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Chapter 1 Product introduction

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About this Manual

This manual contains information about **DVW-W01I2-E1** series. When using Delta DVW series product in China, please refer to Delta official website with model
name **DVW-W01I2-E1** or contact our nearest branch offices or distributors for further information.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the

FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential

installation.

This equipment generates radio frequency signal and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

---Reorient or relocate the receiving antenna.

---Increase the separation between the equipment and receiver.

---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

---Consult the dealer or an experienced radio/TV technician for help.

CE Declaration of Conformity

The DVW series switches are CE certificated products, they could use in any kind of the environments under CE environment specification. For keeping more safe application, we strongly suggest to use the CE-compliant industrial enclosure products.

Test Items:
EN 300 328
EN 301 893
EN 301 489-1/-17 for WLAN
EN 55032+EN 55024
EN 61000-6-4+EN 61000-6-2
EN 55011
EN 50385

Disclaimers and Limitation of Liabilities

To the maximum extent permitted by law and regardless DELTA be aware or has been advised of the possibility of these damages, DELTA is not liable to any user or anyone else for: (a) any loss of use, data, reputation, goodwill, credit, opportunity, economy or profits, whether or not foreseeable; (b) any special, incidental, indirect, consequential, or punitive damages whatsoever; (c) any losses or damages based on any theory of liability, including breach of contract or warranty, negligence or other tortious action; (d) any losses or damages resulting from use or unable to use the systems or devices to which the Software or Services are incorporated or co-operated; and (e) any losses or damages arising from any other

claim or in connection with the use of or access to the Software or Services.

Warning

⚠	此设备应安装在限制进出的场所。限制进出场所指仅能透过特殊工具、锁和钥匙或其他安全手段才能进出的场所。 This equipment should be installed in a place where access is restricted. Restricted places are places that can only be accessed through special tools, locks and keys or other security means.
🔥	在接近热源部分的明显位置上会有警告标示。 There will be a warning sign in an obvious position near the heat source part

Warning

Supplied by LPS power source

1.1 Overview

Delta's industrial wireless DVW-W01I2-E1 series features Ethernet port, RS-232 and RS-485, supports standard MODBUS protocol for executing and controlling data transmission with operating devices. DVW-W01I2-E1 supports fast-roaming solution especially suitable for clients in wireless environment to quickly switch connection from one AP to another for continuous roaming experience and applications, such as automatic storage system or autonomous carriers.

1.1.1   High performance wireless technology

• 10/100/1000/Base-T

• Auto detects transmission speed

• Auto-MDI/MDI-X

• 802.11 a/b/g/n/ac, up to 866 Mbps
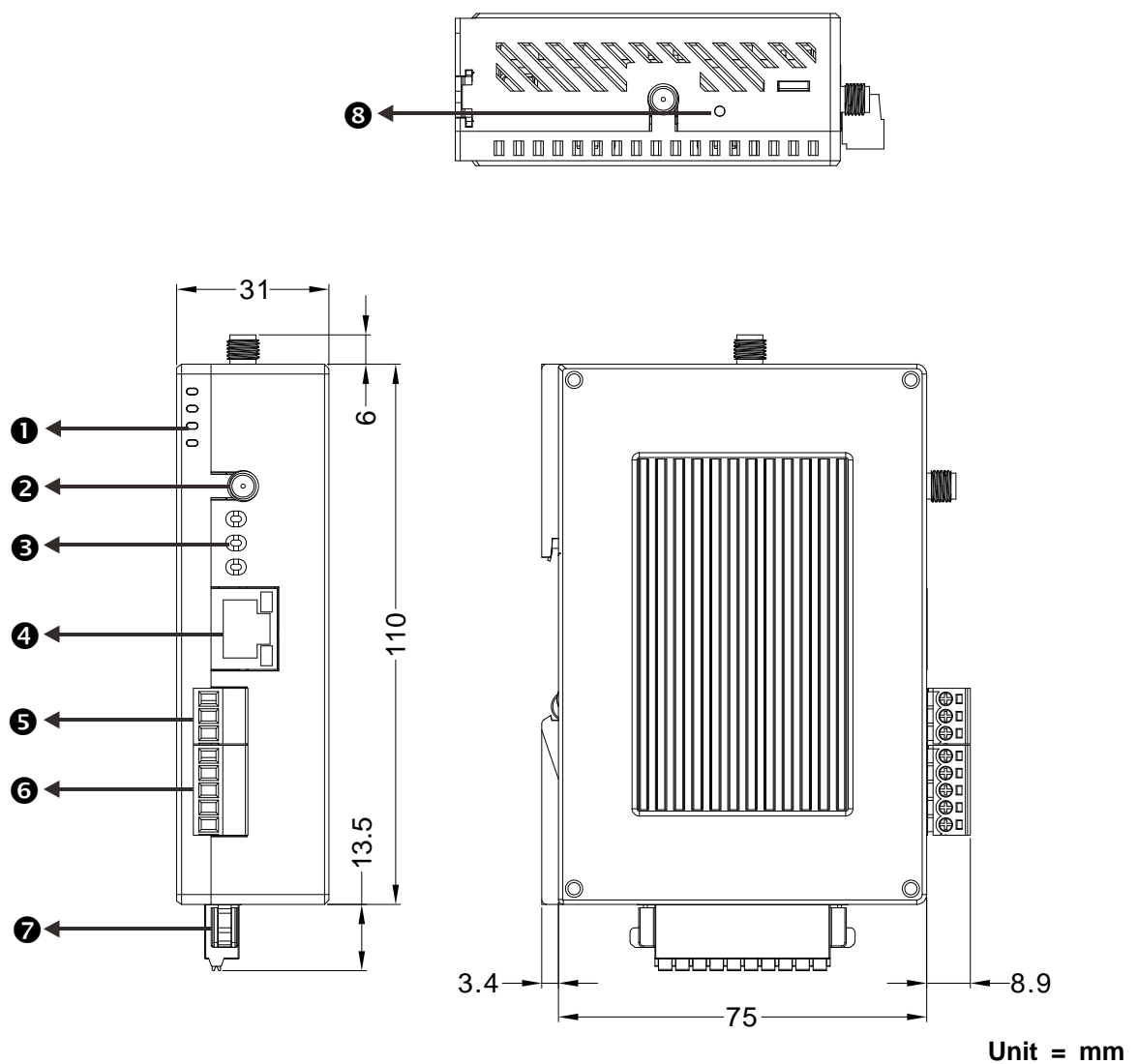
• Supports fast roaming (personal network)

1.1.2 Good reliability and design optimization

- Redundant dual DC power input

- One set of digital input (DI)

- One set of alarm output (DO)

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1.1.3 Robust design for industrial hardware

- Operating temperature: -10~60℃

- Storage temperature: -40~85℃

- Humidity: 5%~95% (non-condensing)

- Metal case: IPX0

1.1.4 Product profile and dimensions

Unit = mm

No	Description
1	LED indicator
2	Antenna socket
3	Signal strength
4	Ethernet port
5	RS-485 port
6	RS-232 port
7	Power terminal
8	Reset button

1.2 LED indicator

| LED	Color	Status	Description
PWR1/PWR2	Green	On	The device is powered up
		Off	The device is not powered up
RS-232	Green	Blinking	Data transmission
		Off	No data transmission
RS-485	Green	Blinking	Data transmission
		Off	No data transmission
DI/ALARM	Red	On	Closed relay
		Off	Disconnect relay
	Green	On	Valid digital input (DI)
		Off	No digital input (DI)
		Blinking	Relay closed and DI occurs simultaneously
Signal light	Green	On	Lighting 1-3 lights based on signal strength
		Off	No network signal

1.3 Installation

1.3.1 DIN-rail mounting

Attach the back trench of the device to the mounting rail in arrow ① direction and push the device against the rail in arrow ② direction. To disassemble, first push down the device in arrow ① direction and follow arrow ③ direction to push out the device.
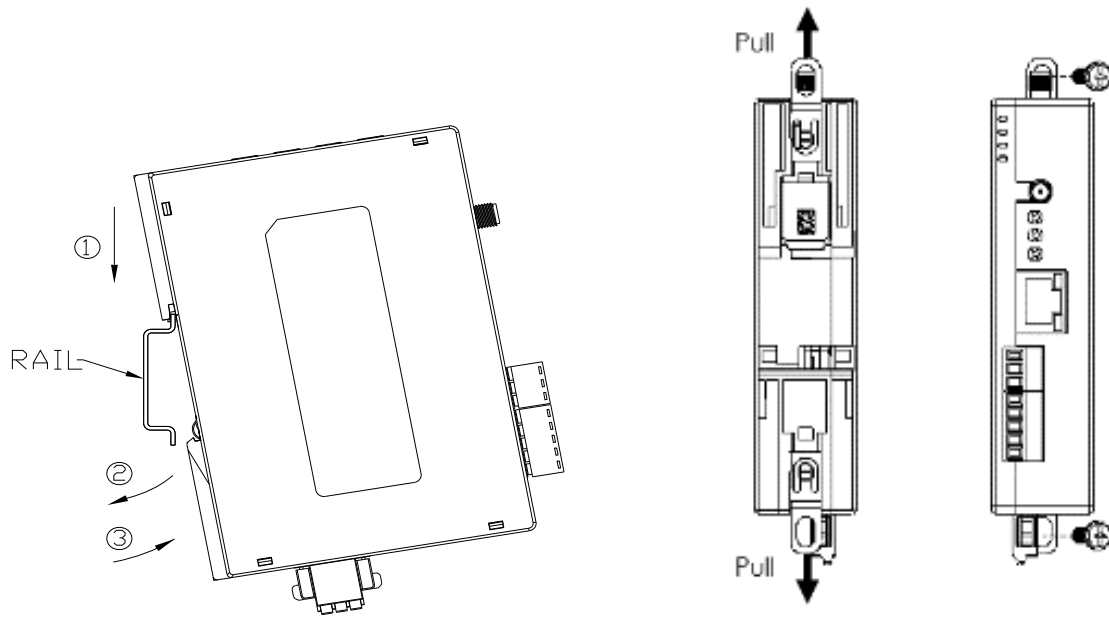
1.3.2 Wall mounting
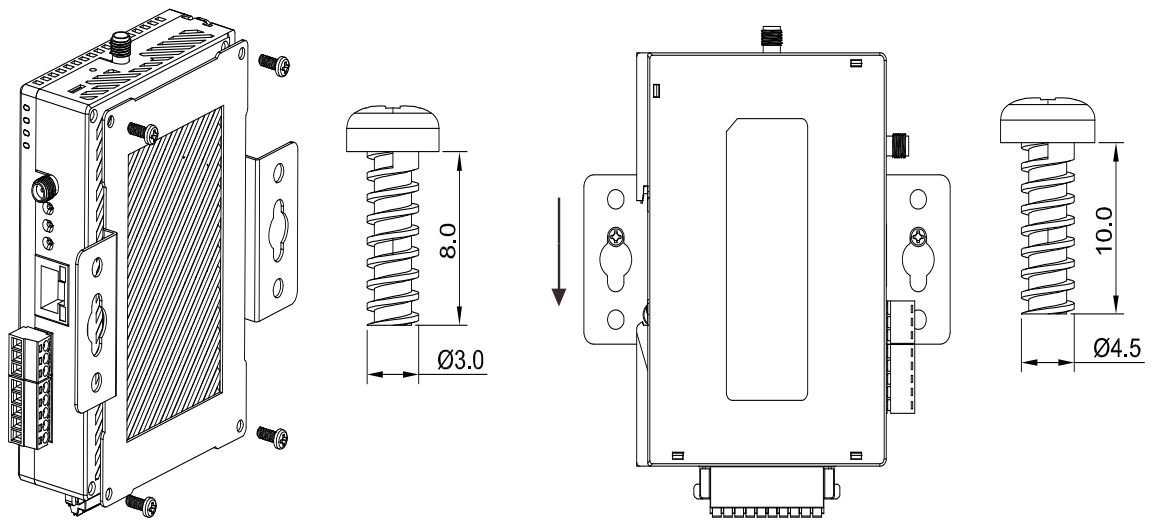
1.3.3　Wiring the redundant power input

The DVW-W01I2-E1 is equipped with one to two sets of DC input (PWR1 / PWR2). Both sets of DC input can be connected to a wide range of power sources (12 to 48VDC). When one power source fails, the other source can work as a backup to ensure that the machine operates normally.

