



**SYMPHONY**

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Critical Power Solutions

**Kenya & Rwanda**

**Since 1979**

# About Symphony

Symphony is a prominent and well-established system integration company in East Africa, renowned for delivering comprehensive clean power solutions to a diverse range of clients, including corporate entities, government institutions, manufacturing facilities, bottling plants, hospitals, and individual customers. Our expertise spans various areas, including infrastructure solutions such as UPS, AVC, AVR, battery systems, low-voltage switchgear, PDU, busways, and more. Additionally, we offer power quality analysis, consultancy services, training and education programs, business solutions, and maintenance services to cater to the unique needs of our clients.

- Most Experienced Company in East Africa (Since 1979)
- Regional Presence: Kenya, Rwanda
- A highly skilled team of 25 with top technical certifications and experiences
- Serving the most critical system users in the region

The logo for ABB, consisting of the letters 'A', 'B', and 'B' in a bold, red, sans-serif font. Each letter is stylized with a horizontal line through its middle.The logo for FIAMM, featuring the word 'FIAMM' in a bold, red, sans-serif font. Below the text are two horizontal red lines, with a small red plus sign on the left and a minus sign on the right.The logo for GENEREX, with the word 'GENEREX' in a blue, sans-serif font. The letters are widely spaced.

# Why Symphony?

## **Our Strengths:**

- ✓ Authorized Channel Partner of ABB Critical Power Solutions
- ✓ 42 Years of Successful Critical Power Solution Delivery
- ✓ References Across East and Central Africa
- ✓ Dedicated Technical Team with 100+ years of Combined Technical Expertise
- ✓ Certified & Highly Trained Personnel
- ✓ Prompt Customer Support
- ✓ Timely Response
- ✓ In House Technical Capacity
- ✓ Over 2500+ installations

## ***Our Skills***

- ✓ Project management & implementation
- ✓ Datacentre infrastructure design
- ✓ Identify & Solve Problems Systematically
- ✓ Follow IEC Standards
- ✓ Sound knowledge on key products & associated peripherals

## ***Our Support:***

- ✓ Full 24/7, 365 days a year support, site and remote monitoring
- ✓ Remote technical support and monitoring
- ✓ Phone, email or on site; always ready to respond
- ✓ Flexible range of maintenance plans

# About Symphony



Symphony is the **GOLD** Partner for GE Digital Energy solutions, which was acquired by ABB and became ABB-EPIS in year 2018, the leader in the field of power protection, offering the highest quality of Critical Power solutions. We have been authorized partners in this region for over 42 years.

We have successfully supplied, installed, commissioned and is maintaining GE / ABB UPS in many African countries including Kenya, Uganda, Rwanda, Burundi, Tanzania, DRC, Eritrea, Djibouti, Zambia, Zimbabwe, Mozambique, Angola and Somaliland.



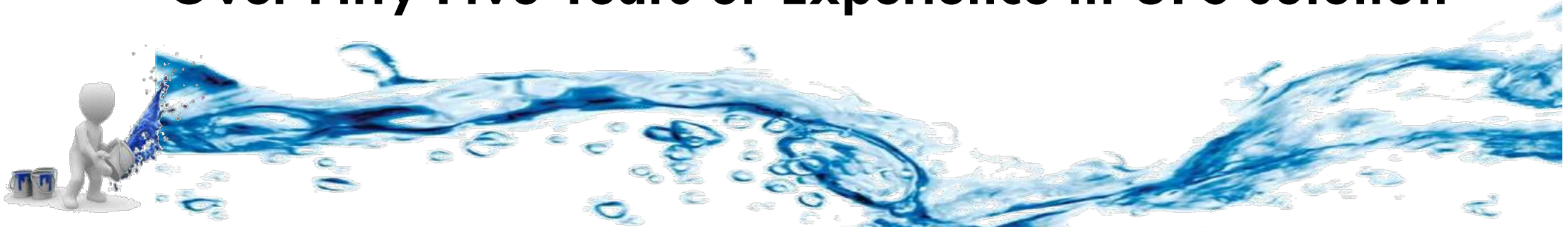
FIAMM Energy Technology is a multinational company engaged in the production and distribution of batteries and accumulators for motor vehicles and for industrial use born following the separation from FIAMM Group of the business of automotive batteries and industrial batteries with lead-acid technology.



Battery Analysis & Care System is the most innovative product on the market that includes a battery monitoring and management system and can be integrated into the network. It cyclically checks the internal resistance, temperature and voltage of each individual accumulator.

