

Quick Guide

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Module Type: 701A, 702A

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Module Pin Assignment

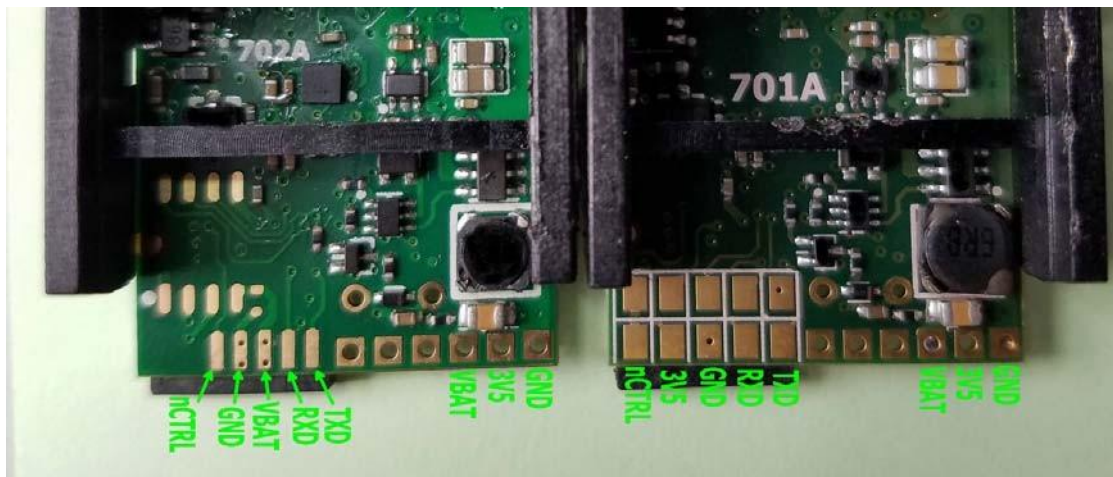


Figure 1 Module 701A&702A Bottom Side Pin Assignment

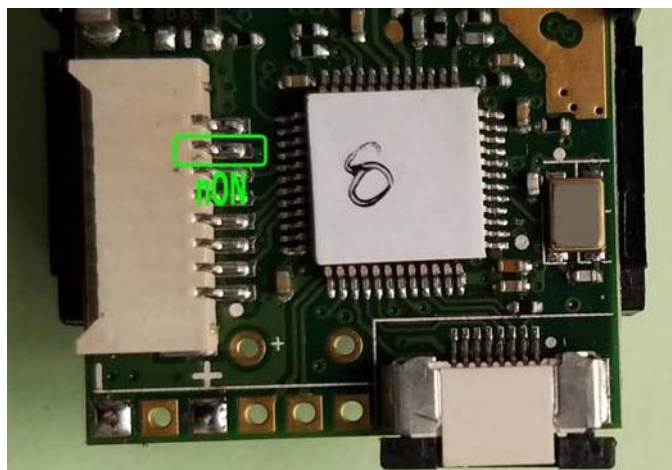


Figure 2 Module 701A&702A Top Side Pin Assignment

1. **GND**, Powerground;
2. **VBAT**, Power input, 2.0V ~ 3.3V,300mA+;

3. **3V5**, Module Output 3.5V;
4. **TXD**, module Tx line, connect to controller Rx;
5. **RXD**, module Rx line, connect to controller Tx;
6. **nCTRL**, Continuous measure enable line, default **HIGH**: one time measure mode, **LOW**: continuous measure mode;
7. **nON**, **LOW** pulse width more than 10ms will bring module online, after the successful initiation process, module will echo string ",OK!" to tell the controller "Ready to Go!", this line is not present on the bottom side expand connector with PCB version 701A/702A.

Commands

1. **'O'(0x4F)**: Turn ON laser beam, and return ",OK!";
2. **'C'(0x43)**: Turn OFF laser beam, and return ",OK!";
3. **'S'(0x53)**: Module status read, module returns Temperature & Battery Voltage, e.g.: "18.0'C,2.7V";
4. **'D'(0x44)**: **Auto mode** Distance read, module returns Measure Result & Signal Quality(SQ), e.g.: "12.345m, 0079", smaller SQ value stands for more reliable distance result;
5. **'M'(0x4D)**: **Slow mode** distance read for **higher** accuracy, returns same as 'D'command;
6. **'F'(0x46)**: **Fast mode** distance read for **lower** accuracy, but higher speed, returns same as 'D'command;
7. **'V'(0x56)**: Show module version info., e.g.: "1702250029,29456" means module Serial No.=1702250029 and VersionCode=29456.
8. **'X'(0x58)**: turn **OFF** the module.

