



Next Generation Instrumental (Shanghai) T&C Tech. Co., Ltd.

N39400 Series High-accuracy Multi-channel Programmable DC Power Supply

User Manual

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1 Preface

Dear Customers,

First of all, we greatly appreciate your choice of N39400 series DC power supply (N39400 for short). We are also honored to introduce our company, Next Generation Instrumental (Shanghai) T & C Tech. Co., Ltd.(NGI for short).

About Company

NGI is a professional manufacturer of intelligent equipment and test & control instruments, mainly engaged in design, production, sales, installations and maintenance of instruments and meters, electronic products, mechanical equipment, automatic test systems, computer software, automatic control equipment, automatic monitoring and alarm systems.

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 N39400 series 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 N39400, please read this manual carefully, especially the safety instructions.

Please keep this manual for future use.

Thanks for your trust and support.

2 Safety Instructions

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.
















2.1 Safety Notes

- 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 N39400's rated range.

2.2 Safety Symbols

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

Table 1

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
	Three-phase current		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

3 Product

3.1 Brief Introduction

N39400 series is a high-accuracy & multi-channel programmable DC power supply with standard 19-inch 2U design, available for cabinet installation. Single N39400 supports Max. 4 channels output, with channels isolated. Both local operation on front panel and remote control on a computer are supported. N39400 can be widely used in lab test, system integration test, production aging line, etc.

3.1.1 Features

- Automatic switch between CV and CC mode
- Single device with up to 4 channels, each channel isolated
- Low ripple and low noise
- Multiple protections: OVP, OCP, OTP and short circuit
- Equipped with LCD screen and user-friendly UI operation
- Lock function to avoid misoperation
- Remote sense
- Intelligent fan control with ultra-low noise to offer comfort
- Standard 19-inch 2U, available for cabinet installation
- Support LAN and RS232 interface

3.2 Overview

3.2.1 N39400 Series Lineup

Table 2

Model	Channels	Voltage	Current	Power
N39420-60-10	4	60V	10A	200W
N39436-60-15	4	60V	15A	360W
N39420-150-04	4	150V	4A	200W
N39436-150-06	4	150V	6A	360W

3.2.2 Package Contents and Accessories

After receiving N39400, 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. Make sure the the following accessories are attached.

Table 3

N39400 Accessories	Instructions
Power cord and fuse	To connect AC power
RS232 cable	RS232 communication
Network cable	To connect PC
User manual	Including installation and operation information
USB flash drive	Software and technical information

If any loss or damage, please contact our authorized distributor or NGI.

4. Check the whole instrument. If N39400 chassis is damaged or has abnormal operation, please contact our authorized distributor or NGI.

3.2.3 Appearance & Dimension

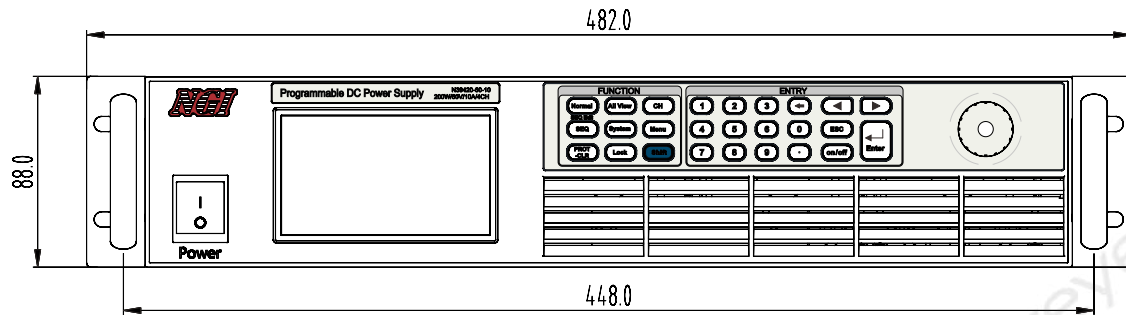


Figure 1 Front Panel Dimension(mm)

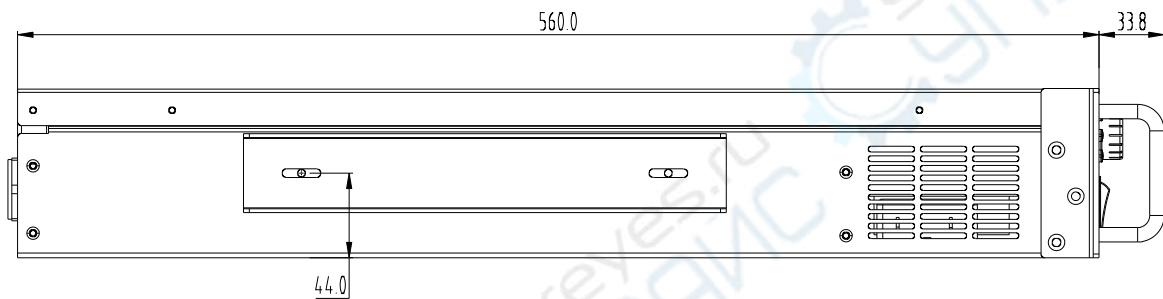


Figure 2 Side Dimension(mm)

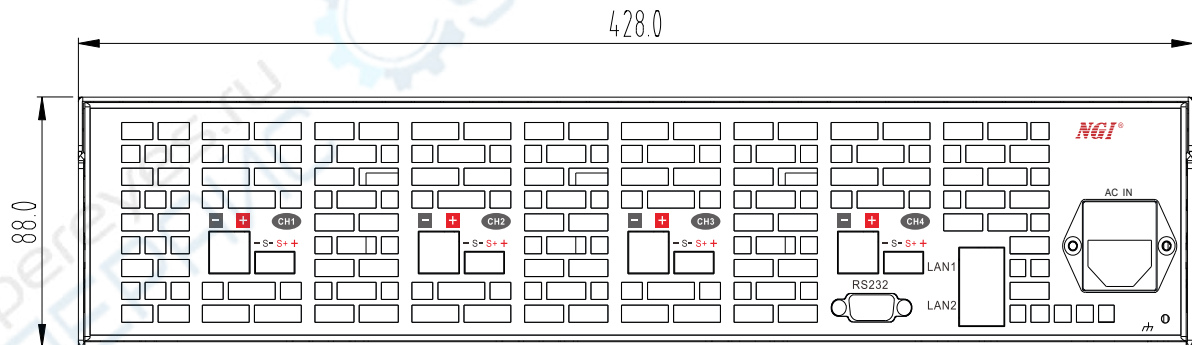


Figure 3 Rear Panel Dimension(mm)

3.3 Front Panel Introduction

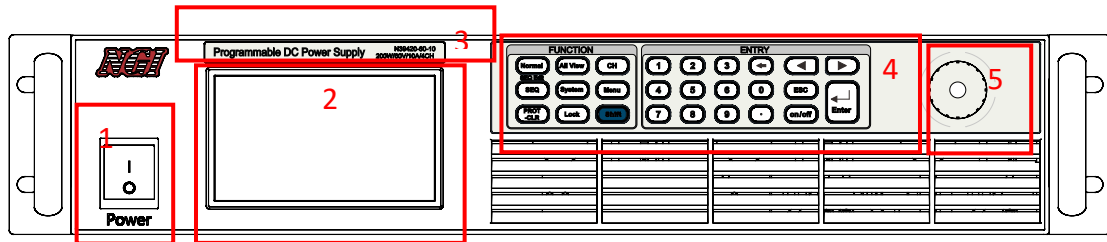


Figure 4 Front Panel

Table 4

Number	Name	Function
1	Power switch	Power control
2	Screen	Displaying data
3	Device name	Displaying model
4	Buttons	Operation mode and parameter setting
5	Knob	Parameter setting

3.3.1 Button

N39400 front panel mainly includes a screen and buttons. Users can control the device via buttons.

