More POWER by Saving ENERGY



MODERN®

Power Solution Provider

MODERN®
Power Solution Provider

ABOUT MODERN

Wenzhou Modern Group is one of the longest lasting innovators of **Power Quality** and **Energy Saving Products** in China. In an industry where companies come and go, MODERN continues to provide the reliability and continuity you need.

Experienced and Fully Customizable Solutions

As a global exporter with over **35 years** expertise in power solutions, MODERN design, prototype and manufacture custom power requirements for a wide variety of customers and markets. We offer a broad range of both standard and specialized Power Quality products from various **Voltage Stabilizers**, **Transformers/Reactors** and **Power Conditioners** to sophisticated energy saving **Frequency Converter**, **UPS**, **Power Factor Correction** and **Harmonic Mitigation** products. Our experienced staffs of engineer are available to assist you in configuring exactly the right product to meet your specifications. They stand ready to work with complex special applications or simple modifications to our standard product line.

ISO 9001:2008 Certified Processes

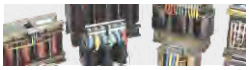
ISO Certification ensures that the best of international manufacturing processes are used for every MODERN product. Our conservative design philosophy, tightly controlled product configuration and consistent manufacturing processes ensure that every MODERN customer gets the highest quality product possible. Because we are strongly committed to quality and customer satisfaction, we test 100% of our product before it ships, and then stand behind our workmanship with industry leading warranties.

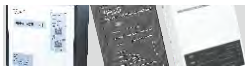
Outstanding Service

As your Power Solution Provider, we offer a full service customer support program. Beginning with your initial contact, our thorough application assistance ensures that you select the right product and options for your needs. Technical documentation is always available to help with your planning requirements. Prompt shipment is possible through our extensive inventory and efficient manufacturing processes. After shipment, we support our products with a comprehensive warranty and extensive field service program.

CE TÜVRheinland Intertek SGS RoHS SON

Contents





MODERN®
Power Solution Provider

AC Power Conditioner

Quality Power for Reliable Business

The MODERN Power Conditioner is designed to correct power quality problems like brownouts, surge, over–voltage, sags, voltage imbalance, unbalanced current, line noise etc. in the main power supply. Our Power Conditioner features voltage regulation, isolation, transient surge protection, or any combination of these in a one–box solution. Besides that, our patent variable auto transformer enabling us to make unique small dimension Power Conditioner especially for individual regulation.

Voltage Stabilizer (AVR)

AC Power Conditioner

Features

- **Extremely wide** voltage regulation range
- **Maintenance free** roller type carbon brush
- **Individual regulation** with unique small dimension
- Maximum capacity up to **5000KVA**
- High Mean time Between Failure(MTBF)
- Reliable and quiet servo motors
- Wheels mounted for easy installation
- Start up delay to prevent over current inrush
- Isolation transformer on request
- Indoor or outdoor version on request

Overview

Voltage regulation problems account for more than 90% of the power quality problems seen at most sites. The MODERN Voltage Stabilizers provide protection against mains power sags, surges and brownouts. It is ideal for geographical regions that are subject to inconsistencies in the mains supply, such as Africa, Asia and certain parts of Europe.

Each stabilizer has a wide input voltage tolerance, and has been designed to provide the ultimate reliability in hostile environments, where the quality of the mains supply cannot be guaranteed.

Applications

- BROADCAST: Regulation for broadcast transmitter sites and studios.
- COMMERCIAL: High–rise building, elevator control, large A/C chillers, lighting, other sensitive critical systems.
- INDUSTRIAL: Industrial automation, process control, CNC, factory robotics, heavy load machinery.
- MEDICAL: X–ray, CT scanner, MRI system, Radiation therapy machine, other medical imaging equipments.
- TELECOM: Mobile base stations, exchanges stations, control centers and transmission relay stations .

Voltage Stabilizer (AVR)

AC Power Conditioner

Technical Specifications

Input Voltage	Single phase 220V ± 20%, three phase: 380V ± 20% The other input voltage range and rated voltage can be custom designed.
Output Voltage	Single phase 220V ± 1–5%, three phase: 380V ± 1–5%
Supply Frequency	50/60Hz
Insulation Resistance	⩾2MΩ
Voltage Regulation Mode	Independent phase regulation for three phase
Waveform Distortion	nil
Insulation Class	H class
Method of Voltage Regulation	Regulation transformer with servomotor
Insulated Strength	Single phase: 2000V/1min without puncture Three phase: 2500V/1 min without puncture
Efficiency	>97% on full load
Overload Rating	Withstand 200% overload in short time
Protection class	IP20(indoor), outdoor type on request
Electrical safety	CE equivalent
Operational Temperature	–20°C to +45°C
Functions	Power–on style, Malfunction protection, Short–circuit protection, Lack of phase protection, Over voltage shutdown, Under voltage shutdown, Safe start

Model	Dimension(W×D×H)mm	Model	Dimension(W×D×H)mm
DBW–10KVA	300 × 720 × 1270	DBW–50KVA	300 × 800 × 1370
DBW–20KVA	300 × 720 × 1270	DBW–80KVA	300 × 800 × 1370
DBW–30KVA	300 × 720 × 1270	DBW–100KVA	300 × 800 × 1370
SBW–15KVA	300 × 720 × 1270	SBW–350KVA	500 × 1050 × 1800
SBW–20KVA	300 × 720 × 1270	SBW–400KVA	500 × 1050 × 1800
SBW–30KVA	300 × 720 × 1270	SBW–500KVA	600 × 1250 × 2000
SBW–50KVA	300 × 720 × 1270	SBW–600KVA	600 × 1250 × 2000
SBW–80KVA	300 × 800 × 1370	SBW–800KVA	600 × 1250 × 2000
SBW–100KVA	300 × 800 × 1370	SBW–1000KVA	800 × 1800 × 1900
SBW–120KVA	300 × 800 × 1370	SBW–1200KVA	1000 × 1800 × 1900
SBW–150KVA	400 × 900 × 1600	SBW–1500KVA	1000 × 1800 × 1900
SBW–180KVA	400 × 900 × 1600	SBW–2000KVA	1000 × 1800 × 1900 two cabinets
SBW–200KVA	400 × 900 × 1600	SBW–3000KVA	1000 × 1800 × 1900 two cabinets
SBW–250KVA	500 × 1050 × 1800	SBW–4000KVA	1000 × 1800 × 1900 three cabinets
SBW–300KVA	500 × 1050 × 1800	SBW–5000KVA	1000 × 1800 × 1900 four cabinets

We reserve the right to change specifications without notice due to continual improvements.

Voltage Stabilizer Selection Guide

Generally speaking, a stabilizer can be chosen on the basis of just a few elements. Once this info has been established, any other optional requests can be considered separately.