Control line

One control line(nCTRL)has been add to distinguish **continuous measure mode** from **one time measure mode** for 'D'/'M'/'F' commands.

Command and control line level combinations:

Table 1 Combinations of nCTRL and measure commands

Command		Control Line Level		Measure Speed	Measure Accuracy
Char.	Mode	HIGH	LOW		
D	Auto	1-time measure	Continuous measure	Auto	Auto
M	Slow	1-time measure	Continuous measure	Slow	Higher
F	Fast	1-time measure	Continuous measure	Fast	Lower

Beware:

1. pull up or down control line before send 'D'/'M'/'F' command code;
2. re-pull up control line to exit from continuous measure mode.

Error codes

Error occurs during normal measure process.

Table 2 Error Codes

Num	Error code	meaning
1	:Er01!	VBAT too low, power voltage should $\geq 2.0V$
2	:Er02!	Internal error, don't care
3	:Er03!	Module temperature is too low($< -20^{\circ}C$)
4	:Er04!	Module temperature is too high($> +40^{\circ}C$)
5	:Er05!	Target out of measure range
6	:Er06!	Invalid measure result
7	:Er07!	Background light is too strong
8	:Er08!	Laser signal is too weak
9	:Er09!	Laser signal is too strong
10	:Er10!	Hardware fault 1
11	:Er11!	Hardware fault 2
12	:Er12!	Hardware fault 3
13	:Er13!	Hardware fault 4
14	:Er14!	Hardware fault 5
15	:Er15!	Laser signal is not stable
16	:Er16!	Hardware fault 6
17	:Er17!	Hardware fault 7

Quick Test Steps For HC-08 test frame

HC-08 test frame has no serial flow control signals such as DTR, RTS.



Figure 2 HC-08 steps

Quick Test Steps For USB2TTL converter

1. Plug & Install CH341 USB2TTL converter driver on your computer;
2. download & install the trial version serial port test software, software download page : <http://www.geshe.com/en/support/download>;
3. Start the software and follow the steps:

1. SoftwareStartup

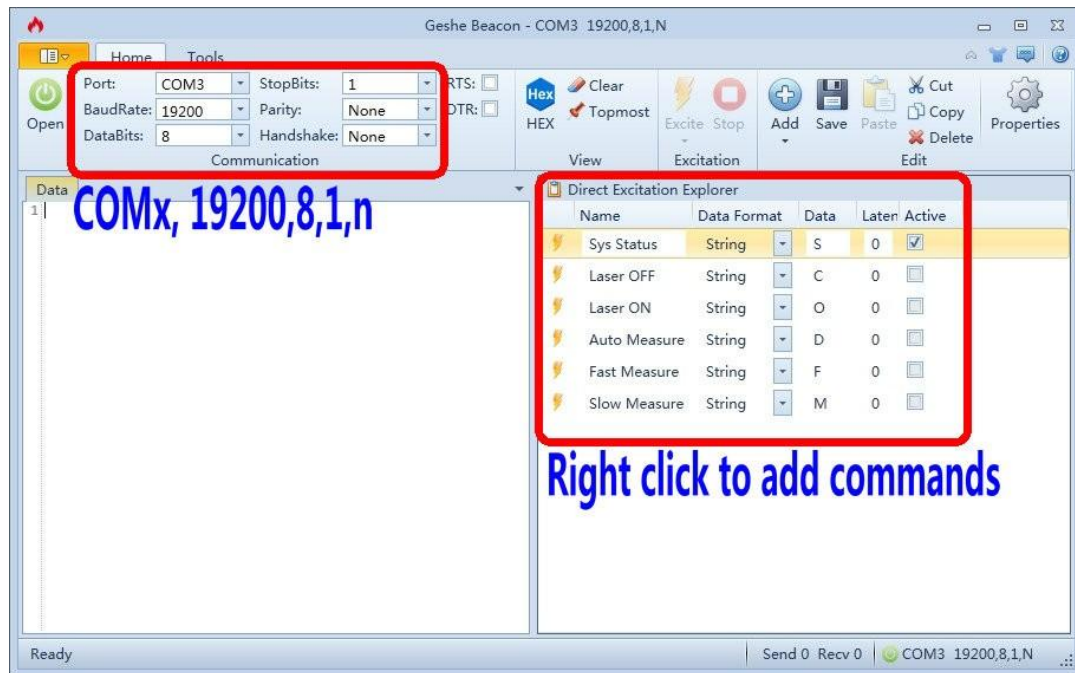


Figure 3 Software configuration

2. Turn On or Off theModule

nON has been tied to serial RTS pin, assert the RTS checkbox to power on the module, then de-assert the RTS checkbox. After this, echo string ",OK!" indicates module power on success. Send command 'X' to turn off the module.

