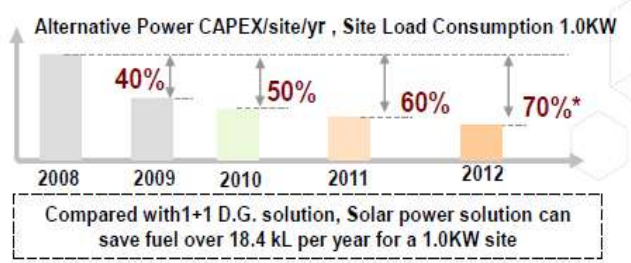
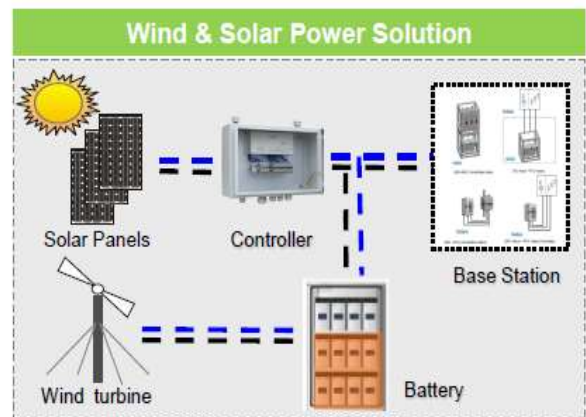
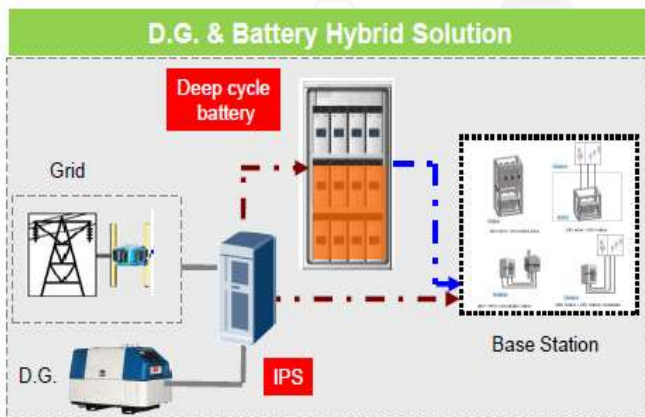