# Why ABB?

## Over Fifty Five Years of Experience in UPS solution



1965

1975

1995

2001

2004

2009

2014

2018



imagination at work



GE Digital Energy



**ABB**









# ABB Mono Block UPS Solutions

Product                      PowerValue LI                      PowerValue 11T G2                      PowerValue 11RT                      PowerValue 11/31T                      PowerScale                      PowerWave 33



<b>Parallelable</b>	-	Up to 3 units	Up to 3 units	Up to 4 units	Up to 20 units	Up to 10 units
<b>System power</b>	Up to 1400 W	Up to 30 kW	Up to 30 kW	80kVA	1000kVA	5000kW
<b>Application</b>	Workstation and home office	Workstation and home office	Workstation and home office	Workstation and home office	Network, server and storage	Data center and facility
<b>UPS type</b>	Single-phase standalone tower	Single-phase standalone tower	Single-phase rack or tower convertible	Single-phase standalone tower	Three-phase standalone tower	Three-phase standalone tower

# ABB Modular UPS Solutions

Product	DPA UPScale ST	DPA UPScale RI	Conceptpower DPA	DPA 250 S4	Conceptpower DPA 500	PowerLine DPA
						
<b>Parallelable</b>	Up to 20 modules	–	Up to 30 modules	Up to 6 units	Up to 30 modules	Up to 30 modules
<b>System power</b>	400kW	80kW	1500kVA	3000kW	3000kW	120kVA
<b>Application</b>	Network, server and storage	Network, server and storage	Data center and facility	Data center and facility	Data center and facility	Industrial applications
<b>UPS type</b>	Three-phase modular UPS	Three-phase modular UPS (rack-independent)	Three-phase modular UPS	Three-phase modular UPS	Three-phase modular UPS	Three-phase and single-phase modular UPS



## Uninterrupted Power Supply Solutions



- ✓ 10 to 4,200 kVA Industrial UPS Solutions
- ✓ VFI - Online Double Conversion
- ✓ Superior Battery Management
- ✓ Redundancy & Scalability with RPA
- ✓ Zig Zag Output Transformer
- ✓ Space Vector Modulation (SVM)
- ✓ Higher efficiency at full and partial load
- ✓ Intelligent Energy Management Integrated
- ✓ Remote Monitoring & Diagnostics



- ✓ Authorized Channel Partner for EA
- ✓ 40 Years of Successful Critical Power Solution Delivery
- ✓ References Across East Africa
- ✓ Dedicated Technical Team with 100+ years of Combined Technical Expertise

