User Manual

For Smart DCDU iPDU-1U10

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FOREWORD

Overview

The manual includes: scope of application, product appearance, technical description, indicator description, hardware wiring diagram, and WE function introduction. The instruction manual describes the complete functions of **iPDU-1U10 metering and control device**.

The pictures of the device on the following pages are provided for reference only, please refer to the actual product.

Target Persons

This manual is mainly applicable to the following:

- Sales Engineer
- Technical Support Engineer
- Maintenance Engineer

Precautions

The following symbols may appear in this manual, and the meanings they represent are as follows.

Symbols	Meanings
DANGER	A hazard which, if not avoided, will result in a high risk of death or serious injury.
WARNING	A hazard with medium risk which, if not avoided, could result in death or serious injury.
ATTENTION	A hazard with a low risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Transmit device or environmental safety warning information. Failure to avoid it may result in device damage, data loss, reduced device performance or other unpredictable results. "Notice" does not involve personal injury.

Revision Record

The revision record accumulates the description of each document update. The latest version of the documentation contains updates from all previous versions.

Document Version 1.0 (2024-06-21)

This is the first official release.

CONTENTS

1. PRODUCT INTRODUCTION

With the large-scale construction of 5G, the number of device of various types and standards in the base station has increased, and the power consumption has gradually increased. But the energy distribution management of the existing device is not refined, remote and intelligent enough, resulting in the use of device power supply and device power-up in the base station are relatively chaotic. At present, the most advanced is the control of users, which can achieve a certain degree of energy saving, but after implementation, the station can not provide any communication services for users, losing the significance of energy saving, and failing to achieve a better balance between energy saving and user services. At the same time, due to the rapid iteration of network upgrades and device updates, operators generally enter base stations to install device privately under the pretext of existing network maintenance and device replacement, resulting in the loss of revenue orders and inaccurate electricity bill measurement.

Therefore, in order to develop 5G services and meet the differentiated backup needs of different customers and different device of communication base stations, our company has organized the development of DC metering and control device. The DC metering and control device establishes a communication link through the 4G communication system (used when the base station communication signal is interrupted), and is compatible with the 485 docking with the FSU platform to realize the refined control of the site by the energy management platform, manual/remote control of each branch on and off, control of each branch power metering, and achieve resource statistics for each branch.

2. APPEARANCE&SPECIFICATIONS

2.1 Appearance

Figure 1 Appearance and Structure Diagram

2.2 Operating Environment

- Hardware environment

  Firmware version: protocol version V2.0 or above

  Serial port: at least one RS485 serial interface (if there is no interface, a USB to serial port tool is required)

- Software environment

  Operating system: WindowXP, Windows 7, Window8, Windows 10

- On-site environment

  If the on-site interference is large, please use industrial computers, isolated serial port conversion device and shielded cables to prevent interference from causing data transmission failure and abnormal operation of the host computer software.

- Default communication parameters

  Address: 55 (hex)

  Baud rate: 9600

  Data bits: 8

  Stop bit: 1

  Check digit: No check digit

2.3 Technical Specifications

Item	Parameter
Dimensions	440mm(L)*260mm(W)*44.5mm(H)
Working Voltage	40~60VDC
Power consumption	<5W
Power input	48VDC 250A
Power output	48V 63A/48V 125A
Communication interface	1 channel RS485 (interface A1, B1)
Other interfaces	Other interfaces are reserved
Human-machine interface	LCD
Number of DC on/off switches	>10000 times
Voltage measurement accuracy	Class 0.5
Current measurement accuracy	Class 0.5
Energy measurement accuracy	Class 1
Working temperature	-40~65℃
Working humidity	5~95% (no condensation or freezing)
Storage temperature	-40~70℃
Atmospheric pressure	70kPa~110kPa

2.4 Indicator

Indicator Name	Color	Function
COM	Green	Serial communication indicator, flashes when RS485 has data
ALM	Red	Alarm indicator: On when an alarm occurs and off when there is no alarm
SYS	Green	Device operation indicator, which is on in normal operation and off in abnormal operation
PWR	Green	Power indicator, always on when normal, off when abnormal

3. DEVICE INSTALLATION

3.1 Installation Instructions

WARNING

iPDU-1U10 DC metering and control device must be installed by professional electricians.

