

YASKAWA

YASKAWA SMART SERIES HC10DT COLLABORATIVE ROBOT QUICK START GUIDE

WITH SMART PENDANT AND YRC1000micro

Upon delivery of the product and prior to operation, read all included instructions thoroughly, and retain for future reference.

Part Number: 188791-1

Revision: 0

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YASKAWA America, Inc.
Motoman Robotics Division
100 Automation Way
Miamisburg, OH 45342
Phone: 937-847-6200

www.motoman.com

Notes for Safe Operation

Read all included manuals carefully before installing, operating, maintaining, or inspecting the system.

In this instruction, Safe Operations are classified as “DANGER”, “WARNING”, “CAUTION” or “NOTICE”.



DANGER

Indicates an imminently hazardous situation which, if not avoided, **WILL result in death or serious injury**.



WARNING

Indicates a potentially hazardous situation which, if not avoided, **MAY result in death or serious injury**.



CAUTION

Indicates a hazardous situation, which if not avoided, **MAY result in minor to moderate injury**.

CAUTION

Indicate a situation which if not avoided **may result in equipment damage**.

NOTICE

Indicates **practices not related to personal injury**.

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1 General Information

1.1 Introduction

This is a YASKAWA Smart Series HC10DT Collaborative Robot Quick Start Guide for Robots that have Smart Pendant Version 1.3.5 and newer.

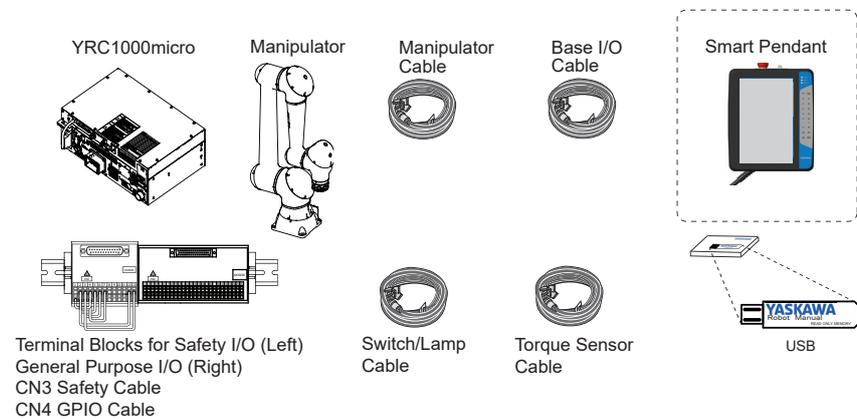
This document is intended to guide the user through a basic installation and setup of the Robot and the user to perform basic moves to confirm setup was successful. A complete set of manuals is provided and are to be reviewed by all working with or near the Robot.

1.2 Safety

Before installing and powering on the Robot, be sure to read and understand all safety information. Refer to the safety sections of all included manuals. All YASKAWA manuals are included on a USB.

1.3 Robot Assembly

Fig. 1-1: Robot Assembly Includes:



1.4 Training

YASKAWA recommends users complete the free online courses listed below before proceeding to the next sections:

- HC10 w/wo DT YRC1000micro Controller w/ Smart Pendant
- Intro to Robotics
- Yaskawa Safety Principles

1.4.1 How to Access Free Online Training

1. Go to “YASKAWA Academy Catalog”
<https://yaskawaacademy.myabsorb.com/#/catalog/>
2. Press the {\$0.00} located underneath each of the desired courses to add them to the “Cart”
3. Review the items in the Cart and press {Proceed to Checkout}
4. Follow instructions to “Sign In” or “Sign Up”
 - An activation link is sent to the email address on file, if signing up for the first time
5. Enrolled courses can be found in “My Courses” on the dashboard, or at <https://yaskawaacademy.myabsorb.com/#/courses>
6. Use {Start} to begin the course

2 Setup HC10DT Smart Series Robot

2.1 Transportation



CAUTION

- Use at least two people to transport and unpack the Manipulator and Controller to the installation location
 - Do not transport the Manipulator and Controller at the same time.
- Not following these CAUTIONs can result in injury and/or equipment damage.

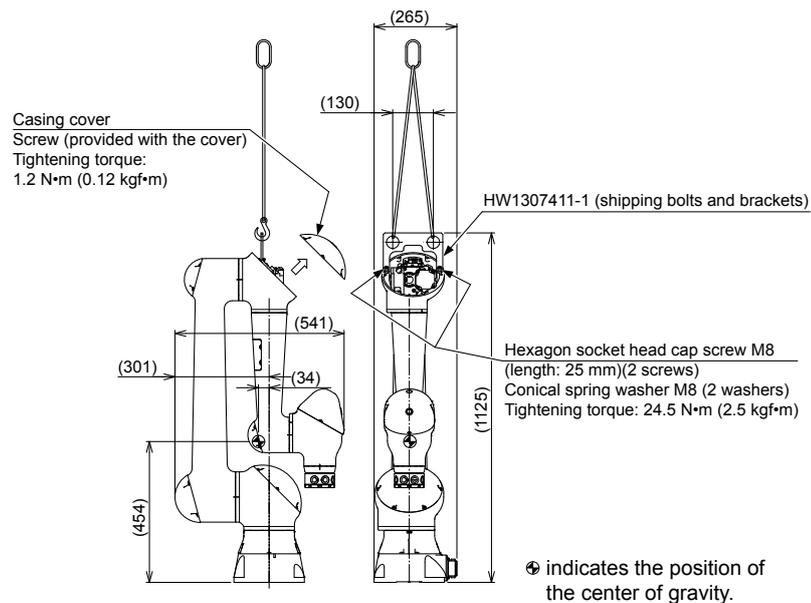
2.1.1 Manipulator

2.1.1.1 Using Crane

Remove the plastic cover between the R and U axis to install the included hardware to lift and transport.

Refer to [Chapter 2 Transporting in the MOTOMAN-HC10DT INSTRUCTIONS](#), for transportation instructions.

Fig. 2-1: Lift Connections with Crane



Factory setting for angle and pulse of each axis

Axis	S	L	U	R	B	T
Angle	0°	0°	0°	0°	0°	0°
Pulse	0	0	0	0	0	0

2.1.2 Controller

CAUTION

- Hold the Controller firmly from the bottom if moving manually.
- Not holding the Controller firmly from the bottom can damage the Controller.

The Controller can be moved manually with a forklift or a platform truck.

