



USER MANUAL



ADCW Series

28V DC Ground Power Unit

Solid State 28V DC Rectifier

Xi'an Jerrystar Instrument Co. Ltd.

Thank you for choosing our products. Please read this manual completely before operating.

Statement for Check and Correction

The instruments listed in this manual are completely in conformity with the nominal standards and properties in the ordinary catalog of our company. The product is qualified and carried out the functional test. All parameters and tests meet the customer's specified requirement and standards of the electronic inspection center.

Product Warranty

Xi'an Jerrystar Instrument Co., Ltd guarantees that your new instrument is warranted to be free from defects in workmanship and material for a period of one (1) years from date of shipment. During the warranty period, Please return the instrument to ACSOON Power its branches or distributors for repair. Xi'an Jerrystar Instrument Co., Ltd reserves the right to use its discretion on replacing the faulty parts or replacing the assembly or the whole unit. Xi'an Jerrystar Instrument Co., Ltd will void your warranty under the following states:

1. Operation of the instrumentation under non-normal conditions
2. Any non-authorized modifications, tampering or physical damage
3. Elimination of any connections in the earth grounding system
4. Use of non-authorized parts in the repair of this instrument. Parts used must be parts that are recommended by Jerrystar as an acceptable specified part.

This warranty does not cover accessories not of associated Jerrystar manufactured.

Table of Contents

Chapter 1 Introduction	1
Chapter 2 Safety Notifications	1
Chapter 3 Installation	5
Chapter 4 Technical Parameters	7
Chapter 5 Principle Block Diagram	7
Chapter 6 Power Capacity Selection	8
Chapter 7 Cable Connecting Instruction	9
Chapter 8 Front Panel Introduction	10
Chapter 9 Operation.....	12
Chapter 10 Routine maintenance and troubles shooting	15
Chapter 11 Precautions for Use	19
Chapter 12 Contact Detail	19

Chapter 1 Introduction

1.1 Acsoon® ADCW series 28V DC Rectifier is Designed to give continuous high quality DC power for Aircraft, aircraft servicing and maintenance at hanger, apron on Aerodrome. This continuous DC power supply is ideal for aircraft powering, preflight inspection, charging the on board battery or for continuous powering of equipment during operations, without draining the on board aircraft batteries. The safety features include Over Voltage, Overload and Internal Thermal, Short Circuit protection. The power modules comply with EMC standards for noise emissions and immunity.

1.2 Theory of Operation of ACSOON Power

Theory of Operation: Series AF60W, AF50W, AF400W, Frequency Converters/AC power source are designed to change conventional 50 Hz or 60 Hz electrical energy to virtually any other frequency. The frequency converter is accomplished in a two (2)-stage process. The first stage converts the incoming alternating supply voltage to a controlled DC voltage (rectification). The second stage inverts the DC voltage to an alternating supply voltage at the desired output frequency (Inverter).The ADCW Series DC Power supply is accomplished in three (3)-stage process, AC to DC, DC to AC, AC to DC.

Chapter 2 Safety Notifications

All safety information given in these operating instructions and description.



Signal Word! (Characterizes the severity of the danger)

NOTE (describes the danger and informs on how to proceed)

Icon	Signal Word	Meaning	Consequences if ignored
	DANGER!	Warns of hazardous electrical voltage.	Warns of hazardous electrical voltage.
	WARNING!	Warns of potential,very hazardous situations.	Risk of severe injury to operator or damage to equipment.
	WARNING! Hot Surface	Warns of hot surface and risk of burns.Labels may be on or inside the equipment to alert people that surfaces may reach dangerous temperatures.	Risk of severe injury to operator
	STOP!	Warns of potential damage to material and equipment.	Damage to the controller/drive or its environment.
	NOTE	Designates a general, useful note.	None. If observed, then using the controller/drive system is made easier.

Be Careful When Operating The Units.

2.1 Safety Instruction

Make sure you know the safety identities used in our product;

Choose the right input voltage before turn on the input power switch.

Watch out before removal or operating to avoid accidental injury and death.

2.2 Maintenance

User maintenance

Don't open the metal enclosure of the equipment to avoid electric shock.

Please ask electrician for maintenance if there is an necessary.

Regular maintenance

Check the equipment as well as its accessories for at least once a year to ensure the safety of the operator and the performance of equipment in normal operation.

Clean and check the equipment every six months or more frequently by the electrician, guided below steps:

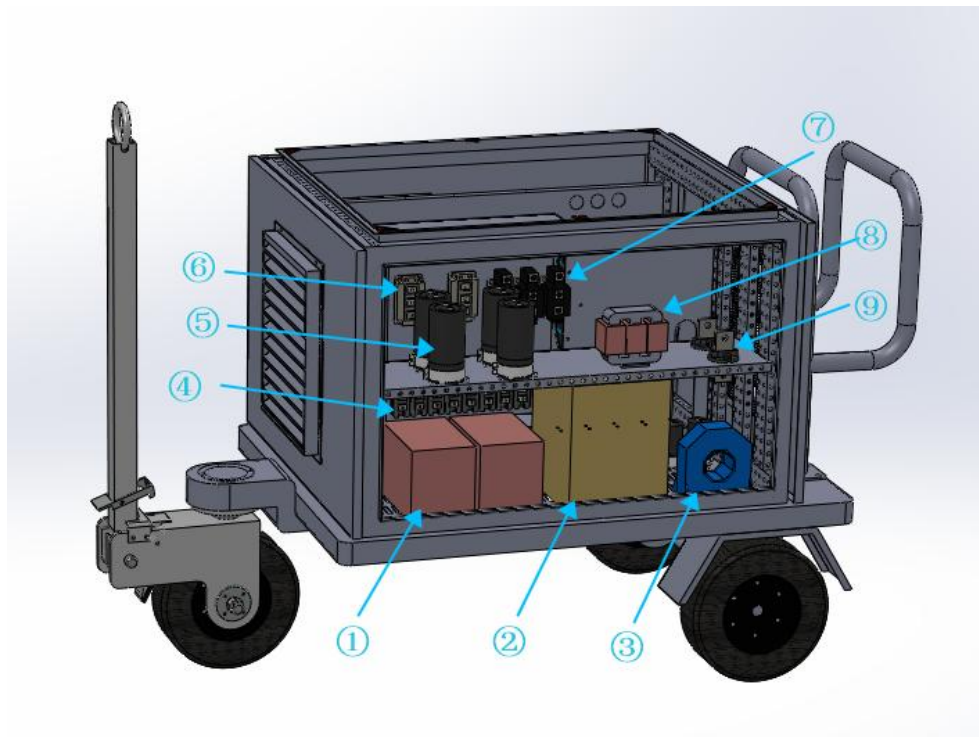
- 1) Cut off the mains electricity power to ensure that the equipment will not be accidentally energized;
- 2) Remove the metal enclosure for easy accessibility;
- 3) Measure the voltage on the DC capacitor to ensure that it has been completely discharged. Otherwise, please do not energize the equipment;
- 4) Use one air blower to carefully blow off the dust from inside of the equipment;
- 5) Check and observe whether the wire connection is in loose, ensure the wire cables connection are fastened;
- 6) Check whether the every little electrical components on all Printed Circuit Boards are in normal;
- 7) After above procedures completed, put the metal enclosure back to their position and screwed, then make the equipment energized to run.

User modification

Users are not allowed to change the circuit and components of the equipment; Otherwise the warranty will automatically lose effectiveness. No warranty if the components or accessories without permission are used in this equipment. Maintenance fee will be charged if the equipment return back to supplier for maintenance was found to be modified.

4

- ①Higher Frequency Transformer ②DC Choke ③Hall Transducer ④Diode
⑤Electrolytic capacitor ⑥IGBT Modules ⑦Silicon controlled rectifier
⑧Power transformer ⑨Cable Connect Terminal Strip



2.2.2 Structure diagram

Chapter 3 Installation

3.1 Unpacking and inspection

- ❖ Open the packaging of the and check the accessories including an operating manual with the equipment.
- ❖ The equipment was packaged in one wooden case protected by PE foam. If the packaging is broken, please observe and check the product and find out whether there is deformation, scratch or panel damage on the equipment.

❖ Inform us or the authorized agents and keep the packaging as well as the PE foam if the equipment was damaged. Do not return the equipment to us or the agents without our permission.

3.2 Preparation before operation requirements

Please make sure the available power supply at site comply to specification showed on chapter 4, usually the equipment can withstand input voltage fluctuations +/- 15%. The unit is designed with installation-free, operators only need to pay attention to wiring identification when connect input and output cables, make sure every cable go exactly right where it should be.

The Surrounding Environment

- ❖ Temperature: -10°C-45°C
- ❖ Relative humidity: 10%-90%
- ❖ Altitude: Below 2000 meters
- ❖ No gas, vapor, chemical deposit, dust, dirt or explosive and etching medium affect the equipment
- ❖ No severe turbulence and jolt in the installation site

3.3 Storage and Transport

Surrounding environment

The product should be stored and transported under the following conditions

Temperature: -10°C-55°C

Packaging

Original packaging

Please keep all the original packaging materials in case that the product be return to the factory for repair. Contact us if repair is needed. Please send the accessories with the equipment and write the reason and phenomenon of the malfunction. Besides, the packaging should be marked “Fragile” and “Handle with care”.

Other packaging

Package the product according to the following instruction if the original packaging cannot be found.

- ❖ Package the equipment with bubble bag or PE foam properly
- ❖ Put the machine in a multiple corrugated carton which can bear a weight of 150kg
- ❖ Fill the space between the equipment and carton with vibration-proof material about 70-100mm thick.