The device manufacturer is not responsible for any damage caused by the user or installer's failure to follow warnings or recommendations in this manual, or damage caused by the use of non-original devices or accessories or by the quality of the device itself.

DANGER

- When inspecting or troubleshooting the load-end line, the working mode of the device must first be converted to the off status.
- Check that all input and output circuit breakers are open. All input and output connecting cables, signal cables, working ground wires, and protective ground wires are firmly connected. And measure that there is no short circuit between the positive and negative busbars of the DC output and the positive and negative electrodes of the battery.
- Use a multimeter to measure the positive and negative busbar voltages of the system before setting parameters.

3.2 Test Wiring Diagram

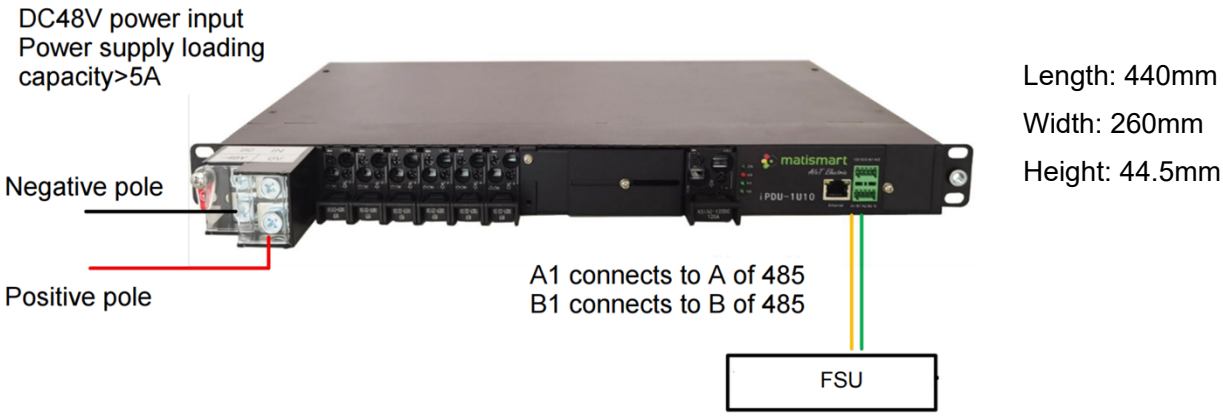
The iPDU-1U10 must be connected to the power circuit according to its voltage range.

ATTENTION

When installing the power distribution unit, you must pay attention to the positive and negative wiring sequence. If wiring is done in reverse order, the system will not work.

When installing device, the protective ground wire must be installed first; when dismantling device, the protective ground wire must be removed last.

3.3 Use Wiring Diagram



ATTENTION

When installing the load, you must pay attention to the positive and negative wiring sequence. If the wiring is done in reverse order, the system will not work or even burn the connected load, so check that all input and output circuit breakers are in the open status. All input and output connecting cables, signal cables, working ground wires, and protective ground wires should be firmly connected.

