ETSYSTEM®

IN COOPERATION WITH NGI®

Manual: N35100 Series

Bidirectional Programmable DC Power Supply

7,5kW in 1U: 40V / 80V

Version: 27.01.2026

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1 Preface

Dear Customers,

First of all, we greatly appreciate your choice of N35100 series high performance bidirectional programming DC power supply (N35100 for short). We are also honored to introduce our company, NGI Technologies Company Limited(NGI for short).

About Company

NGI is a professional manufacturer of intelligent equipment and test & control instruments, committed to developing, manufacturing battery simulators, power supplies, electronic loads, and many more instruments. The products can be widely used in the industries of battery, power supply, fuel cell, consumer electronics, new energy vehicle, semiconductor, etc.

NGI maintains close cooperation with many universities and scientific research institutions, and maintains close ties with many industry leaders. We strive to develop high-quality, technology-leading products, provide high-end technologies, and continue to explore new industry measurement and control solutions.

About User Manual

This manual is applied to N35100 series high performance bidirectional programming DC power supply, including installation, operation, specifications and other detailed information. The copyright of the manual is owned by NGI. Due to the upgrade of instrument, this manual may be revised without notice in future versions.

This manual has been reviewed carefully by NGI for the technical accuracy. The manufacturer declines all responsibility for possible errors in this operation manual, if due to misprints or errors in copying.The manufacturer is not liable for malfunctioning if the product has not correctly been operated.

To ensure the safety and correct use of N35100, please read this manual carefully, especially the safety instructions.

Please keep this manual for future use.

Thanks for your trust and support.

2.1 Safety Symbols

The warning symbol indicates a hazard. It requires special attention when performing operational steps, pointing out conditions and actions that may endanger the life safety of operators. Read the relevant information carefully before executing the specified procedure

The caution symbol indicates a hazard. It requires attention when performing operational steps, pointing out conditions and actions that may lead to personal injury or equipment damage.

The note symbol indicates a reference. It provides operational tips or supplemental information that operators should review before performing the procedure.

Please refer to the following table for definitions of international symbols used on the instrument or in the user manual.

Symbol	Definition	Symbol	Definition
⎓	DC (direct current)	N	Null line or neutral line
~	AC (alternating current)	L	Live line
≂	AC and DC	I	Power-on
3~	Three-phase current	O	Power-off
⏚	Ground	⏻	Back-up power
⏚	Protective ground	▭	Power-on state
⏚	Chassis ground	□	Power-off state
⊥	Signal ground	⚠	Risk of electric shock
WARNING	Hazardous sign	⚠	High temperature warning
Caution	Be careful	⚠	Warning

2.2 Safety Notes

In the operation and maintenance of the instrument, please strictly comply with the following safety instructions. Any performance regardless of attentions or specific warnings in other chapters of the manual may impair the protective functions provided by the instrument.
NGI shall not be liable for the results caused by the neglect of those instructions.

- **Confirm the AC input voltage before supplying power**.
- **Reliable grounding**: Before operation, the instrument must be reliably grounded to avoid the electric shock.
- **Confirm the fuse**: Ensure to have installed the fuse correctly.
- **Do not open the chassis**: The operator cannot open the instrument chassis. Non-professional operators are not allowed to maintain or adjust it.
- **Do not operate under hazardous conditions**: Do not operate the instrument under flammable or explosive conditions.
- **Confirm the working range**: Make sure the DUT is within N35100's rated range.

2.2.1 Personal Safety

- All connections must be made with the device power turned off to prevent personal injury or property damage due to improper operation.
- All operations must be performed by qualified personnel who are familiar with the associated risks, including professionals and trained personnel, as improper operation may result in fatal injury or equipment damage.
- Wearing conductive objects is strictly prohibited during the operation process to avoid electric shock burns.
- Special insulated tools must be used during the operation process to prevent electric shock injuries, and the insulation withstand voltage level must meet local laws, regulations, standards, and specifications.
- Special protective equipment must be used during the operation process, such as wearing protective clothing, insulated shoes, and insulating gloves.

2.2.2 Electrical Safety

- Do not use damaged equipment. Ensure that the equipment is free from damage before use, as damaged equipment may cause electric shock or fires.
- Before operating the equipment, make sure that the equipment's grounding terminal is properly grounded!
- The power cord is provided with the equipment upon shipment, and your equipment should be connected to a socket, junction box, or three-phase distribution box with protective grounding.
- During operation, prevent foreign objects from entering the interior of the equipment, as this may lead to equipment short-circuit failures, damage, and personal injury.
- Improper or incorrect operation may cause accidents such as fires or electric shocks.
- After using the equipment, turn off the power switch of the equipment before unplugging the power cord or disconnecting the terminal connectors, ensuring there is no dangerous voltage before touching the cables or terminal connectors.
- Cables are not allowed to pass through the equipment's intake or exhaust vents.

2.2.3 Environmental Safety

- Do not operate this equipment in environments containing explosive gases, vapors, or dust.
- Strictly prohibit the storage of flammable or explosive materials in the area where the equipment is located.
- Never place the equipment near heat sources or open flames, as exposure to heat may cause equipment damage or fires.
- During equipment operation, do not block the ventilation or cooling systems of the equipment, as this may damage the equipment or cause fires.

- Do not install the equipment near water pipes, air vents, air conditioning outlets, or other locations that are prone to condensation, to prevent liquid from entering the interior of the equipment and causing damage.

2.2.4 Mechanical Safety

- Do not use tools that are damaged, have failed inspection, or are beyond the inspection validity period to ensure tool reliability.
- When handling heavy objects, be prepared to bear the weight to avoid being crushed or injured by the heavy objects.
- Before installing equipment into a cabinet, first ensure that the cabinet is securely fastened to prevent the cabinet from tilting or collapsing due to instability, which could result in equipment damage or injury to the installer.
- Please do not install substitute parts on the instrument or make any unauthorized modifications.

3.1 Brief Introduction

The N35100 Series is a compact, high-performance bidirectional DC power supply with integrated power supply and regenerative load functionalities. It can both supply and absorb power, converting energy back to the grid efficiently. This feature reduces energy consumption and cooling needs, thus lowering testing costs. The N35100 also provides accurate measurements, comprehensive safety features, and versatile testing capabilities, including PV and battery simulation software for precise and efficient multi-scenario testing.

3.1.1 Features

- Power Range: 2.5kW/5kW/7.5kW
- Voltage: 80V/40V;
- Current: ±55A/±110A/±170A/...±300A
- Small size and high power density, integrating 7500W in 1U height and 19-inch width chassis
- Two quadrants seamless switching, the current between the DUT and the grid flow bidirectional
- Battery simulation, SEQ test, Charge/Discharge test supportable
- CC, CV, CR and CP mode
- Supporting PV matrix I-V curve simulation function
- CC/CV priority
- Adjustable voltage and current slew rate
- 3.2-inch HD color screen to display information
- LAN/RS232/RS485/CAN as standard
- Modbus-RTU/CAN open/SCPI standard protocol supportable

3.2 Appearance & Dimension

N35125-80-55:

44.0mm(H)*214.0mm(W)*540.0mm(D)(with output shield)；

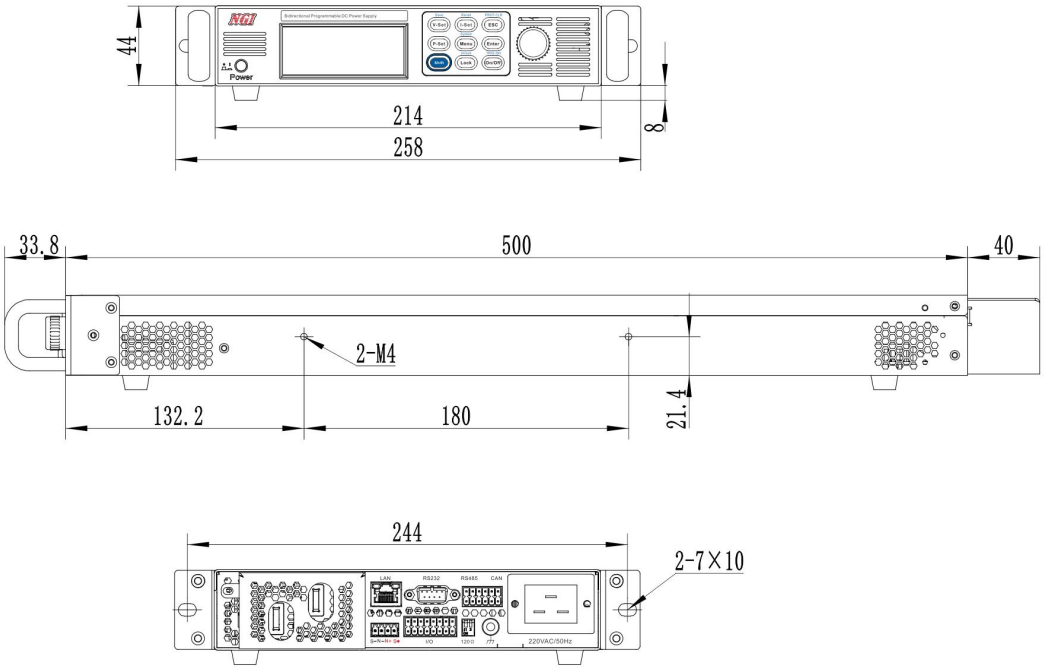


Figure 1 Dimension1(mm)

44.0mm(H)*428.0mm(W)*711.2mm(D)(with output shield)；

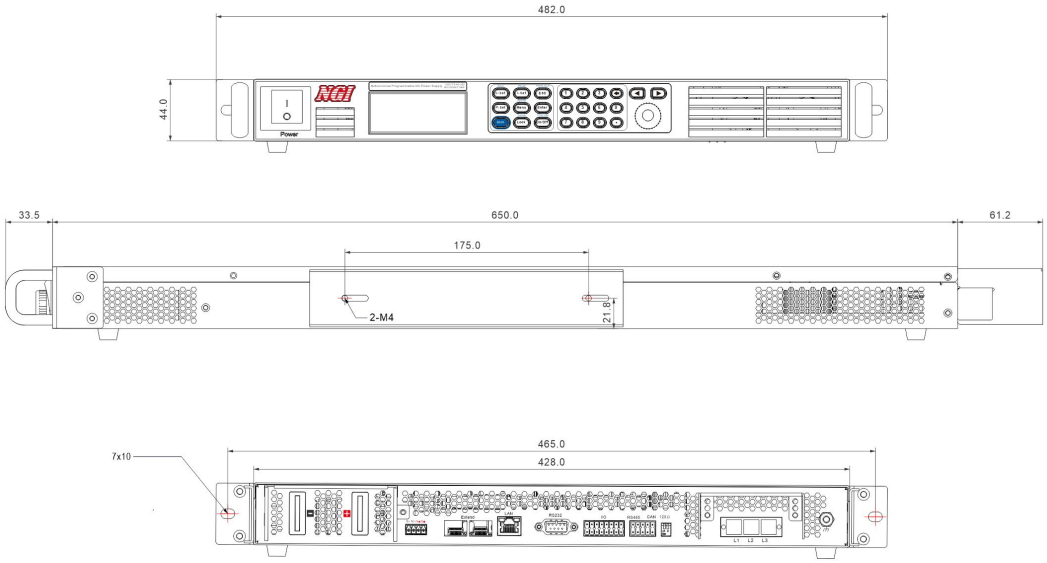


Figure 2　Dimension2(mm)

3.3 Front Panel Introduction

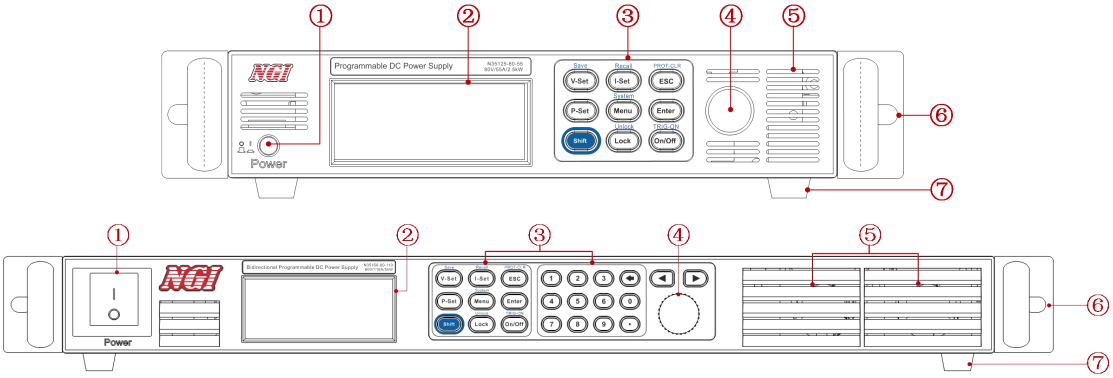


Figure 3 Front Panel

Table 2

Number	Name	Function
1	Power switch	Power control
2	Screen	Displaying data
3	Buttons	Operation mode
4	Knob	To move cursor or adjust value
5	Air outlet	Exhaust outlet, cooling
6	Handle	For moving
7	Base	For placing

3.3.1 Functional Button

N35100 front panel mainly includes a screen and buttons.

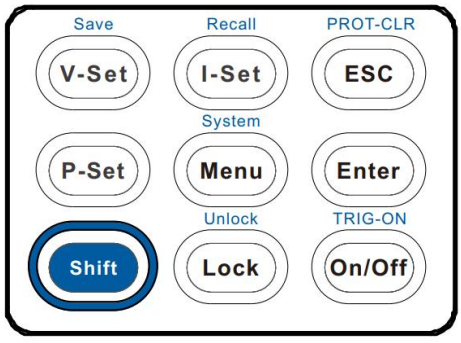


Figure 4 Functional Buttons

Table 3

Button	Definition
[V-Set]	To set voltage
[I-Set]	To set source current, load current
[ESC]	Return to previous menu
[P-Set]	To set source power, load power
[Menu]	Enter the main menu screen
[Enter]	To select a menu or confirm the operation
[Shift]	Compound function keys
[Lock]	Lock/unlock
[On/Off]	To turn on or off the power output
[Shift+V-Set]（Save）	To save the current parameter setting value of the instrument in the form of number sequence.
[Shift+I-Set]（Recall）	To recall the saved parameter setting value of the instrument in the form of number sequence.
[Shift+ESC]（PROT-CLR）	To clear the fault indication or protection message
[Shift+Menu]（System）	Enter system parameter interface
[Shift+Lock]（Unlock）	Unlock
[Shift+ On/Off]（TRIG-ON）	To trigger waveform output

3.3.2 Numeric Button

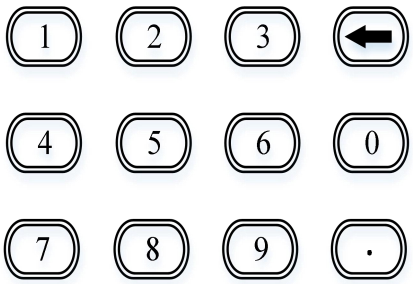


Figure 5 Numeric Buttons

Table 4

Button	Function
[0~9], [.]	To input digits
[⬅]	To delete

3.3.3 Knob

The knob has three functions: left-rotate, right-rotate, and enter (when pressed). In any configuration interface, rotating the knob quickly moves the cursor between options, faster than using the "◄►" keys. During static testing, when changing settings with the knob, the new value is applied immediately after each rotation, enabling real-time parameter adjustment and observation of the device under test. The knob can also be pressed, as shown in Figure.

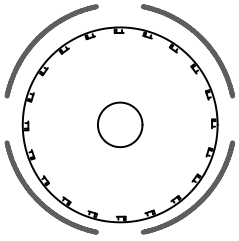


Figure 6 Knob

The knob has the following three functions:
1. Adjusting numerical settings.
2. Selecting menu or parameter items.
3. Confirming settings or selections.

Turn clockwise to increase the value and counterclockwise to decrease it.

Menu/Parameter Selection:
In the menu interface, turning clockwise selects the next menu item; turning counterclockwise selects the previous one. In the parameter setting interface, turning clockwise selects the previous parameter option; turning counterclockwise selects the next.

Confirmation:
Press the knob to confirm a setting or selection.

3.3.4 Screen

The N35100 series power supplies feature a 3.2 inch LCD high-definition color display, with 820×320 resolution.

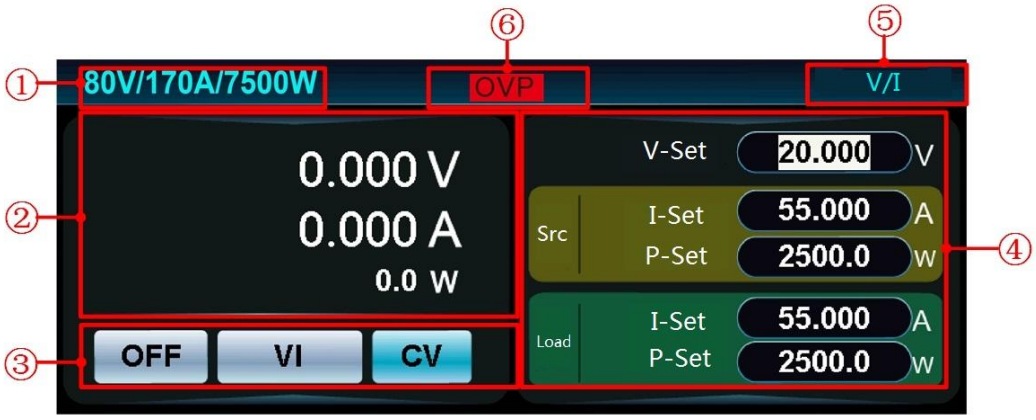


Figure 7 Screen

Table 5

No.	Definition	Description
1	Specification	N35100 series specification
2	CH Readback	Including current, voltage, power
3	Status	Output status: ON/OFF; Function mode: VI/CP/SEQ etc. Operation status:CC/CV
4	Parameter Set	To set parameters

5	Function Mode	To display function mode
6	Alarm	OVP/OCP/OPP/OTP/UVP/UCP/MF

Figure 8 Operating status display

The power status is not displayed in the status bar at the same time, but is selectively displayed after integrating and processing the information according to the power working condition. This design can reduce the amount of information processing by the user and improve the efficiency of human-computer interaction.

Table 6

No.	Description
①	Present output state (ON/OFF)
②	Present function mode, including VI, SEQ, etc.
③	Present operating state (CC/CV)
④	Protection occurring during power supply operation, including OCP, OVP, OPP, OTP, UVP, UCP, MF

3.4 Rear Panel Introduction

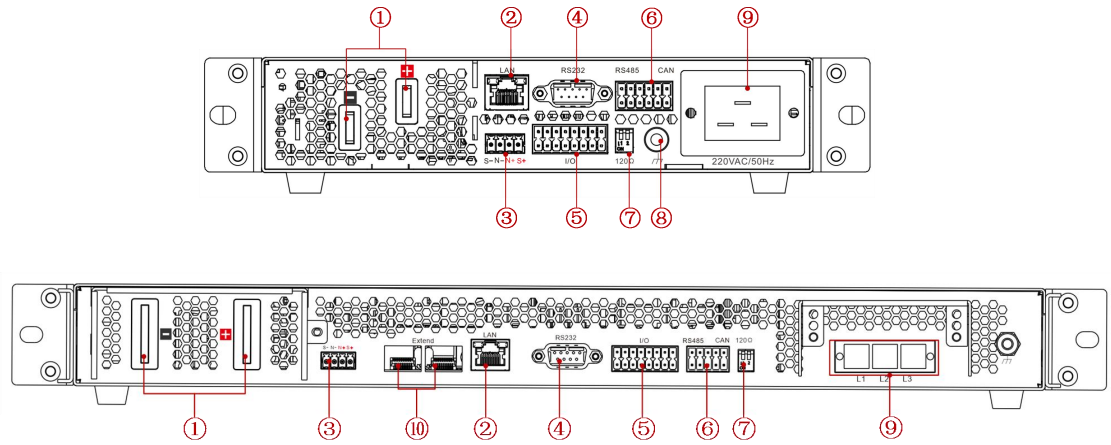
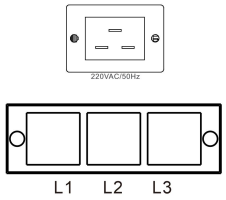
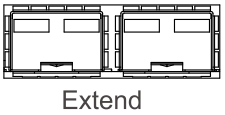


Figure 9 Rear Panel

Table 7

No.	Name	Icon	Definition
1	Output interface		DC power supply output
2	LAN port	LAN	For remote control
3	Sense interface	S− N− N+ S+	Voltage sense
4	RS232 interface	RS232	Serial communication control device
5	I/O Interface	I/O	I/O Signal Interface
6	RS485 interface	RS485 CAN RS485 CAN	Connection to RS485 and CAN
7	Matching Resistance	120Ω	CAN Matching Resistance

8	Ground Terminal		Grounding
9	AC Interface		220V AC input interface 380V AC input interface
10	optical interface		Fiber optic parallelism

3.4.1 DC Output Connection

Please select the proper output connection wire according to different power supply models. Do not use wires with smaller diameter to avoid overheating and danger. Please refer to the Recommended Wire Gauge Selection Table in Appendix.

Table 8

I-Range/A	Diameter/mm²	Model	Qty/Set
0＜X≤30	6	OT-30A	1
30＜X≤50	10	OT-50A	1
50＜X≤80	16	OT-100A	1
80＜X≤125	25	OT-200A	1
125＜X≤175	35	OT-200A	1
175＜X≤250	50	OT-300A	1
250＜X≤475	95	OT-600A	1
475＜X≤600	120	OT-600A	1
600＜X≤750	150	OT-600A	1

I-Range/A	Diameter/mm²	Model	Qty/Set
750＜X≤1200	120	OT-600A	2

3.4.2 LAN Port

The N35100 series uses a standard RJ45 (LAN) interface for easy wiring, operation and system integration.

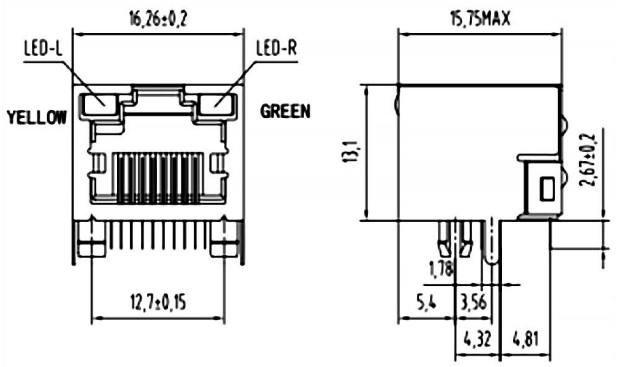


Figure 10 RJ45

Please check the following items when the PC cannot remote the instrument:

1. Please check whether the network cable connection between the PC side and the instrument is loose.

2. Make sure the Ethernet configuration information is correct.

3. PC Ethernet is enabled.

4.Whether the IP address of the instrument and the IP address of the PC are in the same gateway.

3.4.3 RS232 Serial Connection

N35100 can be connected with a controller by RS232 interface. A RS232 cable is provided as standard accessory in N35100 package. Default baud rate for RS232 interface is 115200.

Figure 11 RS232 Interface

The electrical characteristics of RS232 specify a logic “1” of -3V to -15V and a logic “0” of +3V to +15V. The pins of the RS232 interface include Receive Data (RXD), Transmit Data (TXD), etc.

Table 9

Pin	Definition
1	NC
2	RXD, receive data
3	TXD, transmit data
4	NC
5	GND, ground
6	NC
7	NC
8	NC
9	NC

3.4.4 RS485/CAN Interface

CAN baud rate is defaulted to 250kbs, CAN ID to 1.

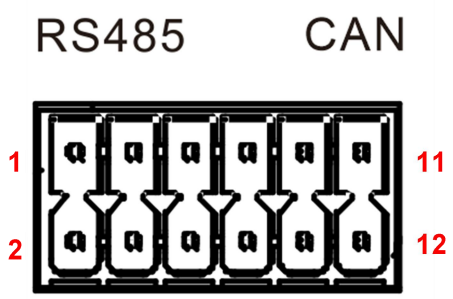


Figure 12 RS485/CAN Interface (1U height ½19 inch width)

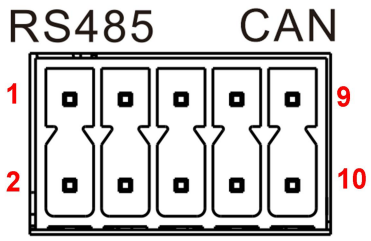


Figure 13 RS485/CAN Interface (1U height 19 inch width)

Table 10

Pin	Definition	Description
1	RS485A	RS485A
2	RS485B	RS485B
3	CAN_FL	CAN Power Supply GND
4	CAN_FL	CAN Power Supply GND
5	CAN0_H	CAN0_H
6	CAN0_L	CAN0_L
7	CAN1_H	CAN1_H（Parallel）
8	CAN1_L	CAN1_L（Parallel）
9	GND_FL	CAN Power Supply GND
10	GND_FL	CAN Power Supply GND
11	CAN2_H	CAN2_H（Debug）
12	CAN2_L	CAN2_L（Debug）

Table 11

Pin	Definition	Description
1	RS485A	RS485A
2	RS485B	RS485B

4	CAN_FL	CAN Power Supply GND
5	CAN0_H	CAN0_H
6	CAN0_L	CAN0_L
7	GND_FL	CAN Power Supply GND
8	GND_FL	CAN Power Supply GND
9	CAN2_H	CAN2_H（Debug）
10	CAN2_L	CAN2_L（Debug）

The dip switch next to the RS485/CAN interface is the matching resistor selector switch. The dip switch downward indicates access to a 120Ω resistor. This eliminates signal reflections at both ends of the bus, which can speed up the recovery time from dominant to recessive, thus improving the bus's immunity to interference and the quality and stability of the signals. the CAN termination switch upward indicates that without a termination resistor, signal reflections may be mistaken for valid signals, which may result in communication errors and data loss.

The use of a 120Ω resistor was obtained by calculations based on actual wire harness characteristics. Two typical cables used in automobiles were used, twisted into a twisted pair, and the characteristic impedance was calculated based on the characteristic impedance of the cables to be approximately 120Ω, which is the recommended termination resistor resistance value for the CAN standard.

3.4.5 Optical Interface

There are two fiber optic interfaces on the rear panel of the N35100, the current scheme is column parallel, the interfaces are as shown in the figure, one optical port on the right side is used to realize column parallel first, and one optical port on the left side is used for the subsequent row parallel mode (reserved for the time being). Each optical port has two terminals, the left terminal is TX, the right terminal is RX, the interface definition is shown in the table.

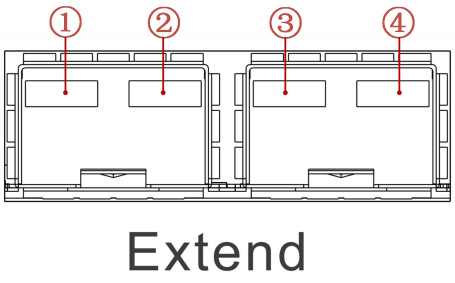


Figure 14 Optical Interface

Pin	Definition	Description
①	NC	Reserve
②	NC	Reserve
③	TX	Send information
④	RX	Receive information

Fiber optic interface connection as shown in the figure, the user sets the master-slave selection in order of 0,1,2.... N, N means the last slave of the parallel connection.