1. Number of phases

The number of phases of a stabilizer depends on the type of load:
Single–phase load: single–phase stabilizer
Combination of single–phase loads or 3–phase loads: 3–phase stabilizer or a single phase stabilizer on each load.
Three–phase load: three–phase stabilizer

2. Rated voltage

Always establish the rated voltage that is supposed to be present at the input and output of the stabilizer. In case of three–phase systems, provide with the line–to–line voltage value. Since there are different rated voltages around the world, do not assume that the local rated voltage is automatically known.
The standard three phase voltage stabilizer can operate with:
380–400–415V @ 50Hz
440–460–480V @ 60Hz

3. Input voltage range

It's key information for the choice and the design of the stabilizer. Establish the amplitude of the oscillation of the input voltage and **always keep a safety margin on such percentage**.
The standard production can include stabilizers for symmetrical and asymmetrical input variation range. If the input voltage variation goes beyond the rated range, the difference between real and

4. Rated power

Establish the power required to supply the load system and consider an extra safety margin for possible future extensions. In a voltage stabilizer, the power is expressed in KVA, whilst the load power is usually expressed in kW. Remember that the link between these two measuring units is provided by the power factor ($\cos\Phi$): KVA = kW/$\cos\Phi$.
Also, remember that:
KVA = load voltage x load current(single–phase)
KVA3–ph = $\sqrt{3}$x (phase to phase load voltage) x load current(three–phase)

5. Installation

In order to provide with the most suitable machine, it is recommended to provide with the installation conditions. It is necessary to know:

- Indoor or outdoor installation
- Installation site altitude and climatic characteristics
- Ambient temperature

Voltage Optimization Unit(Power Saver)

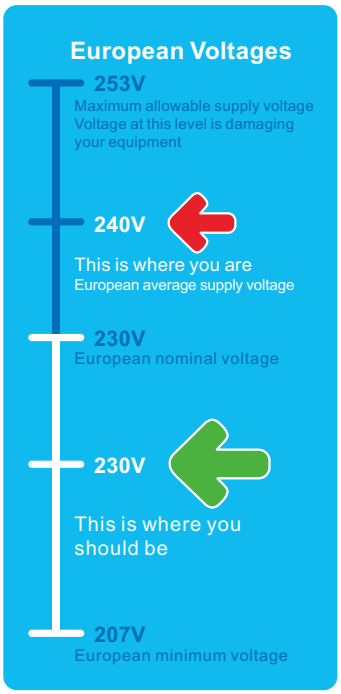
■ AC Power Conditioner

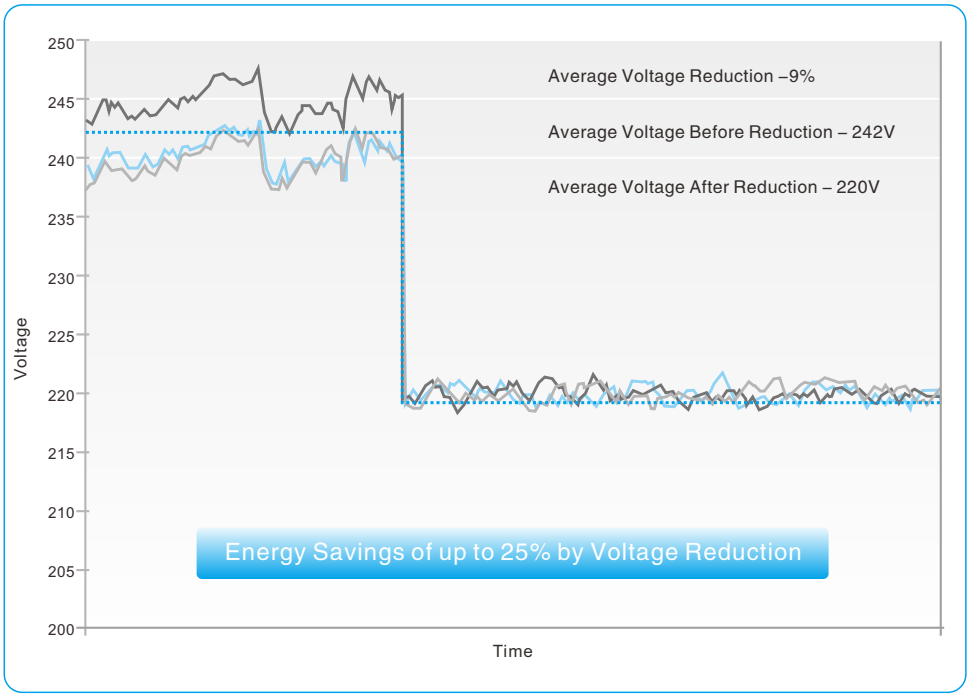
Overview

Electrical equipment is designed to accept a wide range of input voltages about its nominal design centre. However, if the actual supply is higher than necessary the equipment will consume more power than needed and in many cases, equipment life is reduced, effectively in creasing the cost of ownership.

A 230V linear appliance operated at 240V will consume approximately 9% more energy than necessary. A voltage reduction within statutory limits can produce up to 25%(subject to load) reduction in energy consumption and in addition will extend the life of many types of electrical equipments.

By reducing supply voltages to a controlled, site adjustable level, our Voltage Optimization Unit(VOU) allows equipment to operate at optimum efficiency. The result is lower overall running and ownership costs and reduced carbon footprint – each kWh of electrical energy saved is equivalent to 0.537kg of CO_2.





Voltage Optimization Unit(Power Saver)

■ AC Power Conditioner

Features and Benefits

- **Energy saving** of up to **25%**
- **Fast** return of investment (ROI) time
- **Prolonged equipment life span**
- **High** operational **efficiency**
- Adjustable configurations based on site requirements
- **GPRS** and Wireless Energy Monitors for real-time energy monitoring
- Protects equipment against failures due to over or under voltage
- Internal **no-break bypass-** allowing no power interruption during maintenance
- Single and three phase up to **5000KVA**

Specifications

Input Voltage	Phase to neutral: 230V ± 15% (195V~265V) adjustable
Output Voltage	Phase to neutral: 220V adjustable
Frequency	50/60 Hz
Voltage Regulation Mode	Independent phase regulation
Insulation Class	H class
Output Accuracy	± 1.5%
Cooling Type	Natural Air(AN)/Forced Air(AF)
Duty Type	Continuous
Protection Class	IP20(indoor), outdoor on request
Electrical Safety	CE equivalent
Operational Temperature	-20°C to +45°C
Efficiency	>98%
GPRS	Remote control and monitoring the VO unit parameters
Master Controller	Set output voltages 225V, 220V and 215V by manual
Relative Humidity	<90%

