Mech-Mind User's Manual

Mech-Mind

Mar 06, 2023

CONTENTS

1	Check Controller and Software Compatibility	2
2	Setup the Network Connection2.1Hardware Connection2.2IP Configuration	3 3 4
3	Load the Program Files	7
4	Further Configuration	10
5	Connect to the Robot 5.1 Reconnect the robot	13 15

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

ONE

CHECK CONTROLLER AND SOFTWARE COMPATIBILITY

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

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 \rightarrow Control parameter \rightarrow Network \rightarrow Environment setting.

Record	2022.05.16 [MON] 📮 👔 🕚 MANUAL 01:22:10 PM	Manual
condition	Program ∠ Step/Functic [2] Unit:[0] All Mich Crd Iman. spd. T1 G1	output
: 🧷	MOVE P,S=60%,A=3,T=1 CN=1,SQ=1	u.
	Robot program	
Run to	Program does not exist.	Window adjustment
emd.		
Jog		Soft
		·····
QuickOpen		User key
		X F
Help		PREV/NEXT
?	Service System 1 WAIT release Command input Condition	4



	2022.05.16 [MON] 📱 n 👘 MANUAI01/30/04	PM							
condition	Control parameter /System/	Manual output							
Run to	9: Network 3	Window adjustment							
	10: Register license key of option function								
Jog inching	11: Automatic backup and restoration								
QuickOpen		User kev							
Help									
0	After selecting the item and entering the value, press the [CNTEK] Key.								
•	Display type Previous Rext								



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**.

Record	2022.05.12 [THU] 💂 👔 🕐 MANUAL 05:06:28 PM	Manual
condition	Environment setting	output
Run to	EN0 (Cooper. control) EN1 (T/P-main) EN2 (Public) Public)	Window adjustment
6 Gmd		
Jog inching	IPAddress = 0 . 0 . 0 . 0	Soft keyboard
1	Subnet Mask = 0 . 0 . 0 . 0 . 7	·····
	Gateway = 0 . 0 . 0 . 0	
QuickOpen		User key
		2
	Warning	
Help	After selecting the item and entering the value, press the [ENTER] key.[0 - 255]	PREV/NEXT
?	Veu have to get out and end of ENO. EN1 EN3 Dent to be different each other Complete Complete	14

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** information 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.

Record	2022.06.09 [ТНИ] 📮 👔 🧶 🕅 💆 🕅 МА	NUAL	04:42:01 PM Manual
condition	Program C Step/Functic C Unit:[0]	Crd GE Man. spd. T1 G1	output
	MOVE P,S=60%,A=3,T=1	CN=1,SQ=1	· U_
	Robot program		
Run to	Program does not exist.		Window adjustment
emd 8			
Jog			Soft
inching			keyboard
			······································
QuickOpen			User key
1			
Help			PREV/NEXT
?	Service System WAIT release	Command input	ondition setting

Record	2022.06.09 [ТНИ] 📮 👔 🧰 🕅	ANUAL	04:37:12 PM	Manual
condition	Program C Step/Functic 团 Unit:[0]	Image: Second		output
	MOVE P,S=60%,A=3,T=1	CN=1,SQ=1		≌∽⊾≽
Run to	Robot program Program does not exist			Window
0				adjustment
Gmd				
Jog				Soft
inching				keyboard
QuickOpen				User key
Help	Select F button menu.			PREV/NEXT
?	Motion,VO Flow control Others S	pot Arc Handling	Assignment 2	

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.

Record	2022.0	i6.09 [THU] 🛛 🚦	-0	(b MANUAL			04	:57:10 PM	Manual
condition	P Pr 000	ogram	tep/Functic ট Un 이 ALL M	nit:[0] E Me	ch Crd 65-02 JOIN	s∓ Man. T 1 ≮ 200m	m/s	G1		output
·	MO	VE P,S=60%,A=	3,T=1		CN=1.	,SQ=1				╩╌ъ
	Robot	program Robot:HS165-02	flaxes 1steps							Window
Run to	S1	MOVE P,P1,S=6	0%,A=3,T=1							adjustment
<mark>8</mark> لاسط										
Jog										Soft
inching										keyboard
										·······~
QuickOpen										User key
										X F
Holp		Select the com	mand.							
neip										PREVINEXT
?		MOVE	PRINT	INPUT	Signal output	WAIT	SMOV	CONTPAT	н	•

- 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 lildx AS Integer DIM liVel[200] AS Integer DIM limotionType[200] AS Integer FOR lildx=1 TO 200 liVel[lildx]=0

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

8. Connect the flash drive to the teach pendant. Go to System \rightarrow File manager \rightarrow 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.

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 System \rightarrow User Environment.