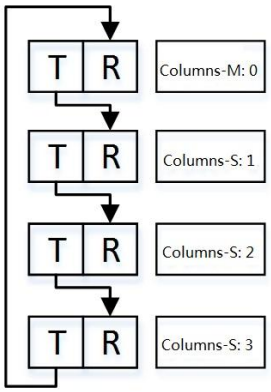


Figure 15 Optical Interface Wiring

3.4.6 I/O Interface

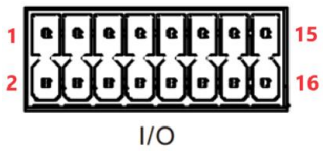


Figure 16 I/O Interface

Table 13

Pin	Definition	Description
1	AI1	Power supply output ON/OFF Control, power supply setting voltage/source current/load current/source power/load power
2	AI2	Power supply output ON/OFF Control, power supply setting voltage/source current/load current/source power/load power

3	AGND	GND
4	AGND	GND
5	V_MON	Power supply output ON/OFF status indicator, power supply output voltage monitoring
6	I_MON	Power supply output voltage monitoring/output current/output power monitoring
7	—	—
8	—	—
9	GND	Power supply GND
10	GND	Power supply GND
11	DI1	Power supply output ON/OFF Control, power supply fault status clearing, safety interlock
12	DO1	Power supply output ON/OFF status indicator, Power supply fault/alarm indicator, safety interlock
13	DI2	Power supply output ON/OFF Control, power supply fault status clearing
14	DO2	Power supply output ON/OFF status indicator, power supply fault/alarm indicator
15	DI3	Power supply output ON/OFF Control, power supply fault status clearing
16	DO3	Power supply output ON/OFF status indicator, Power supply fault/alarm indicator

3.4.7 SENSE Terminal

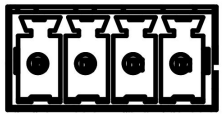


Figure 17 4-Wire Interface

SENSE terminal, also known as a four-wire interface, provides local sense and remote sense.

Pin	Definition
S-	Remote sense negative
N-/-	Remote sense negative, internally connected to the negative power supply output terminal
N+/+	Remote sense positive, internally connected to power supply positive output terminal
S+	Remote sense positive

Warning

The sampling port's "N+/+" and "N-/-" must not be connected to the load's positive and negative terminals, as this may damage the equipment.

When using remote sense, please connect S+ to load input+ and connect S- to load input-.

Operation Steps:

- Shut off the power supply
- Remove the wire jumper from the 4PIN green connector.
- Select the appropriate wire to connect S+ to the positive terminal of the load and S- to the negative terminal of the load.
- Plug the connector into the 4-wire connector on the back panel of the power supply.
- Connect the power supply output terminals to the load normally
- Turn on the power supply

Note:

The compensated voltage drop at the SENSE terminal should not exceed 2V maximum.

3.4.8 Ground Terminal

The metal shielding of the N35100 series power supply is insulated from the internal live conductors, and the casing is normally uncharged. In order to prevent accidental occurrences from causing the shielding to become electrically charged, there is then a potential difference between the shielding and ground. If there is no good grounding and a person accidentally touches the shielding, then a pathway can be formed through the person to create danger. Therefore, a good connection must be made so that the shielding and ground are at equal potential. In addition, good grounding prevents the build-up of static electricity.

3.5 Models and Accessories

3.5.1 Models

Table 15

Model	Specification	Size
N35125-40-100	2500W/40V/100A	19 inch/1U
N35150-40-200	5000W/40V/200A	19 inch/1U
N35175-40-300	7500W/40V/300A	19 inch/1U
N35125-80-55	2500W/80V/55A	½19 inch/1U
N35150-80-110	5000W/80V/110A	19 inch/1U
N35175-80-170	7500W/80V/170A	19 inch/1U

3.5.2 Accessories

1. AC power cord:

When using this series of products, users can purchase accessories separately to cope with different needs of use.
Optional 220V AC/16A to C19 power cord with length of 5m.
Optional power cord (national standard pure copper RVV sheathed power cord, 380V AC three-phase four-core power cord, 4 cores * 6 square RVV pure copper soft core sheathed, terminal: one end SC 6-4 (3 fire + 1 ground), one end piece terminal, set of 50mm heat-shrinkable tubing), wire length 2m/5m optional.

Test Line
2m/4m

Parallel Line
Optional fiber optic paralleling line, two single-unit paralleling must be matched with one.

Sense Line
For remote sense

For rack installation

Note

Optional accessories are sold separately and must be purchased individually by the user.

4 Inspection & Installation

4.1 Inspection

After receiving N35100, please check the instrument according to the following steps:

1. Check whether the instrument is damaged during transportation. If any severe damage to the package, please contact our authorized distributor or NGI.
2. Check accessories.
3. Check the whole instrument. If N35100 chassis is damaged or has abnormal operation, please contact our authorized distributor or NGI.

Table 16

N35100 Accessories	Quantity	Instructions
RS232 cable	1	For RS232 communication, L=1.5m, female to female
AC Power Cord	1	220V AC/16A to C19 power cord (optional for partial models)
Ethernet cable	1	For Ethernet connection, Cat5e 100Mbps 7×0.12 Oxygen-Free Copper Wire, Unshielded, Blue, 2m
Pluggable connector(3.5mm-10Pin)	1	RS485 CAN port, 3.5mm, 2*5pin, female, no ears
Pluggable connector(3.5mm-16Pin)	1	I/O port, 3.5mm, 2*8pin, female, no ears
Pluggable connector(10.16-03Pin)	1	Power port, 10.16mm, 3pin, female connector, with mounting screws (equipped on some models)
Factory test report	1	Test result before delivery
USB flash drive	1	8G
Quick Selection Guide	1	English version

4.2 Connection to Power Cord

Before connecting the power cord, observe the following precautions to prevent electric shock and damage to the instrument:

Warnings

- Make sure that the voltage matches the rated voltage of the instrument;
- Make sure the power switch is off;
- Please use the power cord supplied by our company, and it is strictly prohibited to connect L1/L2/L3 and N wire inversely to avoid connecting wrong or missing ground wire.;
- Regularly check the integrity of the wiring parts and replace them if they are damaged or deteriorated.
-

The N35100 series is available with two types of power supply: 3-hole socket and 3-phase 4-wire.

3-hole Socket

Connect one end of the power cord to the power input socket on the rear panel of the instrument and the other end to the three-pronged socket configured to protect the grounding end. The three-pronged receptacle should be wired in such a way that, facing the receptacle, the right hole is connected to the live wire (L), the left hole is connected to the Neutral wire (N), and the top hole is connected to the ground wire (PE). Such wiring helps to ensure that the metal casing of electrical equipment can conduct electricity quickly to ground in the event of a fault, thus reducing the risk of electric shock.

3-phase 4-wire

three-phase electricity A, B and C respectively, and a earth wire (PE) is also included to provide an additional safety grounding path to prevent the shell from being energized when there is an internal leakage in the electrical equipment, so as to protect the safety of the person and the equipment from voltage shocks, and the wiring is as shown in the figure.

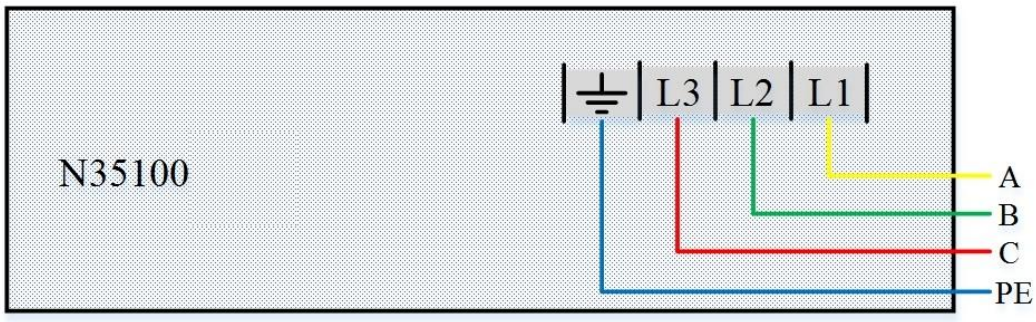


Figure 18 AC Power Supply

4.3 Power-on Test

After N35100 is powered on, please check the device according to the following steps.

- Power-on test includes two parts: power-on and output inspection.

1. Power-on

Press **POWER** to switch on the power supply, if the power supply can not start normally, users should first check whether the power cord is connected, whether the power supply has been powered, whether the power switch has been turned on.

Warnings

When the power switch is off, some components inside the power supply may still carry a high voltage, to avoid the risk of electric shock, it is prohibited to open the cover.

- Output Voltage Inspection

Steps to verify N35100’s basic voltage function without connecting to a load:

1. Turn on the power switch.

2. Set the power supply voltage value to 1V.

3. Turn on the output.

4. Check that the voltage value displayed on the screen is close to the set voltage value.

5. Ensure that the supply voltage can be adjusted from 0V to the maximum voltage within the range.

- Output Current Inspection

Steps to verify N35100’s basic current function during output short-circuited:

1. Turn on the power switch.

2. Ensure that the power output status is OFF.

3. Connect an insulated wire to the output of the power supply to short-circuit the positive and negative terminals, and the wire used should be able to withstand the maximum output current of the power supply.

4. Set the current value to 1A.

5. Turn on the output.

6. Check whether the current displayed on the screen is close to the set current value.

7. Ensure that the power supply current can be adjusted from 0A to the maximum current value within the range.

4.4 Connection of the DUT

4.4.1 DUT connection cable

N35100 series power supply does not come with a connection cable for the device under test, users need to choose their own wiring. The following points should be noted when selecting wiring:

·The maximum allowable current of the wires.

·The insulation level of the wire should not be lower than the maximum output voltage of the power supply.

·Maximum wire length and line voltage drop

·Noise and impedance effects on the load line.

1) Maximum Allowable Current

The following two factors should be considered when selecting the wire diameter:

1. The wire should be thick enough to avoid overheating when carrying rated current or short circuit current (whichever is greater).

2. The wire diameter should be reasonably selected so that the voltage drop on each wire is as small as possible to prevent excessive cable consumption, which affects the load regulation rate (although the N35100 series power supply can use the remote sense function to compensate for voltage, it is still recommended to minimise the voltage drop).

2) Influence of noise and impedance

In order to reduce noise or radiation, the DUT connection line and the remote sampling line should use twisted-pair cable with the shortest possible length. Shielded wires must be used in high noise environments. The shield is connected to the enclosure by a ground screw on the rear panel.

Even if the noise is not significant, the line and the remote sampling line should be twisted to reduce coupling and contribute to the stability of the power supply. The remote measurement line must be separated from the power input line.

Twisted-pair load lines reduce parasitic inductance in the cable and prevent high-frequency voltage spikes at the load terminal and power supply output caused by variations in load current.

The impedance between the power supply output and the load end makes the ripple noise at the load end greater than the ripple noise at the power supply rear panel terminals. If necessary, an additional filter loop with a bypass capacitor can be connected at the load side to limit the high-frequency load current.

4.4.2 Sense Connection

4.4.2.1 Local Sense

When using local sensing, adjust the output voltage at the power supply's output terminals. This method doesn't compensate for voltage drops across the load wires and is suitable for low-load current situations or when load regulation isn't critical. For local sense, short N+ to S+ and N- to S- with jumpers.

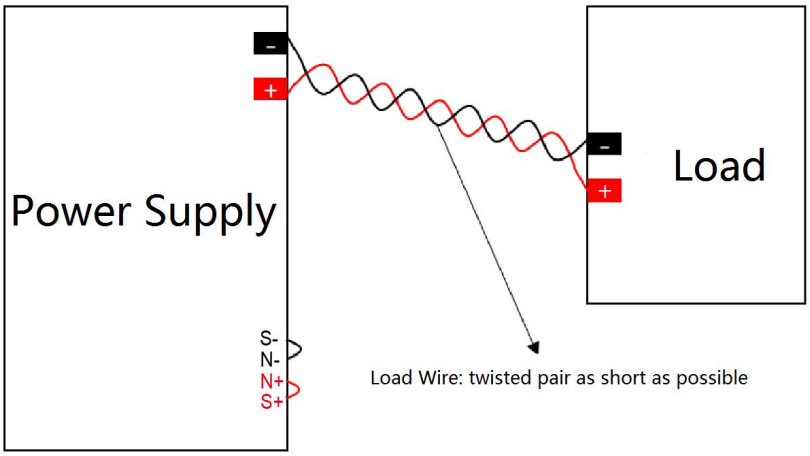


Figure 19 Two wire sense connection

4.4.2.2 Remote Sense

Due to wire resistance, the load's input voltage may be lower than the power supply's output voltage, affecting output accuracy. This series offers remote sense to compensate for the voltage drop between the power supply and load.

To use remote sensing: Connect SENSE+ to the load's positive input. Connect SENSE- to the load's negative input. This allows the power supply to adjust its output based on the actual voltage at the load.

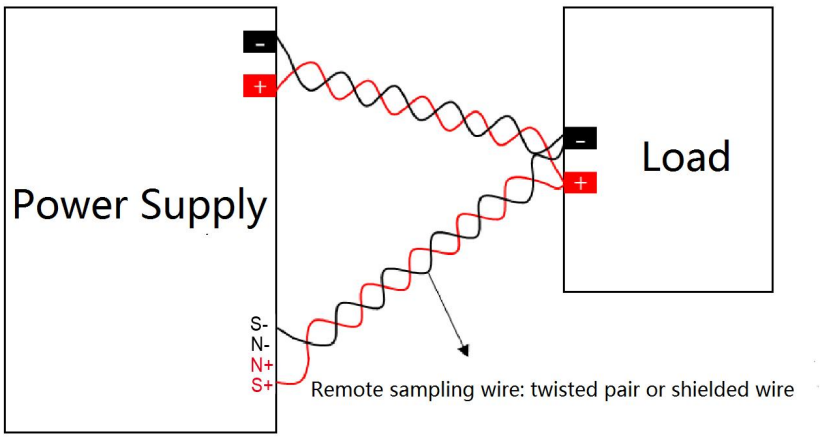


Figure 20 Four wire sense connection

Note

Before connecting remote sensing, remove the shorting caps.

Warning

Only connect the positive and negative terminals of the device under test to the power supply's output terminals, not to the sampling terminals "N+/+" and "N-/-", to avoid damaging the power supply.

4.5 Control Connection

The N35100 Series power supply offers multiple communication interface options for flexible networking and control:

1. Network Communication (LAN)

Utilizes a standard RJ45 network interface to network multiple devices via an Ethernet switch. All terminal devices (including the control computer) must be connected to the same switch via Ethernet cables.

Network configuration requirements:

- Each device must have a unique IP address.
- All IP addresses must be within the same subnet.
- Default communication protocol: UDP.
- Default port number: 7000.
- Default device ID: 1.

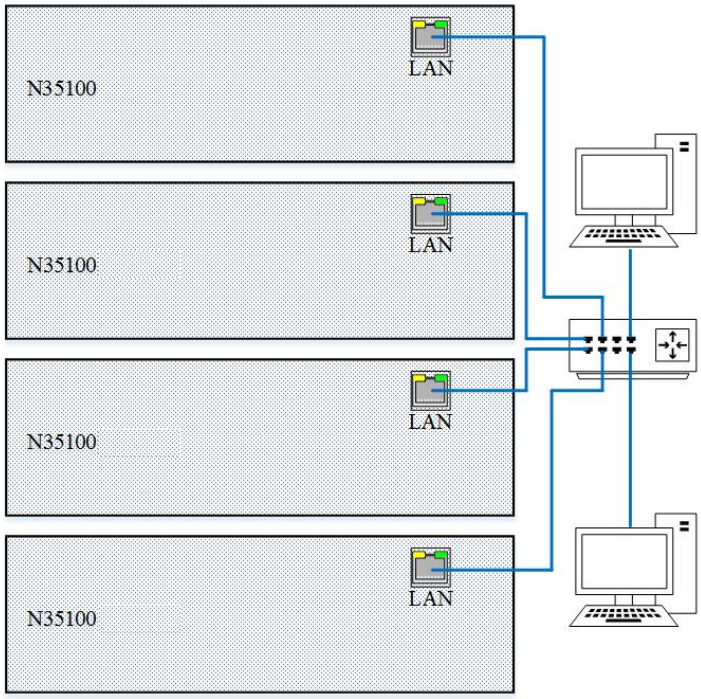


Figure 21 Multiple connections

2. Serial Communication (RS232/RS485)

Supports four selectable baud rates: 9600/19200/38400/115200, with a default setting of 115200bps.

The CAN interface uses a 3.5mm plug-in connector.

Protocols supported: CANOpen and CAN DBC, with CAN ID range: 1~127 (default value 1).

All communication methods require that the wiring and parameter configuration be completed before the device is powered on. It is recommended to use the provided cables to ensure signal quality. After successfully controlling the device remotely, the interface display will be as shown in the following figure22.

Figure 22 Remote Mode

N35100 series provides V/I mode, Load mode, SEQ mode, SEQ Edit, Car Waveform, Charge mode, Discharge mode, SR, CR, Protection, Application, System, Factory Reset, Users can enter the required mode by pressing the corresponding button on the front panel.

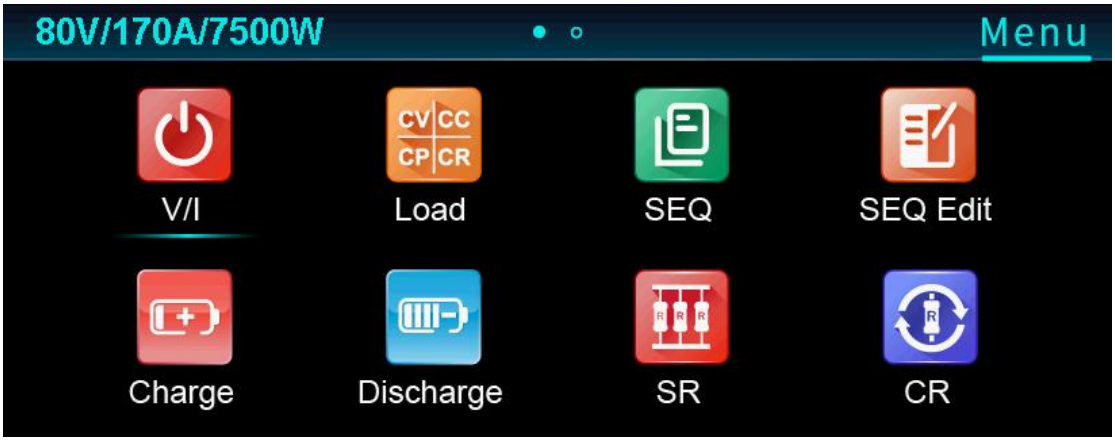


Figure 23 Main Menu 1

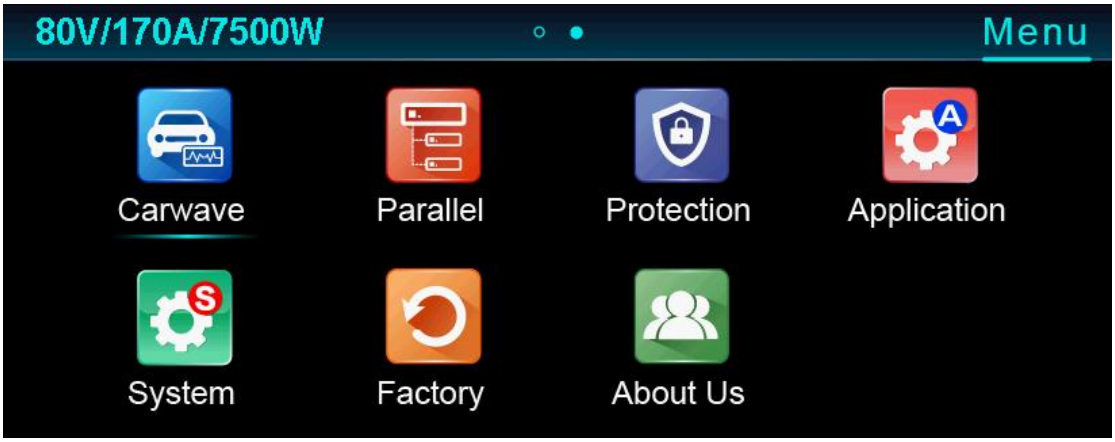


Figure 24 Main Menu 2

5.1 Parameter Setting

5.1.1 Numeric Input

Numeric input is used to input digit, such as voltage, slew rate, protection threshold, IP address, etc.

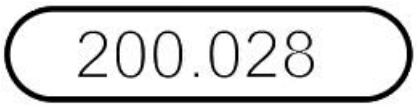


Figure 25 Numeric Edit

Steps for numeric input:
1. Press [◄] [►] or rotate the knob to move the cursor to the numeric input box.
2. Press [**Enter**] or the knob. The input box is now editable.
3. Press numeric buttons to input the value or press [◄] [►] to move the cursor and rotate the knob to adjust the numeric.
4. It will take effect immediately after the value is changed.
5. Press [Enter] or [ESC] or the knob to exit.

Warning: The value input should be within the rated range or upper limit(Max) & lower limit(Min).

5.1.2 Selection Operation

Selection operation is used to select parameters, such as power-off memory, CC/CV priority, master/slave option, etc.

Figure 26 Selection Operation

Steps for selection operation:
1. Press [◄] [►] or rotate the knob to move the cursor to the selection box.
2. Press [**Enter**] or the knob. The selection box is now editable.
3. Press [◄] [►] or rotate the knob to select the required option.

5. Press [**Enter**] or [**ESC**] or the knob to exit.

5.2 V/I

5.2.1 Source&Load State

N35100 series products have two operating states: source and load. When used as a power supply, the energy provided by the device is in the source mode, and the current and power readback are positive. When used as a load, the device absorbs external energy and returns to the power grid in the load mode. In this case, the current and power readback are negative. The conversion of the source and load state is determined by the set voltage of the power supply and the external voltage. After the bidirectional power supply is turned on, when the set voltage of the power supply is lower than the external voltage, the device is in the load mode, otherwise it is the source mode.

5.2.2 Operation Mode

N35100 has three operation modes, constant voltage (CV), constant current (CC), and constant power (CP). When N35100 output is turned on, the status display area will display the present output mode.

CV: When the actual output source(load) current is less than the source(load) current setting value and the actual output source(load) power is less than the source(load) power setting value, the power supply operates in source(load) CV mode, and the voltage outputs according to the setting value.

CC: When the actual output source(load) current reaches the source(load) current setting value, the power supply operates in source(load) CC mode. At this time, the output source(load)current outputs according to the current setting value.

CP: When the actual output source(load) power reaches the source(load) power

output source(load) power outputs according to the power setting value.

5.2.3 Operation Steps

Methods to enter **V/I** mode:

Method 1: Press V-Set or I-Set on the front panel directly.

Method 2: Press Menu → Select **V/I** by ◄ ► or ○ → Press ○ or Enter.

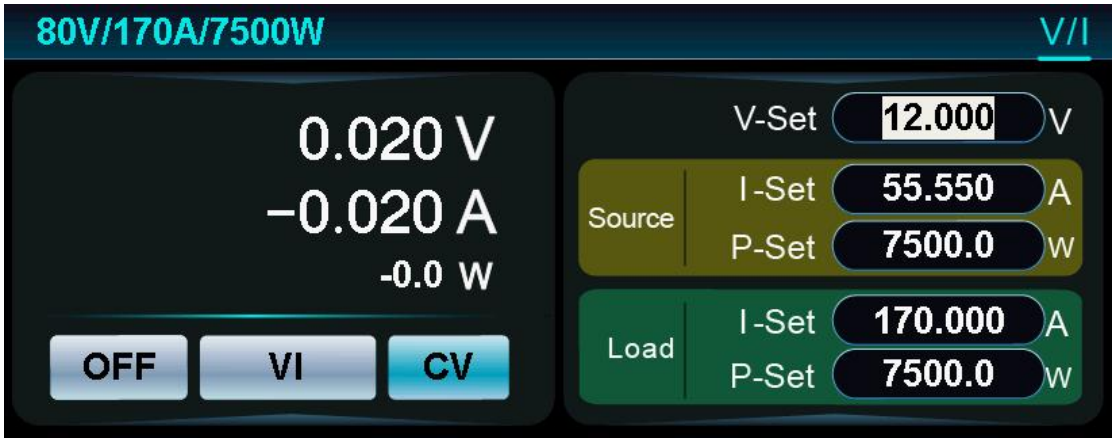


Figure 27 V/I Mode

Under V/I mode, users can set output voltage, output current and OVP value. N35100 will begin to output after setting is completed and On/Off is pressed.

5.3 Load Mode

N35100 series can work in the following 4 operation modes:

Constant Current (CC)

Constant Voltage (CV)

Constant Resistance (CR)

Constant Power (CP)

5.3.1 Constant Current (CC)

5.3.1.1 Function Description

Under CC mode, N35100 series will sink a constant current regardless of the input voltage.

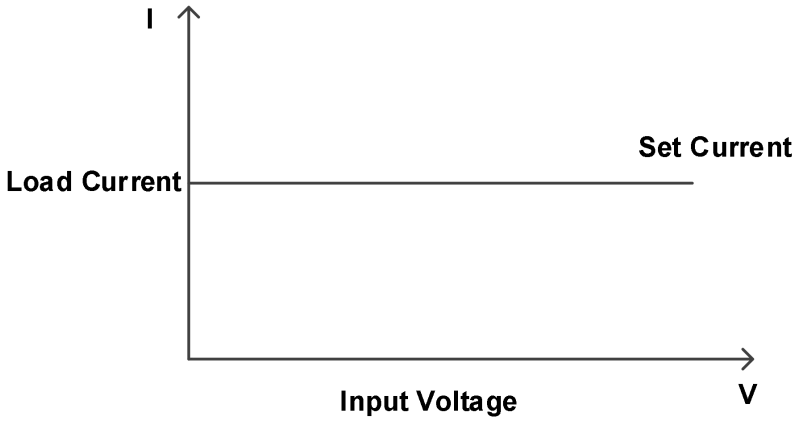


Figure 28 Constant Current Mode

5.3.1.2 Operation Steps

Please refer to the specification table for current and slew.

1. Select Load Mode in the main menu;

2. Select CC as the working mode.

3. I-Set: input by numeric keys, press Enter to confirm;

5. Press On/Off key, the load is ON, the display channel status is ON, as shown in the figure;

6. Press ON/OFF key, the load is OFF, the test is completed. The display channel status is marked OFF.

Figure 29 CC mode

5.3.2 Constant Voltage (CV)

5.3.2.1 Function Description

Under CV mode, N35100 attempts to sink enough current to maintain the input voltage at the set value.

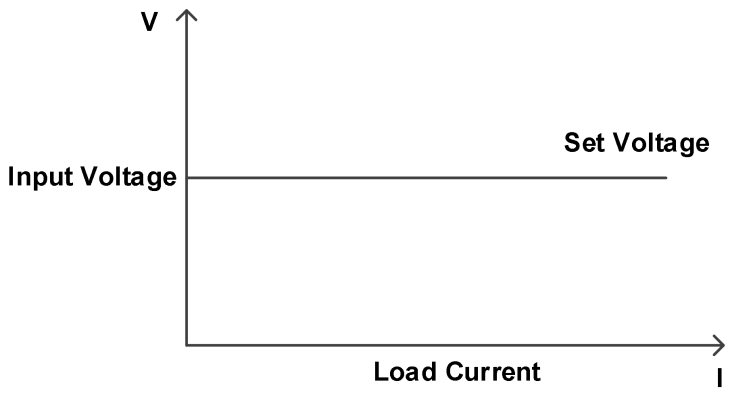


Figure 30 CV mode

5.3.2.2 Operation Steps

Please refer to the specification table for voltage and CV rate.

1. Select Load Mode in the main menu;

2. Select CV as the working mode.

3. V-Set: input by numeric keys, press Enter to confirm;

4. CV-Speed: input via numeric keys, press Enter to confirm;

5. Press On/Off key, the load is ON, the display channel status is ON, as shown in the figure;

6. Press ON/OFF key, the load is OFF, the test is completed. The display channel status is marked OFF.

Figure 31 Constant Voltage Mode

5.3.3 Constant Resistance (CR)

5.3.3.1 Function Description

Under CR mode, N35100 is equivalent to a constant resistance, and the pulling current changes with the input voltage.