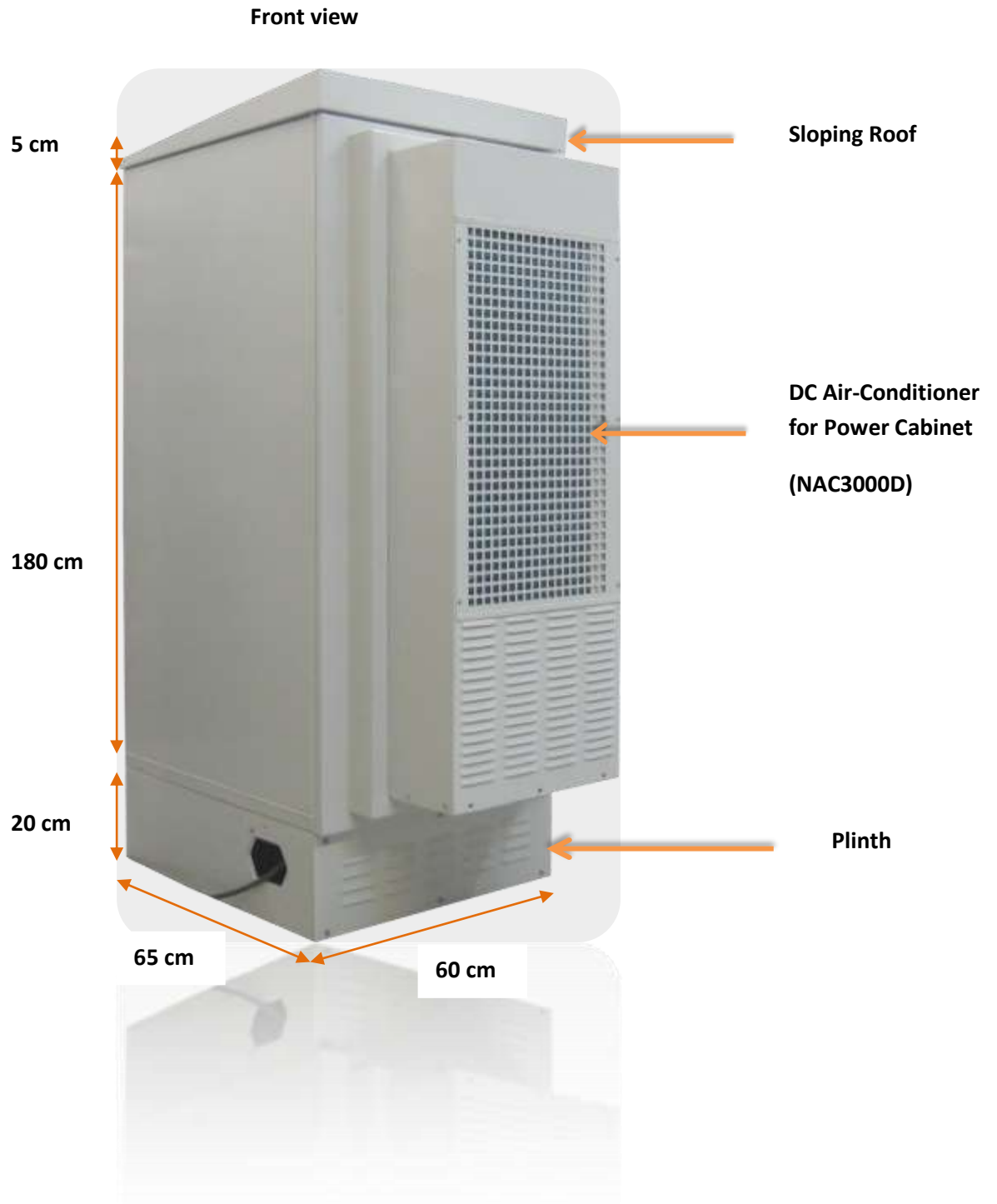


BTS Power Saving AC Less Use **Power Supply Sys**

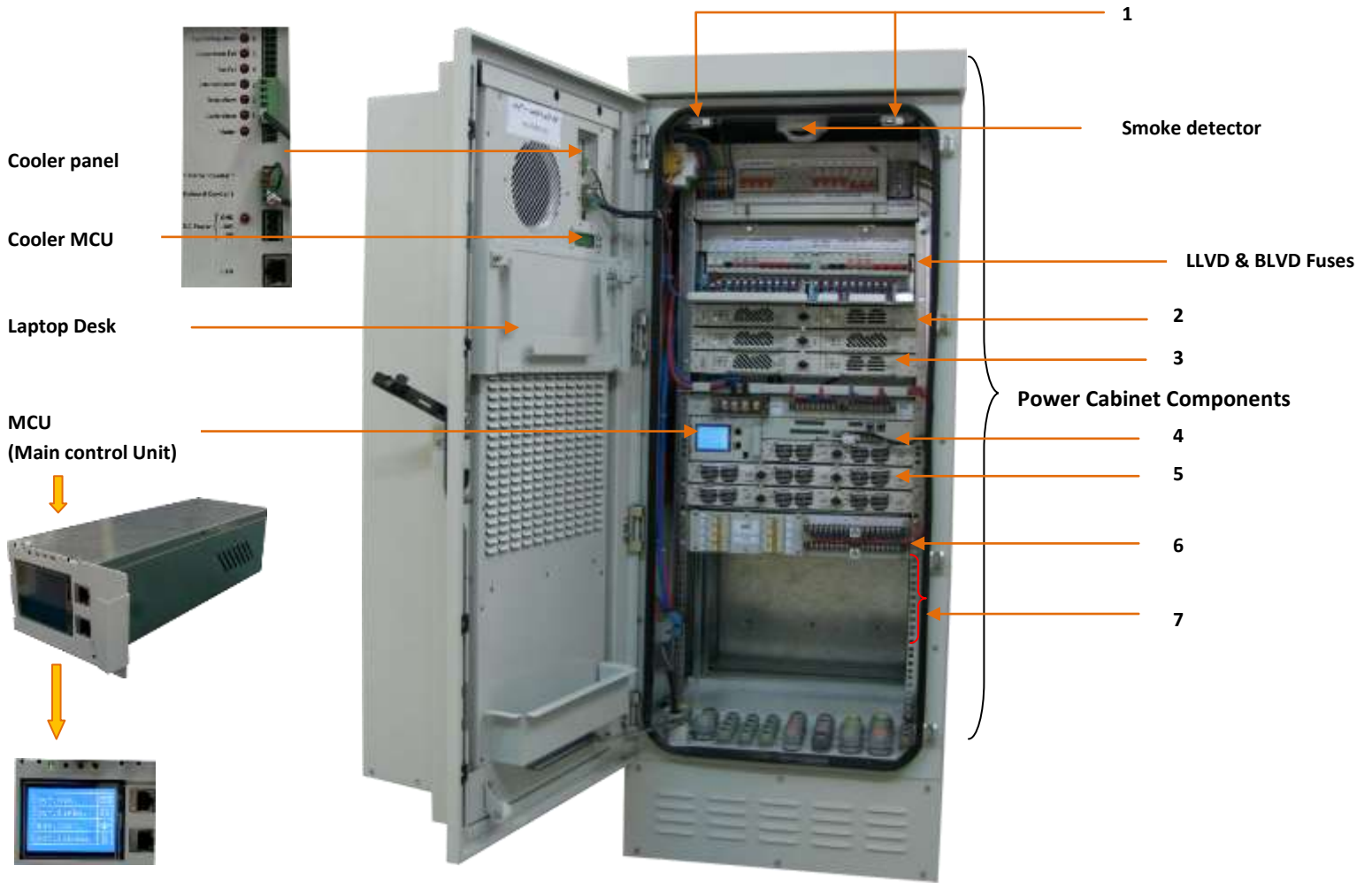
D.G. & Battery Hybrid and Wind & Solar Power Solution Strategy



Power Cabinet:



Inside view



- **Features**

- IP 55compliant standard
- Intelligent Main Control Unit (MCU)
- Multi master system control
- Surge Protection Device (SPD) (Optional)
- Up to 6 NCR48U (3KW/63A) Hot-Pluggable rectifiers
- Up to 8*1.5kw Hot-Pluggable Solar Modules
- AC&DC -power distribution MCBs (custom-design)
- DC air-conditioner & heater
- Shock, Temperature, Humidity sensors
- Smoke detector
- Remote monitoring & control
- Heater for more battery life
- Adjustable fault limits
- Hot plug-able modules
- Minimized output ripple
- Single phase and three- phase application
- Monitoring and controlling via the network (optional)
- Power limit capacity
- EMI protections
- Equipped with over current protection for each battery shelf
- Double supply main control unit for more reliability
- Accurate active load sharing
- Adjustable current limit for rectifiers (5 to 42A)
- Simple setting

- Battery and load current, output voltage, battery status, charging status, battery charging and discharging time, and all the rectifier parameters observation via the LCD.
- Periodic battery test (charging and discharging) for more battery life
- All events data logging
- Equipped with 2LVDs (Low Voltage Disconnection Switch) for auto. Battery switching and the other one for Emergency Loads
- Battery thermal sensors and charge voltage compensation according to battery temperature
- Equipped with discrete current transducer for each battery shelf
- Battery circuit breaker with remote alarm for each shelf
- Wiring plot in accessory pack

MCU (Main Control Unit):

- **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 Solutions.

