THREE-PHASE HYBRID ESS · RESIDENTIAL

# WattMatic

## AIO Home

**Hybrid inverter, LiFePO$_4$ storage and smart-grid controller. One certified system.**

Unified three-phase platform for residential and light-commercial deployments across the EU. Engineered for §14a EnWG, EN 50549-1, and VDE-AR-N 4105 compliance with native EEBUS, SG Ready, OCPP 2.0 and SunSpec interoperability.



| MODEL | MODEL | MODEL | MODEL | MODEL |
|---|---|---|---|---|
| 10K | 12K | 15K | 20K | 25K |
| Matic-10kW-50A | Matic-12kW-50A | Matic-15kW-50A | Matic-20kW-50A | Matic-25kW-50A |

SHOWN · 6M · 23.04 KWH NOM / 20.74 USABLE

EURO EFFICIENCY

**97.9 %**

**Peak 98.4% · EN 50530**

Weighted · 230 V / 50 Hz
Measured at +25 °C

CYCLE LIFE

**8,000**

**@ 90 % DoD · 25 °C**

SoH ≥ 70 % after 10 yr
IEC 62619 qualified

BACKUP TRANSITION

**<10 ms**

**Grid → EPS · rated load**

Three-phase symmetric
EN 50549-1 compliant

WARRANTY

**10 yr**

**Inverter + battery**

Unified system claim
Single-source RMA



CE | TÜV | IEC 62109 | IEC 62619 | EN 50549-1 | VDE-AR-N 4105

# Platform architecture

## Built for EU deployment.

**Four MPPTs, three-phase symmetric output, IP66 and an integrated heater** enable WattMatic to deliver full rated output from −20 °C to +45 °C — the EU climate envelope for residential deployment — with graceful derating to −30 °C / +60 °C. Module-level active balancing extends the cluster's useful life beyond the warranty window.

01 / All-weather envelope

### Full rated output −20 °C to +45 °C. Extended envelope to −30 °C / +60 °C.

IP66 sealed enclosure with pre-conditioning heater on the battery side. Nameplate power across the EU climate envelope — Nordic winters, Iberian summers, alpine transitions — with graceful derating at the extremes.

| | |
|---|---|
| ENCLOSURE | IP66 / IP54 (battery) · corrosion C4-M |
| COOLING | Forced-air · intelligent variable fan |
| NOISE | ≤ 50 dB(A) @ 1 m |
| ALTITUDE | Full power to 2,000 m · derated to 4,000 m |






02 / Installation envelope

### Two connections. < 30 min commissioning.

Floor-stacked battery, wall-mounted inverter, one DC-link and one CAN line. No DC combiners, no separate BMS cabinet, no multi-vendor integration. One warranty covers the system.

| | |
|---|---|
| INVERTER | ≤ 51 kg · wall-mount · single-person install |
| MODULES | Stackable 3–9 · plinth-base · no tools for stacking |
| COMMISSIONING | App-based · 4-step · remote firmware update |
| SERVICE | On-site module swap · no system shutdown |

03 / BMS AutoSync™

Module-level active balancing

### Every module balances itself. Add more at year five.

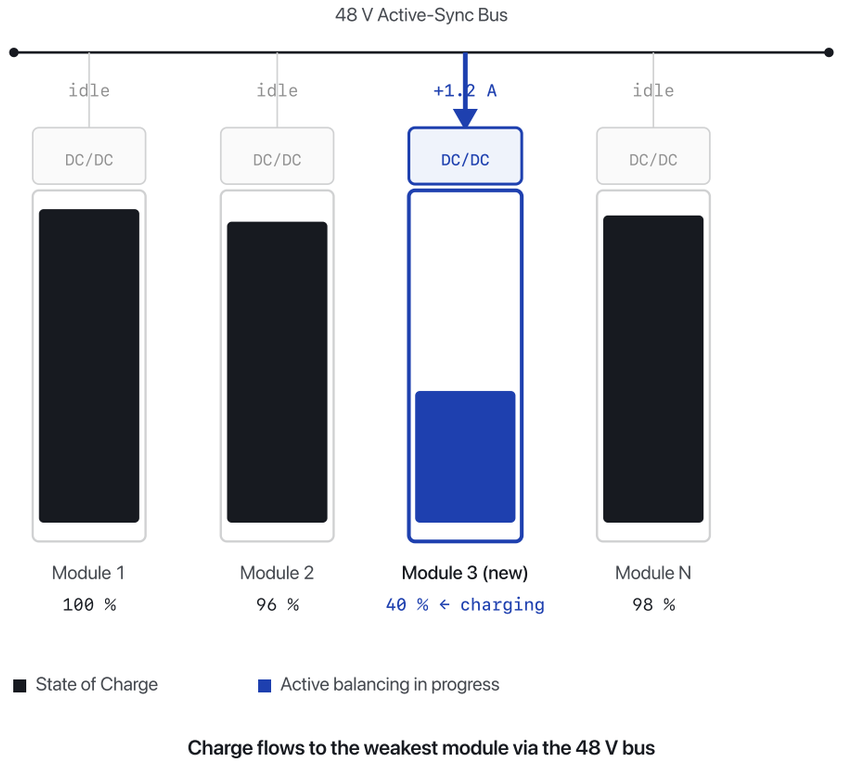
Each module carries a dedicated **DC-DC balancing converter** tied to a shared 48 V sync bus. Unlike passive balancing — which bleeds charge from the strongest module and caps the cluster to the weakest — AutoSync **redistributes charge across modules**, so mismatched capacity no longer governs usable energy.

