

GECO STEM

Ethernet Remote controller

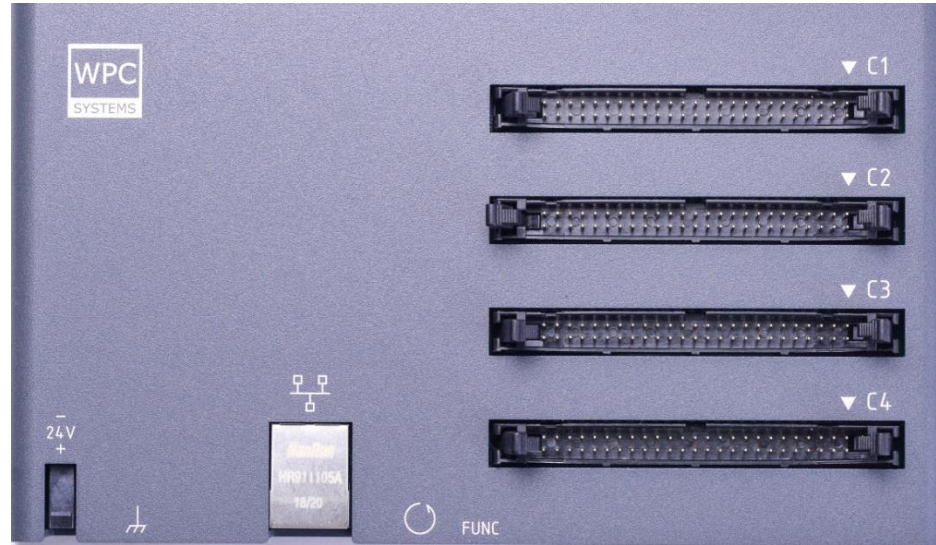
WPC Systems Ltd.

Justin Wu

2020-03-18



Appearance



- Slot C1 (24ch 3.3V DIO)
- Slot C2 (24ch 3.3V DIO)
- Slot C3 (24ch 3.3V DIO)
- Slot C4 (24ch 3.3V DIO)

24VDC Power input

Protective Earth
(PE)

LEDs

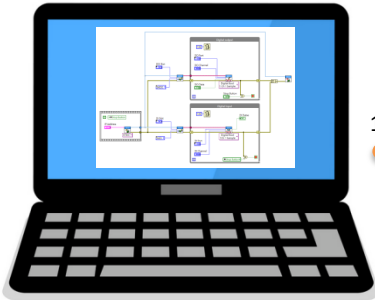
10/100M
Ethernet

Reset button

IP reset button
(Press > 5sec)

Support modules

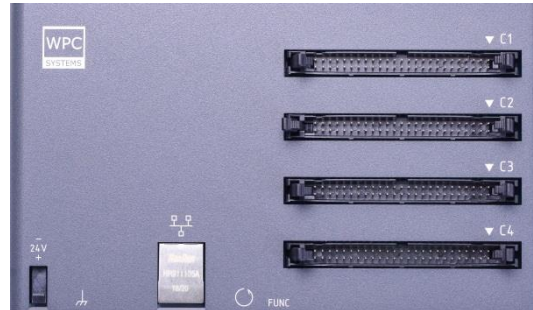
Host PC



10/100 Ethernet



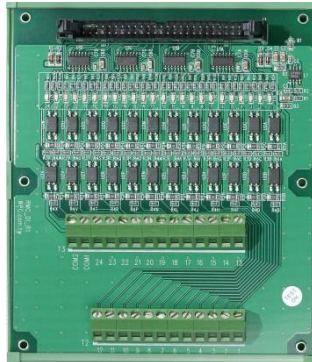
GECO STEM controller



WPC-MCX-H-Motion



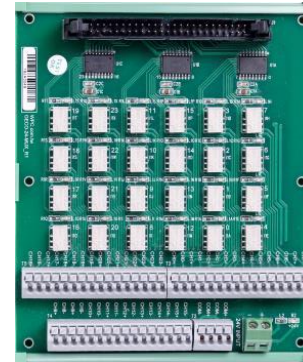
WPC-24-DO



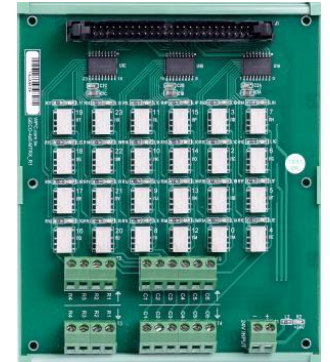
WPC-24-DI



WPC-12-12-DIO



WPC-24-2W-MUX



WPC-4x6-MTRX

Driver download



乙太網路模組化分散式 I/O

4-slot IDC-50P 3.3V DIO

支援模組：

24ch-24V-DI / 24ch-24V-DO / 12-12ch-24V-DIO /

24ch-5V-TTL

24ch-2-wire-Multiplexer / 4x6-Matrix switch
module

10/100M Ethernet

TCP command sets

LabVIEW API



geco_stem_driver_v0.1.2.zip

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geco_motion_driver_v1.4.zip

[Download File](#)



firmware_r2.0.2.zip

[Download File](#)

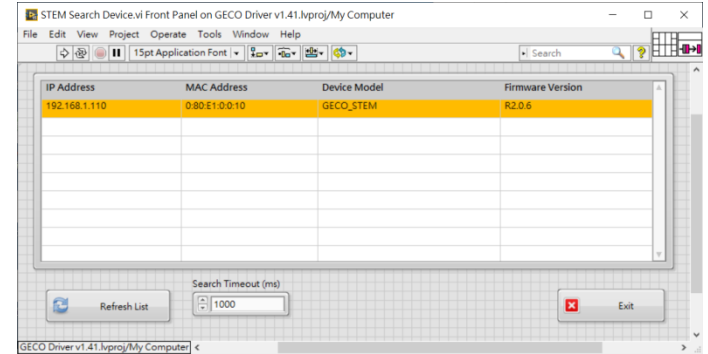


geco_stem_um_r2.pdf

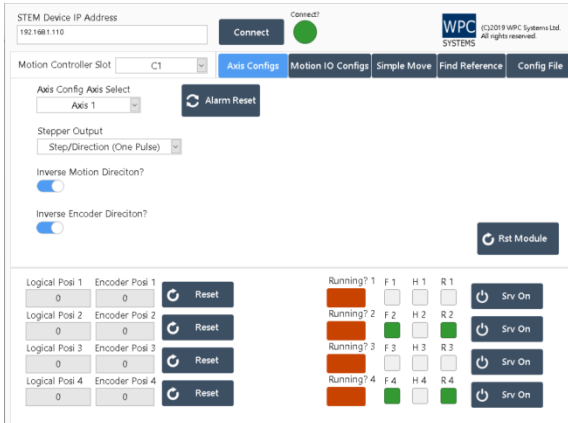
[Download File](#)

Soft front panel

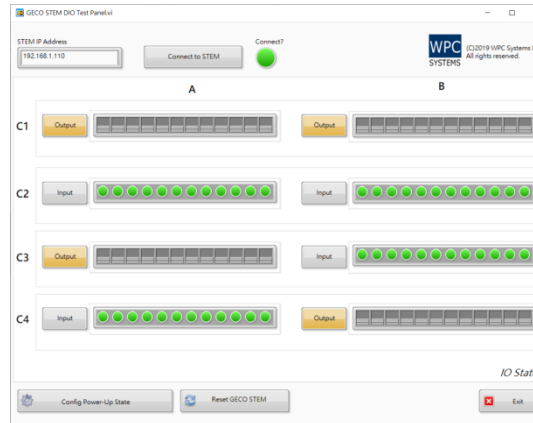
- Software front panel (SFP)
 - STEM H-motion Test Panel
 - STEM DIO Test Panel
 - STEM Utility Test Panel
 - STEM Search Device



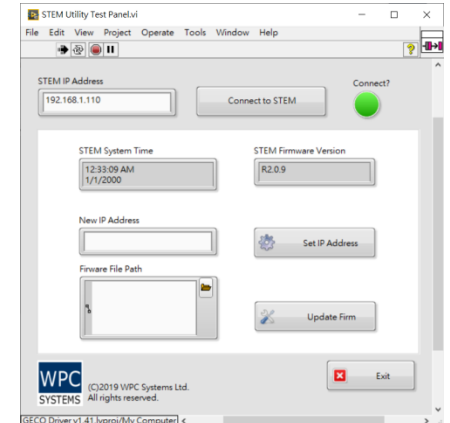
STEM Search device



H-motion soft front panel



Digital I/O soft front panel



Utility soft front panel

Connect to GECO STEM (Network adaptor setting)

Network adaptor setting (example)

Host PC



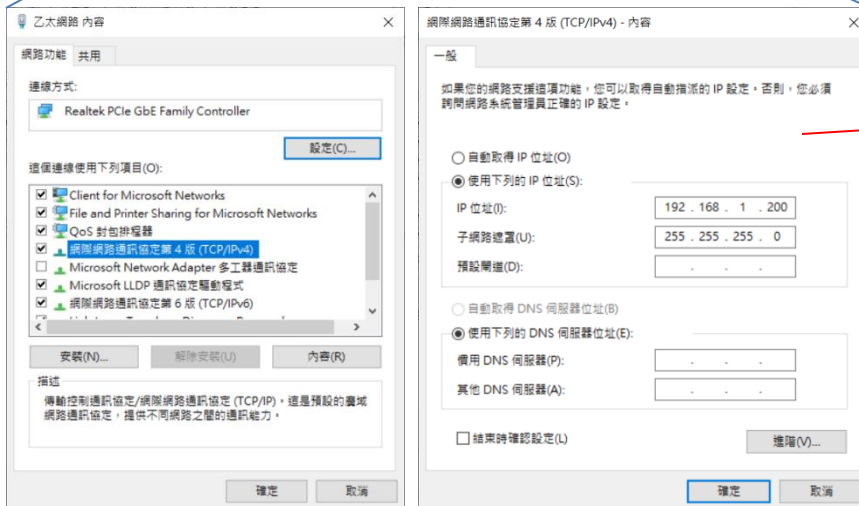
Host IP: 192.168.1.200

10/100 Ethernet

GECO STEM controller



Target IP: 192.168.1.110



IP address: 192.168.1.X
Subnet Mask: 255.255.255.0



Avoid IP address:
192.168.1.1 (reserved for router/gateway)
192.168.1.255 (reserved for broadcast)
192.168.1.110 (same as GECO STEM controller)



