

X CORE User Manual

(X Series Robot Software Manual) Document Version V2.9 Software Version 3.1.0



Guangzhou Auctech Automation Technology Ltd

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Guangzhou Auctech Automation Technology Ltd

Add:

Room 903, Building E1, Design City, No. 7, Hexian North Street, Helong Street, Baiyun District, Guangzhou City, CHINA Tel: +86 20 84898493 E-mail: info@auctech.com.cn Web: www.auctech.com.cn

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1 Preface

1.1. Intended Audience

This document provides operating instructions for the AUCTECH Cobot, so that users can learn more about the robot basic information and use the robot more safely and conveniently. Be sure to operate this robot on the basis of careful reading and full understanding of this document. This document applies for the following users:

- On site robot engineer
- Robot software engineer
- Hardware installation engineer
- On-site Maintenance engineer
- System maintenance engineer

Operators with basic training are allowed to operate the robot.

1.2. Representation of Warnings and Notes

The table below defines general hazards related symbols, please read through the description carefully.

Symbol	Description				
🕂 Danger	Used to warn of emergency situations that, if not avoided, could result in death or serious personal injury.				
Warning	Used to warn of potentially dangerous situations that, if not avoided, could result in death or serious personal injury.				
A Caution	Used to warn of potentially dangerous situations that, if not avoided, may result in moderate or minor personal injury.				
! Care	Used to convey device or environmental safety warnings that, if not avoided, may result in damage to the device, loss of data, degradation of device performance, or other unpredictable results. Caution does NOT involve personal injury.				
O Tips	Used to highlight important / critical information, best practices and tips. "Tips" is not a safety warning message, does not involve personal, equipment and environmental damage information.				

1.3. Special Statement

This manual is only used as a guide. Its content (such as equipment appearance, software interface) is based on laboratory equipment information. The content provided in this manual is of general guidance and does not guarantee that all usage scenarios cover all models. Due to the software upgrade and equipment model inconsistency, the content provided in the manual may NOT be consistent with the robot used by the user. Please take the information of user equipment as the standard, this manual will no longer address the differences caused by the above situations.

The maximum value provided in this manual is the maximum that a device achieves in a lab-specific scenario that meets the appropriate standards (For example, constant temperature, humidity, interference free environment, typical operating conditions and etc.). In reality working situation, the maximum value of equipment testing may NOT be consistent with the data provided in the manual, due to different working conditions, specific working conditions and inconsistent testing methods.

2. Safety

2.1. Abstract

This section describes important safety and risk assessments that you need to be aware when installing, applying, and maintaining on robot and its components. The user must read and fully understand this information before the robot is powered on for the first time.

Before performing any operations, be sure to read all operating instructions provided with the equipment, in particular, instructions that may endanger personal safety and equipment safety, such as hazards, warnings, and cautions, to minimize the chance of an accident. When this document differs from the documentation shipped with the device, the documentation shipped with the device shall prevail.

The technicians responsible for installing and maintaining the equipment must be a trained person who has proper methods of operation and all safety precautions. Only trained and qualified technicians are able to perform equipment installation and maintenance.

2.2. Limitation of Liability

This information neither includes how to design, install and operate a complete robot system, nor any peripherals that affect the overall system. In order to protect personal safety, an outstanding system must be designed and installed in accordance with the safety requirements stipulated in the standards and regulations of the country where the robot is installed.

The robot integrator is responsible for ensuring that the robot system complies with the applicable safety laws and regulations of the country or region where the robot is located and that the necessary safety equipment for the protection of the robot system operator is properly designed and correctly installed. Limitation of Liability

Specifically including but not limited to the following:

- Ensure that the robot system meets all basic requirements;
- Perform a risk assessment of the complete system;
- Ensure the design and installation of the entire system is accurate;

- Make appropriate safety settings in the software and ensure that it will not be modified by the user;
- Develop detailed operating instructions;
- Issue a declaration of conformity;
- Collect all information in technical documents;
- Label the interrogator's logo and contact information on the installed robot system.

AUCTECH, Ltd. is committed to providing reliable safety information and will not be liable unless there is intentional or gross negligence by **AUCTECH, Ltd.** in providing reliable safety information. It is important to declare that even if all operations are carried out in a safe manner, there is no guarantee that the robot system will not cause personal and property damage to the user.

AUCTECH, Ltd. will not be liable for the loss of users caused by the following reasons:

- Force Manure events (e.g., natural disasters, fires, wars, etc.);
- Natural damage or wear of the robot system;
- The site operating environment (e.g., voltage, temperature, humidity, etc.) or external factors (e.g., external interference, etc.) cannot meet the environmental requirements for normal operation as indicated;
- The robot system is not installed correctly (including not reinstalled correctly after relocation);
- due to the willful or negligence of the user or a third party, improper use (including the user's failure to use in accordance with this User's Manual and/or other requirements of AUCTECH, Ltd.) or willful sabotage.

Unless otherwise agreed, AUCTECH, Ltd. will not be liable for the indirect, special and incidental losses caused by the use of the robot system, including but not limited to the loss of revenue, actual or expected revenue, business loss, opportunity loss, goodwill loss, reputation loss, data loss, damage or leakage, etc.

2.3. Risk Assessment

Risk assessment is one of the most important tasks that integrators must accomplish. The robot itself is a partially completed machine, and the safety of the robot installation depends on how the robot is integrated (e.g. tools, obstacles and other machines).

It is recommended that integrator perform risk assessment in accordance with ISO12100 (GB 15706) and ISO10218-2 (GB 11291.2). Alternatively, technical specification ISO/T 15066 (GB/T 36008) may be selected as additional guidance. Integrator performing a risk assessment should consider all procedures during the entire lifespan of the robot, including but not limited to:

- Teach robots when developing robots;
- Fault diagnosis and maintenance;
- General operation of robot installation.

Risk assessment must be performed before the robot arm is powered on for the first time. Part of the risk assessment performed by the integrator is the necessity to identify the correct safety configuration settings, emergency stop buttons and additional protections for specific robot applications.

The following list identifies the significant risks that integrator must consider. Please note that there may be other significant hazards from certain robot devices.

- Finger is clamped between joint 4 and joint 5;
- Sharp edges and sharp spots on the tool or the tool connector may cause damage to human skin;
- The obstacles sharp edges and sharp spots, which is closed by the robot track, may be dangerous to human skin;
- Sprains or fractures due to impact between the robot payload and a solid surface;
- Consequences due to loosening of bolts used to safety robot or tools;
- Items fall off the tool. For example, due to insufficient clamping or accidentally power down;
- Operating error due to different emergency stop button allocation and types.

If the robot is installed in a non-cooperative application (e.g. using dangerous tools) where the risk cannot be adequately eliminated by using its internal safety

functions, the system integrator must install other protective devices based on the risk assessment (e.g. Installing a safety enclosure that can provide protection to the integrator during installation and programming).

2.4. Safety Operations

2.4.1. Emergency Stop

Emergency stop takes precedence over all the other robot control operations. Pressing emergency stop will cause all controlled hazards to stop, removing the motor power from the robot drive. It will remain in effect until reset manually.

Activate emergency stop to immediately stop the robot from any motion. The user must perform a restoration procedure, resetting the emergency stop button and pressing the "Power On" button on demonstrator, to resume normal operation. Emergency stop shall not be used as a risk reduction measure, but as a secondary protective device.

Emergency stop must not be used for normal program stop; constantly pressing may result in additional unnecessary wear on the robot.

2.5. Safety-related Functions and Interfaces

2.5.1. Introduction

X series robots are equipped with a range of built-in safety functions as well as safety I/O, digital and analog control signals to connect to other machines and additional protective devices.

A Caution	 The use and configuration of safety functions and interfaces must follow the risk assessment procedures for each robot application. If the robot discovers a fault or violation in the safety system (e.g. if one of the wires in the Emergency Stop circuit is cut or a safety limit is violated) then a Stop Category 0 is initiated. The stopping time should be taken into account as part of the application risk assessment.
------------------	--

Warning	 The use of safety configuration parameters different from those determines by the risk assessment can result in hazards that are not reasonably eliminated or risks that are not sufficiently reduced. Ensure tools and grippers are connected appropriately so if there is an interruption of power, no hazards occur. The end effector is not protected by the GCR safety system. The end effector and / or connection cable is not monitored.
---------	--

2.5.2. Stop Categories

Depending on the circumstances, the robot can initiate three types of stop categories defined according to IEC 60204-1. These categories are defined in the following table.

Stop Category	Description			
0(SS0)	Stop the robot by immediate removal the power			
1(SS1)	Reduce joints acceleration to 0 as soon as possible. Once each joint stopped, brake applied and power removed			
2(SS2)	Stop the robot with power available to the drives, while maintaining the trajectory. Drive power is maintained after robot is stopped; no brake applied.			

Swap between each stop categories:

The timer runs as soon as any stop category 1 occurs. At 500ms, if the robot is still running over speed, the stop category will be automatically swapped to category 0.

2.5.3. Safety functions

The GCR robot safety functions, are meant to control the robot system, such as the robot with its attached tool/ end effector. The robot safety functions are used to reduce robot system risks determined by the risk assessment. Positions and speeds are relative to the base of the robot.

The control unit safety functions are listed as follow:

Safety Function	Description				
Emergency stop (ES)	Perform SS1				
Protective stop	Perform SS2				
Safe Operating Stop (SOS)	After SS2 is executed, SOS monitoring will be triggered to monitor the current position deviation of the robot. If it is violated, SS0 will be triggered				
Joint Safe limited position (SLP)	According to the threshold setting, SS2 is triggered when the joint position reaches the threshold. If the trigger joint is limited, SS0 is fired directly				
Joint Safe limited speed (SLS)	According to the threshold setting, SS2 is triggered when the joint velocity reaches the threshold. If the joint speed limit is triggered, SS0 is fired directly				
TCP position limit	The safe plane can be set to limit the operating area of the robot, which is set according to the threshold value. When the threshold value is reached, SS2 is triggered. If the safety plane is triggered, the safety controller directly triggers SS0. Up to 6 safety planes and 3 TCP coordinate systems are allowed				
Tcp speed limit	According to the threshold setting, SS2 is triggered when the threshold is reached. If the TCP speed limit is triggered, the safety controller directly triggers SS0				
elbow pos limit	According to the threshold setting, SS2 is triggered when the threshold is reached. If the Elbow position limit is triggered, the safety controller fires SS0 directly				
elbow speed limit	According to the threshold setting, SS2 is triggered when the threshold is reached. If the Elbow speed limit is triggered, the safety controller fires SS0 directly				
joint force limit	According to the threshold setting, SS2 is triggered when the threshold is reached. If joint torque limits are triggered, the safety controller directly triggers SS0				
tcp force limit	According to the threshold setting, SS2 is triggered when the threshold is reached. If the end force limit is triggered, the safety controller directly triggers SS0				
elbow force limit	According to the threshold setting, SS2 is triggered when the threshold is reached. If the Elbow force limit is triggered, the safety controller fires SS0 directly				

power limit	According to the threshold setting, SS2 is triggered when the threshold is reached. If power limits are triggered, the safety controller directly triggers SS0				
mode switch input	You can optionally enable this input, you can toggle through the UI; But not both. SS2 is triggered when the mode is switched. If the script is currently running, the script is paused and can continue to run later.				
enable device input	You can optionally enable this input. This input is valid only in manual mode, not in automatic mode. Violation triggers SS2.				
protective stop input	Valid in all modes, triggering SS2. If the reset input is not activated, after the signal disappears, it will reset automatically. Otherwise, it can reset only when the reset input is triggered.				
protective stop reset input	You can optionally reset the signal input. If the safety protection reset is activated, when the trigger safety protection stops and the trigger signal disappears, the channel signal input is required before the movement. The rising edge is effective and the high level needs to be maintained at 500ms				
automatic protective stop input	Only valid in automatic mode, triggering SS2. After the signal disappears, the safe mode resumes Normal				
automatic protective stop reset input	Similar to the Protective Stop Reset Input, only valid for protective stops triggered by Automatic Protective Stop Input.				
system emergency stop output	This signal will be output only when the system is triggered by an emergency stop				
protective stop output	Protective Stop output. This signal is emitted when the Protective Stop Input is triggered				
automatic protective stop output	Automatic mode protective stops output, only when the protective stop triggered in automatic mode, the signal will be output.				
reduce mode	Trigger the reduction mode, using the parameters associated with the reduction mode.				
reduce mode output	Globally, the signal can be output.				
recovery mode	When the joint limit, or TCP limit, is exceeded, a reboot is required to enter recovery mode. Recovery mode to limit speed not more than 30 deg/s, the end of the speed of less than 250 mm/s				

2.5.4. Safety IO port

Safety IO port is to provide external control box scram and safety input and output port, including 1 road stop signal input (passive signal), and 1 road stop output feedback (active), 1 road protective stop input (passive), 2 road safety input can be configured (passive), 2 way configurable safety output (active), Among them, the emergency stop signal input, protective stop input and configurable safety input are valid for high level, and the effective level is 11V-30VDC; In addition, when using configurable safety output and emergency stop feedback output, relay is needed for switching. Can be configured for safety input: protective reset input, automatic mode protective stop input, automatic mode protective reset input, reduce mode input. Configurable safety output can be configured as: guard stop output, automatic mode guard stop output, reduce mode output. Its interface definition is shown in Table 11:

Safety IO port definition

No.	Signal Definition	No.	Signal Definition					
1	EI1+ (Emergency stop signal input 1+)	2	EI1- (Emergency stop signal input 1-)					
3	El2+ (Emergency stop signal input 2+)	4	El2- (Emergency stop signal input 2-)					
5	PS1+ (Protective stop input 1+)	6	PS1- (Protective stop input 1-)					
7	PS2+ (Protective stop input 2+)	8	PS2- (Protective stop input 2-)					
9	Cl1_1+	10	CI1_1-					
	[Safety inputs can be configured 1 $(1+)$]		[Safety inputs can be configured 1 $(1-)$]					
11	Cl1_2+	12	Cl1_2-					
	[Safety inputs can be configured 1 $(2+)$]		[Safety inputs can be configured 1 $(2-)$]					
13	Cl2_1+	14	Cl2_1-					
	[Safety inputs can be configured 2 $(1+)$]		[Safety inputs can be configured 2 $(1-)$]					
15	Cl2_2+	16	Cl2_2-					
	[Safety inputs can be configured 2 $(2+)$]		[Safety inputs can be configured 2 $(2-)$]					
17	Reserved	18	Reserved					
19	Reserved	20	Reserved					
21-	Reserved	24-2	Reserved					
23	Keservea		I LESEI VEL					
26	CO2_2-	27	CO2_2+					
	[Safety output can be configured 2 $(2-)$]		[Safety output can be configured 2 $(2+)$]					
28	CO2 1-	29	CO2 1+					

	[Safety output can be configured 2 (1-)]		[Safety output can be configured 2 (1+)]
30	CO1_2-	31	CO1_2+
	[Safety output can be configured 1 $(2-)$]		[Safety output can be configured 1 $(2+)$]
32	CO1_1-	33	CO1_1+
	[Safety output can be configured 1 $(1-)$]		[Safety output can be configured 1 $(1+)$]
34	EO1-(Emergency stop feedback output 1-)	35	EO1+(Emergency stop feedback output
			1+)
36	EO2-(Emergency stop feedback output 2-)	37	EO2+(Emergency stop feedback output
			2+)

2.6. The Risk of Collision and Nip

There is still a collision detection blind zone during the actual operation of the robot. Users must pay attention to the risk of collision detection failure under special working conditions. Typical three types of operating conditions are as follows.

Scenario 1: When the robot end position is outside the 1000mm from the center of the robot base, if the robot moves along the direction of the red arrow in Figure 2.6.1 and Figure 2.6.2, the robot is less sensitive to external forces in the moving direction. The risk of pinching is more likely to occur; when the robot moves along the direction of the green arrow in Figure 2.6.1 and Figure 2.6.2, if the robot collides with the external environment, the external force generated by the collision is more sensitive.



Image 2.6.1 Scenario 1: robot front view



Image 2.6.2 Scenario 1: robot top view

Scenario 2: Centering on the Z-direction of the robot base coordinate system, the radius is in the range of 350mm. If the contact point is within this range, and the contact force direction is perpendicular to the plane of the joints of the joints 2 and joint 3, the collision detection function is difficult to detect collisions between the robot and the outside world. As the red arrow shown in Figure 2.6.3 in Figure 2.6.4; if the force direction between the robot and the outside is consistent with the Z direction of the robot base, the robot is more sensitive to the external force generated by the collision, as the green arrow shown in Figure 2.6.3.



Image 2.6.3 Scenario 2: robot front view



Image 2.6.4 Scenario 2: robot front view

Scenario 3: When the robot collides with the outside world, and if the collision point is located in the spherical range with a radius about 350mm on the robot base, the robot is more difficult to detect the collision regardless of the pose and state of the robot. It is more prone to the risk of pinching, as the red arrow shown in Figure 2.6.5 and in Figure 2.6.6; when the collision point is outside the range, and does not meet the conditions of the collision detection zone described in scenario 1 and scenario 2. At the time, the robot is more likely to detect collisions with the outside world, as the green arrow shown in Figure 2.6.5 and in Figure 2.6.6.



Image 2.6.5 Scenario 3: robot side view



Image 2.6.6 Scenario 3: robot front view

For all above-described scenarios, if the robot moves in a direction that is insensitive to external collision detection, considering the limitation of the cooperation between the robot and the outside world, the running speed at this time should be reduced as much as possible.

When the nip accident unfortunately occurs, the manual brake release function can be used to reduce the loss caused by the accident.

Disat		Project Insta	ul Tool Sal def Okn	Obj J(default 100%	OG Global Speed	Manual Real	Collision Check A
AUCTECH ROBOT		Start				×	Current running time
	_		Robot installation		Joint st	atus	00.03.13
	à	5	Tilt	0	Joint 1		Log
یے Dashboard		Vertical	Rotate	0	Joint 2		11:0
					Joint 3	٠	
Move			Payload (KG)		Joint 4		11:0
Program	(+)	↓ ∕ KG \	KG	0	Joint 5		11:0
C Interface	Θ	Payload			Joint 6		11:0
Ë					_		
LOg ~		Manual control	brake		Powe	r Off Enable	
Setting			EF 1				Positi
			F	Xinee		\rightarrow	Temp
					+++		Volta
2024-02-19 11:06:04	► N/A	A Load					0.0

When the robot is powered but not enabled, the "manual brake release" function at the lower left corner of the page can be started. After clicking the "manual brake release" button, the page will switch as the following picture:

Disab	le proie	Project install Too	nka default 100% Toint	1 Global Speed Manual I	Real Collision Check A
AUCTECH ROBOT		Start			Current running time
	à	Manual control brake			×
Q			Joint brake status		
Dashboard		Joint 1		Release brake	11:0
Move		Joint 2		Release brake	11:0
		Joint 3	•	Close brake	
Program	()	Joint 4		Release brake	11:0
Interface	Θ	Joint 5		Release brake	11:0
tog		Joint 6		Release brake	
(j) Cotting				Exit	Posi
Seturig		1			Tem
		Ħ			Volta
2024-02-19 11:08:58		A Load			0.0

Clicking the "release brake" button, the holding brake of the corresponding joint can be release, and the joint is allowed to be driven without power at the point. The red light on the left of the page indicates the lock status. Clicking the "lock brake" will get the holding brake of the corresponding joint locked again.

2.7. Risk of Stall at Robot Singularity

When the robot performs motion planning (straight line, arc, etc., excluding joint motion) near the singularity point, it will automatically reduce speed. When teaching, avoid the singularity point or pass the singularity point with joint motion. For the GCR series configuration, there are shoulder singularities, elbow singularities and wrist singularities.

2.7.1. Shoulder Singularity

When the wrist joint center O6 is on a joint axis J1, the shoulder singularity is caused at this time, resulting in no solution for joint 1. When O6 is located very close to J1, it will also be affected strangely. At this time, moving the end may



cause joint 1 to overspeed. Refer to the picture below for the singular pose near the shoulder.

Image 2.7.1 Shoulder singularity pose reference pose

2.7.2. Elbow singularity

When the axes of the two, three, and four joints J2, J3, and J4 are coplanar, at this time, the two joints have no solution. Simply, when joint 3 is near 0 degrees in a near singularity, moving the end may cause 2 joints, 3 joints, and 4 joints to overspeed. Refer to the figure below near the elbow singularity:



Image 2.7.2 Elbow Singularity Pose Reference

2.7.3. Wrist singularity

When the joint 5 is 0 degrees, the joint 6 has no solution at this time, causing the wrist to be singular. When joint 5 is close to 0 degrees, it is a strange posture near the wrist. At this time, moving the end may cause 4 joints, 5 joints, and 6 joints to overspeed. Refer to the following figure:



Image 2.7.3 Wrist Singularity Reference

When the robot reaches or approaches the singularity, the planned movement based on Cartesian coordinates cannot be correctly reversed to the joint motion of each axis, and the movement planning cannot be performed correctly. The off motion or move j motion instruction can be used.

•



- Avoid using commands such as straight lines, arcs, and moving the ends in the directions of X, Y, Z, RX, RY, and RZ near the singularity points. The robot is at risk of stalling.
- For trajectories with singular risks, they must be fully evaluated before running.

3. Quick Start

3.1. First boot

At first boot, the configuration information of the robot arm should be imported into the control cabinet. The detailed steps are as follows:

 By default, the system will display "Welcome to AUCTECH Collaborative Robot" and enter the "Start" page.



1. Clicking the "start" button, the robot will be initialized. The "Initializing" progress bar is displayed, and "Initialization complete" will be displayed after the progress is complete.



2. After the robot initialization is complete, the robot parameter sync interface is displayed. Clicking the "SyncParam", the robot will power on, synchronize parameters,





3. After the synchronization succeeds, the page for setting safety parameters is displayed.

Robot Limits	Parameter	Normal	Reduced	
Joint Limits		Norma		
	Tool Speed (m/s)	2.5	0.25	
Tool position	Tool Force (N)	300	150	
Safety Zone	Elbow Speed (m/s)	2.5	0.25	
Orientation	Second Second Second			
Safety Home	Elbow Force (N)	300	150	
Safety I/O	Power (W)	2750	1000	
Hardwore	Momentum (Kgm/s)	50	50	
Haruware	Collicion Loval	12	12	
	Collision Level	LS	LS	

4. After confirming the safety parameters are normal, click "Setting the Safety Parameters". After the safety parameters are set, the robot is initialized and the control cabinet should be restarted according to the prompts.



3.2. Booting and Login

Users can connect to the control cabinet using an teach pendant or their own mobile devices. The robot can be accessed through a browser (Chrome is recommended) when using a mobile device. The connection modes are as follows:

Teach pendant Connection: Directly insert the indicator, the system will automatically start the page program when starting.

Wired Connection: After connecting PC to the control cabinet by the network cable, enter the IP address and the port number 7000 in the address box of the browser, such as: 192.168.1.10:7000 (the IP address can be modified in the "System Settings"). The default IP address is dynamically assigned by DHCP.

Wireless connection: After starting the power supply of the control cabinet, use the mobile device or PC to find the wireless network "AUCTECHCobot_xxxxx" (five digits after the SN number of the control cabinet), and input the default password "1234567890", (The wireless network name and password can be modified in "System Settings") to connect to the network. Enter http:AUCTECH-cobot.com:7000 in the browser address bar.

After confirming address, the login page can be entered after several seconds, as shown in the figure.

		ڻ ک
	Login	O aucraen
ØAUCTECH	admin	
智能协作伙伴,智享科技生活	Input password	
AUCTEON Makes Fullian Life More Convenient	Remember password Auto login	
	Login	

Login page

On the upper right of the login page there are the shutdown button and the restart button (adapting to

DC00/DC15S/DC30D control cabinet), and the user entering username and password are in the middle. Above the login button, there are the remembering password and the automatic login options, and the users can choose to remember the password or log in automatically. If the "remembering password" option is chosen, the user can log in again after logging out without entering the password, and log in directly only by clicking the "login" button; if "automatic login" option is chosen, the "remembering password" option will be chosen by default, users can automatically log in without clicking the "login" button when they enter the login page to log in again after shutdown or restart. When the users enter the login page after logging out or restoring factory settings, the "automatic login" option will be cancelled, the users need to manually click the login button to log into the system.



Virtual keyboard

There are two factory default accounts. One default account is default; another administer account is admin. The passwords of both are 123. Clicking the username or password input box, the keyboard will pop up from the bottom of the page, as shown in the figure. After entering the username and the password (which can also be entered through external physical keyboard), click the "login" button, and then log in successfully.

3.3. Robot Startup

After successful login, the user will enter the overview interface by default. When the robot is not powered on, the robot startup interface will automatically pop up, as shown in the figure.

Powe	r off	oject Install	Tool def Oka	Obj default 100%	JOG Glat	bal Speed Ma	anual Real	Off	Fc13
AUCTECH ROBOT	2</td <td>Start</td> <td></td> <td></td> <td></td> <td></td> <td>×</td> <td></td> <td>Total running time</td>	Start					×		Total running time
			Robot installation	i		Joint status		4	142:55:29
	à i	R	Tilt	0	Joint 1				
Dashboard		Vertical	Rotate	0	Joint 2				
÷					Joint 3				
Move			Payload (KG)		Joint 4		•		
Program	(+)	/KG	KG	0	Joint 5		•		
₽	Θ	Payload			Joint 6		•		
Ö									
Log							Power On	ower	Force
کی Setting	E	///			- Geneti	2.510	0.00%	oint4	0.00°
	F		Xiano		Temperature		0.00°		0.00°
					voltage				
2024-02-19 11:32:36	► N/A	Load		0.0					

Startup page (robot is not powered on)

The left side of the startup page displays the robot installation direction and the end load information, and the right side displays the robot joint status. When the robot is not powered on initially, the indicator lights of joints are red. Clicking the "Power On" button in the lower right corner of the startup page, the robot starts power-on process.

After the robot is powered on, the joint indicator light turns orange, indicating the joints are powered on. The robot is powered on but not enabled. The "Power Off" and "Enable" button will appear in the lower right corner of the page, as shown in the figure.

Disal	proied	roject Install	loof def Oko	Obj default 100%	DG Globa	al Speed Mar	nual Rea	I Collision Off	Check A
AUCTECH ROBUT		Start					×		Total running time
			Robot installation			Joint status			
	à	-	Tilt	0	Joint 1		٠		
لي Dashboard		Vertical	Rotate	0	Joint 2				
÷					Joint 3				
Move			Payload (KG)		Joint 4				
Program	÷	 ∕KG	KG	0	Joint 5		•		
C Interface	Θ	Payload			Joint 6				
Ë								lower	Force
Log		Manual control bra	ke		1	Power Off	Enable	Ower	Porce
Setting	Æ		-		- Somer			joint4	0.00°
	F		*Xueen	++/	Temperature		0.00°		0.00°
					Voltage		0.00°		0.00°
2024-02-19 11:33:39	► N/A	Load		0.0					

Startup page (robot is powered on but not enabled)

Clicking the "Power Off" button, the robot status will return to the initial status without power. Click the "Enable" button to enter the enabling state, as shown in the figure.

After each joint is enabled, the color of the joint status indicator light is green. At this time, the robot enter the enabled state and completes the power-on process of the robot, as shown in the figure.

Enat	proie	Project Install Vertical	Tool def Oka	Obj 30 default 100%	DG Global S Ioint 1 100	Speed Manual	Real Collisio	on Check A
AUCTECH ROBOT		Start					×	Total running time
			Robot installation		Jo	int status		1110.00.12
		-	Tilt	0	Joint 1	•		
لي Dashboard		Vertical	Rotate	0	Joint 2	•		^
÷					Joint 3		il:Bral	ke deactive /ate all
Move			Payload (KG)		Joint 4		nable	operation
Program	(+)	KG	KG	0	Joint 5		activ nable	ke deactive vate all operation
C Interface	Θ	Payload			Joint 6			
Ë								- Correc
Log		Brake Test				Disa	able	Force
جې Setting	2						oint4	0.00°
County	E		*Xasee		Temperature	loint2 0.0	00° Joint5	0.00°
	4			17	Voltage	loint3 0.0	Joint6	0.00°
2024-02-19 11:37:49		A Load		0.0				

Startup page (robot in enabled)

After the robot is enabled, the startup page will disappear automatically.
3.4. Create a Program

Click "Program" in the left navigation bar to switch to the program page, and click the "Create a Program" at the bottom, and enter the procedure name: "demo". Click "Enter" to create a new program demo.jspf, and enter the programming page.

TECH ROBOT	All prog	rams		Back	Import	Export	Prev	view				
	🖹 DOE	E_movej_te	est32.jspf			•••	•					
Ģ	DOE	E_movej_te	est33.jspf			•••						
shboard	DOE	E_movej_te	est4.jspf			•••						
⇔ Move	🖹 DOB	E_movej_te	est5.jspf			•••						
	🖹 DOE	E_movej_te	est6.jspf			••••						
rogram දූ	🗎 DOE	E_movej_te	est7.jspf			•••				No Data		
mo		<u> </u>	et& ienf						(consists of 1	-30 letter n	umber unders
1	@ 2	* 3	\$ 4	% 5	6	& 7	8	9)		+=	⊗Esc
q	w	е	r	t	у	u	I	0	р	{ [}	١
	a	S	d	f	g	h	j	k	I	;		ĩ
St	nift	z	x	С	v	b	n	m	<	>	?	←

The demo program contains a "Start" function block by default to set the starting waypoint of the robot. Double-click Start or click the "Parameters" on the right side to view or set the starting point.

AUCTECH ROBOT	< demo.jspf	× 🔈 🕻 🖺	Task Variable Sy	stem Parameter Simulation
	1 Main single		Start point	
	2 🛟 Start		Teach Record Move here	
			Joint 1 (°)	0
Move			Joint 2 (°)	0
Program			Joint 3 (°)	0
\$			Joint 4 (°)	0
Interface			Joint 5 (°)	0
Log			Joint 6 (°)	0
CONTROL OF			Joint speed(°/s) 30	
2024-02-19 11:45:27	000	0.0	D	Cancel Confirm

Now we implement such a function: the robot moves to the ready point, moves down to an operating point, waits for 2s, sets the digital output port 1 to high level, waits for 1s, reverts the digital output port 1 to low level, and the process will repeat for 3 times.

In the "Add" TAB – "Process Control", find the While function block, which can implement the loop process. Hold down and drag it to the left program tree, and then release it to add the While function block to the program tree. Double-click the While function block to configure its parameters, select "number of cycles", and enter 3, indicating that all program segments under the While function block will loop 3 times.

1 ▼ M 2 ↔ 3 ↓ 4 ↔ 4 ✓ 4 ✓ 4 ✓ 4 ✓ 4 ✓ 4 ✓ 4 ✓ 5 1 4 ✓ 4 ✓ 4 ✓ 5 1 1 1 1 1 1 1 1 1 1 1 1 1	lain Single Start *While undefined	While Comment
2 3 shboard 4 4 4 4 4 4 6 6 6 6	Start *While undefined	 Loop always Loop times loop_times_wa6v849dmn Condition expression Comment
□ 3 3 shboard 4 ↓ 4 ↓ 4 ↓ ↓ ogram ↓ ↓ ↓	*While undefined	Loop times 3 loop_times_wa6v849dmn Condition expression Comment Comment
4 ↔ vove ogram	undefined	Comment
vvv vove ogram ♀ µ µ µ ↓ µ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓		Condition expression Comment Comment
cy> <pc>cy> cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> cy> <pc>cy> cy> cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> cy> cy> cy> cy> cy> cy> cy> <pc>cy> <pc>cy> cy> cy> cy> cy> <pc>cy> cy> cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> cy> cy> cy> <pc>cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> cy> cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> cy> cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> cy> cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy> <pc>cy></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc></pc>		Comment
ogram		Comment
€ Log € etting		Commerce
Cog Cog etting		
Cog Cog etting		
¢) etting		
etting		

In the "Add" TAB – "Move" find the MoveJ function block and drag it to the sub function block of While in the program tree, as shown in the figure. Double-click the MoveJ function block and configure its parameters. Click the "Select point" button to switch to the point position of the mobile page to teach the robot.

CTECH ROBOT	<	demo.jspf *	× 🔁 🖻	Task Variable System Parameter Sim	nulation
	1	Main Single		MoveJ	2
	2	↔ Start		Target joint 🗸	
Dashboard	3	While		Teaching point V Teach Record	
⇔	5	Move In		Move here	
Move	5)	2 wp0	
Program				Joint 1 (°)	N/A
C Interface				Joint 2 (°)	N/A
щ				Joint 3 (°)	N/A
Log				Joint 4 (°)	N/A
Setting				Joint 5 (°)	N/A
Setting				Joint 6 (°)	N/A
				Use parent node parameters	
				Joint speed Custom 🗸 30 °/s	,

After the point position is set, click "Record current joint" to record the current robot posture.



The set point information is displayed in the parameter configuration area of the MoveJ function block. The joint angular velocity and joint angular acceleration can be further set. Click the "Confirm" button below to save the parameters of this function block.

TECH ROBOT	< de	emo.jspf *	v 🔈 C	Task Variable	System Parameter Simulation
	1	Main Single		MoveJ	
	2	♣ Start		Target joint	
□ p shboard	3	V 😢 While		Teaching point V	ch Record
<u>ئ</u>	4	Move		Move here	
Move	5		wp0 •••		
				Joint 1 (°)	0
ಭ				Joint 2 (°)	0.476
terface				Joint 3 (°)	89.913
Log				Joint 4 (°)	0
¢				Joint 5 (°)	-88.806
setting				Joint 6 (°)	0
				Use parent node parameter	'S
				Joint speed	30 %

In the same way, add the MoveL function block below the MoveJ function block and set the point.