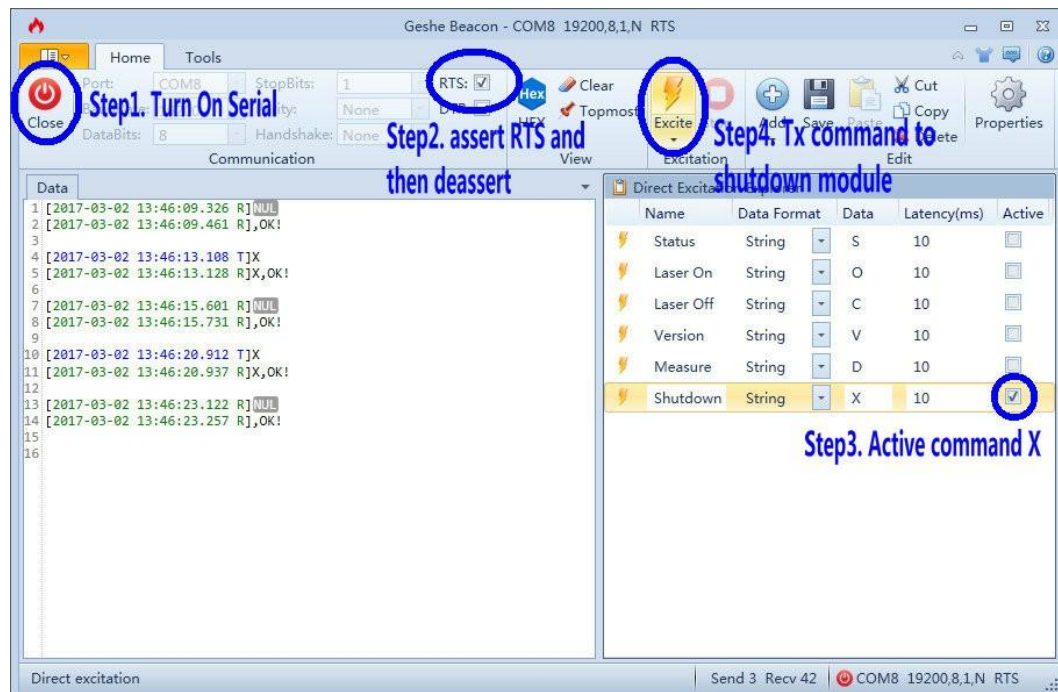


Figure 4 Module On Off simulation

3. Othercommands

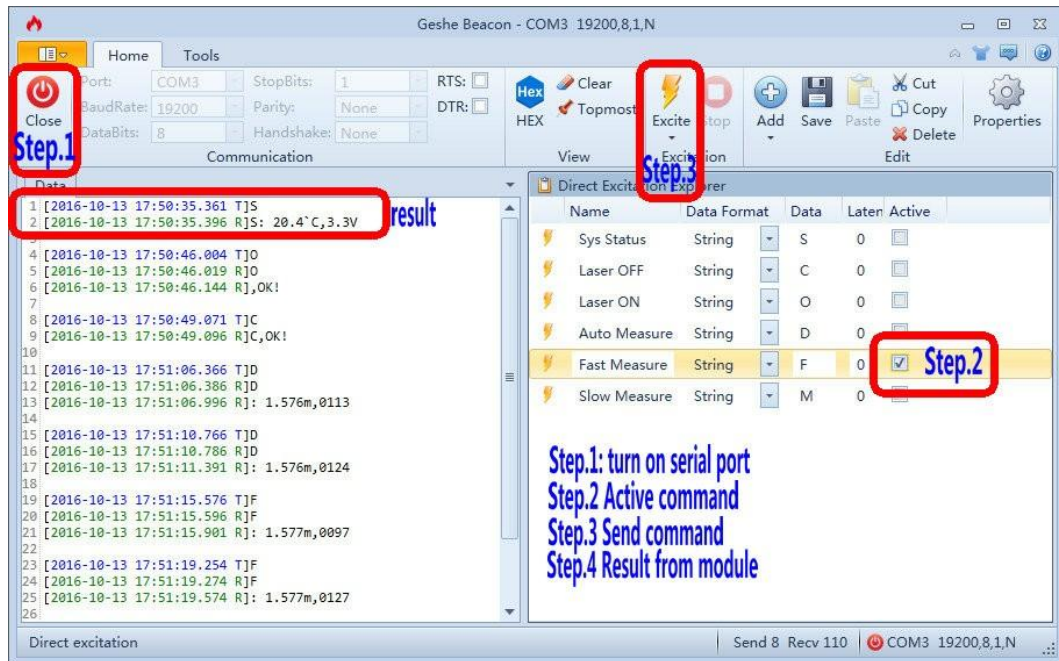
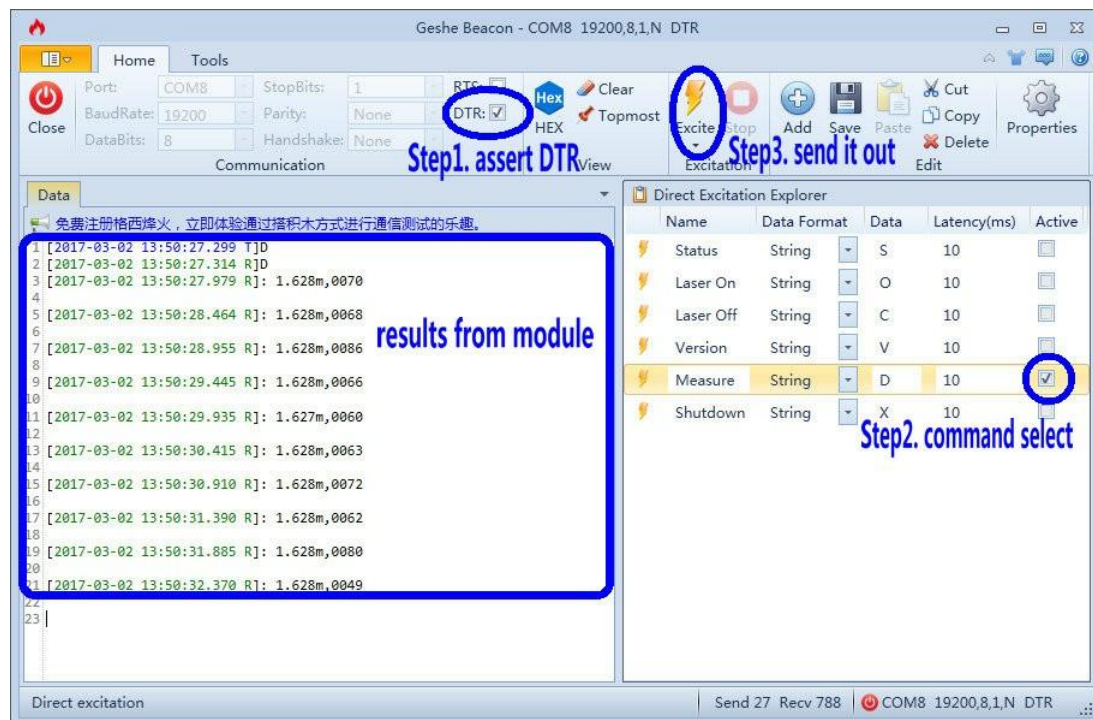


Figure 5 commands demo.

4. Active Continuous MeasureMode

For test purposes, we've already tied the **nCTRL**(Module Control Line) to serial port DTR, So when DTR asserted, module control line goes LOW, this make module enter continuous measure mode, exit from the continuous measure mode please de-assert the DTR.



The End.