

Hybrid VDC XEB

For UPS Systems



Mission-Critical
Power Protection

Smart Central
Monitoring

Fully
Integrated

High
Reliability

Extended Runtime

Small Footprint

Hybrid

DC Energy Storage

VDC XEB

“98 percent of power disturbances last less than 10 seconds.”

- Electric Power Research Institute (EPRI)

Hybrid VDC XEB

Continuous Trusted Power Extended Runtime Fully Integrated Solution

VYCON - The leader in environmentally friendly, energy storage systems.

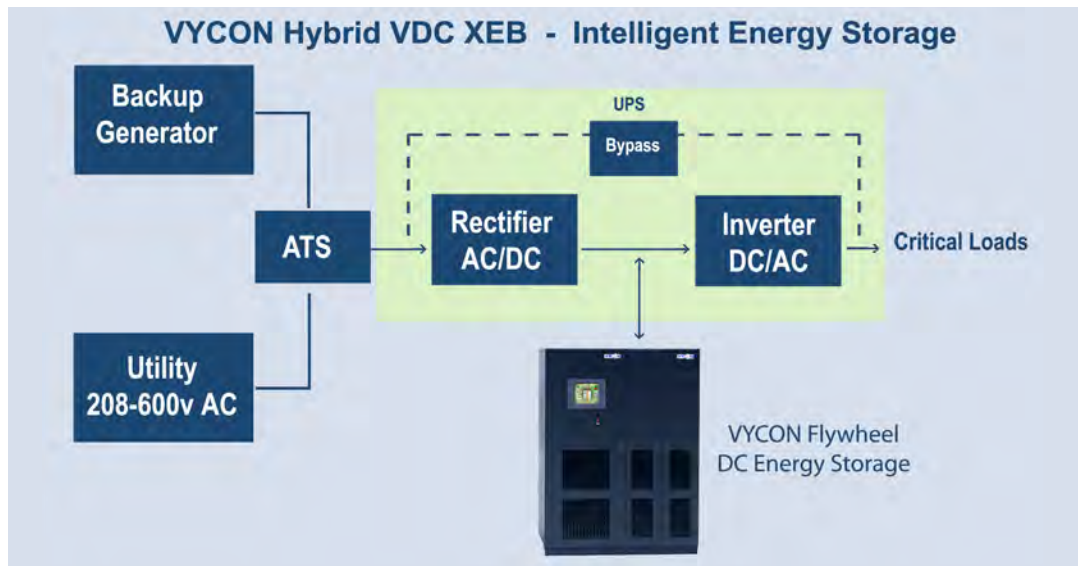
When it comes to mission-critical applications, power continuity is a must. VYCON's patent pending Hybrid VDC XEB meets this requirement with a fully integrated energy storage system that provides the highest level of reliable power protection. Incorporating VYCON's patented flywheel technology combined with batteries, the VDC XEB supports connected loads with clean backup power that is predictable and seamless.

During a power event, the flywheel provides the necessary energy to ride-through power problems, significantly increasing battery life by absorbing 98 percent of the power anomalies that would cause the batteries to be cycled. The reduction in battery usage results in fewer battery replacements and extends their useful life.

For those rare occurrences where extra runtime is required, the VDC XEB intelligently “walks in” the batteries for continuous protection of critical loads.

The Hybrid VDC XEB flywheel system is a highly reliable and dependable source of DC energy with extended runtime for your critical applications.

Compatible with major brands of three-phase UPSs, the Hybrid VDC XEB connects to the DC bus of the UPS. Receiving charging current from the UPS, the VDC XEB provides DC power to the UPS during discharge.



Energy Storage System

Serving as a mechanical battery, the flywheel kinetic energy storage system stores energy in the form of a rotating mass that is designed for high power, short discharge applications.

Complete with a contact-free magnetic levitation system and a superior touch-screen control system that provides vital information on system performance, the

VDC XEB can charge and discharge at high rates for countless cycles without degradation throughout its 20-year life. And, the combination of the flywheel and batteries dramatically reduces the system's footprint - saving valuable space for other computing assets.

Flywheel + Batteries

As an extension to the VDC product line, VYCON has designed a fully integrated power protection system that combines the reliability of flywheel energy storage with advanced Absorbed Glass Mat (AGM) batteries to address the needs of users who may require added power backup and redundancy.

According to EPRI, 98% of power outages are less than 10 seconds making the flywheel an extremely effective method of storing energy for UPS applications. When input power fails, the VDC flywheel is the primary energy source supporting the critical load.

With the addition of batteries, extended runtime is possible. A smart “walk-in” of the batteries is managed by the flywheel, eliminating a harsh step-load demand on the batteries thereby extending the life of the batteries and improving overall system availability.

The VDC XEB also incorporates smart monitoring of both the flywheel system and batteries. Key parameters of the system are actively monitored and metered to provide real-time status and event recording.