H ROBOT	<	demo.jspf *	v 🧿 🖒	🖹 Task	Variable S	System P	arameter Simul
	1	Main Single		MoveL			
	2			Teaching	point 🗸 🛛 Teach	Recor	b
board	3	Vhile		Move here	e]		
t.	4	V 🕂 Move		🕅 wp1			
•• ove	5	MoveJ wp0		X(mm)	617.086	RX(°)	-171.978
/> gram	6	↔ *MoveL wp1		Y(mm)	166.354	RY(°)	1.182
÷				Z(mm)	751.857	RZ(°)	-89.833
face				🗹 Use pare	ent node coordinate		
-				TCP	Current Coord		
ў 83				User	Current Coord		
ting				🗹 Use pare	ent node parameters		
				Tool speed		100	mm/s
				Tool acc	System d ~		

Find the Wait function block in the "Add" TAB – "Foundation" area, drag it to the position as shown in the figure, select "Delay" in its parameter configuration area, and enter the parameter 2000, which means that the program execution will delay two seconds to execute the subsequent function block.

ECH ROBOT	<	demo.jspf *	う C 🗎	Task Variable System Parameter Simulatio
	1	Main Single		Wait
	2	Start		Wait until condition is met
	3	V 🥲 While		Oelayms 2000
	4	V 🔶 Move		
⇔ Move	5	↔ MoveJ wp0		O When DI Port DI1 v is LOW v
	6	HoveL wp1		O Wait thread end Select thread ~
ogram	7	BB *Wait		O Condition expression
\$				
tenace				
Log				Comment
ŝ				Comment
etting				

Select the Set function block in the "Add" TAB – "Base" area, and drag it under Wait. In the parameter configuration area, select "Set Digital Output" and select DO1 and HIGH. Indicates that when the program is executed to this function block, the digital output port 1 is set to high level.

CH ROBOT	< dem	o.jspf *) C	Task	Variable Syst	em Parameter Simu	lation
	1	Main single		Set			
	2	↔ Start		Set DO	DO1	нідн	
Doard	3 🗸	& While					
, ouro	4	Move		O Set AO	Please select \sim		
/e	5	MoveJ wp0		O Set Varial	ble		
	6	HoveL wp1		select varial	ble 🗸 Input expre		
am	7	88 Wait					
	8	BB *Set)	Comment			
ce				Commerre			
3							
ng							

Similarly, add a Wait block to set the delay for 1s, and add a Set block to set DO1 to low. The above is to complete the program of the function, click the "Save program" button above to save the program.

TECH ROBOT	<	demo.jspf *	~ D	C 🗋	Task	Variable	System	Parameter Simulation
	1	Main Single			88	Set		
	2	Start			Set			Favourit
shhoard	3	V 😢 While			88	Wait		•
Shibourd	4	Move			Wait			Move
↔ Move	5	↔ MoveJ wp0			BB	Script		8
	6	HoveL wp1	••	•		Log		Base
rogram	7	BB Wait			Log	209		Flow
	8	Set			88	Message		(U)
lienace	9	88 Wait			Message			Comm
Log	10	BB Set)		88	Comment		
ŝ					Comment			Advanc
Setting					BB	Group		()
						CoordOffcot		Extend
					00	CooldOliset		

3.5. Run the Program

Switch to the "Run" TAB and click the "Run" button below. If the current position of the robot is different from the starting point of the program, the "Press and move" button will be displayed, and the starting position of the robot will also be displayed on the 3D image display. Hold on the "Hold and move" button to move the robot to the starting position. Click the Run button again to run the program.





When the program is executed, as shown in the figure below, the green dot in front of the program tree is used to indicate the currently executing function block, and the currently executing function block displays a green highlighted border, and the real-time posture of the robot can be displayed in the 3D model. You can pause or stop the program while it is running.

Progra	Project_mo	Install Tool Vertical def 0kg	Obj default	J100%	DG Joint J Global Speed Manual Real Collision Check A Off Check A
AUCTECH ROBOT	demo.	jspf [ReadOnly]	5 C		Task Variable System Parameter Simulation
	1	Main Single			
	2	+ Start			
Dashboard	3	양 While			
	4 🔍	↔ Move			
t) Move	5	↔ MoveJ wp0			
	6 💿	HoveL wp1)		
Program	7	88 Wait			()
\$	8	BB Set			Θ
Interface	9	88 Wait			
Log	10	Set			
¢					
Setting					
2024-02-19 13:54:06	O	00		20.0	

4. System Overview

4.1. Project Management

The system supports multi-project management, and the project data includes robot program, project global variables, project settings and other information. When the system starts loading, the current project data is loaded according to the system settings. Other project data cannot be used in the current project.



4.2. User Management

The system supports multi-user management. The level of user permissions include operator, programmer, maintainer, and admin. Specific permissions are described as follows:

User permission level	Permission specification
Operator	• Allowed to select engineering, running program, manual jog program,
	viewing robot status, etc.
Programmer	Operator user permission
	Programming robot program, engineering configuration
	• The default user name is default and the initial password is 123
Maintainer	Operator user permission
	System update
Admin	Maintainer user permission
	• User management
	• The user name is admin and the initial password is 123

4.3. User Page Overview

As shown in the figure, the overall page is mainly divided into three parts: the head status bar, the left navigation bar, and the right content area. The content area presents different contents (subpages) according to the selection of the left navigation bar. Below the navigation bar is the plugin entry and system date and time.



Page overview structure

The main information displayed in the status bar includes: robot joint status indicator light, status display, current project, robot installation direction, information about the current tool coordinate system and workpiece coordinate system, speed percentage, operation mode, collision detection setting information, safety check code, and user information.

The navigation bar contains six navigation icons: Overview, Move, Program, Port, Logs and Settings. Click the icon of the navigation bar to switch the content displayed in the content area. The main contents of each page are as follows:

The overview page is a production view page that allows users to select programs to run, and displays basic information such as program status, system running time, system logs, and joint positions.



The move page allows the user to manually operate the robot, set the coordinate system and movement mode of manual movement.



The program page is the main programming page of the robot, where the user can manage the program files in the project, as well as write the robot tasks through the provided graphical programming environment.

Enat	ple Project Install Tool Obj Vertical def Okg defaul	It 100% Space Global Speed Manual Real Collision 2 check A
AUCTECH ROBOT	All programs Back Import	Export Preview
	GCR10_moveTCP_test9.jspf	Main
Ģ	GCR10_movec_test10.jspf	••• Start •••
Dashboard	GCR10_movec_test11.jspf	••• Move •••
↔ Move	GCR10_movec_test12.jspf	••• MoveC wp0 wp1 ••••
	GCR10_movec_test13.jspf	
Program	GCR10_movec_test14.jspf	•••
نے Interface	GCR10_movec_test16.jspf	
Ë Log	GCR10_movec_test17.jspf	
ø	GCR10_movec_test18.jspf	
Setting	GCR10_movec_test3.jspf	
	GCR10_movec_test5.jspf	
	GCR10_movec_test6.jspf	••• •
2024-02-22 15:59:49	Create folder Create	program Opened Programs

The port page allows users to configure all external ports of the robot under this page, including digital input and output, analog input and output, TCP/IP ports, and other industrial fieldbus ports.

Ena	ble project_n	ct no Install Vertical	def 0kg	Obj default 100%	JOG Global Sp Joint J 100%	eed Manual	Real Collision Off	Check A
AUCTECH ROBOT		l/o	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out	Analog In Ana	alog Out		
Dashboard	Туре	Name		Description			Modbus	Status
⇔ Move								
Log								
Setting								
2024-02-19 14:15:44								

The log page displays system logs of this startup.

Enal	project_mo	Install Tool Obj Vertical def Okg default	JOG Global Speed Manua 100%	Real Collision Check A fc13
AUCTECH ROBOT	Log		Level All	 ✓ History logs
	02-19-13:54:20	info Program state changed:Stopped		A
	02-19-13:53:46	info Program state changed:Running		
	02-19-13:53:44	info Program state changed:Stopped		
Dashboard	02-19-13:53:38	info Program state changed:TaskRunnir	ng	
æ	02-19-13:33:05	info Program state changed:Stopped		
Move	02-19-13:33:04	info Program state changed:TaskRunnir	ng	
	02-19-13:30:56	info Program state changed:Stopped		
Program	02-19-13:30:55	info Program state changed:TaskRunnir	ng	
_	02-19-13:30:54	info Program state changed:Stopped		
	02-19-13:30:54	info Program state changed:TaskRunnir	ng	
internace	02-19-13:30:53	info Program state changed:Stopped		
Ë	02-19-13:30:52	info Program state changed:TaskRunnir	ng	
Log	02-19-13:30:52	info Program state changed:Stopped		
¢	02-19-13:30:52	info Program state changed:TaskRunnir	ng	
Setting	02-19-13:30:52	info Program state changed:Stopped		
	02-19-13:30:51	info Program state changed:TaskRunnir	ng	
	02-19-13:30:51	info Program state changed:Stopped		
	02-19-13:30:51	info Program state changed:TaskRunnir	ng	
2024-02-19	02-19-13:30:50	info Program state changed:Stopped		
14.11.13	02-19-13:30:47	info Program state changed:TaskRunnir	na	

Setting page, current project configuration settings, including coordinate system settings, installation

Ena	ible	Project	Vertical def	Tool . <mark>Okg</mark>	Obj default	JOG 100% Joint J	. Global Speed Manual Real Collision Check A Off Check A
AUCTECH ROBOT		Tool	User Ins	stall	Variable	Safety	System Event Other Bg-Script Plugins
	TCP					Add	
Dashboard	Index	Name	Position	Mass	Centroid	Action	
+	1	default	0,0,0,0,0,0	0	0,0,0	••• Default	
↔ Move	2	TCP2	100,100,100,0, 0,0	0	0,0,0	•••	
Program	3	TCP1	0,0,100,90,0,0	0	0,0,0	•••	⊕
\$	4	TCP3	100,0,0,0,90,0	0	0,0,0	•••	Θ
Interface	5	ТСР	100,100,100,0, 90,0	0	0,0,0	•••	
(j) Setting							
2024-02-19 14:18:54							

direction settings, and safety settings.

4.4. Multi-terminal Connection

The system supports multiple terminals to be connected at the same time, but only one terminal has the control, and can carry out all functions such as program operation and system configuration. Other terminals only have the permission to view, and cannot run the robot arm or modify settings. The terminal without control is shown as follows:

Ena	ble	Project roject_m	•) (v	Install ertical	def C) <mark>kg de</mark>	Obj efault	100% J	og Joint J	Global Speed	Manual	Real	Off	fc13 A
Being us	ed ot			Too	al de la constante de la consta	User	Instal		Variable	Safety	System Ev	vent	Other	Bg-Script
	TCP						Add	à	S 2		00			
Dashboard	Index	Name	Position	Mass	Centroid	Action	1							
	1	default	0,0,0,0, 0,0	0	0,0,0	•••	Default							
> Program	2	TCP2	100,10 0,100, 0,0,0	0	0,0,0	•••		(
C Interface	3	TCP1	0,0,10 0,90,0, 0	0	0,0,0	•••		Θ						T
Log	4	TCP3	100,0, 0,0,90, 0	0	0,0,0	•••						//_		<u>L</u>
Setting	5	TCP	100,10 0,100, 0,90,0	0	0,0,0	•••				Å		/	All The second s	
2024-02-19 14:24:50														

When other terminals want to get control, click the "Get Control" button in the upper left corner. The following dialog box pop up, click "Confirm" button to obtain the control of the system, and then the terminal obtaining initial control will lose control.

Ena	able	Project project_mo) V	Install /ertical	Tool def Okg	Obj default	JOG 100% Joint J	Global Speed 100%	Manual Real	Collision (fc13
Being us	sed			То	ol User	Install	Variable	Safety	System Event	Other	Bg-Script
	ТСР						S S				
Ģ	Index	Name	Position	Mass	Centroid Acti	ion					
Dashboard	1	default	0,0,0,0, 0,0	0	0,0,0	Default					
A state of the state	2	TCP2	100,10 0,100, 0,0,0	0	The Robot is co lose the c	Tip Introlled by oth ontrol of Robo	i er user, if continu t. Confirm contin	× ue, he will ue?			
C Interface	3	TCP1	0,0,10 0,90,0, 0	0	С	ancel	Confirm				Ŧ
E Log	4	TCP3	100,0, 0,0,90, 0	0	0,0,0						6
Setting	5	ТСР	100,10 0,100, 0,90,0	Ö	0,0,0			Å		Xaa	
2024-02-19 14:26:38											

4.5. End Light Belt Indication

	State definition	Color definition	Schematic drawing
1. 2.	The robot is powered on. The robot establishes communication.	Constant white	
1.	The robot stands by.	Constant blue	
1.	The safety stop triggers.	Constant red	
1. 2. 3.	The program is running. The Robot returns to zero. The robot is manually moved to a point.	Constant green	
1.	Traction and teaching	Flicker green	

5. Safety Maintenance

5.1. Manually Release the Brake

In some cases, the user needs to manually release the holding brake of a single joint. When the robot is powered on and not enabled, an entrance to manually release the brake will appear on the startup page, as shown in the figure.



Click to enter the manual brake release page, as shown in the figure. The left side of the page shows the brake status of each joint, gray means the brake is closed, red means the brake is released; the brake control button is on the right side, and click it to control the opening and closing of the brake.

Disa	able	Project Install	nef Oka default 10006	OG Ioint 1 Global Speed Manual	Real	Collision Check A
AUCTECH ROBOT		Start			×	ript Plugins
	тср	Manual control br	ake		×	
Ģ	Index		Joint brake status			
Dashboard	1	Joint 1		Close brake		
↔ Move	2	Joint 2		Release brake		
	-	Joint 3		Release brake		
Program	-	Joint 4		Release brake		
දා Interface	4	Joint 5		Release brake		T
E Log	5	Joint 6		Release brake		
وي Setting					Exit	
					Xanao	
2024-02-19 14:33:44						

5.2. Brake Detection

The user needs to carry out the brake detection on schedule to prevent the robot arm from risks due to the failure of the brake. The system will periodically remind the user to carry out lock brake detection, and the factory default reminder is every 30 days.

When the set time has elapsed since the last brake detection, the system will pop up the following dialog box, prompting the user to perform the brake detection. The brake detection entrance on the startup page will display a small red dot to remind the user.



When the robot arm is enabled, an entry to the brake detection function will appear on the startup page. Click to enter the brake detection page, as shown in the figure. This page displays the brake detection period and the number of days since the last detection.

Enal	proiec	oject Install Tool Obj JOG Global Speed 1 mo Vertical def Nice default 100% Inint 1 100%	Manual Real	Collision L1	Check A Od3d
AUCTECH ROBOT		Start		4	total running time
	A	Brake Test	×		
Ģ		Brake test cycle(day) 30 The day since last test 25 Day			
Dashboard		Start	History		
↔ Move					
Program				ff	
c)	(+)				
Interface	Θ				
E Log				ower	Force
÷,				oint4	60 73°
Setting	Þ		Evit	oint5	-15.81°
	F		EAR	oint6	-56.71°
2024-02-22 11:01:04	mov	ej_test2.jspl Load 1:11.6			

Click "Start detection", the following dialog box will pop up, and follow the prompts to perform operations. In the process of detection, users can pause and stop the detection process. After the detection is completed, the result of the detection is displayed.

Тір	
There will be some joint movement, Please confirm to Start in ope Click "Start" to continue, Click "Cancel" to exit	n space.
	Start Cancel



Click "History" to view the time and results of previous brake inspections

Brake test cycle(day) 30	The day since last test 0 Day	
Start		History
Joint3 Result: Pass MaxTorque: 2.7168	35682855068 MaxDisplacement: 0	
Joint4 Result: Pass MaxTorque: 0.9083	367599774875 MaxDisplacement: 0	
Joint5 Result: Pass MaxTorque: 0.9011	510142094232 MaxDisplacement: 0	
Joint6 Result: Pass MaxTorque: 0.9000	198023030204 MaxDisplacement: 0	
2024-02-22 11:13:03	*	
Joint1 Result: Pass MaxTorque: 8.0799	65346935424 MaxDisplacement: 0	
Joint2 Result: Pass MaxTorque: 8.0383	50583940572 MaxDisplacement: 0	
Joint3 Result: Pass MaxTorque: 2.7168	356828550673 MaxDisplacement: 0	
Joint4 Result: Pass MaxTorque: 0.9083	368032978211 MaxDisplacement: 0	
Joint5 Result: Pass MaxTorque: 0.9011	510142094232 MaxDisplacement: 0	
Joint6 Result: Pass MaxTorque: 0.9000	198023030204 MaxDisplacement: 0	

5.3. Power-on Joint Position Detection

When the robot arm is powered on, it will detect whether the joint has been significantly rotated in the power off state to ensure the safety of use.

If the joint has been significantly rotated, the following dialog box will appear. The user confirms whether the pose of the real robot is consistent with the 3D model on the interface. If yes, check "Confirm that the pose of the robot shown above is consistent with the actual one" and click "Confirm" button to continue the power-on operation. If not, click the "power off" button to disconnect the power supply of the robot arm and contact maintenance personnel.



6. Safety Settings

This section describes how to view safety configurations and change application safety configurations. There are currently two types of safety controllers, AUCTECHSafety V1.0 for DC30 control cabinets. AUCTECHSafetyV2.0 adapts to DC00 / DC15S/ DC30D control cabinets.

6.1. AUCTECH Safety V1.0

6.1.1. View Safety Application

Click "Safety Verification" on the status bar above. The following dialog box is displayed to view the currently activated safety configuration parameters. The safety configuration parameters can also be viewed on the settings page - Safety Settings.

	Enable Project_m	t Install Tool Vertical def Okg	Obj JOG default 100% Joint J	Global Speed 100% Manual Real Co	L1 Check A
AUCTECH R	CBOT	Current program	Run state	Current running time	Total running time 4199:22:17
	Robot Limits	Parameter	Normal	Reduced	×
Dashbo	Joint Limits	Tool Speed (m/s)	2	1.65	
÷	Tool position	Tool Force (N)	300	150	
Move	Safety Zone	Elbow Speed (m/s)	10	1	
Progra	Safety Home	Elbow Force (N)	300	150	
پ	Safety I/O	Power (W)	2750	1000	
Ħ	Hardware	Momentum (Kgm/s)	50	50	-
Log		Collision Level	L1	L1	ce
දිරූ Settin					60.73°
			close		15.81° 56.71°
		x x 1 1	× × ×		
2024-02 11:19:	-22 27 • movej_te	est2.jspl Load	Move		

6.1.2. Safety configuration change application

The password must be entered to unlock the account before changing the safety configuration. Enter the setting page -- safety configuration, click the "Unlock" button at the bottom left, and unlock the robot only when the power is off. Enter the password (login password of the current user), and enter the safety

Safety (config *project_mo	Install Vertical	Tool TCP 0kg	Obj default	JOG 100% Joint	J Global Spee 100%	Manual	Real Collision	Check 66de
UCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Robot Limits				R	obot Limits			
Ģ	Joint Limits			Norma	ıl	R	educed		Tolerance
Dashboard	Tool position	Tool Speed (m/s) 2			1.65		±0.05		
↔ Move	Safety Zone Orientation	Tool Force	(N)		300		150		±5
		Elbow Spee	ed (m/s)		10		1		±0.05
Program	Safety Home	Elbow Force	e (N)		300		150		±5
Interface	Safety I/O	Power (W)			2750	2750			±10
E Log	hardware	Momentum	(Kgm/s)		50		50		±10
ø		Collision Le	vel	L	evel1 🗸		Level1 v		
Setting									
	Revert								
	Apply								
2024-02-19	Restore default								

parameter configuration mode after the verification is passed. The status area on the status bar is displayed as "Safety Parameter Settings".

Safety	config	Install Tool Vertical TCP 0kg	Obj JOG default 100% Joint J	Global Speed	Manual	L3 Check
AUCTRCH ROBOT	Tool	User Install	Variable Safety	System Event O	Other Bg-Scri	pt Plugins
	Robot Limits		Rob	ot Limits		
Ģ	Joint Limits		Normal	Reduce	d	Tolerance
Dashboard	Tool position	Tool Speed (m/s)	2	1	1.65	±0.05
↔ Move	Safety Zone	Tool For	-	×	150	±5
	Orientation	Elbow S			1	±0.05
Program	Safety Home	Elbow F	Contirm apply safety contig?	1	150	±5
Interface	Hardware	Power	Cancel	1	.000	±10
É Log		Momentum (Kgm/s)	50		50	±10
٢		Collision Level	Level1			
Setting						
	Revert					
	Apply					
2024-02-19 17:34:46	Restore default					

After clicking the "Confirm" button, a prompt box for loading safety parameters will be displayed, as shown in the figure.

Safety	config Project_1	Install Tool Vertical def 0kg	Obj JOG default 70% Joint	J Global Speed Manual	Real Collision Check A L1 Ba24 A
AUCTECH ROBOT	Tool	User Install	variable Safety	System Event Other	Bg-Script Plugins
	Robot Limits		R	obot Limits	
Ģ	Joint Limits		Normal	Reduced	Tolerance
Dashboard	Tool position	Tool Speed (m/s)	2.5	0.25	±0.05
↔ Move	Safety Zone	Tool Force (N)	300	150	±5
	Orientation	Elbow S		0.25	±0.05
Program	Safety Home	Elbow F		150	±5
Interface	Hardware	Power (W)	2750	1000	±10
E Log		Momentum (Kgm/s)	50	50	±10
٢		Collision Level	Level1 🗸		
Setting					
	Revert				
	Apply				
2024-02-23 10:48:19	Restore default				

After the safety parameters are configured, the system displays the configured safety parameters in a dialog box for users to check. As shown in the following figure, after checking and confirming, click the "Confirm" button to set the safety parameters. After the configuration is successful, the safety verification above the status bar changes.

	Power off Project_n	vertical TCP 0kg	Obj default 100% Joint J	Global Speed Manual Real Co	
AUCTECH R	тоо	User Install	Variable Safety	System Event Other Bg-Script	t Plugins
Dashbo ↔ Move Progra Interfa Log	Robot Limits Joint Limits Tool position Safety Zone Orientation Safety Home Safety I/O Hardware	Parameter Tool Speed (m/s) Tool Force (N) Elbow Speed (m/s) Elbow Force (N) Power (W) Momentum (Kgm/s) Collision Level	Normal 2 300 10 300 2750 50	Reduced 1.65 150 1 150 1000 50 L1	hce
2024-02 17:37:	Apply Restore defau	It	Confirm		

6.1.3. Safety Parameters

This section describes the safety configuration parameters of the robot.

6.1.3.1. Safety Mode

Normal mode: The safety mode is activated by default.

Reduce mode: This mode can be activated using safe input IO.

Recovery mode: When the actual motion parameters of the robot exceed the safety limit, causing the robot to stop, the recovery mode will be activated, and the user can move the robot within the safety limit.

6.1.3.2. Robot Safety Parameter

Robot parameters are used to limit general robot motion. Its parameter values can be configured in normal mode and reduce mode.

Maximum end speed: limiting the maximum linear speed in space of the robot's safety tcp sphere center

Maximum force: limiting the maximum force applied externally by the robot safe tcp

Elbow maximum speed: limiting the maximum linear speed of the robot's elbow center in space

Maximum elbow force: limiting the maximum external force applied by the robot's elbow

Power: limiting the maximum mechanical work done by the robot, and the end load of the robot is regarded as part of the robot body

Maximum momentum: limiting the maximum momentum output of the robot, and the end load of the robot is regarded as part of the robot body

Collision detection level: The sensitivity of the robot to detect a collision with the outside world. The higher the level is, the more sensitive the detection is.

Safety	config *project_mo	Vertical TCP 0kg	g default	JOG 100% Joint	J Global Speed 100%	Manual	Real Collisio	n R Check A
AUCTECH ROBOT	Tool	User Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Robot Limits			R	obot Limits			
Q	Joint Limits		Norma	d	Rec	duced		Tolerance
Dashboard	Tool position	Tool Speed (m/s)		2		1.65		±0.05
↔ Move	Safety Zone Orientation Safety Home Safety I/O Hardware	Tool Force (N)		300		150		±5
		Elbow Speed (m/s)		10		1		±0.05
		Elbow Force (N)		300		150		±5
Interface		Power (W)		2750		1000		±10
Log		Momentum (Kgm/s)		50		50		±10
ø		Collision Level	Le	evel1 🗸		Level1 ~		
Setting								
	Revert							
	Apply							
2024-02-19 17:39:35	Restore default							

6.1.3.3. Joint Safety Parameter

Joint parameter limit is used to limit the position range, maximum velocity and maximum torque of each joint of the robot. Its parameter values can be configured in normal mode and reduce mode.

- **Position range:** defining the minimum and maximum positions of each joint
- Maximum velocity: defining the maximum angular velocity of each joint
- Maximum moment: defining the maximum moment for each joint

CTECH ROBOT	Tool	User	Install Variable	Safety System Ev	Vent Other	Bg-Script Plugins		
	Robot Limits Joint Limits							
Q	Joint Limits	Normal						
Dashboard	Tool position	Joint	min position (°)	max position (°)	Speed (°/s)	Torque (Nm)		
↔ Move	Safety Zone	Joint 1	-360	360	179.99	250		
	Orientation	Joint 2	-360	360	179.99	250		
et la	Safety I/O	Joint 3	-360	360	224.99	150		
Interface	Hardware	Joint 4	-360	360	224.99	50		
E Log	Haluwale	Joint 5	-360	360	224.99	50		
دی Setting		Joint 6	-360	360	224.99	50		
		Reduced						
	Revert	Joint	min position (°)	max position (°)	Speed (°/s)	Torque (Nm)		
	Apply	Joint 1	-360	360	44.99	250		
2024-02-19 17:41:05	Restore default	Joint 2	-360	360	44.99	250		

6.1.3.4. Safety TCP/Tools

The safety system can define three sets of TCP offsets that, when configured, the robot will use these three sets for speed monitoring and position monitoring. Any TCP position or speed exceeding the safety setting will trigger a safety violation.

Speed monitoring is the maximum linear speed of the robot safe tcp sphere center in space in the "robot safety parameters", and position monitoring is the "safe area". Users can set up three safety TCP, and there are two ways to define TCP: the tool coordinate system defined in the global variable can be chosen, or the value of the input coordinate system can be customized by users. When using a predefined tool coordinate system, select the tool coordinate system, and the values of the tool coordinate system are displayed in the X, Y, and Z input boxes. If the values of X, Y, and Z are modified, the coordinate system becomes custom. If the value in the corresponding coordinate system in the global variable is changed to be different from the value of the coordinate system used in the current safety settings, an alert icon ¹ is displayed at the tool definition. When selecting custom input data, directly edit the values of X, Y, Z, Rx, Ry, Rz and the sphere radius of the envelope sphere.


Each safety TCP can be set: disabled, always valid, automatic mode valid, safety combination configuration 1, safety combination configuration 2, five kinds of activation conditions. When three TCPs are disabled, the safety control system defaults to a flanged coordinate system with a sphere radius of 50mm. The TCP configuration status is displayed on the TCP configuration list. If a certain TCP is disabled, the corresponding status is displayed in grey. The configured safety TCP can display the coordinate system and envelope sphere in the 3D display area, and can be switched between display and hide by the icon after the corresponding TCP name. Click the icon next to the TCP name to modify the TCP default name. • will be displayed if the safety TCP is not disabled, otherwise will be displayed.

6.1.3.5. Safety Zone

The definition types of safety zones include plane, cuboid and cylinder. Users can set up to six independent space areas. The icon <a>o next to the safe zone name can be clicked to display or hide the configured safety zone in the 3D display area. And the icon <a>o next to the safety zone name (for example, the default name zone_1) can be clicked to change its name. <a>o will be displayed if the safety zone is not disabled, otherwise <a>o will be displayed.

Safety zone activation configurations include: Disabled, Always valid, Automatic mode valid, safety Group Configuration 1, and Safety group configuration 2.

The boundary response of the safety area refers to the response of the robot entering the safety area from

outside and moving beyond the boundary inside. There are two response modes, limiting the movement beyond the boundary and triggering the reduce mode when entering the area. When the selection limit exceeds the boundary, the response of the robot moving beyond the boundary is described. When selecting to trigger reduce mode, the response of the robot entering the area from the outside is described, and the normal mode is restored when the robot leaves the area.

The space area can also be set to include elbow limits, and the space range of the elbow is set in the form of a spherical radius.



When the configuration area type is plane, the reference of the plane area is based on the world coordinate system/base/set workpiece coordinate system, and the plane is determined by setting the normal and normal offset of the plane. The plane settings can be set to take effect by "Selecting a Region", and the corresponding direction is displayed through a black arrow in the 3D area.

When the configuration area type is space cuboid, the setting basis of the cuboid area is based on the world coordinate system/base/set workpiece coordinate system, and the workpiece coordinate system is used as a corner point of the cuboid, and the three coordinate axis directions correspond to the length (X), width (Y) and height (Z) respectively. The length, width and height ranges from -3000mm to 3000mm.



When the configuration area type is a space cylinder, the setting reference is based on the world coordinate system/base/set workpiece coordinate system, with the workpiece coordinate system as the center of the circle plane. The Z direction points to the height direction, and the radius and height can be set. The radius ranges from 0 to 3000mm, and the height ranges from -3000mm to 3000mm.



6.1.3.6. Safety Posture Area

The safety posture area is set. The posture area refers to forming a conical Angle around a direction vector in the base coordinate system of the robot. The posture restriction only restricts the Z-axis of the robot TCP to the posture region. Users can set up to three posture areas at most. A single posture area can be shown or hidden by clicking the icon (a) next to the name on the right of the posture area, which is default to display. The icon is after the name can be clicked to modify the pose area name. Will be displayed if the posture area is not disabled, otherwise (b) will be disabled.



The safe posture area can be activated in five modes: disabled, always valid, automatic mode valid, safety group configuration 1, and safety group configuration 2. The safety posture area is different from the safety zone in that only the Z axis direction of TCP is restricted, and there is only one response protective stop mode triggered after the area is exceeded.

There are three ways to define a reference coordinate system for the safety posture area: custom, capturing the current TCP pose, and defining it through a predefined workpiece coordinate system. When custom is selected, manually modify the value of the direction vector X, Y, Z, which describes the value in the robot base coordinate system; When the current TCP posture is selected, the z-axis direction of the current TCP is taken as the reference direction of the posture area, and the direction is converted to the robot base coordinate system to describe the vector direction X, vector direction Y, vector direction Z. If the value is manually modified, it will become a custom mode. When defined by the workpiece coordinate system, the Z-axis direction of the workpiece coordinate system is taken as the reference direction of the system area, and converted to the robot base coordinate system.

If the orientation of the workpiece coordinate system has been changed externally, a reminder icon \bigcirc is displayed at the reference coordinate system. The area deviation angle ranges from 5 to 180 degrees. For example:



6.1.3.7. Safety Home

Safety Home Settings. The safety Home monitoring will synchronize the Home location settings on the "Other Settings" page. If the location in the safety Home settings is different from the Home location in "Other Settings", a reminder icon ① is displayed under "Sync Home Settings". If the settings are not synchronized, the Home location of the system is subject to the safety Settings. The settings of the safety controller prevail for the "Press Home" Home point on the moving page and the output of home signals from other ports (such as port 2001) of the robot. The Home point in the "Other Settings" page is only used as a record and does not serve as a basis for judging the Home point. The monitoring threshold of the Home point can be set. The value ranges from 1 to 5°.



When the sync Home position is selected, the joint angle of the Home position is displayed. And the robot model in the 3D model display area is refreshed to the corresponding position.

When the safety home position is set and the home position output is configured in the safety I/O (see Section 6.2.3.8), all joint angles of the robot are within the set home position range (setpoint-threshold, setpoint + threshold) and the speed is close to 0° /s (to filter out normal encoder run-out). The system preset joint speed is less than 2° /s), and lasts for 500 milliseconds (system predefined and cannot be configured), and the signal is reached by the safety output external output home position.

6.1.3.8. Safety I/O

The safety I/O module contains two configurable safety input ports and two configurable safety output ports.

Safety input functions include:

Protection reset input: When guard stop occurs, this port is triggered and the robot returns to normal state.

Automatic mode protection stop input: After configuration, when the robot triggers the port in auto mode, the robot performs a protective stop.

Automatic mode protection reset input: When automatic mode protection stops, the port is triggered and the robot returns to normal state.

Reduce mode input: After configuration, this port is triggered and the robot transitions to the reduce mode. The robot will slow down so that the parameter limits meet the safety parameter limits in reduce

mode.

Safety combination Configuration 1/2: When the port of safety combination configuration 1 or safety combination configuration 2 is triggered, all safety features configured in safety combination configuration 1 or safety combination configuration 2 are activated and monitored, including safe tools, safe zones, and safe posture areas.

Safety output functions include:

Protection stop output: This port is triggered when the robot is in guard stop state.

Automatic mode guard stop output: This port is triggered when the robot stops in automatic mode guard.

Reduce mode output: This port is triggered when the robot is in reduce mode.

HOME position: This port is triggered when the robot is near the safe HOME position.

