

ACCELEV v2 6kW / 8 kW

EVSE dual phase charger
with BatteryCare and Grid Monitoring
User Manual (04.2019)



Accelev 6kW v2 – Manual

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Thank you for choosing our EVSE – Accelev v2.

We believe that our portable wall box is the best choice for your car.

1. Overview

Accelev v2 EVSE is a processor-controlled, advanced AC wall box with features not available in other chargers. Beside of grid monitoring (power shedding) and BatteryCare™ unique charging modes it gives an opportunity to equally load 2 phases at 3-phase 400V source to give more power to the car with single phase on-board charger, and thus – to charge much faster.

It is updatable and expandable via USB port and can be flexibly completed according to customer wishes (both cables are detachable/replaceable).

We believe that Accelev v2 is the most modern EVSE home station of our times.

By the way - if you look for single phase charger with BatteryCare – we produce it also.

2. Standard features

- Grid monitoring (immediate load reduction while grid overload detected – no more fuse switches keeping turning off)
- BatteryCare™ - unique full charging / no full charging modes with maximum life protection for your battery
- Updateable via micro USB extension port.
- Portable (some restrictions apply, see “Precautions & Installation”)
- Detachable cables (both – input and output side). Use one charger in all situations.
- 2.8 inch TFT human interface with „geek mode” - you can monitor all parameters while loading
- Overload and over-temperature protection and advanced safety solutions implemented

For more features, updates, extensions please refer to <http://evtun.com>

3. Precautions & Installation

Accelev v2 EVSE should be installed indoors and should be protected from water. It has IP 42 protection. To fix it at the wall, please install quick-click hanging system bar with 2 x 6mm x 50 mm bolts or similar length screws (if installed on a wooden fence). Please remember that Accelev is a portable unit, but still, its weight is about 15 kg, so it needs accurate mounting of the quick-click bar and being screwed to the wall (bottom). It should not be connected to electricity when moving.



For your security it is obligatory to install bottom wall screw while having Accelev wall-mounted. Do not connect power before finishing installation. Do not detach, carry, move charger while charging. Protect from dust, water, direct Sun exposition. If used as a portable charger Accelev should be positioned on its back.

Plug with a **green label** is an output to car or third phase extension, a **red label** side is for input (380-415V 3-phase). Same colours code can be found at the end of connecting wires. There is no risk to improperly connect plugs to sockets, as they are different.

Accelev, if used as a stationary unit, should be connected to 16A or 32A 3-phase EU connector (red). You can order Accelev with any of these: 16A/32A and 4pin/5pin. Phases can be changed directly in plug (it has a unique, rotating connectors face-side). There is no need to have 32A 3-phase delivery at home, but 32A plugs can be used. For proper installation consult or call an electrician. Accelev EVSE can be used lying flat or hanging (preferred setup due to better cooling). Remember to avoid covering inlet and outlets of heat.

Maintenance and cleaning can be done only if a power source is disconnected. It is not permitted to wash the unit with a direct stream of water. Use cleaning wipes for notebook/tv screens instead.



At bottom side you'll find a security mounting. While using this EVSE as a wall box this security mounting must be installed to avoid serious injuries caused by charger drop. It should be installed by drilling $\phi=6$ hole, install gold anchor (with appropriate glue, depending on surface).

4. Do/Don't

You can:

- Switch off a power source of Accelev while not charging, also by its input connector (you can use it also to reset counter – in such situation, please switch off for at least 5 seconds).
- Disconnect your car at any moment.
- Press button at the delivery plug to restart charging
- Move or carry Accelev while not charging and not connected to the mains and all cables disconnected.
- Use Accelev as a portable charger while putting on the ground on the back

You should not

- Use Accelev wall-mounted without securing it with bottom security hold
- Switch off a power source of Accelev while charging.
- Move or carry Accelev while charging, connected to the mains or cables connected.
- Open Accelev, modify or change its firmware
- Pour water, wash it with water, etc.



5. Charging speed

Accelev EVSE tries to optimise your charging speed and load automatically, therefore, the following situations may occur:

- your AC network is not loaded, the car battery is not full – charging speed is maximised
- your AC network is overloaded – charging speed is reduced by Accelev
- your car battery is almost full – charging speed is reduced by car.

