Mech-Mind User’s Manual

Mech-Mind

Mar 06, 2023

CONTENTS

This section introduces the process of loading the robot master-control program onto a Hyundai robot. The process consists of the following steps:

- *Check Controller and Software Compatibility*
- *Setup the Network Connection*
- *Load the Program Files*
- *Further Configuration*
- *Connect to the Robot*

CHAPTER

ONE

CHECK CONTROLLER AND SOFTWARE COMPATIBILITY

- There is no requirement on the version of robot controller.

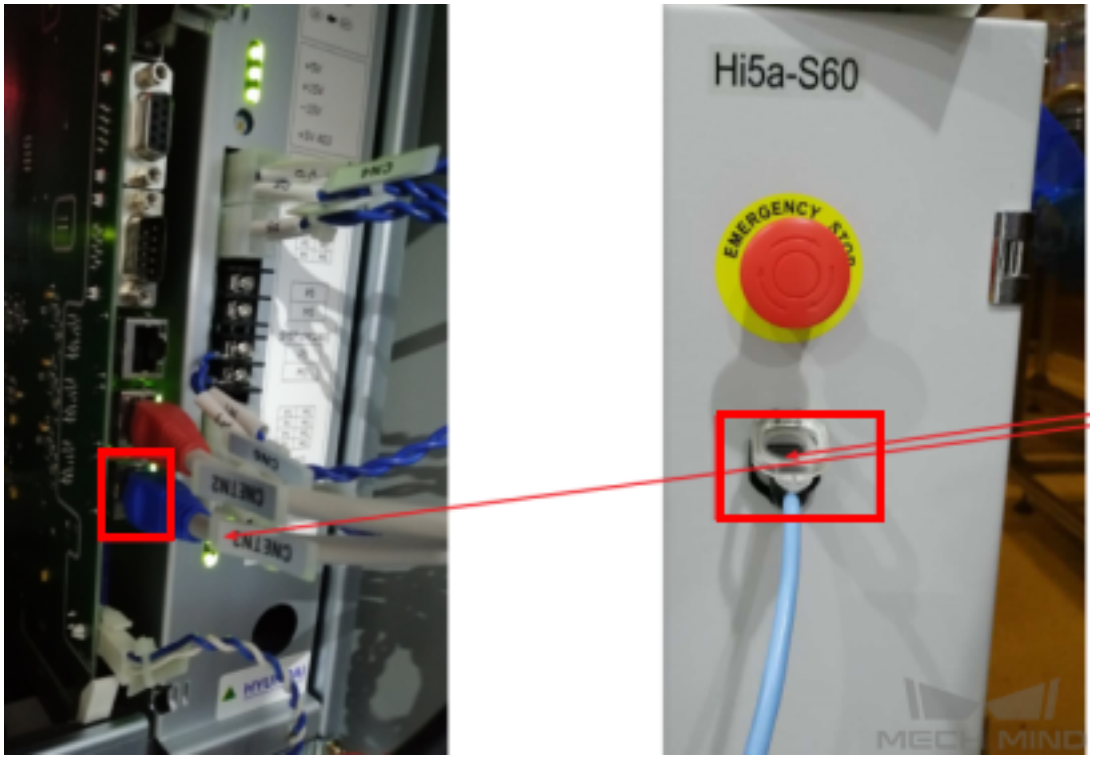
CHAPTER

TWO

SETUP THE NETWORK CONNECTION

2.1 Hardware Connection

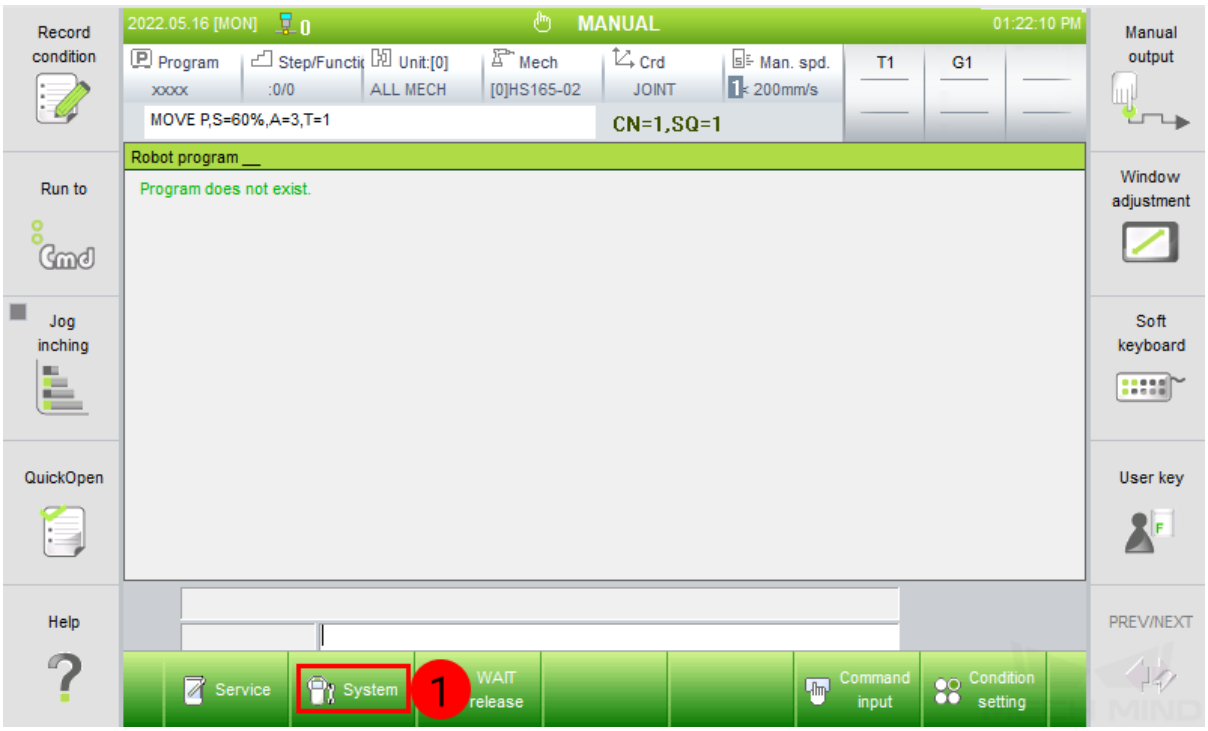
Plug the Ethernet cable of the IPC into the CNETN3 port inside the controller or the Ethernet port on the outside, as shown below.