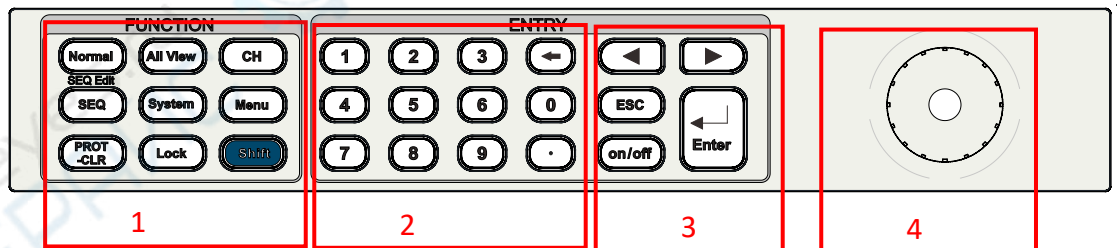


Figure 5 Buttons

Table 5

Number	Name
1	Function button
2	Numeric button
3	Power button, Selection button
4	Knob

3.3.1.1 Function Button

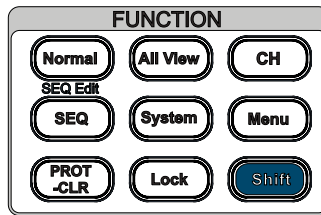


Figure 6 Function Button

Table 6

Button	Function
Normal	To enter Normal mode
All View	To enter all channels display interface
CH	Channel switch
SEQ/SEQ Edit	To enter SEQ/SEQ Edit interface
System	To enter system configuration
Menu	To enter main menu
Protect-clear	To clear the alarm
Lock	Lock/unlock
Shift	Compound button, Shift+SEQ to enter SEQ Edit

3.3.1.2 Numeric Button

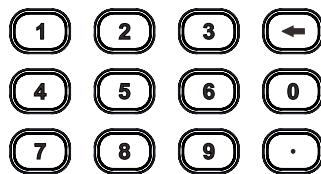




Figure 7 Numeric Button

Table 7

Button	Function
	Digit input
	To delete

3.3.1.3 Power Button & Selection Button

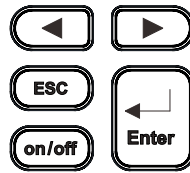
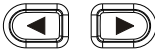





Figure 8 Power Button & Selection Button

Table 8

Button	Function
	<ol style="list-style-type: none"> To shift or select the desired item in menu To control the cursor scrolling when setting parameter
	To enter the desired item, confirm the input, exit from setting or remote operation
	To exit from setting or menu
	To power on/off the power output for the selected channel

3.3.1.4 Knob

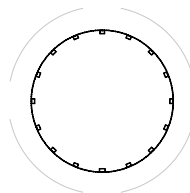
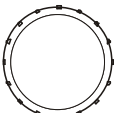


Figure 9 Knob

Table 9

Knob	Function
	Rotate: select the desired item, adjust the parameter Press: enter the edit interface, confirm the input

3.4 Rear Panel Introduction

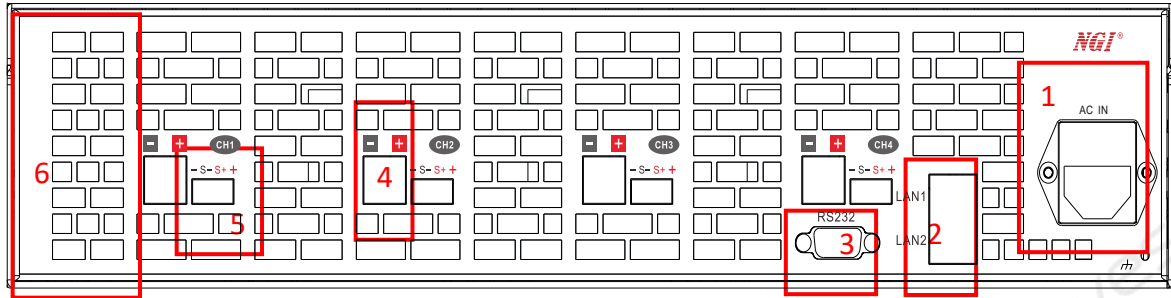


Figure 10 Rear Panel

Table 10

Number	Name
1	AC power socket
2	LAN port
3	RS232 interface
4	Output interface
5	Four-wire interface
6	Air outlet

3.4.1 Four-wire Interface

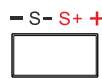


Figure 11 Four-wire Interface

Table 11 Pin Definition


+	Output + (Four-wire)
-	Output - (Four-wire)
S+	Sense + (Four-wire)
S-	Sense - (Four-wire)

3.5 Default Communication Parameter

Table 12

Parameter	N39400 Series Default Value
Default IP Address	192.168.0.123
Baud Rate	115200

4 Operation

After the device is switched on, it will enter Normal mode directly. Users can enter Menu by pressing . There are seven options on the menu: Normal, SEQ, SEQ Edit, All View, System Config, Channel Config and About NGI. Users can enter the desired option by pressing the corresponding button. Parameter settings can be completed easily.

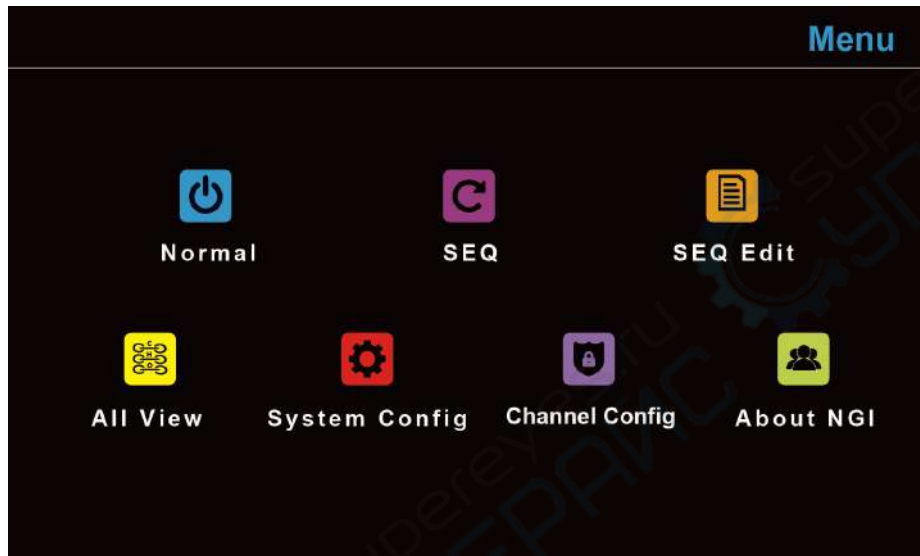


Figure 12 Menu

This chapter mainly describes N39400 functions and features.