Step 1: Detach the terminal block from DVW-W01I2-E1 and insert the negative and positive DC wires into the terminal block. Make sure that the positive DC wire is connected to V1+ or V2+, and that the negative DC wire is connected to 0V.

Step 2: To prevent the loose DC wires, tighten the wire clamp screws on the terminal block with the flat-blade screwdriver.
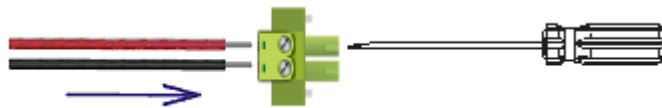
Note: Please use copper wire 60/75ºC, AWG 28-14; screw torque is 2.2kgf-cm (1.91 in-lbs)
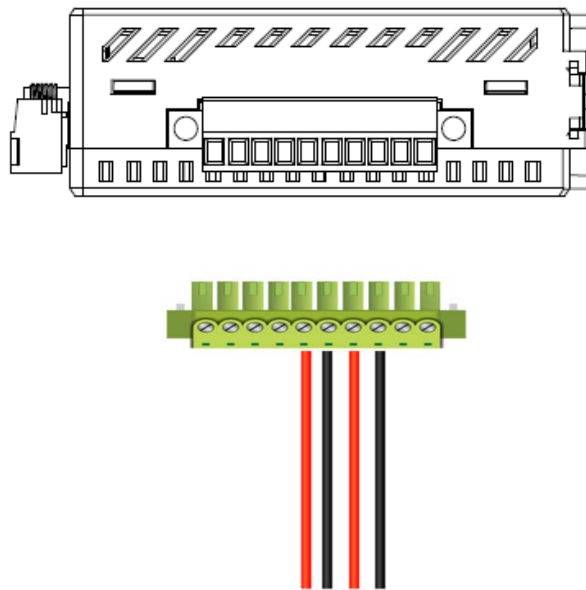
1.3.4　Wiring the alarm contact

The DVW-W01I2-E1 is equipped with one to two sets of alarm output. The alarm contact is a dry relay. Under normal mode of operation, the contact is in "OPEN" circuit; when one of the two power sources fails or communication is interrupted, the contact will change to a "CLOSED" circuit. The relay can be connected up to 1A/24VDC power source.
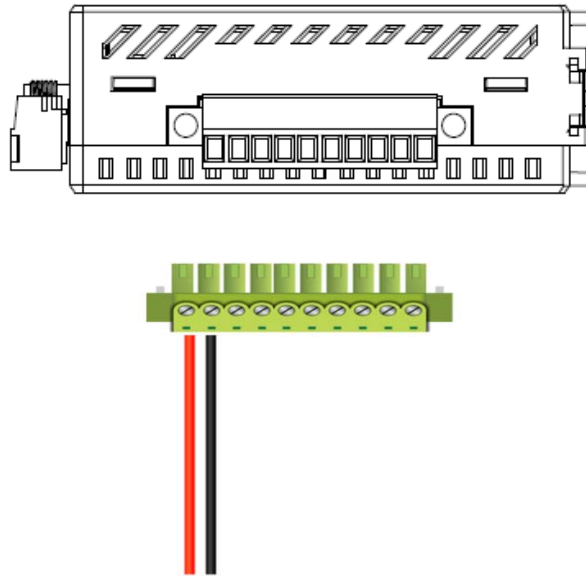
1.3.5 Wiring the digital input

The DVW-W01I2-E1 is equipped with one to two sets of digital input. When input voltage is between 0 to 5V, the state of DI is OFF; input voltage between 11 to 30V, the state of DI is ON. The maximum input current is 6mA.
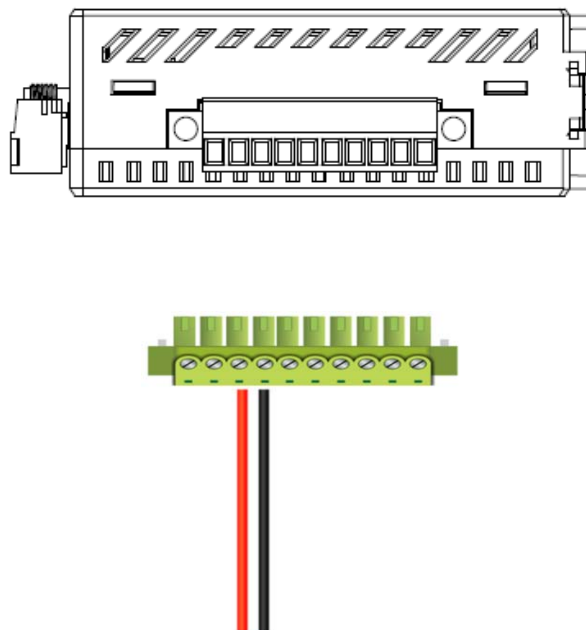
1.3.6   Pin definition

RS-232 & RS485

Pin no.	RS-232		Pin no.	RS-485	
1	RX		1	D+	
2	TX		2	D-	
3	SG		3	SG	
4	RTS				
5	CTS				

Ethernet port (RJ45) & power input

Ethernet port (RJ45)									Power input	
1	TX+	2	TX-	3	RX+	4	N/C			
5	N/C	6	RX-	7	N/C	8	N/C	8 — 1		< 1mm 8-10mm AWG 28-14

Interface

Category	Terminal	Explanation	
Power	⊣⊢	Power ground where two grounds interconnect	
	PWR1 (V0 V1+)	Power 1	● Input voltage: DC 12V~24V, +/- 20%; ● Power consumption in normal operation: 2.5W; ● Reverse voltage protect;
	PWR2 (V0 V2+)	Power 2	● Dual redundant power supply, the device will automatically match to the higher voltage side and disconnect from the lower voltage side
I/O	DI (A- A+)	DI: ● Input type: DC (sourcing or sinking) ● Input current: 24V：5ma ● Max. input frequency: 1KHZ ● Input impedance: 5.6K	
	ALARM	DO: Contact rating: DC24V: 2A, AC125V: 0.5A, AC220V: 0.2A	
ANT1	ANT1	Wi-Fi antenna, external thread connector (male) Internal diameter: 4.45mm External diameter (thread excluded): 5.32mm External diameter: 6.26mm	
RST	RST	Press less than 3 seconds: restart the device Press longer than 6 seconds: restore to default	

1.3.7   Wiring

RS-232	RS-485
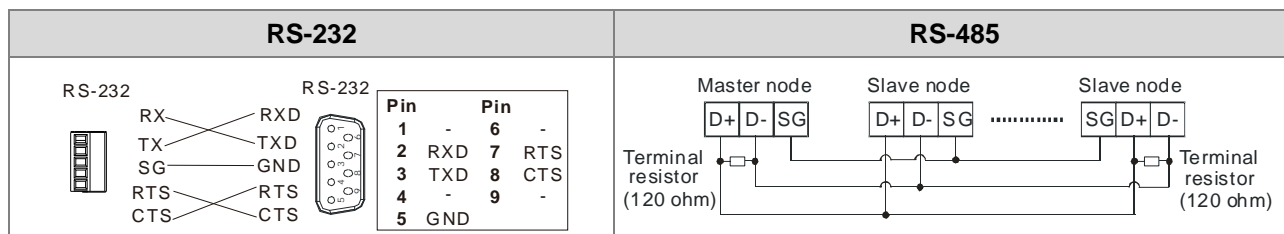
1.4 Package checklist

The package contains the following accessories:

● Delta industrial wireless DVW-W01I2-E1 series x1

● Instruction sheet x1

● SMA antenna x 2

● Wall mount metal accessory x1

● Screws x4

> ⚠ **Attention**
> Each released DVW-W01I2-E1 contains accessories that are listed above. When you receive the product, please open the package and check for any missing or broken accessories. For any enquiries, do contact our local distributors.

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## Chapter 2   User Interface

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2.1 Configuration

Before using DVW-W01I02-E1 series, please pay attention to the following item preparation.

No	Item	Description
1	PC	Contains Windows operating system and web browsers.
2	Power supply	Supports 12-48V with output power larger than 2.5W.
3	Cable	Includes 5 types of twisted pair as communication cables of DVW-W01I02-E1.

2.2 Connection and access settings

1. The DVW-W01I02-E1 series and PC connects to RJ45 port through using web-based Ethernet for parameter settings.
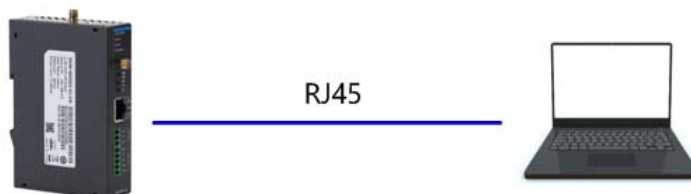
2. When PC and DVW device connection is complete, continue configuring the PC's IP address.

1) Click the start button 🌀, then click the control panel to open network connection.

2) In Network and Sharing Center, check the network connections.

3) Right-click the connection for modification, then click Attribute. When the UAC 🛡 appears as a reminder, please type in the user password for confirmation.

