ADVANTECH
Enabling an Intelligent Planet

How to use AIR-030 UART

EIoT AE Jackhsuan.Liao

2022/04/25

How to use RS-232/422

- First, it is necessary to change the switch

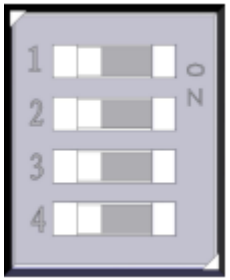


Table 2.6 :COM Port Mode Selection

	Mode/Description	Pin1	Pin2	Pin3	Pin4
COM1_SW1 (COM1) COM2_SW1(COM2) COM4_SW1(COM3) COM5_SW1(COM4) Setting	RS-232	OFF	OFF	OFF	OFF
	RS-422	ON	OFF	ON: Termination Enable OFF: Termination Disable	OFF
	RS-485 (Software flow control)	ON	ON	ON: Termination Enable OFF: Termination Disable	ON
	RS-485 (Hardware flow control) Termination Enable	ON	ON	ON: Termination Enable OFF: Termination Disable	ON: Receiver OFF: Transmitter

ADVANTECH

How to use RS-232/422

- First, customer need to change the switch to RS-232/422, then use the following command:
  - $ sudo -s
  - # stty -F /dev/ttyTHS<UARD_NO> speed 115200
- Receive data:
  - # cat /dev/ttyTHS<UARD_NO>
- Transmit data:
  - # echo “hello” > /dev/ttyTHS<UARD_NO>

How to use RS-485-Hardware

- First, it is necessary to change the switch

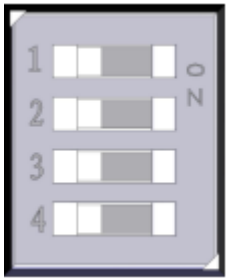


Table 2.6 :COM Port Mode Selection

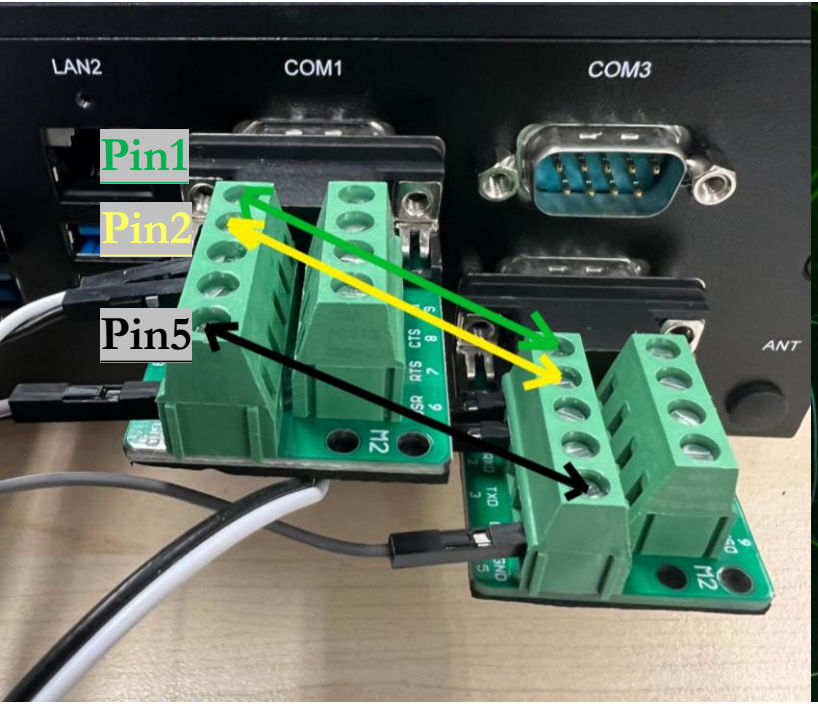
	Mode/Description	Pin1	Pin2	Pin3	Pin4
COM1_SW1 (COM1) COM2_SW1(COM2) COM4_SW1(COM3) COM5_SW1(COM4) Setting	RS-232	OFF	OFF	OFF	OFF
	RS-422	ON	OFF	ON: Termination Enable OFF: Termination Disable	OFF
	RS-485 (Software flow control)	ON	ON	ON: Termination Enable OFF: Termination Disable	ON
	RS-485 (Hardware flow control) Termination Enable	ON	ON	ON: Termination Enable OFF: Termination Disable	ON: Receiver OFF: Transmitter

How to use RS-485-Hardware

- Also, customer can change the switch to RS-485 mode and change the speed of RS-485 by following command
  - $ sudo -s
  - # stty -F /dev/ttyTHS<SEND_UARD_NO> speed 115200
  - # stty -F /dev/ttyTHS<REC_UARD_NO> speed 115200
- Receive data:
  - # cat /dev/ttyTHS<REC_UARD_NO>
- Transmit data:
  - # echo “hello” > /dev/ttyTHS<SEND_UARD_NO>