**Your Trusted Partner**

## Increase Productivity through Reliable Power Supply



**Manufacturing**



**Industrial Automation**



**Medical**



**Data Centers & Telecom**



**Malls & Theater**



# ABB MegaFlex DPA



250 kW to **750 kW**

500 kW N+1 to **1,000 kW**

1,000 kW N+1 to **1,500 kW**

Efficiencies up to

**97.4%**

at system level

**30%**

Lower power losses

CO<sub>2</sub> emission reduction of

**427 tons**

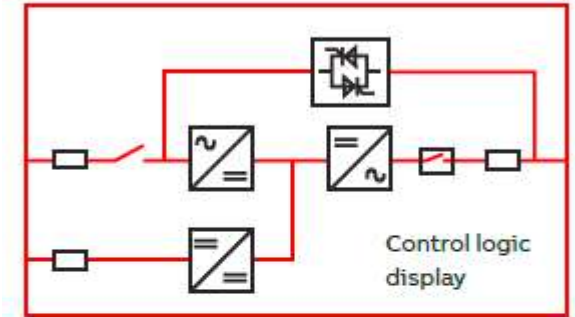
Design life of up to

**15 years**

reduces total cost of ownership

DPA™ (decentralized parallel architecture) technology

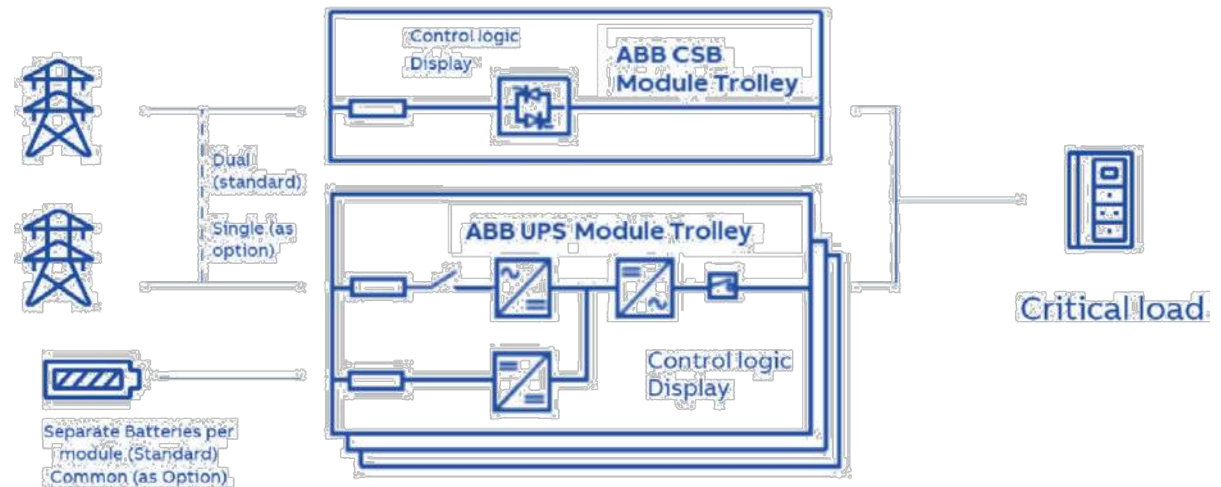
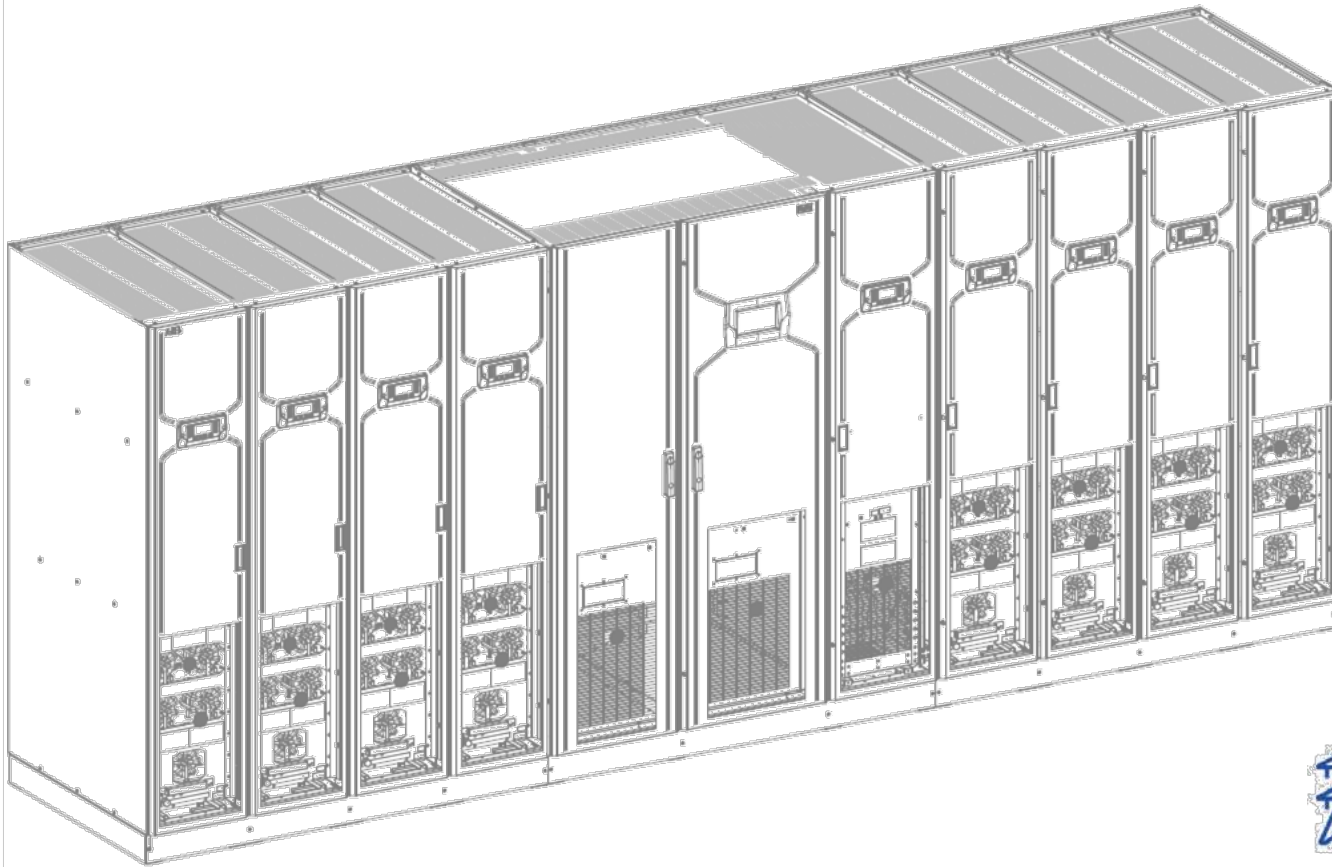
This modular UPS is based on ABB's DPA system, where every UPS module is practically its own uninterrupted power source. This ensures inherent redundancy between modules, allowing them to function independently on all levels.



# ABB MegaFlex CSB

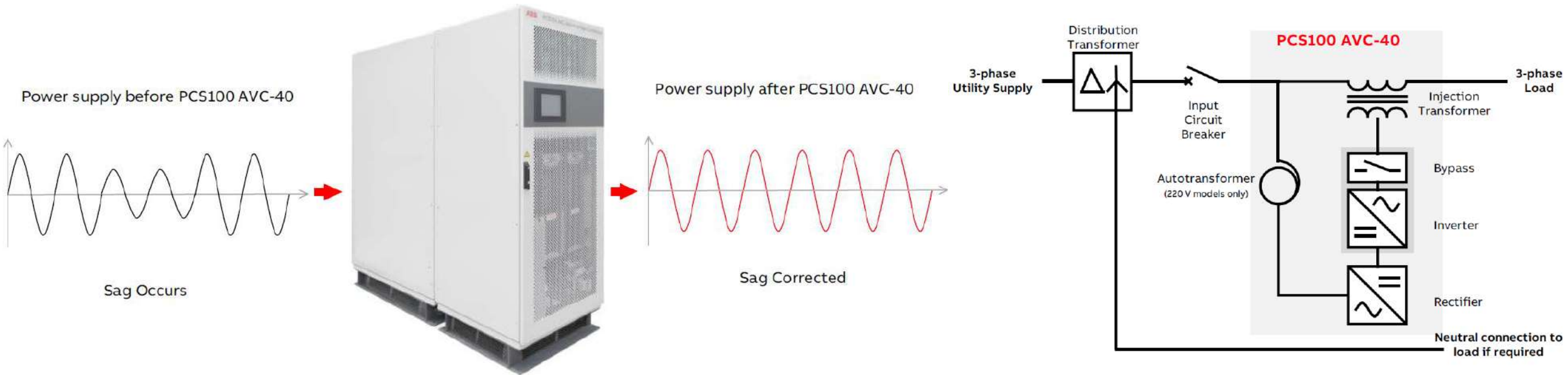
## ABB MEGAFLEX DPA CSB IEC 250-2000 kW 380/400/415 V IEC

