

# ZD402 Power Supply Cabinet



## Products description and applicaiton

Designed as power supply for use in towers (power transmission, telecommunication, microwave), chimney (power plant, coking plant, chemical plant), high buildings, large bridges, large port machinery, large engineering machinery, wind turbines.



## Features

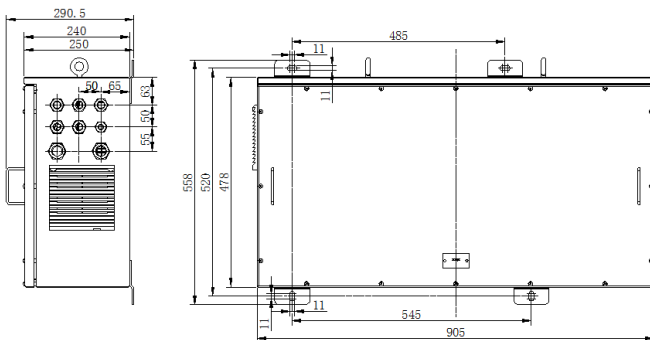
- Industrial standard design, suitable for use in harsh industrial environments.
- Multi protection design: Short circuit/Over current/Overvoltage.
- Built-in UPS, automatic change to battery power when main power is off.
- Product has power failure alarm function, when main power failed or battery low, product's power failure indicator lit up and output alarm signal.
- Product has UPS battery activation function.
- Failure alarm signal is dry contact(relay/passive) output.
- Built-in heating and temperature control module, automatic start to heat while low temperature, prevent to impact the performance when product is in low temperature.

## General Specifications

Electrical		Mechanical	
Input voltage	AC200V~ AC240V	Material	Cold rolled plate + powder coated
Output voltage	DC48V	Color	Gray (RAL7038)●
Frequency	50Hz/60Hz	Storage temperature	-40℃~+60℃
Rated power consumption	1500W	Operating temperature	-40℃~+55℃
Battery capacity	48V/40AH	IP Rate	IEC60529 IP54
Lightning surge	IEC61000-4-5 L- L 3kV IEC61000-4-5 L-G 6kV	Weight	87 kg
Electrostatic discharge	IEC61000-4-2 air discharge 4kV IEC61000-4-2 contact discharge 8kV		
EMC	SAE Class 2		