The direct engineering consequence: a customer can **add new modules after 5 years** without forcing the old stack down to their SoH. The weakest-link problem goes away.

**1.2** A
Max balancing current / module

**±15** mV
Inter-module voltage deviation

**>5** yr
Module-add compatibility window



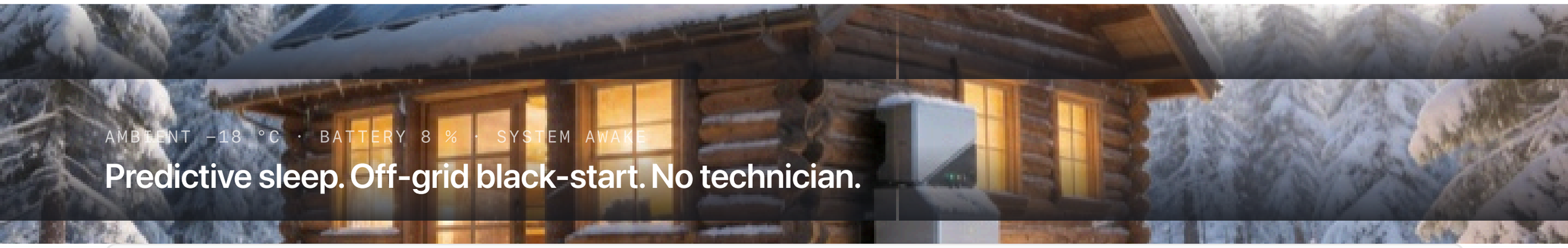

**Charge flows to the weakest module via the 48 V bus**

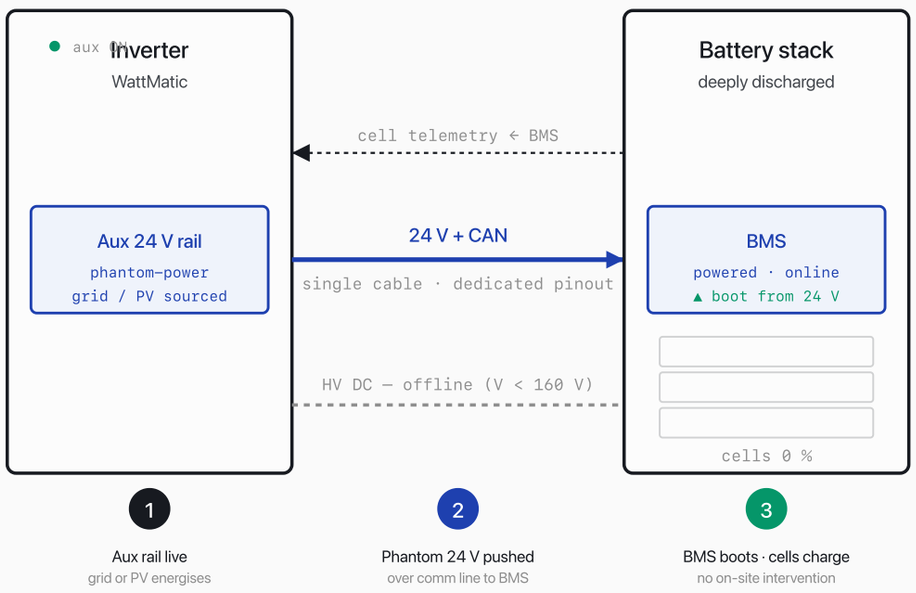
Mix new + aged modules · no manual calibration · lossless balance

# The deep-discharge service call, eliminated.

## Industry-first · patent pending.

Virtually every high-voltage residential battery draws its BMS supply from the *battery stack itself*. When the stack is flat, the BMS cannot boot — so the inverter cannot charge it — so **a technician must go on-site with a manual charger before the system will restart.** This failure mode is shared by virtually every major HV residential battery on the market today. We engineered it out with a dedicated **24 V aux rail sourced from grid or PV**, delivered to the BMS over the standard comm cable.




### A Phantom-power revive

Inverter feeds regulated **24 V DC** to the BMS over the standard comm cable when the HV DC bus is below the cut-off voltage. The BMS boots on aux power alone — no human intervention required.

### B Predictive sleep & wake

Scheduler analyses forecast PV yield and tariff signal; when a multi-day dormancy is predicted (e.g. holiday homes, low winter PV) the inverter **commands the BMS into deep sleep** and revives the 24 V rail on demand. Parasitic drain collapses to micro-amp range.

### C Off-grid black-start

In an extended blackout with the stack drained, **PV alone** energises the aux rail, wakes the BMS, and rebuilds the HV bus from the first sunrise. No grid, no generator, no technician — system self-recovers.

