



Product & Service Catalogue

KOHLERPOWER
uninterruptible

Contents

CAB 2





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About Kohler Uninterruptible Power



What makes us different?

Our aim is simple – to be the best power protection company there is.

Together with our parent company, the Kohler Company's Power Group, Kohler Uninterruptible Power is a driving force within the power protection industry offering pioneering product technology, service excellence and global reach.

Best in class power protection solutions

Central to our product portfolio is a range of the highest quality, class-leading three-phase and single-phase uninterruptible power supplies. Developed to offer the highest levels of efficiency, availability, scalability and flexibility.

Leveraging Kohler's technical leadership in global power protection, the full power protection portfolio includes:

Uninterruptible power supply (UPS)

Battery systems

Software and ancillaries

Service excellence guaranteed

Kohler Uninterruptible Power has built an outstanding reputation for service excellence through its unrivalled pre and post sales support. Our wide range of services includes initial site surveys, system design, installation and commissioning, preventative maintenance, training, and technical support.

With 24/7 availability, all these services are delivered by a dedicated and extensive network of trained service engineers and service support staff - ensuring lifelong and reliable operation of the power protection solutions it provides.

Why choose us?

Kohler Uninterruptible Power takes a comprehensive, end-to-end approach to meeting our customers' specific and demanding requirements. From initial contact through installation, service, maintenance and disposal, Kohler Uninterruptible Power provides its customers with an unrivalled partner for complete peace of mind.

We understand that every client is different and each has its own specific opportunities to consider and challenges to overcome. The key, we believe, is to spend the time required to truly understand the business and how it operates. Only then can we apply our comprehensive product range, combined with our broad support services offering, to provide power protection solutions which exceed expectations.

This also means Kohler Uninterruptible Power continuously invests in product and system development, the talent of its employees, broadening its range of services, and improving its service delivery. By doing so, Kohler Uninterruptible Power expertly meets the present and future needs of its customers and achieves its objective – to be a leader of power protection solutions and services.

About Kohler Co.

Established in 1873, Kohler Co. has a pedigree for quality, innovation and exceptional craftsmanship. In 1920, it launched the world's first engine powered electric generator. Since then, it has been developing products for every aspect of critical load protection and is one of the world's largest power protection equipment manufacturers with products in use on every continent.

Together, Kohler Uninterruptible Power and Kohler bring a potent, global force of longevity, pedigree, pioneering product technology, service excellence and global reach to the power protection industry.

The Kohler Uninterruptible Power mission

To continuously delight our customers through the provision of industry-leading Power Protection Solutions and Support Services.



Product overview: Industry-leading products

Kohler Uninterruptible Power's product portfolio contains some of the most technologically advanced power protection products. At the core of its product portfolio is a range of high quality and reliable three-phase and single-phase uninterruptible power supplies.

Single-phase UPS from 1–20 kVA,
parallelable up to 80 kVA

Three-phase transformerless UPS from
10–1200 kVA scalable up to 9.6 MVA

Battery systems

Switchgear

Emergency lighting static inverters

Software and ancillaries

Service overview

24/7 onsite service

Initial site survey

System design

Installation

Commissioning

Preventative maintenance

Repair

Battery maintenance, replacement
and testing

Capacitor replacement

Load bank testing

Witness testing

Disposal

Market overview

From financial services and Colo providers to retail and manufacturing giants, Kohler Uninterruptible Power's products are being utilised in a broad range of markets, supporting an even broader range of applications.

Regardless of whether you need a multi-MVA system to support a tier 4 data centre or a 10 kVA UPS to support an emergency lighting system, Kohler Uninterruptible Power has the perfect solution. Our teams of sales managers and engineers have extensive experience in developing tailor-made solutions, specifically designed to meet your particular challenges and ensure that any requirement can be satisfied, no matter the business or area of operation.





Kohler Uninterruptible Products

Kohler Uninterruptible Power's product portfolio contains some of the most technologically advanced power protection products. At the core of its product portfolio is a range of high quality and reliable three-phase and single-phase uninterruptible power supplies.





Single Phase

Kohler PW 1000

(800 VA–20 kVA)



Kohler PW 1000 range

Capacities from 800 VA to 20 kVA

Single phase

Standalone UPS

Tower and rack mounted designs available

High efficiency of up to >96%

For server, network, storage, and telecommunication applications – combining high reliability and high efficiency.

Single-phase UPS for smaller-scale operations – without compromising on quality.



The Kohler PW1000/LT provides reliable power protection for low power single-phase applications from 800 VA to 2200 VA, making it the ideal solution as power back-up for PCs, workstations, servers and other network storage devices.

The Kohler PW1000/OT is an online double conversion single-phase UPS that delivers a continuous sinusoidal voltage to ensure maximum power protection, while filtering and stabilising the power supplied to protect against mains disturbances.

Either tower or rack-mounted, the Kohler PW1000/ORM is an online double conversion single-phase UPS covering power requirements from 1–20 kVA. Providing a continuous sinusoidal, filtered and stabilised voltage to the load, it protects against the loss of power and mains disturbances.

Kohler PW1000/LT

Line interactive technology

Power range: 800 VA, 1500 VA and 2200 VA

Built-in automatic voltage regulation

LED display

Tower design

This line interactive UPS is available in a tower design and provides up to five minutes of continuous power during the loss of mains power. It also protects against disturbances in the mains power as its automatic voltage regulator (AVR) ensures a source of stable, continuous power is provided under brown-out, sag, surge and spikes conditions.

Kohler PW1000/OT

Online double-conversion technology

Power range: 1, 2, 3, 6, 10, 15 and 20 kVA

0.9 power factor

Up to 96.5% efficiency (eco mode)

LCD/LED display

Tower design

Interfaces – RS-232, SNMP, USB, dry contact relay

Extended battery autonomy options

This tower design UPS is available in 1, 2, 3, 6, 10, 15 and 20 kVA models. With a 0.9 power factor and high efficiency up to 96.5%, it combines all the smart functionality you would expect with a standard digital display and a wide range of communications interface options.

Kohler PW1000/ORM

Online double-conversion technology

Power range: 1, 2, 3, 6, 10, 15 and 20 kVA

0.9 power factor

Up to 96.5% efficiency (eco mode)

LCD/LED display

Interfaces – RS-232, SNMP, USB, dry contact relay

Convertible tower/rack-mounted design

Extended battery autonomy options

Combining all the smart features you would expect in a UPS, including high efficiency of up to 96.5%, a power factor of 0.9, an LCD display and a wide range of communications interface options, PW1000/ORM is affordable, reliable and flexible.









Three Phase

Kohler PW 5000/TP

(10–50 kVA)



Three-phase UPS for midsize server rooms, networks, telecommunication systems and industrial processes.

Kohler PW 5000/TP

Capacities from 10 kVA to 50 kVA
three phase

On-line double conversion,
transformerless technology for high
reliability

Parallel capability of up to 20 units

Intelligent battery management

95.5% efficiency across a wide load
range

Integral batteries

Near unity input power factor (0.99)

Low input harmonic distortion
(THDi <3%)

Small footprint and low weight

Ergonomic design for easy serviceability

Energy saving and low carbon footprint

Extended autonomy with matching
battery cabinets

A true on-line, double-
conversion, VFI (voltage
frequency independent)
UPS that provides
enhanced power protection
in a compact format.

Its outstanding price and performance
deliver the best value for money in its
category with uncompromised system
reliability and power availability.



Flexible battery configuration

Optimal sizing of battery capacity

10–50 kVA with different sized cabinets

Extended autonomy with matching battery cabinets

Kohler PW 5000/TP is available in three cabinet sizes, enabling you to choose the ideal capacity and required autonomy for your critical load. The smaller 10–25 kVA units are available in two cabinet sizes, dependent on the required level of autonomy, with the larger units (25–50 kVA) available in a third cabinet size, which can house both 7/9 Ah and 28 Ah batteries.

Additional battery cabinets that match perfectly with the UPS for scaling autonomy time.

Highest load availability

Productivity maximised, 'downtime' minimised

Paralleled systems are designed to ensure availability by significantly increasing system redundancy. In the case of a power failure, should a UPS unit fail, the remaining units are still able to continue to support the critical load. Redundant paralleled systems also enable regular maintenance to be carried out on the system without any requirement to remove the critical load from conditioned power.

High efficiency for lowest lifetime costs

High efficiency at partial and rated loads

Low carbon footprint

With a transformerless design and Energy Saving Inverter Switching (ESIS) technology, Kohler PW 5000/TP delivers efficiency at partial and rated loads (up to 95.5%). This level of efficiency dramatically reduces the total cost of ownership of the UPS during its lifecycle.

Ripple-free and optional temperature controlled battery chargers protect batteries and extend the lifetime performance, further reducing running costs.

These benefits combine to make the Kohler PW 5000/TP a truly eco-friendly solution for all power protection requirements.

Space saving

Reduced footprint

Valuable floor space maximised

With a footprint of only 0.4m² at 50 kVA, the Kohler PW 5000/TP has a power density of up to 100 kW/m². As a result, substantial and valuable space savings are achieved even at the highest power ratings.

LCD display

Output contacts and SNMP card (optional)

Customer inputs
RS232 interface

Rectifier and
bypass fuses

Batteries

Battery fuses

Maintenance
bypass switch

Parallel isolator

Battery containment

Input/output connection



UPS cabinet A (10–20 kVA)



Dimensions (W x D x H)
345 x 710 x 720 mm

Weight without battery

10 kVA: 60 kg
15 kVA: 62 kg
20 kVA: 64 kg

Weight with 48 x 7/9 Ah battery

10 kVA: 180 kg
15 kVA: 182 kg
20 kVA: 184 kg



Available in three different cabinet sizes

Cabinet A: 10 – 20 kVA

Cabinet B: 10 – 25 kVA

Cabinet C: 25 – 50 kVA

UPS cabinet B (10–25 kVA)



Dimensions (W x D x H)
345 x 710 x 1045 mm

Weight without battery

10 kVA: 88 kg
15 kVA: 90 kg
20 kVA: 92 kg
25 kVA: 94 kg

Weight with 96 x 7/9 Ah battery

10 kVA: 328 kg
15 kVA: 330 kg
20 kVA: 332 kg
25 kVA: 334 kg

UPS cabinet C (25–50 kVA)



Dimensions (W x D x H)
440 x 910 x 1420 mm

Weight: 7/9 Ah cabinet without battery

25 kVA: 151 kg
30 kVA: 160 kg
40 kVA: 165 kg
50 kVA: 170 kg

Weight: 28 Ah cabinet without battery

25 kVA: 135 kg
30 kVA: 145 kg
40 kVA: 150 kg
50 kVA: 155 kg

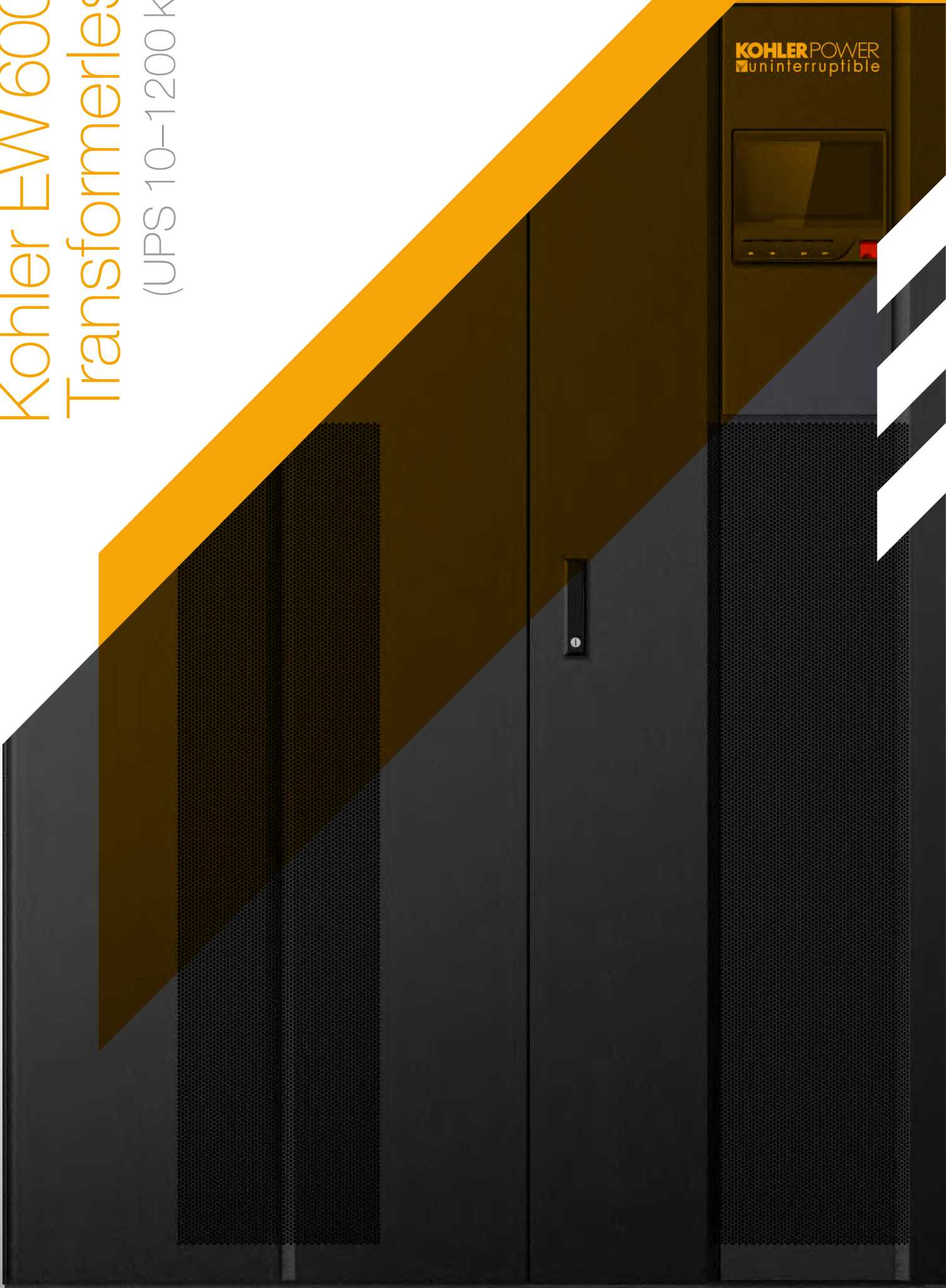
Weight with 144 x 7/9 Ah battery

25 kVA: 540 kg
30 kVA: 550 kg
40 kVA: 555 kg
50 kVA: 560 kg

Weight with 48 x 28 Ah battery

25 kVA: 605 kg
30 kVA: 615 kg
40 kVA: 620 kg
50 kVA: 625 kg

Kohler EW6000 Transformerless (UPS 10–1200 kVA)



Advanced, compact 3:3/3:1 UPS for finance companies, servers rooms, healthcare, government and national defence, retail, leisure and hospitality, transportation and telecommunication systems.

Kohler EW 6000
New 10–40 kW range
Advanced IGBT inverter
High efficiency, up to 96%
Output PF 1.0
Easy to use display and menu
Transformerless
Intelligent battery management system prolongs battery service life

Compact and efficient

Exceptional power density and high output power factor (≥ 0.99) result in a highly compact, leading edge footprint

Efficiency up to 96% (@50-100% load), reducing running costs and environmental impact

Performance and reliability

Low THDi (<3%), advanced 3-level IGBT inverter for cleanest sine waveform output

Wide input voltage range (80-285 Vac) and input frequency range (40-70 Hz) keep UPS on mains longer, reducing use / wear of generator and batteries

Intelligent fan control – reduces noise and energy use while prolonging life

Coated PCBs as standard – protects from humidity, dust and corrosion

Separate bypass and mains power breakers to increase supply reliability

Flexible design

Use with either internal, external or combined battery strings

Flexible battery configurations (10kW ± 8 -20 blocks and 20-40kW ± 12 -20 blocks) maximise resilience and use of existing batteries

Diverse range of inputs and outputs comprising 1:1, 3:1 and 3:3 for 10-20kW and 3:1 and 3:3 for 30-40kW

Definable charge current: 1-10A for 10-20kW, 1-20A for 30-40kW

RS 485, EPO and dry contact outputs as standard. Optional SNMP output

User-friendly

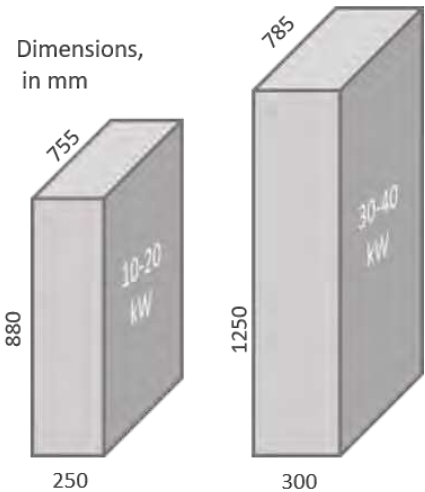
LCD screen with flow through menu to access functions and settings

Authority management and two-button design to reduce risk of mistakes

Easy troubleshooting via history log and fault alarm record



LCD Display



Three-phase UPS for finance companies, data centres, medical equipment, government and national defence, telecommunications systems, transportation and energy processes.

