

Advantech AE Technical Sharing Documentation

Date	2020 / 01 / 16	Release Note	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	N/A
Abstract	How to implement the COM port mode setting including bias and terminal resistors?		
Keyword	BIOS and Dip switch setting for COM port.		
Related Product	UNO-2484G.		

■ **Problem Description:**

We have released an ECOM for changing motherboard to a new version. There are 6 add-on switches designed on the new motherboard. This FAQ is introducing more details for these switches.

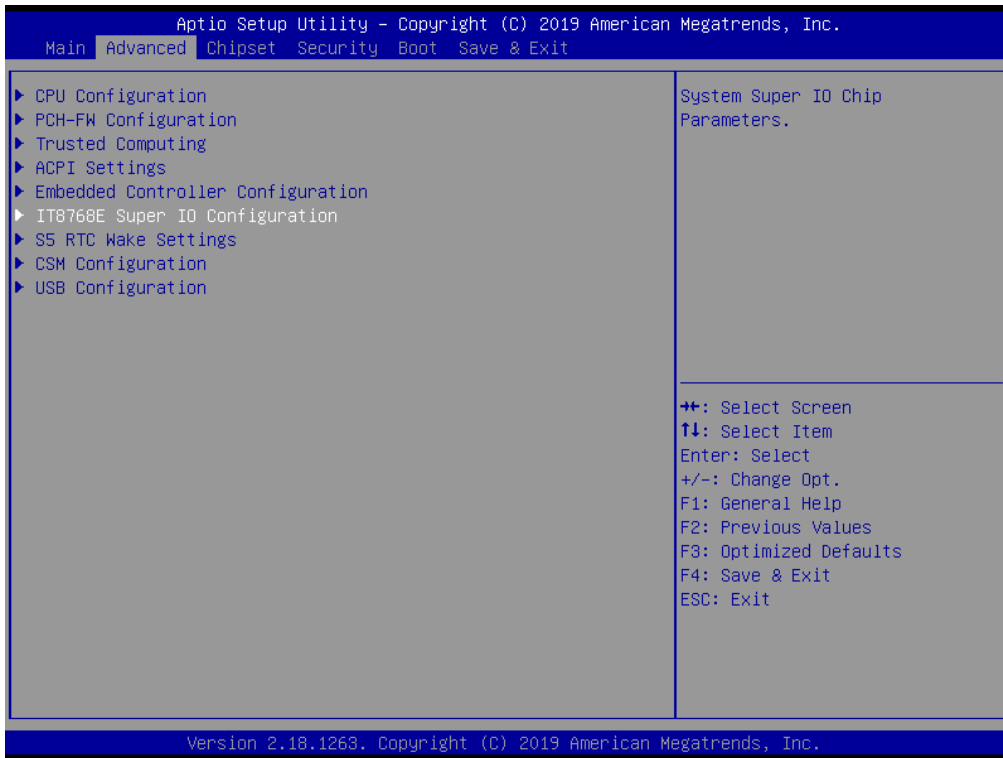
■ **Brief Introduction - Step by Step:**