### D Inverter-powered cell heating

Below 0 °C, $LiFePO_4$ cells cannot accept charge — most systems simply refuse to operate until cells warm passively. WattMatic delivers constant-voltage power over the **HV DC +/− power lines**; the BMS re-routes that feed into the **internal heater-pad circuit** instead of the cell stack, pre-conditioning cells to the charge-accept threshold. **Full winter operation down to −25 °C ambient** with no external heating loop.

DEEP-DISCHARGE RECOVERY · INDUSTRY COMPARISON

| | Typical OEMs | WattMatic |
|---|---|---|
| **BMS boot from flat stack** | ✕ not supported | ✓ automatic |
| **Field technician dispatch** | required | none |
| **Typical time-to-recover**[1] | 3 – 10 days | < 60 s |
| **Predictive sleep for 2nd homes** | — | native |
| **Off-grid self-recovery (PV-only)** | — | black-start |

[1] "Typical OEMs" recovery window derived from Wattsonic field-service logs and publicly documented RMA procedures of major HV residential battery platforms, 2023–2025. Exact values vary by installer and parts availability.

| 24 V | any | <60 s | <500 µA | PV only |
|---|---|---|---|---|
| AUX RAIL VOLTAGE TO BMS · ±2 % | STACK SOC REQUIRED FOR WAKE-UP | BMS BOOT TO TRICKLE-CHARGE START | BMS SLEEP-MODE PARASITIC DRAW | OFF-GRID BLACK-START SOURCE |

# WattDesk control stack

## Edge orchestration. No cloud lock-in.

**Whole-home AI scheduling across PV, battery, EV charger and heat pump**, re-optimised every 15 minutes against day-ahead spot prices, weather forecasts and local constraints. Runs on-device; cloud services are optional for fleet management and VPP participation.

04 / Orchestration engine — WattDesk · 15-min horizon

## From arbitrage to whole-home optimisation.

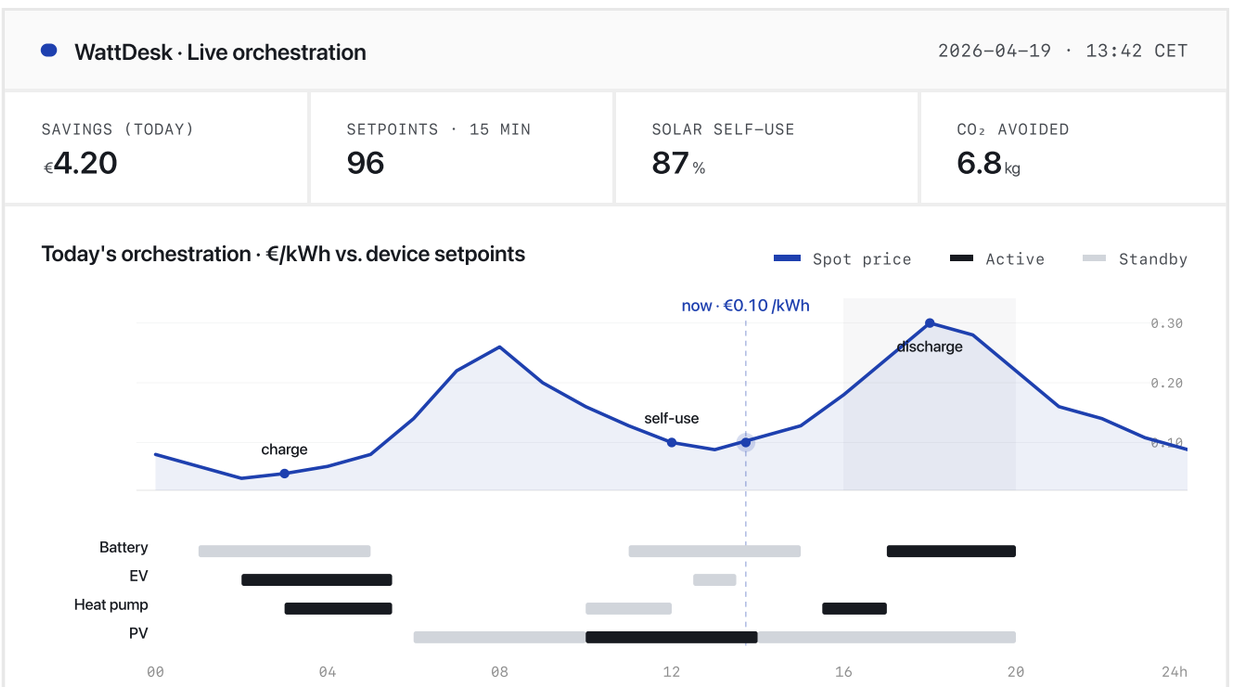
A single model optimises across spot price, PV forecast, battery SoC, heat-pump demand and EV schedule — producing a coordinated 96-step setpoint plan. Integrators access the plan via Modbus-TCP or MQTT.