Factory default IP address: 192.168.1.110

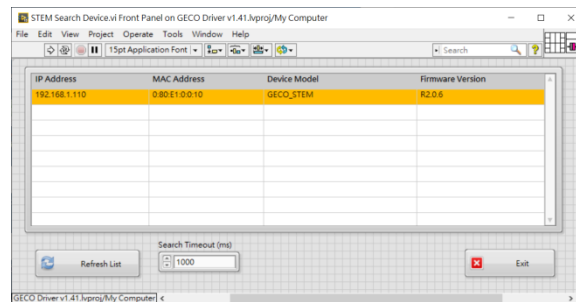
Can't find target / forgot IP address



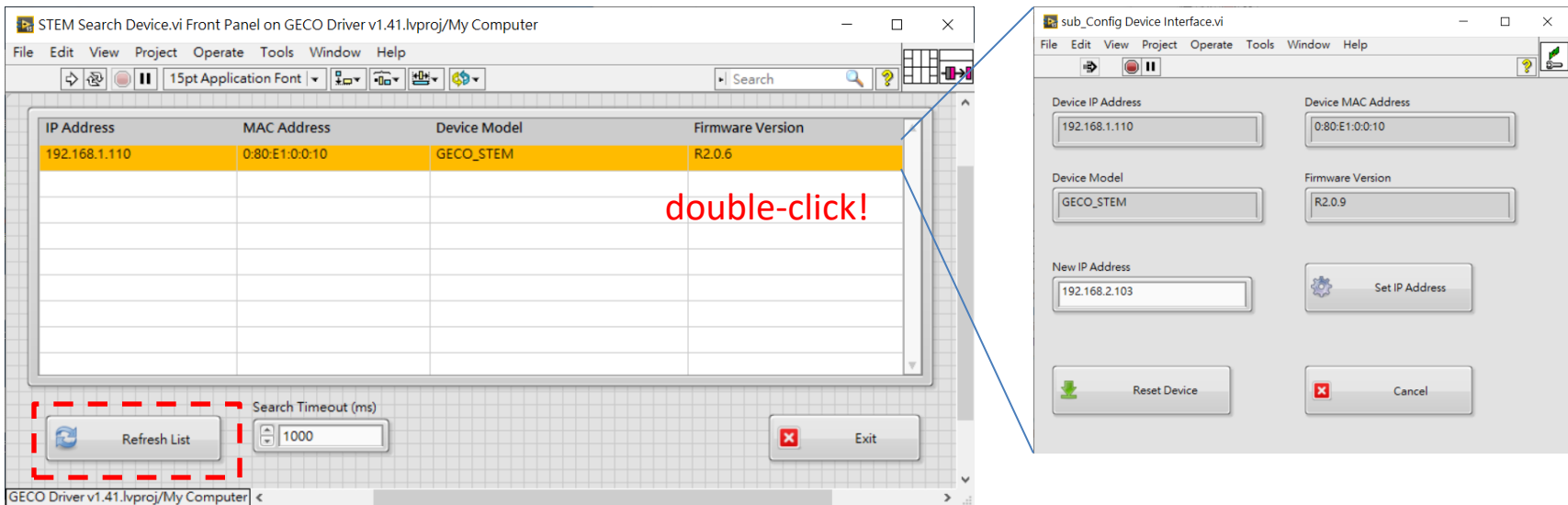
2. Press the **RESET** button to restart controller. The New IP address will take effect.

1. Hold the **FUNC** button down > 5 seconds. The IP address will be set to factory default: **192.168.1.110**

Introduction to STEM Search Device

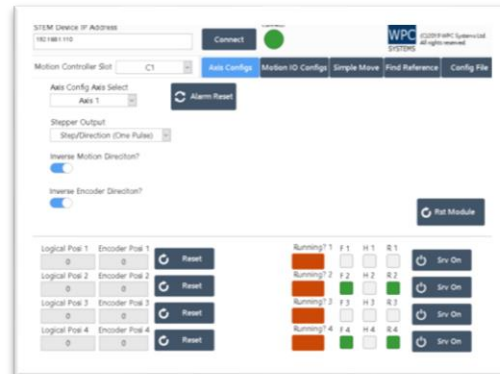


STEM Search Device



Even under inconsistent IP setting situation, users can still change IP address through “STEM Search Device” tool.

Introduction to H-Motion test panel



Panel layout

Connection

STEM Device IP Address
192.168.1.110 Connect Connect?

Motion Controller Slot C1 Axis Configs Motion IO Configs Simple Move Find Reference Config File

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Setting

Axis Config Axis Select
Axis 1 Alarm Reset

Stepper Output
Step/Direction (One Pulse)

Inverse Motion Direciton?

Inverse Encoder Direciton?

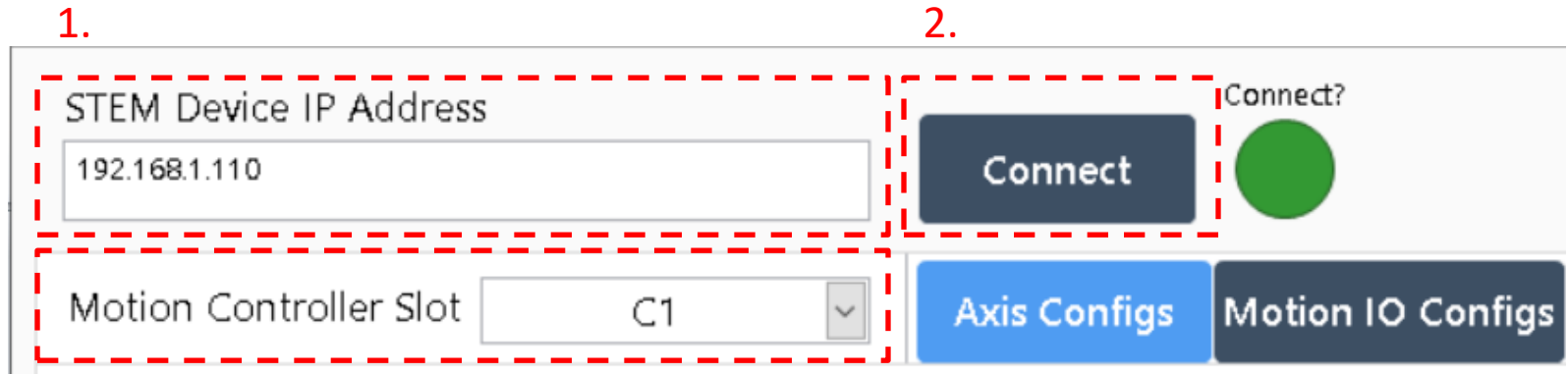
Rst Module

Axes status

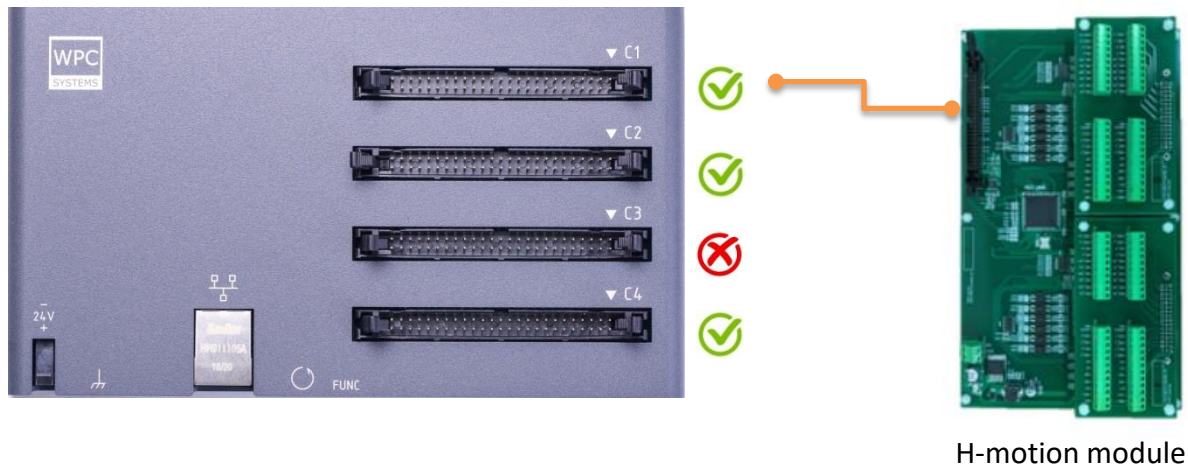
Logical Posi	Encoder Posi	Reset	Running?	F	H	R	Srv On
1	0	Reset	Running? 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Srv On
2	0	Reset	Running? 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Srv On
3	0	Reset	Running? 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Srv On
4	0	Reset	Running? 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Srv On

Connection

 Factory default IP address: 192.168.1.110



3.




Axes Status


Step output counter		Encoder readout		Axis status				Limit switch Indicators			
Logical Posi 1	Encoder Posi 1			Running? 1	F 1	H 1	R 1				
0	0				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Logical Posi 2	Encoder Posi 2			Running? 2	F 2	H 2	R 2				
0	0				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
Logical Posi 3	Encoder Posi 3			Running? 3	F 3	H 3	R 3				
0	0				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Logical Posi 4	Encoder Posi 4			Running? 4	F 4	H 4	R 4				
0	0				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				

Position reset

Servo on
(Enable Axis)

Axis configuration

STEM Device IP Address
192.168.1.110 Connect Connect? 