- Normal
- SEQ
- SEQ Edit
- All View
- System Config
- Channel Config
- About NGI

4.1 Normal

Methods to enter **Normal** mode:

Method 1: It will directly enter **Normal** mode after power-on.

Method 2: Press  on the front panel directly.

Method 3: Press  → Select **Normal** by   or  → Press  or .

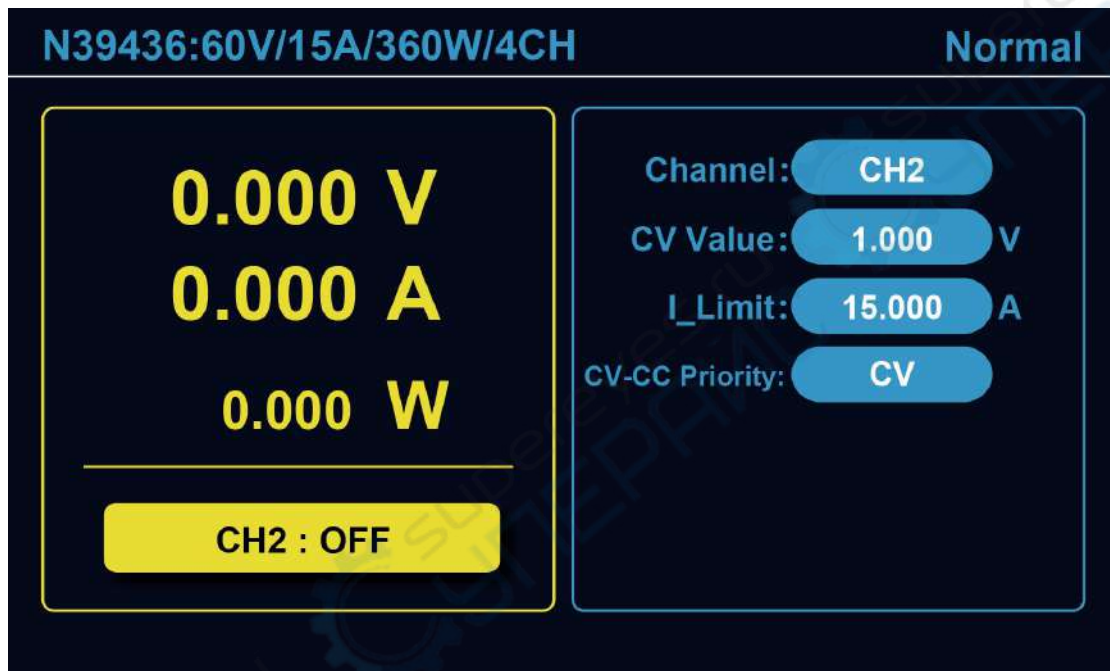











Figure 13 Normal Mode

Table 13

Parameter	Description
Channel	Select channel
CV Value	Set constant voltage
I_Limit	Select current limit
CC-CV Priority	Select CC priority or CV priority

4.1.1 Channel Selection

Steps to select the desired channel under **Normal** mode:

1. Press   or rotate  to select **Channel**.
2. Press  or  on **Channel**.
3. Press  or rotate .
4. Press  or  to complete selection.

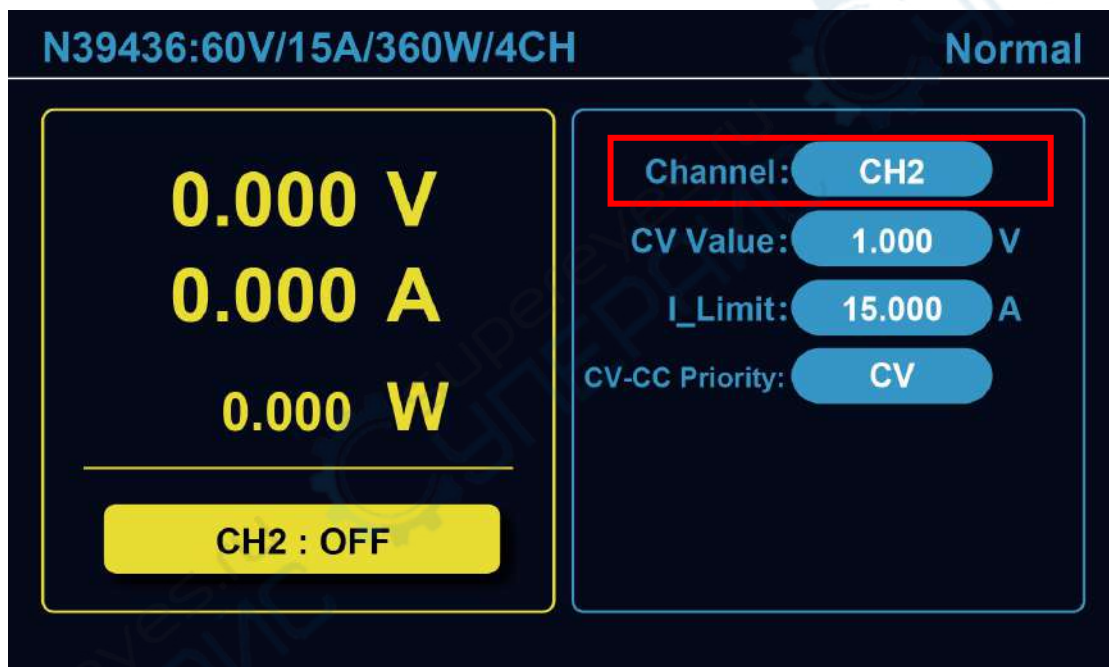







Figure 14 Channel Selection

4.1.2 Parameter Setting

Steps to set parameters under **Normal** mode:

1. Press   or rotate  to select the desired parameter.

2. Press  or  on the desired parameter.
3. Press numeric buttons or rotate  to input the value.
4. Press  or  to complete setting.

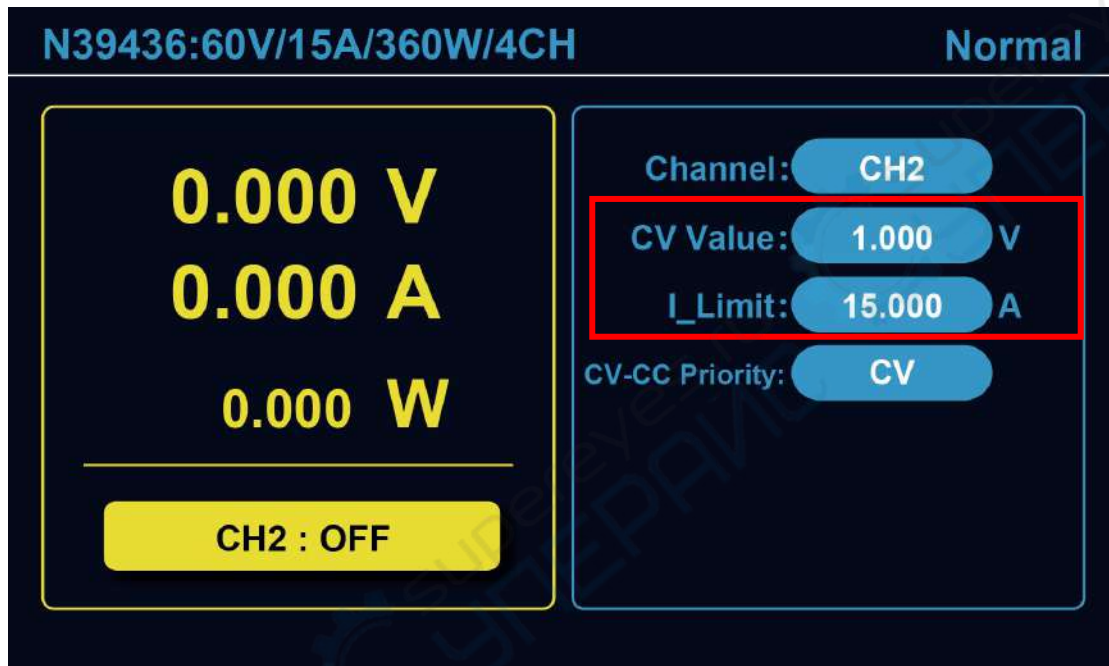



Figure 15 Parameter Setting

Note 1: Via numeric buttons, users need to input all the digits manually.