A. Set required COM mode in BIOS.

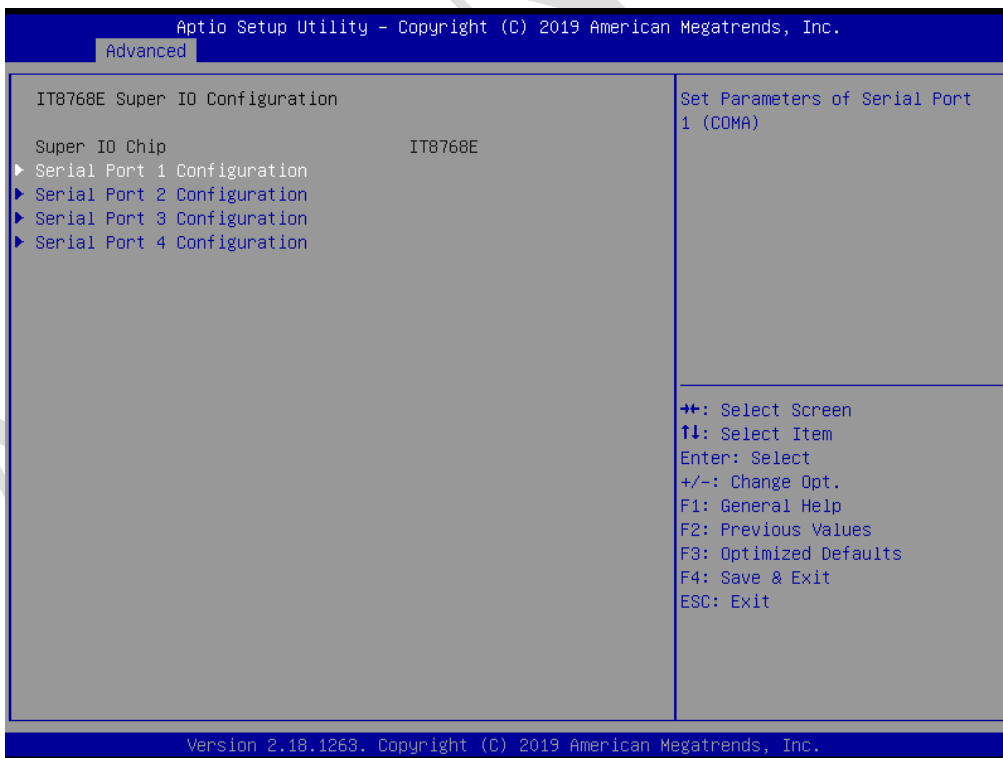
1. This is the main page of BIOS when you firstly enter it.



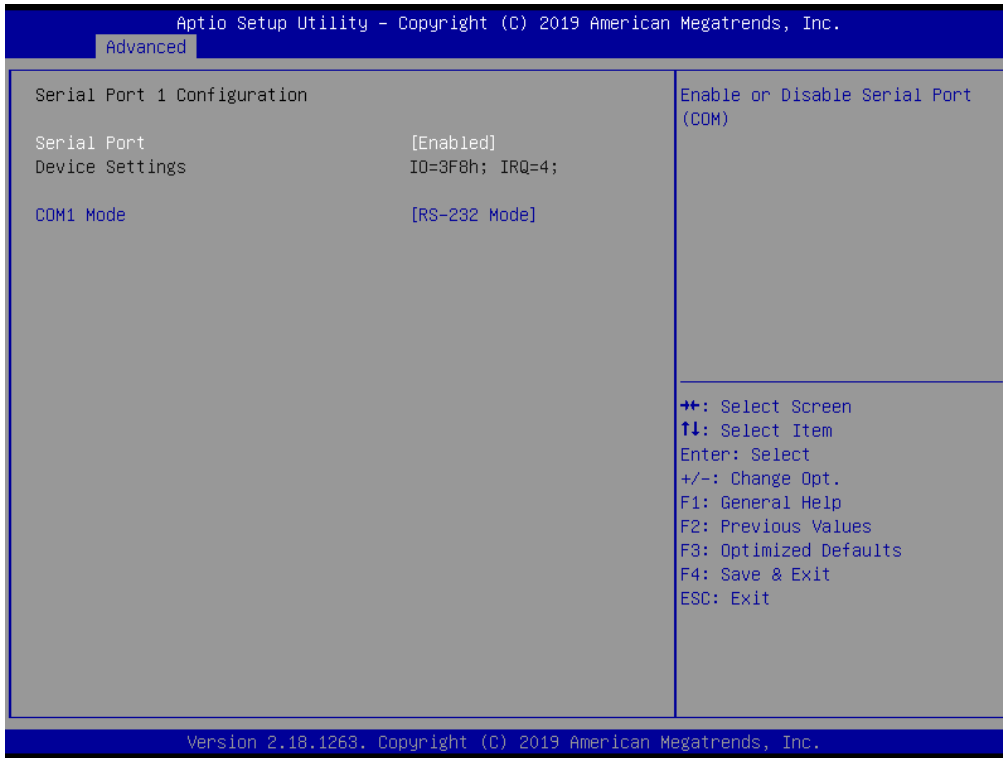
- To set mode of COM port, switch to “Advanced” page.
And then enter “Super IO Configuration”.