Models & Dimensions

Model	Dimension(W×D×H)mm	Model	Dimension(W×D×H)mm
SJD-15KVA	300 × 720 × 1270	SJD-350KVA	500 × 1050 × 1800
SJD-20KVA	300 × 720 × 1270	SJD-400KVA	500 × 1050 × 1800
SJD-30KVA	300 × 720 × 1270	SJD-500KVA	600 × 1250 × 2000
SJD-50KVA	300 × 720 × 1270	SJD-600KVA	600 × 1250 × 2000
SJD-80KVA	300 × 800 × 1370	SJD-800KVA	600 × 1250 × 2000
SJD-100KVA	300 × 800 × 1370	SJD-1000KVA	800 × 1800 × 1900
SJD-120KVA	300 × 800 × 1370	SJD-1200KVA	1000 × 1800 × 1900
SJD-150KVA	400 × 900 × 1600	SJD-1500KVA	1000 × 1800 × 1900
SJD-180KVA	400 × 900 × 1600	SJD-2000KVA	1000 × 1800 × 1900 two cabinets
SJD-200KVA	400 × 900 × 1600	SJD-3000KVA	1000 × 1800 × 1900 two cabinets
SJD-250KVA	500 × 1050 × 1800	SJD-4000KVA	1000 × 1800 × 1900 three cabinets
SJD-300KVA	500 × 1050 × 1800	SJD-5000KVA	1000 × 1800 × 1900 four cabinets

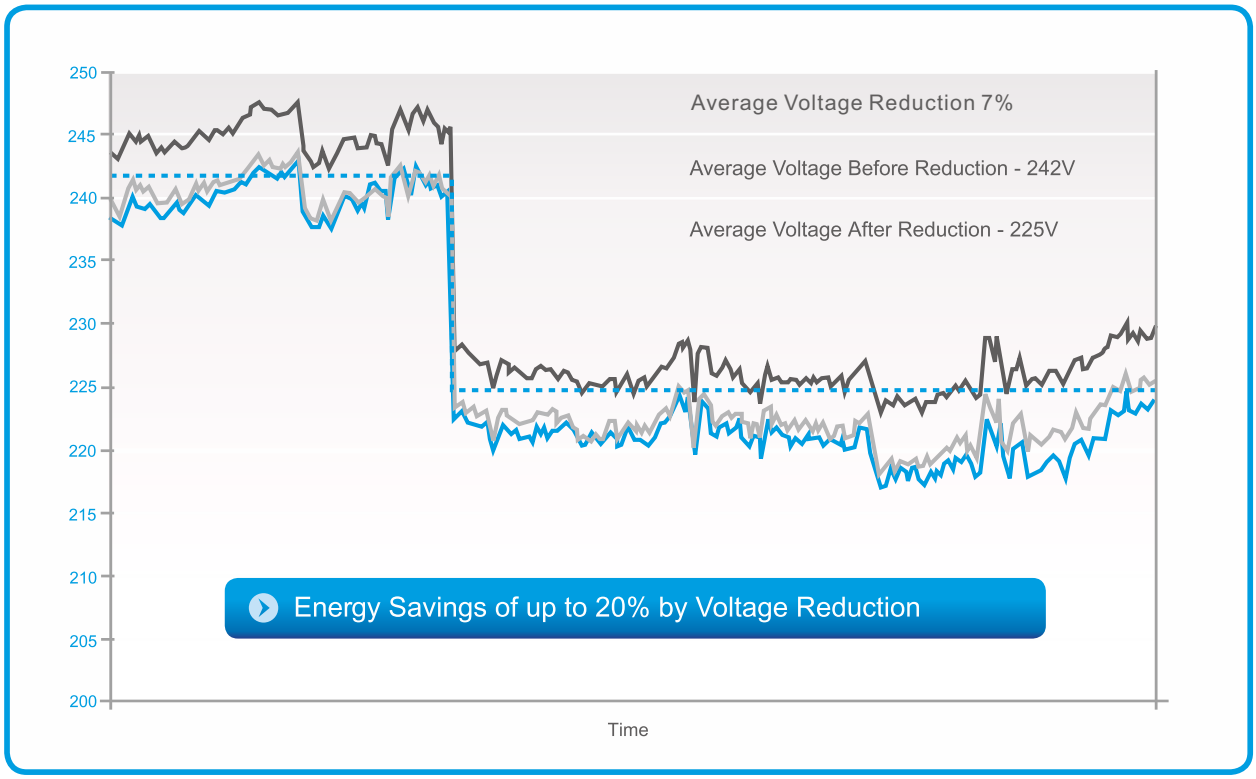
We reserve the right to change specifications without notice due to continual improvements.

Energy Saving Transformer(EST)

Overview

Many types of electrical equipment work perfectly well on a voltage lower than the standard mains supply. This is particularly true for equipment designed to operate on 380V or 400V three phase supplies where the supply is 415V. The actual power supply is higher than necessary the equipment will consume more power than needed and in many cases, equipment life is reduced, effectively increasing the cost of ownership.

Energy Saving Transformer (EST) helps organizations make some of the biggest financial savings possible on their energy bills by reducing the mains voltage used to power electrical equipment. It is a tapped auto–transformer which reduces voltage by up to 12% by a fixed amount, making it ideal for sites with a reasonably stable voltage supply. At full load the EST Voltage Optimization delivers efficiency of more than 99% which can realize energy savings of up to 20%.



Energy Saving Transformer(EST)

■ AC Power Conditioner

Features and Benefits

- **Energy saving** of up to **20%**
- **Fast** return of investment (ROI) time
- **Prolonged equipment life span**
- **High** operational **efficiency**
- Adjustable configurations based on site requirements
- Display of input and output voltage and output current
- Internal Protection against overheating
- **Optional GPRS** & **Wireless Energy Monitor** for realtime energy monitoring
- Single and three phase up to **1000KVA**

Specifications

Input Voltage	Maximum 440V three phase
Output Voltage	Maximum nominal reduction of 12%
Output Adjustment	3 fixed taps of 6%, 8% & 10% (other upon request)
Supply Frequency	50/60 Hz
Waveform Distortion	None
Insulation Class	H class
Duty Type	Continuous
Cooling Type	Natural Air(AN)/Forced Air(AF)
Efficiency	>99% at full load
Electrical Safety	CE equivalent
Operation Temperature	−20 ℃ to +45 ℃
Relative Humidity	<90% non−condensing
Enclosure	IP20(indoor), outdoor on request
GPRS	Remote control and monitoring the VO unit parameters

Models & Dimensions

Model	Dimension(W×D×H)mm	Model	Dimension(W×D×H)mm
EST−20KVA	300 × 700 × 600	EST−225KVA	400 × 800 × 800
EST−30KVA	300 × 700 × 600	EST−250KVA	500 × 1000 × 900
EST−50KVA	300 × 700 × 600	EST−300KVA	500 × 1000 × 900
EST−75KVA	300 × 700 × 600	EST−350KVA	500 × 1000 × 900
EST−100KVA	300 × 700 × 600	EST−400KVA	500 × 1000 × 900
EST−125KVA	400 × 800 × 800	EST−500KVA	500 × 1000 × 900
EST−150KVA	400 × 800 × 800	EST−600KVA	500 × 1000 × 900
EST−175KVA	400 × 800 × 800	EST−800KVA	600 × 1200 × 1000
EST−200KVA	400 × 800 × 800	EST−1000KVA	600 × 1200 × 1000

We reserve the right to change specifications without notice due to continual improvements.

