NIAN ELECTRONIC

- Power Conversion Systems
- Telecommunications Power Supplies
- Renewable Energies
- Power Quality
- Industrial Batteries
- Engineering Services

Empowered Everywhere

www.nianelectronic.com

DESIGNER & MANUFACTURER OF POWER CONVERSION SYSTEMS

TURN-KEY, EPC PROJECTS, GENERAL CONTRACTOR, SOLUTION PROVIDER, RENEWABLE ENERGIES, ENERGY STORAGE AND POWER QUALITY

Nian Electronic
Company

Today's world depends extensively on communications systems like mobile networks and internet. In fact DC electricity power is the basis for all these technologies. Power failure in telecommunications systems can cause enormous damages; sometimes irrecoverable.
Therefore Nian Electronic strives day by day to develop more advanced and reliable power systems to cover all customers' requirements.
Remarkably we did not succeed only in development & improvement of our products technology, also the company became one of the most prominent market leaders, designers and manufactures of telecommunications power supplies & power conversion systems in Middle East. The wide range of Nian Electronic's high quality products provides the most reliable DC power solutions for any required technical application.

Imaginations turn to technical reality whenever and wherever Nian Electronic's power conversion solutions are found.

www.nianelectronic.com

Contents

Nian Industrial Group Power Conversion Solutions

Catalogue Icons:

Nian Industrial Group

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LKP VENT 105°C
270 µF
LKP VEN
JACKSON

Nian Electronic

Business Field:
Designer & Manufacturer
of Power conversion systems
with over 20 years of experience

Company Overview

Nian Electronic Company, with %87 market share, is the ultimate leader in high-efficiency power electronics and energy conversion industries in Iran. The company has won numerous clients in various industrial fields, including Telecommunication, Power Supplies, Power Generation and Distribution, Oil, Gas & Petrochemicals, Railway, and so forth. Nian Industrial Group is a power electronic pioneer with two decades of experience providing special services to a great number of domestic and international customers.

Always On

Nian Electronic was established in 1995. By applying the latest field related cutting edge technologies, in its early years the company became leading manufacturer of power conversion systems and telecommunications power supplies in the industrial Middle East market. Moreover, the wide range of high-efficient and cost-effective products, innovative custom design manufacturing, application of modernized power conversion technology, intensive customer orientation, comprehensive technical consultation and training programs, professionally scheduled and outstanding after-sales services have enabled Nian Electronic to achieve a remarkable market position in the region.

In recent years we gained a noticeable reputation as a reliable solution provider and EPC projects contractor, as well.

Realizing company's long-term intentions a team of highly motivated and skilled technical specialists has engaged in Nian Electronic's R&D. to us innovation means more than just the introduction of something new. It is the exploration of new ideas or a transformation that brings about new dimensions in manufacturing products, company performance and accomplishments in all business aspects to move towards the market epicenter of high-tech power supplies.

Motivated by the global market requirements, we have entered the field of renewable energies as a new source of power supply by establishing Nian Energy.This subsidiary of Nian Industrial Group provides the most appropriate specific solutions to our customers and clients seeking professional advice. The application of the latest field related standards and technologies led to skillful designing and manufacturing of a series of full-scale wind turbine power systems and solar inverters henceforth.

Mission

State of the art designing & manufacturing of power conversion systems, application of high-tech renewable energies conversion technologies, engaging creative researchers & experts and providing strong organizational customer orientation should make Nian Industrial Group's products to a "global future brand".

After-Sales Services and Repairs

Nian Electronic DC Regional Repair Sites, staffed by fully trained technicians, are located around the Middle East region to provide rapid turnaround times. Individually tailored service contracts are also available. This opportunity enables our customers to select an appropriate package that would meet their requirements accurately. Options include extended warranty periods, unlimited out-of-warranty repairs, immediate replacement, on-site maintenance, and battery testing & conditioning. Special terms and conditions apply to some DC services.

Delivery

Nian Electronic's global scale manufacturing and logistic capability enables the company to deliver products and services with maximum cost-effectiveness and with a delivery speed and flexibility that you expect.

Achievements & Awards

Nian Electronic is continuously honored by highly estimated industrial assessment committees & organizations as the most significant regional winner of a great number of industrial awards in the field of power conversion for company's outstanding product quality and organizational reliability.

The fact that numerous remarkable regional & international telecommunications operators and diverse industrial & civil enterprises and organizations recognize the company as the ultimate market leader in the field of telecommunications power supplies and power conversion systems, is considered as a complementary firm proof emphasizing company's trustability which is underlined by various certifications granted by global accreditation bodies such as TÜV NORD.

Iran Joint Venture Company

TGA-ZM-07-06-00

Nian Electronic

DC Power Solutions Range

Enterprise Power Systems
NDC48-1U / DC-PDP08 / DC-PDP10

Access Power Shelf Systems
NSP48-5S / NSR48-2S

Indoor Integrated Access Power Systems
NR48-E Series / NR48-M Series / NR48S-A Series

Outdoor Integrated Access Power Systems
NOR48F / NORE48F / NOBT48F / NOTR48F / NOR48D

DC Power Systems with Back-up Batteries
NHC48F-D Series / NHC48F-B Series

Core Power Systems
NP5000 / Mobile Core Power Systems

Battery plant 3000 AH with monitoring system
NBR4M

Control & Monitoring Systems

Main Control Units
NCU48S Series / NCU48U Series / NCU2UT Series / NCU48HF Series

Control & Monitoring Software

Rectifier Modules

NHR48S-Rectifier Module Series
NCR48S-Rectifier Module Series
NCR48U 2000W-Efficiency Plus Rectifier Series
NCR48U 3000W-Rectifier Module Series
NCR48W-Rectifier Module Series
NHR484U2-Rectifier Module Series

Complementary Solutions
NFC48S

Application and Product Selection Guide for Nian Electronic DC Power Systems

Application	Enterprise Power Systems	Access Power Systems[1]	Metro Power Systems[2]	Core Power Systems[3]
		1-378 A	Up to 1500 A	Up to 10,000 A
Customer Premises Equipment				
PBX / VoIP	●	●		
Wireless Access	●	●		
Wireless				
Mini/Metro Sites		●		
Base Transceiver Stations (BTS)		●		
Base Station Controllers (BSC)		●	●	
Wire-line				
Main Switch Centers (MSC)			●	●
Fiber Transmission Systems	●	●	●	●
Digital Microwave Radio		●	●	
Broadband Voice Data Services	●	●	●	
Satellite Earth Stations			●	●

1 - By Application of NCR48S and NCR48U Rectifier Module Series
2 - By Application of NHR48S Rectifier Module Series
3 - Systems with higher output are also available.

More Intelligent, More Powerful, More Efficient...

Nian Electronic Rectifier Modules

A comprehensive range of the Nian Electronic DC Power Solutions make it easy to select a solution for every application; big or small.
Our products are fully scalable and modular and their appropriate design enables the technical experts to meet the changing power requirements in future.
Efficiency exceeding 96% with the Efficiency Plus Rectifier Series, power dense and a standardized design assisting scalability, flexible mounting and universal AC input all contribute to Nian Electronic's power system solutions to meet customer requirements.

EFFICIENCY
P L U S
RECTIFIER SERIES

NCR48U 2000 W*

* More information available in page 33

Enterprise Power Systems-XU Series

NDC48-1U

NDC48-1U Power Systems

NDC48-1U

Features

- 1.2 KW power capacity
- Front input & output cable entry
- 19" standard with 1U height
- Easy installation
- Adjustable Output current up to 25A

Power Shelf Systems Specification	
Model	NDC48-1U
No. of compartments	1
Telecommunications design	19" for telecom
Max. available power	1.2 KW/25 A (adjustable)
Input voltage (nominal)	185-275 VAC
Input voltage (range)	95-300 VAC
Available battery charging procedure	Float-Equalize
Back-up battery terminal	Available-front access
Protections	Available
Cable entry	Front
Outputs	One for battery/one for load
Operating temperature (°C)	-15 to +65
Adjustable charging limit	Equalize charging, 44 V ~ 59 V default (56.4V / 10A)
Float charging	44 V ~ 59 V default (54V / 7A)
Dimension (H*W*D) mm	44.5*482.6*343
Weight (kg)	5.2

Enterprise Power Distribution Solutions

DC-PDP08 / DC-PDP10

DC-PDP08

Features

- Custom design DC-distribution
- Front access
- Up to 8 DC MCBs
- 19" standard with 1U height
- Easy & fast installation

DC-PDP10

Features

- Custom design DC-distribution
- Front access
- Up to 10 DC MCBs
- 19" standard with 2U height
- Easy & fast installation

Access Power Shelf Systems-XU Series

NSP48-5S / NSR48-2S

Secure DC Power for
Business Network Application

Introduction

Nian Electronic Power Shelf Systems-XU Series are small, just like cells and easy to transport.
They are embedded in telecommunications infrastructure and often used in outdoor & indoor system applications.
Their installation is also simple even in locations with difficult access. These series are light, front access and especially designed for embedded power systems with limited space.
It provides 2 to 6 kw (capable to accomodate 3 kw module that provide 3 to 9 kw - NSR48 series) of premium-quality electricity.
Power shelf systems platforms are available in two options:The first option offers the complete power system embedded in a single rack and the other one comprises a standard rectifier shelf and a distribution unit.

NSP48-5S Power Shelf Systems

NSP48-5S

Features

- Intelligent Main Control Unit (MCU)
- Multi master system control
- NCR48U Hot-Pluggable rectifier Series
- 19" standard with 5U height
- LVDS (Low Voltage Disconnection Switch), LLVD & BLVD
- Surge Protection Device (SPD)
- Highly reliable proven DC architecture and telecom grade equipment
- Efficiency Plus rectifiers application; over %96 operation efficiency
- Cost-effective and simple power expansion with modular increments
- Safe & simple installation and 'plug & go' auto-configuration
- Extensive LAN/WAN communications capabilities
- Sophisticated automated system & battery control and monitoring
- Compact 5U (including AC&DC -distribution) rack mounting

NSR48-2S Power Shelf Systems

NSR48-2S

Features

- Intelligent Main Control Unit (MCU)
- Multi master system control
- NCR48U Hot-Pluggable rectifier Series
- Remote control & monitoring
- Data logging
- 19" standard with 2U height

Power Shelf Systems Specification		
Model	NSP48-5S	NSR48-2S
No. of compartments	1	
Telecommunications design	19" for telecom	
AC&DC -distribution	Available	--
Main Control Unit (MCU)	NCU48U / More info is available in page 30	
Individual rectifier Efficiency	NCR48U 2000W / 3000W >96% (for2000W) >94% (for3000W) More info is available in page 33	
Max. number of rectifiers	3 (Custom Design)	
Max. power capacity	6 KW / 9 KW	
Back-up battery terminal	Available	
Current transducer	Available for battery	--
LVD	Available for batteries & load	--
Surge Protection Device (SPD)	Available	--
Load sharing	Available	
Cable entry	Front	Back
Dimension (H*W*D) mm	236*481*440	95*482.6*444.7
Weight (kg)	17	6

Indoor Integrated Access Power Systems (up to 600 Ah Back-Up Batteries)

NR48-M Series / NR48S-A Series

Introduction

Nian Electronic Integrated Power Systems-M Series are a combination of stand-alone power, load distribution MCBs and back-up batteries bays complementing the system's compact design with the highest efficiency and power factor correction.
These integrated power systems, meeting optional requirements, have been installed in numerous telecommunications sites all over the region.
The unique design makes an excellent space management possible.

Features

- Custom design & cost-effective
- High power density
- Space management; integrated batteries, rectifiers and load distribution MCBs
- Easy capacity power expansion
- Intelligent Main Control Unit (MCU)
- Multi master system control
- Multi-language graphic LCD (optional)
- Up to 9 NCR48S (48V/2000W) Hot-Pluggable rectifiers applicable in NR48-M Series
- Up to 12 NCR48U (48V/2000W-3000W) Hot-Pluggable rectifiers applicable in NR48S-A Series
- Advanced battery management
- Up to 3 battery shelves (600 Ah back-up)
- LVDS (Low Voltage Disconnection Switch)
- Configurable alarms & settings
- Remote control & monitoring
- Data logging

Indoor Integrated Power Systems Specification	
Model	NR48-M & NR48S-A Series
No. of compartments	1 or 2
Color	RAL 7035
AC-distribution	Available
Main Control Unit (MCU)	Graphical/Multi-language / Ethernet access
Individual rectifiers	NCR48S / NCR48U 2000W / NCR48U 3000W More info is available in page 33
Max. number of rectifiers-NCR48S / power capacity	9/18 KW
Max. number of rectifiers-NCR48U 2000W / power capacity	12/24 KW
Max. number of rectifiers-NCR48U 3000W / power capacity	12/36 KW
Back-up battery capacity	Up to 600 Ah
Current transducer	Available for battery
LVD	Available for battery
Surge Protection Device (SPD)	Available
Emergency 48V output	Available
Load sharing	Available
DC-distribution	Available
Cable entry	Top
Dimension (H*W*D) mm	1800*700*600
Weight (kg)	110

NR48S-A Series

NR48-M Series

Indoor Integrated Access Power Systems (up to 800 Ah Back-Up Batteries)

NR48-E Series

Compact, Powerful, Efficient and Secure Power Supply for Access Network

NR48-E Series

Introduction

Nian Electronic Indoor Integrated Power Systems-E Series, high-density power systems, and offer an increased flexibility of a cabled plant in a centralized architecture. The system consists of customized power and distribution bays. The primary applications of this system are in wire-line central offices, wireless MTSOs and data centers requiring nominal (–) 48 VDC systems rated from 42 to 252 A.
These E-Series are equipped with 4 battery shelves which offer a higher back-up capacity. The systems are also equipped with 2 LVDSs; one for battery protection and the other for non-emergency loads and purposes.

Features

- Intelligent Main Control Unit (MCU)
- Multi master system control
- Up to 6 NCR48U (2KW/3KW) Hot-Pluggable rectifiers
- AC&DC power-distribution MCBs (custom design)
- Up to 4battery shelves (800 Ah back-up)
- DC - Air conditioner 500 W
- Adjustable fault limits
- Automatic battery condition testing
- 2LVD for battery protection and non-emergency loads
- Data logging
- Remote control and monitoring

Indoor Integrated Power Systems Specification	
Model	NR48-E Series
Cabinet Ventilation Options	DC - Air Conditioner 500 W
No. of compartments	1
Color	RAL 7035
AC-distribution	Available
Main Control Unit (MCU)	NCU48U / More info is available in page 30
Individual rectifier	NCR48U Efficiency Up to 96.2% Max. output power 2000 W / 3000 W More info is available in page 33
Max. number of rectifiers / power capacity	6/12 KW - 18 KW (Custom Design)
Back-up battery capacity	Up to 800 Ah
Current transducer	Available for battery
LVD	Available for battery & load
Surge Protection Device (SPD)	Available
Emergency 48 V output	Available
Load sharing	Available
DC-distribution	Available
Cable entry	Top
Dimension (H*W*D) mm	2100*600*600
Weight (kg)	144

Outdoor Integrated Access Power Systems

NOR48F

Introduction

Nian Electronic Outdoor Integrated Power Systems are designed to protect the equipment from external threats in all kind of climates from the tropics to the arctic. These outdoor series are delivered in variable options to ensure meeting the various demands of different telecommunications operators. A whole base telecommunications station can be built inside our using outdoor cabinets.
Because of the excellent technical & operational features; including IP55 protection of these series, they have been installed in numerous sites around the region. The DC air-conditioner enables the system to have advantage of a cooling function even on AC failures. The heater which is also embedded inside the cabinet prevents the batteries from freezing in lower temperatures to increase the battery life.

