

INTRODUCING THE
PowerOptimal Elon® Smart Thermostat

The Elon Smart Thermostat transforms standard electric geysers into smart, solar PV-ready green appliances. Android & iOS apps allow monitoring and management with your smartphone, including water temperature and grid & solar energy use. Real-time monitoring and communication deliver actionable data. Early alerts for leak detection, element failure and other geyser faults reduce cost, damage and inconvenience. Simple installation with plug-and-play solar PV enables cost savings and reduced reliability on fossil fuels, improving quality of life.



Document Version: 1.11

SPECIFICATIONS

Rated input voltage	230V AC, 230V DC
Rated input current	18A AC, 15A DC
Mains (AC) voltage range	230V +10% -15% (will disconnect all loads when breach is greater than +/- 15%)
System power supply	Solar PV DC or 230V AC mains
Power consumption	3W on either AC or DC (solar) power
Data retention on device	2 weeks for high-resolution server data, 1 year for mobile app data
Solar voltage (V_{oc} at STC)	30 – 230 V DC
Thermostat	Electronic thermostat with 0.5 °C accuracy
Safety	Electromechanical thermal cutout
Reverse polarity protection	For solar PV connections
Lightning protection	8 kA
Self-tests	Component failure, wiring failure, element failure, insulation failure, hot connection
Enclosure ingress protection rating	IP40
Annual energy production compared to inverter-based system	> 90% when solar PV array and geyser element are matched correctly
Standards conformance	SANS 60730-1, SANS 60730-2-9, SANS / EN 301 489-1, SANS / EN 301 489-17, ICASA Type Approval, LoA from NRCS
Dimensions & weight	23 x 12 x 11 cm, 0.3 kg. Box dimensions: 27.6 x 17.5 x 13.5 cm
Patents	ZA 2019/02129 (granted), GB2583814B (granted), ZA 2022/08516 (granted), EP 4100979 (granted), US 17/797,977 (pending), GB2618349 (pending), ZA 2023/11726 (pending)
Registered Designs	ZA F2022/00962 (granted), F2022/00963 (granted)
Communications link	Wi-Fi Client, Wi-Fi Hotspot (2.4 GHz)
Measurements	AC energy, voltage, current (5%) DC energy, voltage, current (5%) Temperature: water & ambient
Data logging	15-second data retained for 14 days 5-minute data retained for 366 days
Other features	Mobile app for installers and users Installation wizard with full installation self-check Remote firmware upgrades 50 000+ switching operations on thermostat



	Cloud backend for remote monitoring & alerts Estimation of water use
Features to be enabled in firmware updates H2 2024	Leak detection (software-based) Anode condition monitoring

It is important to match the solar PV array and heating elements for maximum power transfer efficiency. Refer to the **Easy Selection Guide** on the PowerOptimal [website](#) for the recommended AC heating element power rating for different solar panel specifications and configurations.

Contact PowerOptimal for advice on module-element matching if module properties are significantly different to typical values or for **bifacial, high current or high voltage modules**.

