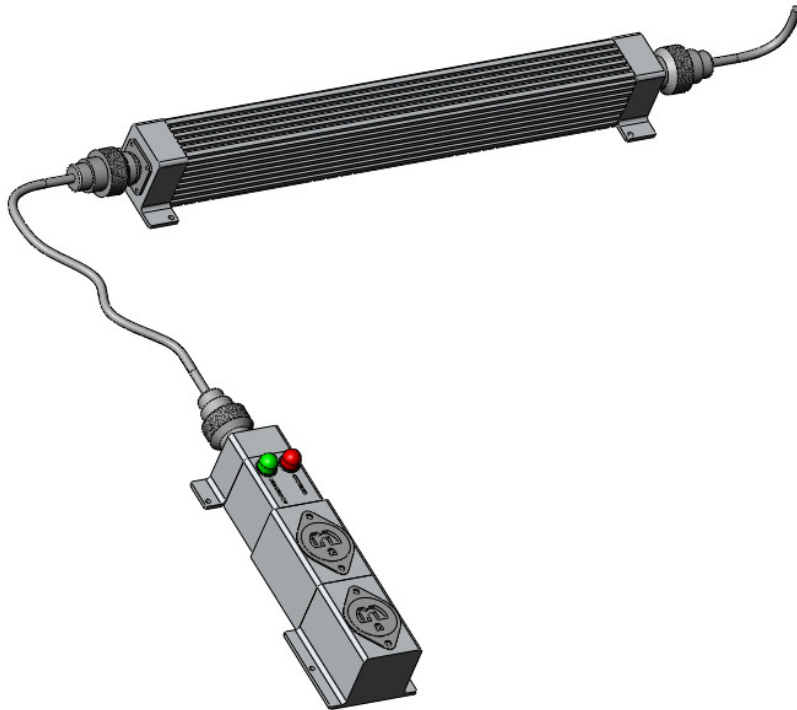
YC-12
IEC60320-C13 Receptacle (Plugs directly into the back of
computer/networking equipment.)



YC-05
Custom Possibilities: Any available Termination

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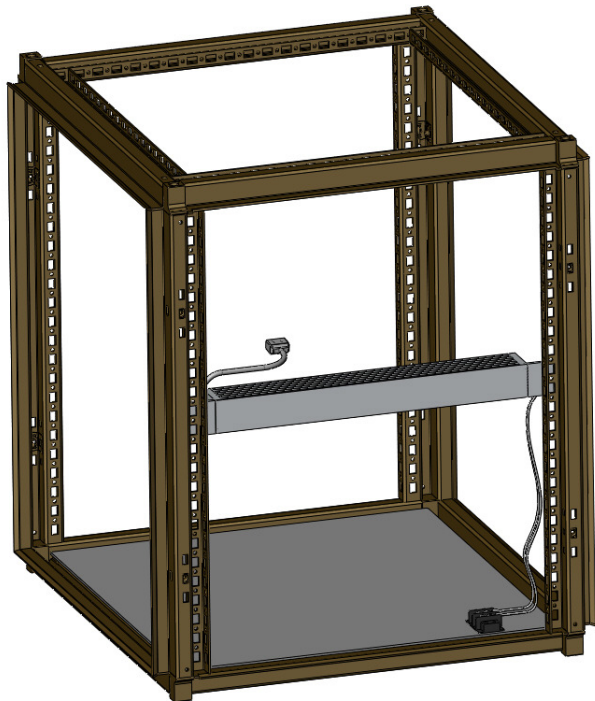
Single Unit Application Example – AC Convenience outlet



- Locate MAC Stick anywhere
- Locate AC Outlet in convenient location
- Provides “convenience outlet” for laptop, IPod, GPS, cell phone,...)
- Add Hard disconnect switch or Remote Disconnect for Zero Current draw “off”.

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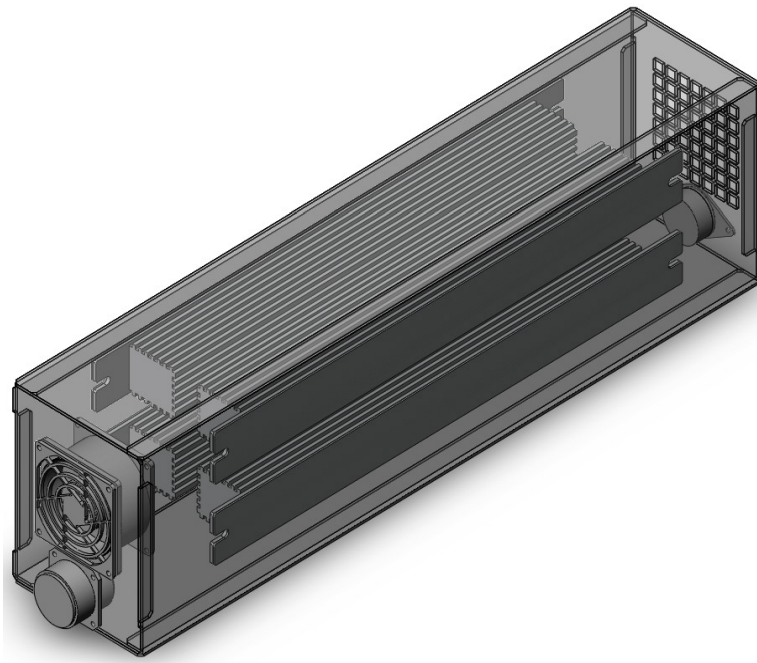
Single Unit Application Example -19" Rack Mount 1U Height