Power Saver for Lighting

AC Power Conditioner

Overview

The energy consumption in the lighting sector, whether in public lighting or private users, constitutes a high percentage of the total energy used. In view of rising energy cost, the intelligent use of electricity is becoming increasingly important and optimization therefore an operational necessity.

DZG series Power Saver is a sustainable system which reduces electricity cost sustainably without affecting the performance and reliability of the equipment in any way. The Power Saver starts up by automatically executing the ignition cycle of the lamps in a time programmable by the user. After this, the Power Saver gradually reaches the preset rated voltage value. When, for various reasons, the peak lighting level is no longer needed, the Power Saver reduces the voltage powering the lamps, thus achieving a significant energy saving up to 50%. The transitions between the various operating conditions are so slow that the change in illumination is not perceptible to users.

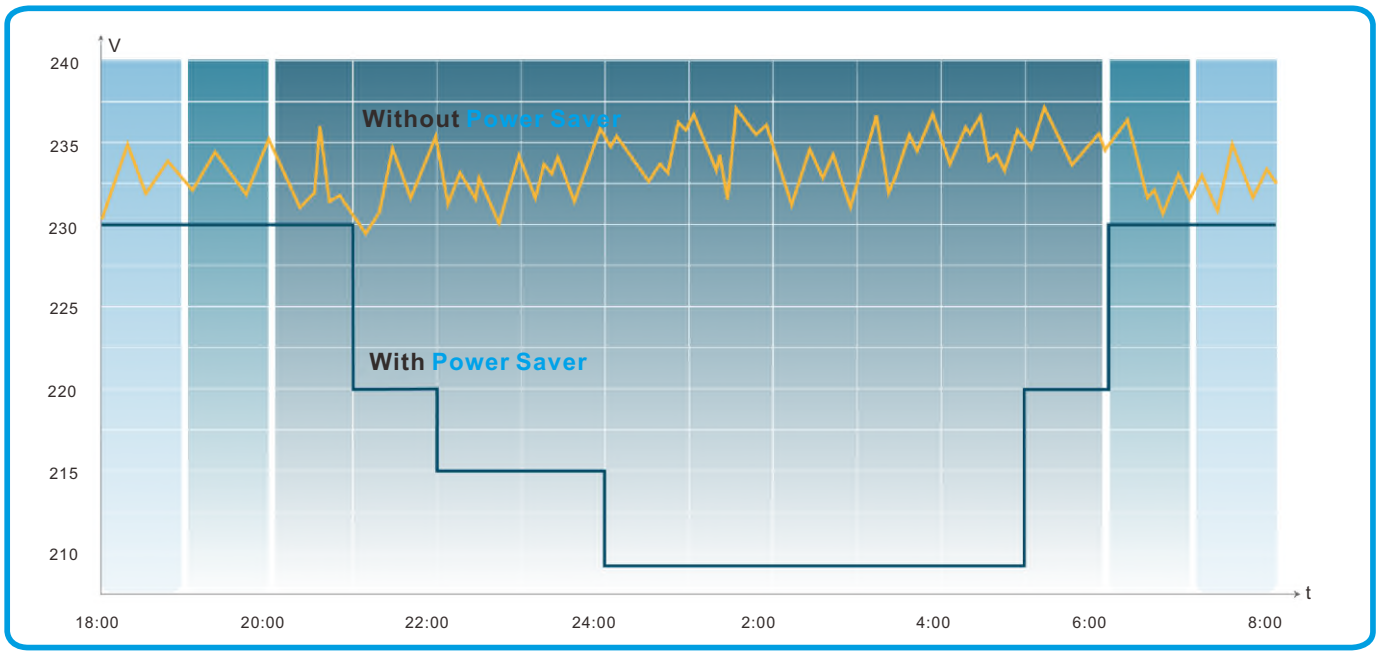


Fig. 1: Voltage curve from 6:00 p.m. to 8:00 a.m.

Power Saver for Lighting

■ AC Power Conditioner

Features and Benefits

- **Energy saving** of up to **50%**
- **Fast** return of investment (ROI) time
- **Prolonged equipment life span**
- **High** operational **efficiency**
- Individual adaptation voltage level by programming of time curves
- Automatic bypass switch protects against lighting outages
- Easy integration in existing systems
- Different types of lamps can operated together in one system
- PLC controlled
- Single and three phase up to **1000KVA**

Specifications

Input Voltage	400 ± 5% other voltage on request
Output Voltage	Maximum nominal reduction of 17%
Output Adjustment	4 steps of – 5%, –8% ,–13%,–17% (other upon request)
Supply Frequency	50/60 Hz
Waveform Distortion	None
Insulation Class	H class
Duty Type	Continuous
Cooling Type	Natural Air(AN)/Forced Air(AF)
Efficiency	>99% at full load
Electrical Safety	CE equivalent
Operation Temperature	–20 ℃ to +45 ℃
Relative Humidity	<90% non–condensing
Enclosure	IP20(indoor), outdoor on request
GPRS(Optional)	Remote control and monitoring the VO unit parameters

Models & Dimensions

Model	Dimension(W×D×H)mm	Model	Dimension(W×D×H)mm
DZG–20KVA	300 × 600 × 700	DZG–225KVA	400 × 800 × 800
DZG–30KVA	300 × 600 × 700	DZG–250KVA	500 × 900 × 1000
DZG–50KVA	300 × 600 × 700	DZG–300KVA	500 × 900 × 1000
DZG–75KVA	300 × 600 × 700	DZG–350KVA	500 × 900 × 1000
DZG–100KVA	300 × 600 × 700	DZG–400KVA	500 × 900 × 1000
DZG–125KVA	400 × 800 × 800	DZG–500KVA	500 × 900 × 1000
DZG–150KVA	400 × 800 × 800	DZG–600KVA	500 × 900 × 1000
DZG–175KVA	400 × 800 × 800	DZG–800KVA	600 × 1000 × 1200
DZG–200KVA	400 × 800 × 800	DZG–1000KVA	600 × 1000 × 1200

We reserve the right to change specifications without notice due to continual improvements.

Power Conditioner For Household

■ AC Power Conditioner

Features

- Excellent power supply with full protection
- Wall mounted installation, effective utilization of space
- High precision, ⩽3%
- Aesthetic appearance

Applications

- Home appliances
- Testing equipments
- Medical instruments
- Office equipment
- Science research instruments
- Lighting system

Overview

It is known that the working voltage range of household electric appliance is within 220V ± 10%, But in reality, the grid power supply would fall to a voltage as low as a value between 140V to 170V during peak hours and it could increase to as high as above 240V on some occasions. This kind of wide voltage fluctuation may affect the normal function of household electric appliance and other electronic devices, or even cause some damage to them.