4) Click Network. Under this option, select Internet Protocol Version 4 (TCP / IPv4) or Internet Protocol Version 6 (TCP / IPv6), then click Attribute.
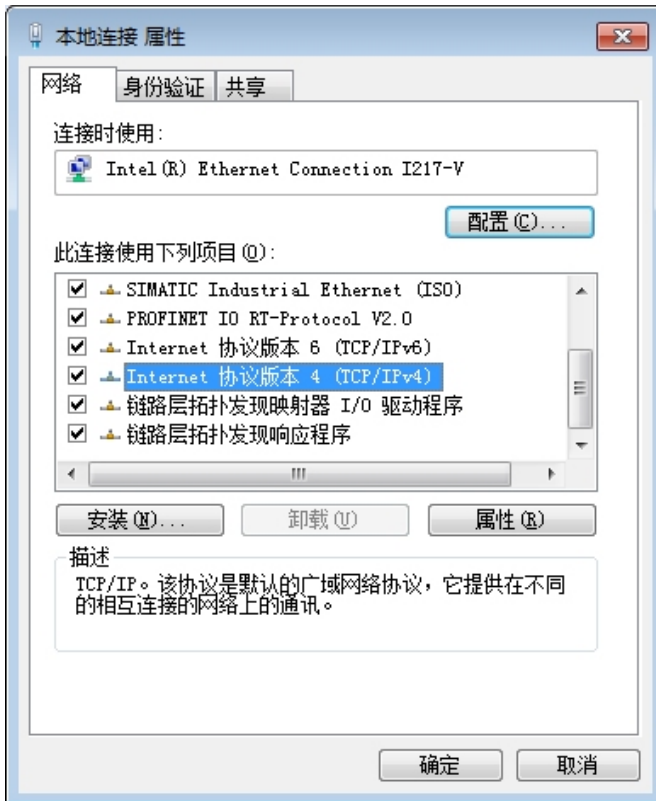
Manually configure the local IP address. Since the default IP address is 192.168.1.5 for router settings, the subnet masks is 255.255.255.0, therefore, the local IP on PC can be set anywhere between 192.168.1.1 to 254 excluding 192.168.1.5 and with no repeating IPs. We setup the IP address as 192.168.1.10, the default gateway is 192.168.1.5, select an available DNS address or configuring to 192.168.1.5.
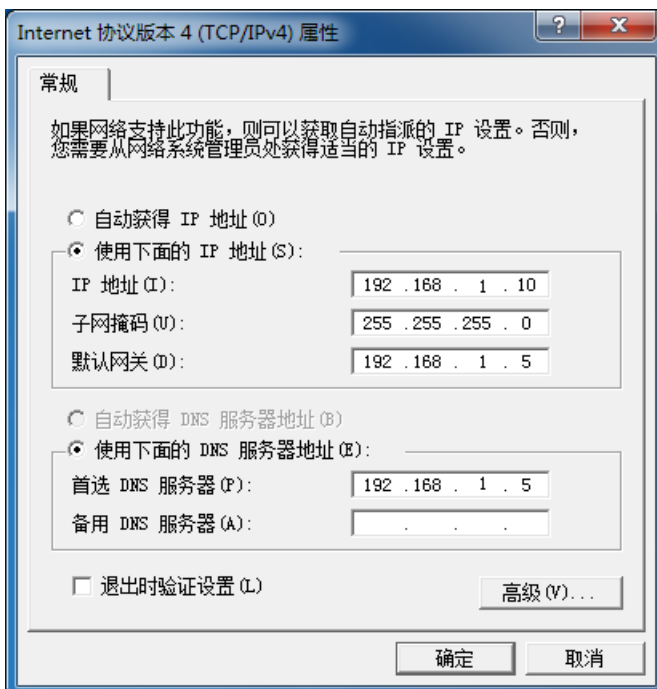
3. Open browser (e.g. IE) then type in default IP address **192.168.1.5** and click enter. The following log-in page appears for users to enter the correct username and password (Default setting: admin/password).

2.3 General configurations

2.3.1 AP mode setup

In AP mode, the access point serves as intermediate point between devices for wired or wireless connection and data transmission.
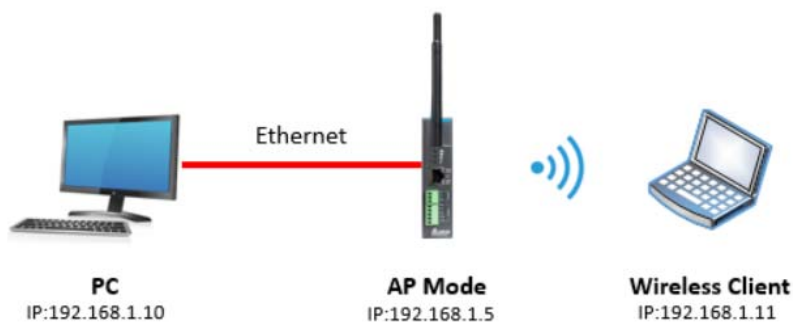
Configuration procedures

1. Set all IP addresses in the same segment.
2. Log in the DVW wireless device page on the PC, the default IP is 192.168.1.5. Username and password by default is admin/password.

2-5

Please Login

| User Name | admin |
| Password | •••••••• |

Login

3. From WLAN2.4G listed on the menu, select Operation Mode, choose AP mode and click Apply.

- System
- Basic Configuration
- Serial Configuration
- WLAN 2.4G
  - Operation Mode
  - WLAN 2.4G
- WLAN 5G
- Auto Warning Settings
- Maintenance

Operation Mode

Cancel   Apply

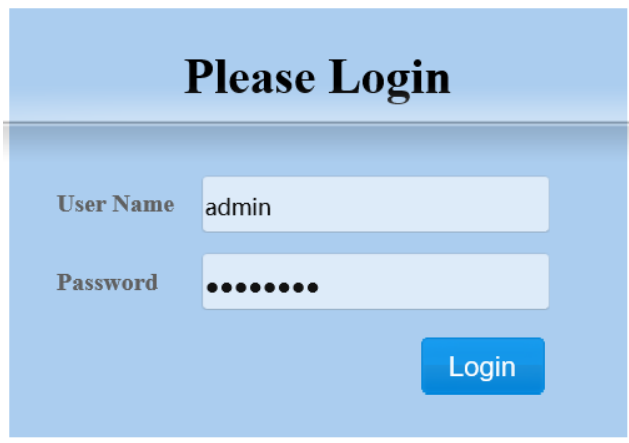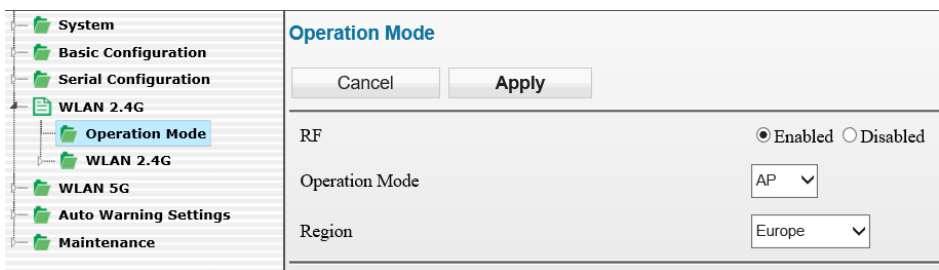| RF | ⦿ Enabled ○ Disabled |
| Operation Mode | AP ∨ |
| Region | Europe ∨ |

4. Select Basic Configuration and setup SSID name as well as WPA2-PSK for security mode (recommended), then click Apply.

- System
- Basic Configuration
- Serial Configuration
- WLAN 2.4G
  - Operation Mode
  - WLAN 2.4G
    - Basic Configuration
    - Advanced Configuratio
- WLAN 5G
- Auto Warning Settings
- Maintenance

Basic Configuration

Cancel   Apply

Operation Mode	AP
RF Type	G/N Mixed ∨
Channel	Auto ∨
Bandwidth	20M ∨
SSID	SlimWiFi_B4F8
SSID Broadcast	⦿ Enabled ○ Disabled
Security Mode	None ∨
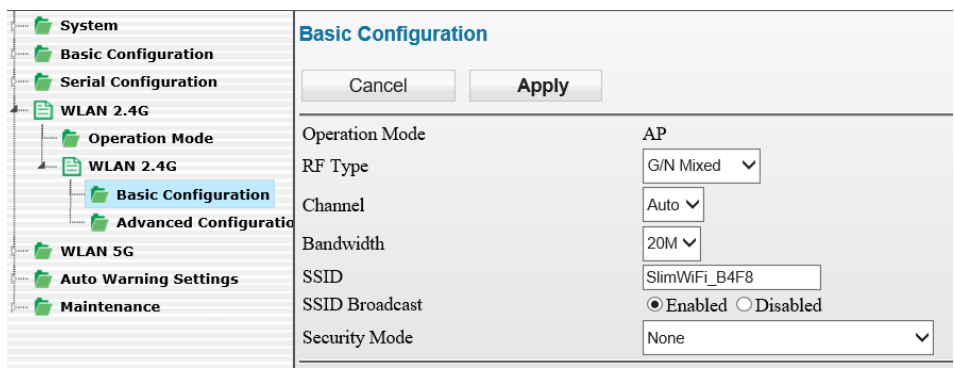
5. For wireless client, search for DVW SSID (SlimWiFi_B4F8) in the AP list and click to complete on-line data transmission via wireless connection.
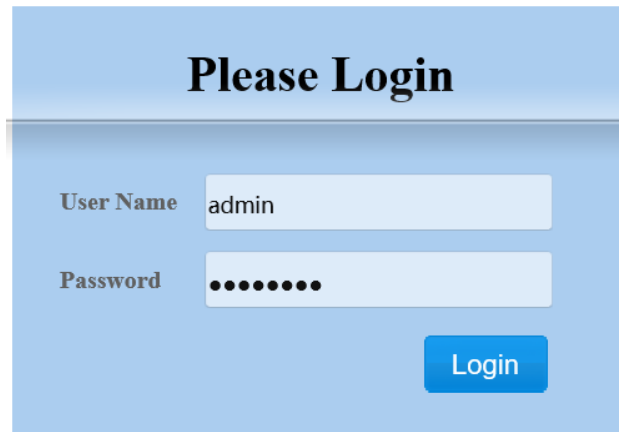
2.3.2 Client mode setup

When users have two DVW devices, one uses AP mode and the other as client mode, both are combined via wireless connection. However, only LAN connection can be used in client mode but not wireless devices or connections.