Below you can find time estimates for some popular cars, which can be used to predict charging your car from 5% to 95% state of charge. Notice, that car may charge slower or faster due to battery temperature and power supply voltage & load. This table does not cover all car models and your car is compatible even if it is not listed. Estimated charging speed in hours is presented.

Notice: If speed of charging is limited by low onboard charger amperage, Accelev still can be faster than other charger due to higher voltage operation (voltage boost). This applies especially to cars with 3,3kW or weaker onboard charger. Notice, that „16A charger” may load your phase up to full 16A, but faster, fully loaded Accelev 6kW will load it with 13A per phase, or with 7,5A per phase only while doing exactly same speed as 16A charger does.

Geek info: $7,5A \times 2 = 15A$, and not 16A, but the voltage at Accelev input will stay higher due to much lower load, so powers will be equal.

Vehicle	Max rate (kW)	Battery size (kWh)	Charger included with car (h)	16A charger (h)	Accelev 6kW (h)	Accelev 8kW (h)
Audi A3 E-Tron	3.3	8.8	4.6	2.7	2.5	2.5
BMW 330e	3.6	7.6	3.9	2.2	2	2
BMW 530e	3.6	9.2	4.6	2.7	2.5	2.5
BMW 740e	3.6	9.2	4.6	2.7	2.5	2.5
BMW ActiveE	7	32	16.1	9.2	5.5	4.5
BMW i3 2014-2016	7.4	23	11.6	6.5	4	3
BMW i3 2017 (60 Ah battery)	7.4	23	11.6	6.5	4	3
BMW i3 2017 (90 Ah battery)	7.4	32	16.1	9.2	5.5	4.5
BMW i8	3.6	7.1	3.5	2.2	2	2
BMW X5 xDrive-40e	3.6	9	4.6	2.7	2.5	2.5
Cadillac CT6	3.6	18.4	9.1	4.9	4.5	4.5
Cadillac ELR	3.3	16.5	8.4	4.9	4.5	4.5
Chevy Bolt	7.2	60	30.1	17.4	10.5	8.5
Chevy Spark	3.3	23	11.6	7.6	7	7
Chevy Volt	3.3	16.5	8.4	4.3	4	4
Chevy Volt 2016-2018	3.6	18.4	9.1	4.9	4.5	4.5
Chevy Volt 2019 LT	3.6	18.4	9.1	4.9	4.5	4.5
Chevy Volt 2019 LT Upgrade	7.2	18.4	9.1	4.9	3	2.5
Chevy Volt 2019 Premier	7.2	18.4	9.1	4.9	3	2.5
Chrysler Pacifica	6.6	16	8.1	4.3	3	2.5
Coda	6.6	31	15.4	8.7	5.5	4.5
Fiat 500E	6.6	24	11.9	7.1	4	3.5
Fisker Karma	3.3	20	10.2	5.4	5	5
Ford C Max Energi	3.3	7.6	3.9	2.2	2	2
Ford Focus EV	6.6	23	11.6	6.5	4	3.5
Ford Focus EV 2017-2018	6.6	33.5	16.8	9.8	6	5
Ford Fusion Energi	3.3	7.6	3.9	2.2	2	2
Honda Accord	6.6	6.7	3.5	2.2	1.25	1
Honda Clarity EV	6.6	25.5	12.6	7.1	4.5	4
Honda Clarity Plug-In	6.6	17	8.4	4.9	3	2.5
Hyundai Ioniq	6.6	28	14.0	8.1	5	4
Hyundai Ioniq Plug-in	3.3	8.9	4.6	2.7	2.5	2.5
Hyundai Kona	7.2	64	31.9	18.5	11	9
Hyundai Sonata	3.3	9.8	4.9	3.3	3	3
Jaguar I-Pace	7.0	90	45.2	25.5	15.5	13
Karma Revero	6.6	21.4	10.9	6.0	3.5	3
Kia Niro	3.3	8.9	4.6	2.7	2.5	2.5
Kia Optima	3.3	9.8	4.9	3.3	3	3
Kia Soul	6.6	27	13.7	7.6	4.5	4
Mercedes B Class B250e	9.6	28	14.0	8.1	5	3.5
Mercedes C350 Hybrid	3.3	6.2	3.2	2.2	2	2
Mercedes GLC 350e	3.7	8.7	4.2	2.7	2.5	2.5
Mercedes GLE 550e	3.3	8.8	4.6	2.7	2.5	2.5