Kohler EW 6000 50–200 kW

IGBT rectifier and inverter

High efficiency, up to 96%

Output PF 1.0

Fault trace management

Transformerless

Intelligent battery management system prolongs battery service life

Flexible network management: SNMP

Green power

High efficiency in online mode (up to 96%) reduces heat dissipation and limits power consumption costs

Efficiency >99% in eco mode gives significant cost reduction

Reliable

Wide input voltage range, 176Vac - 280Vac (230Vac -23% to +21%)

Robust overload ability

Dual system control card preventing single failure point

IGBT rectifier benefit with low THDi ($\leq 3\%$) and high power factor

Bus synchronisation control function provides reliable high power for the dual-bus application

3-level IGBT inverter ensures excellent performance

Intelligent fan control reduces noise and prolongs fan service life

Intelligent management

Fault trace management (FTM) for convenient failure analysis (waveform record)

Easy access to additional settings and status information via on-screen menu

Auto dedusting function

Key components pre-alarm function

Flexible design

Common battery bank sharing in parallel system

Flexible battery configuration improves service ability

High power density design with compact size, 120 kW covers 0.3825 m²

Frequency converter function (60 Hz to 50 Hz or 50 Hz to 60 Hz)

Smart generator management

Self-aging test function without load enables onsite commission

Easy onsite parallel modification

Options

Customised power distribution cabinet

Expanded dry contact

Intelligent battery monitoring system

Bypass voltage regulator

Dual-system control card

Auto switch: STS/ATS

Energy feedback absorber

N+X in parallel

Input isolation transformer

SPD: C grade

Output synchronisation common bus

Battery charge temperature compensation



High efficiency, advanced UPS for larger loads in data centre, financial services, process / production, utility, healthcare, government and national defence applications.

Kohler EW 6000 New 300–1200 kW range

Advanced IGBT rectifier

High efficiency, up to 97%

Output PF 1.0

Sophisticated display and menu

Transformerless

Intelligent battery management

Parallel 8 units up to 9.6MW

Performance and reliability

Efficiency up to 97%, reducing running costs and environmental impact

Low THDi ($\leq 2\%$ at full load) and high power factor (≥ 0.99)

Advanced 3-level IGBT inverter for cleanest sine waveform output

Wide input voltage range (-40% to $+25\%$) keeps UPS on mains longer, reducing use / wear of generator and batteries

Dual DSP and power board remove single point of failure

Eco and Smart Eco modes to further improve energy efficiency (in Smart Eco mode inverter provides harmonic compensation and power factor correction whilst bypass supplies load)

Coated PCBs as standard – protects from humidity, dust and corrosion

Intelligent, advanced design

Advanced parallel expansion technology, enabling connection of up to 8 units and 9.6 MW

Self-load test function for easy onsite testing and faster commissioning

Battery temperature compensation – increases performance and lifespan

Three-stage battery charging to prolong battery life

Multiple communication options including Smart programmable dry contact communication function

Supports external input / output transformer connection

Common bypass cabinet

Intelligent fan control – reduces noise and energy use while prolonging life

User-friendly

Clear, configurable 7" touch screen to quickly access functions and settings

Large 10,000 point event log with data and graphical representation options

Fault trace management aid via 100ms waveform record before and after fault



Kohler EW 6000TX

Transformer-based

(UPS 10–600kVA)

KOHLERPOWER
uninterruptible



Three-phase UPS for computer rooms, data centres, precision instruments, and industrial processes.

Kohler EW 6000TX 10–200 kVA

PF = 0.9

Small footprint

High efficiency 92%

All series touchscreen design

Galvanic isolation transformer

Double-button switch prevents error

Transformer-based

Reliable

The output isolation transformer provides high reliability to adapt to harsh industrial environments and protect critical loads

100% three-phase unbalance load adapts to complex applications

The dual air duct design provides effective cooling – protecting key components and extending service life

Dual power supply redundancy

The wide input voltage range provides high adaptability to the grid and extends the battery service life

The main PCB board with professional electromagnetic shielding improve reliable performance of EMC

Intelligent management

Multiple communication interface supports UPS and load intelligent monitoring

Intelligent SNMP achieves local monitoring and remote monitor

Battery temperature compensation function extends battery service life

The battery self-test function and battery temperature compensation function improve battery performance and extend its life

Intelligent fan control according to load capacity reduces noise and prolongs fan service life

Easy operation

10–30 kVA models have wheels for easy movement

HMI-friendly operation

On/off double-button design

EPO

10,000 history records reduce fault analysis and maintenance time

Power components in module design – more compact structure and easy for maintenance

Hot-swappable fan design achieves on-line maintenance

Innovative upgrade

Dual DSP control technology makes the data processing faster and more precise, and improves reliability

High output PF = 0.9 meets with the high requirements of applications

ECO-mode (98% efficiency) reduces cost and heat emission

Bus synchronisation control function provides reliable high power for the dual bus application

Advanced no-master-slave parallel technology achieves online power expansion and prevents single faults



100–200 kVA



40–80 kVA



10–30 kVA

Three-phase UPS
for finance companies;
data centres; government
and national defence;
telecommunications systems;
transportation, energy and
industrial processes.

Kohler EW 6000TX 300–600 kVA

High efficiency up to 95%

Wide input voltage range

Galvanic isolation

High overload capacity

IGBT-based rectifier technology

Transformer-based

Easy operation with 7-inch LCD touch
screen and LED on front door

SNMP and MODBUS communication



Green power

High input power factor (up to 0.999) and low Input THDi: <2.0% at full load, much less grid pollution and costs

Low output THDv: <0.5%, higher adaptability to precision instrument

High efficiency in online mode >95% and eco-mode efficiency >99%; 50% load >94.74%

Load bus sync (LBS) control decrease transfer time and current impact of dual bus system

Reliable

Wide input voltage range (-40%~+25%) assure high grid adaptability and prolong battery service life.

Dual air ducts design shows better cooling performance

Dual power and DSP redundancy design get higher reliability

Water, dust and corrosion resistant coating in all PCB boards

Robust EMC performance due to electromagnetic shielding tech

Intelligent fan speed control and failure detection function reduces the noise and prolongs fan service life

User-friendly

Set modes easily via touchscreen: output voltage, frequency, eco-mode, charging current and battery cells

On/off: double-button design to prevent misuse and touchscreen failure

EPO (emergency power off) button on front panel

Large data storage capacity, 10,000 entry event log

Intelligent management

Intelligent SNMP and MOD BUS achieves local monitoring and remote monitor

Intelligent battery management, automatic boosting and floating charge control

Intelligent fan control according the load capacity reduces the noise and prolongs fan service life

Galvanic isolation

Complete UPS output galvanic isolation for key components from the high voltage DC

Full isolate from the external loads, reduce the harmonic disturbances

Short circuit protection, restrain the high current puncture to UPS

No effects to the UPS output performance or reduced impact of the inverter power components whilst supplying specific loads

Options

UPS management software

IP grade upgrade and temperature sensor

Lightning protection device C/D level

Charging temperature compensation

Input/bypass isolation transformer

Kohler PW 6000

(60–500 kVA)

Parallelable up to 5 MVA/MW



The best combination of energy efficiency, reliability and low cost of ownership – capacity from 60 kVA/kW to 5 MVA/MW.

Kohler PW 6000

Single unit capacities from 60 kVA/kW to 500 kVA/kW

Capacity up to 5 Megawatts (5 MVA/MW) with 10 units in parallel

Power density of up to 363 kW/m²

High efficiency and minimum cost of ownership

Low input harmonic distortion: THDi = 3.5%

Near unity input power factor of 0.99

Fully rated output power (blade friendly)

Full front access maximises system serviceability

Transformerless design

Three-phase UPS with unity power delivers the best combination of availability, energy efficiency, overall power performance and lowest total cost of ownership in its class.

Offering both intelligent energy management and maximum power protection it uses less energy, achieves significant cost reductions, saves on valuable floor space (leaving room for revenue-earning equipment) and has a reduced impact on the environment.



Improved input performance

Low input harmonic distortion (THDi)
Near unity input power factor
Reduced installation costs

Kohler PW 6000 manages the Total Input Harmonic Distortion (THDi) at a low level (3.5% at 100% load). It does this by neutralising the emission of harmonics at the input of the UPS. Low harmonic distortion saves unnecessary oversizing of generators, cabling and ancillary equipment (such as circuit breakers), avoids extra heating of input transformers (thus wasting less energy) and extends the lifetime of all input components.

High efficiency is further enhanced by removing any requirement for additional phase compensating devices.

Flexible batteries

Bespoke configuration
Extended battery life
Front access for ease of installation and servicing

Kohler PW 6000 allows the freedom to tailor the battery installation to the requirements of the critical load at the lowest possible cost. By adding external battery cabinets, it enables each battery configuration to match the required autonomy, ensuring smallest system footprint and easy usability.

Running costs are further reduced by ripple-free and temperature controlled chargers that protect batteries and extend lifetime performance. Front access also aids easy installation and servicing.

Product range

60–120 kVA



Dimensions
W x D x H (mm)
615 x 480 x 1954

Footprint: 0.3 m²

160–200 kVA



Dimensions
W x D x H (mm)
850 x 750 x 1820

Footprint: 0.64 m²

250–300 kVA



Dimensions
W x D x H (mm)
1100 x 750 x 1920

Footprint: 0.82 m²

400–500 kVA



Dimensions
W x D x H (mm)
1650 x 850 x 1994

Footprint: 1.4 m²

Blade friendly

Supports high powered servers such as blade servers
Supports leading power factors

Blade servers typically have a leading power factor and this can present problems to those UPS systems that are not designed to manage such loads. The Kohler PW 6000 is designed to power all types of electrical loads, including high-powered servers. It can provide fully rated output power to power factors from 0.9 leading to 0.9 lagging.

Space saving

Reduced footprint
Valuable floor space maximised

Kohler PW 6000's class-leading power density (up to 363 kW/m²) is driven by the UPS's small physical footprint of 0.3 m² up to 100 kVA/kW, 0.64 m² up to 200 kVA/kW, 0.82 m² up to 300 kVA/kW, and 1.4 m² up to 500 kVA/kW. As a result, substantial and valuable space savings are achieved even at the highest power ratings.

For data centres in particular, this helps to maximise floor space for revenue-earning servers.

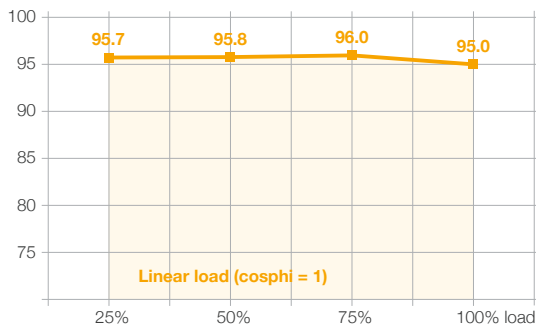
Connectivity

Multiple interface options
Supports monitoring and control

Kohler PW 6000 is equipped with multiple interfaces that can be used for local and remote monitoring, status signalling, control, maintenance and firmware upgrade.

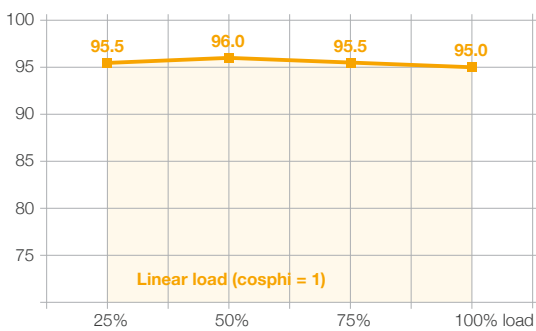
Understanding efficiency and power

AC-AC efficiency (60—120)



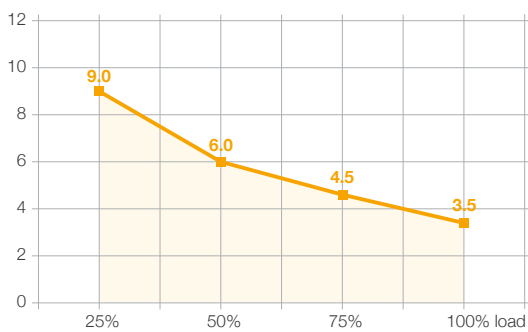
Top-of-market 96.0% efficiency in double conversion mode reduces running costs without compromising reliability. This UPS has a very flat efficiency curve so high efficiency is reached at low load levels.

AC-AC efficiency (160—500)



With a transformerless design and Energy Saving Inverter Switching (ESIS) technology, the Kohler PW 6000 delivers high efficiency at partial and full load (up to 96.0% in double conversion online mode). This level of efficiency dramatically reduces the total cost of ownership of the UPS system during its life cycle.

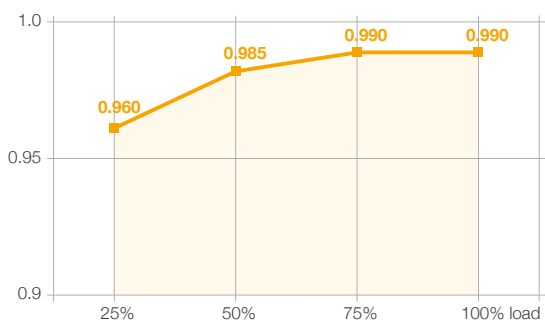
Input current total harmonic distortion (THDi)



The Kohler PW 6000 actively manages the input current total harmonic distortion (THDi) at a low level (3.5% at 100% load). Kohler PW's unique technology neutralises the emission of harmonics at the input of the UPS system, providing greater reliability of operations for circuit breakers and extending the overall service life of the equipment.

Low harmonic distortion saves unnecessary oversizing of gensets, cabling and circuit breakers, avoids extra heating of input transformers and extends the overall service life of all upstream components.

Input power factor versus load



Thanks to the near-to-unity input power factor of 0.99, the Kohler PW 6000 reduces the input installation costs by enabling the use of smaller cables. Furthermore, it avoids the unnecessary use of additional phase compensating devices, which consequently keeps the overall UPS efficiency high.

Kohler PW 8000DPA

(10–200 kVA/kW)

Parallelable up to 400 kVA/kW



Modular UPS designed
for low and medium
power applications.

Key benefits

Individual static switches per module

Each module has its own display and controller

Each module has its own control logic

Separate or common battery configuration

Ideal for low to medium,
high-density critical power
protection applications.

Three-phase UPS built for low to medium, high-density power protection applications. Leading-edge modular design using proven Decentralised Parallel Architecture (DPA) technology. The Kohler PW 8000DPA offers incredible energy efficiency, 99.9999% availability and flexible scalability in either a tower or rack-mountable solution.

Kohler PW 8000DPA

Capacities from 10 kVA/kW to 200 kVA/kW in 10 kVA/kW or 20 kVA/kW modular steps

Parallelable frames up to 400 kVA/kW

Available as tower (ST) or 19" rack-mountable (RI) solutions

Fully rated output power (blade friendly); 20 kVA = 20 kW

N+1 redundancy up to 180 kVA/kW N+1 in a single frame

'Six nines' (99.9999%) availability

Up to 95.5% efficiency across a wide load range

Near unity input power factor at partial and full loads (PF = 0.99 @ 100% load)

Low input harmonic distortion (THDi <3%)



The right solution – Kohler PW 8000DPA is available in two versions

Kohler PW 8000DPA ST (tower) is available for high-density applications requiring a standard power protection solution including frame, UPS, battery and communication. This solution delivers power protection from 10–200 kVA/kW (180 kVA/kW N+1) in 10 kVA/kW or 20 kVA/kW modular steps to provide a maximum power density of 472 kW/m². Kohler PW 8000DPA cabinets can be paralleled horizontally to increase the capacity up to 400 kVA/kW.

The Kohler PW 8000DPA RI (19" rack-mountable) solution includes UPS, battery and communication, which can be integrated into any 19" rack (independent of manufacturer) and provides up to 80 kVA/kW (60 kVA/kW N+1) making it ideal for integrated IT, telecom or other applications.

Advanced Decentralised Parallel Architecture (DPA)

Distributed control and power

Independent hot-swap modules

No single points of failure

Decentralised Parallel Architecture (DPA) means each UPS module contains all the hardware and software required for full-system operation. They share no common components so a DPA parallel system offers extremely high availability. In addition, potential single points of failure are eliminated and system uptime is maximised. Kohler PW 8000DPA UPS modules can be paralleled to provide redundancy (parallel redundancy) or to increase the system's total capacity.

Easy to replace 'hot-swap' modules

Replace or add modules with no downtime

Cost effective scalability & 'right sizing'

Simple power upgrade

Future proof investment

True 'hot-swap' modularity enables the safe removal and/or insertion of UPS modules into a Kohler PW 8000DPA system without risk to the critical load and without the need to either transfer the critical load onto raw mains or remove power from the critical load. This directly addresses today's requirement for continuous uptime, reducing mean time to repair (MTTR).

Kohler PW 8000DPA ST (tower)

Up to 10 UPS modules

Slot for optional SNMP card

Customer inputs and volt-free outputs / RS232 serial interface

Maintenance bypass switch

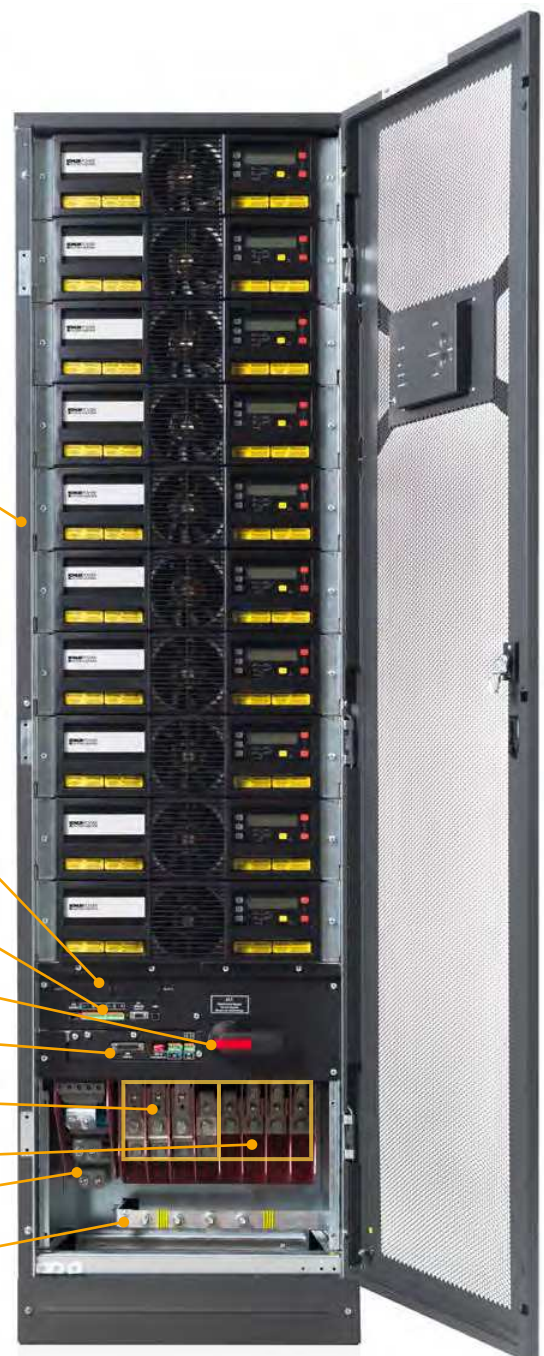
Parallel interface

AC input terminals

AC output terminals

Battery terminal rail

Earth bar



High reliability

Reliability maximised

Automatic parallel redundant operation

Parallel redundant (N+1) UPS systems provide the highest level of reliability by ensuring that the number of UPS modules in a system is a minimum of one over and above the number required (N) to fully support the critical load.