Chapter 4 Technical Parameters

Model: ADCW-28800

4.1 Input: 400V(L-L) +/-15%, 3 Phase 50hz /60hz

4.2 Output:

Voltage: DC28.5V, Rated Current: 600A Continuous, 400A~800A adjustable

Voltage regulation: +/- 1%

Ripple: less than 250mV

Overload ability: 200% 10s; 125% 600s;150% 60s

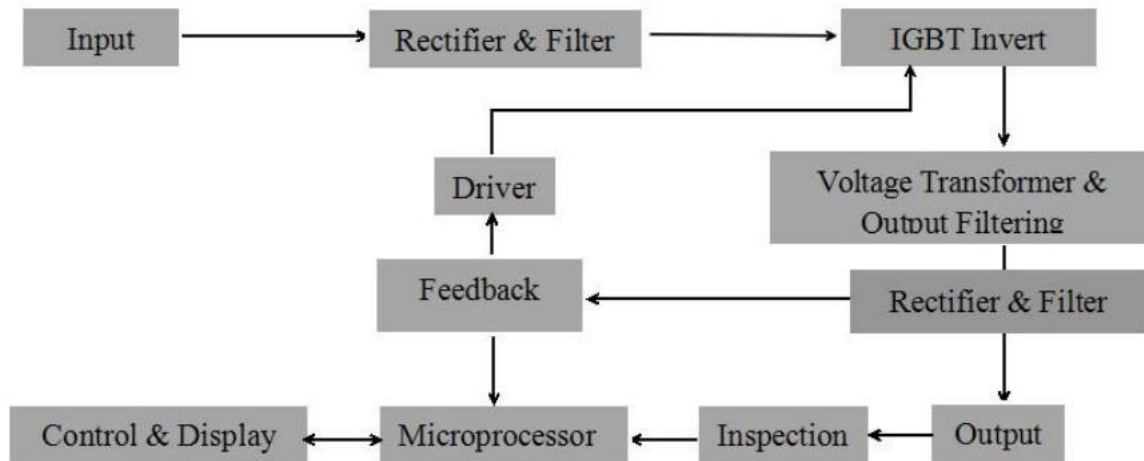
4.3 Interface: RS485 communication port

4.4 Digital display: voltage, current,voltage and power

4.5 Working conditions: Temperature -10~45°C, relative humidity 0-95%

Chapter 5 Principle Block Diagram

The principle block diagram of the ADCW Series IGBT pulse width modulation DC power source.



5.1 Principle block diagram

Chapter 6 Power Capacity Selection

How to choose correct capacity for the power units(Says power A as below)

6.1 For the resistive load,such as lighting load unit

6.1.1 For fluorescent lamp,Power A=power of lamp*1.1

6.1.2 For halogen lamp or sodium lamp,Power A=power of lamp*1.3

6.2 For inductive load,such as motor load unit

6.2.1 When supply for several motors(motor B,C,D,E) and they start running on the same time.

✧ For the motors which are Freq. Start,start running with frequency converter, Power A=2 times for the sum of every single motor,says power $A=2*(B+C+D+E)$

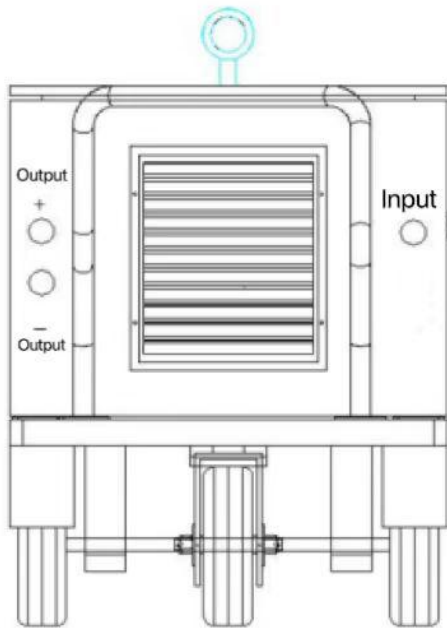
✧ For the motors which are soft start,start running with soft starter,Power A=2.5 times for the sum of every single motor,says power $A=2.5*(B+C+D+E)$

- ✧ For the motors are Y- Δ start, Power $A=3$ times for the sum of every single motor, says power $A=3*(B+C+D+E)$
- ✧ For the motors are direct start, Power $A=5$ times for the sum of every single motor, says power $A=5*(B+C+D+E)$

6.2.2 When supply for several motors (motor $B=10\text{kw}$, $C=5\text{kw}$, $D=3\text{kw}$, $E=2\text{kw}$) and they start running separately, not on the same time.

- ✧ For the motors which are Freq. Start, Power $A=B+C+D+E+B$ (Max power B)
- ✧ For the motors which are soft start, Power $A=B+C+D+E+2*B$ (Max power B)
- ✧ For the motors are Y- Δ start, Power $A=B+C+D+E+3*B$ (Max power B)
- ✧ For the motors are direct start, Power $A=B+C+D+E+5*B$ (Max power B)

