

Aport-213

One Port Serial-to-WiFi Gateway

User's Guide



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2017 Oct.

Artila

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Document Amendment History

Revision	Date	Remark
V 1.0	2017 Oct.	Initial

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1. Introduction

Aport-213 is the ideal choice that provides connectivity for your serial devices, such as meters and sensors to 802.11 wireless local area networks (WLANS). Eliminating the need for the development of a wireless LAN driver and security supplicant, it is ideal for minimizing upfront engineering investment and reducing time to market.

1.1 Features

- Connect RS-232/422/485 devices to IEEE 802.11b/g/n network
- 921.6Kbps baud rate for RS-232/422/485 transmission
- Web / Serial consoles for device configuration
- WiFi Gateway: AP mode, Station mode, WiFi WPS, WiFi direct
- Modbus RTU to Modbus / TCP Gateway
- Supports TCP / Server mode and TCP / Client mode
- Secure data access with WEP-64/128, WPA, WPA2
- Security: WEP-64/128, WPA, WPA2
- Windows application Utility
- Radio frequency support FCC/ETSI/worldwide domain
- Firmware remotely upgradeable

1.2 Specifications

General

- Buzzer: Yes
- LED Indicator: Power, Status, COM, Serial Console
- RF output power: 802.11b / 16 ± 2 dBm; 802.11g / 14 ± 2 dBm; 802.11n / 13 ± 2 dBmH
- Dimensions (W x L x H): 78 x 108 x 24mm (3.07 x 4.25 x 0.95in)
- Weight: 324g (0.71lb)
- Operating Temperature: 0~70°C (32~158°F)
- Regulation: CE Class A, FCC Class A
- Installation: Wall mounting, DIN-rail mounting (with optional kit)

Power Requirement

- Input Voltage: 9~48Vdc (terminal block)
- Typical Power Consumption: 180mA@12VDC

Switch

- 1 x Reset Button
- 1 x WPS (WiFi Protected Setup) Button
- 1 x Restore to Default Button
- 1 x four-pin Dip-Switch for Serial interface setting

WLAN interface

- Port: 1
- Connectivity: 2.4GHz, IEEE 802.11b/g/n
- Data Rate:
 - IEEE 802.11b: 1, 2, 5.5o and 11Mbps
 - IEEE 802.11g: 6, 9, 12,18, 24, 36, 48 and 54Mbps
 - IEEE 802.11n: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65 and 72.2 at 20MHz
15, 30, 45, 60, 90, 120, 135 and 150Mbps at 40MHz
- Radio Frequency Range: USA (FCC), Europe(ETSI), Worldwide Domain
- RF Receiver Max Receive Level:
 - 802.11b DSSS: -4dBm, 802.11b CCK: -10dBm
 - 802.11g OFDM: -20dBm
 - 802.11n: -20dBm
- Receive Sensitivity:
 - 802.11b: -80dBm @ 1Mbps; -80dBm @ 2Mbps; -79dBm @ 5.5Mbps;
-76dBm @ 11Mbps
 - 802.11g: -82dBm @ 6Mbps; -81dBm @ 9Mbps; -79dBm @ 12Mbps;
-77dBm @ 18Mbps; -74dBm @ 24Mbps; -70dBm @ 36Mbps;
-66dBm @ 48Mbps; -65dBm @ 54Mbps
 - 802.11n (20MHz): -82dBm @ MCS0; -79dBm @ MCS1; -77dBm @ MCS2;
-74dBm @ MCS3; -70dBm @ MCS4; -66dBm @ MCS5;
-65dBm @ MCS6; -64dBm @ MCS7
 - 802.11n (40MHz): -79dBm @ MCS0; -76dBm @ MCS1; -74dBm @ MCS2;
-71dBm @ MCS3; -67dBm @ MCS4; -63dBm @ MCS5
- Security: WEP-64/128, WPA, WPA2
- Protocol support: TCP, UDP, ICMP, IGMP, IPv4, DHCP, ARP, DNS, SMTP, SNTP, RFC2217 and HTTP in software
- WiFi Gateway operating mode: AP mode, Station mode, WiFi WPS, WiFi direct

TTY (Serial) Port Parameters

- Type: RS-232 / 422 / 485, switch selectable
- Connector: DB9, male
- Signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
- Baud Rate: Up to 921.6Kbps
- Parity: None, Even, Odd
- Data Bits: 7, 8
- Stop Bits: 1, 2
- Flow Control: None, RTS / CTS, XON / OFF

Communication Mode

Communication Mode	Socket	VCOM	Modbus gateway
Serial Interface	RS-232/422/485	RS-232/422/485	RS-232/422/485
Server / Client	YES	YES	YES
Configuration	Web	Web Windows Utility	Web

Serial Console

- Connector: DB9, Female
- Signals: TX, RX, GND

Operation System

- Real-Time OS: FreeRTOS

Management

- Web server
- Serial Console
- Windows Application Utility

1.3 Packing List

- **Aport-213**: One Port Serial-to-WiFi Gateway

1.4 Optional Accessory

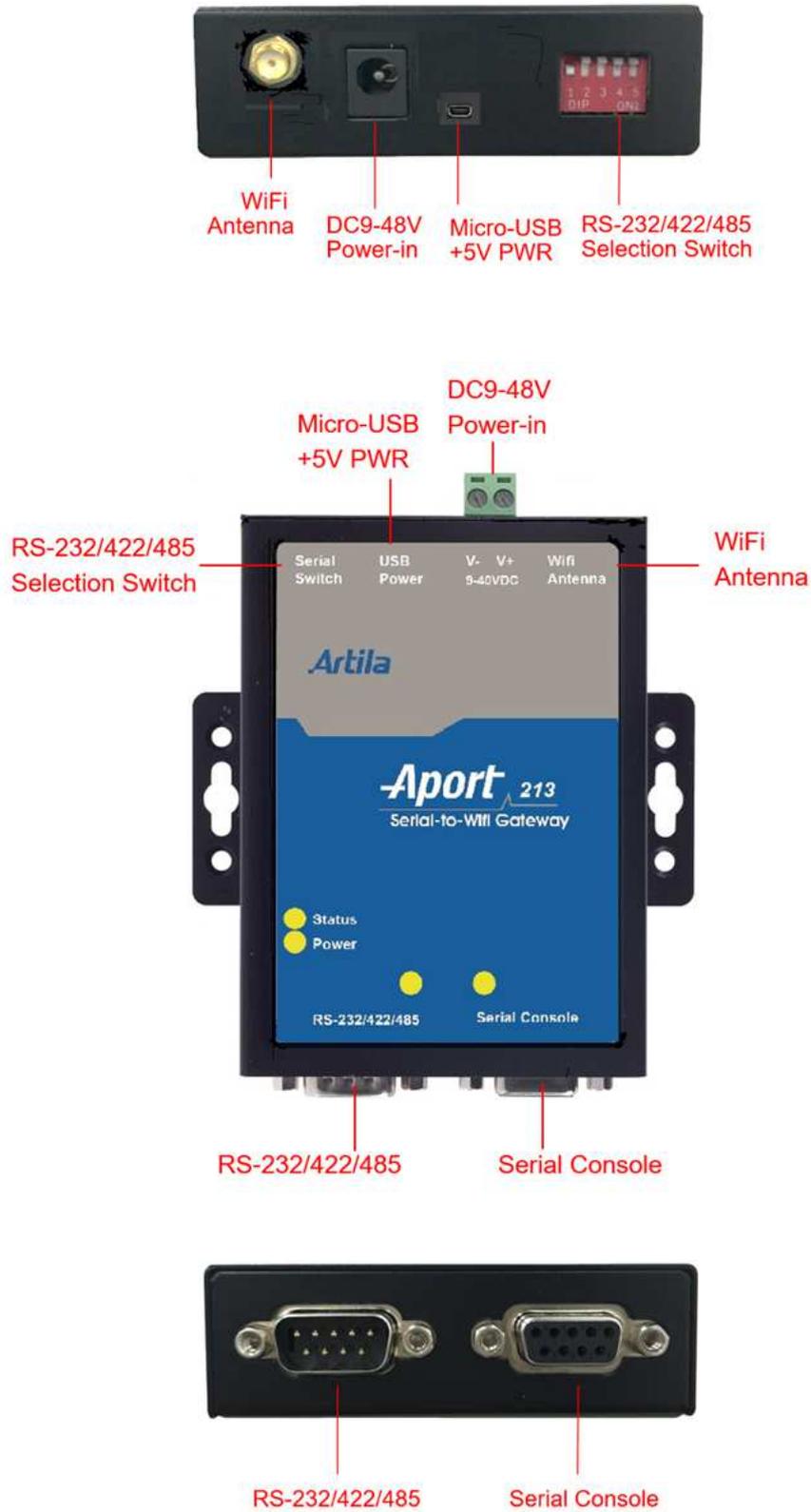
- **DK-35A** (PN:36-DK35A-000): DIN RAIL Mounting Kit
- **PWR-12V-1A** (PN:31-62100-000): 110~240VAC to 12VDC 1A Power Adaptor

