JAKA Robotics

Just Always Keep Amazing

Software v1.7.1 Release Note

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1. Release Information

1.1 Release Time

04/19/2024

1.2 Version Number

Module Name	Version Number	Comments
Application software	1.7.1.37(new)	Android & PC
Controller software	1_7_1_36(new)	X86 & X64
SCB	03_09_R	/
PSCB	03_02_PR(new)	/
Servo (For Zu, C, Pro Series)	R3196	/
Servo (For MiniCobo Series)	R2192_MINICOBO	/
TIO（Zu, C, Pro）	2.52	/
TIO（MiniCobo）	2.49	/

1.3 Features Summary

Compared to the last release software version 1.7.1.33, the main change is the support of 27 items for safety functions in MiniCab. Other of the changes include the optimization of the safety zone mechanism and the change of the APP icon.

2. Version Updates

2.1 Completion of MiniCab Safety Functions

This release completes MiniCab's adaptation support for all 27 items of the safety functions, please check the Safety Function Table in the user manual appendix for specifications.

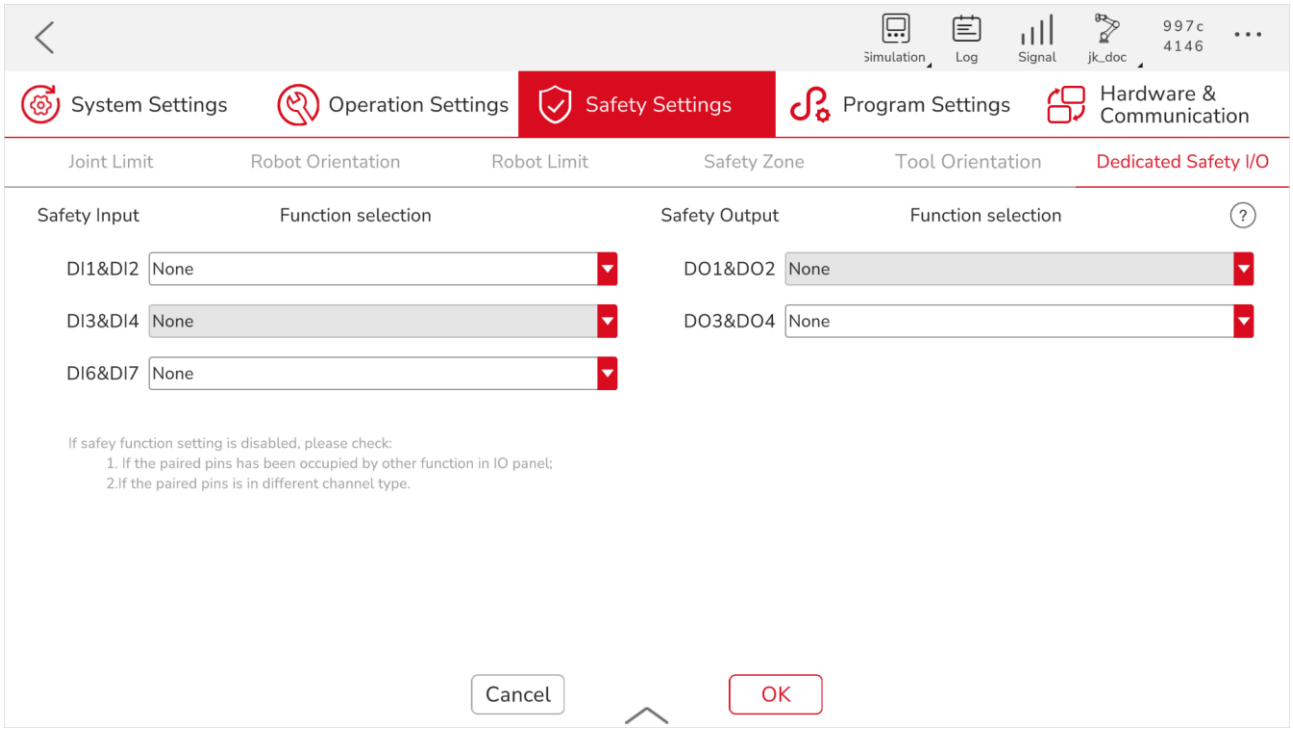
(1) Specification of dedicated I/O interface in APP