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Motion Controller Slot C1 Axis Configs Motion IO Configs Simple Move Find Reference Config File

Axis Config Axis Select
Axis 1 Alarm Reset

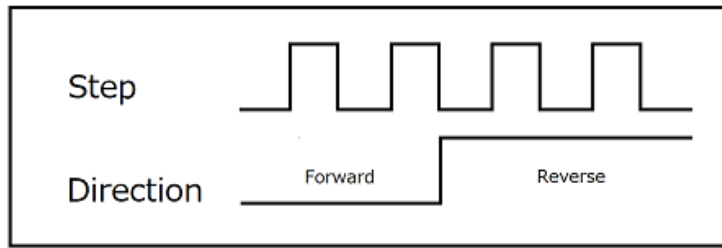
Stepper Output
Step/Direction (One Pulse)

Inverse Motion Direciton?

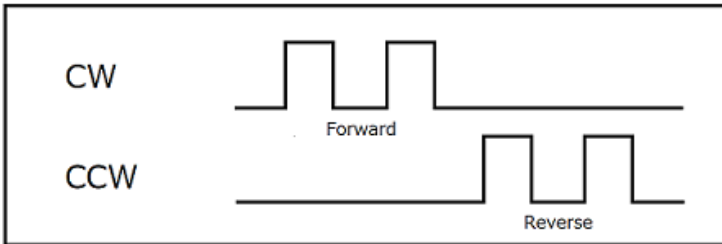
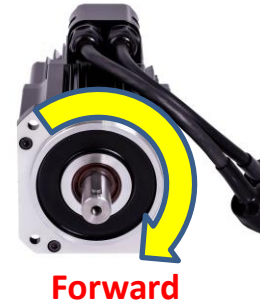
Inverse Encoder Direciton?

Rst Module

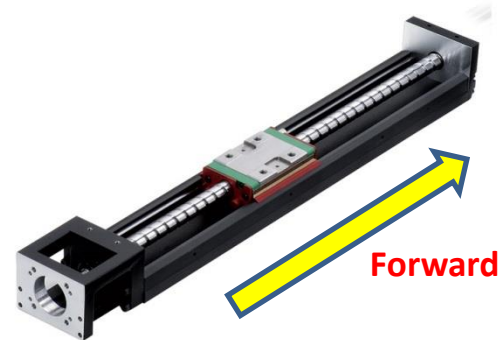
Axis basics



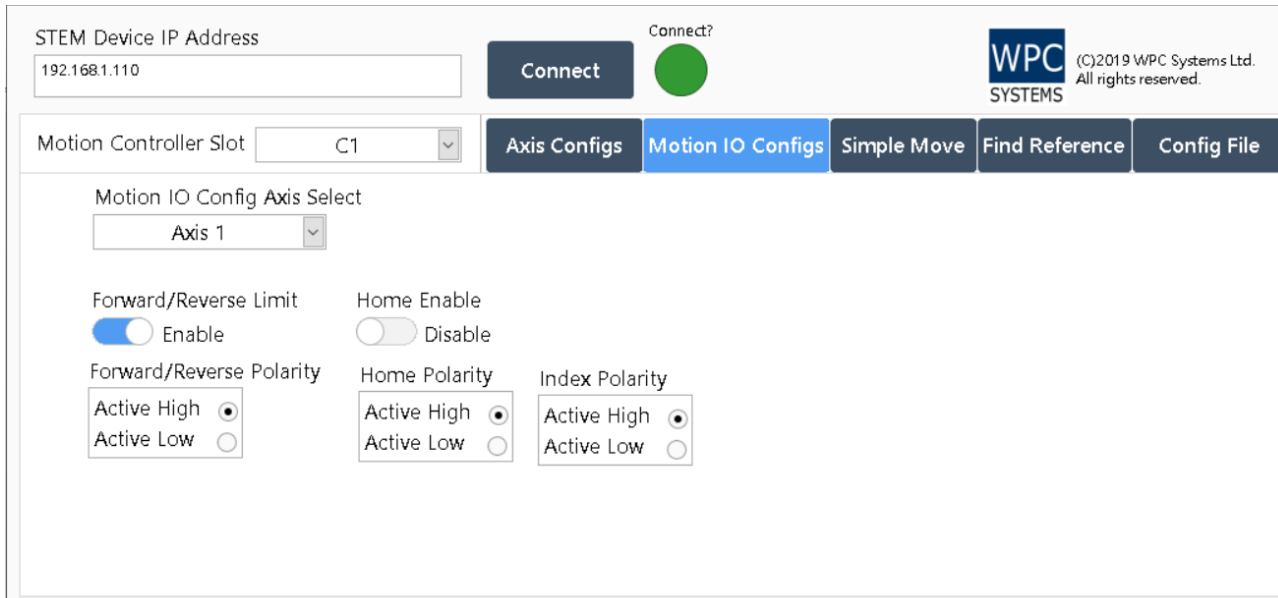
1-pulse mode



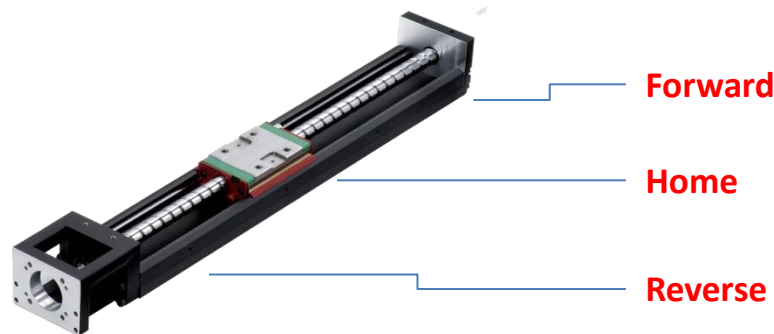
2-pulse mode





Motion I/O configurations



The screenshot shows the WPC Systems configuration interface. At the top left, the 'STEM Device IP Address' is set to '192.168.1.110' with a 'Connect' button and a green status indicator. The top right features the WPC SYSTEMS logo and copyright information: '(C)2019 WPC Systems Ltd. All rights reserved.' Below this, a navigation bar includes 'Motion Controller Slot' (C1), 'Axis Configs', 'Motion IO Configs' (highlighted), 'Simple Move', 'Find Reference', and 'Config File'. The main area is titled 'Motion IO Config Axis Select' with a dropdown menu set to 'Axis 1'. It contains three columns of settings: 'Forward/Reverse Limit' (Enable), 'Home Enable' (Disable), 'Forward/Reverse Polarity' (Active High), 'Home Polarity' (Active High), and 'Index Polarity' (Active High).



Simple Move (operation)

STEM Device IP Address: Connect?   (C)2019 WPC Systems Ltd. All rights reserved.

Motion Controller Slot:

Simple Move Axis Select:

Motion Operation Mode:

Target Position(step):

Velocity(step/sec):

Acceleration(step/sec^2):



Deceleration(step/sec^2):

Run:

Blend:

Stop:

Find reference

STEM Device IP Address Connect Connect?   (C)2019 WPC Systems Ltd. All rights reserved.

Motion Controller Slot Axis Configs Motion IO Configs Simple Move Find Reference Config File

Find Reference Axis Select Find Reference Type

Initial Search Direction Search Velocity + -

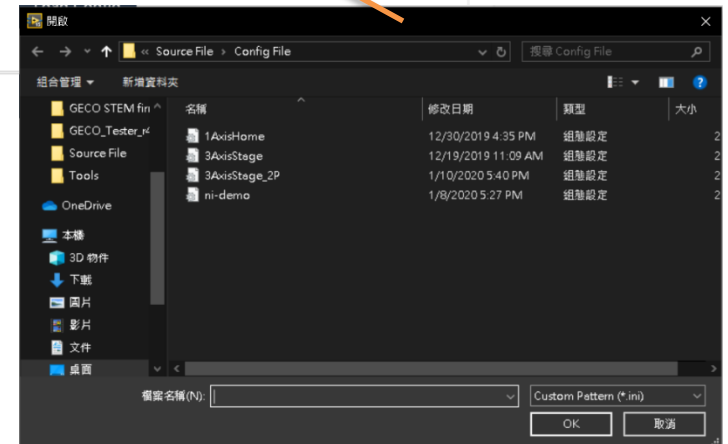
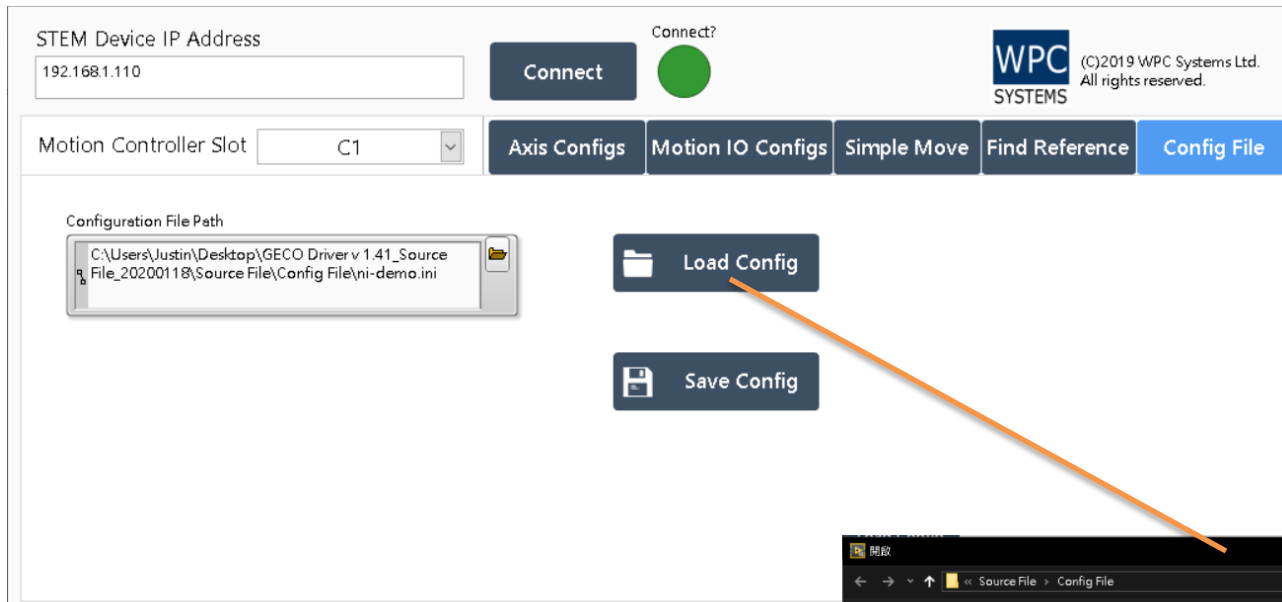
Final Search Direction Approach Velocity Percent (%) + -