Adopting advanced digital control system, our JAJA series energy saving household use voltage stabilizer features high precision, wide input voltage range as well as high reliability, low power loss and cost–effective. It is an ideal choice for protecting household and office electric appliances etc.

Technical Specifications

Model	JAJA						
Capacity(KVA)	1KVA	2KVA	3KVA	5KVA	7.5KVA	10KVA	15KVA
Input Voltage	Single phase 120–270V						
Output Voltage	Single phase 220V ± 5%						
Efficiency	⩾98% on full load						
Frequency	50/60Hz						
Over Voltage Protection	Output voltage ⩾245V						
Under Voltage Protection	Output voltage ⩽180V						
Start Delay Protection	6s						
Dimension(W×H×D)mm	225 × 330 × 150		240 × 410 × 190		280 × 480 × 240		
Weight(kg)	12	15	19	27	38	42	50

We reserve the right to change specifications without notice due to continual improvements.

Constant Voltage Transformer(CVT)

■ AC Power Conditioner

Features

- Galvanic isolation
- High common and normal mode noise attenuation
- Sag, surge and brownout protection
- Sine wave output (regardless of input waveform)
- Low installation heat output and running costs (maintenance free)
- High Mean Time Between Failure (MTBF)
- Easy to install

Applications

- Process control
- Automation
- Computer system
- Broadcasting
- Medical
- Air, rail, ship

Overview

Constant Voltage Transformers(CVT) are ideal maintenance free solutions for loads that can suffer erratic operation or be damaged by electrical noise(common or series mode), local transient, mains power sags, surges and brownouts because of its resonant property.

When faced with an extreme transient such as a local lighting strike, the CVT will present a low impedance to the mains protecting both itself and any connected loads. The ferro–resonant transformer technology ensures that CVT will generate a perfect sine wave output even when fed from square or quasi–square wave sources. A CVT is also the most efficient way to drive a switched mode power supply(SMPS), and provides harmonic buffering.

Technical Specifications

Model	T J A							
Capacity(KVA)	0.5KVA	1KVA	2KVA	3KVA	5KVA	7.5KVA	10KVA	15KVA
Input Voltage	Single phase 220 ± 30%(154–286V)							
Output Voltage	Single phase 220V ± 1–3%							
Efficiency	⩾90% on full load							
Frequency	50/60Hz							
Dimension(W×H×D)mm	140×210×360	220×320×390	320×680×450		320×710×520	400×820×560	460×920×600	
Weight(kg)	18	36	70	92	136	220	270	320

We reserve the right to change specifications without notice due to continual improvements.

Voltage Regulator

AC Power Conditioner

Features

- Single and three phase configurations
- Patented auto variable transformer system
- Unique roller carbon brush design
- Reliable and quiet servo motor
- Stepless regulation from 0–100%
- Step–up available to 15% rated input voltage
- Short time overload capability
- Negligible output distortion

Overview

Column–Type Variable Transformer based voltage regulator, with single and three phase units available, it provides a continuously adjustable output voltage for inputs from 220 to 600V. Utilizes a unique roller carbon brush design to create the most dependable and maintenance–free regulator available.

Applications

- Scientific research
- Telecom and testing equipment
- Industrial ancillary facilities
- Meet practically any need for varying voltage
- Provide dependable and precise regulation for many testing applications

Main Technical Parameter

Model	TDGZ single phase	TDGZ three phase
Input Voltage	220 V	380 V
Output Voltage	0–250V	0–430V
Capacity	15–150KVA	25–200KVA
Frequency	50/60Hz	

Other input/output voltage, capacity can be custom designed according to special requirements.

Main part: variable transformer

Power Conditioner For Testing

■ AC Power Conditioner

Features

- Extreme wide output regulated voltage range, automatic stable after voltage setting
- Regulate voltage for each phase to solve three phase voltage unbalance, and the output voltage can be regulated freely within working voltage range
- Accurate meters indicating phase to phase voltage and current
- No phase shift, no added voltage wave distortion
- High reliability, can withstand over load for short time
- Low noise, high efficiency
- Low cost of ownership due to efficiency and virtually maintenance free operation
- Isolation output different voltage and stimulate voltages for different countries on request

Overview

Many tests like product aging & safe testing, EMC testing, QC testing etc. conducted at lab, product testing and R&D institute, factory testing department will need different voltages for different loads, a power source with different output voltage is a best solution.

SBW–CS series Power Conditioner for Testing provide voltage control for any electrical testing applications. It is custom engineered test sets offered in standard, modular format or can be customized to your exacting specifications. We offer a range of testing modules for OEMs, quality control, circuit breaker testing, HVAC, motor test and production, white goods, engineering/quality assurance labs, and product life cycle testing.

Technical Parameters

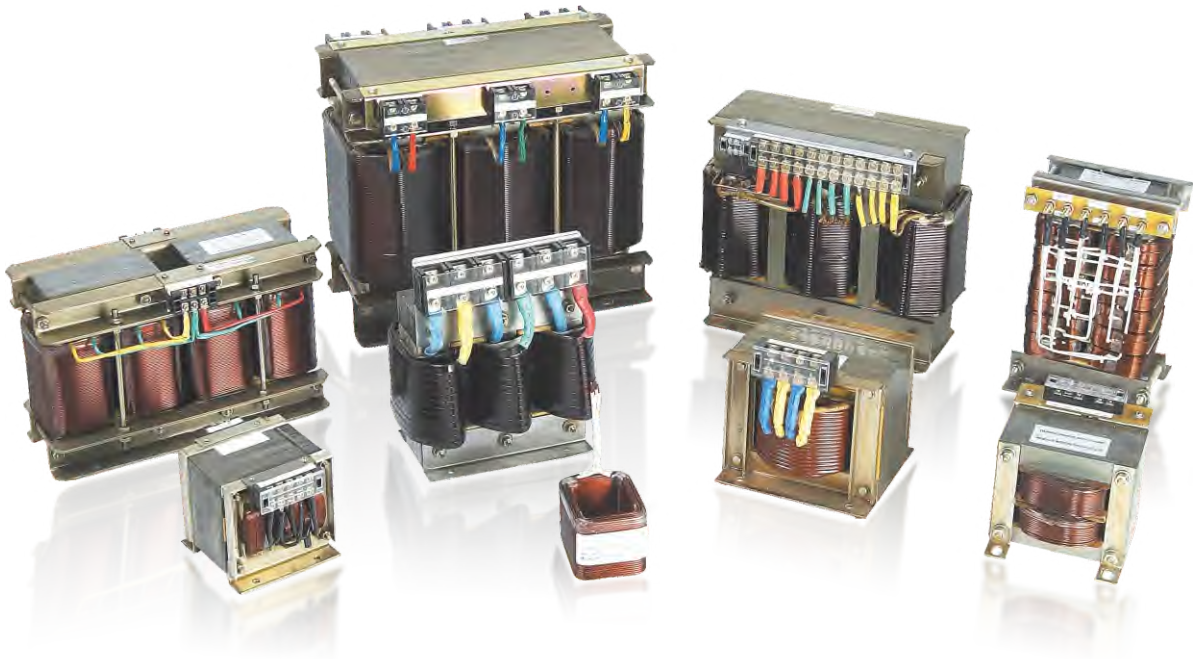
- Input voltage range: Three phase 380V ± 10 ~ 20%
- Output voltage range: Three phase 310V ~ 500V
- Accuracy: ± 1% ~ ± 5% selectable
- Capacity: 10KVA ~ 1000KVA
- Efficiency: ⩾98%
- Input and output voltage range and rating can be custom designed