Safety	config Project *project_mo	Vertical TC	P Okg c	Obj lefault	JOG 100% Joint	J Global Speed 100%	Manual	Real Collision	Check 4c9d
CTECH ROBOT	Tool	User Ir	nstall V	/ariable	Safety	System Event	Other	Bg-Script	Plugins
D ashboard	Robot Limits Joint Limits	Safety Inpu Safety Input1:	ut Enable sa	fety feature	e config : v				
⇔ Move	Safety Zone Orientation	Safety Input2:	Protective	stop reset					
Program	Safety Home	Safety Out	put						
お nterface	Safety I/O	Safety Output1:	Protective	stop					
E Log	Hardware	Safety Output2:	Automode	e protective	stop 🗸 🗸				
 Setting 									
	Revert								
	Apply								
024-02-20 8:5 4 :06	Restore default								

6.1.3.9. Hardware

This section includes enabling external IO for mode switching and three-position enabling input

Enable external I/O Mode switching: After this option is enabled, the external I/O mode can be manually switched. In this case, the mode switching function on the status bar of the page is invalid.

Three-position enabling input: When the robot is in manual mode, it can move the robot only when the

Safety	config Project *project_mo	Install Vertical	TCP 0kg	Obj default	JOG 100% Joint .	J Global Speed 100%	Manual	Real Collision	Check A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Robot Limits	Use e	xternal IO for m	ode changing					
Dashboard	Joint Limits		OFF	55					
÷	Safety Zone	3-enal	ble						
Move	Orientation		OFF						
Program	Safety Home								
C Interface	Safety I/O								
Ë Log	Hardware								
 Setting 									
	Revert								
	Apply								
2024-02-20 08:58:28	Restore default								

three-position switch on the teach pendant is in the middle position. When the three-position switch is in the non-middle position at any time during the movement of the robot, the robot will be paused.

7. Status Bar

The status bar on the page is shown as the figure:

S	tatus displ	ay Current proje	ct Robot n	nounting directi	on Currei	nt job coordinate s Current JOG	ystem name type Glob <u>a</u> l	Col velocity per	llision detection level centage
	Enable	Project project_mo)	Install Vertical	def 0kg	obj default	JO9 J09 J09 J09 J09 J09 J09 J09 J09 J09 J0	Global Speed 100%	Manual	Real Off Real Screen Bogele icon
Joint sta	tus indicat	or Current to	ol coordin	ate system nan	ne, load m	nass Percent JOG :	speed C	urrent mode Real mach	e ine/simulation User profile picture

• Joint status indicator light:

The robot is not powered on initially, and the indicator light is red. The robot is not powered on and the indicator light turns orange. Robot enabled status, indicator light is green. The color of this indicator is the same as that of the joint status indicator on the startup page.

• Status display area:

This area will display three types of information: safety status, program status and robot status.

The safety status displays Reduce mode, Recovery mode, Safety parameter configuration, safety board firmware upgrade, Stop0, Stop1, Stop2, safety board error, and robot arm firmware upgrade.

Program status display words are: program stop, program execution, program suspension, program in pause, task execution;

Robot status display words: not powered on, not enabled, standby, firmware update.

• Engineering:

The current project name is displayed. Click "Project", a pop-up box containing "Project Management" and "Save Project" buttons will be displayed, as shown in the figure. In the project management section, users can create, import, export, restore, save projects to the local computer, back up projects to the cloud, delete projects, and modify project names.

Enal	ble Project Install Tool Obj Vertical def Okg default	100%	OG Glot Joint J 3	bal Speed Manua		lision R Check A
AUCTECH ROBOT	Management ogram N/A Stop	n state	Ø	Current running time 05:26:57	C	Total running time 4147:50:41
			Log	Level:	All	<u> </u>
Dashboard			15:14:51 in 15:14:48 in	fo Robot state cha fo Robot state cha	nged:Enable nged:Disable	-
Move			15:14:48 in	fo Safety state cha	nged:Run	
Program	⊕		15:14:44 in	fo Safety state cha	nged:Wait	
Interface	Θ		15.01.53 S.			
Log			Joint	Position IO	status Pow	rer Force
Setting	A Contraction of the second seco	À	Temperature	Joint2	-7.93° Join	t5 -88.81°
		\vdash	Voltage	- Shito		
2024-02-19 16:27:48	► N/A Load	33.9				

• Installation:

Displaying the robot's current installation direction and installation posture description. Click the "Install" display box to display the robot installation direction and installation posture description, as shown in the figure.



Click the "Modify" button to jump to the installation setting subpage in the settings page, as shown in the figure. The user can set the robot installation direction on this page.



• Tools:

Displaying the robot's current tool coordinate system name and load mass. Click the "Tools" display box, and a pop-up box showing the relevant information of the robot tool coordinate system is displayed, as shown in the figure. Click the "Modify" button to enter the tool settings subpage in the Settings interface, similar to the above the operation of jumping to the installation settings page.



• Workpiece:

Displaying the name of the robot's current workpiece coordinate system. Click the "Workpiece" display box to display the robot workpiece coordinate system information, as shown in the figure. Click the "Modify" button to enter the workpiece setting subpage in the setting interface, similar to the above the operation of jumping to the installation settings page.

Enal	ble Project Install Vertical	Tool def Okg	Obj default	OG Joint J	100% Manua	l Real Co	Off
AUCTECH ROBOT	Current progra N/,	User default [0 offset [0	, 0, 0, 0, 0, 0, 0] , 0, 0, 0, 0, 0, 0]		Current running time 05:42:18	0	Total running time 4148:06:02
_	N R D		Modify		Level:	All	
Dashboard		Job coord	linate pop-up box	15:14:51 i	nfo Robot state cha	nged:Enable	
				15:14:48 i	nfo Robot state cha	nged:Disable	
Move				15:14:48 i	nfo Safety state cha	inged:Run	
Program	(15:14:44 i	nfo Safety state cha	inged:Wait	
₽ Interface	Θ			15:07:34 i	nfo Safety state cha	inged:Config	
÷					. <i>t</i>		
Log				Joint	Position IO	status Pov	ver Force
کی Setting				Position	Joint1	0.00° Join	nt4 0.00°
				Temperature Voltage	Joint3	-7.93 Join 89.91° Join	nto -00.01
2024-02-19 16:43:09	▶ N/A Load		33.9				

• JOG Speed/type:

Displaying the percentage of the robot's current JOG speed. Click the "JOG" display box to display the JOG speed adjustment slider and JOG type selection button to adjust JOG speed or manual input and to switch between spatial JOG or joint JOG. Note: Only the JOG speed of the robot at this startup is affected, and it will fail at the next startup. If users need to change the JOG speed at each startup, please set the default JOG speed in "Settings" – "Other Settings" – "Startup Settings"



• Global speed:

Displaying the percentage of the robot's current global speed. Click the "Speed" display box to display the speed adjustment slider. Users can adjust the global speed or enter it manually. Note: Only the global speed of the robot at this startup is affected, and it will fail at the next startup. If users need to change the global speed at each startup, please set the default global speed in "Settings" – "Other Settings" – "Startup Settings".

• Operation mode:

Displaying robot operation mode, manual mode and automatic mode. Click the display box, and a pop-up box containing the Manual Mode and Automatic Mode buttons is displayed. Click the corresponding buttons to switch the operation mode. When the user switches between manual mode and automatic mode, the user needs to enter the current login password. After entering the correct password, the mode can be switched. When the physical hardware mode switching signal is enabled, the mode switching button in the interface is invalid.

• Real machine:

Switching between real and simulation modes. The simulation mode can only be set when the robot is in enabled standby and the program is stopped.

• Collision detection:

Safety	config Project project_mo	Install Vertical	Tool def 0kg	Obj default	JOG 100% Joint	J Global Speed	Manual	Real Collision	Check 84ea	
CTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins	
	Robot Limits				R	obot Limits				
Q	Joint Limits			Norm	al	Re	duced		Tolerance	
ashboard	Tool position	Tool Spee	d (m/s)		2		1.65		±0.05	
↔ Move	Safety Zone	Tool Force	e (N)	Sh	utdown		150	±5		
	Orientation	Elbow Spe	eed (m/s)	Le	vel1		1		±0.05	
rogram	Safety Home	Elbow Force (N)		Le	vel2		150		±5	
terface	Hardware	Power (W	wer (W)		vel4		1000		±10	
H Log		Momentur	m (Kgm/s)	Le	vel5		50		±10	
٥		Collision L	evel	L	evel3		Level3 v			
Setting										
	Revert									
	Apply									
24-02-19 6:50:35	Restore default									

Collision detection displays the current status of the collision detection settings, as well as the safety level. See Section 6.3.2 for more details on safety level settings.

• Safety verification code:

Displaying the safety verification code. Click the "Safety Verification" area, and the safety verification page is displayed, as shown in the picture. This page displays the safety configuration parameters set under the safety settings subpage of the settings page. To close the page, click "Close" at the bottom of the safety verification page or the cross mark in the upper right corner of the page.

	Power off Project_mo	b) Install Vertical	Tool def Okg	Obj default	JOG 100% Joint	J Global Speed	Manual	Real Collision	Check A
	cuor Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
Dashbo	Robot Limits Joint Limits Tool position Safety Zone Orientation Safety Home Safety I/O Hardware	Parameter Tool Speed (m/s Tool Force (N) Elbow Speed (n Elbow Force (N Power (W) Momentum (Kg Collision Level	;) n/s) n/s)	Norma 2 300 10 300 2750 50 L3	J		Reduced 1.65 150 1 150 1000 50 L3	Safety	► check interface
				Con	firm				
	Apply								
2024-02 16:52:	-19 03 Restore defau	It							

• User profile picture:

Displaying the uppercase letter of the login user name. Click the user profile picture to display the pop-up box as shown in the figure. These buttons include "Change Password" (displayed for users other than admin), "System Settings", "Account Management" (displayed only for users with admin rights), "About", "Help", "Logout", "Shutdown", and "Restart".



Click the "Help" button, and a "Help Document" window will appear, which can be used to search the error code.

8. Input Keyboard

8.1. Normal Input Keyboard

When you click the input box, the following input keyboard will pop up

Input prompts are displayed on the left of the keyboard input box, and format requirements are displayed on the right.

Keys can be divided into character keys and function keys

The layout of the character key is basically the same as that of the common keyboard. You can switch case and character by "Shift" key.

Function keys have the following functions:



To exit keyboard



To confirm the input, it will be invalid if the input format isn't matched.



Switching case and characters



To delete the characters in front of the current cursor, press and hold to continuously delete the characters in front of the current cursor



To move the cursor left and right, and press and hold to

move continuously

H ROBOT	Т	iool	User	Install	Variabl	e S	afety	System Eve	nt Other	Bg-Script	Plugins
						Ad	d TCP				
	Name										
2		T	he coordinate n an not be null	ame							
iboard	Coordin	nate								T	CP calibratio
₽ Dve	X(mm)		0						RX(°)) 0	
/>	Y(mm)		0						RY(°)) 0	
gram	Z(mm)		0						RZ(°)) 0	
3 rface											
e input	coordinat	e name							The	coordinate nar	me can not l
1	@ 2	3	s 4	% 5	6	& 7	8	9) 0 -	+=	⊗Esc
q	w	e	e r	t	у	u	i	0	p [}]	l l
	a	S	d	f	g	h	j	k	I ;		•
-									< >	?	

After the input keyboard is displayed, users can still enter on the physical keyboard. Press "Enter" on the physical keyboard to confirm the input, press "Esc" to exit the keyboard directly, press the left and right arrow keys to move the cursor left and right, and press the up and down arrow keys to move the cursor to the first or last place.

8.2. Expression input keyboard

During programming, some function blocks require input expressions, and the expression keyboard pops up. The expression keyboard is mainly used to enter the expression quickly, and the expression keyboard will automatically convert the expression to generate the script statement of the robot, and the expression keyboard will also check whether the expression is legitimate.

The drop-down input box on the left of the expression keyboard can be selected to quickly input IO, registers, Modbus, functions and variables. On the right side, users can enter common logical operators: and, or, not, relational operators: $\langle =, \rangle =, \langle , \rangle, ==, \neq$, arithmetic operators: +, -, *, /, boolean values: true, false, and common symbols and numbers.

The function keys of an expression keyboard are similar to those of a normal input keyboard.

Users can switch to the normal input keyboard by pressing the key

Enab	ole	Project project_mo	Install Iertical TC	Tool P Okg	Obj default	100%	JOG 0 Joint J	Global Speed 100%	Manual	Real	Collision	Check A 66de
AUCTECH ROBOT	<	123.jspf *		~	50		Task	Varia	ble Sy	stem Pa	rameter	Simulation
	1	Main	Single				Wait					
	2	💠 St	art				Wait until	conditior	is met			
Dashboard	3	88 *1	*Wait ···· O Delayms									
↔ Move							O When [DI Port	11	vis	LOW	
							O Wait the	read end				
Program							Conditi	on expressi	on			
		_		-				-				
10			and	or	not	()	+	7	8	9	⊗Esc
Register			=	>=	≠]	1	-	4	5	6	
					1		W. A					1.1. I I I I I I I I I I I I I I I I I I
Modbus		~	۲	>	==	{	}	*	1	2	3	
Modbus Function		~) ~)	< true	, 	== false	{ ,	}	*	1	2	3	OK

Different from the robot script, the input of the expression keyboard is relatively simple, and it can be automatically converted into the robot script. For example, to set the digital output port 1 to high level, the expression keyboard can be entered as follows. It is automatically converted into a script for the robot when actually executed:

set_standard_digital_out(1,true)

true											
10	~	and	or	not	()	+	7	8	9	⊗Esc
Register	×,	<=	>=	≠	[1	-	4	5	6	
Modbus	~	۲	>	==	{	}	*	1	2	3	
Function	~	true		false	1	"	/	0	•	=	
Variable	~	ABC							<	>	UK

Here are some input examples of expressions.

	Expressions	Input
IO	The conditional expression: DI1 is high and DI2 is low.	DI1 == true and DI2 == false
	The conditional expression: the end digital intput port 1 is high.	Tool_DI1 == true
	DO1 is set to high.	DO1 = true
	DO2 is set to low.	DO2 = false
Register	The conditional expression: bool Input register 1 is true.	bool_reg_in1 == true
	The conditional expression: word input register 2 is 32.	word_reg_in2 == 32
	The conditional expression: float input register 1 is less than or equal to 2.5.	float_reg_in1 <= 2.5
	The bool output register 1 is set to true.	bool_reg_out1 = true
	The word output register 1 is set to 16.	word_reg_out1 = 16
	The float output register 1 is set to 1.2.	float_reg_out1 = 1.2
	The conditional expression: the value of the read-write coil mb1 is 1.	mb1 == 1

	The conditional expression: the read-write register mb3 has a value greater than 10	mb3 > 10
	The read-write coil mb1 is set to 1.	mb1 = 1
	The read-write register mb3 is set to 12.	mb3 = 12
Variable	The conditional expression: the global variable g_bo has a value of true	g_bo == true
	The global variable g_num has a value of 3	g_num = 3

When the input is complete and "OK" is clicked, the legitimacy of the expression will be checked.

As shown in figure, assigning a number to a variable of type global boolean results in an error.

ool1=2											Type mismat
0		and	or	not	()	+	7	8	9	⊗Esc
Register		<=	>=	≠	1	1	-	4	5	6	
Modbus		¢	>	==	{	}	*	1	2	3	÷
Function	~	true		false		"	1	0		=	
/ariable		ABC							<	>	OK

8.3. Numeric input keyboard

When users click the number input box, the number keyboard will pop up in the input box attachment, as shown in the figure.

The numeric keyboard is used to enter numbers. After the keyboard pops up, the user can still enter through the physical keyboard.

The function of each function key on the numeric keyboard:



ROBOT		1/0	Register	CCI	TCI	TCP	/IP	Indus	trial Bus	
	Function In	Function Out	Bool In	Bool Out	Word In	Word Out	F	loat In	F	oat Out
,	Туре	Name		De	scription	Modbu	IS			Data
ooard	Word Out 1	word_reg	g_out1							o
ve	Word Out 2	word_reg	g_out2			(C		←	0
> ram	Word Out 3	word_reg	g_out3			7	8	9	Esc	0
; face	Word Out 4	word_reg	g_out4			4	5	6		0
3	Word Out 5	word_reg	g_out5			1	2	3	ОК	0
9 }	Word Out 6	word_reg	g_out6			45	ŀ	ŀ		0
	Word Out 7	word_reg	g_out7			46				0
	Word Out 8	word red	a out8			47				0

The numeric keypad will detect whether the entered number is legitimate. As shown in the picture, when the entered number exceeds the range, an error will be reported on the left side of the input box, and a valid input range will be prompted

TECH ROBOT		I/O	Register	CCI	TCI	TCP	/IP	Indus	trial Bus	
	Function In	Function Out	Bool In	Bool Out	Word In	Word Out	F	loat In	Flo	o <mark>at O</mark> ut
D	Туре	Name		De	scription	Modbu	IS		I	Data
shboard	Word Out 1	word_reg	_out1			range: [0),65535]		65536	0
Move	Word Out 2	word_reg	_out2			(C		÷	0
	Word Out 3	word_reg	I_out3			7	8	9	Fsc	0
₽ erface	Word Out 4	word_reg	_out4			4	5	6		0
Ö						- 1	2	3		
Log	Word Out 5	word_reg	I_out5			0	•	-	UK	0
१९३ Setting	Word Out 6	word_reg	I_out6			45				0
	Word Out 7	word_reg	I_out7			46				0
	Word Out 8	word_reg	_out8			47				0

9. Overview Page

Click "Overview" in the navigation bar to enter the overview page, as shown in the figure. Above the content area of the page: the current running program, program running status, this running time and machine running time. The 3D simulation model is displayed at ① on the left side of the page. Log information is displayed at ② in the upper right corner. Users can select All, Critical, Error, Warning, and Message from the drop-down list to view logs. At ③ on the lower right side, the robot joint information (position/temperature/voltage), spatial position (base coordinate system), IO status, power supply information (control cabinet) and force information are displayed.



The 3D simulation model area is shown in the figure, and the icons (1-7) in the upper left corner indicate whether to display: workpiece coordinate system and tool coordinate system, end trajectory, robot 3D simulation model, safety area, front view, right view and top view. Icons (8) and (9) are respective buttons to zoom in and out of the 3D model. Icons (10-(13) are respectively the program running button, the current running program display box, the loading program button and the program run time display.



Clicking the "Load" button, the program list interface will pop up, as shown in the figure. The program list lists all folders (for example, Test_1) and program files with the ". jspf" extension (for example, ee.jspf). There are three buttons at the bottom of the page: "Return to the upper layer", "Cancel", and "Select".

Enal	ble Project_mo	Install TCP 0kg	Obj default	OG Global Joint J 10	0% Manu	Rea	al Collision	Check A
AUCTECH ROBOT		N/A	Run state Stonned	° و	urrent running time 23:07:21	Q) 4	Total running time
	S S	Select				_		
C Dashboard		🗅 Special				:Ena	ble	
	file	SpeedMoveTest				:Disa	able	
Move		🗅 V28				:Ru	1	
Program	() document	123.jspf				:Wa	it	
ස Interface	Θ	A2.jspf				:Cor	nfig	
Ħ		DOE_movej_test1.js	spf				<i>tt</i>	
Log		Back		Cano	cel Select	s	Power	Force
نې Setting	F				3-1012	7°	Joint4	0.00°
	/	/ *	11	Temperature Voltage		-7.93 66.91°		0.00°
2024-02-20 10:08:12	► N/A	Load	33.9					

After selecting the program file to be loaded and run and clicking the "Select" button on the page, the program list page automatically disappears, and the name of the selected program file or the name marked with ".../" (there are folder nested, such as: ... /4560.jspf) is displayed on the icon (1). And then clicking the "Run" button, the "Hold and move" button will appear and the gray perspective 3D model (hereinafter referred to as the gray 3D model), as shown in the figure. Pressing and holding the "Press and move" button, and the robot will move to the initial position set in the program, that is, the gray perspective 3D model. Releasing the button will stop the movement. When the robot moves to the 3D model, the "Hold to move" button disappears. Then click the "Run" button to run the program.



10. Move Page



Click "Move" in the navigation bar to enter the move page, as shown in the figure.

The 3D stimulation model is displayed on the upper left of the page. Click the selector at the icon ① to select the coordinate system the robot used currently and the reference system of manually operated robot. The world coordinate system is used by default (same as the settled coordinate system in this system), indicating that the robot base is the coordinate base. The tool coordinate system and the workpiece system can also be selected, which tool coordinate system takes the end point of the end tool as the coordinate point and the workpiece coordinate system is freely set by the user. After switching the reference coordinate system, the position and posture data of the robot in Cartesian coordinates displayed on the page will change accordingly.

The icon ② is a button for the user to switch modes. The display mode of the button is the currently selected moving mode. Click the "Continuous Mode" button to switch to the "Step Mode". The button for adjusting the step angle and distance and the data display box will be displayed. The default value of the step angle and step distance for user-defined movement is 0.5deg and 0.5mm, the minimum allowable setting is 0.1deg and 0.1mm, and the maximum allowable setting is 5deg and 5mm. Users can adjust the step Angle and step distance by "-" and "+".

The icon ③ is the "Press and back to HOME" button. If the button is pressed, the robot will move to the set home point. If the button is released, the robot will stop moving. The default HOME point is the point that each joint angle value is 0° and the robot is in an upright position. When the robot moves to the "Press and back to HOME" button, the background of "HOME" will turn green, indicating that the robot has reached HOME, as shown in the figure.



The area 4 is the area where the manually operated robot joint moves. When the user clicks anywhere in the area, a blue border will be displayed in the area, representing that the current manually operated robot joint moves. Press the left arrow or right arrow button of a joint to move the joint in a positive or negative direction. Releasing the button will stop the robot joint from moving. The user can also move the joints by holding down the "+" and "-" buttons on the right side of the teach pendant. The buttons correspond to joints 1 to 6 from top to bottom.

The area (5) is the area where the end of the manually operated robot moves in the Cartesian coordinate system. Similarly, when the user clicks anywhere in the area, a blue border will be displayed in the area, representing the current manually operated robot's end movement. Hold down the X, Y and Z axis direction buttons to change the position of the robot in Cartesian coordinate system; hold down the RX, RY and RZ direction buttons to change the posture of the robot in Cartesian coordinate system; Release the corresponding buttons and the robot will stop moving. Similarly, the user can change the position and posture of the robot by holding down the right "+" and "-" buttons on the teach pendant, which correspond to the six moving directions of X, Y, Z, RX, RY and RZ from top to bottom respectively.



The icon (6) is a switch button for the user between manually entering the joint angle or pose value and holding down the button to move the robot. Clicking the "Move to" button, and the input boxes for entering the joint Angle and pose value will be displayed respectively in area (4) and area (5). In the 3D model area, a gry-through robot model at the target point will be displayed. As shown in the figure:



Click the input box of joint angle and pose value to pop up the virtual numeric keyboard. After entering the target position data in the virtual numeric keyboard, click "Esc" to close the virtual numeric keyboard. Then, by pressing and holding the "Move to" button, the robot will move to the target position, and releasing the button will stop the robot from moving. When the "Line Move" box is checked, it means that the robot moves to the target position in a straight line. Otherwise, the robot is jointed to the target position. When the "Pack Posture" is checked, the "Line Move" option box will be disabled, and the joint angle and Cartesian position posture input boxes will be disabled respectively. For the checked "Line Move" option, the check box will be unchecked, and the joint angle and position posture value will display the fixed value when packing posture, indicating that the robot is jointed to the original move page. As shown in the figure:

Enal	ble Project Insta *project_mo	all Tool Obj cal TCP 0kg defau	JOG 100% Joint J	100% Manu	al Real Colli	sion Check A
AUCTECH ROBOT			Reference coordinate syste	em ~	Joint 1 (°)	0
		- -		J¢	Joint 2 (°)	
Dashboard	 ⊕ 	Ļ		¢1	Joint 3 (°)	
↔ Move				JĘ	Joint 4 (°)	
Program			Home R		Joint 5 (°)	
Interface	Continuous			H	Joint 6 (°)	
Log Ç	RX -90	×	100		ie move	Packing Pose
	RY 0	Y	377		Move	to
2024-02-20 10:54:33	RZ -90	Z	1365		Exit	

The icon \bigcirc is the "Tool Offset Reset" button, which is displayed only when the reference coordinate system of the move page is selected as the tool coordinate system. When the user clicks the button, the position of the click moment will be used as the reference starting point, and the offset of the reference starting point of the robot position reference when the button is clicked will be displayed in real time in the area \bigcirc when the robot is operated. The reference starting point for calculating TCP offsets is not updated until the user clicks the Tool Offset Reset button again.

11. Program Page

Click "Program" in the navigation bar to enter the program page. Program page can manage the program list, edit the program, run the program.

11.1. Program List Page

The list page is used to manage all the applications in the current activated project. The figure is the program list page, which shows all the programs and folders in the root directory of the program.

AUCTECH ROBOT	Die Project_mo Install Tool Obj Vertical def Okg defau All programs ▲ Back Import	Export	0%	JOG Global Speed Manual Real Collision Collision Check A Space 100% Manual Real L2 ef09 A
	GCR10_moveTCP_test9.jspf	•••		Main
Ģ	GCR10_movec_test10.jspf	•••		↔ Start ····
Dashboard	GCR10_movec_test11.jspf			to Move
↔ Move	GCR10_movec_test12.jspf			
	GCR10_movec_test13.jspf	•••		
Program	GCR10_movec_test14.jspf	•••		
Interface	GCR10_movec_test16.jspf			
E Log	B GCR10_movec_test17.jspf			
63	GCR10_movec_test18.jspf	•••		
Setting	GCR10_movec_test3.jspf	•••		
	GCR10_movec_test5.jspf			
	GCR10_movec_test6.jspf	•••	w	4
2024-02-22 15:59:49	Create folder	program		Opened Programs

Select the folder, and click the •••• button, click the "Enter the program", you can switch to the file directory, view all the programs and folders in the folder.

Selecting the program, the "Program Preview" area on the right can display the content of the program. click the "Enter the program" to open the program.

The upper left can display the current directory, as shown in the figure. Click the "Return to the upper level" button to return to the upper level directory, click the path to switch directories, and click \uparrow to switch to the root directory.
Enal	Project Install Tool Obj *project_mo	100%	JOG 6 Joint J Global Speed 100% Manual Real Collision 2 Check A L1 2 0d3d				
AUCTECH ROBOT	All programs All JJJ/ Back Import	Export	Preview				
	B GCR10_JJ_CONST_ACC_NO_NO.jspf	•••					
Q	B GCR10_JJ_CONT_ACC_PRE.jspf	•••					
Dashboard	B GCR10_JJ_CONT_CONT_NO_NO.jspf	•••					
Move	B GCR10_JJ_CONT_CONT_PRE_NO.jspf	•••					
>	B GCR10_JJ_DEC_ACC_NO_NO.jspf						
2	GCR10_JJ_DEC_ACC_PRE_NO.jspf		No Data				
Interface	GCR10_JJ_DEC_CONST_NO_NO.jspf	•••	NU Data				
E Log	GCR10_JJ_DEC_CONST_PRE_NO.jspf	•••					
GB Setting							
2024-02-20 11:13:15	Create folder Create pr	ogram	Opened Programs				

11.1.1. New Program

Click the "Create a Program" button, the keyboard. Enter the program name, click "OK" to create a program in the current folder.

ECH ROBOT	All prog	grams)/		Back	Import	Export	Pre	view				
	🖹 GC	R10_JJ_C	CONST_AC	C_NO_N	D.jspf	•••	•]					
Q	🖹 GC	R10_JJ_C	CONT_ACC	_PRE.jspt	f	•••	•]					
shboard	🗎 GC	R10_JJ_C	CONT_CON		D.jspf		•					
↔ Move	🖹 GC	R10_JJ_C	CONT_CON	IT_PRE_N	IO.jspf		•					
	GCR10_JJ_DEC_ACC_NO_NO.jspf				•••	•]						
Ç terface	₿ GC	R10_JJ_C	DEC_ACC_	PRE_NO.	ispf		•			No Data		
t									С	onsists of 1-	30 letter r	number under
1	@ 2	# 3	\$ 4	% 5	Ĝ	& 7	8	9	0	-	+=	⊗Esc
q	w	e	r	t	у	u	i	ο	р]]	Å
	a	S	d	f	g	h	j	k	I	;		ĩ
											0	

11.1.2. New Folder

Click the "Crate a Folder" button, the keyboard will pop up, enter the folder name, and click "OK" to create a folder in the current folder.

11.1.3. Program File Operation

click the button •••• on the right of the list item, the menu will pop up as shown in the figure:

AUCTECH ROBOT	All programs	Export		
	↑ ./ JJ/	Export	Enter program	
	GCR10_JJ_CONST_ACC_NO_NO.jspf		Сору	
Q	B GCR10_JJ_CONT_ACC_PRE.jspf	•••	Rename	
Dashboard	GCR10_JJ_CONT_CONT_NO_NO.jspf	••••	Delete	
⊕ Move	GCR10_JJ_CONT_CONT_PRE_NO.jspf	•••	Export	
	GCR10_JJ_DEC_ACC_NO_NO.jspf	•••	Save local	•••
	GCR10_JJ_DEC_ACC_PRE_NO.jspf	•••	↔ MoveJ wp4)
Interface	GCR10_JJ_DEC_CONST_NO_NO.jspf	•••		
E Log	B GCR10_JJ_DEC_CONST_PRE_NO.jspf	•••		
ද ු Setting				

For the program file, the following operations can be performed:

Enter the program

Click to open the program.

Сору

Click the "Copy" button to copy the program file. The program list page is as follows. At this time, you can choose the pasting location. Click the "Paste" button to copy the program to the current folder, click the "Cancel" button to cancel the copy. When pasting, if the current folder has a file of the same name, the suffix "_copyXX" will be automatically added after the paste

Ena	ble Project Install Tool Obj vproject_mo Vertical TCP 0kg defau	ult 100%	JOG Joint J Global Speed Manual Real Collision L1 Check A
AUCTECH ROBOT	Please select the paste location	Back	Preview
	GCR10_JJ_CONST_ACC_NO_NO.jspf	•••	Main
Q	GCR10_JJ_CONT_ACC_PRE.jspf	•••	
Dashboard	GCR10_JJ_CONT_CONT_NO_NO.jspf		↔ Move ····
↔ Move	☐ GCR10_JJ_CONT_CONT_PRE_NO.jspf	•••	MoveJ wp1 ····
	☐ GCR10_JJ_DEC_ACC_NO_NO.jspf	•••	↔ MoveJ wp3 ····
Program	☐ GCR10_JJ_DEC_ACC_PRE_NO.jspf	•••	↔ MoveJ wp4 ····
Interface	B GCR10_JJ_DEC_CONST_NO_NO.jspf	•••	
E	GCR10_JJ_DEC_CONST_PRE_NO.jspf	•••	
¢			
Setting			
			A F
2024-02-20 11:18:52	Create folder Paste	Cancel	Opened Programs
Enat	ple Project Install Tool Obj *project_mo Vertical TCP 0kg defau	ılt 100%	Jog Joint J Global Speed 100% Manual Real Collision Check A
AUCTECH ROBOT	All programs	lt 100%	JOG Joint J Global Speed 100% Manual Real Collision 2 Check A L1 2 Odda A Odda A
AUCTECH ROBOT	Project Install Tool Obj *project_mo Vertical TCP 0kg defau All programs All programs Back Import ↑ ./ JJ/ Back Import	Export	Joint J Global Speed Manual Real Collision Check A Dimit J 100% Manual Real Collision Check A Preview
AUCTECH ROBOT	Project Install Tool Obj *project_mo Vertical TCP 0kg defau All programs I.1 JJ1 Back Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_11_CONT_ACC_PRE ispf CONT_ACC_PRE ispf	Export	JOG Joint J Global Speed Manual Real Collision Check A Preview Main Start
AUCTECH ROBOT	Project Install TCP Obj *project_mo Vertical TCP Okg Obj All programs Back Import Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_JJ_CONT_ACC_PRE.jspf Back Import Import GCR10_JJ_CONT_ACC_PRE.jspf GCR10_JJ_CONT_CONT_NO_NO_ispf 	Export	JOG Joint J Global Speed 100% Manual Real Collision 2 Check ∧ Preview Main
Enat AUCTECH ROBOT	Project Install TCP Obj *project_mo Vertical TCP Okg Obj All programs Back Import Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_JJ_CONT_ACC_PRE.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf 	Export	JOG Joint J Global Speed Manual Real Collision Preview Main
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Enat AUCTECH ROBOT Dashboard the Move	Project Install TCP Obj *project_mo Vertical TCP Okg Obj All programs Back Import Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_JJ_CONT_ACC_PRE.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.copy0.jspf GCR10_JJ_CONT_CONT_PRE_NO.jspf GCR10_JJ_CONT_CONT_PRE_NO.jspf 	Land Land Land Land Land Land Land Land	JOG Joint J Global Speed 100% Manual Real Collision L1 Check A Preview Main Image: Collision Image: Check A Main Image: Collision Image: Check A Image: Collision I
Enat AUCTECH ROBOT	Project Install TCP Okg Obj Project_mo Vertical TCP Okg defaultion All programs Back Import Import Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_JJ_CONT_ACC_PRE.jspf GCR10_JJ_CONT_CONT_NO_NO_copy0.jspf GCR10_JJ_CONT_CONT_NO_NO_copy0.jspf GCR10_JJ_CONT_CONT_PRE_NO.jspf GCR10_JJ_DEC_ACC_NO_NO.jspf GCR10_JJ_DEC_ACC_NO_NO.jspf GCR10_JJ_DEC_ACC_NO_NO.jspf	Image: state	JOG Joint J Global Speed 100% Manual Real Collision Check A Preview Main
Enat AUCTECH ROBOT AUCTECH ROBOT Dashboard Dashboard Program	Project Install TCP Okg Obj *project_mo Vertical TCP Okg defau All programs Back Import Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_JJ_CONT_ACC_PRE.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_PRE_NO.jspf GCR10_JJ_DEC_ACC_NO_NO.jspf GCR10_JJ_DEC_ACC_PRE_NO.jspf GCR10_JJ_DEC_ACC_PRE_NO.jspf GCR10_JJ_DEC_ACC_PRE_NO.jspf GCR10_JJ_DEC_ACC_PRE_NO.jspf GCR10_JJ_DEC_CONST_NO_NO.ispf 	Image: state	JOG Joint J Global Speed 100% Manual Real Collision Check A Preview Main
Enat AUCTECH ROBOT AUCTECH ROBOT Dashboard Dashboard C Program C Log C C C C C C C C C C C C C	Project Install TCP Okg Obj *project_mo Vertical TCP Okg defau All programs Back Import Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_JJ_CONT_ACC_PRE.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.copy0.jspf GCR10_JJ_CONT_CONT_PRE_NO.jspf GCR10_JJ_DEC_ACC_NO_NO.jspf GCR10_JJ_DEC_ACC_PRE_NO.jspf GCR10_JJ_DEC_CONST_NO_NO.jspf GCR10_JJ_DEC_CONST_NO_NO.jspf GCR10_JJ_DEC_CONST_NO_NO.jspf GCR10_JJ_DEC_CONST_NO_NO.jspf 	Image: state	JOG Joint J Global Speed 100% Manual Real Collision L1 Check A Preview Main Image: Collision A Image: Collision A Check A Main Image: Collision A Image: Collision A Image: Collision A Main Image: Collision A Image: Collision A Image: Collision A Main Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A Image: Collision A
Enat AUCTECH ROBOT AUCTECH ROBOT Dashboard Dashboard C Program C Log Log Setting	Project Install TCP Okg Obj *project_mo Vertical TCP Okg defau All programs Back Import Import GCR10_JJ_CONST_ACC_NO_NO.jspf GCR10_JJ_CONT_ACC_PRE.jspf GCR10_JJ_CONT_CONT_NO_NO.jspf GCR10_JJ_CONT_CONT_NO_NO.copy0.jspf GCR10_JJ_CONT_CONT_PRE_NO.jspf GCR10_JJ_DEC_ACC_NO_NO.jspf GCR10_JJ_DEC_ACC_PRE_NO.jspf GCR10_JJ_DEC_CONST_NO_NO.jspf GCR10_JJ_DEC_CONST_PRE_NO.jspf GCR10_JJ_DEC_CONST_PRE_NO.jspf 	Image: state	JOG Joint J Global Speed 100% Manual Real Collision Check A Preview Main
Enat AUCTECH ROBOT AUCTECH ROBOT Dashboard Dashboard C Dashboard C Program C Log Log Setting	Project_mo Vertical TCP Okg Obj All programs Back Import Image: All programs All programs All programs Image: All programs GCR10_JJ_CONT_CONT_NO_NO_ispf All programs Image: All programs GCR10_JJ_DEC_ACC_NO_NO_ispf All programs Image: All programs GCR10_JJ_DEC_CONST_NO_NO_ispf All programs Image: All programs GCR10_JJ_DEC_CONST_PRE_NO_ispf All programs	Image: state	JOG Joint J Global Speed 100% Manual Real Collision Check A Preview Main
Enat AUCTECH ROBOT AUCTECH ROBOT Dashboard ↓ Dashboard ↓ Program ↓ Program ↓ Interface ↓ Log ↓ Setting	Project_mo Vertical TCP Okg Obj All programs Back Import Image: All programs All programs All programs Image: All programs GCR10_JJ_CONT_CONT_NO_NO_ispf All programs Image: All programs GCR10_JJ_DEC_ACC_NO_NO_ispf All programs Image: All programs GCR10_JJ_DEC_CONST_NO_NO_ispf All programs Image: All programs GCR10_JJ_DEC_CONST_PRE_NO_ispf All programs Image: All programs All programs All programs Image: All pro	Image: state	DOG Joint J Global Speed 100% Manual Real Collision L Check A Preview Main

Rename

Click the "Rename" button, and the keyboard will pop up. Enter the new name, and then you can modify it. Note: already open programs or running applications cannot be renamed.

