Modem M.2 to USB Converter

GTM-205M

User Manual

Version 1.0.0 Mar 2024

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

Warning

ICP DAS assumes no liability for damages consequent to the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, or for any infringements of patents or other rights of third parties resulting from its use.

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Contact us

If you have any problem, please feel free to contact us. You can count on us for quick response.

Email : service@icpdas.com

Symbol description

RoHS

Manufacture of this product strictly abide by the rules of lead-free and does not contain any harmful substances.

WEEE

This symbol means this product must be collected at the time of discarding in the EU.

HOT SURFACE DO NOT TOUCH

This symbol means this product's enclosure may be with high temperature, do not touch before cooling or else will be burned.

USB Super Speed Plus

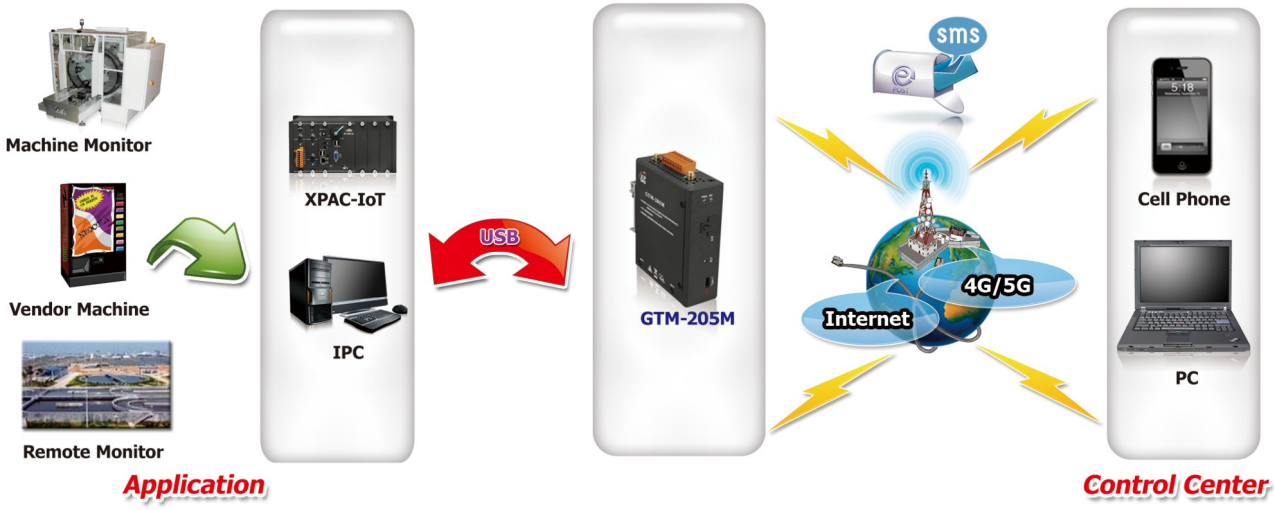
This product support USB 3.1 Super Speed Plus.

Table of Contents

1. Introduction

GTM-205M is an industrial-grade data modem M.2 converter with a USB Super Speed Plus interface. Customers can choose to match different communication modules according to the requirements of the field, supporting services in different frequency bands.

The GTM-205M supports standard AT commands and also provides an integrated library, eliminating the need for customers to handle command issues with different communication modules, allowing them to focus and accelerate application development. It can be paired with various PLCs and PCs, and through the library, SMS sending and 4G/5G connections can be quickly implemented.



2. Hardware Specifications

2.1 Hardware Specifications

Item	GTM-205M
Comm. Interface	
COM Port	RS232 x 1 (RxD, TxD, GND, Only for Reset Modem)
COM Port Baud Rate	115200 bps
USB	USB 3.1 (Super Speed Plus)
USB Driver Support	Windows 10_x64、Windows 11
LED Indicators	
Power	Red
Signal	Green
Power	
Protection	Power reverse polarity protection
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC}
Rated Current	30 ~ 15 mA / 10 ~ 30 V_{DC}
Reset Input	
Input Type	Isolated, 3750 V_{rms}
On Voltage Level	+3.5 V_{DC} ~ +30V_{DC}
Off Voltage Level	+1 V_{DC} max.
Input Impedance	3 kΩ, 0.25W
Mechanical	
Casing	Metal
Dimensions (W x L x H)	28 mm x 78.5 mm x 100 mm
Installation	DIN-Rail
Environment	
Operation Temperature	-25℃ to 70℃
Storage Temperature	-40℃ to 80℃
Humidity	5~90% RH, non-condensing

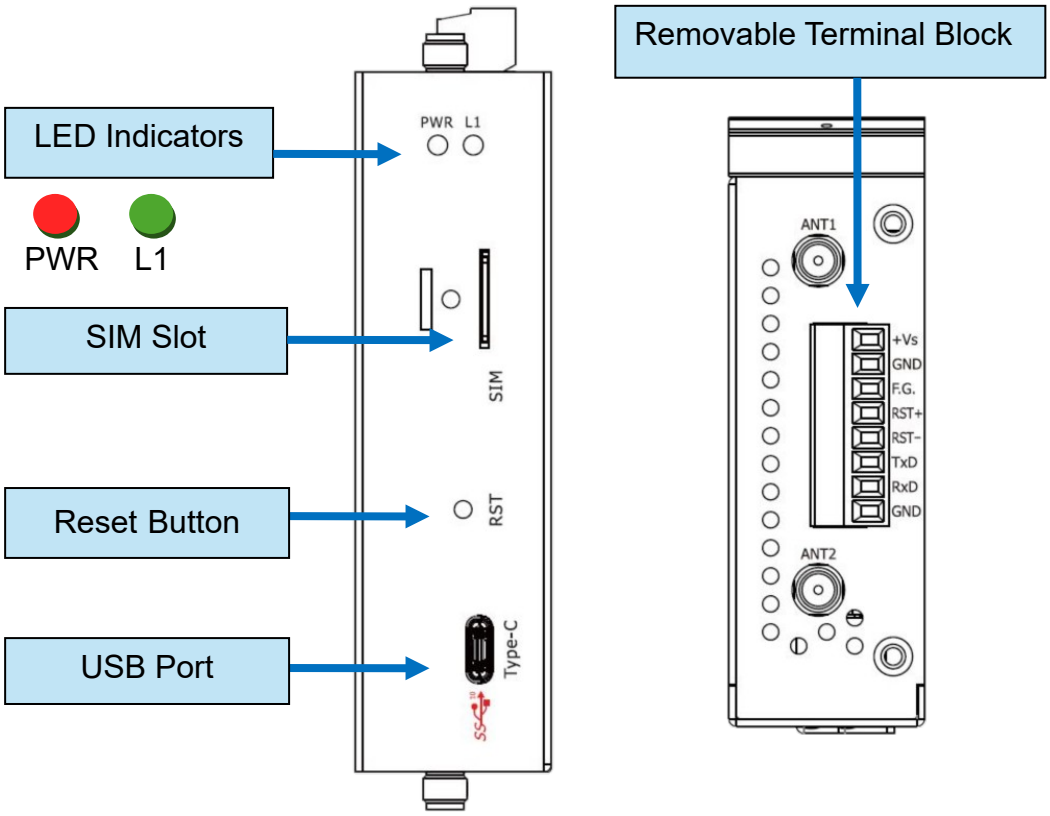
2.2 Accessory Specification

Module (Optional)	RM500Q-AE	RM500Q-GL	FN990A28	MV31-W
Frequency Bands				
5G	**NSA/SA:** n1/n2/n3/n5/n7/ n8/n12/n20/n25/ n28/n38/n40/ n41/n48*/n66/ n71/n77/n78/n79	**NSA**: n38/n41/n77/n78/n79 **SA**: n1/n2/n3/n5/n7/n8/ n12/n20/n25/n28/ n38/n40/n41/n48*/ n66/n71/n77/n78/n79	**NSA/SA:** n1/n2/n3/n5/n7/ n8/n20/n25/n28/ n30/n38/n40/n41/ n48/n66/n71/n75/ n77/n78/n79 Default off - n12/n13/n14/n18/ n26/n29/n76	**FDD**: n1/n2/n3/n5/n7/n8/ n12/n20/n28/ n66/n71 **TDD**: n38/n41/n77/n78/n79 **mmWave**: n257/n258/n260/n261
4G	**FDD-LTE:** B1/B2/B3/B4/B5/B7/B8/B12(B17)/B13/B14/B18/B19/B20/B25/B26/B28/B29/B30/ B32/B66/B71 **TDD-LTE:** B34/B38/B39/B40/B41/B42/B43/B48 **LAA**: B46		B1/B2/B3/B4/B5/ B7/B8/B12/B13/ B14/B17/B20/ B25/B26/B28/ B29/B30/B32/ B38/B40/B41/ B42/B43/B48/ B66/B71 **LAA**: B46	**FDD-LTE:** BB1/B2/B3/B4/B5/B7/ B8/B12/B13/B14/B17/ B18/B19/B20/B25/B26 /B28/B29/B30/B32/ B66/B71 **TDD LTE:** B34/B38/B39/B40/ B41/B42/B43/B48 **LAA**: B46
3G	B1/B2/B3/B4/ B5/B6/B8/B19	B1/B2/B3/B4/B5/ B8/B19	B1/B2/B3/B4/B5/B6/B8/B19	
GNSS	GPS/GLONASS/BeiDou/Galileo			
Scope of Use				
Region	Global (Except for China)	Global (Except for US)	EMEA/ APAC/ North America	Global
Certification	GCF/RCM/ JATE*/IC*/ PTCRB*/CE/ FCC/NCC	GCF/CCC/CE/KC/ RCM	FCC/IC/RED/ NCC/JATE/ TELEC/KCC/ RCM/PTCRB/GCF	RED/REACH/CE/IC/ FCC/ISED/GCF/ PTCRB/RCM/JATE/TE LECC
Environment				
Temperature Range	-30°C ~+70°C		-40°C ~+85°C	
Dimensions (W x L x H)	30.0mm x 52.0mm x 2.3mm		30.0mm x 52.0mm x 2.25mm	30.0mm x 42.0mm x 2.5mm