The Kohler PW 8000DPA is designed to automatically operate as a parallel redundant system, ensuring that the critical load always receives the highest level of power protection.

Blade friendly

Supports blade servers

Supports leading power factors

Blade servers typically have a leading power factor, which can present problems to UPS systems, particularly if they are not designed to power such loads. The Kohler PW 8000DPA is designed to power all types of electrical loads, including blade servers. It can provide fully rated output power to power factors in the range of 0.9 leading to 0.8 lagging.

Generator friendly

Generator compatible

Soft start – introduces the generator load in steps

The Kohler PW 8000DPA offers a highly effective solution when introducing a generator to the critical load. If the load exceeds 50 per cent of the generator's standby rating, switching the load in a single step presents a number of dangers. To negate this, each of the 'hot-swap' modules within the Kohler PW 8000DPA's modular frame come equipped with 'soft start' capability. This allows the modules to be switched on sequentially, introducing the generator to the load in more manageable steps.

Kohler PW 8000DPA RI (19" rack-mountable)

UPS modules

Internal battery storage

RS232 serial interface

Customer inputs and
volt-free outputs

Maintenance bypass switch

Slot for optional SNMP card

Battery fuses



High energy efficiency – low total cost of ownership

Very high operating efficiency

Reduced installation and upgrade costs

Near unity input power factor and low input (THDi) – reduces running costs

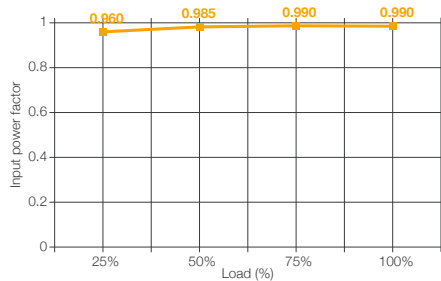
The PowerWAVE 8000DPA's high energy efficiency of up to 95.5% is delivered across a wide load range, significantly reducing system running costs and site air conditioning costs.

Additionally, Kohler PW 8000DPA has a near unity input power factor at full load (and even partial loads) reducing the size of the input cable and fuses, thereby saving on materials and costs.

Input current total harmonic distortion (THDi) of less than 3% virtually eliminates harmonic distortion of the mains supply. This saves unnecessary oversizing of gen-sets, cabling and circuit breakers; avoids extra heating of input transformers; and extends the overall lifetime of all input components.

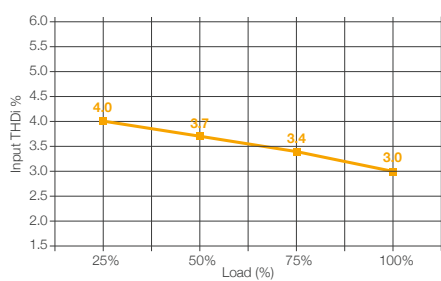
All these benefits ensure that the Kohler PW 8000DPA offers one of the lowest 'total cost of ownerships' and smallest carbon footprints of any UPS system in its class.

Input power factor versus load (Leading)



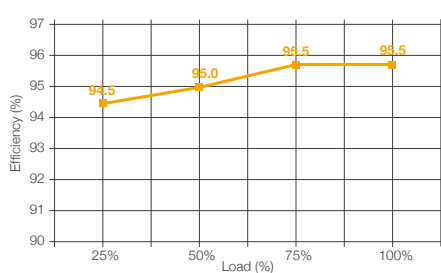
Kohler PW 8000DPA has a near unity input power factor at full load (and even partial loads) reducing the size of the input cable and fuses, thereby saving on materials and costs.

Input current distortion THDi



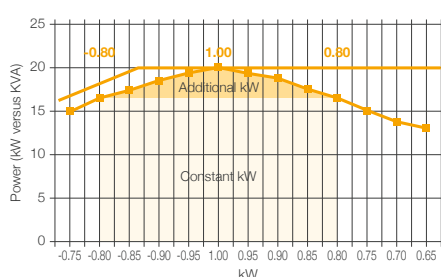
Input current total harmonic distortion (THDi) of <3% virtually eliminates harmonic distortion of the mains supply.

Reduced TCO – AC-AC efficiency



The Kohler PW 8000DPA's 95.5% true online efficiency significantly reduces system running costs and site air-conditioning costs. This helps reduce the organisation's carbon footprint, depending on configuration.

Blade server friendly power



Designed to power all types of electrical loads including blade servers, the Kohler PW 8000DPA can provide fully rated output power from 0.9 leading to 0.8 lagging, depending on battery configuration.

Kohler PW 8000DPA ST

ST tower range – 10–200 kVA/kW



ST 40 – 2 modules

Dimensions W x D x H:
550 x 770 x 1135 mm

No. of internal batteries:
2 x 40 x 7.2/9Ah
Total 80 blocks



ST 60 – 3 modules

Dimensions W x D x H:
550 x 770 x 1975 mm

No. of internal batteries:
3 x (2x40) x 7.2/9Ah
Total 240 blocks



ST 80 – 4 modules

Dimensions W x D x H:
550 x 770 x 1135 mm

External battery ONLY



ST 120 – 6 modules

Dimensions W x D x H:
550 x 770 x 1975 mm

External battery ONLY



ST 200 – 10 modules

Dimensions W x D x H:
550 x 770 x 1975 mm

External battery ONLY

Kohler PW 8000DPA RI

19" rack-mountable range – 10–80 kVA/kW



With batteries RI 11 – 1 module

Dimensions W x D x H:
448 x 735 x 487 mm (11 HU)

Number of batteries: 40



RI 12 – 1 module

Number of batteries: 80



RI 22 – 2 modules

Dimensions W x D x H:
448 x 735 x 665 mm (15 HU)

Number of batteries: 80



RI 24 – 2 modules

Dimensions W x D x H:
448 x 735 x 798 mm (18 HU)

Number of batteries: 160



Without batteries RI 10 – 1 module

Dimensions W x D x H:
448 x 735 x 310 mm (7 HU)



RI 20 – 2 modules

Dimensions W x D x H:
448 x 735 x 440 mm (10 HU)



RI 40 – 4 modules

Dimensions W x D x H:
448 x 735 x 798 mm (18 HU)

Kohler PW 9000DPA

(10–250 kVA)

Parallelable up to 1.5 MVA



Designed to meet the requirements of today – and tomorrow.

Key benefits

Individual static switches per module

Each module has its own display and controller

Each module has its own control logic

Separate or common battery configuration

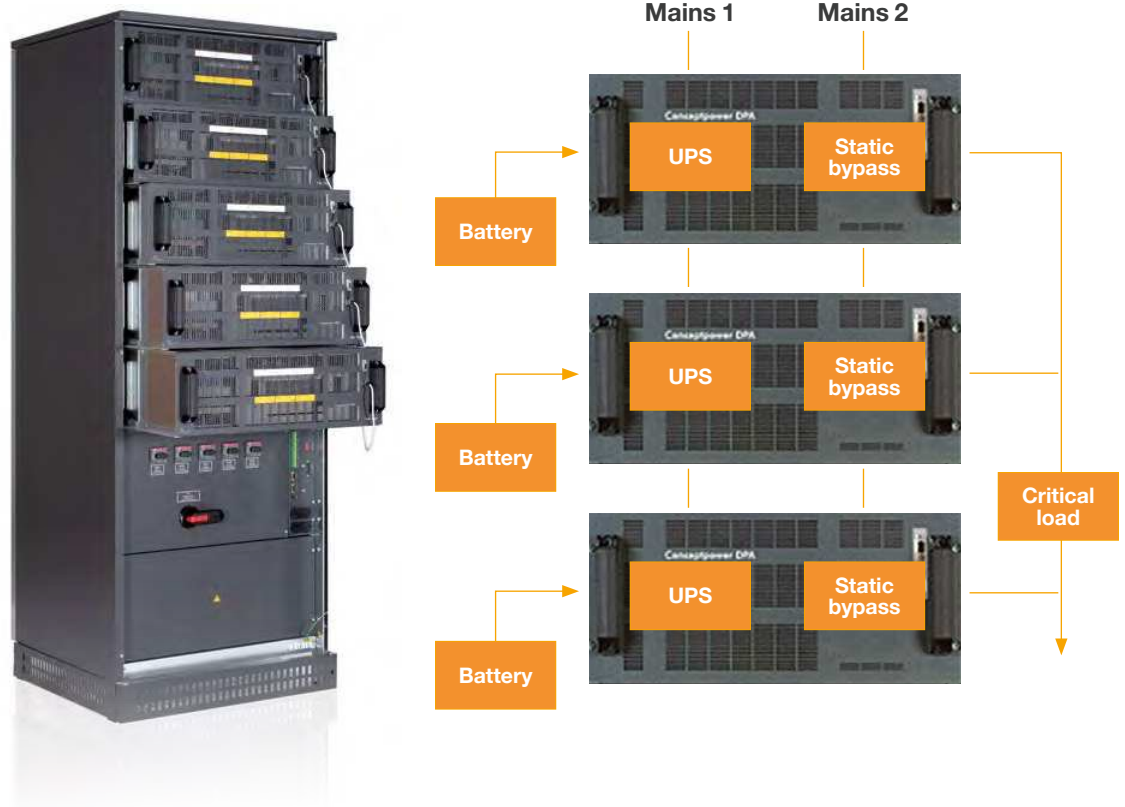
Kohler PW 9000DPA
Up to 250 kVA (200 kVA N+1) in a single frame
Parallelable up to 1.5 MVA
Transformerless technology
96% true online efficiency
Near unity input power factor at partial and full loads (0.99% @ 100% load)
Low input harmonic distortion (THDi<3%)
Fully rated output power (blade friendly)
Online double conversion technology
Low running costs

Delivers class-leading 'six nines' (99.9999%) power availability.

A revolutionary rack-mounted uninterruptible power supply designed with 'hot swap' modules for future scalability. A transformerless UPS system with class-leading 'six nines' (99.9999%) power availability for demanding IT environments and data centres.



In today's 'on demand' world, highly reliable power protection systems are essential to the protection of critical data and to ensure 24/7 availability for business applications.



Advanced Decentralised Parallel Architecture (DPA)

- Distributed control and power
- Independent hot-swap modules
- No single points of failure

Decentralised Parallel Architecture (DPA) means each UPS module contains all the hardware and software required for full system operation. They share no common components, so a DPA parallel system offers extremely high availability. In addition, potential single points of failure are eliminated and system uptime is maximised. Kohler PW 9000DPA UPS modules can be paralleled to provide redundancy (parallel redundancy) or to increase the system's total capacity.

Easy to replace 'hot-swap' modules

- Replace or add modules with no downtime/no risk
- Simple power upgrade

True 'hot-swap' modularity enables the safe removal and/or insertion of UPS modules into a Kohler PW 9000DPA system without risk to the critical load and without the need to either transfer the critical load onto raw mains or remove power from the critical load. This directly addresses today's requirement for continuous uptime, reducing mean time to repair (MTTR).

Future proof installation

- Investment protection

Future proof installation is assured with the Kohler PW 9000DPA's scalability and ability to supply the most demanding of modern loads.

Smallest footprint saves space

Extremely high power density

Uses less valuable floor space

Class-leading power density of 342 kW/m² significantly minimises the floor space required to accommodate the Kohler PW 9000DPA. This is particularly important in data centres where space must be maximised to accommodate revenue-earning equipment.

Maximum availability

Six nines availability 99.9999%

Kohler PW 9000DPA maximises availability by combining the benefits of Decentralised Parallel Architecture, parallel redundancy and 'hot-swap' modularity with low MTTR.



High reliability

Reliability maximised

Automatic parallel redundant operation

Parallel redundant (N+1) UPS systems provide the highest level of reliability by ensuring that the number of UPS modules in the system is a minimum of one over and above the number required (N) to fully support the critical load. The Kohler PW 9000DPA is designed to automatically operate as a parallel redundant system, ensuring that the critical load always receives the highest possible level of power protection.

Low running costs

High operating efficiency, regardless of loading

Reduced installation and upgrading costs

Near unity input power factor and low input THDi

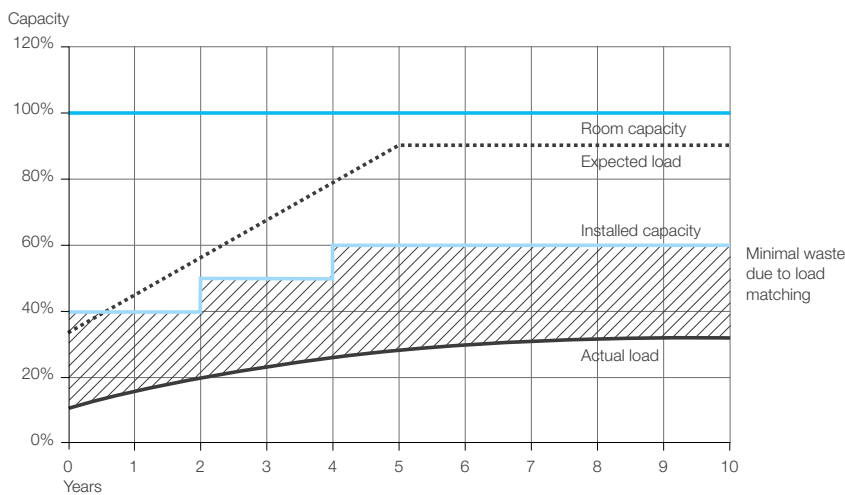
By delivering energy efficiency, scalable flexibility and ergonomic design, the Kohler PW 9000DPA offers a low total cost of ownership and easy serviceability.

Blade friendly

Supports blade servers

Supports leading power factors

Blade servers typically have a leading power factor, which can present problems to UPS systems, particularly if they are not designed to power such loads. The Kohler PW 9000DPA is designed to power all types of electrical loads, including blade servers. It can provide fully rated output power to power factors in the range of 0.9 leading to 0.8 lagging.



Right sizing

Cost-effective scalability

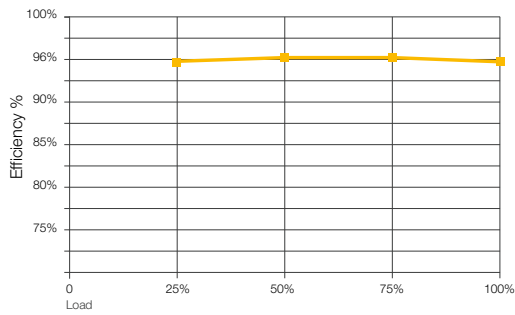
Ability to 'right size' the system over time

Simple installation of new modules

UPS modules can be added in cost-effective incremental steps as the critical load power requirement grows. This 'right sizing' reduces initial cost, optimises operating efficiency and helps reduce total cost of ownership.

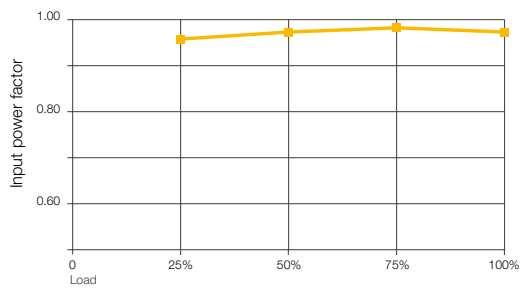
Up to five UPS modules can be paralleled in a single rack-format cabinet to enable up to 200 kW (342 kW/m²) of power capacity per cabinet, providing 'vertical scalability'. If more capacity is required, cabinets can be paralleled providing 'horizontal scalability'.

AC- AC Efficiency



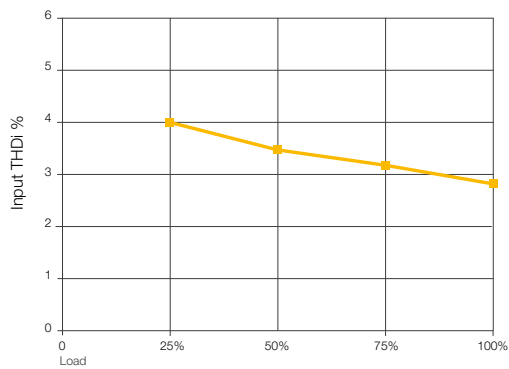
The Kohler PW 9000DPA's 96% true online efficiency, significantly reduces system running costs and site air-conditioning costs. This helps reduce the organisation's carbon footprint.

Input power factor



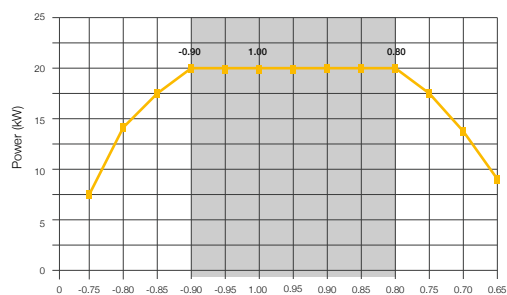
Near unity input power factor, at partial and full load, reduces the required size of the input cable and fuses, thereby reducing the materials (and costs) associated with the system's electrical installation.

THDi



Input current total harmonic distortion (THDi) of <3% virtually eliminates harmonic distortion of the mains supply.