ATTENTION

(+) Positive pole of power supply, (-) Negative pole of power supply

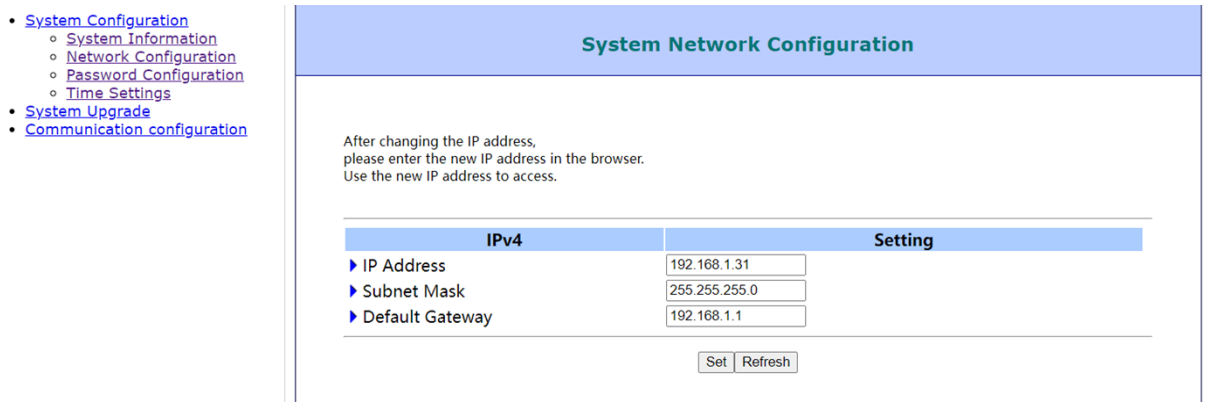
4. DEVICE USE

4.1 we Function Introduction

4.1.1 Network Configuration

The default IP of the device: 192.168.1.31. The default user name and password are admin.

The network configuration interface can configure the device IP, mask and gateway.