Reset Position after Ref found Disable Offset Position + -

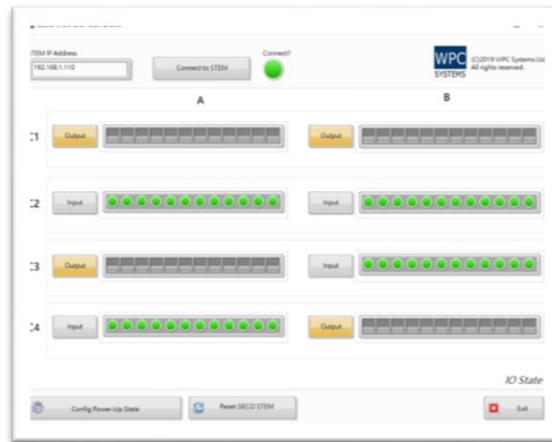
Find Find

Stop Find Reference Stop

Configuration file

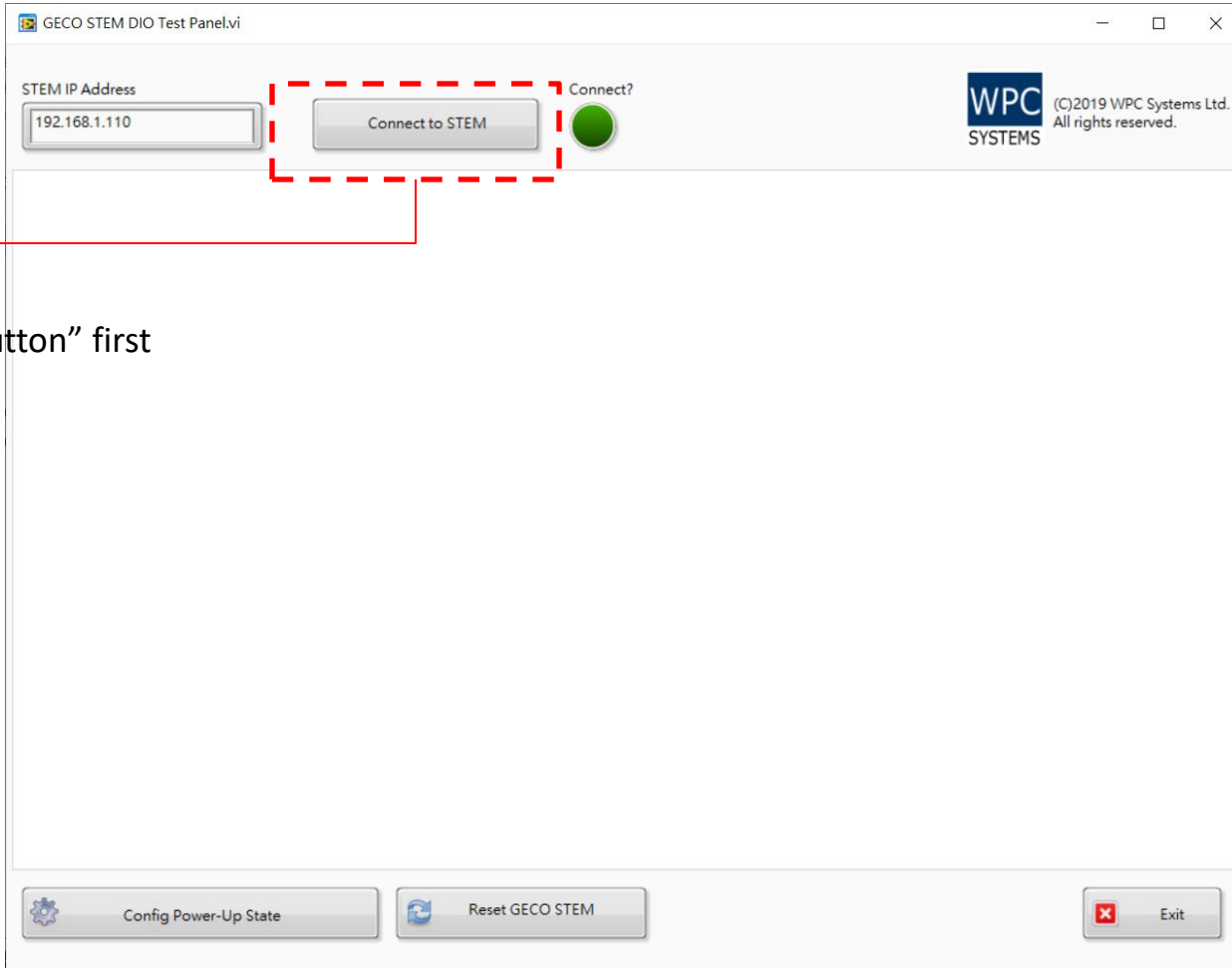


Introduction to DIO test panel



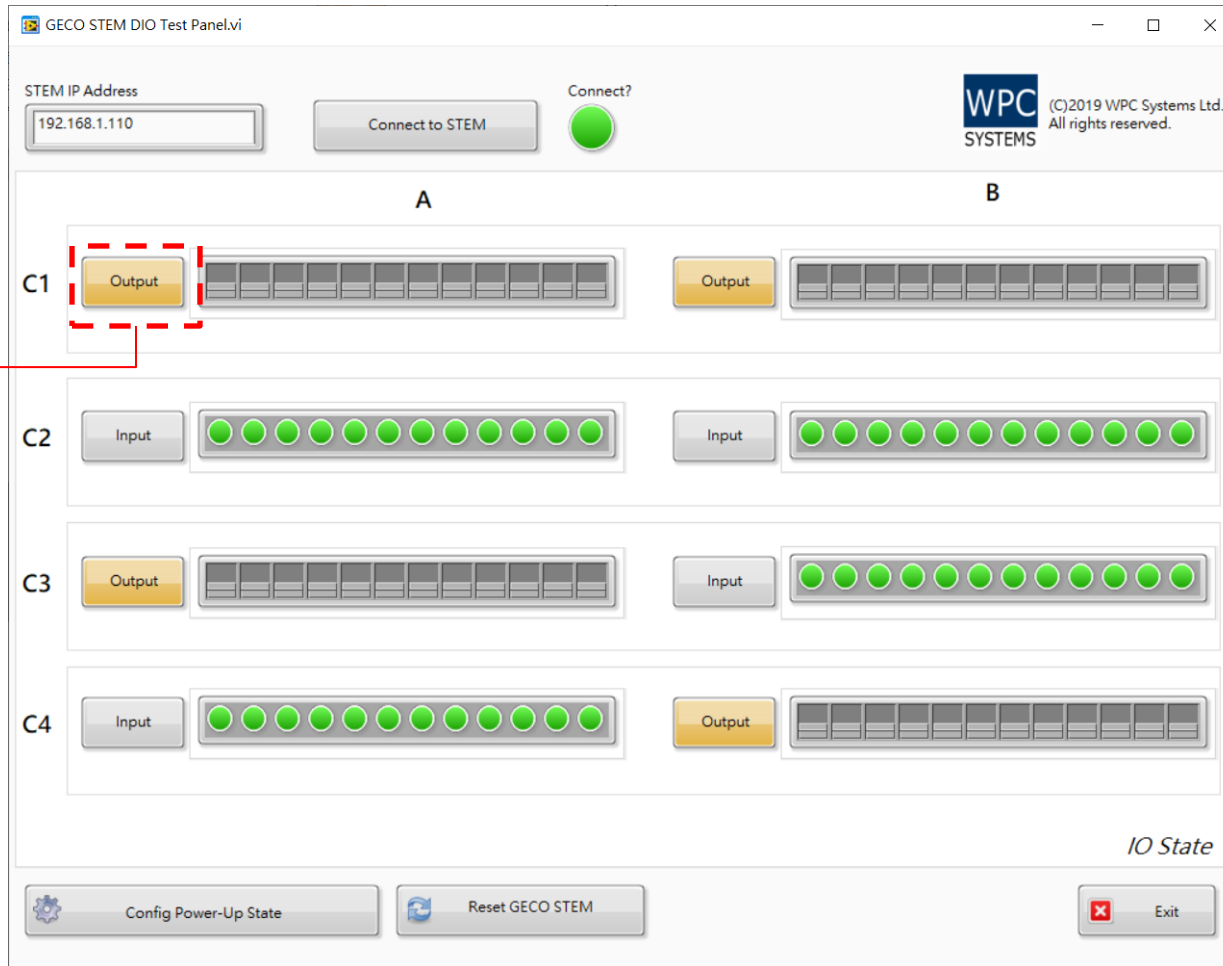
DIO Test Panel layout

Default IP: 192.168.1.110



Press "connect button" first

Manual control



STEM IP Address: 192.168.1.110

Connect to STEM

Connect?