- ✓ Up to 2,000 kW power protection in a single UPS
- ✓ Featuring superior 97.6 % UPS module efficiency and 97.4% system efficiency in double conversion mode and 99% efficiency in ECO mode.
- ✓ Readiness for parallel redundant system configurations (2N, 2(N+1), 3N/2) securing uptime and reliability.
- ✓ Xtra VFI – double conversion mode maximizes efficiency under low-load conditions.



# ABB PCS100 AVC-40 Active Voltage Conditioner

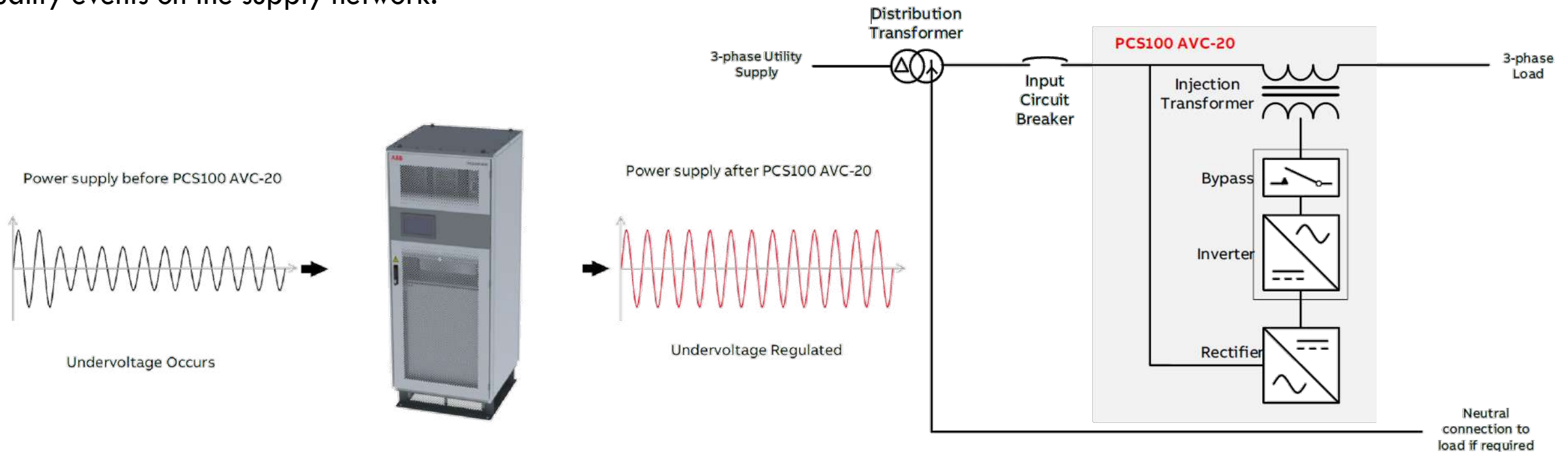
The ABB PCS100 AVC-40 is an inverter-based system that protects sensitive industrial and commercial loads from voltage disturbances, providing fast, accurate voltage sag and surge correction as well as continuous voltage regulation and load voltage compensation. The PCS100 AVC-40 has been optimally designed to provide equipment immunity from power quality events on the supply network.



# ABB PCS100 AVC-20 Active Voltage Conditioner

The PCS100 AVC-20 Active Voltage Conditioner provides effective, efficient voltage regulation where commercial or industrial processes demand a clean, readily available, and consistent supply of power.

Providing fast, accurate overvoltage and undervoltage correction as well as continuous voltage regulation and load voltage compensation, the PCS100 AVC-20 has been optimally designed to provide downstream equipment immunity from power quality events on the supply network.



# ABB WavePro-II Busways

ABB's WavePro-II busway provides a safe, reliable and cost-effective means of distributing electrical power in commercial and industrial applications. As an alternative to cable, offer a range of products to ensure safe, flexible, and reliable cost effective distribution of electrical power.