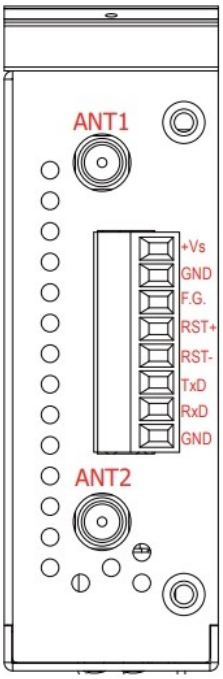
* : Under development/in progress

3. Hardware Appearance

3.1 View of the GTM-205M Panel

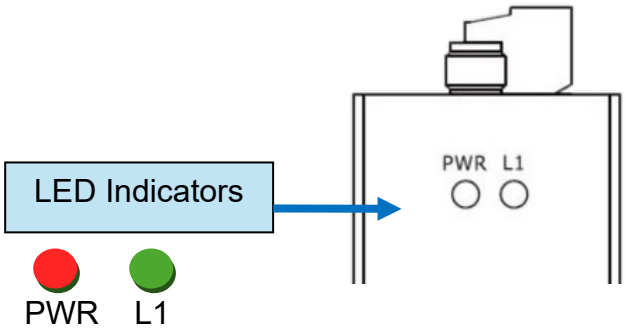


3.2 Pin Assignments



Item	Name
Power Input +10 ~ +30 VDC	+Vs
	GND
Frame Ground	F. G
Reset	RST+
	RST-
RS-232	TxD
	RxD
	GND

3.3 LED Indicators



GTM-205M has 2 LED indicator lights to help users determine the current status of the sys tem. Their descriptions are as follows:

A. PWR(Red)：The PWR LED can indicate the status of Power module.

Power normal	Power fail
Always ON	Always OFF

B. Signal (Green)：The modem LED can indicate the status of 5G module.

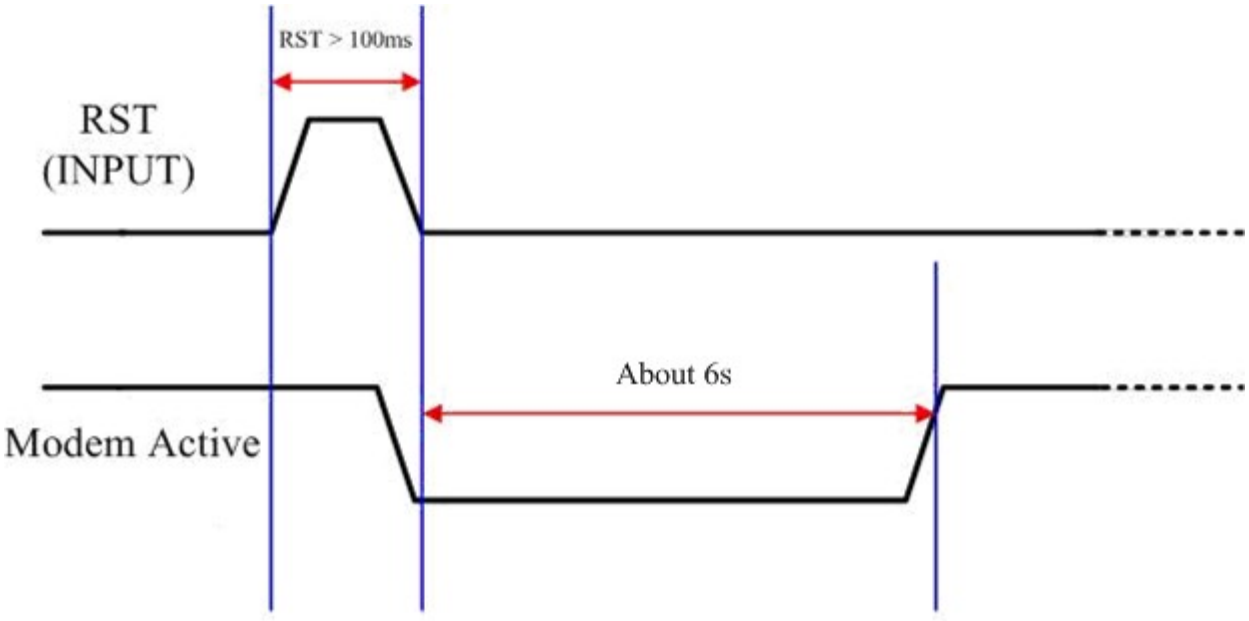
5G module normal	5G module fail
Always ON	Always OFF

4. Hardware Wire Connection

4.1 Reset Wire Connection

Input Type	Reset State ON	Reset State OFF
Reset Input		

Reset Input	
ON Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}
OFF Voltage Level	+1 V_{DC} max.



Timing of restarting the modem

You can also restart the modem by inputting the command "@ICPDASRESET" through RS-232.

4.2 Installation

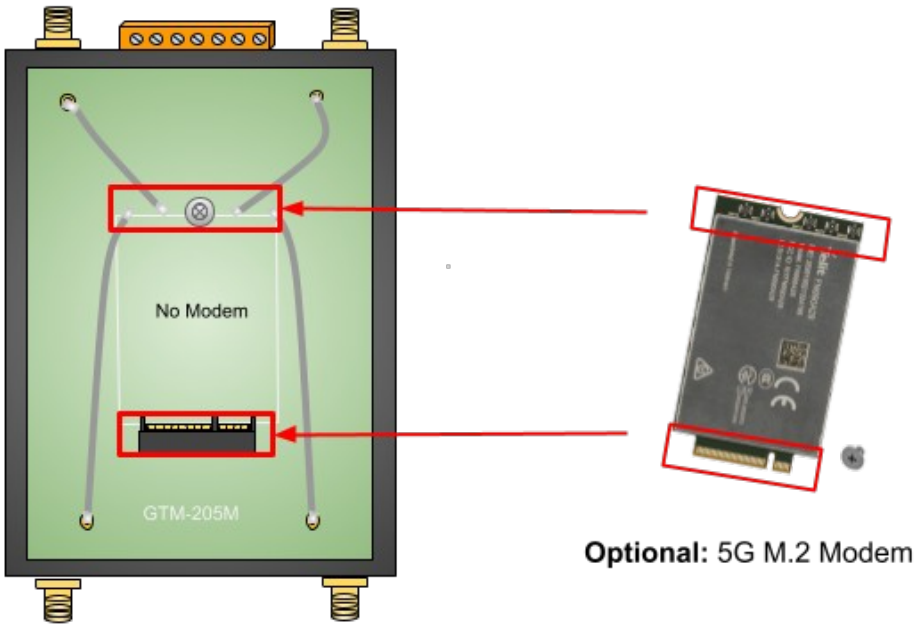
➢ Module Installation Method

Please refer to the following installation method:

- For purchasing communication modules, please refer to the ordering information below the ordering page of GTM-205M.

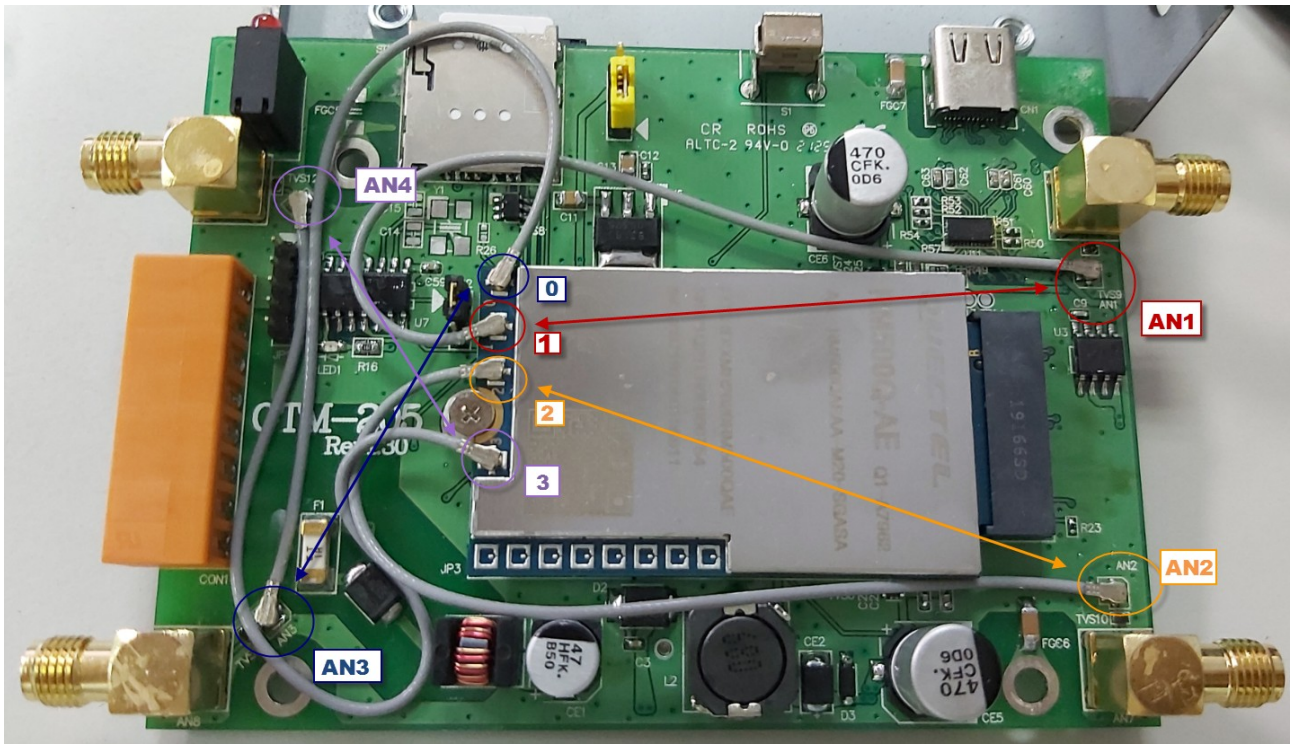
Step 1: Remove the screw(s) securing the mounting mechanism.