**Dynamic tariff APIs**
ENTSO-E · Tibber · aWATTar
Octopus · Nordpool · EPEX

**Heat pump + EV**
SG Ready · EEBUS
OCPP 1.6 / 2.0

**VPP & grid services**
FCR / aFRR bidding
§14a EnWG compliant

**Local autonomy**
Runs 100 % on-edge
Modbus / MQTT host API



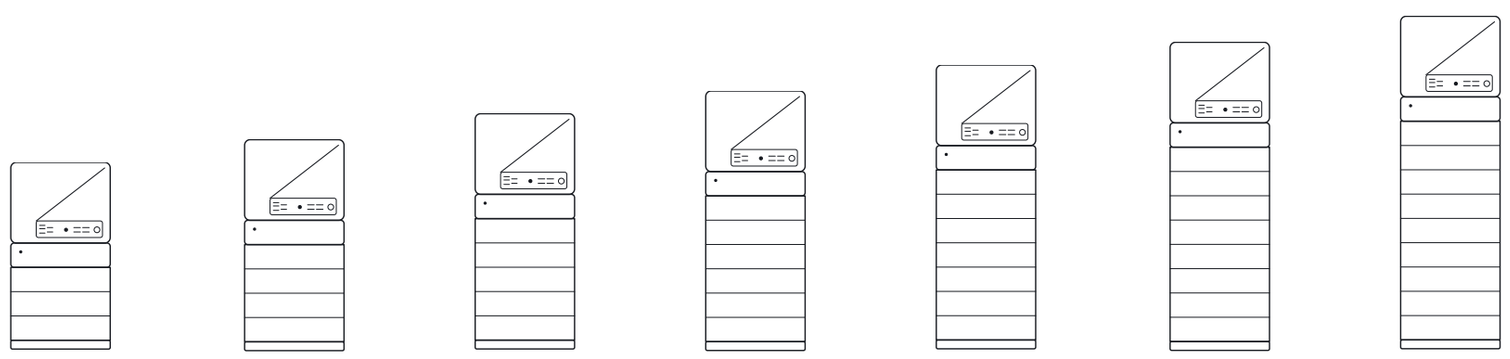

## Interoperability matrix

NO GATEWAY REQUIRED — Native protocols · on-device

| SMART-GRID | | E-MOBILITY | | FIELDBUS | | CONNECTIVITY | |
|---|---|---|---|---|---|---|---|
| EEBUS | v1.0.1 | OCPP | 1.6 / 2.0 | Modbus RTU | RS485 | Ethernet | 10/100 Base-T |
| SG Ready | Cl. 2/3 | ISO 15118 | V2G-ready | Modbus TCP | Ethernet | Wi-Fi | 802.11 b/g/n |
| SunSpec Modbus | v2.1 | IEC 61851 | Mode 3/4 | CAN | 2.0B · 500 k | GPRS | optional modem |
| DRM 0–8 | AS/NZS 4777.2 | Load-mgmt API | REST/MQTT | MQTT | v3.1.1/v5 | CAN | battery / parallel bus |
| §14a EnWG | 2024+ | | | Digital I/O | 4 × dry | RS485 | field interface |

## Battery cluster configuration

LiFePO₄ · 180–800 V · 50 A max · 8,000 cycles @ 90 % DoD · 10-year warranty



| Configuration | 3M | 4M | 5M | 6M | 7M | 8M | 9M |
|---|---|---|---|---|---|---|---|
| **Nominal capacity**[1] | 11.52 kWh | 15.36 kWh | 19.20 kWh | 23.04 kWh | 26.88 kWh | 30.72 kWh | 34.56 kWh |
| **Usable capacity**[1] | 10.37 kWh | 13.82 kWh | 17.28 kWh | 20.74 kWh | 24.19 kWh | 27.65 kWh | 31.10 kWh |
| **Nominal voltage** | 230.4 V | 307.2 V | 384.0 V | 460.8 V | 537.6 V | 614.4 V | 691.2 V |
| **Max charge / discharge power**[1] | 11.5 kW | 15.4 kW | 19.2 kW | 23.0 kW | 26.9 kW | 30.7 kW | 34.6 kW |
| **Cluster height** | 637 mm | 775 mm | 914 mm | 1,052 mm | 1,191 mm | 1,329 mm | 1,468 mm |
| **System height (incl. inverter)** | 1,426 mm | 1,564 mm | 1,703 mm | 1,841 mm | 1,980 mm | 2,118 mm | 2,257 mm |
| **Weight** | 107 kg | 136 kg | 165 kg | 194 kg | 223 kg | 252 kg | 281 kg |
| **Capacity retention** | ≥ 70 % after 10 years / 8,000 cycles | | | | | | |
| **BMS & balancing** | CAN · BMS AutoSync™ · module-level active balancing | | | | | | |
| **Operating temperature** | –20 °C to +50 °C (with active cell heating) | | | | | | |
| **Warranty / certifications**[2] | 10 years · IEC 62619 · UN 38.3 · IEC 63056 · VDE 2510-50 · RoHS | | | | | | |

Expandable to 5 clusters per inverter (max 172.8 kWh) · up to 4 inverters parallel (100 kW / 690 kWh total) · mix of module vintages supported within a ≤ 5-year window.

[1] Measured DC-side at +25 °C, 0.2 C rate, 100 % DoD. Charge/discharge power at nominal voltage; actual power depends on SoC, ambient and cell temperature. · [2] Warranty summary; complete terms per Wattsonic Limited Warranty Conditions.