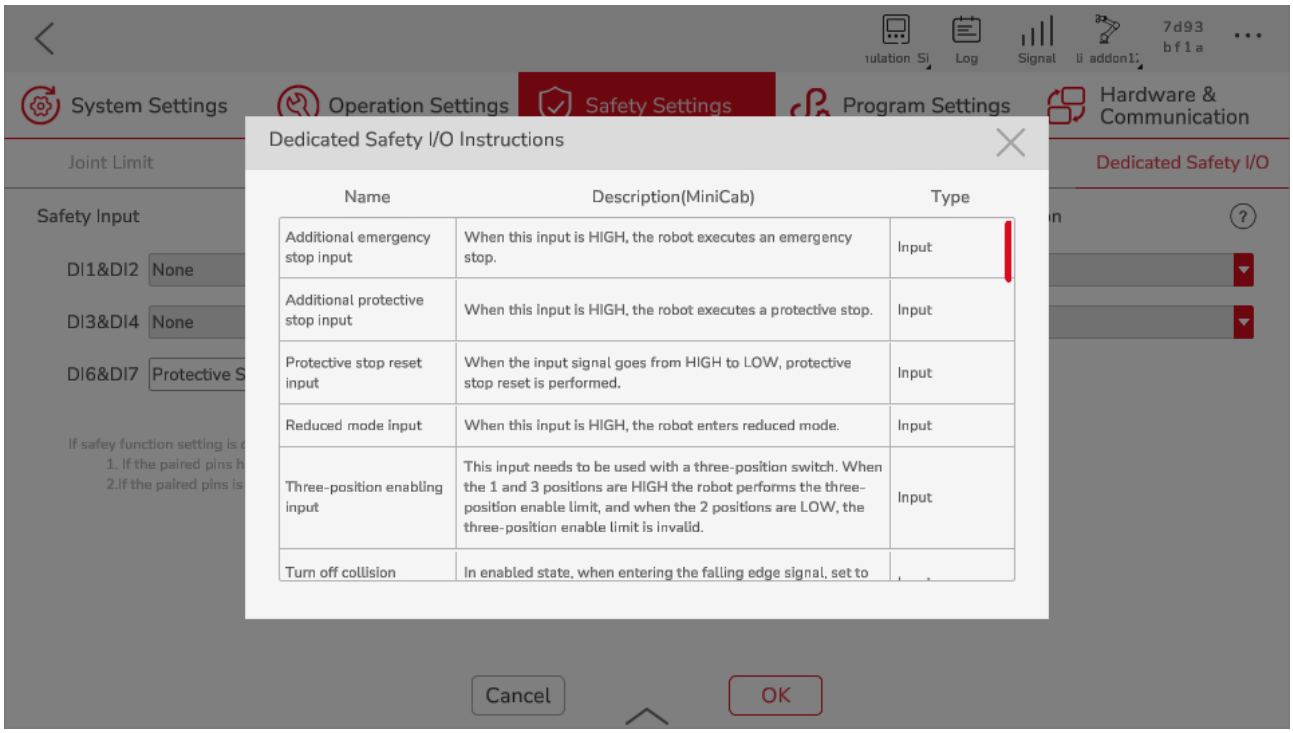
The dedicated safety I/O settings interface for MiniCab is as shown in the following diagram, with two channels of multiplexing safety I/O and one safety DI. The functions supported by DIO1 & DIO2, DIO3 & DIO4 are same. DI6 & DI7 can only be configurated as “Protective stop” or “None”, and is configured as “Protective stop” by default. The risk assessment must be conducted before deactivating it. After deactivating the protective stop, DIO6, DIO7 will automatically enable and default to input mode. If you want to re-activate the protective stop function, you need to set DIO6, DIO7 to input mode and select “None” in the function list.

After the robot is powered off and disabled, click 【Settings】 > 【Safety Settings】 > 【Dedicated Safety I/O】 to enter the safety I/O configuration interface. Click the dropdown box next to the corresponding safety I/O to configure it.

Note1: One interface cannot be both DI and DO at the same time. You can choose to set it as DI or DO in the 【I/O】 > 【Control Cabinet】 interface. Since the safety I/O is designed with dual redundancy, you need to simultaneously set a pair of I/O interfaces to the same output state. For example, if you want to configure DO1 & DO2 for a certain safety function, you need to set both DI_1 and DI_2 to output in the I/O interface.

Note2: Due to the different hardware of CAB 2.1 and MiniCab, the DI short state is HIGH for CAB 2.1 and LOW for MiniCab. Therefore, except for SF1 and SF2, the level descriptions of safety input functions are opposite. For detailed information, please refer to the hardware user manual.





