WATER MANAGEMENT MODULE

Counters and period values

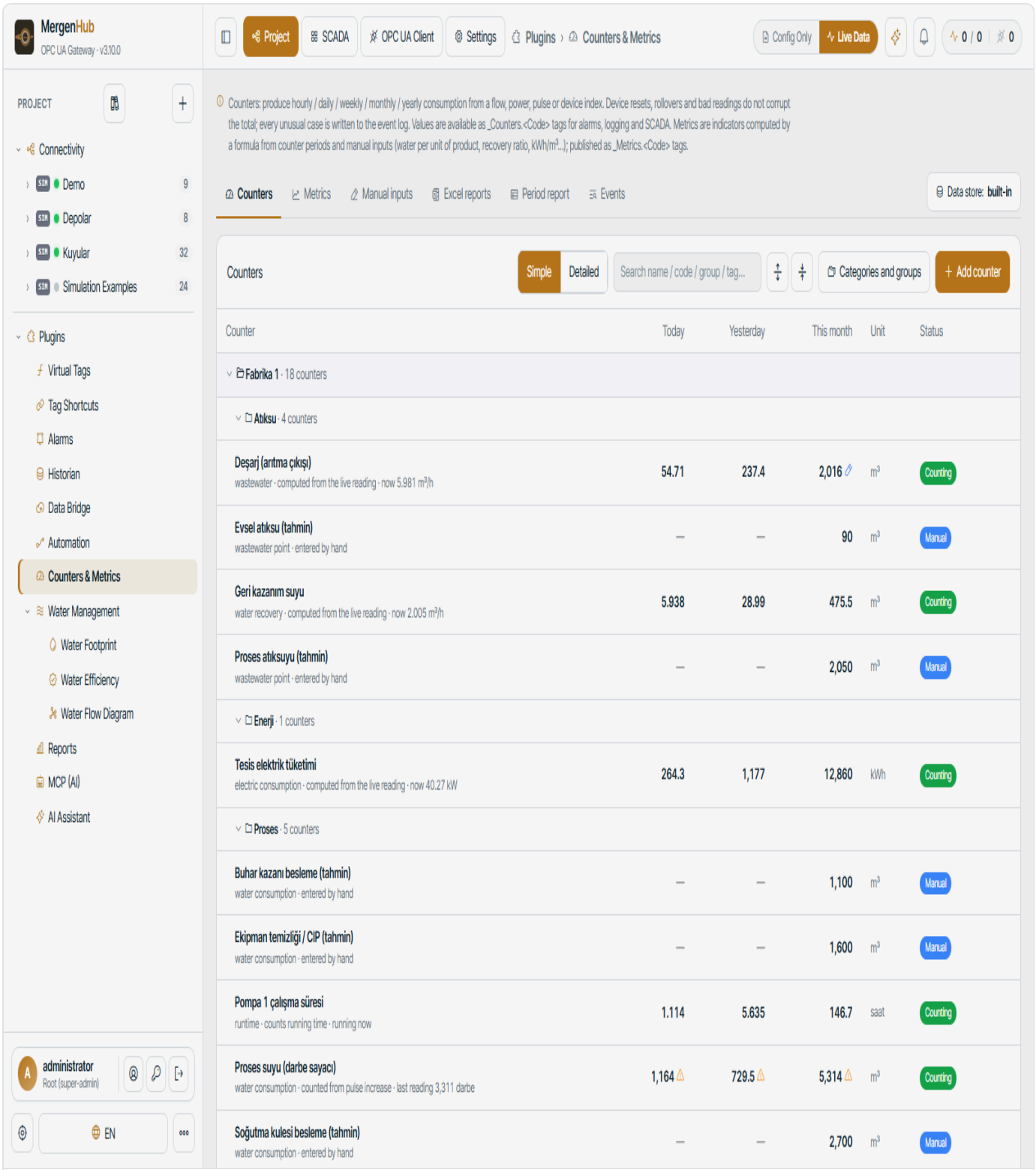
Hourly, daily and monthly water and energy consumption from a SCADA tag: counter types, manual counters, the estimated share, corrections, metrics, the formula library and output tags.

Online: mergenhub.envest.com.tr/docs/counters-metrics

ON THIS PAGE

- Three concepts
- Counter types
- Adding the first counter
- Manual counters
- Data reliability
- Categories and groups
- Metrics
- Output tags

A **counter** turns a tag value into period consumption: this hour, today, this week, this month, this year and the previous ones. A **metric** is an indicator computed from counters with a formula (m^3/ton, kWh/m^3, loss percentage). The water footprint, water efficiency and the flow diagram are built on these two. Page: **Add-ons › Counters and Metrics** in the left menu; it is shown on every installation.