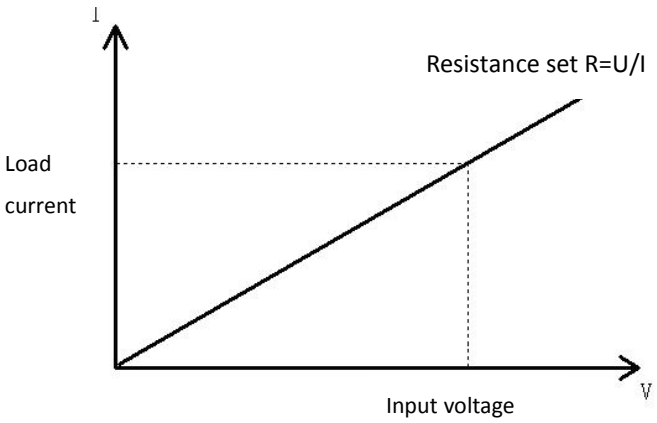


Figure 32 CR mode

5.3.3.2 Operation Steps

Please refer to the specification table for resistance.

1. Select Load Mode in the main menu;

2. Select CR as the working mode.

3. R-Set: input by numeric keys, press Enter to confirm;

4. Press On/Off key, the load is ON, the display channel status is ON, as shown in the figure;

5. Press ON/OFF key, the load is OFF, the test is completed. The display channel status is marked OFF.

Figure 33 CR mode

Note

The external power supply must operate in CV mode. Ensure that the set resistance is greater than the output voltage/output current of the power supply. Failure to do so will cause the power supply to switch to CV/CC mode.

5.3.4 Constant Power (CP)

5.3.4.1 Function Description

In constant power mode, the device operates at the set power, if the input voltage increases, the input current will decrease and the power (P=UI) will be maintained at the set power. The operating curve is schematically shown in the figure.

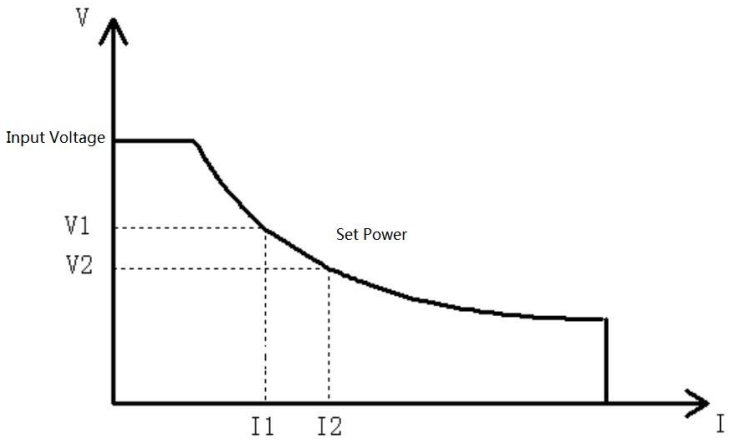


Figure 34 CP mode

5.3.4.2 Operation Steps

Please refer to the specification table for power.

1. Select Load Mode in the main menu;

2. Select CP as the working mode.

3. P-Set: input by numeric keys, press Enter to confirm;

the figure;

5. Press ON/OFF key, the load is OFF, the test is completed. The display channel status is marked OFF.

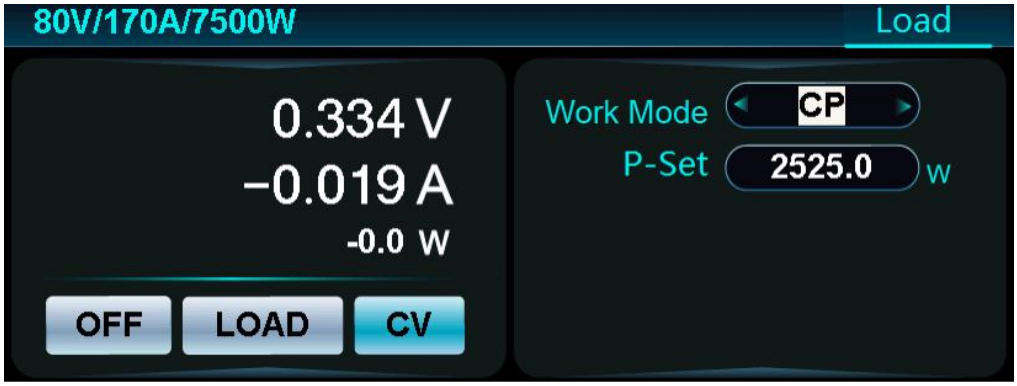


Figure 35 CP mode

5.4 SEQ Edit

N35100 series supports SEQ Edit, with up to 10 sequence files and Max. 1000 steps per file.

Figure 36 SEQ Edit

There are 13 items can be set. When File No. and Step No. are changed, interface will be refreshed at the same time.

Table 17

Parameter	Function
File No.	To set the sequence file number, range 1-10
Total Steps	To set the total test steps for the SEQ file, Max. 1000steps
Cycle Times	To set the number of cycles for the file under edit
Link to file	Link to the required file after the present file is completed. Range 0-10. Zero means no link.
Step No.	To set the test step number, range 1-1000.
V-Set	To set the output voltage
I-Src	To set source current for present step
I-Load	To set load current for present step
P-Src	To set source power for present step
P-Load	To set load power for present step
Dwell	To set single step delay time, range 0.001-3600
V-Slope	To set the voltage slew rate, unit V/s
I-Slope	To set the current slew rate, unit A/s

5.5 SEQ Test

SEQ Test allows users to select the sequence file. SEQ test supports simulation of complex voltage & current waveform, which is frequently used for automotive electronics test, engine start-up test, etc.

The principle of SEQ Mode is easy to understand, which is to control the voltage, current and power according to the test steps edited by the user, and switch to the next step when the dwell is reached. As shown in the figure below.

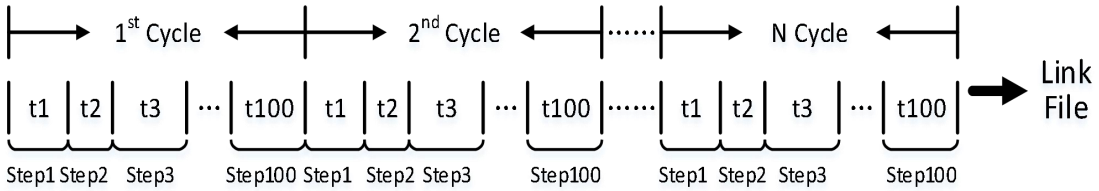


Figure 37 SEQ Operation Principle

Methods to enter **SEQ Test**:

Method 1: Press SEQ on the front panel directly.

Method 2: Press Menu → Select **SEQ Test** by ◄ ► or ○ → Press ○ or Enter.

Figure 38 SEQ Test

Under SEQ test mode, users choose the required file number and press  . It will start sequence test. After all steps of sequence file are operated, it will stop sequence test and the system automatically shuts output.

5.6 Car Waveform

5.6.1 ISO-16750-2

N35100 series have four types of analog waveform for vehicle electrical and electronic equipment immunity testing, which is convenient for customers to quickly call. The output pulse waveform is fully compliant with ISO-16750-2 international standard.

Table 18

<table>
<tr><td>ISO16750-2</td><td colspan="4">Simulation of "Environmental conditions and tests for electrical and electronic equipment for road vehicles", Part 2: "Electrical loads" curves.</td></tr>
<tr><td rowspan="10"></td><td>Short-Drop</td><td colspan="3">Car voltage short drop waveform</td></tr>
<tr><td rowspan="2"></td><td>12V</td><td colspan="2">Select 12V car voltage short drop waveform</td></tr>
<tr><td>24V</td><td colspan="2">Select 24V car voltage short drop waveform</td></tr>
<tr><td>Reset-Test</td><td colspan="3">Car Voltage Reset Test Waveform</td></tr>
<tr><td></td><td>Usmin</td><td colspan="2">Minimum supply voltage</td></tr>
<tr><td>Starting</td><td colspan="3">Car starting waveform</td></tr>
<tr><td rowspan="3"></td><td>12V</td><td colspan="2">Select 12V car starting waveform</td></tr>
<tr><td rowspan="2"></td><td>LEVEL1</td><td>Voltage/duration of the 12V waveform corresponding to level 1</td></tr>
<tr><td>LEVEL2</td><td>Voltage/duration of the 12V waveform corresponding to level 2</td></tr>
</table>

			LEVEL3	Voltage/duration of the 12V waveform corresponding to level 3	
			LEVEL4	Voltage/duration of the 12V waveform corresponding to level 4	
		24V	Select 24V car starting waveform		
			LEVEL1	Voltage/duration of the 24V waveform corresponding to level 1	
			LEVEL2	Voltage/duration of the 24V waveform corresponding to level 2	
			LEVEL3	Voltage/duration of the 24V waveform corresponding to level 3	
	Load-Dump	Load Dump Waveform			
		Test A	Select decentralization load dump suppression pulse		
			12V	Select 12V Voltage System	
				Td	Pulse Width
				U_S	Peak Voltage
			24V	Select 24V Voltage System	
				Td	Pulse Width
				U_S	Peak Voltage
		Test B	Select Centralization load dump suppression pulse		
			12V	Select 12V Voltage System	
				Td	Pulse Width
				U_S	Peak Voltage
			24V	Select 24V Voltage System	
				Td	Pulse Width
				U_S	Peak Voltage

				U_S*	Clamp Voltage

5.6.1.1 Car Starting Voltage Short Drop Waveform

This waveform simulates a momentary drop in supply voltage when starting a car.

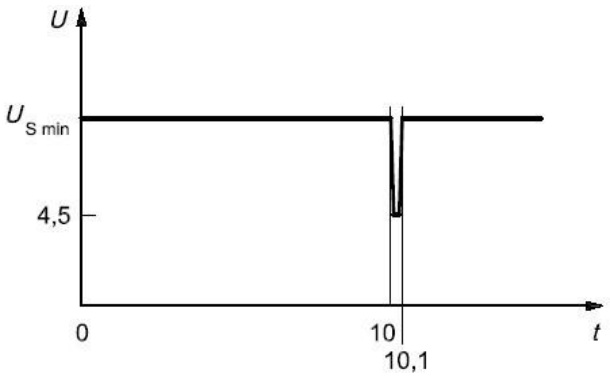


Figure 39 12V Waveform

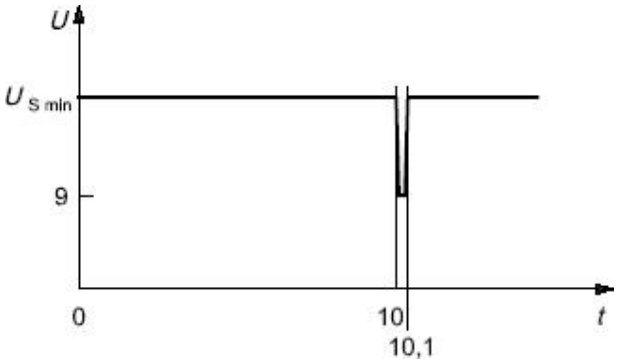


Figure 40 24V Waveform

5.6.1.2 Car Voltage Reset Test Waveform

The simulated waveform is suitable for testing devices with a reset function.This voltage profile simulates the supply voltage dropping from Us min to 0.95 Us min at a rate of 5%, holding it for 5s, then rising to Us min and holding it for at least 10s for a functional test. The voltage is then stepped down to 0.9 Us min and continued in a 5% gradient as shown in the graph until it drops to 0 V and then rises again to Us min. The waveform is as follows.

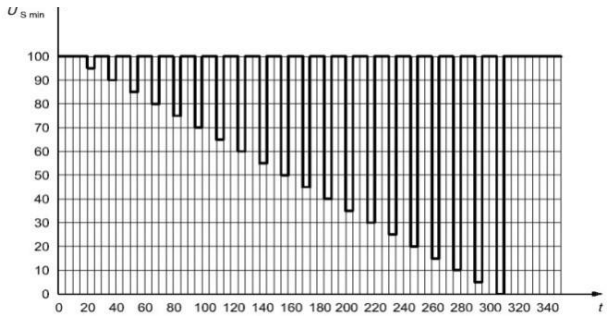


Figure 41 Car Voltage Reset Test Waveform

5.6.1.3 Car Starting Waveform

To simulate the effect of DC voltage with ripple under DC power supply when starting a car, the voltage curve in the t8 time period is upgraded from the original constant voltage straight line in the standard DIN40839 voltage waveform to a curve containing a superimposed AC voltage waveform with a frequency of 2Hz, and the curve should be selected according to the actual test requirements.

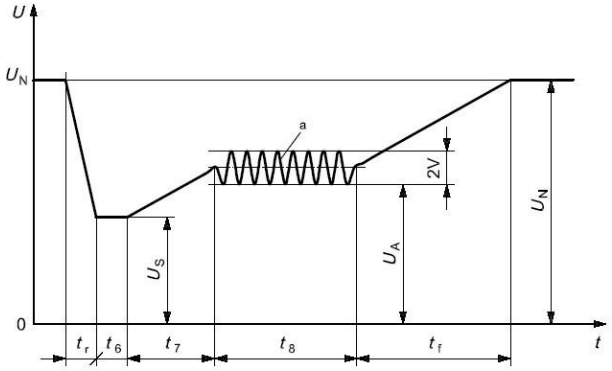


Figure 42 Car Starting Waveform

Levels/voltages/duration of starting profile				
I	II	III	IV	Tolerances
U_S = 8 V	U_S = 4,5 V	U_S = 3 V	U_S = 6 V	+ 0,2 V
U_A = 9,5 V	U_A = 6,5 V	U_A = 5 V	U_A = 6,5 V	
t_r = 5 ms				± 10 %
t_6 = 15 ms				
t_7 = 50 ms				
t_8 = 1 s	t_8 = 10 s	t_8 = 1 s	t_8 = 10 s	
t_f = 40 ms	t_f = 100 ms	t_f = 100 ms	t_f = 100 ms	

Figure 43 12V Built-in Waveform Setup Standard

Levels/voltages/duration of starting profile			
I	II	III	Tolerances
U_S = 10 V	U_S = 8 V	U_S = 6 V	+ 0,2 V
U_A = 20 V	U_A = 15 V	U_A = 10 V	
t_r = 10 ms			± 10 %
t_6 = 50 ms			
t_7 = 50 ms			
t_8 = 1 s	t_8 = 10 s	t_8 = 1 s	
t_f = 40 ms	t_f = 100 ms	t_f = 40 ms	

Figure 44 24V Built-in Waveform Setup Standard

5.6.1.4 Car Load Dump Characteristic Curve

Inside most newer alternators, the magnitude of the load dump is suppressed (clamped) by the addition of a limiter diode. Load dump can occur due to corroded cables, poor contact or intentional disconnection from the battery while the engine is running.

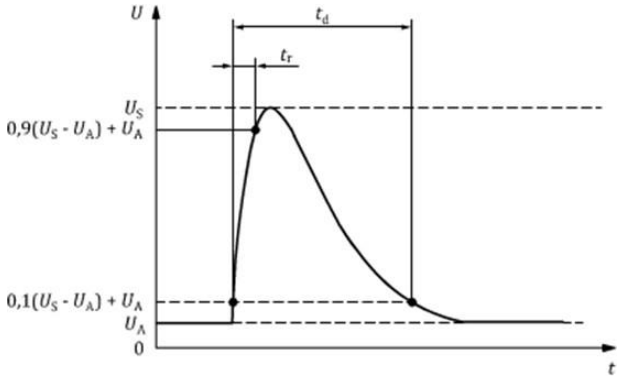


Figure 45 Test A

t：Time.

U：Test Voltage.

td：Pulse Duration.

tr：Time Unit

U_A：Supply voltage of operating generators：(12V)U_A=14V; (24V)U_A= 28V

U_S：Peak Voltage

Parameter	Type		Minimum Test Requirement
	12V	24V	
U_S[a](V)	$79 \le U_S \le 101$	$151 \le U_S \le 202$	10 pulses every 1 minute
R_i[a](Ω)	$0.5 \le Ri \le 4$	$1 \le Ri \le 8$	
t_d(ms)	$40 \le t_d \le 400$	$100 \le t_d \le 350$	
t_r(ms)	–	–	
If not otherwise agreed, please use a higher voltage level with higher internal resistance or a lower voltage level with lower internal resistance.			

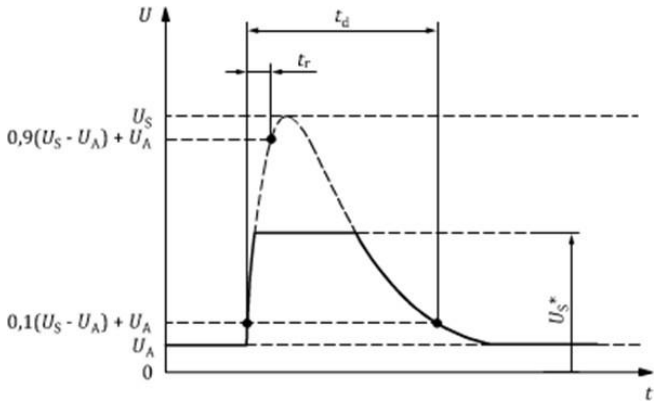


Figure 46 Test B

t：Time.

U：Test Voltage.

td：Pulse Duration.

tr：Time Unit

U_A：Supply voltage of operating generators：(12V)U_A=14V; (24V)U_A= 28V

U_S：Peak Voltage

U_S*：Voltage with load dump suppression (clamp voltage)

Parameter	Type		Minimum Test Requirement
	12V	24V	
U_S[a](V)	79≤U_S≤101	151≤U_S≤202	5 pulses every 1 minute
U_S*(V)	Fixed at 35V, not settable.	Specified by customer (default: 58)	
R_i[a](Ω)	0.5≤Ri≤4	1≤Ri≤8	
t_d(ms)	40≤t_d≤400	100≤t_d≤350	
t_r(ms)	–	–	
[a]If not otherwise agreed, use a higher voltage level with higher internal resistance or a lower voltage level with lower internal resistance.			

5.6.2 LV124

LV124 provides curves that meet the experimental items, experimental conditions and experimental requirements for electrical and electronic components of automobiles under 3.5 tons.

LV124	LV124 Waveform Protocol		
	E-04	Jump-start Experiment Pulse	
	E-07	Experimental parameters for slow drop and slow rise of supply voltage	
		Ubmax	Starting Voltage
		Ubmin	Holding Voltage
		Ubmin Holding Time	Holding time of voltage at Ubmin

5.6.2.1 E-04 Jump Start

This waveform simulates the pulses generated during external startup of a car.The maximum experimental voltage is generated from the operating car and its raised chassis harness voltage. The waveform is shown below.

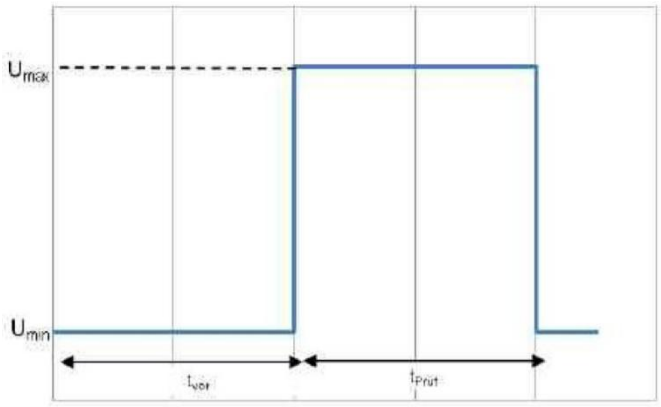


Figure 47 E-04 Jump Start

5.6.2.2 E-07 Supply voltage Slow Drop and Rise

Simulates the waveform of slow drop and slow rise of the supply voltage, such as the process of slow discharge and slow charge of a car battery. The waveform is shown below.

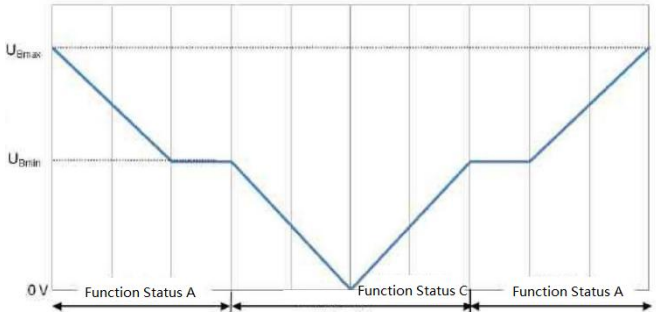


Figure 48 E-07 Supply voltage Slow Drop and Rise

Take the waveform when the car starts as an example, the operation steps to call up the test waveform are as follows (take the 24V voltage waveform as an example).

1. Enter the menu page and select Car Waveform;

3. "Search Item 2": rotate the knob to select Starting, press "Enter" to confirm;

4. "Search Item 3": rotate the knob to select 12V, press "Enter" to confirm;

5. "Search Item 4": rotate the knob to select the corresponding level (e.g. LEVEL1), press "Enter" to confirm;

6. Press "On/Off" on the front panel to turn on the output, and the status bar shows that the status has changed from "Idle" to "Ready".

Figure 49 Car Waveform

6. Press "Shift "+"On/Off" on the front panel to trigger the waveform output. At this time, the status bar will display "Running".

5.7 Charge

The N35100 series can be used to test batteries and overcapacity devices for charging under DC power.

Figure 50 Charge Mode

Table 19

No.	Item	Function
1	Charge Vol	To set charging voltage
2	Charge Cur	To set charging current
3	Stop Vol	Judge the voltage value after charging is completed, when the actual voltage reaches the cut-off voltage, the power supply will automatically turn off the output. 0 means turn off this judgement, default is 0
4	Stop Cur	Judge the current value after charging is completed, when the actual current reaches the cut-off current, the power supply will automatically turn off the output. 0 means turn off this judgement, default is 0
5	Stop Capa	Judge the capacity after charging is completed, when the actual capacity reaches the cut-off capacity, the power supply will automatically turn off the output. Range：0.000～1000Ah, 0 means turn off this judgement, default is 0
6	Charge Time	Judge the time after charging is completed, when the cumulative time reaches the cut-off time, the power supply will automatically turn off the output. Range： 0～86400s. 0 means turn off this judgement, default is 0

In particular, the charging will be terminated if Stop vol, Stop Cur, Stop Capa, Charge Time are met. When the charging function is switched on again, the charging capacity and charging time will be reset to zero and re-calculated.

5.8 Discharge

The N35100 series can be used to test batteries and overcapacity devices for discharging under DC power.

Figure 51 Discharge Mode

Table 20

No.	Item	Function
1	Discharge Cur	To set discharging current
2	Discharge Pow	To set discharging power
3	Stop Vol	Judge the voltage value after discharging is completed, when the actual voltage reaches the cut-off voltage, the power supply will automatically turn off the output. 0 means turn off this judgement, default is 0
4	Stop Capa	Judge the capacity after discharging is completed, when the actual capacity reaches the cut-off capacity, the power supply will automatically turn off the output. Range：0.000～1000Ah, 0 means turn off this judgement, default is 0
5	Discharge Time	Judge the time after discharging is completed, when the cumulative time reaches the cut-off time, the power supply will automatically turn off the output. Range： 0～86400s. 0 means turn off this judgement, default is 0

In particular, the discharging will be terminated if Stop vol, , Stop Capa, Disharge Time are met. When the discharging function is switched on again, the discharging capacity and discharging time will be reset to zero and re-calculated.

5.9 SR

RESI can be used to simulate a battery external power supply.

Figure 52 RESI

Due to the presence of internal resistance, the external supply voltage of actual battery decreases as the current increases, and the output of the battery satisfies the following equation:：

$$Vo = Vs - Io \times Ri$$

Vo is the actual output voltage, Vs is the open circuit voltage, Io is the actual output current and Ri is the internal resistance.

V-Set is the open-circuit voltage of the battery, corresponding to Vs in Eq;

I-Max and **P-Max** are the maximum permissible output current and maximum output power of the power supply respectively, and the actual value depends on the load condition;

R-Set is the analogue value of the internal resistance of the battery, corresponding to Eq. Ri.

5.10 CR

Resistive mode is to adjust the input current according to the input voltage to discharge in constant resistance mode.

Figure 53 CR mode

The settable range of **R-Set** depends on the specification model;

Current Limit is the current limit value in CR mode;

Power Limit is the power limit value in CR mode.

5.11 Parallel

N35100 supports parallel connection of 10 devices of the same specification, which can be controlled and read back simultaneously through the shared bus PAR.

5.11.1 Connection

The master-slave parallel function only supports connection of devices of the same specification. Wiring is shown in the figure below. Corresponding settings should be made for each power supply to realize master-slave parallel function. If voltage remote sense is required, it is necessary to connect the voltage remote sense terminals S+ and S- of the master to the compensation point.

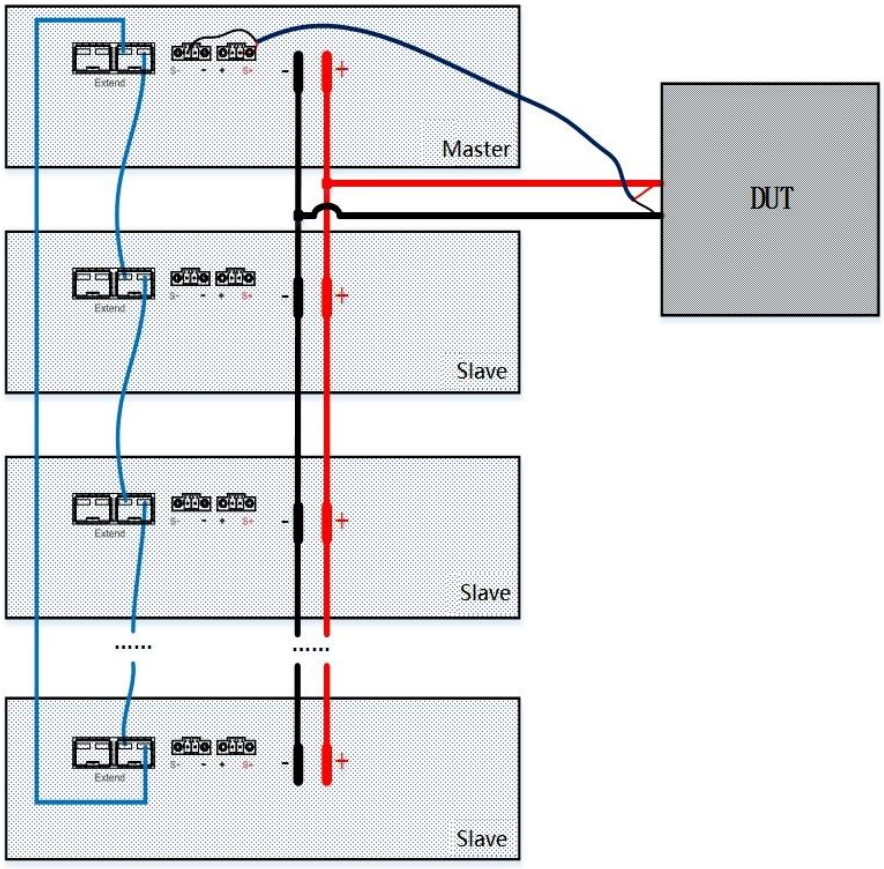


Figure 54 Parallel Connection Diagram

5.11.2 Parallel Setting

Users can enter [**Parallel**] interface from the menu. In parallel application, the slave should be configured first and then the master to avoid communication failure of the master. There can only be one master. There can be multiple slaves. However, the role of the slave cannot be repeated, and must be set in ascending order. If there is only one slave, the slave count must be set to 1. When there are two slaves, one of them must be set as 1, the other must be set as 2, and so on, otherwise it will cause communication failure.