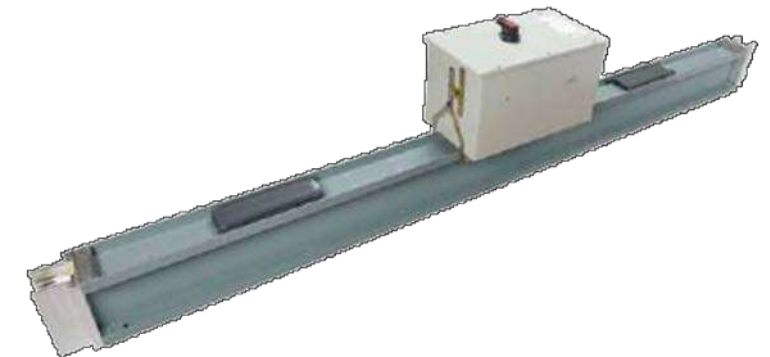
WavePro-II busway has a copper conductor design with Aluminium housing and sandwich structure that provides perfect heat dissipation performance. The low-magnetic material Aluminium housing effectively reduces the eddy current hysteresis loss.

## Key Benefits:

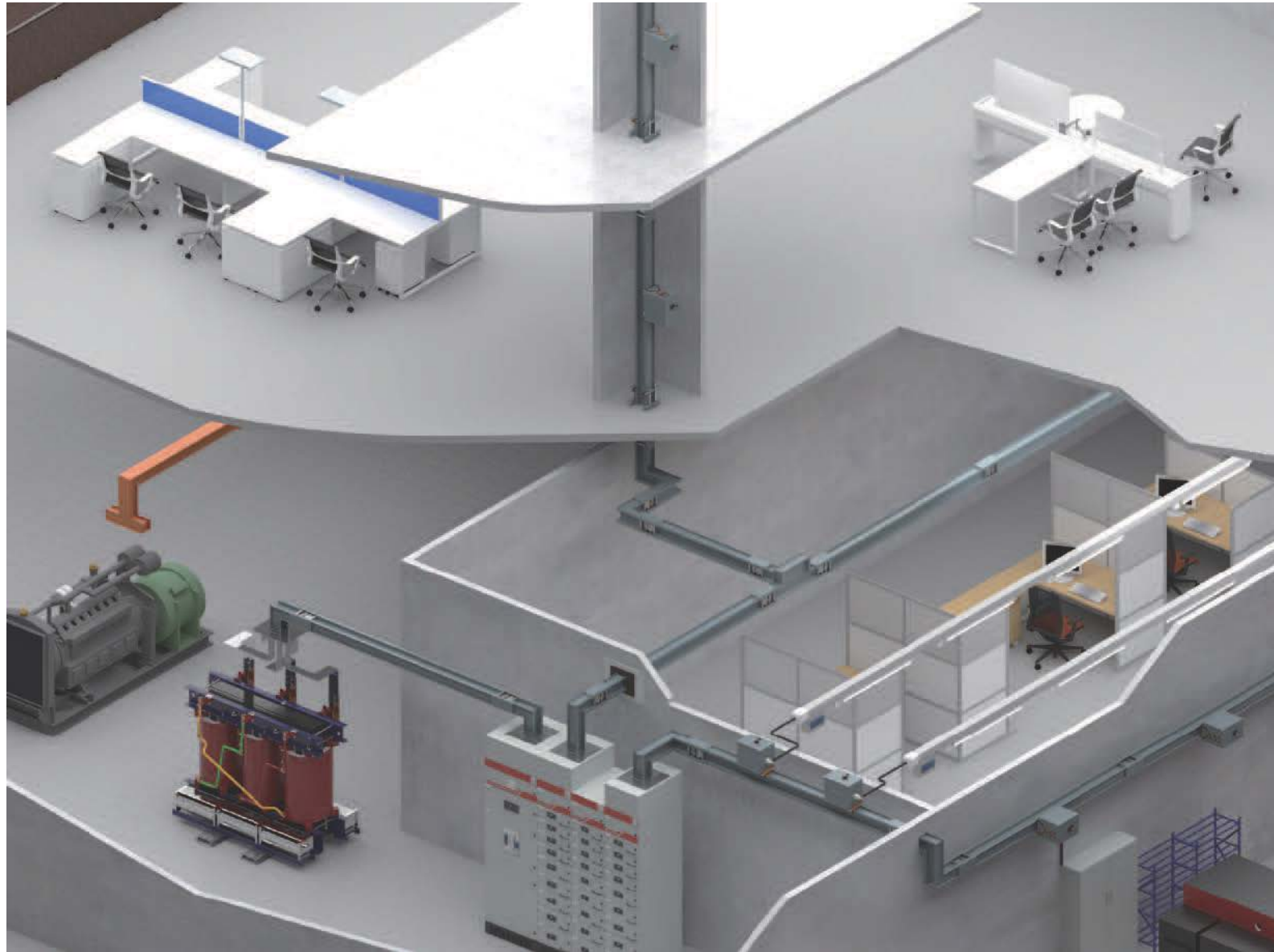
- ✓ Easy to install saving time and cost
- ✓ Compact design to reduce electrical distribution footprint
- ✓ Flexibility in the installation process and simple extension for future expansion