Step 2: Insert the purchased communication module into the slot, and secure it by tightening the silver screw(s).



Step 3: Attach the IPEX cable to the IPEX connectors on the communication module and to the AN0~3 positions on the board.

- The position of the IPEX connectors may vary depending on the module, but there is no difference in installation.



Assembly Safety Precautions

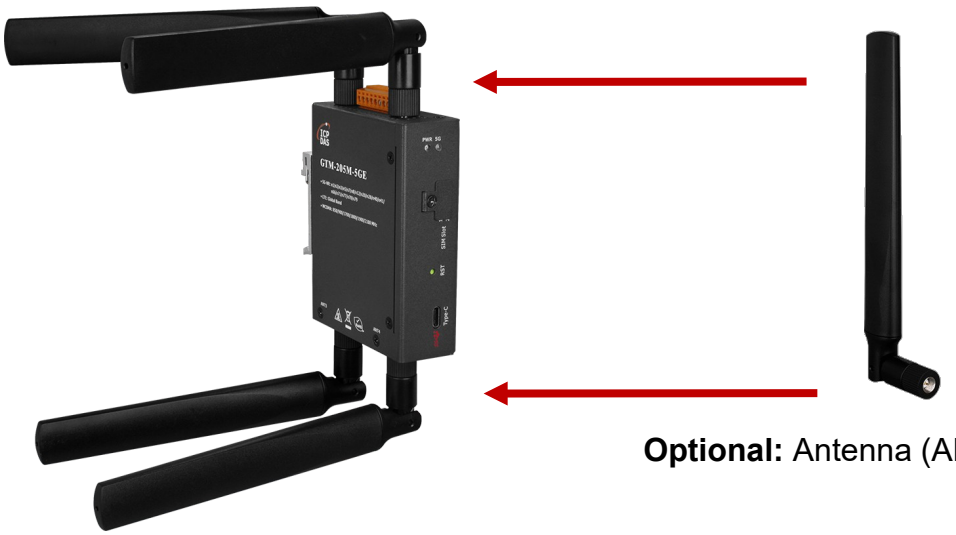
1. Assemble only when the power is completely off.
2. Be particularly careful of other electronic components on the panel dur ing assembly to avoid damage.
3. Handle with care during assembly to prevent accidental contact with o ther components and potential injury.

Step 4: After installation, reassemble the removed casing.

➢ SIM Card and Antenna Installation

Step 1: Insert the Micro SIM card into the card slot.

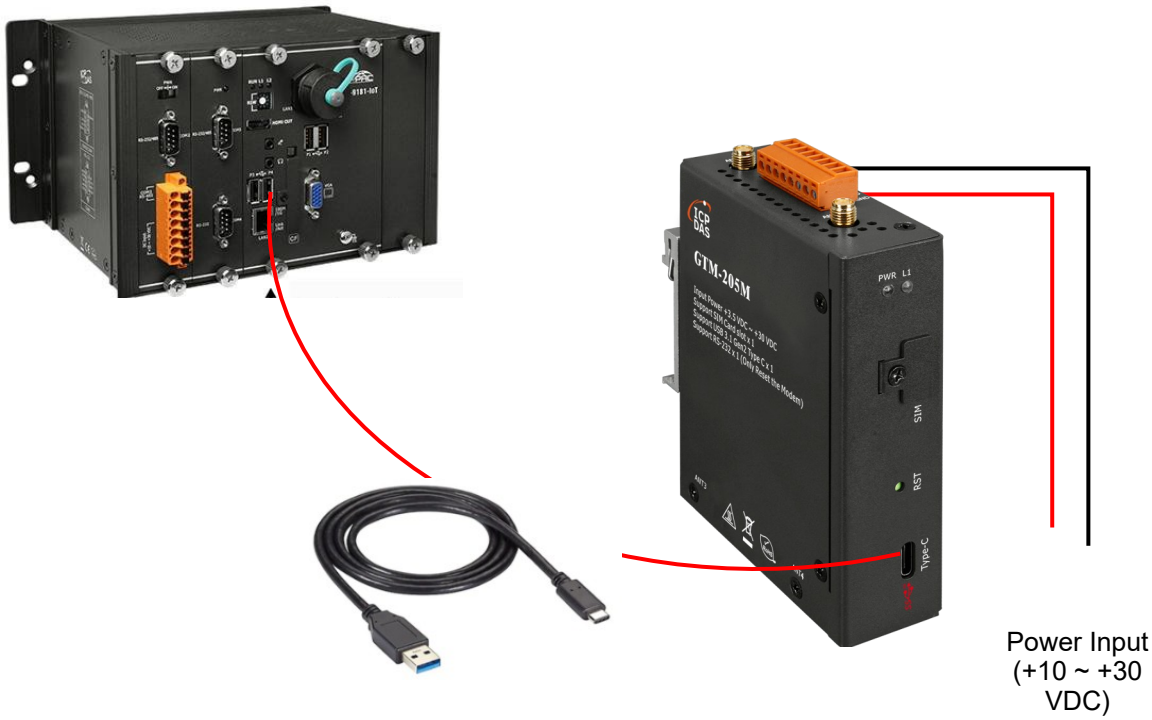
Step 2: Install the purchased antenna accessory.



Optional: Antenna (ANT-859-01)

➢ Power Supply Wiring

Power can be supplied via USB or through the power input terminals. If USB power is found to be unstable, it is recommended to use the power input terminal for supplying power.



USB Type A to Type C

Safety Precautions

1. The product casing may be hot. Do not touch it until it has cooled down to avoid burns.
2. The power input terminals (DC.+VS/DC.) comply with EN60950-1 requirements for Limited Power Sources (SELV). Ensure correct wiring.

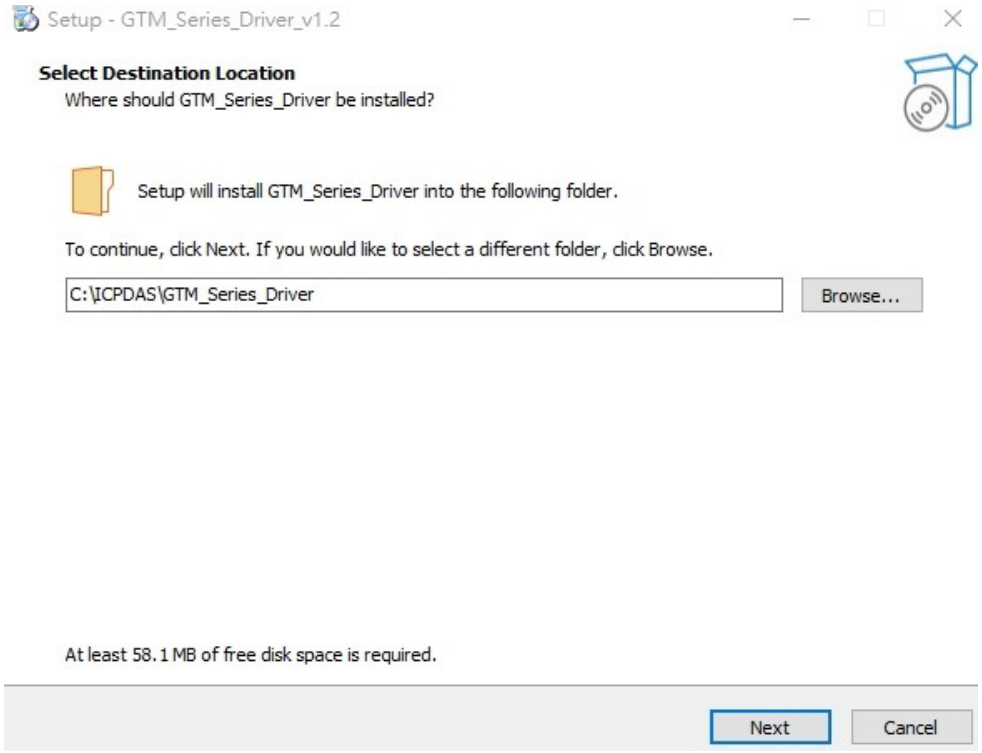
5. USB Driver Installation

Please download the driver from the official website and proceed with the installation.