# Performance envelope

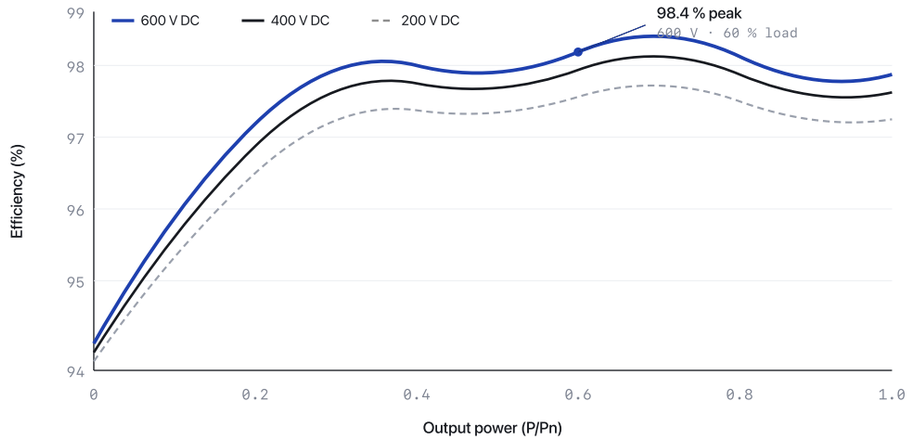
## Sizing data for integrators.

**Measured, not simulated.** All curves derived from TÜV-witnessed acceptance testing at +25 °C nominal unless otherwise stated. Reference conditions per EN 50530, IEC 61683 and IEC 62040-3.

### Inverter efficiency

EN 50530 · fig. 01

DC-AC conversion efficiency vs. output power, at three DC input voltages. 15 kW unit, 230 V / 50 Hz.




**98.4 %** — Peak · 600 V · 60 % load

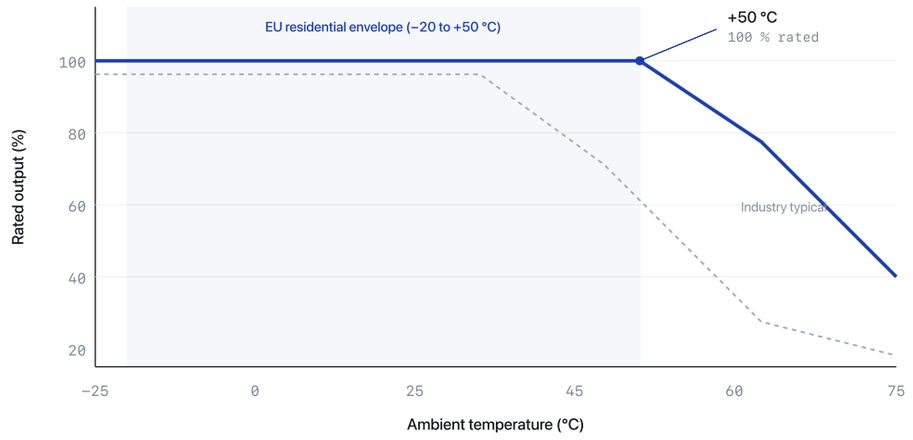
**97.9 %** — Euro-eta · weighted

**97.5 %** — CEC weighted

### Temperature derating

IEC 62109 · fig. 02

Rated output vs. ambient temperature. Full power maintained across the EU climate envelope.




**−20 → +50 °C** — Full output range

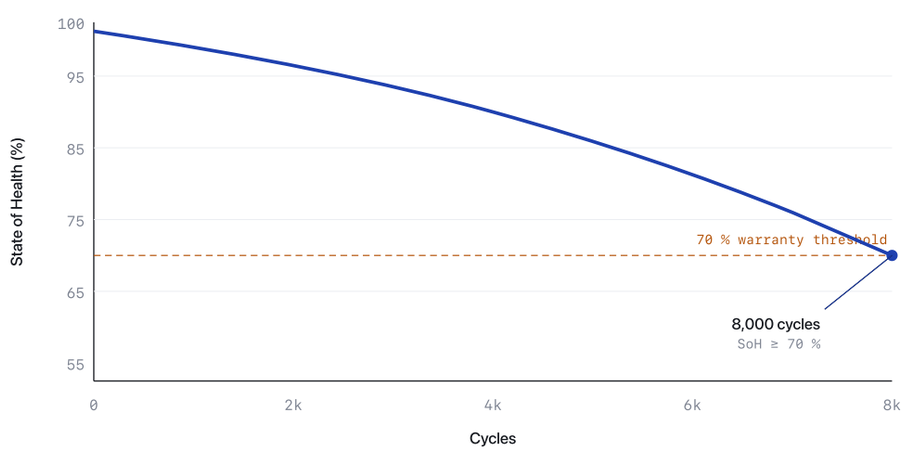
**+60 °C** — 80 % derated output

**+70 °C** — Shutdown protection

### Battery cycle life

IEC 62619 · fig. 03

State-of-health retention at 90 % DoD, 1 C charge / 1 C discharge, 25 °C. Accelerated to match calendric projection.