Leading/Lagging



Fully rated output power in the range of 0.9 leading and 0.8 lagging

Kohler PW 9250DPA

(50–300 or 250 N+1 kVA/kW)



True modular UPS for medium power applications in critical, high-density computing environments such as small to medium-sized data centres, plus industrial automation processes and healthcare facilities.

The 9250DPA's highly efficient modular architecture offers the best reliability for environmentally conscious organisations that also need zero downtime and low cost of ownership.

The UPS sets the standard for the next generation of UPS progress with advanced features such as its transformer-free IGBT converters that include three-level topology and interleaving controls to enable market-leading efficiency of 97.6 per cent.

It also supports Xtra VFI, which further minimises power consumption by intelligently configuring the number of modules required to support the current critical load. When Xtra VI is enabled, the number of active modules required will adjust accordingly, with modules not needed switching to a standby state of readiness but primed to become active again if the load increases.



Kohler PW 9250DPA

Five frames can be connected in parallel for 1.5 MW total system power.

Frame-rated power 300kW or 250kW N+1 (hosting up to six modules).

Module-rated power 50 kW.

Unity power factor.

Efficient – up to 97.4% at system level.

Scaling the UPS capacity to match the load power is simple.

Xtra VFI mode: the smart way to enhance efficiency at low load levels.

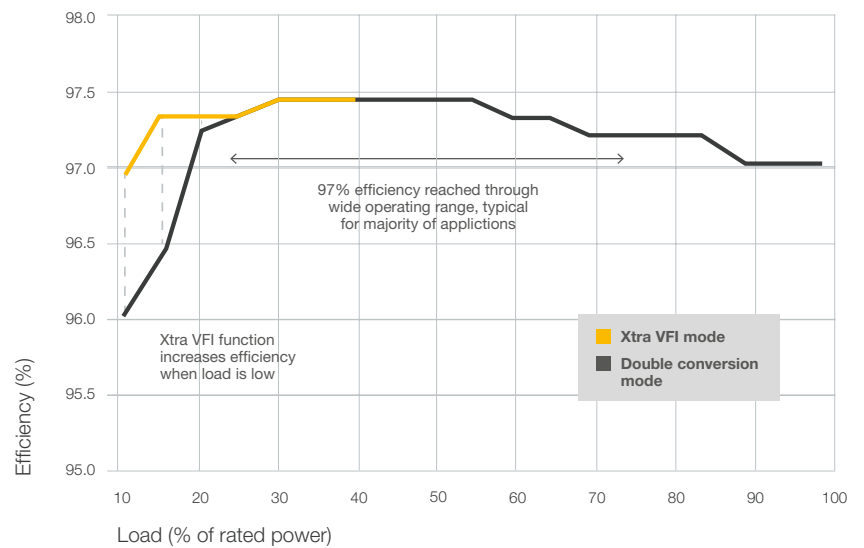
Energy storage: lithium-ion, VRLA, NiCD battery; common battery (per frame) or dedicated battery for each UPS module.

Adding redundancy to increase availability and reliability is easy.

Rated voltage 380/ 400/ 415 Vac.

Robust ring-bus communication for increased reliability.

Designed for even easier access to consumable parts in order to further improve availability and reduce mean time to repair (MTTR).



Vertical scalability to 300 kW or 250 kW (N+1)

Horizontal scalability up to 1.5 MW (up to 30 modules)

50–250 kW [N+1] uninterrupted power in a single frame

The use of DPA™ (Decentralised Parallel Architecture) ensures each module has all the hardware and software needed for autonomous operation: rectifier, inverter, battery converter, static bypass switch, back-feed protection, control logic, display and mimic diagram for monitoring and control. If one module is lost, the others take up the load, meaning that the system is fault tolerant and there are no single points of failure. Uptime is guaranteed, and availability is maximised.

Scalability and redundancy inside one single frame

Ability to host up to six 50 kW UPS modules with N+1 redundancy for up to 250 kW N+1 clean, secured power in single UPS cabinet with small footprint.

Features DPA™ where each UPS module is a comprehensive and independent functional unit for true redundancy.

Wiring options secure compliancy for any site installation need

Supports top or bottom cable entry.

Supports single or dual input feed.

Separate (per module) or common battery.

Integrated switchgears complete the system

Output isolation switch to disconnect the UPS from downstream.

Optional maintenance bypass switch for enhanced serviceability.

Easy to monitor and manage

Intuitive, graphical system user interface.

Each module features dedicated display for module specific data access.

Advanced software and connectivity options.



From 50 kW up to 1.5 MW secured power

Featuring superior 97.6 per cent UPS module efficiency and 97.4 per cent system efficiency, the 9250DPA reduces energy losses that create pure costs as direct electricity spend and costs for cooling. Thanks to three-level interleaved technology, the 9250DPA achieves an efficiency of over 97 per cent in a wide-operating range, when the load is between 25 and 75 per cent of nominal capacity.

True modular UPS for medium power applications

50 kW module-based UPS solution to medium-power commercial applications.

300 kW UPS frame can host up to six modules for N+1 redundancy.

Scaling of power easily and securely from 50 kW to 1.5 MW.

High efficiency and proven technology

Minimises TCO by facilitating top-of-market efficiency of over 97%, leveraging 3-level converter technology and featuring efficiency optimising Xtra VFI – double-conversion mode.

Secures highest availability thanks to inherently redundant modular concept, with decentralised parallel architecture (DPATM) and robust ring-bus communication between modules.

Compact design saves floor space – 0.73m² footprint.



Features

DC (battery) breakers

DC breakers for energy storage connection on each module separately.

Maintenance bypass (optional)

Integrated MBS is available as an option for enhanced service ability with single frame installations.

I/O section and DC wiring

Wiring area has good space for service. Single and dual input feed supported as well as common or separate battery. Top or bottom cable entry supported.

Up to 6 x 50 kW UPS module

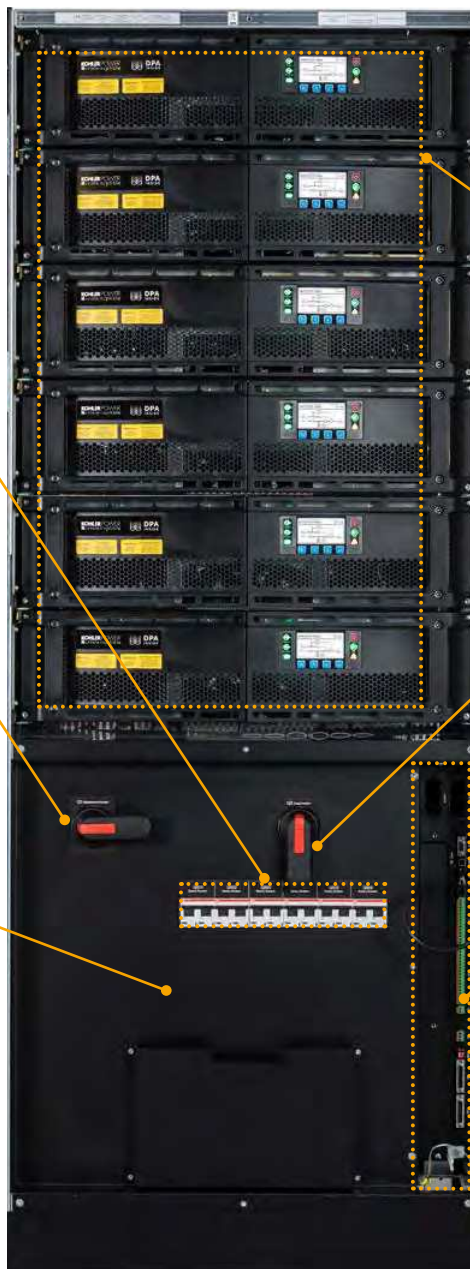
Integrated UPS module with all UPS essential functions: rectifier, inverter, static bypass, control logic and display.

Output isolation switch

Included in the standard configuration to allow disconnection of complete UPS cabinet from load supply.

Connectivity section

Two slots for connectivity cards, e.g. SNMP web card and relay board. USB and RS-232 communication ports. Building alarm inputs/relay outputs. Connection point for parallel system communication cable.



User interface

System graphical display

Touch screen interface – one per system.
Interactive mimic diagram.
Coloured and graphical display.
Integrated buzzer for alarms.
18-languages selection.
Extended events log (1,000 events).
Clear system overview, measurements and system status.
Navigation into module level, module level measurements and status.
System level commands.

DPA module display

240 x 128 pixel graphical display.
Five-line menu.
Capacitive buttons/key.
Status LED RG/RGB.
Allows for easy module level data access and module management.



Kohler PW 9500DPA

(100–500 kVA/kW)

Parallelable up to 3 MVA/MW



500 kVA/kW modular UPS, designed with high efficiency and maximum flexibility at its core.

Total vertical and horizontal scalability using hot swap modularity.

Key benefits

Individual static switches per module

Each module has its own display and controller

Each module has its own control logic

Separate or common battery configuration

Kohler PW 9500DPA boasts low total cost of ownership through a combination of high energy efficiency, scalability and ergonomic design.

A class-leading online energy efficiency of up to 96% significantly reduces system running and cooling costs, helping to reduce the organisation's carbon footprint. Further energy savings can be made by operating the Kohler PW 9500DPA in eco-mode, which increases the efficiency to $\geq 99\%$.

The UPS can be 'right sized' to optimise the power required to match the critical load and modules can be added incrementally as the load increases. This means that you only power and cool what you need, saving power usage over the life of the UPS.

Additionally, Kohler PW 9500DPA has a near unity input power factor at full load reducing the size of the input cable and fuses, thereby saving on materials and costs. Input current total harmonic distortion (THDi) of less than 3.5% virtually eliminates harmonic pollution of the mains supply. This saves unnecessary oversizing of gen-sets, cabling and circuit breakers, avoids extra heating of input transformers and extends the overall lifetime of all input components.

Kohler PW 9500DPA

Up to 96% true online efficiency

Eco-mode efficiency $\geq 99\%$

Cost effective scalability to 'right size' system

Unity power factor and low input THDi

Up to 500 kVA/kW (400 kVA/kW N+1) in a single frame

Scalable to 3 MVA/MW

Transformerless technology

Hot swappable 100 kVA/kW modules

Low total cost of ownership

99.9999% (six nines) availability

Small footprint/high power density

Unity power factor (kW = kVA)

Low input harmonic distortion (THDi $<3.5\%$)

Top and bottom cable entry

Graphical touchscreen system display

Xtra VFI mode: maximum efficiency even when underloaded

Dimensions and clearances

Dimensions

Width 1580 mm

Depth 940 mm

Height 1975 mm

1.49 m² footprint

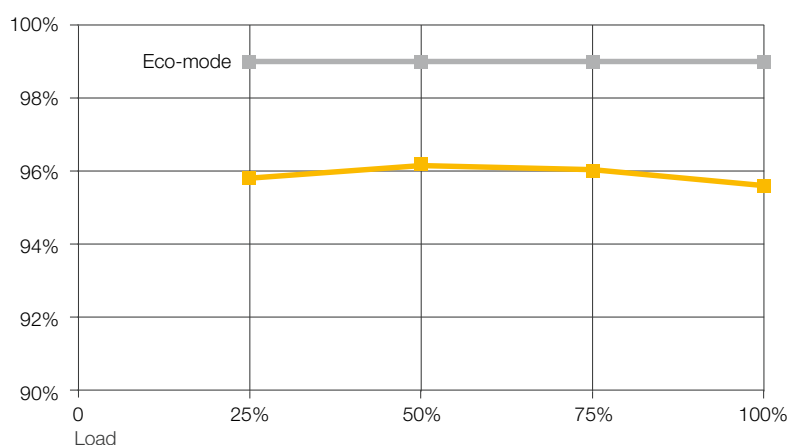
Weight (with 5 modules) 975 kg

Minimal clearances

Front 1000mm

Back 300mm (air outlet)

AC/AC Efficiency with linear, resistive load



High efficiency reaching 96.1%
Flat curve → 95.8% at 25% load

Hot swappable modules

Replace or add modules with no downtime

Simple power upgrade

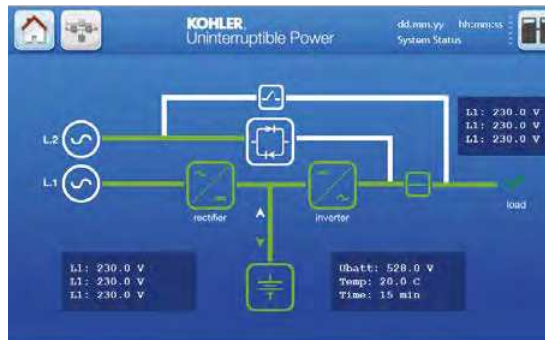
Future proof investment

True 'hot-swap' modularity enables the safe removal and/or insertion of UPS modules into a Kohler PW 9500DPA system without risk to the critical load and without the need to either transfer the critical load onto raw mains or remove power from the critical load.

Modules can be replaced or added without any system downtime. Simple power upgrades are therefore possible as the critical load power requirements grow. Additionally, modules can easily be removed for service or replaced if faulty without compromising the availability of the system.



Hot swappable module



Graphical touchscreen system display

Kohler PW 9500DPA UPS 500 kVA/kW

500 kVA/kW



Vertical scalability



Six nines availability

99.9999% availability

By combining the benefits of Decentralised Parallel Architecture, parallel redundancy and hot swap modularity, Kohler PW 9500DPA has a high mean time between failure (MTBF) and a much reduced mean time to repair (MTTR). This delivers six nines availability – a highly desirable quality required by data centres in pursuit of zero downtime.

Advanced Decentralised Parallel Architecture (DPA)

Distributed control and power

Independent hot-swap modules

No single points of failure

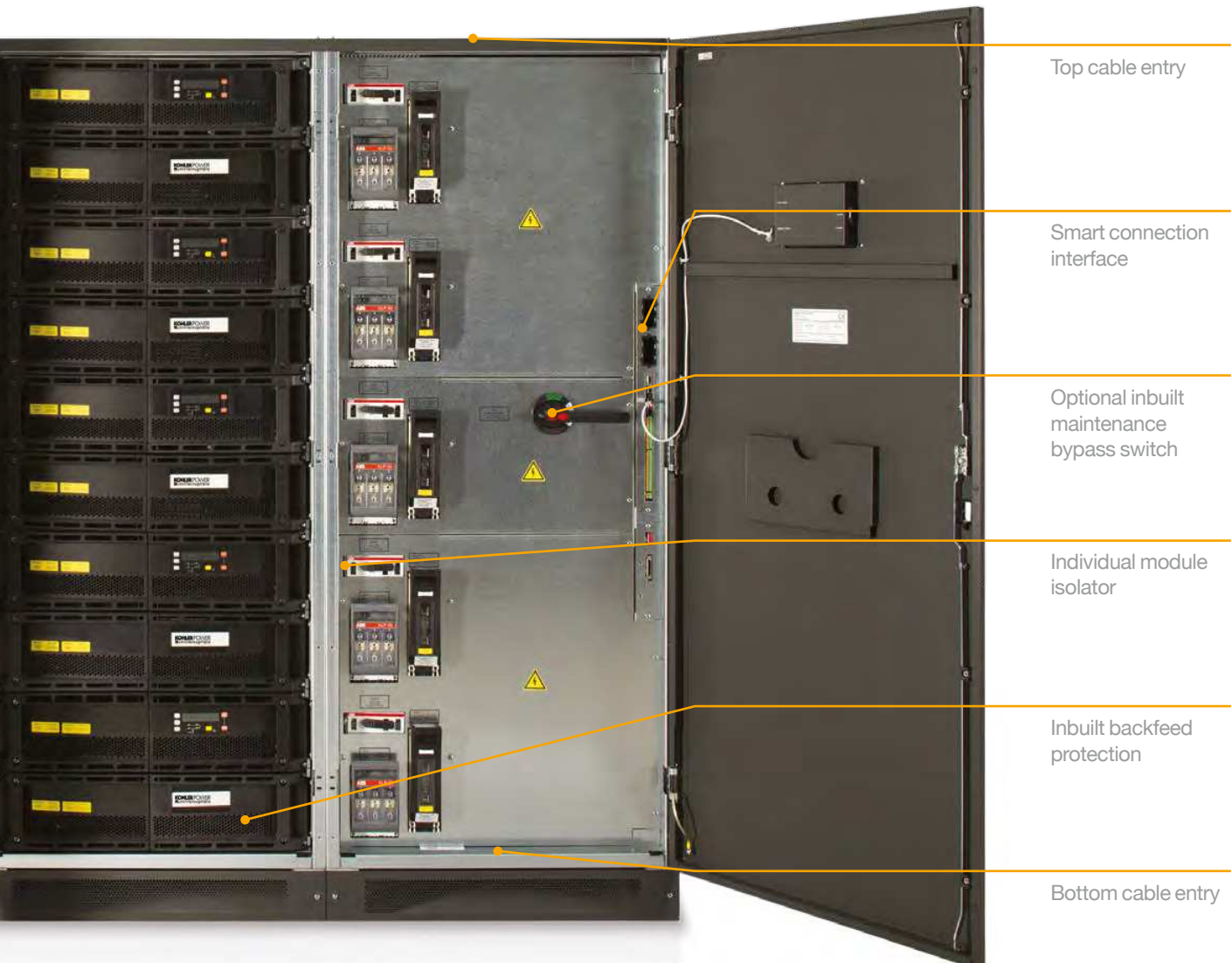
Decentralised Parallel Architecture (DPA) means each UPS module contains all the hardware and software required for full system operation. They share no common components so a DPA parallel system offers extremely high availability. In addition, potential single points of failure are eliminated and system uptime is maximised. UPS modules can be paralleled to provide redundancy (parallel redundancy) or to increase the system's total capacity.

Graphical touchscreen display

System level display

Individual module displays

The 7" colour touchscreen display provides a clear overview of the UPS at a system level. Graphical and intuitive, the display provides easy navigation to drill down on the performance and status of the individual modules within the system. Additionally, each module has its own display.