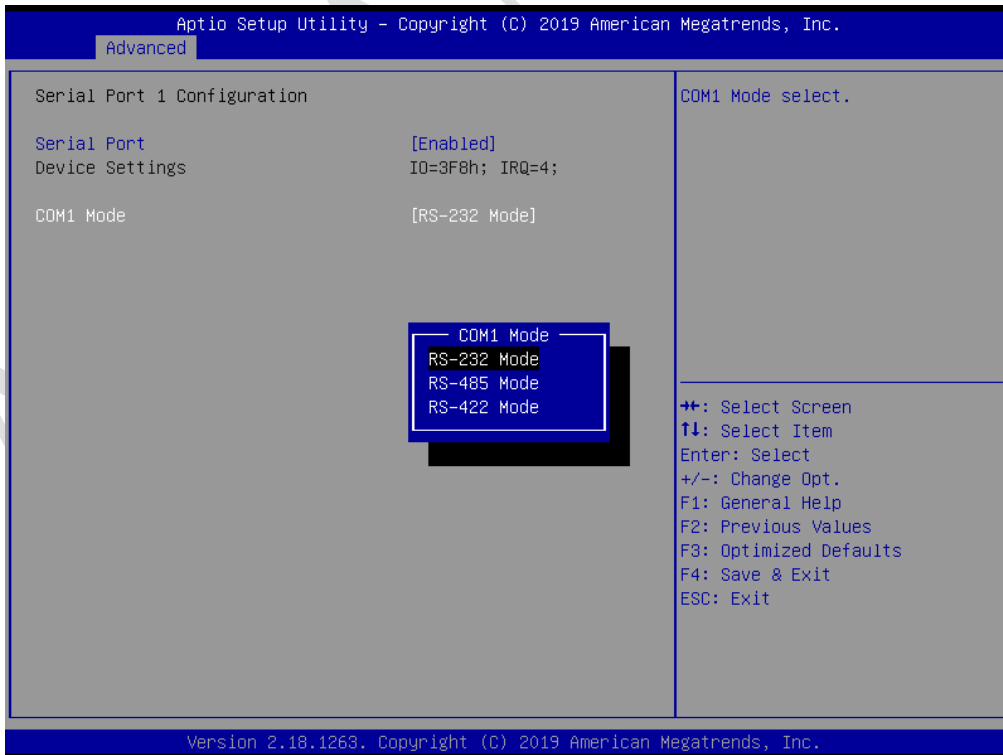
- There are four COM ports on UNO-2484G; we take one of them for example.



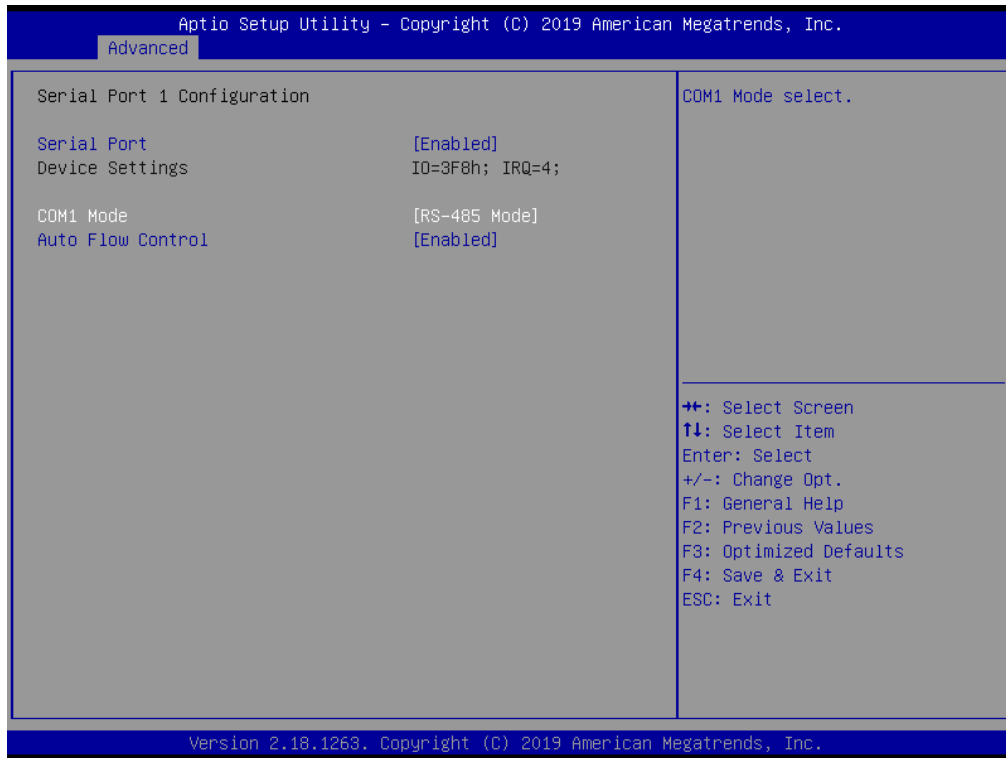
4. All of the COM ports are set to RS-232 by default as shown below.