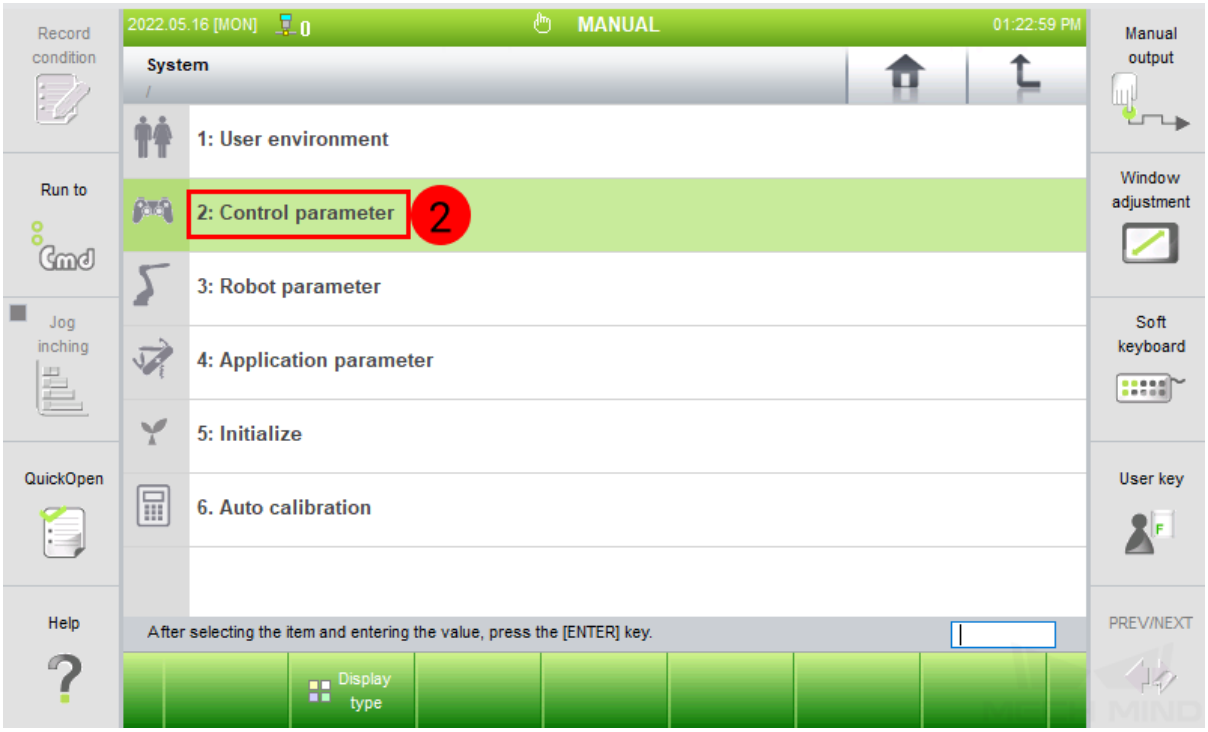


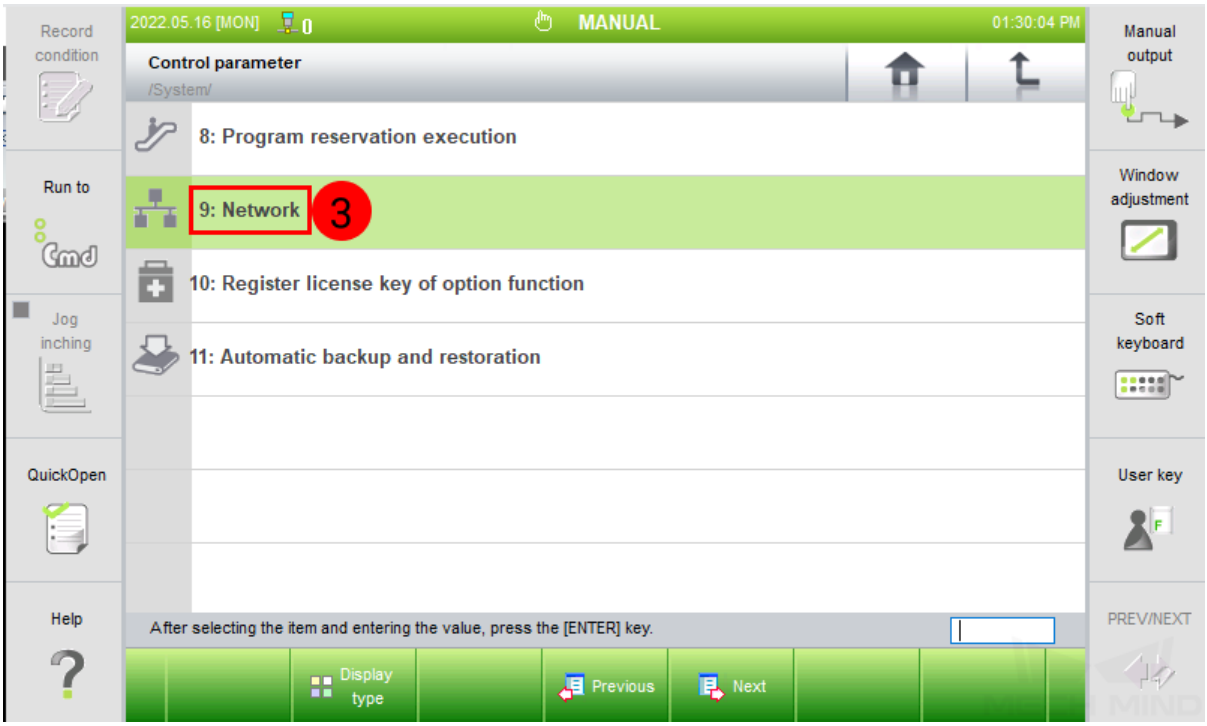
Hint: There are three port inside the controller, namely CNETN1, CNETN2, and CNETN3, which correspond to the EN0 address, TP address and EN2 User Ethernet address on the teach pendant respectively.