## Key Features:

- ✓ All Aluminium housing for reduced losses and heat dissipation.
- ✓ Unique error-proof jointing features
- ✓ Up to 5000A, 1000V, 100kA ratings
- ✓ IP41, IP54 and IP65 to suit all indoor applications
- ✓ Conforms to IEC61439 standards
- ✓ 1000-hour salt fog testing ensures reliable operation in harsh environments



# ABB WavePro Busways

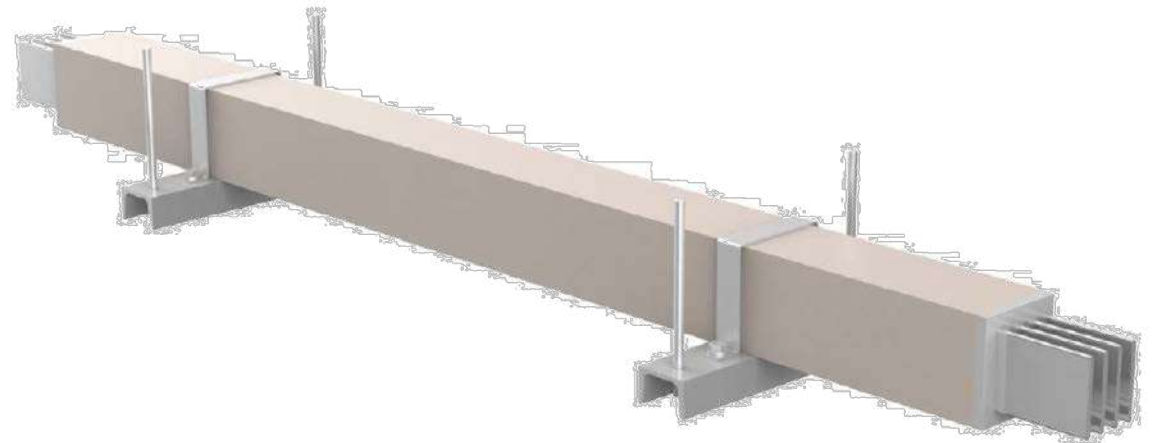


# ABB WavePro-R Busways

ABB WavePro-R Cast Resin Busway is a high performance low-voltage busbar system. The cast resin forms an external surface which provides a water tight barrier around the current carrying conductors. It's up to 5000A rated current and IP68 protection level. Insulation material is halogen free, non-toxic and non-flammable.

## Key Features:

- ✓ A unique formulation of epoxy resin that has been developed for WavePro-R busway. The resin is mixed in a sealed vacuum to ensure a consistent quality with even distribution of the mixture with no air voids
- ✓ Under controlled temperature and pressure conditions, the materials in the mold will set gradually. After curing, the result is an insulated busway that is compact, void-free, has low internal stress and a smooth outer surface
- ✓ The protection degree is up to IP68 for feeder busway which comply with the requirements of IEC 60529 degrees of protection provided by enclosures. The IP68 designed product can work under water over a certain period of time or be laid in cable conduit
- ✓ WavePro-R copper conductor is machined by polish-saw process, ensured a high quality bar end finish. This process is better than cutting and avoids secondary damage to insulation materials



# ABB WavePro-R Busways





# ABB Low Voltage Switchgear

The ABB MNS system is a low voltage switchgear assembly. Its design is verified in accordance with IEC 61439-1/-2. The consistent application of the modular principle both in electrical and mechanical design as well as the use of standardized components allows its flexible and compact design. Depending on operating and environmental conditions different design levels are available.

## **Notable system advantages with regard to design aspects:**

- ✓ Optimum protection for personnel and plant
- ✓ Design verified by testing (type-tested) including arc fault containment
- ✓ High operational reliability and availability
- ✓ Earthquake-, vibration- and shock-proof designs are available
- ✓ Maintenance-free busbar and frame construction
- ✓ Simple retrofitting procedures
- ✓ Compact, space-saving design
- ✓ Simplified project implementation utilizing ABB's dedicated engineering tool

## **Application / Industries:**

- ✓ Oil & Gas, on and off shore
- ✓ Chemical/ Petrochemical
- ✓ Pharmaceutical
- ✓ Power Stations
- ✓ Paper
- ✓ Water treatment
- ✓ Mining
- ✓ Steel
- ✓ Food
- ✓ Marine
- ✓ Data centers
- ✓ Airports
- ✓ Office buildings
- ✓ Shopping centers
- ✓ Hospitals

# ABB Low Voltage Switchgear

## General Layout:



# ABB Low Voltage Switchgear

**Plug-in Modules:** MNS offer numerous alternatives for plug-in modules. When utilizing the multifunction wall, all modules have the ability to be exchanged without de-energizing the switchgear, should maintenance procedures allow.

The flexibility of the system allows power distribution and motor control to be offered in the most economical Form 2 solution. From this as a basis, options exist for internal/ external operation and separation to Form 4.



# ABB MNS® iRPP PDU

Today's datacenters consume 100 or more times the power per square foot than an average office building. In such an environment, a single hour of downtime can cost millions of dollars. At the same time, electricity costs are on the rise and customers want to be billed only for the energy they use. Datacenter operators are under constant pressure to increase energy efficiency and pinpoint usage while maintaining 100% uptime.