**8,000** — Cycles to 70 % SoH

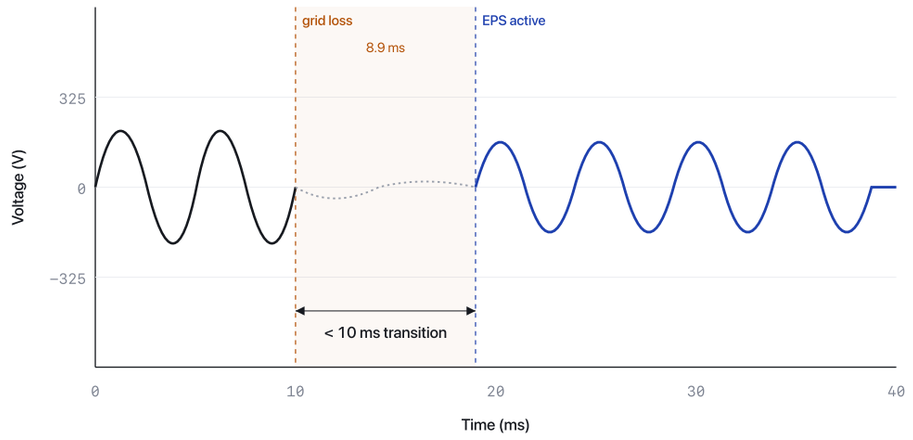
**0.3 %** — Calendric fade / year

**90 %** — Usable DoD (warranty)

### Grid-to-EPS transition

IEC 62040-3 · fig. 04

Three-phase voltage envelope during grid loss at rated resistive load. Oscilloscope capture, 230 V nominal.



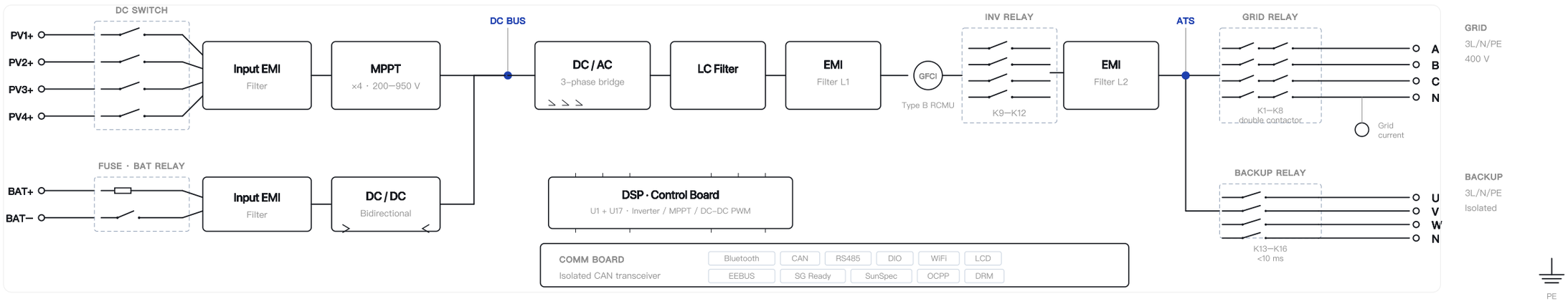

**< 10 ms** — Grid → EPS switch-over

**230 V ± 2 %** — EPS voltage stability

**100 %** — Unbalanced load capability

### Inverter topology

Three-phase hybrid · 4× MPPT · <10 ms ATS backup · Type B RCMU



# Full specifications

## All five models. All parameters.

Nominal values at 230 V / 50 Hz, +25 °C ambient. Values subject to component tolerance as defined in EN 50530 and IEC 62109.