AUCTECH ROBOT	All prog	iject_mo rams I	Vertical	Back	ikg defa	Export	9% Joint J Pre	view	0%		L1	Ud3d A
	₿ GCF	R10_JJ_C	ONST_AC	C_NO_NC	.jspf	•••		Mai	n)
Q	₿ GCF	R10_JJ_C	ONT_ACC	_PRE.jspf		•••			Start)	
Dashboard	🖹 GCF	R10_JJ_C	ONT_CON	T_NO_NC).jspf	•••		+	Move)
↔ Move	GCR10_JJ_CONT_CONT_NO_NO_copy0.jspf					*	MoveJ v	vp1				
	B GCR10_JJ_CONT_CONT_PRE_NO.jspf					↔ MoveJ wp3 ····)			
Program	₿ GCF	R10_JJ_D	EC_ACC_I	NO_NO.js	of	•••			MoveJ v	vp4)
 GCR10_JJ		CONT_N		DE NO :	f				24	consists of :	1-30 letter r	umber underscor
1	@ 2	# 3	\$ 4	% 5	6	& 7	8	(9) 0	:	÷ =	⊗Esc
q	w	е	r	t	у	u	i	0	р	ľ	1	
	a	S	d	f	g	h	J	k	1	;]	•	
SI	nift	z	x	с	v	b	n	m	<		?	←
									<	>		ОК

Delete

Click "delete" button, the dialog box will pop up, click "Confirm" to delete this program.

Note: after open programs or running program cannot be deleted.

Export

You can export the program file to the U disk. Read program import and Export for details.

Save local

You can download the program files locally through a browser

11.1.4. Folder Action

Click the button ••• on the right of the folder item, the following operations can be performed on the pop-up menu: Enter the program, rename and delete.

Enter the program

Click to switch to the folder and view all programs and subfolders under this folder.

Rename

Folders can be renamed. Note: If there are open or running programs in this folder, you cannot rename them.

Export folder

The entire program folder can be compressed into a compressed package exported to the U disk.

Delete

All contents of the folder can be deleted. If there are open or running programs in this folder, you cannot delete them.

11.1.5. Import and Export of the Program

It supports importing or exporting programs and folders from external devices to external devices. External devices refer to storage devices connected to the USB port of the control cabinet, such as U disk, mobile hard disk, etc.

Program/folder import

Click the "Import" button, the following window pops up, showing the USB storage device mounted on the current control cabinet, and select a device.

Enal	ble Project_mo	Install Tool Pertical TCP 0kg	Obj default 100	JOG Global % Joint J 10	Speed 0% Manual	Real Collision Check	
AUCTECH ROBOT	All programs	Back	Import Export	Preview			
	123.jspf	Select flash			×		
Ģ	A2.jspf						
Dashboard	DOE_movej_tes	sdc1			_)	
↔ Move	DOE_movej_tes				_		
	DOE_movej_tes						
Program	DOE_movej_tes				_		
Interface	DOE_movej_tes						
E Log	DOE_movej_tes						
ø	DOE_movej_tes	Refresh		Cancel	Enter		
Setting	DOE_movej_tes						
	DOE_movej_test1	7.jspf	•••				
	DOE_movej_test1	8.jspf		▼ 4			
2024-02-20 11:25:25	Create folder		Create program	Opened Prog	grams		

Folders in the device and the qualified files (suffix name is jspf, script, or program) are displayed on the page. Select a file and click "Select" to decompress the file or the compressed file package (suffix name is program) and import it to the control cabinet. When importing a file, if the file name is the same as the

program file on the control cabinet. If a file with the same name exists is imported into a folder (suffix name is program), the system displays the number of files with the same name. the user can click "Cancel" or "Overwrite".

Enal	Project mo Install TCP 0kg default 100% JOG 1 Global Speed Manual Real Collision Check A
AUCTECH ROBOT	All programs Back Import Export Preview
	E 123.jspf X X
	A2.jspf Ifiles with the same name exist
Dashboard	DOE_movej_tes
↔ Move	DOE_movej_tes
	DOE_movej_tes
Program	DOE_movej_tes
Interface	DOE_movej_tes
Log	DOE_movej_tes
¢	DOE_movej_tes Back Refresh Cancel Enter Import
Setting	B DOE_movej_tes
	DOE_movej_test17.jspf
	DOE_movej_test18.jspf
2024-02-20 11:28:16	Create folder Create program Opened Programs

Program/folder export

Select a program on the program list page and select "Export" in its interactive menu to perform the export operation. Similar to import, a pop-up window displays the USB storage devices mounted on the current control cabinet. After selecting a device, you can view the files and folders of the device, select a folder to export, and export the program to the folder of the device. If the exported program file has the same name as the file in the device, the following window is displayed. Users can choose to cancel the export, or re-export after changing the export name, or simply overwrite the files in the device. If a folder is selected, packages the folder, which is named after the folder name and compresses it into "Folder Name. program". The compressed package contains the folder of this level.

Tip			:
A file	with the san	ne name exists	
	Cancel	Modify export name	Replace

Click "Export" at the top of the program list page to package all files and folders in the current directory into a compressed package named "Current program list Name. program" and export the package to the specified path on the external device. The compressed package does not contain the folder of this level. Similar to the export program, when a file with the same name exists, the operation prompt box of the same name will be displayed.

11.2. Programming

11.2.1. Overall Layout

After creating a new program or opening the program in the program list page, you can enter the programming page, as shown in the figure below.

On the left side of the programming page is the programming area, where you can edit the program tree. The right side can be divided into four parts: "Add" TAB is the function block list area, showing the available graphical programming function block; The "Variables" TAB is a variable area, which can create program variables and monitor the values of program variables and system variables when the program is running. The "Parameters" TAB is the parameter configuration area to view and edit the parameters of the selected function block in the program tree. The "Run" TAB is the program run area, where you can start and stop the program and display the 3D model of the robot.

Therefore, click the right side ••• of any type of function block in the list area of "Move", "Basic", "Flow control", "Communication", "Advanced", "Extension" in the "Instruction". The icon can pop up the operation dialog box, click the "Add to common" button in the operation dialog box, you can add the instruction block to the "common" class; Click to the right icon ••• of the feature block in the Common class Feature Block list area will also pop up the operation dialog box, click the "remove" button in the pop-up operation dialog box, you can remove the command block from the "commonly used" class.

TECH ROBOT	<	test.jspf	v 🔈	c 🗎	Task	Variable	System	Parameter	Simulation
	1	Main single			÷	Move		•	
	2	🕂 Start)		move				Favourite
					(+)	MoveJ			
asriboard					move joint				Move
< ↔ Move					(MoveL			8
move					move line				Base
Program					+	MoveC			22
					move arc				Flow
نې nterface					+	MoveTCP			(4)
<u>т</u>					move tcp				Comm
Log						Spline			0
æ					spline move				Advance
Setting					+	MotionConfig			
					Motion config	guration			Extend
					+	MoveSpiral			
					spiral move				

The top left shows the current program name, and the * after the program name indicates that the program has changed. Click the "Open Program" button in the top right, and the list of open programs will be displayed on the right of the page.

		q1.jspf *	^	5 C		ask Variable	System Para	ameter Simulation
	1	test.jspf		>	Start	point		
	2	q1.jspf*		>	Tead	ch Record		
Dashboard	3	▼ 🕂 ।	Move		Mov	e here		
÷	4	+	MoveJ wp0		Joint 1	(°)		0
Move	5	+	MoveJ wp1	•••	Joint 2	(°)		0
Program					Joint 3	(°)		0
					Joint 4	(°)		0
mienace					Joint 5	(°)		0
Log					Joint 6	(°)		1
کی Setting					Joint s	peed(°/s) 30		
Setting					Joint s	peed(°/s) 30		

As shown in the figure above, the list of open programs shows that there are two open programs in the current system, click button in the drop-down box to the right of the name to close the program; Click the drop-down list item bar to switch to the corresponding program.

When you close the program, if the program changes, a dialog box will pop up asking you to save the program or abandon the modification.

11.2.2. Programming Operation

Programming using drag and drop and double-click to add.

Drag:

You can hold down the function block in the function block list area and drag it to the programming area. The corresponding position of the program tree will show a blue horizontal line indicating that the function block will be inserted there. To release is to add a function block there.

Double-click to Add:

Click any function block in the program tree to select the function block. At this time, double-click the function block in the list area of function blocks. The function block in the list area will be added below the selected function block in the program tree. (Note: Double-click operation is not supported on mobile devices.)

Supports dragging blocks of functionality directly from the program tree to other locations.

Select a function block, manually switch to the parameter configuration area, and set the parameters of the function block. Read the following chapter for details about each function block and the corresponding

TECH ROBOT	< (t	est.jspf *	× 🖻 🕑 🕻	Task	Variable	System	Parameter Si	mulatio
	1	Main Single		88	Set		A	Q
	2	Start		Set			F	avourite
P	3	BB Wait)	88	Wait			(
Isnboard				Wait				Move
↔ Move				88	Script			**
move				Script				Base
rogram				88	Log			y
<i>→</i>				Log				Flow
nterface				88	Message			(i)
е –				Message				Comm
Log				Comment	Comment			8
ø					Creation		1	Advance
Setting				Group	Group			>
				00	CoordOffset			Extend
					coordoniset			

parameter configuration page.

The function block in the program tree has the following five states. Red indicates that the function block is not configured with valid parameters; the * in italics indicates that the parameter of the function block has changed, but it is not saved to the program tree; The black body indicates that the parameters of the function block are valid and unchanged. The gray part of the function block indicates that the state is selected for dragging and dropping. If all function blocks are gray, the function block is disabled.

88 Wait)	the second secon	• 🔠 Wait •••
88 Wait)	🔠 Wait 😶	\cdot

Click ... on the right of the program tree function block to pop up the following operation dialog box, including the following operations:

Operation					
Cut					
Сору					
Paste					
Disable					
Batch Operation					
Delete					
Set as the Start block					

Cut: Cut the function block.

Copy: Copy the function block.

Paste: You can paste the copied function block below the selected function block.

Disable/Enable : Click to select whether to enable the function block. If not, the function block will be grayed out and the program will not execute the function block.

Batch operation: Function blocks can be copied, cut, and deleted in batches. If you select any function block for batch operation, the icon is displayed within the line number of the function block.

Delete: You can remove this function block.

Set as the Start block: Click to select this function block as the starting line of operation. At this time, there will be an icon in front of this function block. Run the program at this time and the program will execute from this function block. Click "Cancel selected start block" at the bottom to deselect the start block.

During program editing, you can undo or redo changes at any time by using the 2 and changes buttons below. Note: Undo changes support Undo up to 10 times.

Once the program tree is changed, * will be displayed after the current program name, indicating that the program has been changed. At this time, you can save the program to the controller through the button.

11.3. Function Block and Parameter Configuration

The function block list area shows the currently available graphical programming function blocks, which are packaged according to the scenarios commonly used in robot programming. The function blocks provided by this system and their configuration parameters are as follows.

11.3.1. Move Function Block

When dragging function blocks such as MoveJ, MoveL, etc., if there is no Move node, a Move function block will be automatically created, which contains the following parameters:

End speed: unit mm/s

End acceleration: unit mm/s^2

joint angular velocity: unit ° /s

Joint angular acceleration: unit ° /s^2

Fusion radius: Unit mm

Reference coordinate system: tool coordinate system and workpiece coordinate system, which can be changed manually.

Among them, the terminal velocity, terminal acceleration, joint angular velocity and joint angular acceleration can be entered directly by means of numerical values or selected variables. Note: The unit of the corresponding parameter will be displayed only when entering directly; When selecting variables, you can only select specific type variables, pose_speed type variables for end speed, pose_acc type variables for end acceleration, joint_speed type variables for joint angular velocity, and joint_acc type variables for joint angular acceleration.

When generating the Move function block, by default, it will get whether all parent nodes of Move have a reference coordinate system set, and if not, the coordinate system currently set by the system will be used. For example, the conveyor belt function block has a set reference coordinate system, that is, the calibrated conveyor belt coordinate system, so when dragging the Move function block to the transmission belt sub-node, the generated Move function block uses the conveyor belt coordinate system by default.

The Cartesian space motion parameters set by Move function block are only for the MoveL, MoveC,, MoveTCP and MoveSpiral function blocks, and have no effect on other sub-function blocks. The set joint motion parameters are only for MoveJ function block and have no influence on other sub-function blocks.

The reference coordinate system set by the Move function block is only for the MoveJ, MoveL, MoveC, MoveTCP, MoveSpital function blocks, and has no effect on other function blocks.

H ROBOT	<	J/GCR1	L0_MoveJ_4_No.j	· 🗸 🔁 😋		Task	Variable	System Pa	rameter Simul
	1		Main Single		М	ove			
	2	(Start		c	Cartesian para	ameters exclue	de MoveJ	
Doard	3	₹ 🕂	Move)	г	ool speed	Custom	500	mm/s
Ð	4				1	ool acc	Custom	2500	mm/s ²
)ve />					J	oint paramet	ers		
gram					J	oint speed	Custom	30	°/s
⊰ rface					J	oint acc	Custom	300	°/s²
Ē					тс	P	default		~
3					Us	er	default		
ting					Ble	end radius	0	mm	
					Co	omment			
						Comment			

The function blocks that control the movement of the robot are of the following types

MoveJ

The robot moves according to the motion of the joint and can choose to move to the target joint or target position. Parameters can be set::

Enable OP: The OP function can set the state of generic digital outlet or manipulate custom events during track execution.

Target position: it can be set by teaching or set as a variable. After teaching, it can be changed manually.

Use parent node coordinate system: This parameter can be set when the target position attitude is selected. If this parameter is selected, the function block uses the reference coordinate system set by the parent node Move function block

Reference coordinate system: can be set when the target position attitude is selected. If the parent coordinate system is not checked, its reference coordinate system can be set separately for the function block

Use parent node parameters: When selected, the function block uses the joint angular velocity and joint angular acceleration parameters set by the parent node Move function block. If this parameter is not selected, you need to set the joint angular velocity and joint angular acceleration for this function block. This parameter is selected by default.

Joint angular velocity: unit rad/s (You can output directly or select variables)

Joint angular acceleration: unit rad/s2 (You can output directly or select variables

Parent node Fusion radius: If this parameter is selected, the fusion radius parameter set by the parent node Move function block is used. If this parameter is not selected, you need to set the fusion radius for this function block. This parameter is selected by default.

Fusion radius: The unit mm0 indicates no fusion

UCTECH ROBOT	۰. 🔪	.J/GCR10_MoveJ_4_No.j	× 🔈 🕻 🕻	Task Variable System	Parameter Simulation
	1	Main Single		MoveJ	2
	2			Target joint	
ashboard	3	✓ ↔ Move		Teaching point V Teach	ecord
	4	MoveJ ^{wp0} _{#4})	Move here	
Move				2 wp0	
Program				Joint 1 (°)	0
\$				Joint 2 (°)	0
nterface				Joint 3 (°)	90
Log				Joint 4 (°)	9
ø				Joint 5 (°)	-90
Setting				Joint 6 (°)	-9
				Use parent node parameters	
				Joint speed Custom V 80	°/s

If OP is enabled, you need to perform the following configurations:

It can be triggered after the start of the trajectory and before/after the end of the trajectory

Trigger type: You can select no trigger, time trigger, distance trigger

Trigger delay: Set time (unit: ms)

Trigger action: Select a port and port status, or perform a custom event

🗹 Enable OP

Reference Start point				
Trigger type	Time	~		
Time(ms)	0			
Operation	DO1	~)[LOW	~
Reference End point				
Trigger Point	Before the	~		
Trigger type	Time	~		
Time(ms)	0			
Operation	DO1	~)[LOW	~

MoveL

The robot moves to the target position in a straight line. Parameters can be set as follows:

Enable OP: The OP function can set generic digital outlet states or manipulate custom events during track execution.

Target position: it can be set by teaching or set as a variable. After teaching, it can be changed manually.

Use parent node coordinate system: When checked, the function block uses the reference coordinate system set by the parent node Move function block.

Reference coordinate system: When the use of parent node coordinate system is not checked, the reference coordinate system can be set separately for the function block.

Use parent node parameters: When checked, the function block uses the speed and acceleration parameters set by the parent node Move function block; when it is not checked, the speed and acceleration need to be set separately for the function block.

End speed: mm/s (You can output directly or select variables)

End acceleration: mm/s2 (You can output directly or select variables)

Parent node Fusion radius: If this parameter is selected, the fusion radius parameter set by the parent node Move function block is used. If this parameter is not selected, you need to set the fusion radius for this function block. This parameter is selected by default.

Fusion radius: unit mm, 0 means no fusion.

H ROBOT	<	/GCR10_MoveL_Pos_7	v 🔈 C	Task	Variable S	ystem P	arameter Simula
	1	Main Single		MoveL			
	2	↔ Start		Teaching	point \lor Teach	Recor	d
D board	3	V 🕂 Move		Move her	re		
₽	4	↔ MoveL ^{wp1} #7段		🕜 wp1			
ove				X(mm)	674.585	RX(°)	-180
/> gram				Y(mm)	226.235	RY(°)	-0.197
⇒				Z(mm)	300	RZ(°)	-84.852
nace				🔽 Use par	ent node coordinate		
j og				TCP	default		
<u>6</u> 2				User	default		
ting				Use par	ent node parameters		
				Tool speed	Custom 🗸	800	mm/s
				Tool acc	Custom	3000	mm/s ²

If OP is enabled, you need to do the following configuration:

It can be triggered after the start of the trajectory and before/after the end of the trajectory.

Trigger type: You can select no trigger, time trigger, distance trigger.

Trigger delay: Set time (unit: ms)

Trigger distance: Set the distance, in mm

Trigger action: Select a port and port status, or perform a custom event

Enable OP Reference Start point				
Trigger type	Time	~		
Time(ms)	0			
Operation	DO1	~	LOW	~
Reference End point				
Trigger Point	Before the	~		
Trigger type	Distance	\sim		
Distance(mm)	0			
Operation	DO1	~)[LOW	~

MoveC

Robot moves according to circular arc or whole circle, parameters can be set:

Enable OP: The OP function can set generic digital outlet states or manipulate custom events during track execution.

Mode: Arc or full circle

Intermediate point attitude/intermediate point 1: can be set by teaching or set as a variable, and can be changed manually after teaching setting.

Target pose/middle point 2: It can be set by teaching or as a variable, and can be changed manually after teaching setting.

Use parent node coordinate system: When checked, the function block uses the reference coordinate system set by the parent node Move function block.

Reference coordinate system: When the use of parent node coordinate system is not checked, the reference coordinate system can be set separately for the function block.

Use parent node parameters: When checked, the function block uses the speed and acceleration parameters set by the parent node Move function block; when it is not checked, the speed and acceleration need to be set separately for the function block.

End speed: mm/s (You can output directly or select variables)

End acceleration: mm/s2 (You can output directly or select variables)

Parent node Fusion radius: If this parameter is selected, the fusion radius parameter set by the parent node Move function block is used. If this parameter is not selected, you need to set the fusion radius for this function block. This parameter is selected by default.

Fusion radius: unit mm, 0 means no fusion.

Posture control mode: If "consistent with the end point" is selected, the robot's posture plans the posture in the arc path according to the end point; If "consistent with the starting point" is selected, the robot's posture in the arc path is planned according to the starting point's posture, and the posture in the path process is consistent with the starting point. If "constrained by the center of the circle" is selected, the posture of the robot is constrained relative to the posture change generated by the arc motion. The OP parameter configuration is the same as MoveL.



OP operation in fusion:

The robot sets the general digital output state during the trajectory execution. When used with fusions, the three moveL fusions, for example, have the following effect:



MoveTCP

The robot moves along the tool coordinate system.

You can enter offsets in each direction directly, or you can use variables. You can teach two points with the offset between them as the offset for the move. Other configurable parameters:

Enable OP: The OP function allows you to set generic digital outlet states or manipulate custom events during track execution.

Parent coordinate system: If this parameter is selected, the function block uses the reference coordinate system set by the parent Move function block. This parameter is selected by default.

Reference coordinate system: If the parent coordinate system is not selected, the reference coordinate system can be set for the function block separately. If you choose to set incremental mode, just select the tool coordinate system; If you choose to set two points, you need to set the tool coordinate system and the workpiece coordinate system.

Use parent node parameters: When checked, the function block uses the end speed and end acceleration parameters set by the parent node Move function block. If you do not select this option, you need to set the end speed and end acceleration for this function block. They are selected by default.

End speed: mm/s (You can output directly or select variables)

End acceleration: mm/s2 (You can output directly or select variables)

Parent node Fusion radius: If this parameter is selected, the fusion radius parameter set by the parent node Move function block is used. If this parameter is not selected, you need to set the fusion radius for this function block. This parameter is selected by default.

Fusion radius: unit mm, 0 means no fusion.

The OP parameter configuration is the same as MoveL.

CH ROBOT	<	/GCR10_MoveTCP_Ori	· 🗸 🔁 😋	Task	Variable	System Para	umeter Simula
	1	Main Single		MoveTC	Р		
	2			Select type	e Offset		
D board	3	Move	•••	Custom			
₽	4	MoveTCP #6	<u>段</u> ····	X(mm)	0	RX(°)	0
Jve />				Y(mm)	0	RY(°)	10
gram				Z(mm)	0	RZ(°)	0
÷				🔽 Use par	rent node coordina	te	
rtace				TCP	default		
-				Use par	rent node paramete	ers	
3				Tool speed	Custom	~ 500	mm/s
tting				Tool acc	Custom	> 2000	mm/s ²
				Use par	rent node blend rad	dius	
				Blend radiu	s 0	mm	

Spline

Control the end of the robot to move according to the spline curve. You can choose direct input or direct teaching point, or select variables. When selecting variables, you can only select pose_list variables. Parameters can be set:

Enable OP: The OP function allows you to set generic digital outlet states or manipulate custom events during track execution.

Spline waypoint: add, edit, delete waypoint, generate spline curve according to waypoint

Reference coordinate system: when teaching points, the default is the current tool and workpiece coordinate system, which can be changed manually

End speed: mm/s

End acceleration: mm/s2

Parent node Fusion radius: If this parameter is selected, the fusion radius parameter set by the parent node Move function block is used. If this parameter is not selected, you need to set the fusion radius for this function block. This parameter is selected by default.

Fusion radius: Unit: mm. 0 indicates no fusion.

Enable OP: The OP feature allows you to set generic digital outlet states or manipulate custom events during track execution.

The OP parameter configuration is the same as MoveL.

Enab	le Project Install Tool Obj Vertical def Okg default	JOG Global Speed 100% Joint J Global Speed Manual Real Collision Check ef09
AUCTECH ROBOT	✓ GCR10_spline_test12.jspf ✓ <	Task Variable System Parameter Simulation
	1 Main Single	Spline
	2 🕂 Start	Custom ~
Dashboard	3 🗘 Spline …	Spline waypoint Teach Record
↔ Move		Waypoint Operation
		1 [100, 600, 360, -180, 8, 90]
Program		2 [100.009, 600, 360, 180, 8, 90]
C Interface		
Č Log		
Setting		
		TOD default
2024-02-22 13:53:58	00	0.0 Cancel Confirm



When two splines are used together, the end point of the former spline cannot be the same as the start point of the latter spline.

MotionConfig

Turn on or off sports-related configurations. Optional configuration:

Speed optimization: After speed optimization is turned on, the robot arm will execute the motion command at the highest possible speed under the premise of meeting the system constraints.

Acceleration optimization: After acceleration optimization is enabled, the acceleration parameters in the script will be automatically optimized, and will no longer strictly run according to the set acceleration.

Vibration control: When the vibration control is turned on, it is optimized for the end vibration of the robot.

Singularity avoidance: After singularity avoidance is turned on, the trajectory of the robot will be automatically optimized when it passes near the strange space.

Posture constraint: After the posture constraint is opened, the robot motion posture will always be consistent with the relationship between the path.

Fusion prefetch: You can select the motion middle point or the motion start point. A motion script with the fusion radius configured prereads subsequent scripts to the fusion radius based on this parameter.



is passed, the speed of individual joints will be accelerated, and the robot arm may report an incorrect power failure due to joint overspeed.

MoveSpiral

Robot does spiral trajectory movement; parameters can be set:

Enable OP: The OP feature allows you to set generic digital outlet states or manipulate custom events during track execution.

Spiral teaching mode: Parameter setting or end point setting.

Total number of turns: The total number of turns of the robot, positive number is clockwise rotation, negative number is counterclockwise rotation.

Helix center point: can be set by teaching or set as a variable, can be manually changed after teaching setting.

Axial moving distance: When the teaching mode is set to parameter setting, the parameter must be set. The positive and negative signs follow the right hand rule (unit: mm).

End point radius: This parameter is required when the teaching mode is set to parameter setting. The unit is mm.

End point of track: When the teaching mode is set to end point, it can be set by teaching mode, or set to variable, which can be manually changed after teaching setting.

Parent coordinate system: If this parameter is selected, the function block uses the reference coordinate system set by the parent Move function block. This parameter is selected by default.

Reference coordinate system: If the parent coordinate system is not selected, the reference coordinate system can be set separately for the function block.

Use parent node parameters: When checked, the function block uses the end speed and end acceleration parameters set by the parent node Move function block. If you do not select this option, you need to set the end speed and end acceleration for this function block. They are selected by default.

Terminal speed: Unit mm/s., you can directly enter or select variables.

Terminal acceleration: Unit mm/s2, can be directly entered or selected variables.

The OP parameter configuration is the same as MoveL.

CTECH ROBOT	<	q34.jspf *	× [Task	k Varia	ble Syst	tem Par	ameter	Simulatio
	1	Main Single			MoveS	piral				
	2	💠 Start		•	Mode	Parameter	ized 🗸			
nashboard	3	▼			Coils	0	(Clockwise	e:>0,Anticlock	wise:<0)	
÷	4	↔ MoveSp	piral wp0		Center po	bint				
Move					Teachir	ng point 🗸	Teach	Record)	
Program					Move h	nere				
\$					🕜 wp	0				
etterface					X(mm)	N/A		RX(°)	N/A	
Log					Y(mm)	N/A		RY(°)	N/A	
@					Z(mm)	N/A		RZ(°)	N/A	
Setting					Axis lengt	h(mm)	0			
					End radiu	s(mm)	0			
					🗹 Use p	arent node co	ordinate			

• CombineMotion

Only for the linear and circular motion control robot to do compound trajectory motion, parameters can be set:

Trajectory type: The default is triangle, optional triangle, sine, arc, trapezoid, 8.

Reference plane: The default is tool XOY, optional tool XOY or tool XOZ or tool YOZ.

Frequency: The default value is 1, in Hz.

Amplitude: The default value is 1 in mm.

Left residence time: specifies the parameter to be configured when the trajectory type is trapezoid. The unit is ms.

Right residence time: specifies the parameter to be configured when the trajectory type is trapezoid, in ms.

TECH ROBOT	<	q34.jspf *	~	50	Task Va	riable System	Parameter Simulation
	1	V Ma	ain Single		Combine Motio	on	
	2	\$	Start		Туре	Triangle V	
shboard	3	▼ 🜩	CombineMotion		Dof Plana	Tool YOY	
.t.	4		undefined	••••)	Rei Flahe		
Move					Frequency(Hz)	1	
					Amplitude(mm)	1	
ogram							
ද terface							
<u>ط</u>							
Log							
¢							
Setting							

11.3.2. Basic Function Block

Set

Set function blocks. The digital output port of the control cabinet and the digital output port at the end of the manipulator can be set to high or low level; Assign values to program or system variables.



• When you assign a variable, the expression keyboard will pop up. Please fill in the assignment according to the expression syntax. If you assign "Hello" to a string variable, enter "Hello" on the keyboard (double quotes cannot be omitted).

UCTECH ROBOT	< q	34.jspf *	~	> Ċ 	Task Variable System Parameter Simulation
	1	Main Single			Set
	2	Start			Set DO DO1 V PULSE V
Dashboard	3	the set			Frequency(Hz) 0
↔ Move					Duty Cycle(%) 0
Program					O Set AO Please select → 0
ದ					O Set Variable
Interface					select variable V Input expression
É Log					Comment
کی Setting					Comment

Wait

"Wait" function block. Optionally wait for a period of time, a DI signal, and an expression. When the program reaches this function block, it waits until a set condition is met.

AUCTECH ROBOT	le pro	q34.jspf *	CP Okg default	JOG 100% Joint J Global Speed 100% Manual Real Collision Check A Task Variable System Parameter Simulation
Dashboard ↔ Move Program C Log Setting	1 2 3	Main single		Wait Wait until condition is met Delayms When DI Pot D1 is LOW Wait thread end Select thread Comment Comment
2024-02-20 14:28:23	 Image: Control of the second se	00		33.9 Cancel Confirm

Script

Script function block. You can select an expression, script, or script file. You can use the expression editor to create a line of scripts. For the input of expressions, read Section 8: Input Keyboard (Expression input keyboard). The script can be used to write the entire script code. A script file can be selected from the script file. Refer to the script manual for instructions on the script code.

UCTECH ROBOT	<	q34.jspf *	~ 🔁 C	Task Variable System Parameter Simulation
	1	Main Single		Script
	2	Start		Create line 🗸
Dashboard	3	88 Script		create script
				
Move				Comment
Program				Comment
4				
Interface				
E Log				
(2) Setting				

Select the script to write the whole code, click the prompt icon *i* above the editing area the editing shortcut key prompt box will pop up, as shown below.