MODERN
Power Solution Provider

Magnetic Components

Safe, Reliable and Energy-efficient

Our S(D)G series dry type, iron core Transformers and Reactors adopt high quality low loss silicon sheet and arranged non–bobbin coil winding technology, and we apply vacuum pressure impregnating(VPI) process and solidify baking process to achieve insulation class H or C. Our transformers are widely used on any occasions where voltage is below 1000V and capacity up to 2000KVA, and equipments which require voltage to step up or down. Our Reactors are used in a large variety of applications and in many industrial activities from phase–shifting to harmonic suppression.



Transformers

Overview

Three phase or single phase dry–type low voltage (LV) transformers are used as isolation transformers or to adjust the voltage level in the LV distribution grid. We have advanced technology and imported equipments and made of high quality silicon sheet, copper/aluminum enamel insulated wire(or high quality foil), insulation material and optimal design. Applied with arranged non–bobbin coil winding technology and Vacuum Pressure Impregnation(VPI) process, the transformer insulation class up to H or C.

Features

- Low losses
- Low weight and compact dimensions
- Non–flammable and non–explosive
- IP21 enclosures (optional)
- With air cooling based on natural convection

Type

- Isolation Transformers
- Auto Transformers
- Harmonic Mitigating Transformers
- K–Factor Transformers
- Variable Transformers
- Buck & Boost Transformers

Application

Our low voltage transformers are widely used in industrial applications and in commercial and public buildings. They are also used for adjusting the voltage from 690 V to 400 V or as isolation transformers with a voltage ratio of 1:1, providing galvanic separation.Dedicated products are available for various applications:

- Wind or solar
- Transportation (ie, marine or railways)
- Uninterruptible power supply (UPS)
- Chemical, oil and gas industry
- Motor drive
- Converters

Ratings

Number of phase	3 or 1
Power Rating	1–1000KVA(others on request)
Primary/secondary voltage	220,230,380,400,600,690(others on request)
Frequency	50, 60, 400Hz

Standards

All units are built in accordance with IEC and EN.

The specifications of the transformers as input and output, capacity, voltage, current, frequency (40~650Hz), temperature rise, insulation class and noise and so on can be custom designed.

Transformer Selection Guide

When a customer calls you for help in the selection of a transformer these are steps you need to know:

Step 1: Determine the KVA, Amperes or wattage required by the load.

Determine the KVA, Amperes or wattage required by the load. Transformer size is determined by the KVA of the load. Be sure to add the total number of pieces of equipment involved. The following formulas may be used to calculate the KVA, (VA) or the Amperes required, for either single or three phase installations:

Single phase

$$\text{KVA (VA)} = \frac{\text{Volts} \times \text{Amps}}{1000}$$

$$\text{AMPS} = \frac{\text{KVA(VA)} \times 1000}{\text{Volts}}$$

Three phase

$$\text{KVA (VA)} = \frac{1.732 \times \text{Volts} \times \text{Amps}}{1000}$$

$$\text{AMPS} = \frac{\text{KVA(VA)} \times 1000}{1.732 \times \text{Volts}}$$

KVA stands for kilovolt ampere or thousand volt ampere. Smaller units 500 VA = 0.5 KVA. Single–phase has two lines of AC power. Three–phase has three lines of AC power, with each line 120 degrees out of phase with the other two.

Important: *The KVA of the transformer should be equal to or greater than the KVA of the load to handle current requirements and to account for future expansion. Unbalanced loads can severely de-rate or even overload a transformer.*

Step 2: Find out the supply voltage

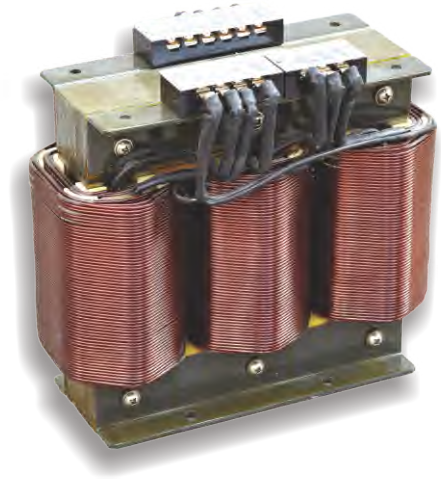
Find out what the supply voltage (or available voltage) is to connect to the primary of the transformer. Line voltage, or primary voltage, is the available power from your utility or local power source.

Step 3: Determine the voltage required by the load

Determine the voltage required by the load. This is the secondary voltage or output voltage of the transformer. Load voltage, or secondary voltage, is the voltage required to operate the load (lights, motor and other devices).

Step 4: What is the frequency of the supply source?

What is the frequency of the supply source and of the equipment (normally 60 or 50 hertz)? The frequency of the supply source and the load must be the same.



Reactors

Overview

Reactors, also known as inductors or chokes, play an important role to control electricity increases constantly, depending on their duty in the electrical circuit. The presence and the utilization of such components is often neglected and they are considered minor components, however, their role is fundamental in order to achieve maximum functionality and efficiency of an electrical system.

The basic inductor is a simple wound conductor in which current flows, but in today's industry it can reach considerable dimensions and complexity. It is a passive component and its main features are to give reluctance to changes in current or to modify phase shifts between voltage and current. Its characteristic (inductance) is measured in Henry (H), mostly as mH or uH.

Features

- The iron core is made of top quality silicon sheet, between the sheets; high insulation paint is used to bond them together. Special process guarantees the noise level less than 55DB.
- Winding and wire are insulated by NOMEX(C insulation level) produced by DU PONT US.
- Winding will be painted by vacuum pressure immersion process, after high temperature cure, it will be featured as high mechanical strength, and high ability to resist short circuit shock.
- The reactor is featured with moisture proof, dustproof, pollution proof, thermo stability, fireproof, non–electromagnetic pollution.
- Reactor ends are processed by work piece which is integral, maintenance free and easy reliable installation.