Chapter 7 Cable Connecting Instruction

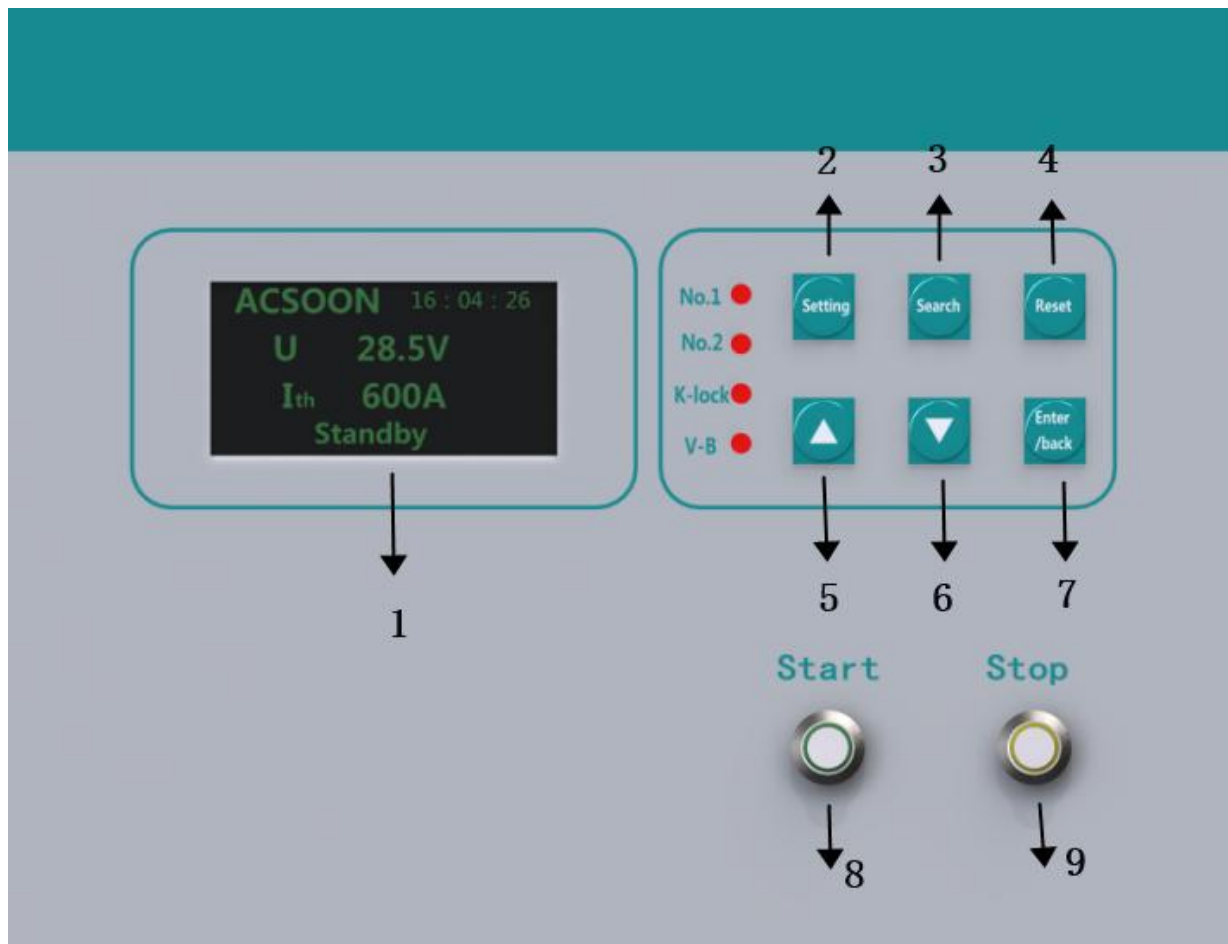


7.1 Wiring diagram

INPUT: The Input cable is coming with the equipment and it is connected at Input

OUTPUT: Output “+” and “-” 28V 2*120mm² cables comes with equipment and installed with connector.

Chapter 8 Front Panel Introduction



8.1 Diagram of the display screen.

*V-B: Voltage compensation indication. when setting compensation value >0 . Its indicator light is lit up.

*1. VFD Screen display: in standby mode, it displays setting voltage and setting current; In running mode, it displays output voltage and output current; when it is in failure, it displays fault information.

*2. Setting: Press “setting”, enter setting interface, setting voltage and current.

*3. Search: Press “Search”, check the historic status, running information and history failure information.

*4. Reset;