Features

- IP 55 protection compliant
- Cost-effective
- Compact design; integrated batteries, rectifiers and load distribution MCBs
- Non-corrosive galvanized steel construction
- Hardened outdoor enclosure
- Advanced battery management
- Up to 6 NCR48S Hot-Pluggable rectifiers
- Up to 3 battery shelves (600 Ah back-up)
- Intelligent Main Control Unit (MCU)
- Touch screen graphical LCD
- Multi master system control
- Remote control & monitoring
- Data logging
- DC air-conditioner & heater
- Capable to accomodate NCR48U Module series

NOR48F

Outdoor Integrated Power Systems Specification	
Model	NOR48F
Cabinet ventilation options	H-EX/DC or AC air-conditioner
Cooling system	Door mount
AC-distribution	Available
Security	Lockable/multi-point locking mechanism door
Telecommunications cabinet	19" for telecom & 23" for batteries
IP compliance	55
Door opening sensor	Available
Main Control Unit (MCU)	NCU48S / More info is available in page 30
Current transducer	Available for battery & load
LVD	Available for battery
Individual rectifier	NCR48S Efficiency >%94 Max. output power 2000 W More info is available in page 33
Max. number of rectifiers / power capacity	6/12 KW
Back-up battery capacity	Up to 600 Ah
Battery heater	Available
Surge Protection Device (SPD)	Available
Load sharing	Available
DC-distribution	Available
Service light	Available
Dimension (H*W*D) mm	2000*750*580

Outdoor Integrated Access Power Systems

NORE48F / NOBT48F / NOTR48F

Introduction

These outdoor series consist of two detached and easy to transport parts; the upper section is foreseen for installation of power supply, alarm panel, AC&DC -distribution MCBs and 10U free space (for further required equipment). The lower section is foreseen for two rows of VRLA back-up batteries (400 Ah).
Each section is cooled with a particular DC air-conditioner which continues the operation on AC failures. Saving more energy, the upper-side could be equipped with a heat-exchanger instead of an air-conditioner.
A complete base station can be built inside these series.
A Transmission cabinet could be added to the existing power system to have more available space (15U) for telecommunications equipment installation. This cabinet has ventilation options & also related alarms.

Features

- IP 55 compliant standard
- Intelligent Main Control Unit (MCU)
- Surge Protection Device (SPD)
- Up to 3 NCR48U Hot-Pluggable rectifiers (48V / 2000W / 3000W)
- Up to 2 battery shelves (400 Ah back-up)
- AC&DC -power distribution MCBs (custom design)
- DC air-conditioner & heater
- Smoke detector
- Moisture sensor
- Remote control & monitoring
- Isolated with poly urthane foam
- Plinth with galvanized metal sheet
- Sloping roof
- Multi mechanism door lock
- DC (48 ~ 60)V service light with 2m cable
- Flood sensor for battery cabinet
- Open door sensor
- Anti-crowbar doors
- Security cover with key on each rack door

Alarm Panel

Introduction

This module collects data from different detectors like doors, current, batteries Aux, smoke, temperature and moisture sensors and transfers them to MCU (Main Control Unit) for data processing. The MCU processes all incoming information from the sensors and other detective devices and send signals to indicate relevant alarms to alarm panel. The alarms contacts (16 Dry Contacts) are accessible from alarm panel by RJ45 ports (in Huawei systems application) or 25 pins connectors (in ZTE systems application).

NORE48F Alarm Panel

Features:

- The design is completely modular, so that in case of any failure, it could be replaced easily.
- The transferring alarm is designed for both ZTE & Huawei systems application. If a Huawei system is selected in the MCU setting, the related alarms are transferred to RJ45 ports that are installed in front of the panel, and if a ZTE system is selected, alarms will be sent to 25 pins connector.
- This module has only 1U height and could be easily embedded inside all kinds of standard telecommunications cabinets.
- All the alarm connectors are front access.

Outdoor Power Systems Specification		
Model	NORE48F-NOBT48F	
Cabinet ventilation options	DC Air-Conditioner	
Cooling system	Door mount	
No. of compartments	2	
Construction	Heat insulation	
AC-distribution	Available	
Security	Lockable, vandal-proof hinges, multi-point locking mechanism door	
Telecommunications cabinet	19" for telecom & 23" for batteries	
Available space for telecom equipment installations excluding power, battery & DC-distribution	10 U	
Detector sensors	Moisture, Smoke, Door opening, Flood, Temperture	
Color	RAL 7035	
IP compliance	55	
Main Control Unit (MCU)	NCU48U / More info is available in page 30	
Individual rectifier	NCR48U 2000W	NCR48U 3000W
Efficiency	>%96	>%94
	More info is available in page 33	
Max. number of rectifiers	3 (Custom Design)	
Max. power capacity	6 KW	9 KW
Back-up battery capacity	Up to 400 Ah	
Battery heater	Available	
Current transducer	Available for battery	
LVD	Available for battery & load	
Surge Protection Device (SPD)	Available	
Load sharing	Available	
DC-distribution	Available	
Service light	Available	
Cable entry	Bottom	
Dimension (H*W*D) mm	1800*600*650	
Total weight (kg)	170	

Outdoor Integrated Access Power Systems

NOR48D

NOR48D

Introduction

Nian Electronic Outdoor Integrated Access Power Systems (Dual) are a field proven design for all conditions and flexible for all applications. Dual cabinet with a proper free space and highly efficient DC air-conditioners and also numerous intelligent control features, ensures the highest possible operating efficiency and whisper quiet operation.

A large battery capacity for high power loads, longer battery reserve times when the AC main power fails flexible AC and DC distribution options are also available. A dedicated space for telecommunications equipment installation led to a direct link between the power source and the load which means providing high reliability.

Features

- Whisper quiet operation to minimize neighborhood noise pollution
- Dedicated DC air-conditioner for each cabinet to ensure the required cooling capacity
- 19", 21" or 23" standard equipment bay mounting
- Large battery compartment for high power loads and longer battery reserve times

The power systems are equipped with an intelligent Alarm Panel. This module collects data from different detectors like doors, current, batteries Aux, smoke, temperature and moisture –sensors and transfers them to MCU (Main Control Unit) for data processing. The MCU process all incoming information from the sensors and other detective devices and send signals to indicate relevant alarms to alarm panel.
The alarms contacts are accessible from front side of the alarm panel by dry contacts.

NOR48D ›

Outdoor Integrated Power Systems (Dual) Specification	
Model	NOR48D
Cabinet ventilation options	H-EX/DC or AC air-conditioner
Cooling system	Door mount
No. of cooling system	2
No. of compartments	1
Construction	Heat insulation
AC-distribution	Available
Security	Lockable, vandal-proof hinges, multi-point locking mechanism door
Telecommunications cabinet	19" for telecom & 23" for batteries
Available space for telecom equipment installations excluding power, battery & DC-distribution	23 U
Detector sensors	Moisture, Smoke, Door opening
Color	RAL 7035
IP compliance	55
Main Control Unit (MCU)	NCU48U / More info is available in page 30
Individual rectifier	NCR48U 3000W Efficiency >%94 Max. output power 3000W More info is available in page 33
Max. number of rectifiers	7 (Custom Design)
Max. power capacity	21 KW
Back-up battery capacity	Up to 600 Ah
Battery heater	Available
Current transducer	Available for battery
LVD	Available for battery & load
Surge Protection Device (SPD)	Available
Load sharing	Available
DC-distribution	Available
Service light	Available
Cable entry	Bottom
Dimension (H *W *D)mm	1850*1250*850
Total weight (kg)	430

DC Power Systems with Back-Up Batteries

NHC48F-D Series / NHC48F-B Series

Introduction

However, should you require customized or design to delivery solutions with a unique architecture, we will come up with one, to your exact specifications.

Nian Electronic DC Power Systems are designed to withstand the most rigorous network power applications in mini, small, medium and large power configurations.

These types of DC power systems consist of Surge Protection Device (SPD), AC&DC distribution panel, intelligent Main Control Unit (MCU) and power modules with an output rating up to 6000 W for each. Up to eight extension battery cabinet (1000 Ah each) can be installed in addition to NHC48F cabinets. This gives a total battery capacity of up to 6000 Ah.

Features

- High-capacity power systems in a compact footprint
- Cost-effective; simple capacity expansion (modular increment)
- Hot-Pluggable NHR48S rectifiers
- Custom design
- Easy & fast installation
- Intelligent Main Control Unit (MCU)
- Graphical LCD
- Multi master system control
- Advanced battery management
- Remote control & monitoring
- AC&DC -distribution
- Data logging

Efficient, Reliable and Flexible DC Power Solution

NHC48F-D Series

NHC48F-B Series

Metro Power Systems Specification	
Model	NHC48F-D&B Series
DC power plant arrangement	Power and battery cabinet
Color	RAL 7035
Main Control Unit (MCU)	Graphical/Multi-language/Ethernet access
Individual rectifier	NHR48S Efficiency >%94 Max. output current 120 A Max. output power 6000 W Power factor >0.99/Full load More info is available in page 33
Max. number of rectifiers	12
Power capacity expansion	Available
Back-up battery bus-bar	Available
Surge Protection Device (SPD)	Available
Load sharing	Available
DC load & battery distribution	Optional
Cable entry	Top/Bottom
Dimension (H*W*D) mm/each cabinet	2000*600*600
Weight (kg)/each cabinet	100

Battery plant 3000 AH with monitoring system

NBR4M

Introduction

Telecom systems are needed power for providing communication without interruption that should be supplied for telecom systems continuously in different situation.

Battery backup is the main part of power supply, that save the energy when the power grid connect or DG provide energy in the pre-define situation and when there is no power for any reason, battery backup can provide energy without interrupting. Also, it can be monitored.

Nian Electronic Company is one of the biggest designer and manufacturer of power conversion systems, industrial battery in the telecommunication and battery plant which is capable to monitor the batteries status and charging process.

Features

- Capable to accommodate the 12V batteries instead of 2V batteries to increase the free space and decreasing the initial cost and maintenance
- Capable to series in the 8 rows of Battery Racks and integrated management on the all batteries which are in the plant
- Ability to accommodate 100,150 and 200AH batteries in the Nian Electronic battery structure
- Using the advance monitoring system that is capable to monitor the battery parameters by user. Ability to control the process of float, recovery and equalize battery charging, sending the required alarms for battery maintenance and increasing the battery life cycle. Also it can send the battery failure for recognizing dead battery and prevent to damage the other batteries

NBR4M

Power Shelf Systems Specification	
Model	NBR4M
Battery plant arrangement	Battery cabinet and DC-PDB Disturbution box
Color	RAL7035
Smart battery control and monitoring	Graphical / Touch screen / Ethernat acces / GSM supported
Max. number of battery racks	5(Custom Design)
Backup battery bas-bar	Available
Cable entry	Top
Dimension (H*W*D) mm / each cabinet	1800*600*600
Weigh (kg) / each cabinet	100

Battery monitoring system features

- User friendly touch screen
- Protected against short circuit Wiring
- Displaying and measurement of each string current up to 150AH
- Displaying and measurement of each string voltage with 0.1 accuracy
- Capable to series 8 monitoring systems as same as Mater-Slave for monitoring 8 Rack Batteries
- Capable to measurement and displaying the capacity of each battery string
- Measurement and displaying the real discharge capacity at the time of battery discharge
- Detection and displaying more than 20 battery alarms in the different charge mode
- Detection and displaying the health status of each battery including alarms related to battery and decreasing the battery capacity
- Ability to view status of each supervisory contactors by user
- Capability to save the 3000 events with detail in the data-logger system for each battery Rack
- Recognition and displaying the type of charge (float, recovery and equalize charge)
- Capable to display the connect or disconnect fuses of each battery string and sending the related alarms
- Recognizing the battery failure in the float, equalize charge and discharge
- Measuring and displaying temperature, humidity parameters and bus bar voltage of each Rack and sending the related alarms
- Ability to see the occurred alarms for each battery
- Master Rack has the display LCD that all slave racks parameters, settings and alarms can be monitored by the master one
- Ability to display the alarms of each rack with the below details:
  - Battery voltage
  - Bus voltage
  - Average voltage for each string of battery
  - Current of each string
  - Occurred alarms details (time and date)
  - Type of charge when alarm occurred
- Ability to connect GSM for sending the information and alarms through the SMS for 5 users
- Ability to connect network card with the below features:
  - Remote upgrade
  - LAN port
  - Monitoring web base
  - MODBUS protocol for monitoring
  - Capable to monitoring through the SNMP protocol
  - Ability to receive the EXEL from each battery logger through the HTTP protocol and without any software
- Modular monitoring system designing with easy installation and changing

DC Power Plant Systems (up to 10,000 A)*

NP5000

More Intelligent
More Efficient
More Powerful

Introduction

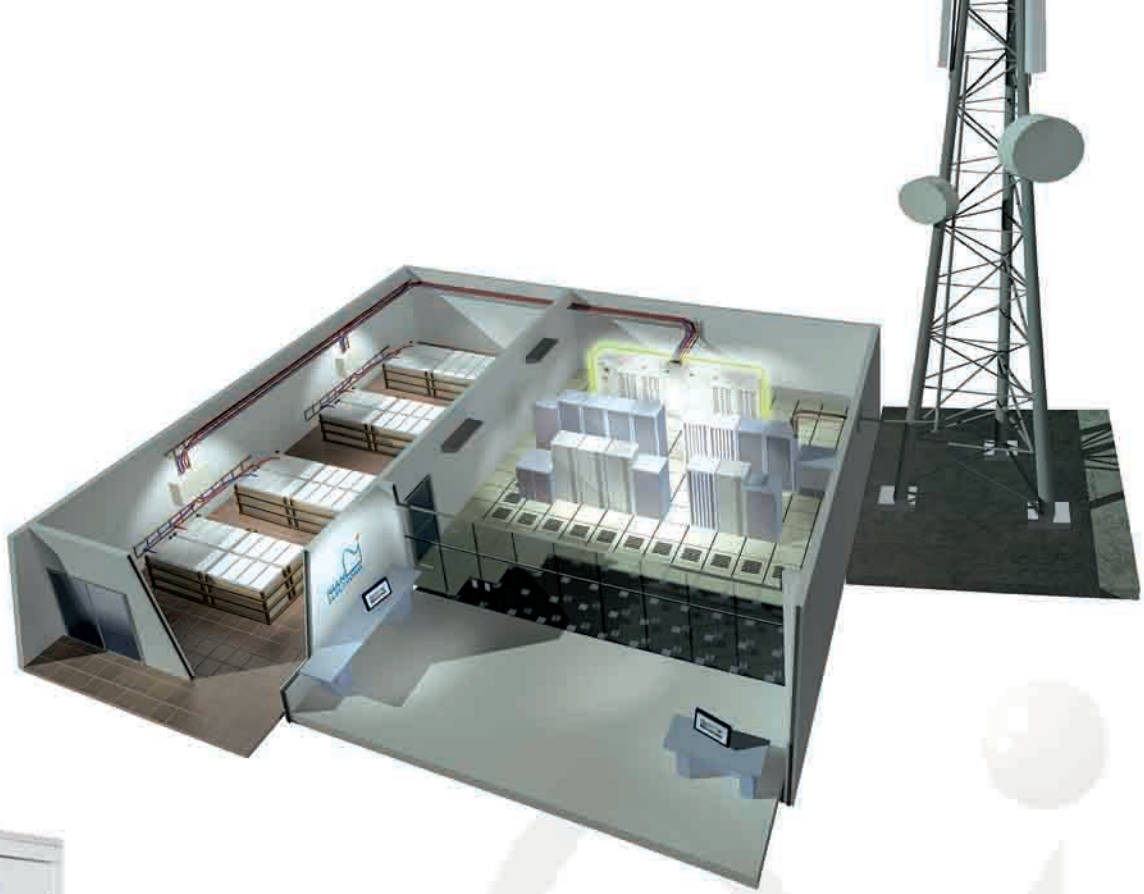
Nian Electronic Core Power Systems Series can secure up to hundreds of kilowatts of premium-quality electricity.