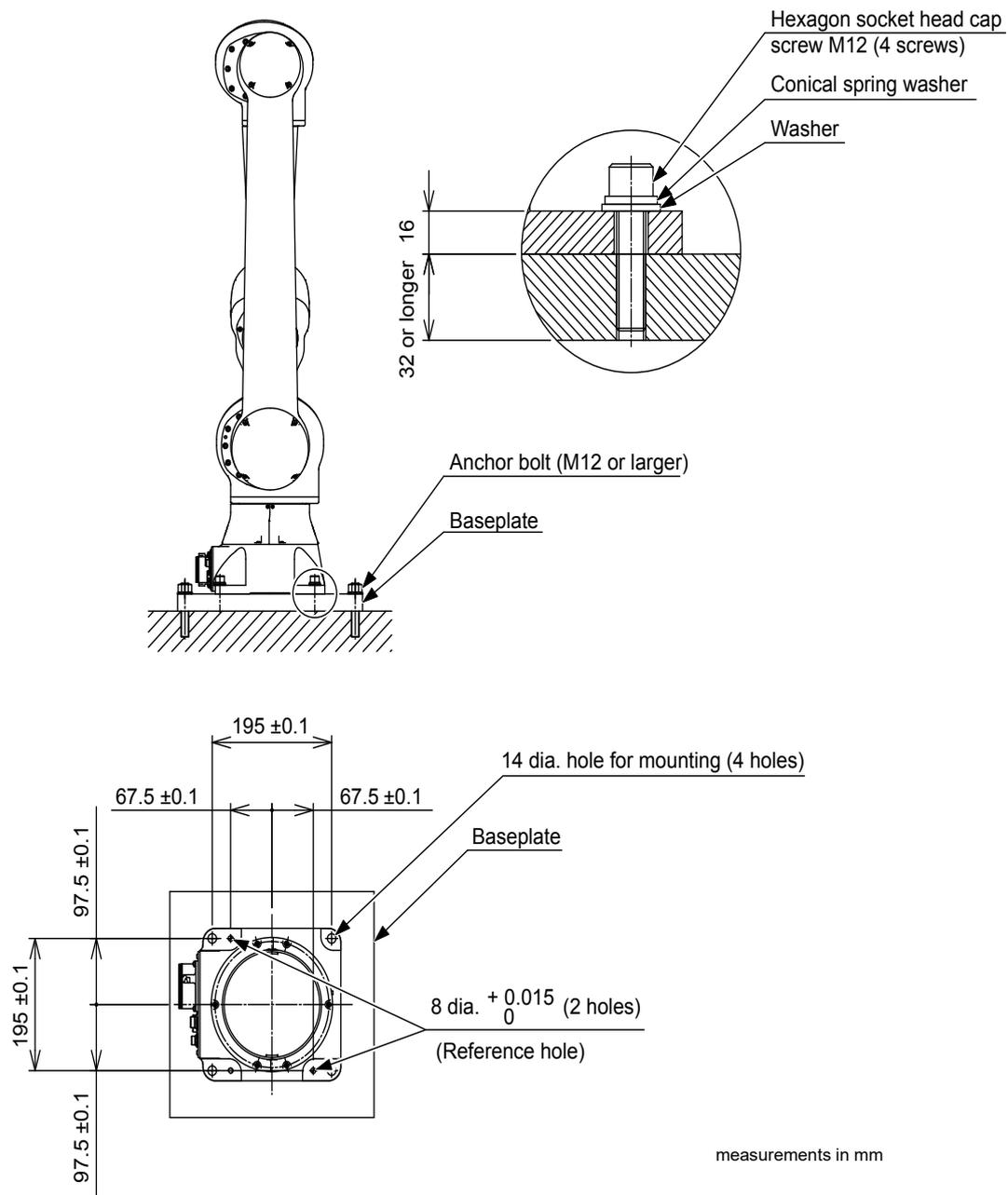
Refer to [Chapter 3 Installation in the YRC1000micro INSTRUCTIONS](#), for detailed instructions for transporting.

2.2 Manipulator Installation

Attach the Manipulator base to the baseplate using four hexagon socket head cap screws M12 (Tensile strength: 1200 N/mm² or more, recommended length: 45 mm) by tightening to 84 Nm. The hexagon socket head cap screws and the anchor bolts must be tightened firmly so they do not loosen over time.

Refer to [section 3.2 Mounting Procedures for Manipulator Base in the MOTOMAN-HC10DT INSTRUCTIONS](#).

Fig. 2-2: Installing Manipulator Base and Baseplate

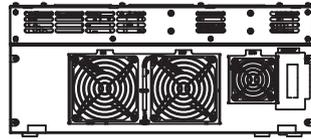


2.3 Controller Installation

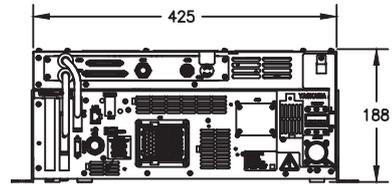
The Controller can be installed in a 19 inch server rack with compatible hardware (not included).

Refer to [chapter 3 Installation in the YRC1000micro INSTRUCTIONS](#) for detailed instructions on Controller installation.

Fig. 2-3: Controller Dimensions

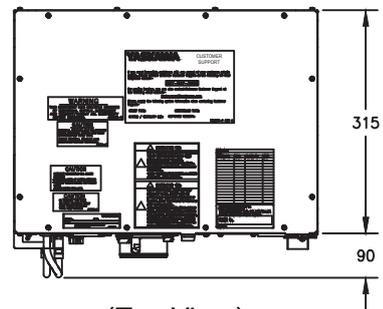


(Back View)



(Front View)

425W x 188H x 405D



(Top View)

2.4 Wiring Robot

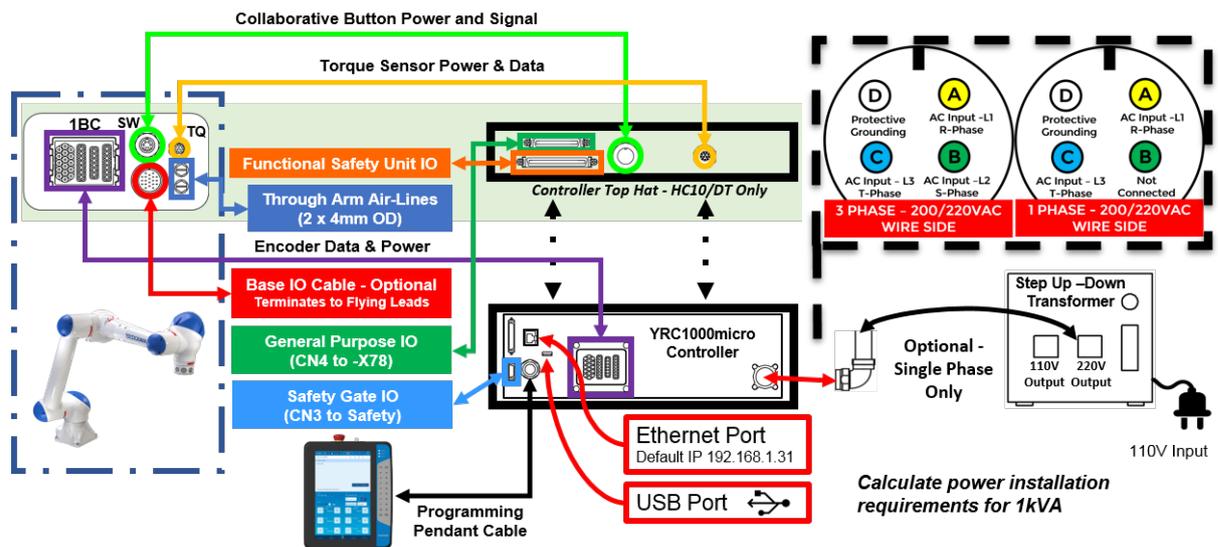
2.4.1 Reference Material

Refer to the following manuals for detailed wiring instructions:

- [READ FIRST!! YRC1000micro GPIO and Direct IN Connections](#)
- [Section 1.5.2 Connecting to the YRC1000micro of the YRC1000/ YRC1000micro INSTRUCTIONS FOR Smart Pendant](#)
- [Chapter 2 Connections of the YRC1000micro SUPPLEMENTARY INSTRUCTIONS FOR HC10/HC10DT](#)
- [Chapter 4 Wiring of the MOTOMAN-HC10DT INSTRUCTIONS](#)

2.4.2 Basic Wiring Overview

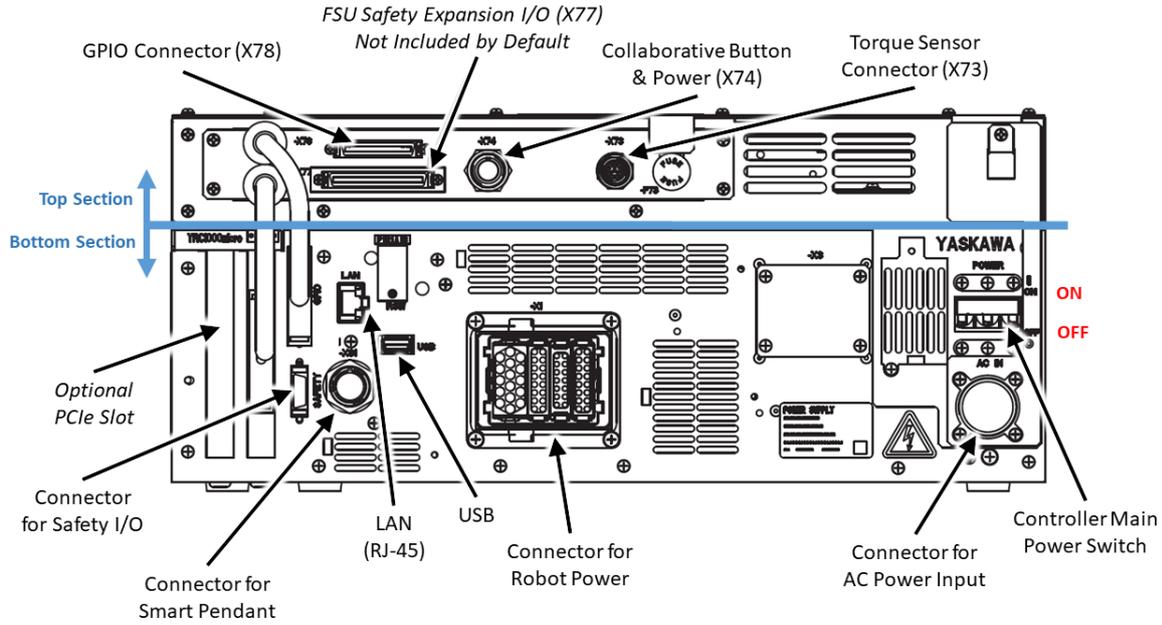
Fig. 2-4: Basic Wiring



2.4.2.1 Controller Detailed Connectors

- The Pendant connects to the bottom section of the Controller as shown in [Fig. 2-4](#).
- General Purpose I/O (GPIO) connects to the top section of the Controller and the Safety I/O connects to the bottom section of the Controller (see [Fig. 2-4](#)). Refer to the [READ FIRST!! YRC1000micro GPIO and Direct IN Connections](#) for more details.

Fig. 2-5: Controller Connections



2.4.2.2 Manipulator Detailed Connectors

- Uses four cables:
 - **1BC** - encoder and axis (Manipulator) cable.
 - **SW** - switch/lamp (collaborative button power & signal) cable.
 - **TQ** - torque sensor (Torque sensor power & data) cable.
 - **S** - Base I/O (using I/O through the arm) cable. For more information, refer to [Fig. 2-7](#).