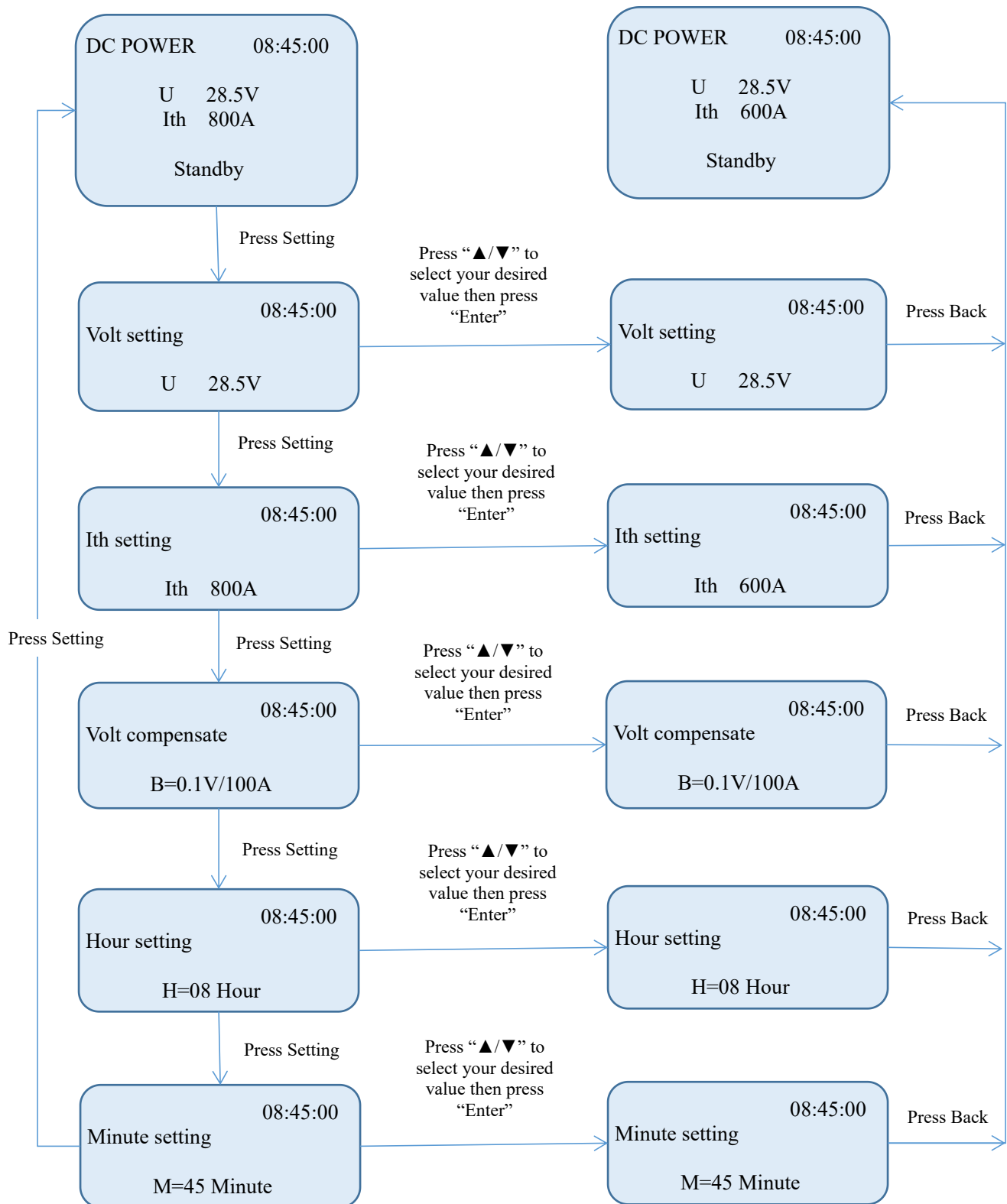
*5&6. $\wedge$ (plus)/ $\vee$ (minus):to adjust value of running data.

*7.Enter/back: Finish setting running data on setting interface, then press“Enter/back”, the setting data will be saved and carried out effectively. On search interface, press “Enter/back”, it return to initial interface.

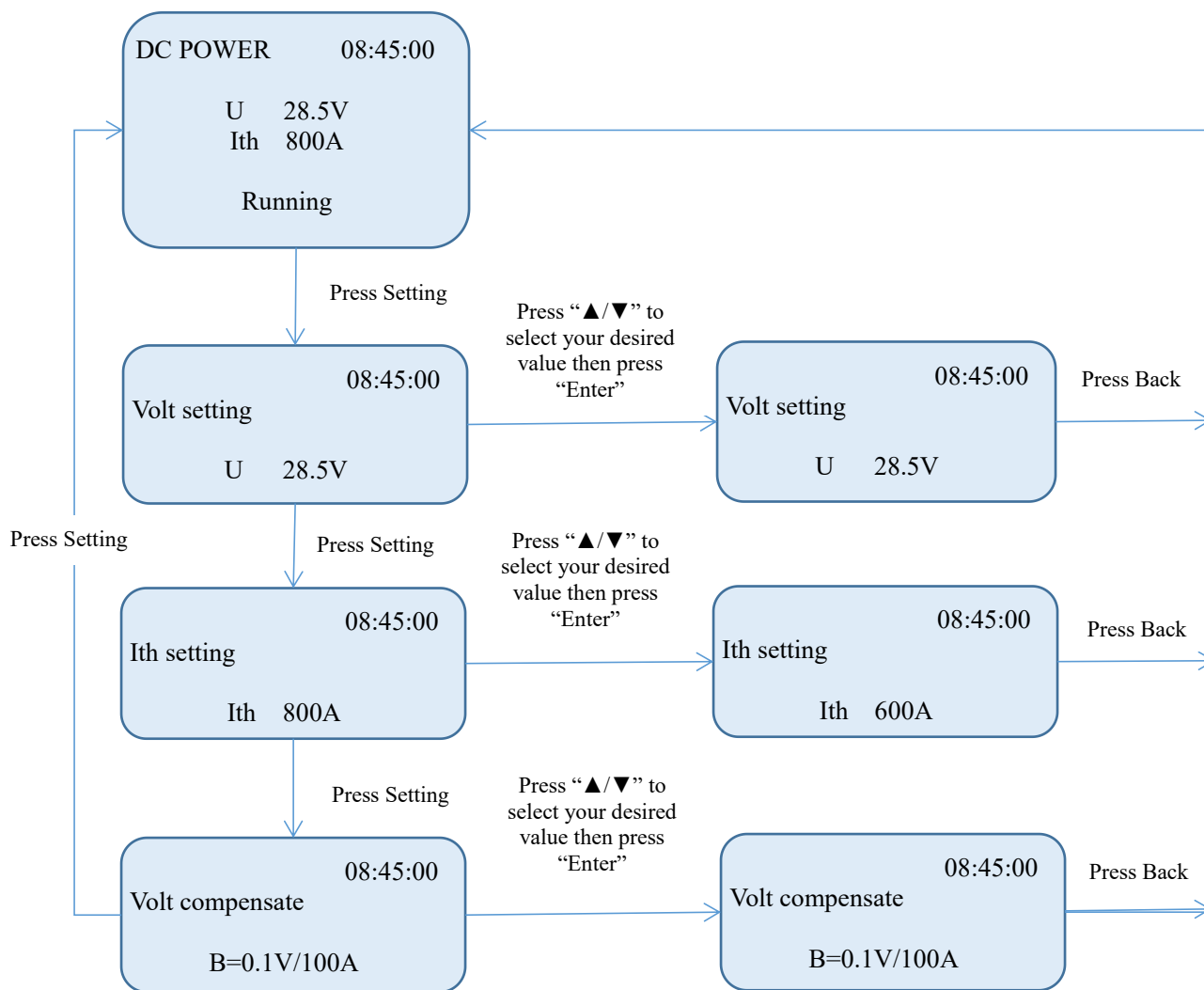
*8.Start: Press “Start”,light lit up,and VFD screen shows “The Unit is in self -testing please wait”. 8~10s later,VFD display shows output voltage and output current.