- Mount protruding internally or externally
- Mount in rear of Rack to feed AC power to COTS rack mount units mounted from front
- Provided with pendant cable with IEC60320-C13 Receptacle to plug directly into COTS equipment
- Accessories such as outlets, Mil Connectors, Remote shutoff can be configured on separate 1U strip if needed

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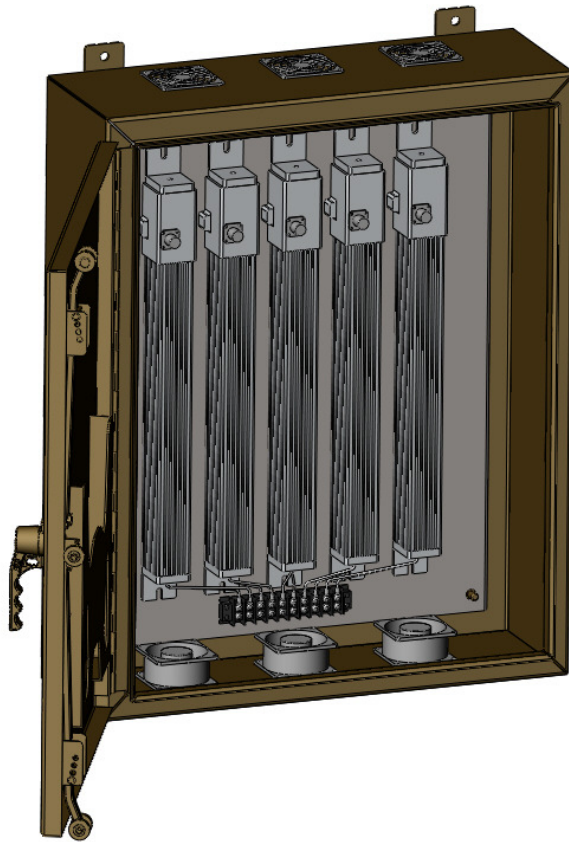
Multiple Unit Application Example: MAC-4Pak



- Paralleled into a 2KW building block with forced air cooling
- Forced Air Cooling allows for 500W per MAC Stick at 50°C
- Single DC Input Circular Mil or Studs for Ring Lugs
- Single or multiple AC Connectors

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Multiple Unit Application Example: Breaker Box Mounting



- Electrically connect as Single Units or Paralleled to provide power to individual circuits or loads in 500W increments
- Shown with Remote DC Disconnect Module to manage loads
- Cool with cabinet fans or mount on Liquid Cooled plate.

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Development Status

Electrical Design – Complete

Mechanical Design and Thermal Modeling -Complete

Prototype Build and Test – September 2010

Production Availability – January 2011

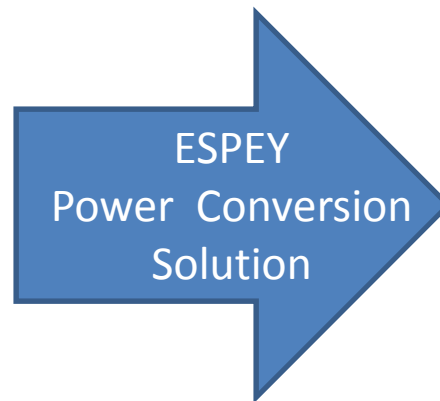
About Espey

- Espey Manufacturing & Electronics Corp is a Power Electronics Design and Original Equipment Manufacturing (OEM) company with a long history of developing and delivering highly reliable products for use in military and severe environment applications.
- Design, manufacturing, and testing is all performed in our 150,000+ square foot facility located at 233 Ballston Ave, Saratoga Springs, New York. Espey is a small business that is ISO 9001:2008 certified and publicly traded on the New York Stock Exchange (ESP).
- Espey's primary products are electronic power supplies, power converters, filters, power transformers, magnetic components, and power distribution assemblies.
- The applications of these products include Army Tactical, Navy Shipboard, Freight Locomotives, Mining Vehicles, and Fixed and Rotary Winged Aircraft.

About Espey

Espey provides Power Conversion Solutions allowing any Electrical Power Source to provide power to any other Electronic System or Device.

Regulated or Unregulated Power
Vehicle Generator/Alternator
Ship Generator
Batteries
Wind Turbine
Alternative Energy
World Wide Utility Power
Shore Power
Ship Power
Vehicle Power
Aircraft Power



Regulated Power
Regulated AC
Regulated DC
Exportable AC
Exportable DC
Low Voltage
High Voltage
Multiple outputs
Meeting any needs
Meeting any Requirement
In support of any System

Contact Us

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