Fig. 2-6: Manipulator Connections

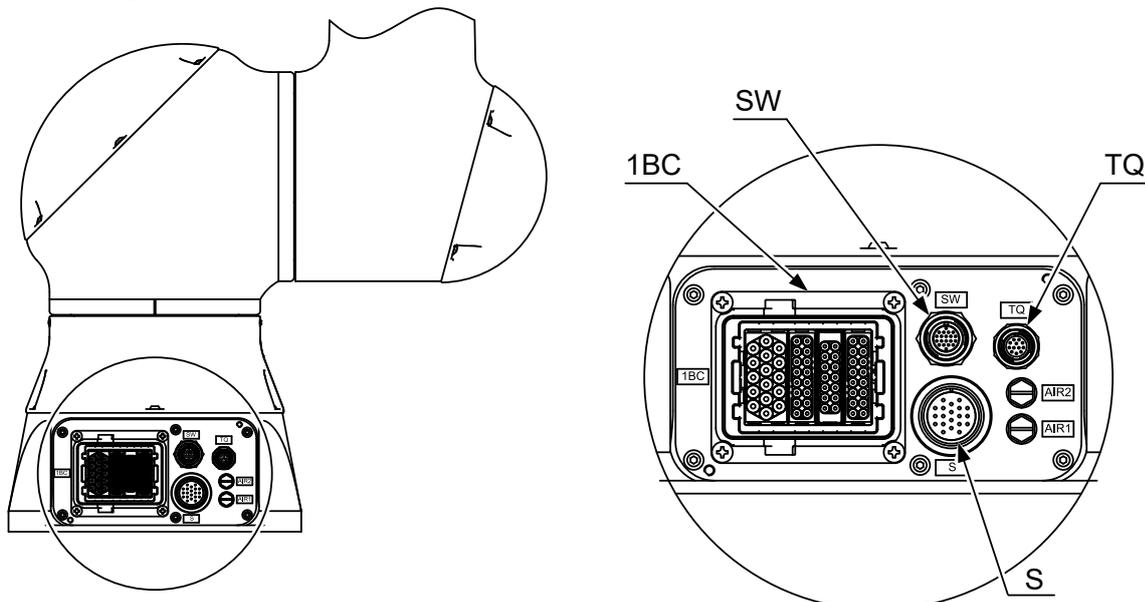
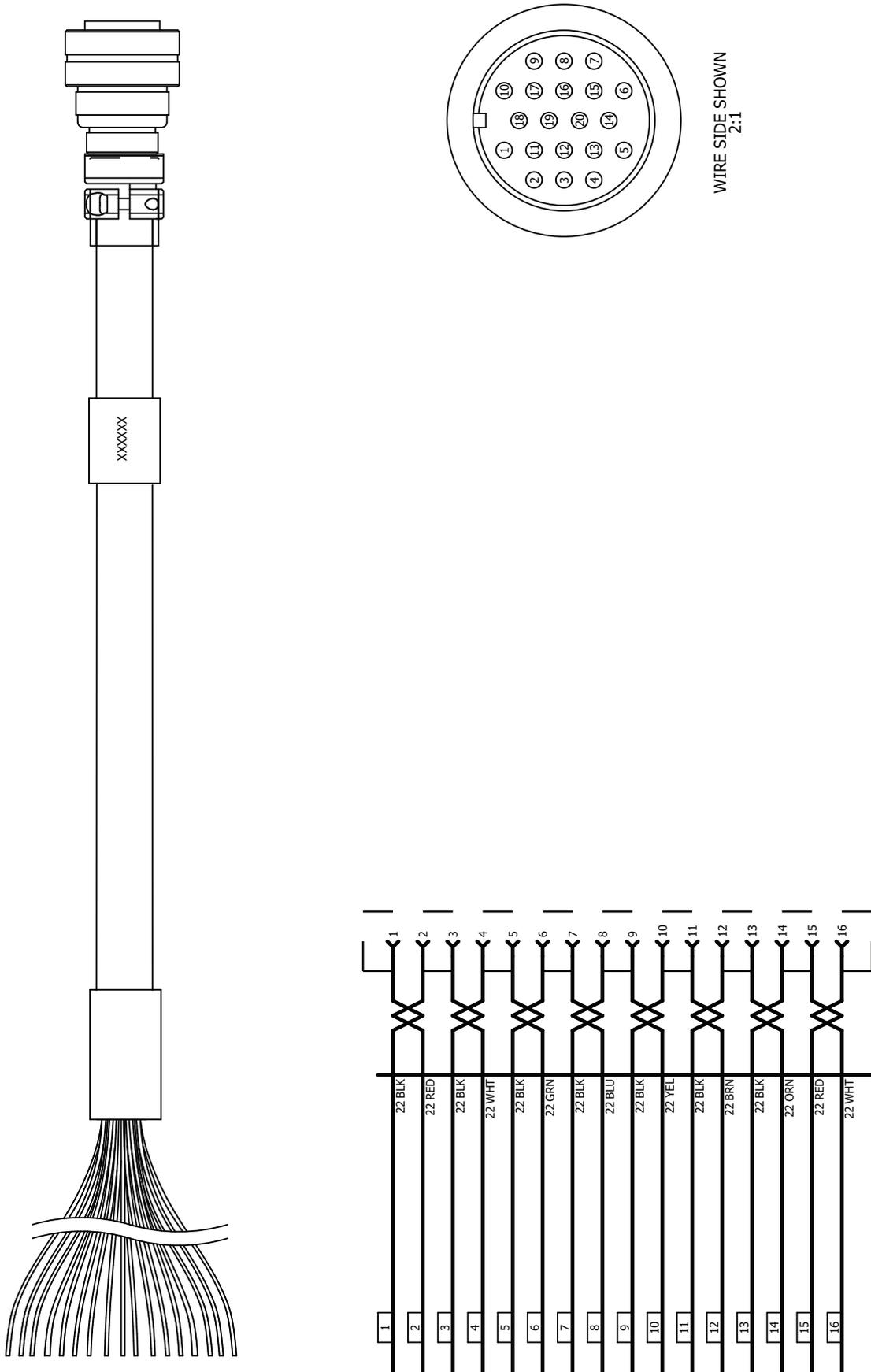


Fig. 2-7: Base I/O Cable Assembly



2.5 Power ON



WARNING

- Perform a risk assessment of the Robot and application before powering ON the Robot.

Not performing a risk assessment before Powering ON the Robot may result in death or serious injury.

The main power supply is turned ON when the Controller's [POWER] switch is flipped to the "ON" position. After a few seconds, the startup screen appears on the Pendant.

Fig. 2-8: Controller Power Switch

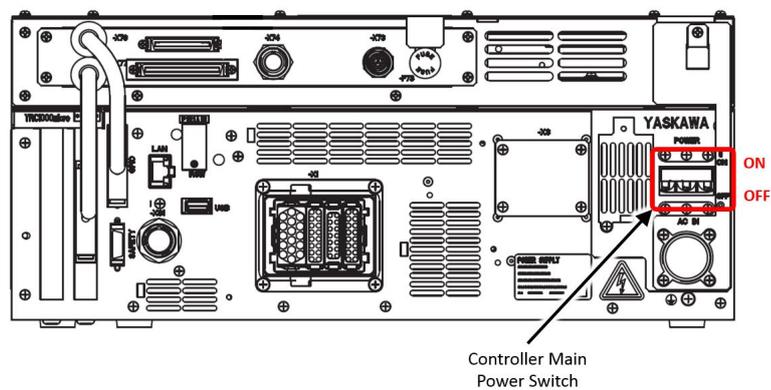
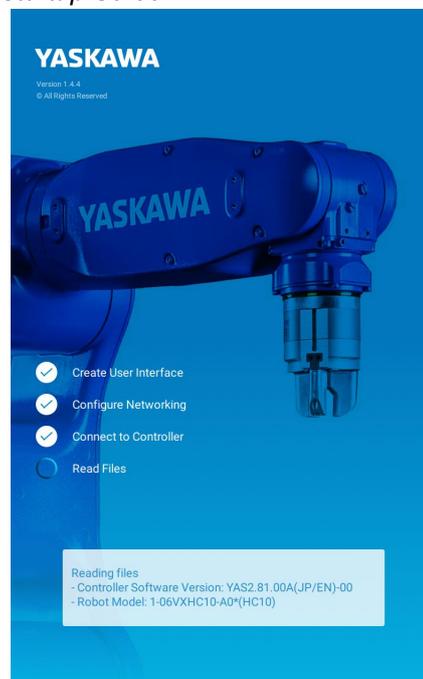


Fig. 2-9: Pendant Startup Screen



If the Pendant does not complete the startup sequence due to an error (e.g. Controller Software incompatibility), an {Export Logs} button appears. Use the {Export Logs} button to save internal logs to a USB storage device that is inserted in the Smart Pendant to aid with troubleshooting by Customer Support.

Once the startup sequence completes, the Pendant displays the Home screen.

