



A smart energy control system for residential solar/electric & electric water heaters

E-SENSE is defined and designed to match both solar/electric and electric residential water heaters. It's suitable for both new heaters and retro-fit with existing heating systems.

The current use pattern for both water heater types is based on a manual activation of the electric heater. Users don't have any indication of the existing water amount and/or temperature in the heater required for their specific usage. This pattern results in a cumbersome operation and a rapid waste of energy, water and heater life.

This problem exists in both heater types, however, the inconsistent heat produced from solar makes it even more complex for the user to assess the need for additional electric heating. Therefore, users often leaves heater ON much longer than necessary.

Moreover, power consumption for heating water is an average 50% of overall domestic power consumption. E-SENSE saves 17.5%-25% of total domestic power consumption and reduces power consumption for heating water by 35%-50%.

E-SENSE system consists of three parts:

1. Heater sensor unit
2. Smart controller installed at home
3. Heat accelerator

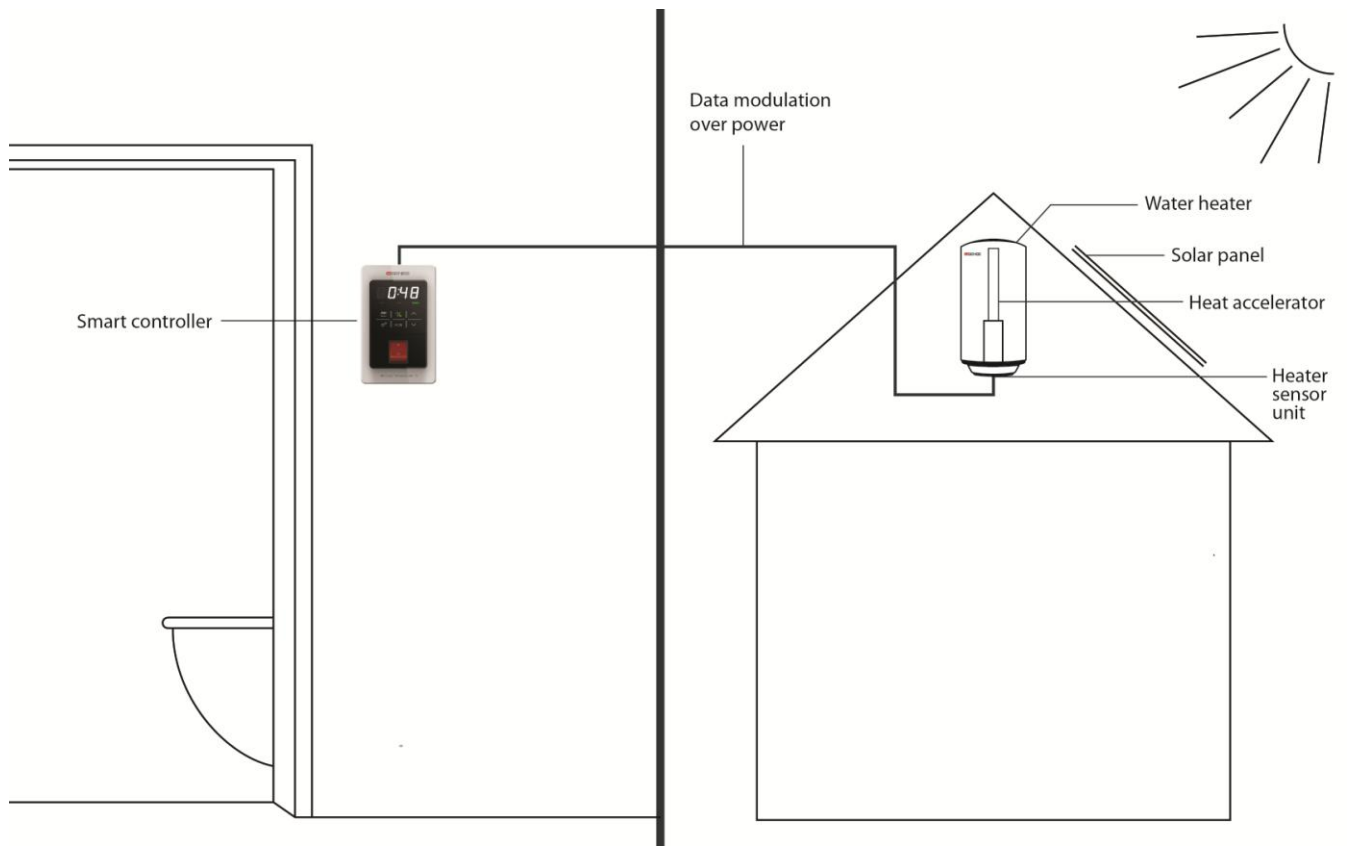
E-SENSE enables the user to specify their desired weekly water temperature, amount needs. In addition, it enables spontaneous supply of hot water on demand without impacting on predefined settings.

The smart controller operates automatically, based on a dedicated algorithm, to provide the desired hot water consumption efficiently. Unlike the manual switch, E-Sense heater sensor transmits to the indoor controller water volume and temperature updates, resulting from combined solar and electric heating. For example, if a sufficient amount of hot water was generated from solar panels, E-SENSE won't activate the electric heater. Furthermore, by default E-SENSE operates heater at off-peak hours when possible, thereby saving energy and money.

E-SENSE's smart controller is designed according to standard dimensions of existing manual heater controllers, thereby enabling seamless integration with the domestic electrical infrastructure. The smart Switch designed to fit with a large variety of home décor. It characterizes by an unobtrusive low profile and an intuitive, user friendly interface. It provide glance-able read of water temp. and volume status.

E-SENSE is locally produced in Israel for the residential market. It's being advertized in all major shopping websites and backed-up with direct sales via lean call center.

Delivered and installed by approved technicians. Installer demo the controller interaction to ensure user set it up properly and understand how to modify as needed.



INVENTOR & MANUFACTURER:

Nir Groff, Groff industries LTD.

Groff Industries establish in 1990 as an inventor, develop and production company especially for the solar energy hot water solutions products.

The company is well based and known especially to the Israeli water heater companies and to the Israeli market.

groff@groff.co.il

[Tel: +972-9-8949420](tel:+972-9-8949420)

P.O.B 13602

Natanya 42130, Israel

Fax: +972-9-8948248

DESIGN FIRM: Nekuda DM***Project team:***

Ori Jacobi

Tamir Menachem

Avner Sadot

Located at the heart of “start-up nation”, Nekuda DM is a full turnkey product development firm, driven by a multidisciplinary team of designers & engineers. Established in 1996.

We specialize in productizing emerging needs & new technologies into IP attainable, category leading products. Our methodical process is geared to maximize innovation-driven business success while minimizing development risks.

We draw on our extensive experience in the comprehensive product development process from product definition through production, including: R&D, Product roadmap planning, Industrial Design, Interaction Design, Mechanical Engineering, Production Support.

www.nekudadm.com

contact@nekudadm.com

73 Hayarkon st.

Tel-Aviv, Israel

63432