[**Parallel Mode**]: Single/Master/Slave.

[**Slave Count**]: 1-15.

Figure 55 Parallel Interface

Note

When multiple devices are set as master and the control function is turned on, the parallel operation will fail.

Note

When using the parallel, power supplies of the same model and specification must be selected.

5.12 Photovoltaic Array Simulation

N35100 series supports photovoltaic simulation and can accurately simulate the I-V and P-V curves of the solar cell matrix. After users set the test regulations, materials, Vmp, Pmp and other parameters, it can simulate the output of I-V, P-V curve and generate a report in compliance with the regulations, which can be used to test the static and dynamic maximum power tracking efficiency of PV inverters.

NS91000 PV cell matrix simulation software includes static Sandia mode, Static EN50530 mode, Dynamic Sandia mode, Dynamic EN50530 mode, Customized curve settings, Sequence mode, Weather mode, and Shadow mode. When the device is under remote control, open the PV simulation software to use this function. Refer to the NS91000 PV Cell Matrix Simulation Software User Manual for specific operation steps.

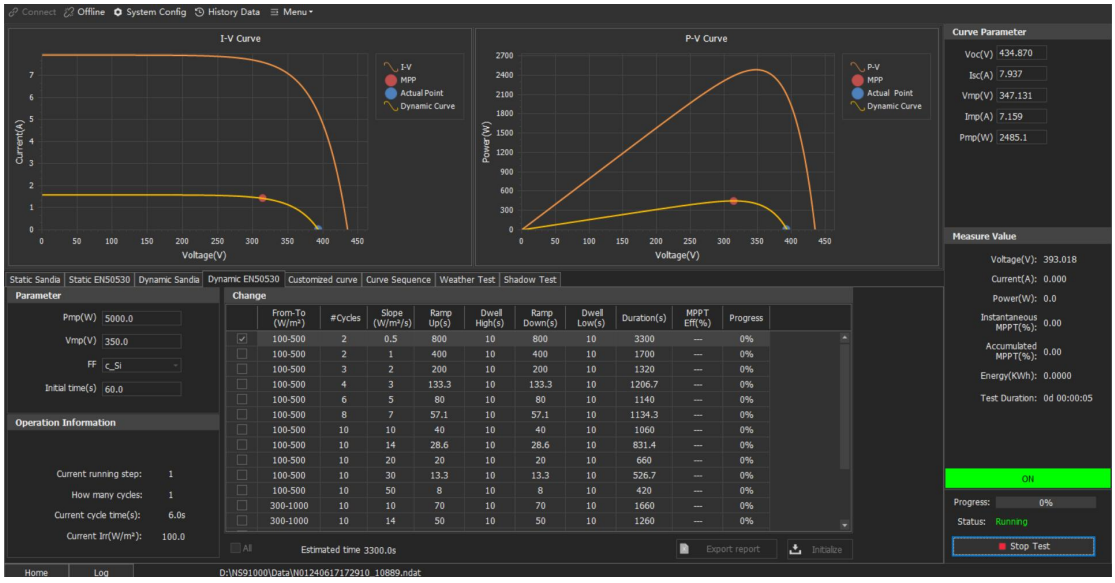


Figure 56 PV Simulation

5.13 Battery Simulation

NS81000 has 7 standard battery model libraries, users only need to select the corresponding battery type, configure the basic capacity and protection parameters, the software can quickly generate the corresponding type of battery characteristic curve; and there are 2 types of custom battery characteristic curve, engineers can be based on the actual measurement of the battery curve data, import the data into the software and carry out simulation.

Battery types: LiFePO4 battery, Ternary lithium battery, Lead-acid battery, Ni-MH battery, LTO, ICO, IMO.

More details refer to NS81000 User Manual.

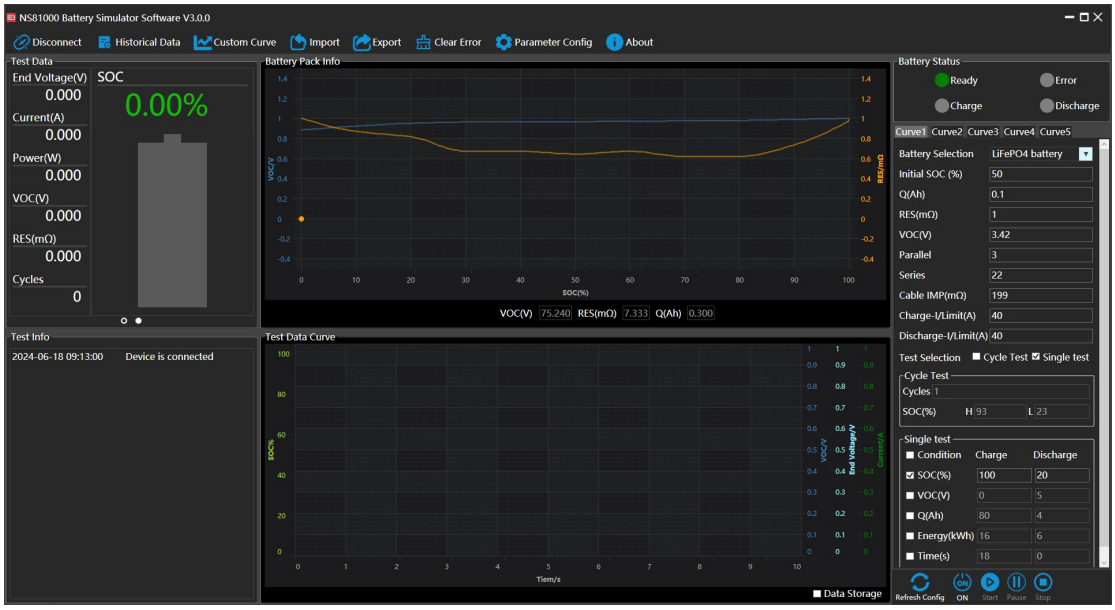


Figure 57 Battery Simulation

5.14 Protection

On protection interface, users can set various protection parameters. When protection occurs, alarm information will be shown on the screen.

Methods to enter **Protection**:

Method 1: Press Shift first and then PROT CLR on the front panel directly.

Method 2: Press Menu →choose **Protection** by ◄ ► or ○ →press Enter or ○.

Note: Please press PROT CLR to clear the alarm manually.

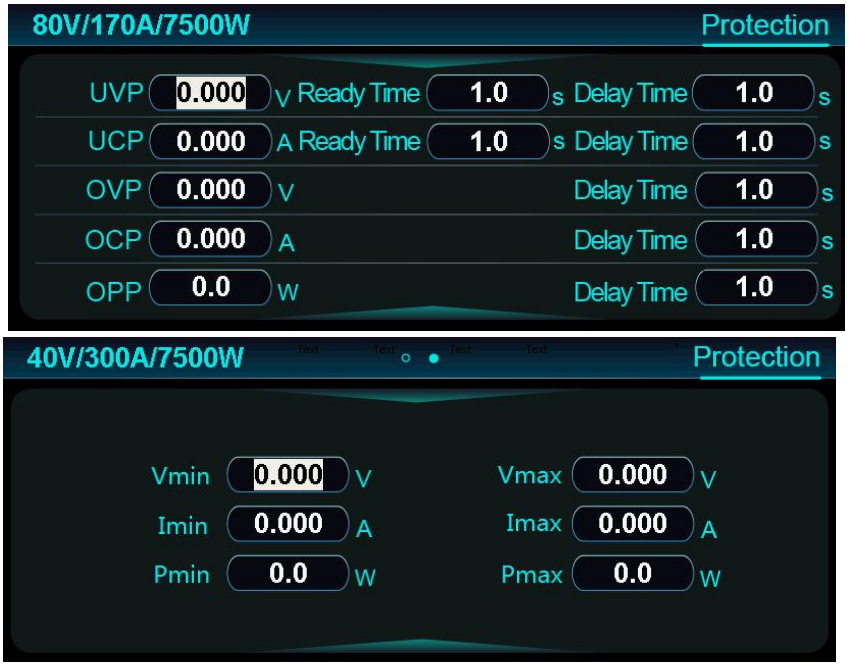


Figure 58 Protection Setting Interface

No.	Item	Function
1	Undervoltage protection point	Undervoltage protection
2	Undervoltage protection ready time	
3	Undervoltage protection delay time	
4	Undercurrent protection point	Undercurrent protection
5	Undercurrent protection ready time	
6	Undercurrent protection delay time	
7	Overvoltage protection point	Overvoltage protection
8	Overvoltage protection delay time	
9	Overcurrent protection point	Overcurrent protection
10	Overcurrent protection delay time	
11	Over Power Protection Point	Over power protection
12	Over Power Protection delay time	
13	Vmin	To set voltage lower limit
14	Vmax	To set voltage upper limit
15	Imin	To set current lower limit
16	Imax	To set current upper limit
17	Pmin	To set power lower limit
18	Pmax	To set power upper limit

UVP

When the UVP setting is non-zero, it indicates that the function is turned on.

If the device meets the following conditions at the same time, the UVP warning will appear:

1. UVP set value is non-zero

3. The terminal voltage is less than the set undervoltage protection point and the duration is greater than the protection delay time.

When UVP occurs, the device will respond as follows:

1. Output of the device is switched off

2. The buzzer rings once intermittently and three times continuously.

3. UVP will be displayed on the status bar in black letters on a red background.

UCP

When the UCP setting is non-zero, it indicates that the function is turned on.

If the device meets the following conditions at the same time, the UCP warning will appear:

1. UCP set value is non-zero

2. The output time reaches the ready time of the device.

3. The terminal current is less than the set undercurrent protection point and the duration is greater than the protection delay time.

When UCP occurs, the device will respond as follows:

1. Output of the device is switched off

2. The buzzer rings once intermittently and three times continuously.

3. UCP will be displayed on the status bar in black letters on a red background.

OVP

When the OVP setting is non-zero, it indicates that the function is turned on.

If the device meets the following conditions at the same time, the OVP warning will appear:

1. OVP set value is non-zero

2. The terminal voltage is greater than the set OVP point and the duration is greater than the protection delay time

1. Output of the device is switched off

2. The buzzer sounds once intermittently and three times continuously.

3. OVP will be displayed in black letters on a red background in the status bar.

OCP

When the OCP setting is non-zero, it indicates that the function is turned on.

If the device meets the following conditions at the same time, the OCP warning will appear:

1. OCP set value is non-zero

2. The terminal voltage is greater than the set OCP point and the duration is greater than the protection delay time

When OCP occurs, the device responds as follows:

1. Output of the device is switched off

2. The buzzer sounds once intermittently and three times continuously.

3. OCP will be displayed in black letters on a red background in the status bar.

OPP

When the OPP set value is non-zero, it means that the power protection function is turned on

If the device meets the following conditions at the same time, it will depart OPP:

1. OPP set value is non-zero

2. the terminal source power is greater than the set power protection point, or the absolute value of the terminal load power is greater than the set power protection point, and the duration is greater than the protection delay time

When OPP occurs, the device responds as follows:

1. Output of the device is switched off

2. The buzzer rings once intermittently for three times.

OTP

In order to prevent the chassis temperature is too high and affect the working performance of the device, make sure that the air around the device circulates normally, please do not cover all the heat dissipation holes of the chassis. The setting parameters for OTP are already fixed in the operating programme of the device and do not need to be set additionally.

OTP is a protective measure implemented when the internal temperature of the device exceeds 100 degrees Celsius, when OTP occurs, the device responds as follows:

1. Output of the device is switched off
2. The buzzer sounds once intermittently and three times continuously.
3. OTP will be displayed in black letters on a red background in the status bar.

Module Fault Alarm

When the device power module fails or the device is powered down, the N35100 will stop output and display the **MF** alarm.

5.15 Application

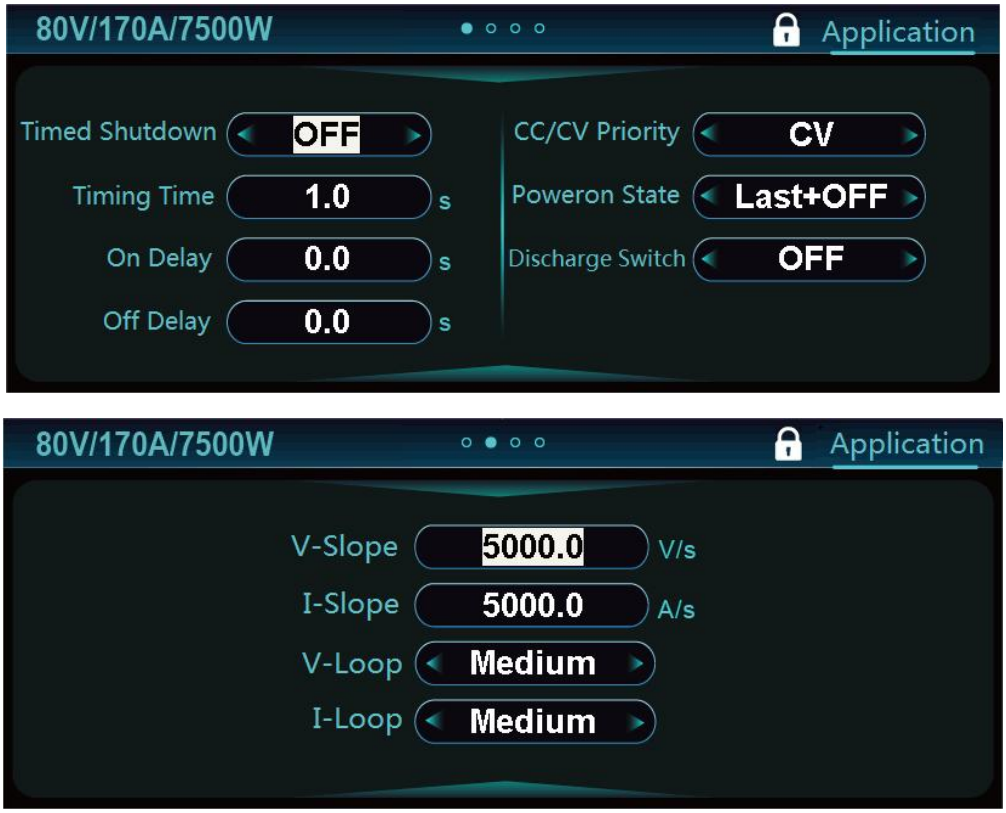


Figure 59 Application

Table 22

No.	Item	Description
1	Time Shutdown	Default OFF, ON for turning on.
2	Timing Time	It can be set to 1.0~86400.0s, for example, set 5s that means the power output will be automatically OFF after 5s.
3	On Delay	Range 0.1~10s. After setting, press ON/OFF and then the power supply will delay the output accordingly.
4	Off Delay	Range 0.1~10s. After setting, press ON/OFF and then the power supply will delay the output accordingly.
5	Poweron State	Last/Last+OFF/Reset. Last means maintaining the last operation status before power on again; Last+OFF means maintaining the last OFF status if powered on again;

		again.
6	Discharge switch	Setting the drain circuit status ON/OFF (This function must be switched off in the charging test)
7	V-Slope	To set voltage fall slew, range: 1~5000V/s
8	I-Slope	To set current fall slew, range: 1~10000A/s
9	CV/CC Priority	If the user requires that voltage overshoot must be minimal, such as when biasing to a low voltage processor or FPGA core, it is recommended that the user use CV priority mode; CC priority mode should be used if the user has a low impedance component under test, such as when charging a battery or driving a system containing large capacitance.
10	V-Loop	To adjust voltage loop speed: Slow/Medium/Fast/3/4/5/6/7/8/9/10
11	I-Loop	To adjust current loop speed: Slow/Medium/Fast/3/4/5/6/7/8/9/10

Note

Faster loop speeds boost dynamic response; slower speeds enhance steady-state performance.

5.15.1.1 CV/CC Priority

In general, operation mode of power supply depends on the output voltage setting, output current limit setting and load impedance.

In the case of high impedance or open circuit, the current flowing through the power supply is very low or there is no current. The power supply is in CV (constant voltage) mode.

In the case of low impedance or short circuit, high current flows through the power supply. The power supply is in CC (constant current) mode.

N39200 series allows users to select CV priority or CC priority.
The power supply is a feed-back control system that enables the regulation of specific parameters. Under constant voltage conditions, the power supply's feedback control loop regulates the voltage. Under constant current conditions, the power

the power supply will generally operate in CV mode by default, and the power supply will regulate the voltage to remain constant until the load draws enough current to reach the set current value.
Once the current supplied reaches the current setting, the power supply will switch from CV mode to CC mode. In CC mode, the power supply will regulate the current to remain constant and the voltage will begin to drop as it is no longer the parameter being regulated. The power supply will continue to operate in CC mode until the voltage across the load climbs to the set value, then the power supply will switch from CC mode to CV mode. In CV mode, the power supply will start regulating again as described above.

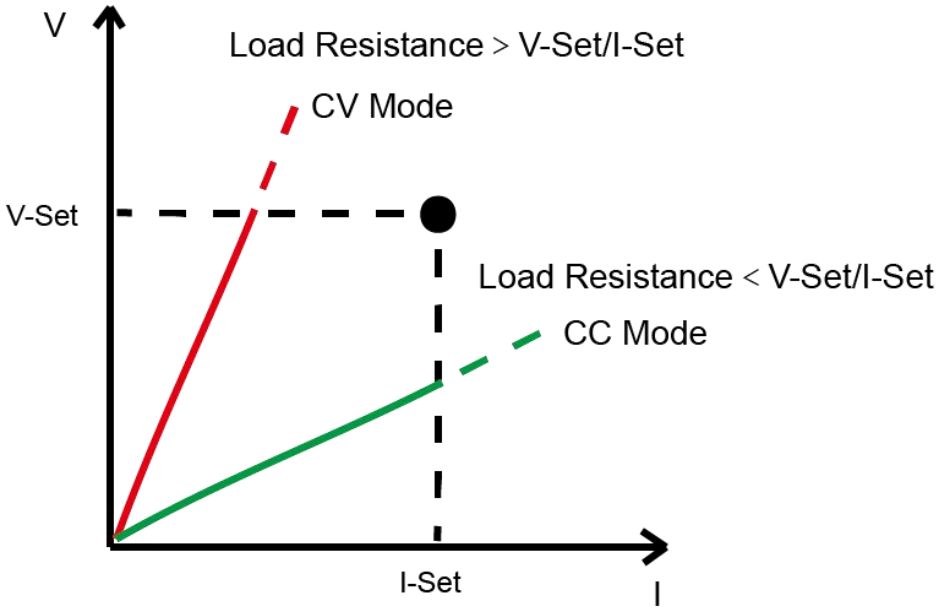


Figure 60 Relation between operation mode and load resistance

CV Priority Mode
Under CC priority mode, the control system will initially set voltage to the set value and set current to 0A. The current will continue to rise. During this process, the current is always regulated, with fast current rise time and minimum overshoot.

When supplying power to low impedance loads under CC priority mode, the power supply will always remain in CC mode.

When supplying power to high impedance loads, high impedance cannot make enough current flow through the load. However, the current flowing through the high impedance load will generate high voltage. The voltage will quickly reach the set value. In this case, CC mode is converted to CV mode, which may cause unstable

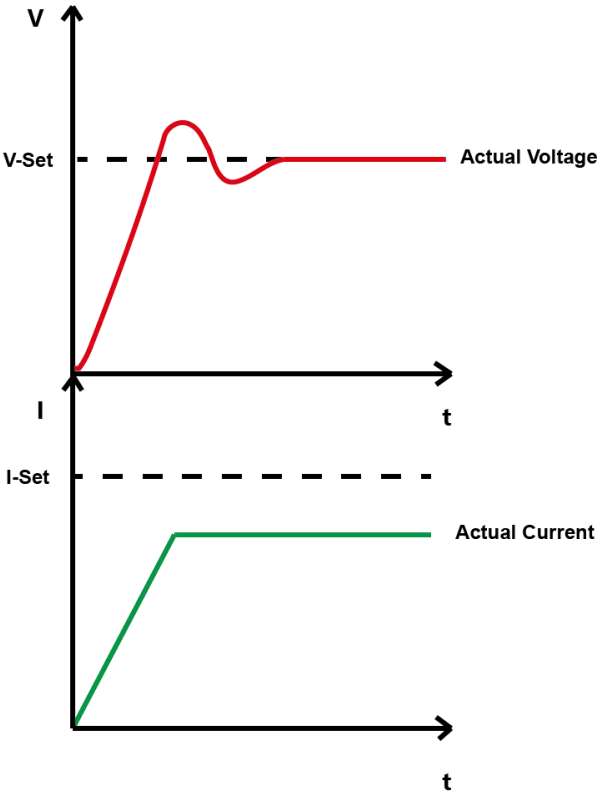


Figure 61 CC Priority and High Impedance Load

CC Priority Mode

When power is supplied in CC priority mode, the control system will initially set the voltage to a set value, set the current to 0A, and then continue to rise, during which the current is always regulated, with fast current rise time and minimal overshoot.
When supplying power to low impedance loads in CC priority mode, the power supply will remain in CC mode, when supplying power to high impedance loads in CC priority mode, the high impedance will not allow enough current to flow through the loads, however, the current flowing through the high loads will generate a high voltage, the voltage will reach the set value very quickly, and the CC mode will change to CV mode, which may lead to unstable voltage control in the process of changeover, and then generate voltage Overshoot.

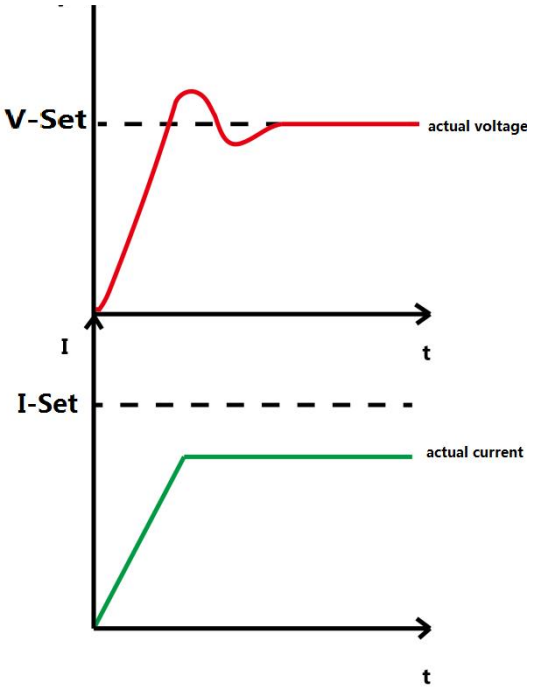


Figure 62 CC Priority

If the user's component to be tested is low impedance, such as when charging a battery or driving a system containing a large capacitor, CC priority mode should be used.

5.15.2 Safety Interlock

The safety interlock feature allows users to control the activation and deactivation of the safety interlock via an external programming port (I/O). This function is used by connecting or disconnecting Pin 11 and Pin 12 of the external programming port (I/O) with a switch or a shorting cap.

By default, Pins 11 and 12 of the external control port (I/O) are open, putting the machine into an interlocked no-output mode. When Pins 11 and 12 are shorted, the machine enters a standby output mode. Users can select "Trigger" to indicate that each high-level signal triggers an action. The control mode "Hold" means that a single change in the signal level triggers an action.

When Pins 11 and 12 are closed, the machine enters the standby output mode, which can be achieved by connecting an external switch or shorting cap.

For the connection diagram, please refer to the figure below.

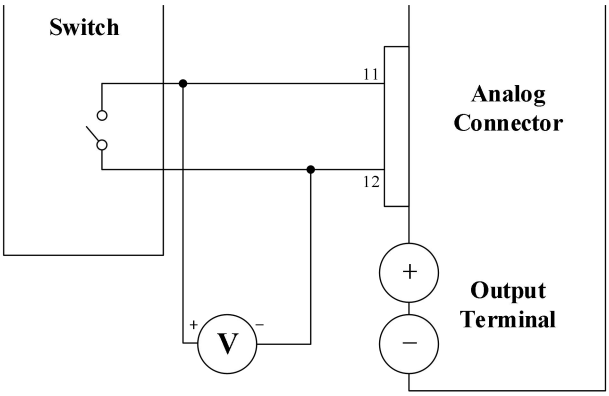


Figure 63 Safety Interlock

Operation Steps:

1. Connect the external voltage as shown in the diagram:

Pin 11/12 → Switch/Voltage Measurement Instrument

2. Press the "Menu" button to enter the main menu interface.
3. Rotate the knob to "Application," then press the "Enter" key and continue rotating the knob to the interface shown in the figure.
4. In the parameter setting interface, complete the following configurations:

Input Signal 1: Set to "HVIL" mode

Control Mode: Select "Hold" mode

Output Signal 1: Synchronously select "HVIL" output

5. When the Switch is closed:

The device should output normally, and the voltage measured at Pin 12 should be high.

6. When the Switch is open:

The device output should immediately shut off, the buzzer should sound three times in a "short beep-pause-short beep" pattern, the status bar should display a red background with black text "SAFE" warning indicator, and the voltage level at Pin 12 should drop from high to low.

Figure 64 Safety Interlock

5.15.3 External Control

The external control function enables users to turn the power supply on and off via an external programming port (I/O). Connect DI1 to DI3 with GND using a switch to utilize this feature by closing or opening the switch.

The external control port defaults to a low level.
Selecting "Trigger" as the control mode means an action is triggered each time a high level is detected.
Selecting "Hold" as the control mode means an action is triggered upon a single change in the signal level.

When Pins 11/13/15 (DI1 to DI3) are connected to Pins 9/10 (GND), it triggers the function. You can use an external switch or a shorting cap for this connection.

Please refer to the connection diagram below.

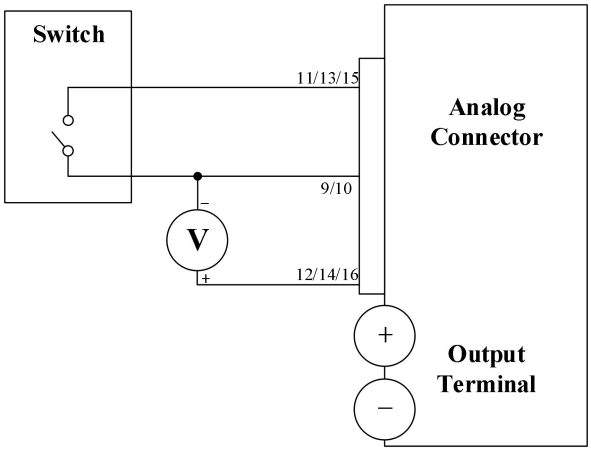


Figure 65 External Control

Operation Steps:
1. Connect the external voltage as per the diagram:
Pins 11/13/15 → Switch
Pins 9/10 → Switch
Pins 12/14/16 → Voltage measurement instrument
2. Press the "Menu" button to enter the main menu interface.
3. Rotate the knob to "Application" then press the "Enter" key and continue rotating the knob to reach the interface shown in the figure.

Note

- Projects already set on one port cannot be set again on another port.
- Due to the high priority of external control, once this function is enabled, the "On/Off" button on the front panel will be locked and cannot be used.