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 upgrade software.

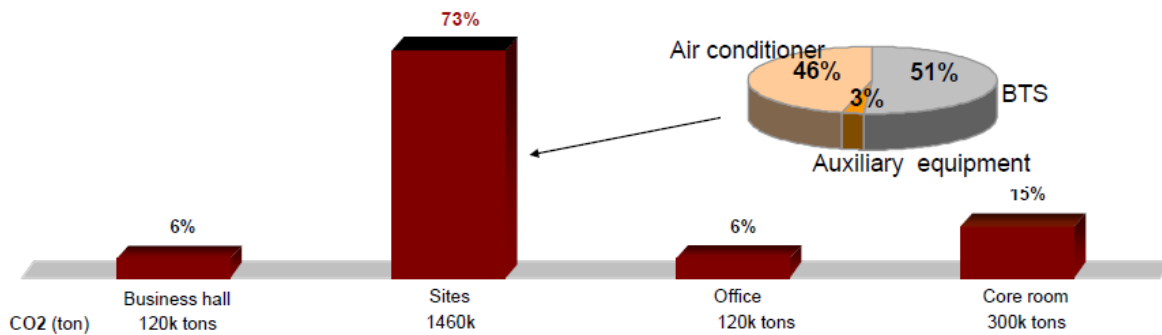
Smart alarms feature provides highly configurable control and alarms to automated site management and improves performance; disconnects loads during peak AC grid loading, manages cooling, supervises battery status, controls load sharing, recovers the batteries and temperature compensate charging, etc.

This power system has designed multi master which enable it to select one of the modules as master to control the others, in the case of MCU failure. It also has a LCD which facilitates the adjustment of operational settings. All the events are displayed on the LCD and also you could adjust the charging voltage and define required alarms.

- **DC Air conditioner and Heater:**

Outdoor separable power systems equipped with DC air conditioner which not only increases the battery life and allows the rectifier and batteries to operate in a proper temperature, but also enables the systems to has ventilation and cooling in case of AC failure due to its DC type. Moreover, the system has a heater for conditions of cold weather to prevent the battery freezing.

Site energy consumption is 70% of the total, and is the key factor for power saving



- | | | |
|--|---|---|
| <ul style="list-style-type: none"> ● How to reduce BTS power consumption? <ul style="list-style-type: none"> ✓ High efficiency power amplifier ✓ High density hardware module ✓ New software techs (Carrier shift, slot shift) | <ul style="list-style-type: none"> ● How to reduce AC usage? <ul style="list-style-type: none"> ✓ HEX ,TEC ,direct Cooling ✓ Battery cooling cabinet ✓ Ground-Coupled Heat Pump Systems | <ul style="list-style-type: none"> ● How to improve power supply system efficiency? <ul style="list-style-type: none"> ✓ High efficiency power system ✓ Alternative energy ✓ D.G. & battery hybrid power system |
|--|---|---|

Battery Protection:

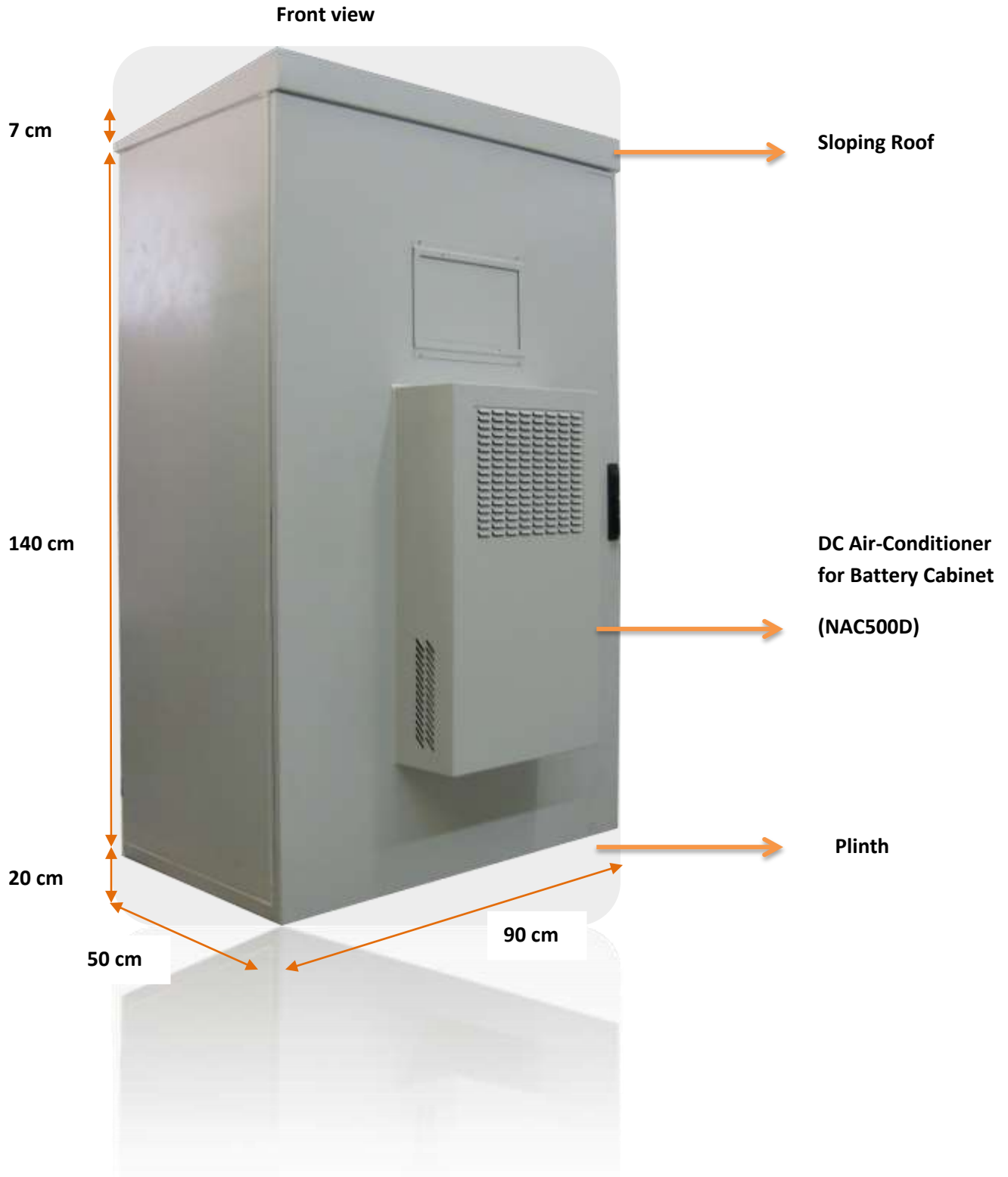
For battery mentioned system has many features such as below:

1. For battery short-circuit protection the systems equipped with main MCB in addition to MCB's for each battery shelf.
2. It also has a LVDS (Low Voltage Disconnection Switch) our systems equipped with LVDS magnetically latched type. This type is very important because it switch the LVDS only with a pulse. LVDS disconnects the battery path automatically to prevent deep battery discharge. The noticeable point is that it connects the battery path when the rectifier output reaches the normal voltage, automatically.
3. There is no need for operator presence in the site by using LVDS.
4. It equipped with thermal sensors for each battery shelf.
5. Compensated charging voltage according to battery temp. for more battery life.
6. Distinct current transducer for each battery shelf.
7. Battery protection against inrush current (soft start).
8. Intelligent current share among two battery shelves.
9. Periodic recovery charge for more battery life.
10. Accurate battery supervision for each battery shelf on the LCD and supervisory contacts.
11. DC air conditioner for cooling and ventilation which increases the battery life.
12. Heater that enables the system in order to prevent the battery freezing.