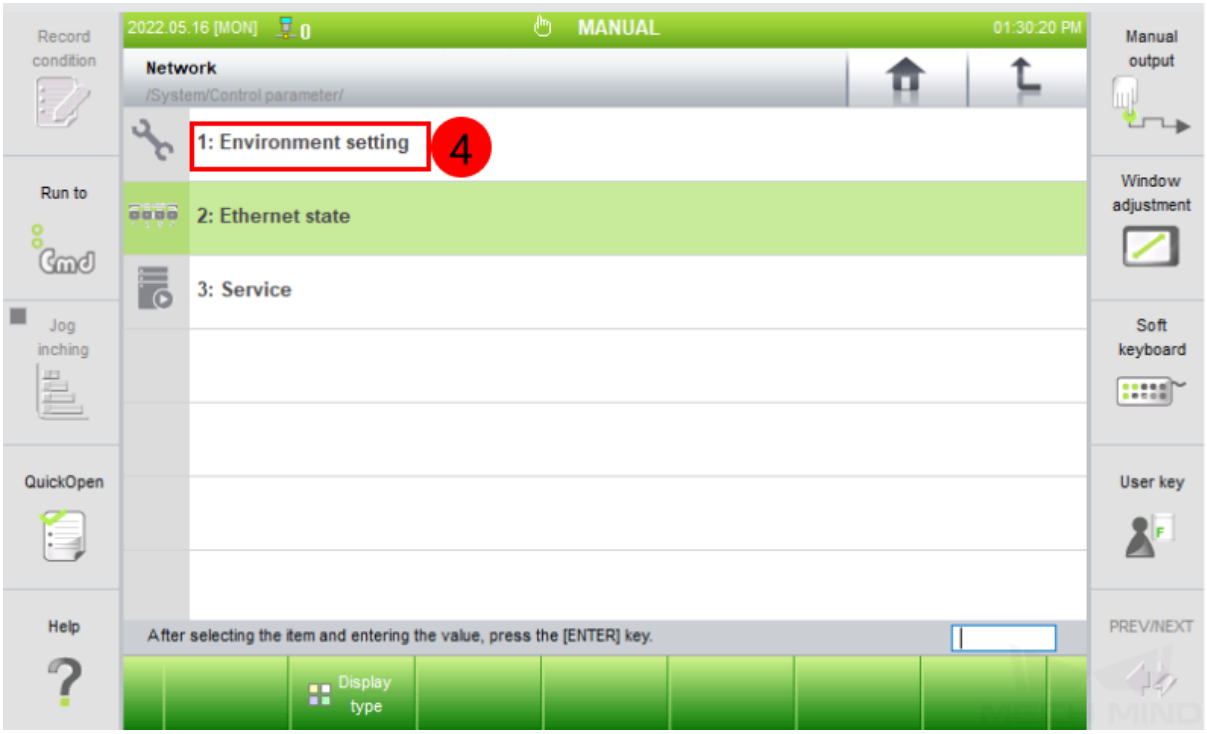
2.2 IP Configuration

1. Go to *System* → *Control parameter* → *Network* → *Environment setting*.

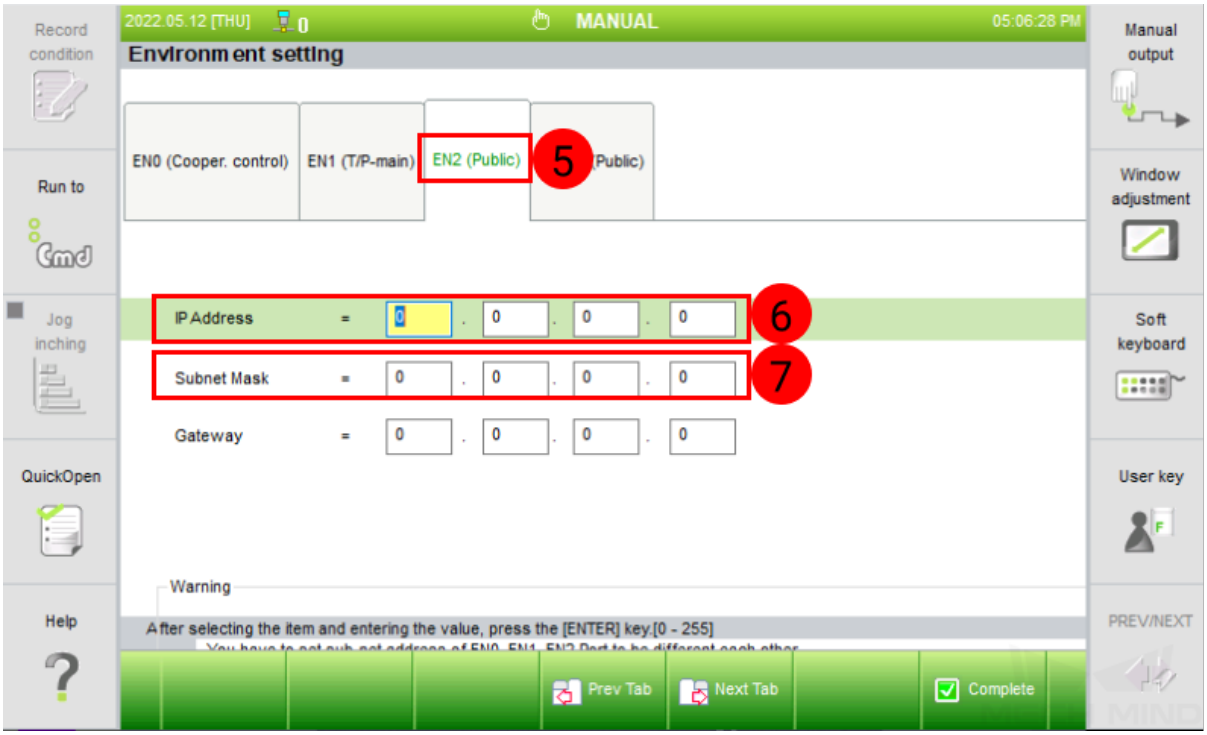








2. Select *EN2(Public)*, and set the right **IP Address**. Please also make sure that the **Sebnet Mask** is set to **255.255.255.0**.



Hint:

- The robot IP should be in the same subnet as the IPC.
- The subnet mask of the IPC is the same as that of the robot, which is 255.255.255.0.
- Restart the robot after modifying the IP address.

CHAPTER

THREE

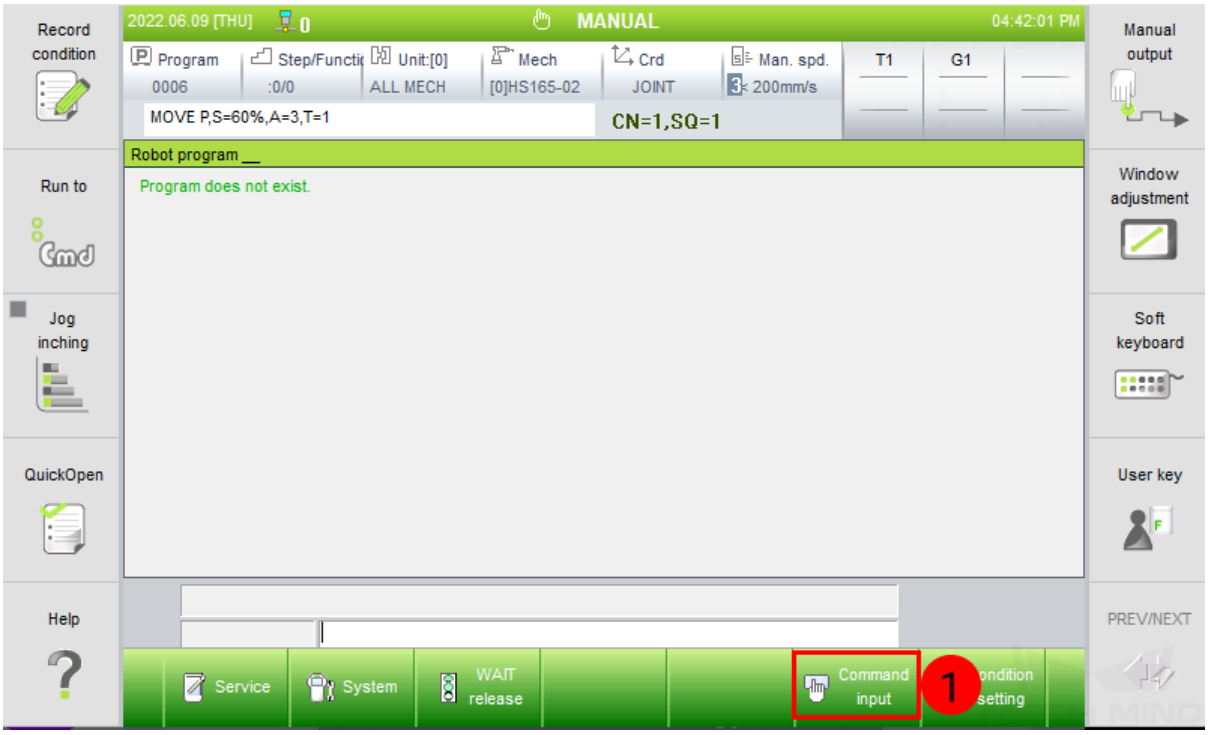
LOAD THE PROGRAM FILES

1. Connect the USB flash drive to the teach pendant.

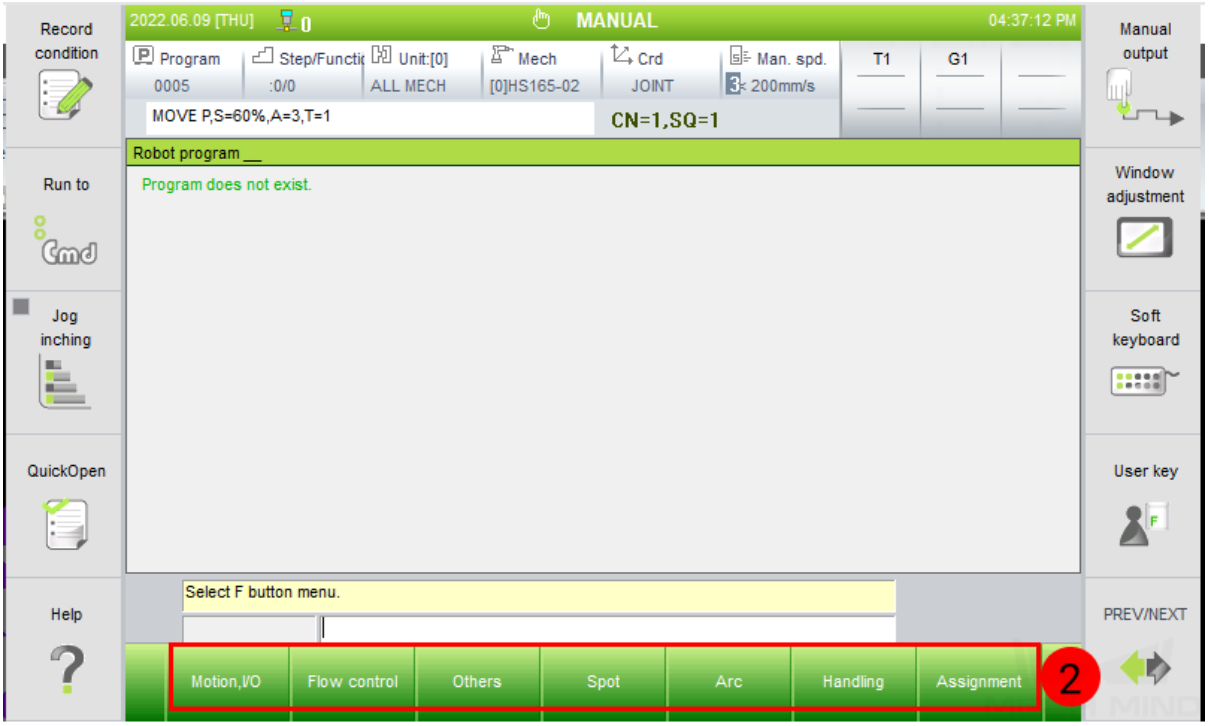
> **Note:** To control a HYUNDAI robot, our master-control program **0101.JOB** and **0102.JOB** need to be initialized by changing the **Program File Format Version** informtion on the first line.