The stand-alone cabinets present an integrated approach to power system architecture.

The modularity and scalability of these easy-to-use systems enable rapid roll-out and easy expansion. The DC Power Plant provides the option of parallel installation for maximum capacity, while the entire system can be controlled by a single Main Control Unit (MCU).

It offers energy-efficient, large scale, high-capacity power for Central Offices (CO), Main Switching Offices (MTSOs, MSCs) and data center applications. These series consist of individual power modules with output ratings of up to 6,000W, enabling customers to configure bulk power systems with up to 480,000W* output capacity, including flexible AC and DC distribution options.

NP5000



Features

- Custom design
- Scalable up to 10,000 A/480 KW
- Rectifier bay houses up to 100 Hot-Pluggable rectifiers
- Multi-language graphical LCD
- Advanced digital control and communication
- Configurable distribution options
- Ultra high-density rectifier design
- Ideal for central office applications

Core Power Systems Specification	
Model	NP5000
DC power plant arrangement	AC, Master, Slave, Load & Battery Distribution Cabinet
Color	RAL 7035
Main Control Unit (MCU)	Graphical/Multi-language /Ethernet access
Individual rectifiers	NHR48S Efficiency >94% Max. output current 120 A Max. output power 6000 W Power factor >0.99/Full load More info is available in page 35
Max. number of rectifiers	60*
Power capacity expansion	Available
Back-up battery bus-bar	Available
Current transducer for input current	Available
Surge Protection Device (SPD)	Available
Load sharing	Available
DC load & battery distribution	Optional
Cable entry	Top/Bottom
Dimension (H*W*D) mm/each cabinet	2000*600*600
Weight (kg)/each cabinet	100

* Systems with higher output are also available.

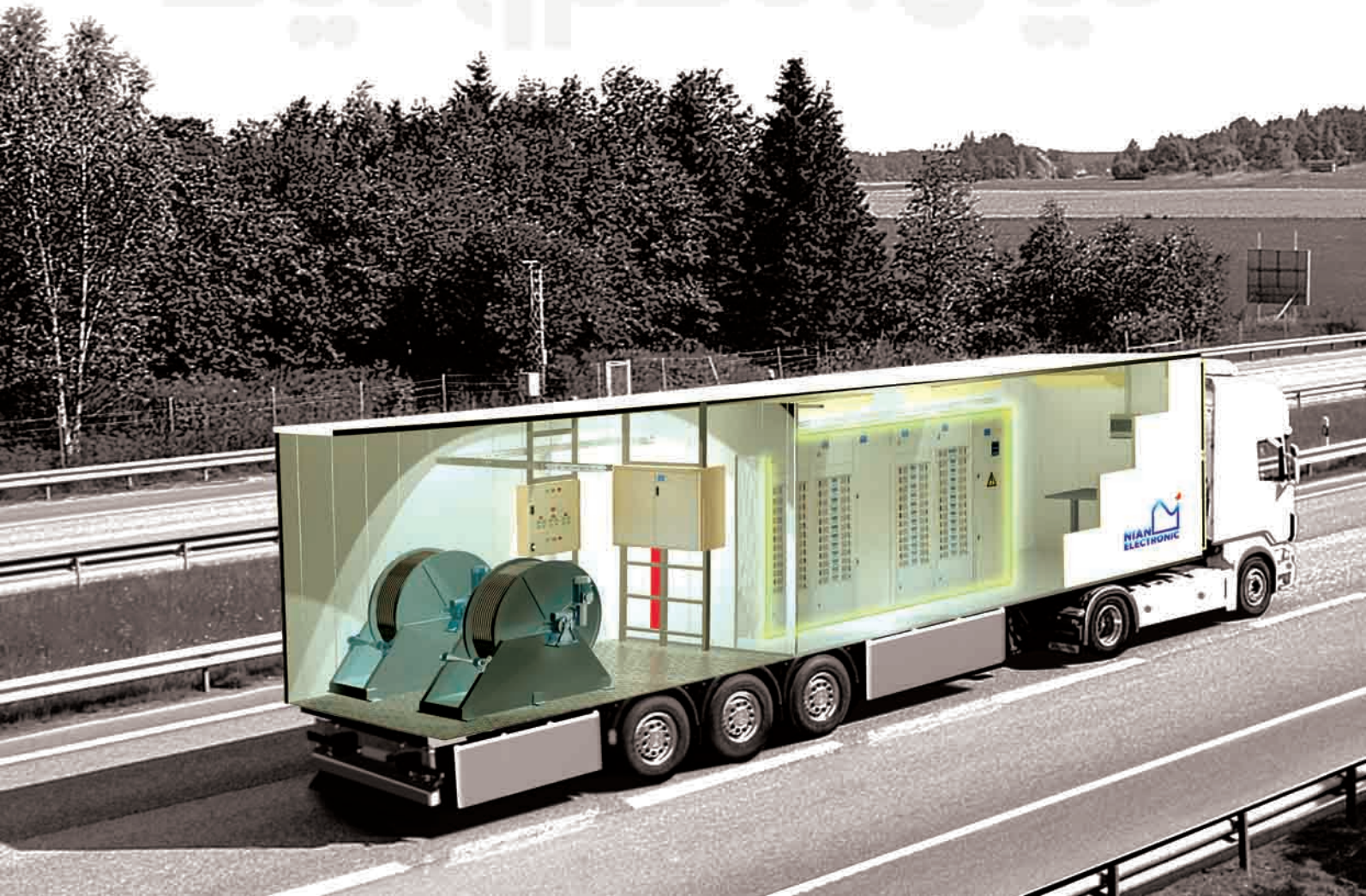
Mobile Core Power Systems

Introduction

Mobile Power Systems are designed and manufactured in Nian Electronic Company. They are known as a suitable and reliable power supply source for mobile telecommunications applications for many emergency purposes and natural disasters such as earthquakes, lightening, floods, hurricanes, war situations, etc.
These series are the most optimized and distinguished mobile power systems in the market and offer all the necessary features at once. They are designed to pass harsh and bumpy roads, ensuring a smooth and safe ride and could move 120 Km/h without any problems and are also equipped with EBS & ABS brakes.
In order to master any unpredicted emergency conditions, the system is equipped with three powerful cable winches; each connected to a gearbox to provide the necessary performance. They are controlled by indoor and remote panels.

Features

- Single piece sandwich panel with outdoor side aluminum zinc alloy coated sheet
- Metal-faced polyurethane sandwich panel
- Air-conditioner systems
- Water proof
- Anti-corrosion
- Airtight & fire resistance
- Anti-static floor & galvanized floor chassis
- Collapsible stairs
- Electro static color
- Euro 4 standards
- Cables feeder and winches
- Earth protection & smoke detector
- Automatic fire extinguisher
- Alarm monitoring system
- Dimensions; W*H*D (2500*3960*7000) mm



Secure DC Power Supply for Mobile & Emergency Applications

NIAN ELECTRONIC

Control and Monitoring Software

SMCS / Remote Software Upgrade

A power system monitors and controls the entire system and the site power-infrastructure, it also maximizes battery life, supports energy saving and reports the required maintenance data to the operator.
Nian Electronic Network Software provides effective remote management for the Nian Electronic DC Power Systems.
Remote management is cost-effective and can reduce operating and maintenance costs. The latest power system information is available anywhere and anytime; so it greatly reduces the need for site visiting. Alarms are highlighted and detailed, to help you analyze faults and produce maintenance histories, records and schedules.
The company's Monitoring Software is comprehensive.
It can be connected to many systems simultaneously and all necessary data is clearly presented.

Remote Control and Monitoring

Nian Electronic Network Software can control and monitor power equipment at multiple sites from one central location. It provides real-time displays of system operating conditions, and monitors all system functions including individual rectifier modules.

Data Logging

The Monitoring Software lists data from each connected site. This includes all alarms with activation & deactivation details.
Reported data can be recorded for fault analysis and preparation of maintenance schedules.
The information can be filtered, sorted or transferred to other applications.
Nian Electronic Monitoring Software is designed for easy customization.

SMCS Software

All the menus and features could be added or removed regarding your requirements.
In addition to Nian Electronic's DC power systems, air-conditioning equipment & intruder alarms and other plant connected to the system supervisory module I/O connections, can also be monitored.

By application of this comprehensive control and monitoring software, the required alarms could be easily sorted out in a distinguished pre-set alarms group.

It also helps the customer to be informed when the specific alarms are deactivated and the system returns to the normal state.

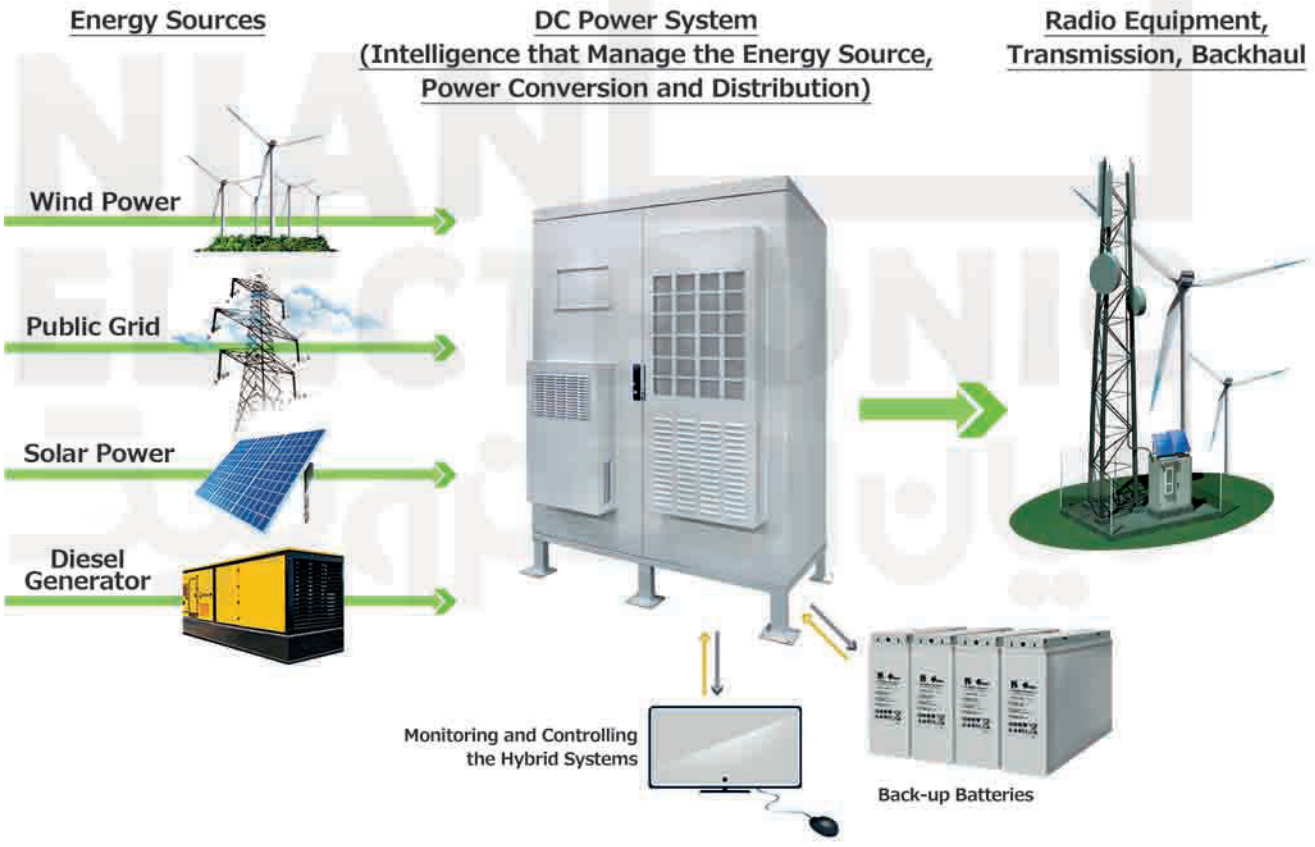
Data Supervision

Nian Electronic Control & Monitoring Software is comprehensive and simply adjustable. Several pre-defined telecommunications sites can be directly supervised by the authorized technical team. Major system settings could be also changed via this software.
The entire transmitted necessary information of connected sites is displayed on a color screen.

Remote Software Upgrade

If required, Nian Electronic's DC power systems' MCU software can be upgraded remotely and the related pre-defined or customized technical data can be also updated.

Hybrid Power Solution
With Remote Control and Monitoring



Intelligent Main Control Units

NCU48S Series / NCU48U Series / NCU2UT Series

Introduction

Nian Electronic Main Control Units (MCU) offer highly advanced and user-friendly DC power system monitoring, control and communications options for Nian Electronic Enterprise, Access, Metro and Core -Power Systems.

Onboard intelligence microprocessors provide automated, fast and easy first time system setup with a default configuration file or factory customized parameters for a particular application.