(2) Optimization of Protective Stop

The joint acceleration for Protected Stop and Additional Protected Stop has been adjusted from 100°/ s^2 to 400°/ s^2, and the linear acceleration has been adjusted from 1,000 mm/ s^2 to 4,000 mm/ s^2.

Note: This speed adjustment is only effective for the Mini series models (MiniCobo & Mini2), and the Zu\Pro\C series robots maintain their original specifications.

2.2 Optimization of Safety Zone Settings

The newest specifications of safety zone is:

Enable method: Power on enable and run enable. Power on enabled means that the safety zone is enabled when the robot is powered on; run enabled means that the safety zone is enabled when the robot is running a program in the JAKA App. The safety zone is not effective during freedrive, manual operation, robot controlled by SDK, etc.

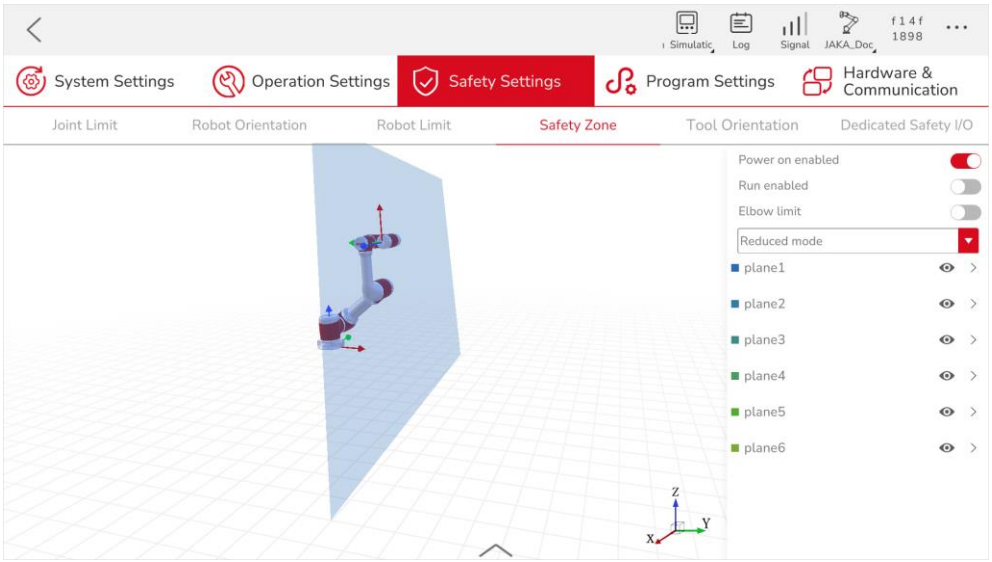
Elbow limit: When the elbow limit switch is turned on, the set safety plane will take effect on the robot's elbow (joint 3) to the extent of the sphere that wraps around the elbow.

Robot state: The state of the robot after it reaches or exceeds the safety plane. Configurable for stop, protective stop, or reduced mode.

(1) Stop: When the safety plane is triggered, robot motion stops, the program is terminated and the robot is disabled. The robot can be enabled again within the safety zone.

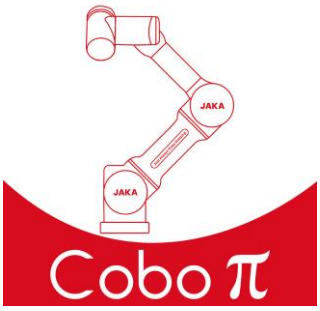
(2) Protective stop: When the safety plane is triggered, the robot decelerates until it stops, and the “Safety plane protective stop” pops up, after clicking “OK”, the robot exits the protective stop and continues to move through the safety plane. When the robot triggers the safety plane again, it performs protective stop again. Apart from clicking “OK”, the robot can also exit the protective stop and continue moving through the safety plane by triggering the “Protective stop reset input” in the safety DI.

(3) Reduced mode: When the safety plane is triggered, robot enters the reduced mode (TCP speed ≤250 mm/s), and the “Robot enters the reduced mode” pops up. Click “OK”, the robot is still in the reduced mode, and only exits the reduced mode after the robot returns to the safety plane.