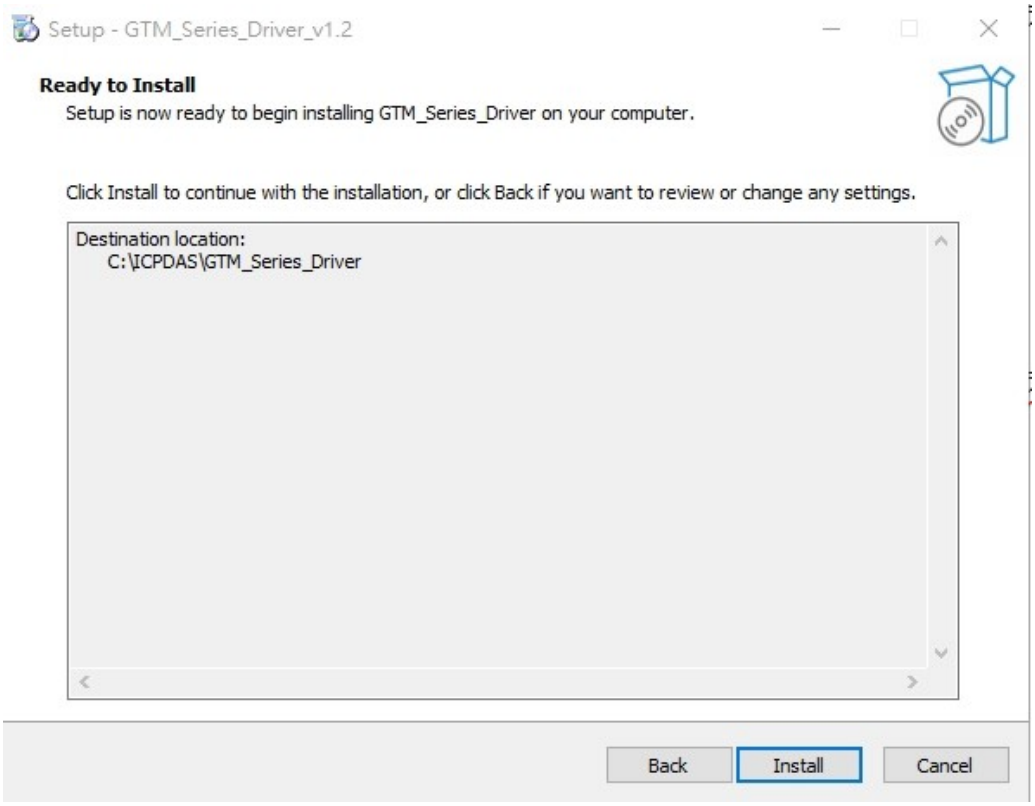
https://www.icpdas.com/tw/download/show.php?num=8695&model=GTM-205M-5GE

Step 1: Install the corresponding USB driver "GTM-20xM USB driver.exe".

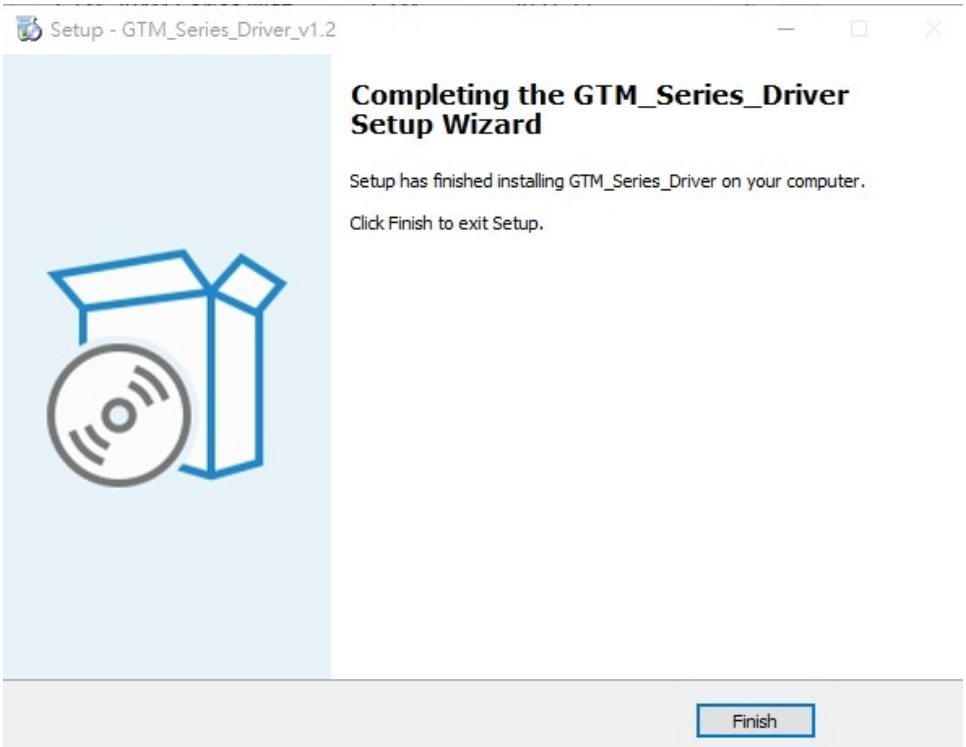
Step 2: Double-click on "GTM-20xM USB driver.exe" to install the driver, then click "Next".



Step 3: Click on "Install". Please wait for the installation to complete. Do not close the program during installation.



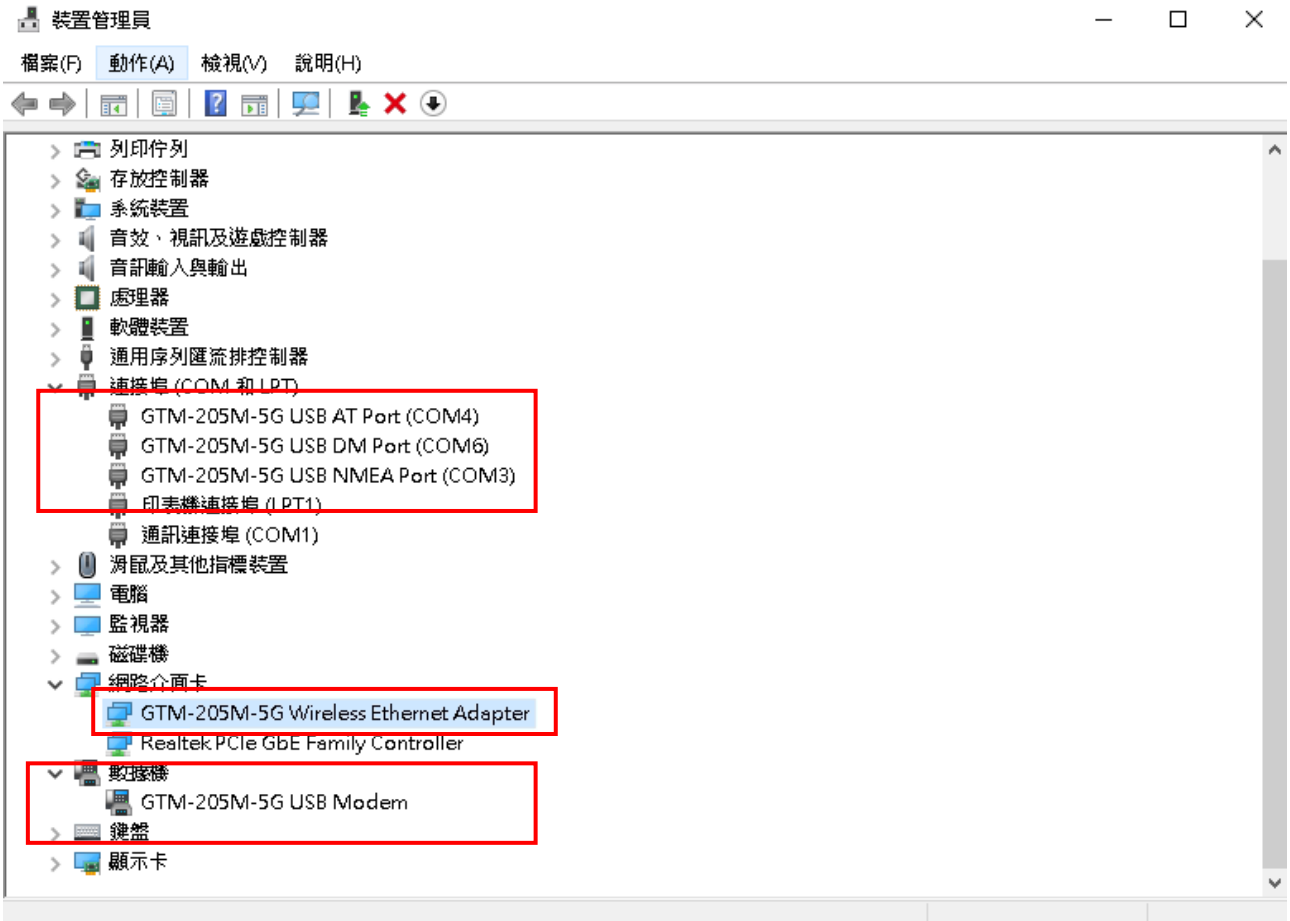
Step 4: Click "Finish".



Step 5: Connect GTM-205M to your PC via the USB cable.

Step 6: Check Device Manager to see the listed devices: USB NMEA Port, USB AT Port, USB Modem, USB DM Port, and Wireless Ethernet Adapter.

※ The displayed names may vary depending on the module. The main communication ports are typically **"AT Port"** and **"Modem Port"**.