1.5 Optional Module

- **SW-200M** (PN: 91-XXXX-000): Serial-to-WiFi Module

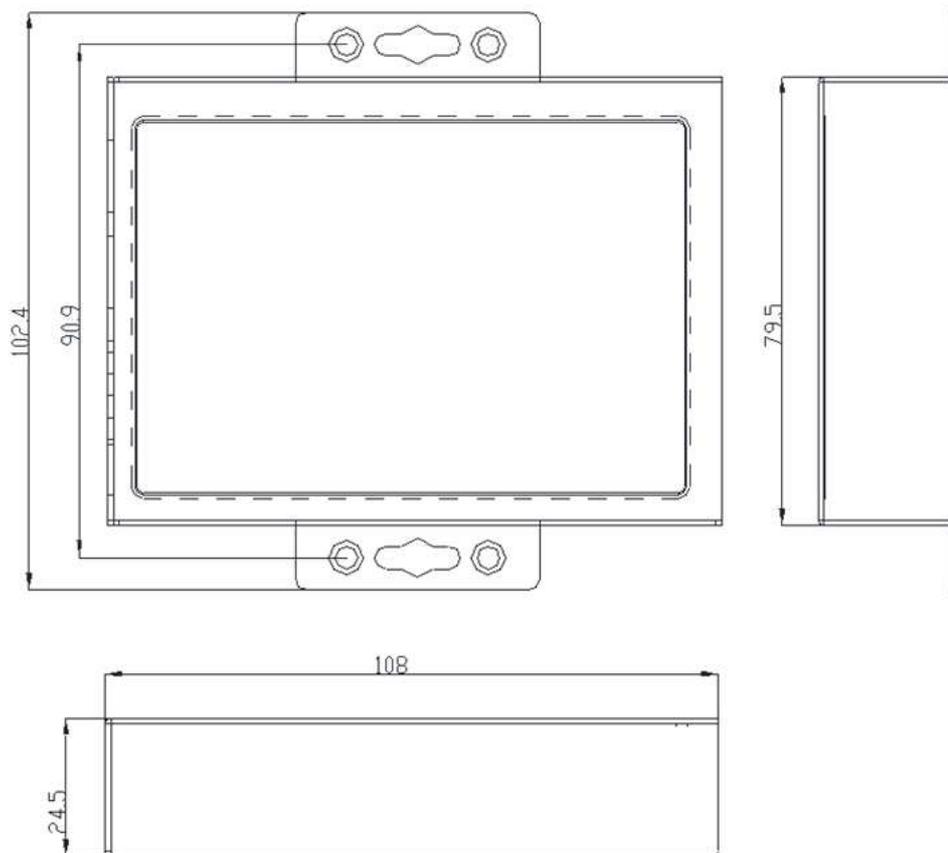
2. Layout

2.1 Outline



2.2 Dimension

Unit=mm



3. SW-200M Introduction

SW-200M is the serial-to-WiFi module provides connectivity for your serial devices, such as meters and sensors to 802.11 wireless local area networks (WLANS). It is an ideal building block that easily to be integrated with a wide range of target markets, such as industrial control, automation gateway and other applications.

3.1 Features

- Integrated 2.4GHz, IEEE 802.11b/g/n compatible WiFi connectivity
- Integrated PCB antenna (1T1R) and U.FL connector with external antenna
- Supports Simple Config API for Mobile APP
- Arm Cortex M3/166MHz, 1MB ROM, 512KB RAM, 2MB SDRAM,
- 4x GPIOs
- 1x UART Interface
- 1x I2C interface
- Supports real-time OS
- Web / Serial consoles for device configuration
- WiFi Gateway: AP mode, Station mode, WiFi WPS, WiFi direct
- Modbus RTU to Modbus / TCP Gateway
- Supports TCP / Server mode and TCP / Client mode
- Secure data access with WEP-64/128, WPA, WPA2
- Security: WEP-64/128, WPA, WPA2
- Windows application Utility
- Firmware upgradeable

3.2 Specifications

General

- Beep: Yes
- Status LED Indicator
- RF output power: 802.11b / 16 ± 2 dBm; 802.11g / 14 ± 2 dBm; 802.11n / 13 ± 2 dBmH
- Board size: 45mm x 40mm
- Operating Temperature: 0~70°C (32~158°F)
- Connector: Two Pin Header 1x15P, 2.0mm pitch
- Operating Voltage: +3.3Vdc

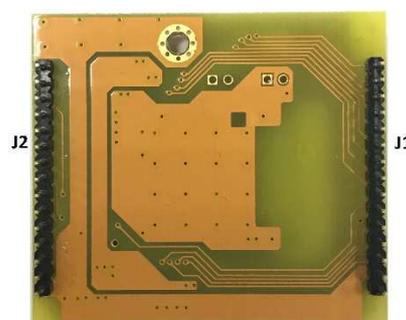
WLAN interface

- Port: 1
- Connectivity: 2.4GHz, IEEE 802.11b/g/n
- Data Rate:
 - IEEE 802.11b: 1, 2, 5.5 and 11Mbps
 - IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48 and 54Mbps
 - IEEE 802.11n: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65 and 72.2 at 20MHz
15, 30, 45, 60, 90, 120, 135 and 150Mbps at 40MHz
- Radio Frequency Range: USA (FCC), Europe(ETSI), Worldwide Domain
- RF Receiver Max Receive Level:
 - 802.11b DSSS: -4dBm, 802.11b CCK: -10dBm
 - 802.11g OFDM: -20dBm
 - 802.11n: -20dBm
- Receive Sensitivity:
 - 802.11b: -80dBm @ 1Mbps; -80dBm @ 2Mbps; -79dBm @ 5.5Mbps;
-76dBm @ 11Mbps
 - 802.11g: -82dBm @ 6Mbps; -81dBm @ 9Mbps; -79dBm @ 12Mbps;
-77dBm @ 18Mbps; -74dBm @ 24Mbps; -70dBm @ 36Mbps;
-66dBm @ 48Mbps; -65dBm @ 54Mbps
 - 802.11n (20MHz): -82dBm @ MCS0; -79dBm @ MCS1; -77dBm @ MCS2;
-74dBm @ MCS3; -70dBm @ MCS4; -66dBm @ MCS5;
-65dBm @ MCS6; -64dBm @ MCS7
 - 802.11n (40MHz): -79dBm @ MCS0; -76dBm @ MCS1; -74dBm @ MCS2;
-71dBm @ MCS3; -67dBm @ MCS4; -63dBm @ MCS5
- Security: WEP-64/128, WPA, WPA2
- Protocol support: TCP, UDP, ICMP, IGMP, IPv4, DHCP, ARP, DNS, SMTP, SNTP, RFC2217 and HTTP in software
- WiFi Gateway operating mode: AP mode, Station mode, WiFi WPS, WiFi direct

3.3 Layout



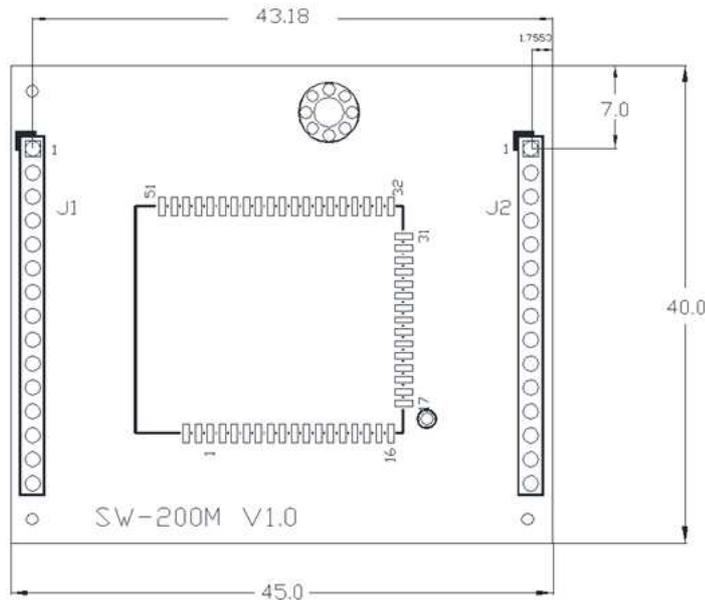
(Top View)