## Mounting dimensions

Unit: mm



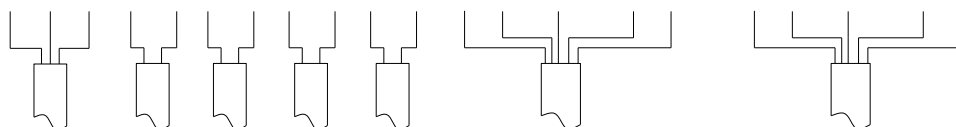
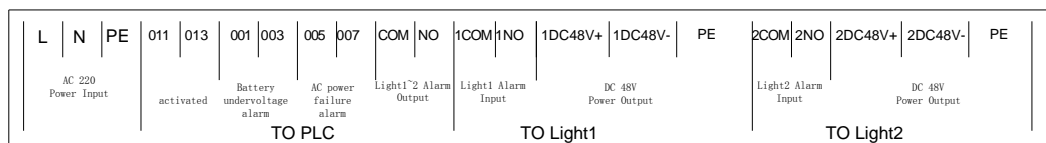
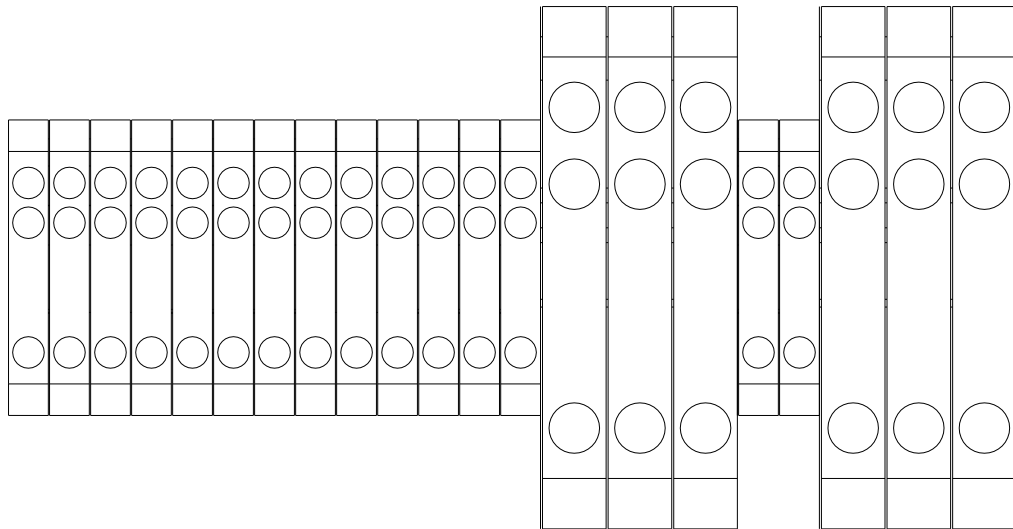
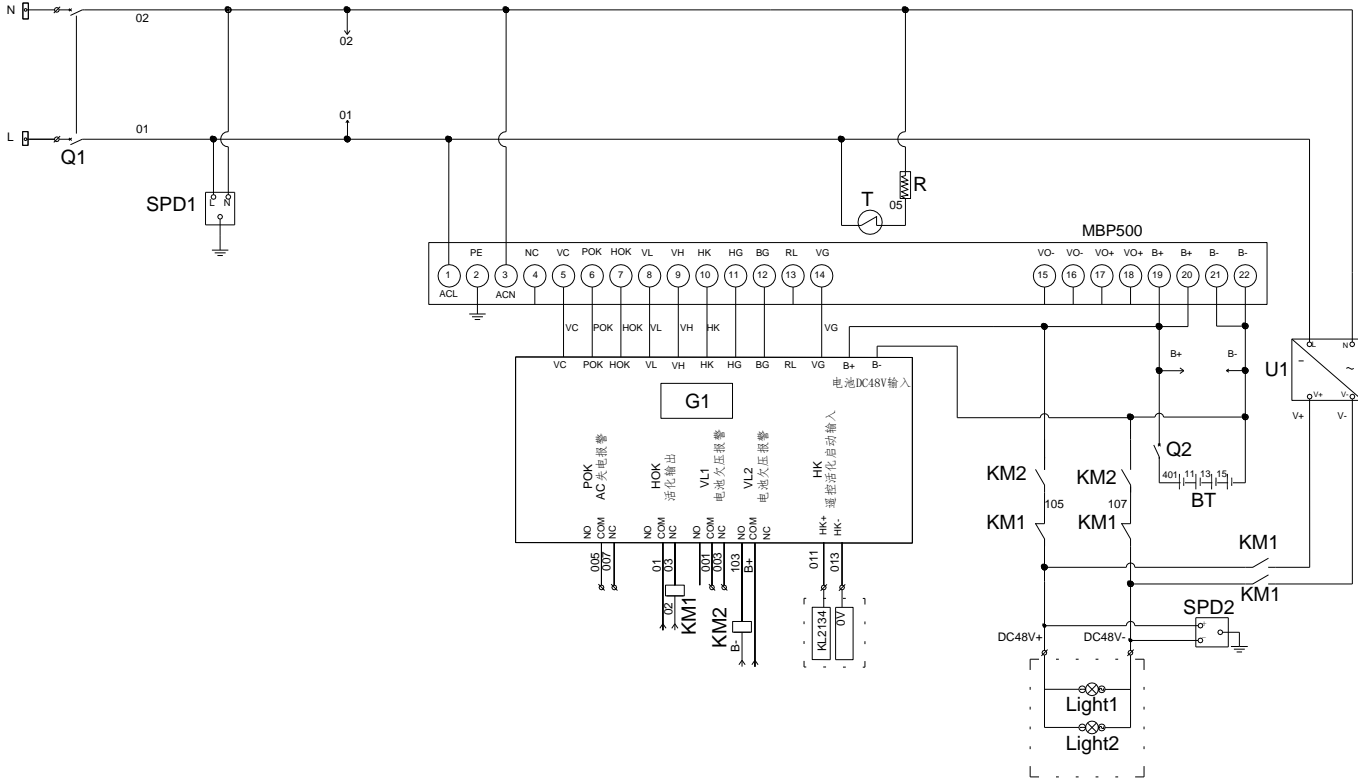
## Installation and operation

- Ensure mount face or mount bracket has enough mechanical strength, and mount place has enough space, product junction box cover could be opened.
- Fix product by using four sets M10 screws.
- Caution: Use stainless steel screws to fix product.
- Connect power line through the cable gland, refer terminals labels to correctly connect the power wires, fasten the cable gland when finish the wiring connection.
- Ensure the input voltage is correct.
- Storage temperature: -40℃~60℃.
- Discharge and charge the battery every 6 months if the product storage time is over 6 month.
- Caution: Do not close the circuit-breaker when connect the main power, the circuit-breaker can be closed after wiring connected.
- Caution: Do not touch electrical parts while product is operating.