Mercedes S550 Hybrid	3.3	8.7	4.2	2.7	2.5	2.5
MINI Cooper SE Countryman ALL4	3.3	7.6	3.9	2.7	2.5	2.5
Mitsubishi i-MiEV	3.3	16	8.1	5.4	5	5
Mitsubishi Outlander	3.3	12	6.0	3.8	3.5	3.5
Nissan Leaf 2011-12	3.3	24	11.9	8.1	7.5	7.5
Nissan Leaf 2013-16 (3.3 onboard charger)	3.3	24	11.9	8.1	7.5	7.5
Nissan Leaf 2017 (3.3kW onboard charger)	3.3	30	15.1	9.8	9	9
Nissan Leaf 2017 (6.6kW onboard charger)	6.6	30	15.1	8.7	5	4.5
Nissan Leaf 2018	6.6	40	20.0	11.4	7	6
Nissan Leaf S 2013-15	6.6	24	11.9	7.1	4	3.5
Nissan Leaf S 2016	6.6	30	15.1	8.7	5	4.5
Nissan Leaf S 2016 (6.6kW onboard charger)	6.6	24	11.9	7.1	4	3.5
Porsche 918 Spyder	3.6	6.8	3.5	2.2	2	2
Porsche Cayenne S E-Hybrid	3.6	10.8	5.3	3.3	3	3
Porsche Cayenne S E-Hybrid (upgraded charger)	7.2	10.8	5.3	3.3	2	1.5
Porsche Panamera 4 E-Hybrid	3.6	14.1	7.0	4.3	4	4
Porsche Panamera 4 E-Hybrid (upgraded charger)	7.2	14.1	7.0	3.8	2.5	2
Porsche Panamera S E-Hybrid	3.6	9.4	4.6	2.7	2.5	2.5
Porsche Panamera S E-Hybrid (upgraded charger)	7.2	9.4	4.6	2.7	1.5	1.25
Range Rover P400e	7	13.1	6.7	3.8	2.25	2
Smart Car	3.3	17.6	8.8	6.0	5.5	5.5
Smart Fortwo ED 2017	7.2	17.6	8.8	4.9	3	2.5
Subaru Crosstrek PHEV	3.3	8.8	4.6	2.7	2.5	2.5
Tesla Model 3 Long Range	11.5	70	35.0	20.1	12	9
Tesla Model 3 Standard	7.7	50	24.9	14.1	8.5	6.5
Tesla Model S 100 & P100D	17.2	100	50.1	28.8	17	13
Tesla Model S 60 Dual (USA)	19.2	60	30.1	17.4	10.5	8
Tesla Model S 60 Single (USA)	9.6	60	30.1	17.4	10.5	8
Tesla Model S 70 Dual (USA)	19.2	70	35.0	20.1	12	9
Tesla Model S 70 Single (USA)	9.6	70	35.0	20.1	12	9
Tesla Model S 75 & 75D	11.5	75	37.5	21.2	13	9.5
Tesla Model S 85 Dual (USA)	19.2	85	42.4	24.4	14.5	11
Tesla Model S 85 Single (USA)	9.6	85	42.4	24.4	14.5	11
Tesla Model S 90 Dual (USA)	19.2	90	45.2	25.5	15.5	11.5
Tesla Model S 90 Single (USA)	9.6	90	45.2	25.5	15.5	11.5
Tesla Model X 100 & P100D	17.2	100	50.1	28.8	17	13
Tesla Model X 60 Dual (USA)	17.2	60	30.1	17.4	10.5	8
Tesla Model X 60 Single (USA)	11.5	60	30.1	17.4	10.5	8
Tesla Model X 75 Dual (USA)	17.2	75	37.5	21.2	13	9.5
Tesla Model X 75 Single (USA)	11.5	75	37.5	21.2	13	9.5
Tesla Model X 90 Dual (USA)	17.2	90	45.2	25.5	15.5	11.5
Tesla Model X 90 Single (USA)	11.5	90	45.2	25.5	15.5	11.5
Tesla Roadster	17.2	56	28.0	15.7	9.5	7.5
Toyota Prius EV	3.3	4.4	2.1	1.6	1.5	1.5
Toyota Prius Prime EV	3.3	8.8	4.6	2.7	2.5	2.5
Toyota Rav4	9.6	41.8	21.0	11.9	7	5.5
VIA Motors Truck	17.3	23	11.6	6.5	4	3
VIA Motors Van	17.3	23	11.6	6.5	4	3
Volvo S90 T8	3.6	10.4	5.3	3.3	3	3
Volvo V60	3.3	11.2	5.6	3.8	3.5	3.5
Volvo XC60 T8	3.6	10.4	5.3	3.3	3	3
Volvo XC90 T8	3.3	9.2	4.6	3.3	3	3
VW e-Golf (3.6kW onboard charger)	3.6	24	11.9	7.1	6.5	6.5
VW e-Golf (7.2kW onboard charger)	7.2	24	11.9	7.1	4	3.5
VW e-Golf 2017 (7.2kW onboard charger)	7.2	35.8	17.9	10.3	6	5