Applications

- Power electronics
- Reactive power compensation
- Harmonic filtering
- Motor starting
- Short–circuit limiting
- Neutral grounding

Type

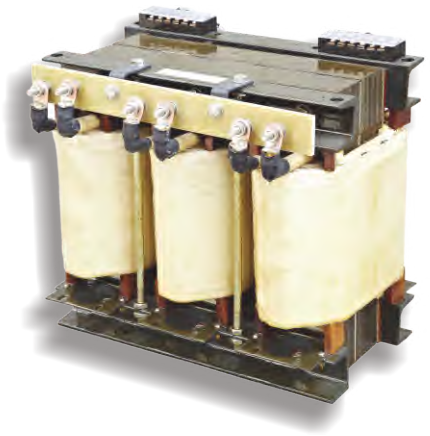
- Smoothing Reactors
- Current Limiting reactors
- Harmonic Filter Reactors
- Series Reactors
- Starting Reactors
- Input/Output Reactors

Ratings

Power Rating	on type and technology
Voltage	below 1500V(others on request)
Insulation	Class H or C
Main use	General industries, utilities and power electronics

Standards

All units are built in accordance with IEC and EN.



MODERN®
Power Solution Provider

INDUSTRIAL POWER SUPPLY

Maximize Your Availability

In today's global marketplace, it is often necessary to convert power for equipment designed for use in environments where foreign voltages and frequencies are present. MODERN's Frequency Converters are the economical answer to operating your overseas equipment reliably using your available grid power. And also to secure continuance of business critical processes across IT applications, MODERN's UPS will guarantee continuous flow of clean power data centers and other critical applications no matter what happens to the utility power.

Frequency Converter

Features

- Frequency Conversion
- Voltage Conversion
- Special Phase Conversion:
  1 Phase To 3 Phase;
  3 Phase To 1 Phase
- Well protection and fault alarm function
- Complete Electrical Line Isolation
- True Sine Wave Output
- Quick response time <20ms
- High accurate output voltage and frequency

Overview

MODERN Frequency Converters are available in several different configurations to suit any frequency conversion need. Inputs and outputs are available in any combination of 50, 60, and 400 Hz. Frequency converters are very commonly used to test products designed for use in a different country before it is shipped. Using a frequency converter allows you to precisely emulate the grid power of your target environment in a controlled laboratory setting. They may also be employed when powering machinery from overseas.

Specifications

Circuit mode	IGBT/PWM pulse width adjustment mode
Wire system	3–phase–5–wire–system
Input voltage	Phase to phase: 265–495V
Input frequency	30–70Hz
Output voltage	Phase to phase: 380V
Output frequency	50/60Hz, 400Hz optional
Frequency stability	⩽ ± 0.01%
Insulation resistance	Above 500Vdc 20MΩ
Pressure endurance insulation	1800Vac/5Ma/1minute
Cooling device	Compulsive fan cooling
Noise	<55dB
Wave deformation	⩽2%
Reaction time	Dynamic response quick, when load 0–100% change, the steady–state response time <20ms
Efficiency	Efficiency more than 90%, be suit for wide–load, can be for the inductive, capacitive, resistive, and any mixed loads
Protective device	The importation of non–fuse switch, without output fuse switch, the electronic circuit to detect over–voltage express .Over voltage, over current, over temperature, over load, short circuit, and automatic alarm
Display	Digital frequency meter, Digital voltage meter, Digital current meter, Digital power/PF meter
Ambient temperature operating	–10°C to +50°C
Altitude	<1500m
Relative humidity	<90%

Uninterruptible Power Supply(UPS)

■ Industrial Power Supply

Features

- Constant high efficiency at full and partial load
- Galvanic isolation which provide additional critical power protection
- Municipal electric power supply with DC inverter power 0 conversion delay
- Adopt DSP digital control technology intelligent detection and monitoring function
- High-speed IGBT drive inverter
- No fountain contact and RS232/485 monitoring

Overview

In the event of an AC power failure, the UPS will automatically transfer to battery power and continue to provide power without any interruption for the full amount of time you select. When power returns, the UPS will automatically recharge the batteries for the next unexpected power outage or disturbance.

MODERN BUD Series Industrial UPS advantage lies in ultra-high-power design; single maximum power 750kVA, and in parallel multi-machine power up to 3000kVA, providing critical power protection for a range of applications.

Technical Specifications

Model		BUD220-3050	BUD220-3100	BUD220-3150	BUD220-3300	BUD220-3500	BUD220-31000	BUD220-32000
DC Input	Rated Voltage (V)	220						
	Rated Current (A)	25.3	49.4	74	148	247	494	988
	Input Voltage Range (V)	180 ~ 300						
AC Input	Voltage Range (V)	220 ± 15%		380 ± 15% (3 phase 4 wires)				
	Input Frequency (Hz)	45 ~ 60						
	Power Factor (PF)	0.9						
Bypass Input	Input Voltage Range (V)	380 ± 15% (3 phase 4 wires)						
	Rated Input Current (A)	7.6	15.2	22.8	45.6	76	152	304
AC Output	Rated Capacity (KVA)	5	10	15	30	50	100	200
	Output Current(A)	7.6	15.2	22.8	45.6	76	152	304
	Output Voltage (V)	380 ± 3%, (3 phase 4 wires)						
	Frequency (Hz)	50 ± 0.05						
	Waveform Deviation Factor	⩽ 5%						
	Three-Phase load	⩽ 100%						
	Dynamic Response	5%						
	Power Factor (PF)	0.8						
	Load ability	150%,10 seconds						
	Crest Factor (CF)	3:1						
	Inverted Efficiency	92%						
Machine Dimension	Width × Depth × Height(mm)	550 × 485 × 200		800 × 600 × 2260 (1 or 2 cabinet)			1000 × 800 × 2260 (1 or 2 cabinet)	
Reference Weight (Kg)		90	200	250	450	620	950	2300
Fault dry contact		Inverter abnormal、AC abnormal、battry abnormal、load abnormal、UPS abnormal						
Protection function		Input reversing、input low-voltage、output over-load protection、output short-circuit , over-heat						

We reserve the right to change specifications without notice due to continual improvements

UPS Maintenance Bypass Cabinet

UPS Applications

- Computer and data centers
- Broadcasting and telecommunication
- Industrial process manufacturing
- Medical equipment and healthcare facilities
- Financial systems and services
- Any areas needing critical power management

Overview

The MODERN UPS Maintenance Bypass Cabinet is the ultimate in tailored solutions for power distribution, maintenance bypass, and voltage transformation in one easy to implement cabinet.
It is designed to allow the transfer of power to full system bypass to perform service, testing and maintenance without interrupting power to the critical load. It can be as stand–alone unit that can be used with virtually any UPS.