Note 2: To exit from Normal mode, please press  or the function button required.

4.2 SEQ

Method 1: Press  on the front panel directly.

Method 2: Press  → Select **SEQ** by   or  → Press  or .



Figure 16 SEQ







Table 14

Parameter	Description
Channel	Select channel
File No.	Set the test file
Step No.	Set the step
Dwell	Set single step time
Cycle Times	Set the number of cycles

4.2.1 Channel Selection

Steps to select the desired channel under **SEQ**:

1. Press   or rotate  to select **Channel**.

2. Press  or  on **Channel**.
3. Press  or rotate .
4. Press  or  to complete selection.

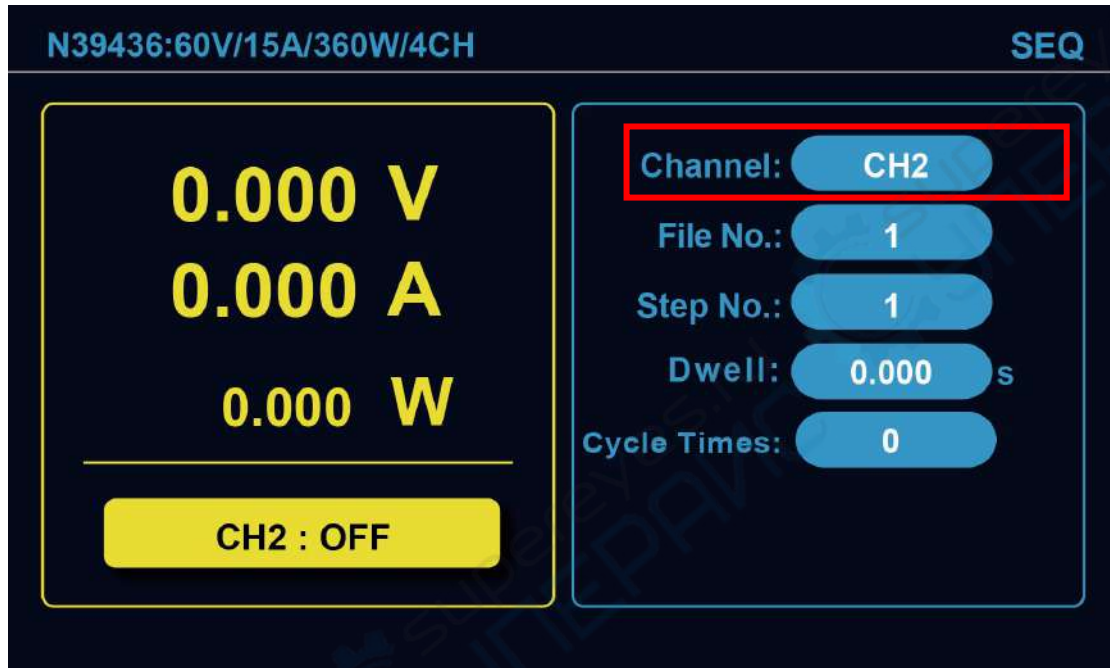










Figure 17 Channel Selection

4.2.2 Parameter Setting

Steps to set **File No.** under **SEQ**:

1. Press   or rotate  to select **File No.**.
2. Press  or  on **File No.**.
3. Press numeric buttons or rotate  to input the value.
4. Press  or  to complete setting.

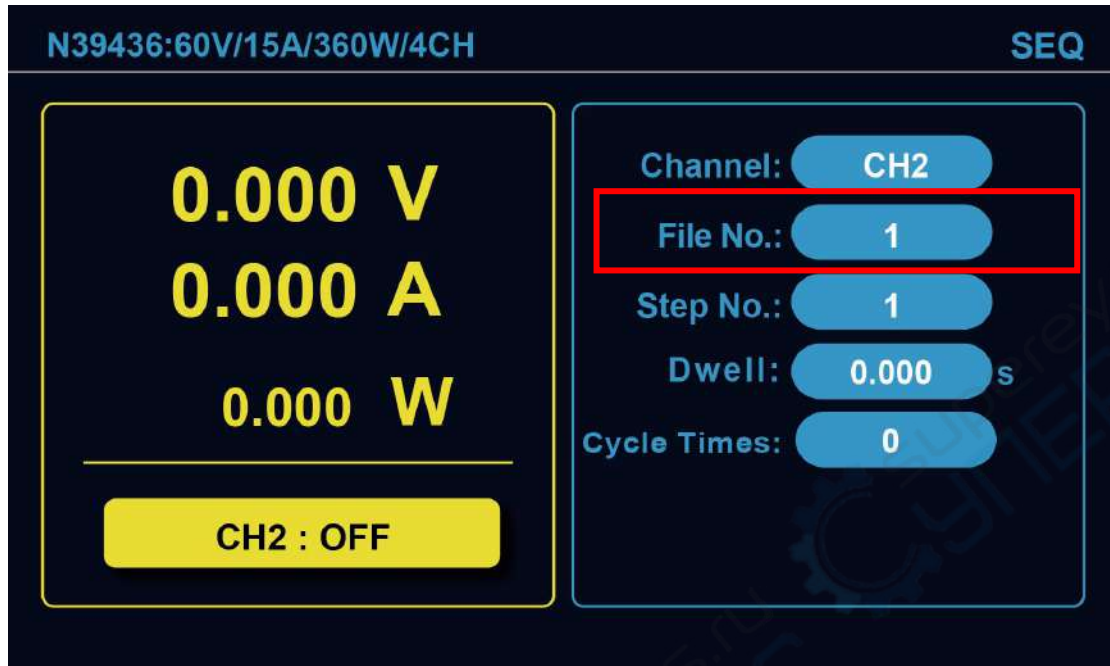




Figure 18 Parameter Setting

Note 1: Via numeric buttons, users need to input all the digits manually.

Note 2: To exit from SEQ, please press  or the function button required.

4.3 SEQ Edit

Methods to enter **SEQ Edit**:

Method 1: Press  first and then  on the front panel.

Method 2: Press  → Select **SEQ Edit** by   or  → Press  or .