Enab	e Proje project_i	ect Install Wertical TO	Tool Obj CP 0kg defaul	t 100%	JOG GIG Joint J	100% Ma	anual	al Collision	Check A
AUCTECH ROBOT	< q34	.jspf *	v 🕤	C 🛱	Task	Variable	System	Parameter	Simulation
	1	Main single			Script				Â
	2	Start			Create scrip	x ~			
Dashboard	3	BB *Script)				1		5 3
↔ Move Program C Interface Log			Undo Ctrl+. Copy Ctrl+	Z Rec C Pas	lo Ctrl+Y te Ctrl+V	×			
Setting					Ln 1 Col 1			Tot	al Lines 1
					Comment				
2024-02-20 14:32:37	0			33.9			Ca	incel	Confirm

Click the maximization icon above the editing area, and the script editing area will be maximized as follows. Click the restore icon at the top right of the maximization interface to restore the original interface size. is the undo icon, is the restore icon. The number of lines and columns where the cursor is located is displayed in the lower left corner of the editing area, and the total number of script lines is displayed in the lower right corner.

Enab	le Project Install project_mo	TcP 0kg default	JOG 100% Joint J	Global Speed 100% Manual	Real Collision
AUCTECH ROBOT					00=00
	1				
¢					
Move					
Program					
Interface					
Log					
Ç Setting					
2024-02-20 14:35:21	Ln 1 Col 1				Total Lines 1

In script writing mode, you can use the built-in shortcut box and external keyboard for input. Click the icon above the script area to pop up the system shortcut input box, which is suspended above the editor as shown below, and the pop-up box can be held down and dragged.

FECH ROBOT		Task Variable System Parameter Simulat
	Quick General Function	× Script
_	Robot pose	Create scripi 🗸
	Joint Pose	
	Block	1
⊕ Move	While If If-else If-elseif	
	Function return break Comment	
ogram	Interface	Write
₽ erface	IO Register	
Ö	Modbus Variable	
Log	Operator	
දි දි etting	+ · · * / = , > >=	<
	and or not true false nil <= ==	Ln 1 Col 1 Total Lines 1
		Comment

The shortcut box has three labels: shortcut, universal keyboard, and script functions. The lower bar of the input box shows some commonly used control keys, including cursor left, cursor right, cursor up, cursor down, input space, delete, and line feed.



Shortcut input will perform shortcut input for some commonly used functions. Main functions:

Point position: Click "Joint" to input the joint value of the current robot arm in rad; click "Pose" to input the current position and posture of the robot arm tool on the set workpiece, in m, rad.

Function: You can enter While loops, conditional branches, function definitions, single-line comments, etc.

1	while()	1 if ()	
2	do	2 then	1 function fun()
3		3	2
4	end	4 end	3 end

IO/register/Modbus/variable: You can choose whether to read or write, and the system will automatically convert to the corresponding script function. If you select "Read", select general input DI1, and the system automatically enters the corresponding script function get_standard_digital_in(1)

Operator: Enter some commonly used operators.

ECH ROBOT	<	q34	.jspf *				~	3	(C	B	Task Variable System Parameter Simu	lati
			Quick	i I	Ge	neral	F	unctio	on	×	Script	
											Create script	
hboard	1	2	3	4	5	6	7	8	9	0		¢
⇔ ∕love	q	w	е	r	t	у	u	i	0	р	1	
>ogram	ě	a	S	d	f	g	h	j	k	I		
දූ erface	Sh	ift	z	x		c	v	b	n	m		
E Log	()	[]	{	}]	:	;	"		
¢)	+	-	*	1	=][•	,	<	>	•		
	~	•	!	1	1	#	%	^	&	?	Ln 1 Col 1 Total Line Comment	s 1
				- 21			charco			1.0	Comment	

The universal keyboard is similar to the physical keyboard, you can enter uppercase and lowercase letters, numbers, and symbols.

Script functions can be selected from the list of script functions. After selection, the description and examples of the script function will be displayed at the bottom. Double-click or click the "Add" button on the upper left to enter the script into the script area. Support script search.

	Quick	General	Function	
Add	get		×	Search
get_standa get_standa get_tool_dig get_tool_dig get_function get_function get_standa get_standa get_standa get_standa	rd_digital_in rd_digital_out gital_in gital_out n_digital_in n_digital_out rd_analog_curre rd_analog_volta rd_analog_voltage_in	ent_in ge_in ent_out		
get_function get_function get_tcp_por get_tcp_por get_tcp_acc get_tcp_acc get_tcp_for get_tcp_for get_tcp_off get_tcol_lor get_tool_lor	n_reg_in n_reg_out se se_coord eed celeration rce rce_tool set ad			
	>	\$	pace 🔶	L.

Log

Log function block. You can print messages or variable values to log files.

<	q34.jspt *	× 2	۲ 🕒	Task	Variable	System Param	eter Simulation
1	Main Single		L	og			
2	↔ Start		P	lease input c	ontent in log		
3	88 Log		D	escribe	input desc	ribe	~
			P	rint Var	No return		
			С	Comment			
				Comment			

Message

Message pop-up function block A message can be set. When the program runs to this function block, a dialog box will pop up to display the message and the program will stop running. Users can choose to stop or continue running the program.
TTECH ROBOT	<	q34.jspf *		~ [5 C 🛙	Task	Variable	System	Parameter	Simulation
	1	Ma	in Single			Message				
	2	+	Start	••	•	The program v	vill be paused a	ind popup, wa	aiting for action	
D ashboard	3	88	Message	•	•••	Please inpu	t message			
⇔ Move						Comment				
						Comment				
rogram										
terface										
H Log										
کی Setting										

Comment

Comment function block. Adds a comment to the program tree. This block does not perform any action when the program runs.

IECH ROBOT	< te	st3.jspf *	v 🖸	۲ 🖪	Task	Variable	System	Parameter	Simulation
	1 🗸	Main Single		C	Comment				
	2								
	3	Add comment)						
.t.					Clear				
√ ∕love									
ogram									
₽ Lastana									
enace .									
Log									
ക									
Setting									

Group

Group functional blocks. It is used to organize programs. Some functional blocks can be placed under a Group to facilitate the organization and reading of programs. No effect on program execution.

Enab	le p	Project Install Tool Vertical TCP 0kg	Obj default 1009	JOG 6 Joint J	Manua	I Real Collision	Check A
AUCTECH ROBOT	<	q34.jspf *	5 C 🖪	Task	Variable Sy	vstem Paramet	er Simulation
	1	Main Single		Group			
	2						
Dashboard	3	Group)				
کٹی	4	BB Set		Clear			
Move	5	BB Set		Group			
	6	Move					
Program	7	HoveJ wp0					
C Interface							
É Log							
â							
Setting							
2024-02-20 14:57:01	0		33.9	Э		Cancel	Confirm

CoordOffset

The coordinate system offset function block sets an offset based on the workpiece coordinate system. This offset will be added to the reference workpiece coordinate system of subsequent Move function blocks. It takes effect during the program running, and the program stops the coordinate system offset is cancelled.

CTECH ROBOT	<	q34.jspf *	v 🧿 😋	Task	Variable	System Param	eter Simulation
	1	Main Single		Wobj Offs	set		
	2	General Start		C Enable	Wobj offset		
ليا Dashboard	3	CoordOffset)	Custom	Y		
				X(mm)	0	RX(°)	0
Move				Y(mm)	0	RY(°)	0
Program				Z(mm)	0	RZ(°)	0
\$				Comment			
tternace				Comment			
Log							
رې Setting							

SetLoad

Set the grab load function block. The current load (mass, center of mass) of the robot can be set during the running of the program.

UCTECH ROBOT	<	q34.jspf *	v 🔈 C	🖺 Task	Variable Sy	stem Parameter Simulation
	1	Main Single		Set Load	Data	
	2			Mass(kg)	0	
لي Dashboard	3	BB SetLoad)	X(mm)	0	
⇔				Y(mm)	0	
				Z(mm)	0	
Program				Comment		
다 Interface				Comment		
Ë						
Log						
Setting						

TECH ROBOT	<	q34.jspf *	Task	Variable System Parameter Simulatio
	1	Main Single	Get the	element of List
	2	🗘 Start	Select List	pf1 ~
L.shboard	3	BB GetListElement	Index	Custom v 1
⇔ Move			Element	g_y6 ~
₽ terface				
Ċ,				
©				
etting				

GetListElement

GetListElement function block. This function block is used to get one of the elements from a variable of type list and dump the value of that element into the specified variable.

Select the list type: Currently three types of variables is supported, including num_list, pose_list,j oints list,. To use it, you first need to create the desired list class variable.

Index: The position of the desired element in the list, counting from 1. You can enter an index value directly or obtain an index value from a variable.

Element: Specifies the corresponding variable to which the obtained element needs to be transferred. Support number, pose, joints three types of variables. To use it, you need to first establish the desired variables.

! Care	•	GetListElement function block does not change the data in the original list variable. It does not delete the obtained element. It copies instead of cutting. The type of the transferred variable needs to be the same as the type of the element in the list variable. For example, the pose variables obtained from the pose_list variable cannot be stored into the joints variable.
--------	---	---

RemoveListElement

Remove the list element function block. This function block is used to delete an element in a variable of the list type from the list type.

Select the list type: Currently three types of variables is support, including num_list, pose_list, joints_list, To use it, you first need to create the desired list class variable.

Index: The position of the desired element in the list, counting from 1. You can enter an index value directly or obtain an index value from a variable.



TimerStart

Timerstart function block. This function block is used to start the timer.

Enabl	e	Project Install TCP 0kg	Obj default	JOG Joint J Global Speed Manual Real Collision Check A
AUCTECH ROBOT	<	q34.jspf *	5 C 🗎	Task Variable System Parameter Simulation
	1	Main Single		TimerStart
	2	Start		Comment
ليا Dashboard	3	TimerStart		Comment
⇔ Move				
Program				
C Interface				
Log				
ø				
Setting				
2024 02 20				
15:25:43	0		33.9	Cancel

TimerEnd

Timerend function block. This function block is used to end of the timer.

Select variables: Only variables of the global timer type are supported. To use it, you need to create the global timer class variable first.

Enabl	le proje	Project Install Te ect_mo Vertical TCP	Okg Obj Okg default	JOG Manual Real Collision Check A L1 Collision Oddad A
AUCTECH ROBOT	<	q34.jspf *	v 🔈 🕻 🕻	Task Variable System Parameter Simulation
	1	Main Single		TimerEnd
	2	↔ Start		Select Variable select variable: timer ~
Dashboard	3	TimerEnd)	Comment
⇔ Move				Comment
>Program				,
C Interface				
Log				
63 Setting				
2024-02-20 15:27:18	0		3	3.9 Cancel Confirm

Stop

1					rask vanable	System	i alameter	Simulation
-	Main Single				Stop			
2	Start				Comment			
3	BB Stop		•••		Comment			
	3	2 3 Stop	2 Start 3 Stop	2 3 Stop	2 Start 3 Stop	2 Start Comment	Comment	2 Stat ···· 3 Stop ···

Stop function block. This function block is used to issue program stop instructions.

11.3.3. Process Control

While

Loop function blocks. A loop executes its internal blocks of functionality. You can set it to loop all the time; Specifies the number of loops; Specifies a loop condition. As long as the loop condition is true, the loop runs.

Power	off Project_mo Install Tool Vertical TCP 0kg	Obj default 100% Joint J Global Speed Manual Real Collision L1 Check A
AUCTECH ROBOT	 q34.jspf * Main Single Start While undefined 	Task Variable System Parameter Simulation While •••• <
2024-02-20 15:43:30	S D D	33.9 Cancel Confirm

If

Conditional function block. You can set a digital input port condition or a condition expression, and "If" this condition is met, the function block in "If" can be executed, and subsequent "elsif" or else function blocks can be added.

Power	off	Project_mo	Obj default 100%	Joint J Global Speed Manual Real Collision Check A
AUCTECH ROBOT	<	q34.jspf *	D C 🗎	Task Variable System Parameter Simulation
	1	Main Single		Condition
	2 3	Start	····	O When DI Port DI1 → = LOW →
⇔	4	undefined	•••	Condition expression
Move				Add elsif Add else
Program				Comment
Interface				Comment
Log				
Setting				
2024-02-20 15:45:12	0		33.9	Cancel

Goto&Label

Goto function, used in conjunction with Label, can transfer the control point of the program to Label. First, create a Label function block, mark the jump point, and name the jump point. Use the goto block, select the location you want to jump to.

The example program as shown in the figure indicates that when the program runs to line 6, it will jump to label1 in line 3 and then execute downward, that is, the Set function block in line 4 and the Wait function block in line 5 will run twice.



11.3.4. Communication

SocketOpen

To establish a Socket, the parameters page needs to set the name of the connection, configure the IP address and port number of the target Server, and choose whether to bind the return value to a variable.

TECH ROBOT	<	q34.jspf *	v 🔈 😋	Task	Variable System	Parameter Simulation
	1	Main Single		Create Sc	ocket	
	2	Start		Name	Please input sock	
D ashboard	3	() SocketOpen		IP	input ip	
⇔ Move				Port	input port	
<td></td> <td></td> <td></td> <td>Result</td> <td>No return V</td> <td></td>				Result	No return V	
rogram				Comment		
お nterface				Comment		
20g						
Setting						

SocketClose

UCTECH ROBOT	<	q34.jspf *	Ventical TCP OK	0% Joint J Task	Variable System	Parameter	Simulation
	1	M	ain Single	Close Soc	ket		
	2	+	Start	 Name	Select socket V		
	3	(c) T	SocketOpen	 Comment			
.t.	4	(y)	SocketClose	 Comment			
Move							
Program							
C Interface							
Ē.							
É Log							
Log							
Log Cos Setting							
Log Co Setting							
Log Setting							

To close a socket connection, you need to select the name of the connection to close.

SocketSend

Socket sends data. Send data to an established socket connection. Send data as a string or as a floating-point array, send data as a variable or as a direct input, and bind the return value to a variable to obtain the send status.

Power	off proje	ct_mo Install Tool Vertical TCP 0kg	Obj default 100%	Jog GI Joint J	100% Manual	Real Collision
AUCTECH ROBOT	٢ (134.jspf *	508	Task	Variable System	Parameter Simulation
	1	Main Single		Socket Se	nd	
	2	Start		Name	Select sock ~	
Dashboard	3	W SocketSend		Туре	String ~	
⇔ Move				Send data	Custom ~	
				Result	No return 🗸 🗸	
Program				Comment		
₽ Interface				Comment		
É Log						
(3) Setting						
2024-02-20 16:02:47	I	\bigcirc	33.9			Cancel

SocketRecv

Socket receives data. Receive data from the established socket connection, receive type optional string, string array, float array, receive information configuration receive variable.

String type, given the received length, the program will receive the length of the data and process it as a string, saving it to the "Receive Message" configuration.

\String array type, the program will parse the received string into numeric values, all numeric values in "()", use ", "separated between numeric values. For example, if a string "(12,1.23)" is received from a socket, the block will convert it to a num_list type with a value of {12,1.23} and save it to a variable in the "Receive Message" configuration.

Float array, given the received length, the program converts the received data to a set of single-precision float numbers (converted according to the IEEE 754 standard) and saves it to a variable configured in the "Receive Message" configuration.

A receive timeout can be configured to execute the next statement if no data conforming to the rule is received within the timeout.

CTECH ROBOT	<	q34.jspf *		~ <u>></u> C	Task	Variable System	Parameter Simulation
	1	Ma	uin Single		Socket Recv		
	2	+	Start		Name	Select socket V	
D ashboard	3	Ψ	SocketRecv		Туре	String	
↔ Move					Recv length	0	
					Recv data	select variable: ~	
Program					Timeout (ms)	3000	
₽ nterface					Comment		
р т					Comment		
Log							
(c) Setting							

CommSend

Formula data sent. When the robot's "485 port" or "CAN port" is set with the formula, this function block can be used to set the value for the data in the formula and send it. You can set the return variable to get the state of the formula data sent.

AUCTECH ROBOT	< q3	4.jspf *	v 🔈 C 🖺	Task	Variable System	Parameter	Simulation
	1	Main Single		Send data			
	2			Port	Controller 485 🗸		
ليا Dashboard	3	() CommSend)	Result	select variable: ~		
↔ Move				Recipe	No Recipe		
				Comment			
\$				Comment			
Interface							
Log							
کی Setting							
2024-02-20 16:08:05	0	OD	33.9			Cancel	Confirm

CommRecv

Formula data received. When the "485 port" or "CAN port" of the robot is set with a formula, this function block is used to receive data, and after processing according to the formula, the obtained num_list data is assigned to the receiving variable.

Power	off	Project_mo Install Tool Obj Vertical TCP 0kg default	JOG Global Speed Manual Real Collision Che L1 Collision 003	ck A
AUCTECH ROBOT	<	q34.jspf * 🗸 🗸 🗲	Task Variable System Parameter Simul	lation
	1	Main single	Recvive Data:	
-	2	↔ Start …	Port Controller 485 V	
Dashboard	3	۲۰۰۲ CommRecv	Receive Data select variable: V	
⇔ Move			Recipe No Recipe	
Program			Comment	
₽ Interface				
E Log				
کې Setting				
2024-02-20 16:09:32	0		33.9 Cancel Confir	m

11.3.5. Advance

Subprogram

A subroutine. You can embed other programs into the current program. There are two ways:

Directly select the embedded subprogram from the program list. If you do not check the "Inline subprogram" option, you will load the subprogram from the file each time when the program runs. That means, changes in the subprogram file will affect the main program. If checked the "Inline subprogram" option, it is to copy the subprogram directly to the main program, since the change of the subprogram file has no effect on it.

Set as a string variable, the main programs at run time, according to the value of the variable as the subprogram name to dynamically load the corresponding subroutine.



• For the "Inline subprogram", the program variables in the subprogram will also be copied to the main program. If there is a variable with the same name in the main program, it may have some impact on the main program. So, when you use it, carefully check the behavior of this variable to make sure it doesn't affect the original

		execution logic of your program.
	•	When referring to a subprogram with a string variable, do not check
		"Inline subprogram".

CTECH ROBOT	<	q34.jspf *	× 5 C	Task Variable System Parameter Simulation
	1	Main Single		Subprogram
	2	Start		Select
D ashboard	3	Subprogram D	OE_movej_tr ••••	Select
↔ Move				DOE_movej_test12.jspf Open
Program				Inline subprogram
\$				Comment
nterface				Comment
Log				
Setting				

Replay

The trajectory is repeated. You can create a robot motion track whose recording mode is position-based recording or time-based recording. When the program is executed to this function block, the robot moves the trajectory according to the joint space-based or Cartesian space-based reproduction mode. You can select an existing track file or create a new track.

To create a new track, click "New track" and enter the track name, the "track record" box will be displayed. After selecting the tool coordinate system, the workpiece coordinate system and the recording mode, click "Start Record" to start recording the track data. At this time, a semi-transparent suspension box will be displayed on the page indicating that the track is being recorded. Click "Stop Recording" or the Stop button on the hover box to complete the creation of the track file. During the track recording process, the user modifies the coordinate system or switches the current coordinate system, terminates the current track recording, and the "track recording" suspension frame disappears.

ck recording	te	est1.jspf		~	50	🖹 Task 🛛	Variable System	Parameter Simulation
	1	Ma	N Single			Replay		
	2	(Start			Track	Select track	Create track
L. ashboard	3	8	Replay trackna	me_demo		Track name	trackname_demo	
						Record mode	Record on position	
Move						Replay mode	Joint space \sim	
Program						Speed(%)	30	
₽						Track record		
therrace						Track name	trackname_demo	
Log						TCP	TCP ~	
ø						User	default ~	
Setting						Record mode	Record on posi 🗸	Ĵ
								Stop record
						Comment		

For the selected track, when the recurrence mode is based on joint space, the track name and recording mode of the track will be displayed. When the reproduction mode is based on Cartesian space, the track name, recording mode, tool coordinate system and workpiece coordinate system of the recording time are displayed.

Power	r off Project Install TCP 0kg	Obj default 100%	JOG Global Joint J 100	Speed Manual Real Collision Check A
AUCTECH ROBOT	< test1.jspf V	508	Task	Variable System Parameter Simulation
	1 Main Single		Replay	A
	2 🕂 Start		Track	Select track Create track
Dashboard	3 *Replay trackname_demo		Track name	trackname_demo
			Record mode	Record on position
Move			TCP	ТСР
Program			User	default
\$			Replay mode	Cartesian spac V
Interface			Speed(%)	30
Log			Track record	
٥			Track name	trackname_demo
Setting			TCP	ТСР ~
			User	default ~
			Record mode	Record on posi V
2024-02-21 08:35:21	00	0.0		Cancel

Pallet

Palletizing/depalletizing. Through some simple parameter settings, a standard palletizing/depalletizing program templates can be automatically loaded, and adaptive changes can be made on this basis.

TECH ROBOT	<	test3.jspf	*	× 🦻 😋	Task	Variat	ole System	n Paramete	r Simulati
	1	V	Main single		Pallet				
	2	(Start		Palletiz	ing 🗸			
Д.	3	7	Pallet Pallet_1		Name 🖉	P	allet 1		
↔ Aove	4		undefined	•••)	Object Pa	ttern	Line	~	
					Referen	ce Coordinate	e Add&Active		
ogram					П				
P					P1				
en acc					P2	Teach	Record	Move here	
Log					a consecutive	Teach	Record	Move here	
ø					P3				
etting						Teach	Record	Move here	
							Calibrate		

Follow the steps below to use the palletizing/depalletizing function block:

- 1. Determine whether to use palletizing or depalletizing, palletizing is to move the workpiece to the pallet, and depalletizing is to remove the workpiece from the pallet
- 2. You can specify a name, and a default name will be generated every time Pallet is added
- 3. Select the placement mode of the workpiece on the pallet, linear or grid mode
- 4. The reference coordinate system used to calibrate the pallet, the calibration method: calibrate based on the first workpiece placed on the pallet, point P1 is a point taught to the workpiece, and point P2 is taught to the row direction (reference coordinate system X axis Direction), P3 is taught to the column direction. Click the "Calibrate" button to complete the calibration of the coordinate system. The value of the reference coordinate system will be displayed on the top.

Reference Coordinate	Add&Act	tive						
[-53.239, 271.836, 1465, -90, 6.192, 11.081]								
P1	Teach	Record	Move here					
P2	Teach	Record	Move here					
P3	Teach	Record	Move here					
	Calibra	ite						

Click the "Add & Activate" button and a dialog box will pop up. After entering the name of the coordinate system, it will be added to the system and set as the current coordinate system.

ECH ROBOT	<	test.jspf	k.		× 🔁	C (2	Т	ask V	/ariable	System	Param	eter Simulati
	1	v 💼	Main Single				Palle	et				
	2	4	Start				Pall	etizing				
	3	v 🛛	Pallet P	allet_1	•••		Name	Q_	Pallet_1			
÷	4		undef	ined	••	•)	Object	Pattern	Line			
							-	~				
ogram							Refe [-53. P1	rence Coor 239, 271.83(dinate Ad 5, 1465, -90 Te	dd&Active , 6.192, 11.0 ach	081] ecord	Move here
ogram	se						Refe [-53. P1	rence Coor 239, 271.83(consists	dinate Ad 5, 1465, -90 Te of 2-24 lette	dd&Active , 6.192, 11.0 ach R er number u	081] record	Move here e start with the I
ogram c c erface let_1_bas 1	ise 2	#3	\$	% 5	Ĝ	* 7	Refe [-53. P1	rence Coor 239, 271.83 consists (9	dinate Ad 5, 1465, -90 Te of 2-24 lette 0	dd&Active	081] Record Inderscore	Move here e start with the I SEsc
ogram	ise 2 w	# 3 e	\$ 4 r	% 5 t	Ĝ y	č. 7 u	Refe [-53. P1 8 i	rence Coor 239, 271.830 consists (9 0	dinate A 5, 1465, -90 Te of 2-24 lette) 0 p	dd&Active	081] Inderscore	Move here e start with the I SESC
ogram	ise 2 w a	# 3 e s	s 4 r d	5 t f	6 y g	& 7 u h	Refe [-53. P1 i j	consists (9 0 k	dinate Ad 5, 1465, -90 Te of 2-24 lette) 0 p I	dd&Active , 6.192, 11.0 ach R er number u - - { [;	081] tecord inderscore + = }] ;	Move here e start with the I SESC

5. To set the workpiece placement parameters, you need to set the height of the workpiece, the number of workpieces placed in the row and column directions, and the distance between the workpieces in the row and column directions.

- 6. To set the count variable of the workpiece, you need to create a new variable of type number in the program variable area
- 7. Set the number of layers
- 8. Define the points to perform actions on each workpiece, which can be divided into three approach points, action points, and exit points. Teach these three points at the first workpiece placed on the pallet. The approach point is when the robot moves to the position above the pallet where it is planned to place/grab the workpiece; the action point is the position where the robot places/grabs the workpiece; the exit point is where the robot leaves the pallet after placing/grabbing. Note: The teaching of these three points must be carried out in the reference coordinate system of the pallet.
- 9. After the teaching is completed, click the "Generate Script" button to automatically add a series of function blocks to the program. Among them, the corresponding execution actions can be added under the Group function block, such as the opening and closing of the gripper.

TECH ROBOT	<	test.jspf * 🗸 🔁 🕒	Task Var	riable Syst	em Paran	neter Simulatio
	1	Main Single	Object Parameters	S		
	2	↔ Start …	Object height	0		
لي shboard	3	Pallet Pallet_1	Object Number	0		
⇔	4	Group # Each Object ····	Object offset	0		
Move	6	MoveJ Pallet_1_approach				-γ
rogram	7	Move	Count	select varial		
\$	8	MoveL Pallet_1_action	Layers	1		
terface	9	Group	Define each objec	t actions		
Log	10	undefined	Approach point	Teach	Record	Move here
¢	11	Move	Action point	Teach	Record	Move here
Setting	12	MoveL Pallet_1_exit ····	Exit point	Teach	Record	Move here
				Genera	ate	

10. The program is set in a continuous cycle mode, and the palletizing program will calculate the offset according to the set parameters each time it is executed, and determine the position and posture of the next palletizing/depalletizing. In the variable area, you can view the current number of palletizing/depalletizing workpieces according to the set workpiece count variable

RecordPoseTrans

Operation point conversion teaching function block, used to do point conversion.

In the figure below, point O is the reference point, and the pose of points A, B, C, and D with respect to reference point O is unchanged. The operation point conversion teaching function block records the relative pose relationship of these points relative to reference point O, and outputs the pose of A ', B ', C 'and D' points when the pose of O changes. It is commonly used in visual identification positioning, laser locating and other occasions. For example, in the visual identification positioning scene, reference point O is the marker block of A station, and A, B, C, and D are the four workpieces of the station, and the workpieces are fixed relative to the pose of the marker block. The pose of the marking block in the robot base coordinate system is identified by the camera, and the pose of the workpiece in the robot base coordinate system is calculated by the operation point teaching function block.



The configuration page is shown in the figure, which consists of three parts: the reference point (point O) is set in "Input-reference pose", the operation point (A, B, C, D) is set in "Operation point offset", and the

variables are set to store the calculated operation point (A', B', C', and D') in "Output-conversion pose". In the configuration phase, the function block will record the deviation of the operating point (A, B, C, D) from the reference point (O); When the program is running, the pose of the operation point (A', B', C', D') is calculated according to the value of the current input variable (point O') plus the deviation.

Select a pose type global variable as the reference pose, click "Set as base", the current value of the variable will be used as the reference base (point O). Click "Teach to Add" in the operation point offset to jump to the mobile page, you can move the robot arm to select a point (A, B, C, D), and a new point is added after selection, and the configuration page will display the value of the added point under the base label. In the output field, select a pose_list variable to store the results of the calculation (A', B', C', D').

Force control related scripts

Current force control related scripts include Force, ForceGuard, ForceSetZero, ForceWait, ForceMove. For detailed application introduction, please refer to "AUCTECH CORE End Force Control Function Operation Manual".

CollisionDetect

Collision detection level. This script can be used to set the sensitivity of collision detection during the running of the program.

•



The parameters set in this function block only affect the robot startup state and will not be saved when powered off. If you want to permanently set the collision detection sensitivity, set it in "Settings" - "Other Settings" - "Collision Settings" and save the project.

Enab	le p	Project Install Tool Vertical TCP 0kg	Obj default 100%	JOG Joint J Global Speed 100% Manual Real Collision Check A L1 2 0d3d A
AUCTECH ROBOT	<	test5.jspf *	508	Task Variable System Parameter Simulation
	1	Main Single		Collision detection
	2	Start		Level Shutdown ~
لي Dashboard	3	CollisionDetect off)	Tip: the higher the level, the higher the detection sensitivity!
÷				
Move				
Program				
C Interface				
É Log				
Setting				
2024-02-21				
09:08:21	٢		0.0	Cancel

Thread

Threads that execute in parallel with the main program and interact with the main program through variables. In the parameter configuration area, you can set whether the thread is always looping. A maximum of 10 threads are allowed to be created in a program.



11.4. Variable area

This page allows you to create values for program variables, monitor variables, and system variables. Program variables are different from system variables. System variables are applied to the whole project, while program variables only exist in the program.

11.4.1. Add Variable

Click the "Add Variable" button to pop up a dialog box, as shown in the figure. Enter the name of the variable, select the type and give the initial value to create it.

Create va	ariable
* Name	g
* Type	boolean v Persistent
Initial	false v
	Cancel

Program variables have the following types:

boolean: the Boolean, only to false or true

number: numeric types

string: the string type

num_list: array numeric type

pose: a data type that represents the Cartesian position of the robot

joints: a data type that represents the position of the robot's joints

joints_list: a list type that represents the position of the robot's joints

pose list: a list data that represents the Cartesian position of the robot

pose_speed: a data type that represents the end speed of the robot

pose_acc: a data type that represents the end acceleration of the robot

joint_speed: a data type that represents the angle velocity of the robot's joints

pose acc: a data type that represents the angle acceleration of the robot's joints

11.4.2. Variables Monitored

When "Variable Monitoring" is selected, the current value of the program variable can be displayed on this page during the running of the program. Click the Sort button to also sort the program variable names alphabetically.



CTECH ROBOT	<	test5.jspf *	~ 🔁	C 🗎	Task	Variable	System	Parameter	Simulation
	1	Main Single			Variable			Monitor Sort	Add
	2	🕂 Start			Name	Туре	Initial		Operation
					res	boolean	false		•••
					count	number	1		•••
⇔ Move					str	string	string		•••
					num	number	0		•••
Program									
\$									
Interface									
Log									
ø									
Setting									

11.5. Run

Click on the "Simulation" TAB to go to the 3D model page, which shows the 3D model of the robot. The icon at the bottom left of the program tree controls the start and stop of the program, click icon button to run the program, click icon button steps the program. You can pause or stop the program at any time while it is running. Tap icon button set the program running process, the cursor automatically follow the command block, click icon enable automatically followed of program running.



11.5.1. Run Program

When running the program, it will check whether the starting point of the program is consistent with the current point of the robot. If not, move to the starting point first, as shown in the figure, the 3D model will show the robot at the starting point (shown in gray). Click "Move" button, and the robot will move to the starting point.



After moving to the starting point, click the button \blacktriangleright again and the program runs. As shown in the following figure, the running time of the program can be displayed below. The real-time position of the robot can be observed on the 3D model. The program tree on the left can display the currently executing function blocks. Click the control button below to suspend, resume and stop the program.



11.5.2. Program Step Mode

Click the button \blacktriangleright to program step mode. When stepping, the starting point of the program will be checked first, and the robot will be moved to the starting point of the program. With each click of \blacktriangleright , the program moves down next function block. Click the button \blacktriangleright and the program will exit the single step mode and run continuously. You can pause and resume the program during a single step. Click button \blacklozenge , and the backward operation will be executed. At this time, the robot will move backward to the last function block, and the backward operation is only for the function block of sports class. Click the Stop button, the program will stop running and exit the step state.



11.5.3. Breakpoint

Support breakpoint debugging function, program will stop at the breakpoint and enter the program step mode.

In the program tree and script editing area, click on the left side of the program tree line number or the left side of the script line number to insert the breakpoint. Click the breakpoint again to cancel it. Click "Clear Breakpoint" button below to cancel all breakpoints.
AUCTECH ROBOT	< GCF	R10_movec_test8.jspf	v 🔈 C	Task	Variable	System F	Parameter Simulation
	1 🗸 🗸	Main Cycle		MoveC			A
	2	♣ Start		Mode	Arc		
Dashboard	• 3 🗸	♠ Move		Midway Poi	nt		
	4	MoveC ^{wp0} / _{# movec}	1 •••	Teaching	point 🗸 🛛 Tea	ich Recor	ď
Move	• 5	MoveC ^{wp2 wp3} # moved	³	Move he	re		
Program				🕜 wp2			
\$				X(mm)	692	RX(°)	165.51
Interface				Y(mm)	-80.935	RY(°)	10.175
Log				Z(mm)	823.926	RZ(°)	-92.614
¢				Target Poin	t		
Setting				Teaching	point \sim Tea	ich Recor	rd
				Move he	re		
				🕜 wp3			
2024-02-22				1-67.2		Can	cel Confirm

If the program is executing, it will stop at the breakpoint. And the program entre the program step mode, as show in the figure. Click \blacktriangleright button, the program will execute step by step, (When run to a Script function block, it executes in a single line); Click \blacktriangleright button, the program will execute until next breakpoint or finish.

In the manual mode, the breakpoint can be insert or cancel at any moment.