Configuration procedures

1. Set all IP addresses in the same segment.
2. AP mode: please refer to section 2.3.1.
3. Client mode: Log in the wireless client device page on PC through default IP setting 192.168.1.6. Username and password by default is admin/password.
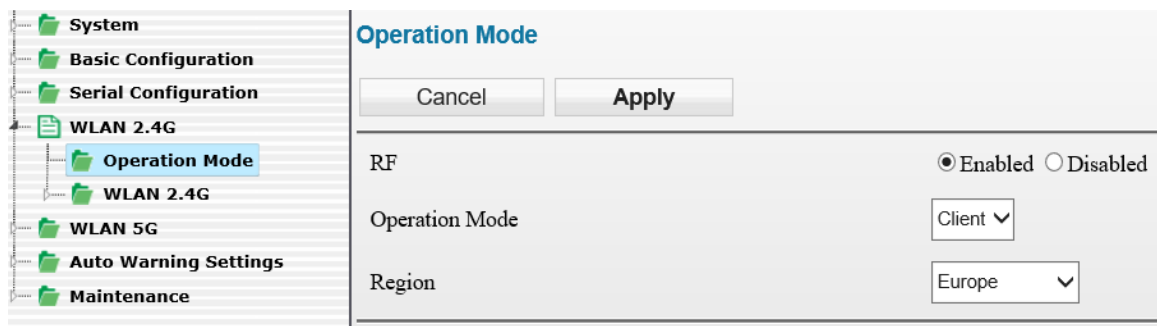
4. From WLAN2.4G listed on the menu, select Operation Mode, choose Client mode and click Apply.
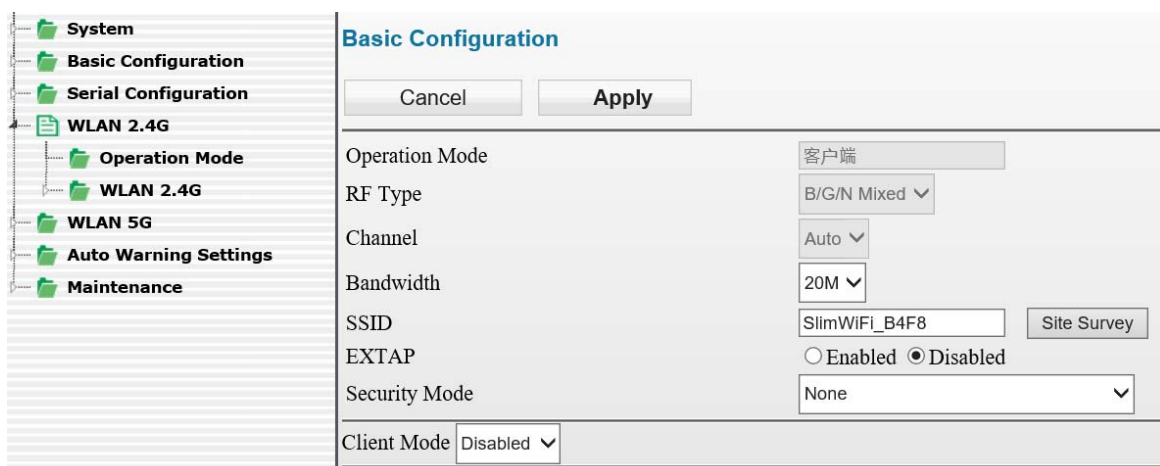
5. Select Basic Configuration and click "Site Survey".

6. Select the configured AP SSID (e.g. SlimWiFi_4456). When SSID cannot be found, please click "Refresh".

7. Type in the password for AP setting and click APPly to complete Client and AP connection.

8. When connection is complete, select Ping under Maintenance. Then, type in destination IP to test the connection. For successful connection, the AP Ping response time appears. (See below)

Chapter 3 Function Guide

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3.1 System

The main display focuses on DVW-W01I2-E1 series present system information and CPU status.

3.1.1 System configuration

Displays information which can be categorized into three parts: System Configuration, Device Info and 802.11 Info.

System Configuration

System Configuration	
Model Name	DVW-W01I2-E1
Device Name	1111111
SN	DVWW100119027777
System Uptime	Thu Aug 15 06:40:57 UTC 2019
Firmware Version	1.02-20190814
Device Info	
MAC Address	00:33:22:33:44:55
IP Address	192.168.1.5
IP Subnet Mask	255.255.255.0
Gateway	
802.11 2.4G Info	
Status	Enabled
Country	Europe
Operation Mode	AP
Channel	1
RF Type	G/N Mixed
SSID	SlimWiFi_4456
802.11 5G Info	
Status	Enabled
Country	Europe
Operation Mode	Client - Connected 00:18:23:32:B4:F9
Channel	36
RF Type	AC/N Mixed
SSID	SlimWiFi_B4F9_5G
Seiral Information	
RS232 RX	0
RS232 TX	0
RS485 RX	0
RS485 TX	0

3.1.2 System CPU status

Displays system's present CPU status which includes running time, total power-on time, CPU usage, total RAM and RAM available. These status values are displayed in grey color and cannot be edited.

System CPU Status

Running Time	81472.10 s
Total Power-on Time	81472.10 s
CPU Usage	16%
Total RAM	235152 KB
RAM Available	92812 KB

3.2 Basic configuration

The basic configuration allows users to perform maintenance and setup for DVW-W01I2-E1 series including system information and network.

3.2.1 System information

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The configuration contains user-defined device name, location, description and contact information. Through this setup, users can easily and clearly identify each DVW-W01I2-E1 used on the network.

System Information

[Cancel]   [Apply]

Device Name	DVW-W01I2-E1
Device Location	Europe
Device Description	Delta Dual-Band WiFi Router
Device Contact Information	

Description	Default value
Device name	
Users can define the device name	DVW-W01I2-E1
Device location	
Users can define the device location	Europe
Device description	
Users can provide detailed device description	Delta Dual-Band WiFi Router
Device contact information	
Users can input contact information of maintenance personnel.	NONE

3.2.2 Network configuration

Network configuration allows users to setup IP, IP address, IP subnet mask, gateway IP and primary DNS. There are several IP modes available for network configuration. Users can select modes from DHCP-Client, Static and DHCP-Server.

DHCP-Client:
Configure the network as DHCP-Client in DVW-W01I2-E1 series:
➢ When DHCP server is added for installment, DVW-W01I2-E1 will use the IP address assigned by DHCP server.
➢ When DHCP server is not added for installment, DVW-W01I2-E1 will auto-configure the IP address to 192.168.1.5 and the IP subnet mask to 255.255.255.0.

Static:
Users can define the device regarding IP, IP address, IP subnet mask, gateway IP and primary DNS.

DHCP-Server:
➢ When DHCP-Server is installed in DVW-W01I2-E1, DHCP-Server and BOOTP-Server are both enabled and exist in this mode. The IP address is auto-configured to 192.168.1.5 and the IP subnet mask to 255.255.255.0. When end user devices and clients request for IP address, DVW-W01I2-E1 will assign a set of dynamic IP address.
➢ The gateway IP address provided by DHCP server address pool is from 192.168.1.100 to 192.168.1.250, users are allowed to configure the starting and ending of the IP address pool.

Network Configuration

Cancel	**Apply**

IP	DHCP-Server ▾
IP Address	192.168.1.5
IP Subnet Mask	255.255.255.0
Gateway IP	
Primary DNS	
Starting IP Address	192 . 168 . 1 . 100
Ending IP Address	192 . 168 . 1 . 250

Description	Default value
IP	
Allows different mode configuration, options include DHCP-Client, Static and DHCP-Server DHCP-Client: DVW-W01I2-E1 will use the IP setting from the DHCP-Server. Static: Manually setup the IP address DHCP-Server: DHCP-Server and BOOTP-Server are both enabled and exist in this mode, the DVW-W01I2-E1 will assign a set of dynamic IP address to the end-user device.	Static
IP address	

Description	Default value
Configure IP address and identify DVW-W01I2-E1 series in TCP/IP network.	192.168.1.5
IP subnet mask	
Set the IP subnet mask of router LAN ports. (Example: 255.0.0.0 is Type A address; 255.255.0.0 is Type B address; 255.255.255.0 is Type C adderss)	255.255.255.0
Gateway IP	
Connect DVW-W01I2-E1 to WAN IP gateway.	
Primary DNS	
Connect DVW-W01I2-E1 to primary DNS in WAN configuration that translates domain names into IP addresses.	1 day
Starting IP address	
The starting IP address provided by DHCP server address pool.	192.168.1.100
Ending IP address	
The ending IP address provided by DHCP server address pool.	192.168.1.250

3.3 Serial configuration

DVW-W01I2-E1 contains MODBUS gateway, serial server and transparent transmission functions. The MODBUS gateway function allows data to be transferred from MODBUS to Ethernet and vice versa. While serial server and serial port transparent transmission modules can provide real-time networking to access serial devices at any time or locations.

3.3.1 MODBUS gateway

MODBUS gateaway allows DVW device to perform format conversion and data transfer. (Convert Modbus RTU/ASCII to Modbus TCP).

3.3.1.1   RS-485 gateway

● **MODBUS ASCII / RTU Slave**

In this mode, the DVW series serve as MODBUS TCP server. When the device receives client's MODBUS request, it is packed into MODBUS ASCII/RTU protocol and corresponding serial ports can be confirmed base on the map ID. Also, MODBUS ASCII/RTU master can forward request to slave through DVW series.

For instance, RS-232 serial port slave ID setting range is 1-20, map ID setting range 1-20; while RS-485 serial port slave ID setting range is 1-20 and map ID setting range is 21-40. When users request reading PLC station number 6 data connected via RS-232 through MODBUS network port, the map ID needs to be configured to 6; when reading PLC station number 6 data connected via RS-485 through MODBUS network port, the map ID needs to be configured to 26.

> **Attention**
> For RS-232 and RS-485, the configured map ID range cannot have repeated regions, because the system forwards the request to serial ports base on the network port of the map ID in the request data.

● **MODBUS ASCII / RTU Master**

In this mode, the DVW series serve as MODBUS ASCII/RTU Slave. When the device receives master's MODBUS request, it is packed into MODBUS TCP protocol base on the station ID and the corresponding relationship from the forward table. Also, MODBUS TCP client can forward request to the server through DVW series.

RS485 MODBUS Gateway

Cancel	Apply

3-7

MODBUS Gateway Function	RS485 Configuration	Others
○ MODBUS ASCII Slave	Data Bit — 7 ▾	Station ID — 247 (1~247)
○ MODBUS RTU Slave	Parity Bit — None ▾	TCP Keepalive Time — 30 (0~32767 s)
◉ MODBUS ASCII Master		Response Timeout — 3000 (0~65535 ms)
○ MODBUS RTU Master	Stop Bit — 1 ▾	Retry — 3 (0~10)
○ Disabled	Baud Rate — 9600 ▾	Modbus Exception ◉ Enabled ○ Dropped

MODBUS Gateway Function	RS485 Configuration	Others
○ MODBUS ASCII Slave	Data Bit — 8 ▾	Station ID — 247 (1~247)
○ MODBUS RTU Slave	Parity Bit — None ▾	TCP Keepalive Time — 30 (0~32767 s)
○ MODBUS ASCII Master		Response Timeout — 3000 (0~65535 ms)
◉ MODBUS RTU Master	Stop Bit — 1 ▾	Retry — 3 (0~10)
○ Disabled	Baud Rate — 9600 ▾	Modbus Exception ◉ Enabled ○ Dropped

3

Forward Table

No.	Enabled	Station ID	Map destination station ID	Destination IP	Destination Port
1	☐				502
2	☐				502
3	☐				502
4	☐				502
5	☐				502
6	☐				502
7	☐				502
8	☐				502
9	☐				502
10	☐				502
11	☐				502
12	☐				502
13	☐				502

Description	Default value
Operation mode	
Select the roles and operating agreement for present network and serial ports via following options: 1. **MODBUS ASCII Slave**: The network port for DVW device operates in MODBUS TCP Server mode, the RS-485 serial port operates in MODBUS ASCII master mode. 2. **MODBUS RTU Slave**: The network port for DVW device operates in MODBUS TCP Server mode, the RS-485 serial port operates in MODBUS RTU master mode. 3. **MODBUS ASCII Master**: The network port for DVW device operates in MODBUS TCP client mode, the RS-485 serial port operates in MODBUS ASCII slave mode. 4. **MODBUS RTU Master**: The network port for DVW device operates in MODBUS TCP client mode, the RS-485 serial port operates in MODBUS RTU slave mode.	Close