> **Hint:** If you already have other available program on the robot, please directly copy and paste the program into the flash drive and skip to step 5.

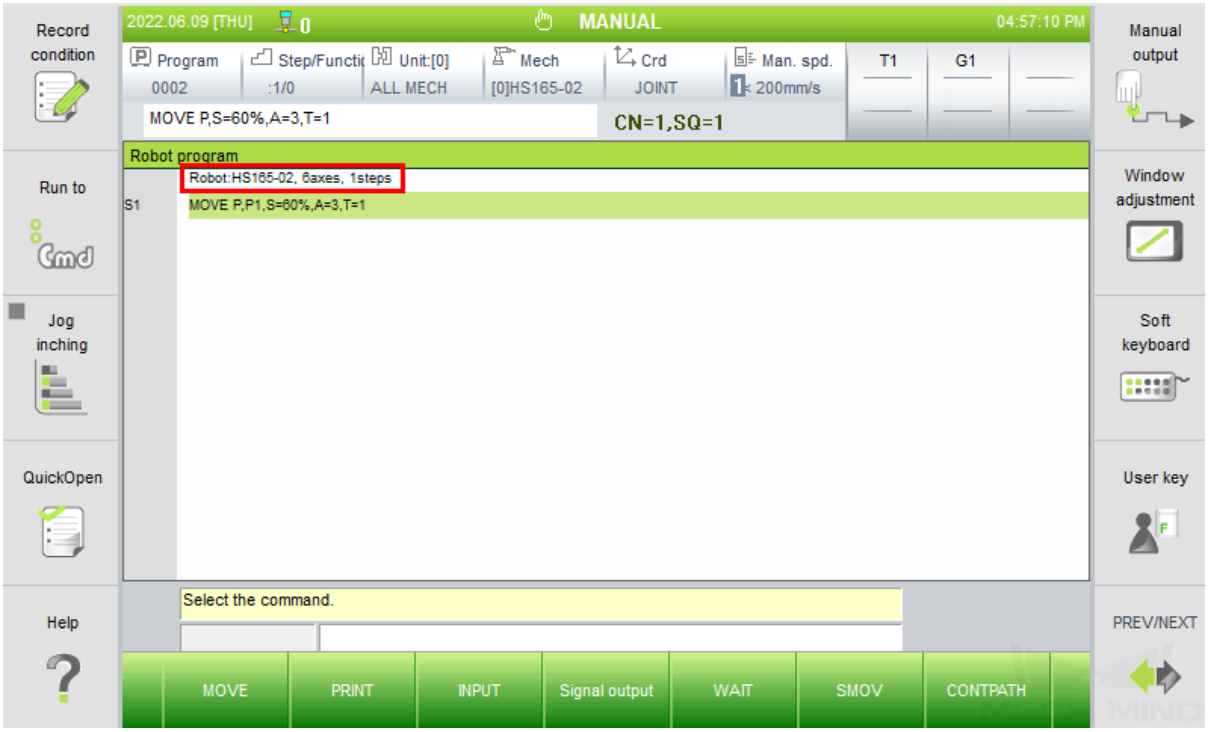
2. Select *Command input*.



3. Choose either of the command to input, as shown below.



4. Now you can see the robot version information on the top. Then save the program.



5. Select the newly created program file (or a previous program file), and select *Copy*. Then switch to the USB folder and select *Paste*.
6. Connect the flash drive to the IPC. Open the program, and then copy the first line.
7. Copy and paste the master-control program files 0101.JOB and 0102.JOBO into the flash drive. Open the two master-control program and paste the copied code to replace the first line in the program, and then save the changes.

```
Program File Format Version : 1.6  MechType: 370(HS220-01)  TotalAxis: 6  AuxAxis: 0
    DIM liIdx AS Integer
    DIM liVel[200] AS Integer
    DIM limotionType[200] AS Integer
    FOR liIdx=1 TO 200
    liVel[liIdx]=0
```

Hint: The master-control program files are stored in *xxx\Mech-Mind Software Suite-x.x.x\Mech-Center\Robot_Server\Robot_FullControl\hyundai\Hi5a-S*.

8. Connect the flash drive to the teach pendant. Go to *System* → *File manager* → *USB*, select 0101.JOB and 0102.JOB, and then select *Copy*. Then switch to T/P, select *Paste* to load the files to the robot.