The microprocessor is capable of extensive site and/or network control and optimization using smart features; such as advanced battery management, intelligent power management features and smart alarms which can be optimized for automated energy efficiency and asset protection.

If on-site setting changes are required, these can be easily made from the front panel or by remote Control & Monitoring software.

Smart alarms feature provides highly configurable control and alarms to automated site management and improves performance; disconnects loads during peak AC grid loading, manages cooling, supervises battery status, controls load sharing, automated recovery charging, temperature compensated charging and integrated battery testing, etc.

The high-resolution touch screen & graphic LCD display is easy to read and has an easy to use menu structure. All system status, values and alarms can be displayed with easy keypad access to check or edit settings.

The MCU also works with separate system I/O boards for powerful and user-friendly interfacing. Easy, low cost I/O expansion is possible by adding additional I/O boards.

NCU48S Series

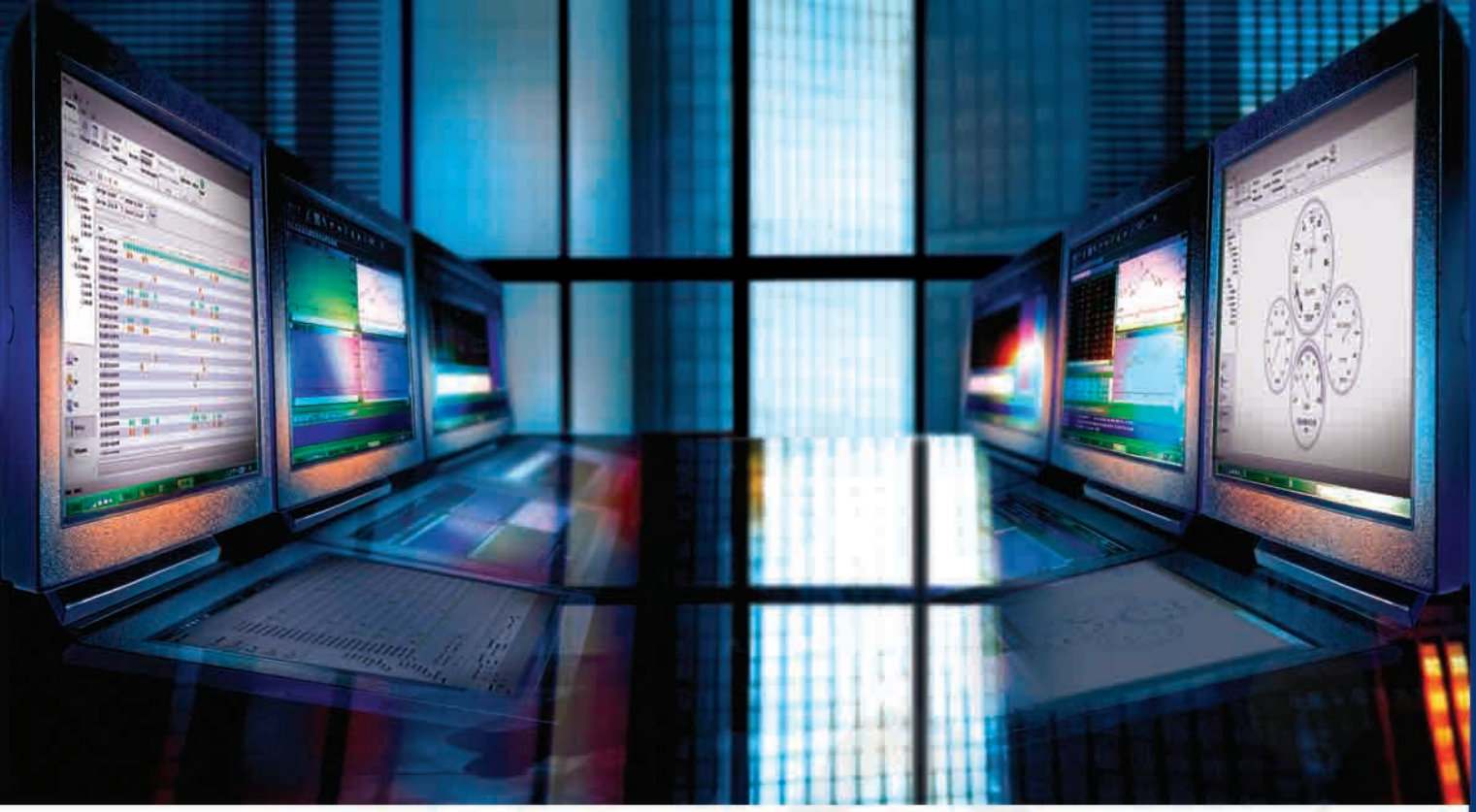
Features

- Advanced connectivity option of built-in Ethernet interface, secure web server, SNMP agent and Modbus/TCP
- Auto recognition and configuration for easy 'hot-plug and go' rectifiers setup/expansion
- A wide range of pre-configured yet customizable parameters such as alarm setting
- Intelligent automated battery management to maximize battery life
- A distinctive touch screen and user-friendly LCD
- Comprehensive system control functions
- Complies with international standards
- Multi-language options (all languages/optional)
- Optional extra I/O boards for system expansion
- Smart alarms

NCU48HF Series

NCU2UT Series

NCU48U Series



Main Control Unit Specification	
Model	**NCU48S**
Supply voltage range	24-65 VDC 85-300 VAC
Mounting orientation	Vertical
Test mode	Available
Input/Output Standard	
Analog inputs	[3 (pre-defined for environment temperature & humidity), 4 (user-defined)][1], in addition to Temperature sensor (4), Bus voltage (1), Current sensor (4), Battery status (4)
Digital inputs	8[1]
LVD driver	2
Supervisory relay outputs	(32)[1] 8,1 A@60 VDC
Communications Interfaces	
Physical	Ethernet, RS485
Supported protocols	Modbus, HTTP, Modbus/TCP, SNMP
Management software	Remote upgrade, SMCS[2]
Display	Graphic LCD 64*128 pixel/Touch screen (optional)
Keypad	5 keys (No keys in touch screen series)
Language options	English:Default All languages available on request
Indicators	Normal status, Alarm status, [Minor alarms, Major alarms, Critical alarms][1]
Alarms & Data Logging	
Alarms	More than 60 [45][1](optional)
Event log	Up to 8,000 records
Group alarms	10
Alarms definition	Available
Operating temperature & humidity	-10 to +80˚C / 5-90%

1 Available in NCU2UT, NCU48S & NCU48U
2 Smart Monitoring & Control Software

Nian Electronic Rectifier Modules

NHR48S / NCR48S / NCR48U2000W / NCR48U 3000W / NCR48W / NHR484U2 -Series

Nian Electronic Rectifier Modules are high reliability, telecom grade AC-DC 48 V modules; covering a wide range of AC inputs and DC power outputs to suit different applications.
Efficiency exceeding 96% with the Efficiency Plus Rectifiers, power dense and a standardized design assisting scalability, flexible mounting and universal AC input all contribute to Nian Electronic's power system solutions to meet customer requirements.

NHR48S – Rectifier Module Series

Introduction

NHR48S is a single phase rectifier with outstanding efficiency and power density. This rectifier is optimal for the Nian Electronic Metro and Core -DC Power Systems. The excellent functional operation in high temperature ranges makes the device most suitable for wired and wireless broadband applications in harsh climates.
Easy installation is assured as all Nian Electronic's rectifiers are Hot-Pluggable. The fan cooling systems with speed control support the silent operation.

Features

- High efficiency (over 94%)
- Wide AC input range
- Wide operation temperature range
- Module keying
- Soft-Switching
- Comprehensive output protection
- Phase Shift Full Bridge Technology
- Hot-Pluggable
- Voltage keying
- Initial-Boost-Float charging mode
- Adjustable output voltage
- Active load sharing

NHR48S / 6000W

NCR48S – Rectifier Module Series

Introduction

These series of Nian Electronic's rectifiers, comprising advanced control and monitoring features, are high-density, compact design and extremely cost-effective power supplies.
A silent operation is by the application of Maglev fan cooling systems ensured.

Features

- High efficiency (over 94%)
- Wide operation temperature range
- Wide input range
- Module-keying
- Soft-Switching
- Comprehensive output protection
- Hot-Pluggable
- Voltage keying
- Boost-Float charging mode
- Adjustable output voltage
- Active load sharing
- High quality components
- Fault LED indicators

NCR48S / 2000W

NCR48W / NHR484U2 - Rectifier Module Series

NHR484U2 / 4000W

NCR48W / 1200 W

NCR48W / 1500 W

NCR48U - Efficiency Plus Rectifier Module Series

Introduction

Nian Electronic delivers one of the most efficient rectifiers in the industry! The combination of innovative design, efficiency and reliability makes the NCR48U 2000W EP Series to stand out. With the efficiency over 96%, the losses have been reduced by 50% compared to the current industry standards.

NCR48U / 2000W

NCR48U / 3000W

Features

- High efficiency (up to 96.2% at standard conditions)
- Wide operation temperature range
- Wide AC input range
- Compliance with international standards
- Hot-Pluggable (fast on-line expansion of rectifiers)

Technical Specification of Rectifiers

Model	NCR48U		NCR48S	NHR484U2	NHR48S
Part number	NCR48U 2 KW	NCR48U 3 KW	NCR48S	NHR484U2	NHR48S
Input Data					
Voltage (nominal)	185-275 VAC	195-275 VAC	185-265 VAC	185-275 VAC	185-265 VAC
Voltage (range)*	85-275 VAC		150-265 VAC	85-275 VAC	150-265 VAC
Frequency	45-65 Hz				
Power factor*	>0.99				
THD	<%5				
Input current (max)	13 A	18 A	13 A	23 A	36 A
Inrush current	<7 A				
Protection	Surge protected, High input voltage, Low input voltage, Hot plug-in, Inrush current limit				
Output Data					
Voltage (default)	53.5 VDC				
Voltage (adjustable range)	44-58 VDC		42-59 VDC	44-58 VDC	41-59 VDC
Power (max)	2000 W	3000 W	2000 W	4000 W	6000 W
Current (max)	42 A	63 A	42 A	84 A	120 A
Current sharing	<0.05 Maximum current				
Charging types	Equalize (Boost)-Float				Initial-Equalize-Float
Regulation time	<2 ms				<1 ms
Ripple	<100 mV peak to peak				
Protections	• High input voltage • Over voltage shut-down • Under current protection • Hot plug-in inrush current limiting • High temperature protection • Current limit		• Low input voltage • Under voltage shut-down • Over current protection • Short circuit proof • Fan failure		
Other Specifications					
Efficiency*	>%94 (Upto 96.2 in Peak Efficiency)		>%94		
Operating tem & humidity	-10 to +50 °C / 5-90%				
Cooling method	2 Maglev technology fan-front to back air flow				
LED indicators	Green LED: Normal/Yellow LED: Current limit/Red LED: Output fail				
Dimension (H*W*D) mm	44*212*327		212*66*395	88.9*100*400	88*435*400
Weight (kg)	3	3.5	5	5.5	10
Visual Display	LED indicator				LCD display

* Voltage (range),power factor, efficiency and DC output power are dependent on rectifier model fitted. Refer to the rectifier datasheet for further details.

Free Cooling Systems

NFC48S

The Proven Energy-Saving Solution for Telecommunications Sites

Introduction

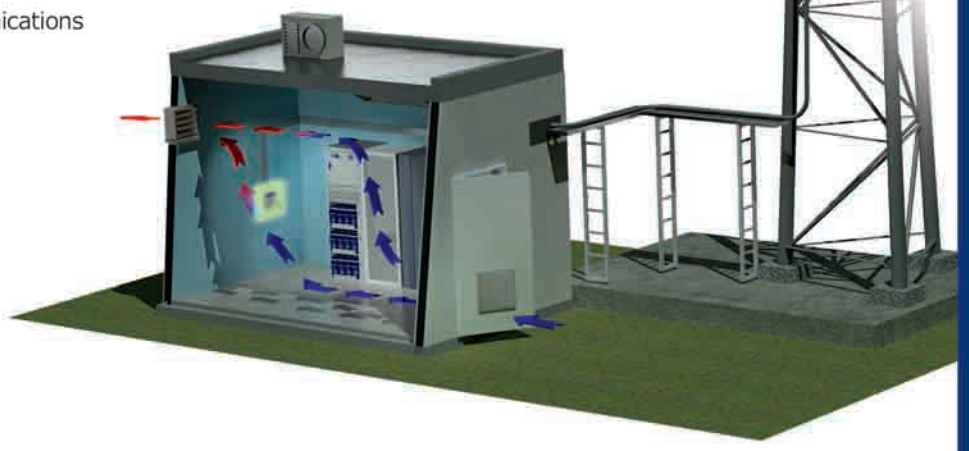
If it is required to remove high heat loads and you are looking for a cost-effective solution then you have found the right one with the Nian Electronic Free Cooling Systems.

Generally all types of telecommunications sites can be supported by the Nian Electronic DC Free Cooling Units as a reliable energy-efficient cooling system. The existing air-conditioning units are monitored and controlled by intelligent microprocessors. Whenever the ambient temperature would drop, the free cooling mode is automatically activated and the air-conditioning units would switch off.

Features

- Offers energy savings up to 80%
- 48 V DC application as an emergency back-up system
- Powder-coated housing of galvanized sheet metal
- Low cost single box solution for all site types
- Full system function on AC power failure
- Management of two air-conditioners with change-over option
- Security access menu
- Comprehensive data logging
- Serial port data transfer
- Wall mount & user-friendly panel
- Wide range of adjustable set points & alarms

One of the regional telecommunications sites equipped with
NFC48S



Nian Energy

Business Fields:
Renewable energies converters design & manufacturing; hybrid telecommunications site solutions; Power Quality

The Perfect Power Conversion Partner to Realize Your Wind Power Generation Projects

Nian Energy

Renewable energies as sustainable sources of power supply are the main core of Nian Energy's R&D projects. A team of highly qualified engineers provides the most appropriate solutions for solar power plants, wind farms or hybrid plants as a combination of renewable energies and fossil fuel energy-sources.

Nian Energy provides high yield and efficient NWC (Nian Energy Wind Converters) 100 KW full-rated power conversion systems. The application of the latest technical innovations and manufacturing expertise support us to produce the ultimate power conversion systems offering unrivalled performance and power with clean aesthetics and reliability. The subsidiary's technical experts focused also on the development of compact and high-efficient photovoltaic inverters by applying innovative key technologies for most required power supply structures in recent years.

The extensive range of our products response comprehensively to customer demands & requirements and cover all module types and plant sizes for small residential systems as well as large scale plants, grid connected installation as well as stand-alone and back-up systems. Plant monitoring and visualization products as well as energy management solution complete Nian Energy's portfolio.