Counters and Metrics — the counter list with consumption for today, yesterday and this month

Three concepts

CONCEPT	WHAT IT TELLS YOU
Counter	Period consumption from a tag: how many m³ today, how many kWh this month.
Category	What the counter measures: water production / supply, water consumption, wastewater / discharge, electricity consumption…
Group	Where the counter is: *Plant 1 › Water supply*. Metrics and the water reports select counters in bulk by category and group.

Counter types

TYPE	WHEN
Rate	The tag gives an instantaneous flow or power; it is integrated over time (m³/h → m³, kW → kWh).
Device totalizer	The device gives its own index; resets and rollovers are compensated.
Accumulate deltas	An increasing raw counter (pulse counter); successive differences are added up.
On / off	A "running" signal; runtime is accumulated.
Sum of counters	The sum of the counters in the same series.
Manual	Nothing is measured; the period value is entered by hand (invoice, estimate, laboratory).

Adding the first counter

1. Click **Add counter**.
2. Enter a **name** (e.g. *Well 1*). The **code** is generated from the name (*Well1*); the counter's output tag becomes `_Counters.Well1`.
3. Choose the **type**. If you measure an instantaneous flow or power, pick the **Preset** that matches your input unit (e.g. *m³/h → m³*, *L/s → m³*); multiplier, divisor, time base and unit are filled in.
4. Choose a **category** and a **group** (e.g. *Water production / supply*, *Plant 1 › Water supply*). A new group is created from the same list.
5. Type the **input tag** or pick it from the tag tree (e.g. *Field.Well1.Flow*).
6. **Save**. The counter appears in the list; within a few seconds the **Today** column starts to increase.

Series, gate tag, filters, reset and rollover settings are under **Advanced settings**; most counters never need them.

> **Tip** If no value arrives, click the counter: the window shows the last value and quality of the input tag. If the tag is "Bad", fix the device connection first; a counter does not count values of bad quality and later fills the gap as an estimated share.

Manual counters

For unmetered items (a mains invoice, an estimate, a laboratory figure) add a counter of type **Manual**. Then click the counter, choose **Enter period value**, select the period and type the value. Manual counters are usually filled in monthly.

Data reliability

SITUATION	WHAT HAPPENS
Data gap	If communication is lost, the consumption in between is estimated and kept separately as the **estimated share**; reports mark it with a warning icon.
Reset / rollover	If the device index drops or wraps at its capacity, consumption is not lost; the event is logged. Optionally the counter stops and waits for an operator decision.
Spike	Increases that are physically impossible (maximum rate limit) are filtered out.
Manual correction	A period value can be corrected; the correction is stored apart from the measured value, with who made it and when.

SITUATION	WHAT HAPPENS
Meter replacement	When the device is replaced, the old final index and the new initial index are entered; the total continues without a break.

Categories and groups

Names are managed in one place: the **Categories and groups** button above the counter list.

- **Built-in categories** (water production / supply, water consumption, wastewater / discharge, electricity consumption…) are used by the water reports; they cannot be renamed or deleted.
- You can add your **own categories** (compressed air, steam, chemicals…); they can be renamed, merged and deleted.
- **Groups** form a tree (up to 8 levels). A metric that selects a group also counts its sub-groups.
- Rename and delete work in two steps: **Continue** shows what will change, **Apply** writes it. The window warns you if the set of counters a metric selects would change.

Metrics

A metric is an indicator computed from counter and tag values. In the formula, inputs are referenced as `{Name}`:

```
{Water} / {Production}          → m³ / ton
({In} - {Out}) / {In} * 100     → loss %
```

INPUT	WHAT IT GIVES
Tag	The current value of a tag.
Tag set	The current sum, average, minimum, maximum or count of several tags (e.g. `Wells.*.Flow`).
Counter	A single counter, or several chosen by a category / group selector.
Metric	The value of another metric for the same period.
Manual input	A value entered per period: production quantity, headcount, laboratory result, rainfall.
Constant	A fixed number (a limit, a conversion factor).