12. Interface Page

Click "Interface" in the navigation bar to enter the I/O subpage under the interface page by default. Interface page has I/O, register, CCI, TCI, TCP/IP, industrial bus a total of 6 subpages. According to the model of the control cabinet, it is divided into two kinds of pages, as is shown in the figure:

		1/0	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out	Analog In	Analog Out	◆ 3	
ту	rpe	Name		Description			Modbus	Stat
Fu	Inction In 1	fun_io_in1		Run	() N/A	Load	160	
Fu	Inction In 2	fun_io_in2		Run	() N/A	Load	161	
Fu	Inction In 3	fun_io_in3		Run	(N/A	Load	162	

Adaptive to DC30D control cabinet

Ena	Project_mo	Install Vertical	Tool def Okg	Obj default 100%	JOG Globa 5 Joint J 10	Manual	Real Collision	Check A Od3d A
	- (1/0	Register	CCI	ТСІ	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out	Analog In	Analog Out	3	
Ţ	Туре	Name		Descr	iption		Modbus	Status
Dashboard	Digital In 1	DI1					176	0
Move	Digital In 2	DI2					177	0
Program	Digital In 3	DI3					178	0
C Interface	Digital In 4	DI4					179	0
E 29	Digital In 5	DI5					180	0
کی Setting	Digital In 6	DI6					181	0
	Digital In 7	DI7					182	0
	Digital In 8	DI8					183	0
2024-02-21 10:10:49	Digital In 9	DI9		Func	tion In 🗸		184	

Adaptive to DC00 / DC15S-J9E3 / DC30D-J9E3 control cabinet

The top of the page (1) is the interface page subpage TAB, the bottom (2) is the corresponding subpage display area. When the user selects a different subpage option, the area (2) corresponds to the display content of the option.

12.1. I/O

The area (2) in the figure shows the corresponding content of different tabs of the I/O subpage, and (3) above the display area of the I/O subpage is the label made for different input and output under the I/O subpage.

For the DC30D control cabinet, there are 5 types of function input, function output, general input, general output and analog input in the I/O subpage, respectively. Click different label bars to switch and display input or output status information of 5 types.

The function input interface can monitor the 8-way digital input state and basic information of a specific function that can be set in the control cabinet. Click the function input name, the ordinary virtual keyboard will pop up, you can modify the function input default name. When the function is modified and the default name is entered, the icon as shown in the figure ① will appear on the right side of the name display box. Click the icon to restore the function input name to the corresponding default name.

AUCTECH ROBOT		1/0	Register	ссі	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out Ana	llog In	Analog Out		
Ţ	Туре	Name		Description		3 0	④ Modbus	Status
	Function In 1	fun_io_in1 -	→ 1)	Run	I/A	Load	160	0
Move	Function In 2	fun_io_in2		Run	N/A	Load	161	0
Program	Function In 3	fun_io_in3		Stop	N/A	Load	162	0
C Interface	Function In 4	fun_io_in4		Teach Collision Reset	N/A	Load	163	0
E Log	Function In 5	fun_io_in5		PowerOn Enable	N/A	Load	164	0
() Setting	Function In 6	fun_io_in6		Disable	N/A	Load	165	0
	Function In 7	fun_io_in7		Run	N/A@	Load	166	0

Click the icon 2 corresponding to function input in the figure, and the function Settings selector, icons 3 and 4 will be displayed to select function Settings for function input. In the display function selector drop-down box, select the function to input the desired function, and click the icon 4 to determine the selected function. You can also click the icon 3 to cancel the selected function. When the function input signal is triggered, the set function is started. At present, the function input supports the following functions: running program, suspending program, stopping program, traction teaching, collision detection reset, powered on, enabled on, enabled off, powered off, and system shutdown.



The function output interface can monitor the 8-way digital output state and basic information of a specific function that can be set in the control cabinet, as shown in the figure. Similar to the function input interface, it can modify the corresponding name of the function output and select the function settings of the function output. In the function Settings selector drop-down box, select the predefined system status quantity bound to the function output. After clicking the OK icon, the function output will reflect the status of the set system status quantity. Currently, the states supported by the functional output for binding are: IDLE, Program Run, Pause, Program End, profinet disconnect, Home position, collision, automatic mode, not powered on, not enabled, robot arm moving and ethernet disconnect.

FECH ROBOT		1/0	Register C	CI TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In Function	Out Analog In An	alog Out		
P	Туре	Name		Description		Modbus	Status
tshiboaru ⊕	Function Out 1	fun_io_out1			e	168	1
Move	Function Out 2	fun_io_out2		Idle		169	1
rogram	Function Out 3	fun_io_out3		Running Paused		170	1
₽ Iterface	Function Out 5	fun_io_out5		Finish Disconnect profinet		172	1
H Log	Function Out 6	fun_io_out6		Home Collision		173	1
(3) Setting	Function Out 7	fun_io_out7		Auto mode		174	1
Setting							

The general input interface can monitor the general 16-channel digital input status and basic information in the control cabinet, as shown in the figure. Different from the function input and

function output interface, only the corresponding name modification and restoration of the input signal can be carried out, and no specific function can be set.

Ena	ble Project_m	o Install T Vertical def	Okg Obj JOG Okg default 100% Joint J	Global Speed 100% Manual Real C	L1 Check A
AUCTECH ROBOT		1/0 Re	gister CCI TCI	TCP/IP Industria	l Bus
	Digital In	Digital Out Fun	ction In Function Out Analog In	Analog Out	
Dashboard	Туре	Name	Description	Modbus	Status
	Digital In 1	DI1		176	0
Move	Digital In 2	DI2		177	0
Program	Digital In 3	DI3		178	0
C Interface	Digital In 4	DI4		179	0
Log	Digital In 5	DI5		180	0
Setting	Digital In 6	DI6		181	0
	Digital In 7	DI7		182	0
	Digital In 8	DI8		183	0
2024-02-21 10:29:38	Digital In 9	D19	Function In 🗸	184	0

The general output interface can monitor the state and basic information of ordinary 16-channel digital output in the control cabinet, as shown in the figure. The interface can only modify the corresponding name of the output signal and restore it after modification, and no specific function can be set.

Ena	ble Project_mo.	Install Vertical	Tool def 0kg	Obj default 100%	JOG Glo Joint J	bal Speed 100% Manua	l Real Collision	Check A Od3d A
AUCTECH ROBOT		I/O	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out	Analog In	Analog Out		
Dashboard	Туре	Name		Descr	iption		Modbus	Status
↔	Digital Out 1	DO1					192	0
Move	Digital Out 2	DO2					193	0
Program	Digital Out 3	DO3					194	0
C Interface	Digital Out 4	DO4					195	0
Ë Log	Digital Out 5	DO5					196	0
Setting	Digital Out 6	DO6					197	0
	Digital Out 7	DO7					198	0
	Digital Out 8	DO8					199	0
2024-02-21 10:30:49	Digital Out 9	DO9		Funct	tion OL $ imes $		200	1

The analog interface can monitor the 4-channel analog current input signal and 4-channel analog voltage input signal, as shown in the figure. Similarly, click the analog input signal name display box to modify the signal name. The operation is similar to the functional I/O and general I/O described above.

Ena	ble Project *project_mo.	Install Vertical	Tool def 0kg	obj default 1009	JOG Global 5 6 Joint J 100	Speed Manual	Real Collision	Check A Od3d A
AUCTECH ROBOT		I/O	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out	Analog In A	nalog Out		
P	Туре	Na	ume		Description		Modbus	Data(mA/V)
	Analog In 1		AI_C1		Current In 🗸		72	0.00
Move	Analog In 2		AI_C2		Current In 🗸		73	0.00
Program								
₽ Interface								
É Log								
(5) Setting								
2024-02-21 10:32:11								

For DC00 / DC15S-J9E3 / DC30D-J9E3 control cabinets, there are six types of general input, general output, function input, function output, analog input, and analog output in the I/O subpage. Click different label bars to switch and display six types of input or output status information.

The general input interface can monitor the status and basic information of the ordinary 16-way digital input in the control cabinet, as shown in the figure. The eight digital input types from DI9 to DI16 can be configured as function input or general input in the description column (1) of the page.

Ena	ble *project_m	o Install Vertical de	f 0kg default JOG Global Speed 100% Joint J 100%	Manual Real Coll	ision Check A 1 0d3d
AUCTECH ROBOT		I/O	Register CCI TCI	TCP/IP Industrial	Bus
	Digital In	Digital Out	Function In Function Out Analog In Analog	Out	
Dashboard	Туре	Name	Description	Modbus	Status
¢	Digital In 7	DI7		182	0
Move	Digital In 8	DI8		183	0
Program	Digital In 9	DI9	Function In A	184	0
ني: Interface	Digital In 10	DI10	Digital In	185	0
Log	Digital In 11	D111	Function In	186	0
Setting	Digital In 12	DI12	Function In 🔗	187	0
	Digital In 13	DI13	Function In 🗸	188	0
2024.02.21	Digital In 14	D114	Function In \vee	189	0
10:34:06	Digital In 15	DI15	Function In	190	0.

If you select each digit input as function input, the digit input status is disabled on the I/O general input page, and the digit status configured as function input is displayed on the function input subpage. For example, if DI9 and DI10 are configured as function input, the function input TAB page under the I/O subpage is shown in the following figure.

TECH ROBOT		1/0	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out Ana	log In	Analog Out		
P	Туре	Name		Description			Modbus	Status
ishboard €	Function In 1	fun_io_in1 _	→ ①	Run @-	- N@	Load	160	0
Move	Function In 2	fun_io_in2		Run	I/A	Load	161	0
rogram	Function In 3	fun_io_in3		Run	N/A	Load 3	 ④ 162 	0
₽ Iterface	Function In 4	fun_io_in4		Stop	N/A	Load	163	0
Log	Function In 5	fun_io_in5		Teach Collision Reset	(N/A	Load	164	0
(2) Setting	Function In 6	fun_io_in6		PowerOn Enable	N/A	Load	165	0
	Function In 7	fun_io_in7		Disable	N/A	Load	166	0

Similarly, clicking a function input name will bring up an ordinary virtual keyboard, and you can modify the default name of the function input. After you enter the default name for the modified function, the icon (1) in the above figure is displayed on the right of the name display box. Click the icon to restore the function input name to the corresponding default name.

Click the corresponding function input icon (2) in the figure, the function Settings selector, icon (3) and icon (4) will be displayed, and you can select the function settings of the function input. Select the function in the display function selector drop-down box and enter the function item you want to set. Click the icon (4) to determine the selected function item. You can also deselect the selected feature by clicking icon (3). When the function input signal is triggered, the set function is activated. The current function input supports the following functions: running program, suspending program, stopping program, traction teaching, collision detection reset, powered on, enabled on, enabled off, and powered off.



The general output interface can monitor the status and basic information of the ordinary 16-channel digital output in the control cabinet, as shown in the figure. The DO9-DO16 digital input types can be configured as function input or general input in the description column ① of the page.

□ Digit Image: shiboard Image: shiboard Image: shiboard Digital O Image: shiboard Digital O	tal In D ut 5 ut 6 ut 7	Name DO5 DO6 DO7	Function In	Function	Out A Descripti	nalog In	Analog C	Dut M 15	odbus 96 97	Status
↓ Type ↓ Digital O	ut 5 ut 6 ut 7	Name DO5 DO6 DO7			Descripti	on		M 19	odbus 96 97	Status
Digital O	ut 5 ut 6 ut 7	DO5 DO6 DO7						19	96	0
ove Digital O → Digital O → Digital O → Digital O → Digital O → Digital O → Digital O	ut 6 ut 7	D06 D07						19	97	
ngram Digital O pertace Digital O tog Digital O	ut 7	DO7								
Digital O								19	98	0
.og Digital O	ut 8	DO8						19	99	0
	ut 9	DO9			Digital O	.t 🔨	• 1	20	00	1
Digital O	ut 10	DO10			Digital (Dut n Out		20	01	1
Digital O	ut 11	D011			Function	Οι 🗸		20	02	1
Digital O	ut 12	DO12			Digital O	ut ~		20	03	0

Similarly, if each general digital output is selected as function output, the digital output of this path is displayed as disabled on the I/O general output page, and the digital status of each path configured as function output is displayed on the function output sub-tab page. For example, DO9, DO10, DO11, and DO12 are configured as function output. The following figure shows the function output TAB page of the I/O subpage.

UCTECH ROBOT		1/0	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out Ana	log In Ana	alog Out		
P	Туре	Name		Description			Modbus	Status
asnboard ↔	Function Out 2	fun_io_out2	→ 1	Idle	•	→ ②	169	1
Move	Function Out 3	fun_io_out3		Idle		9	170	1
Program	Function Out 5	fun_io_out5		Idle Running	3	♦ ④	172	1
₽ nterface	Function Out 6	fun_io_out6		Paused			173	1
Ë Log	Function Out 7	fun_io_out7		Finish	ect profinet		174	1
ලි Setting				Home Collision Auto mod	de			
024-02-21								

In the same way as the function input TAB, click the function output name, and an ordinary virtual keyboard is displayed. You can modify the default name of the function output. After the default function output name is changed, icon (1) in the above figure is displayed on the right of the name display box. Click the icon to restore the function output name to its default name.

Click the corresponding function output icon (2) in the figure, the function Settings selector, icon (3) and icon (4) will be displayed, and the function settings of the function output can be selected. In the display function selector drop-down box, select the function item that the function output wants to set. Click the icon (4) to determine the selected function item. You can also deselect the selected feature by clicking icon (3). When the function output signal is triggered, the set function is started. Currently, the function output supports the following functions: idle state, program running state, pause state and program ending state, profinet disconnect, Home position, collision, automatic mode, not powered on, not enabled, robot arm moving, ethernet/ip disconnect.

The analog input interface can monitor 2 analog input signals, as shown in the figure. Similarly, click the analog input signal name display box to modify the signal name. After modifying the analog input default name, icon ① in the figure will be displayed on the right side of the name display box. Click the icon to restore the analog input name to the corresponding default name. And the analog input signal can be explained in the description column icon ② to select the voltage input or current input.

Ena	ble Project *project_mo	D Install Vertical	Tool def Okg	Obj default 1009	JOG Globs 6 Joint J 1	al Speed 00% Manual	Real Collision	Check A 0d3d
AUCTECH ROBOT		1/0	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out	Analog In	Analog Out		
Dashboard	Туре	N	lame		Description		Modbus	Data(mA/V)
	Analog In 1		AI_C1 (D	Current In V		72	0.00
Move	Analog In 2		AI_C2		Current In	→ 2	73	0.00
Program					Voltage In			
C Interface					Current In			
Ë								
Log ເຈີ								
Setting								
2024-02-21 11:04:19								

The analog output interface can monitor 2 analog output signals, as shown in the figure. Similarly, click the analog input signal name display box to modify the signal name. The operation is similar to the analog input described above and is not repeated here. And the analog output signal can be explained in the description column configuration selection, you can choose the voltage output or current output.

Ena	ble Project *project_mo.	Install Vertical	Tool def 0kg	Obj default 1009	JOG Global S % Joint J 1009	Manual	Real Collision	Check A 0d3d
AUCTECH ROBOT		1/0	Register	CCI	TCI	TCP/IP	Industrial Bus	
	Digital In	Digital Out	Function In	Function Out	Analog In Ar	alog Out		
	Туре	N	ame		Description		Modbus	Data(mA/V)
↔	Analog Out 1		AO_V1		Voltage Out ~		84	0.00
Move	Analog Out 2		AO_V2		Voltage Out 🔿		85	0.00
Program					Voltage Out			
C Interface					Current Out			
¢								
Setting								
2024-02-21 11:07:03								

12.2. Register

The register subpage is similar to the I/O subpage. At the top of the page are labels for different types of input and output. There are eight types of input: functional input, functional output, Bool input, Bool output, Word input, Word output, Float input and Float output. Clicking different tabs toggle displays 8 types of input or output data information.

The register functional input interface can monitor the state information of the robot's internal 16-channel functional input registers, as shown in the figure. As with the function input of the I/O subpage, the function input name can be modified and restored after modification, and the register signal can be set to a specific function. The current register function input support is the same as the function input support in the above I/O subpage.

Ena	ble Project_r	no Install Vertical	Tool def Okg	Obj default 100%	JOG Globa Joint J 1	Manual	Real	lision (r 1 ⊭	Check
AUCTECH ROBOT		I/O	Register	CCI	TCI	TCP/IP	Industrial	Bus	
	Function In	Function Out	Bool In	Bool Out	Word In	Word Out	Float In	Float	Out
Ţ	Туре	Name		Description			Mod	bus	Data
Dashboard	Function In 1	fun_reg_in1		Undefine 🔨			C	í.	0
Move	Function In 2	fun_reg_in2		Undefined			1		0
Program	Function In 3	fun_reg_in3		Pause			2		0
C Interface	Function In 4	fun_reg_in4		Stop Teach			3		0
H Log	Function In 5	fun_reg_in5		Collision Re PowerOn	set		2		0
ری Setting	Function In 6	fun_reg_in6		Enable			Ę		0
	Function In 7	fun_reg_in7		Undefined	۲		e		0
	Function In 8	fun_reg_in8		Undefined	0		7		0
2024-02-21 11:09:15	Function In 9	fun_reg_in9		Undefined	0		8		0,

The register function output interface can monitor the state information of the 16-channel function output registers inside the robot, as shown in the figure. As with the function output of the I/O subpage, the function output name can be modified and restored after modification, and the register signal can be bound to a system-specific predefined state quantity. At present, the number of binding states supported by the output of register function are: idle state, program running state, pause state and program ending state, profinet disconnect, Home position, collision, automatic mode, not powered on, not enabled, robot arm moving.

Ena	ble Project_mo	Install Vertical d	Tool lef Okg	Obj default 100%	JOG Glo Joint J	100% Manual	Real Collision Real Check A Od3d
AUCTECH ROBOT		1/0	Register	CCI	тсі	TCP/IP	Industrial Bus
	Function In	Function Out	Bool In	Bool Out	Word In	Word Out Flo	Pat In Float Out
	Туре	Name		Description		Modbus	Data
¢	Function Out 1	fun_reg_out1		Undefined		16	0
Move	Function Out 2	fun_reg_out2		Undefin	ed	17	0
Program	Function Out 3	fun_reg_out3		Running		18	0
C Interface	Function Out 4	fun_reg_out4		Paused Finish		19	0
É Log	Function Out 5	fun_reg_out5		Disconne	ect profinet	20	0
کی Setting	Function Out 6	fun_reg_out6		Collision	٣	21	0
	Function Out 7	fun_reg_out7		Undefined	۲	22	0
	Function Out 8	fun_reg_out8		Undefined	۲	23	0
2024-02-21 11:10:56	Function Out 9	fun_reg_out9		Undefined	(@)	24	0 💌

The Register BOOL input screen displays state information for 64-channel Boolean input registers, as shown in the figure. This interface can modify the register name and restore after modification, and cannot set specific function items.

The Register BOOL output screen displays the state information of 64-channel Boolean output registers. Similarly, this interface can only modify the register name and restore it after modification, and no specific function can be set.

Register Word input and Float input interface display the state information of 32-way byte type input register and 32-way floating point type input register, respectively. They can only modify the register name and restore after modification, do not have the specific function of setting, nor can perform operations to the data column data display box.

Register Word output and Float output interface display the state information of 32-way byte type output register and 32-way floating point type output register respectively. Similar to the register Bool output interface, they can modify and restore the register name, as well as perform operations to the data column data display box.

Ena	ble Project *project_mo.	Install Tool Vertical def Okg de	Obj JOG Gle afault 100% Joint J	100% Manual Re	collision
CTECH ROBOT		I/O Register	ссі тсі	TCP/IP In	dustrial Bus
	Function In	Function Out Bool In	Bool Out Word In	Word Out Float I	n Float Out
	Туре	Name	Description	Modbus	Data
¢	Word In 1	word_reg_in1		8	0
Move	Word In 2	word_reg_in2		9	0
Program	Word In 3	word_reg_in3		10	0
C nterface	Word In 4	word_reg_in4		11	0
É Log	Word In 5	word_reg_in5		12	0
 Setting 	Word In 6	word_reg_in6		13	0
	Word In 7	word_reg_in7		14	0
	Word In 8	word_reg_in8		15	0
24-02-21 L:12:39	Word In 9	word_reg_in9		16	0

12.3. CCI

The CCI subpage is to configure the control cabinet 485 port, CAN port and encoder interface, mainly to set the baud rate and formula of the control cabinet 485 port and CAN port, and to set the encoder type. As is shown in the figure.

H ROBOT		I/O	Register	CCI	TCI	TCP/IP	Industrial Bus
	Controller 485						
	Baudrate	115200					
D	Recipe	No Recipe		Recipe Manage	ement		
	Controller CAN	N					
Move	Baudrate	500kbps					
	Mode	Standard	~				
đ	Recipe	No Recipe	(×)	Recipe Manage	ement		
terface	Encoder						
Ö	Encoder Type	AB	~	Value 0			
Log							
ŵ							
etting							

The baud rate of port 485 of control cabinet can be selected in the baud rate selector drop-down box. 485 ports support configuration baud rates are: 9600, 19200, 38400, 57600 and 115200. Select the formula file for the port in the formula selector drop-down box.

TECH ROBOT		I/O	Register	CCI	TCI	TCP/IP	Industrial Bus
	Controller 485						
	Baudrate	115200	×				
☐ shboard	Recipe	No Recipe	^	Recipe Mana	gement		
	Controller CAN	No Recipe					
Move	Baudrate	ууу					
	Mode	Standard					
c	Recipe	No Recipe	~	Recipe Mana	gement		
terface	Encoder						
Ö	Encoder Type	AB	~	Value 0			
Log							
¢							
Setting							

As shown in the figure above, the drop-down box displays the name of the formula file, which is user-defined. Click the "formula management" button to pop up the formula management list box. The interface displays the existing formula files in the current project, and the user can add, delete and edit the formula.

Ena	Able Project Manual Install Tool Obj JOG Global Speed Manual Real Collision	ieck A
AUCTECH ROBOT	Recipe Management	+
	ууу	団
Dashboard		
⇔ Move		
Program		
C Interface		
E Log		
Setting		
2024-02-21 11:19:15		Back

Click any formula file in the formula list, and a pop-up box with "Edit" and "Delete" buttons will appear on the right side. Users can modify or delete the existing formula file.

Enal	Project *project_mo	. Unstall Tool Vertical def 0	Okg default 100%	JOG Global S Joint J 1009	Manual R	eal Collision Check A
AUCTECH ROBOT	Name Type	Not realtime	Create	e recipe		
Dashboard	Input		+	Output		+
↔ Move	Head		+ -	Head		+ -
Program	Tail		+ -	Tail		+ -
2024-02-21 11:20:43						Cancel
Enak	Project *project_mo	Vertical def 0	obj default 100%	JOG Global S Joint J 1009	Manual R	eal Collision Check A
AUCTECH ROBOT	Recipe Managem	ient				+
□ □ ↓ Move ✓> Program ↓ Interface ↓ Log Setting	WY WY					
2024-02-21 11:26:15						Back

The baud rate and formula Settings of CAN port of the control cabinet are similar to those of 485

port, which are not described here. CAN ports are configured at 10kbps, 20kbps, 50kbps, 100kbps, 125kbps, 250kbps, 500kbps and 1000kbps. There are two modes of CAN configuration: standard frame and extended frame.

There are two types of control cabinet encoder configuration, namely AB and ABZ. The number of encoder pulses recorded by the current system is displayed on the right side of the encoder. When the encoder type is selected as ABZ, the number of encoder lines should be set, which is 0 by default.

CTECH ROBOT		I/O	Register	CCI	TCI	TCP/IP	Industrial Bus
	Controller 485						
	Baudrate	9600					
□ ashboard	Recipe	No Recipe		Recipe Manage	ement		
ct.	Controller CAN	N					
Move	Baudrate	10kbps					
Program	Mode	Standard	~				
\$	Recipe	No Recipe		Recipe Manage	ement		
nterface	Encoder						
	Encoder Type	ABZ	~	Value 0			
	Resolution	0					
रिङ्गे Setting							

12.4. TCI

The TCI subpage displays the IO information of the end board and the related information of the end reusable interface. The end board has 2 tool inputs and 2 tool outputs. Like the general input/output signals in the I/O subpage, the interface can modify the name of the tool input and output and restore the default name after modification. You can also set the output state of the tool, 0 for low level, 1 for high level, as shown in the figure.

Enat	Project_m	o Install Vertical	Tool def 0kg de	obj JOG efault 100% Joi	int J Global	Speed 0% Manual	Real Collision	Check A
AUCTECH ROBOT		I/O	Register	ССІ	TCI	TCP/IP	Industrial Bus	
	Tool IO inform	ation	Name	D	escription		Modbus	Status
Dashboard	Tool In1		Tool_DI1				208	0
↔ Move	Tool In2		Tool_DI2				209	0
Program	Tool Out1		Tool_DO1	Ρ	NP pattern	*	216	0
₽ Interface	Tool Out2		Tool_DO2	Ρ	NP pattern		217	0
Ë Log	ResuePort Function	Analog input	~					
(3) Setting	Tool_Al1	0.00 V N	lodbus: 88					
	1001_412	0.00 V	1041043, 03					
2024-02-21 11:4 3 :13								

Before use, the user can configure the end interface to function as an analog input or 485 interface, and obtain the corresponding signal according to the configuration. As shown in the figure above, when the terminal interface function is set as analog input, the data of the 2 analog voltage inputs and the corresponding Modbus addresses will be displayed in real time. If the end port is set to 485, the interface displays the baud rate and configuration information related to the formula, as shown in the following figure.

ECH ROBOT		I/O	Register	ССІ ТСІ	TCP/IP	Industrial Bus	
	Tool IO info	rmation					
	Туре		Name	Description		Modbus	Status
C. Shboard	Tool In1		Tool_DI1			208	0
⇔ Move	Tool In2		Tool_DI2			209	0
rogram	Tool Out1		Tool_DO1	PNP pattern	•	216	0
	Tool Out2		Tool_DO2	PNP pattern		217	0
icinicici	ResuePort						
E Log	Function	Interface 485	~				
ø	Baudrate	9600	~				
Setting	Recipe	No Recipe		Recipe Management			

The end 485 interface can set baud rate and formula. The specific operation is similar to the setting of port 485 of the control cabinet in the CCI sub-page, which is not described here.

12.5. TCP/IP

The TCP/IP sub-page mainly displays the external TCP/IP connection information of the robot. It can be divided into two parts: server and client.

Server: The robot acts as a server to monitor ports 2000, 2001, and 2011. The page will display the system IP, the connection status of the 2000 and 2001 ports, and the number of connections.



The 2000 port can receive the control commands of the robot. The area at the bottom of the page will display the information received on port 2000.

The 2001 port will send out the current status information of the robot at a frequency of 10Hz. The frequency can be set, and the range is 1hz-100hz.

The 2011 port is a UDP port, and the robot can be controlled through the data items configured in the formula.

For detailed usage of the 2000 and 2001 ports, please refer to the external communication interface description of the collaborative robot.

Please refer to the formula instructions for the use of the 2011 port.

Power	off Project Install Vertical	Tool def Okg	Obj default 100%	JOG Global Spe Joint J 100%	ed Manual Real Collision	Check A
AUCTECH ROBOT	I/O	Register	CCI	тсі	TCP/IP Industrial Bus	
	Server	IP 192	.168.12.43	Client		Ð
Dashboard	Port 2011(UDP)	Recipe N/A	Ø	test	TCP/192.168.1.123	3000
⇔ Move	Port 2001 Status unconnect	ed Number 0 fr	eq(Hz) 8	unconnected	Recipe N/A	団
Program	Port 2000 Status unc	onnected N	lumber 0			
₽ Interface	Data received in Port 2000		⊖ Clear			
Log						
Setting	50 10	无数据				
2024-02-21 11:49:50						

Client: The robot acts as a client to connect to external devices. The page will display all the

connection information of the current robot as a client. The connection information includes: name, type (TCP/UDP), port number, and recipe. Click the formula button to set the formula, click the icon is below the port number to delete the added client. The connection can be established in the program through the script or by clicking the icon above the port number.

Click \bigcirc to pop up the following dialog box, enter the connection information and click "OK" to create a connection.



12.6. Industrial Bus

The industrial bus subpage mainly contains three subtabs: Modbus/TCP, Profinet, Ethernet/IP.

The robot can monitor the connection status of external Modbus clients as a Modbus server in the power-on state. The Modbus/TCP sub-page displays information and operations related to the external Modbus/TCP communication interface of the robot, as shown in the figure.

Enabl	e Project Insta *project_mo Vertic	ll Tool cal def Okg	Obj default 100%	JOG Global Sp Joint J 1009	Manual Real Collision	Check A 0d3d A
AUCTECH ROBOT	I/O	Register	CCI	TCI	TCP/IP Industrial Bus	
	Modbus/TCP Profine	t Ethernet/IP				
Dashboard	Server					
	IP	Port		Connect state	Modbus Server	
Move	192.168.12.43	502		unconnected	Enabled	
Program	Client				⊕ ^{Ad}	d device
C Interface						
Ë Log						
Setting						
2024-02-21						
13:05:06						

The IP, port, connection status and other information of Modbus server system are displayed at the top of the interface. Click the "Add Device" button, and a virtual ordinary keyboard will pop up. Enter the IP address of the external Modbus client device, such as 127.0.0.1, and the interface will display the IP address of the Modbus device and relevant operation buttons.

Enable	Project *project_mo	tall Tool tical def 0kg	Obj default 100% J	G Global Spee oint J 100%	d Manual Real	
AUCTECH ROBOT	I/O	Register	CCI	TCI	TCP/IP Indu	strial Bus
	Modbus/TCP Profin	Ethernet/IP				
Dashboard	Server					
+	IP	Port	C	onnect state	Modbus Se	rver
Move	192.168.12.43	502	u	nconnected	Enabled	
Program	Client					⊕ Add device
다 Interface	Modbus Device : 1	92.168.218.163				十一回
E Log	Name T	ype sla	ve Ac	ldress D	Data	Operation
وې Setting						
2024-02-21 13:10:40						

Click the icon +, and a new Modbus node window pops up, as shown in the figure. Enter the node name, node type, slave number, offset address, length, and click "OK" button to create successfully. Among them, there are four types of nodes: read-only coil, read-write coil, read-only register and read-write register.

Enab	le Project V	nstall To ertical def	ol Obj Okg default 1009	JOG Global Spe 6 Joint J 100%	Manu	al Real Collision Check A
AUCTECH ROBOT	I/O	Reg	gister CCI	TCI	TCP/IP	Industrial Bus
	Modbus/TCP Pr	Create sig	nal		×	
Dashboard	Server	IP	192.168.218.163			
÷	IP	Name	node			Modbus Server
Move	192.168.12.43	Туре	Input status			Enabled
Program	Client	Slave	0		_	⊕ Add device
\$	Modbus Device	Slave			\leq	+ 🗇
- Hienace	Name	Offset	0		_	Operation
Log		Length	1			
کې Setting						
				Cancel	nfirm	
		e				
2024-02-21 13:13:44						

When creating a node, the length is 1 by default. When the length value is 1, a single node is created. If the length is greater than 1, multiple nodes are created in batches. If the length is set to 3, add underscores to node names according to the length, that is, node_1, node _2, and node _3, and the addresses are 0, 1, and 2 in sequence, as shown in the figure.

Enable	Project *project_mo	Vertical def 0	kg default	JOG Global 00% Joint J 100	Manual Real	Collision Check Od3d
AUCTECH ROBOT	i i	/O Regist	er CCI	TCI	TCP/IP Indus	strial Bus
	Modbus/TCP	Profinet	et/IP			
D ashboard	Server					
•	IP	Port		Connect state	Modbus Ser	ver
↔ Move	192.168.12.43	502		unconnected	Enabled	
Program	Client					⊕ Add device
; 그 Interface	Modbus Devic	e : 192.168.218.1	63			十一回
Ë	Name	Туре	slave	Address	Data	Operation
Log	node_1	Input status	0	0	N/A	区面
() Setting	node_2	Input status	0	1	N/A	区间
	node_3	Input status	0	2	N/A	区间
2024-02-21 13:34:00						

After the new node is created, the interface will display the corresponding information of the newly defined node. When the data column has no corresponding data, "N/A" is displayed. Users can modify and delete each node. Click the button of the corresponding node row, and the pop-up window is similar to that when a new node is created, except that the node name cannot be changed, the length is not displayed, and the node type, slave number, and offset address can be changed.

The Profinet and Ethernet/IP subtabs are mainly used to display the connection status, port settings and disconnection processing configuration, including the program response action and the corresponding configuration of the function output IO. Port settings include whether to enable and configure the corresponding port name. Program response selector options are: undefined, paused program, stop program; The function DO output selector drop-down options include: undefined and undefined output signal names in the function output signal in the I/O subpage. The DO function configured for Profinet and Ethernet/IP disconnect on each sub-label page is synchronized with the function output configuration on the I/O sub-page.

	ble Project Install Vertical def.	Tool Obj JC Okg default 100% J	oint J Global Spe 0int J	Manual	Real Collision Check A
AUCTECH ROBOT	I/O F	Register CCI	тсі	TCP/IP	Industrial Bus
	Modbus/TCP Profinet Et	thernet/IP			
Dashboard	Profinet unconnect Port Setting N Disconnect Program React Function DO	tion Undefined Undefined			
2024-02-21 13:37:15					
Enal	*project_mo Vertical def.	0kg default 100% J	G Giobal Spe	Manual	Deal Collision Check
			oint J 100%	Manual	Real L1 C Od3d
AUCTECH ROBOT	VO F	Register CCI	TCI	TCP/IP	Industrial Bus
ALCTECH ROBOT	I/O F Modbus/TCP Profinet Et Ethernet/IP unconnect Port Setting OFF Disconnect Program React Function DO	Register CCI hernet/IP	Implicit Implicit TCI Implicit	TCP/IP	Industrial Bus

13. Log Page

Click "Log" in the navigation bar, it will enter the log page. The log page is to record relevant information triggered during the operation of the robot, which can be divided into fatal, error, warning and information. The log information in this page is the same as the log information in the overview page.