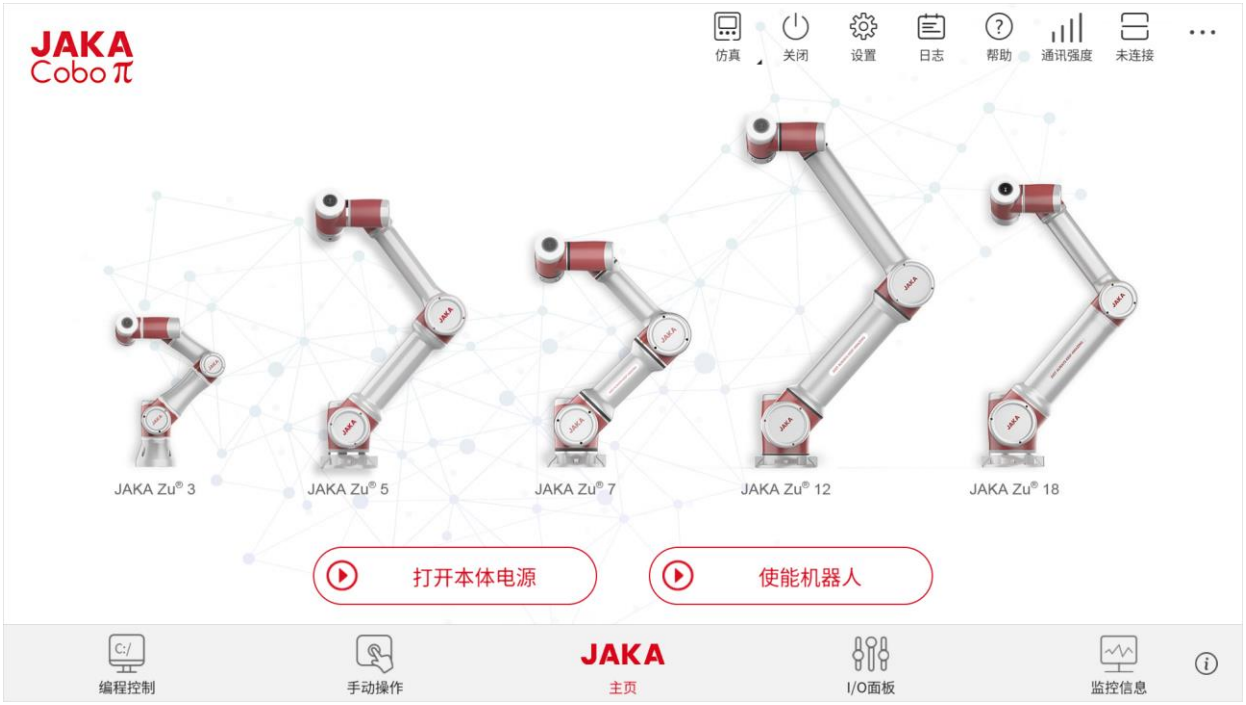


2.3 Change of the App Icon

The desktop icon and homepage icon of App are replaced with the latest version.



App desktop icon



App homepage icon

3. Fixed Bugs

3.1 App

1. #10129 Fix the problem that if automatically load and run the default program when the robot is enabled, the lower version of the app can't be loaded and run and keeps flickering.

2. #10143 Fix the problem that the input box of tangent function is not displayed.

3. #9101 Fix the problem that the font size of "Pause/Resume Button" in the English handle unlock interface is obviously smaller than the surrounding fonts.

4. #10153 Fix the problem that the program will be stuck when it contains multiple custom commands.

5. #10120 Fix the problem that some instruction blocks cannot jump to the corresponding instructions when clicking on the help screen.

6. #9310 Fix the problem that when custom instruction contains Boolean or array type, it is not saved before dragging into the variable, and the attribute passing is missing, which leads to saving failure.

7. #10458 Fix the problem with the UI display of array variables in the variable monitoring interface.

3.2 Controller

1. #4770 Fix the problem that the DO function is still effective when MiniCab DO setting function is switched to DI.

2. #10372 Fix the problem that when the TCP speed is restricted, the abnormal signal is triggered, but the TCP restriction status is still always on after restoring the enable on power-up.

3. #10384 Fix the problem that the description of function DI "clear fault" and log "clear error" are different.

4. #10396 Fix the problem that the transition section of linear motion transfer without orientation is not affected by the stopping distance.

5. #10397 Fix the problem of reduced mode abnormality when re-powering on the robot after the safety zone triggered reduced mode and powered off.

6. #10409 Fix the problem of data misalignment when reading and writing Ethernet/IP at the same time

7. #10453 Fix the problem that all App help interfaces cannot be opened in the control cabinet of 32-bit system.