- **Solar Inverter Solutions**
- **Wind Converter Solutions**
- **Battery Energy Storage System (BESS)**

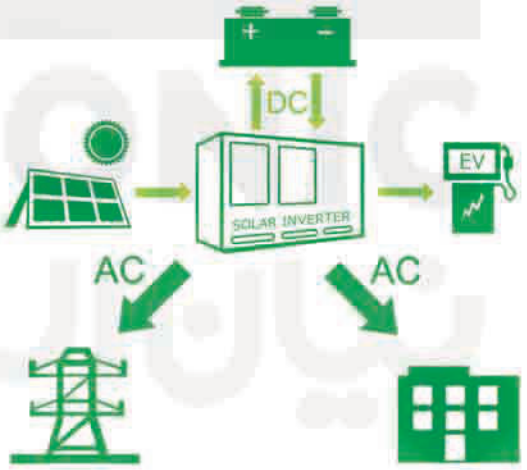
Solar Inverter Solutions

Introduction

The inverter is the heart of every PV plant. It converts direct current of the PV modules into grid-compliant alternating current and feeds the current into the public grid. At the same time, it controls and monitors the entire plant.

Nian Electronic central solar inverters offer high efficiency, reliability and easy-to-maintain industrial design in compact unit. A wide variety of services and solutions are presented for the inverters as related consultation maintenance and after sale services by Nian Electronic Company. Central inverters are designed for different applications such as large arrays installed on buildings, industrial spaces as well as field installations. they are basically just a very large string inverter.

Nian Electronic is one of the broadest portfolios of string inverters currently in solar market, which includes a powerful line of single-phase and three-phase string inverters for photovoltaic (PV) systems installed in residential and commercial buildings. These products provide small to medium-size PV installations with high performance, robust enclosures, ease of installation, and a quick return on investment.



Features

- Reduced CAPEX and OPEX system costs
- Increases system reliability
- Increases system flexibility
- Dynamic system efficiency optimization
- Maximum Power Point Tracking (MPPT)
- Remote monitoring over network
- Anti-islanding protection
- Integrated DC disconnect device
- Grid monitoring
- Ground fault monitoring
- Reverse polarity protection
- Ground fault protection
- Insulation monitoring protection
- Grid connection substation
- Monitoring and control
- Switchgears and circuit protection
- Inverters and power conversion substation
- AC and DC short circuit and over current protection
- High power density and integrated design for lower cost-per-watt
- Easy installation and reduced maintenance time due to modular design
- Cover all types of PV modules, such as Polycrystalline, Monocrystalline and Thin Film
- Active and reactive power continuously and compensation for grid management
- Monitoring and recording the inverter's internal operating variables

Wind Converter Solutions

NWC100 Wind Converter

Introduction

The focus of Nian Energy's R&D activities is, at present, on extensive projects of renewable energies power conversion, as obviously green energies are to be future sources of sustainable power supply.
As a specialist in power electronics, Nian Energy is producing high-efficient converters with the peak efficiency of %96*.
Our full-scale wind converter systems, with 100 KW power output, are extremely cost-effective and secure reliable telecommunications services in areas and regions with an unstable public electricity network and outland locations. Today, our products can be found in a great number of growing wind power plants all over the region.
Our commitment to wind converters solutions extends beyond the development and manufacture of cutting edge technology.
For our customers, we developed a web-based tool for daily documentation of a wind power plant performance.
This enables customers to call up required data, display it in graphical form and evaluate all important operating parameters of their wind power plants.

Reliability with Impressive Yields

With sophisticated MPP tracking and outstanding partial load efficiency,remarkably high yields can be achieved with any wind power plant in high or low level of wind strength.
As we strongly focus on efficiency across the entire system, Nian Energy's system components are designed to be compact and resource – saving to deliver the exceptional reliability that customers can expect from our products.

Fast and Precise MPP Tracking

For us, sustainability means also harnessing endless renewable energies resources. As a matter of fact, only through efficiency of green energies sustainability becomes profitable. Efficiency was therefore the guiding principle of designing the present range of our wind converters.
Incorporating a new circuit topology enabled us to increase efficiency levels over a wide input voltage range with a peak efficiency exceeding %96. In fact these kinds of figures could lead to high yields if the MPP tracking optimally adjusts system components to the ambient conditions.

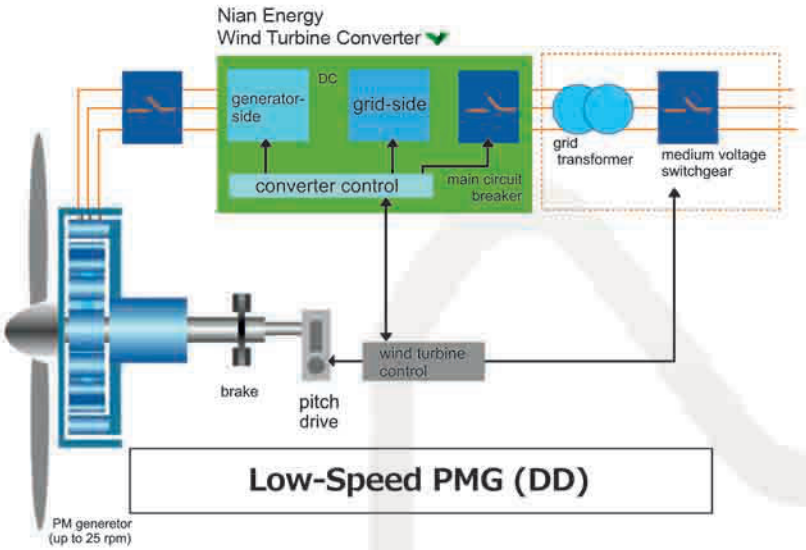
Features

- Covering low, medium and high speed permanent magnet generators
- Maximum annual efficiency
- Power generation in wide wind speed variation
- Active and reactive grid power control
- The latest power conversion technology
- Low Voltage Ride Through (LVRT)
- Full generator control
- High dynamic response
- Anti-islanding detection
- Maximum Power Point Tracking (MPPT)
- Full grid control
- Remote monitoring system
- Covering on-shore and off-shore wind turbines
- Supporting of 50 Hz & 60 Hz
- Reduced mechanical stress due to optimum drive-train damping

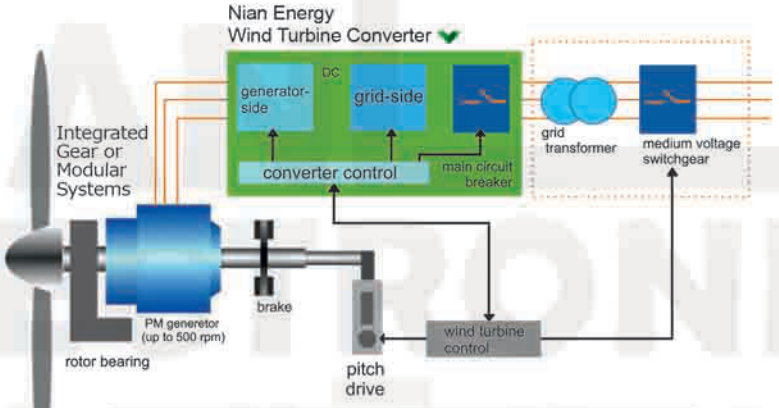
NWC100 ›

* Under Standard Conditions

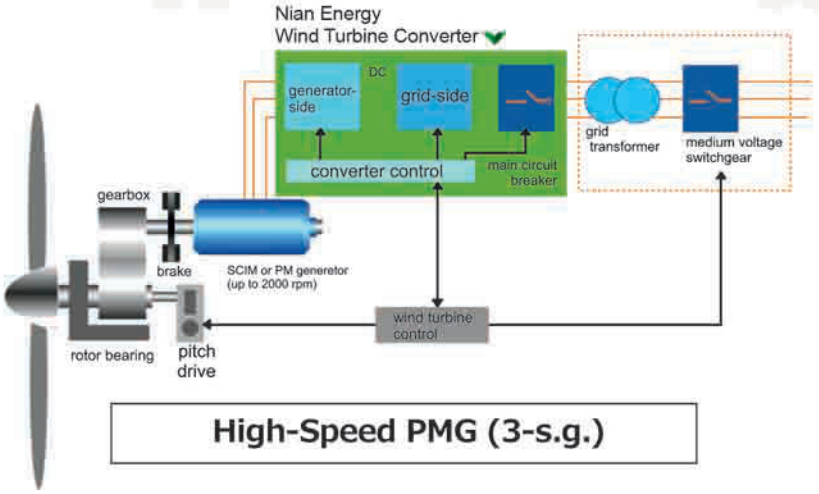
Wind Turbine Full-Rated Power Conversion Systems



Low-Speed PMG (DD)



Medium-Speed PMG (1-s.g.)



High-Speed PMG (3-s.g.)

Battery Energy Storage System (BESS)

Introduction

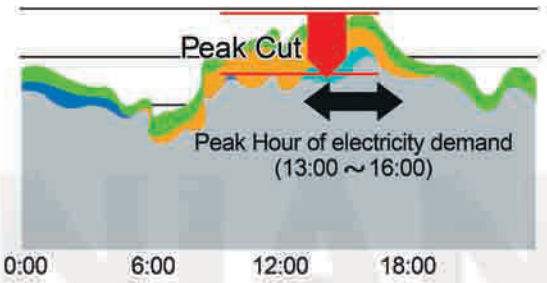
Energy storage is the capture of energy produced at one time for use at a later time. With our range of Battery Energy Storage Systems, Nian Electronic has developed an effective and efficient approach that enables energy produced by either conventional thermal generation or renewable sources to be stored and then made available as required. As a major contribution to achieving stringent environmental targets, our battery systems do not emit any CO2 emissions. They also maximize the efficient use of renewable energy sources by reducing their inherent intermittency, facilitating integration into the power chain. This system consist of the following sections:

PCS (Power Conversion System)
Power Module
PMU (Power Management Unit)
Switches/SPD/Transformer,etc.
Batteries
BMS (Battery Management/Monitoring System)
EMS (Energy Management System)

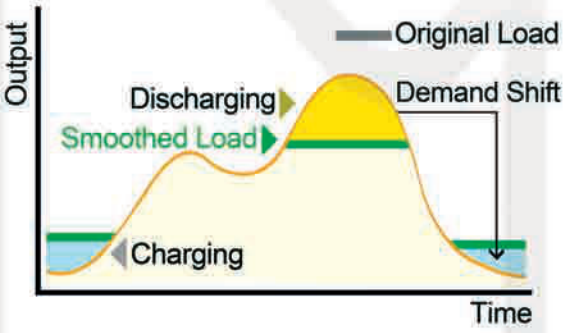
Features

- Peak - Shaving
- Time - Shifting
- Load - leveling
- Frequency Regulation
- Renewables Integration
- T&D Deferral
- Spinning Reserve
- Ramping Support
- Voltage Support

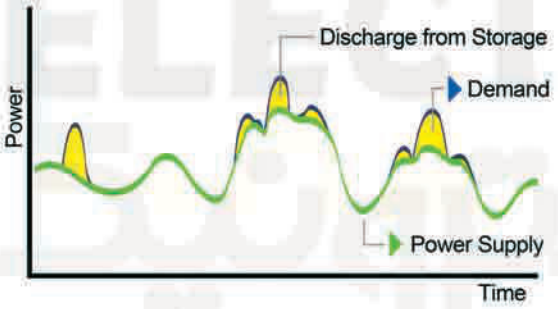
1.PEAK SHAVING



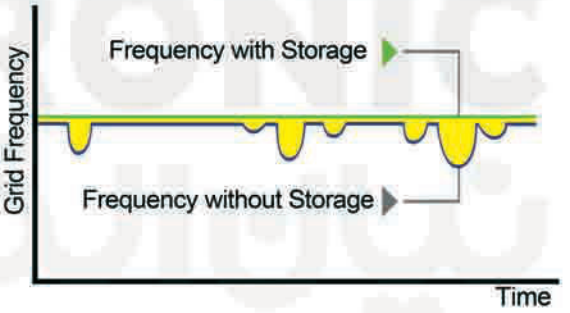
2.PEAK DEMAND SHIFTING



3.LOAD LEVELING



4.FREQUENCY REGULATION & GRID SERVICES



Battery that use in the system must be select by application target. it consist of: Lithium – Ion, NaS, Nickel – Cadmium, Flow Batteries, Lead Acid, Lead carbon, etc.

Specifications

- Flexible configuration for various applications.
- Flexible control strategy for Energy-time-shift, Emergency-power-backup, Energy- shortage-support, Grid-optimize, Battery-generator.
- Prompt switch between on-grid and off-grid, between charging and discharging.
- Modular design and simple structure.
- Easy to install, easy to maintain and easy to expand.
- High efficiency.
- Active and reactive power management, improved power quality.

POWER QUALITY FIELDS

The performance of electronic devices is directly linked to the power quality level in a facility. As industrial automation continues to evolve with the introduction of computer based control systems, the importance of AC power quality has never been higher. The inclusion of more sensitive electronic equipment in industrial processes demands the delivery of clean and stable power. Even the smallest service or process interruption can have a devastating effect on a company's production and profitability. Industrial computer applications have increased efficiency and productivity gains while decreasing manufacturing and operation costs. Examples of these applications include distributed control systems, CNC machine tools, robotics, assembly lines and many other automation and control oriented processes. As the number of system components has increased, so have the number of devices drawing power from the utility grid. This expanded demand has led to greater dependency on the power quality level within industrial facilities.