CHAPTER

FOUR

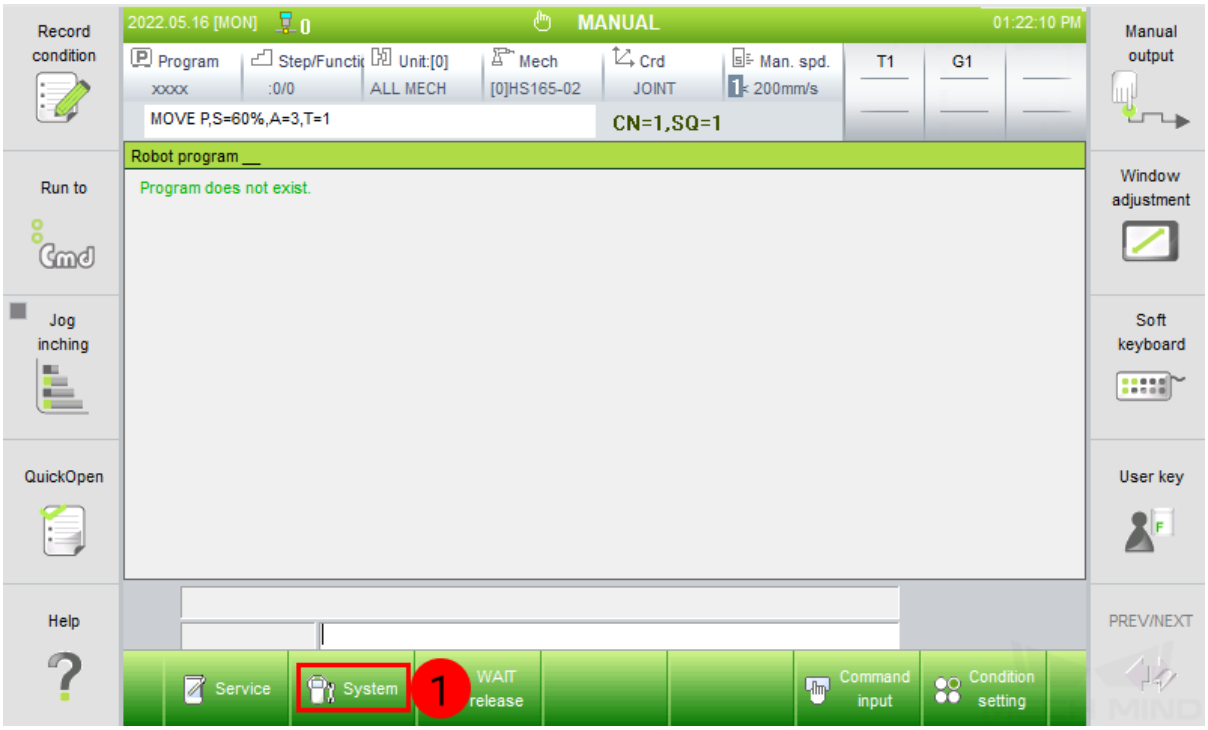
FURTHER CONFIGURATION

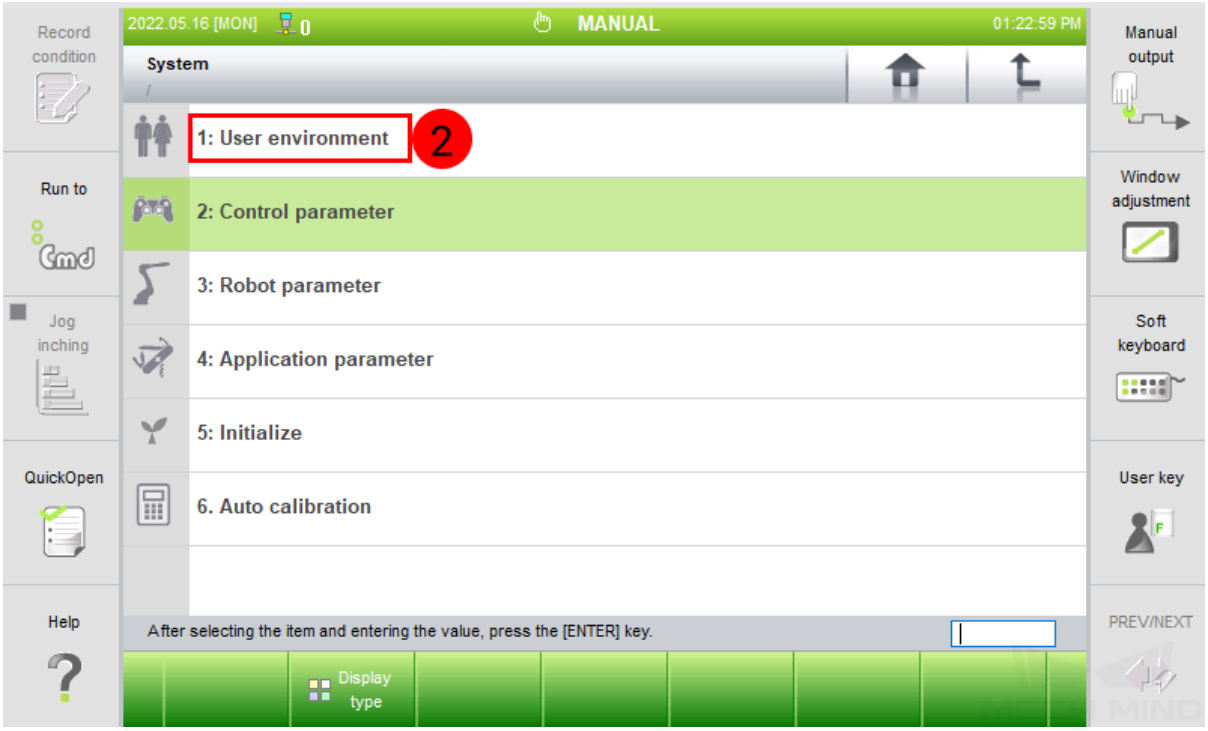
1. Change the IP address of the IPC to 192.168.0.150.

Hint: This IP address is a default one which is specified in 0101.JOB and 0102.JOB. If you need to change the IP address, please modify the IP address in the program accordingly, and the new IP address should be in the same subnet as that of the robot controller.

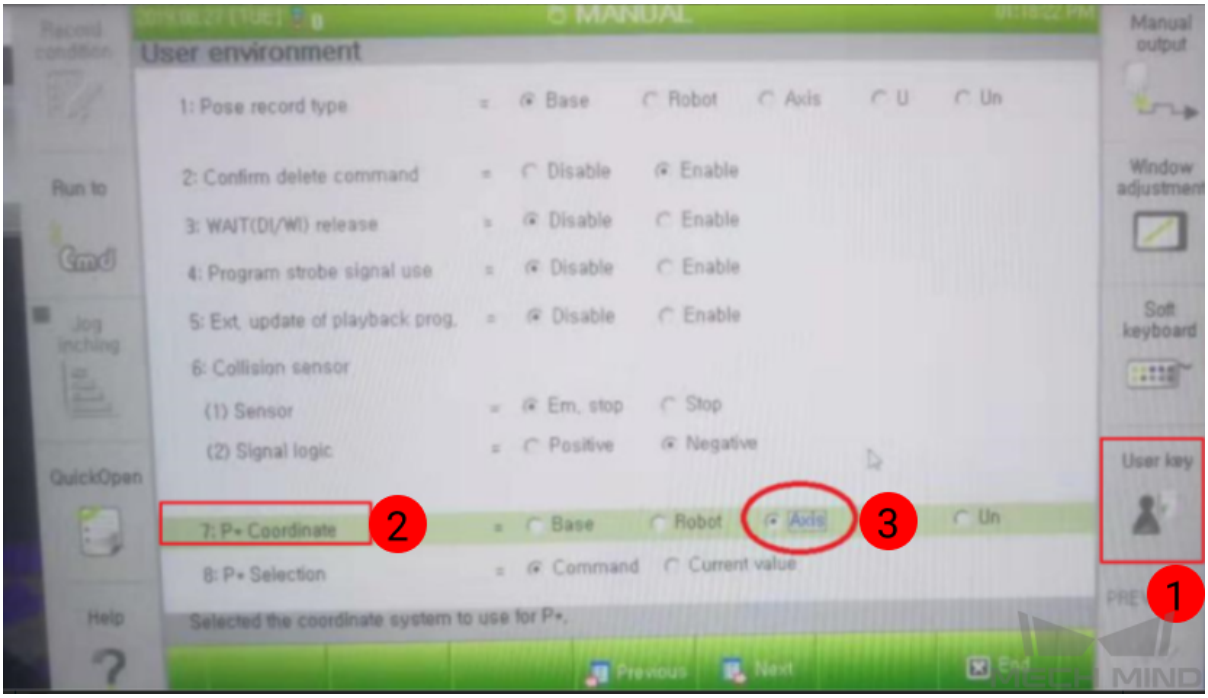
---

1. Set the management IP address of the router to 192.168.0.1.
2. Go to *Syetem→ User Environment*.





3. Select *User Key* and enter the general password **314** to request permission.
4. Change the **P* Coordinate** to *Axis*.