*9.Stop:Press button “Stop”,GPU /DC POWER will stop working and go into standby mode.

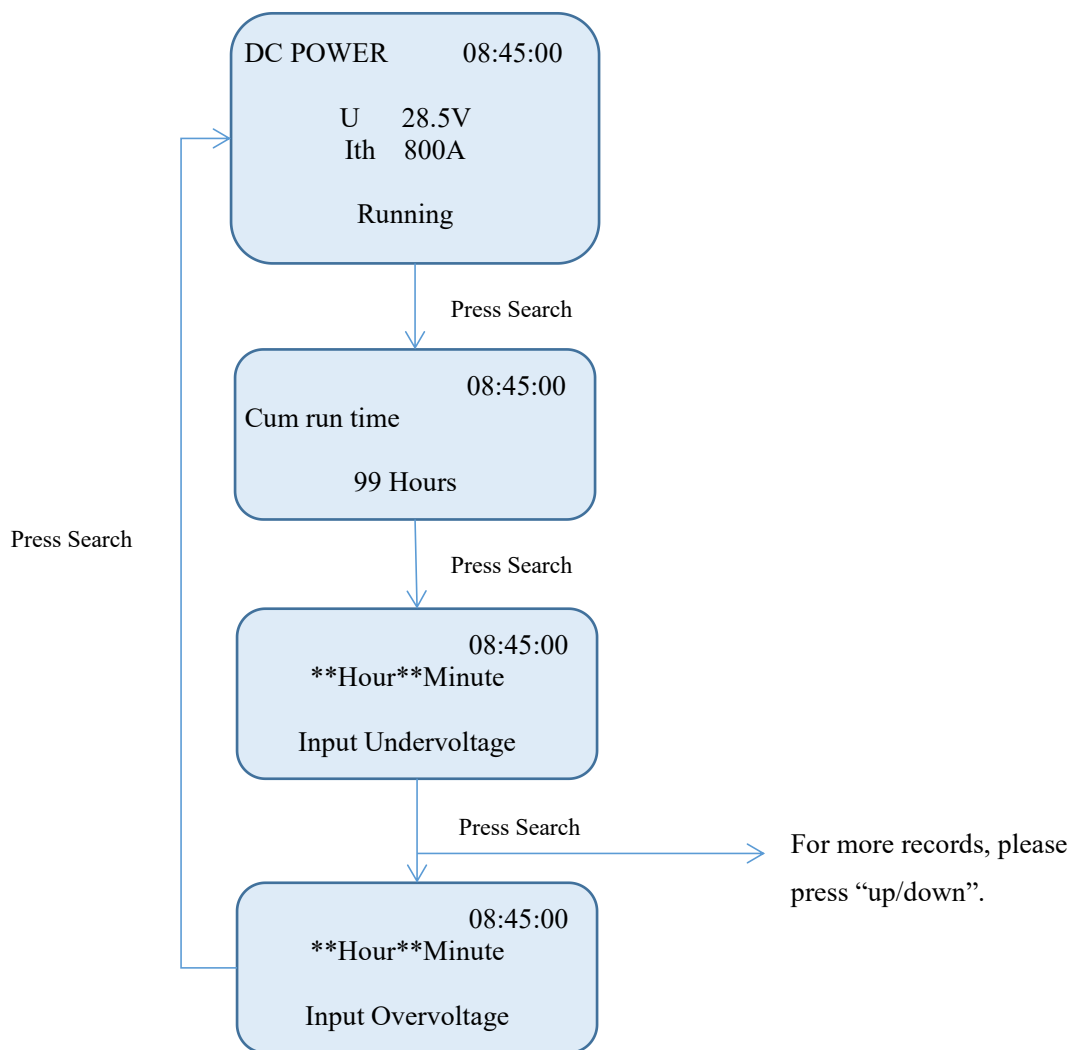
Chapter 9 Operation



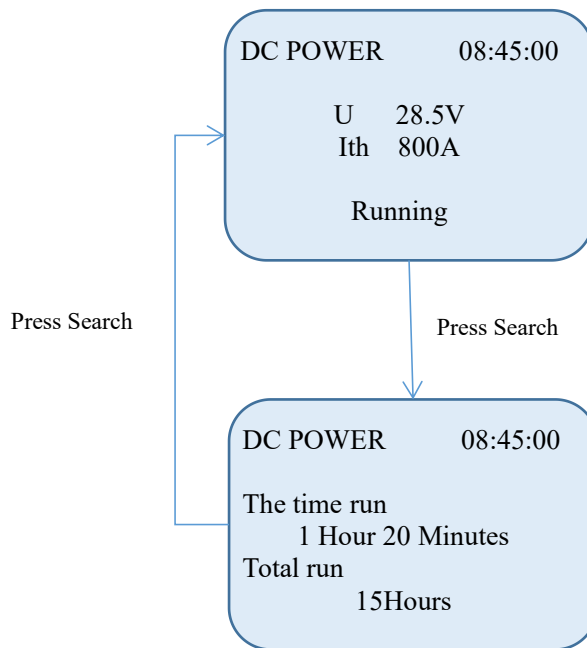
9.1 Standby Setting



9.2 Running Setting



9.3 Standby Query



9.4 Running Query

Chapter 10 Routine maintenance and troubles shooting

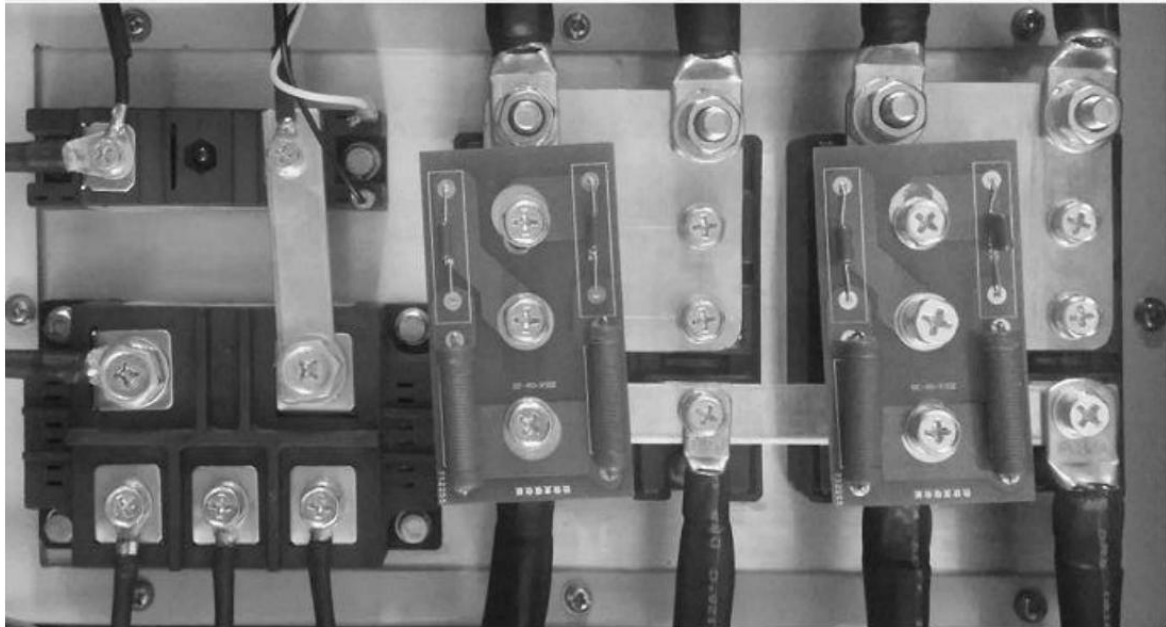
Note: Only electrician is allowed to maintain this machine. Please note the inner high-voltage electricity, lay persons are not allowed to open the machine's door and maintain the