Figure 66 External Control

Table 23

No.	Item	Description
1	Input Signal 1	Corresponding to DI1 of the I/O interface, OFF/ONOFF/Clear/HVIL can be selected, setting ONOFF indicates power output ON/OFF control, and setting Clear indicates clearing of power failure status.
2	Control Mode	Set the trigger mode of Input Signal 1, there are two modes, Trigger/Hold: Trigger means rising edge trigger, Hold means one action for one level change.
3	Input Signal 2	Corresponding to DI2 of the I/O interface, OFF/ONOFF/Clear can be selected, setting ONOFF indicates power output ON/OFF control, and setting Clear indicates clearing of power failure status.
4	Control Mode	Set the trigger mode of Input Signal 2, there are two modes, Trigger/Hold: Trigger means rising edge trigger, Hold means one action for one level change.
5	Input Signal 3	Corresponding to DI3 of the I/O interface, OFF/ONOFF/Clear can be selected, setting ONOFF indicates power output ON/OFF control, and setting Clear indicates clearing of power failure status.
6	Control Mode	Set the trigger mode of Input Signal 3, there are two modes, Trigger/Hold: Trigger means rising edge trigger, Hold means one action for one level change.

7	Output Signal 1	interface, OFF/ONOFF/Fault/HVIL, setting ONOFF indicates power output ON/OFF status indication, setting Fault indicates power failure/alarm indication.
8	Output Signal 2	Corresponds to DO2 of the corresponding I/O interface, OFF/ONOFF/Fault, setting ONOFF indicates power output ON/OFF status indication, setting Fault indicates power failure/alarm indication.
9	Output Signal 3	Corresponds to DO3 of the corresponding I/O interface, OFF/ONOFF/Fault, setting ONOFF indicates power output ON/OFF status indication, setting Fault indicates power failure/alarm indication.

5.15.4 External Programming

External programming uses analog voltage signals to control and monitor the output voltage, current, and power of the power supply. Users can connect AI1-2 to AGND with analog devices and connect AO1-2 to AGND with voltage measurement instruments to control and monitor the output voltage, current, and power of the power supply through voltage signals.
External programming outputs require the use of the rear panel's I/O 16-pin interface.

Pins 1/2 → EXT-V(+)
Pins 3/4 → EXT-V(-)
Pins 5/6 → Voltage measurement instrument

Where:
Output Voltage = Rated Voltage × (External Voltage / External Programming Voltage)
Output Current = Rated Current × (External Voltage / External Programming Voltage)
Output Power = Rated Power × (External Voltage / External Programming Voltage)

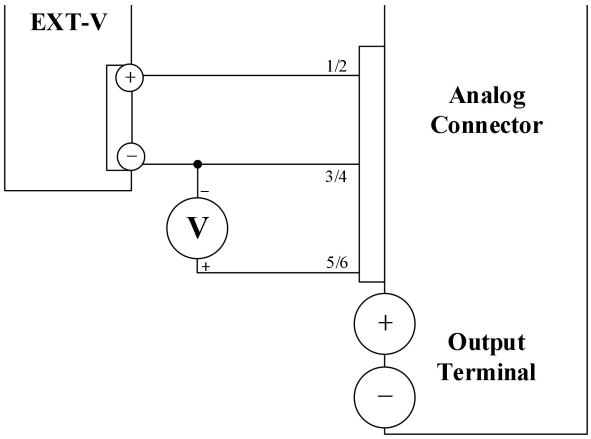


Figure 67 External voltage connection

Once the external programming function is activated, the output voltage, current, and power are controlled and monitored by the externally input voltage signal. There are two options for setting the reference voltage for external programming:

- 5V: A programming signal of 0 to 5V corresponds to an output voltage, current, and power ranging from 0 to full scale.
- 10V: A programming signal of 0 to 10V corresponds to an output voltage, current, and power ranging from 0 to full scale.

For example, if a reference voltage of 10V is set, and if the user is operating the N35175-80-170 model, the input/output analog signal is 0 to 10V, controlling and monitoring the power supply output voltage between 0 to 80V.

- For every 1V increase in the input analog voltage, the power supply output voltage increases by 8V; when the input analog signal is 10V, the power supply output voltage is 80V.
- For every 8V increase in the power supply output voltage, the monitored output analog voltage increases by 1V; when the power supply output voltage is 80V, the output analog voltage is 10V.

Figure 68 External Programming

1	Refer Voltage	Voltage reference provided to external, 5V/10V Selectable.
2	EX Program1	Corresponding to the AI1 of the I/O interface, OFF/APG-V/APG-SI/APG-LI/APG-SP/APG-SP correspond to the control of power supply output ON/OFF, set voltage/source current/load current/source power/load power control.
3	EX Program 2	Corresponding to the AI2 of the I/O interface, OFF/APG-V/APG-SI/APG-LI/APG-SP/APG-SP correspond to the control of power supply output ON/OFF, set voltage/source current/load current/source power/load power control.
4	EX Momitor1	Corresponding to the V_MON of the I/O interface, OFF/MONI-V indicates the ON/OFF status of the power supply output and monitors the output voltage.
5	EX Monitor2	Corresponding to the I_MON of the I/O interface, MONI-V/MONI-I/MONI-P monitors the output voltage/current/power of the power supply.

5.16 System

The user presses the "Menu" button to enter the "System " interface, which is shown in Figure:

Figure 69 System

Table 25

No.	Item	Function
1	IP	The default IP address is 192.168.0.123. The computer IP must be on the same network segment as the power supply, otherwise the connection will not be successful.
2	Netmask	Default 255.255.255.0
3	Gateway	Default 192.168.0.1
4	Device ID	Range 1-250, Default 160
5	COM Baud	Support 9600, 19200, 38400, 115200, Default 115200
6	Beeper	Default ON
7	Language	Set Language
8	CAN ID	Set CANopen communication ID, range1-127, default 1
9	CAN Baud	Set CANopen Baud Rate, unit kbps
10	Save	When turned on, every time the user modifies the setting item, it will be saved to EEPROM, otherwise it will not be saved
11	Sample Speed	Range 0.1~100, unit PLC
12	Com Feed Time	Monitor communication between the PC and device within the set time. The device auto-shuts off if the

5.17 Factory Reset

Method to enter **Factory Reset**:

Press →choose **Factory Reset** by or →press or .

After selecting Confirm, please press to complete the setting.

Note: After setting completed, it will take effect only after N35100 is restarted.

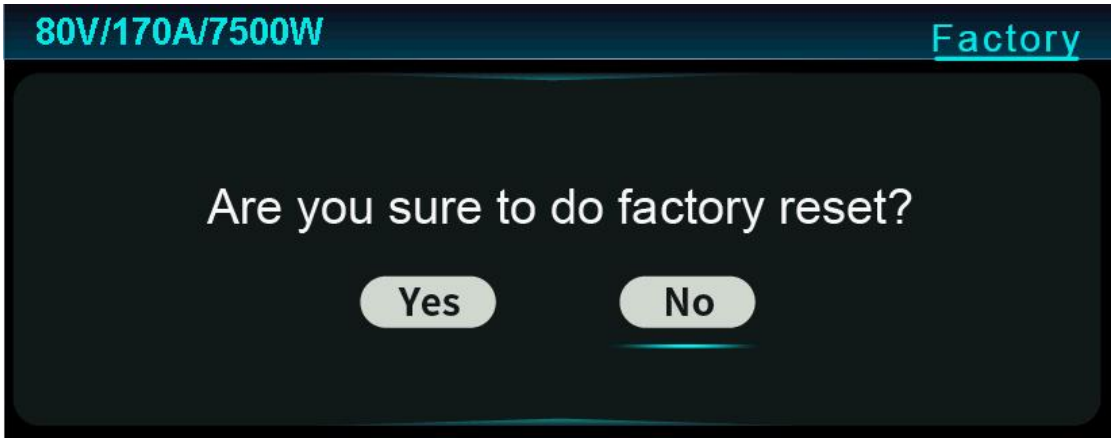


Figure 70 Factory Reset

Remark

Factory reset takes about 5 seconds. The settings are effective only after rebooting the device after reset.

5.18 About Us

Users press the "Menu" button and select "About Us" to enter the interface, and it is shown in the figure.

Figure 71 About Us

6.1 PC Software Configuration

To make better use of the system performance, the following computer configuration is recommended:

- CPU: 2.0G, dual-core and above
- Memory: 4G and above
- Hard disk: 80G and above
- Port: Ethernet port
- Operating system: Microsoft Windows 7 and above

6.1.1 Port Connection

Please plug the Ethernet cable to PC Ethernet port and the other side to N35100 LAN port. After N35100 series is turn on, enter the system configuration interface to check the network IP. PC needs to keep the same network segment with N35100 in order to search the device. When master computer is in remote sense, configure the system parameters in the device interface , as shown in the following figure.

Figure 72 Remote Sense

After the master computer is disconnected, wait for 3s-5s, and then press the **LOCK** to release the remote mode.

6.1.2 Disabling operating system standby mode

- Windows 7 settings

Sleep Time.

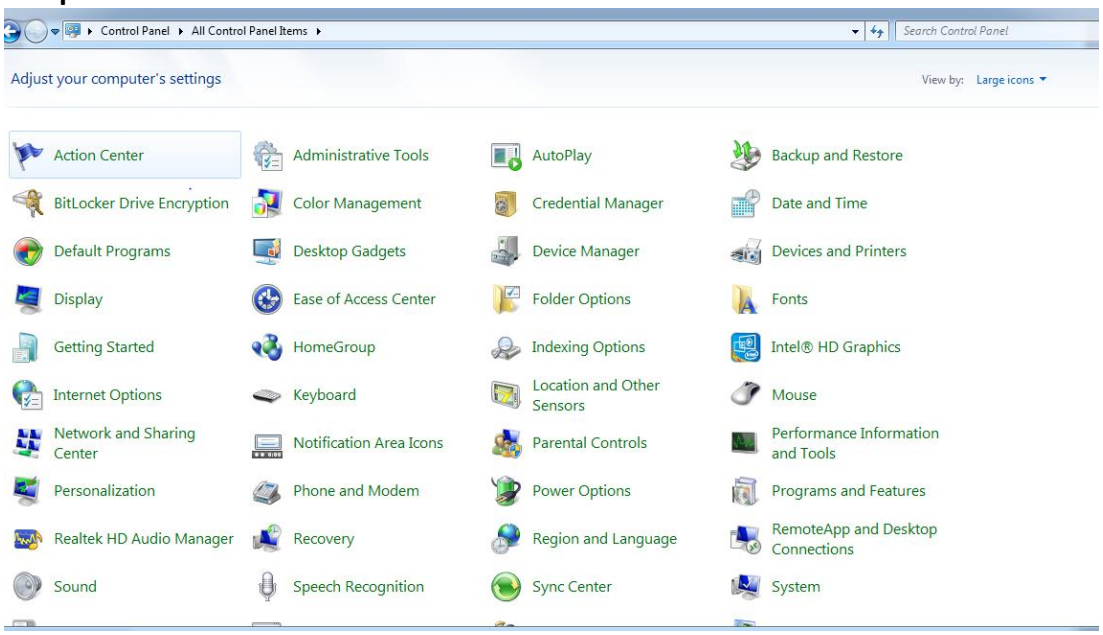


Figure 73 Windows 7 settings

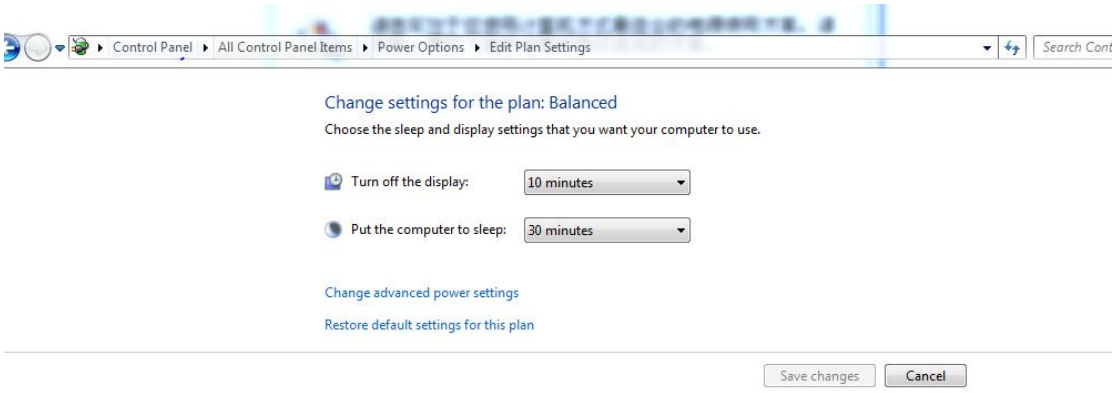
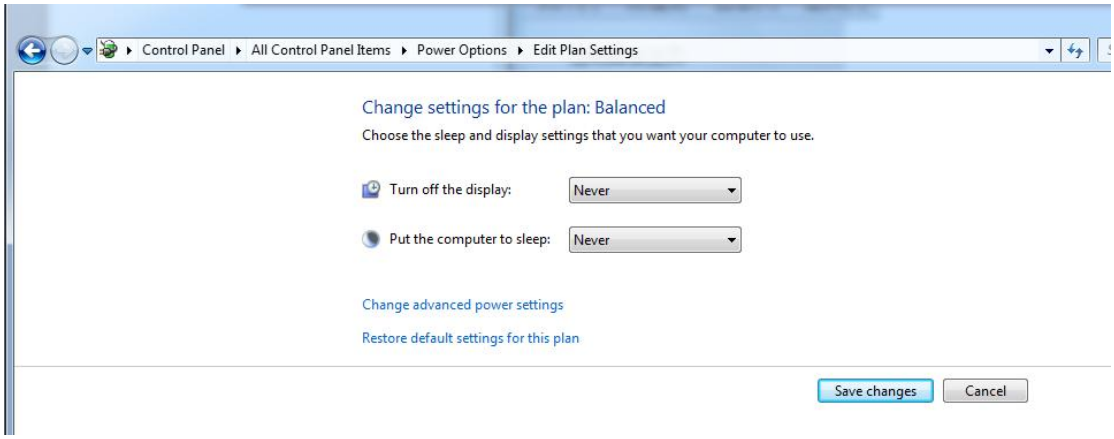


Figure 74 Windows 7 settings

Set **Turn off the display** and **Put the computer to sleep** to Never.



■ Windows 10 settings

Click **Start**→Click **Settings**.

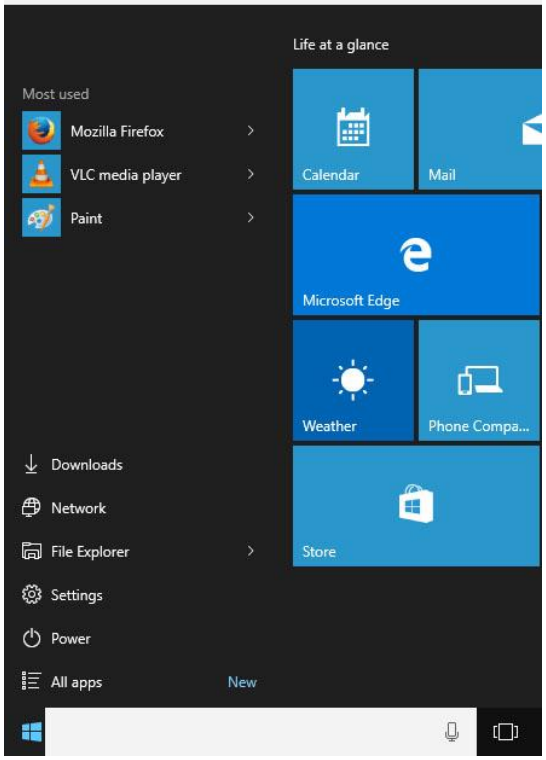


Figure 76 Windows 10 settings

Click **System**.

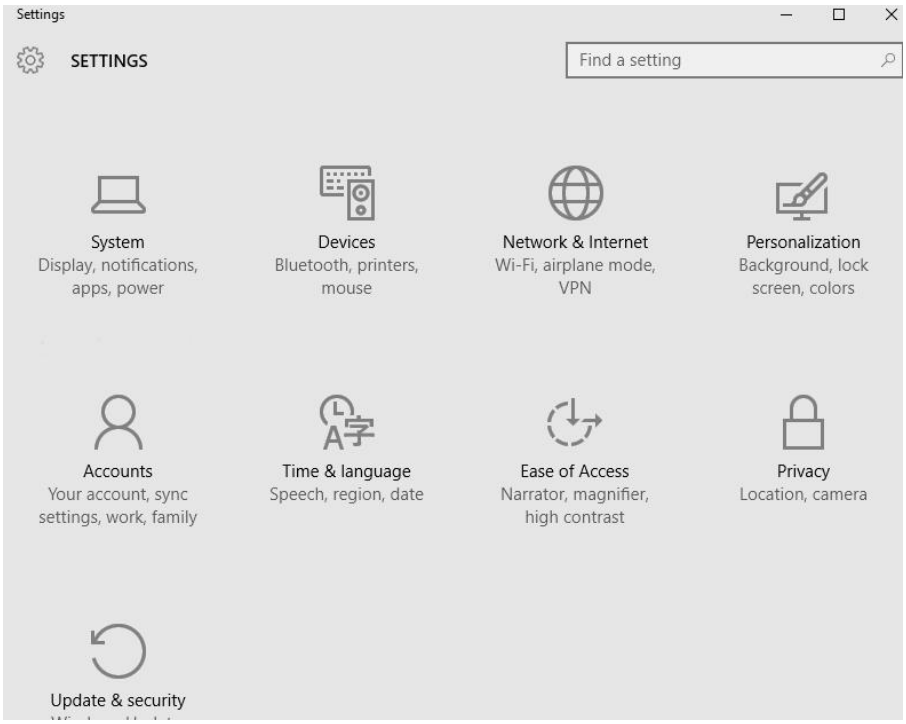


Figure 77 Windows 10 settings

Click **Power & sleep**.

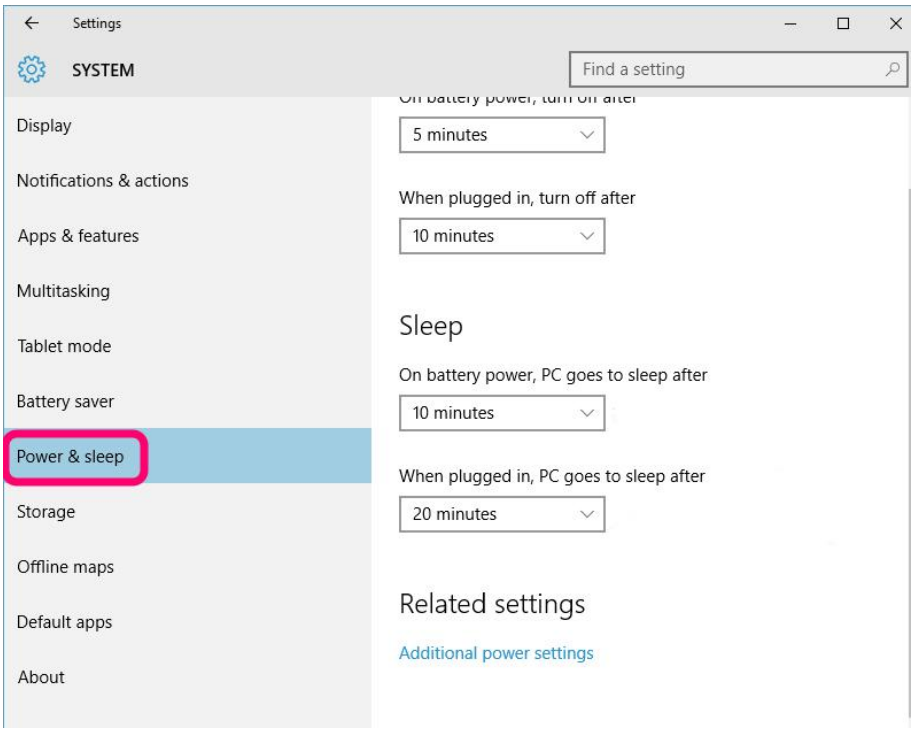


Figure 78 Windows 10 settings

Select **Never** for both options under **Sleep**.

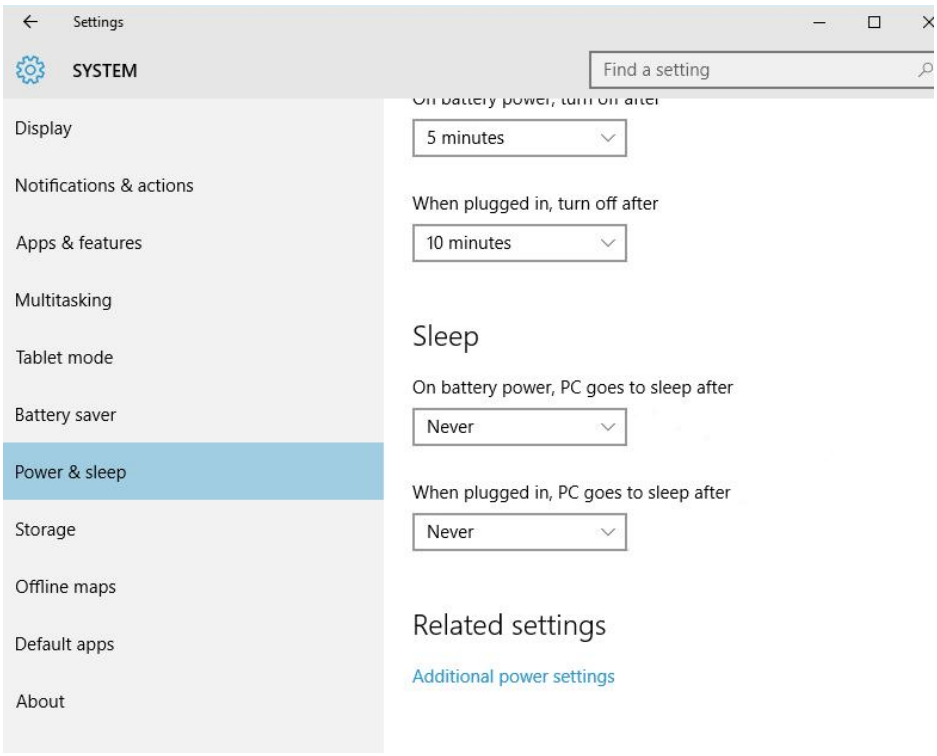


Figure 79 Windows 10 settings

6.1.3 Network IP Address Setting

The default IP of LAN port is 192.168.0.XXX (range from 0 to 255). Before operation, the computer IP should be assigned to the same network segment of N35100. But IP addresses should be different.

■ Windows 7 Setting

Click **Start**→Click **Control Panel**→Click **Network and Sharing Center**.

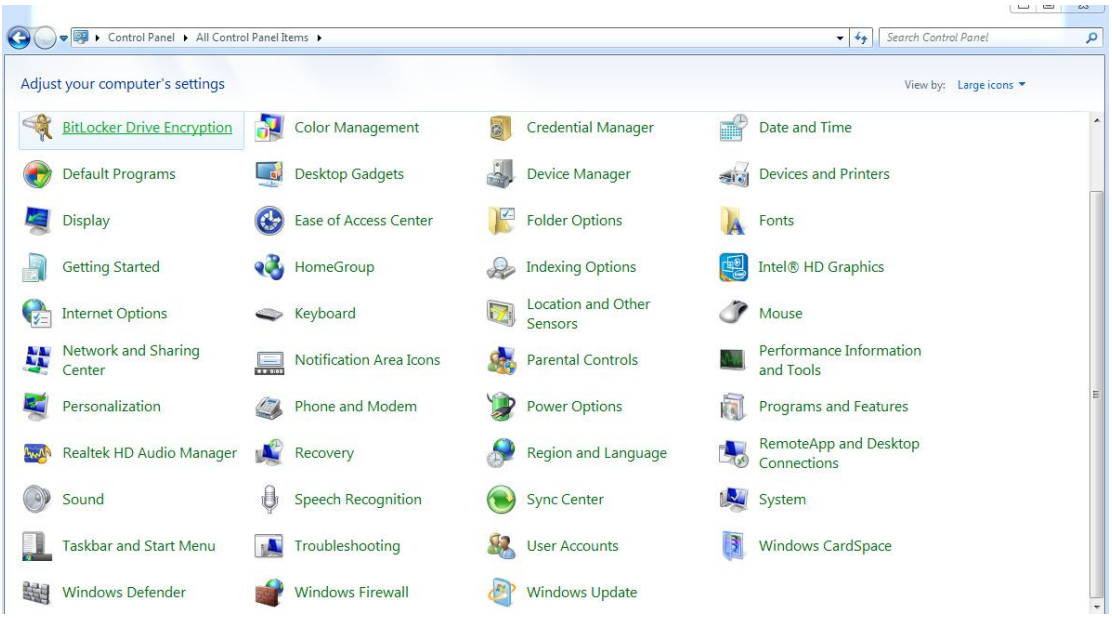


Figure 80 Network IP Address Setting

Click **Change adapter settings**.

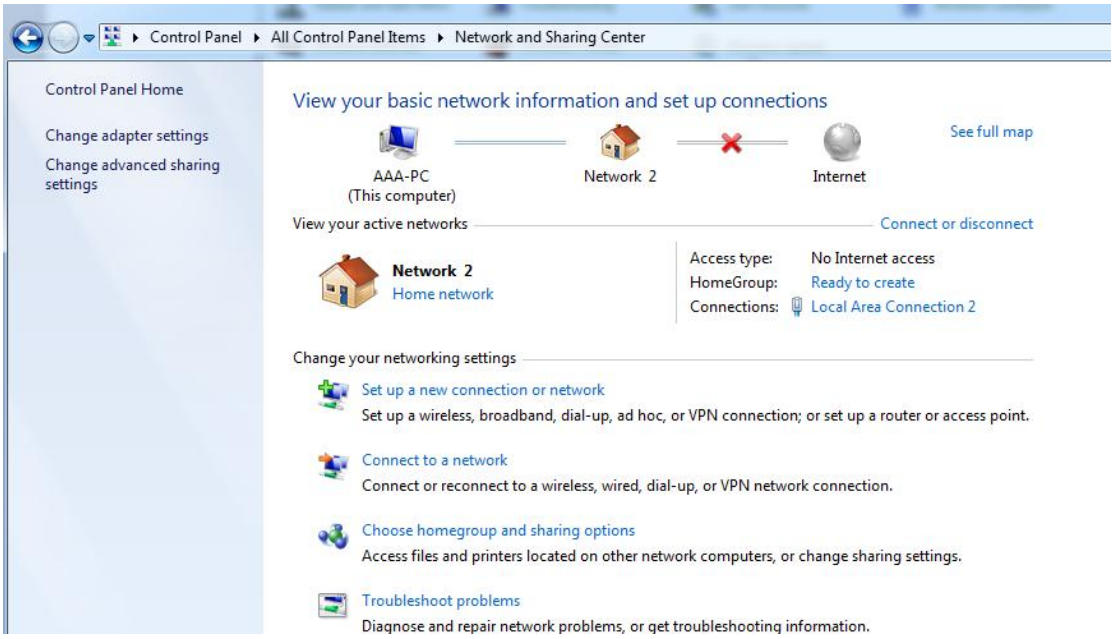


Figure 81 Network IP Address Setting

Select the network→Right click and choose **Properties**.