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A B

C1 Output

C2 Input

C3 Output

C4 Input

IO State

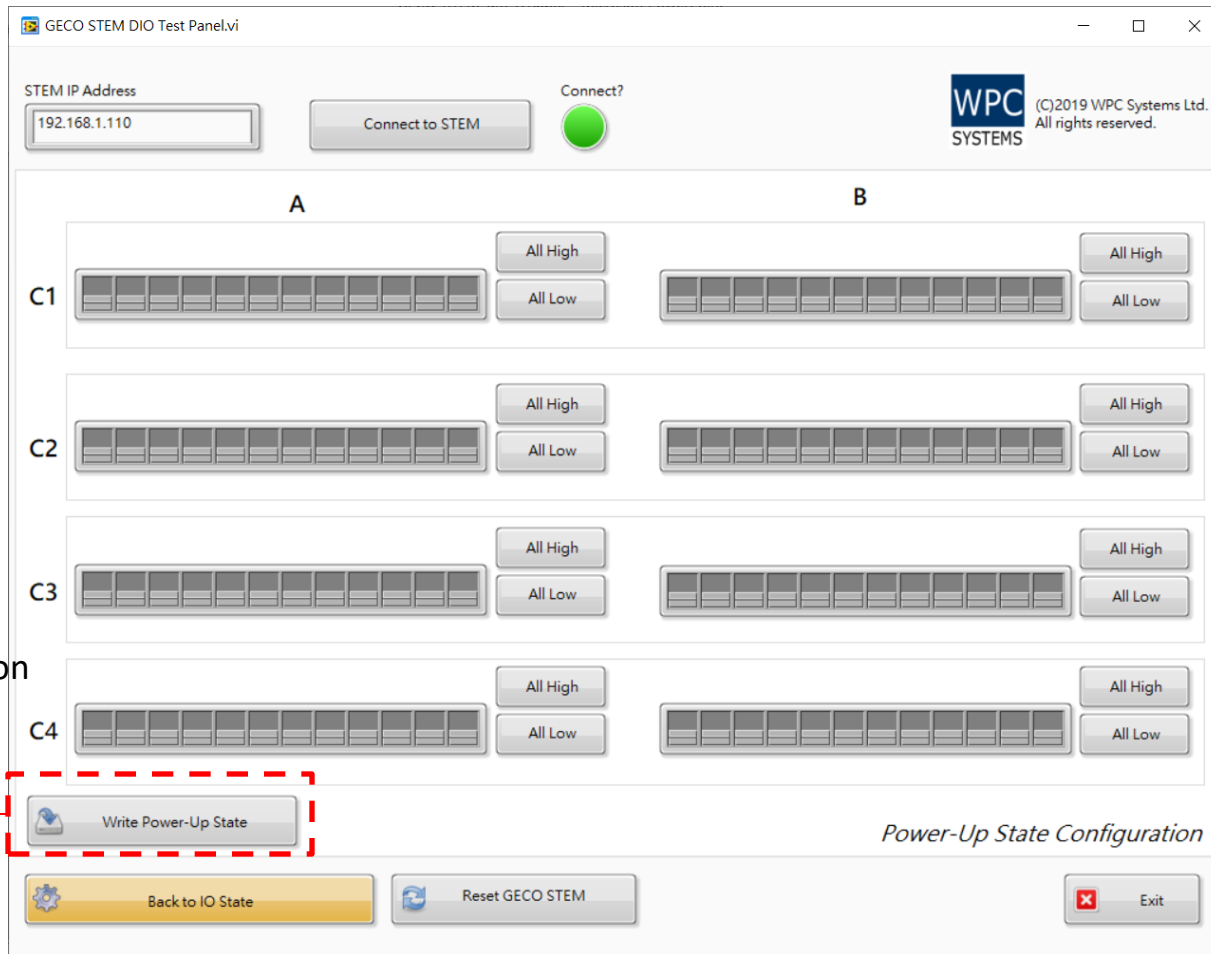
Config Power-Up State

Reset GECO STEM

Exit

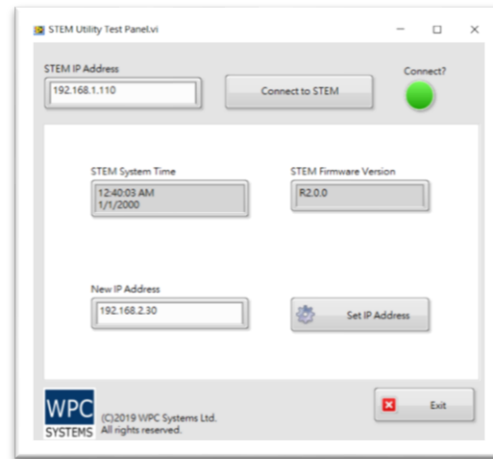
I/O change direction

Power-up state configuration



Store configuration

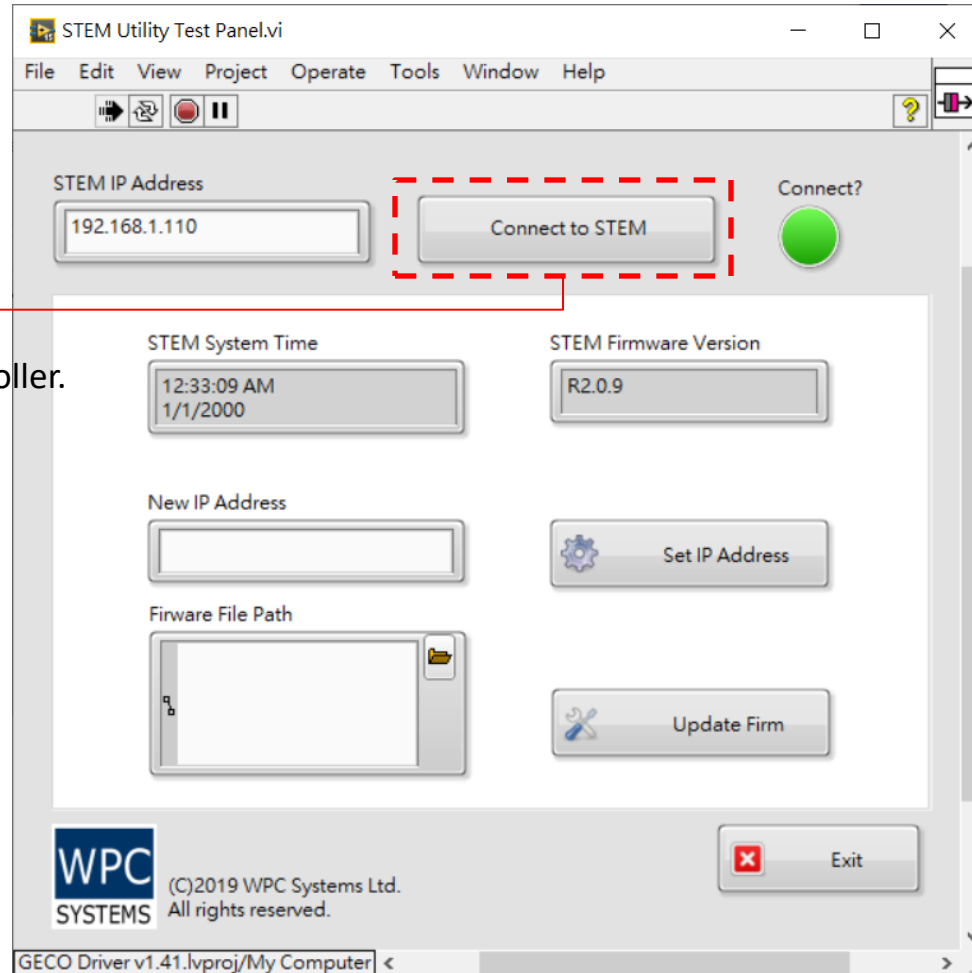
Introduction to Utility test panel



STEM Utility Test Panel

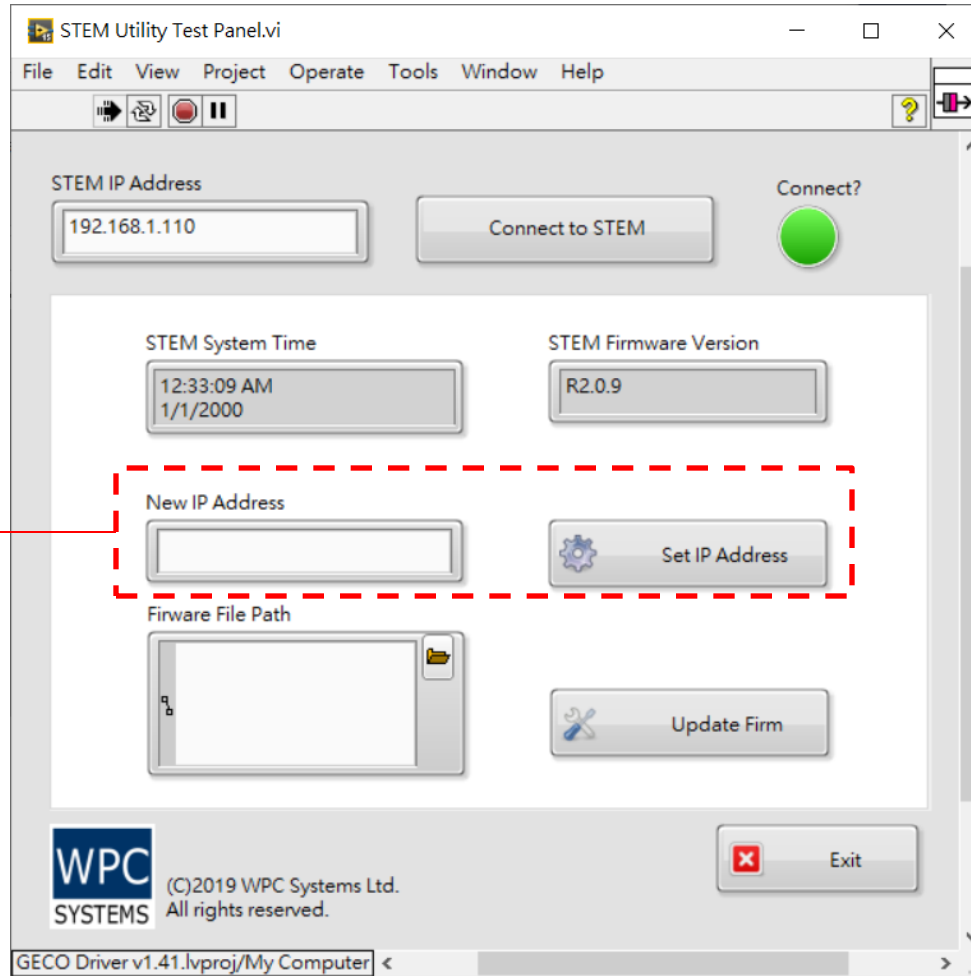
Default IP: 192.168.1.110

Connect to GECO STEM controller.