Highly Reliable Protection for Mission Critical Applications



Data Centers



Healthcare/Hospitals



Education



Casinos/Gaming



Broadcast



Mobile Power

Features Functions Benefits

- * Flywheel hub, high-speed permanent magnet motor generator and levitation system

- * Full magnetic levitation

- * Integrated Batteries

- * Smart Monitoring

- * Expandability

- * UPS Compatibility

- * Dependability

- * Reliability

- * Flywheel is the primary source of power backup. Protects over 98% of utility disturbances and extends battery life

- * Provides 100% levitation and sustains flywheel rotor during operation

- * Extended runtime

- * Flywheel “walks-in” the batteries

- * Monitoring of key parameters

- * Parallel up to 5 VDC XEB systems

- * Integrates with various three-phase UPS makes & models (including double-conversion)

- * High availability

- * Flywheel absorbs all the short duration disturbances reducing the frequency of battery cycles.

- * First line of defense against power quality problems

- * No replacement of bearings required

- * Allows for sequential start of multiple engine-gensets

- * Extends battery life

- * Advanced warning of any system faults

- * Achieve higher power, longer autonomy and/or redundancy

- * Turn-key, plug and play

- * 3-year system warranty

- * Low Cost of Ownership

- * Patent pending

- * 20-year lifespan

Hybrid VDC XEB Runtimes

UPS Output Power Rating (kVA/kW) at .8 pf, 100% Load

| | | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|--|
| kVA | 80 | 100 | 120 | 160 | 200 | 225 | 275 | 300 | |
| kW | 64 | 80 | 96 | 128 | 160 | 180 | 220 | 240 | |
| Runtime, min. | 5.0 | 3.0 | 1.9 | 3.5 | 2.9 | 1.9 | 2.0 | 4.1 | |
| VDC XEB, Qty. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |

| | | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|-----|------|------|
| kVA | 400 | 450 | 500 | 550 | 600 | 750 | 800 | 1000 | 1100 |
| kW | 320 | 360 | 400 | 440 | 480 | 600 | 640 | 800 | 880 |
| Runtime, min. | 2.8 | 1.9 | 2.7 | 2.0 | 2.8 | 2.7 | 2.2 | 2.7 | 2.0 |
| VDC XEB Qty. | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 |

UPS Output Power Rating (kVA/kW) at .9 pf, 100% Load

| | | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-------|-------|-----|--|
| kVA | 80 | 100 | 120 | 160 | 200 | 225 | 275 | 300 | |
| kW | 72 | 90 | 108 | 144 | 180 | 202.5 | 247.5 | 270 | |
| Runtime, min. | 3.9 | 2.2 | 5.0 | 2.4 | 1.9 | 2.6 | 3.8 | 2.9 | |
| VDC XEB, Qty. | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | |

| | | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|-----|------|------|
| kVA | 400 | 450 | 500 | 550 | 600 | 750 | 800 | 1000 | 1100 |
| kW | 360 | 405 | 450 | 495 | 540 | 675 | 720 | 900 | 990 |
| Runtime, min. | 1.9 | 2.6 | 1.8 | 1.5 | 1.9 | 1.8 | 1.9 | 1.8 | 1.3 |
| VDC XEB Qty. | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 |

Operating Parameters*

Power / Duration Ratings

| | |
|---------------------------|------------------------|
| Max Power | 300kW |
| Backup Time | Reference tables above |
| Flywheel Rotational Speed | 14,000 to 36,750 RPM |

Input

| | |
|---------------|--|
| Input Voltage | 400 – 600 VDC |
| Recharge Rate | 15-50 Amps Adjustable per application |
| Efficiency | 99.2% at Max Power Rating |

Output

| | |
|-------------------|-------------|
| Voltage Discharge | 390–540 VDC |
|-------------------|-------------|

| | |
|-----------------------|---|
| Voltage Regulation | +/- 1% |
| DC Ripple | Less than 2% |
| Operating Temperature | 59°F to 81°F (15°C to 27°C) |
| Humidity | 95% non-condensing |
| Altitude | 5,000 ft. (1524 m) max without de-rating |
| Audible Noise | < 68dBA at 3.3 ft. (1M) |

Batteries

| | |
|----------------------------------|---|
| Sealed Lead-acid, AGM technology | 10-year rated life @ 77°F/25°C (full float) |
|----------------------------------|---|

| | |
|----------|-----------------------------|
| Capacity | Meets IEEE-485 requirements |
|----------|-----------------------------|

Dimensions and Weight

| | |
|--------|---------------------|
| Height | 73.7 in. (1872 mm) |
| Width | 71.95 in. (1783 mm) |
| Depth | 30.0 in. (762 mm) |
| Weight | 5000 lbs. (2268 kg) |

*Specifications subject to change without notice

Hybrid VDC XEB



For more information on our award-winning Flywheel technology, please visit www.VyconEnergy.com or contact your local Authorized Reseller.

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About VYCON

VYCON is a leading manufacturer of flywheel-based energy storage systems. VYCON employs the latest technologies in power electronics, digital controls, magnetic bearings and high speed motor generators to provide products that are reliable, long lasting and essentially maintenance free.

It is time to expect more from an energy storage solution...

FROST & SULLIVAN

2009 GREEN EXCELLENCE
AWARD IN PRODUCT
INNOVATION

engineer

2009
PRODUCT OF THE YEAR
Finalist

Inc.
500

EC&M
Product of the Year
Category Winner 09

THE
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PRODUCT



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