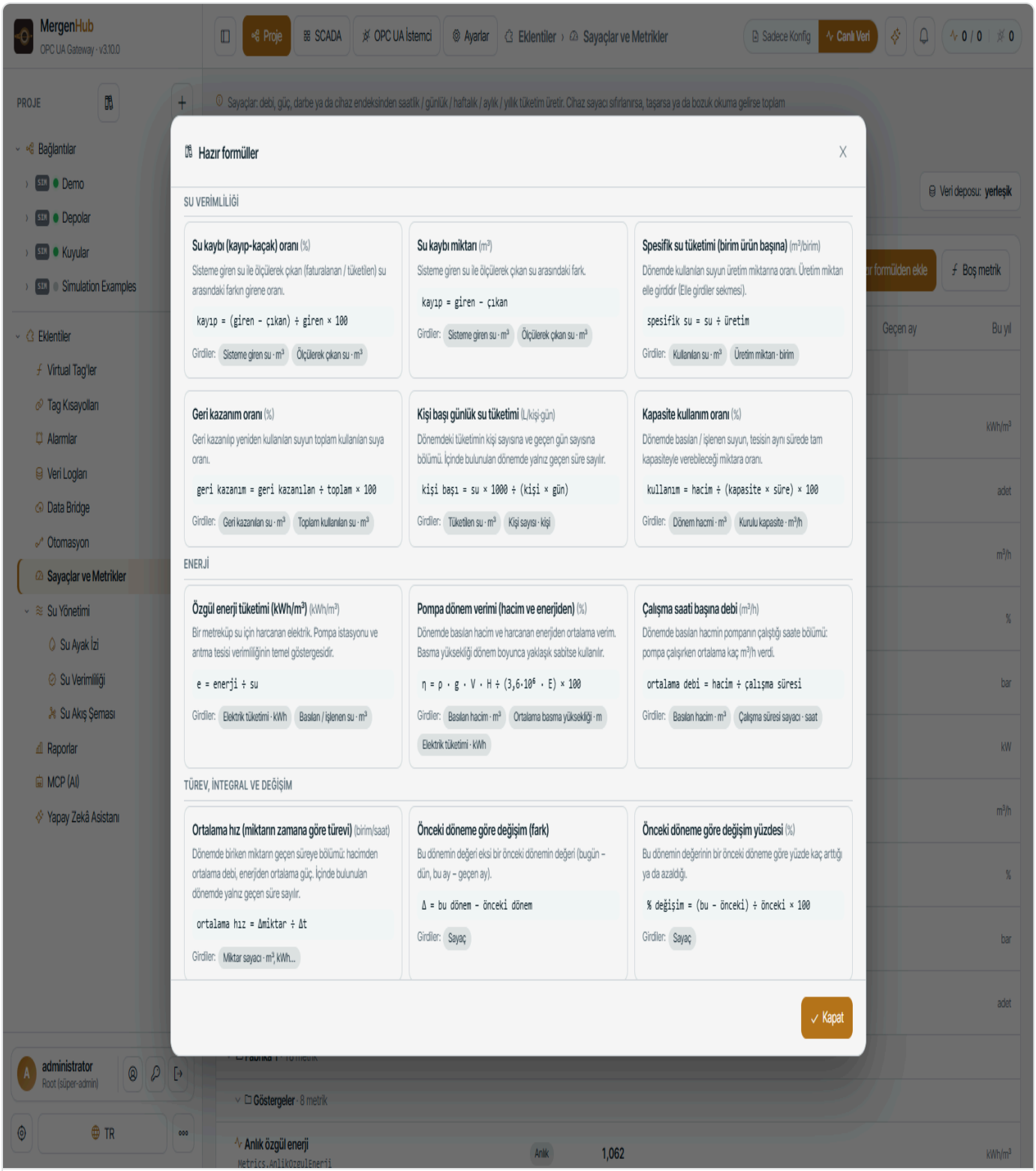
An **instant** metric is computed from current values, a **period** metric from the data of the chosen period. Every result carries a quality:

QUALITY	MEANING
good	All inputs were measured.
estimated	Contains an estimated share or a data gap.
partial	Some counters have no data for that period, or some tags in a tag set give no value.
none	Could not be computed; the reason is shown next to it.

FORMULA LIBRARY

On the **Metrics** tab, **Add from formula library** opens the ready formulas: pump efficiency, hydraulic power, pump head, pipe velocity, Hazen-Williams head loss, water loss ratio, specific energy (kWh/m³), per-capita consumption,