**Highlighted rows** mark the parameters most commonly governing system design.

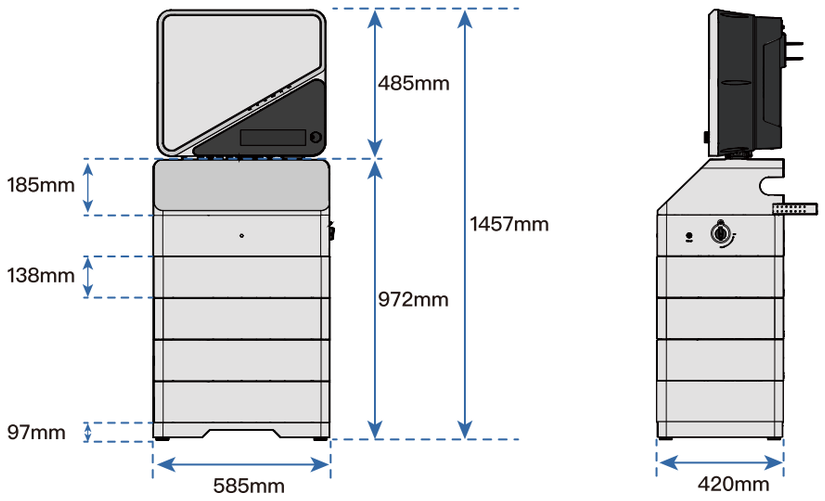
| Parameter | 10K | 12K | 15K | 20K | 25K |
|---|---|---|---|---|---|
| 01 DC input — PV side | | | | | |
| Max. PV power | **20 kW** | **24 kW** | **30 kW** | **40 kW** | **40 kW** |
| Max. DC input voltage | | | 1,000 V | | |
| Rated input voltage | | | 620 V | | |
| Min. input / start-up voltage | | | 150 V / 180 V | | |
| MPPT voltage range | | | 200–950 V (derating > 850 V) | | |
| Full-power MPPT range | | | 300–850 V | | |
| Number of MPP trackers | | | 4 | | |
| Strings per MPPT | | | 1 (4 DC inputs total) | | |
| Max. input current | | | 20 A × 4 | | |
| Max. usable DC power / MPPT (at 850 V) | | | 17 kW × 4 | | |
| Max. short-circuit current ($I_{sc\ pv}$)[1] | | | 30 A × 4 | | |
| 02 AC output — grid side | | | | | |
| Rated AC output power | **10 kW** | **12 kW** | **15 kW** | **20 kW** | **25 kW** |
| Max. apparent power | 11 kVA | 13.2 kVA | 16.5 kVA | 22 kVA | 25 kVA |
| Nominal grid voltage | | | 3L/N/PE, 220/380 V; 230/400 V; 240/415 V | | |
| Nominal frequency | | | 50/60 Hz | | |
| Rated AC current | 14.5 A | 17.4 A | 21.7 A | 29.0 A | 36.2 A |
| Max. AC current | 16.5 A | 19.1 A | 23.8 A | 31.9 A | 36.2 A |
| Power factor | | | > 0.99 (rated) | | |
| THD | | | < 3 % | | |
| 03 Battery — DC interface | | | | | |
| Chemistry | | | $LiFePO_4$ | | |
| Battery voltage range | | | 180–800 V | | |
| Max. charge / discharge current | | | 50 A | | |
| Max. charge / discharge power | **10 kW** | **12 kW** | **15 kW** | **20 kW** | **25 kW** |
| Battery operating temperature | | | −20 °C to +50 °C (full rated, cell heating) | | |
| BMS communication | | | CAN · BMS AutoSync™ | | |
| 04 Backup — EPS output | | | | | |
| Rated backup power | 10 kW | 12 kW | 15 kW | 20 kW | 25 kW |
| Peak backup power (10 s) | 15 kW | 18 kW | 22.5 kW | 30 kW | 37.5 kW |
| Grid-to-EPS transition[3] | **< 10 ms** | | | | |
| Output voltage | 3L/N/PE, 220/380 V; 230/400 V; 240/415 V | | | | |
| Parallel operation[5] | Up to 4 units · 100 kW / 690 kWh total | | | | |
| 05 Efficiency | | | | | |
| Max. efficiency (DC-AC)[2] | **98.4 %** | | | | |
| European weighted efficiency | 97.9 % | | | | |
| MPPT efficiency (static) | > 99.9 % | | | | |
| 06 Protection | | | | | |
| DC reverse polarity protection | Yes | | | | |
| AC short-circuit protection | Yes | | | | |
| Ground fault monitoring (RCMU) | Integrated · Type B RCD equivalent | | | | |
| Surge protection (DC / AC) | Type II / Type II (integrated) | | | | |
| AC-side protection | Type B RCMU · ground fault monitoring (integrated) | | | | |
| AFCI | Optional | | | | |
| 07 Environment & mechanical | | | | | |
| Inverter operating temperature | −30 °C to +60 °C (derating > 45 °C) | | | | |
| Protection grade | IP66 (IEC 60529) | | | | |
| Climate category | 4K26 (IEC 60721-3-4) | | | | |
| Dimensions (W × H × D) — inverter | 558 × 604 × 252 mm | | | | |
| Weight — inverter | < 51 kg | | | | |
| Noise emission | ≤ 50 dB(A) @ 1 m | | | | |
| Cooling | Active, intelligent variable-speed fan | | | | |
| 08 Communication & interfaces | | | | | |
| Interfaces | WiFi, LAN, CAN, RS485, GPRS | | | | |
| Smart grid | DRM, SG Ready, EEBUS, SunSpec, OCPP | | | | |
| EV charging | OCPP 1.6 / 2.0 · §14a EnWG compliant · V2G-ready | | | | |
| 09 Certification & standards[4] | | | | | |
| Grid standards | EN50549-1:2019, EN50549-10:2022, C10/11:2021, TOR Erzeuger Type A:2022, OVE-Richtlinie R25:2020, VDE4105:2018, VDE0124-100:2020, NC RFG, Type ABCD, PTPiREE, NRS097-2-1 | | | | |
| Safety & EMC | E-EMC: IEC/EN61000-6-1/2/3/4 · CE-LVD: IEC/EN62109-1:2010, IEC/EN62109-2:2011, IEC/EN62477-1:2022 · CE-RoHS: IEC63000:2018 | | | | |
| Battery safety | IEC 62619, UN 38.3, IEC 63056, VDE 2510-50, RoHS | | | | |
| 10 Ordering & warranty | | | | | |
| Inverter model | Matic-10kW-50A | Matic-12kW-50A | Matic-15kW-50A | Matic-20kW-50A | Matic-25kW-50A |
| Inverter warranty | 10 years standard | | | | |
| Battery warranty | 10 years · 8,000 cycles @ 90% DoD | | | | |
| Cloud dependency | None — full local control, warranty not voided by disconnection | | | | |

[1] $I_{sc\ pv} = I_{sc}(STC) \times 1.25$ per IEC 60364-7-712. · [2] Peak efficiency per EN 50530 (230 V / 50 Hz / +25 °C). · [3] Measured at rated resistive load per IEC 62040-3. · [4] Country-specific grid-code configuration applied at commissioning. Additional certifications on request. · [5] Same-SKU parallel operation only · master-slave CAN synchronization · one EPS master per cluster.