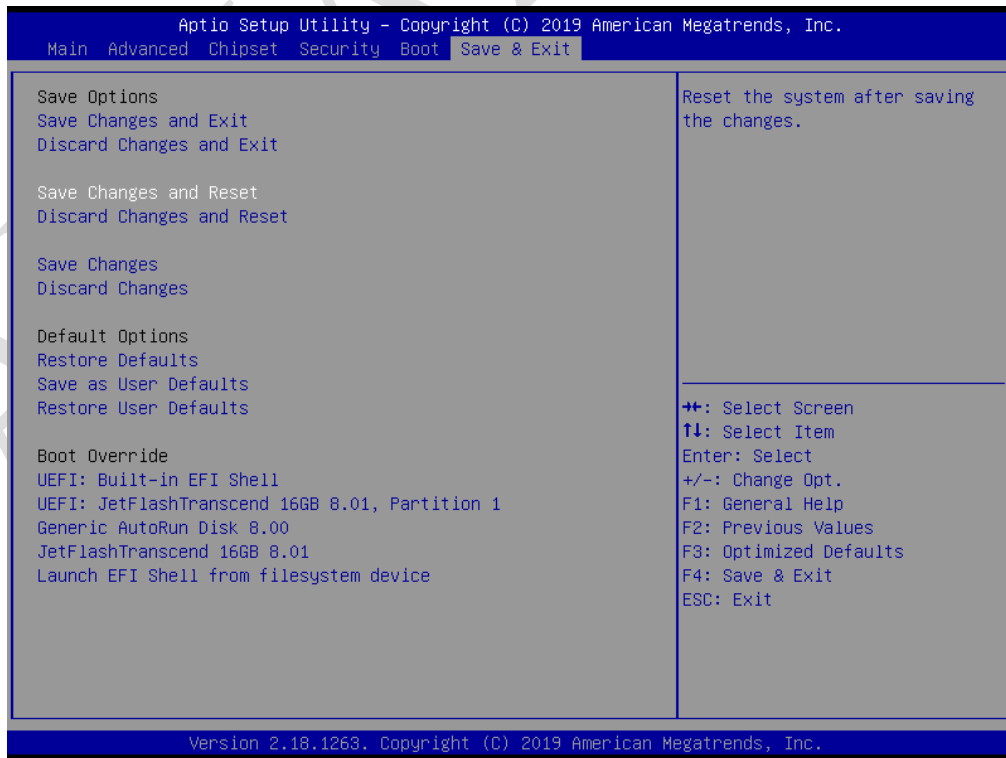
5. We can switch COM mode to RS-485 or RS-422.



6. When the mode is set to RS-485, “auto flow control” will be automatically enabled. Users don’t need to change it additionally.