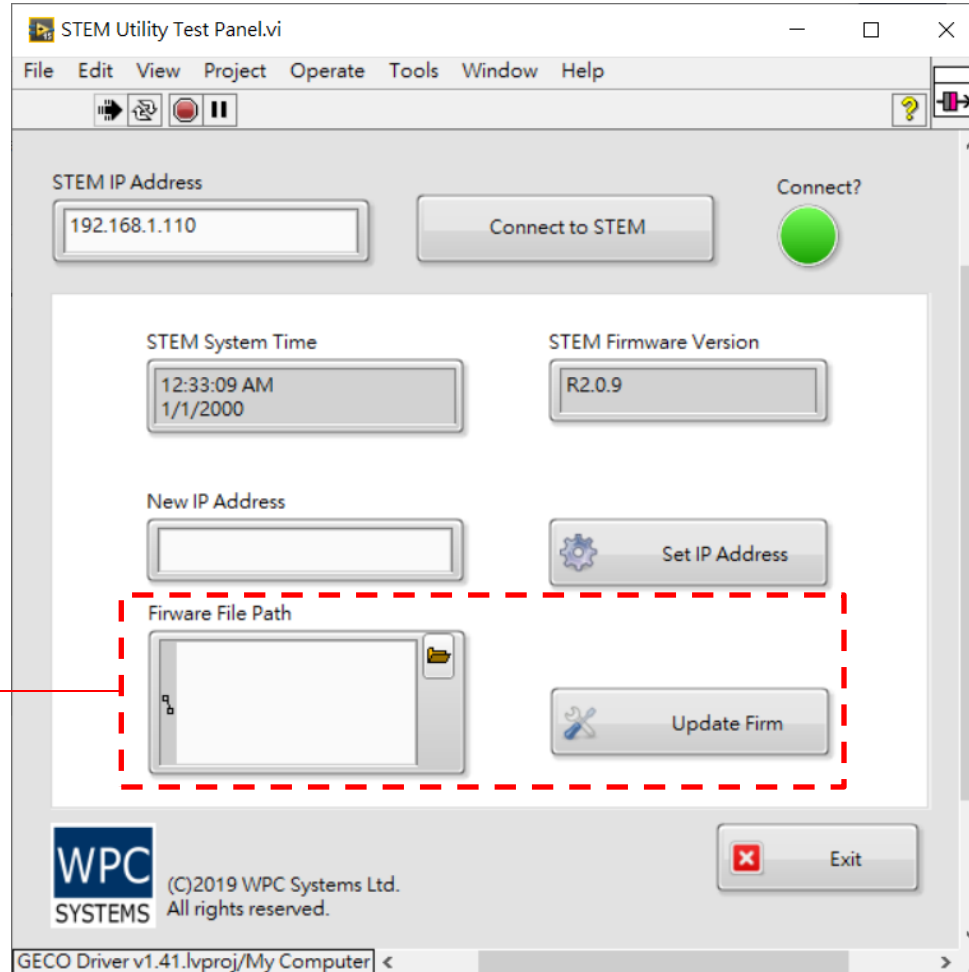


Change IP address

Change IP address



Firmware update



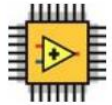
Update firmware

Firmware download



什麼是 **GECO** 控制器？

Graphical Embedded Controller, GECO，是一個完全可以透過 *LabVIEW* 圖型化程式語言進行：編輯／下載／佈署的控制器。透過乙太網路介面進行下載／通訊的特色，方便使用者快速結合工業物聯網的應用（*Industrial Internet Of Things, IIoT*）。同時具備獨立運作（*Stand-alone*）以及圖型化系統設計（*Graphical System Design, GSD*）的優勢，可簡化複雜的應用、縮短開發時間、降低維護成本。



PC-remote 控制器



GECO STEM 乙太網路控制器

- 4-slot IDC-50P 3.3V DIO
- Support modules: 24ch-24V-DI / 24ch-24V-DO / 12-12ch-24V-DIO / 24ch-5V-TTL
- 24ch-2-wire-Multiplexer / 4x6-Matrix switch
- 10/100M Ethernet / TCP command sets
- LabVIEW API

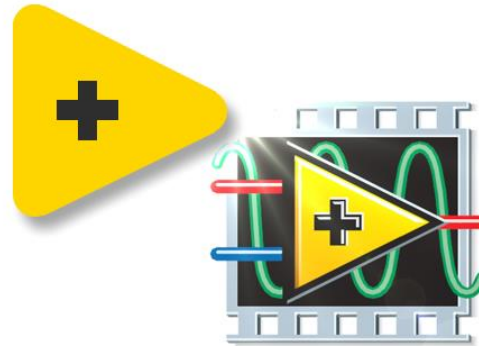
 [geco_stem_um_r4.pdf](#)
Download File

 [firmware_r2.0.8.zip](#)
Download File

 [geco_motion_driver_v1.4.12.zip](#)
Download File

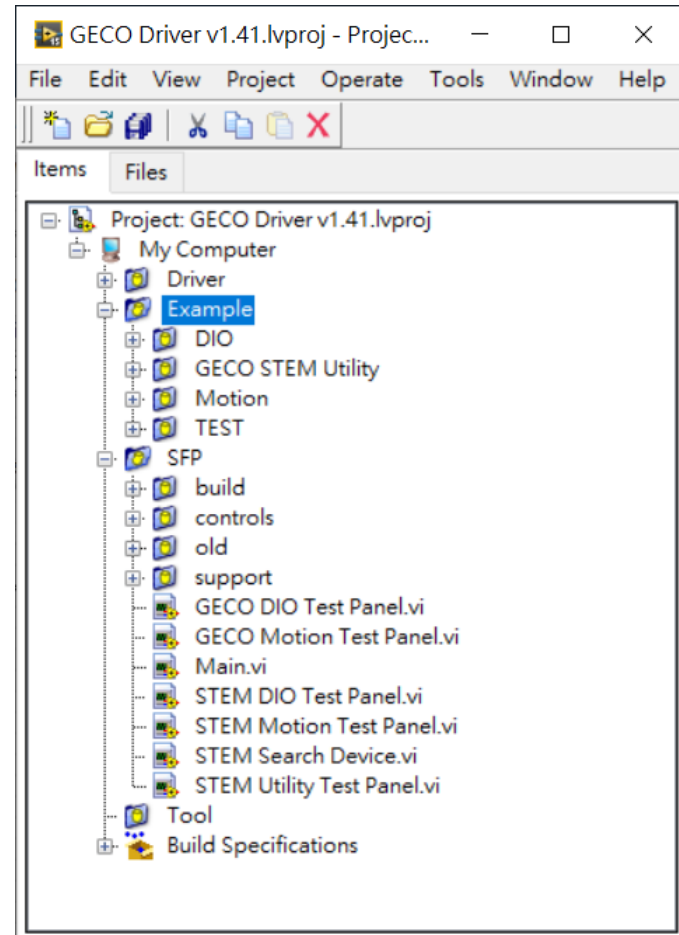
 [geco_stem_testpanel_v1.4.12.zip](#)
Download File

LabVIEW driver API

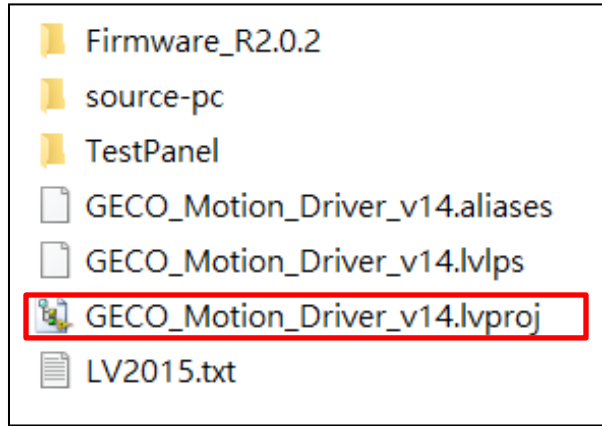


Driver API & Example codes

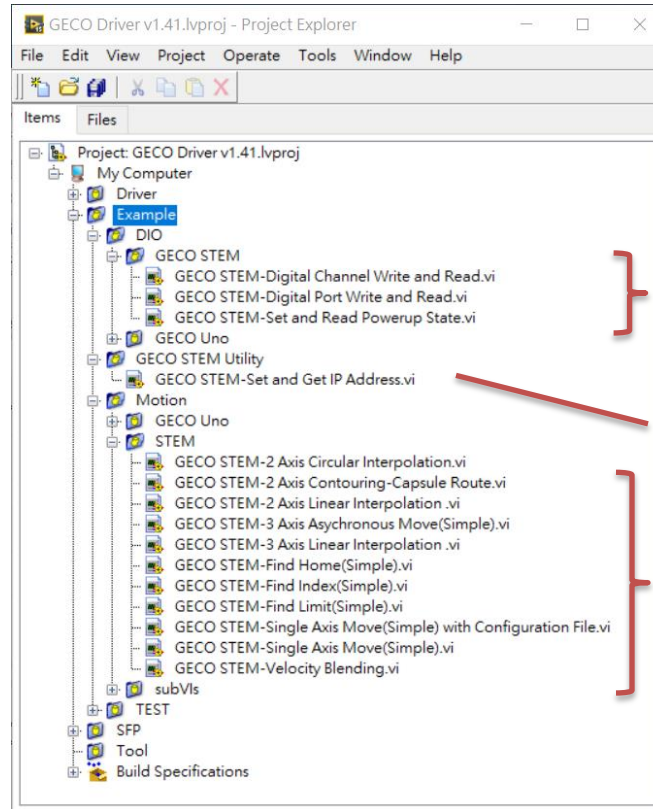
- Example code
 - Digital Channel Write and Read
 - Digital Port Write and Read
 - Set and read power-up state
- Driver API / Libraries
 - LabVIEW 2015 and later



