

## **LEED and the MA 4 Multichannel Amplifier**

- **What LEED is and does**
- **How the MA 4 helps earn LEED points**

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### **Introduction**

LEED® is an acronym for Leadership in Energy and Environmental Design and a registered trademark of the United States Green Building Council (USGBC). It is a certification system for environmentally friendly ("green") buildings.

The USGBC website ([www.usgbc.org](http://www.usgbc.org)) defines it this way:

"The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, **energy efficiency**, materials selection, and indoor environmental quality."

"LEED-certified buildings:

- are leading the transformation of the built environment
- are built as designed and perform as expected
- **have lower operating costs and increased asset value**
- are healthy and comfortable for their occupants
- **reduce waste sent to landfills**
- **conserve energy** and water
- reduce harmful greenhouse gas emissions
- qualify for tax rebates, zoning allowances, and other incentives in hundreds of cities
- demonstrate an owner's commitment to environmental stewardship and social responsibility."

(Items shown in **green** are addressed by Rane's MA 4 amplifier.)

It is important to note that *buildings* are LEED certified, not *products*; although it is easy to imagine that in the future this may change.

Architects earn points toward LEED certification in categories such as sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmentally quality, and the overall innovation & design process.

LEED points are earned by reducing energy costs; incorporating lots of daylight; reducing light pollution; and using recycled and renewable materials.

Electrical products that contribute to a LEED-certified building are energy-efficient. Common examples include low-power lights, emergency signs, occupancy sensors, and lighting controls, and using low-power outdoor light fixtures that light the building and walkways and not the surrounding environment.

Even though individual products are not certified under the LEED program, certain products contribute significantly to points under the rating system.

## The MA 4 Multichannel Amplifier as Point Earner

The MA 4 Multichannel Amplifier is such a contributing product and energy efficiency is where the MA 4 helps architects earn points.

Traditional buildings using conventional inefficient power amplifiers for paging and background audio waste far more power than they use. Conventional power amplifiers dissipate 60-70% of the power consumed as heat. Think how wasteful that is. Unless you are going to cleverly use this heat to reduce the HVAC needs—not practical—you are losing points here. And losing even more points because of the increased air conditioning needed to cool the equipment rooms.

The MA 4 leads the industry in terms of power density, reliability and features:

- **Efficiency:** delivering 85% of the input power to the loads and losing only 15% in heat reduces overall building power needs as well as needing less equipment room HVAC.
- **Power-Factor Correction:** reduces peak currents to  $\frac{1}{3}$  and average currents to  $\frac{1}{2}$  compared to conventional power amplifiers, again saving important energy.
- **Very Low Inrush Current:** allows more amplifiers to exist on each breaker therefore reducing the size and complexity of the electrical panels. For example, eight MA 4s can operate from a single 15 amp AC circuit breaker<sup>†</sup>. That's 32 channels of 100 watt power per breaker, which means less copper, less conduit and fewer circuit breakers.
- **Built-in Fault Monitoring and Reporting with Redundancy Switching:** eliminates the need for additional processing units to provide these critical functions.
- **Small & Lightweight:** provides four 100 watt channels in a 1U, eight pound chassis that permits use of smaller and lighter equipment racks, allowing smaller equipment rooms.
- **Euroblock Connectors:** allows direct termination of wiring without the need for additional and wasteful connectors; saving metal resources.
- **Unbeatable Reliability:** lowers maintenance costs.

## Summary

When specifying a new or remodeled building for LEED certification, Rane's MA 4 Multichannel Amplifier provides important advantages over conventional power amplifiers. It saves energy, equipment, HVAC, electrical room size, copper, and electrical panel requirements. Full details are at [www.rane.com/ma4.html](http://www.rane.com/ma4.html)



<sup>†</sup>Power-factor correction + efficiency + low in-rush + real world audio signal (20 dB headroom) makes this possible.