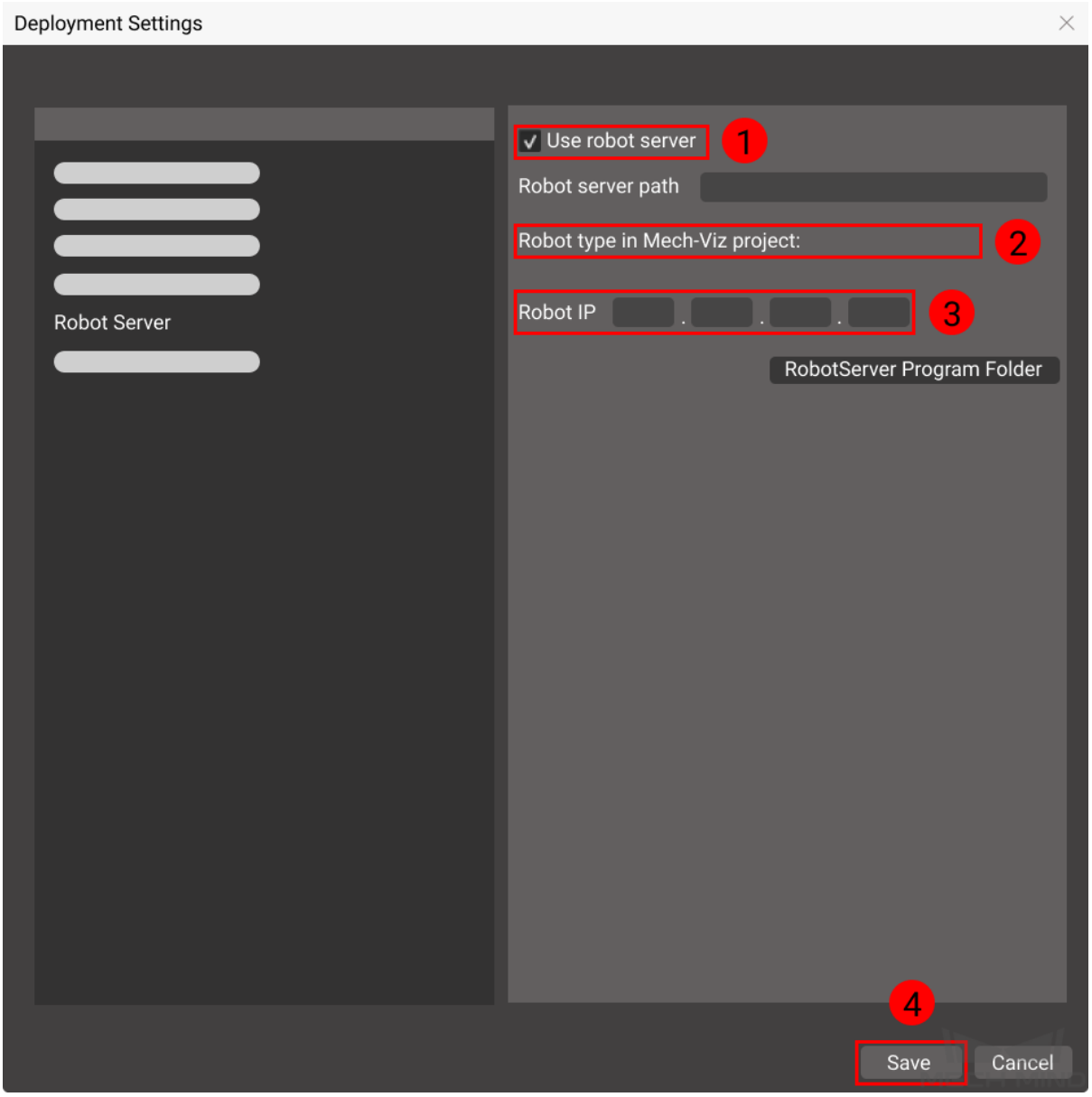


CHAPTER

FIVE

CONNECT TO THE ROBOT

1. Open Mech-Center and click on *Deployment Settings*.
2. Go to Robot Server, and make sure Use robot server is checked.
3. Check if the robot model displayed after Robot type in Mech-Viz project matches the one in use.
4. Set the Robot IP address, and click on Save.

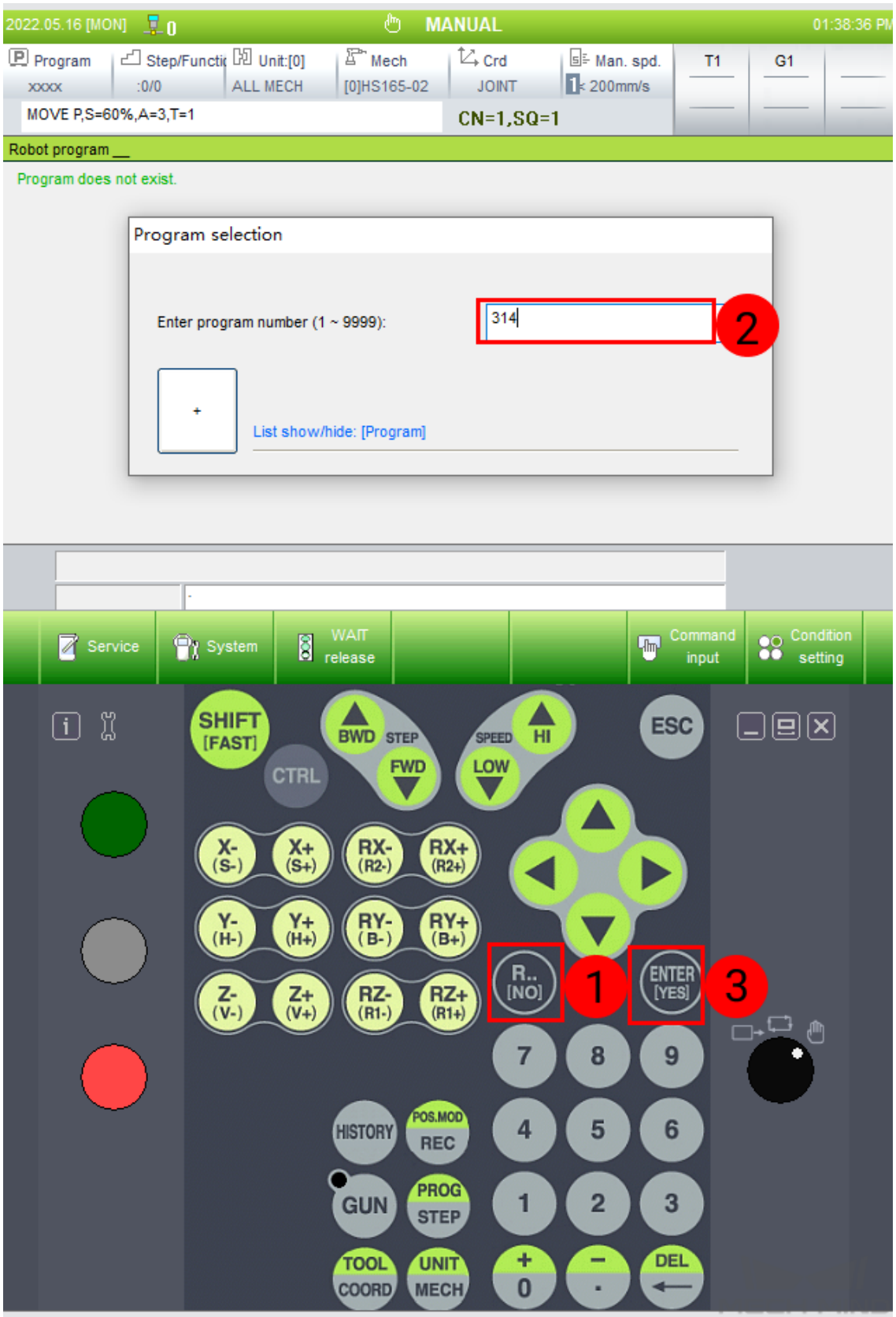


5. Click on *Connect Robot* in the Toolbar.
6. Switch the robot into AUTO mode.
7. Open **0101.JOB**, select *Program* → *Step/Function*, and enter **0** in the pop-up **Step selection** window. The way to reset the **0102.JOB** is the same.
8. Execute the program **0101.JOB**.
9. The robot is successfully connected if:
    - A message saying **Robot: server connected to the robot** shows up in the **Log** panel, and