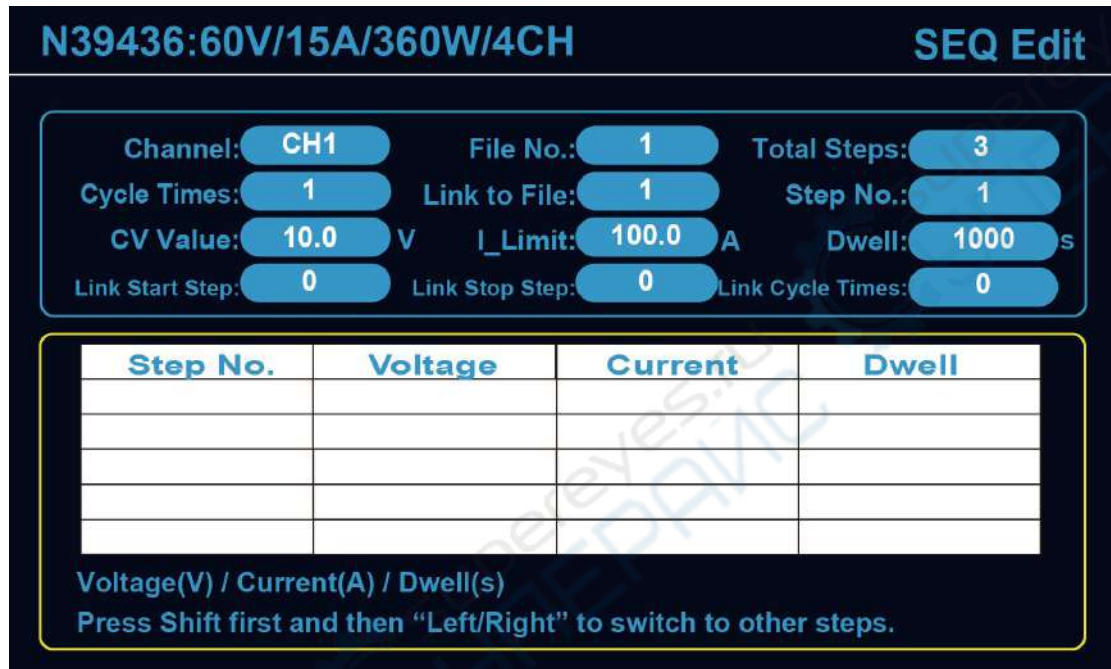










Figure 19 SEQ Edit

Table 15

Parameter	Description
Channel	Select channel
Cycle Times	Set the number of cycles
CV Value	Set constant voltage value
Link Start Step	Set the link start step
File No.	Set the test file
Link to File	Set the link file No.
I_Limit	Set current limit
Link Stop Step	Set the link stop step
Total Steps	Display the total test steps
Step No.	Set the step
Dwell	Set single step time
Link Cycle Times	Set the link cycle times

4.3.1 Parameter Setting

Steps to set parameters under **SEQ Edit**:

1. Press   or rotate  to select the desired parameter.
2. Press  or  on the desired parameter.
3. Press numeric buttons or rotate  to input the value.
4. Press  or  to complete setting.

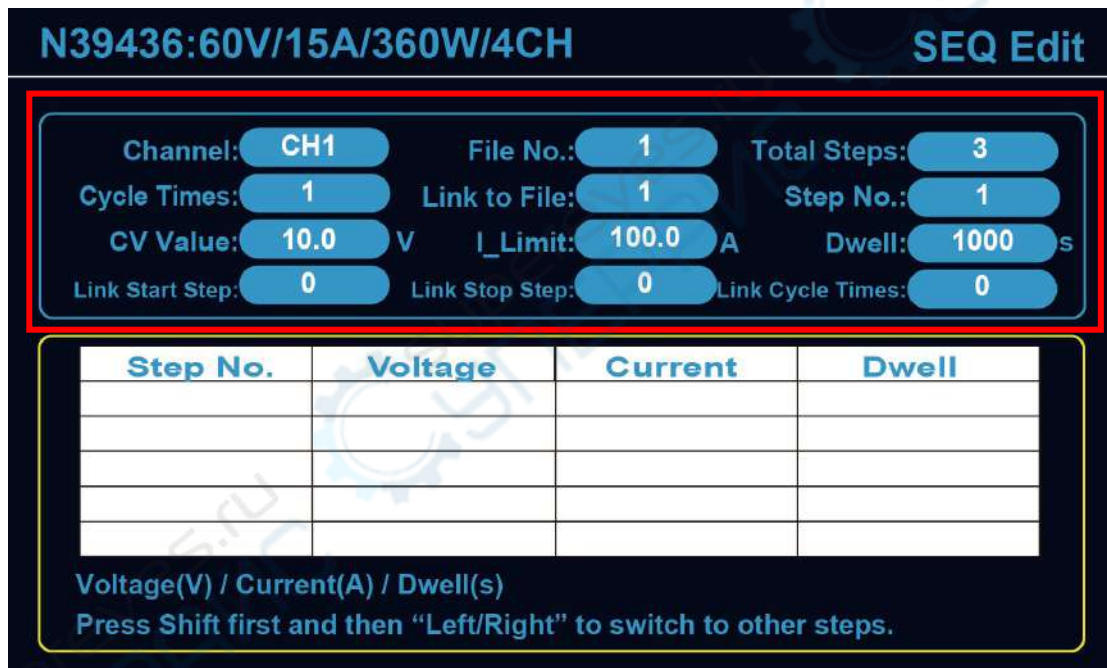


Figure 20 Parameter Setting

Note 1: Via numeric buttons, users need to input all the digits manually.

Note 2: To exit from SEQ Edit, please press  or the function button required.

4.4 All View

Methods to enter **All View**:

Method 1: Press  on the front panel directly.








Method 2: Press  → Select **All View** by   or  → Press  or .



Figure 21 All View







On All View interface, users can view voltage, current, power and ON/OFF state of each channel.

On All View interface, users can turn on or off all the channels by pressing .

Note: To exit from All View, please press  or the function button required.

4.5 Channel Config

Steps to enter **Channel Config**:

1. Press  on the front panel.
2. Select **Channel Config** by   or .
3. Press  or .

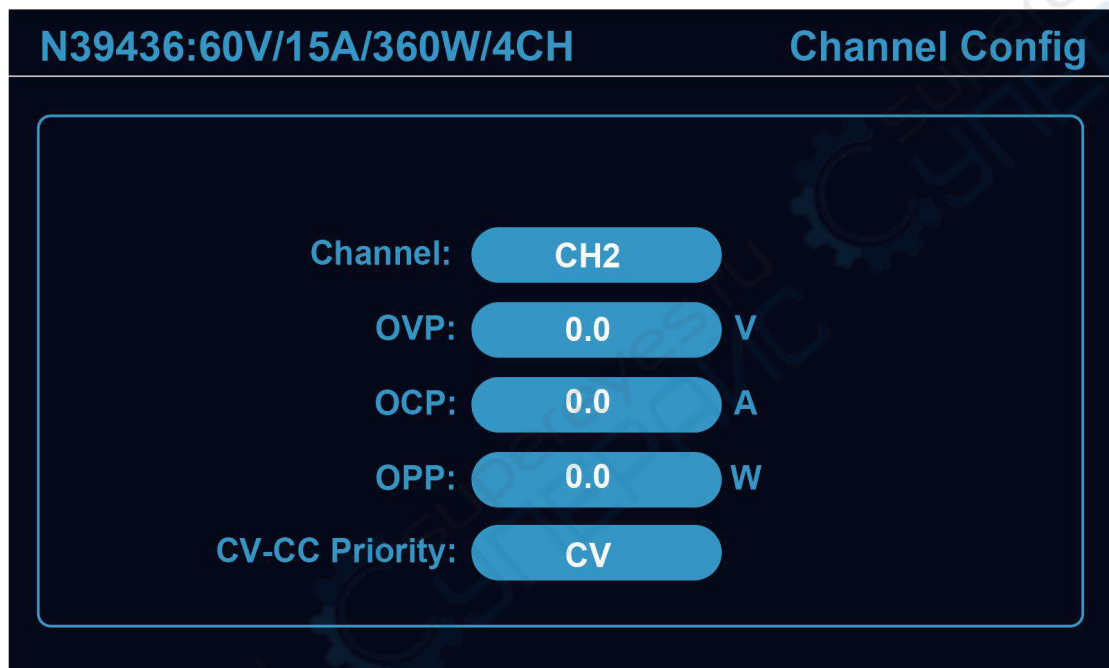











Figure 22 Channel Configuration

4.5.1 Channel Selection

Steps to select the desired channel under **Channel Config**:

1. Press   or rotate  to select **Channel**.
2. Press  or  on **Channel**.

3. Press  or rotate .
4. Press  or  to complete selection.

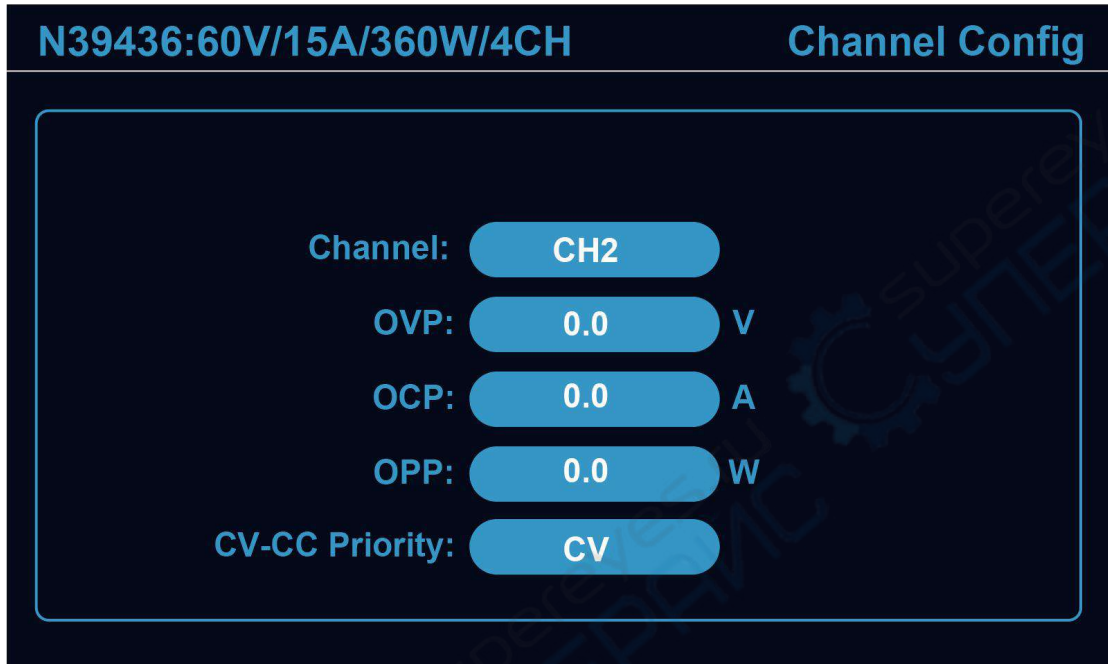










Figure 23 Channel Selection

4.5.2 Parameter Setting

Steps to set parameters under **Channel Config**:

1. Press   or rotate  to select the desired parameter.
2. Press  or  on the desired parameter.
3. Press numeric buttons or rotate  to input the value.
4. Press  or  to complete setting.

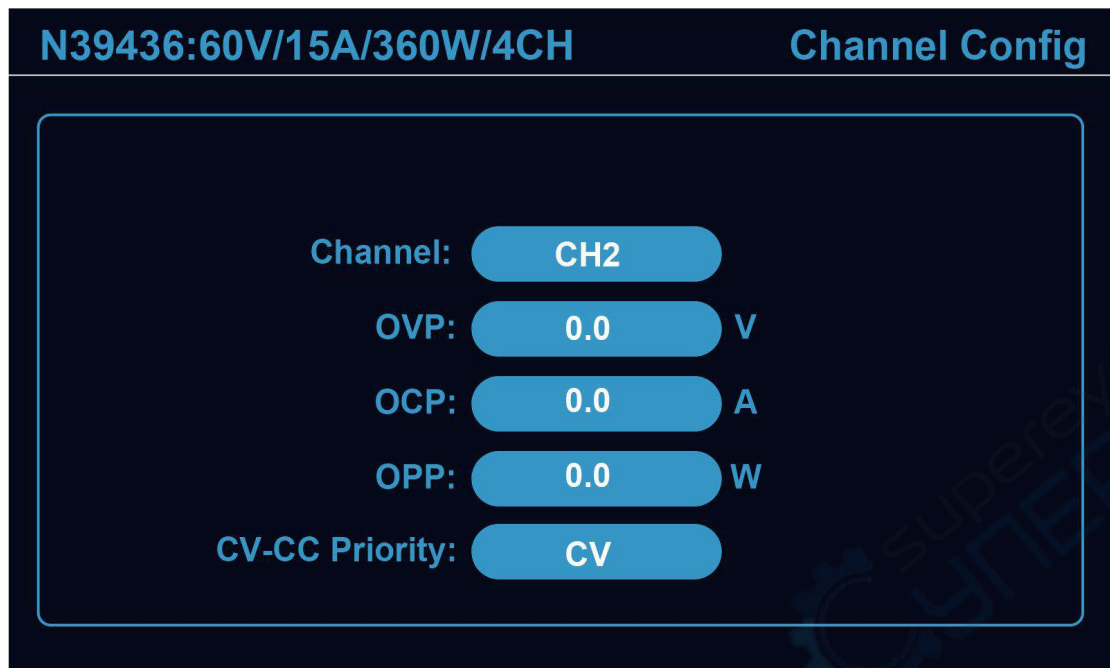










Figure 24 Parameter Setting

4.5.3 CC/CV Priority Setting

Steps to select CC/CV Priority under **Channel Config**:

1. Press   or rotate  to select **CC/CV Priority**.
2. Press  or  on **CC/CV Priority**.
3. Rotate  to select.
4. Press  or  to complete selection.

