

January 2013

Mainstream Engineering Develops a Low-Cost Energy-Saving Device for A/C Systems.

Mainstream is achieving its goal to commercialize practical and cost-effective A/C solutions that increase energy efficiency.

R&D Opportunity

Refrigeration and air conditioning in buildings account for approximately 8.5 quads of U.S. primary energy consumption. Under a DOE-funded SBIR award, Mainstream Engineering Corporation was able to explore practical, cost-effective methods to reduce the energy consumption of residential and small commercial air conditioning systems. The goal of this work was to demonstrate simple, easy-to-install systems for reducing the energy consumption and improving the life of existing and new air conditioning and heat pump systems.



Image courtesy of Mainstream Engineering Corporation

Solution

A result of this research produced the QwikSEER+ WattSaver™, an electronic control board that operates in the cooling mode of a new or existing air conditioner or heat pump. By varying the airflow of the blower motor, this technology optimizes the airflow of the air conditioner, thus reducing the total energy consumption and improving humidity control and mold control.

The QwikSEER+ WattSaver™ Control Board.

Impact

Because the Mainstream technology allows the evaporator airflow to be continuously and automatically adjusted, power consumption is reduced. Key to the benefits of Mainstream's technology is that the modulation of the evaporator blower works on both new and existing A/C systems that are equipped with low-cost permanent split capacitor (PSC) motors resulting in efficiencies without the need to use far more expensive electronically commutated motors (ECM).

This results in homeowners now having a low-cost alternative option to achieve higher efficiencies without the substantial cost of replacing the ECM and motor controller impact. Simply installing the QwikSEER+WattSaver control board in line with the existing PSC blower motor now allows homeowners to increase the A/C energy efficiency rating (EER) by 8%–14%.

Contact

Robert P. Scaringe
President and Founder
Mainstream Engineering Corporation
rps@mainstream-engr.com

Funding

Company Name:	Mainstream Engineering Corporation
Project Title:	Phase Change Thermal Energy Storage for Residential Units
Award Type:	SBIR Phase II
Year of Award:	2011
DOE Office:	Office of Energy Efficiency and Renewable Energy
DOE Grant Number:	DE-FG02-10ER-85667

Related Links

Mainstream QwikSEER+ WattSaver™: www.qwik.com/products/qt6000-qwikseer/

Mainstream Engineering Corporation: www.mainstream-engr.com