6. Main Screen

Values, Statuses (from top left):

(See "Usage and functions" chapter below to learn more about all options)

BatteryCare – BatteryCare option status

NoFull – no full charge option status

GridM – grid monitoring (shedding) status

234/250V – voltage of shedding / actual voltage

24/12.8A – actual max. amperes / actual amperage

25C – core of charger temperature

02:12:34 – total charging time

3.569kWh – total kWh charged

3.2kW – actual charging power

Battery symbol – shows phase of charging and if BatteryCare is on or off

MAX 24A – max. amperes permitted

[-] [+] - change max. amperes: 6, 9, 12, 15, 18, 21, 24

Start – starts charging or idle, resets counters

Setup – opens Setup screens:

BatteryCare(TM) – enables and disables BatteryCare routines and functions

No Full Charging – self described, perfect for battery life.

ReVive Balancing – a special pulse balancing of battery to cure and recover lost capacity

Grid Mon – enables and disables grid monitoring (shedding)

More Sens – more sensitive grid monitoring

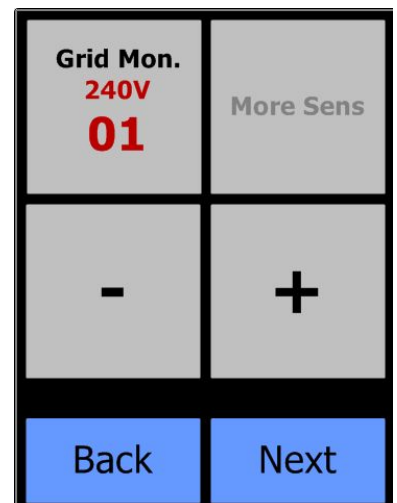
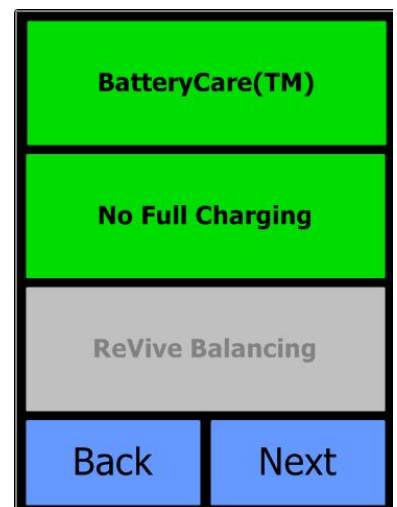
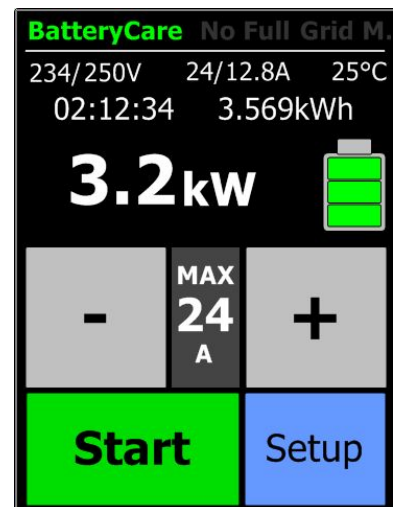
[-] [+] - sets level of grid monitoring