(Bottom View)

3.4 Dimension

Unit = mm



3.5 PIN Assignment and Definitions (J1 & J2)

The following is connector (J1 & J2) pin definition:

J1 (Pin No.)	PIN Assignment	J2 (Pin No.)	PIN Assignment
1	UART Log-out (GPIOB_0)	1	UART0_IN (GPIOA_6)
2	UART Log-in (GPIOB_1)	2	UART0_OUT (GPIOA_7)
3	I2C SCL (GPIOB_2)	3	UART0_RTS (GPIOA_3)
4	I2C SDA (GPIOB_3)	4	UART0_CTS (GPIOA_5)
5	LED_Status	5	N/C
6	GPIOC_0	6	N/C
7	GPIOC_1	7	N/C
8	GPIOC_2	8	N/A (P19)
9	GPIOC_3	9	N/A (P23)
10	RESET (CHIP_EN)	10	N/A (P21)
11	GPIOE_2	11	N/A (P20)
12	SW_WPS (GPIOE_1)	12	N/C
13	SW_Default (GPIOE_3)	13	BEEP (GPIOE_4)
14	GND	14	+3.3V
15	+5Vdc	15	GND

Remark: SW-200M ((J1) mapping to Aport-213 (J7),
SW-200M ((J2) mapping to Aport-213 (J8)

4. Pin Assignment and Definitions

4.1 LED Indicators

The LED provides Aport-213 operation information. The LED status is described as follow:



- **“Power”**: Power LED keeps light on always while when system power is on.
- **“Status”**: Status LED shows the WiFi mode & status as following

WiFi Mode	“Status” LED indicator	WiFi State
Station	Off	Disconnect
	Always Light-on	BBD Connected
AP	Blinking every 2sec (default)	Running

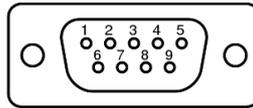
- **“RS-232/422/485”**: Serial Port LED indicator (dual-color)
It keeps light-on after serial port is ready.
While the data transmission at the serial ports: RXD (in color-Green) and TXD (in color-Yellow)
- **“Serial Console”**: Serial Console LED indicator (dual-color)
While the data transmission at the serial ports: RXD (in color-Green) and TXD (in color-Yellow)

4.2 Power Connector

Connecting +9 ~ +48VDC power line to the Power in terminal block. If the power is properly supplied, the Power LED will keep solid green color and a beep will be heard.

4.3 Serial Port

The Aport-213 provide one RS-485/RS-422/RS-232 port that can be configured by DIP switch or software.

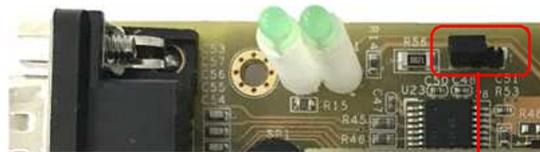


The pin assignment of D-Sub 9pin (Male) is shown as following table.

Pin No.	RS-232	RS-422	RS-485
1	DCD	TX+	---
2	RX	TX-	---
3	TX	RX+	DATA+ (D+)
4	DTR	RX-	DATA- (D-)
5	GND	GND	GND
6	DSR	---	---
7	RTS	---	---
8	CTS	---	---
9	---	---	---

Enable/Disable Termination resistor for RS-485

The Aport-213 equips on-board 120Ohm termination resistor for each RS-485 port. Default setting is disable termination resistor. In order to enable termination resistor, please remove the top cover of the Aport-213, and the adjust the associated jumper to short position 1 - 2, shown below:



Termination Resistor Enabled	3 2 1
Termination Resistor Disabled (default)	3 2 1

4.4 Micro-USB Port

There is a Micro-USB connector which acts as +5VDC power input for system operating.

4.5 Buttons (SW1 ~ SW3)

There are three function buttons (SW1, SW2, SW3) beside the Aport-213.

- SW1: WPS / Simple Config mode selection. each mode will be timeout after minutes if there is not any activity
WPS mode (WiFi Protected Setup) by Press 1sec and release button
Simple Config mode (only for Android smart phone operating) by Press 3sec and release button. Status LED will blink while function
- SW2: RTD / Restore to Default
- SW3: Reset button



4.6 Switch (SW4)

Set the SW4 setting to RS-232 mode and pin definition of Aport-213 serial port is as follow:

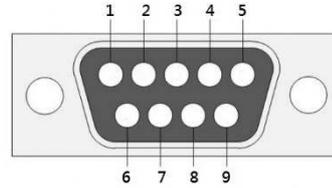
SW Key	1	2	3	4
RS-232(Default)	ON	OFF	OFF	N/A
RS-422	OFF	ON	OFF	N/A
RS-485	OFF	ON	ON	N/A



4.7 Serial Console

Serial Console uses D-Sub 9pin (Female) connector, pin assignments are described as follow:

Pin No.	Console
1	---
2	TX
3	RX
4	---
5	GND
6	---
7	---
8	---
9	---



4.8 PIN Assignment and Definitions (J7 & J8)

The following is connector (J7 & J8) pin definition:

J7 (Pin No.)	PIN Assignment	J8 (Pin No.)	PIN Assignment
1	UART Log-out (GPIOB_0)	1	UART0_IN (GPIOA_6)
2	UART Log-in (GPIOB_1)	2	UART0_OUT (GPIOA_7)
3	I2C SCL (GPIOB_2)	3	UART0_RTS (GPIOA_3)
4	I2C SDA (GPIOB_3)	4	UART0_CTS (GPIOA_5)
5	Status_LED	5	N/C
6	SW_4 (GPIOC_0)	6	N/C
7	SW_3 / RS-485_EN	7	N/C
8	SW_2 / RS-422_EN	8	N/A (P19)
9	SW_1 / RS-232_EN	9	N/A (P23)
10	SW3_RESET	10	N/A (P21)
11	GPIOE_2	11	N/A (P20)
12	SW1_WPS (GPIOE_1)	12	N/C
13	SW2_RTD (GPIOE_3)	13	BEEP (GPIOE_4)
14	GND	14	+3.3V
15	+5Vdc	15	GND

Remark: Aport-213 (J7) mapping to SW-200M ((J1)

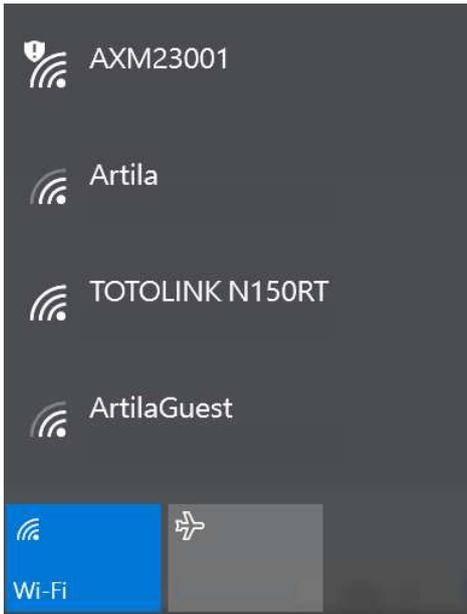
Aport-213 (J8) mapping to SW-200M ((J2)

5. Configure via Web Browser

It is simply to configure Aport-213 by using any devices like Smart phone, Notebook or PC via web browser without any software installation.

5.1 Connect Aport-213 through browser

After well connected by choosing the WiFi SSID: APORT-213 at WiFi table that Aport-213 can be configured easily through browser like Chrome, IE, Firefox....



The following is default information for 1st login.