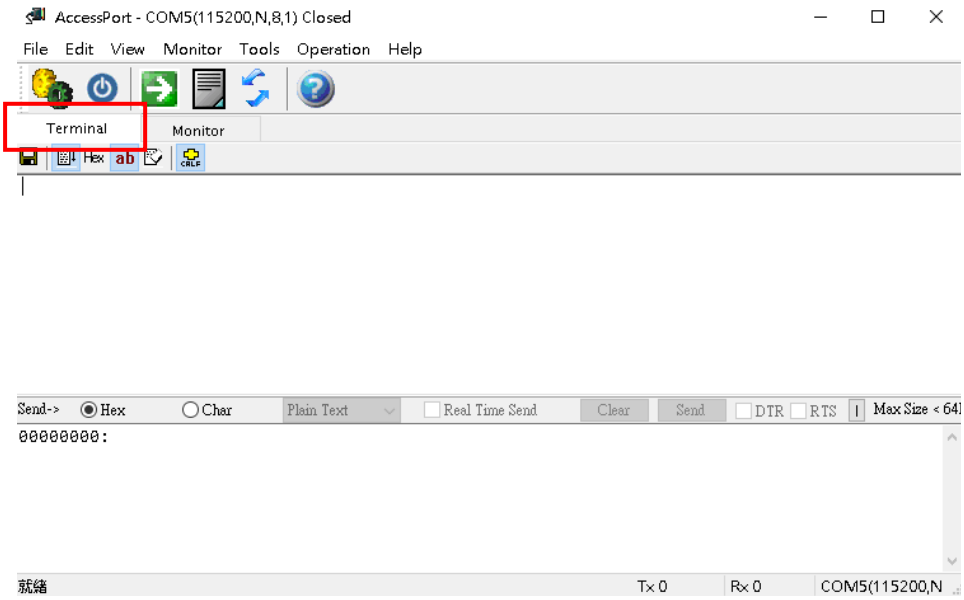


6 Software Test

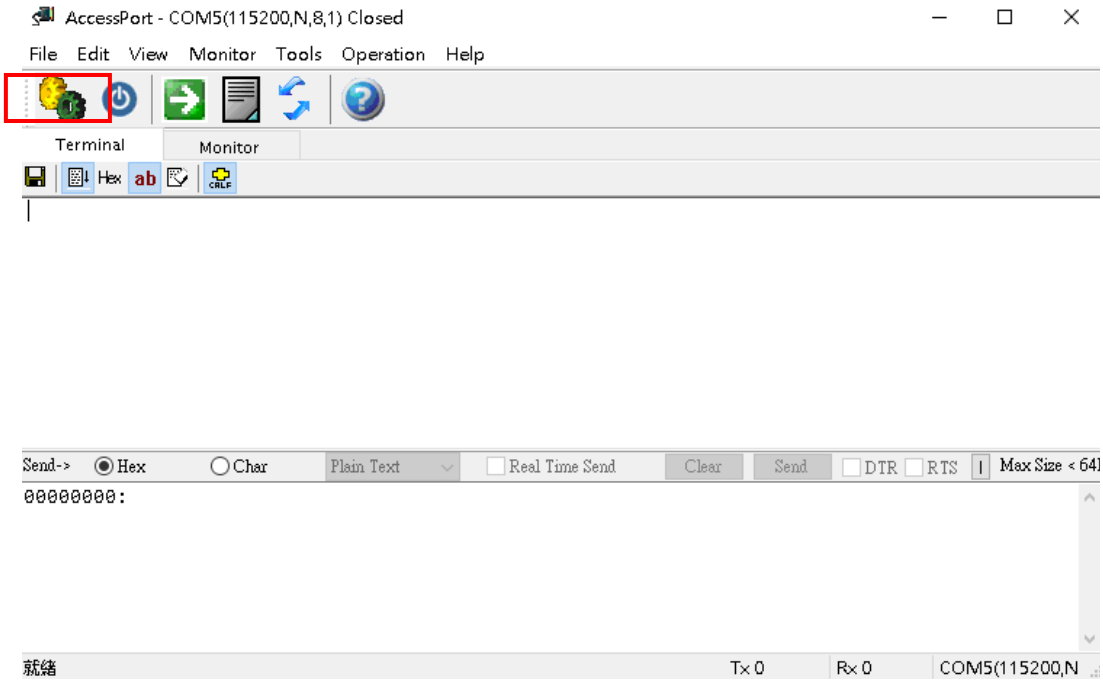
6.1 Test Com Port communication

※ This example uses Access Port version 1.37 for testing.

Step 1: Open the Access Port software and select the Terminal option.

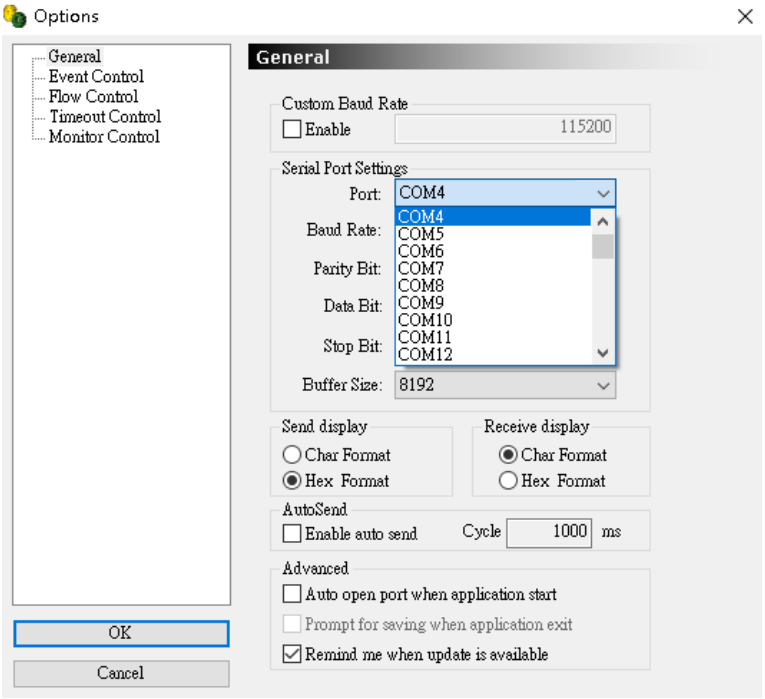


Step 2: Click on the parameter configuration at the top left corner, then set the Com Port and parameters.



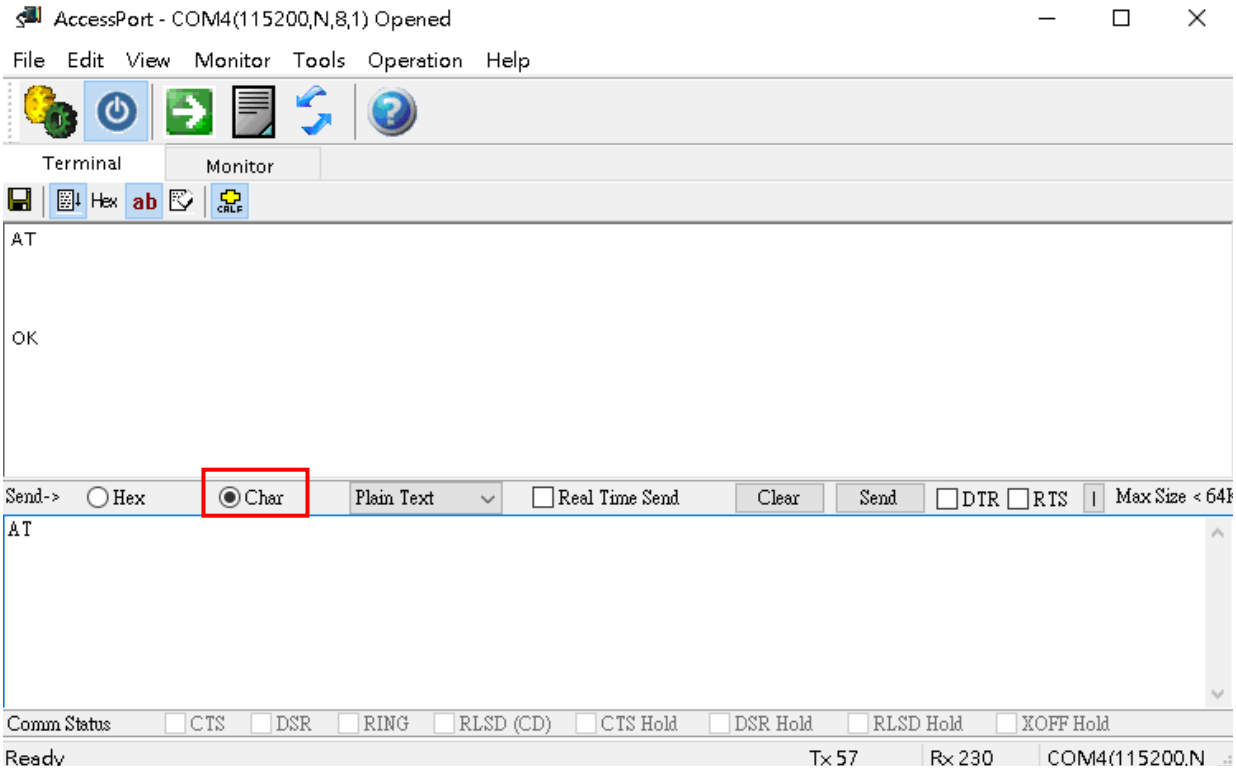
Step 3: Select the number corresponding to the GTM-205M AT Port or Modem Port.