234V – actual prediction for power shedding start

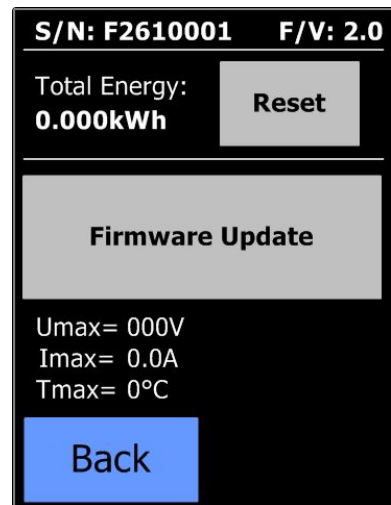
01 – tolerance of grid monitoring (01 = smallest gap, quickest reaction)

Grid monitoring depends on actual voltage in your electric grid. It is a good idea to set it more conservative. 08 is a factory setting, good for most situations. It will give about 15V gap between idle and reaction to load at 240V, and an approximately 8V gap at 210V. Increasing tolerance is increasing the gap by 1-2V (depending on actual voltage). A higher step can be observed at higher voltages, as this method of grid load control based on actual voltage to estimate load. Decreasing reduces the gap by 1-2V.

In the case of electric fuses turned off please decrease tolerance first. If you see, that charger reacts to load and reduces the speed of charging, but this amperage reduction is not enough for your fuse system - please switch "More Sens" on to increase the amount of amperage reduction by twice.



S/N: F2610001 – serial number of charger
 F/V: 2.0 – firmware version installed
 Total Energy – global energy counter
 Reset – resets global energy counter
 Firmware Update – switches to boot mode, waits for update via USB port
 Umax – highest voltage ever measured
 Imax – highest amperage ever measured
 Tmax – highest temperature ever measured



7. Usage and functions

Status line shows actual status of three main functions:

BatteryCare:

BatteryCare – off, charger is a standard Mode2 charger
BatteryCare – enabled and iddle
BatteryCare – enabled and in action

BatteryCare, once switched on, focuses on start charging speeds and finalising of charging, with constant voltage phase, to reduce risk of single battery cell over-voltage to minimum. It seamlessly reduces the speed of charging before battery voltage reaches the maximum - and thus it protects cells much better, than any OEM EVSE, still permitting full charge. SOH (State Of Health) of your car battery will drop slower.

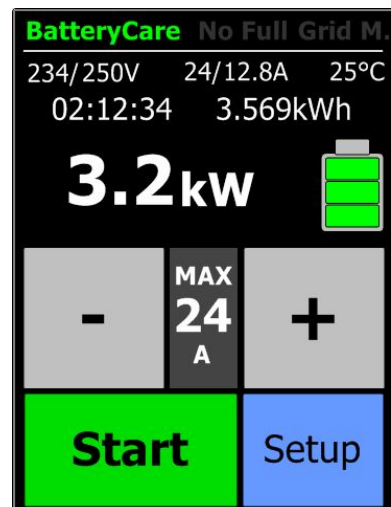
BatteryCare enables No Full Charging button.

No Full Charging

Battery symbol stays green if BatteryCare is enabled. Otherwise – it is blue.

No Full – off, charger is a standard Mode2 charger
No Full – enabled and idle
No Full – enabled and almost full battery detected

No Full Charging can be switched on via Setup menu, while BatteryCare is enabled. This function is preventing your battery to be fully charged. Once finalising (constant voltage) phase is detected, car charge stops. For your information status “No Full” stays orange until reset with Start button.



We highly suggest to use BatteryCare on with No Full Charging on for everyday use and commuting, and BatteryCare on with No Full Charging off for occasional, long trip occurrences. Charging battery full, along with its high temperature may reduce faster your battery's usable capacity and the State Of Health.

Maximum amperage setting/display:

User can set and change maximum amperage at any moment of charge or idle.

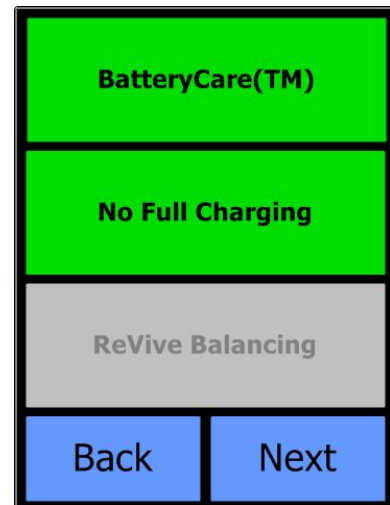
Please notice, that maximum amperage set by USER and ACTUAL maximum amperage (presented below status bar, along with actual current) may differ (be reduced) if BatteryCare is on or Grid Monitoring is on.

