

## **ClearSign Combustion Corporation Develops Novel Power Amplifier for Cost Effective Implementation of ECC(TM) Technology**

### **Proprietary Design Promises to Significantly Lower Installation and Operating Costs While Improving Reliability**

SEATTLE, WA -- (MARKETWIRE) -- 02/07/13 -- ClearSign Combustion Corporation (NASDAQ: CLIR) today announced that it has developed and successfully demonstrated a novel power amplifier specifically designed for installation of the company's proprietary ECC™ Technology in a wide range of operating environments and combustion system types. A small number of pre-production prototypes are now being built.

Compared with standard power amplifiers, which can be as large as a refrigerator and can weigh several hundred pounds, the new ECC™ Amplifier™ measures only 5-1/2" by 3-1/4", weighs only ounces, and can be held comfortably in the palm of one's hand. But, in spite of its tiny footprint, the device is capable of generating +/- 20,000 volts and operates with an extremely low power input of less than 65 W. Traditional high-voltage power amplifiers require a clean, temperature controlled environment and can cost tens of thousands of dollars. By contrast, the new ClearSign ECC Amplifier is inexpensive to manufacture and can be 'ruggedized' for installation much nearer to the combustion source, while tolerating humidity, dust and a wider temperature range. This may result in lower capital and operating expense, and can reduce external high-voltage cable runs for easier and faster retrofits.

"This is a tremendously important development in our path to commercialization," said ClearSign CEO Rick Rutkowski. "The availability of a low cost, compact power amplifier that can tolerate the environmental conditions of an industrial site is a key enabler for us."

For ClearSign, a high voltage power amplifier is a key component of their Electrodynamic Combustion Control™ (ECC™) technology, which uses computer controlled, pulsed electric charges to optimize the environmental performance, energy efficiency and heat transfer characteristics of combustion systems.

"Historically, the power amplifier has been by far the most expensive element in our estimated bill of materials for installing ECC technology," explained Rutkowski. "This development may change that completely, and holds significant potential for ClearSign relating to both profitability and market penetration."

According to Rutkowski, these tremendous cost improvements versus off-the-shelf power amplifiers will allow the company to make its technology more affordable for a broader range of system types.

"In fact," Rutkowski added, "we believe that in volume, we may be able to produce this power supply at a cost that may meet OEM requirements for even very high volume combustion systems such as those used in commercial and residential heating."

According to the company, because of its compact size and low cost, the new amplifier will also enable multi-amplifier / multi-burner installations, allowing in some cases one amplifier to be used for each burner in the installation. This increases installation reliability by eliminating the single point-of-failure risk inherent in a single-amplifier, centralized design.

ClearSign CTO Joe Colannino, offered more details, "The new ECC power amplifier, was designed and developed by ClearSign Sr. Research Engineer, Dr. Igor Krichtafovitch and offers several unique advantages. The unit operates with a universal power supply that accepts any AC line voltage between 90v and 260v at 50Hz - 60Hz as found near virtually every target combustion system worldwide.

"The variable output voltage ranges up to 20,000 V from ground, either positive or negative, making it powerful enough to install on larger systems, but it is also compact and affordable enough to support the requirements of smaller systems as well. Because the ECC Amplifier is optimized for the specific requirements of ClearSign's technology, we have been able to substantially reduce both its cost and size to a fraction of a conventional power amplifier with this kind of output. Commercially available systems range from the size of a large stereo amplifier to a refrigerator. By contrast, ours is about the size of a couple of decks of playing cards. The small size allows us to locate the power supply near to the combustion source and provides design flexibility with regard to where the unit can be located for mounting. The new amplifier can also operate in a range of ambient air temperatures and industrial environments.

"This innovation is just one of many significant results from what has been an exceptionally productive several months in our development efforts. Based on the input and the feedback that we have received from prospective partners and customers, we believe this new design approach will be very well received, and will provide operators with an even more robust suite of control options."

For more information on ClearSign and on the new ECC Amplifier, please visit us on the web at [www.clearsign.com](http://www.clearsign.com).

#### About ClearSign Combustion Corporation

ClearSign Combustion Corporation designs and develops technologies that aim to improve key performance characteristics of combustion systems including energy efficiency, emissions control, fuel flexibility and overall cost effectiveness. Our Electrodynamic Combustion Control™ (ECC™) platform technology improves control of flame shape and heat transfer and optimizes the complex chemical reactions that occur during combustion in order to minimize harmful emissions. For more information about the Company, please visit [www.clearsign.com](http://www.clearsign.com).

#### Cautionary note on forward-looking statements

This press release includes forward-looking information and statements within the meaning of the Private Securities Litigation Reform Act of 1995 and the provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Except for historical information contained in this release, statements in this release may constitute forward-looking statements regarding our assumptions, projections, expectations, targets, intentions or beliefs about future events that are based on management's belief, as well as assumptions made by, and information currently available to, management. While we believe that our expectations are based upon reasonable assumptions, there can be no assurances that our goals and strategy will be realized. Numerous factors, including risks and uncertainties, may affect our actual results and may cause results to differ materially from those expressed in forward-looking statements made by us or on our behalf. Some of these factors include the acceptance of existing and future products, the impact of competitive products and pricing, general business and economic conditions, and other factors detailed in our Quarterly Report on Form 10-Q and other periodic reports filed with the SEC. We specifically disclaim any obligation to update or revise any forward-looking statement whether as a result of new information, future developments or otherwise.

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