Scalable up to 3 MVA/MW

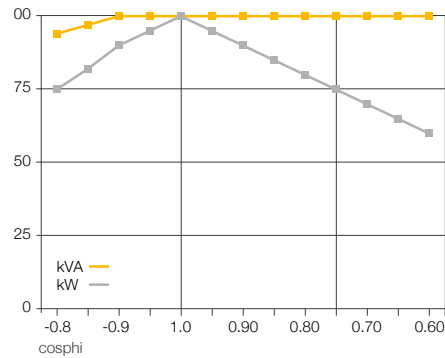
Vertical and horizontal scalability

Cost effective 'right sizing'

Kohler PW 9500DPA can be scaled vertically in 100 kVA/kW modular steps to provide up to 500 kVA/kW of power in a single frame. This enables power to be added as requirements grow, without the impact on footprint. Horizontal scalability is also possible, with up to six frames in parallel, to increase total power up to 3 MVA/MW. This two-dimensional scalability means that there is no need to overspecify the original configuration, as modules and/or frames can be added to optimise the power requirements and increase/decrease power to meet future requirements.

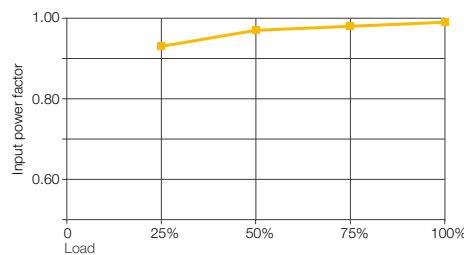
Input and output characteristics

Power vs power factor



No derating in the range 0.9 leading to 0.6 lagging

Input power factor



Near unity input power factor, at partial and full load, reduces the required size of the input cable and fuses, thereby reducing the materials (and costs) associated with the system's electrical installation.

Scalable up to 3 MVA/MW

Vertical scalability:
one to five modules in one single cabinet



Horizontal scalability:
six cabinets in parallel configuration up to 3 MVA/MW



Kohler MF1500 DPA

(250–1500 kVA/kW)
Scalable to 6000 kVA/kW



Exceptionally resilient, flexible and scalable high power modular UPS offering best-in-market VFI mode energy efficiency. Redefines lifetime cost for data centres and other high density applications without compromising reliability.

Kohler MF1500 DPA

Online double conversion UPS

250 kW to 1500 kW -
parallelable to 6000 kW

Slide-in vertical modules

Cable free internal connections

Extra-long life wear parts

Market leading 97.4% efficiency

Innovation with purpose.

Designed with a clear goal to define that reliability does not require excess, and high power can exist alongside efficient use of energy, the MF1500 DPA modular UPS system combines proven DPA™ technology with the latest advances in components and software.

Innovative, vertical slide-in modules enable resilient, high power density protection by reducing UPS footprint up to 45% over traditional approaches, without compromising access for installation and maintenance.

That protection is achieved with best-in-market 97.4% VFI energy efficiency, reducing environmental impact, optimising PUE measures and delivering significant financial savings in energy and cooling costs.



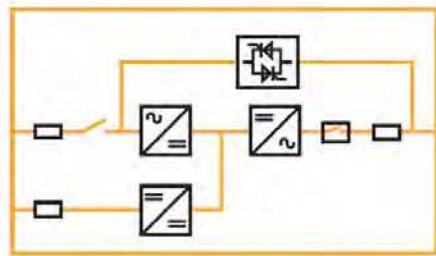
DPA™ – Resilient. Reliable. Flexible.

Decentralised Parallel Architecture (DPA™) products contain all the essential components of a UPS within each module, including the static switch, allowing independent operation

DPA™ modules can be hot-swapped without affecting the rest of the system, easing maintenance, reducing system repair times to minutes and dramatically increasing availability

With 1000 kW and 1500 kW frame size options and 250 kW modules, systems can be sized for an initial load and scaled up or down depending on future requirements

For flexibility and additional resilience, each DPA™ module can be fed from an independent or common battery system



DPA modules – each contains all components of a UPS

Effective efficiency.

Advanced components enable the MF1500 DPA to deliver the best energy efficiency in its class, up to 97.4% at system level in VFI mode (i.e. Voltage and Frequency Independent, the most commonly used and most protective mode)

Plus, design focus to ensure efficiency can be effectively used, means 97.4% efficiency is not solely delivered in a narrow sweet spot but across a wide, practical load band

Effective use of energy efficiency is enhanced further by Xtra VFI mode functionality. Often when load falls below 25%, UPS efficiency rapidly deteriorates. By automatically adjusting the number of active modules according to load and redundancy requirements, and reverting unneeded modules to standby, Xtra VFI avoids this. Intelligent switching rotates active modules, equalising aging and extending service life



A 1.5MW MF1500 DPA system with six 250 kW modules flanking the central connections cabinet



In a 1.5 MW installation, over 10 years the 0.7% extra efficiency of the MF1500 DPA vs a competitor at 96.7% can save over US\$240k in electrical and cooling costs.

Engineered. Inspired. Informed.

Designed for ease of use from the first moment of installation, module cabinets are easily transported to the UPS and slide into place on integrated wheels

To make them easy, safe and error free, wired connections are entirely eliminated by use of slide-in modules and innovative, pre-engineered power and distribution frames

Advanced design maximises life of consumables, eg fans and capacitors, with replacement only once in a 15-year period

Recognising pressure on space, intelligent physical design delivers a power density of up to 493 kW/m², some 45% better than traditional approaches, without compromising access

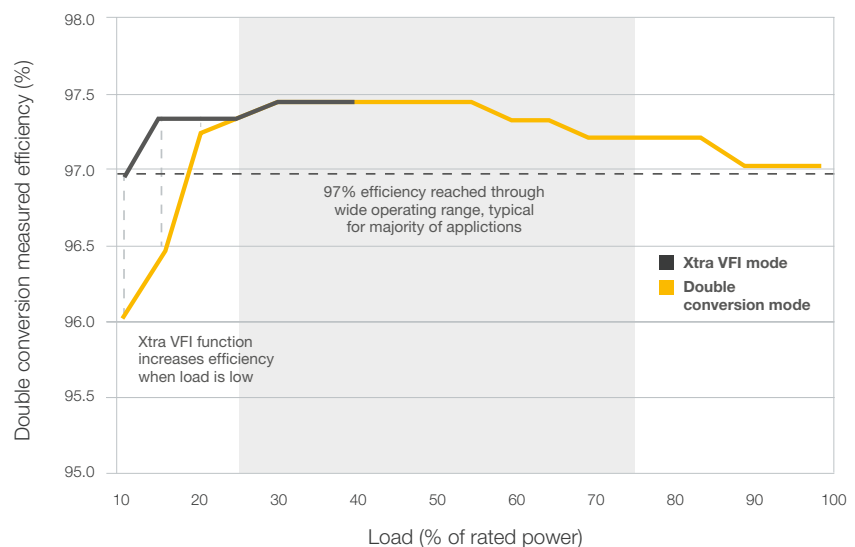
An advanced visual interface and display allows an operator to observe performance, events and alarms onscreen, including battery voltage, UPS output and critical component status

Comprehensive control and monitoring keeps operators and service teams fully informed. Information can be accessed remotely via SNMP, Modbus TCP/IP or Modbus RS-485 and integrated with associated systems e.g. BMS, DCIM or EPMS

Additional control and monitoring features include:

- I/O dry ports
- Remote shutdown
- Castell interlock function
- Battery temperature input

plus compatibility with Kohler's battery management and monitoring systems



Modes



Eco-mode

In Eco-mode, power is fed directly from the utility mains to the load during normal operation, so removing the rectifier and inverter inefficiencies. If a mains problem is detected, the critical load is switched to the UPS's inverter output.

While Eco-mode's efficiency can reach 99% or more, it exposes the load to any incoming mains problems throughout most of its operational life. Additionally, it relies on the load's IT equipment power

supplies having sufficient capacitance to 'ride through' the switch between mains and inverter, and vice versa, and prevent the UPS supplying a transient inrush current to restore lost energy after an outage. Otherwise, line impedance between the UPS and power supplies may cause this current to create a significant power supply input voltage drop.

For these reasons, users should consider the benefits of increased operating efficiency vs the extra requirements and risk associated with operating in Eco-mode.



Xtra VFI: maximum efficiency – even when underloaded.

When a UPS is operating significantly under capacity, its energy efficiency can be negatively impacted. With Kohler PW 9500DPA, featuring Xtra VFI, this problem is solved.

Key benefits

Xtra VFI scales the UPS module active capacity according to the load to maximise efficiency

The system calculates the optimal % value for maximum efficiency, taking into account desired redundancy

The redundancy level for active capacity and the highest expected load step can be configured by the user to guarantee highest protection level

In case of mains failure or alarm, Xtra VFI gets deactivated automatically all modules switch to 'Active' status

Module rotation between active and standby extends the service life and stabilises aging

With Xtra VFI mode enabled, the Kohler PW 9500DPA automatically adjusts the number of active modules according to the load requirements. Modules that are not needed are switched to standby but remain in state of readiness, primed to kick in and transfer to active mode if the load increases or the mains fails. The efficiency improvements achieved by this mode of operation are especially significant when the load is less than 25% of full UPS system capacity.

In addition, Xtra VFI has the added benefit of rotating modules between active and standby, therefore extending the service life of the UPS.

Xtra VFI

Maximum load 800 kW

Redundancy N+2

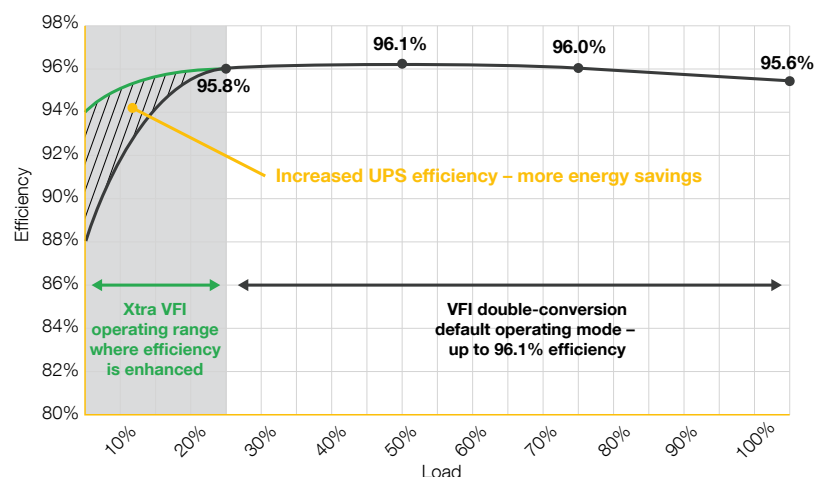
2 x 500 kW frames (10 x 100 kW)

Load power 200 kW

No. of active modules 4

Active capacity 400 kW

Standby capacity 600 kW



Lithium-ion Batteries



Reliable, lightweight and compact UPS energy storage for critical applications such as data centres, healthcare, building infrastructures, transportation, and manufacturing.

Lithium-ion battery solution

Outstanding performance

Higher reliability than VRLA

Single cell temperature, current, voltage and charge status are all monitored

Fast charge and discharge rate

Higher power and efficiency

Low total cost of ownership

Lower maintenance overhead

Less need for cooling

Longer battery life

Increased power density

Reduced footprint and volume

Wide operating temperature range

High safety level

Scalable

Lightweight (60–80% less than VRLA)

For additional battery capacity, cabinets can be installed in parallel to increase capacity up to 5 MW per single system.



When you want power protection for a data centre, production line or any other type of critical process, lithium-ion battery solutions provide peace of mind and the performance you need.

Housed in a tough enclosure, lithium-ion battery technology provides reliable, lightweight and compact energy storage for UPS systems.

Why lithium-ion batteries?

Valve-regulated lead acid (VRLA) batteries – sometimes known as sealed lead-acid batteries – have many advantages and have traditionally been the battery of choice for backup power in UPS systems. However, battery technology has progressed rapidly in recent years.

Today, lithium-ion battery technology is an attractive option – especially where high energy density and low weight are important. Advantages such as longer lifespan, smaller size and weight, shorter recharging times and falling prices only add to the appeal of lithium-ion battery solutions.

For best performance and lifetime, it is essential to keep VRLA battery rooms at a reasonably constant temperature (20–25°C). Keeping things cool can be problematic and costly, especially in hot countries. With lithium-ion batteries, this problem virtually disappears, as lithium-ion batteries are much more tolerant to changes in environmental temperature and can operate over a broader temperature range.

Lithium-ion batteries are easy to handle too – they are safe and do not contain mercury, lead, cadmium, or other hazardous materials. In most cases, traditional batteries would need to be replaced multiple times before a lithium-ion battery is replaced once. When it comes to operating expenses, lithium-ion batteries offer a lower total cost of ownership.

Battery management system

Features

Each battery cabinet has dedicated battery management systems at single module and rack level, plus fuse, circuit breaker protection and a dedicated 24 V power supply

A single cabinet configuration of 34.6 kWh comprises one switchgear, one switched mode power supply (SMPS) and 17 battery modules

Switchgear collects all information about each battery cell and controls all battery module management systems calculating state of charge (SoC) and state of health (SoH). It also contains a moulded case circuit breaker and a shunt resistor

SMPS supplies the power for BMS and communicates with UPS and other racks in parallel. It is available in two versions with or without BMS for single or multiple parallel configuration

Battery module contains eight series-connected 67 Ah, 3.8 V cells and a dedicated battery module management system

Accommodated in a standard 19" cabinet

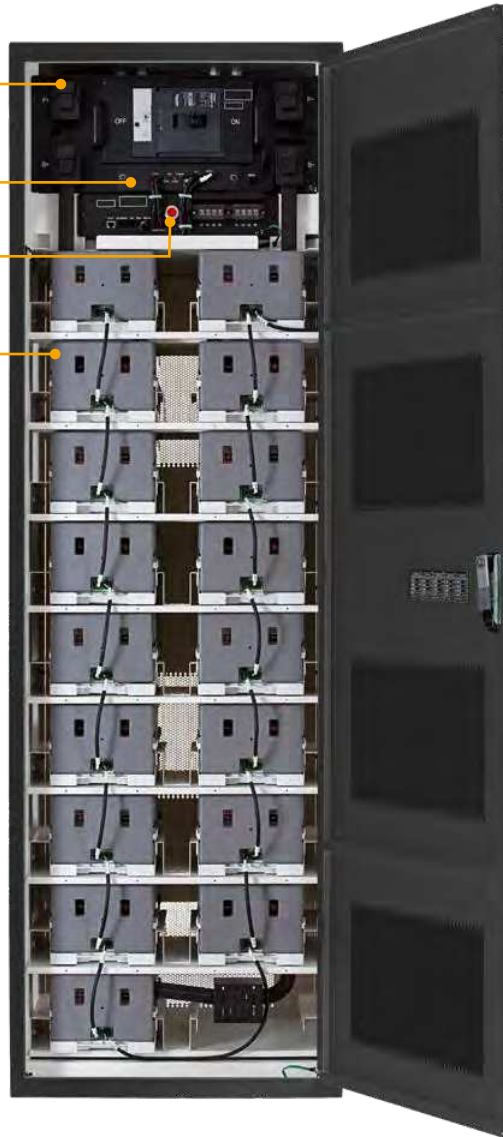
Battery cabinets can be connected in parallel to achieve the power needed

Switchgear

Battery management system

Switched-mode power supply (SMPS)

Battery module



Runtime and performance

Lead acid

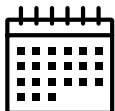
Charge 0.1C
Discharge 2C*



Weight 2500kg
Volume 2m³*



3–7 years*



Lithium-ion

**Faster charge
and higher
discharge rate**
Charge 0.5C
Discharge 6C*

**Less space
and weight**

Weight 550kg
Volume 0.8m³*

Longer life

15 years*

Lithium-ion batteries can be charged much more quickly than conventional batteries, so after use they can be charged back up to full strength in a shorter time. This means full availability in less time.

Lithium-ion batteries also provide higher power density and efficiency, especially under heavy discharge rates. This means that no battery oversizing is needed.

Low weight (60–80 percent less than VRLA) means reduced civil engineering overheads and easier physical installation.

*Example 190 kW power/10 min autonomy

Battery Monitoring

Battery system care



Battery design, installation and continuous care.

Battery monitoring services

Advice on battery system design

'Made to measure' battery installation service

Battery impedance testing to track battery condition

Inspection, cleaning and maintenance options to ensure battery working life is optimised

Battery replacement programme for a wide range of battery supported products

Safe battery disposal

Monitoring and regulation of batteries to extend battery life and prevent unexpected failure using Battery Monitoring

Pioneering solutions for total power protection.

The battery plays a key role in the overall reliability and availability of a power protection system. It supplies the energy required by the critical load in the event of a mains utility failure or when the input mains voltage and frequency are outside the acceptable values. Moreover, the battery represents an important share of the total cost of the UPS, and therefore battery care and management are of paramount importance when a UPS is designed.

Kohler Uninterruptible Power provides a range of remote monitoring and diagnostics services to provide early fault detection and prevention. Battery Monitoring is the most advanced monitoring product on the market today.



Battery Monitoring

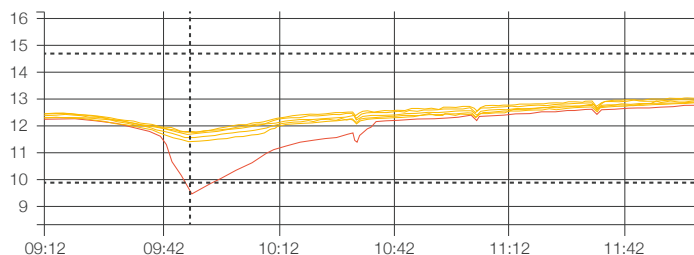
Extends battery life by equalisation

Monitors and regulates the battery charging process and avoids undercharging

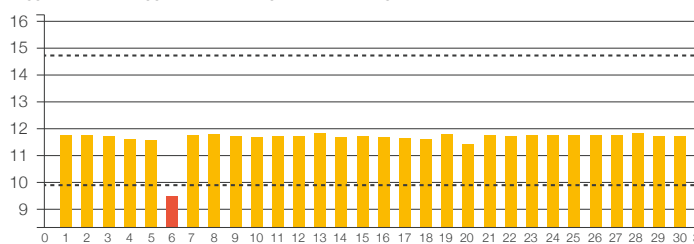
Indicates battery problems before failure

Monitors condition of every battery individually including temperature

The Battery Monitoring system from Kohler Uninterruptible Power is the most advanced product on the market today, providing an ethernet-network integrated battery monitoring and management system. Using web-management technology, it checks the internal resistance, temperature and voltage of every single battery sequentially. Through the equalisation process, the system corrects the charging voltage operating range. This prevents gassing, dry-out and thermal runaway. The constant monitoring and controlling of the individual charging voltages for each battery guarantees the availability of the battery at all times.