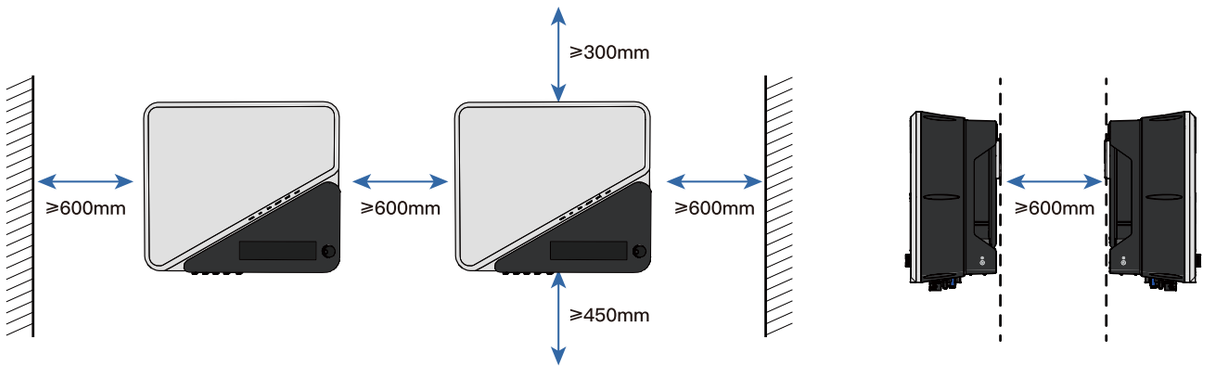
# Mechanical views

Official engineering drawing · 4-module configuration · all dimensions in mm

### Mounting Dimensions




### Recommended Installation Clearances




**585** mm
WIDTH

**1457** mm
HEIGHT

**420** mm
DEPTH

**4M**
BATTERY CONFIG

## Installation envelope

| | |
|---|---|
| SUPPORT SURFACE | Concrete or masonry · non-flammable · dry and level |
| WALL LOAD | Installation carrier ≥ 4× inverter weight · resonance-prone surfaces prohibited |
| AMBIENT | IP66 inverter · –30 °C to +60 °C · avoid direct solar irradiation |
| CLEARANCES | ≥ 600 mm side / object spacing · ≥ 300 mm top · ≥ 450 mm bottom |
| MOUNTING SIZE | Inverter 558 × 604 × 252 mm<br>Battery side depth 415 mm · wall stand-off 97 mm |
| BACKSHEET | Secure with 4 × M6 × 60 expansion bolts per user manual section 6.2.3 |

## Commissioning & service

| | |
|---|---|
| SETUP | Wattsonic Installer app · local commissioning · < 30 min |
| FIRMWARE | OTA signed updates · staged roll-out · roll-back |
| COUNTRY CODE | Selected at commissioning · re-configurable |
| SERVICE ACCESS | Front · no rear / side clearance for repair |
| MODULE SWAP | Hot-swap capable · cluster stays online |
| RMA LEAD TIME | Typ. 5 working days · EU bonded stock |

## Market certification matrix

Status as of 2026-04 · consult local sales for latest

| Market | Grid code | Inverter | Battery | Integration | Subsidy |
|---|---|---|---|---|---|
| **Germany** | VDE-AR-N 4105 · §14a EnWG | certified | certified | §14a native | KfW 442 |
| **Netherlands** | NEN-EN 50549-1 · Netbeheer NL | certified | certified | EEBUS | ISDE |
| **Italy** | CEI 0-21 · CEI 0-16 | certified | certified | OCPP 2.0 | Superbonus |
| **Spain** | RD 1699/2011 · NTS de ENTSO-E | certified | certified | OCPP 2.0 | Next Gen |
| **France** | NF C15-100 · Enedis DTR | certified | certified | OCPP 2.0 | MaPrimeR. |
| **United Kingdom** | G98 / G99 · ENA EREC | certified | certified | OCPP 2.0 | ECO4 / SEG |
| **Nordics (SE/NO/DK/FI)** | EIFS 2018:2 · NEK 399 · DS/EN 50549-1 | certified | certified | Nordpool | country-var. |
| **Austria / Switzerland** | TOR Erzeuger · NA/EEA-NE7-CH2020 | certified | certified | EEBUS | EAG / PS |
| **Poland** | IRiESD · NC RfG PL | certified | certified | Q3 2026 | Mój Prąd |
| **Belgium / Luxembourg** | Synergrid C10/11 · ILR 2022 | certified | certified | OCPP 2.0 | region-var. |

**Note on subsidy programmes:** Scheme names shown (KfW 442, ISDE, Superbonus, MaPrimeRénov', ECO4, Mój Prąd, EAG, Next Gen, etc.) are indicative as of 2026-04. Eligibility, caps, application windows and technical prerequisites change frequently — always confirm current status and product eligibility with local Wattsonic sales or the national scheme authority before quoting.

**Latest revision**
wattsonic.com/ds/wattmatic
rev=DS-2026-04