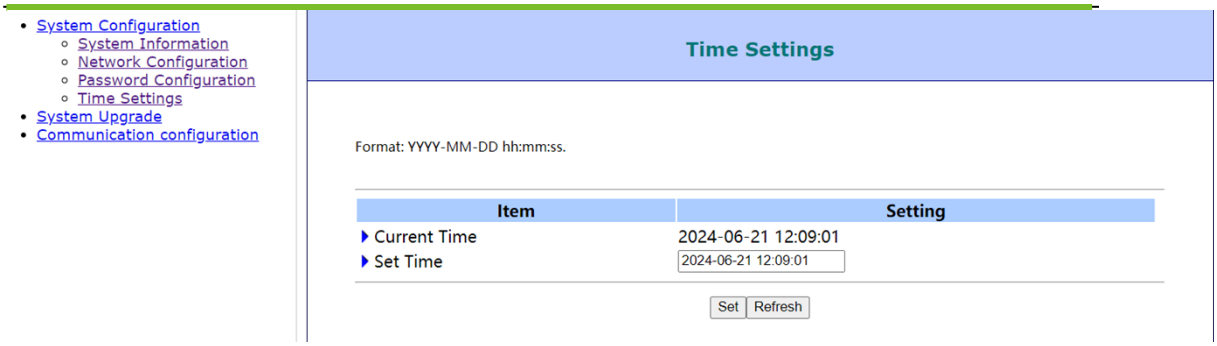


4.1.2 Login Password Modification

This interface provides password modification function

4.1.3 Clock Settings

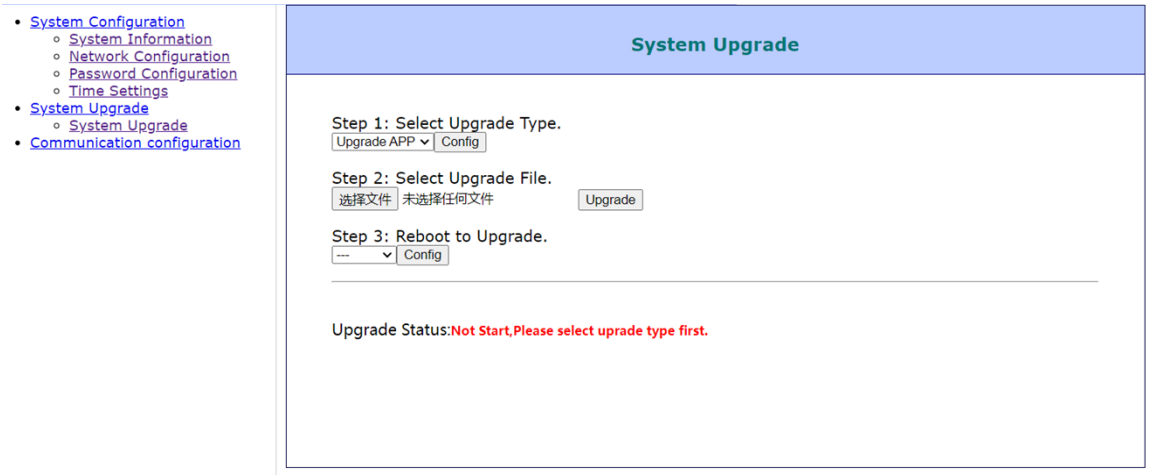
Set Device Time



4.1.4 Device Software Upgrade Function

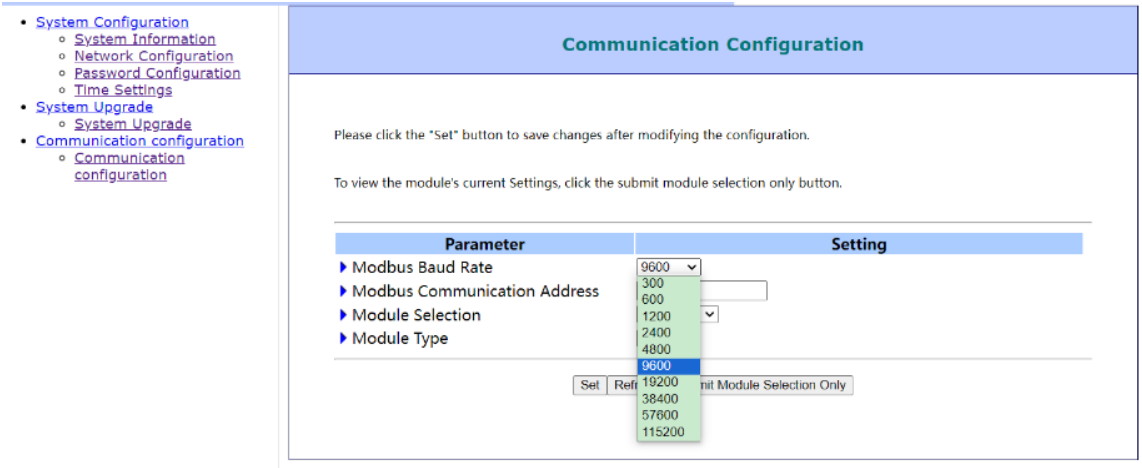
Provides device upgrade function, the upgrade steps are as follows:

1) Step1: Select upgrade APP —> Step2: Click "Select File" to select the file that needs to be upgraded, then click Upgrade and wait for the prompt that the file transfer is completed —> Step2: Select reboot and click Config to complete the upgrade and wait for the device to restart.