Block voltage



Battery block numbers

Battery Monitoring reporting

The reporting system displays the status of all lead-acid batteries. Any change in impedance, temperature and voltage is displayed and stored. Reports can be run regularly On-site, enabling constant monitoring of the system using the Battery Monitoring viewer. Through regular monitoring of key parameters, the system will provide a warning when attention is required.

The graph above demonstrates that battery 6 is weak after 30 minutes of discharge into a 45-minute run. This early warning system enables the user to replace the weak performing battery and thus increase the lifetime of the complete battery system.

Inspection, cleaning and maintenance

Regular maintenance optimises the working life of a battery installation and ensures early detection of weak or faulty battery blocks. If not replaced, a compromised battery would threaten the integrity of the whole power protection system. Routine battery maintenance provided by our skilled team of specialist engineers includes:

- Checking the open circuit battery and UPS float voltages
- Inspecting the physical condition of batteries, terminals and connections
- Environmental checks – ambient temperature of battery room
- Checking the cleanliness of equipment
- Assessing the condition of battery cabinets
- Performing a detailed examination of individual cells for post and interconnector corrosion
- Taking voltage readings – block and string voltages

Impedance testing

Our impedance testing provides a means of assessing the internal condition of batteries. Almost any battery problem will lead to an increase in internal impedance. Recorded at regular intervals, impedance testing will track battery condition and enable end-of-working-life prediction. This service is included as part of the Battery Monitoring system or can be purchased separately.

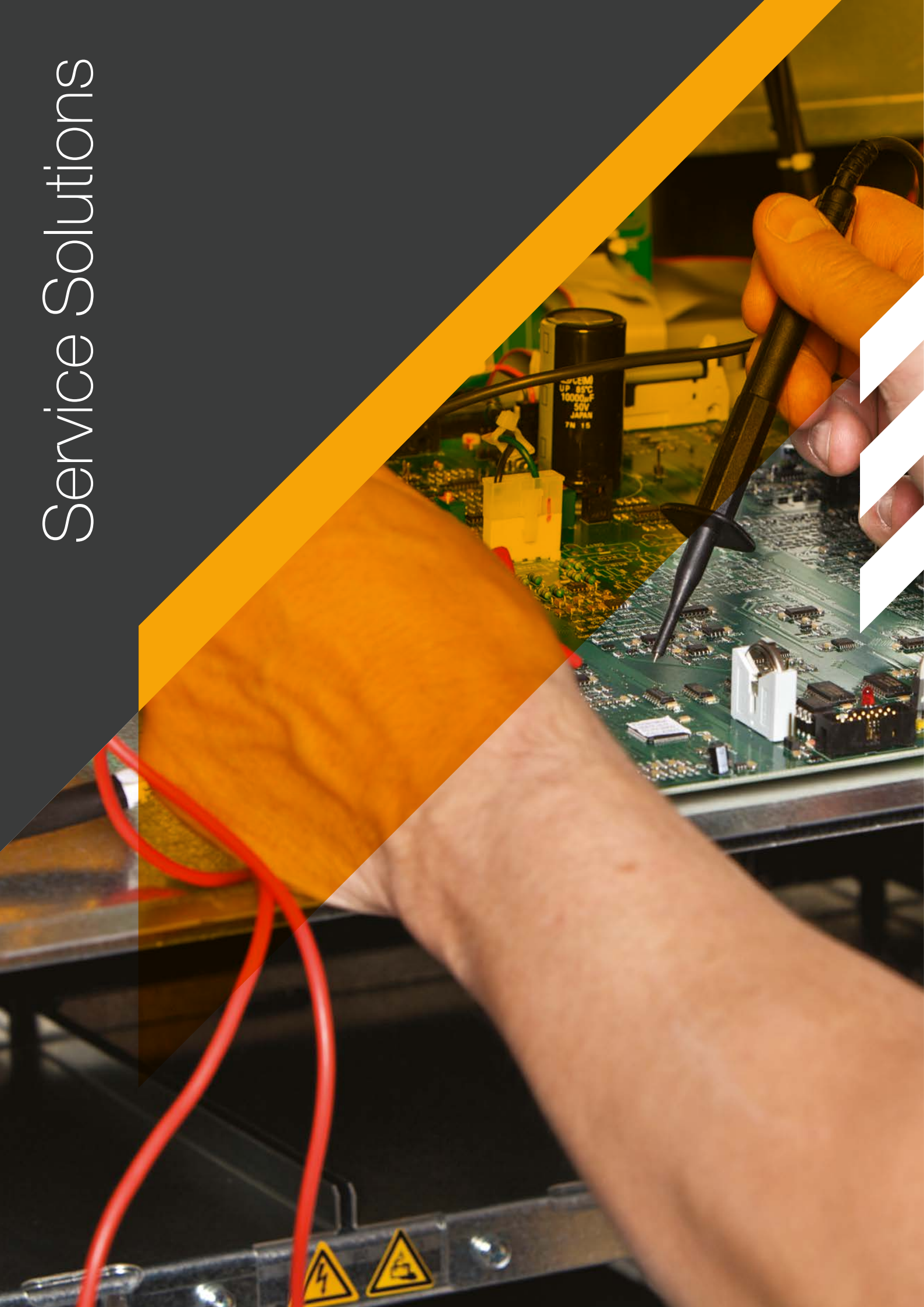
Replacement and upgrade

We supply and fit batteries of all types into all models of UPS and secure power systems. Additionally, Kohler Uninterruptible Power offers a battery replacement programme for a wide range of battery supported products. These include AC UPS, DC equipment, emergency lighting units and generator starting batteries.

Disposal

Batteries are classed as hazardous waste and, in Singapore, must be disposed of in line with the Environmental Public Health (Toxic Industrial Waste) Regulations 1988, Kohler Uninterruptible Power ensures that all the legal requirements associated with the removal, transportation and disposal of waste batteries are fully complied with.

Service Solutions



Flexible service plans,
load bank testing and
UPS rental.

Service solutions

Maintenance

UPS maintenance contracts

Batteries

Battery replacement and upgrade

Load bank testing

Impedance testing

Lithium-ion batteries

Battery disposal

Monitoring

Battery Monitoring

SNMP onsite monitoring

Onsite

Site survey

Installation and commissioning

Black building testing

Load bank testing

UPS relocation and disposal

Pioneering solutions for
total power protection.

At Kohler Uninterruptible Power, our core business is the design, installation and maintenance of secure power protection systems. Delivered by our trained engineers and support staff, we offer the most comprehensive and cost-effective service plans available ensuring your power protection systems are expertly maintained on a regular basis and ready to support your business load.



UPS maintenance contracts

Kohler Uninterruptible Power's maintenance plans offer the flexibility to choose the level of service needed to ensure that risks and costs are minimised. They all provide regular maintenance visits and you can choose the level of service time you need to suit your business requirements. To maximise the reliability of your UPS, a service plan from Kohler Uninterruptible Power also ensures critical component degradation is identified and that repairs or replacements are carried out before a fault occurs. Immediate spares availability is assured through our extensive spares inventory.

Features

Routine inspection and preventative maintenance

Emergency call-out options including guaranteed speed of response, 24 hours a day, 365 days a year

Battery maintenance

A range of cover available

Key benefits

Comprehensive plans competitively priced optimising UPS availability – with no unscheduled budgetary surprises

Guaranteed response times to site – we're there when we say we'll be there

24/7 telephone support for an instant response to your service needs

Extensive network of trained field service engineers

Service for a wide range of UPS brands

Support contracts tuned precisely to each installation, so you only pay for the service level you need

Remote monitoring options to complement telephone support

Extensive spare parts inventory ensuring maintenance and repairs are carried out without delay

Battery Monitoring and care

All UPS systems rely on the integrity of batteries to protect the critical load in the event of a power failure. To ensure the integrity of your secure power system is not compromised, we provide a comprehensive range of battery services including design installation, maintenance, monitoring, replacement and disposal.

See pages 60–63.

SNMP onsite monitoring

Connect your UPS directly to your computer network as a network device with Kohler Uninterruptible Power's SNMP solution.

Contact us on +65 6302 0702 for more information.

Battery replacement and upgrade

We supply and fit batteries of all types into all models of UPS and secure power systems. Kohler Uninterruptible Power also offers a battery replacement programme for a wide range of battery supported products. We can supply a replacement UPS battery compatible with your AC UPS, DC equipment, emergency lighting and generator starting batteries

A key benefit of regular battery maintenance is the early detection of weak battery blocks. As they are such a critical part of a power protection system, replacement of weak battery blocks should therefore take place before they fail. If a UPS replacement battery is not purchased, a weak or faulty battery will compromise the integrity of the whole power protection system.

Impedance testing

Almost any battery problem will lead to an increase in internal impedance. Recorded at regular intervals, impedance testing will track battery condition and enable end-of-working-life prediction for individual cells, so batteries can be replaced before they cause a critical power protection failure

An electrical current is passed through each battery in turn and a measurement taken. The internal impedance of each battery is then calculated, logged in a table and plotted on a graph.

A report will be provided after the batteries have been tested detailing the status of each bank and advising which, if any, will need to be replaced.

This service is included as part of the Battery Monitoring system or can be purchased separately.

Load bank testing

Comprehensive commissioning procedures and the regular testing and maintenance of UPS systems and batteries go a long way towards ensuring the integrity of a power protection system. However, there is only one certain way of establishing that all the components of the system will function correctly together and perform as intended when required – load bank testing.

Fully loading the power support system stresses all components. It is clearly preferable to identify potential weaknesses under controlled conditions rather than to wait until the system is supporting a critical load. It is also cost effective to acquire this service and the expertise and experience of a professional specialist service provider.

Load bank testing is the provision and connection of an electrical load to a power supply, often a UPS, in order to simulate the client's load and prove the integrity of the overall system. Load bank testing ascertains the performance of the UPS, and of the entire electrical supply infrastructure including cabling, switchgear, generator and fuses. A load bank can also be used to discharge batteries as an effective, accurate and relatively low cost method of determining battery autonomy.

Key benefits

Mobile AC/DC load banks of any size

Engineer-controlled tests carried out to individual requirements

Battery autonomy and integrity testing

Out-of-hours testing to suit the client's operational requirements

Battery Monitoring

The Battery Monitoring system from Kohler Uninterruptible Power is the most advanced product on the market today, providing an ethernet-network integrated battery monitoring and management system.

Using web-management technology, Battery Monitoring checks the internal resistance, temperature and voltage of every single battery sequentially. Through the equalisation process, the system corrects the charging voltage operating range. This prevents gassing, dry-out and thermal runaway. The constant monitoring and controlling of the individual charging voltages for each battery ensures the availability of the battery at all times.

Battery disposal

We manage the safe and environmental disposal of batteries and replacement UPS batteries in line with Hazardous Waste Regulations. As a registered carrier of such waste, Kohler Uninterruptible Power ensures that all the legal requirements associated with the removal, transportation and disposal of waste batteries are fully complied with.

Site survey

Kohler Uninterruptible Power's experienced team of engineers are able to provide a free site survey, to offer you a choice of power protection solutions tailored to your requirements and budget.

The free survey is offered during normal working hours within our service network covers area.

A typical UPS site survey will last around 1–2 hours depending on the size of the installation. Full recommendations and quotations will be provided after the survey has been completed.

Kohler Uninterruptible Power endeavours to assess the following areas during the survey:

- Load size
- Physical location and environment
- Suitability for existing UPS and battery installation
- Delivery route and logistics requirements
- Remote monitoring requirements
- Ongoing maintenance and technical support requirements
- General programme of works and preferred installation timeframe

Installation and commissioning

Both UPS and generators must be properly installed and commissioned to ensure a long and trouble-free working life. Whilst small less sophisticated UPS systems simply plug into a standard mains socket, larger UPS systems – must be electrically installed and commissioned by skilled and qualified professionals. Likewise with generators; larger standby generator systems should be professionally installed and commissioned. Additionally, a generator must be properly matched with all other power equipment for continuous power to be guaranteed.

As a leading generator supplier, our project team will work closely with you, from start to finish, ensuring your UPS and/or generator installation is commissioned safely, on time and with minimal disruption to your business.

Our factory trained, highly skilled field-service engineers will commission and test the complete power protection system. They work in accordance with factory-issued commissioning procedures and written method statements and provide full commissioning certification for warranty validation.

Key benefits

Full project management including site assessment, delivery and positioning

Organisation of any electrical and mechanical work required

Extensive network of trained field service engineers

Black building testing

Kohler Uninterruptible Power's trained service engineers can be on hand to monitor your UPS systems during your annual IST (Integrated System Test) black building testing.

Black building tests are normally carried out to test for high availability, performance, business continuity plans and recovery capabilities in a disaster-like scenario. For example, the testing will result in the electrical power to the entire building being shut off imitating a street power outage.

Black building tests tend to be carried out to:

- Simulate a total power failure – leading to a complete power shut-down in a facility
- Test the functionality of generators, simulating a total (external) power outage, replaced by generator-provided energy. This does not touch any equipment except generators, thus not causing any disruption to systems

Why is the test important?

Equipment loss of power can result in compromised:

- Safety
- Product and equipment protection
- Comfort
- Staff convenience

Key benefits

Kohler Uninterruptible Power offers skilled and qualified engineers to attend site during the test period to monitor the UPS systems

Fully documented, procedures ensuring full traceability of all test events and actions

'Safe method of work' covering the power down and power up of a UPS and/or generator

Load bank testing

Comprehensive commissioning procedures and the regular testing and maintenance of UPS systems and batteries go a long way towards ensuring the integrity of a power protection system. However, there is only one certain way of establishing that all the components of the system will function correctly together and perform as intended when required – load bank testing.

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Key benefits

Mobile AC/DC load banks of any size

Engineer-controlled tests carried out to individual requirements

Battery autonomy and integrity testing

Out-of-hours testing to suit the client's operational requirements

UPS relocation and disposal

Relocation

If you have a requirement for a UPS to be relocated either to a different room within the same building or to a brand new location, Kohler Uninterruptible Power can assist you.

The relocation of a UPS involves the decommissioning, safe transportation and recommissioning of the UPS, associated batteries and electrical switchgear. Using trained engineers and our highly experienced logistics team, Kohler Uninterruptible Power can assist with this. Should you require help with the associated electrical works, we can accommodate this using one of our electrical contractor service partners.

UPS disposal

If you have a requirement to dispose of a UPS, Kohler Uninterruptible Power can assist with a wide range of UPS brands.

Using trained engineers and our highly experienced logistics team, we can carry out the disposal of the UPS and associated batteries. Our engineer will ensure that the UPS is safely decommissioned ready for our logistics team to pack and palletise the UPS and batteries for transportation and disposal.





Technical Specifications

Kohler PW 1000/LT

Model	800 VA/360 W	1500 VA/600 kW	2200 VA/1200 W
Input			
Voltage range	160 VAC ~ 290 VAC	160 VAC ~ 290 VAC	
Frequency range	45 Hz~65 Hz (auto sensing)	45 Hz~65 Hz (auto sensing)	
Output (AC mode)			
AVR Regulation	Increase output 15% (input -9% ~ -25%); decrease output 15% (input +9% ~ +25%)		
Output (inverter mode)			
Voltage	220/230/240 VAC +/- 10%		
Frequency	50/60 Hz +/- 1 Hz		
Waveform	Simulated sine wave		
Capacity	800 VA	1500 VA	2200 VA
Transfer time	2~6 minutes typical		
Back-up time	5~30 minutes depending on typical IT load		
Battery			
Voltage	12 VDC		24 VDC
Type	Sealed maintenance-free lead ccid VRLA type		
Capacity	12 V/7 Ah		12 V/9 Ah
Recharge time	4~6 hours (to 90%)		
Display			
LED (standard)	3 LEDs for line mode, battery mode and fault	6 LEDs for line mode, battery mode, fault, load % and battery capacity	
Protection			
Overload AC mode	>100% Input fuse blown and buzzer continuously sounds		
Overload inverter mode	>100% Buzzer continuously sounds until battery cut-off		
Short circuit	Shuts down immediately		
Modem (optional)	RJ11		
Network (optional)	RJ45		
Environment			
Operation temperature	0~40°C/32~104°F		
Operation humidity	95% RH maximum (non-condensing)		
Altitude	1000 m/3280 ft without derating		
Noise level	≤40 dBA		
Interface			
Type	Standard: USB communication; optional: RS-232 communication		
Compatible platforms	Microsoft Windows Series, Linux, Mac, etc.		
Standards and certifications			
Safety	EN62040-2		
EMC/surge standard	EN61000-3-2, EN61000-3-3		
Certification	CE		
Other			
Alarm	Battery mode – buzzer sounds every 1 second; battery low – buzzer sounds every 0.1 second		
Dimensions (cm) W x D x H	100 × 140 × 292	148 × 198 × 315	
Weight (kg)	4.5 kg	8 kg	12 kg
Output connections	4 x IEC320 outlets or 3 x universal outlets	6 x IEC320 outlets or 4 x universal outlets	

See page 12 for full product overview.