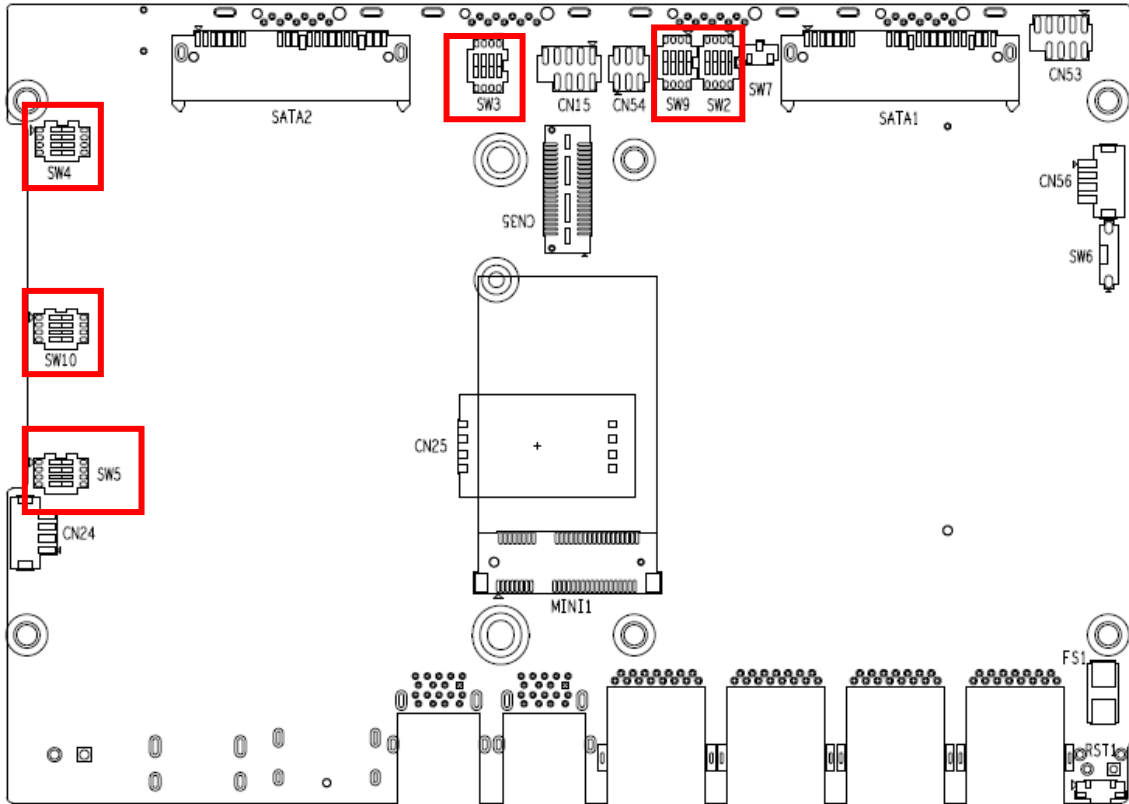


7. When the mode setting is completed, go to “save & exit” page. Then press “save changes and reset”, the UNO will reboot to take the new setting effective.



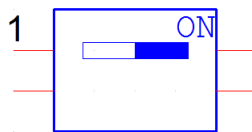
B. Set bias resistors and termination resistors by hardware switches.

1. Location of new Dip Switches:

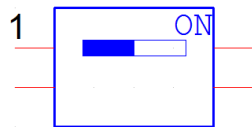


2. Dip-switch for COM port:

Definitions of settings are as shown below.



Setting for "ON"



Setting for "OFF"

COM1/2 Bias Resistor setting for RS-422/485 mode (SW2):

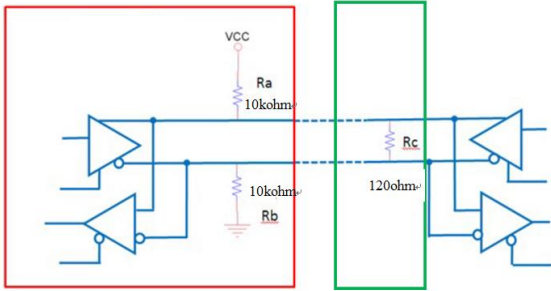
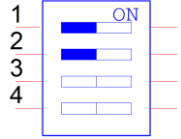

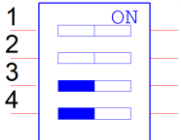
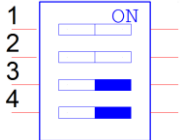
Description:

When COM1 working in RS-232 mode, set bit1 and bit2 of SW2 to “off”.

When COM1 working in RS-422/485 mode, set bit1 and bit2 of SW2 to “on”.

When COM2 working in RS-232 mode, set bit3 and bit4 of SW2 to “off”.

When COM2 working in RS-422/485 mode, set bit3 and bit4 of SW2 to “on”.