machine. When the machine can not work, please turn off the machine and then check it as these steps blow.

Please be aware that the DC Capacitors can remain charged to a dangerous voltage up to 10 minutes after the mains input has been disconnected.

10.1 Introduction of every parts inside the machine

Part A: AC/DC module(Rectifier)

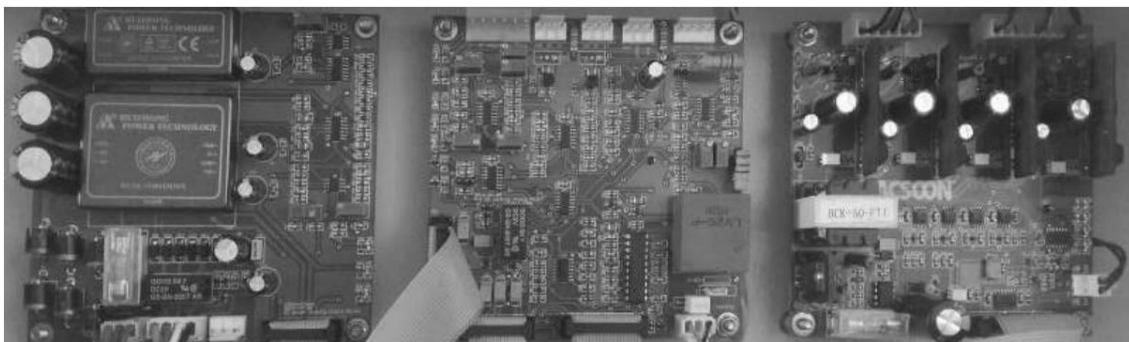
A rectifier is an electrical device that converts alternating current (AC) which periodically reverses direction to direct current (DC) which flows in only one direction.