Active Harmonic Filter (AHF)

Static Var Generator (SVG)

Benefits of reducing harmonics and reactive power

- Increase Power Quality of system
- Comply with power supply regulation
- Improve energy efficiency
- Increase reliability of power system

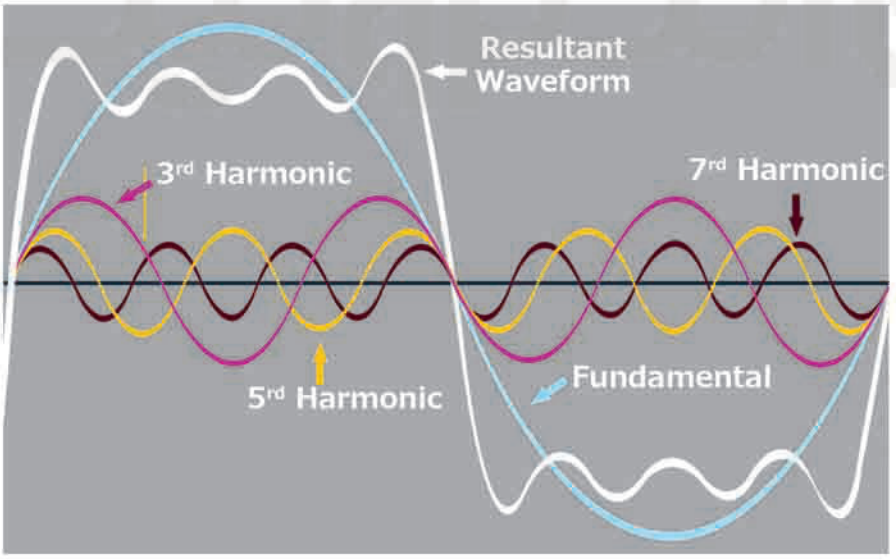
Active Harmonic Filter (AHF)

The impact of harmonics pollution is an increasing problem given the growth of sophisticated power electronics and proliferation of non-linear load in power system. Such loads are increasingly used in all industrial commercial and residential installations.
Typical non-linear loads include:

- Industrial equipment (induction, furnaces, static converters, welding mchines)
- Uninterruptible power supplies (UPS)
- Variable speed drives for asynchronous and DC motor
- Office equipment (computers, servers, printers, photocopy machines)
- Household appliances (fluorescent lightings, TV light, dimmers, microwave ovens)
- Saturated magnetic devices (transformers)

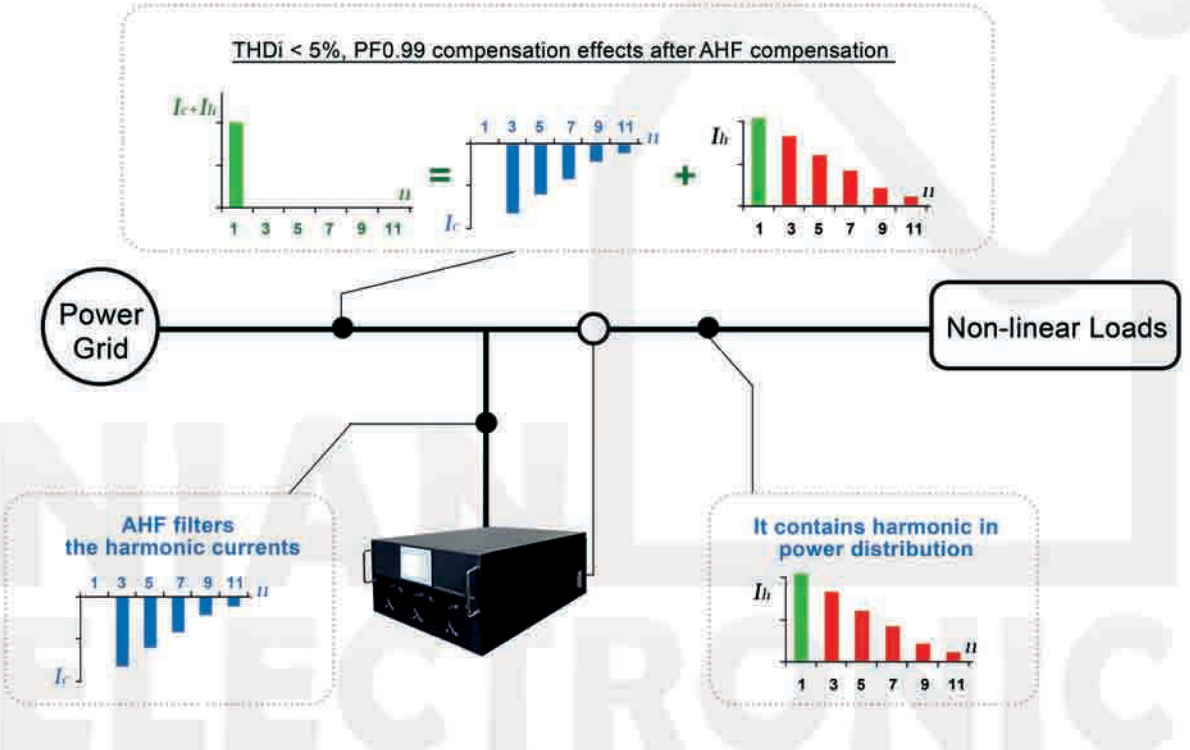
The presence of harmonic curents increases the RMS current in power networks. The circulation of harmonic currents through the system impedance creates voltage harmonics resulting in volage distortions,i.e. the deterioration of the supply voltage quality. Such adverse effects are more prevalent at the power consumers end, often manifested in the following forms:

- Costly production/processes downtime lading to financial losses
- Increase operating and energy costs
- Overheating of transformers, motors and cables
- Overloading of neutral conductors
- Load imbalance
- Premature failure of equipment
- Reduced safety levels of installations
- Logic faults or component failures in PLCs, computers or other sensitive loads
- Nuisance tripping of protective devices



When harmonic mitigation is required, the operating circuit measures the load current and calculates the harmonic current spectrum via the advanced control algorithm programmed in the Digital Signal Processor (DSP). Active filter employs Fast Fourier Transform (FFT) logic calculation method for the harmonic current spectrum from 2nd to 50th order. The logic then determines the amplitude of the compensated current control signal, to be injected at the opposite phase angle for each harmonic order selected.
The compensated current generating circuit will then provide a control signal to the IGBT (semiconductor switch) via Pulse Width Modulation (PWM).
Consequently, injecting compensation current with perfect opposite phase for each selected harmonic.
As such, the harmonic current at the supply side are significantly reduced.

. Active Harmonic Filter .



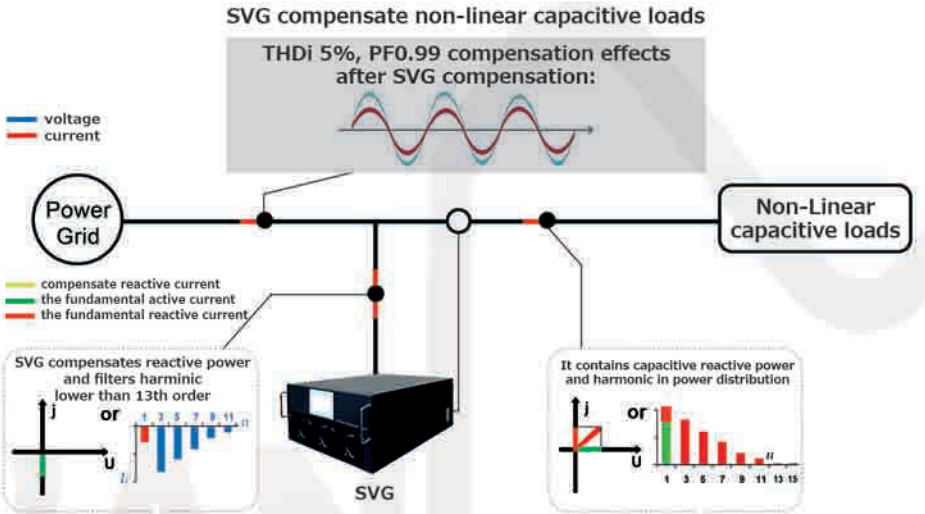
The active harmonic filter series are suitable for all types of applications providing harmonic filtering load balancing and step-less reactive power compensation for inductive and capacitive loads.

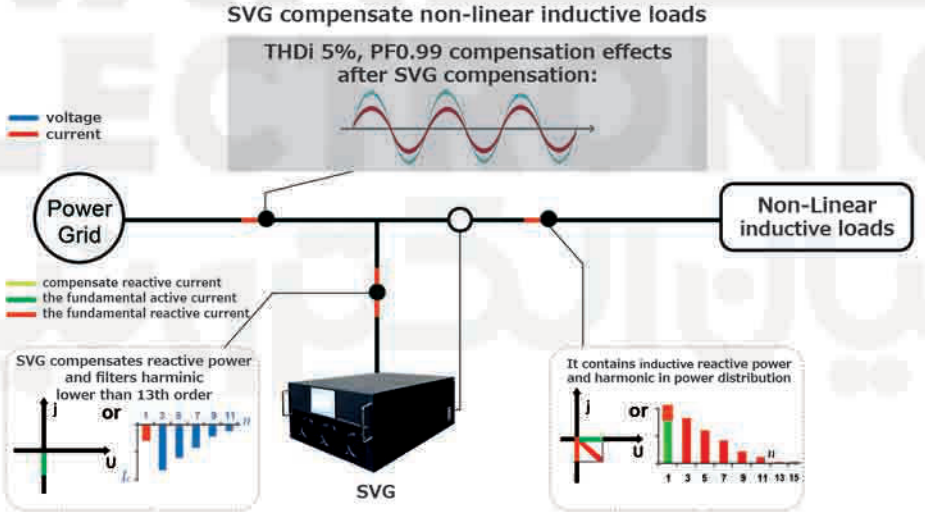
- The Active Harmonic Filter based on IGBT technology
- Harmonic filtering lebels can be pre-configured for compensation with respect to specific harmonic orders and contents
- Resonance protection by means of pre-configuring harmonic filtering levels for the potential resonance zones
- Harmonics filtering performance THDi < 5%
- Harmonic compensated for network and load currents from 2nd to 50th harmonic order
- Unlimited parallel operation of modular AHF unit
- Provide a wide ranging protection modes:
  - Internal short circuit
  - Overload protection
  - CT reverse polarity and wrong configuration of CT setting
  - Internal temperature diagnostic function to avoid

Static Var Generator (SVG)

SVG is the representative of newest technology in var compensation area. SVG is connected in parallel to the grid similar to a variable var current source. SVGs fundamental configuration is 3-phase self commutated bridge circuits adopting full controlled power electronic semiconductor devices (like IGBT). Through reactors the SVG is connected in parallel to the grid. By adjusting the output voltage amplitude and phase angle or direct controlling AC side current, the SVG can absorb or generate var according to the load reactive power or the grid volage level.

Static Var Generator (SVG) is an automatic power factor correction module which works as a current source; it can compensate the power factor of the grid with the reactive current generated by itself to avoid fine imposed by power utility due to a too low power factor. SVG checks the load current through the external CT, and performs computing through the external DSP to analyze the reactive contents of the load current. After that, it controls the PWM signal generator based on the settings to send control signals to the internal IGBT. In this way, it generates reactive power current to implement dynamic reactive power compensation.





SVG Compensation Performance

Quick response: The system reactive power compensation can be completed immediately right at the startup of the SVG.

Ideal compensation: SVG releases compensation current that has the same capacity but an opposite phase, as system reactive current.

Real-time tracking: SVG can make dynamic and real-time compensation based on the changes of system reactive current.

Reverse overlapping: after the compensation current is reversed in its direction, the system reactive current overlaps with the reactive current released by SVG.

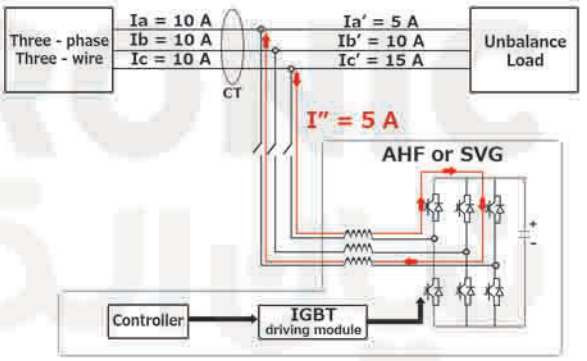
Difference between "capacitor bank" VS "static var generator"

Capacitor Bank	Static Var Generator
1.SVC use capacitors to grouping switch. Its output current is step style,which usually leads to overcompensation or under-compensation. The power factor is between 0.8 and 0.9.	1.SVG can be seen as a Controlled Current Source,thus obtaining compensation effect with the level of PF 0.99 and avoiding over compensation and under compensation.
2.Conventional compensation assemblies take at least few ms to perform compensation.	2.The complete response time of SVG is less than few ms, and the fast dynamic response, making SVG a top.
3.Conventional compensation assemblies make reactive power compensation mainly by adjusting reactance through silicon controlled regulator and several FC groups. However, resonant amplification may easily occur and therefore causes incidents. pick for a fast-changing environment.	3.The capacitor that comes with the SVG does not require the installation of filter bank; therefore, resonant amplification will not happen. In addition, as an active compensation device and a current source SVG wards off resonance from the perspective of mechanism, significantly improving completeness.
4.Only compensate inductive reactive power.	4.It can compensate both inductive reactive power and capacitive reactive power, as well as compensating reactive power in any scope when working in concert with a fixed capacitor.
5.Conventional compensation assemblies rely on capacitors to provide capacitive reactive power. The output of reactive current is subject to the voltage of the grid, so the output of reactive current will be low if the voltage of the grid is at low level, which will cause compensation capacity to decline and lead to inadequate compensation.	5.SVG is designed with active compensation circuit; therefore, the voltage of the grid has little influence on the compensation capacity. The output of reactive current matches the working condition even when the voltage of the power grid is low.
6.To have better compensation effect, conventional compensation assemblies require an installed capacity larger than compensation capacity.	6.The compensation capacity of SVG is the same as the installed capacity. Therefore, for a given compensation effect, the capacity of SVG is 20% to 30% less than that of SVC.

Three-phase Balance

Three-phase unbalance compensation

- Three-phase unbalance reactive power compensation
- Three-phase unbalance active power compensation
- Phase reactive power compensation



Features

Outstanding performance

- Reactive power compensation: COSφ=0.99
- Three-phase unbalance compensation
- Capacitive and inductive compensation: -1 to +1
- All these help avoid fine imposed due to a too low power factor