- In this example, COM4 is used, with Baud Rate set to **115200, Parity to NONE, Data Bit to 8, and Stop Bit to 1.**

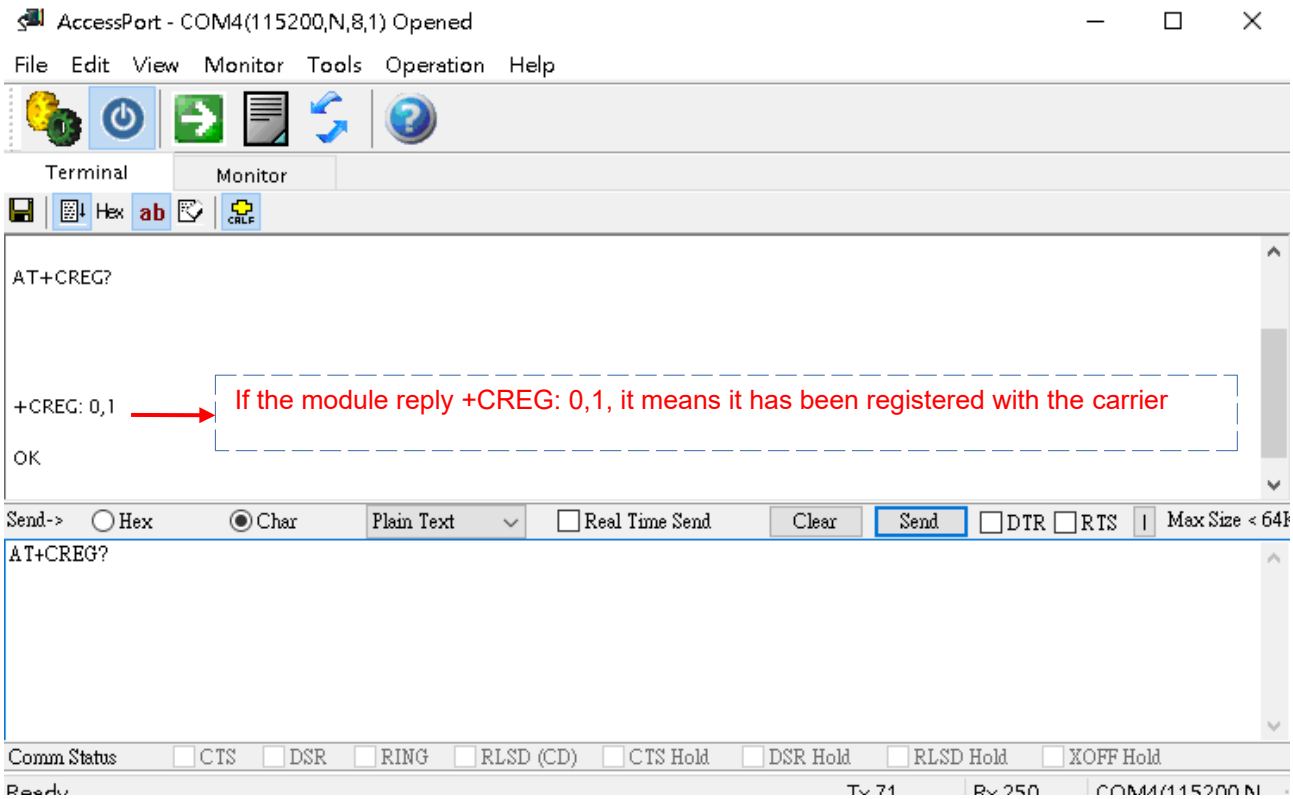


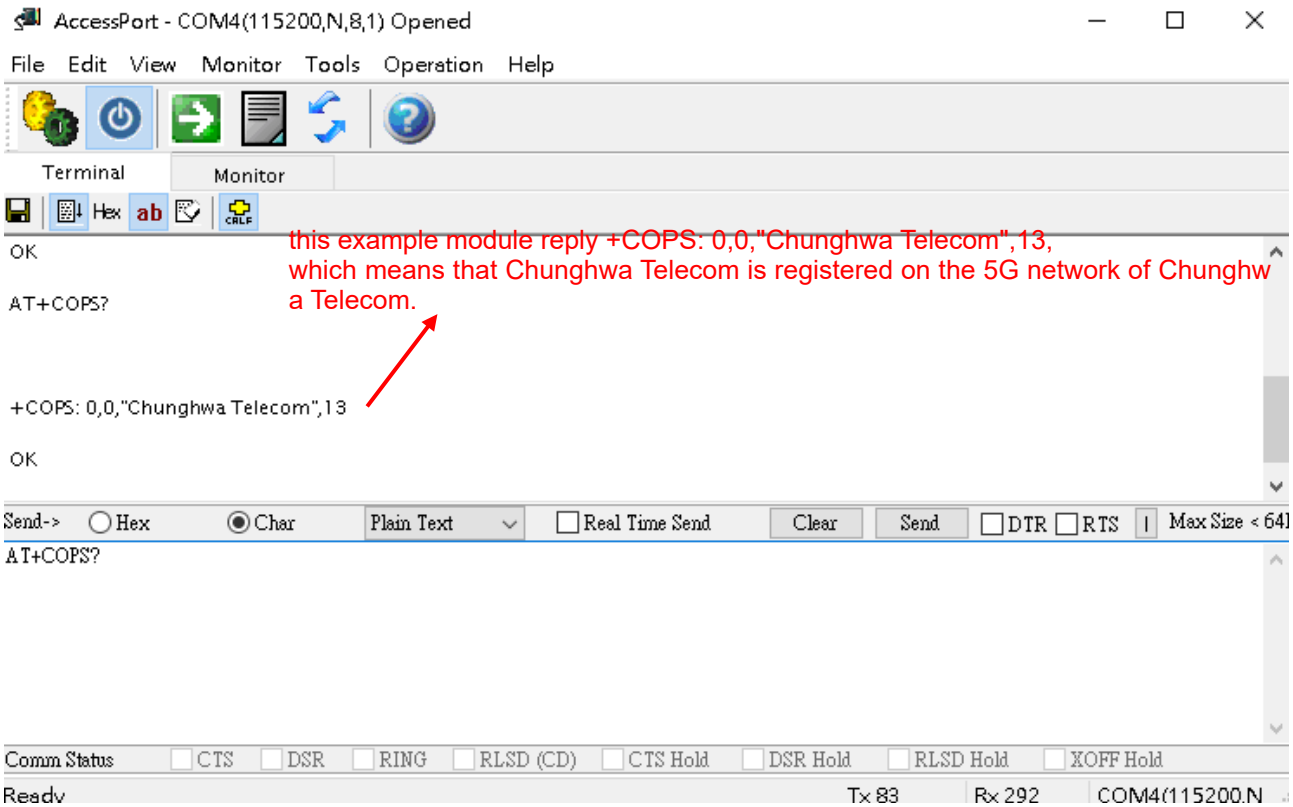
Step 4: In the transmission window, select "String" and enter the AT Command.

- In this example, if communication is successful, the module will respond with: OK



Step 5: If a SIM card is inserted, you can enter **"AT+CEREG?"** or **"AT+COPS?"** to inquire about registration status.

