



# DID YOU CLEAN YOUR SOLAR PANELS TODAY? [EVERY DAY]

*Our Full Automatic cleaning system is a perfect solution for your Solar Power Plants*



By **HAIM MELES** - Over 20 years of experience in water management and Motorola Control systems of infrastructure and agriculture projects in Israel and abroad.

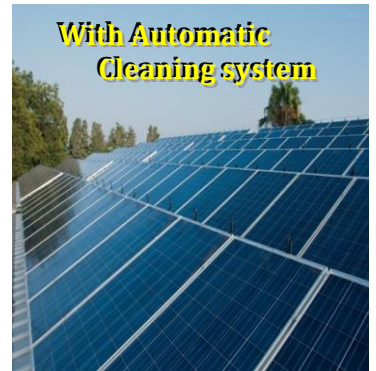
**It's true** - Solar panels are generally self-cleaned by rain. This is not the case in low rain areas where panel efficiency is reduced by dust, grime, pollen. Bird manure can accumulate over time and have an impact on the amount of electricity generated by a module. Grime and bird droppings don't need to cover the entire panel to have a negative impact. It is reasonable to assume that solar panels can lose 15-25% or more of their efficiency if not cleaned and maintained properly [Less electricity generated => less income => longer ROI].

Cleaning is one aspect of solar panel maintenance that should not be taken lightly **but have a dramatic effect on panel's efficiency.**

Human manual cleaning can't be done often [only several times per year, on daylight and not when the panels are very hot, sometimes using water with a lot of calcium may leave a skin on the panels].

To avoid all of these and for this purpose **a special automatic cleaning system, using unique and very efficient sprinkler has been developed by our company. Our cleaning system is compatible to all sizes of PV systems and can clean the panels every day or by demand.**

**Our automatic cleaning system contains no human force in the loop and no mechanical moving parts that can scratch the panels. The system includes a unique sprinkler design that fits all types of PV systems such as: fixed systems, adjustable systems [ including trackers], various sizes as well as ground mounted stations or for rooftops. Our cleaning system improves dramatically the efficiency of generating electricity and reduces the cost of cleaning and maintenance.**



<https://www.youtube.com/watch?v=0syb98rEPOE>

## Benefits of Our Automatic Cleaning System

- ✓ **Completely automatic**
- ✓ **Compatible to all sizes of PV systems and all types of installation formats.**
- ✓ **Cost effective** – ROI in a short time
- ✓ Robust and very reliable [using Motorola MOSCAD controller]
- ✓ Does not include mechanical elements
- ✓ Does not harm the panels
- ✓ Cleans more than 98% of the panel surfaces
- ✓ Uniform cleaning of all the surface
- ✓ Fully self-contained – does not depend on other systems
- ✓ **Safety**, eliminate risks of working with high voltage and water on the roof
- ✓ Water treatment - max.10 ppm of calcium and magnesium to prevent lime buildup or stains
- ✓ Alerts when water pressure drops or Input voltage changes
- ✓ Cleaning takes place when the panels are cold and inactive
- ✓ Very economical use of water
- ✓ Energy consumption 1 W per panel
- ✓ Water consumption 2- 4 liter per panel
- ✓ Operating with domestic or industrial water pressure
- ✓ User friendly, easy to operate
- ✓ Collects and provides time and quantity data numeric or graphic
- ✓ Operating the system via local network by remote workstations
- ✓ Negligible maintenance requirements



<http://www.youtube.com/watch?v=WVTkM8vOrml>



**RUTH Agriculture systems and chemicals LTD**  
**Fax +972-4-8787461, Mobile +972-54-4806076**  
**info@ruth-agri.co.il**