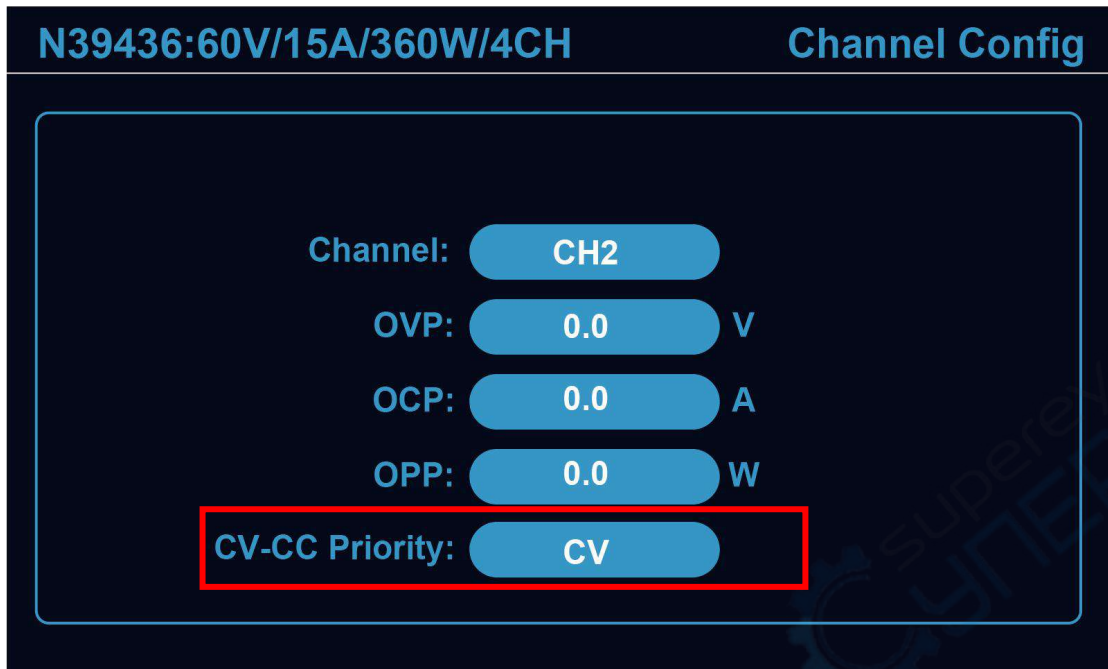



Figure 25 CC/CV Priority Setting

Note: To exit from Channel Config, please press  or the function button required.

4.6 System Config

Methods to enter **System Config**:

Method 1: Press  on the front panel directly.

Method 2: Press  → Select **System Config** by   or  → Press  or .

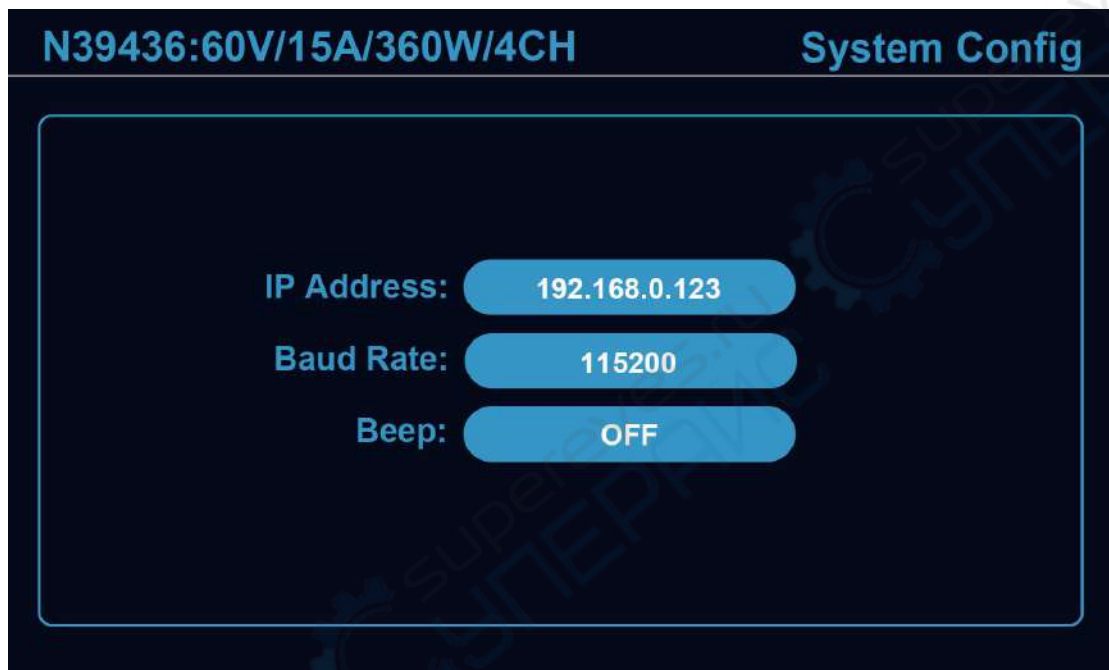









Figure 26 System Configuration

Table 16

Parameter	Description
IP Address	Set IP address
Baud Rate	Select the baud rate
Beep	Set the beep sound

4.6.1 IP Address

Steps to set IP Address under **System Config**:

1. Press   or rotate  to select **IP Address**.
2. Press  or  on **IP Address**.
3. Press numeric buttons to input the value.
4. Press  or  to complete setting.

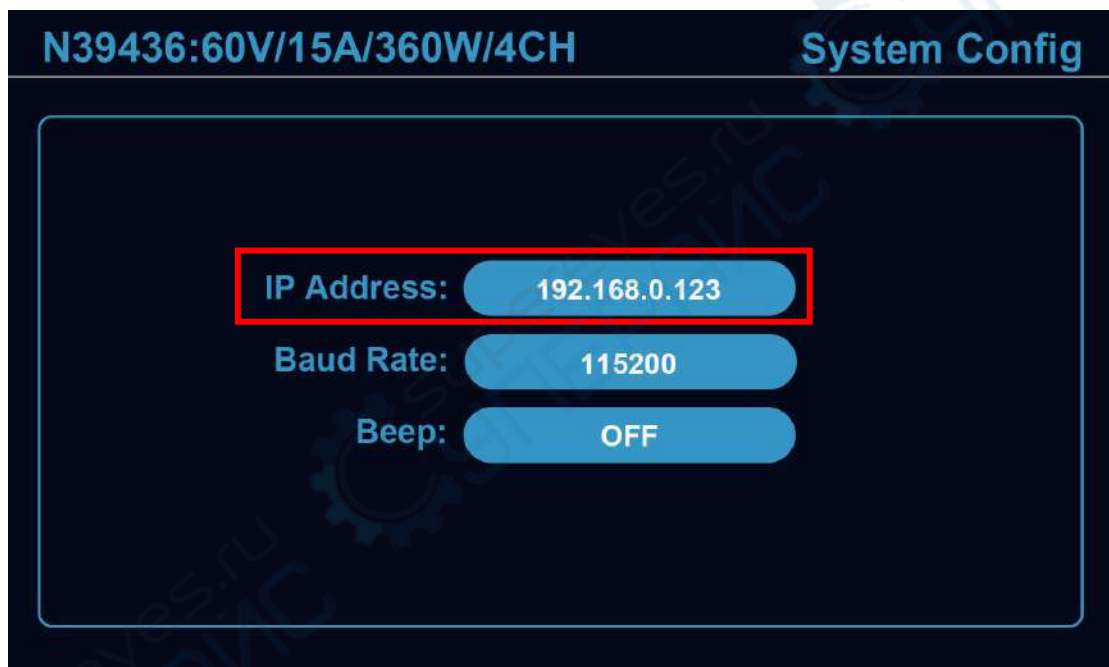









Figure 27 IP Address Setting

Note: Via numeric buttons, users need to input all the digits manually.