Log information can be an important source of tracking for diagnosing problems and processing historical data. When the relevant error alarm information occurs during the operation of the robot, the error alarm reason can be inquired in the log page for inspection. When the problem cannot be solved, please contact the relevant technical support personnel in time and inform the log information so that the problem can be solved quickly.

Enal	ble Project_mo	Install Tool Obj Vertical def Okg defau	ult JOG Global Speed Manua	Real Collision Reak A
AUCTECH ROBOT	Log		Level All	V History logs
	02-21-13:01:43	info Robot state changed:Enable		A
	02-21-13:01:39	info Robot state changed:Disable		
	02-21-13:01:39	info Safety state changed:Run		
Dashboard	02-21-11:51:17	error 0x000A0001 Tcp socket open f	fail:socket open timeout	
æ	02-21-11:49:05	info Robot state changed:Poweroff		
Move	02-21-11:49:05	info Safety state changed:Wait		
	02-21-11:49:05	info Robot state changed:Disable		
Program	02-21-11:48:52	error 0x000A0001 Tcp socket open f	fail:socket open timeout	
_	02-21-11:48:38	error 0x000A0002 Tcp socket open f	fail:The entered name, IP or port number is incor	rect
پ Interface	02-21-09:41:55	info Program state changed:Stoppe	ed	
	02-21-09:41:55	info Program state changed:Stoppin	ng	
	02-21-09:40:43	info Program state changed:Runnin	ng	
Log	02-21-09:37:35	info Program state changed:Stoppe	ed	
¢	02-21-09:37:35	info Program state changed:Stoppin	ng	
Setting	02-21-09:36:30	info Program state changed:Runnin	ng	
	02-21-09:36:19	info Program state changed:Stoppe	ed	
	02-21-09:36:17	info Program state changed:TaskRu	unning	
	02-21-09:36:12	info Program state changed:Stoppe	ed	
2024-02-21 13:40:54	02-21-09:36:11	info Program state changed:Stoppin	ng	
	02-21-09:34:36	info Program state changed:Runnin	ng	~

Clicking the "Export History Log" button, a list of all history log files will be displayed. You can export one of these log files or all of them. Clicking the "View Current Log" button will take you back to the current log page.

Enab	Project Manual Real Collision Check A La Collision La Check A	
AUCTECH ROBOT	History logs Export Export all Current Log	
	safety_param.log	
	process_logger_2024-02-21	
Q	process_logger_2024-02-20.tar.gz	
Dashboard	process_logger_2024-02-19.tar.gz	
÷	process_logger_2024-01-09.tar.gz	
Move	process_logger_2024-01-08.tar.gz	
	process_logger_2024-01-05.tar.gz	
Program	process_logger_2024-01-04.tar.gz	
2	process_logger_2024-01-02.tar.gz	
Interface	process_logger_2023-12-27.tar.gz	
Ë	process_logger_2023-12-26.tar.gz	
Log	process_logger_2023-12-22.tar.gz	
Setting	process_logger_2023-12-21.tar.gz	
Gotting	process_logger_2023-12-20.tar.gz	
	process_logger_2023-12-19.tar.gz	
	process_logger_2023-12-18.tar.gz	
2024-02-21	process_logger_2023-12-16.tar.gz	
13:43:11	process_logger_2023-12-12.tar.gz	~

14. Settings Page

Click "Settings" in the navigation bar to enter the Tools Settings subpage under the Settings page by default. There are seven subpages on the Settings page: Tool Settings, Workpiece Coordinate System, Installation Settings, Variable Settings, Safety Settings (read Chapter 5), Other Settings, and Plugins.

Ena	able *	Project project_mo	Install Vertical def	^{Tool} . Okg	Obj default	JOG 100% Joint J.	Global Speed 100% Manual Real Collision 100% Check A
AUCTECH ROBOT		Tool	User Ins	stall	Variable	Safety	System Event Other Bg-Script Plugins
	TCP					Add	
Dashboard	Index	Name	Position	Mass	Centroid	Action	
A	1	default	0,0,0,0,0,0	0	0,0,0	•••	
↔ Move	2	TCP2	100,100,100,0, 0,0	0	0,0,0	•••	
Program	3	TCP1	0,0,100,90,0,0	0	0,0,0	•••	• i
\$	4	TCP3	100,0,0,0,90,0	0	0,0,0	•••	Θ
	5	TCP	100,100,100,0, 90,0	0	0,0,0	••• Default	
Log							
Setting							
							The second secon
2024-02-21 14:07:13							

15.1. Language Settings

In the language setting, you can switch the language, select the language you need to set, click "OK", and the language setting is successful.

Ena	ble *project	mo Install Wortical d	Tool Oka d	Obj ofault	30G % loint 1	Global Speed	Manual	Real Collision	on R Check
AUCTECH ROBOT	Tool			System Set	ting			× I-Script	Plugins
	Boot Setting	Language							
_		Network	○ 简体中文	English	○ 日本語	🔘 ไทย	○ 한국어		+
Dashboard	Home Settir	Upgrade					Confirm		•••
	Tool Setting	Time Setting							••
Move	Import Mode	Plugin Setting							
Program	Interference	Arm Config							
\$		Cloud Setting							
Interface		Robot Auth							
Log									
ø									
Setting									
		Restore factory							
2024.02.22									
09:09:09									

14.1. Workpiece Settings

In the workpiece coordinate system setting, the offset of the workpiece coordinate from the world coordinate system can be set, which is similar to the tool setting page. On the left side of the page is the information about the set workpiece coordinate system, in which the workpiece coordinate system named Default is the system's default workpiece coordinate system. On the right is a 3D model of the robot.

Ena	able	Project project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	Global Spec	Manual	Real Collision	Check A Od3d A
AUCTECH ROBOT		Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	User					Add	N S	r D		
Dashboard	Index	Name	Positi	ion		Action				
Daonaboard	1	default	0,0,0,	0,0,0		••• Default				
↔ Move	2	wobj1	100,0	,0,0,90,0		•••				
	3	wobj2	100,1	00,100,0,0,0		•••	Ŧ			
_	4	wobj3	0,100	,0,0,0,9		•••				
لي Interface	5	wobj	200,0	,0,0,0,90		•••	Θ			
Č Log										
æ										
Setting								// [++
_							\square		Xine	
2024-02-21 14:35:56										

Click the "Add" button, and a new workpiece coordinate system window will pop up. The name of the workpiece coordinate system can be set. The position of the workpiece coordinate system related to the world coordinate system X, Y, Z and the corresponding positive direction of X, Y, Z axis (RX, RY, RZ) can be set. After setting the workpiece coordinate system, the workpiece setting page will display the corresponding coordinate system for the workpiece. You can save multiple workpiece coordinate system Settings.
Enab	Project *project_mo	Install Vertical	Tool def 0kg	Obj default	Global Speed	Manual	Real Collision	Collision Check	
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Name				Add User				
Dashboard	Coordinate							Us	ser calibration
⇔ Move	X(mm)	0					RX(°)	0	
	Y(mm)	0					RY(°)	0	
ද ද	Z(mm)	0					RZ(°)	0	
Interface									
Log									
Setting									
004 00 01								Cancel	Confirm
14:50:26								Cancer	Commit

Similarly, in addition to manually setting the workpiece coordinate system, the workpiece coordinate can also be calibrated. Click the "Workpiece coordinate system calibration" button to enter the workpiece coordinate system position calibration phase of the workpiece coordinate system calibration process, which is displayed as follows:



Set O point as the origin of the workpiece coordinate system, and P1 point can be selected as the tool coordinate system X+ direction/Y+ direction/Z+ direction. The options corresponding to point P2 are O-P1-P2 as the tool coordinate system XOY plane /XOZ plane, O-P1-P2 as the tool coordinate system XOY plane /YOZ plane, and O-P1-P2 as the tool coordinate system XOZ plane /YOZ plane. For example, to determine the posture of the tool coordinate system according to the O-X-Y-Z axis: Point O is the position of the current tool position, first move the tool position in the direction of the desired workpiece coordinate system X+ to point P1, and then move the tool position in the direction of the desired workpiece coordinate system Y+ to point P2.

Take P1 as an example, click the "Teach" button after P1, and the interface will jump to the mobile page. After the mobile robot reaches the target point, click "Record current position", and the interface will jump back to the interface of the current teaching marker point. After teaching a marker point, the red dot behind the corresponding marker point will turn green. You can also move the robot directly to the target point by pressing the physical button of teach pendant and click "Record current point" directly. During the teaching process, if the current teaching point does not meet the restrictions, the following message will be displayed:



After setting the instruction O, P1 and P2, click the "Next" button to enter the calibration completion stage as shown below, and the calibration result will be displayed. The user can judge the quality of the calibration through the error information, so as to decide whether the coordinate system needs to be loaded. If you need to load this coordinate system, click "Confirm" button, otherwise click "Cancel" button, or click "Previous" to return to the teaching point again.

Enabl	Project Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	I ⁽	Global Speed 100%	Manual	Real Collisio	Check A
AUCTECH ROBOT	Tool User	Install	Variable	Safety	Syst	tem Event	Other	Bg-Script	Plugins
			U	ser calibrat	ion				
Dashboard	Us	er position				Co	omplete ca) alibration	
Dashboard				X(n	nm)	-460.009	RX(°)	-90	
↔ Move				Y(n	nm)	347.185	RY(°)	7.375	
INDVE		(C		Z(n	nm)	916.436	RZ(°)	114./13	
Program			0						
け Interface		1	0						
Log		0							
(3) Setting									
	Please make sure that the paramete	rs are accurate							
²⁰²⁴⁻⁰²⁻²¹ 14:58:28						Canc	el	Prev	Finish

14.3. Installation Settings

The installation and setting sub-page is mainly to set the installation direction of the robot, which can be set as vertical installation, horizontal installation, flip installation and any one of the customization. The customization method is that the user sets the robot tilt Angle around the base and the robot rotation angle around the base, and the setting range is -180° to 180°. The 3D model will also change the direction of the installation when changing the installation mode. After setting the installation direction of the robot, click the "Set" button on the upper right of the interface, and the installation method is displayed in the installation box in the status bar.



14.2. Tool Settings

On the left side of the tool setting sub-page is the information about the set tool coordinate system. The tool coordinate system named Default is the system's default tool coordinate system. On the right is a 3D model of the robot.



Click the "Add" button, and the new tool coordinate system window pops up. The tool coordinate system name can be set, the position of the tool coordinate system X, Y, Z at the end of the robot and the corresponding positive direction of X, Y, Z axis (RX, RY, RZ) can be set, and the mass and centroid position of the tool can be set at the same time, or the mass and center of mass can be identified through the load identification function. For more information on load identification, please refer to the AUCTECH CORE Terminal Force Control Function Operation Manual. You can set the inertia parameters of the tool and set the corresponding xx, xy, xz, yy, yz, zz elements of the inertia matrix.

TECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other B	g-Script Plugins
	Name				Add TCP			
С shboard	Coordinate							TCP calibratio
↔ Move	X(mm)	0					RX(°)	0
	Y(mm)	0					RY(°)	0
ogram ස	Z(mm)	0					RZ(°)	0
erface	Payload messag	ge						Load Calibration
E Log	Mass(kg)	0		Inertia	tensor(kg*mm ²) X	Y	Z
ø	CentroidX(mm)	0			×	0	0	0
etting	CentroidY(mm)	0			Y		0	0
	CentroidZ(mm)	0			Z			0

After setting the tool coordinate system, the tool setting page will display the corresponding tool coordinate system, as tool coordinate system tcp1 shown in the figure. You can save multiple tool coordinate system Settings.

Click the operation column icon \cdots for each row of tool coordinate system to display the coordinate system box. When the corresponding tool coordinate system is set to the default coordinate system, the word "Default" will be displayed after icon \cdots .

When the corresponding tool coordinate system is set to the current coordinate system, the name of the coordinate system and the quality of the tool are displayed in the tool box of the status bar. Click Modify to modify the parameters related to the tool coordinate system, or click Delete to delete the tool coordinate system. Note: The default or current tool coordinate system cannot be deleted!



After selecting different tool coordinate systems, the 3D model area will display the position of the coordinate system accordingly. Red represents the X-axis, green represents the Y-axis, and blue represents the z-axis.

Besides setting the tool coordinate system manually, it can also calibrate the tool coordinate system. There are two ways to calibrate the tool coordinate system: 4-point calibration and 6-point calibration.



First of all, it is necessary to attach the tool point to the fixed point of the calibration needle in different posture, that is, to teach the P1-P4 points well, and it is recommended that the posture Angle change between the points should be between 45° and 90°, which is conducive to improving the accuracy of TCP calibration. Take point P1 as an example, click the "Teach" button at point P1, and the interface will jump to the mobile page. After the mobile robot reaches the target point, click "Record current position", and the interface will jump back to the interface of the current teaching mark point. After teaching a mark point, the red dot behind the corresponding mark point will turn green. You can also move the robot directly to the target point through the physical button of teach pendant and click "Record current point" directly. During the teaching process, if the current teaching point does not meet the restrictions, the following message will be displayed:



After teaching all P1-P4 points in turn, click the "Next" button at the lower right corner of the page to enter the TCP posture calibration stage. TCP posture calibration has two forms: custom and two-point Settings, the default is custom, as shown below:

Enabl	e Project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J.	Global Spee	Manual	Real Collisio	n Check A Od3d A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
				т	CP calibratio	on			
Dashboard	тс	P position			TCP posture			Complete calibra	tion
4					• •	Custom		Two point setting	
Move				510	RX(°) 0			
Program			-	6	RY(°) 0			
\$			>>	17	RZ(°) 0			
Interface	+	T		\checkmark					
Log									
€} Setting		ł							
	Please enter the axial of corresponding to the to	leflection angle ol, and the rota	e of the flange coor ation reference dire	dinate system ction is dynamic	ZYX				
2024-02-21 14:21:21						C	ancel	Prev	Next

After setting the axial deflection Angle of the tool corresponding to the flange coordinate system, click the "Next" button to enter the calibration completion stage, and the calibration results and error information will be displayed as shown below. The user can judge the quality of the calibration through the error information, so as to decide whether the coordinate system needs to be loaded. If you need to load this coordinate system, click "Confirm" button, otherwise click "Cancel" button, or click "Previous" to return to the teaching point again.



When "Two-point setting" is selected in the TCP posture calibration phase, the following figure is displayed: The options of the P5 point are O-P5 as the tool coordinate X+ direction/Y + direction/Z+ direction, the corresponding options of the P6 point are O-P5-P6 as the tool coordinate XOY plane /XOZ plane, O-P5-P6 as the tool coordinate XOY plane /YOZ plane, and O-P5-P6 as the tool coordinate XOZ plane /YOZ plane. For example, to determine the posture of the tool coordinate system according to the O-X-Y-Z axis: Point O is the position of the current tool position, first move the tool position in the direction of the desired tool coordinate system X+ to point P5, and then move the tool position in the direction of the desired tool coordinate system Y+ to point P6.



After setting the instruction P5 and P6, click the "Next" button to enter the calibration completion stage, and the calibration result and error information will be displayed. The user can judge the quality of the calibration through the error information, so as to decide whether the coordinate system needs to be loaded. If you need to load this coordinate system, click "Confirm" button, otherwise click "Cancel" button, or click "Previous" to return to the teaching point again.

14.4. Variable Settings

The variable setting sub-page mainly creates and displays information about system variables. Information to display system variables is: name, type, initial value, current value, and a button to modify or delete each variable. There are 13 types of variables, which are boolean, number, string, num_list, pose, joints, pose_list, joints_list, timer, pose_speed, pose_asc, joint_speed and joint_acc. The initial value and the current value represent the initial value when the variable is defined and the process value during the application of the program, respectively.

Ena	ble Project	mo Ver	tical def Okg	Obj default	JOG 100% Joint J	Global Speed	Manual	Real Collision	Che 0d3	ck A
AUCTECH ROBOT	Tool	Use	r Install	Variable	Safety	System Event	Other	Bg-Script	Plugins	5
	Variable							s	ort	Add
	Name	Туре	Initial			Current			Opera	tion
Dashboard	g_hhh	number	0.19			0.19			Ø	⑪
↔ Move	g_www	joints	{0,0,1.115912,0,-1.57	0796,0}		{0,0,1.115912,0,-1	570796,0}		Ø	団
Program	g_y6	pose	{0.66138494,0.13366 4,-1.720269}	799,0.87904739,	-2.553503,-0.22781	4,-1.720269}	866799,0.87904	739,-2.553503,-0.22	781 🕜	创
E Log										
(2) Setting										
2024-02-21										

Click the "Add Variable" button at the upper left of the interface, and a window to create a new variable will pop up. Enter a variable name, type, and initial value, and click OK. Each variable type marked with a g_{-} , indicating that it is a global variable, and each variable type can be selected as a "persistent variable". When the "persistent variable" check box is checked after the variable type is selected for the new variable, the word " \mathfrak{O} " will appear before the variable name on the page. For example, the added variable aa of type number is a persistent variable. When set to a persistent variable, the system will save the last value each time; Otherwise, the variable is initialized with its initial value.

Ena	ble Project_mo	b Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	J Global Spee	Manual	Real Collision Check A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script Plugins
	Variable	Create va	riable				×	Sort Add
Dashboard	Name	* Name	g_					Operation
\$	g_www	* Туре	boolean		~ 🗆 P	ersistent		
Move	g_y6	Initial	false					9,-2.553503,-0.22781 🗹 🔟
Program								
بي Interface						Cancel	Confirm	
Log								
وي Setting								
2024-02-21 15:16:07								

The initial Boolean value can be false or true; The initial value of the numeric type number is 0, and the variable value can be integer or decimal. The initial value of string is null. The array type num_list is an integer or floating-point array wrapped in curly braces. The pose type is a floating-point array of length 6 wrapped in curly braces. The joints type is a floating-point array of length 7; The pose_list type is a two-dimensional array of floating-point arrays of length 6 wrapped in curly braces; The joints_list type is a two-dimensional array of 7-length floating point array wrapped in curly braces. The timing type timer is an integer array or floating-point array wrapped in curly braces. The variables of end speed pose_speed type, end acceleration pose_acc type, joint angular velocity joint_speed type and joint angular acceleration joint_acc type are also number types in essence, supporting integers and decimals, and each variable type has two unit displays. Each can input a unit variable value after the automatic filling of another unit conversion value. All variable types can be assigned manually, and two types of variables, pose and joint_list, can be initialized and edited by teaching. The pose_list and joints_list variables can be added by teaching.

Ena	ble Project *project_mo.	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	J Global Speed	Manual	Real Collision	Check A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Variable	Create va	ariable				×	s	ort Add
Dashboard	Name g_hhh	* Name	9_						Operation
⊕	g_www	* Туре	pose			ersistent			
	g_y6	Initial			Teach	Record	ve here	9,-2.553503,-0.22	781 🗹 🔟
Interface			m/rad {}						
E							(has shares		
(i) Setting						Cancel	Confirm		
2024-02-21 15:18:37									

Click "Select Position" button, and the interface will jump to the mobile interface. After teaching the required pose, click "Record Current Position", and the interface will return to the new variable window, and record the pose value to the corresponding initial value position. For the display value in mm/deg and m/rad, the display value should be in two units.



In addition to teaching initialization, the user can also click the initialization input box to manually initialize the assignment. The joints type variable creation is similar to the pose type and is not described here.

Ena	ble Project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J.	Global Speed	Manual	Real Collision Check A
AUCIECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script Plugins
	Variable	Create va	riable				×	Sort Add
Dashboard	Name g hhh	* Name	g_					Operation
₽	g_www	* Type	pose_list		✓ □ Pe	rsistent		C t
Move	g_y6	Initial				Teach	Record	9,-2.553503,-0.22781 🗹 🔟
Program			Index Value				Operation	
Interface						Cancel	Confirm	
Log								
 Setting 								
15:24:43								

When creating pose_list variables, the initial value can be added in any way through "Direct addition" or "Teaching addition". By clicking the "Direct addition" button, the serial number, value and operation of the corresponding variables will be displayed at the bottom of the interface. By clicking the $\boxed{2}$ icon in the operation column, a window for editing points will pop up, which is not to be repeated here.

Ena	ble Project_mo	Install Vertical de	Tool Obj f Okg default	JOG Giobal 100% Joint J 100	Speed Manual	Real Collision Check A
AUCTECH ROBBT	Tool	User	Install Variable	Safety System Ex	vent Other	Bg-Script Plugins
	Variable	Cr Edit Po	int		××	Sort Add
Ģ	Name	* N	Tea	ch Record Mov	e here	Operation
Dashboard	g_hhh	* m mm/deg	{-460.789,348.882,764.	225,-113.355,49.053,1		C to
⇔ Move	g_www	m/rad	{-0.461,0.349,0.764,-1.9	78,0.856,1.772}		2 1
visve Program Interface Entropy Control of C	<u>9.</u> y6	Init	Ţ=0.40010003,0.3400024	Cancel C 9,0./10422000,-1.9/10420 Cance	onfirm a Confirm	92.5535030.22781
2024-02-21 15:27:43						

After selecting the pose position, the interface is as follows:

Ena	tble Project	Install Vertical	Tool def 0kg	Obj default	JOG 100% Joint J	I Global Speed	Manual	Real Collision	Check Od3d
	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Variable	Create va	riable				×	5	Sort Add
Dashboard	Name	* Name	g_						Operation
÷	g_www	* Type	pose_list		✓ □ Pe	ersistent			
Move	g_y6	Initial				Teach	Record	9,-2.553503,-0.22	781 🗹 🔟
Program			Index Value	78863 0 34888	249.0.76422506	-1.978425	Dperation		
نې Interface			2 {-0.4585	52303,0.34395	971,0.90704178	8,-1.757386			
E Log									
ري) Setting						Cancel	Confirm		
2024-02-21 15:30:28									

The joints_list variable creation process is similar to the pose_list type and is not described here.

When modifying a variable, click the icon \swarrow corresponding to the variable row. A window for editing variables pops up. The variable type is not modifiable, only the initial value and whether it is a persistent variable can be modified. To delete a variable, click the icon corresponding to the variable row.

Ena	ble Project_mo.	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint	J Global Sp 100%	Manual	Real Collision	Check A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Ever	nt Other	Bg-Script	Plugins
	Variable	Edit varia	able				×	5	Sort Add
P	Name	* Name	g_y6						Operation
	g_hhh g_www	* Type	pose 🗌 Persis	tent					e e
Move	g_y6	Initial			Teach	Record	Move here	9,-2.553503,-0.22	⁷⁸¹ 🗹 🔟
Program			mm/deg {661	.385,133.668,	879.047,-146	.305,-13.053,-			
C Interface			m/rad {0.66	51,0.134,0.879	,-2.554,-0.22	8,-1.72}			
Ë									
- COG						Cancel	Confirm		
Setting									
2024-02-21 15:33:33									

14.5. System Events

The System Events subpage is designed to add additional general event function to the system, allowing users to customize the response to certain events when they occur. At present, there are 9 types of events: analog current input, analog voltage input, program status, register Bool input, register Word input, register Float input, end speed, joint torque and custom event. There are 9 types of response: analog current output, analog voltage output, general output, tool output, pop-up box, running program, register Bool output, register Word output and register Float output.



The event is always triggered by the side. If the event triggering conditions are met, the event will not trigger immediately after the setting. The event will be triggered next time.

	System E	vent						⊕ A
C shboard	Event				Act	ion		
⇔ Move	1.	AI_C1	=	4mA		AO_C1	4mA	区间
rogram	2.	AI_C1 ^	=	∨ 4mA		AO_C1 v	4mA	く 🖻
₽ terface	3.	Al Current Al Voltage Program Status	>	✓ AI_C1 AI_C2		AO_C1	4mA	区间
Log () etting	4.	Reg Bool In Reg Word In Reg Float In	>			AO_C1	4mA	2 1

	System E	vent								⊕ Ac
L. Ashboard	Event				Actio	on				
⇔ Move	1.	AI_C1	=	4mA		AO_C1	4n	nA	Ø	⑪
Program	2.	AI_C1 ~	= ~	4mA		A0_C1 ^	4m	A	~	创
ද terface						AO Current	>	~ AO_C1		
<i>с</i> т	3.	AI_C1	. =	4mA		AO Voltage	>	AO_C2		
Log						Digital Out	>			
63	4.	AI_C1	Ξ	4mA		Tool Out	>			
Setting						Message Run Program				

Click "Add Event" in the upper right corner of the page to add an event response. The default event type is analog current input, the event condition is "=", and the value is 4mA. The default response type is Analog current output, and the value is 4mA. Click the icon in next to each event response to enter the editing state. You can edit each event response. After editing, click the icon it to delete the added event response.

	-		10			()				
TECH ROBOT	1001	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plu	gins
	System Ev	vent							ļ	€ Ad
D Ishboard	Event				Actic	n				
⇔ Move	1.	AI_C1	E	4mA		AO_C1	4mA		Ø	⑪
rogram	2.	AI_C1 ^	= ~	4mA		A0_C1 v	4mA		1	创
だ nterface	2	Reg Bool In Reg Word In	, (+Create Cus	tom	40.01	4m0		5/8	-
Ö	5.	Reg Float In	>			A0_C1	4000		Ľ	ш
ŵ	4.	Tool Speed Joint Torque	>			AO_C1	4mA		Ø	创
Setting		Custom Event	>							

For a custom event, if no option is available in the list on the right of the custom event option, you can click "New Custom Event" in the list on the right of the custom event option to create a custom event. Click the "New Custom Event button". The virtual keyboard is displayed, prompting you to enter a custom event name.

After the user enters the customized event name (such as custom1), an event response is added, as shown in the following figure:

CTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other B	g-Script P	lugins
	System E	vent							⊕ Ad
Dashboard	Event				Act	ion			
⇔ Move	1.	AI_C1	=	4mA		AO_C1	4mA		一
Program	2.	custom1				tongo1 v	LOW	× <	' ⑪
ご Interface	3.	AI_C1	=	4mA		AO_C1	4mA		计量
Log									
€} Setting	4.	AI_C1	=	4mA		AO_C1	4mA		一

The newly created custom event is displayed in the custom event options list, and one custom event can correspond to multiple responses. In addition, if all event responses containing the same custom event are deleted, the custom event is also deleted. That is, the custom event is not available in the custom event option list.

14.6. Other Settings

The other settings subpages are startup settings, editing HOME points, collision settings (which are moved to safety settings for Safety2), force sensor settings, end settings, and model import settings. The left side of the interface is the navigation tab, and the right side is the corresponding tab display content area. The page displays the startup settings by default.

• Boot settings

Click the "Boot Settings" TAB to set the default global speed, default jog speed, whether to log in automatically, and set the default program.

Adjust the default global speed slider on the right to set the default global speed of the robot;

By adjusting the default jog speed, the right slider can set the default jog speed of the robot;

The switch on the right of "Robot power on automatically" can be used to switch whether the robot is automatically powered on.

Enat	project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint	J Global Speed	Manual	Real Collision	Check Od3d
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Boot Setting	Selec	t program				×		
Ţ	Home Setting 🌖		.bgscript						
	Tool Setting		Auto				1.		
Move	Import Model		СС						
Program	Interference Zone		CJ						
C			CL				11		
E			JC				-		
Log		Back				Cancel	ct		
Setting									
2024-02-21 16:12:30									

Click the "Select Program" button and a program list window will pop up.

After selecting the program, click the "Select" button. After setting the default program, the "Select Program" button will display the default program name and a cross icon to cancel the default program.

Enal	Project *project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	Global Speed	Manual	Real Collision	Check A Od3d
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Boot Setting	Default	Global speed		100%		0		
Dashboard	Home Setting ()	Default	on speed		100%				
⇔ Move	Import Model	Auto po	wer on		OFF				
>Program	Interference Zone	Set defa	ult program	5	Select program	movej_test2.js	spf ×		
C Interface									
E Log									
ද ා Setting									
2024-02-21 16:16:23									

Home settings •

The HOME position at the top of the interface displays the angle values of each joint at the current HOME position. The user can manually enter the joint angle by clicking each joint input box, or by clicking the "Select HOME position" button to jump to the mobile interface for teaching settings, which is similar to the process of creating a pose type variable above, after teaching the position Jump back to the current interface and click the "OK" button to make the settings take effect.



Enal	Project *project_mo	Vertical def.	Tool Obj Okg default	JOG 100% Joint J	Global Speed	Manual	Real Collision	Check
CTECH ROBOT	Tool	User Ir	stall Variable	Safety	System Event	Other	Bg-Script	Plugins
	Boot Setting	HOME position	1					
Q	Home Setting 🤑	Joint1 (°)	0					
ashboard	Tool Setting	Joint2 (°)	0					
⇔ Move	Import Model	Joint3 (°)	0					
	Interference Zone	Joint4 (°)	0					
Program		Joint5 (°)	0					
お Interface		Joint6 (°)	0					
E Log		Select position	Confirm					
٩								
Setting								
024-02-21								
6:19:14								

• Collision Detection Settings

Collision detection Settings for DC30 control cabinet is configured in other Settings; For DC00 / DC15S/DC30D control cabinets, configure in Safety Settings (read Section 6.2 for details). The collision detection area can be set for collision detection level and reset mode. The collision detection levels are divided into: off, level 1, level 2, level 3, level 4, and level 5. The higher the level is set, the more sensitive the collision detection is. The collision detection reset mode is divided into manual reset and automatic reset. After the user configures the collision detection level and reset mode, click the "OK" button.

• End Button Settings

Set the end T and S buttons. You can choose whether to enable the T and S buttons at the end. Select to enable T button, which has the function of pressing and pulling the robot arm. The S button is enabled to set the S button function. The S button has three functions: add variables, add motion instruction, add variable and motion instructions. When you select the S button to add variables or add variables and motion commands, you also need to configure variable name prefixes. The default value is mydata. After global variables are recorded, their official names become g_mydata_1 and g_mydata_2. Each time a variable is added, the maximum value of the variable name suffix is checked, and the count is added on this basis.

Enal	project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	Global Speed	Manual	Real Collisio	Check Od3d
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Boot Setting	Tool Butto	n						
Q	Home Setting 🕕	Enable T I	Button ON						
Dashboard	Tool Setting	Enable S	Button ON						
↔ Move	Import Model	S Button F	unction A	ld variable	~				
Program	Interference Zone	Name Pre	fix	ydata					
Ç Interface									
E Log									
Setting									
2024-02-21 16:25:27									

With the S button enabled, when the S button function is configured to add variables, the variable name prefix is the default value mydata. Click to trigger S button, and a new pose global variable will be added to the variable setting page. If the S button is triggered 3 times a single time, three pose variables will be added to the variable setting page. The variable names are g_mydata_1, g_mydata_2, and g_mydata_3 in sequence, as shown in the figure below:

Enal	ple Project_r	t Inst no Verti	all Tool cal def Okg	Obj default	JOG 100% Joint J.	Global Speed	Manual	Real Collision	Check A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Variable							s	Sort Add
Dashboard Dashboard Move Program C Interface C Setting 2024-02-21 UNERFACE	Name g_mydata_1 g_mydata_2 g_mydata_3	Type pose pose	Initial {-0.4061223,0.40993 6,1.691906} {-0.41550409,0.46213 6,1.694963} {-0.40843978,0.43733 81,1.693369}	529,0.90704196,- 329,0.86711633,- 8007,0.86476719,	1.7573860.29416 1.769402,-0.21995 -1.762721,-0.2615	Current {-0.40061223,0.44 6,1.6914963} {-0.41550409,0.44 6,1.694463} {-0.40843978,0.43 81,1.693369}	999529,0.90704 321329,0.867110 3738007,0.86470	196,-1.757386,-0.29 533,-1.769402,-0.21 6719,-1.762721,-0.2	Operation 416 🕜 🔟 995 🖉 🔟 615 🕜 Ü
10:35:37									
Ena	ble *project_i	t Inst Vert	ical def 0kg	Obj default	100% Joint J.	Global Speed	Manual	Real Collision	Od3d
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
	Variable							S	Sort Add
Q	Name	Туре	Initial			Current			Operation
Dashboard	g_mydata_1	pose	{-0.40061223,0.4099 6,1.691906}	529,0.90704196,-	1.757386,-0.29416	{-0.40061223,0.40 6,1.691906}	099529,0.90704	196,-1.757386,-0.29	*16 🗹 🔟
↔ Move	g_mydata_2	pose	{-0.41550409,0.4621 6,1.694963}	329,0.86711633,-	1.769402,-0.21995	{-0.41550409,0.46 6,1.694963}	521329,0.86711	533,-1.769402,-0.21	995 🗹 🔟
	g_mydata_3	pose	{-0.40843978,0.4373 81,1.693369}	8007,0.86476719	-1.762721,-0.2615	{-0.40843978,0.43 81,1.693369}	3738007,0.8647	6719,-1.762721,-0.2	615 🗹 🔟
Program C Interface Log Setting	g_mydata_4	joints_list	{(1.4691677,1.42223 94223,-0.98979699)}	046,-1.73937714,	1.05988216,-0.275	{(1.4691677,1.423 94223,-0.9897966	222046,-1.73937 99}}	714,1.05988216,-0.	275 🕜 🔟
2024-02-21 16:33:43									

Long press the trigger S button, and a new global variable of joints will be added to the variable setting page. For example, long press the S button once, and another variable of joints will be added to the variable setting page, as shown in the figure.