Battery Cabinet Components:



Battery Cabinet second designed:



Inside view



- **Technical specification of the systems**

Hybrid Power System Specification	
General Specification	
Cabinet ventilation options	1* 3000 W DC Air-Conditioner & heater
Cooling system	Door mount
Construction	Heat insulation
Security	Lockable, vandal-proof hinges, multi-point locking mechanism
Telecommunications cabinet	19" for telecom & 23" for batteries
Detector sensors	Smoke, Door opening, cooler sensor, Shock, Temperature, Humidity sensors
IP compliance	55
Cable entry	Bottom
Dimension (H *W*D) mm /for each cabinet	2050*600*650
AC/DC-distribution	Available
SPD (Surge Protection Device)	Available
Main Control Unit (MCU)	Ethernet access, supported by SNMP,HTTP, Modbus TCP/IP
Individual rectifier	NCR48U Efficiency > 94 % up to 96% Max. output power 3000 W
Max. Number of rectifiers	6
Solar Modules	Efficiency >96% Max. output power 1500 W
Max. Number of Solar Modules	8
Available space for power equipment installations:	inverter 48 V to 220v& Converter 48v to 24v
LVD	Available for batteries & load (LLVD & BLVD)
Load sharing	Available
DC-distribution	Available as attached
Service light	Available
Laptop desk	Available
Free space for wind convertor	Available
Battery Cabinet Specification (NOBT48F)	
DC breaker for each string of battery	Available
Back-up battery capacity	Up to 400 Ah
Battery Heater	Available
Current Transducer	Available for each string of Battery
Cabinet ventilation options	1* 500 W DC Air-Conditioner & heater

Main Control Unit Specification	
Model	NCU48U
Supply Voltage range	24-65 VDC
Mounting orientation	Horizontal
Supervisory relay outputs	Available in Alarm Panel unit
Supported protocols	Modbus, HTTP, Modbus/TCP, SNMP
Management software	Remote upgrade, SMCS
Language	English/ Russia
Alarms	More than 30
Visible Monitoring Data on main screen	
Load voltage	Load current
System status	Charge type
Date & time	IP & MAC address
Visible Monitoring Data in menu	
Each rectifier input voltage	Each rectifier status & number
Each rectifier output voltage & current	Each rectifier temperature
Each level of battery current & temperature	Event status
Event logger with date & time	Load breakers status
Sensors status	Cabinet status
Load sharing	Firmware version
Adjustable Settings	
Float charge voltage	Equalize charge voltage
Current limit for all rectifiers	Over voltage alarm limit
IPM (Intelligent Power Management) activation	Low battery voltage alarm limit
Too low battery voltage alarm limit	Battery temp alarm limit
Battery test activation	Current limit for all battery strings
All setting for BLVD & LLVD voltage limits	Charge type swap condition (FLO to EQU or EQU to FLO)
Recovery charge condition	Battery capacity definition
Date & time	Buzzer
Test mode	SPD alarm

BTS Power Saving
AC Less Use
Power Supply Sys

96% Efficiency Rectifier Module & Dynamic Energy Savings



NIAN Electronic DC Air Conditioner – NAC3000D

Product Introduction

These series product can be widely used in enclosed area for climate control, such as wireless communication cabinet, battery cabinet, industry control cabinet etc.

Product Design Features:

- 48V
- Design and production of all components are centralized.
- Operation voltage (43V~60V).
- More efficiency rather than AC air-conditioners.
- More efficiency rather than the same products because of the Inverter technology and reducing power consumption algorithm.
- LCD & LED Alarm Display.
- Data logger.
- Remote upgrade.
- Online monitoring through LAN port.
- Outside heater control.
- Saving space in terms of integrated design.
- Reducing the maintenance costs.
- Ip55 environment protection according to the IEC60529 standard.
- Fit for T3 high temperature working condition.
- Using of R134a refrigerant gas.
- The best cooling solution for solar, wind, diesel generator and hybrid power system etc.