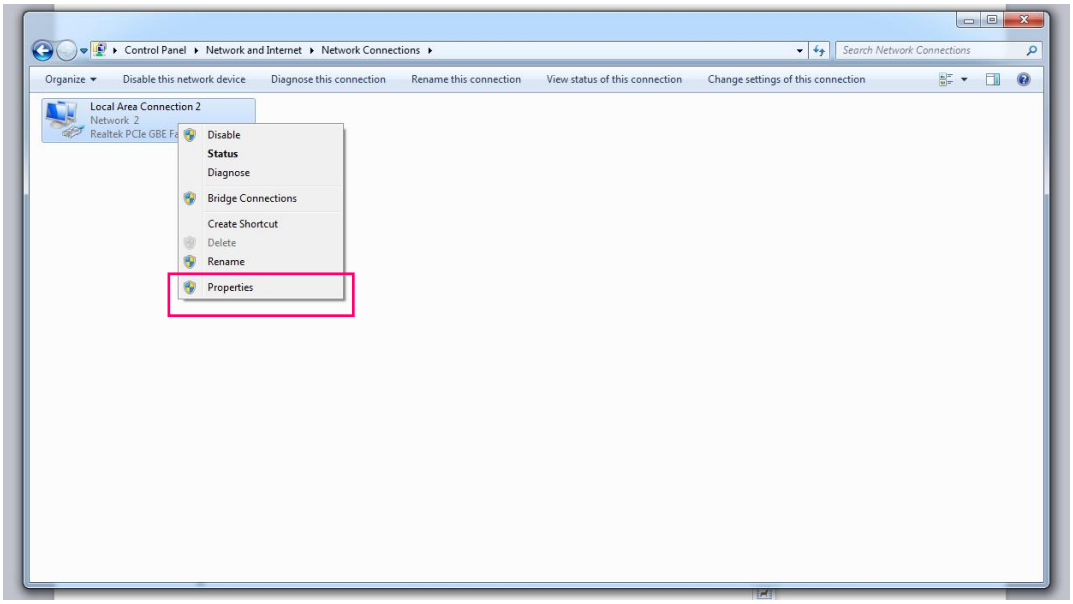


Figure 82 Network IP Address Setting

Click Internet Protocol Version 4(TCP/IPv4) and fill the below information and press **OK**.

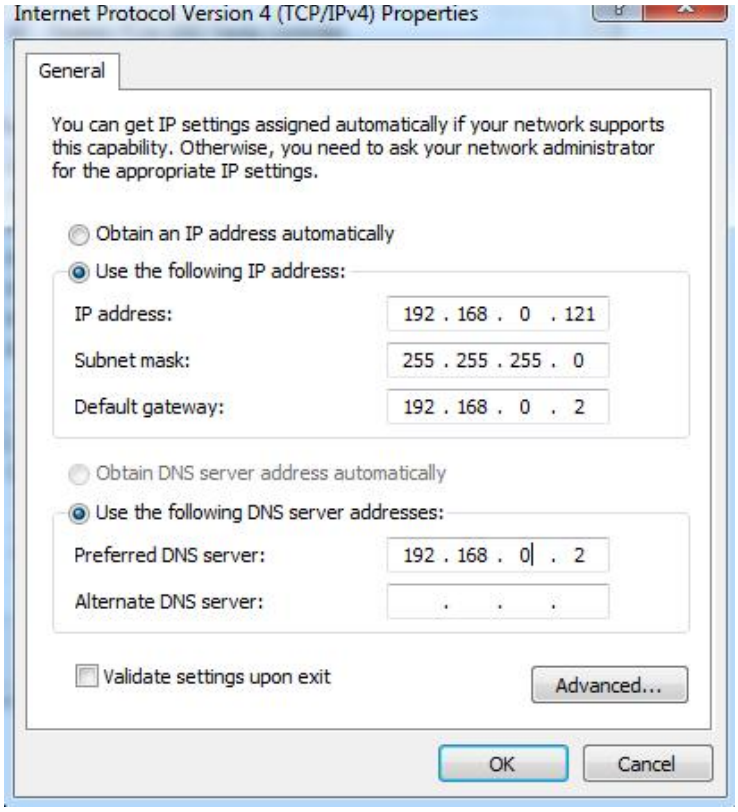


Figure 83 Network IP Address Setting

Click **Start**→Input **cmd**.

Input ping 192.168.0.123(default IP of N35100) and check if N35100 can communicate properly.

Figure 84 Run Command

If communicating properly, the below information will be reverted.

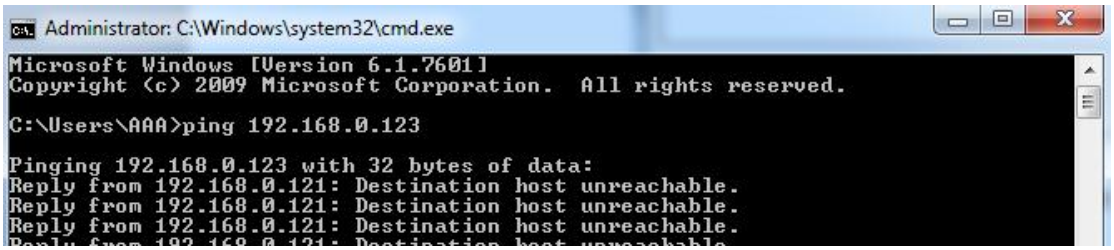


Figure 85 Communication Test

■ Windows 10 Setting

Click **Start**→Click **Set**→Click **Network & Internet**.

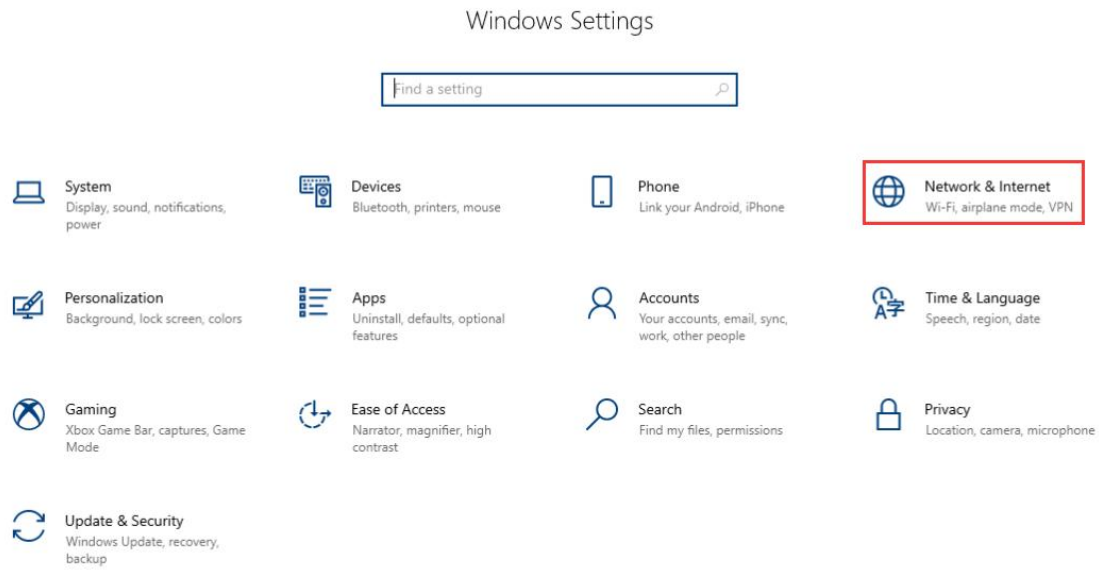


Figure 86 Network IP Address Setting

Click **Change adapter options**.

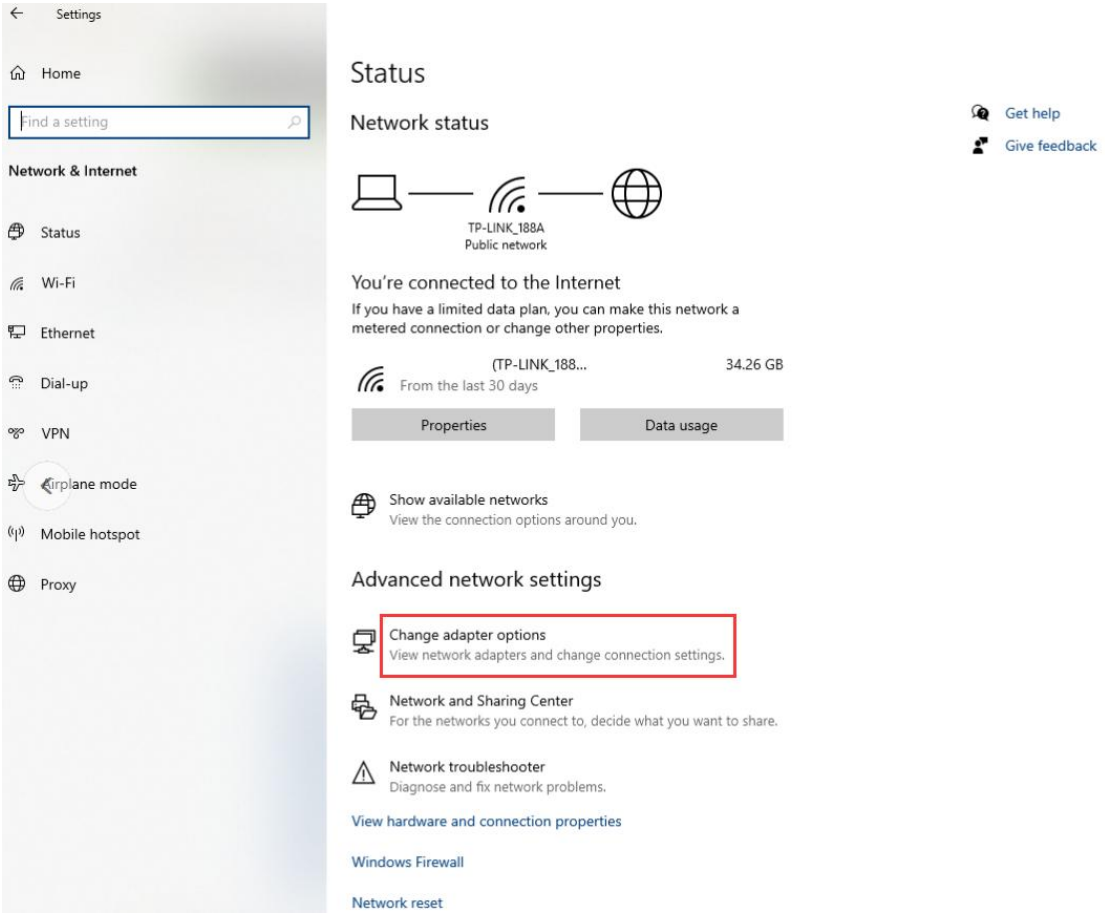


Figure 87 Network IP Address Setting

Select the network→Right click and choose **Properties**.

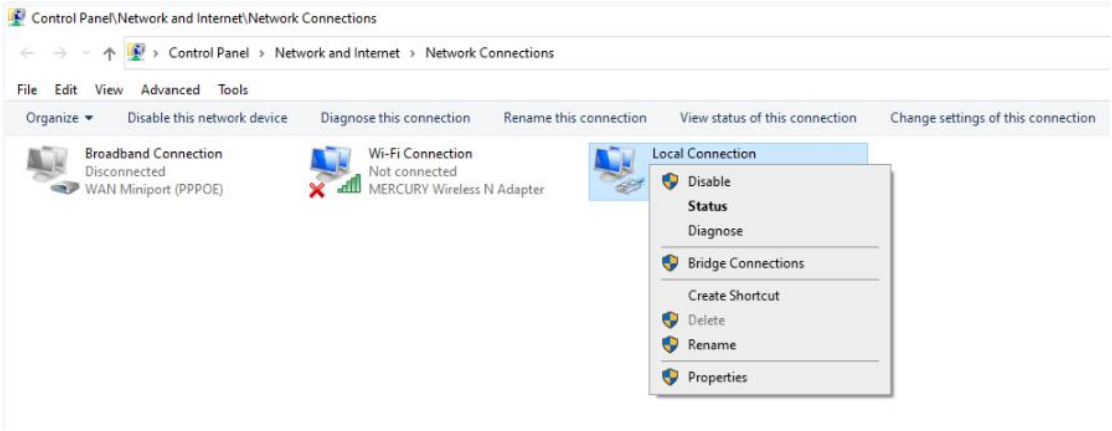


Figure 88 Network IP Address Setting

Click Internet Protocol Version 4(TCP/IPv4) and fill the below information and press **OK**.

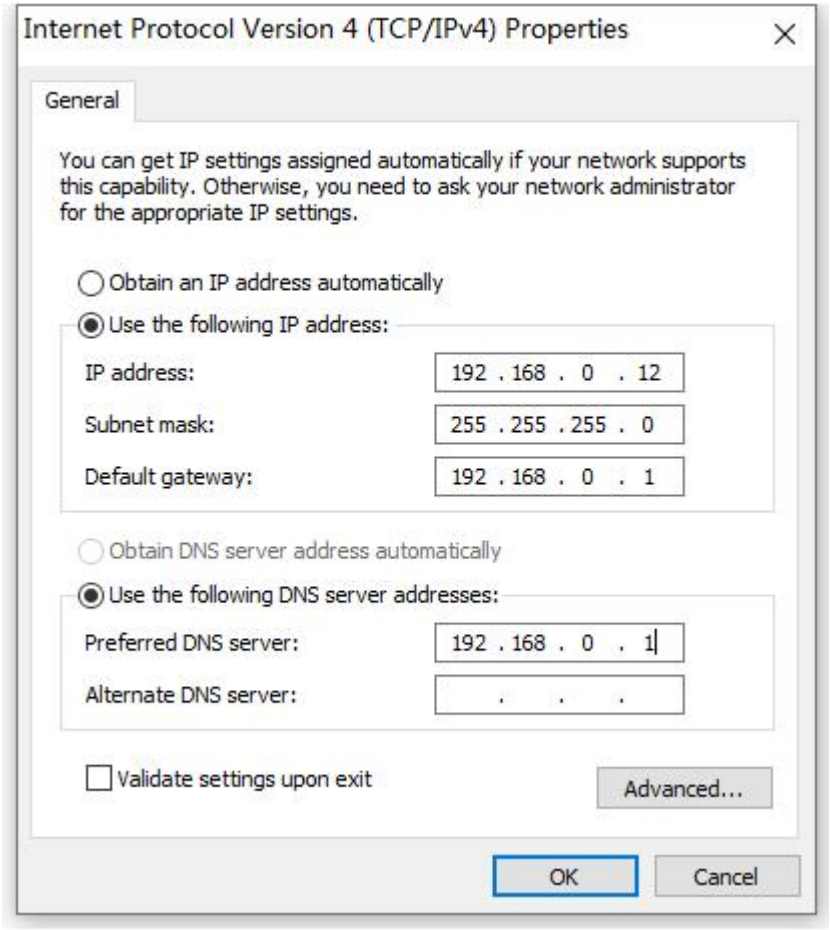


Figure 89 Network IP Address Setting

Click **Start**→Input **cmd**.
Input ping 192.168.0.123(default IP of N35100) and check if N35100 can communicate properly.

Figure 90 Run Command

If communicating properly, the below information will be reverted.

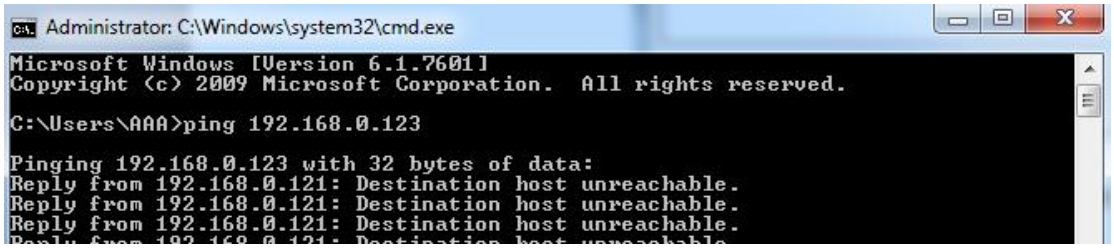


Figure 91 Communication Test

6.2 Application Software Installation and Uninstallation

6.2.1 Installation

1) Find the installation program "setup.exe" from the USB flash drive in accessory bag.
2) Make double-click on the file and begin installation.

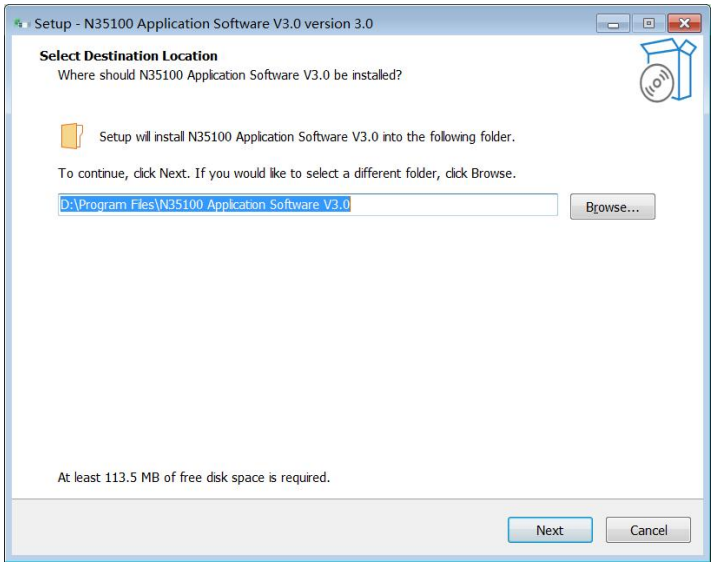


Figure 92 Program Installation

automatically create a shortcut on the desktop.

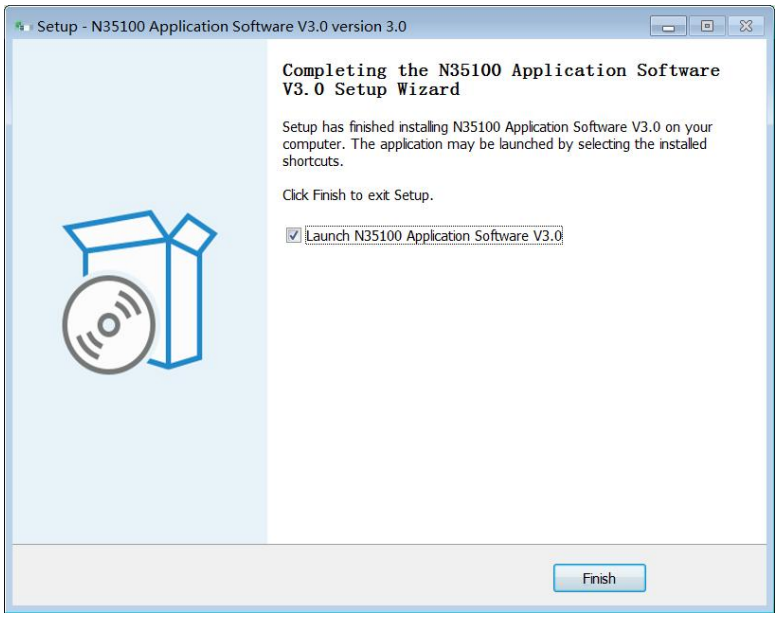


Figure 93 Installation Completed

6.2.2 Uninstallation

Methods for uninstallation:
Method 1: Program uninstallation can be completed through **Uninstall Program** in **Control Panel** of the operating system, or by right-clicking the shortcut and selecting uninstall.

Method 2: Find the setup program in your computer disk and delete.

6.3 Operation

After the application software is successfully installed, a shortcut icon will be generated on the desktop. Please click the shortcut to enter the menu.

Figure 94 Shortcut

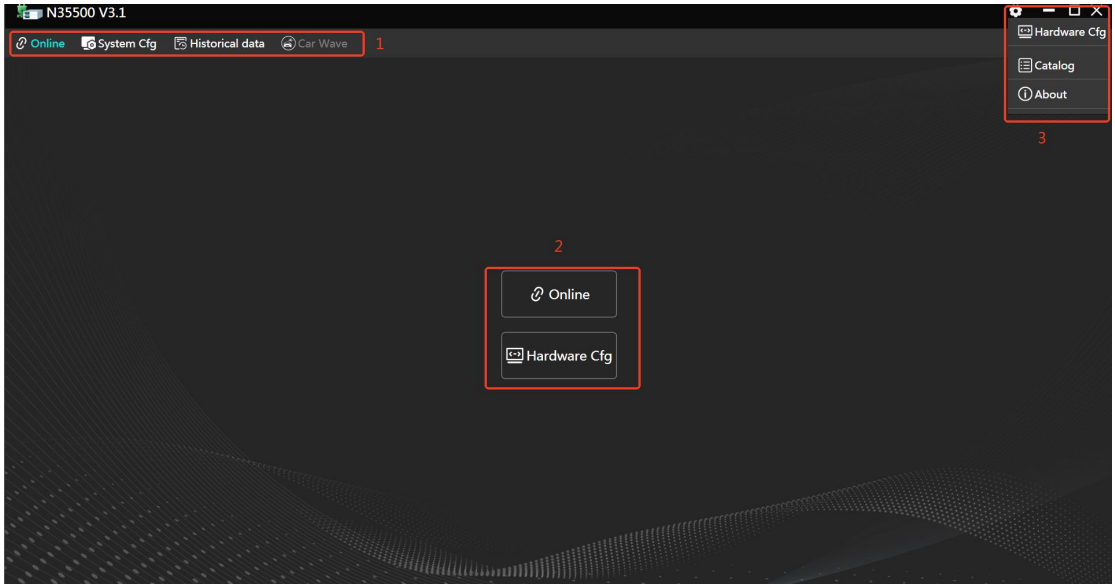


Figure 95 Application Software Interface

Application software interface introduction:

1. Toolbar

It includes Online and Offline,System Cfg, Historical Data.

2. Menu

It includes Hardware Cfg, Online.

3. Setting

It includes Hardware Cfg,Catalog, About.

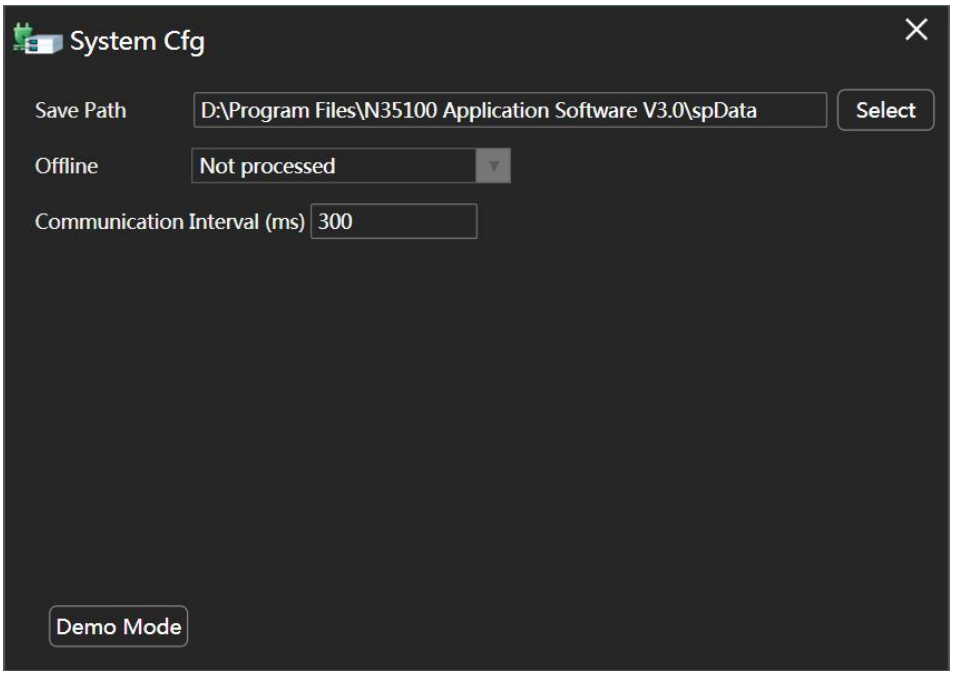


Figure 96 System Configuration

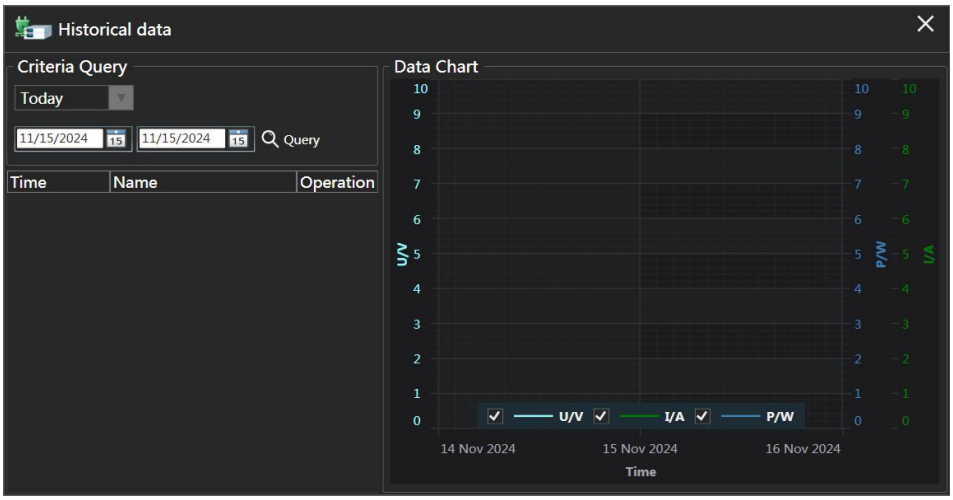


Figure 97 Historical Data

6.3.1 Online and Scan

Operation Steps:

1. Click **Hardware Config**.

2. Click **Find Dev**→Select 192.168.0.XXX network→Click **OK**→Click **Save** after the device is searched.

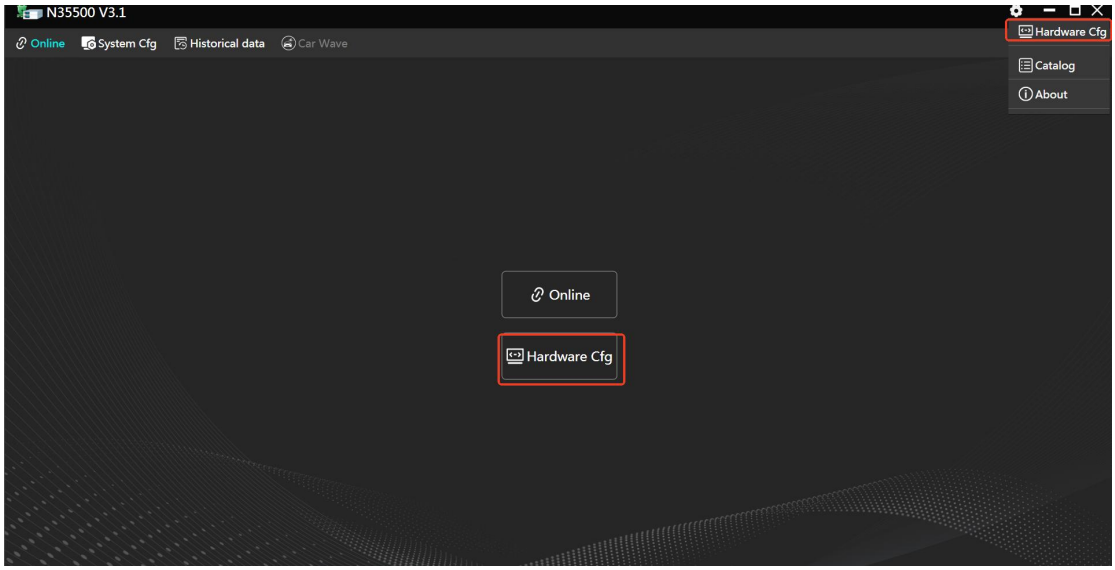


Figure 98 Application Interface

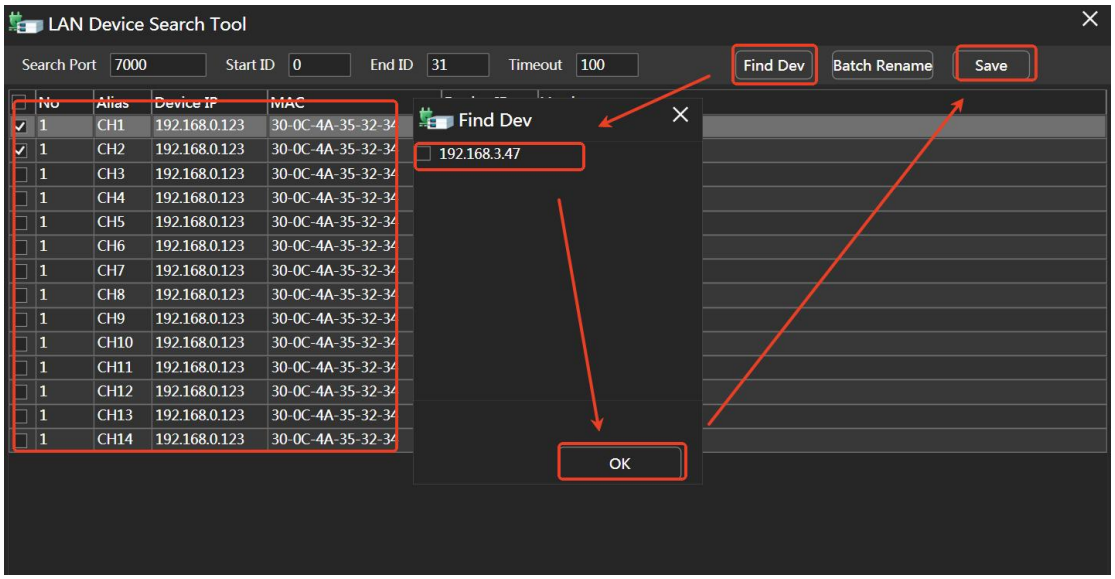


Figure 99 Find Device

Modify Network Configuration

successfully, you can modify the device to a different IP in Modify Network Configuration.