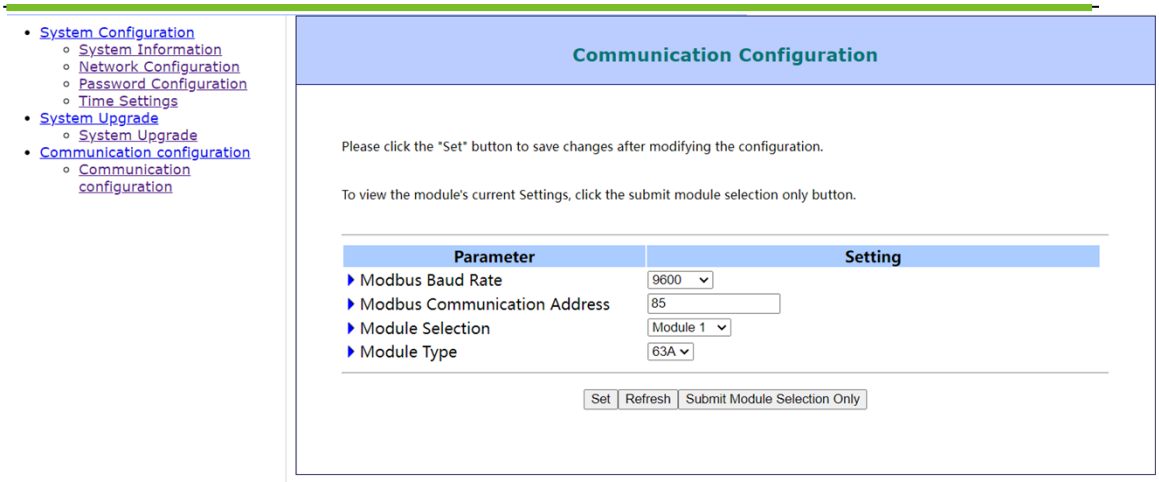


4.1.5 Device Communication Configuration

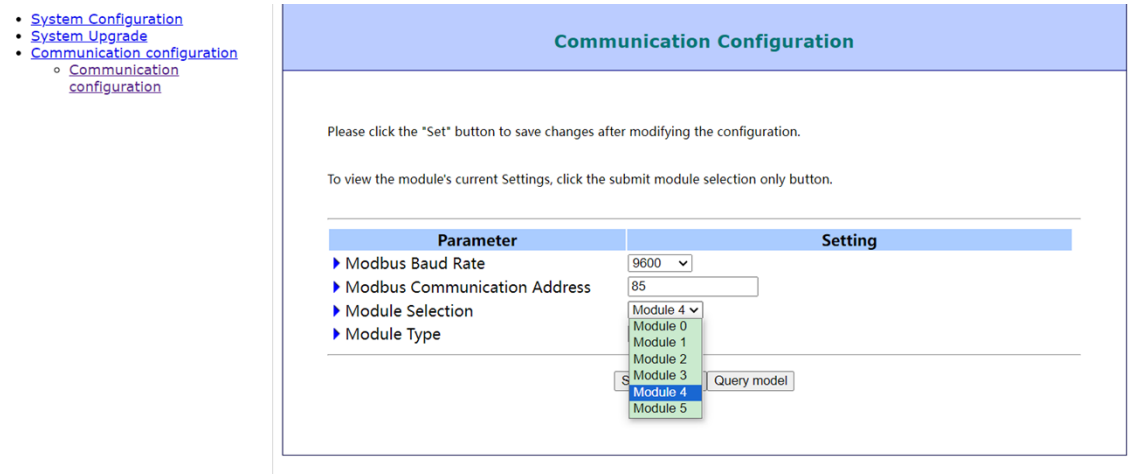
1) RS485 communication parameter configuration, default baud rate 9600-8-n-1



2) Modbus communication address configuration, default address 85 (decimal), broadcast address 252



3) Supports configuring 63A specification modules in slots 1 to 12 into 32A or 16A specification modules.



5. RS485 COMMUNICATION

5.1 MODBUS Communication Parameter Setting

The prerequisite for communication between the device and the master station is whether the communication parameters are set correctly.

The communication parameters of iPDU-1U10 include:

- Communication address: The default is 55 (hexadecimal), which can be modified locally, with 8 data bits, 1 stop bit, and no parity bit.
- Baud rate: Default is 9600, which can be modified locally.

6. FAQ

Problems	Possible Causes	Solutions
1. Remote closing is not possible after manual closing.	Logically remote and manual cannot interfere with each other	
2. It cannot be closed manually after remote opening.	Logically remote and manual cannot interfere with each other	
3. The response speed of opening and closing is sometimes slow	485 bus is unstable	The software will guarantee the execution success rate and there is no need to solve it.
4. The timing opening and closing time is inaccurate	Not synchronized time	Synchronize time via web page or modbus communication protocol

7. TECHNICAL SREVICE

Anyone who purchases this smart PDU enjoys a 24-month warranty period from the date of purchase. During the warranty period, if the quality of the device itself affects the normal use, you can enjoy free repair and replacement, and the condition of paid service as follows: the improper use, drop, installation and wiring errors that cause irreversible damage. Besides, if you disassemble and modify the device yourself, you will not enjoy the warranty service.

If you have any questions about the operation or malfunction of the device, please contact Matis technical support service.

Statement:

- The information provided in this manual can be changed without prior notice.
- Shanghai Matis Electric Co., Ltd. reserves the right to interpret the foregoing information.

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