4.6.2 Baud Rate and Beep

Steps to select the desired **Baud Rate** and **Beep** under **System Config**:

1. Press   or rotate  to select **Baud Rate** or **Beep**.

2. Press  or  on **Baud Rate or Beep**.
3. Press   or rotate  to select.
4. Press  or  to complete selection.

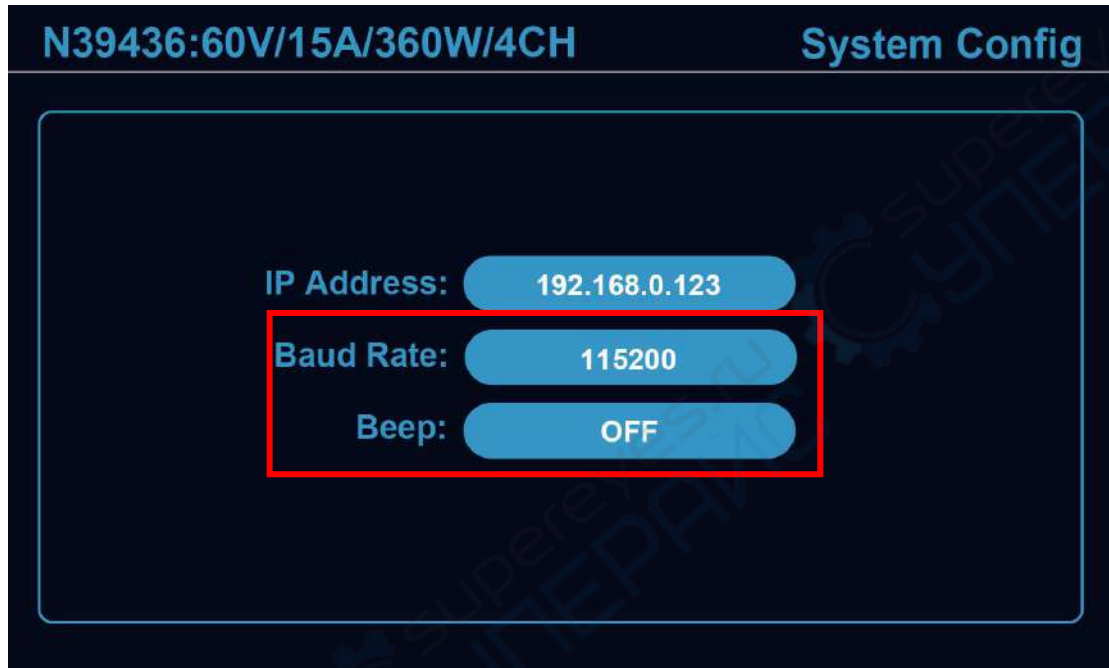


Figure 28 Baud Rate and Beep Setting

Note: To exit from System Config, please press  or the function button required.

5 Remote Operation

N39400 is equipped with two communication interfaces: RS232 and LAN.

5.1 RS232 Interface

On the rear panel, there is a male DB-9 interface with 9 pins.

Use a DB-9 crossover RS232 cable with both female ends for communication.

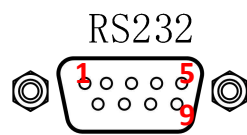


Figure 29 RS232 Interface

Table 17

Pin	Definition
1	NC
2	RXD, receive data
3	TXD, transmit data
4	NC
5	GND, ground
6	NC
7	RTS, request to send
8	CTS, clear to send
9	NC

5.2 LAN Port

There are two LAN ports at N39400 rear panel. Operators can select either LAN port to connect N39400 with computer by an Ethernet cable.

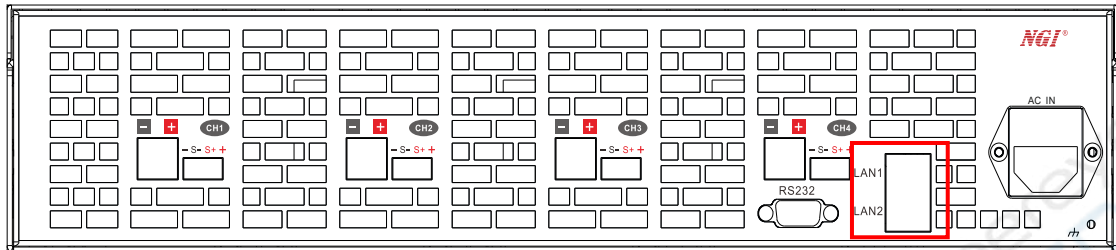


Figure 30 LAN Port Diagram

The double LAN design offers feasibility of one computer controlling multiple devices. Below figure shows one computer controlling two devices.

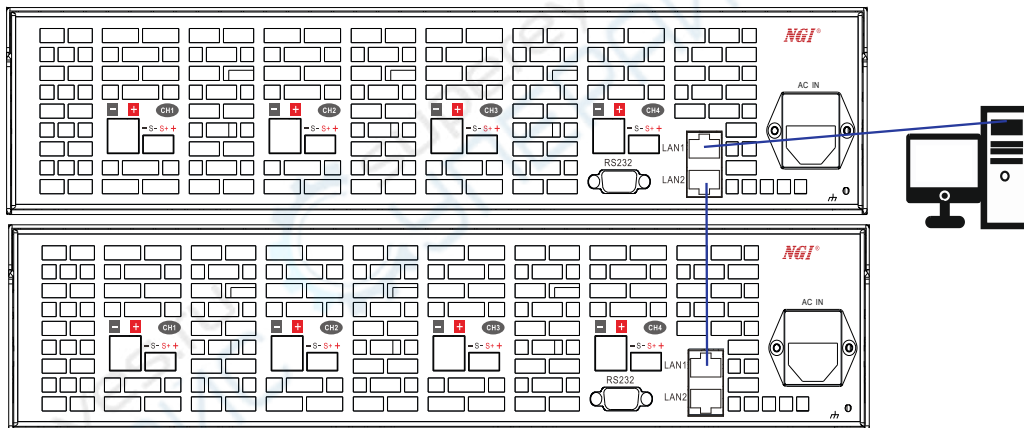


Figure 31 Multiple Devices Connection Diagram

6 Maintenance and Self-inspection

6.1 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.**

6.2 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 wrong information.
- ◆ Operate on a replacement device.

Calibration Intervals

It is suggested that N39400 series should be calibrated once a year.

7 Main Technical Data

Attention:

The measurement accuracy is identified by the following three conditions: within one year after calibration, operation temperature between 18°C and 28°C, and the relative humidity up to 80%.

Please warm up the device for half hour to ensure the measurement accuracy.

Table 18

Model	N39420-60-10	N39436-60-15	N39420-150-04	N39436-150-06
Voltage	60V	60V	150V	150V
Current	10A	15A	4A	6A
Power	200W	360W	200W	360W
Channel Number	4CH			
	CV Mode			
Range	0-60V	0-60V	0-150V	0-150V
Set Resolution	16 bits			
Set Accuracy (23±5°C)	0.1%+0.1%F.S.			
Readback Resolution	16 bits			
Readback Accuracy (23±5°C)	0.05%+0.1%F.S.			
	CC Mode			
Range	0-10A	0-15A	0-4A	0-6A
Set Resolution	16 bits			
Set Accuracy (23±5°C)	0.1%+0.2%F.S.			
Readback Resolution	16 bits			
Readback Accuracy (23±5°C)	0.1%+0.1%F.S.			

	Others
Communication Interface	LAN/RS485(Isolated)
AC Input Voltage	220VAC±10%
Net Weight	Approx. 10KG