ABB's MNS® iRPP (intelligent RPP) helps meet the demands of power-intensive applications, delivering unsurpassed power monitoring and distribution with up to 128 poles in a safe, reliable, space-saving footprint.

## **Product offerings include:**

- ✓ Hot swappable branch circuits
- ✓ State-of-the-art, reliable components help minimize unplanned outages, ensuring high mean time between failures (MTBF)
- ✓ Pre-outage alarms, triggered by selectable parameters for main incomer and individual branch circuit breakers
- ✓ Plug-and-play branch circuit devices that make output replacement safe, fast and easy, reducing component downtime (MTTR)
- ✓ Industrial-grade, ABB-coordinated current limiting main and branch circuit breakers virtually eliminate nuisance tripping of the main/sub-main incomer. In case of a fault only the faulty branch circuit is disconnected, leaving remaining branch circuits/IT equipment unaffected
- ✓ Detection of overload through current measurement in each branch circuit
- ✓ User-friendly phase balancing capability
- ✓ The incoming supply to each branch circuit is integrated in the plug-in socket system, eliminating incoming cabling for each branch circuit
- ✓ Branch current sensor is mounted directly on the protection device, contact-free current measurement prevents potential errors

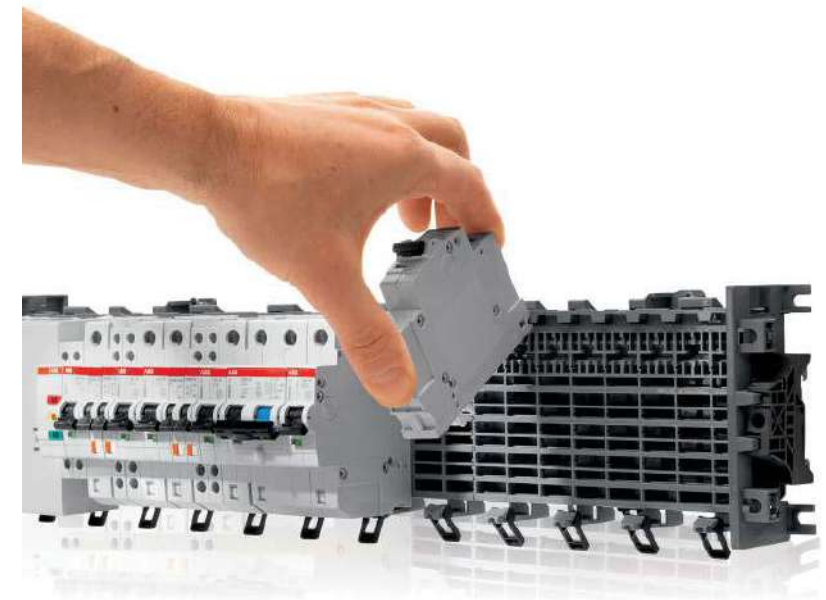
# ABB MNS® iRPP PDU



## Safety in a compact footprint

The safety of your personnel is ABB's number one priority. MNS® iRPP's design is IEC 61439-1 and -2 compliant.

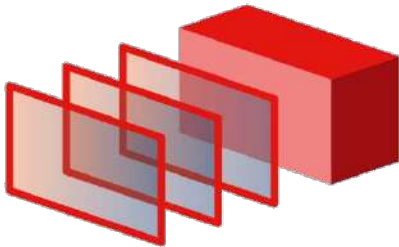
SMISSLINE TP as distribution chassis to provide IPXXB protection for the branch MCB and facilitate 'hot swap' of circuits.



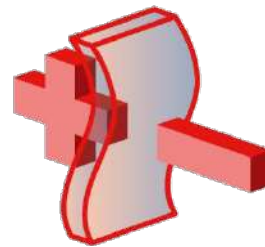
# FIAMM

For over 70 years FIAMM Energy Technology has leveraged innovation and expertise to bring the best energy backup products and solutions to the market for every business. Thanks to this mentality we can predict the market necessities, guarantee clients satisfaction and build long-lasting relationship.

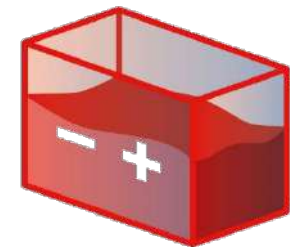
FIAMM technologies have been developed and optimized during years to meet different market needs. AGM-technology based products are maintenance free, as well as GEL-technology that enhances product behaviour even in critical conditions. Flooded products ensure high reliability thanks to a low maintenance and specific attitude to different discharge rates.



AGM (Absorbed Glass Mat) batteries offer improved performance with faster charging, longer life and safer operation. These batteries are constructed with an absorbent glass-mat separator between the negative and positive plates. Special safety valves are fitted to minimise electrolyte dry-out over the life of the battery.



GEL batteries use a jellified electrolyte between positive and negative plates to minimise dry out of the cell. Batteries with a GEL internal structure are very versatile. They offer excellent long life and perform well in a wide range of temperature conditions.



Batteries with a flooded electrolyte are extremely robust and have the longest life of lead acid accumulators. These cells are manufactured with clear *containers showing electrolyte levels* to allow periodic topping up.