- IP: 192.168.0.3
- Username: admin
- Password: admin



5.2 Configure Aport-213

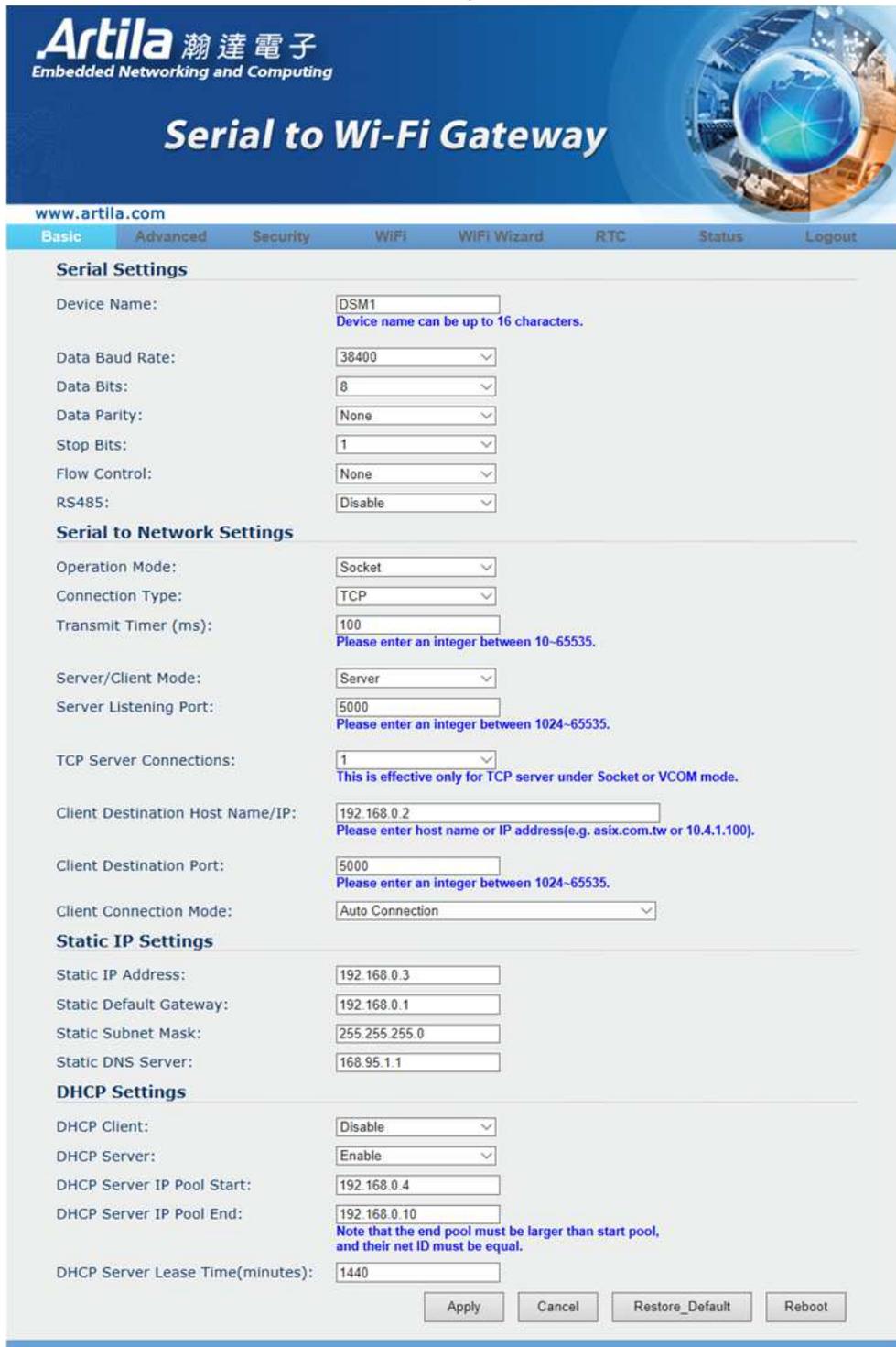
After Log-in, it shows the configure page as following:

5.2.1 Basic

Basic setting of Aport-231 includes of device name, serial port parameters, Serial to network parameters, static IP & DHCP setting.

After completed the setting, click to save all parameters.

Click , All information listing below will be restored to default.



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Serial to Wi-Fi Gateway

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Basic | Advanced | Security | WiFi | WiFi Wizard | RTC | Status | Logout

Serial Settings

Device Name:
Device name can be up to 16 characters.

Data Baud Rate:

Data Bits:

Data Parity:

Stop Bits:

Flow Control:

RS485:

Serial to Network Settings

Operation Mode:

Connection Type:

Transmit Timer (ms):
Please enter an integer between 10-65535.

Server/Client Mode:

Server Listening Port:
Please enter an integer between 1024-65535.

TCP Server Connections:
This is effective only for TCP server under Socket or VCOM mode.

Client Destination Host Name/IP:
Please enter host name or IP address(e.g. asix.com.tw or 10.4.1.100).

Client Destination Port:
Please enter an integer between 1024-65535.

Client Connection Mode:

Static IP Settings

Static IP Address:

Static Default Gateway:

Static Subnet Mask:

Static DNS Server:

DHCP Settings

DHCP Client:

DHCP Server:

DHCP Server IP Pool Start:

DHCP Server IP Pool End:
Note that the end pool must be larger than start pool, and their net ID must be equal.

DHCP Server Lease Time(minutes):

5.2.2 Advanced

Advanced setting of firmware upgrade by choose an image file, automatically event / report export via email and Modbus settings.

The screenshot displays the web interface for the Artila Serial to Wi-Fi Gateway. The header includes the Artila logo (瀚達電子) and the tagline "Embedded Networking and Computing". The main title is "Serial to Wi-Fi Gateway". The navigation menu includes Basic, Advanced (selected), Security, WiFi, WiFi Wizard, RTC, Status, and Logout.

Firmware Upgrade

Image path:
Please specify the image file path for firmware upgrade.

E-mail & Auto Warning Report Settings

SMTP Server Address/IP:
Please enter host name or IP address(e.g. asix.com.tw or 10.4.1.100).

Security:

SMTP Server Port:

From E-mail Address:

To E-mail Address 1:

To E-mail Address 2:

To E-mail Address 3:

Cold Start:

Authentication Failure:

Local IP Address Changed:

Password Changed:

MODBUS Settings

Transfer Mode:

Server Port:

Response Timeout:
Available range:10~65000ms.

Inter-Frame Delay:
Available range:10~500ms.

Inter-Character Delay:
Available range:10~500ms.

5.2.3 Security

System access control and authority setting.

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Basic Advanced **Security** WiFi WiFi Wizard RTC Status Logout

Change Username Setting

New Username:

Apply Cancel

Change Password Setting

Old Password:

New Password:

Confirm Password:

Apply Cancel

Change SMTP Username & Password Setting

Username:

Password:

Apply Cancel

5.2.4 WiFi

WiFi parameters setting includes of network mode, WEP encryption key setting and AES/TKIP encryption key setting.

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Basic Advanced Security **WiFi** WiFi Wizard RTC Status Logout

System Settings

Network Mode:

AP Channel:

Service Area Name/SSID: Hide SSID:

Security Mode:

WEP Encryption Key Settings

Key Length:

Key Index Select:

Key Index 0:

Key Index 1:

Key Index 2:

Key Index 3:

Please enter 5 ASCII codes or 10-digit hex for 64-bit key length.

AES/TKIP Encryption Key Settings

AES/TKIP Passphrase:

Please enter a string between 8-63 digits in length.

Apply Cancel

5.2.5 WiFi Wizard

It allows you to scan your wireless adapter and measure network processing and operating.



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Basic Advanced Security WiFi **WiFi Wizard** RTC Status Logout

Welcome to the WiFi Setup Wizard

Use site survey tool to join a WiFi AP.

ID	BSSID	SSID	TYPE	CH	SIGNAL	SECURITY
0	54:b8:0a:27:5e:7c	VIAmkt	Infra	11	-48	WPA/WPA2 AES
1	98:de:d0:20:b6:32	TP-LINK_Dennis	Infra	2	-50	WPA/WPA2 AES
2	14:cc:20:8a:53:7c	Shanghai-Office_2-4G	Infra	5	-56	WPA2 AES
3	00:12:0e:cc:7a:28	Artila	Infra	10	-56	WEP
4	00:12:0e:cc:7a:29	ArtilaGuest	Infra	10	-58	WPA TKIP
5	88:d7:f6:a4:90:12	1234	Infra	1	-62	WPA2 TKIP
6	38:2c:4a:65:3d:14	RTN18U	Infra	6	-62	WPA2 AES
7	c8:3a:35:0c:b2:40	Tenda	Infra	8	-68	WPA AES
8	f0:b4:29:3d:22:f9	STU	Infra	1	-70	WPA2 AES
9	a0:f3:c1:49:4d:11	VideoWall-01	Infra	6	-70	WPA/WPA2 AES
10	14:e6:e4:e4:ea:ea	i ROC	Infra	9	-70	WPA/WPA2 AES
11	10:7b:44:42:90:b8	smart_toto	Infra	8	-78	WPA2 AES
12	c8:be:19:5e:bf:55	VideoWall-02	Infra	6	-80	WPA/WPA2 AES
13	1c:b7:2c:d7:34:08	IN	Infra	11	-80	WPA2 TKIP
14	00:b0:e1:99:b2:00	VIATP_WLANs	Infra	6	-82	WPA2 AES
15	78:54:2a:e8:1a:18	Leadernwave-hinet	Infra	11	-82	WPA2 AES
16	00:b0:e1:99:ca:43	VIA_Guests	Infra	11	-82	Open
17	00:b0:e1:99:ca:41	VIATP_Users	Infra	11	-84	WPA2 AES
18	00:b0:e1:99:b2:01	VIATP_Users	Infra	6	-86	WPA2 AES
19	78:44:76:ae:40:40	TOTOLINK N150RT	Infra	2	-90	WPA2 AES

Status: Scanning...ok

Scan Next

5.2.6 RTC

RTC or NTP server for Aport-213 can be set via this configure also setting the date/time, daylight saving and time zone. Three NTP server IP can be listed for time synchrony.