High stability and quick

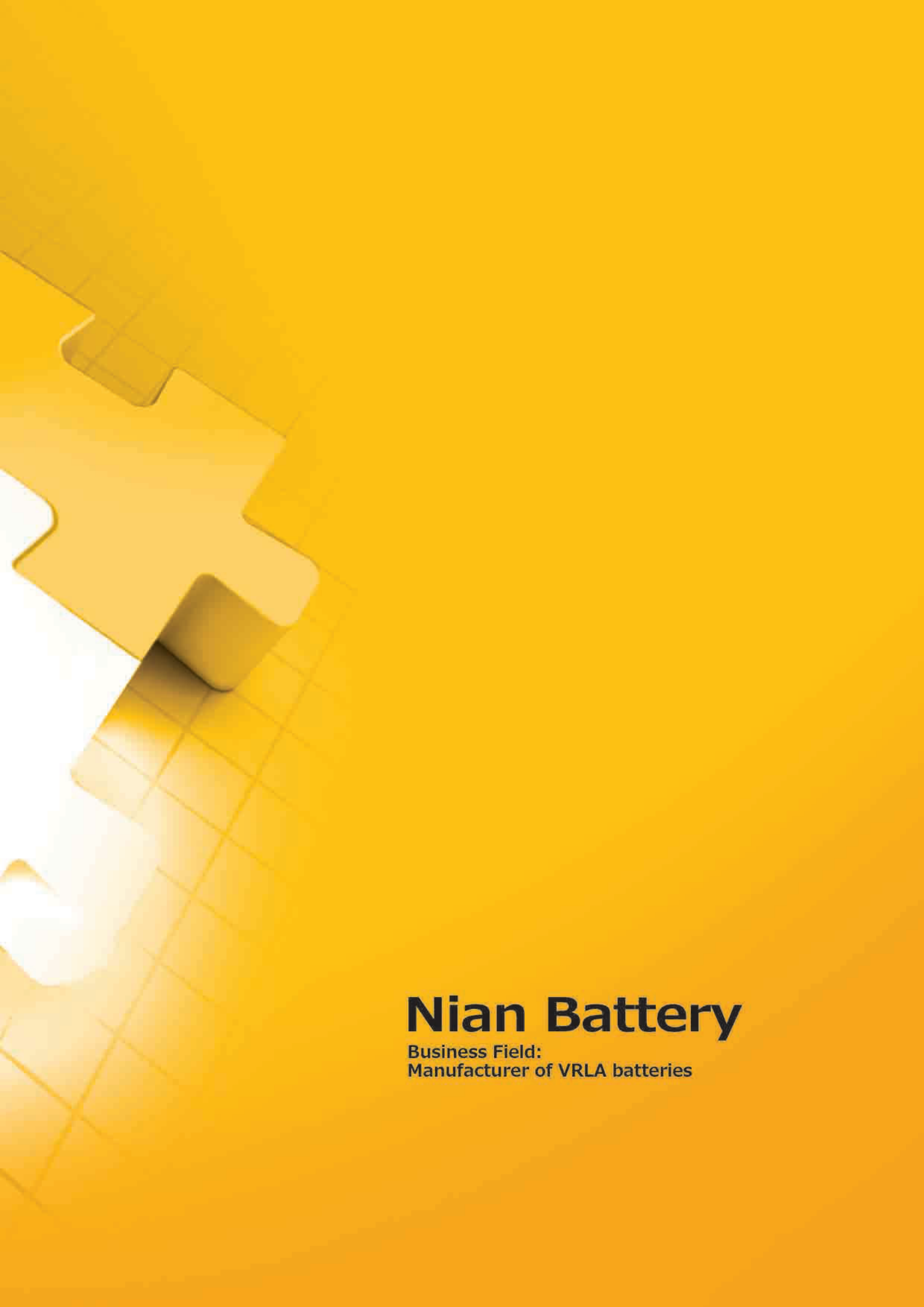
- Real-time compensation, with the overall response time less than few ms
- Fast dynamic reaction
- Free of over-compensation, under-compensation, and harmonic resonance. The compensation capacity is equal to the installed capacity and is not affected by voltage drop

Component-based

- Concept of component-based design, with the same application mode as common reactive power compensation
- Easy to use, transport, and maintain

Multiple combination

- SVG for reactive power compensation
- SVG+SVC for reactive power compensation
- SVG+AHF for compensation



Nian Battery

Business Field:
Manufacturer of VRLA batteries

Powering Telecommunications Sites with Our Energy Storage Solutions

Nian Battery

Nian Battery is in fact one of the most important subsidiaries of Nian Industrial Group and also one of the largest manufacturers of industrial VRLA (Valve Regulated Lead Acid) batteries in the region. Following the leading group principals and policies, the company has been concerned of application of the latest technologies and international standards in the product process. Therefore a complete know-how transfer of "Shoto Brand" (Shuangdeng Group Co, Ltd.), the most prominent Asian industrial battery manufacturer, was achieved.

High product quality and production capacity, end to end on-time delivery, professional consultation and installation have already made Nian Battery to a distinguished market leader. A great number of various industry stakeholders entrust us as a qualified manufacturer and supplier of VRLA batteries.

The wide range of our products; top or front access, compact design and maintenance free, provides excellent discharge performance & DOD and the lowest self-discharge. Basically Nian Battery's products are applicable as a reliable back-up source of power supplies for telecommunications, renewable energies power conversion systems, oil, gas & petrochemical, broad casting, railway and shipping industries.

Specifications of 12 V VRLA Batteries							
Type	Rated Voltage (V)	C10 Rated Capacity (Ah)	Dimension (mm) L	W	H	Total Height	Weight (kg)
FTB 12-55	12	55	277	106	222.5	222.5	17
FTB 12-80	12	80	395	110	288	288	26
FTB 12-100	12	100	395	105	270	270	28.5
FTB 12-155	12	155	551	110	288	288	44.5
FTA 12-155	12	155	558	125	311	311	52.7
FTA 12-200	12	200	546	125	324	324	59

Specifications of 2 V VRLA Batteries							
GFM- 200	2	200	171	107	334	334	13.9
GFM- 300	2	300	171	151	334	334	20.5
GFM- 400	2	400	211	175	334	334	27.6
GFM- 500	2	500	243	174	334	334	33.2
GFM- 600	2	600	302	177	334	334	40
GFM- 800	2	800	410	175	334	334	54
GFM- 1000	2	1000	478	175	334	334	67
GFM- 1200	2	1200	346	310	335	357	82
GFM- 1500	2	1500	401	351	340	350	100
GFM- 2000	2	2000	490	350	340	350	130

Nian Metal

Business Field:
Design & manufacturing any type of metal structures

Nian Metal

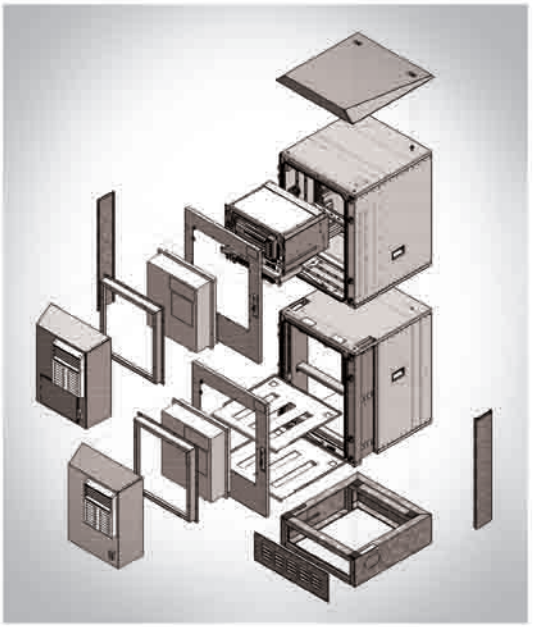
Nian Metal, a complementary subsidiary of Nian Industrial Group, provides custom design & innovative solutions, fully integrated products and outstanding customer service in the field of metal work over the past 10 years. We offer the complete sheet metal manufacturing from concept to product. The manufacturing and delivery-lead time of the products is unbelievably short. Nian Metal high quality products are modular, light and nevertheless solid. The provided raw materials are sourced and purchased at the best overall value.

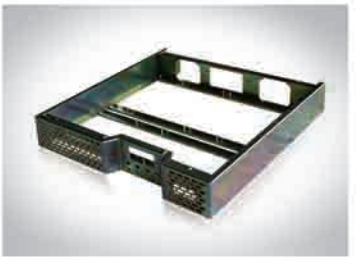
Dedicated to the significant principals and policies of the group including superior product quality, customer orientation & professional response, production flexibility and competitive product costs, Nian Metal manufactures full-range metal cabinets and structures of our various products. The precise quality control; conducted also during the entire manufacturing process, supports the perfect operation of the Nian Metal production and assembly line operated by fully trained and skilled staff.

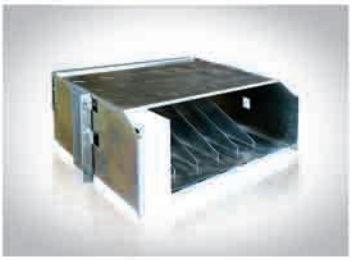
Committed to achieving higher business objectives, we strive to deliver the service expected by our customers, exceeding all standard boundaries. The design phase and the introduction of new products are generally a critical part of our business relationships. Every individual customer enjoys the benefits of devoted support teams who seek to fully understand their product requirements to optimize fabricating and delivery of provided solutions that are flexible and cost-effective.

Investment in the latest technology benefits our customers through quality, cost and delivery. It is this investment that has kept Nian Metal at the forefront of the regional precise sheet metal manufacturing industry. The state of the art production facilities of Nian Metal are able to handle all stages of manufacturing process, from design to final assembly.

From 3D CAD modeling to production, Nian Metal is one of the best fabrications in the region and handles orders and production runs of all sizes. Our team can help create and manufacture anything you can imagine.
Whether punching, forming, bending, painting or curing, we utilize complete in-house divisions to provide reliable services and offer our clients single source responsibility.





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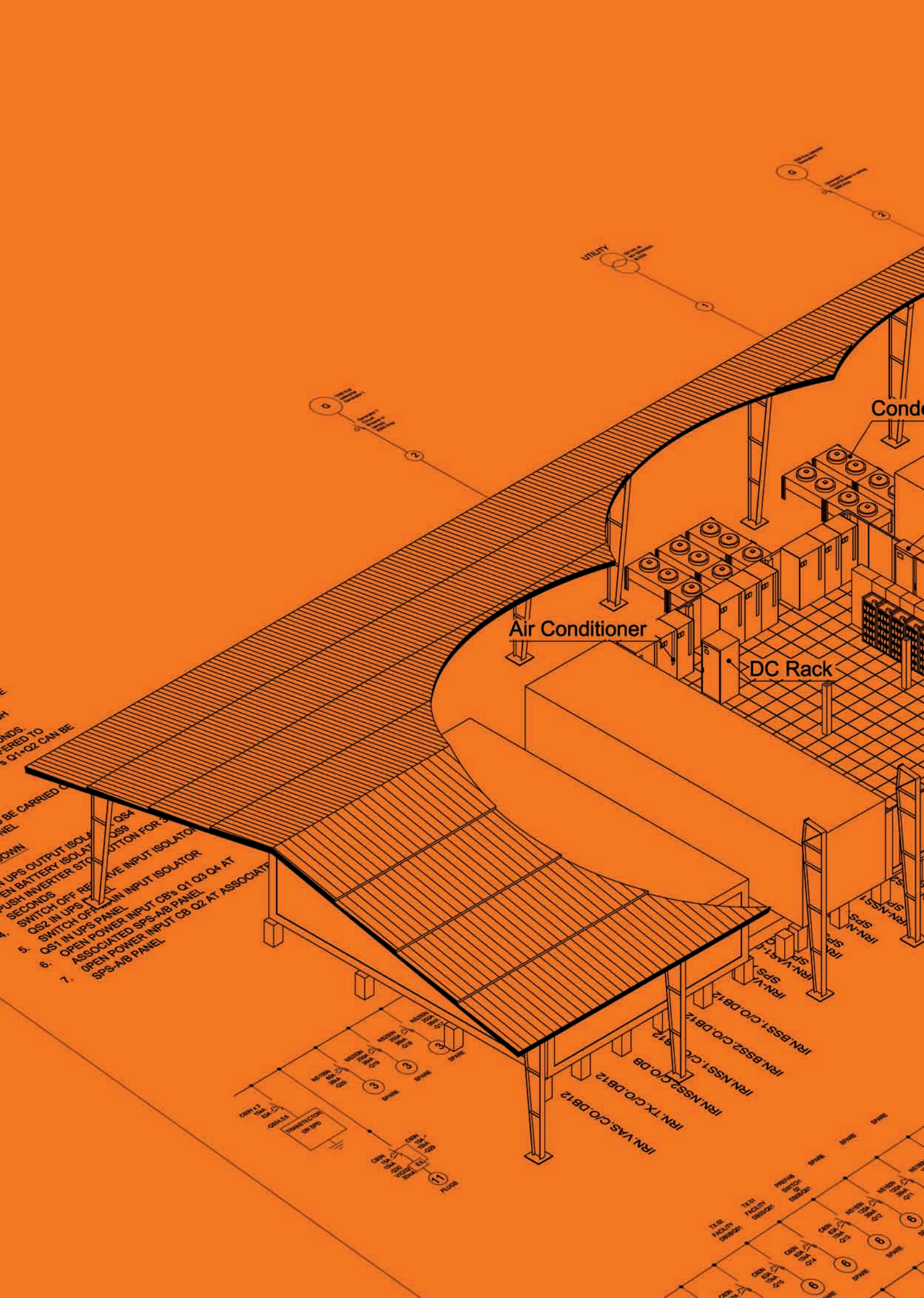
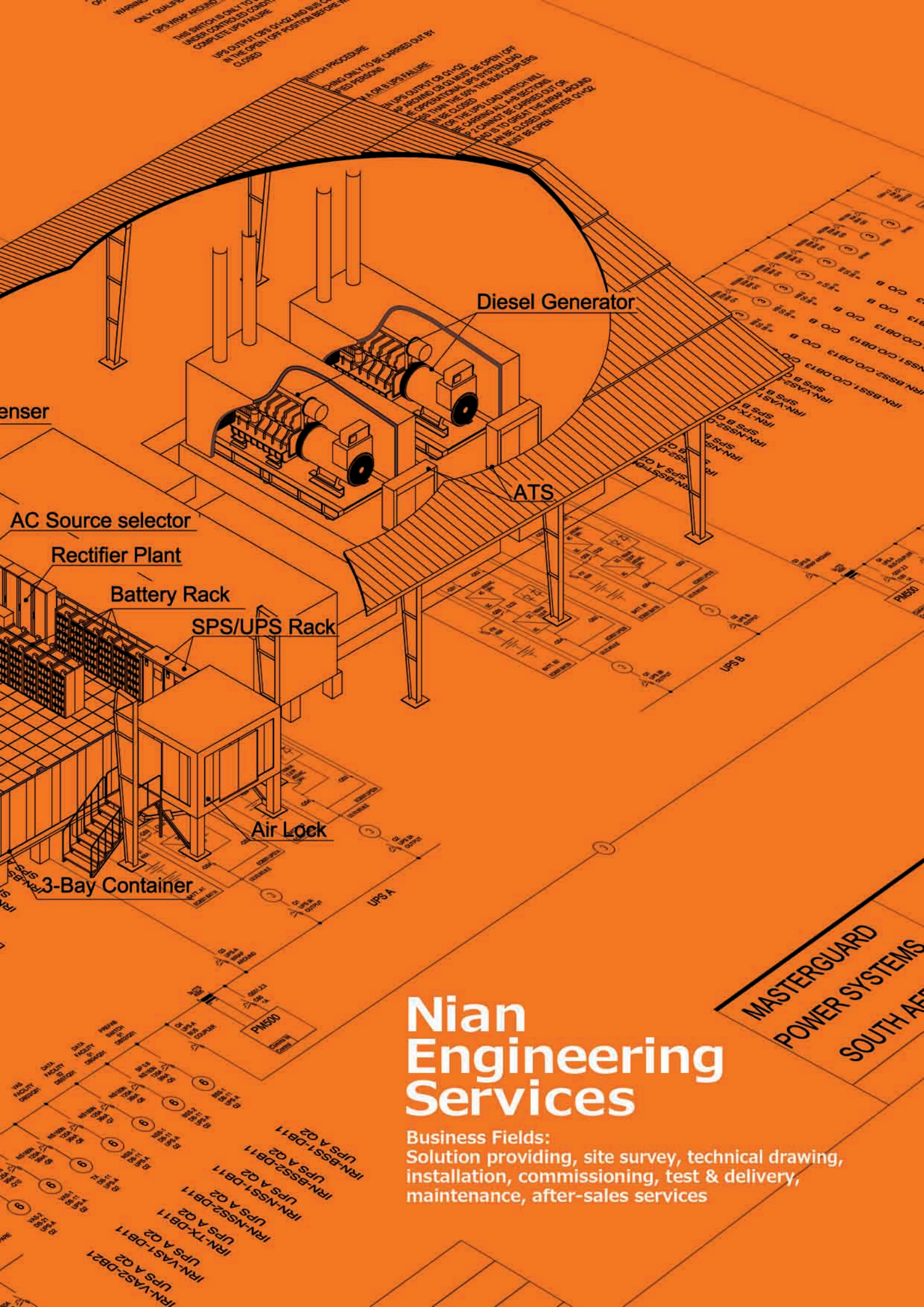

Air Conditioner
DC Rack



Nian Engineering Services

Business Fields:
Solution providing, site survey, technical drawing, installation, commissioning, test & delivery, maintenance, after-sales services

Nian Engineering Services

Nian engineering service can do thing such as site survey, design, estimation, installation, change over, supervision, test and deliver and all topics related to support and logistics in the telecommunication industry, communication, petrochemical, oil and gas and broadcasting and to provide engineering service in the telecommunications power supply systems, emergency power supply systems without an outage (DC Power Plant & Batteries Gen Set and UPS) and preventive maintenance.