How to use RS-485-Hardware

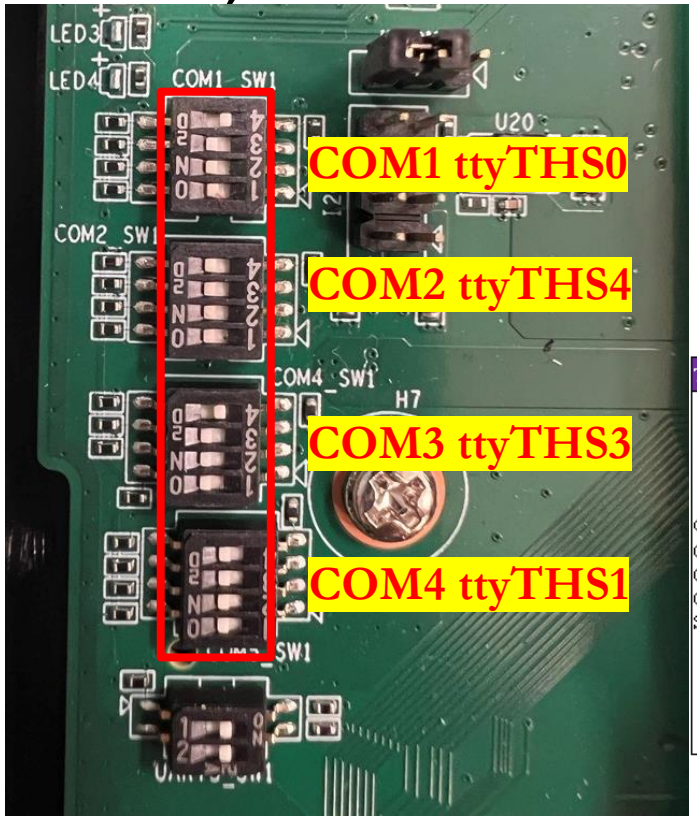
- COM1 Send and COM4 Recieve




```
root@linux: /home/ubuntu/Desktop
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@linux:~/Desktop$ sudo -s
[sudo] password for ubuntu:
root@linux:/home/ubuntu/Desktop# stty -F /dev/ttyTHS
ttyTHS0  ttyTHS1  ttyTHS3  ttyTHS4
root@linux:/home/ubuntu/Desktop# stty -F /dev/ttyTHS0
speed 9600 baud; line = 0;
-brkint -imaxbel
root@linux:/home/ubuntu/Desktop# stty -F /dev/ttyTHS0 speed 115200
9600
root@linux:/home/ubuntu/Desktop# stty -F /dev/ttyTHS1 speed 115200
9600
root@linux:/home/ubuntu/Desktop# cat /dev/ttyTHS1 &
[1] 2347
root@linux:/home/ubuntu/Desktop# echo "1234" > /dev/ttyTHS0
1234

root@linux:/home/ubuntu/Desktop# echo "1234" > /dev/ttyTHS0
1234

root@linux:/home/ubuntu/Desktop#
```

How to use RS-485-Hardware

- First, it is necessary to change the switch



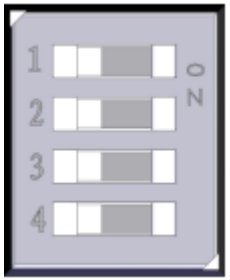


Table 2.6 :COM Port Mode Selection

	Mode/Description	Pin1	Pin2	Pin3	Pin4
COM1_SW1 (COM1) COM2_SW1(COM2) COM4_SW1(COM3) COM5_SW1(COM4) Setting	RS-232	OFF	OFF	OFF	OFF
	RS-422	ON	OFF	ON: Termination Enable OFF: Termination Disable	OFF
	RS-485 (Software flow control)	ON	ON	ON: Termination Enable OFF: Termination Disable	ON
	RS-485 (Hardware flow control) Termination Enable	ON	ON	ON: Termination Enable OFF: Termination Disable	ON: Receiver OFF: Transmitter

ADVANTECH

How to use RS-485-Software

- we need to enable the RTS Pin by following command:
  - $ sudo -s
  - # echo 460 > /sys/class/gpio/export
  - # echo 477 > /sys/class/gpio/export

RTS Pin Number	AIR-030 JP 5.1.1
COM1	460(PR.04)
COM2	477(PY.07)
COM3	396(PH.05)
COM4	468(PX.06)

How to use RS-485-Software

- Control direction by RTS Pin by following command:
  - # echo out > /sys/class/gpio/PR.04/direction
  - # echo out > /sys/class/gpio/PY.07/ direction
- Set the COM ports speed:
  - # stty -F /dev/ttyTHS0 speed 115200 -crtscts
  - # stty -F /dev/ttyTHS4 speed 115200 -crtscts

RTS Pin Number	AIR-030 JP 5.1.1
COM1	460(PR.04)
COM2	477(PY.07)
COM3	396(PH.05)
COM4	468(PX.06)

How to use RS-485-Software

- Receive data: (pull low to receive data)
  - # echo 0 > /sys/class/gpio/PR.04/value
  - # cat /dev/ttyTHS0
- Transmit data: (pull hugh to send data)
  - # echo 1 > /sys/class/gpio/PY.07/value
  - # echo “hello” > /dev/ttyTHS4

RTS Pin Number	AIR-030 JP 5.1.1
COM1	460(PR.04)
COM2	477(PY.07)
COM3	396(PH.05)
COM4	468(PX.06)

Contact Window and File Link

- **EIoT AE:** Jackhsuan.liao **Ext.** 9319

- **E-mail:** Jackhsuan.liao@advantech.com.tw

Go Together,

We Go Far and Grow Big