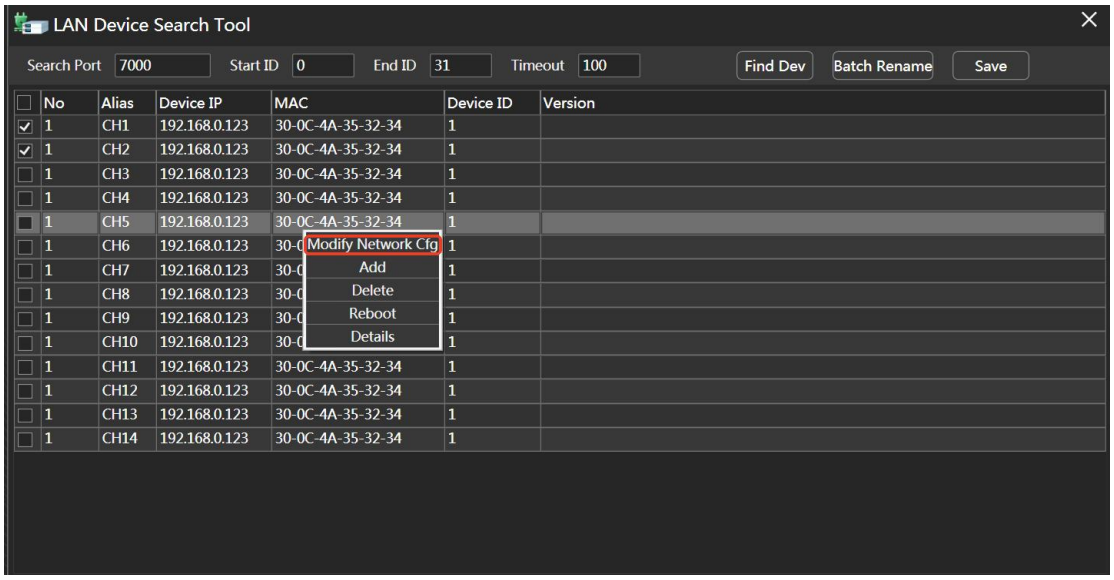


Figure 100 Modify Network Configuration

After searching for the device, click **Online** on the start screen to enter the main interface of the software.

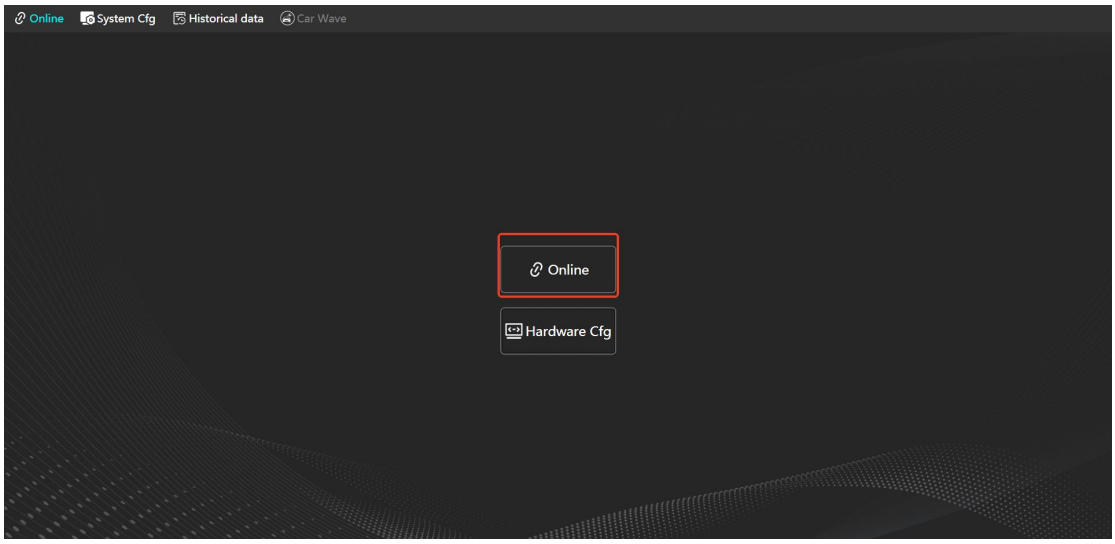
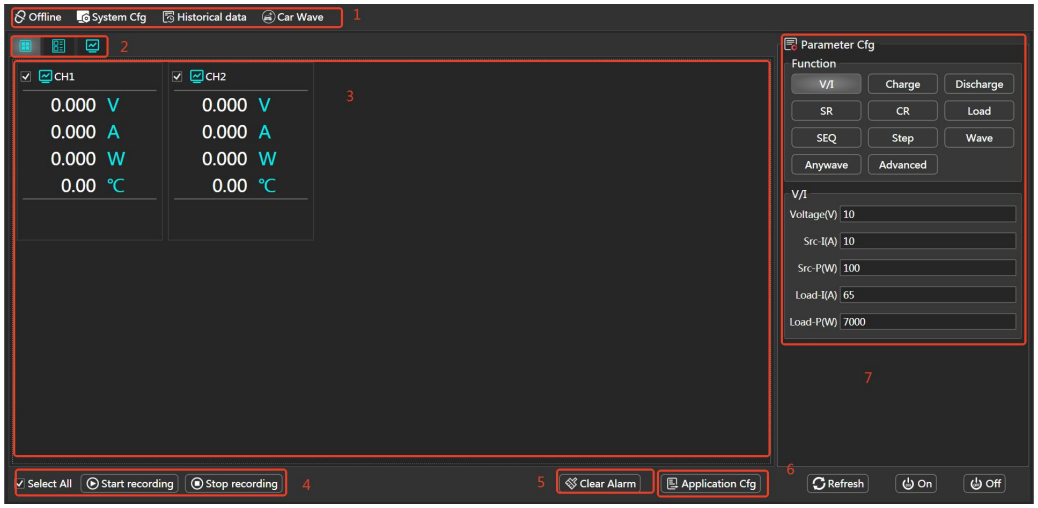


Figure 101 Modify Network Configuration

6.3.2 Software Interface



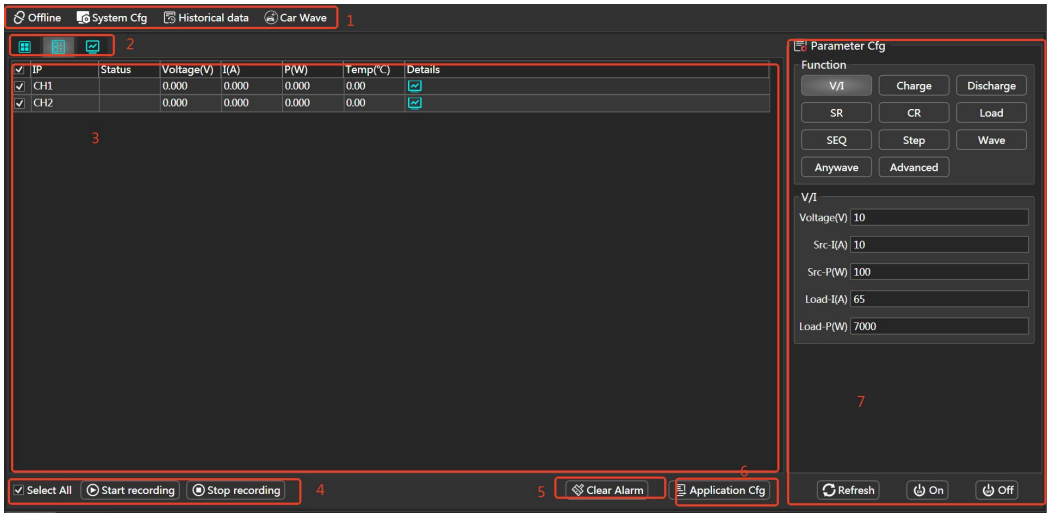


Figure 102 Software Interface

No.	Item	Description
1	Tool Bar	Core operational functions: Online, Offline,Historical data
2	View Switch	Supports switching among three data display modes: Data Frame Data List Data Graph
3	Data	Dynamically displays for each channel: Voltage/current values Temperature data Run time Device status indicator lights
4	Data Logging	Click "Start Recording" to initiate data collection. Click "Stop Recording" to cease data collection. Automatically generates .ndat format files and stores them in the historical database.
5	Clear Alarms	The system automatically pops up alarm notifications. Manually troubleshoot device malfunctions. After resolving the fault, click the reset button to restore the system.
6	Application	Protection parameters: Setting voltage/current/power thresholds. Output parameters: Voltage/current slope, CV/CC priority, discharge rate, etc. Parallel parameters: Slave ID/number of slave units.
7	Functional Mode	Offers 8 test modes: Power mode Charge/discharge test Simulated internal resistance CR mode Load mode SEQ mode Waveform mode Note: Each mode requires individual parameter configuration, which takes effect upon pressing the "Refresh" button.

6.3.3 V/I Mode

Normal mode is default mode, and users can set the voltage parameters in this mode. Respectively, users also can set the current and power of the source mode and load mode.

Operation steps:
Click **Refresh** after the setting is completed→write the set value→click **ON** and **OFF** to control the switch. As shown in the figure below:

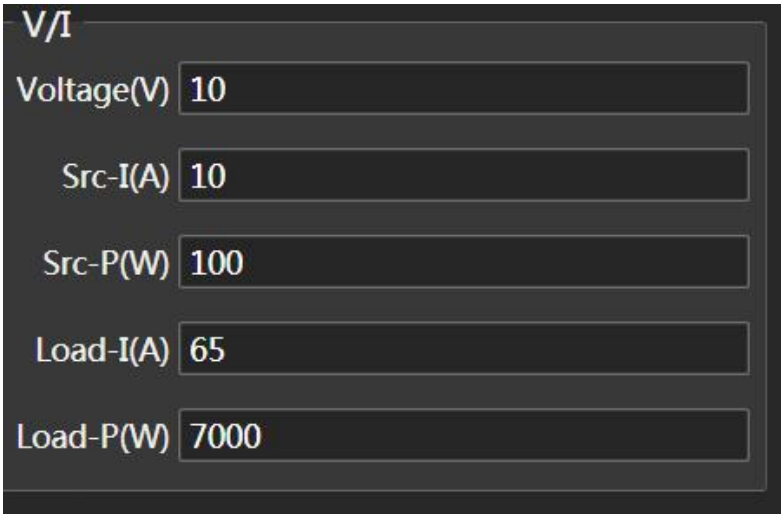


Figure 103 Normal Mode

6.3.4 Charge

Click **Charge** to test charging voltage, current and to set end voltage, end current etc. →Click **Refresh** after the setting is completed→click **ON** and **OFF** to start or stop test. As shown in the figure below:

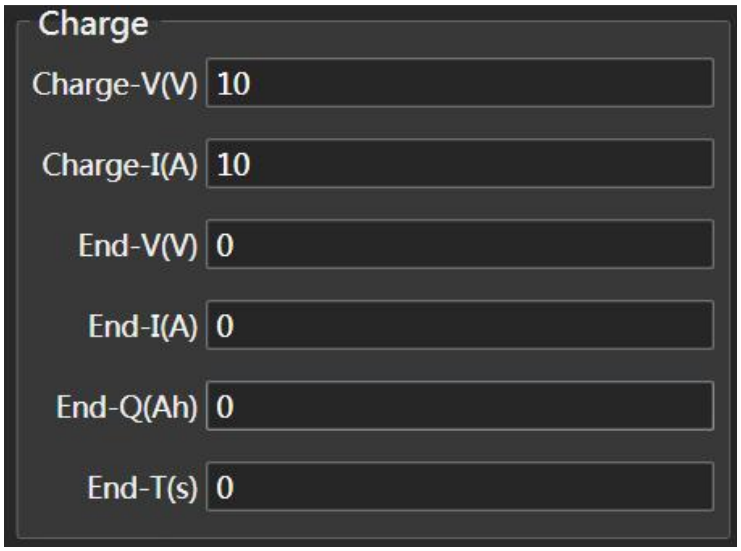


Figure 104 Charge

6.3.5 Discharge

Click **Discharge** to test discharging power, current and to set end voltage, end capacity, end time →Click **Refresh** after the setting is completed→click **ON** and **OFF** to start or stop test.
As shown in the figure below:

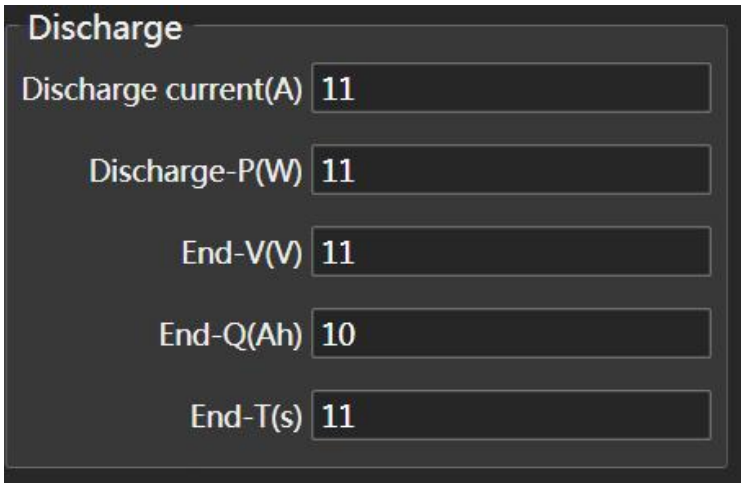


Figure 105 Discharge

6.3.6 Resistance Simulation

In this mode, users can set parameters of voltage, Max-I, Max-P, Internal-R. Click **Refresh** and **ON** to start test.

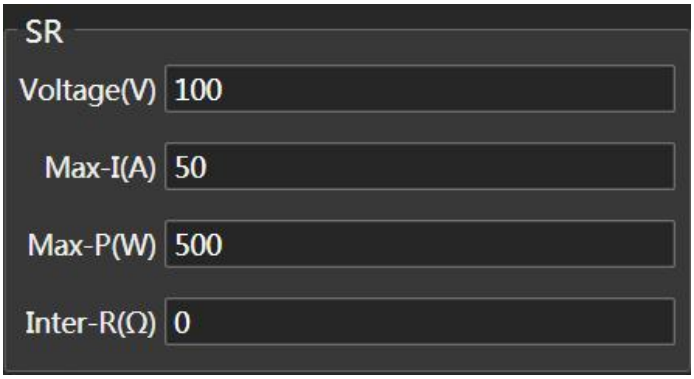


Figure 106 Resistance Simulation

6.3.7 CR

Click **CR** to simulate resistance/MAX-I/MAX-P→click **Refresh**→click **ON** and **OFF** to start or stop test.
As shown in the figure below:

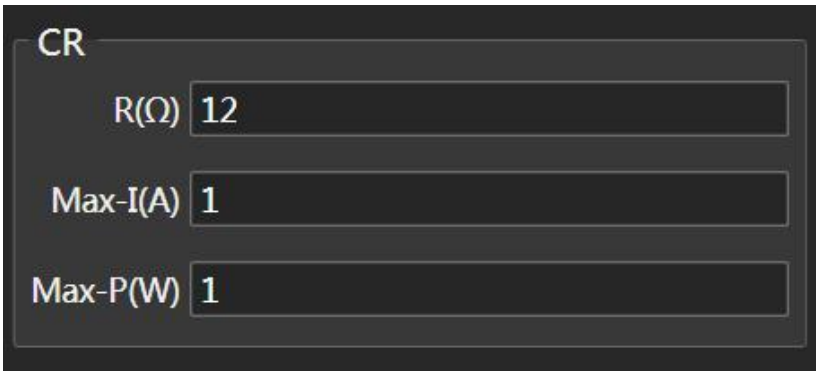


Figure 107 CR

6.3.8 Load Mode

Click **Load** to select CC/CV/CP/CR mode and set corresponding current, coltage, power, resistance→click **Refresh**→click **ON** and **OFF** to start or stop test.
As shown in the figure below:

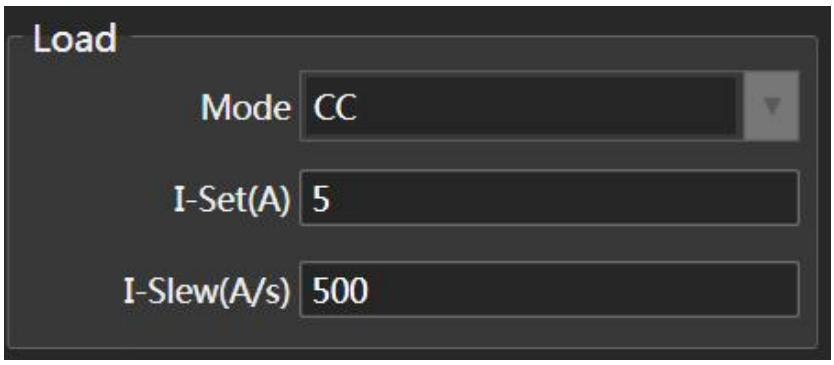


Figure 108 Load Mode

6.3.9 SEQ Test

Operation steps:
Click **SEQ** to edit SEQ file→Refresh→click **ON** and **OFF** to execute or end file.
As shown in the figure below:

Figure 109 SEQ Test

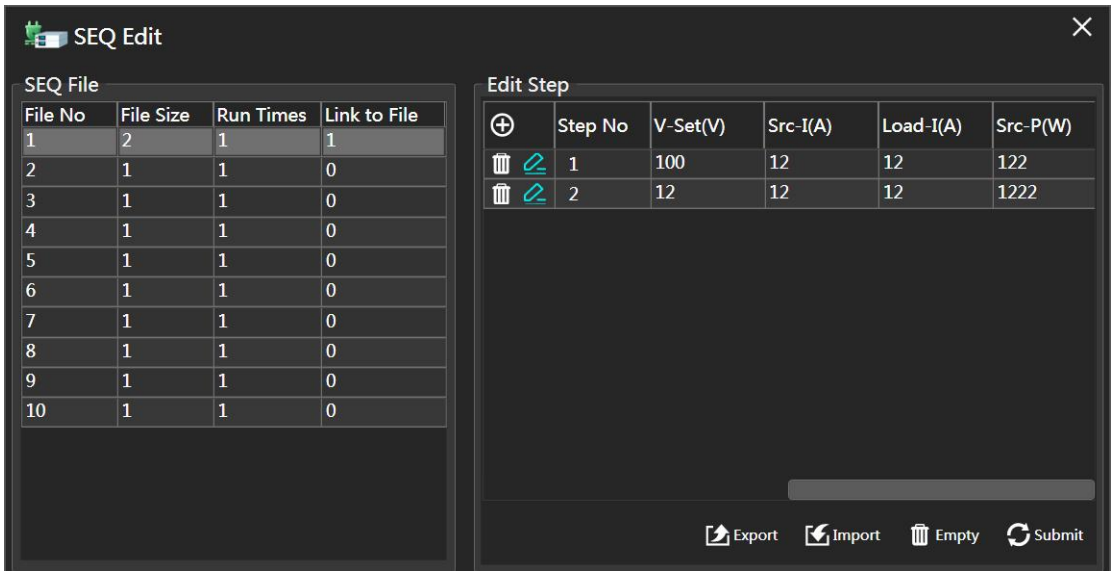


Figure 110 SEQ Edit

6.3.10 Step

Step mode is a function that increases/decreases the start output value by a fixed amount of steps to reach the end value.

6.3.10.1 Parameter Settings

Voltage: set the reference voltage value for the present test;

Src-I: set the initial value of source current for the present test;

Load-I: set the initial value of load current for the present test;

Src-P: set the initial value of source power for the present test;

Load-P: set the initial value of load power for the present test;

Mode: the edited waveform is used to adjust the output voltage or output current;

Trigger Mode: switching from steady state output to expected output waveform;

Continuous mode: the edited waveform will automatically run the whole Step after being triggered;

Manual mode: the edited waveform is triggered one time to run one step;

Cycles: set the cycle times of the present mode, the number of times the whole Step mode runs as a cycle, the maximum value is 65535, the initial value is 0, set to 0 for infinite cycle;

Start: initial voltage/current amplitude, resolution of 0.01V/0.0001A, The minimum value is 0 and the maximum value is the rated value in voltage mode, and the minimum value is the negative rated value and the maximum value is the positive rated value in current mode, with an initial value of 0;

End: target voltage/current amplitude, resolution is 0.01V/0.0001A, The minimum value is 0 and the maximum value is the rated value in voltage mode, and the minimum value is the negative rated value and the maximum value is the positive rated value in current mode, with an initial value of 0;

Increment: single-step value, specifically refers to the amount of change, the resolution of 0.01V/0.0001A, the minimum value is 0 maximum value for the rated value, the initial value of 1;

Incremental time: incremental single-step hold time, resolution of 0.001s, the minimum value of 0 maximum value of 99999s, the initial value of 1;

6.3.10.2 Operation Steps

Click **Step** to set V/I and increment→click **Refresh**→Click **ON** and **OFF** to start or stop wave output.
As shown in the figure below:

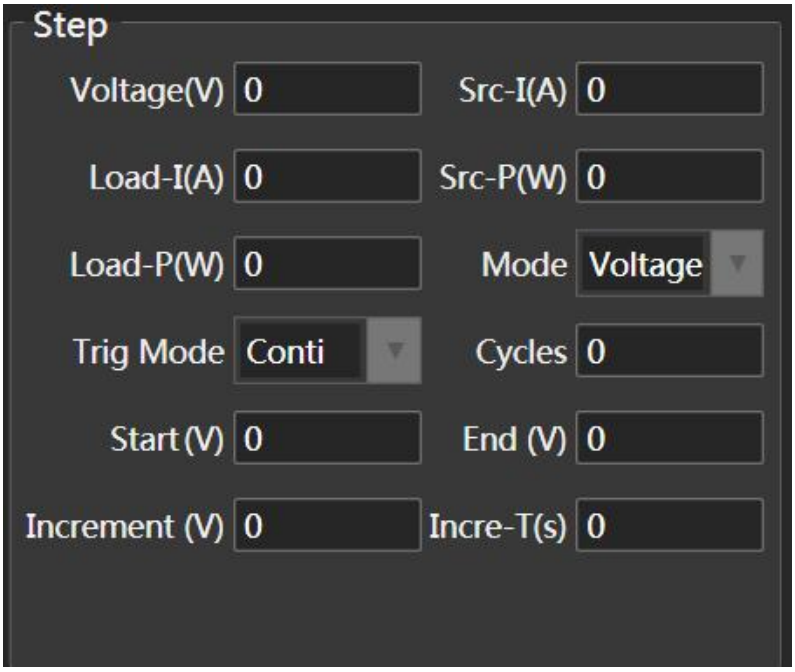


Figure 111 Step

6.3.11 Wave

Wave is to program a set of curves describing the relationship between time point and amplitude point coordinates (time, amplitude), e.g., the voltage amplitude needs to reach 1000V after 3s and 200V after 5s. By setting a series of momentary state points, the system programs the waveform through the automatic generation of connecting lines from these state points.

6.3.11.1 Parameter Settings

Voltage: set the reference voltage value for the present test;

Src-I: set the initial value of source current for the present test;

Laod-I: set the initial value of load current for the present test;

Src-P: set the initial value of source power for the present test;

Laod-P: set the initial value of load power for the present test;

File No.: the present test file number, range 1 to 10;

File Size: the total number of steps of the present edited file, range 1～200;

Run Times: set the number of times the present file is run;

Link to File: link to the specified file after the execution of the present file is completed. Range 0～10, 0 means no connection;

Mode: the edited waveform is used to regulate the output voltage or output current;

Step No.: indicates the step number being edited;

Amplitude: voltage/current amplitude of the present sequence, with a resolution of 0.001V/A. The minimum value is 0 and the maximum value is the rated value when mode selects voltage, and the minimum value is the negative rated and the maximum value is the positive rated value when mode selects current, with an initial value of 0;

Run Time: set the present running time of the current step.

6.3.11.2 Operation Steps

Click **Wave** to select and edit file→click **Submit**→After selecting SEQ file, please set reference voltage, current limit and power limit→click **Refresh**→Click **ON** and **OFF** to start or stop wave output.
As shown in the figure below:

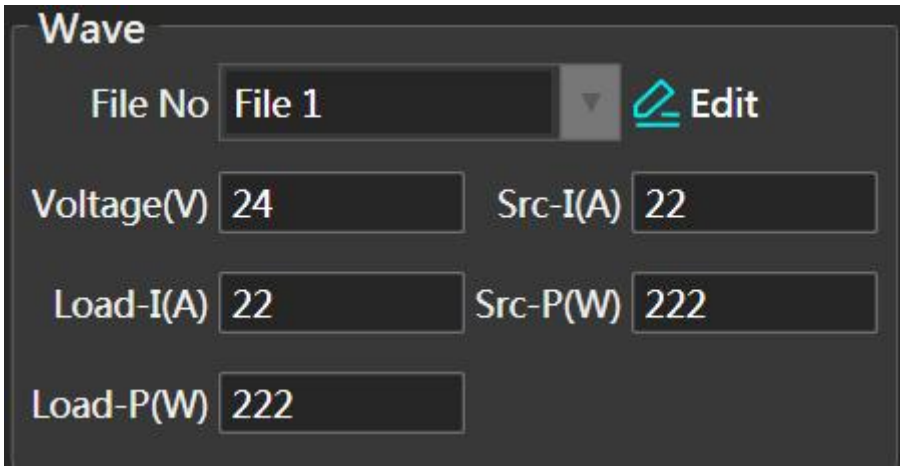


Figure 112 Wave

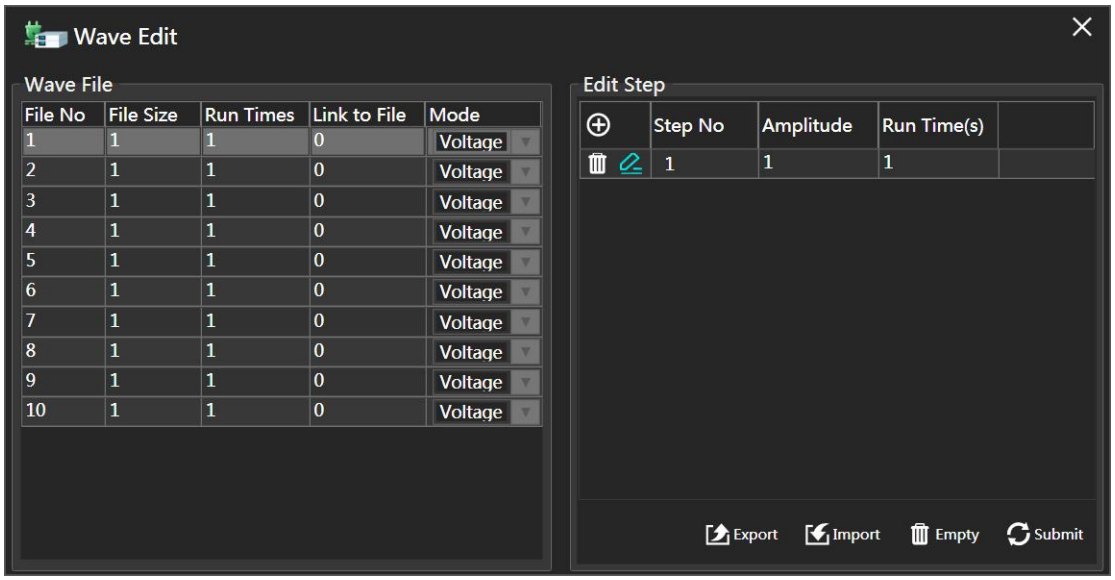


Figure 113 Wave Edit

6.3.12 Advanced

Advanced is used to edit multiple waveform to simulate complex conditions.