	Data bit	
Configuring RS485	Displays serial port data bit; the value is fixed to 7 in ASCII protocol, the value is fixed to 8 in RTU protocol.	N/A
	Parity bit	
	Configuring parity for serial port. Optional values include "none", "odd" or "even".	None
	Stop bit	

	Description	Default value
	Configuring stop bit for serial port. Optional values include 1 or 2.	1
	Baud rate	
	Configuring baud rate for serial port. Optional values include 2400, 4800, 9600, 19200, 38400, 57600, 115200.	9600
Others	**Station ID**	
	Displays the station ID of the device. The station ID of RS-485 is 247.	N/A
	TCP keepalive time	
	Configure DVW device in idle TCP connection to setup TCP keep-alive time. When the time is "0", the connection will stay open.	30
	Response timeout	
	DVW device waits for serial port response timeout.	3000
	Retry	
	Setup the number of retry when response time reaches timeout.	3
	MODBUS exception	
	When device reaches response timeout, exception code may be sent to client.	Enabled
Slave mode	**Mapping slave ID**	
	Setup slave ID mapping table. -- Slave ID range: Input actual station ID range. -- Map ID range: Input virtual ID range that can be identified by DVW device. Since MODBUS TCP does not contain actual serial port messages, therefore, we use different map ID section to determine each port. Requests need to be set within the map ID range in order to forward to the corresponding serial ports, the station ID will also be converted.	
Master mode- Forward table	**Enabled**	
	Set forward message to enable or not enable.	None
	Station ID	
	Assign the station ID received from the serial port.	None
	Map destination station ID	
	Set the corresponding destination station ID.	None
	Destination IP	
	Set the IP address of MODBUS TCP server.	None
	Destination TCP port	
	Set the interface for MODBUS TCP server.	502

3.3.1.2 RS-232 gateway

● **MODBUS ASCII / RTU Slave**

In this mode, the DVW series serve as MODBUS TCP server. When the device receives client's MODBUS request, it is packed into MODBUS ASCII/RTU protocol and corresponding serial ports can be confirmed base on the map ID. Also, MODBUS ASCII/RTU master can forward request to slave through DVW series.

For instance, RS-232 serial port slave ID setting range is 1-20, map ID setting range 1-20; while RS-485 serial port slave ID setting range is 1-20 and map ID setting range is 21-40. When users request reading PLC station number 6 data connected via RS-232 through MODBUS network, the map ID needs to be configured to 6; when reading PLC station number 6 data connected via RS-485 through MODBUS network, the map ID needs to be configured to 26.

> **⚠ Attention**
> For RS-232 and RS-485, the configured map ID range cannot have repeated regions, because the system forwards the request to serial ports base on the network port of the map ID in the request data.

● **MODBUS ASCII / RTU Master**

In this mode, the DVW series serve as MODBUS ASCII/RTU Slave. When the device receives master's MODBUS request, it is packed into MODBUS TCP protocol base on the station ID and the corresponding relationship from the forward table. Also, MODBUS TCP client can forward request to the server through DVW series.

RS232 MODBUS Gateway

Cancel	Apply

MODBUS Gateway Function

○ MODBUS ASCII Slave
○ MODBUS RTU Slave
⦿ MODBUS ASCII Master
○ MODBUS RTU Master
○ Disabled

RS232 Configuration

Data Bit	7 ▾
Parity Bit	None ▾
Stop Bit	1 ▾
Baud Rate	9600 ▾

Others

Station ID	246	(1~247)
TCP Keepalive Time	30	(0~32767 s)
Response Timeout	3000	(0~65535 ms)
Retry	3	(0~10)
Modbus Exception	⦿ Enabled ○ Dropped	

MODBUS Gateway Function

○ MODBUS ASCII Slave
○ MODBUS RTU Slave
○ MODBUS ASCII Master
⦿ MODBUS RTU Master
○ Disabled

RS232 Configuration

Data Bit	8 ▾
Parity Bit	None ▾
Stop Bit	1 ▾
Baud Rate	9600 ▾

Others

Station ID	246	(1~247)
TCP Keepalive Time	30	(0~32767 s)
Response Timeout	3000	(0~65535 ms)
Retry	3	(0~10)
Modbus Exception	⦿ Enabled ○ Dropped	

Forward Table

No.	Enabled	Station ID	Map destination station ID	Destination IP	Destination Port
1	☐				502
2	☐				502
3	☐				502
4	☐				502
5	☐				502
6	☐				502
7	☐				502

Description	Default value
Operation mode	
Select the roles and operating agreement for present network and serial ports via following options: 1. **MODBUS ASCII Slave**: The network port for DVW device operates in MODBUS TCP Server mode, the RS-485 serial port operates in MODBUS ASCII master mode.	Close

Description	Default value
2. **MODBUS RTU Slave**: The network port for DVW device operates in MODBUS TCP Server mode, the RS-485 serial port operates in MODBUS RTU master mode.	
3. **MODBUS ASCII Master**: The network port for DVW device operates in MODBUS TCP client mode, the RS-485 serial port operates in MODBUS ASCII slave mode.	
4. **MODBUS RTU Master**: The network port for DVW device operates in MODBUS TCP client mode, the RS-485 serial port operates in MODBUS RTU slave mode.	

			Default value
Configuring RS485	**Data bit**		
	Displays serial port data bit; the value is fixed to 7 in ASCII protocol, the value is fixed to 8 in RTU protocol.		N/A
	Parity bit		
	Set parity bits for serial ports. Optional values include "none", "odd" or "even".		None
	Stop bit		
	Set stop bits for serial ports. Optional values include 1 or 2.		1
	Baud rate		
	Set baud rates for serial ports. Optional values include 2400, 4800, 9600, 19200, 38400, 57600, 115200.		9600
Others	**Station ID**		
	Displays the station ID of the device. The station ID of RS-485 is 247.		N/A
	TCP keepalive time		
	Configure DVW device in idle TCP connection to setup TCP keep-alive time. When the time is "0", the connection will stay open.		30
	Response timeout		
	DVW device waits for serial port response timeout.		3000
	Retry		
	Set the number of retry when response time reaches timeout.		3
	MODBUS exception		
	When device reaches response timeout, exception code may be sent to client.		Enabled
Slave mode	**Mapping slave ID**		
	Set slave ID mapping table. -- Slave ID range: Input actual station ID range. -- Map ID range: Input virtual ID range that can be identified by DVW device. Since MODBUS TCP does not contain actual serial port messages, therefore, we use different map ID section to determine each port. Requests need to be set within the map ID range in order to forward to the corresponding serial ports, the station ID will also be converted.		
Master mode-Forward table	**Enabled**		
	Set forward message to enable or not enable.		None
	Station ID		
	Assign the station ID received from the serial port.		None
	Map destination station ID		
	Set the corresponding destination station ID.		None
	Destination IP		
	Set the IP address of MODBUS TCP server.		None
	Destination TCP port		
	Set the interface for MODBUS TCP server.		502

3.3.2 Serial server

The function allows DVW series to connect with the assigned server, while also pack serial port data into TCP/UDP and send it to the server for TCP or UDP client.

3.3.2.1 RS-485

In this mode, the DVW series is used as client's serial server of communication via TCP/UDP protocol which can transmit RS-485 data to the serial server.

RS485 Server

Cancel	Apply

Mode	TCP Client Mode ▾
Baud Rate	9600 ▾
Data Bit	8 ▾
Parity Bit	None ▾
Stop Bit	1 ▾
TCP Keepalive Time	7 (0-99min)
Destination IP 1	Port
Destination IP 2	Port
Destination IP 3	Port
Destination IP 4	Port
Max Payload Length	0 (0-1024)
Minimal Packet Interval	0 (0-65535 ms)

RS485 Server

Cancel	Apply

Mode	UDP Mode ▾
Baud Rate	9600 ▾
Data Bit	8 ▾
Parity Bit	None ▾
Stop Bit	1 ▾

	Begin Address	End Address	Port
Destination IP 1			
Destination IP 2			
Destination IP 3			
Destination IP 4			

Source Port	15000 (1025-65535)
Max Payload Length	0 (0-1024)
Minimal Packet Interval	0 (0-65535 ms)

Description		Default value
Operation mode		
Select the current operating serial port default to "Close", other options include: **1. TCP mode:** serve as client's serial server of communication via TCP protocol. **2. UDP mode:** serve as client's serial server of communication via UDP protocol.		Close
Serial communication parameters	**Baud rate**	
	Set baud rates for serial ports. Optional values include 2400, 4800, 9600, 19200, 38400, 57600, 115200.	9600
	Data bit	
	Set data bits for serial ports. Optional values include 7 or 8.	8
	Parity bit	
	Set parity bits for serial ports. Optional values include "none", "odd" or "even".	None
	Stop bit	
	Set stop bits for serial ports. Optional values include 1 or 2.	1
TCP mode	**TCP keepalive time**	
	Configure idle time of TCP to auto-close TCP connection. Optional values from 0 to 99 minutes. 0: TCP connection will not be closed due to idle (always open)	7

Description	Default value
1~99: When idle time reaches setting value, TCP connection is closed.	
Destination IP and port	
Set connected serial server IP range and port, the IPand port cannot have the same configuration. Max. 4 serial servers for simultaneous connection.	None
Max. payload length	
Set the waiting length of cumulative data for data packet transmission, the range is 0 to 1024 byte; set 0 for immediate data transmission.	0
Minimal packet interval	
Set the waiting time to forcing data packet transmission, the range is 0 to 65535 ms; set 0 to permanently avoid forcing of transmission; For data transmission, set range is between 1 to 65535 when the time reaches setting value or cumulative data length reaches the setting length.	0
UDP mode — **Destination IP and port**	
Set the connected serial server IP and ports. Maximum of 4 serial servers for simultaneous connection in UDP. Each server IP range supports up to 99 IP address, meaning the max. number of IP between starting and ending IP is 99. The IP and ports cannot have the same configuration.	None
Source port	
Set monitoring source port.	15000
Max. payload length	
Set the waiting length of cumulative data for data packet transmission, the range is 0 to 1024 byte; set 0 for immediate data transmission.	0
Minimal packet interval	
Set the waiting time to forcing data packet transmission, the range is 0 to 65535 ms; set 0 to permanently avoid forcing of transmission; For data transmission, set range is between 1 to 65535 when the time reaches setting value or cumulative data length reaches the setting length.	0

3.3.2.2   RS-232

In this mode, the DVW series is used as client's serial server of communication via TCP/UDP protocol which can transmit RS-232 data to the serial server.