Features

- Unmatched system flexibility
- Multiple voltage configurations
- Input isolation transformer with high efficiency
- Integrated maintenance bypass
- Integrated power distribution
- Free–standing, easy–access

Applications

- Broadcast
- Computer Networks
- Retail
- Robotics
- Printing
- Medical/Pharmaceuticals
- Paper Production
- Food Processing

MODERN®
Power Solution Provider

POWER QUALITY SOLUTIONS

More Power by Saving Energy

Nowadays, more and more non–linear loads are widely used to lower energy cost, in the mean time they could cause unexpected power quality effects like low power factor, harmonics, and neutral current more than line current etc. MODERN can provide a full range of power quality solutions to help you improve energy efficiency without unwanted side effects. By power factor correction, harmonic mitigation and neutral current elimination, your return of investment(ROI) is quick and healthy.

Harmonic Filter

Features

- Voltage ratings from 208 to 480vac
- 25 to 300 amp ratings
- Cancels 3rd to 51st orders
- Graphics display and analyzer
- Individual or parallel systems for added capacity
- NEMA 1, 12, 3R enclosure ratings

Benefits

- Immediately improves electrical system efficiency
- Reduces operations and maintenance costs
- Quick and easy installation, with virtually no downtime
- No need for complex site analysis
- Dynamically corrects a wide spectrum of harmonic orders

Applications

- Computers and Peripherals
- Variable Frequency Drives (VFDs)
- Welding Machines
- Uninterruptible Power Supplies
- Frequency Converters
- DC Power Systems/Chargers

Overview

With other harmonic filtering solutions, expensive and time consuming site data collection, power quality surveys and computer generated studies are usually needed. Most harmonic filters are designed to accommodate just one or a few harmonic orders. The MODERN Active Power Filter(APF) corrects a full range of harmonic orders, and will not create a resonance condition with existing equipment.

The MODERN APF provides the simplest and most effective means to mitigate harmonics, reduce process–related voltage fluctuations, and improve equipment operating life and system capacity.

Power Factor Correction(PFC)

Features

- Voltage Ratings from 240 to 600 VAC
- Harmonic Filtering for Optimum Power Quality
- Small Footprint with Maximum KVAR
- Standard Off–The–Shelf Units and Specification Designed
- Upgradeable Modular Construction
- Stand–Alone, Multi–Unit and Integrated Systems

Benefits

- Lower Utility Bills
- Reduced Operating Costs
- Efficient Use of Utility Power
- Quick ROI and Continued Savings Throughout the Life of the Equipment
- Easy to Install
- Minimal Maintenance Requirements

Applications

- Automotive
- Food & Beverages
- Minerals & Metals
- Water Treatment
- Oil & Gas
- Industrial Manufacturing

Overview

Reactive Power Compensation, or power factor correction(PFC), can lower your utility bills starting on the day the equipment is installed. Installation is fast and easy, minimizing downtime. After the equipment is installed, you should notice an immediate improvement in power factor, more efficient use of your power system's load, and of course, monthly savings in your electric utility bills.

The traditional way for PFC is switch on the capacitors which are in parallel connection. But if load is non–liner one, which produce harmonics, resulting in the damage of capacitors and the PFC cabinet cannot work. The above problem can be solved by L–C(reactance and capacitor) type filter. It is applied with capacitor branch series connection with reactors. L–C type not only can avoid the amplification of harmonic current but also improve power factor, thus reducing energy losses on the transmission line and save energy.

Neutral current Eliminator(NCE)

Features

- Diverts the flow of harmonic current away from neutral and upstream transformer
- Reduce high neutral current and neutral–ground voltage
- Reduce loss and operating temperature in upstream transformer
- Save energy by reducing harmonic losses and improve power factor
- Prevent hidden dangers caused by harmonics
- Easy installation, high reli–able and maintenance free

Applications

- Big commercial LED monitor, LED lights
- Commercial and office buildings
- Data center, shopping malls
- Industrial factories
- Any places that have high neutral current issues addressed by harmonics

Overview

Due to wide use of non–linear loads such as computer, variable speed drives, UPS system, energy saving lamps etc, and massive 3rd harmonics is being produced. The harmonics not only pollutes the network, making power quality worse but also affects the normal function of sensitive electronic equipment. Besides, 3rd harmonic is zero sequence harmonic, which would superimpose on the neutral line, and eventually have over current risk, it will pose potential safety hazard to equipment and transmission lines and easily cause fire disaster.

The Neutral Current Eliminator(NCE) consists of harmonic excluder which have special magnetic circuit structure and its aid–part, it can effectively eliminate 3rd harmonics and reduce input and output neutral current to 0 A.

Models &Specifications

Model	Max Working Current	Working Voltage	Efficiency	Insulation Class	Insulation Resistance
DFC–CW–60A	60A	380V ± 30%, or can be custom designed	100%, reduce neutral line current to 0A, 3rd harmonic reduction ⩾90%	Class H or C	⩾20MΩ
DFC–CW–90A	90A				
DFC–CW–150A	150A				
DFC–CW–200A	200A				
DFC–CW–300A	300A				
DFC–CW–400A	400A				
DFC–CW–500A	500A				
DFC–CW–600A	600A				
DFC–CW–800A	800A				
DFC–CW–1000A	1000A				

Surge Protector

Features

- High rated discharge capacity, withstand up to 8/20ns 80KA lightning surge current.
- Fast response time: ⩽ 25 ns
- Easy installation: It is simply parallel ground connection installation.
- LED display: Indicates operation status, and can understand clear at a glance.
- Repeat useable: Can repeat normally work after frequent lightning.
- Maintenance–free: Satisfy the demand of remote unmanned operated station.
- Long life: Operation life up to 20 years.

Applications

- Sensitive electronic equipment
- Data center
- Telecom center
- UPS room
- Intelligent mansion
- Medical institute

Overview

We present DFL series surge protector to prevent critical electrical devices from high danger of loss when lightning occurs in 220V single phase and 380V three phase systems. It employs advanced lightning protection technique of world and high quality device for lightning protection and assembled with sophisticated process. As the power line is attacked by lightning, the induced huge pulse current and high surge over–voltage at the power line can instantaneously release into earth, therefore the modern electronic equipments have effectively protected from lightning.

Models &Specifications

Model	Working Voltage	Rated Surge Current	Max Surge Current	Size(mm)	Weight
DFL1–D	220V	40KA	80KA	280X160X70	3kg
DFL2–D	220V	20KA	40KA	250X150X55	1.8kg
DFL3–D	220V	15KA	25KA	200X110X40	1.2kg
DFL1–S	380V	40KA	80KA	350X240X95	8kg
DFL2–S	380V	20KA	40KA	250X160X85	4kg
DFL3–S	380V	15KA	25KA	225X130X80	3kg

We reserve the right to change specifications without notice due to continual improvements.

MODERN

Power Solution Provider

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