6.3.12.1 Parameter Settings

Voltage: set the reference voltage value for the present test.

Src-I: set the initial value of source current for the present test;

Laod-I: set the initial value of load current for the present test;

Src-P: set the initial value of source power for the present test;

Laod-P: set the initial value of load power for the present test;

File No.: the present test file number, range 1 to 10;

File Size: the total number of steps of the present edited file, range 1～200;

Run times: set the number of times the present file is run, range 1～65535;

Link to File: link to the specified file after the execution of the present file is completed. Range 0～10, 0 means no connection;

Mode: the edited waveform is used to regulate the output voltage or output current;

Step No.: indicates the step number being edited;

Wave File: the output waveform selection, up to 10 files can be edited (1 is a sine wave, 2 is a triangle wave, 3 is a pulse wave, 4 to 10 is customer-defined waveforms, which can be selected to run after the parameters are imported by the upper computer, otherwise it is the default data) Each waveform file can be configured with up to 200 steps;

Amplitude: the amplitude of the output waveform, half-peak for sine wave, peak-to-peak for other waveforms; set the amplitude to ensure that it must be less than the bias value, otherwise the output waveform may be distorted. The resolution is 0.001, the minimum value is 0, the maximum value is the rated value, and the initial value is 0;

Bias: DC component value of the output waveform, the resolution is 0.001, the minimum value is 0 and the maximum value is the rated value when the mode

the positive rated value when the mode selects current, the initial value is 0;

Phase: the phase of the output waveform, the resolution is 0.01, the minimum value is 0 the maximum value is 360, the initial value is 0;

Frequency: the frequency of the output waveform, the resolution is 0.01Hz, the minimum value is 0.01Hz the maximum value is 1000Hz, the initial value is 1Hz;

PCT: parameters specific to the selection of pulse wave and triangular wave, corresponding to the pulse wave duty cycle, triangular wave symmetry parameters, the resolution of 0.01, the minimum value of 0, the maximum value of 100, the initial value of 0; affected by the precision of the device, bandwidth parameters, smaller setting values with higher frequency with the equipment may not be able to respond to the waveform. For example, when the pulse wave is 1kHz and the duty cycle is 0.01%, the minimum pulse width time is 10μs, at this time the device will not be able to output the expected waveform.

Creation Time: the change time from the last file state change to the present file;

Run Time:set the time for the present file to run.

6.3.12.2 Operation Steps

Click **Advanced** to select and edit file→click **Submit**→After selecting SEQ file, please set reference voltage, current limit and power limit→click **Refresh**→Click **ON** and **OFF** to start or stop wave output.
As shown in the figure below:

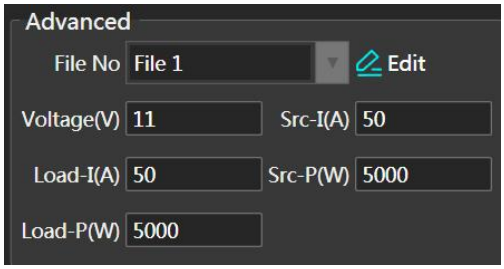


Figure 114 Advanced

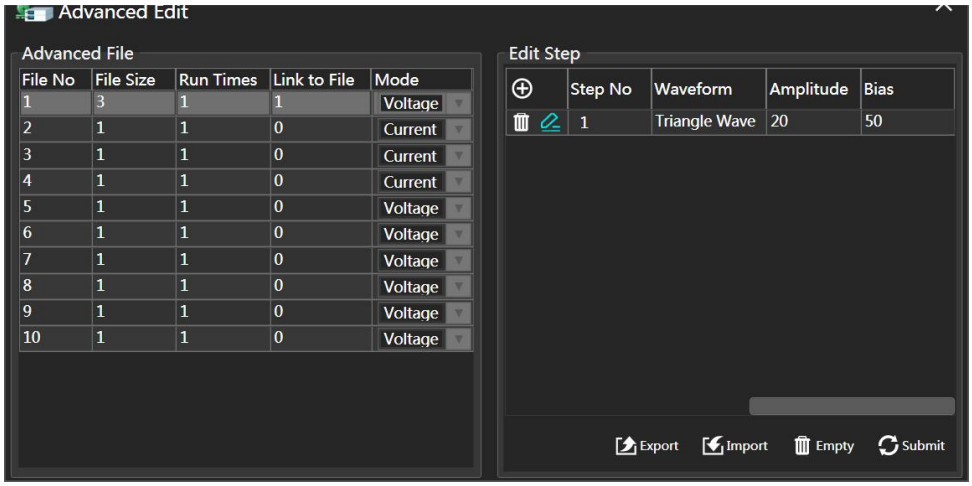


Figure 115 Advanced Edit

6.3.13 Any Wave

6.3.13.1 Parameter Settings

Voltage: set the reference voltage value for the present test.

Src-I: set the initial value of source current for the present test;

Laod-I: set the initial value of load current for the present test;

Src-P: set the initial value of source power for the present test;

Laod-P: set the initial value of load power for the present test;

Mode: the edited waveform is used to regulate the output voltage or output current;

wave, 2 is a triangle wave, 3 is a pulse wave, 4 to 10 is customer-defined waveforms, which can be selected to run after the parameters are imported by the upper computer, otherwise it is the default data) Each waveform file can be configured with up to 200 steps;

Amplitude: the amplitude of the output waveform, half-peak for sine wave, peak-to-peak for other waveforms; set the amplitude to ensure that it must be less than the bias value, otherwise the output waveform may be distorted. The resolution is 0.01V/0.001A, the minimum value is 0, the maximum value is the rated value, and the initial value is 0;

Bias: DC component value of the output waveform, the resolution is 0.01V/0.001A, the minimum value is 0 and the maximum value is the rated value when the mode selects voltage, the minimum value is the negative rated and the maximum value is the positive rated value when the mode selects current, the initial value is 0;

Phase: the phase of the output waveform, the resolution is 0.01, the minimum value is 0 the maximum value is 360, the initial value is 0;

Frequency: the frequency of the output waveform, the resolution is 0.01Hz, the minimum value is 0.01Hz the maximum value is 1000Hz, the initial value is 1Hz;

Percentage: parameters specific to the selection of pulse wave and triangular wave, corresponding to the pulse wave duty cycle, triangular wave symmetry parameters, the resolution of 0.01, the minimum value of 0, the maximum value of 100, the initial value of 0; affected by the precision of the device, bandwidth parameters, smaller setting values with higher frequency with the equipment may not be able to respond to the waveform. For example, when the pulse wave is 1kHz and the duty cycle is 0.01%, the minimum pulse width time is 10μs, at this time the device will not be able to output the expected waveform.

6.3.13.2 Operation Steps

Anywave is a function that outputs customized sine, pulse, and triangle waveform.

Click **Anywave** to set Amplitude, Bias, Phase, Frequency and Percentage etc.→click **Refresh**→Click **ON** and **OFF** to start or stop wave output.
As shown in the figure below:

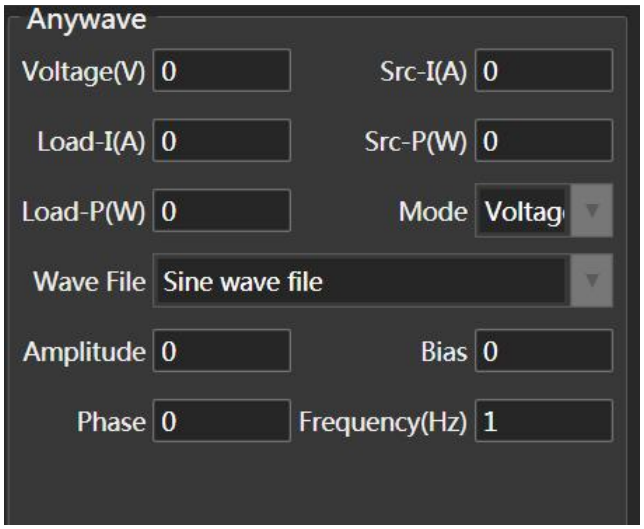


Figure 116 AnyWave

6.3.14 Application Cfg

In the protection interface, settings can be made, click **Submit** to confirm.
In the M/S Control interface, the device can be set as the master or slave 1–63. For detailed settings, refer to **Chapter 5.11.**
In the output parameter interface, channel output parameters can be configured. For detailed settings, refer to **Chapter 5.15**.

Click **Parameter Cfg** to set relevant parameters →click **Submit**→close interface**.** As shown in the figure below：

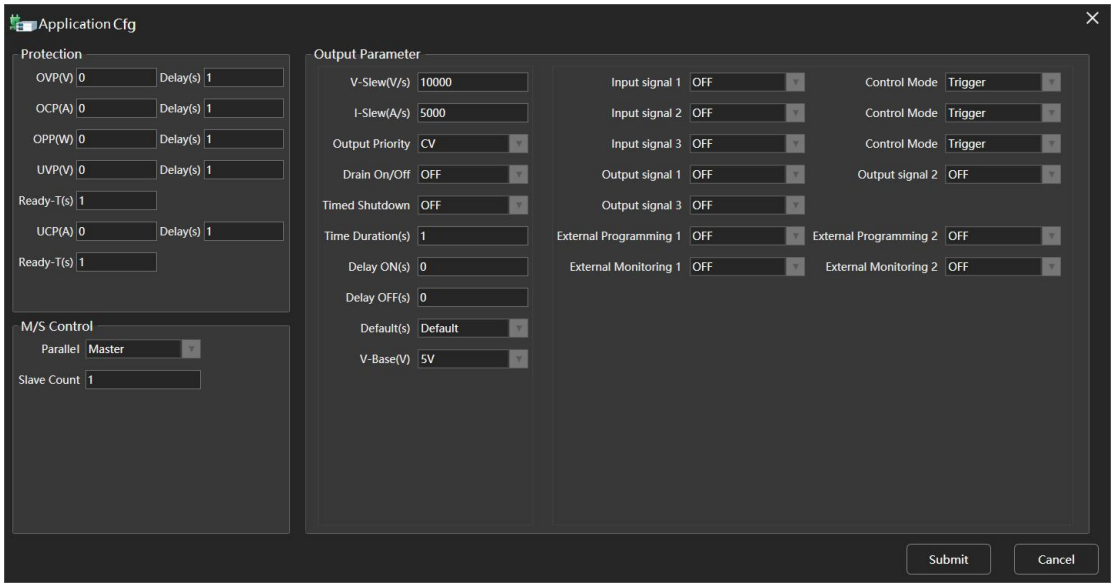


Figure 117 Protection

7.1 Regular Maintenance

Clean the Device

Please wipe lightly the device with a dry or slightly wet cloth, and do not wipe the inside of it. Make sure the power is disconnected before cleaning.

⚠ **Warning: Disconnect power before cleaning.**

7.2 Fault Self-inspection

Device Fault Self-inspection

Due to system upgrade or hardware problem, the device may break down. Please do the following necessary inspection to eliminate the troubles, which can save your maintenance and time cost. If the troubles cannot be recovered, please contact NGI.

The inspection steps are as below.

- Check whether the device is powered.
- Check whether the device can be turned on normally.
- Check whether the fuse has no damage.
- Check whether other connectors are correct, including wire cables, plug, etc.
- Check whether the system configuration is correct.
- Check whether all the specifications and performances are within the device working range.
- Check whether the device displays error information.
- Operate on a replacement device.

Calibration Intervals

It is suggested that N35100 series should be calibrated once a year.

Warning

1. The measurement accuracy is identified by the following conditions: within one year after calibration, operation temperature between 18℃ and 28℃, and the relative humidity up to 80%.
2. Please prepare for half an hour before precision measurement.
3. If the operating voltage exceeds 1.1 times the rated voltage, permanent damage can be caused to the equipment.

Model: N35125-40-100

Model		N35125-40-100
Rated Value	Voltage	40V
	Current	-100A～100A
	Power	-2500W～2500W
Min. Operating Voltage		2V@100A
Voltage Setting		
Range		0～40V
Resolution		1mV
Accuracy (23±5℃)		0.02%+0.02%F.S.
Current Setting		
Range		-100A～100A
Resolution		1mA
Setting Accuracy (23±5℃)		0.1%+0.1%F.S.
Power Setting		
Range		-2500W～2500W
Resolution		0.1W
Setting Accuracy (23±5℃)		0.5%+0.5%F.S.
Series Internal Resistance		
Range		0～0.64Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		≤1%F.S.

Range	0.02～400Ω
Resolution	10mΩ
Setting Accuracy (23±5℃)	(Vin/Rset)*0.1%+0.1%IF.S.
Voltage Measurement	
Range	0～40V
Resolution	1mV
Setting Accuracy (23±5℃)	≤0.02%+0.02%F.S.
Temperature Coefficient	≤30PPM/℃
Current Measurement	
Range	-100A～100A
Resolution	1mA
Setting Accuracy (23±5℃)	≤0.1%+0.1%F.S.
Temperature Coefficient	≤50PPM/℃
Line Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.03%+0.03%F.S.
Load Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.05%+0.05%F.S.
Dynamic Characteristics	
Voltage Rise Time (no load)	≤10ms
Voltage Rise Time (full load)	≤30ms
Voltage Fall Time (no load)	≤30ms
Voltage Fall Time (full load)	≤10ms
Transient Recovery Time	≤2ms
Ripple Noise（20Hz～20MHz）（20Hz～20MHz）	
Ripple（p-p）	≤80mV
Ripple（rms）	≤30mV
Others	
Efficiency	89%
Protection	OVP/OCP/OPP/UVP/UCP etc.

Interface	LAN/RS232/RS485/CAN
Communication Response Time	5ms
Isolation （output to ground）	500V DC
AC Input	Please refer to the voltage mark at the rear panel.
Temperature	Operating temperature: 0℃-40℃, storage temperature: -10℃~70℃
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110Pa
Dimension（mm）	44.0mm(H)*428.0mm(W)*711.2mm(D)with output shield
Net Weight	Approx.12kg

Model: N35150-40-200

Model		N35150-40-200
Rated	Voltage	40V
	Current	-200A～200A
	Power	-5000W～5000W
Min. Operating Voltage		1.2V@200A
Voltage Setting		
Range		0～40V
Resolution		1mV
Accuracy (23±5℃)		0.02%+0.02%F.S.
Current Setting		
Range		-200A～200A
Resolution		1mA
Setting Accuracy (23±5℃)		0.1%+0.1%F.S.
Power Setting		
Range		-5000W～5000W
Resolution		0.1W
Setting Accuracy (23±5℃)		0.5%+0.5%F.S.
Series Internal Resistance		
Range		0～0.32Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		≤1%F.S.
Load Resistance		
Range		0.01～200Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		(Vin/Rset)*0.1%+0.1%IF.S.
Voltage Measurement		
Range		0～40V
Resolution		1mV
Accuracy (23±5℃)		≤0.02%+0.02%F.S.
Temperature Coefficient		≤30PPM/℃
Current Measurement		
Range		-200A～200A
Resolution		1mA
Setting Accuracy		≤0.1%+0.1%F.S.

Temperature Coefficient	≤50PPM/℃
Line Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.03%+0.03%F.S.
Load Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.05%+0.05%F.S.
Dynamic Characteristics	
Voltage Rise Time (no load)	≤10ms
Voltage Rise Time (full load)	≤30ms
Voltage Fall Time (no load)	≤30ms
Voltage Fall Time (full load)	≤10ms
Transient Recovery Time	≤2ms
Ripple Noise（20Hz～20MHz）（20Hz～20MHz）	
Ripple（p-p）	≤80mV
Ripple（rms）	≤30mV
Others	
Efficiency	91%
Power Factor（PF）	0.99
Harmonic Current	≤5%
Protection	OVP/OCP/OPP/UVP/UCP etc.
Communication Interface	LAN/RS232/RS485/CAN
Communication Response Time	5ms
Isolation（output to ground）	500V DC
AC Input	Please refer to the voltage mark at the rear panel.
Temperature	Operating temperature: 0℃-40℃, storage temperature: -10℃~70℃
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110Pa
Dimension（mm）	44.0mm(H)*428.0mm(W)*711.2mm(D)with output shield
Net Weight	Approx.13kg

Model: N35175-40-300

Model		N35175-40-300
Rated	Voltage	40V
	Current	-300A～300A
	Power	-7500W～7500W
Min. Operating Voltage		1.5V@300A
Voltage Setting		
Range		0～40V
Resolution		1mV
Accuracy (23±5℃)		0.02%+0.02%F.S.
Current Setting		
Range		-300A～300A
Resolution		1mA
Setting Accuracy (23±5℃)		0.1%+0.1%F.S.
Power Setting		
Range		-7500W～7500W
Resolution		0.1W
Setting Accuracy (23±5℃)		0.5%+0.5%F.S.
Series Internal Resistance		
Range		0～0.21Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		≤1%F.S.
Load Resistance		
Range		0.01～100Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		(Vin/Rset)*0.1%+0.1%IF.S.
Voltage Measurement		
Range		0～40V
Resolution		1mV
Accuracy (23±5℃)		≤0.02%+0.02%F.S.
Temperature Coefficient		≤30PPM/℃
Current Measurement		
Range		-300A～300A
Resolution		1mA
Setting Accuracy		≤0.1%+0.1%F.S.

Temperature Coefficient	≤50PPM/℃
Line Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.03%+0.03%F.S.
Load Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.05%+0.05%F.S.
Dynamic Characteristics	
Voltage Rise Time (no load)	≤10ms
Voltage Rise Time (full load)	≤30ms
Voltage Fall Time (no load)	≤30ms
Voltage Fall Time (full load)	≤10ms
Transient Recovery Time	≤2ms
Ripple Noise（20Hz～20MHz）（20Hz～20MHz）	
Ripple（p-p）	≤80mV
Ripple（rms）	≤30mV
Others	
Efficiency	91%
Power Factor（PF）	0.99
Harmonic Current	≤5%
Protection	OVP/OCP/OPP/UVP/UCP etc.
Communication Interface	LAN/RS232/RS485/CAN
Communication Response Time	5ms
Isolation（output to ground）	500V DC
AC Input	Please refer to the voltage mark at the rear panel.
Temperature	Operating temperature: 0℃-40℃, storage temperature: -10℃~70℃
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110Pa
Dimension（mm）	44.0mm(H)*428.0mm(W)*711.2mm(D)with output shield
Net Weight	Approx.14kg

Model: N35125-80-55

Model		N35125-80-55
Rated	Voltage	80V
	Current	55A
	Power	2500W
Voltage Setting		
Range		0~80V
Resolution		1mV
Accuracy (23±5℃)		0.02%+0.02%F.S.
Current Setting		
Range		0~55A
Resolution		1mA
Setting Accuracy (23±5℃)		0.1%+0.1%F.S.
Power Setting		
Range		0~2500W
Resolution		0.1W
Setting Accuracy (23±5℃)		0.5%+0.5%F.S.
Series Internal Resistance		
Range		0~2.5Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		≤1%F.S.
Load Resistance		
Range		0.01~800Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		(Vin/Rset)*0.1%+0.1%IF.S.
Voltage Measurement		
Range		0~80V
Resolution		1mV
Accuracy (23±5℃)		≤0.02%+0.02%F.S.
Temperature Coefficient		≤30PPM/℃
Current Measurement		
Range		0~55A
Resolution		1mA
Setting Accuracy (23±5℃)		≤0.1%+0.1%F.S.
Temperature		≤50PPM/℃

Line Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.03%+0.03%F.S.
Load Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.05%+0.05%F.S.
Dynamic Characteristics	
Voltage Rise Time (no load)	≤10ms
Voltage Rise Time (full load)	≤30ms
Voltage Fall Time (no load)	≤30ms
Voltage Fall Time (full load)	≤10ms
Transient Recovery Time	≤1ms
Ripple Noise（20Hz～20MHz）（20Hz~20MHz）	
Ripple（p-p）	≤200mV
Ripple（rms）	≤80mV
Others	
Efficiency	93%
Power Factor（PF）	0.99
Harmonic Current	≤5%
Protection	OVP/OCP/OPP/UVP/UCP etc.
Communication Interface	LAN/RS232/RS485/CAN
Communication Response Time	5ms
Isolation（output to ground）	500V DC
AC Input	Please refer to the voltage mark at the rear panel.
Temperature	Operating temperature: 0℃-40℃, storage temperature: -10℃~70℃
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110Pa
Dimension（mm）	44mm(H)*214mm(W)*540mm(D)with output shield
Net Weight	Approx.5.1kg

Model: N35150-80-110

Model		N35150-80-110
Rated	Voltage	80V
	Current	110A
	Power	5000W
Voltage Setting		
Range		0~80V
Resolution		1mV
Accuracy (23±5℃)		0.02%+0.02%F.S.
Current Setting		
Range		0~110A
Resolution		1mA
Setting Accuracy (23±5℃)		0.1%+0.1%F.S.
Power Setting		
Range		0~5000W
Resolution		0.1W
Setting Accuracy (23±5℃)		0.5%+0.5%F.S.
Series Internal Resistance		
Range		0~1.2Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		≤1%F.S.
Load Resistance		
Range		0.01~800Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		(Vin/Rset)*0.1%+0.1%IF.S.
Voltage Measurement		
Range		0~80V
Resolution		1mV
Accuracy (23±5℃)		≤0.02%+0.02%F.S.
Temperature Coefficient		≤30PPM/℃
Current Measurement		
Range		0~110A
Resolution		1mA
Setting Accuracy (23±5℃)		≤0.1%+0.1%F.S.
Temperature		≤50PPM/℃

Line Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.03%+0.03%F.S.
Load Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.05%+0.05%F.S.
Dynamic Characteristics	
Voltage Rise Time (no load)	≤10ms
Voltage Rise Time (full load)	≤30ms
Voltage Fall Time (no load)	≤30ms
Voltage Fall Time (full load)	≤10ms
Transient Recovery Time	≤1ms
Ripple Noise（20Hz～20MHz）（20Hz~20MHz）	
Ripple（p-p）	≤200mV
Ripple（rms）	≤80mV
Others	
Efficiency	92%
Power Factor（PF）	0.99
Harmonic Current	≤5%
Protection	OVP/OCP/OPP/UVP/UCP etc.
Communication Interface	LAN/RS232/RS485/CAN
Communication Response Time	5ms
Isolation（output to ground）	500V DC
AC Input	Please refer to the voltage mark at the rear panel.
Temperature	Operating temperature: 0℃-40℃, storage temperature: -10℃~70℃
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110Pa
Dimension（mm）	44.0mm(H)*428.0mm(W)*711.2mm(D)with output shield
Net Weight	Approx.13kg

Model: N35175-80-170

Model		N35175-80-170
Rated	Voltage	80V
	Current	170A
	Power	7500W
Voltage Setting		
Range		0~80V
Resolution		1mV
Accuracy (23±5℃)		0.02%+0.02%F.S.
Current Setting		
Range		0~170A
Resolution		1mA
Setting Accuracy (23±5℃)		0.1%+0.1%F.S.
Power Setting		
Range		0~7500W
Resolution		0.1W
Setting Accuracy (23±5℃)		0.5%+0.5%F.S.
Series Internal Resistance		
Range		0~0.85Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		≤1%F.S.
Load Resistance		
Range		0.01~800Ω
Resolution		10mΩ
Setting Accuracy (23±5℃)		(Vin/Rset)*0.1%+0.1%IF.S.
Voltage Measurement		
Range		0~80V
Resolution		1mV
Accuracy (23±5℃)		≤0.02%+0.02%F.S.
Temperature Coefficient		≤30PPM/℃
Current Measurement		
Range		0~170A
Resolution		1mA
Setting Accuracy (23±5℃)		≤0.1%+0.1%F.S.
Temperature		≤50PPM/℃

Line Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.03%+0.03%F.S.
Load Regulation	
Voltage	≤0.01%+0.01%F.S.
Current	≤0.05%+0.05%F.S.
Dynamic Characteristics	
Voltage Rise Time (no load)	≤10ms
Voltage Rise Time (full load)	≤30ms
Voltage Fall Time (no load)	≤30ms
Voltage Fall Time (full load)	≤10ms
Transient Recovery Time	≤1ms
Ripple Noise（20Hz～20MHz）（20Hz~20MHz）	
Ripple（p-p）	≤200mV
Ripple（rms）	≤80mV
Others	
Efficiency	92%
Power Factor（PF）	0.99
Harmonic Current	≤5%
Protection	OVP/OCP/OPP/UVP/UCP etc.
Communication Interface	LAN/RS232/RS485/CAN
Communication Response Time	5ms
Isolation（output to ground）	500V DC
AC Input	Please refer to the voltage mark at the rear panel.
Temperature	Operating temperature: 0℃-40℃, storage temperature: -10℃~70℃
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110Pa
Dimension（mm）	44.0mm(H)*428.0mm(W)*711.2mm(D)with output shield
Net Weight	Approx.14kg

Note 1: The above specifications are only for reference. For other specifications, please contact NGI.

Note 2: All specifications are subject to change without notice.

Cooperation
ET System electronic and NGI

Driving innovation, quality, and service – together

With over 30 years of experience in developing and manufacturing AC/DC power supplies, electronic loads, and battery simulators, ET System is a well-established provider of high-performance power solutions in Germany. Through our strategic partnership with Next Generation Instrumental (NGI) – a leading manufacturer with over 18 years of expertise in DC loads, bidirectional power supplies, and battery cell simulators – we are combining our strengths to offer an even broader and more powerful product portfolio.

This partnership enables:

- Centralized service and technical support in Germany for all NGI cooperation products
- Direct personal contact – from your initial inquiry to after-sales service, via our local team
- Demo equipment stock in Germany – ensuring quick availability for evaluation across Europe
- Local spare parts and selected device inventory – for fast response in service and urgent needs
- Premium quality and reliability from a single source – thanks to seamless integration of NGI products into ET System solutions

Our customers benefit from a unique combination of local engineering expertise, tailored system integration, and a comprehensive product offering – all from one trusted source.

Please note: Our existing product lines will continue to be manufactured in Germany and remain fully available without change.

From initial consultation to system implementation and ongoing support, our headquarters in Altlußheim (Germany) serves as the central competence center for both our own technologies and the entire NGI portfolio throughout Europe.

Need assistance or have any questions?

We're here to help – contact us.

Call us at:
+49 (0)6205 - 3948-0

Send us an email:
info@et-system.de

We are available from
Mon. to Thurs.: 8 AM to 5 PM
Fri.: 8 AM to 3 PM