Fig. 2-10: Pendant Home Screen



If contacting Customer Support, gather all software version information. The software versions are available on the Pendant after starting the Robot:

1. Select “MENU” → “System Settings” to view the systems “General and Controller Settings”.
2. Notice the software versions for the Pendant and Controller appear.

Fig. 2-11: Controller and Pendant Software Version



2.6 Power OFF

To safely power the system down, turn servos OFF on the Pendant. Next, flip the Controller’s [POWER] switch to the “OFF” position, shown in Fig. 2-8.

- For more details concerning powering on/off and start up of the Robot, refer to the [chapter 5 Turning ON and OFF the Power Supply of the YRC1000micro INSTRUCTIONS](#).
- More details on the Pendant are available in the [YRC1000/ YRC1000micro INSTRUCTIONS FOR Smart Pendant](#).

3 Factory Settings



WARNING

- Review the factory settings and modify them per the application and risk assessment requirements prior to moving the Robot and programming a job.

Not modifying the factory settings per the application and risk assessment requirements may result in death or serious injury.

Table 3-1: Robot Factory Settings

PFL Mode	ON
TCP Speed Limit	50 mm/s
PFL Force Monitor in Relation to TCP	50N

The factory force and speed settings are set very low to reduce the risk of improper operation.

- Power and Force Monitoring Function (PFL)** - Monitors the external force acting on the Robot and performs a protective stop of the Robot if the external force exceeds the user-defined setting. For more information on PFL, see "[PFL Function](#)" on page 5-5.
- Speed Limit Function** - Limits operating speed (TCP speed) of the robot. This TCP Speed Limit will override higher speed(s) programmed in a running Robot job. The TCP speed also defines the maximum speed the Robot can be jogged.

An envelope with a personalized safety password (in the lower-right corner of Collaborative Robot Password Agreement) is required to edit/create Safety Setting(s). Review the Terms and Conditions included in the agreement before modifying the factory settings.

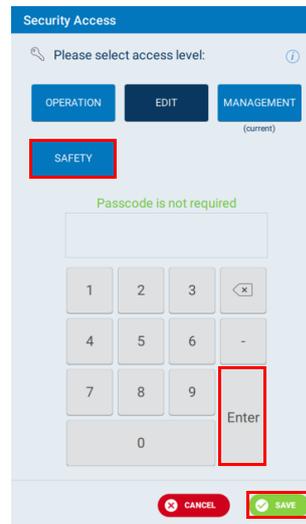


3.1 Modifying Factory Settings

NOTICE

“Safety” Access Level is required to edit Safety Settings.

1. Select “MENU” → “Security: Edit” to open the Security Access pop-up.
2. Select the {SAFETY} access level
3. Enter the personalized safety password, found in the included envelope.
4. Press {ENTER} or {SAVE}



NOTICE

Passwords can be changed on the Pendant from

“Menu” → “System Settings” → “General”.

Follow the notifications and instructions for each access level.

3.1.1 Changing TCP Speed

Complete [section 3.1](#) before to changing the TCP Speed.

1. Select "MENU" → "Safety Settings" → "Safety Functions".

The screenshot displays the 'Safety Function Settings' interface. At the top, there is a navigation bar with 'MENU', 'SERVO', and other icons. Below this is a table of safety functions. The row for 'speed limit for collaborative op' is highlighted with a red box. Below the table, the detailed configuration for 'Speed Limit #32: speed limit for collaborative op' is shown. The 'Speed' field is set to '50.0 mm/sec' and is also highlighted with a red box. Other fields include 'Position Tolerance' (--- mm) and 'Detection Delay Time' (2.00 sec). A 3D model of a blue YASKAWA collaborative robot is shown on the right side of the detailed view.

Name	Function Type - No.	Condition	Result
(Do not Edit)monitored stop	Speed Limit - 31	Signal	
speed limit for collaborative op	Speed Limit - 32	Signal	
Manual(Teach) Mode Speed Limit	Speed Limit - 33	---	
(Do not Edit)speed limit for esc	Axis Speed Monitor - 32	Signal	
Detect by TCP 50N	External Force Monitor - 01	Always ON	

Speed Limit #32: speed limit for collaborative op

Name: speed limit for collaborative op Enable Condition: Signal

Speed: 50.0 mm/sec

Position Tolerance: --- mm

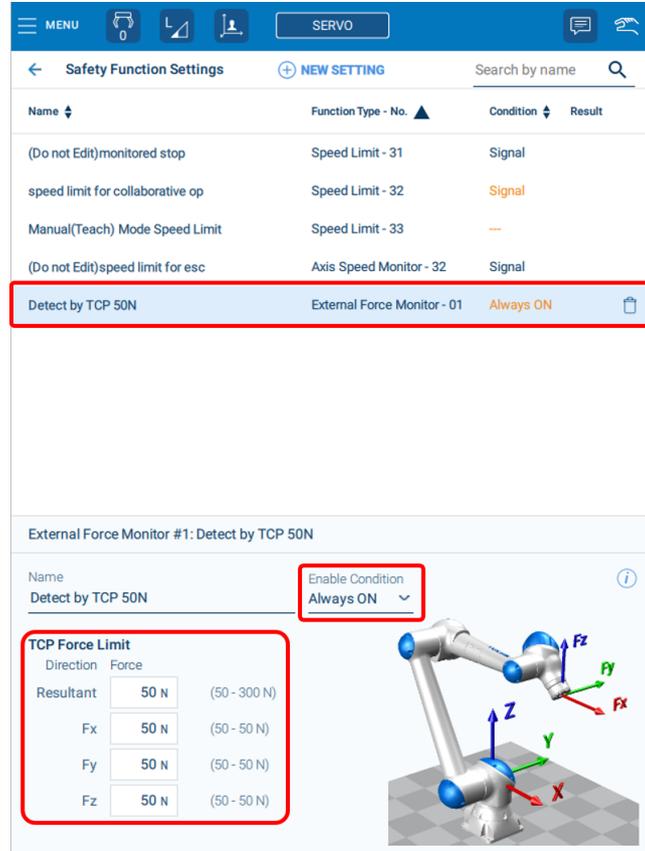
Detection Delay Time: 2.00 sec

2. Highlight the Speed Limit file for collaborative operation.
3. Enter the TCP speed on the numeric keypad that satisfies the risk assessment and press the green {READBACK}.
4. Press {WRITE} to save the new data.

3.1.2 Changing PFL Settings

Complete [section 3.1](#) before changing the PFL External Force Monitor Settings.

1. Select “MENU” → “Safety Settings” → “Safety Function”
2. Highlight the External Force Monitor file.



3. Enter new value(s) for Resultant and XYZ “Forces” that satisfy the risk assessment.
4. Disable the factory External Force Monitor setting by selecting “Always OFF” in the “Enable Condition” drop down.

NOTICE

Disabling the External Force Monitor enables the ability to complete Torque Sensor Calibration with fewer alarms.

