

THE BRAIN BEHIND YOUR ENERGY-SMART HOME

One score. Unlimited intelligence.

SI Gateway connects to your solar inverter via RS485 and reads live solar production, battery state, grid flow and household load. From these four numbers it calculates the **ECM Score** — a single 0–20 number that tells every connected SI device exactly how much energy intelligence to apply right now. SI Pool uses it to optimise pump scheduling. SI Water uses it to time top-ups. The Solaire Intelligence app shows it in real time.

ECM SCORE (0–20)	COST TRACKING
Calculated every few seconds from four live inputs. Shared with all SI devices via a local HTTP endpoint — no broker, no cloud.	Set your electricity tariff once. SI Gateway tracks grid cost, solar savings and net savings — today, this month, and lifetime.
LOCAL HTTP ENDPOINT	MQTT & HOME ASSISTANT
SI devices poll GET /ecm on the local network. No internet required. No MQTT broker needed for device intelligence.	Full telemetry published to MQTT for the SI dashboard and Home Assistant. Auto-discovery — all entities appear automatically.

Why SI Gateway is different

- **Works with any supported inverter**

Connects via RS485 to Deye, Sunsynk, and other supported inverters. One cable. One device. Full visibility.

- **Proves the savings**

Set your tariff and SI Gateway tracks exactly how much solar has saved you — live, this month, and since day one. R 166k+ and counting.

- **Private by design**

Nothing leaves your local network unless you're viewing it in the app remotely. No data sold, no subscription required.

- **No cloud dependency**

The ECM score is computed locally and shared locally. Your energy intelligence works even when the internet is down.

- **Expandable ecosystem**

Add SI Pool for ECM-aware pool management. Add SI Water for smart top-ups timed to solar surplus. Each device gets smarter with SI Gateway present.

- **Home Assistant made easy**

Full MQTT auto-discovery. Every sensor, switch and reading appears in HA the moment a broker is configured — no YAML.

The ECM Score — explained

The Energy Comfort Model (ECM) Score is calculated from four live readings: solar production, battery state-of-charge, grid import/export, and household load. The result is a number from 0 to 20, divided into five tiers. Each connected SI device polls the ECM score from the SI Gateway HTTP endpoint and makes its own decision about what to do next — completely independently, with no broker in between.

SCORE	TIER	WHAT IT MEANS
0 – 3	Critical	Battery low, drawing from grid. Shed non-essential loads immediately.
4 – 7	Cautious	Marginal. Be conservative — avoid running high-draw devices.
8 – 11	Moderate	Balanced. Modest loads are fine; avoid anything heavy.
12 – 15	Comfortable	Solar producing well. Normal operation appropriate.
16 – 20	Excellent	Surplus solar. Great time to run pool pump, water top-up, etc.

What you'll see in the Solaire Intelligence app

What you see	Shown as
Live solar production	Watts generated right now
Battery state	SOC % and charge/discharge rate
Grid import / export	Watts — positive = buying, negative = selling
Household load	Total consumption in watts
ECM Score	0–20 with tier label and colour (Critical → Excellent)
Electricity tariff	Configurable — used for all cost calculations
Grid cost today	Rand value of grid energy consumed today
Solar savings today	Rand value of solar energy that displaced grid
Lifetime solar savings	Cumulative rand savings since commissioning

How it works

1. It plugs into your inverter

A single RS485 cable connects SI Gateway to your inverter. Supported inverters include Deye, Sunsynk, and other compatible models. The gateway polls the inverter every few seconds.

2. It calculates the ECM score

From solar, battery, grid and load data, SI Gateway derives the ECM score in real time. The score updates continuously — the moment conditions change, all connected devices know.

3. It shares via HTTP and MQTT

The ECM score is available on a local HTTP endpoint (for SI devices) and full telemetry is published to MQTT (for the dashboard and Home Assistant). Each channel serves its purpose independently.

4. The app shows it all

Open the Solaire Intelligence app to see live solar, battery, grid and load data, the ECM score, and your cost and savings — updated in real time.

What you'll need

- A supported solar inverter with an RS485 communication port.
- A 220 V plug point or 12 V supply near the inverter.
- Wi-Fi reaching the inverter location.
- An iPhone to run the Solaire Intelligence app (iOS 15+).
- Home Assistant is optional — SI Gateway adds auto-discovery if you run it.

In the box

- SI Gateway controller
- RS485 cable for inverter connection
- Power supply
- Simple illustrated setup guide

The plain-English specs

Question	Answer
Connects to	Solar inverter via RS485 (Deye, Sunsynk and compatible models)
Reads	Solar production (W), Battery SOC (%), Grid import/export (W), Load (W)
ECM Score	0–20, five tiers: Critical / Cautious / Moderate / Comfortable / Excellent
Device communication	Local HTTP endpoint — SI devices poll directly, no broker required
Dashboard & HA	MQTT — full telemetry published, auto-discovery enabled
Cost tracking	Tariff-based: grid cost, solar savings, net savings — daily/monthly/lifetime
You view it on	Solaire Intelligence app — iOS (iPhone)
Talks over	Your home 2.4 GHz Wi-Fi
Privacy	Local-first. No cloud, no subscription, no data sold.
Warranty	12-month limited warranty
Made in	South Africa

Getting yours: email info@si-sa.co.za or visit solaire-intelligence.co.za. We'll help with installation and getting the app connected.



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