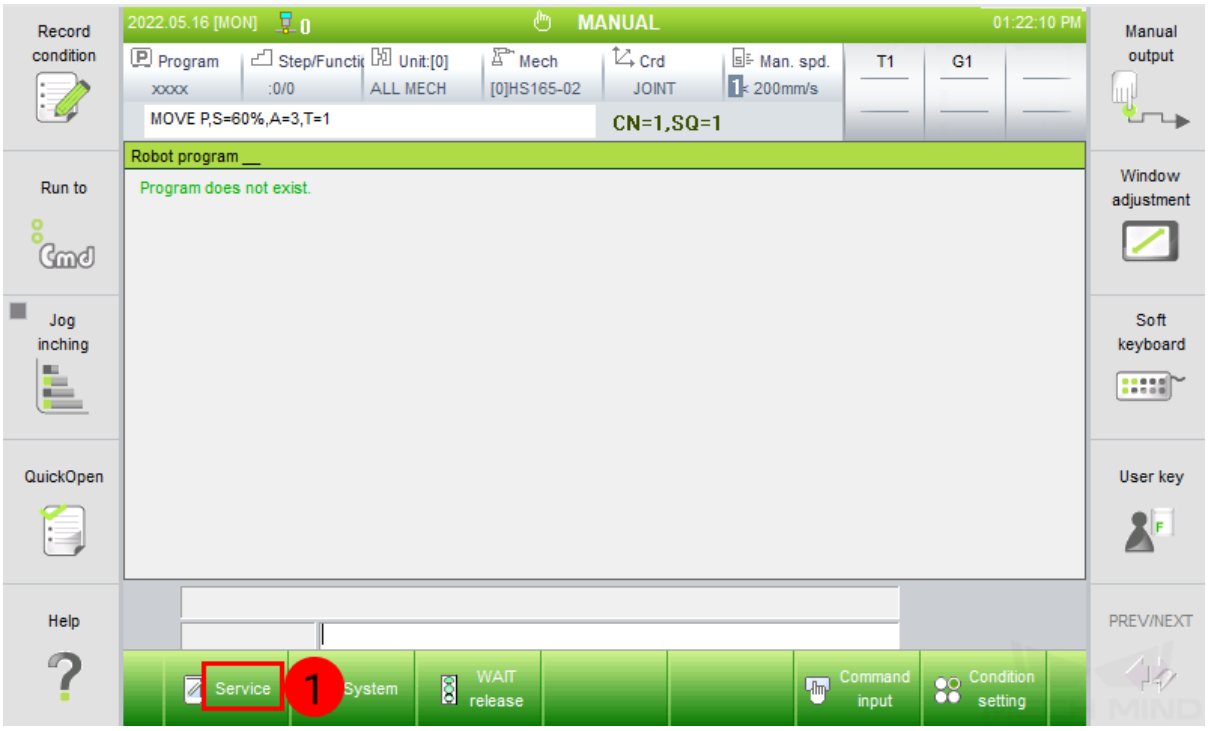
-  with the robot model shows up in the Service Status panel.

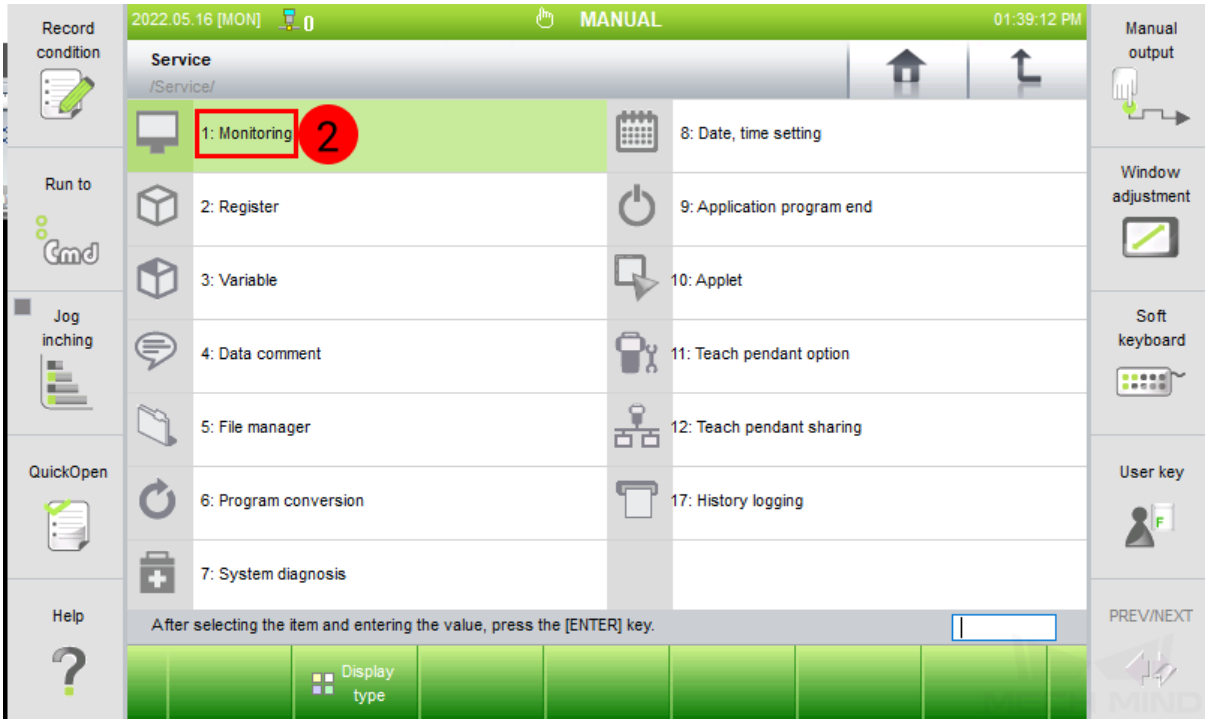
5.1 Reconnect the robot

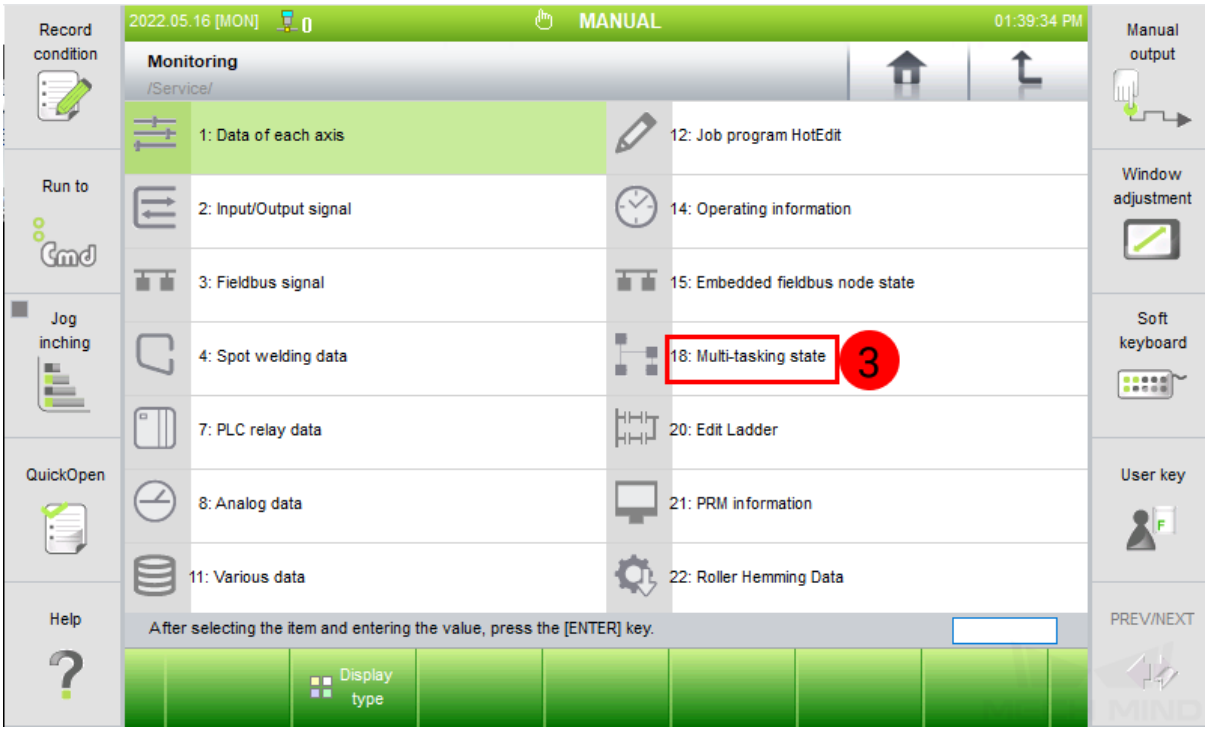
1. Under teach mode, press `R.. [NO]`, enter 314 and then press `ENTER [YES]` to request permission.