<p>Description</p>	<p>This dip-switch is used to select RS485/422 Bias Resistor Ra,Rb</p> 	
<p>COM1 RS232 Mode (default)</p>	<p>Bit 1,2 off</p>	
<p>COM1 RS422/485 Mode</p>	<p>Bit 1,2 ON</p>	
<p>COM2 RS232 Mode (default)</p>	<p>Bit 3,4 off</p>	
<p>COM2 RS422/485 Mode</p>	<p>Bit 3,4 ON</p>	

COM3/4 Bias Resistor setting for RS-422/485 mode (SW3):

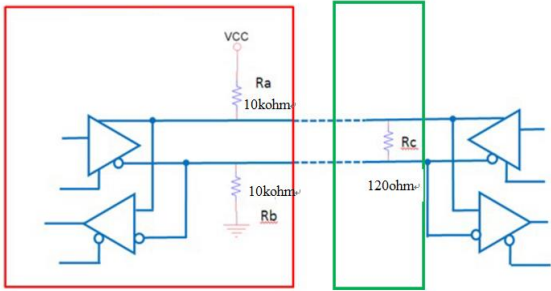
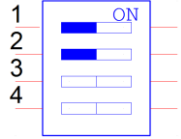
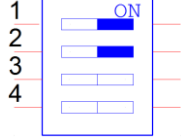
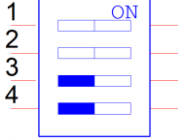
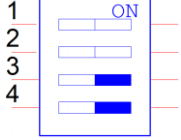
Description:

When COM3 working in RS-232 mode, set bit1 and bit2 of SW3 to “off”.

When COM3 working in RS-422/485 mode, set bit1 and bit2 of SW3 to “on”.

When COM4 working in RS-232 mode, set bit3 and bit4 of SW3 to “off”.

When COM4 working in RS-422/485 mode, set bit3 and bit4 of SW3 to “on”.

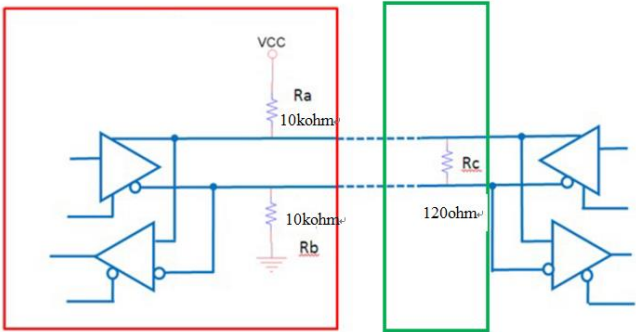
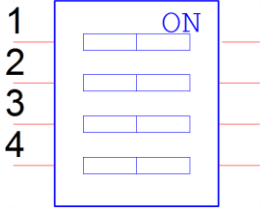
<p>Description</p>	<p>This dip-switch is used to select RS485/422 Bias Resistor Ra,Rb</p> 	
<p>COM3 RS232 Mode (default)</p>	<p>Bit 1,2 off</p>	
<p>COM3 RS422/485 Mode</p>	<p>Bit 1,2 ON</p>	
<p>COM4 RS232 Mode (default)</p>	<p>Bit 3,4 off</p>	
<p>COM4 RS422/485 Mode</p>	<p>Bit 3,4 ON</p>	

COM1/2/3/4 Termination Resistor setting for RS422 /485 mode (SW9)

Description:

Default setting for four COM ports is at “off” position.

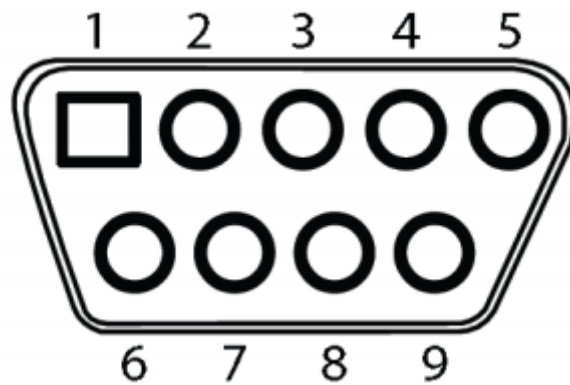
When users encounter communication problem, usually in long distance, please consider enabling the terminal resistor for corresponding COM port.