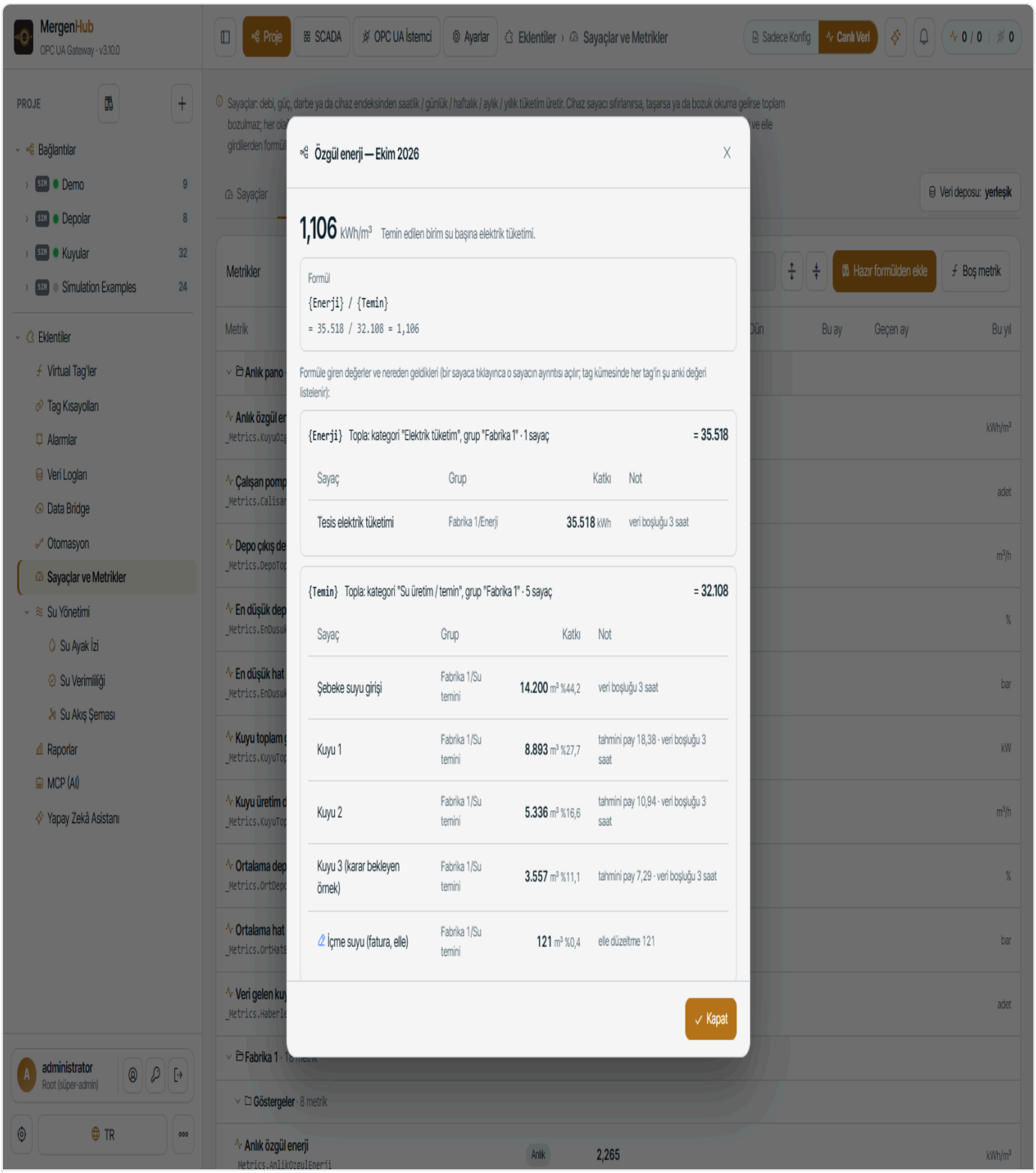
capacity utilisation, change against the previous period... Pick a formula, bind only its inputs, check the result with **Try**, and save.



Formula library — choosing a formula and binding its inputs

BREAKDOWN: WHAT IS THIS NUMBER MADE OF?

Click a row in a metric's period series, a number in the water footprint table or a water efficiency indicator: the formula, the values that went into it and the contribution of every counter open. Counters with no record for that period show "no data"; that is the reason for the "partial" mark next to the number.



Breakdown window — which counters an indicator is made of

Output tags

Every counter and metric also exposes its value as a tag, used like any other tag in alarm definitions, data logging, SCADA screens and Data Bridge agents.

TAG	VALUE
`_Counters.<Code>`	Cumulative value.

TAG	VALUE
`_Counters.<Code>.Hour / .Day / .Week / .Month / .Year`	Consumption of the current period.
`_Counters.<Code>.PrevHour … .PrevYear`	Consumption of the previous period.
`_Metrics.<Code>`	The current value of an instant metric; today's value of a period metric.

The same outputs are published on the OPC UA server under the `_Counters` and `_Metrics` folders. For reports and external systems see Reports and export.