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Basic Advanced Security WiFi WiFi Wizard **RTC** Status Logout

RTC Settings

RTC Time Setup: Manual NTP Server

Daylight Saving Time:
Note that the daylight saving time is supported only in NTP server mode.

Date&Time Settings

Date: / /
Please enter the year between 2000-2099, the month between 1-12, and the date between 1-31.

Time: : :
Please enter the hour between 0-23, the minute between 0-59, and the second between 0-59.

Note that the date and time are allowed to modify in manual mode.

SNTP Client Settings

Time Zone:

NTP Server HostName/IP 1:

NTP Server HostName/IP 2:

NTP Server HostName/IP 3:

Apply

5.2.7 Status

Display all Aport-213 status.

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Embedded Networking and Computing

Serial to Wi-Fi Gateway

www.artila.com

Basic Advanced Security WiFi WiFi Wizard RTC **Status** Logout

System Status

Device Name:	DSM1
Device IP Address:	192.168.0.3
Firmware Version:	0.7.5(Single)
WiFi MAC address(Hex):	0x000ec6401172
Modem Status(Hex):	0x00
Protocol Type:	TCP
Connection Status:	Idle
Serial Port TX Count(Byte):	0
Serial Port RX Count(Byte):	0
Current Date:	0/0/0 Sunday
Current Time:	0:0:2
Image File Name:	ota_r2w.bin

RefreshStart RefreshStop

5.2.8 Logout

Log out this configure table by press "Logout" at function column.

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Basic Advanced Security WiFi WiFi Wizard RTC Status **Logout**

Serial Settings

Device Name:
Device name can be up to 16 characters.

6. Windows Manager Utility

Windows Manager Utility is a software provided by Artila that is used to configure and test devices through network.

6.1 Download Windows Manager Utility and Installation

You may visit Artila website: <http://www.artila.com/>, then click “Download”

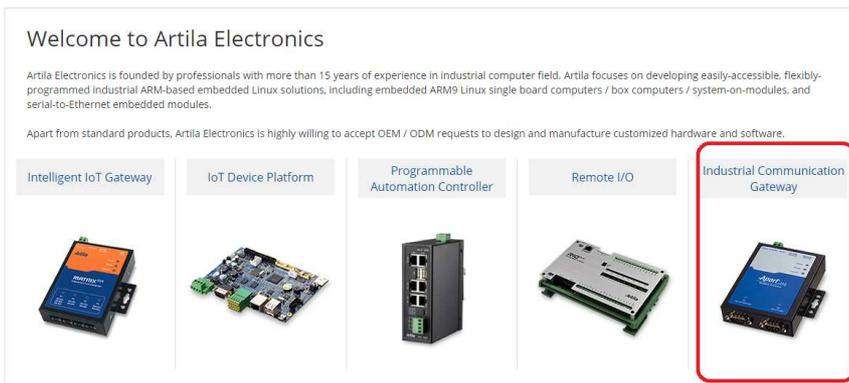


Select “Aport-213” at Download page that shows the product series.

<http://www.artila.com/download/APORT/APORT-213/>

You may also go for product category: “Industrial Communication Gateway”

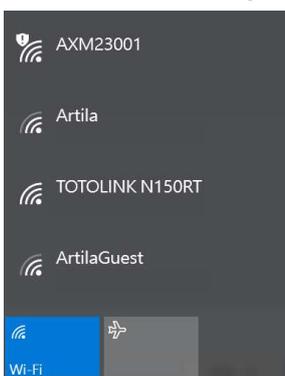
At model APORT-213, click  to download Artila Manager utility



After downloaded, **Execute the file “AXMR2W_RS232-to-WiFi_Toolkit” as an administrator for Windows utility installation.**

6.2 Connect Aport-213

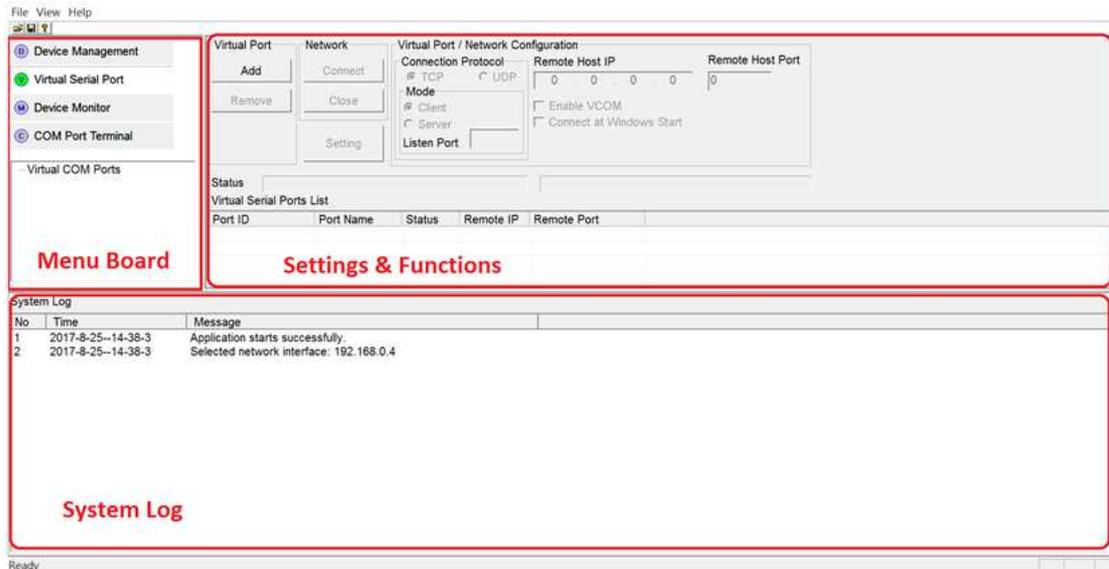
After well connected by choosing the WiFi SSID: APORT-213 at WiFi table that Aport-213 can be configured easily through remote utility.



6.3 Start-Up the Windows Manager Utility

After completed Installation of Windows Manager Utility, it must be executed as administrator for operating. (the file at \Program Files (x86)\APORT-213 RS232-to-WiFi Configuration\ AXMR2W_64.exe or AXMR2W_32.exe)

After executed, it shows the home page as following:



The Windows Configuration Utility contains three major areas as above

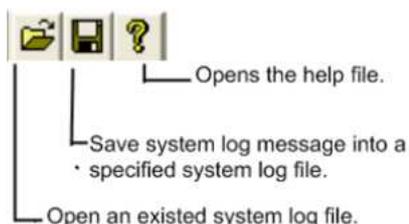
1. Menu Board: displays supported tools and available VSP Ports list

The Menu Board contains the following tools:

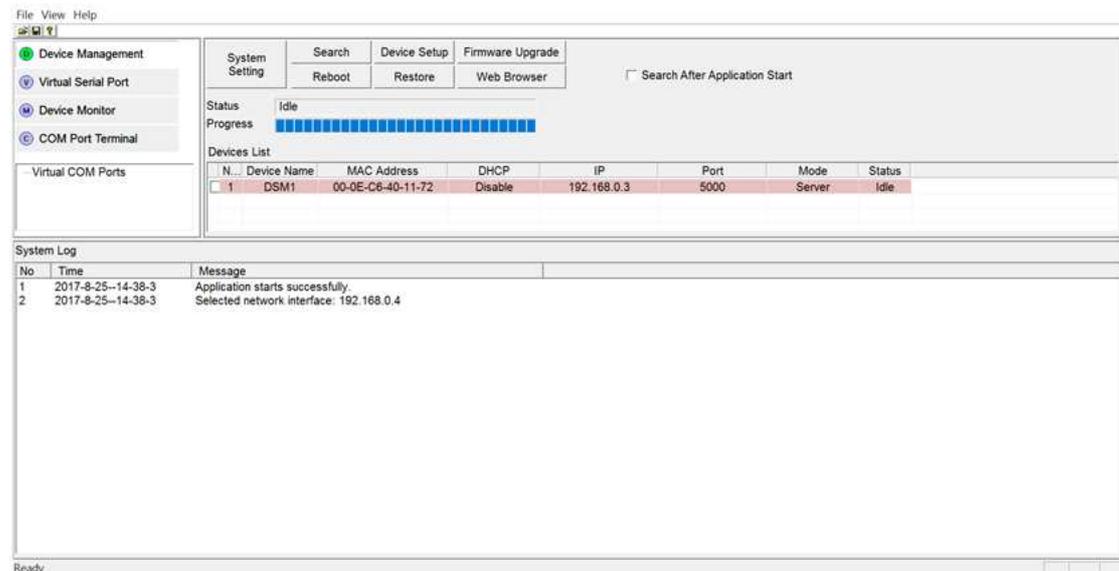
- **Device Manager:** Enable you to manage Aport-213 remotely
- **Virtual Serial Port:** Enable you to manage virtual serial ports on the host PC.
- **Device Monitor:** Enables you to monitor the status
- **COM Port Terminal:** Supports RS-232 port terminals to make it easier for you to develop or test Aport-213 application.