Detail Specification:

Technical Parameters	
Power Supply	-48 VDC (-43VDC ~ -60VDC)
Rated Cooling Capacity	
L35 °C - L35 °C	3000W
L35 °C – L55 °C	1750W
Rated Power Consumption	
L35 °C - L35 °C	800W
L35 °C – L55 °C	1000W
COP	
L35 °C - L35 °C	3.75
L35 °C – L55 °C	1.75
Control System	
Control	Smart Control
Temperature Set Range	+18 °C ~ +55 °C
Ambient	-35 °C ~ +55 °C
Noise	65dB
Dimension	
W / H / D	470/ 1170 / 230 mm
Weight	43 Kg
Refrigerant	R134a / 930gr
IP Grade (according to IEC62208 & IEC60529)	IP55

Technical Specification of Rectifier

Model		NCR48U 48V / 3KW
Part number	NCR48U	
INPUT DATA		
Voltage (nominal)	230v (195 – 275 VAC)	
Voltage (range)	85v ~ 275 VAC	
Frequency	45 – 65 Hz	
Power Factor	PF>0.99 (for >40% LOAD)	
THDi<3.8% (for Vin: 230v &THDv<2%)		
Input Current (maximum)	18 A RMS	
Inrush Current	<7A	
Protection	High Input Voltage	
Low Input Voltage , Hot plug-in inrush current limiting		
OUTPUT DATA		
Voltage (default)	Nominal 53.5v – 56.4v DC	
Voltage (adjustable range)	48v ~58v DC	
Power (maximum)	3000 W	
Current	5A~63A	
Active Current Sharing	<0.05 maximum Current	
Charging types	Equalize (Boost) - Float	
Static Voltage regulation	<= ± 0.4%	
Line regulation	< ± 0.1%	
Regulation time	< 2 ms	
Ripple	<100 mV peak to peak	
Protection	Overvoltage Shut down	
High temperature protection	Under Current Protection	
Current Limit	Fan failure	
Overcurrent Protection	Under voltage Shut down	
Short circuit Proof	Hot Plug-in inrush Current Limiting	
OTHER SPECIFICATIONS		
Efficiency	>94 %	
Operating temperature	-10 to +55°C `C. Humidity 5 – 90%	
LED Indicators	Green LED : Normal Operation Yellow LED: Current Limit Red LED: Output Fail Distinguished LED: Fan Fail Distinguished LED: Input Fail	
Storage temperature	-5 to +70 `C	
Weight	3.5Kg(±5%)	
Dimensions [W*H*D]	212 x 44x 327mm	

Technical Specification of solar Module

Model		
Part number	NSC 1500F	
INPUT DATA		
Voltage (nominal)	100 VDC	
Voltage (range)	60v ~ 170 VDC	
Frequency	DC	
Input Current (maximum)	25 A	
Protection	High Input Voltage Low Input Voltage , Hot plug-in inrush current limiting	
OUTPUT DATA		
Voltage (default)	Nominal 53.5v – 56.4v DC	
Voltage (adjustable range)	48v ~58v DC	
Power (maximum)	1500 W	
Current	30A	
Active Current Sharing	<0.05 maximum Current	
Static Voltage regulation	<= ± 0.4%	
Line regulation	< ± 0.1%	
Regulation time	< 2 ms	
Ripple	<100 mV peak to peak	
Protection	Over voltage Shut down High temperature protection Current Limit Over current Protection Short circuit Proof	Hot Plug-in inrush Current Limiting Under Current Protection Fan failure Under voltage Shut down
OTHER SPECIFICATIONS		
Efficiency	>96%	
Operating temperature	-10 to +55°C `C. Humidity 5 – 90%	
LED Indicators	Green LED : Normal Operation Yellow LED: Current Limit Red LED: Output Fail Distinguished LED: Fan Fail Distinguished LED: Input Fail	
Storage temperature	-5 to +70 `C	
Weight	2.5Kg(±5%)	

YOU ARE NOT ALONE ...

Nian Industrial Group