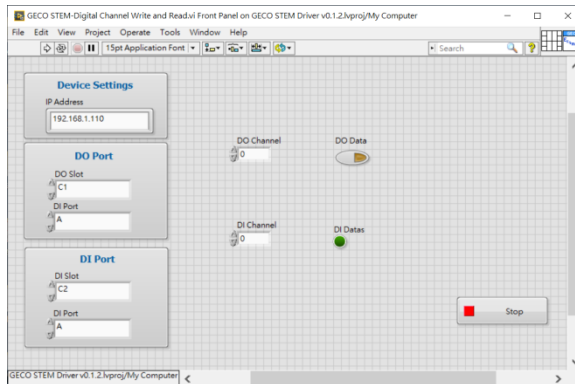
Driver API



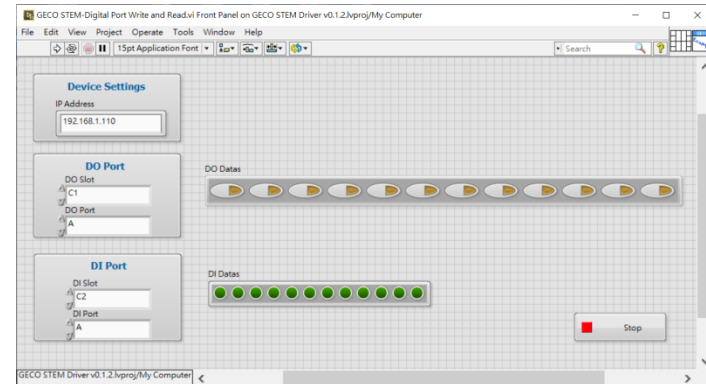
Geco_motion_driver_V1.4.zip
Supported LabVIEW version: 2015 or later