2. Settings & Functions: displays supported functions of the selected tool
3. System Log: mainly displays system log messages. It is also as the function window of COM Port Terminal tool as well as the built-in web browser window in Device Management tool.

The Windows Configuration Utility contains Command line on the top:



6.4 Device Manager



The main window provides five functions

“Search”: Broadcast Search the devices which connected

“Device Setting”: Device configuration of network, serial port, WiFi, HDCP and NTP

“Firmware Upgrade”: upgrade the firmware remotely

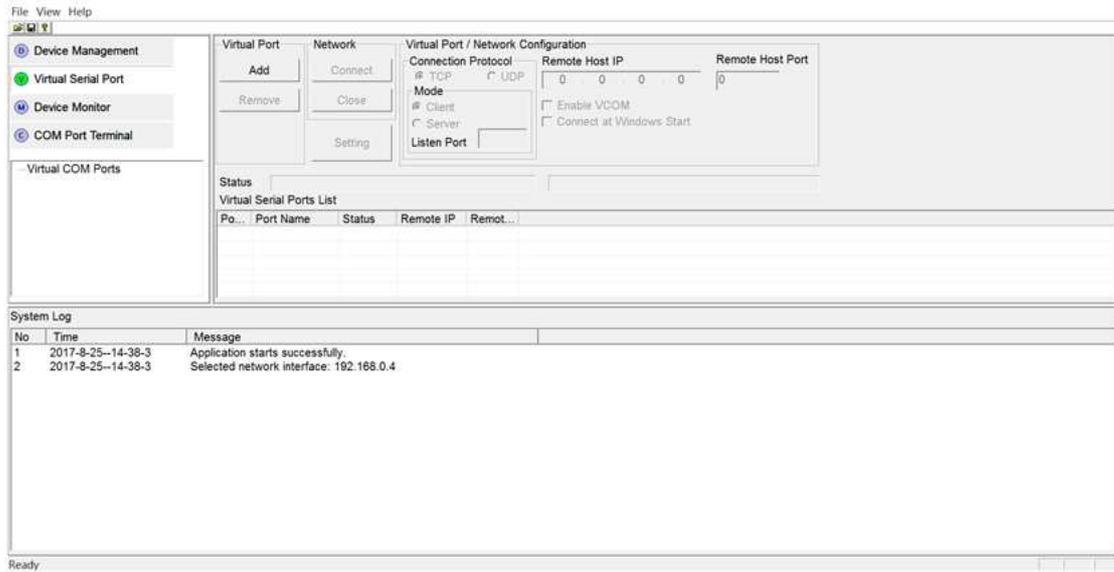
“Reboot”: Reboor the Device

“Restore”: Set device to default setting

“Web Browser”: Go to web browser configuration. (refer to [Section 5 Configure via Web Browser](#))

6.5 Virtual Serial Port

You can use Virtual Serial Port tool to add / remove a virtual serial port on the host PC.



6.5.1 Operating Functions

The main window provides five functions:

“Add”: adds a virtual serial port

“Remove”: removes the selected virtual serial port

“Connect”: makes a TCP or UDP connection with the selected device server

“Close”: closes the selected TCP/UDP connection

“Setting”: configures settings of the selected virtual serial port.

When a virtual serial port is added successfully, it will be added in the Virtual Serial Ports List and the following information is displayed:

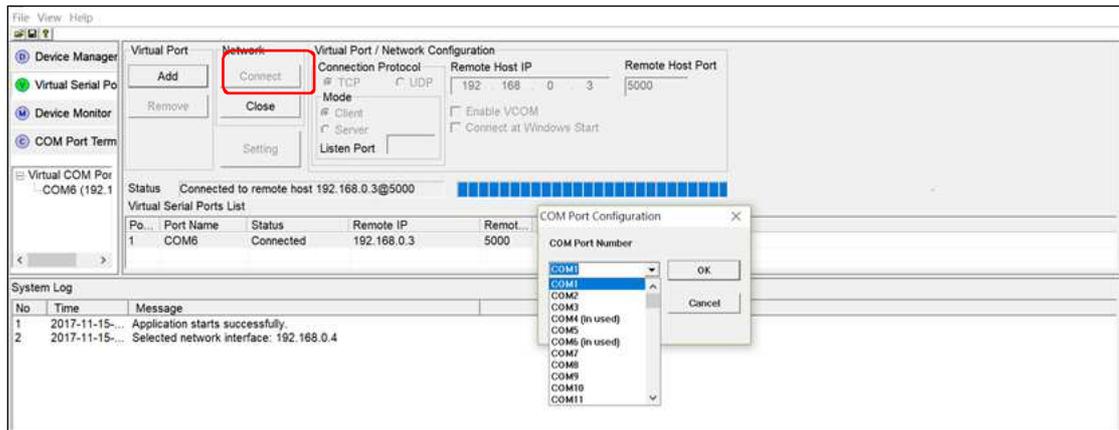
Category	Description
Port ID	The identification value of the virtual serial port
Port Name	The name of the virtual serial port
Status	The status of the virtual serial port
Remote IP	The IP address of the device server that connected with this virtual serial port
Remote Port	The port number of the device server that connected with this virtual serial port

Before starting, it needs a cable connection from “COM port” of Aport-213 to host PC.

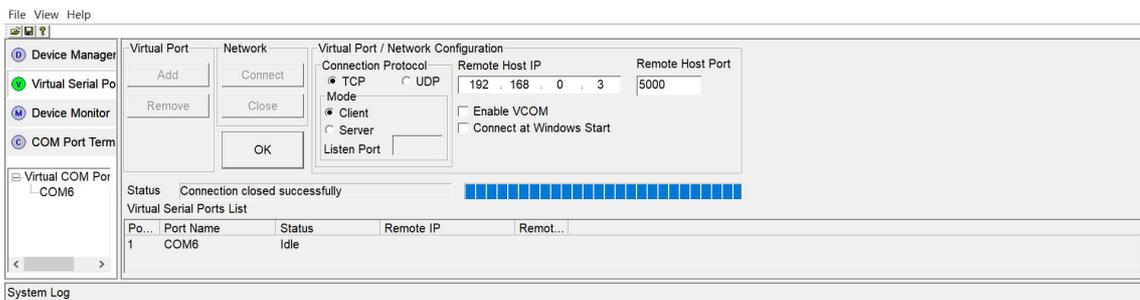
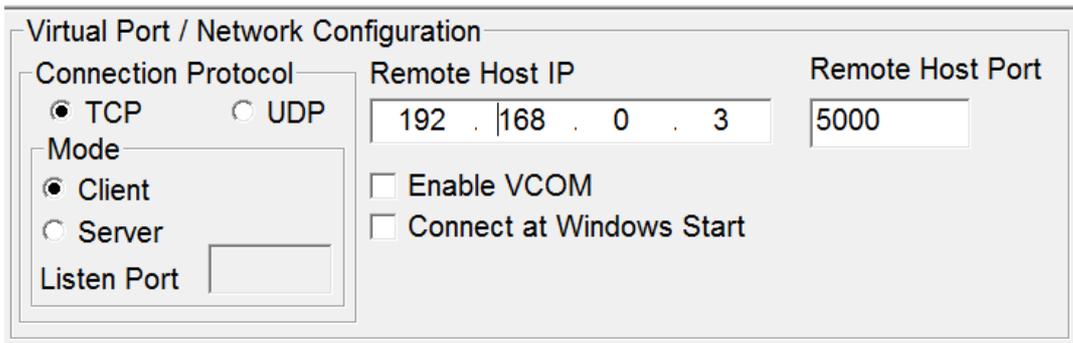
6.5.2 Creat a Virtual Serial Port

Step1: Click the [Add] button to add a virtual serial port. The COM Port Configuration dialog will appear.