Record	2022.05.16 [MON] 📮 🛛 👘 🕅	ANUAL	01:22:10 PM Manual
condition	Program	Crd SF Man. spd. T1 G	output
	XXXXX :0/0 ALL MECH [0]HS165-02 MOVE P S=60% A=3 T=1	JOIN1 1 200mm/s	_ ^W
	Pohot program	CN=1,SQ=1	
Run to	Program does not exist.		Window
8 Gmd			
Jog inching			Soft keyboard
QuickOpen			User key
Help			PREV/NEXT
?	Service System WAIT release	Command input	Condition setting

Record condition	2022.05 Syst	.16 [MON] 🛛 📮 em	-0	٩	MANUAL		Â	01:22:59 PM	Manual output
- 27	††	1: User en	vironment	2					<u> </u>
Run to	8#Q	2: Control	parameter						Window adjustment
Ging	5	3: Robot p	arameter						
Jog inching		4: Applica	tion paramet	er					Soft keyboard
	Y	5: Initializ	e						
QuickOpen	en 6. Auto calibration							User key	
Halp									
	After	selecting the i	tem and entering t	he value, press th	e (ENTER) key.				TREVINEAT
ſ			type						

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

Recent	considerer (fuel * a			O MAN	IUAL		91:18:22 PM	Manual
condition	User environment							output
Ell.	1: Pose record type	τ.	(*	Base	C Robot C Axis	сu	C Un	tra-
Run to	2: Confirm delete command		c	Disable	@ Enable			Window adjustment
1.1	3: WAIT(DI/WI) release		G	Disable	C Enable			
Card	4: Program strobe signal use		(4	Disable	C Enable			-
1. Jug	5: Ext. update of playback prog.		6	Disable	C Enable			Soft
1e.	6: Collision sensor							
圓	(1) Sensor		(4	Em, stop	C Stop			
	(2) Signal logic	=	C	Positive	Regative	Þ		User key
QuickOpe	n				\frown			
	7: P+ Coordinate 2		0	Base	C Robot C Axis		CUn	
9	8: P+ Selection	-	6	Command	I C Current value			
Help	Selected the coordinate system to	o use	for	P*,				
2	Statement in the local division in the				evicus 👿 Next			MIND

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 $Program \rightarrow Step/Function$, 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



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] 🛛 📮	- 0	<u></u> В.	ANUAL			01:38:36 PM
🗜 Program 🕹 St	ep/Functic 🖓 Unit:[0]	E Mech	Î⊈ Crd	s≕ Man. spd.	T1	G1
xxxxx :0/0	ALL MECH	[0]HS165-02	JOINT	< 200mm/s		
MOVE P,S=60%,A=3	3,T=1		CN=1,SQ=1			
Robot program						
Program does not exi	IST.					
Pro	gram selection					
			a d			
6	Enter program number (1	~ 9999):	314		2	
	+					
	List show/	hide: [Program]				
	•					
Z Service	👕 System 👸	WAIT release		E C	ommand input	Condition •• setting
ា រុំ	SHIFT			ES)ex
<u> </u>	(FAST)	FWD	LOW			
	CIRL					
	X- (S-) (S+)	(R2-) (R	X+ (2+)			
	(Y- (H-) Y+ (H+)) (RY- (B-) (B	Y+ 3+)	V		
				ENT		
	Z- (V-) (V-)	RZ-R		(ME	s) J	
				8 9		
		HISTORY	c 4	5 6		
				2 3		
		TOOL UN				
		COORD ME	сн О		7	

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.

Record	2022.05.16 [MON] 📮 🛛 🖑	MANUAL	01:22:10 PM Man	nual
condition	Program C Step/Functic D Unit:[0]	Crd I → Crd I → Crd I → Crd I → 200mm/n	G1 outp	put
: 🌈	MOVE P,S=60%,A=3,T=1	CN=1,SQ=1	¥_	~►
	Robot program		Min d	
Run to	Program does not exist.		adjust	tment
emd 8				2
Jog			So	oft
inching			keybo	oard
				:: ` `
QuickOpen			User	key
:			2	F
Help			PREV/I	NEXT
?	Service 1 System WAIT release	Command input	Condition setting	2



Record	2022.05.16 [MON] 📮 🛛			Ь	ው MANUAL			01:39:34 PM	Manual		
condition	Monitoring /Service/				†			Ĺ.	output		
	÷÷	1: Data of ea	ch axis			0	12: Job program HotEdit		···•		
Run to	Ē	2: Input/Output signal				0	14: Operating information		Window adjustment		
(md	тт.	3: Fieldbus signal				тт.	15: Embedded fieldbus node state				
Jog inching	C	4: Spot welding data					18: Multi-tasking state	Soft keyboard			
		7: PLC relay data				H버丁 20: Edit Ladder					
QuickOpen	\bigcirc	8: Analog data				Ţ,	21: PRM information	User key			
	B	11: Various data				Q,	22: Roller Hemming Data				
Help	After selecting the item and entering the value, press the [ENTER] key.								PREV/NEXT		
?			Display type								

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