5. Press {READBACK}, {WRITE} and {CONFIRM} to save changes.

NOTICE

- Refer to [section 1.17 Security Level Setting of the YRC1000/YRC1000micro INSTRUCTIONS FOR Smart Pendant](#), for more details about safety and security settings.
- Refer to [section 3.2 for PFL \(Power Force Limitation and FSU \(Functional Safety Function\) of the YRC1000/YRC1000micro Collaborative Operation Instructions](#), Speed Limit settings.

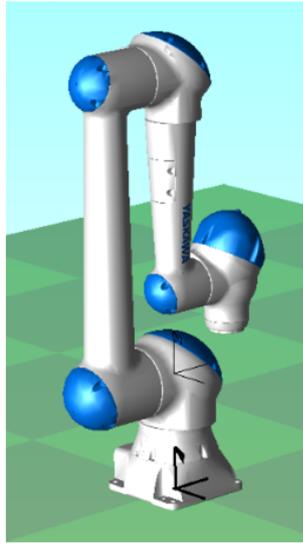
3.2 Torque Sensor Calibration

For the Collaborative Robot system to function properly, Torque Sensor Calibration must be performed prior to programming the first job and/or mounting any EOAT (End of Arm Tooling)

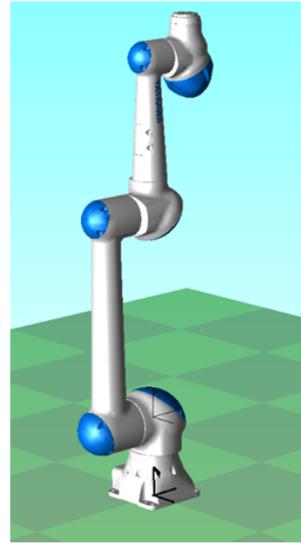
To calibrate the Robot's torque sensors:

1. Complete [section 3.1.2](#)
2. Select MENU → "Safety Settings" → "Torque Sensor Calibration"
3. Move the Robot to a position where the gravitational torque (e.g. by a tool or other external loads) is near zero for all axes.

Fig. 3-1: Torque Calibration



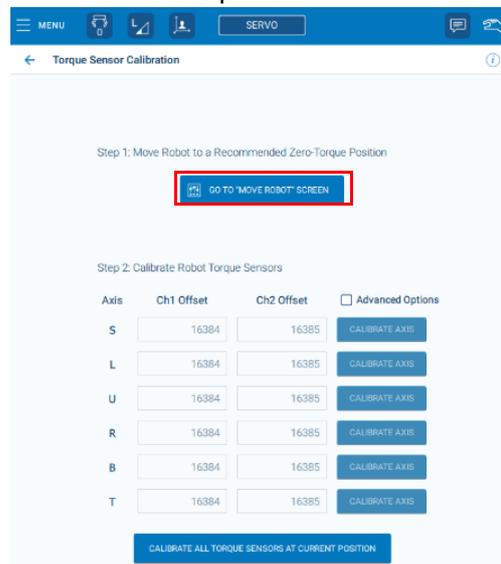
HC10 Torque Calibration
Pos. 1 (All Zeros)



HC10 Torque Calibration
Pos. 2 (U-axis at 180°)

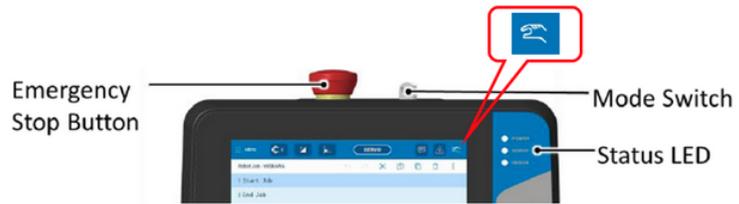
NOTICE

If the Robot is not at a recommended position, the {GO TO "MOVE ROBOT" SCREEN} button displays in blue. Press this button to move the Robot to the recommended position.



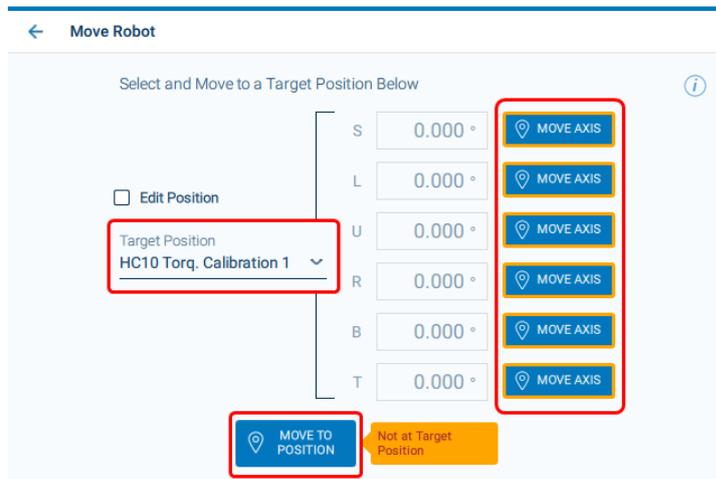
- Verify the “Hand” icon appears in the top corner of the Pendant indicating Manual (Teach) mode.

Fig. 3-2: Manual (Teach) Mode



- Select the Torque Sensor Calibration Position that best suits the installed tool.
 - Move the Robot to this position by pressing {Move To Position}.

Fig. 3-3: Move to Position for Torque Sensor Calibration

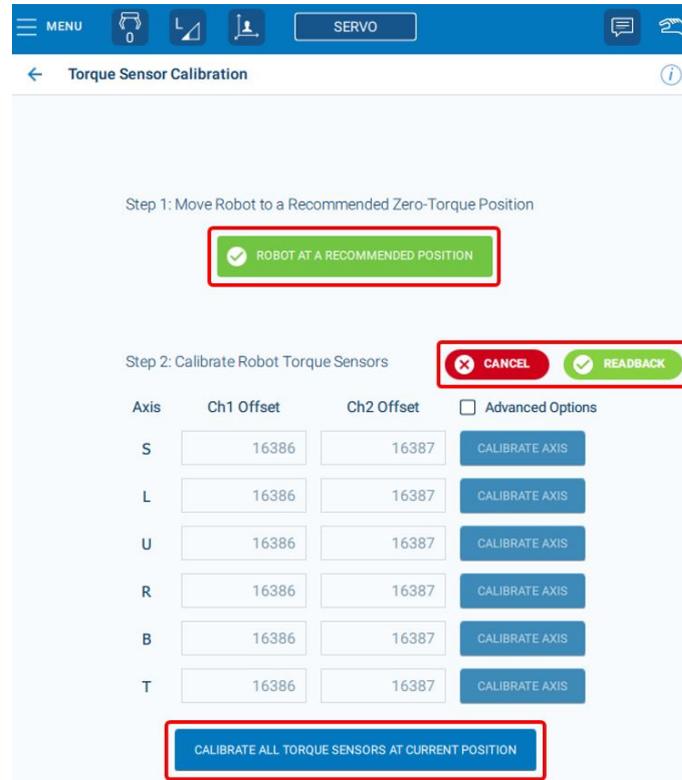


NOTICE

Remove any End of Arm Tooling (EOAT) that is non-symmetric in X or Y prior to Torque Sensor Calibration for accurate results.