10.1 AC/DC module(Rectifier)

Part B: Processor Module

The processor module is based on a micro-controller and a digital signal processor (DSP). Together they regulate, supervise and diagnose eventual external and internal faults. As soon as the ground power unit is connected to the mains, and constantly during normal operation, the processor module runs through a self-check programme which checks all internal functions of the ground power unit. If an internal or external error is detected, the display shows the nature of the error. All immediate parameters related to a shut-down are stored in the ground power unit's memory.



10.2 Processor Module

Part C: DC/AC module (IGBT)

IGBT(Insulated Gate Bipolar Transistor)

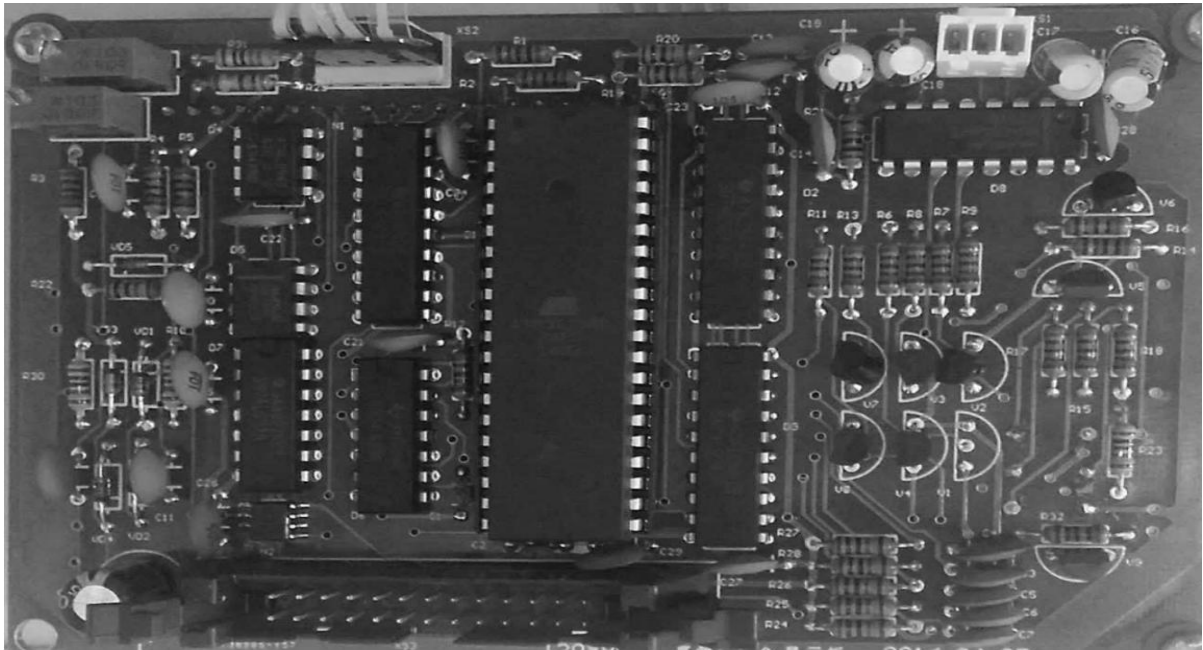
Which inverts Direct Current(DC) to alternating current(AC)



10.3 DC/AC module (IGBT)

Part D: Display module&Keyboard PCB

The display module serves as the interface for daily operation



10.4 Display module&Keyboard PCB

Part E: Output Filtering Capacitor and DC choke

Filtering capacitor in parallel with the DC choke can make the output power so clean.



10.5 Output Filtering Capacitor and DC choke

Chapter 11 Precautions for Use

1. The product must work in the specified environment, and please pay attention to the installation condition for the full play of its function as well as its service life: Avoid rain, moisture, high temperature, high heat and direct sunlight; the cooling vent should be at least 40cm far away from the wall.

Don't use the machine in the place where there are corrosive liquid or gas, dust, conductive fiber and metal filing.

Keep the machine away from vibration and electromagnetic interference.

Avoid long-term inverted store or transport and strong impact.

2. Pay attention to the follow situation while using the machine. Please strictly distinguish the null wire and the live wire of the output terminal and ensure good machine grounding before use.

Turn off the power supply is prohibited while the machine is running.

Don't touch the electric parts of the machine to prevent electric shock while the machine is running.

Non-professionals is prohibited to open the enclosure.

Chapter 12 Contact Detail

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