<p>Description</p>	<p>This dip-switch is used to select Termination Resistor (Rc 120 ohm) for long distance transmission or device matching.</p> 	
<p>Default setting</p>	<p>Bit1~4 off</p>	
<p>COM1</p>	<p>bit 1</p>	
<p>COM2</p>	<p>bit 2</p>	
<p>COM3</p>	<p>bit 3</p>	
<p>COM4</p>	<p>bit 4</p>	

[Appendix]

Pin definition of DB9 Connector:

Pin	RS232	RS422	RS485
1	DCD	TX-	D-
2	RX	TX+	D+
3	TX	RX+	
4	DTR	RX-	
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS		
9	RI		

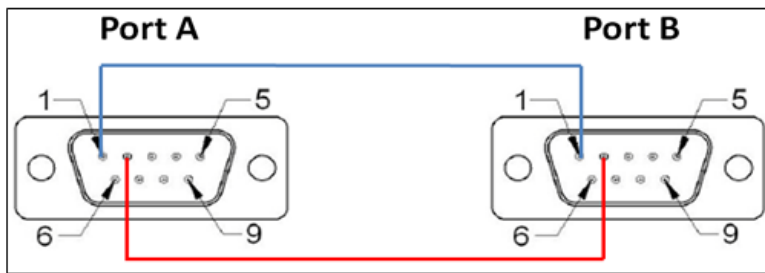
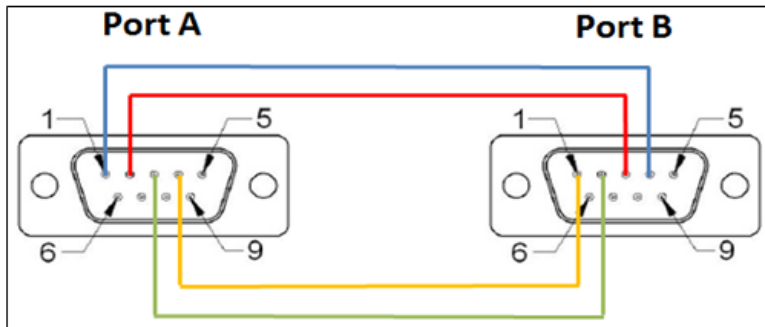
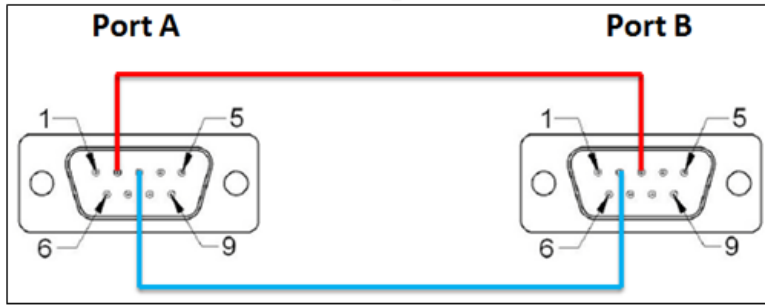


Connection of COM port test

Pin	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Pin	RS-422
1	Tx-
2	Tx+
3	Rx+
4	Rx-
5	GND
6	RTS-
7	RTS+
8	CTS+
9	CTS-

Pin	RS-485
1	Data-
2	Data+
3	-
4	-
5	GND
6	-
7	-
8	-
9	-



[Contact Windows]

Please contact your corresponding support engineer if you need further information.

Region (after service)	Product AE	Backup
America	Edison Hsiung	Tony Cheng
Europe	Tony Cheng	Edison Hsiung
ATW / ACN / AKR	Simon Peng	Jerry Cheng
AJP / Inter-con, etc.....	Jerry Cheng	Simon Peng

[Additional COM5/6/7/8 is only available by project support.]

COM5/6 Bias Resistor setting for RS-422/485 mode (SW4):

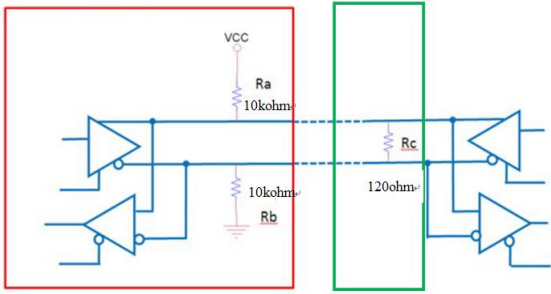
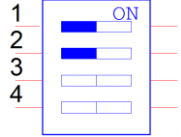
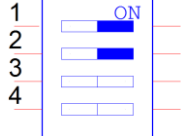
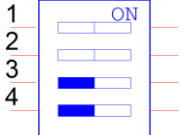
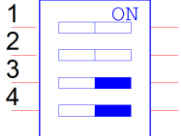
Description:

When COM5 working in RS-232 mode, set bit1 and bit2 of SW4 to “off”.