Step2: On the COM Port Configuration dialog, select an unused port number to assign to the new virtual serial port. Then click the [OK] button to complete the add operation

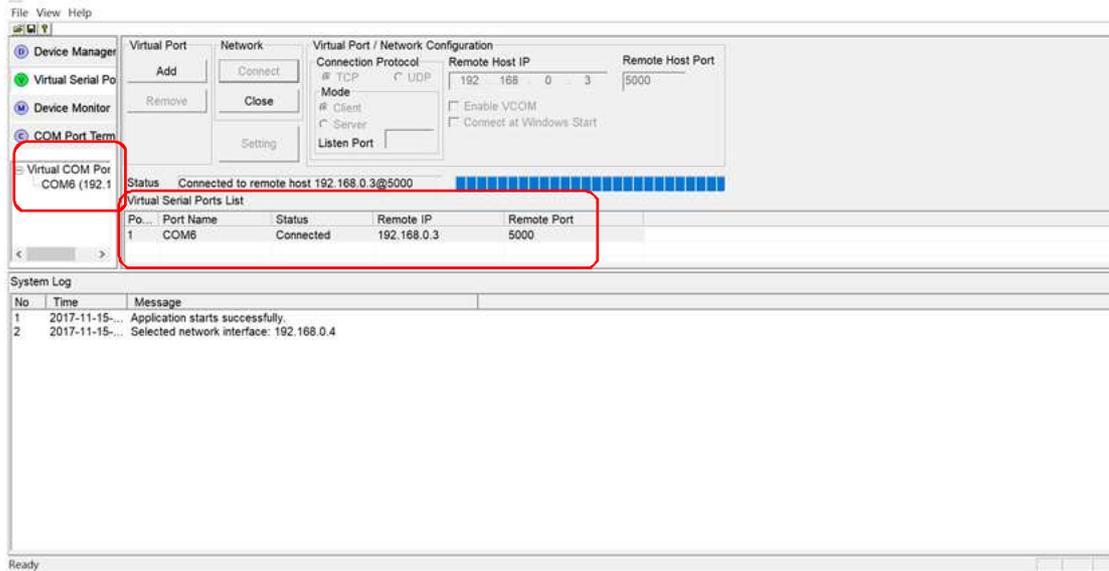


Step3: Click the [Setting] button to configure settings of the connection type, IP address, and listening port according to configuration of the targeted device. After completed the setting, click [OK] to save.



Step4: Click the [Connect] button to make a TCP connection with the remote device server.

You will see the update of the virtual serial port's status in both the Settings & Functions and the Menu Board.



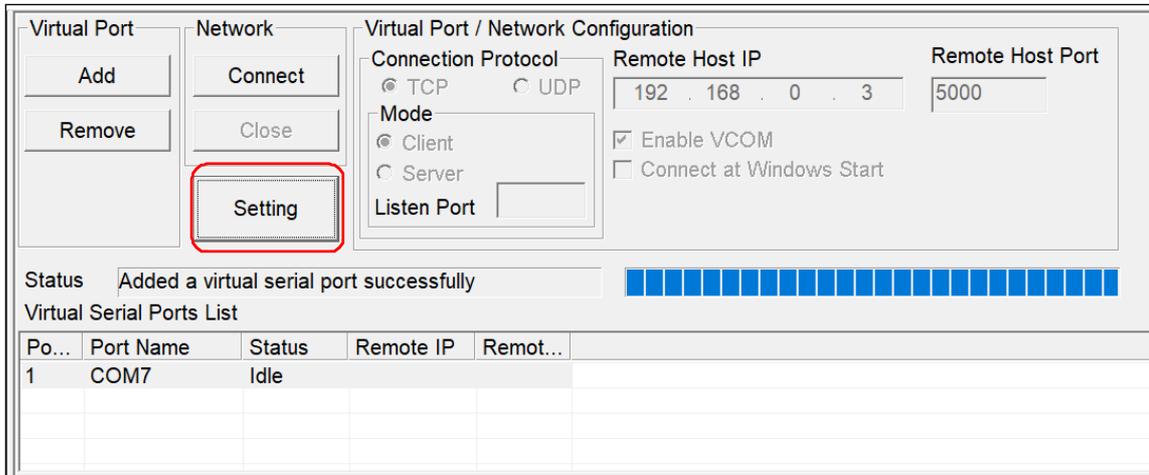
Warning

When you click the [Add] button to add a virtual serial port and pop up a warning message (refer to below figure), you need to enable the administrator authority and restart the utility.



6.5.3 Set a Virtual Serial Port

Click the [Setting] button to configure the virtual serial port.



The Virtual Port/Network Configuration supports following parameters that you can configure:

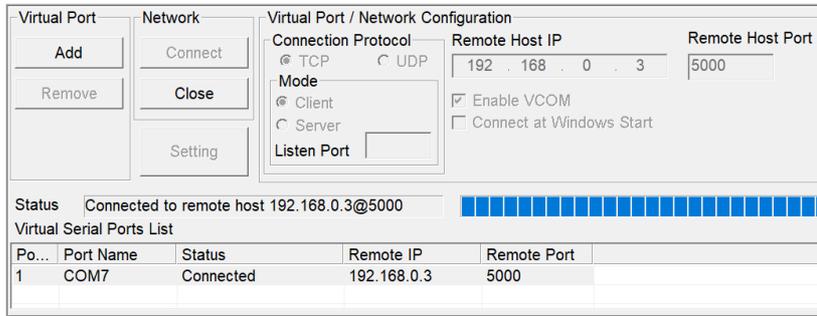
Parameter	Description
Connection Protocol	TCP or UDP connection type
Remote Host IP	The target device server's IP address
Remote Host Port	The target device server's port number
Enable VCOM	Enable the virtual serial port sending and receiving flow control packets. This function is dependent on the flow control function of APORT-213 RS-233 to WiFi firmware. If this function is enabled on virtual serial port driver and firmware, both sides will add a 3 bytes header ahead of each egress WiFi packet and will strip off the 3 bytes header of ingress WiFi packet.
Connect at Windows Start	Enable / disable the automatic connection function at Windows start. When this function is enabled, the virtual serial port will automatically connect to the target device server after VSP COM port is opened.
Mode	Virtual port can run either on Client or Server mode. If the Server mode is selected, Listen Port field must be configured a port number accordingly. And the port number larger than 2000 is recommended.

6.6 Virtual Serial Port Operation Example

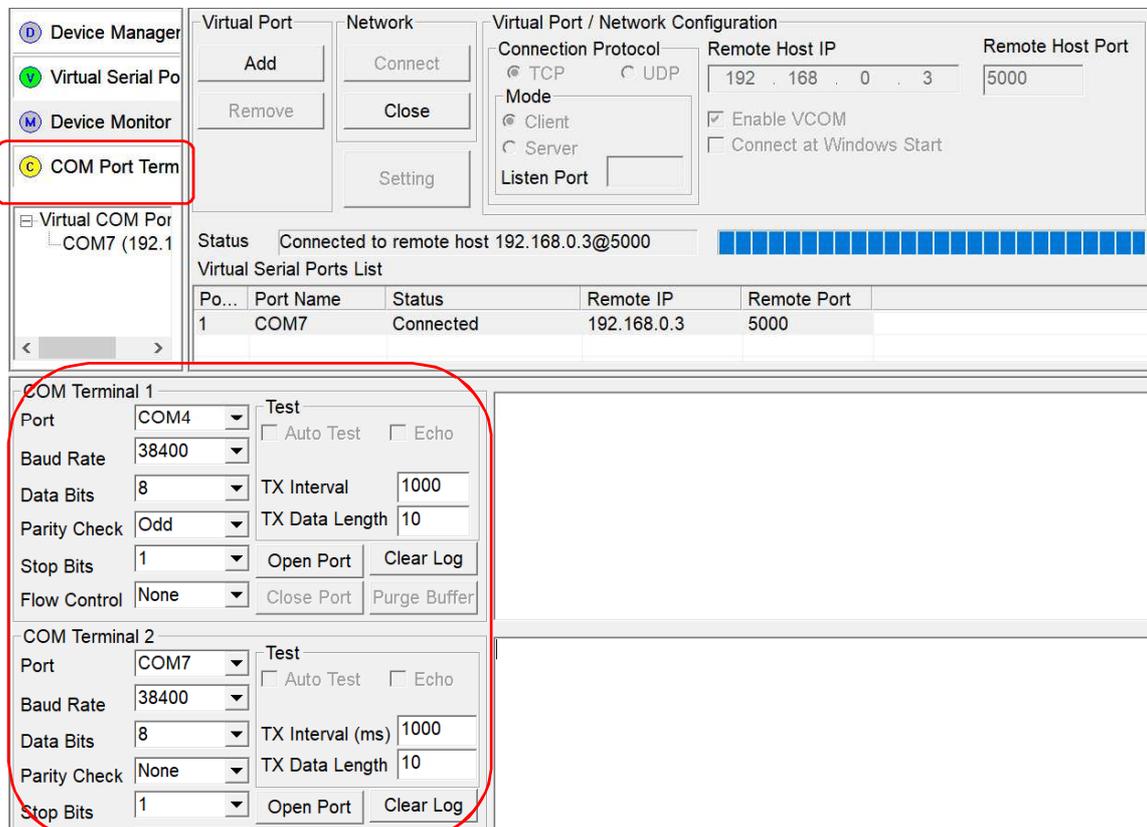
Assumes Aport-213's Serial port is connected to the COM4 on PC.