Kohler PW 1000/OT

Model	1 kVA/900 W	2 kVA/1.8 kW	3 kVA/2.7 kW	6 kVA/5.4 kW	10 kVA/9 kW	15 kVA/13.5 kW	20 kVA/18 kW
Input							
Phase	Single + G			1Φ, line+ neutral+ground	1Φ, line+ neutral+ground; 3Φ, R,S,T + neutral+ground	3Φ, R,S,T + neutral+ground	
Voltage range	110–300 VAC			110-280 VAC (1Φ)	110–280 VAC (1Φ) / 277–485 VAC (3Φ)	277–485 VAC (3Φ)	
Frequency range	44–66 Hz (auto sensing)				45–65 Hz		
Input power factor	>0.99 @ 100% linear			Up to 0.99 (1Φ) / 0.95 (3Φ) at linear load			
Output							
Voltage	200/208/220/230/240 VAC						
Capacity	900 W	1800 W	2700 W	5400 W	9000 W	13500 W	18000 W
Power factor	0.9						
Voltage distortion	<3% @100% linear load, 7% @100%non-linear load			<3% @100% linear load			
Voltage regulation	±1%						
Frequency range	44–66 Hz (auto sensing)			±1 Hz or ±3 Hz (selectable battery mode)			
Crest factor	3.1						
Output waveform	Pure sine wave						
Efficiency							
Line mode	Up to 92%						
High efficiency mode	Up to 96.5%						
Battery							
Capacity	12 VDC/7 Ah		12 VDC/9 Ah	12 VDC/5 Ah or 12 VDC/7 Ah	12 VDC/9 Ah VDC	NA	
Battery number	3	6	6	20			
Battery voltage	36 VDC	72 VDC	72 VDC	240 VDC			
Display							
LCD	Voltage/frequency/load level/output current/estimated autonomy						
Self-diagnostics	Upon power-on, front panel setting and software control, 24-hours routine checking						
Environmental							
Operation temperature	0–40°C/32–104°F						
Operation humidity	20–95% RH (without condensing)			20–90%RH (without condensation)			
Altitude	1000 m/3280 ft without derating						
Noise level	≤50 dBA @ 1 metre front			≤50 dBA		≤60 dBA	
Interface							
Type	Standard RS-232, EPO			Standard RS-232		Standard RS-232, EPO	
Communication slots	USB, dry contact relay, SNMP/WEB card			2nd RS232, USB, RS485, relay contact, SNMP/WEB card, etc			
Compatible platforms	Microsoft Windows series, Linux, Mac, etc						
Standards and certifications							
Safety	EN62040-1, UL1778					EN62040-1-1	
EMC	EN62040-2, EN61000-3-3, EN61000-3-3, FCC class A					EN62040-2	
Certification	CE						
Other							
Audible or visual alarm	Line failure/battery low/transfer to bypass/system fault						
Protection	Overload, over temperature, short circuit, discharge, overcharge						
Function: multi mode	Normal/ECO/CVCF						
Function: DC start	Yes			Up to 90% (line mode)		Up to 90% (without transformer)	
Dimensions (cm) W x D x H	154 x 211 x 383	192 x 250 x 470	192 x 250 x 525	290 x 645 x 748			
Weight (kg)	11	23	25	86	96	60	

Continued over

Model	BT06036X	BT12072X
Extended battery cabinets		
Number of batteries	6	12
Battery type	Lead acid maintenance free 12V 7 Ah/9 Ah	
Dimensions (mm) W x D x H	154 x 258.7 x 404	192 x 320 x 553

See page 12 for full product overview.

Kohler PW 1000/ORM

Model	1 kVA/900 W	2 kVA/1.8 kW	3 kVA/2.7 kW	6 kVA/5.4 kW	10 kVA/9 kW	15 kVA/13.5 kW	20 kVA/18 kW
Input							
Phase	Single + G			160–280 VAC	1Φ, line+ neutral+ground; 3Φ, R,S,T + neutral+ground	3Φ, R,S,T + neutral+ground	
Voltage range	110–300 VAC			110–280 VAC (1Φ)	110–280 VAC (1Φ) / 277–485 VAC (3Φ)	277–485 VAC (3Φ)	
Frequency range	44–66 Hz (auto sensing)						
Input power factor	>0.99 @ 100% linear load			>0.99 (1Φ) / 0.95 (3Φ) at linear load		Up to 0.95 at linear load	
Output							
Voltage	200/208/220/230/240 VAC						
Capacity	900 W	1800 W	2700 W	5400 W	9000 W	13500 W	18000 W
Power factor	0.9						
Harmonic distortion	<3% @100% linear load, 7% @100% non-linear load			<3% at linear load			
Voltage regulation	±2%						
Frequency range	±1 Hz or ±3 Hz (selectable)			±1 Hz or ±3 Hz (selectable battery mode)			
Crest factor	3.1						
Output waveform	Pure sine wave						
Efficiency							
Line mode	Up to 92%						
High efficiency mode	Up to 96.5%			90%		91%	
Battery							
Capacity	12 VDC/7 Ah		12 VDC/9 Ah		12 VDC/7 Ah	12 VDC/9 Ah	
Number of batteries	2/3	4/6	6	8	20		
Battery voltage	36 VDC	72 VDC	72 VDC	96 VDC	240 VDC		
Display							
Status on LED + LCD	Line mode, back-up mode, eco mode, bypass supply, battery low, battery fault/disconnect, overload, and transferring with interruption and UPS fault						
LCD	Voltage, frequency, load level, battery level, output current, and estimated autonomy						
Self-diagnostics	Upon power-on, front panel setting and software control, 24-hour routine check						
Environmental							
Operation temperature	0–40°C/32–104°F						
Operation humidity	20–95% RH (without condensing)						
Altitude	1000m/3280ft without derating						
Noise level	≤50 dBA @ 1 metre front			≤50 dBA		≤60 dBA	
Interface							
Type	Standard RS-232, EPO			Standard RS-232		Standard RS-232, EPO	
Communication slots	USB, dry contact relay, SNMP/WEB card			2nd RS-232, USB, RS-485, relay contact, SNMP/WEB card, etc			
Compatible platforms	Microsoft Windows series, Linux, Mac, etc						
Standards and certifications							
Safety	EN62040-1, UL1778					EN62040-1-1	
EMC	EN62040-2, EN61000-3-3, EN61000-3-3, FCC class A					EN62040-2	
Certification	CE						
Other							
Audible or visual alarm	Line failure, battery low, transfer to bypass, system fault conditions						
Protection	Overload, over temperature, short circuit, discharge, overcharge						
Function: multi mode	Normal/ECO/CVCF						
Function: DC start	Yes						
Dimensions (cm) W x D x H	440 x 88 x 405	440 x 88 x 600		290 x 748 x 645	440 x 2U x 680	440 x 3U x 680	440 x 4U x 680
Weight (kg)	12	23	25	31	24	30	42

See page 12 for full product overview.

Kohler PW 5000/TP

General data	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	40 kVA	50 kVA
Topology	True online double conversion						
Parallel configuration	Up to 20 units						
Integral batteries	Yes						
Input							
Nominal input voltage	3 x 380 / 220 V + N, 3 x 400 V / 230 V + N, 3 x 415 / 240 V + N						
Voltage tolerance	(-23%/+15%) 3 x 308/177V to 3 x 460/264V for <100% load						
Input distortion THDi	3.0% @ 100% load						
Frequency range	35–70 Hz						
Power factor	0.99 @ 100 % load						
Output							
Output rated power	9 kW	13.5 kW	18 kW	22.5 kW	27 kW	36 kW	45 kW
Output power factor	0.9						
Rated output voltage	3 x 380 / 220 V + N, 3 x 400 / 230 V + N, 3 x 415 / 240 V + N						
Voltage tolerance	1% static, 4% dynamic						
Voltage distortion	< 2 % with linear load, < 4 % with non-linear load						
Overload capability (0.9 p.f)	10 min: 110% load, 1 min: 130% load						
Nominal frequency	50 or 60 Hz						
Crest factor	3:1						
Efficiency							
Overall efficiency	Up to 95.5%						
In eco mode configuration	Up to 98%						
Environment							
Protection rating	IP 20 (IP 21 option)						
Operating temperature	0°C–40°C						
Positional clearances	Front: 900 mm minimum						
	Left: 600 mm minimum						
	Right: 600 mm minimum						
	Rear: 200 mm minimum for cooling, 600 mm minimum for service						
Input and output power cabling accessibility	Cabled at the rear (A and B cabinets only)				–		
	–			Cabled at the front (C cabinets only)			
Relative air humidity	Up to 95% (non-condensing)						
Batteries							
Min/max number of 12V blocks per string	22–50	32–50	32–50	40–50	24–50	32–50	40–50
Charging current	4A				6A		
Battery type	Maintenance free VRLA or NiCd						
Standards							
Safety	IEC/EN 62040-1-1:2003, IEC/EN 60950-1:2001/A11:2004						
EMC	IEC/EN 62040-2:2005, IEC/EN61000-3-2:2000, IEC/EN61000-6-2:2001						
Performance	IEC/EN62040-3:2001						

See page 18 for full product overview.

Kohler EW 6000 (10-40kW)

Model	10	15	20	30	40	
Input						
Phase	1:1 / 3:1 / 3:3			3:1 / 3:3		
Voltage (Vac)	80-280 (L-N) / 138-485 (L-L)			138-485 (L-L)		
Frequency (Hz)	40–70					
Dual main input	Yes					
Power factor	≥0.99					
THDi at full linear load	< 3%					
Output						
Capacity (kW)	10	15	20	30	40	
Power factor	1.0					
Voltage (Vac)	220 / 230 / 240 ±1% (L-N) 380 / 400 / 415 ±1% (L-L)					
Frequency (Hz)	50/60±0.1 (battery mode)					
Phase	3φ4W+PE (can be set to 1φ2W+PE)					
Unbalanced load	100% possible					
THDv	THD <1% (linear load), THD <3% (non-linear load)					
Transfer time (ms)	Synchronisation: <1ms Asynchronisation: <10ms					
Max efficiency, online	96%					
Efficiency eco mode	≥99%					
Overload	<105% continuous, up to 110% load for 60 mins, up to 130% for 10 mins, up to 155% for 1 min, >155% load for 200ms					
Battery						
Voltage (Vdc)	±192 (±96 to ±240 adjustable)	±192 (±144 to ±240 adjustable)*				
Internal battery	16 to 40x9AH/12V	24 to 40x9AH/12V		48 to 80x9AH/12V		
Charging current (A)	1-10 settable			1-20 settable		
Other						
Communication interface	RS 485, Emergency Power Off (EPO), dry contact (1 input, 5 output) and optional SNMP					
Display	LCD screen, LED and physical buttons					
Alarm	AC input abnormal, low battery, overload, failure					
Protection	Output short-curcuit, overload, over-temperature, battery low voltage, input over voltage					
Cold start	Yes					
EPO	Remote and local					
Smart fan speed control	Yes					
Noise	<55dB @ 25°C					
Working temperature	-5°C to +40°C					
Relative humidity	0–95%, no condensation					
Altitude	Up to 2000m without derating					
IP rating	IP20					
Standards	Electrical safety: IEC EN62040-1 EMC: IEC EN620-40-2					
Dimensions (mm) W x D x H		250 x 755 x 880		300 x 785 x 1250		
Weight (kg)	with battery	98 (20 x 9AH)	127 (32 x 9AH)	144 (40 x 9AH)	240 (64 x 9AH)	264 (80 x 9AH)
	without battery	50			85	

*Capacity will derate when battery voltage between ±144 and ±180

See page 22 for full product overview.

Kohler EW 6000 (50-200kW)

Model	50	80	100	120	160	200
Input						
Voltage (Vac)	380/400/415 (138-485 L-L)					
Frequency (Hz)	40–70					
Bypass voltage (Vac)	380/400/415: -20% to +15%					
Power factor	≥0.99					
Phase	3φ4W+PE					
Output						
Capacity (kW)	50	80	100	120	160	200
Power factor	1					
Voltage (Vac)	L–N: 220/230/240±1%; L–L: 380/400/415±1%					
Frequency (Hz)	50/60±0.1 (battery mode)					
Phase	3φ4W+PE					
Unbalanced load	100% possible					
Waveform	Pure sine wave, THD <1% at linear					
Transfer time (ms)	0ms for bypass mode to inverting (battery) mode. <1ms for inverting mode to bypass mode.					
Max efficiency, online	96%					
Efficiency eco mode	≥99%					
Overload	<105% continuous, up to 110% load for 60 mins, up to 130% for 10 mins, up to 150% for 1 min, >150% load for 200ms					
Battery						
Battery voltage (Vdc)	±192 (±180/±204/±216/±228/±240 selectable for long backup type)					
Battery type	External					
Charging current (A)	10	20	20	30	30	40
Other						
Communication interface	RS 485, MODBUS, dry contact (SNMP adapter optional)					
Display	Touchscreen + LED					
Alarm	AC input abnormal, low battery, overload, failure					
Protection	Output short-circuit, overload, over-temperature, battery low voltage, output over/low voltage					
Noise	<65dB					
Working temperature	-5°C to +40°C					
Relative humidity	0–95%, no condensation					
Humidity	0–95%					
IP rating	IP20					
Standards	Electrical safety: IEC EN62040-1 EMC: IEC EN620-40-2					
Dimensions (mm) W x D x H	450 x 840 x 967	450 x 840 x 1400			600 x 900 x 1600	
Weight (kg)	120	210	210	242	270	300

See page 23 for full product overview.

Kohler EW 6000 (300-1200kW)

Model	300	400	500	600	800	1000	1200
Input							
Voltage (Vac)	380/400/415 (188-485 L-L)						
Frequency (Hz)	50 / 60 ±10% (±5% selectable)						
Bypass voltage (Vac)	380/400/415: -20% to +15%						
Power factor	≥0.99						
Phase	3φ4W+PE						
Output							
Capacity (kW)	300	400	500	600	800	1000	1200
Power factor	0.9-1.0 (1.0 when environmental temperature ≤35°C and input voltage >210V)						
Voltage (Vac)	380 / 400 / 415 ±1%						
Frequency (Hz)	50/60±0.5% (battery mode)						
Phase	3φ4W+PE						
Unbalanced load	100% possible						
Waveform	Pure sine wave, THD <1% at linear and <3% at non-linear load						
Transfer time (ms)	0ms for mains mode to battery mode. 1ms for inverting mode to bypass mode.						
Efficiency online	Up to 97%						
Efficiency eco mode	Eco Mode: Up to 99% Smart Eco Mode (harmonic compensation / power factor correction): >98% above 30% load						
Overload	105%–115% for 60 min, 116-125% for 10 min, 126 –150% for 1 min, above 150% for 1s						
Battery							
Battery voltage (Vdc)*	480 (12V battery from 32 to 44 cells selectable)				528 (12V from 32 to 48 cells selectable)		
Charging current (A)	25-100				25-200		
Other							
Communication interface	RS232, RS485, dry contact, MODBUS and optional SNMP						
Display	7" touch screen and LED						
Alarm	AC input abnormal, low battery, overload, failure						
Protection	Output short-curcuit, overload, over-temperature, battery low voltage, input over / low voltage						
Noise	<75dB						
Working temperature	-5°C to +40°C						
Relative humidity	0–95%, no condensation						
Altitude	≤1500m. If exceeding 1500m decrease rated power to use according to GB/T 3859.2						
IP rating	IP20						
Standards	Electrical safety: IEC EN62040-1 EMC: IEC EN620-40-2						
Dimensions (mm) W x D x H	1000 x 900 x 1950		1400 x 900 x 1950		1900 x 900 x 1950	3000 x 900 x 1950	
Weight (kg)	750		1120		1450	2400	

*When battery below 38 blocks output power will derate by 300-600kVA, when below 40 blocks output power will derate by 800-1200kVA

See page 24 for full product overview.

Kohler EW 6000TX

Model	10	20	30	40	60	80	100	120	160	200
Input										
Voltage	380/400/415 Vac ±25%									
Rectifier	40–70									
SYNC frequency tracking	50/60 Hz ±10% (± 5% optional)									
Phase	3φ4W+PE									
Output										
Capacity (KVA)	10	20	30	40	60	80	100	120	160	200
Power factor	0.9 (0.8/1.0 optional)									
Phase	3φ4W+PE									
Voltage	L–N: 220/230/240 Vac ± 1%, L–L: 380/400/415 Vac ± 1%									
Frequency	50/60 Hz ± 0.2 (battery mode)									
Waveform	Pure sine wave, THD ≤2% (linear load)									
3-Phases 100% load unbalance voltage stability	≤2%, allow 100% unbalance									
Efficiency	Up to 92%									
Overload	125% load for 10 minutes, 150% load for 1 minute									
Battery										
Voltage	348 Vdc (360 optional)									384 (348/360/372 selectable)
BATT type	External									
Charging current	10–40 A selectable									10–100 A selectable
Other										
Maintenance bypass	Yes									
Communication interface	RS485/MODBUS (dry contacts/SNMP is optional)									RS232/RS485 (dry contacts/SNMP is optional)
Display	Touchscreen + LED									
Alarm	Overload, abnormal AC input, low battery, UPS failure									
Protection	Low battery, overload, over temperature, short circuit, output over voltage, output low voltage									
Noise	<65 dB									<70 dB
Working temperature	0–40°C									
Relative humidity	0–95%, no condensation									
Dimensions (mm) W x D x H	500 × 600 × 1180			500 × 800 × 1600			700 × 800 × 1800			1400 x 1000 x 1850

See page 25 for full product overview.