6. Once the Robot reaches the recommended position, go back to the Torque Sensor Calibration screen and notice the “ROBOT AT RECOMMENDED POSITION” is visible in green.

Fig. 3-4: Robot at Recommended Position



7. Press {CALIBRATE ALL TORQUE SENSOR AT CURRENT POSITION}.
8. Press {READBACK}, {WRITE}, {YES} to save the calibration data.
9. Refer to [section 3.1.2](#) and change PFL Enable Condition from **ALWAYS OFF to ALWAYS ON**.

NOTICE

- For more details on Torque Sensor Calibration refer to [section 11.5.8.4 Daily Inspection, Periodic Inspection of Torque Sensors of the YRC1000/YRC1000micro INSTRUCTIONS FOR Smart Pendant](#)
- Inspect the Torque Sensor values daily to determine if torque sensor calibration is required.

4 Start Using the Robot

4.1 Jogging

Jogging is the most commonly used operation for the Robot. To satisfy the needs under different situations, YASKAWA provides features to help the user to complete the work safely and efficiently.

Most jogging features are found on the Robot Jog Panel. The Jog Panel is available from the Job Editing screen by pressing {JOGGING} on the bottom navigation bar and can only be done in Manual (Teach) mode.

4.1.1 Common Features of the Robot Job Panel



① Jogging Mode	③ Active Tool	⑤ Current Axis Status Panel
② Jog Speed	④ Toggle Tool	⑥ Go To Point Button

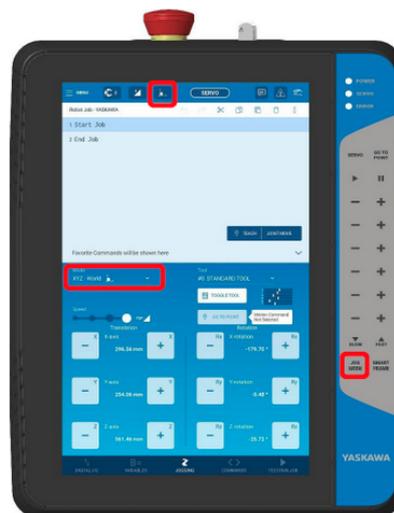
① Jogging Mode

Control for selecting the jogging mode (Manual (Teach) mode). The Pendant supports six types of Coordinate Frames:

- **Smart Frame:** Moves the Robot in Cartesian directions relative to where the Pendant is with respect to the Robot
- **Joint:** Moves each joint axis independently
- **XYZ-World:** Moves the Robot in Cartesian directions relative to the Robot base
- **XYZ-Tool:** Moves the Robot in Cartesian directions relative to the tool
- **XYZ-User:** Moves the Robot in Cartesian directions relative to a user frame
- **Hand Guiding:** Moves the Robot by applying a force to the Robot arm using hands instead of the Pendant controls.

The Coordinate Frame can be selected by three different ways:

- Icon on Status Bar
- Robot Jog Panel
- Membrane Key



② Jog Speed

The Pendant provides four levels of speed. For safety reasons, the default speed is set to “Low”. Select the desired speed prior to jogging:

**NOTICE**

- A Speed Limit Setting labeled “Manual (Teach) Mode” defines the upper limit for jogging speed.
- If the Robot moves too slow when set to Top or High speeds for jogging the Robot, review the Speed Limit Safety file settings and adjust per safety requirements. See [section 3.1.1 “Changing TCP Speed” on page 3-3](#).

There are three ways to select the jogging speed of operation:

- Status Bar



- Robot Jog Panel



- [SLOW] and [FAST] membrane keys



Review [chapters 2 through 5 of the YRC1000/YRC1000micro INSTRUCTIONS FOR Smart Pendant](#) for detailed descriptions for programming and operating the Robot.

5 Troubleshooting and Support

Alarms display when an instruction cannot be processed. One or multiple alarms can occur at once. If multiple alarms exist, all pop-ups are shown in a scrollable list. An overview of the alarm layout is provided below. If an alarm occurs during operation, the Robot stops immediately and the ALARM pop-up window appears on the Pendant. All previous alarms can be viewed on the Alarm History screen.

Go to “MENU” → “Alarms”



Code	Subcode	Name	Date	Time	Type
6002	0	NEAR SINGULARITY (PFL)	2018-10-24	02:24:57 AM	Minor
8006	13	CANNOT START HAND GUIDING (ALL	2018-10-22	08:24:57 PM	User
1926	0	TRQ SENSOR RECEIVING ERROR	2018-10-21	02:24:57 PM	Major
4744	0	M-SAF PP ENABLE SW SIG. ERROR	2018-10-20	08:24:57 AM	Minor
9002	0	ARC FAILURE:1	2018-10-19	02:24:57 AM	User System IO
9001	0	MISSING ARC START CONFIRM:1	2018-10-17	08:24:57 PM	User System IO
300	13	VERIFY ERROR(SYSTEM CONFIG-DAT	2018-10-16	02:24:57 PM	Off-line
4127	0	U-AXIS TIMING BELT BLOWN	2018-10-16	01:54:57 PM	Minor
4000	0	MEMORY ERROR(TOOL FILE)	2018-10-16	01:24:57 PM	Minor

Alarm: NEAR SINGULARITY (PFL)

DESCRIPTION:

If the robot approaches a singularity with PFL enabled, operation will be restricted to single axis moves. A multiple axis move will cause this alarm to appear. More information on singularities is provided in the [help file](#) (top-right).

1: Reset alarm. In (Teach Mode), try [jogging out](#) of the singularity using single axis moves and low speed.

2: If this alarm continues in Teach Mode, [disable PFL](#) to move the robot without alarms.

3: If this alarm occurs in Play Mode, taught points near singularities should be re-taught to avoid incomplete motion segments.