# FIAMM

## **FLB - Unsurpassed High-Rate Performance AGM battery**

The FLB is one of our most popular battery and is used extensively in many applications including UPS backup power. The battery is designed to deliver the highest levels of performance. The high energy density construction in a compact design also helps to reduce costly installation space.

The exterior construction uses a Flame retardant ABS plastic to UL94 V0 (LOI greater than 28%) – this guarantees a high level of safety and superior thermal stability to avoid case bulging.

The FLB range is based on AGM VRLA technology and it is 99% recyclable at the end of life. The battery is fully maintenance-free and requires no routine topping-up of the electrolyte. The range carries a non-hazardous designation and can be transported by road, rail or air. The design has been optimized to lower self-discharge during storage.

**Range:** 26ah to 210ah (20H 1.75VPC 25°C)

### **Standards**

IEC 60896 Part 21 - VRLA methods of testing

IEC 60896 Part 22 - VRLA requirements

BS6334 / UL 94 V0 materials flammability

Eurobat “10/12 years LONG LIFE” for top terminal models

Eurobat “>12 years VER Y LONG LIFE” for front terminal models



# Service Level Agreement

It's a great milestone taken to have a power backup system to eliminate downtimes during main's interruption.

But having an uninterrupted power supply (UPS) unit is not sufficient; you need to ensure that it provides the maximum performance and prolonged lifetime as intended by the OEM.

You can only have an assurance of your equipment's performance by having a service level agreement contract (SLA) to provide regular necessary support and service. A SLA offers limitless advantages, including:

1. Non-chargeable 24/7 response to emergency failures of the equipment.
2. Provision of affordable genuine OEM replacement parts when required.
3. Prolonging the service life of the equipment therefore reducing costs of frequent replacements.
4. Reducing the operational costs involved with keeping a UPS unit, such as expensive electricity bills due to faulty equipment, frequent cost repairs, etc.
5. Eliminate possible dangers related to running un-serviced equipment, hence safeguarding the safety of users and other staff.
6. Reduced downtimes related to faults thus eliminating financial losses associated with experiencing downtimes.
7. Access to subsidized costs of UPS and power related services, such as UPS relocation, site cabling, lights installation, data center design and implementation, etc.
8. Access to a rich source of information, advice, and training from authorized OEM partners, therefore, increasing users' knowledge base on keeping the equipment within a conducive operating environment.

We cannot stress enough how a SLA will benefit your organization. As authorized OEM service and support partners, we pride ourselves on a team of highly trained and experienced experts.



# Power Quality Analysis

Power quality analysis is crucial for ensuring the stability and reliability of electrical power supply to a system or facility. It involves detecting and mitigating issues like voltage sags, surges, and harmonics to prevent equipment malfunction, inefficiencies, or damage. Effective analysis helps identify root causes, ensures compliance with standards, and optimizes energy use, leading to improved performance, reduced downtime, and extended equipment lifespan.

These checkpoints help in a comprehensive assessment of the power quality, enabling effective diagnosis and mitigation of issues that could impact electrical systems and equipment.

1. Voltage Levels
2. Harmonics
3. Flicker
4. Power Factor
5. Transients
6. Frequency Stability
7. Interruptions
8. Neutral and Grounding Issues
9. Load Analysis
10. Waveform Analysis
11. Monitoring and Logging
12. Earthing System
13. Compliance with Standards

## **Application**

- ✓ Factories
- ✓ EV Chargers
- ✓ Data Centers/Server Rooms
- ✓ PV solar systems
- ✓ Medical Imaging Equipment

# Power Quality Analysis

## **INSPECTOR from Bio-Business:**

Power Quality & Environmental Condition Monitor

### **Key Features:**

- ✓ Two Channel logging both input and output.
- ✓ Measuring up to 4000A CTs
- ✓ Single-phase / Three-phase voltage up to 1000 VAC
- ✓ Frequency range (40 – 70) Hz
- ✓ RMS amps up to 1000A
- ✓ Reporting in PDF, CSV
- ✓ Cloud Storage

### **Standards:**

- ✓ IEC 61010-1:2010+A1
- ✓ IEC-61000-4-30 standard for Class S.

### **Aggregation:**

- ✓ The 150/180-cycle time interval is aggregated from fifteen 10/12-cycle time intervals
- ✓ 10-min time interval is aggregated from 10/12-cycle time intervals
- ✓ 2-hour interval is aggregated from twelve 10-min intervals



# Symphony References



Jetlak Foods Limited

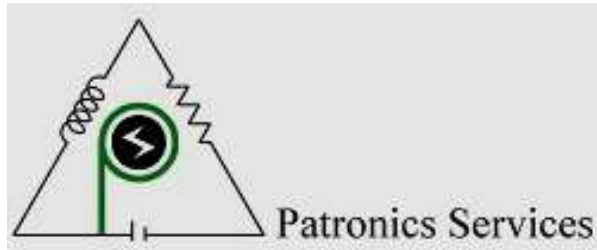


THE NAIROBI HOSPITAL

# Symphony References



DT DOBIE



aipd



# Government / Parastatal References



# Thank you!



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