RS232 Server

Cancel	Apply

Mode	TCP Client Mode ▾
Baud Rate	9600 ▾
Data Bit	8 ▾
Parity Bit	None ▾
Stop Bit	1 ▾
Flow Control	None ▾
TCP Keepalive Time	7 (0-99min)
Destination IP 1	Port
Destination IP 2	Port
Destination IP 3	Port
Destination IP 4	Port
Max Payload Length	0 (0-1024)
Minimal Packet Interval	0 (0-65535 ms)

RS232 Server

Cancel	Apply

Mode	UDP Mode ▾
Baud Rate	9600 ▾
Data Bit	8 ▾
Parity Bit	None ▾
Stop Bit	1 ▾
Flow Control	None ▾

	Begin Address	End Address	Port
Destination IP 1			
Destination IP 2			
Destination IP 3			
Destination IP 4			

Source Port	16000	(1025-65535)
Max Payload Length	0	(0-1024)
Minimal Packet Interval	0	(0-65535 ms)

Description		Default value
Operation mode		
Select the present operating serial port default to "Close", other options include: **1. TCP mode:** serve as client's serial server of communication via TCP protocol. **2. UDP mode:** serve as client's serial server of communication via UDP protocol.		Close
Serial communication parameters	**Baud rate**	
	Set baud rates for serial ports. Selected values include 2400, 4800, 9600, 19200, 38400, 57600, 115200.	9600
	Data bit	
	Set data bits for serial ports. Optional values include 7 or 8.	8
	Parity bit	
	Set parity bits for serial ports. Optional values include "none", "odd" or "even".	None
	Stop bit	
	Set stop bits for serial ports. Optional values include 1 or 2.	1

Description		Default value
	Flow Control	
	Set types of flow control. Optional values include "XON/XOFF", "RTS/CTS".	None
TCP mode	**TCP keepalive time**	
	Configure idle time of TCP to auto-close TCP connection. Optional values from 0 to 99 minutes. 0: TCP connection will not be closed due to idle (always open) 1~99: When idle time reaches setting value, TCP connection is closed.	7
	Destination IP and port	
	Set connected serial server IP range and port, the IPand port cannot have the same configuration. Max. 4 serial servers for simultaneous connection.	None
	Max. payload length	
	Set the waiting length of cumulative data for data packet transmission, the range is 0 to 1024 byte; set 0 for immediate data transmission.	0
	Minimal packet interval	
	Set the waiting time to forcing data packet transmission, the range is 0 to 65535 ms; set 0 to permanently avoid forcing of transmission; For data transmission, set range is between 1 to 65535 when the time reaches setting value or cumulative data length reaches the setting length.	0
UDP mode	**Destination IP and port**	
	Set the connected serial server IP and ports. Maximum of 4 serial servers for simultaneous connection in UDP. Each server IP range supports up to 99 IP address, meaning the max. number of IP between starting and ending IP is 99. The IP and ports cannot have the same configuration.	None
	Source port	
	Set monitoring source port.	16000
	Max. payload length	
	Set the waiting length of cumulative data for data packet transmission, the range is 0 to 1024 byte; set 0 for immediate data transmission.	0
	Minimal packet interval	
	Set the waiting time to forcing data packet transmission, the range is 0 to 65535 ms; set 0 to permanently avoid forcing of transmission; For data transmission, set range is between 1 to 65535 when the time reaches setting value or cumulative data length reaches the setting length.	0

3.3.3 Transparent server

In this mode, the DVW device serves as TCP servers that receives data packet from assigned ports and transmits to RS-485 or RS-232 serial ports without any processing.

3.3.3.1 RS-485 transparent server

RS485 Transparent Server

Cancel	Apply

Mode	TCP Server ▼
TCP Port	12580 (1025~65535)
Baud Rate	9600 ▼
Data Bit	8 ▼
Parity Bit	None ▼
Stop Bit	1 ▼

3

Description	Default value
Operation mode	
Select present operating serial port mode from the following options: 1. **TCP server:** as TCP server, create connection once receive client host request then client host and DVW device can start data transmission. 2. **Close:** close transparent server function.	Close
TCP port	
Set the port for TCP Server monitoring data packet.	12580
Baud rate	
Set baud rates for serial ports. Optional values include 2400, 4800, 9600, 19200, 38400, 57600, 115200.	9600
Data bit	
Set data bits for serial ports. Optional values include 7 or 8.	8
Parity bit	
Set parity bits for serial ports. Optional values include "nonel", "odd"or "even".	None
Stop bit	
Set stop bits for serial ports. Optional values include 1or 2.	1

3.3.3.2   RS-232 transparent server

RS232 Transparent Server

Cancel	Apply

Mode	TCP Server ▾
TCP Port	12581 (1025~65535)
Baud Rate	9600 ▾
Data Bit	8 ▾
Parity Bit	None ▾
Stop Bit	1 ▾
Flow Control	None ▾

Description	Default value
Operation mode	
Select present operating serial port mode from the following options: 1. **TCP server:** as TCP server, create connection once receive client host request then client host and DVW device can start data transmission. 2. **Close:** close transparent server function.	Close
TCP port	
Set the port for TCP Server monitoring data packet.	12581
Baud rate	
Set baud rates for serial ports. Optional values include 2400, 4800, 9600, 19200, 38400, 57600, 115200.	9600
Data bit	
Set data bits for serial ports. Optional values include 7 or 8.	8
Parity bit	
Set parity bits for serial ports. Optional values include "None", "odd"or "even".	None
Stop bit	
Set stop bits for serial ports. Optional values include 1or 2.	1
Flow control	
Set types of flow control. Optional values include "XON/XOFF", "RTS/CTS".	None

3.3.4 MODBUS cache table

Since the transmission speed of Ethernet interface is faster than that of serial ports, therefore, when Ethernet devices send requests to serial devices, more time is required for waiting serial port data. MODBUS cache table provides PLCs with relevant configuration information (e.g. station ID, MODBUS IP). The DVW device can send request to receive serial port device data based on prior MODBUS cache table. When Ethernet devices requests for transmission to DVW device, DVW can immediately respond to data. Because DVW has already receive the data in advance, so it does not need to transfer the requests to serial devices and the function can also be used in MODBUS ASCII/RTU slave mode.

3.3.4.1 RS-485 cache table

On the left part of the cache table page displays information regarding configuration; click **Online** and data read based on configuration messages are shown on the right.

RS485 Cache Table

Explanation	Default value
Enabled	
Set MODBUS cache function to enable or not enable.	Not checked
Cycle time	
Set the time for sending requests to serial devices.	1000
Available size	
Displays the available data size for monitoing.	
Timeout calibration	
Calibrate the response timeout. When users click **Detect**, the DVW device will use the MODBUS cache table for communication.	

Explanation	Default value
Add	
Add a configuration message (up to 100 messages).	
Edit	
Edit selected configuration messages.	
Delete	
Delete assigned configuration messages.	
Online	
When clicked, real-time values gathered for relevant addresses are shown on the right section of the page.	

Word device	
Item	**Explanation**
Station address	The device station ID.
MODBUS (Hex)	MODBUS in hexadecimal values
MODBUS (Dec)	MODBUS in decimal values
Present value	MODBUS present value.
Format	Hexadecimal or decimal format.

Coil device	
Item	**Explanation**
Station address	The device station ID.
MODBUS (Hex)	MODBUS in hexadecimal values
MODBUS (Dec)	MODBUS in decimal values
Status	Values of MODBUS.

To add/ edit a configuration (see below):

MODBUS Cache Function

| Cancel | Add |

Station Address   [　　　] (1~247)
MODBUS (Hex)   [　　　　　　]
MODBUS (Dec)   [　　　　　　]
Count   [　　　] (1~100)
☐ Online

Explanation	Default value
Station address	
The device station ID.	None
MODBUS (Hex)	
MODBUS in hexadecimal values.	None
MODBUS (Dec)	
MODBUS in decimal values	None
Count	
Starting from MODBUS address and connecting to monitored data size.	None
Format	

Explanation	Default value
Set format to Hex, Dec, Bin (hexadecimal, decimal, binary). When add or edit coil device types, format is not required.	Hex
Online	
Set or not to set data display on MODBUS monitoring table.	Not checked

3.3.4.2 RS-232 cache table

On the left part of the cache table page displays information regarding configuration; click **Online** and data read based on configuration messages are shown on the right.

Explanation	Default value
Enabled	
Set MODBUS cache function to enable or not enable.	Not checked
Cycle time	
Set the time for sending requests to serial devices.	1000
Available size	

Explanation	Default value
Displays the available data size for monitoing.	
Timeout calibration	
Calibrate the response timeout. When users click **Detect**, the DVW device will use the MODBUS cache table for communication.	
Add	
Add a configuration message (up to 100 messages).	None
Edit	
Edit selected configuration messages.	None
Delete	
Delete assigned configuration messages.	None
Online	
When clicked, real-time values gathered for relevant addresses are shown on the right section of the page.	None

Word device	
Item	**Explanation**
Station address	The device station ID.
MODBUS (Hex)	MODBUS in hexadecimal values
MODBUS (Dec)	MODBUS in decimal values
Present value	MODBUS present value.
Format	Hexadecimal or decimal format.

Coil device	
Item	**Explanation**
Station address	The device station ID.
MODBUS (Hex)	MODBUS in hexadecimal values
MODBUS (Dec)	MODBUS in decimal values
Status	Values of MODBUS.

To add/ edit a configuration (see below):

MODBUS Cache Function

Cancel   Add

Station Address   (1~247)
MODBUS (Hex)
MODBUS (Dec)
Count   (1~100)
☐ Online

Explanation	Default value
Station address	
The device station ID.	None
MODBUS (Hex)	
MODBUS in hexadecimal values.	None
MODBUS (Dec)	
MODBUS in decimal values	None
Count	

Explanation	Default value
Starting from MODBUS address and connecting to monitored data size.	None
Format	
Set format to Hex, Dec, Bin (hexadecimal, decimal, binary). When add or edit coil device types, format is not required.	Hex
Online	
Set or not to set data display on MODBUS monitoring table.	Not checked

3.4 WLAN management - 2.4G

The WLAN management focuses on configuring 2.4G WIFI operation mode and its corresponding parameters. Please refer to the manual for accurate configuration before setup.

3.4.1 Operation mode

DVW-W01I2-E1 provides 2 different WIFI operation modes including AP and client mode that allow users to easily configure wireless network environment. Please first set DVW-W01I2-E1 operation mode, then configure WLAN.

Operation Mode

| Cancel | Apply |

RF	● Enabled ○ Disabled
Operation Mode	AP ▾
Region	U.S

Description	Default value
RF	
To enable or disable wireless function.	Enabled
Operation mode	
Set wireless operation mode: ● AP mode: used as an intermediate point for wired and wireless devices connection, data transmission and more. ● Client mode: DVW-W02W2-E2 operating in client mode can perform wireless data transmission via AP.	AP
Region	
Show the country or region for the device (display only, can't revise by user)	U.S

> ⚠️ **Attention**
> 2.4G and 5G WIFI cannot operate in client mode simultaneously.

3.4.2 WLAN 2.4G

The setting page focuses on the basic and adanced configuration of 2.4G network in AP or client mode.

3.4.2.1   Basic configuration

The setting corresponds to operation mode. Different operation mode will have different basic configurations.