2022.05.16 [MON]
MANUAL
01:38:36 PM
Program
xxxx
Step/Functi
:0/0
Unit:[0]
ALL MECH
Mech
[0]HS165-02
Crd
JOINT
Man. spd.
200mm/s
T1
G1
MOVE P,S=60%,A=3,T=1
CN=1,SQ=1
Robot program __
Program does not exist.
Program selection
Enter program number (1 ~ 9999):
314
2
List show/hide: [Program]
Service
System
WAIT release
Command input
Condition setting
SHIFT [FAST]
CTRL
BWD
STEP
FWD
SPEED
HI
LOW
ESC
X- (S-)
X+ (S+)
RX- (R2-)
RX+ (R2+)
Y- (H-)
Y+ (H+)
RY- (B-)
RY+ (B+)
Z- (V-)
Z+ (V+)
RZ- (R1-)
RZ+ (R1+)
R.. [NO]
1
ENTER [YES]
3
7
8
9
4
5
6
1
2
3
0
.
DEL
HISTORY
POS.MOD
REC
GUN
PROG
STEP
TOOL
COORD
UNIT
MECH

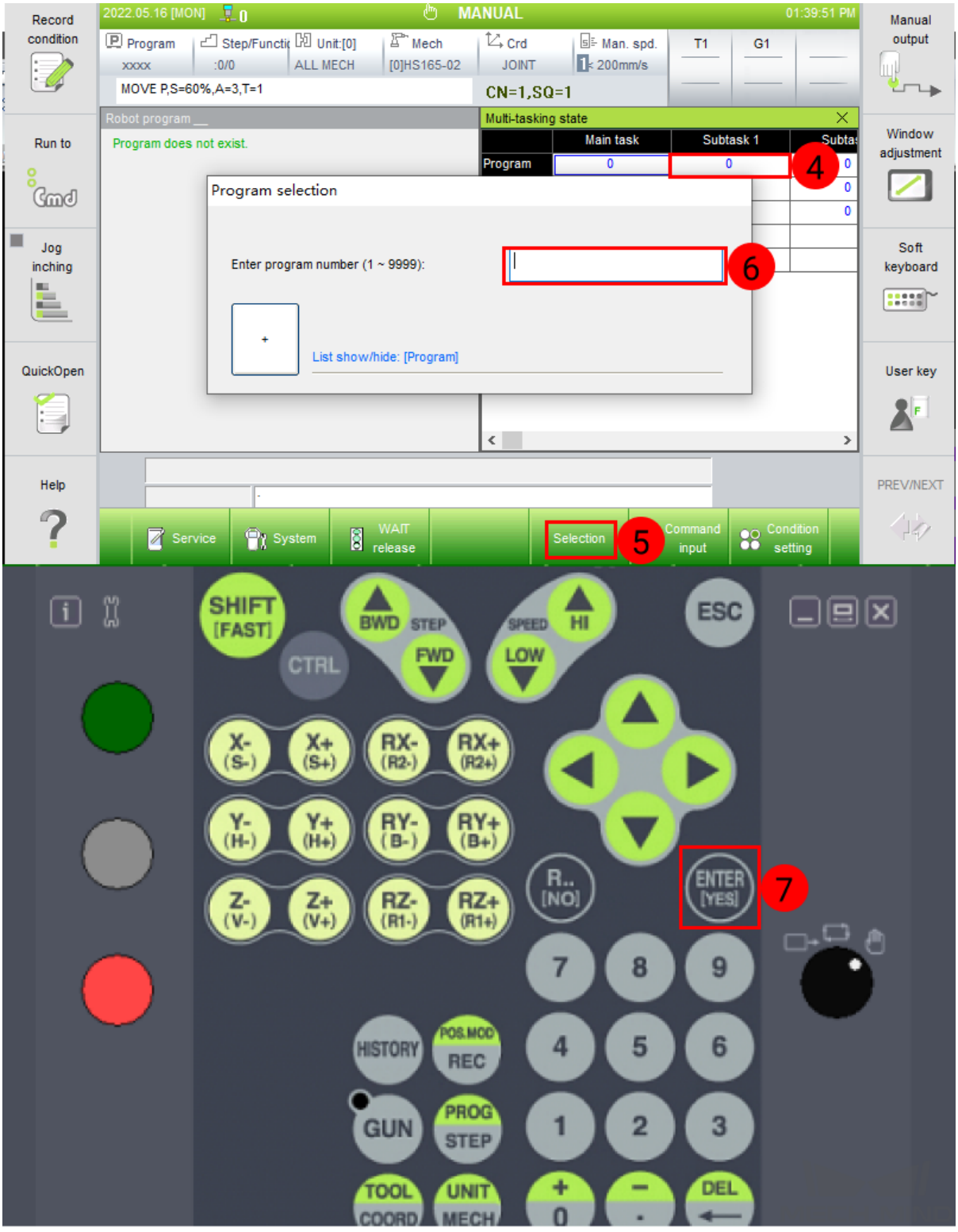
2. Each time when reconnect the robot, the background tasks should be stopped and the pstep in the foreground program should be reset to 0. Select *Service→ Monitoring → Multi-tasking_state → ENTER [YES]* to enter the multi-tasking interface.







3. Select Program (Suntask) and then select *Selection*. Enter **3** in the **Program selection** window and then press `ENTER [YES]` to complete configuration.


Record condition
2022.05.16 [MON]
MANUAL
01:39:51 PM
Manual output
Program
Step/Functi
Unit:[0]
Mech
Crd
Man. spd.
T1
G1
xxxx
:0/0
ALL MECH
[0]HS165-02
JOINT
200mm/s
MOVE P,S=60%,A=3,T=1
CN=1,SQ=1
Run to
Robot program
Program does not exist.
Multi-tasking state
Main task
Subtask 1
Window adjustment
Program
Program selection
Jog inching
Enter program number (1 ~ 9999):
Soft keyboard
QuickOpen
List show/hide: [Program]
User key
Help
PREV/NEXT
Service
System
WAIT release
Selection
Command input
Condition setting
SHIFT [FAST]
CTRL
BWD
STEP
FWD
SPEED
HI
LOW
ESC
X- (S-)
X+ (S+)
RX- (R2-)
RX+ (R2+)
Y- (H-)
Y+ (H+)
RY- (B-)
RY+ (B+)
Z- (V-)
Z+ (V+)
RZ- (R1-)
RZ+ (R1+)
R.. [NO]
ENTER [YES]
7
8
9
HISTORY
POS.MOD
REC
4
5
6
GUN
PROG
STEP
1
2
3
TOOL
COORD
UNIT
MECH
+
0
−
.
DEL