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## Wiring diagram



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## Introduction:

- When battery activation start, high-level (24VDC) duration is not less than 0.5S, correspond with electrical symbol 011 (positive), 013 (naegative).
- Battery low voltage alarm: Normal operation is Normal Open, Failure is Close, correspond with electrical symbol 001, 003.
- AC No-voltage alarm: Normal operation is Normal Open, Failure is Close, correspond with electrical symbol 005, 007.
- Light 1~2 failure alarm: Normal work is close, failed or no power is Normal Open (light1 and light2 failure alarm is parallelconnection, output through COM, NO)

KM1~KM2: Contactor

UI~U2: Inverter

BT1~BT4: 12V/40AH battery

SPD1: AC SPDSPD2: DC SPD

Q1: AC Breaker

Q2: DC Breaker

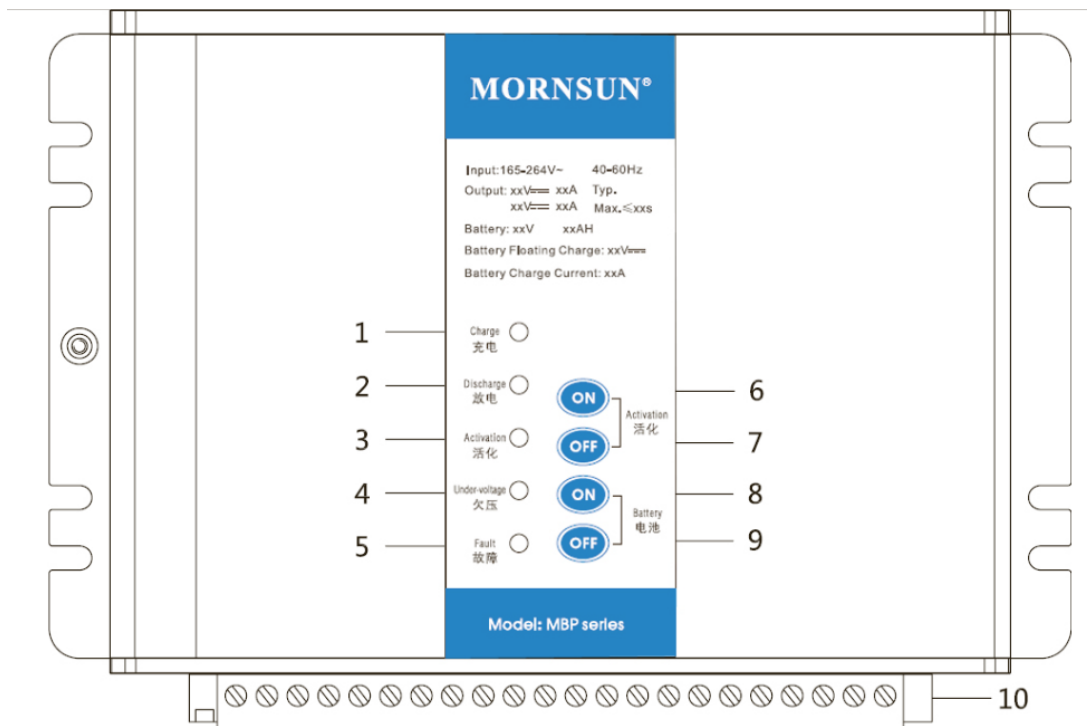
MBP500: MBP Charger

T: Temperature controller

R: Heater

G1: UPS signal control board

## MBP500Charging module power supply



1. Charge and operating indicator
2. Battery discharge indicator
3. Battery activation indicator
4. Battery low voltage indicator
5. Power failure indicator
6. Activation on
7. Activation off
8. Battery on
9. Battery off
10. Terminal blocks

## Power indicator

- Charge, green, charge indicator on when battery is charging, it turn off when battery discharge or activate.
- Discharge, red, discharge indicator on when battery is discharging or activating, it turn off when battery charge or discharge finished.
- Activation, red, indicator on when battery is activating.
- Low voltage, red, indicator on when battery or power output is low voltage (low voltage alarm point 46V) -- battery low voltage function is controlled by G1 signal control board, this low voltage indicator is for reference only.
- Failure, red, indicator on when output overvoltage, over current or short circuit and so on conditions.

## Buttons function and operation

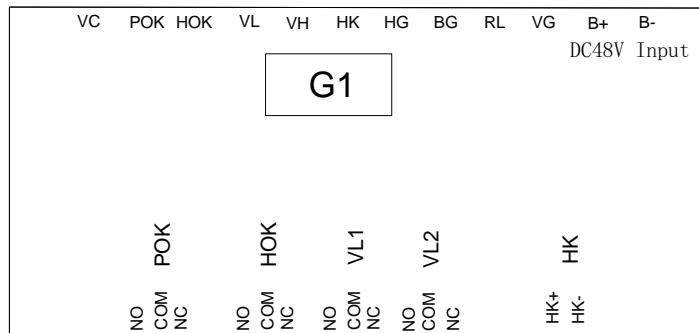
- Activation on, slight touch button, press the button by manual to start activation.
- Activation off, slight touch button, press the button by manual to stop activation.
- Battery on, slight touch button, press the button by manual to start activation. – If battery terminals direct connect to load, this button no effect.
- Battery off, slight touch button, press the button by manual to start activation. – If battery terminals direct connect to load, this button no effect.