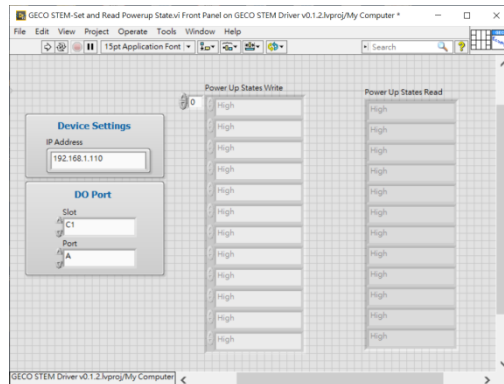
DIO example code



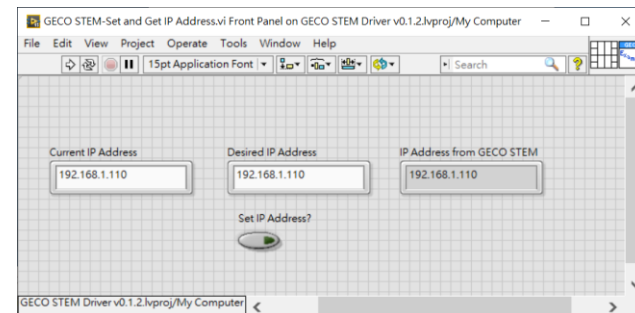
Digital channel write and read



Digital port write and read

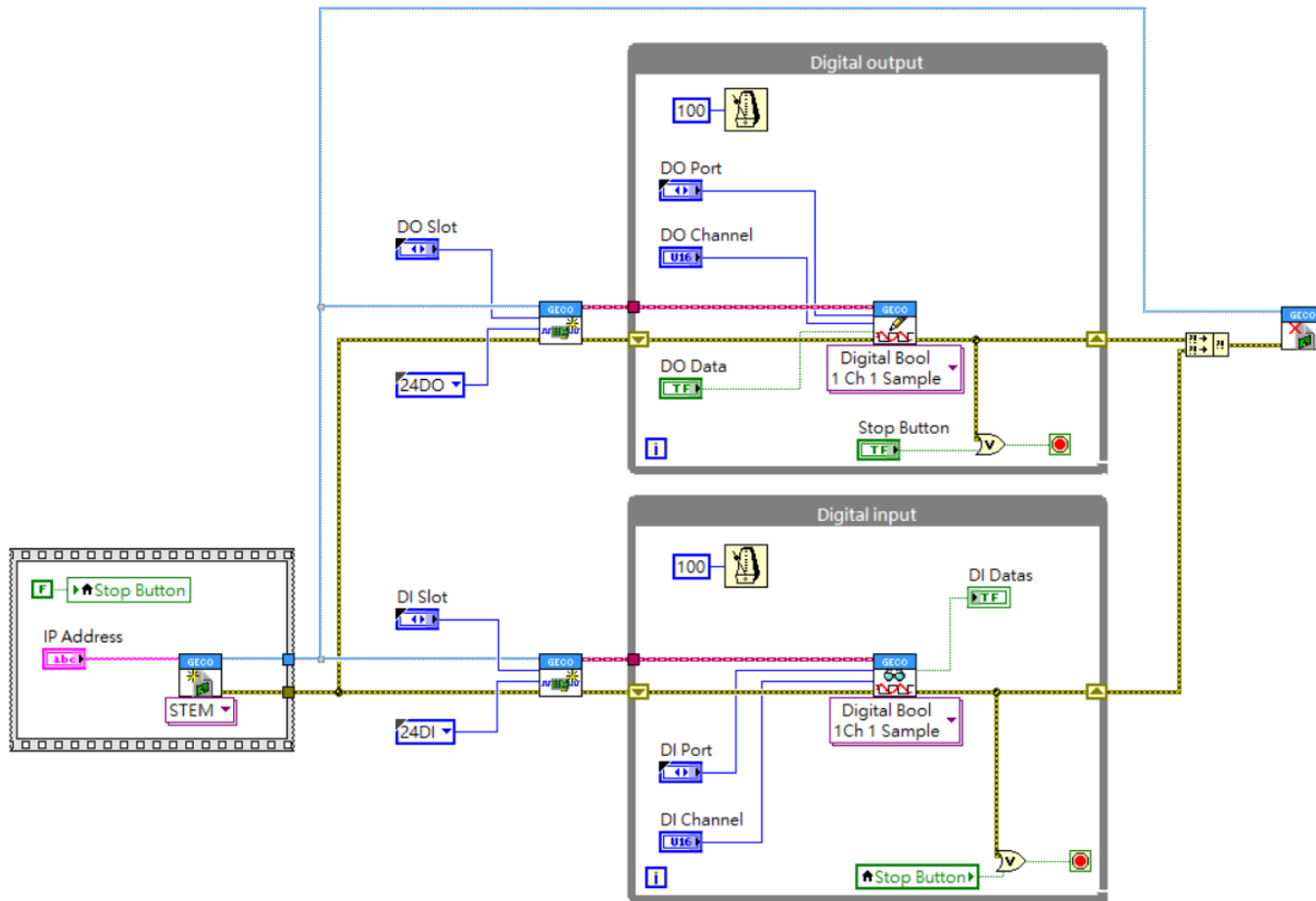


Set and get power-up state

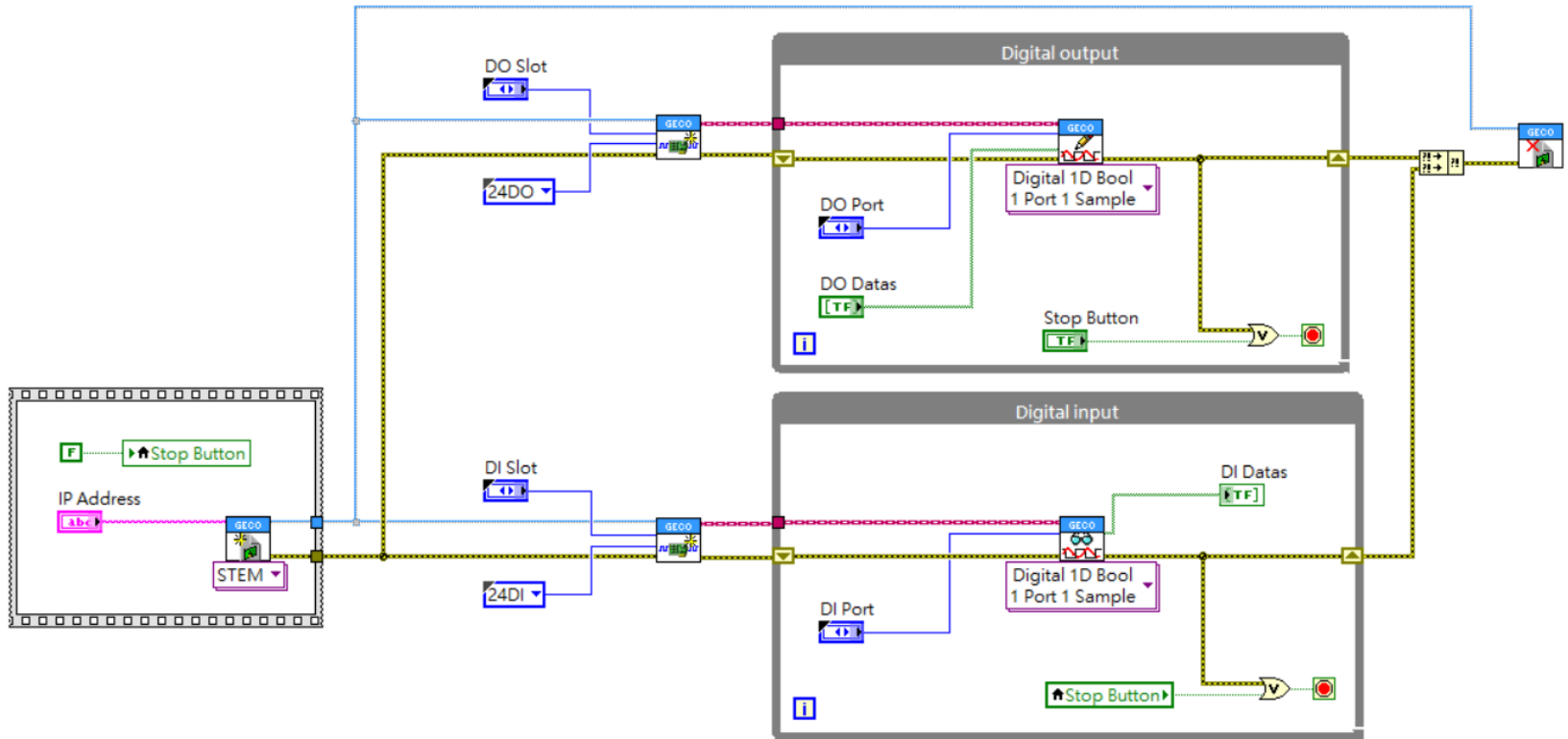


Set and get IP address

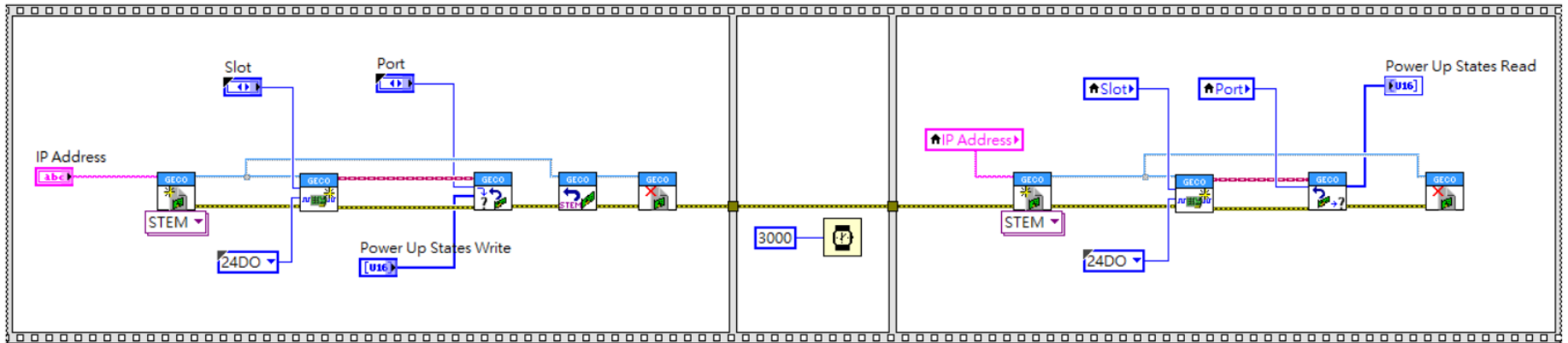
Digital channel write and read



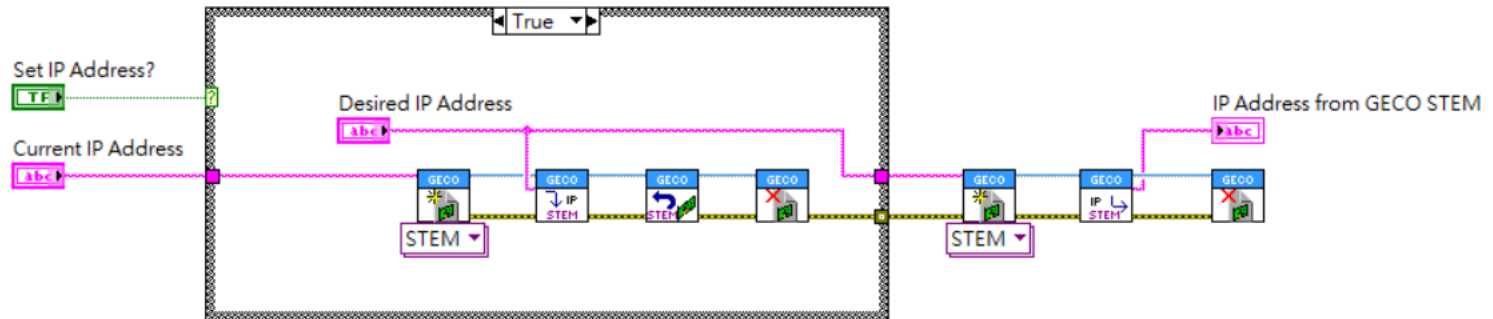
Digital port write and read



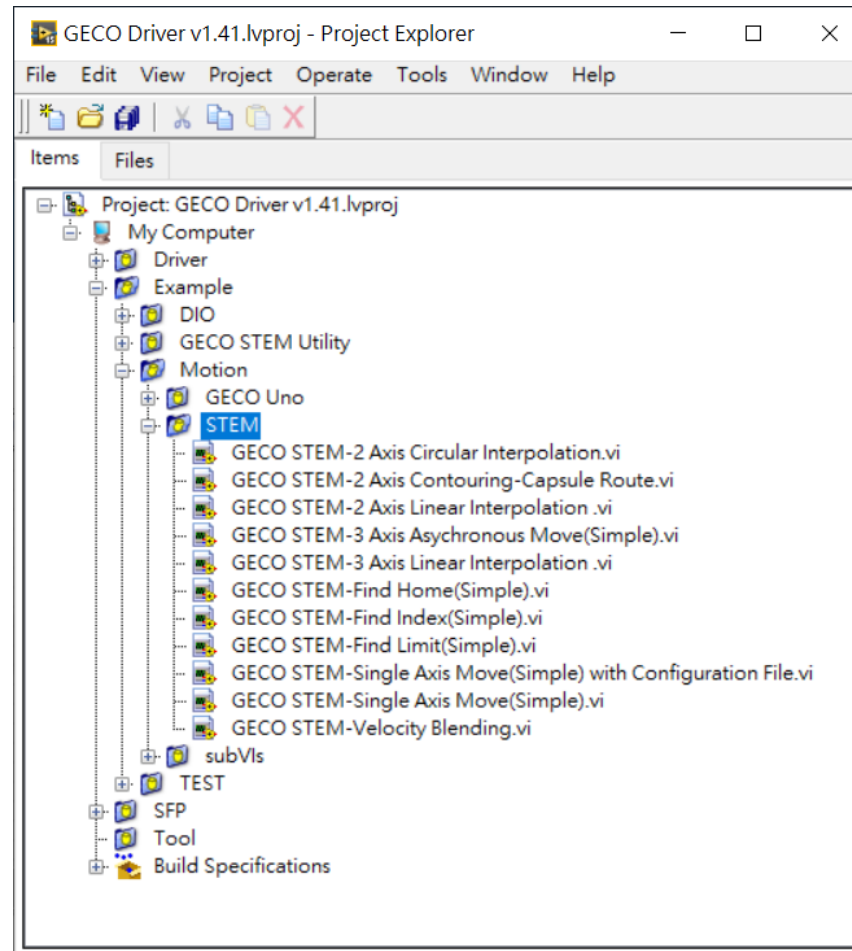
Set and Get power-up state



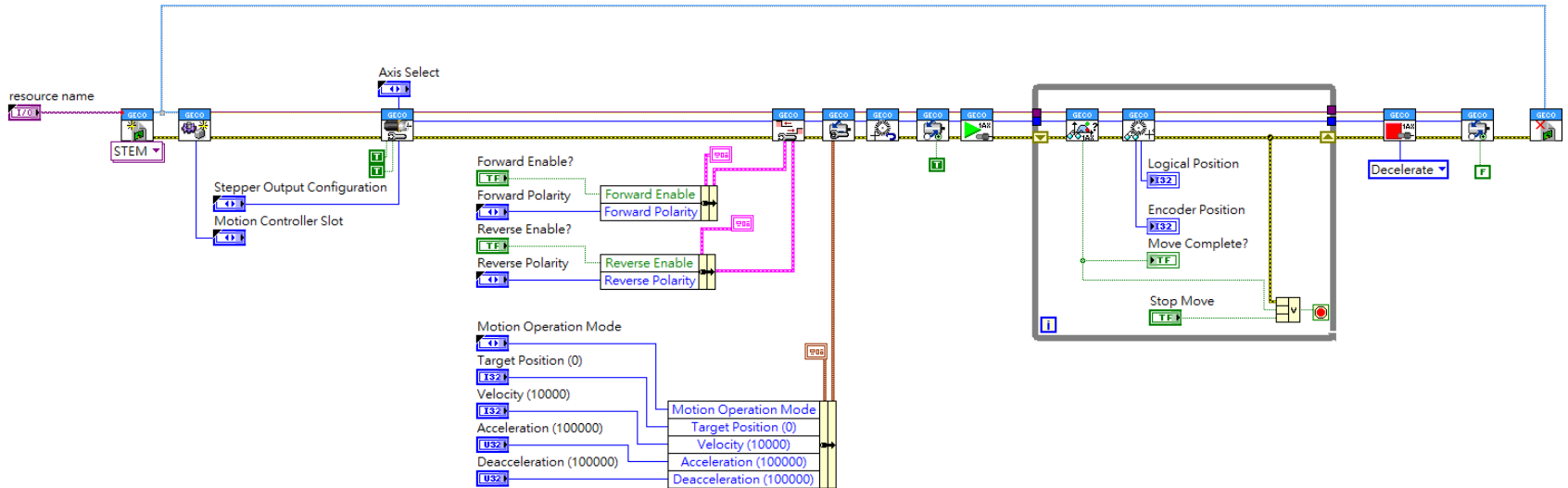
Set and Get IP address



Motion example code



Single axis move (simple)



Find home (simple)