Kohler EW 6000TX

Model	300T	400T	500T	600T
Input				
Rated voltage	380/400/415 V (selectable)			
REC voltage range	228~475 Vac			
Bypass voltage range	±20%			
Bypass frequency sync	50/60 Hz ± 5% (±10% optional)			
Battery (VDC)	480 (384 V~504 V, 32~42 pcs 12 V battery selectable)			
Charging mode	Equalised and float charging			
Charging current	20~100A			
PF	≥0.999			
THDi	≤2% (full load)			
Output				
Voltage	380/400/415 Vac±1%			
Frequency	50/60 Hz ± 0.02% (battery mode)			
Load PF	0.9			
THDV (Linear load) %	≤0.5%			
THDV (Non linear load) %	≤2% (RCD load PF=0.8, ≤6%)			
Crest factor	3:1			
Voltage transient range	±5%			
100% load system efficiency	95%			
Power consume without load	4.785 kW (INV); 2.736 kW (ECO)		5.745 kW (INV) 4.34 kW (ECO)	
Frequency sync range	45~55/54~66			
Inverter overload	130% 10 min; 150% 1 min			
Inverter short circuit current-limiting	1150 A	1600 A	1900 A	2300 A
Bypass overload	130% long time; 150% 10min			
Transfer time (AC to DC)	0	0	0	0
ECO/normal mode transfer time	≤10 ms			
Other				
Maintenance bypass	Yes			
Display	Touchscreen + LED			
Communication port	RS232/485, dry contact (SNMP, MODBUS optional)			
DC start function	Optional			
Noise	72 dB		75 dB	
Working temperature	-5~40°C			
Storage temperature	-20~55°C			
Humidity	0~95%			
IP	IP20 (high level option)			
Approvals	EN62040-2:2006			
Dimensions (mm) W x D x H	1600 x 1000 x 1800		2200 x 1000 x 1800	
Weight (kg)	1400	1700	2300	2400

See page 26 for full product overview.

Kohler PW 6000

General data	60 kVA	80 kVA	100 kVA	120 kVA	160 kVA	200 kVA	250 kVA	300 kVA	400 kVA	500 kVA
Topology	True online double conversion									
Parallel configuration	Up to 10 units									
UPS type	Standalone									
Cable entry	Bottom front								Bottom front or top	
Input										
Nominal input voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N									
Voltage tolerance (ref. to 3 × 400 / 230 V)	For loads < 100 % (-23 %, +15 %), < 80 % (-30 %, +15 %), < 60 % (-40 %, +15 %)									
Input distortion THDi	≤ 3.5% at 100 %									
Frequency	35–70 Hz									
Power factor	0.99 at 100% load									
Output										
Output power max.	60 kW	80 kW	100 kW	120 kW	160 kW	200 kW	250 kW	300 kW	400 kW	500 kW
Output power factor	1.0									
Rated output voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N									
Voltage distortion	< 2 %									
Frequency	50 or 60 Hz									
Overload capability	10 min.: up to 125% or 1 min.: up to 150%									
Unbalanced load	100% possible									
Crest factor	3:1									
Efficiency										
Overall efficiency	Up to 96%									
In eco-mode configuration	≥ 99%				98%					
Environment										
Storage temperature	-25–70°C									
Operating temperature	0–40°C									
Altitude configuration	1000 m without derating									
Battery										
Battery type	Maintenance-free VRLA or NiCd									
Communications										
Graphical display	Optional							Yes		
Standards										
Safety	IEC/EN 62040-1									
Electromagnetic compatibility (EMC)	IEC/EN 62040-2									
Performance	IEC/EN 62040-3									
Product certification	CE									
Protection rating	IP 20									
Manufacturing	ISO 9001, ISO 14001									
Weight/Dimensions for Kohler PW 6000 60–500 kVA										
Weight (without batteries)	230 kg	240 kg	245 kg	280 kg	290 kg	310 kg	390 kg	410 kg	950 kg	1000 kg
Dimensions (mm) W x D x H	615 x 480 x 1945			850 x 750 x 1820	850 x 750 x 1820		1100 x 750 x 1920		1650 x 850 x 1994	

See page 30 for full product overview.

Kohler PW 8000DPA ST

General data	ST40	ST60	ST80	ST120	ST200
System power range	10–400 kVA/kW				
Max power per module	10–20 kVA/kW				
Max power per frame	40 kVA/kW	60 kVA/kW	80 kVA/kW	120 kVA/kW	200 kVA/kW
Number of UPS modules per cabinet	1 to 2	1 to 3	1 to 4	1 to 6	1 to 10
Max. number of inbuilt batteries (7/9 Ah)	80	240	–	–	–
Topology	Online double conversion				
Maximum number of parallel cabinets	4			3	2
UPS type	Modular (Decentralised Parallel Architecture)				
Input					
Nominal input voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N				
Voltage tolerance (referred to 3 × 400/230 V)	For loads <100% (-23%, +15%), <80% (-30%, +15%), <60% (-40%, +15%)				
Input distortion THDi @ 100% load	<4% (10 kW module), <3% (20 kW module),				
Frequency	35–70 Hz				
Power factor	0.99 @ 100% load				
Output					
Output power factor	1.0				
Rated output voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N				
Voltage distortion (referred to 3 × 400/230 V)	<1.5% linear load				
Frequency	50 Hz or 60 Hz				
Overload capability	1 min.: up to 150% / 10 min.: up to 125%				
Unbalanced load	100% (all three phases regulated independently)				
Crest factor	3:1 (load supported)				
Efficiency					
Overall efficiency	Up to 95.5%				
In eco-mode configuration	98%				
Environment					
Storage temperature	–25°C to +70°C (cabinet), -20°C to +40°C (batteries)				
Operating temperature	0°C to +40°C				
Altitude configuration	1000 m without derating				
Communications					
LCD	Yes (per module); system display optional (graphical touch screen display)				
LEDs	LED for notification and alarm				
Communication ports	USB, RS-232, SNMP slot, potential-free contacts				
Standards					
Safety	IEC / EN 62040-1				
Electromagnetic compatibility (EMC)	IEC / EN 62040-2				
Performance	IEC / EN 62040-3				
Product certification	CE				
Manufacturing	ISO 9001, ISO 14001, OHSAS18001				
Degree of protection	IP20				
Weight/Dimensions					
Weight (with modules/without batteries)	Up to 136 kg	Up to 238 kg	Up to 169 kg	Up to 263 kg	Up to 389 kg
Dimensions (mm) W x D x H	550 x 770 x 1135	550 x 770 x 1975	550 x 770 x 1135	550 x 770 x 1975	550 x 770 x 1975

See page 34 for full product overview.

Kohler PW 8000DPA RI

General data	RI10	RI11	RI12	RI20	RI22	RI24	RI40
Max power per module	10–20 kVA/kW						
Max power per frame	20 kVA/kW	20 kVA/kW	20 kVA/kW	40 kVA/kW	40 kVA/kW	40 kVA/kW	80 kVA/kW
UPS modules	1	1	1	1 to 2	1 to 2	1 to 2	1 to 4
Maximum number of inbuilt batteries (7/9 Ah)	–	40	80	–	80	160	–
Output power factor	1.0						
Topology	Online double conversion						
UPS type	Modular (Decentralised Parallel Architecture)						
Input							
Nominal input voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N						
Voltage tolerance (referred to 3 × 400 / 230 V)	For loads <100% (–25%, +15%), <80% (–30%, +15%), <60% (–40%, +15%)						
Input distortion THDi	≤3%						
Frequency	35 –70 Hz						
Power factor	0.99						
Output							
Rated output voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N						
Voltage distortion	<1.5% linear load						
Frequency	50 Hz or 60 Hz						
Overload capability	1 min.: 150% / 10 min.: 125%						
Unbalanced load	100% (all three phases regulated independently)						
Crest factor	3:1 (load supported)						
Efficiency							
Overall efficiency	Up to 95.5%						
In eco-mode configuration	98%						
Environment							
Storage temperature	–25°C to +70°C (cabinet)/-20°C to +40°C (batteries)						
Operating temperature	0°C to +40°C						
Altitude configuration	1000 m without derating						
Communications							
LCD	Yes (per module)						
LEDs	LED for notification and alarm						
Communication ports	USB, RS-232, SNMP slot, potential-free contacts						
Standards							
Safety	IEC/EN 62040-1						
Electromagnetic compatibility (EMC)	IEC/EN 62040-2						
Performance	IEC/EN 62040-3						
Product certification	CE						
Manufacturing	ISO 9001, ISO 14001, OHSAS18001						
Weight/Dimensions							
Weight (with modules/without batteries)	Up to 39 kg	Up to 62 kg	Up to 78 kg	Up to 68 kg	Up to 109 kg	Up to 136 kg	Up to 136 kg
Dimensions (mm) W x D x H	448 x 735 x 310 (7 HU)	448 x 735 x 487 (11 HU)	448 x 735 x 665 (15 HU)	448 x 735 x 440 (10 HU)	448 x 735 x 798 (18 HU)	448 x 735 x 1153 (26 HU)	448 x 735 x 798 (18 HU)

See page 34 for full product overview.

General data

System power range	30–1500 kVA
Max power per module	30 kVA / 40 kVA / 50 kVA
Max power per frame	250 kVA
Number of UPS modules in each frame	1 to 5
Weight (with modules / without batteries)	421–439 kg
Dimensions (mm) W x D x H	730 x 800 x 1975
Topology	Online double conversion
Parallel configuration	Up to 30 modules
UPS type	Modular (Decentralised Parallel Architecture)

Input

Nominal input voltage	3 × 380/220 V + N, 3 × 400/230 V + N, 3 × 415/240 V + N
Voltage tolerance (referred to 3 × 400 / 230 V)	For loads <100% (-25%, +15%), <80% (-30%, +15%), <60% (-40%, +15%)
Input distortion THDi	<3% @ 100% load
Frequency	30–70 Hz
Power factor @ 100% load	0.99

Output

Output power factor	0.8
Rated output voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N
Voltage distortion (referred to 3 × 400 / 230 V)	<±2% with linear load
Frequency	50 Hz or 60 Hz
Overload capability	1 min.: up to 150% / 10 min.: up to 125%
Unbalanced load	100% (all three phases regulated independently)
Crest factor	3 : 1 (load supported)

Efficiency

Overall efficiency	Up to 95.5%
In eco-mode configuration	99%

Environment

Storage temperature	–25 °C to +70 °C
Operating temperature	0 °C to +40 °C
Altitude	1000 m without derating

Battery

Battery capacity	Configurable up to several hours
Internal batteries	240 x 7/9Ah (150 frame) / External batteries only (250 frame)

Communications

LCD	Yes (per module)
LEDs	LED for notification and alarm
Communication ports U	SB, RS-232, SNMP slot, potential-free contacts

Standards

Safety	IEC / EN 62040-1
Electromagnetic compatibility (EMC)	IEC / EN 62040-2
Performance	IEC / EN 62040-3
Manufacturing	ISO 9001, ISO 14001, OHSAS18001
Product certification	CE
IP rating	IP 20

See page 40 for full product overview.

Kohler PW 9250DPA

General data

System power range	50–1,500 kVA/kW
Nominal power per module	50 kW
Nominal power / frame	300 kW or 250 kW (N+1)
Number of UPS modules	6
Topology	Online double conversion
Parallel configuration	Up to 30 modules
Cable entry	Top or bottom
Output power factor	1.0
Serviceability	Front access
Back-feed protection	Built-in as standard
Input	
Nominal input voltage	380/400/415 VAC
Voltage tolerance % (applicable for 400 V nominal voltage)	Load ≤ 100% (-10%, +15%) Load ≤ 80% (-20%, +15%) Load ≤ 60% (-30%, +15%)
Current distortion THDi	<3%
Frequency range	35–70 Hz
Power factor	0.99
Walk in/soft start	Yes
Output	
Rated output voltage	380/400/415 VAC
Voltage tolerance (referred to 400 V)	±2.0%
Voltage distortion THDU	<2.0%
Frequency	50 or 60 Hz (selectable)
Output power factor	1.0
Efficiency	
Module efficiency	Up to 97.6%
Overall system efficiency	Up to 97.4%
In eco-mode	Up to 99%

Environment

Protection rating	IP 20 (IP 21 optional)
Storage temperature	-25°C to +70°C
Operating temperature	0°C to +40°C
Altitude (above sea level)	1,000 m w/o derating

Batteries

Types	VRLA, open cells, NiCd and Li-Ion
Battery charger	Decentralised charger per module

Communications

User interface	Graphical touch screen (one per frame as standard) Decentralised LCD and mimic diagram (one per module as standard)
Communication ports	Communication ports USB, RS-232, potential-free contacts, SNMP (optional)
Customer interface	Remote shutdown, gen-set interface, external bypass contact

Compliance

Safety	IEC / EN 62040-1
EMC	IEC / EN 62040-2
Performance	IEC / EN 62040-3
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001

Weight/Dimensions

Weight (without modules/ without batteries)	270 kg
Weight (per module)	66 kg
Dimensions (mm) W x D x H	795 x 943 x 1978

See page 46 for full product overview.

Kohler PW 9500DPA

General data

System power range	100 kVA/kW – 3 MVA/MW
Max power per module	100 kVA/kW
Max power per frame	500 kVA/kW
Topology	Double conversion, transformer-free, modular, Decentralised Parallel Architecture
Parallel configuration	Up to five modules in one frame (500 kW)/up to six frames in parallel (3 MW)
Cable entry	Bottom or top as standard
Serviceability	Fully front serviceable
Back-feed protection	Built-in as standard

Input

Nominal input voltage	3 x 380 / 220 V + N, 3 x 400 / 230 V + N, 3 x 415 / 240 V + N
Voltage tolerance	308 – 460 V (-10 – +15 %) < 100 % load (-20 – +15 %) < 80 % load, (-34 – +15 %) < 60 % load
Input distortion THDi	< 3.5 % at 100 % load
Frequency range	45 to 70 Hz
Power factor	0.99 @ 100 % load
Walk in/Soft start	Yes

Output

Output power factor	1.0
Rated output voltage	3 x 380 / 220 V + N, 3 x 400 / 230 V + N, 3 x 415 / 240 V + N
Output voltage variation	< +/- 1.5
Voltage distortion	< 2% with linear load < 4% with non-linear load
Frequency	50 or 60 Hz (selectable)

Efficiency

Overall efficiency	Up to 95.8%
In eco-mode	≥ 99%

Environment

Protection rating	IP 20
Storage temperature	-25° – +70°
Operating temperature	0° – +40°C
Altitude (above sea level)	1000 m without de-rating

Batteries

Number of 12V blocks / string	Flexible number from 40–50 blocks
Types	VRLA, vented lead-acid, NiCd, Lithium-Ion
Battery charger	Decentralised charger per module

Communications

User interface	Graphical touch screen (one per frame as standard) Decentralised LCD + mimic diagram (one per module as standard)
Communication ports	USB, RS-232, voltage-free contacts, SNMP (optional)
Customer interface	Remote shutdown, gen-set interface, external bypass contact

Compliance

Safety	IEC / EN 62040-1
EMC	IEC / EN 62040-2
Performance	IEC / EN 62040-3
Manufacturing	ISO 9001, ISO 14001

Weight/Dimensions

Weight	Approx. 975 kg (500 kW system without batteries)
Dimensions (mm) W x D x H	1580 x 940 x 1975

See page 52 for full product overview.

Kohler MF1500 DPA

General data	1000 kW	1250 kW	1500 kW
System power range	250 kVA/kW to 6 MVA/MW		
Max power per module	250 kVA/kW		
Max power per frame	1000 or 1500 kVA/kW		
Topology	Double conversion, transformer-free, modular, Decentralised Parallel Architecture		
Parallel configuration	Up to 6 modules per frame (1500 kW) / up to 4 frames in parallel (6 MW)		
Cable entry	Bottom or top as standard		
Serviceability	Frontal access for power frame and connection frame, removeable power module with 360° access		
Back-feed protection	Built-in as standard		
Input			
Nominal input voltage	3 x 380 / 220 V + N, 3 x 400 / 230 V + N, 3 x 415 / 240 V + N		
Voltage tolerance	-30% at partial loads, ref 3 x 400 / 230V		
Input distortion THDi	<4% at 100% linear load		
Frequency range	35–70 Hz		
Power factor	0.99 @ 100% load		
Walk in/Soft start	Yes		
Output			
Output power factor	1.0		
Rated output voltage	3 x 380 / 220 V + N, 3 x 400 / 230 V + N, 3 x 415 / 240 V + N		
Output voltage variation	±1% @ 400V		
Voltage distortion	< 2% at linear load. 2.5% for non-linear load		
Frequency	50 or 60 Hz (selectable)		
Efficiency			
Overall efficiency	97.4% (VFI mode at 50% load)		
In eco-mode	Up to 99%		
Environment			
Protection rating	IP 20		
Storage temperature	-25°C to +70°C		
Operating temperature	0°C to +40°C		
Altitude (above sea level)	1000 m without de-rating		
Batteries			
Number of 12V blocks / string	40–50 12V blocks		
Types	VRLA, vented lead-acid, NiCd, Lithium-Ion		
Battery charger	Decentralised charger per module		
Communications			
User interface	1 x decentralised graphical LCD touch screen, plus additional LCD display with navigation buttons and status LEDs per module		
Communication ports	USB, RS-232, voltage-free contacts, SNMP (optional)		
Customer interface	Remote shutdown, gen-set interface, external bypass contact		
Compliance			
Safety	IEC / EN 62040-1		
EMC	IEC / EN 62040-2		
Performance	IEC / EN 62040-3		
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS 18001		
Weight/Dimensions			
Weight	2170 kg	2865 kg	3270 kg
Dimensions (mm) W x D x H	2235 x 1000 x 2000	3045 x 1000 x 2000	3045 x 1000 x 2000

See page 58 for full product overview.

Note: For reference, in selected territories the Kohler MF1500 DPA is sold badged as the ABB MegaFlex DPA.

Lithium-ion batteries

UPS lithium-ion battery system

General data	
Nominal energy (kWh)	34.6
Capacity (Ah)	67
Open circuit voltage (V)	516.8
Number of modules	17
Operating temperature (recommended)	+18°C to +28°C (+25°C)
Maximum cell temperature	67°C
Minimum discharge	470A (60 sec) 600A (1 sec)
Communication	RS485-TCP/IP – dry contact
Connection type	2 wires/top cable entry
Product compatibility	
Kohler PW 9250DPA	Yes
Kohler PW 9500DPA	Yes
Kohler MF1500 DPA	Yes
Kohler PW 6000 (60–120 kVA)	Yes
MNS-UP	Yes
Batteries	
Type	Li-Ion
Weight	
Weight with batteries (kg)	510
Module weight (kg)	17
Dimensions	
Dimensions W×D×H (mm)	650 x 530 x 2055

See page 64 for full product overview.



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