Update

For update please connect microUSB cable between your Accelev and Windows PC. MicroUSB (covered with plastic plug) port is on the right side of Accelev. Update program and new firmware versions are available at EVTUN.COM page or your distributor/shop page, once published.

ReVive Ultra-balancing

This function is intended to balance battery and revive missing capacity. Such curing bases on pulse charging algorithm and slow balancing and may take up to 10 hours to finish. It can be interrupted at any moment, but the battery will be not entirely balanced. A car may not be fully charged after the end of ReVive. A car should be discharged till <10% state of charge before using ReVive (you can discharge your car stationary, using a heating system and setting it to a max. temp.). During charging with this function enabled, grid monitoring can be activated, but BatteryCare is off. We suggest to balance your battery every three months, but there is no need to repeat that procedure more frequently than once a month (overnight).



8. FAQ – Frequently Asked Questions

7.1. What is a typical setup of charger you suggest?

We highly suggest to use BatteryCare with No Full Charging for everyday use and commuting, and BatteryCare without No Full Charging for occasional, long trip occurrences. Charging battery full, along with it's high temperature reduces usable capacity and State Of Health of your battery.

2. Can I restart ReVive balancing again after it finished to balance and cure my battery even more?

Yes, this is ok and it will work for you.

3. Can I use Accelev with 230V 3-phase network (like in some parts of Norway).

No. It won't work. Or better to answer – it will work with a reduced speed to 4 kWh and show an error.

4. Can I use Accelev outdoors?

No, it designed to use indoor, sheltered. You can use it as a portable charger, but restrictions apply – see paragraph "3. Precautions & Installation".

5. Can I charge Type1/Type2/Tesla US cars with one charger?

Yes. You need just cables we provide. Tesla US connector, Mennekes (Type2) and J1772 (Type1) are available. Your charger is delivered with one of these types. If you want more – ask us.

6. Can I have longer/shorter cables for supply/car connection?

Of course. Just tell us what do you need and we will produce that.

7. Do you plan to expand this charger to be 3-phase? Why don't you offer 3-phase chargers?

Yes, but without oblige. Charger is ready to have an extension module to 3-phase. 3-phase charger with such power in single housing will be heavy or inefficient.

More Questions? News? Updates? Extensions? Other charger types? Ideas for updates?

Go to <http://www.evtun.com>

9. Specifications & Technical Data

Parameter	Accelev v2/6kW	Accelev v2/8kW
Dimensions (in mm)	330 x 240 x 130	380 x 270 x 130
Weight (net, in kg)	15	18
Human interface	2.8 inch colour TFT screen with touchscreen	
Update/extension port	USB micro B (USB 2.0 or higher)	
BatteryCare™	Installed, factory disabled (refer to manual)	
Housing	PC + GFS, steel	
Installation method	Indoor wall mounted	
Application allowance	Indoor or sheltered place, min. 1m over the ground, no direct sun.	
Portability	Yes, restrictions apply. Refer to manual.	
Input plug type	IEC 60309, 3P+N+E (red plug, 5 pins). Contact if you need other standard. Replaceable.	
Input voltage range	200 ~ 240 V (AC) per phase	
Input cable length (in m)	4 (other options available)	
Typical power	6,0 kW	8,0 kW
Rated max. power	6,25 kW	8,40 kW
Rated max. current (release ver)	24 A	32 A
Max. current (future firmware updates, not guaranteed)	26A	35A
Output plug type	Type2 (IEC 62196) or Type1 (J1772). Replaceable.	
Output cable length in m	4 (other options available)	
Output voltage range	210 ~ 250 V (AC) single phase	
Charging standards / modes	Mode 3 (with power shedding), Mode 2.	
Protection	Overvoltage, undervoltage, overload, grounding, over temp.	
Efficiency	≥95%	
Power factor	≥0.99	
Working temperature	-30 ° C ~ +50 ° C	
Working humidity	5% ~ 95% (no condensation)	
Housing protection level	IP42	
Cooling	Active, fan, processor controlled	
Measuring accuracy (power)	1%	
Standards met		
Branding	Possible, contact us for MOQ	