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- Activation button, press the button one time to start the activation, charge and activation indicator on, battery discharge to load and discharge resistor; press activation off button to stop activation, otherwise main power automatic complete battery activation.
- Battery button, in the first use before battery has input, press battery on button,
- Product start to operate when connect to main power, it is constant voltage and constant current charging for battery. When battery charging finish, power automatic turn to floating charge, power supply floating voltage at this moment and current supply battery normal charge and discharge.

## UPSG1 UPS Signal control board G1



### UPS Signal control board instruction:

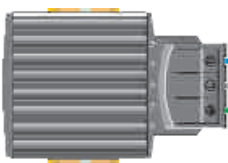
This control board work with MBP charging module, achieve the switch of input and output control signal , supplementary achieve battery low voltage inspection function(Product MBP charging module power low voltage inspection function is not stable cause by large instant drive output current which lead to lead acid battery voltage was instant decreased,use this control board to supplementary achieve .)

- POK: AC No-voltage alarm, dry contact is used to output to PLC, indicator on when power is normal, indicator off when power is failure.
- HOK: Activation output, when activation on, HOK relay action, green indicator on, at the same time main power is disconnected, discharge by battery.
- VL1: Battery low voltage alarm, dry contact is used to output to PLC, indicator on when battery is normal, indicator off when battery is low voltage (battery low voltage alarm point is 45.5V)
- VL2: Battery low voltage alarm, dry contact is used to stop battery output, prevent battery over-discharge, indicator on when battery is normal, indicator off when battery is low voltage (battery low voltage alarm point is 45.5V)
- HK: Remote control activation input, 24VDC high –level is supplied by PLC, duration is not less than 0.5S.

### Remark:

1. When battery voltage is lower than 45.5V for more than 3 seconds, control board will output low voltage alarm, charge the battery in time to prevent battery over-discharge damage; while battery is charging, low voltage alarm will be cleared after battery voltage is higher than 48.5V for more than 3 seconds.
2. When battery voltage continuous lower 36V, control board will automatic turn off, prevent battery further damage; control board will return to have power supply when battery voltage is more than 45V.

## Heating module



Heater



Temperature controller

- Heating module is consistof heater and temperature controller, prevent to impact product performance, especially the battery performance when operate in low temperature condition.
- Heating power is 45W, use PTC heating type, long lifetime, constant heating, prevent high temperature.
- Temperature range is 0°C~60°C ,factory set heater start to heat from 0°C.
- Heating is worked only when product has main power. To avoid battery consumption, when main power is off, heating not work.

## Battery maintenance

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If battery floating charge for a long term, start up battery activation to prevent battery polarity passivation. Discharge and charge the battery every 6 months if the product storage time is over 6 month. Press *activation on* button(or remote control) on charging module MBP to start activation , battery discharge and supply power to load, when battery discharge or activation is completed, main power automatic start to supply power to load and charge battery. If need to stop the activation, press *activation off* button to quit.

## Judging Battery Life method

Battery capacity is attenuation in the operation unit end of life, to ensure battery stable and safely operation, judge battery condition on time, replace new batter the battery life was ended.

- Appearance inspection: if battery failed, there has bulging and deformation, even weeping, need to replace the battery.
- Open circuit inspection: if battery is open circuit, battery cannot be charged in this condition, battery terminal voltage achieve charger highest voltage, measure the terminals to check voltage after remove charger, if no voltage, battery has failed.
- Short circuit inspection: Battery will discharge worse and charging current heavily if battery terminal or internal short circuit.
- Battery capacity attenuation: if battery actual discharge capacity less than 60%, there has no improvement after maintenance, it means the battery failed.
- Battery heating while is charging: When battery positive end soften, it leads activation material break off, internal resistant increase, more impurity in polar plate break off, increase gassing rate in charging, it not only make battery heating, and also make battery discharging worse, lead battery out in very short time, need to replace the battery in time.

## How to Order

P/N	Model	Input voltage	Output voltage	Battery
1000305-001	ZD402	AC200V~AC240V	DC48V	48V/40AH

Thanks for choosing our products, NANHUA Electronics is the professional brand of signal transmission and high quality industrial lighting which is trusted and loved by global users from various industries. Read and understand these instructions completely and carefully. Wrong installation and operation may lead to fires, electric shock, and others. Due to our continued efforts to improve our products, product specifications are subject to change without notice.

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