- **AP mode:**

In AP mode, users can add or edit WLAN basic configurations. For example, RF type, channel, SSID, SSID broadcast and security mode. Click **Apply** once configurations are completed.

Description	Deault value
Operation mode	
Display present operation mode	
RF type	
Select from the following types: ● G: only supports IEEE 802.11g standard ● B/G Mixed: supports mixed mode IEEE 802.11b/g ● G/N Mixed: supports mixed mode IEEE 802.11g/n, but does not support 802.11b ● B/G/N Mixed: supports mixed mode IEEE 802.11b/g/n ● N Only: only supports 2.4GHz IEEE 802.11n standard	G/N Mixed
Channel	
Set AP operating channels from the following options: ● Auto ● 1-11	Auto
Bandwidth	
Set WIFI 2.4G with the following bandwidth options: ● 20MHz ● 40MHz 20MHz penetrability is better and contains long transmission distanace but is slower in speed.	20MHz
SSID	
Type the wireless device name that consists of 1-32 characters	"SlimWiFi_"+"MAC last 4 digits"
SSID broadcast	
Set enable or disable SSID broadcast	Enabled
Maximum number of client connections	
Set the maximum number of clients allowed to connect to this AP.	20

Description	Deault value
WMM	
After selecting this option, multimedia data is given priority during data transmission.	Check
Client isolation	
After selecting this option, clients connected to this AP cannot access each other.	Uncheck
Security mode	
Set AP operation security mode from the following options: ● None ● WPA2-PSK[AES] ● WPA-PSK[TKIP]+ WPA2-PSK[AES] For more security mode information, refer to section 3.4.2.2.	None

● **Client mode**

In client mode, click **Site Survey** and the existed network SSID will appear, then choose the matching SSID. For example, the matching SSID is configured to WEP or WPA/WPA2-PSK. Please enter the correct password then click **Apply** to connect with AP.

3

Basic Configuration

Cancel	Apply

Operation Mode	Client
RF Type	AC/N Mixed ▼
Channel	36 ▼
Bandwidth	80M ▼
SSID	SlimWiFi_B4F9_5G Site Survey
EXTAP	○ Enabled ● Disabled
Security Mode	None ▼

Client Mode Disabled ▼

Refresh	Back

No.	SSID	MAC Address	Channel	Security Mode	Signal	RSSI(dBm)
1	SlimWiFi_B4F9_5G	00:18:23:32:B4:F9	36	OPEN	94/94	-42
2	Delta-IoT	6C:FA:89:08:48:8F	56	OPEN	90/94	-59
3	Delta-Guest	6C:FA:89:08:48:8D	56	OPEN	90/94	-59
4	ise-office	6C:FA:89:08:48:8C	56	WPA/WPA2-802.1X	90/94	-59
5	Delta-Office	6C:FA:89:08:48:8E	56	WPA2-802.1X	90/94	-59
6	GGG	00:18:23:12:C5:8A	48	WPA2-PSK	89/94	-60
7	Delta-IoT	CC:46:D6:7E:9D:4F	64	OPEN	37/94	-80
8	Delta-Guest	CC:46:D6:7E:9D:4D	64	OPEN	37/94	-80
9	Delta-Office	CC:46:D6:7E:9D:4E	64	WPA2-802.1X	37/94	-80
10	ise-office	50:2F:A8:E1:83:EC	64	WPA/WPA2-802.1X	34/94	-81
11	Delta-Guest	50:2F:A8:E1:83:ED	64	OPEN	31/94	-82
12	Delta-IoT	50:2F:A8:E1:83:EF	64	OPEN	27/94	-83
13	Delta-Office	50:2F:A8:E1:83:EE	64	WPA2-802.1X	27/94	-83
14	Delta-Guest	F0:29:29:27:C2:5D	64	OPEN	21/94	-85
15	Delta-IoT	F0:29:29:27:C2:5F	64	OPEN	21/94	-85
16	Delta-Office	F0:29:29:27:C2:5E	64	WPA2-802.1X	18/94	-86
17	ise-office	F0:29:29:27:C2:5C	64	WPA/WPA2-802.1X	18/94	-86

Description	Default value
EXTAP	
● Enabled: When EXTAP is enabled, client compatibility increases along with more compatible AP. ● Disabled: When EXTAP is disabled, recommend using the AP of DVW-W01I2-E1 for enhanced connection.	Disabled
Client mode	
● Disabled: Operation under normal WiFi client mode. ● Roaming: client support fast roaming protocol of personal level.	Disabled

> ⚠ **Attention**
> In client mode, RF type and channel in gray background cannot be configured; while in AP mode, simultaneous configuration for RF type, channel and security mode begins once matching is successful.

Start roaming mode, the DVW devices support fast roaming protocol of personal level and can fulfill the need for fast switching APs in maintaining the operation under wireless application environment.

Client Mode [Roaming ▾]

Scan Policy :	Signal Change Scanning ▾
Scan channels(The channels with * are DFS channels)	36 ▾
	Not scanning ▾
	Not scanning ▾
Scan Time(10~200ms)	50
Scan Period(1000~300000ms)	1000
Scan Threshold(-95~0 dBm)	-50
Roaming Signal Difference(5~20 dBm)	5
Roaming Threshold(-95~0 dBm)	-55
Roaming Detect Period(50~300000ms)	1000

Notes: Client will begin scanning when the signal of current AP is lower than "Scan Threshold", when it get new AP and the signal of current AP is lower than "Roaming Threshold", roaming start.

Description	Default value
Client Mode	
To enable or not enable fast roaming function.	Disabled
Scan channel	
To set fast roaming, DVW scans the assigned AP channels; when there are more channels that need to be determined, roaming speed is also more easily affected. ● Below are options in the first drop-down list: -- Auto: Scan all the channels and select an option without selecting the second and third drop-down lists. --The present AP channels in connection with DVW. ● Below are options in the second and third drop-down list: -- Not scanning: Scanning channels only from the previous drop-down list. -- Channel value: Select desired channels for scanning.	Present AP channel
Scan time	
When DVW scans for available APs, set the scan time for each	50

Description	Default value
channel.Setting range: 10~200ms.	
Scan period	
Set the AP interval period for DVW scan. Setting range: 1000~300000ms。	1000
Scan threshold	
Set the AP threshold once DVW is triggered for scanning, but only when the AP's transmission power connected to the present DVW is lower than the threshold value, the DVW will scan the available AP based on the scan period. Setting range: -95~0 dBm.	-50
Roaming signal difference	
Set DVW roaming signal difference which is a condition to execute DVW switching action. When the signal difference between present AP's transmission power in connection with DVW and the new AP is larger than the setting value, the DVW will switch to the new AP. Setting range: 5~20 dBm.	5
Roaming threshold	
Set DVW roaming threshold which is a condition for DVW to execute switch action.when the present AP's transmission power in connection with DVW is lower than the setting value, the DVW can switch to new AP. Setting range: -95~0 dBm.	-55
Roaming detect period	
Set DVW to detect whether the interval period of the two roaming conditions are satisfied; When both conditions are satisfied, the DVW can execute switching. Setting range: 50~300000ms.	50

3.4.2.2　Security mode

The device provides 5 standard security modes including none, WEP, WPA-PSK[TKIP], WPA2-PSK[AES] and WPA-PSK[TKIP] + WPA2-PSK[AES]. Users can set the security mode base on your own needs.

● **Security mode: None**

No security mode. When selecting this option, any client can connect to DVW-W02W2-E2 device without security mode.

● **Security mode: WPA/WPA2 Personal**

The WIFI alliance developed Wi-Fi Protected Access (WPA) and Wi-Fi Protected Access 2 (WPA2) to protect two securtiy protocols and security identifications in wireless network. The WPA/WPA2-Personal or so-called WPA / WPA-PSK (Pre-Shared Key) has two encryption methods including TKIP (Temporal Key Integrity Protocol) and AES (Advance Encryption System). TKIP can automatically create a new network password every few minutes which can prevent attackers from continuously collecting sufficient data in accessing your network. AES represents Advance Encryption System that encrypts 128-bit, 192-bit or 256-bit block and is considered the safest option for WIFI encryption.

Security Options (WPA2-PSK)

Password _____ (8-63 characters or 64 hex digits)

Description	Default value
Security options	
● WPA2-PSK[AES]: Enable AES encryption method. ● WPA-PSK[TKIP]+ WPA2-PSK[AES]: Supports WPA-PSK and WPA2-PSK. Broadcast packets uses TKIP. For point-to-point transmission, WPA-PSK client uses TKIP and WPA2-PSK client uses AES.	None
Password	

Description	Default value
Password phrase requires 8 to 63 ASCII characters or 64 hexadecimal digit.	None

3.4.2.3 Advanced configuration

The configuration provides users to execute advanced parameter settings based on different on-site wireless environment.

Description	Default value
Transmission power	
Set the transmission power. The transmission power gets stronger as setting value becomes higher and the influence range widens. Range option 1 to 20.	20
Beacon interval	
The beacon interval of a wireless broadcast, the unit is ms. When roaming is required, users can adjust to lower value for faster connection; adjust to higher value for power saving. Input range: 40-1000.	150

3.5 WLAN management - 5G

The WLAN management focuses on configuring 5G WIFI operation mode and its corresponding parameters. Please refer to the manual for accurate configuration before setup.

3.5.1 Operation mode

DVW-W01I2-E1 provides 2 different WIFI operation modes including AP and client mode that allow users to easily configure wireless network environment. Please first set DVW-W01I2-E1 operation mode, then configure WLAN.

Description	Default value
RF	
To enable or disable wireless function.	Enabled
Operation mode	
Set wireless operation mode: ● AP mode: used as an intermediate point for wired and wireless devices connection, data transmission and more. ● Client mode: DVW-W02W2-E2 operating in client mode can perform wireless data transmission via AP.	AP
Region	
Show the country or region for the device (display only, can't revise by user)	U.S

> ⚠ **Attention**
> 2.4G and 5G WIFI cannot operate in client mode simultaneously.

3.5.2 WLAN 5G

The setting page focuses on the basic and adanced configuration of 5G network in AP or client mode.

3.5.2.1 Basic configuration

The setting corresponds to operation mode. Different operation mode will have different basic configurations.

● **AP mode:**

In AP mode, users can add or edit WLAN basic configurations. For example, RF type, channel, SSID, SSID broadcast and security mode. Click **Apply** once configurations are completed.