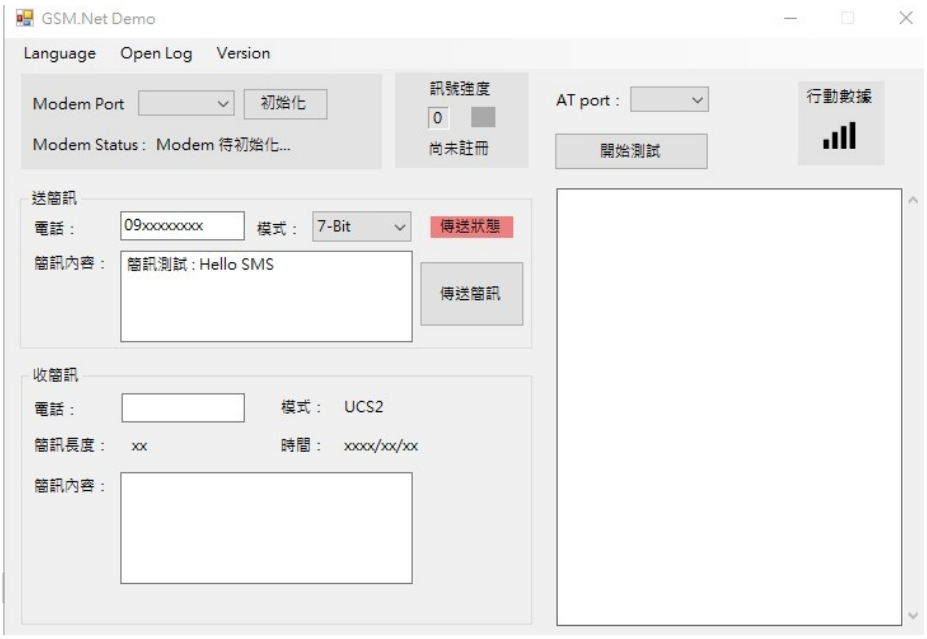




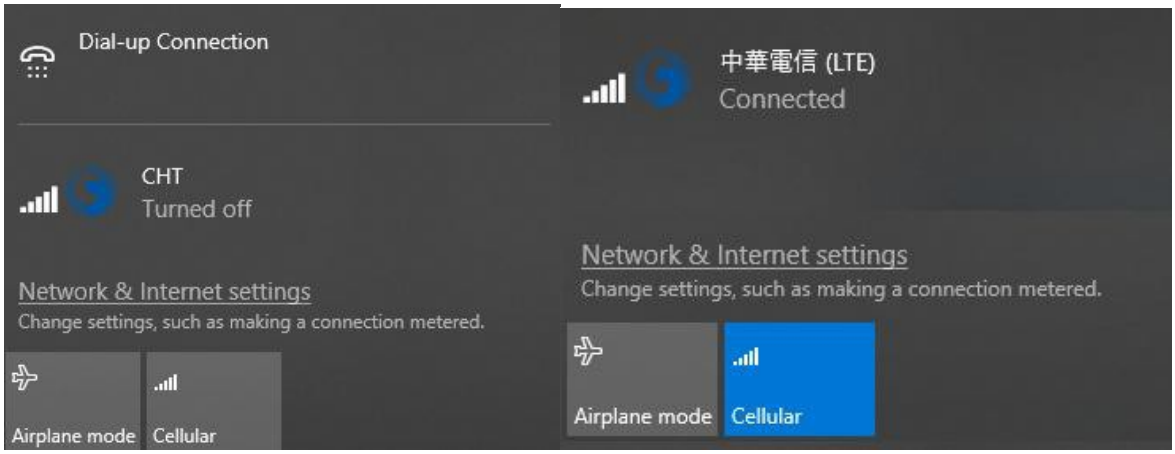
5.2 Testing SMS Sending and Receiving

Our company also provides a simple testing software. You can download the example program from our official website.

- The image below shows **GSMNetDemo.exe**, which can be used for testing SMS sending and receiving.



- For Windows systems, mobile data is built-in and can be enabled or disabled through the system's built-in functionality.

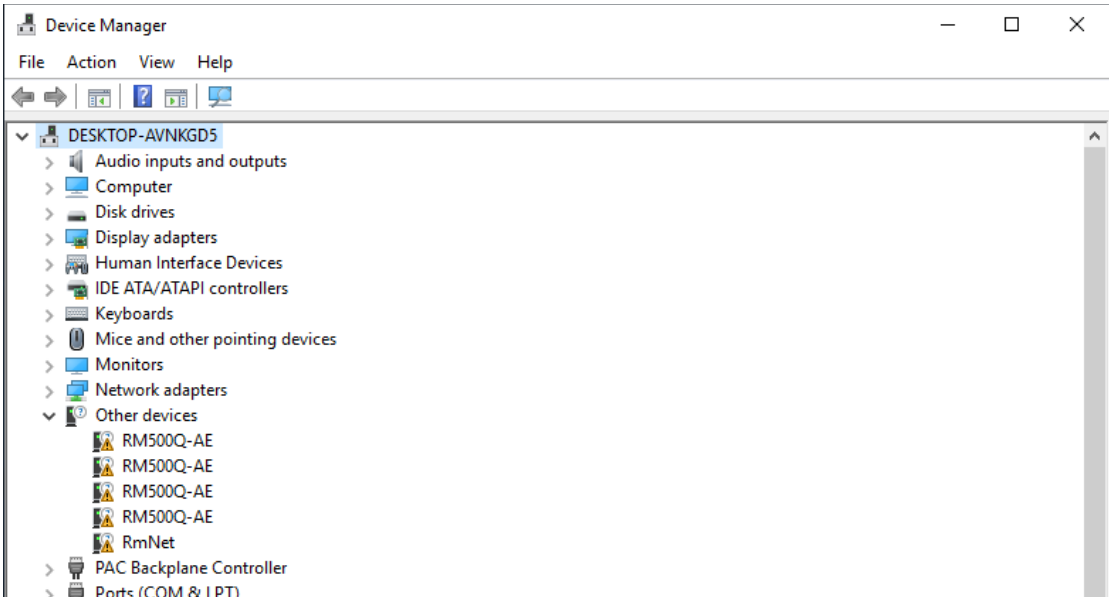


Related Reference:

https://support.microsoft.com/en-us/windows/cellular-settings-in-windows-905568ff-7f31-3013-efc7-3f396ac92cd7

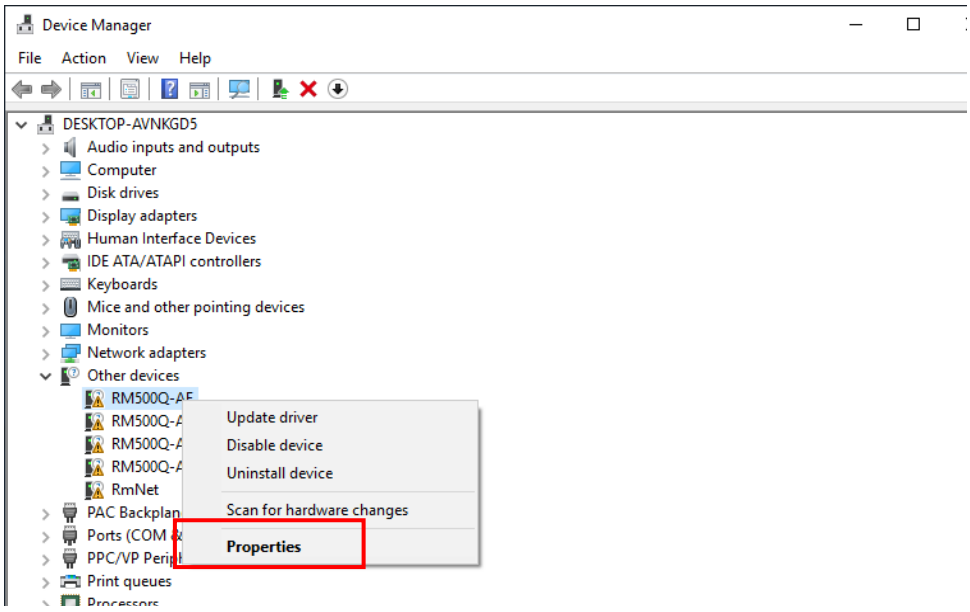
7. FAQ

Q01: Driver Installation Issue - Exclamation Mark Appears

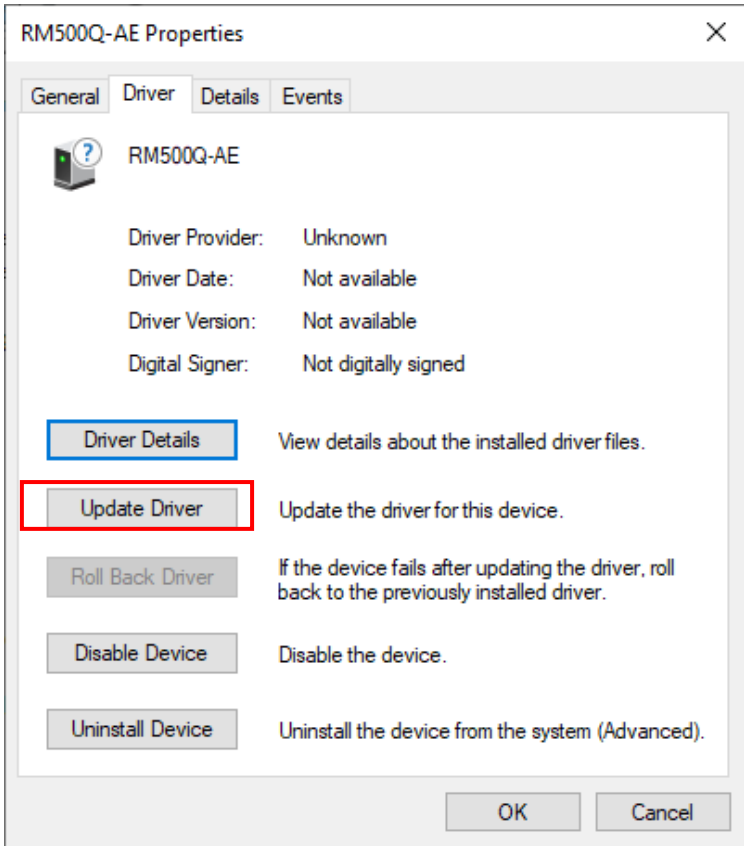


A01: View Device Manager, if an exclamation mark appears, please follow these steps:

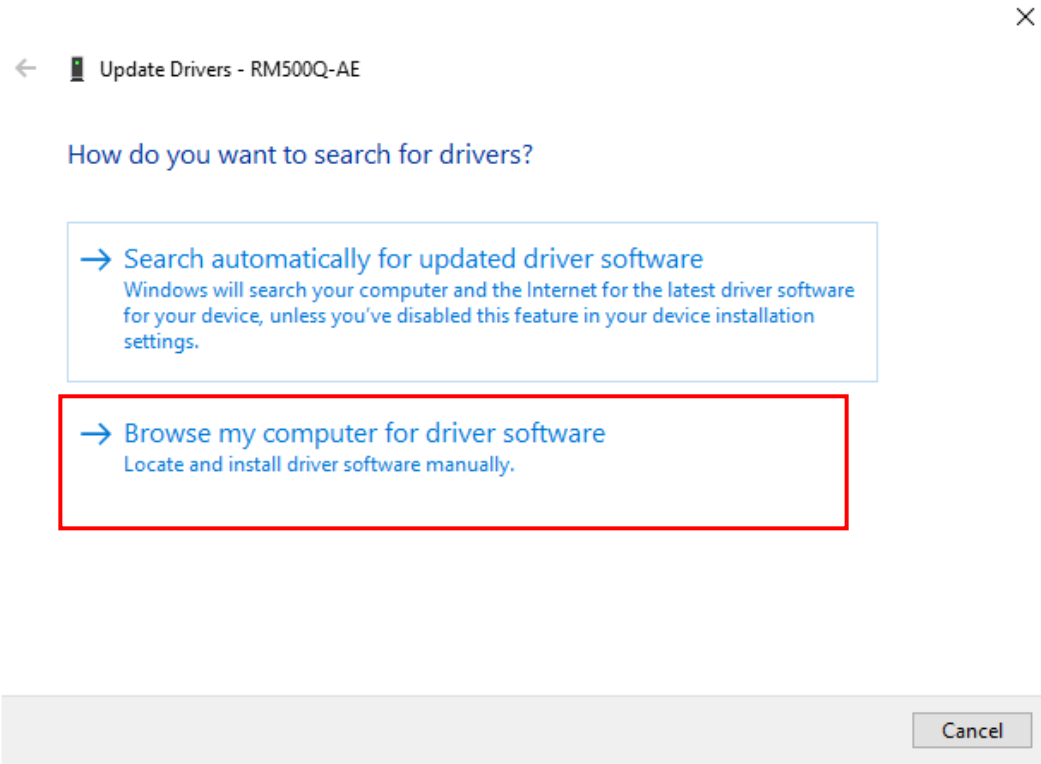
Step 1: Right-click on "RM500Q-AE/GL" or "Cinterion PID 0x00B3 USB" and select Properties.



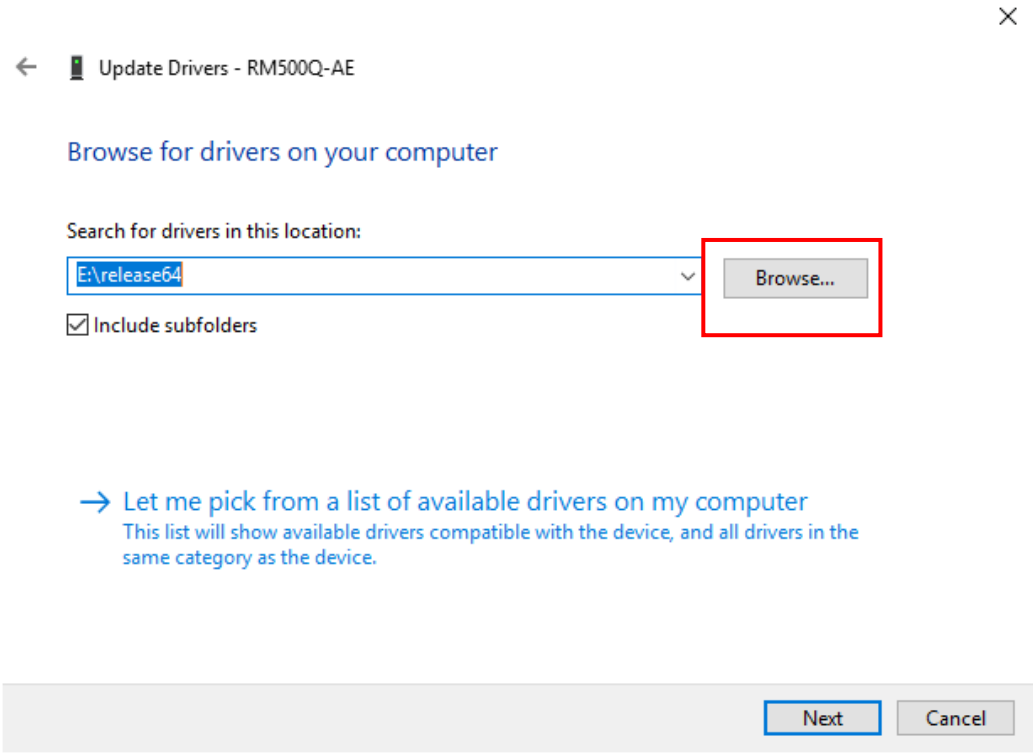
Step 2: Select Update Driver.



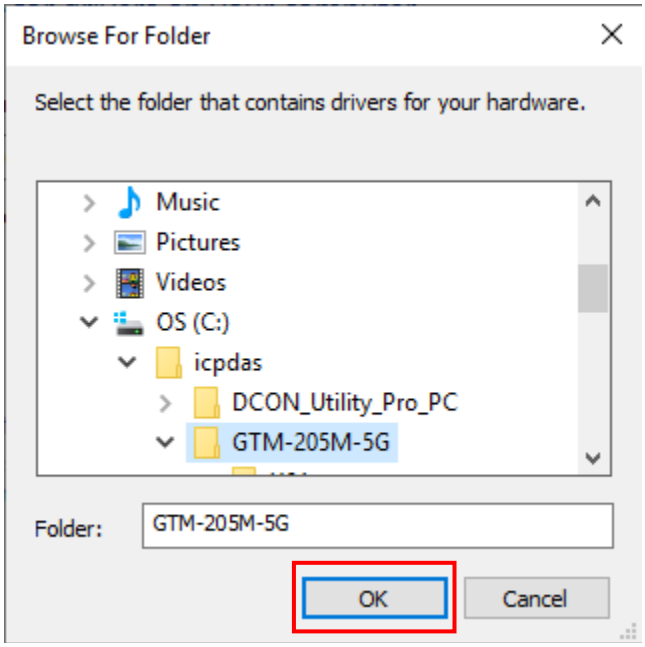
Step 3: Choose "Browse my computer for driver software".



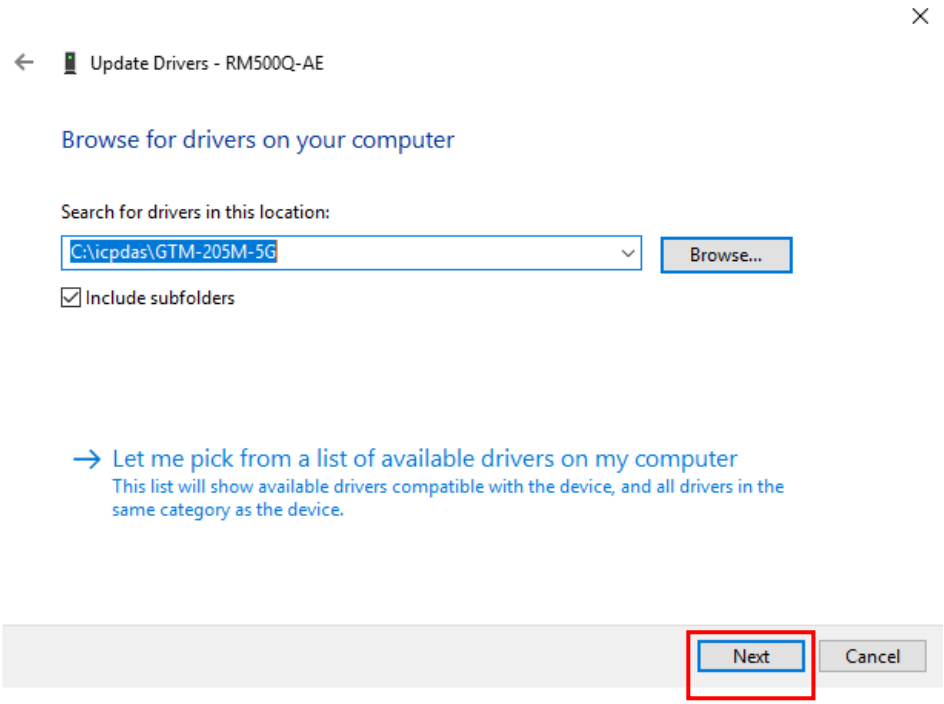
Step 4: Click the "Browse" button.



Step 5: Choose default Driver setup path (C:\ICPDAS\GTM_Series_Driver) , click "OK"

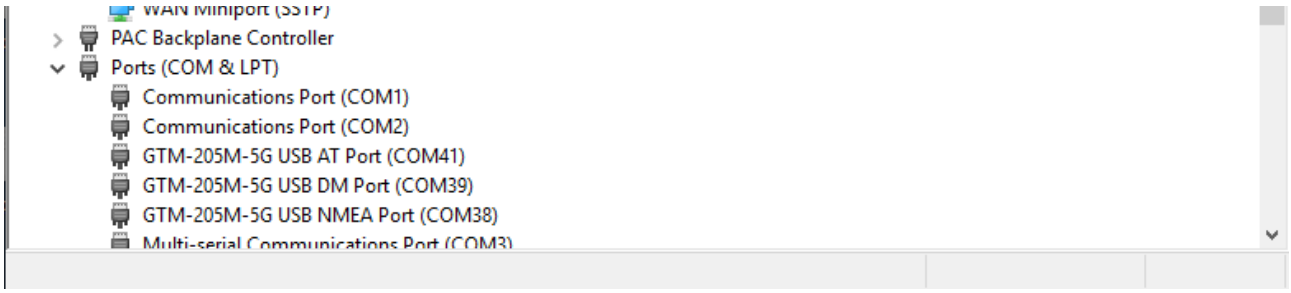


Step 6: After confirming that the path is correct, click the "Next" button.



Step 7: After installing the driver, please proceed to complete a total of 5 drivers, named: USB NMEA Port, USB AT Port, USB Modem, USB DM Port, and Wireless Ethernet Adapter, as shown in the image below.

※ The displayed names may vary depending on the module.



8. Revision History

Revision	Date	Author	Description
1.0.0	2024/03/29	Patty	First Release