When COM5 working in RS-422/485 mode, set bit1 and bit2 of SW4 to “on”.

When COM6 working in RS-232 mode, set bit3 and bit4 of SW4 to “off”.

When COM6 working in RS-422/485 mode, set bit3 and bit4 of SW4 to “on”.

<p>Description</p>	<p>This dip-switch is used to select RS485/422 Bias Resistor Ra,Rb</p> 	
<p>COM5 RS232 Mode (default)</p>	<p>Bit 1,2 off</p>	
<p>COM5 RS422/485 Mode</p>	<p>Bit 1,2 ON</p>	
<p>COM6 RS232 Mode (default)</p>	<p>Bit 3,4 off</p>	
<p>COM6 RS422/485 Mode</p>	<p>Bit 3,4 ON</p>	

COM7/8 Bias Resistor setting for RS-422/485 mode (SW5):

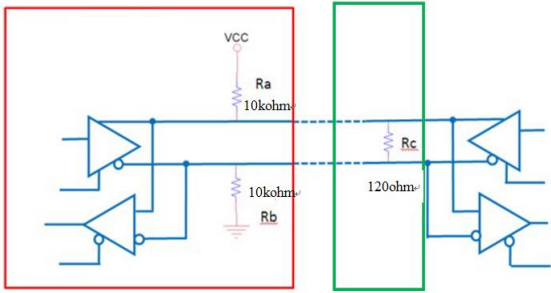
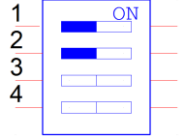
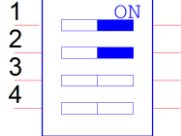

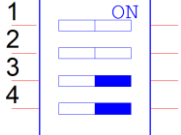
Description:

When COM7 working in RS-232 mode, set bit1 and bit2 of SW5 to “off”.

When COM7 working in RS-422/485 mode, set bit1 and bit2 of SW5 to “on”.

When COM8 working in RS-232 mode, set bit3 and bit4 of SW5 to “off”.

When COM8 working in RS-422/485 mode, set bit3 and bit4 of SW5 to “on”.

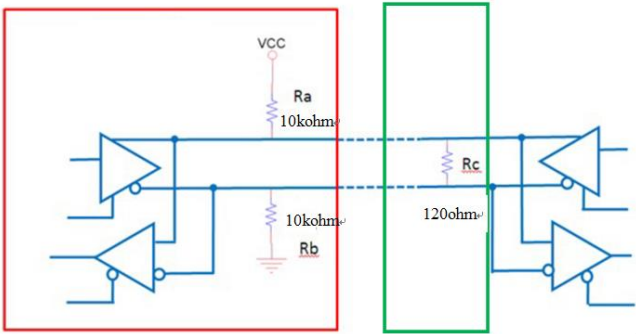
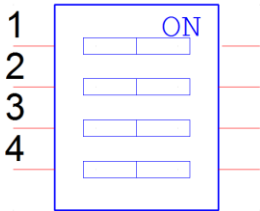
<p>Description</p>	<p>This dip-switch is used to select RS485/422 Bias Resistor Ra,Rb</p> 	
<p>COM7 RS232 Mode (default)</p>	<p>Bit 1,2 off</p>	
<p>COM7 RS422/485 Mode</p>	<p>Bit 1,2 ON</p>	
<p>COM8 RS232 Mode (default)</p>	<p>Bit 3,4 off</p>	
<p>COM8 RS422/485 Mode</p>	<p>Bit 3,4 ON</p>	

COM 5/6/7/8 Termination Resistor setting for RS422 /485 mode (SW10)

Description:

Default setting for four COM ports is at “off” position.

When users encounter communication problem, usually in long distance, please consider enabling the terminal resistor for corresponding COM port.

<p>Description</p>	<p>This dip-switch is used to select Termination Resistor (Rc 120 ohm) for long distance transmission or device matching.</p> 	
<p>Default setting</p>	<p>Bit1~4 off</p>	
<p>COM1</p>	<p>bit 1</p>	
<p>COM2</p>	<p>bit 2</p>	
<p>COM3</p>	<p>bit 3</p>	
<p>COM4</p>	<p>bit 4</p>	