Basic Configuration

Cancel	Apply

Operation Mode	AP
RF Type	AC/N Mixed ✔
Channel	36 ✔
Bandwidth	80M ✔
SSID	SlimWiFi_B4F9_5G
SSID Broadcast	◉ Enabled ○ Disabled
Security Mode	None ✔

Description	Default value
Operation mode	
Display present operation mode	
RF type	
Select from the following types: ● AC/N Mixed: only supports mixed mode IEEE 802.11ac/n ● A/N Mixed: supports mixed mode IEEE 802.11a/n ● N Only: only supports 5GHz IEEE 802.11n standard ● A: only supports 5GHz IEEE 802.11n standard	AC/N Mixed
Channel	
Set AP operating channels from the following options: ● 36/40/44/48/52/60/64/100/104/108/112/116/120/124/128/132/136/140	36
Bandwidth	
Set WIFI 5G with the following bandwidth options: ● 20MHz ● 40MHz ● 80MHz 20MHz penetrability is better and contains long transmission distanace but is slower in speed.	80MHz
SSID	
Type the wireless device name that consists of 1-32 characters	"SlimWiFi_"+"MAC last 4 digits"+"5G"
SSID broadcast	
Set enable or disable SSID broadcast	Enabled
Security mode	
Set AP operation security mode from the following options: ● None ● WPA2-PSK[AES] ● WPA-PSK[TKIP]+ WPA2-PSK[AES] For more security mode information, refer to section 3.4.2.2	None

● **Client mode**

In client mode, click **Site Survey** and the existed network SSID will appear, then choose the matching SSID. For example, the matching SSID is configured to WEP or WPA/WPA2-PSK. Please enter the correct password then click **Apply** to connect with AP.

Basic Configuration

Cancel	Apply

Operation Mode	Client
RF Type	AC/N Mixed ∨
Channel	36 ∨
Bandwidth	80M ∨
SSID	SlimWiFi_B4F9_5G Site Survey
EXTAP	○ Enabled ● Disabled
Security Mode	WPA2-PSK[AES] ∨

Security Options (WPA2-PSK)

Password	_____ (8-63 characters or 64 hex digits)

Client Mode | Disabled ∨

Description	Default value
EXTAP	
● Enabled: When EXTAP is enabled, client compatibility increases along with more compatible AP. ● Disabled: When EXTAP is disabled, recommend using the AP of DVW-W01I2-E1 for enhanced connection.	Disabled
Client mode	
● Disabled: Operation under normal WiFi client mode. ● Roaming: client support fast roaming protocol of personal level	Disabled

> ⚠ **Attention**
> In client mode, RF type and channel in gray background cannot be configured; while in AP mode, simultaneous configuration for RF type, channel and security mode begins once matching is successful.

Start roaming mode, the DVW devices support fast roaming protocol of personal level and can fulfill the need for fast switching APs in maintaining the operation under wireless application environment.

Client Mode [Roaming ∨]

Scan Policy : [Signal Change Scanning ∨]

Scan channels(The channels with * are DFS channels) [Auto ∨]

[Not scanning ∨]

[Not scanning ∨]

Scan Time(10~200ms) [50]
Scan Period(1000~300000ms) [1000]
Scan Threshold(-95~0 dBm) [-50]
Roaming Signal Difference(5~20 dBm) [5]
Roaming Threshold(-95~0 dBm) [-55]
Roaming Detect Period(50~300000ms) [1000]

Notes: Client will begin scanning when the signal of current AP is lower than "Scan Threshold", when it get new AP and the signal of current AP is lower than "Roaming Threshold", roaming start.

Description	Default value
Client Mode	
To enable or not enable fast roaming function.	Disabled
Scan channel	
Set DVW scan strategy, the system offers two options. ● Scan changing signals: When the signal of AP in connection with DVW is lower than scan threshold, once signal value changes and triggers DVW to scan for available AP; the AP signal information received provides DVW to determine in switching or not; the parameter of scan period is invalid under this mode. ● Periodic scanning or scan changing signals: When the signal of AP in connection with DVW is lower than scan threshold, the DVW is triggered according to scan period or changing signal values for available AP; the AP signal information received provides DVW to determine in switching or not	Scan changing signals
To set fast roaming, DVW scans the assigned AP channels; when there are more channels that need to be determined, roaming speed is also more easily affected. ● Below are options in the first drop-down list: -- Auto: Scan all the channels and select an option without selecting the second and third drop-down lists. --The present AP channels in connection with DVW. ● Below are options in the second and third drop-down list: -- Not scanning: Scanning channels only from the previous drop-down list. -- Channel value: Select desired channels for scanning.	Auto
Scan time	
When DVW scans for available APs, set the scan time for each channel.Setting range: 10~200ms.	50
Scan period	
Set the AP interval period for DVW scan. Setting range: 1000~300000ms。	1000
Scan threshold	
Set the AP threshold once DVW is triggered for scanning, but only when the AP's transmission power connected to the present DVW is lower than the threshold value, the DVW will scan the available AP based on the scan period. Setting range: -95~0 dBm.	-50
Roaming signal difference	
Set DVW roaming signal difference which is a condition for DVW to execute switch action. When the signal difference between present AP's transmission power in connection with DVW and the new AP is larger than the setting value, the DVW will switch to the new AP. Setting range: 5~20 dBm.	5

Description	Default value
Roaming threshold	
Set DVW roaming threshold which is a condition for DVW to execute switch action. When the present AP's transmission power in connection with DVW is lower than the setting value, the DVW can switch to new AP. Setting range: -95~0 dBm.	-55
Roaming detect period	
Set DVW to detect whether the interval period of the two roaming conditions are satisfied; when both conditions are satisfied, the DVW can execute switching. Setting range: 50~300000ms.	50

3.5.2.2 Advanced configuration

The configuration provides users to execute advanced parameter settings based on different on-site wireless environment.

Advanced Configuration

Cancel	Apply

Transmission Power(dBm)   20 ✓

Beacon Interval(40-1000ms)   150

Description	Default value
Transmission power	
Set the transmission power. The transmission power gets stronger as setting value becomes higher and the influence range widens. Range option 1 to 20.	20
Beacon interval	
The beacon interval of a wireless broadcast, the unit is ms. When roaming is required, users can adjust to lower value for faster connection; adjust to higher value for power saving. Input range: 40-1000.	150

3.6 Auto alarm function

3.6.1 Using relay for alarm system

The relay switch used for alarm system mainly monitors specified interface or target status; currently, the system defined two types of trigger events: DI and port link. When trigger is enabled, the interface or target behavior fulfills predefined behavior and relays used for alarm (DO closed) is triggered, indicator lights perform corresponding actions at the same time.

Relay Event Types

Cancel	Apply

Event	☑ Active
[　　　▼] DI	☑
[　　　▼] Port Link	☑

3.7 Maintenance

3.7.1 Session timeout

Users can set session timeout but when the setting time is exceeded, it will auto log off the system and a message regarding the action is presented to users. We recommend configuring this function for enhanced system security.

Session Timeout

Cancel	Apply

Session Timeout (minutes)	30	(0~60)

Description	Default value
Session timeout	
Set the time for session timeout. ● Timeout setting range is 0 to 60 min. ● Set to 0 and session timeout will never occur.	30

3.7.2 Password

Users can change the password of DVW-W01I2-E1 log in page. To successfully configure a new set of password, users need to type in the old password.

New Password

Cancel	Apply

Old Password	
New Password	
Repeat New Password	

Description	Default value
Old password	
The current admin. password	
New password	
Set new admin. password	
Repeat new password	
Repeat the new password	

3.7.3 System log backup

The function allows documents derived from the logs to be stored in PCs or storage devices.

3.7.4 Roaming log

Roaming log function can record the device as WIFI station that quickly swich from one AP message to another including SSID in AP's source and transmission power as well as SSID in destination AP and transmission power.

Description	Default value
BSSID	
MAC in AP's source destination AP	N/A
Power	
RF power of AP	N/A
Threshold	
Switch threshold setting by users	N/A
Connect	
Previous AP connection time	N/A
Handoff	
The handoff time for switching to AP roaming	N/A
ID	
The number of times for roaming	N/A

3.7.5 Serial log

From selecting a serial, users can determine the assigned log level and serial logs.

Serial Log

Set Log Level	Error ⌄	Configuration
Save A Copy Of Log		
Select A Serial	RS232 ⌄	Backup

The image above shows the system can derive all log level as "Error" from RS232 serial logger. Users can click **Backup** button and download the logs in PCs.

3.7.6 Ping

Ping function can help admin to analyze network status. Type in the IP address to search for connection status.

**Ping**

Destination		Ping

3.7.7 Ping detection

When users enable Ping detection for AP connection, the AP's IP address is usually configured so that when the number of Ping failure reaches the setting number, the system is bound to start WIFI reset.

Detect AP Connection

Cancel	**Apply**

| Enable Ping Detection For AP Connection	No ⌄

3.7.8 Firmware upgrade

DVW-W01I2-E1 releases new upgraded firmware regularly to enhance product performance and include more functions. We strongly recommend users to do regular checkup and proceed firmware upgrade for your DVW-W01I2-E1 device. Please download the latest firmware document for our website.
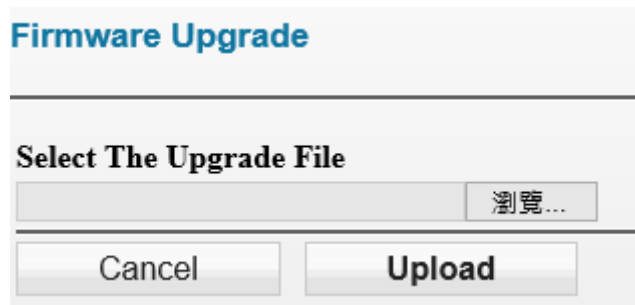
3.7.9 Configuration Import & Export

The "**Backup**" button allows the documents derived from current configuration messages to store in your PCs or storage devices.

The "**Restore**" button can import the assigned document by users into the device.
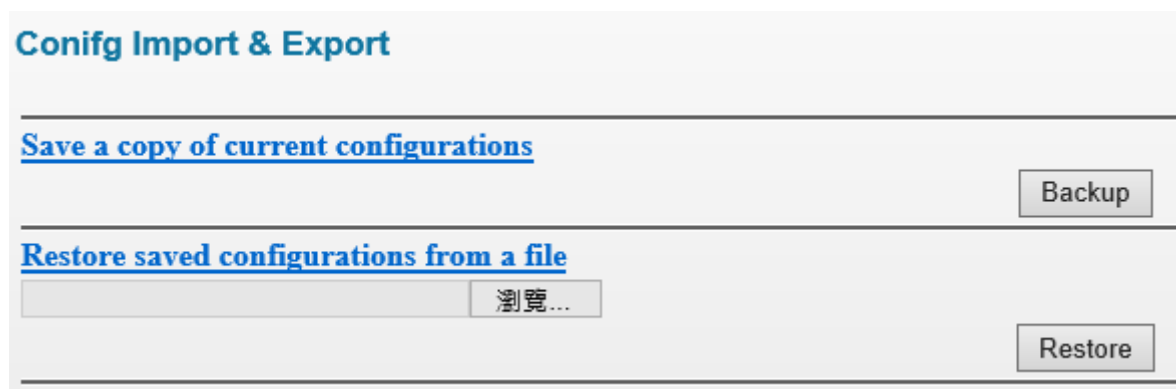
3.7.10 Load factory default

When "Load" is clicked, the DVW-W01I2-E1 device restores the default values. In addition, the panel hardware contains RST button for devices to restore default settings.

3.7.11 Log off

Users can click **Log off** to exist the configuration page. When configuration and operating on the DVW-W01I2-E1 device is complete, we recommend to log off from your current account for security consideration. When Log off is clicked, the log-in page appears.