**** Before starting, it needs a cable connection from "COM port" of Aport-213 to PC. ****

By following the previous steps to add a virtual port "COM7" and connect.



Select "COM Port Terminal"

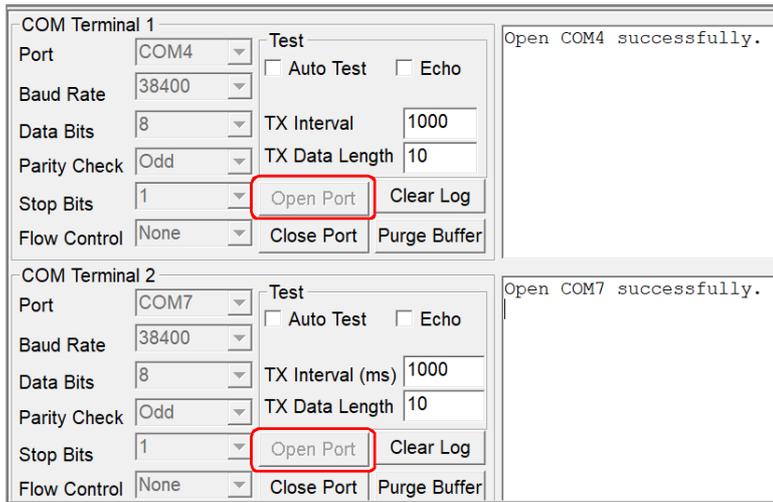


It displays:

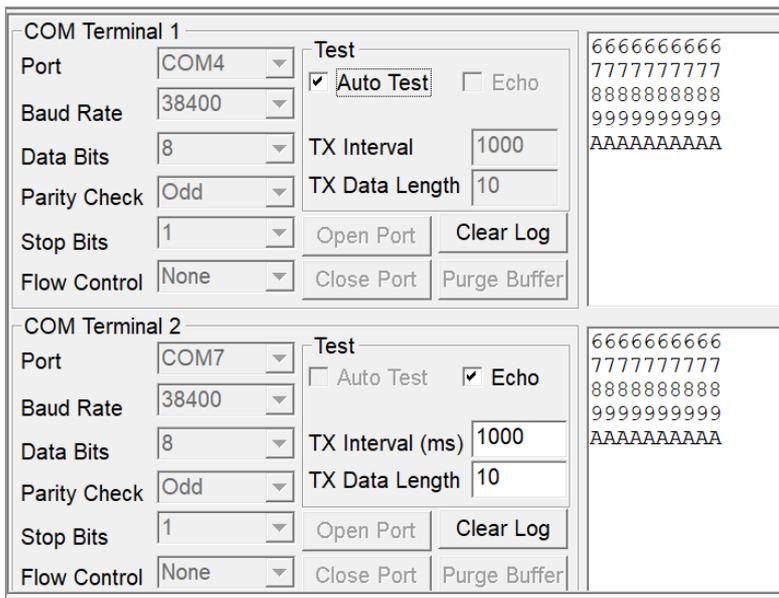
COM terminal 1 (COM4 – Aport-213 Serial Port) and terminal 2 (COM7-virtual port)

Be noted that "Baud Rate" and "Data Bit" must be setting the same parameter.

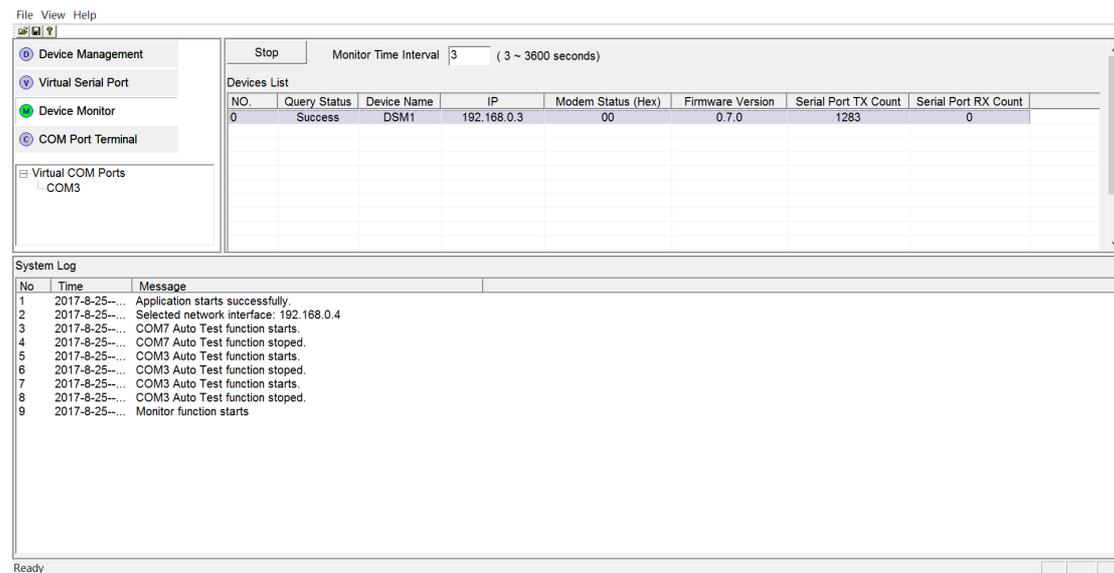
Press "Open Port" each successfully, then it can be input idea information at right hand area for data transition.



Press "Auto Test " at Terminal 1 and "Echo" at Terminal 2.
Terminal 1 will send characters automatically to Terminal 2 for testing.



6.7 Device Monitor



Start: starts / stops to monitor the selected device server(s). Before starting the monitor function, you need to select at least one device from the Devices List.

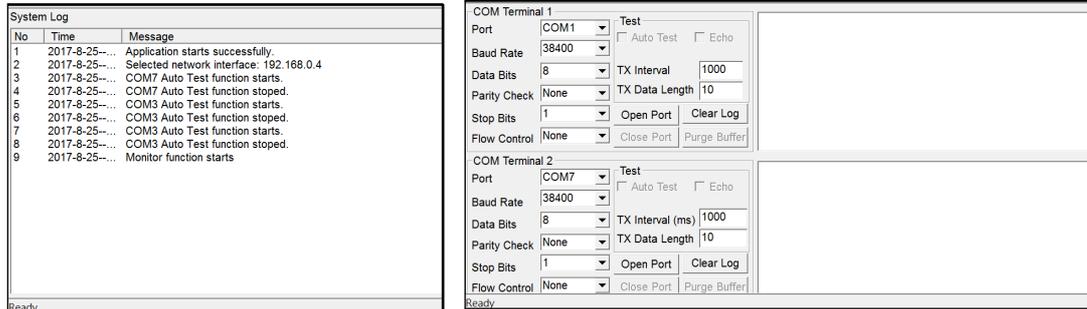
Monitor Time Interval: Set the monitor frequency.

When a device is selected from the Devices List, it will be added in the Devices List and the following information is displayed:

Category	Description
NO	Device server index in the list
Query Status	The device server's query status
Device Name	Device server name
IP	Device server IP address
Modem Status	The value of device server UART2's Modem Status register
Firmware Version	Production firmware version
Serial Port TX Count	Device server UART2's TX count in unit of bytes
Serial Port RX Count	Device server UART2's RX count in unit of bytes

6.8 COM Port Terminal

It can be switched of “System Log” and “COM port setting / information”



System Log

COM port setting / information

“**Open Port**” : opens the selected COM port.

“**Close Port**” : closes the selected COM port.

“**Clear Log**” : clears the console data.

“**Purge Buffer**” : clears the data stored in COM port buffer.

“**Auto Test**” : Enable / disable sending test data

“**Echo**” : Enable / disable echoing back received test data

“**TX Interval (ms)**” : The time interval to send out a test data

“**TX Data Length**” : The test data's length