When the function of S button is configured to add motion instructions, click to trigger S button, and a new MoveL instruction will be added to the program page under the conditions of adding instructions (e.g., it must be in the program editing state). When the S button is triggered, the Cartesian pose of the robot corresponds to the X/Y/Z/RX/RY/RZ input box recorded in the MoveL instruction parameter page. When long press the trigger S button, a new MoveJ instruction will be added to the program page, the robot joints angle is correspondingly recorded in the parameters page Joint1/ Joint2 / Joint3 Joint4 Joint5 / Joint6 input box on the MoveJ instruction parameters page when triggering the S button.

When the function of S button is configured to add variables and motion instructions, click to trigger S button. In addition to adding a new global variable of pose type to the variable setting page, the variable records the Cartesian pose of the robot when S button is triggered, and a new MoveL instruction is added to the program page when the conditions of adding instructions are met. The newly added MoveL instruction is set to a variable form, and the variable has been selected by default as the newly added pose global variable; After long pressing to trigger S button, a new global variable of joints is added to the variable setting page, which records the angle of each joint of the robot when S button was triggered. A new MoveJ instruction was added to the program page when the conditions of adding instructions were met, and the newly added MoveJ instruction was set as a variable. The variables have been selected by default as global variables of the newly added pose.

The above addition of motion instructions is valid only when the program page instruction node is under the Move node, and the newly added MoveL instruction coordinate system calls the coordinate system which is in use when the S button is triggered, and the parent node coordinate system option is not checked by default.

When the program page instruction node is in Spline, the S button adds motion instructions in a way that adds waypoints to Spline.

Model Import Settings

This page allows you to import tool or workpiece models and display them, the 3D simulation model is displayed on the left side of the page, and the list of imported tool/workpiece models is displayed on the right side. Click the icon $\underbrace{\cdots}$ to the right of each row in the model list to display a pop-up box for renaming, editing, and deleting the model.

Enat	Project project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	Global Speed	Manua	Rea		Check A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-	Script Plu	gins
	Boot Setting	4	2 2 9						Rename	+
Dashboard	Home Setting 🌗							mode1	Edit)
÷	Import Model							qqq	Delete	
	Interference Zone									
Program		Ð				~				
Interface		Θ								
E Log										
() Setting										
2024-02-21 18:24:05										

Click the icon + on the upper right to display the virtual keyboard, enter the model's name (such as test), enter the parameter editing page of the newly added model test, as shown in the figure.



Click \cdots next to "Import Model", the model import mode selecting box is displayed. There are two import modes: external import and internal import. If external import is selected, the required model file is imported from an external U disk, and the size of the model file must not exceed 3M. When internal import is selected, the required model files are imported from the system internal model folder. Model files can only be in .stl or .STL format.

Enal	project_mo	Install Vertical	def Okg	Obj default	JOG 100% Joint J	J Global Speed	Manu	al Real C	L1 Check A
	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Scrip	ot Plugins
	Boot Setting	Pleas	e select the file				×	Name	test
Q	Home Setting 🌗	B	11.STL					Import	•••
Dashboard	Tool Setting	1	hanqiang.STL	8				Coordinate	default ~
↔ Move	Import Model		pencil.stl				_	×	0
	Interference Zone		焊枪(1).STL				_	Y	0
ਟੇ ਪ			焊枪.STL					Z	0
Interface								RX	0
Log								RY	0
٢		Ва	ck Refres	h	Cancel	Enter	t	RZ	0
Setting								- Color	
								Car	Confirm
2024-02-21 18:29:32									

After the model file is selected, the default reference coordinate system displayed by the model is the default tool coordinate system, the values of X, Y, Z, Rx, Ry, and Rz are all 0 by default, and the model color is black by default. Users can set the values of reference coordinate system, X, Y, Z, Rx, Ry, Rz, and model color according to their own needs.



You can choose the world coordinate system, the base coordinate system, the tool coordinate system and the workpiece coordinate system as the reference coordinate system. Among them, the tool coordinate system and the workpiece coordinate system are the established coordinate systems in the tool setup and workpiece coordinate system pages respectively. Adjusting the model's reference coordinate system and its offset and color parameters will transform the model's pose and color in real time.

When editing an existing model (e.g., model), enter the model parameter editing page. If the selected tool/workpiece coordinate system parameter value is modified, it is inconsistent with the coordinate system parameter value used in the model import setting, a prompt icon ① will be displayed at the reference coordinate system.



When renaming the model, click the icon \cdots on the right of the model to click the "Rename" button in the operation box, and a virtual keyboard will pop up, prompting you to enter a new name for the model, as shown in the figure.

Enal	ble +pro	Project ject_mo	Install Vertical	Tool def Ol	kg defa	ult 10	JOG 0% Joint J	Global Sp	eed Mar	nual	eal Collisio	Check A
AUCTECH ROBOT	т	lool	User	Install	Varia	ble	Safety	System Eve	nt Oth	er B	g-Script	Plugins
	Boot Set	ting	à	0. 2		00						+
Q	Home Se	etting								mode1		
Dashboard	Tool Sett	ing								test		•••
↔ Move	Import M	odel								test1		•••
	Interferen	nce <mark>Zon</mark> e					L					
Program			Ð			1						
			Θ									
Please input	a new nai	me for the	model							The	model na	me can not be null
1	@ 2	3	\$ 4	% 5	6	& 7	8	9) 0	-	+=	⊗Esc
q	w	е	r	t	у	u	1	0	р	ĺ	}]	۱. ۱
	a	S	d	f	g	h	J	k	I	;	•	
Sł	nift	z	x	С	v	b	n	m	<,	·	?	÷
									<	>		ок

When editing an existing model, click the "Edit" button in the operation pop-up box of the icon •••• on the right of the model, and the parameter editing page of the model will be entered, as shown in the figure when creating a new model. It's not described in detail here.

When deleting an existing model, click the "Delete" button in the operation pop-up box of the icon on the right of the model, and the prompt box will appear as shown in the figure. Click the "Delete model only" button on the right side of the pop-up box to just delete the displayed model; Clicking the "Delete Model file" button will not only delete the displayed model but also delete the model file selected for the corresponding model. Click the cross in the upper right corner of the prompt box to cancel the deletion of the model.

Enal	Project *project_mo	Install Vertical	Tool def Okg	Obj default	JOG 100% Joint J	I Global Sp 100%	Manu	al Real Collisio	Check Od3d
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Ever	nt Other	Bg-Script	Plugins
	Boot Setting	ia i	2 2 9	001					+
Ģ	Home Setting 🚺							mode1	
Dashboard	Tool Setting							test	•••
↔ Move	Import Model					>		test1	•••
	Interference Zone			Тір	()				
Program		(+)		Confirm delete	the model?				
C Interface		Θ	Jus	t delete mod	Delete mo	del fi			
H									
Log									
Setting									
2024-02-22 09:04:38									

• Interference Area Setting

The definition types of interference region include plane, cuboid, cylinder, joint region and external axis region. Users can set up to 6 independent interference zones. After the interference

area name, click icon
 can switch between display and hide in the 3D display area for the
 interference area whose type of interference area is plane, cuboid or cylinder, and click icon

after the area name (for example, the default name zone_1) changes the name of a safety zone.

• are displayed for the nterference areas that are not disabled. Otherwise, • will be displayed. For each interference zone, after modifying any parameter, the icon **()** will be displayed if interference zone before clicking the "Confirm" button

The activation configuration of the interference zone can be disabled or activated. Interference area action configuration activation input and response output. When the activation input signal is high power level and the TCP at the end of robot enters the interference zone, the robot will suspend the program operation. When this activation input signal disappears, the program will automatically reset and the robot will continue to run the program. Activation input Configurable general input, register BOOL input; Response output configurable general output, register BOOL output. After the robot enters the interference area, the output of the interference area is triggered. When the robot is operating in the interference area, the activation input signal of the interference area is also monitored. When the activation input signal is high power level, the operation is immediately suspended. You can configure a maximum of two intervention actions.



When the configuration area type is plane, the reference of the plane area is based on the world coordinate system/base/custom workpiece coordinate system, and the plane is determined by setting the plane normal axis and normal offset distance. The setting of a plane can take effect in the Select Area area, and the corresponding direction is displayed in the 3D area through the black arrow.

When the configuration area type is cuboid, the setting basis of the cuboid area is based on the world coordinate system/base/custom workpiece coordinate system. The workpiece coordinate system is taken as a corner point of the cuboid, and the three coordinate axis directions correspond to the length (X), width (Y) and height (Z) respectively. The length, width and height ranges from -3000mm to 3000mm.



When the configuration area type is a cylinder, its setting is based on the world coordinate system/base/custom workpiece coordinate system. With the workpiece coordinate system as the center of the bottom surface of the cylinder, the Z direction points to the height direction, and the radius and height can be set. The radius ranges from 0 to 3000mm, and the height ranges from -3000mm to 3000mm.


If the configuration area type is joint area, you can select either joint 1 or joint 6 to set the maximum value and minimum value. The maximum and minimum values range from -360° to 360° .

If the configuration area type is an external axis area, you can set the axis name of an external axis, and the maximum value (upper limit) and minimum value (lower limit) of an external axis. If no external axis is added, icon \triangle will be displayed after the axis name. The maximum and minimum input boxes are disabled, and the "OK" button at the bottom of the area configuration is disabled and cannot be clicked.



14.7. Background Script

Background script is the independent script which running in the background of robot control system. Differ from general program, background scripts start running once robot control system starting before robot actually power on and enable. All background script related operation and state, including establish operation, running state, edit, delete and other operation button can be found in the background script page.

Power	r off Project *project_mo	Install Vertical	Tool def 0kg	Obj default	JOG 100% Joint J.	Global Speed	Manual	Real Collision	Cher Od3	d A
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins	5
	Bg-Script Manager							Running		+
	bgscript1							۰	Ø	创
↔	bgscript2							۲		创
Move	bgscript3							۲		创
Program										
ද Interface										
Č Log										
छि Setting										
2024-02-21 17:25:25	Show Watch Pane	el								

Click icon **•** on the right top corner will arouse the virtual keyboard. The default name of background script is "bgscript" with index number. After creating background script, the edit page will display as shown in the following figure.

TECH ROBOT	Name bgscript4	Add Script	
Д shboard	<pre>1 Builtin function. D0 NOT MODIFY 2 function sleep(time) for i = 0, time 3 function DoNothing() end 4</pre>	/ 100, 1 do sleep_100() end end	
⇔ Move	5		
ද terface			
E Log			
€ Setting			
	Ln 5 Col 1		Total Lines 5
24-02-21 7:26:49	0		Back Save SaveAs
	part of edit page is the script edi	tion area, click icon 🪺	will pop up the prom
main			

which can be dragged and located.

Power	off Project_mo Install vproject_mo	Tool Obj JOG Global Speed Manual Real Collision Check A
AUCTECH ROBOT :		Add Script
	Name bgscript4	
	1 Builtin function.	
Dashboard	<pre>2 function sleep(time) 3 function DoNothing()</pre>	<pre>for i = 0, time / 100, 1 do sleep_100() end end end</pre>
	4 5	
Move		Copy Ctrl+C Paste Ctrl+V
Program		
\$		
Interface		Confirm
Log		
(3)		
Sealing		
	Ln 5 Col 1	Total Lines 5
2024-02-21 17:28:01	0	Back Save Save As

As shown in the following figure, click icon uil will display the system variables. Click icon

to hide the system variable.

Power	off Project Month Install Tool Obj JOG 100% Joint Vertical def Okg default 100% Joint	t J Global Spec 100%	Manu	al Real Co	L1 Check A Od3d A
AUCTECH ROBOT	Add Scri Name bgscript4	pt		AC	
Dashboard Anove C/> Program C Interface Log Setting	<pre>1 Builtin function. DO NOT MODIFY 2 function sleep(time) for i = 0, time / 100, 1 do sleep_100() end end 3 function DoNothing() end 4 5</pre>	Name g_mydata_1 g_mydata_2 g_mydata_3	Type pose pose	Initial {-0.40061223, 099529,0.907 {-0.41550409, 621329,0.867 {-0.40843978, 3738007,0.86	Current 0.4 {-0.40061223.0.4 0099529.0.9070 0.4 {-0.41550409.0.4 1621329.0.8671 0.4 {-0.40843978.0.4 43738007,0.864
	Ln 5 Col 1 Total Lines 5				
2024-02-21 17:31:22	•			Back	ave SaveAs

After editing the designed background script, click the "Save" icon at the right below corner ti save the current background script. Returning to the background script management page, all the created background scripts will display. It is also feasible to save the background script as a copy

by clicking "Save As" button. Tap the "Run" button with icon \bigcirc , all created background scripts

•

will start to run and the running state of background scripts will display with

Running		
۲		
	Ľ	Ū
۲		创
۲		圓
۲		

The floating window, which displays all the background scripts in running state, can be aroused by clicking the "Display Running Window" window at the buttom left corner. Such as:

Enal	ble Project project_mo	Install Vertical	Tool def 0kg	Obj default	JOG 100% Joint J	Global Speed	Manual	Real Collision	Check A Od3d
Running Bg-Sc bgscript1	aript X	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
								Running	+
								۲	2
Dashboard	bgscript2							۲	风而
↔ Move	bgscript3							۲	
Program	bgscript4							٠	团团
₽ Interface									
Ë Log									
 Setting 									
²⁰²⁴⁻⁰²⁻²¹ 17:55:50	Hide Watch Panel								

To edit the existing background scripts, click the icon \bowtie and then enter the edit interface again. Click icon 1 on the right of background script name will delete the corresponding background script.

15 System Settings

System Settings mainly include network and language settings, as well as version updates to the system, safety controller firmware, time settings, plug-in management, robot parameters (import/export of configuration files), cloud platform settings, and factory settings restoration. Click the user profile picture on the right of the status bar and select the "System Settings" to display the System Settings page. The navigation TAB is on the left of the page, and the content area of the corresponding TAB is on the right.

15.2. Network Settings

Click the "Network Settings" TAB, and the content related to network Settings will be displayed. You can set IP and WLAN. The number of network port configurations varies according to the hardware platform, so that you can change the IP addresses of different ports. The IP details displayed include whether DHCP is enabled, IP address, and subnet mask; IP Settings can be selected from DHCP or static IP Settings.

Powe	r off *project m	Install Vertical de	Tool Ob of Oka defa	JOG 100% loi	Global Speed	Manual	Real Collision	Check A
AUCTECH ROBOT	Tool		Sy	stem Setting			× I-Script	Plugins
	Boot Settinc	Language	LA	N1	WLAN			
-	Home Settir	Network	Local IP	astion				T
Dashboard	Tione Sean	Upgrade	DHCP:					
÷	Tool Setting	Time Setting	IP:	192.168.12.43				
Move	Import Mode	Plugin Setting	Mask:	255.255.255.0				
	Interference	Arm Config	DHCP	Static IP Set	ttings			
c		Cloud Setting	IP:	192.168.12.43	3			
Interface		Robot Auth	Mask:	255.255.255.0				
Ë			Gateway:	192.168.12.1				
Log					Setting			
६२ ३ Setting								
		Restore factory						
2024-02-22 09:12:27								

When selecting DHCP, the IP address, subnet mask and default gateway are automatically

assigned by the DHCP server. Users cannot enter the IP address manually. After selecting, click the "Settings" button. When selecting static IP Settings, the user manually enters the IP address, subnet mask, and default gateway, and then clicks the "Settings" button.



When setting the WLAN, enter the network name and password, click the "Set" button and restart it.

Safety	config project mo	Install Vertical de	Tool Obj of Oka default	JOG 100% Space	Global Speed	Manual	eal Collis	ion Check
AUCTECH ROBOT	Tool		Sys	tem Setting		×	I-Script	Plugins
	Robot Limits	Language	LAN	1	WLAN			
	Joint Limits	Network	WLAN Settings				U Sync P	Home point
Dashboard	Tool position	Upgrade	Name:	AUCTECHCOBOT				2
	Safety Zone	Time Setting	Password:					
Move		Plugin Setting			Setting		g)	
	Safatu Home	Arm Config						0
riogram →	Safety I/O	Cloud Setting						0
Interface	Hardwara	Robot Auth						90
Ë	Haiuware							0
Log								-90
१० ३ Setting								0
	Reven	Restore factory						
	Apply							
2024-02-23		H I						
15:06:07	Restore defaul	t						

15.3. Update

Click the "Update" TAB to display the operation buttons related to system update, which are "Check new version", "System Update", "Back" buttons, and the controller software version, safety controller firmware version, servo controller firmware version, end board firmware version, and control cabinet I/O board firmware version. The safety controller firmware version has a separate "Update" button to update the version. The system update can check the system version actively or update the local system to a certain version with one click, or return to a previous version.

When the robot is undergoing system updates and safety controller firmware versions, ensure that

the robot is powered off.

Powe	r off	t Install Vertical de	Tool Obj JOG of Oka default 100% Inint 1	Global Speed Manual	Real Collision
AUCTECH ROBOT	Tool		System Setting		× I-Script Plugins
	Boot Setting	Language	Update system		-
	Home Settir	Network	Check Update	system Rollback	
Dashboard	Tool Setting	Upgrade	Controller software	V3.2.1	
	roor Searing	Time Setting	_		<u></u>
Move	Import Mode	Plugin Setting	Safety Firmware Version	Upgrade V0.0.0	<u></u>
Program	Interference	Arm Config	Servo Firmware Version	V0.0.0	
t		Cloud Setting	Flange Firmware Version	V0.0.0	
Interface		Robot Auth	IO Firmware Version	V0.0.0	
Log					
() Setting					
		Restore factory			
2024-02-22 09:30:19					

After clicking the "Check the new version" button, the pop-up box of the prompt "Getting the latest version information..." will be displayed at the top of the page.



When there is no new version of the software, a pop-up box indicating that the current software version is the latest version will be displayed on the interface. When checking for a new version, a prompt box for the latest version will be displayed. To update to a new version, click "Update Now".



Click the "System Update" button, the prompt box of "The robot will be automatically powered on and off during the update process, do not operate the robot!" will pop up. After the user clicks the "OK" button in the prompt box, the pop-up window of the U disk selection will be displayed.

Powe	r off Pro	ject v	Install Tool Install def Oku	Obj default	JOG 100% Joint 1	Global Speed	Manual	Real	Collision L1	Check A
AUCTECH ROBOT				Syster	n Setting			×		Total running time
		Lanç					×			101.02.00
	N S	Netv	Select flash							
Dashboard		Upg	sdc1				1	ver	off	
÷		Time					ő	it		
Move		Plug					0	abl	e	
	~	Arm					0			
~	(+)	Clou					o			
ب Interface	Θ	Rob								
H Log							0		Power	Force
@			Refresh		C	ancel			Joint4	60.73°
Setting	A									-15.81°
		Restor	e factory							-56.71°
2024-02-22 09:49:19	movej	_test2.jspl L	ad		1:11.6					

After you select the U disk and click the "Select" button, all update packages of the corresponding type under the U disk are displayed. For example, the system update package ends the suffix with ".updatePro", including the software update package (ending with ".update"), server firmware update package, end firmware update package, and I/O board communication package (.firmware). Software update packages end with the suffix ".update". The safety controller update package ends with the suffix ".firmware".

Powe	r off Project		stall Tool Obj rtical def Oka default 100	JOG Global Speed	Manual	eal Collisio	n Check A
AUCTECH ROBOT			System Set	ing	×)	Total running time
		Lang			×		
	S	Netv	Please select the file				
Dashboard		Upg	🗅 STL			veroff	
÷		Time	AUCTECH_V3.2.2.update			it	
Move		Plug			0	able	
		Arm			o		
	(+)	Clou			o		
다. Interface	Θ	Rob					
É Log					0	Power	Force
جې	A		Back Refresh Can	cel Enter Import		Joint4	60.73°
Setting	A						-15.81°
		Restore	factory				-56.71°
2024-02-22 09:53:10	► movej_tes	st2.jspl Lo	ad 1:11.	5			

Click the "Back" button to roll back the robot system version. The system rollback file list screen is displayed. The system version rollback file ends with the suffix ".updatePro". If you only want to roll back the software version, select the software rollback file which ends with the suffix ".update". Select the required file and click the "Back" button, which will take effect after prompting to restart. When the robot is performing the roll back of the system version, ensure that the robot is powered off.

Besides the software version can be queried by the user actively, the cloud can push the new version to the device. If the cloud pushes a new version, click the "System Settings" button in the pop-up box next to the user profile picture and a red mark "New" will be displayed nearby.

15.4. Time Settings

Click the "Time Settings" tab, the current system date and time will be displayed. Click the selection box of the date picker or time picker to select the date and time respectively, as shown in the figure below:

Ena	able Project	Install d	Tool Oka	Obj default	1	J()G Snace	G	obal S	peed	Manual	Rea	al Collisio	n R Che	
AUCTECH ROBOT	All program			Syst	em S	Setting						×			
	P CCP1(Language													
	EGCKI	Network	Date	2024	1-02-2	2		8							
Deshboard	GCR10	Upgrade													
ch.	GCR1	Time Setting	Time	« <		2024	Feb	ruary		> >>		1			
Move	GCR10	Plugin Setting		Sun	Mon	Tue	Wed	Thu	Fri	Sat	nfirm	T I			
	GCR10	Arm Config		28	29		31	1	2	3					
Program	GCR10	Cloud Setting		4	5	6	7	8	9	10					
\$ Interface		Robot Auth		11	12	13	14	15	16	17					
E Log	GCR10			25	26	20	28	29	1	24					
63	🖹 GCR1(3	4	5	6	7	8	9					
Setting	GCR1														
	GCR10	Restore factory													
	₿ GCR10_n	novec_test6.jspt			•••		l	-	-	_	_				Þ
2024-02-22 16:22:25	Create folder			Create p	rogran	۱	Op	ened F	Progra	ms					

Powe	r off Project	Install	Tool Nef Oka	Obj default 1009	JOG 26 Space	Global Speed	Manual	Real Collision	ef09
				System Sett	ing				Total running time
		Language							
	S	Network	Date	2024-02-22					
Dashboard		Upgrade						veroff	-
÷		Time Setting	Time	© ¹⁵ :38:37		8		it	
Move		Plugin Setting		12 00			Confirm	able	
		Arm Config		13 36 14 37	35			Stopped	
c	(+)	Cloud Setting		15 38	37			ackPupping	
Interface	Θ	Robot Auth		16 39	38			askivanning	
Log				10 A1 Canc	el <mark>OK</mark>			Power	Force
\$								Joint4	16.82°
Setting								Joint5	-99.37°
	<i>E</i> [Restore factory						Joint6	24.87°
2024-02-22 15:38:57	movej_test2	2.jspl Load		3:21.5	5				

After setting the date and time, click the "OK" button to set successfully.

15.5. Plugin management

Click the "Plugin Management" tab, the detailed information of the installed plug-ins and the corresponding plugins will be displayed. As shown below:



15.6. Robot parameters

Click the "Robot Parameters" tab to import and export the configuration file of the robot arm and synchronize the parameters of the control cabinet to the end board, as shown below:

Powe	er off Project	t Install Vertical d	Tool Obj JOG Global Speed M		ion Check A
AUCTECH ROBOT			System Setting	×	Total running time
		Language			1100.12.11
	S	Network	Export arm configs	ort	
Dashboard		Upgrade	Import arm configs	veroff	
÷		Time Setting	config	it	
Move		Plugin Setting	robot_sn Sele	able	
Program		Arm Config	Sync to the tool board		
e de la companya de l	(+)	Cloud Setting			
Interface	Ξ	Robot Auth	Import		
Log			Synchronize parameters in box to tool board	Powe	r Force
6 3	Æ			Joint4	60.73°
Setting	A			Joint5	-15.81°
	Ē	Restore factory		Joint6	-56.71°
²⁰²⁴⁻⁰²⁻²² 10:09:27	► movej_te	est2.jspl Load	1:11.6		

Click the "Export" button to display the dialog box for exporting files from external U disk, as shown below:

Powe	r off project m	n Vertical def Okr. default 100% Inint 1 100% Manua	Real Collisi	on Check A
AUCTECH ROBOT		System Setting	×)	Total running time 4198:14:09
		Lan		
	SA	Net Select flash		
Dashboard		Upg sdc1	veroff	
⇔		Time	it	
Move		Plug	able	
Program	(+)	Arm		
C Interface	Θ	Rob		
H			Power	Force
63				00 700
Setting	A	Refresh Cancel Enter	Joint4	-15.81°
	Æ	Restore factory		-56.71°
2024-02-22 10:11:19	► movej_te	st2,ispl Load 1:11.6		

Select the U disk (e.g., select the U disk USB 1) and the corresponding U disk file storage position (e.g., select the U disk disk11 folder), click the "Select" button at the bottom right corner of the dialog box.

Powe	r off Project m		nstall Tool Obj 306 Global Speed Ma ntical def 0km default 100% Joint 1 100%	nual	Real Collisi	on Check
AUCTECH KOBOT			System Setting	×	.)	Total running time 4198:18:37
	SY	Lang	$\ensuremath{\times}$ Please select the folder			
Dashboard		Upg	D STL		veroff	
⇔ Move		Time	X10.tar.gz		iit	
		Arm	in rogstænge	ł	able	
	⊕	Clou				
		Rob				1
Log Ĝ	A		Back Refresh Cancel Enter Export		Joint4	60.73°
Setting	A	Pactor	staton			-15.81°
						-30.71
2024-02-22 10:15:47	► movej_te	est2.jspl Lo	ad 1:11.6			

After the export is successful, the prompt words "config is exported successfully" and "robot_sn is exported successfully" is displayed on the upper part of the page.

Powe	r off project,	nstal Vertical	Export config successfully	Manual	Real Collision	n R Check
			Svstem Settina		×	
AUCTECH FOBOT			Export robot_sn successfully)	4198:28:56
		Language				
	S	Network	Export arm configs	Export		
Dashboard		Upgrade	Import arm configs		veroff	
÷		Time Setting	config	Select	it	
Move		Plugin Setting	robo:_sn	Select	able	
Program	(+)	Arm Config	Sync to the tool board			
\$	Θ	Cloud Setting	Import			
Interface	U	Robot Auth				
tog			Synchronize parameters in box	x to tool board	Power	Force
Setting	E				Joint4	60.73°
octaing	E				Joint5	-15.B1°
	#	Restore factory			Joint6	-56.71°
2024-02-22 10:26:06	• movej_	testž.jspi Load	1:11.6			

At this time, check the folder path corresponding to the selected U disk. The file with the suffix ".tar.gz" named after the type of the robot arm (e.g., gcr5.tar.gz) and the robot_sn.json file are displayed.

Click the "Select" button next to the config and robot_sn in the import robot arm configuration respectively. Select the required config file and robot_sn file respectively in the pop-up dialog box imported form the external U disk, and the green check icon will be displayed correspondingly next to the config and robot_sn. As shown in the figure below:

Powe	er off Project	Install Vertical d	Tool Obj JOG Global Speed Manu	al Real Collis	ion Check A 0d3d
AUCTECH ROBOT			System Setting	×	Total running time
		Language			1100.00.02
	S	Network	Export arm configs		
Dashboard		Upgrade	Import arm configs	veroff	
		Time Setting	config 🥝 Select	it	
Move		Plugin Setting	robot_sn ⊘ Select	able	
Program		Arm Config	Sync to the tool board		
z	(+)	Cloud Setting	Import		
Interface	Θ	Robot Auth			
Log			Synchronize parameters in box to tool board	Powe	r Force
<u>چې</u>	Æ			Joint4	60.73°
Setting	F			Joint5	-15.81°
		Restore factory		Joint6	-56.71°
2024-02-22 10:31:02	movej_tes	st2.jspl Load	1:11.6		

After selecting the imported robot arm configuration file, click "Import" on the page. After the import is successful, the prompt words "The import is successful. It will take effect after powered off and restarted." is displayed, as shown in the following figure:

Powe	r off project	ct Install Vartical	Import success. Power off and	restart to take effect	Manual Real	Check A	
AUCTECH ROBOT			System Setting				
	S ×	Language Network	Export arm configs	Ex	port		
Dashboard		Upgrade	Import arm configs		verol	f	
		Time Setting	config 🤗	Se	it		
Move		Plugin Setting	robot_sn ⊘	Se	able		
		Arm Config	Sync to the tool board				
2	(+)	Cloud Setting		troom			
Interface	Θ	Robot Auth					
Log			Synchronize param	eters in box to tool board	P	ower Force	
(i) Sotting	Æ				JC	oint4 60.73°	
Setting	F				.10	int5 -15.81°	
	4	Restore factory			30	int6 -56.71°	
2024-02-22 10:32:04	► movej_t	estz.jspl Load	1:11.6				

Click the "Synchronize control cabinet parameters to the end board" button to synchronize the robot parameters in the control cabinet to the end board of the robot.

Powe	er off Project	t Install Vertical r	Tool Obj JOG Global Speed Manual	Real Collis	on Check A	
AUCTECH ROBOT			System Setting			
		Language				
	S	Network	Export arm configs			
Dashboard		Upgrade	Import arm configs	veroff		
÷		Time Setting	config Ø Select	it		
Move		Plugin Setti	Tip (j) × Select	able		
Program		Arm Config	Please disable the robot first!			
\$	Ð	Cloud Settir	Confirm			
Interface	Θ	Robot Auth				
Log			Synchronize parameters in box to tool board	Power	Force	
\$	Æ			Joint4	60.73°	
Setting	Ħ				-15.81°	
		Restore factory			-56.71°	
2024-02-22 10:49:59	movej_te	st2.jspl Load	1:11.6			

- In the whole robot system, there are two places to store the parameter files of the robot arm. The first place is in the robot control cabinet, which is the parameter file of the robot arm currently in effect. Another place is in the end board of the robot arm as a backup of the parameter of the robot arm.
- When the robot system is powered on, the two parameters are checked for consistency. The robot arm can be enabled normally only when the two parameters are consistent. If they are different, the parameters need to be synchronized.
- It is generally considered that the parameters in the end board of the robot arm are absolutely correct. If the parameter file needs to be modified for some reasons, import the modified parameter files "config" and "robot_sn" into the control cabinet by following the preceding steps, and then synchronize the parameters to the end board of the robot arm through the function of "Synchronize Control Cabinet Parameters to end Board".



15.7. Restore factory Settings

Click the "Restore Factory Settings" button under the navigation tab on the left of the system settings page (only for admin users), and a warning box will pop up as shown below:

Powe	r off Project mo	Install Vertical	def Oko default JOG Global Speed Manual	Real Collisi	on Check A
AUCTION ROBOT			×	Total running time	
		Language			4199.01.20
	S	Network	 简体中文 ● English ○ 日本語 ○ ไทย ○ 한국어 		
Dashboard		Upgrade	Confirm	veroff	
-		Time Setting		it	
Move		Plugin Setti	Warning 🕤 🛛 ×	able	
Program	æ	Arm Config	The current configuration will be lost. Confirm restore factory settings?		
\$	0	Cloud Settir	Cancel		
Interface	U	Robot Auth			
Log				Power	Force
රූ Setting	Æ			Joint4	60.73°
	A.				-15.81°
		Restore factory			-56.71°
2024-02-22 10:58:37	movej_test2	2.jspl Load	1:11.6		

Click the "Cancel" button to cancel the restoration of factory settings; after clicking the "OK" button, the top of the page will display the "Restore factory settings successfully, need to restart to take effect!" pop-up box. After restoring the factory settings, the following contents will be cleared: all non-template projects in the project, all logs, robot_sn files, the project and default IP addresses under system files.

! Care

• When using this function, be careful to avoid the loss of important data!

15.8. Cloud platform Settings

Click the "Cloud Platform Settings" tab to display the connection status between the robot and the cloud platform, enter the IP address of the cloud platform, and set whether to connect to the cloud platform. As shown below:

Powe	r off Project	Install	def Oka	Obj	30G 100% loint 1	Global Speed	Manual	Collision	Check A
AUCTECH ROBOT				System	Setting		×		Total running time
		Language	Cloud St	atus 🦷	unconnected				100.00.00
	S	Network	Cioud Si		unconnecteu				
Dashboard		Upgrade	Auto Con	inect	OFF		ve	eroff	
÷		Time Setting					it		
Move		Plugin Setting					at	ble	
		Arm Config							
→ nogialit	(+)	Cloud Setting							
Interface	Θ	Robot Auth							
Log							1	Power	Force
¢	E							Joint4	60.73°
Setting	A								-15.81°
		Restore factory)						-56.71°
2024-02-22 10:54:07	movej_test	2.jspl Load			1:11.6				

After manually entering the IP address of the cloud platform server and switching the "Whether to connect" switch, the user can actively connect to or disconnect with the cloud platform server, and the connection status changes accordingly.

15.9. Robot Authorization

Click the "Robot authorization" TAB, information about robot authorization and operation button will be displayed. Click the "Generate dynamic code" button, a dynamic code will be generated, and prompt the user to "please send the dynamic code to the dealer, obtain the authorization file, and activate it within the valid time" will be displayed as follows:



After obtaining the license file from the distributor through dynamic code, click the "Import License file" button to import and activate it.

Guangzhou Auctech Automation Technology Ltd

Add: Room 903, Building E1, Design City, No. 7, Hexian North Street, Helong Street, Baiyun District, Guangzhou City, CHINA Tel: +86 20 84898493 E-mail: info@auctech.com.cn Web: www.auctech.com.cn