Nian Engineering Services are a competent executive of telecommunications, electricity network and renewable energies turn-key & EPC regional projects. Providing consultations and solutions are further services of this operational subsidiary of Nian Industrial Group.

Nian Engineering Services

An expertized and well-experienced engineering team is supporting a great number of clients. By application of the latest international field related standards, Nian Engineering Services has successfully achieved to acquire ISO 10006, Quality Management in Projects.

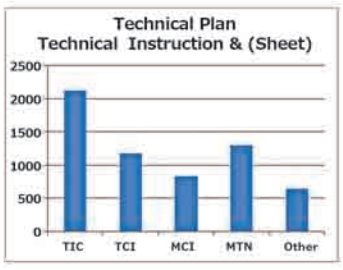
This subsidiary comprises a dedicated team of specialists, engineers and project managers to present appropriate solutions and executes turn-key & EPC projects from surveying your sites through to complete commissioning of the power systems.
Nian Engineering services' support division carries out also any kind of after-sales services.
Accordingly we strive to meet every technical and operational requirement of incoming enquiries. The followings are our major services:

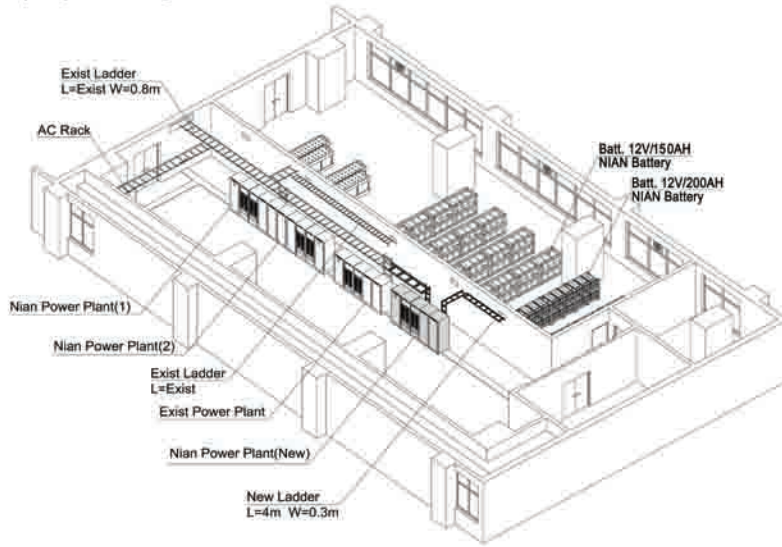
Site Survey

Nian Engineering Services' experts carry out extensive site surveys to provide all the information required for accurate costing and necessary equipment for the installation of the power systems. This process can include all site preparation, remedial building work and the provision of air conditioning in addition to electrical services.

System Design

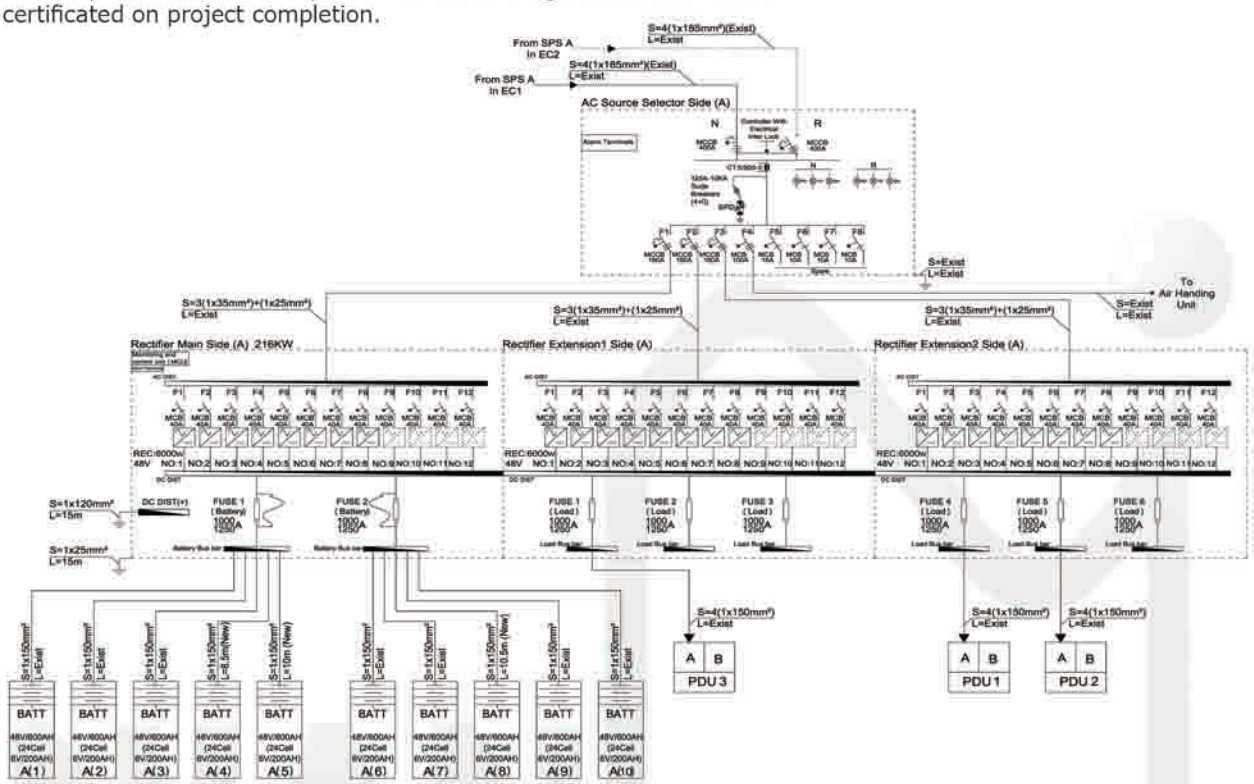
Nian Engineering Services are competent to offer different system designs to meet the exact technical and operational requirements regardless of the size or complexity of your application. Empowered by Nian Electronic as the main company of Nian Industrial Group, we are able to provide the most proper design to deliver solutions suitable to your budget.

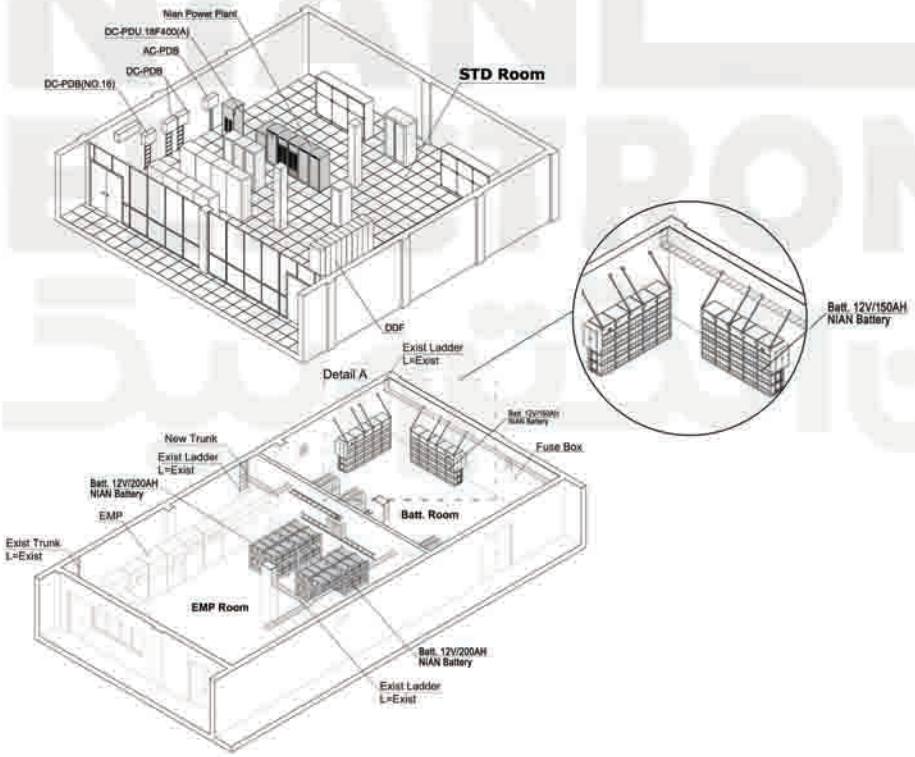


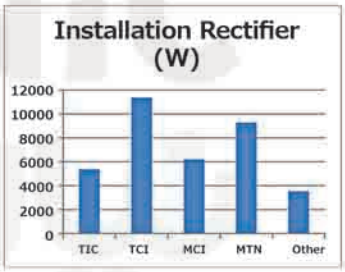


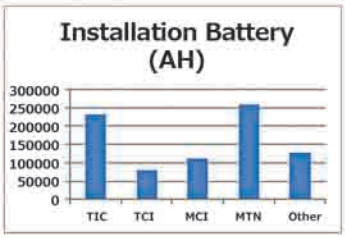
Installation

Nian Electronic's products installations are carried out by Nian Engineering Services approved installation engineers who are installation experts of power supplies and related equipment. All installation related procedures are compliant with current regulations and will be certificated on project completion.



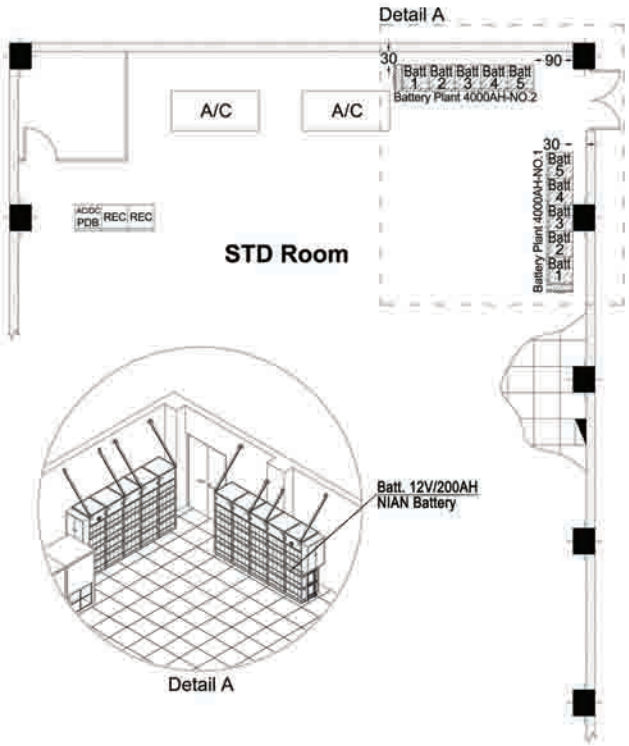






Battery Supply & Replacement

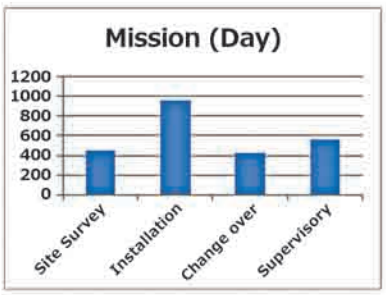
In several telecommunications sites, back-up batteries must perform in the most challenging applications. Extended ranges of sealed lead acid batteries have all the answers with the wide choice of capacity rating in compact cases suitable for cyclic and float applications.



Empowered by Nian Battery, one of the largest manufacturers of industrial batteries in the region and one of the most important Nian Industrial Group subsidiary companies, we are able to provide high quality & cost-effective back-up batteries and deliver end to end solutions at best. The technical team designs and installs any kind of battery systems, suitably sized, to provide any requested power back-up time.

Commissioning

For those customers who prefer to carry out their own installation Nian Engineering Services offer a range of commissioning services from basic inspection, start-up and calibration to full load testing.



Training

We offer fully flexible training courses to suit any specific demands of our customers. Our technical training courses are led by highly experienced and knowledgeable Nian Engineering Services' instructors qualified to answer any incoming queries and willing to provide full technical assistance and guidance throughout.
All courses are held at our headquarter office providing the participants the right level of product knowledge with practical demonstrations. The trainees are able to experience various aspects of the theory and the practice at once.
If requested, the courses could be held at the desired location anywhere in the region. They can last between one day to a week depending on the content and the technical training. A credited certificate will be awarded to each participant after the successful completion of the course.

Delivery

Nian Electronic's global scale manufacturing and logistic capability qualifies the company to deliver products and services with maximum cost-effectiveness and with the delivery speed and flexibility that you expect.

After-Sales Services and Repairs

Nian Electronic DC Regional Repair Sites, staffed by fully trained technicians, are located around the Middle East region to provide rapid turnaround times. Individually tailored service contracts are also available. This opportunity enables our customers to select an appropriate package that would meet their requirements accurately.

Options include extended warranty periods, unlimited out-of-warranty repairs, immediate replacement, on-site maintenance, and battery testing & conditioning. Special terms and conditions apply to some DC services.

GLOBAL CUSTOMERS

LOCAL CUSTOMERS

GLOBAL PARTNERS

OF NIAN INDUSTRIAL GROUP

Afghanistan
Kabul / Herat
TAKTAZ / AFSAT

China
Nanjing / Shenzhen
SHOTO / TELEBAHN / GREEN

Tajikistan
Dushanbe
TAJIK TEL

United Arab Emirates
Dubai
EVER PRESENT

Uganda
Kampala
BOLEX

South Sudan
Juba
BOLEX

Rwanda
Kigali
BOLEX

Denmark
Skive
DANTHERM

Slovenia
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Empowered Everywhere

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Design By Nian Electronic's Brand Department

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