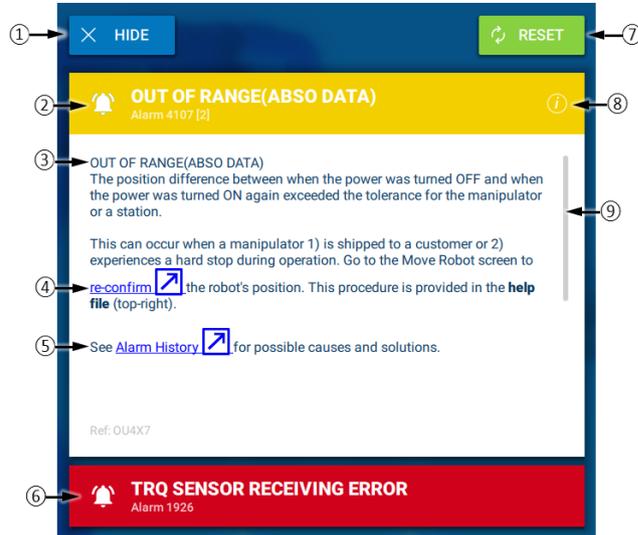
CAUSES & SOLUTIONS:

Operation mistake (1)Reset alarm.
(2)Confirm the robot is crashed.
(3)Confirm the safety and resume the robot.

- For a general description of Robot alarms, refer to [chapter 14 Alarm of the YRC1000/YRC1000micro INSTRUCTIONS FOR Smart Pendant](#).

■ ALARM:4107 “OUT OF RANGE (ABS DATA)”

This is the most common alarm that occurs if the Robot determines there is a significant difference in the encoder data (pulse) between power off and power on. Most commonly this is caused by transportation conditions due to the Robot being packed and shipped and the user receiving and unpacking the Robot.



① **Hide Button:** Allows the user to hide the alarm to continue performing restricted operations on the Pendant

② **Alarm Title:** Contains the alarm title, code, and subcode. The title bar is also color coded (yellow = minor alarm, red = major alarm).

③ **Alarm Details:** Contains why the alarm happened and possible solutions.

④ **Help Links:** Links located in alarm details will direct the user to screen(s) with actions required to resolve the alarm.

⑤ **Alarm History:** Directs the user to the Alarm History screen

⑥ **Multiple Alarms:** If multiple alarms are active, the subsequent alarms will appear collapsed in list form. Press the alarm title to expand the alarm to view its contents.

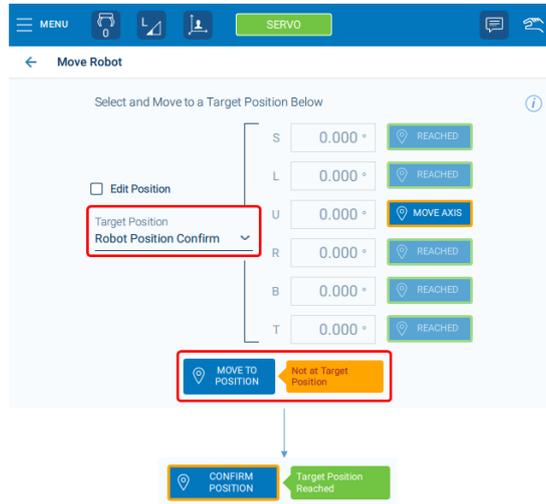
⑦ **Reset Button:** Allows the user to reset a Minor alarm. Major alarms cannot be reset.

⑧ **Help Icon:** Some alarms require background information to fully understand the problem. This information will be contained in a help file visible in the Alarm Title (top-right).

⑨ **Scrollbar:** If the alarm details are long, a scrollbar will appear to allow the user to read all content.

To solve ALARM:4107 “OUT OF RANGE (ABSOLUTE DATA)”, perform the following:

1. Press {X HIDE} to conceal the alarm screen.
2. Press {SERVO ON/READY} in TEACH mode.
3. Select “MENU” → “</> Program/Operate” → “Move Robot”
4. On the Move Robot screen, select “Robot Position Confirm” from the “Target Position” dropdown list.



5. Press {MOVE TO POSITION} to reach the target confirmation position.
6. Observe a green message appears stating “Target Position Reached” when Robot reaches desired position.
7. Observe message in the button changes to “CONFIRM POSITION”, press the button to confirm and a message displays confirming this action.

■ Robot Behavior near a Singularity

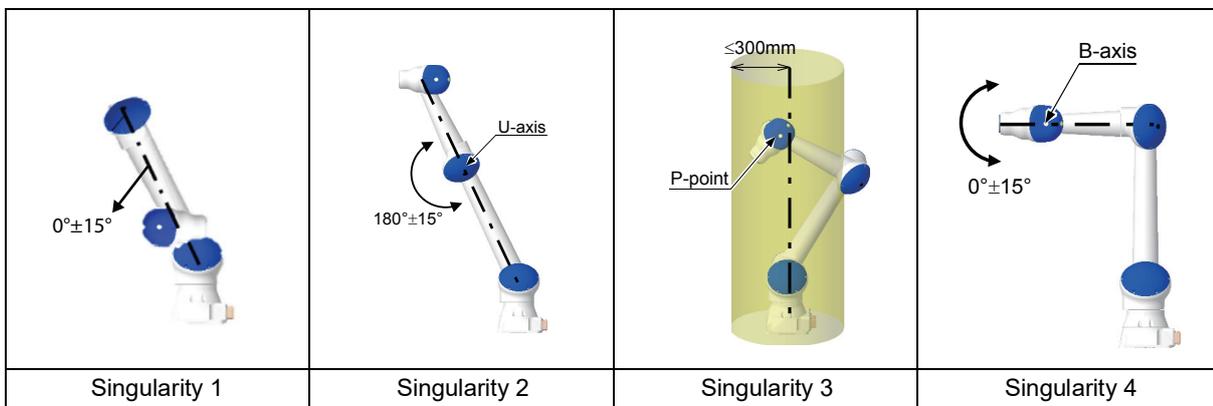
With collaborative operation enabled, the behavior of the robot near a singularity is limited to single axis moves (i.e. no move(s) that involve simultaneous motion of multiple axes).

An attempt to operate the multiple robot axes simultaneously, in any operation mode, results in alarm 6002 “NEAR SINGULARITY (PFL).”

HCxx and HCxxDT have the following singularities.

- Singularity 1: The U-axis is at an angle of $0^\circ \pm 15^\circ$.
- Singularity 2: The U-axis is at an angle of $180^\circ \pm 15^\circ$.
- Singularity 3: The rotation center of the B-axis (P-point) is near the vertical line of the S-axis (within 300 mm).
- Singularity 4: The B-axis is at an angle within the range of 0° or $180^\circ \pm 15^\circ$

Fig. 5-1: Example of Singularities



To avoid singularities, the motion limits of various Robot axes are restricted to prevent it from entering singular positions. However, in rare instances, the Robot can get into a singular position. Under these conditions, the following actions should be taken:

- Reduce jogging speed and attempt to jog the Robot away from the singular position.
- Use single axis moves (Joint Jogging or Move Axis buttons) and reduced jogging speed to escape singularities.

If power and force limiting alarms occur repeatedly, the user should disable PFL by turning OFF all active “External Force Monitor” settings to jog the Robot away from its singular position. Once resolved, re-enable the servos and restore PFL to its previous settings.

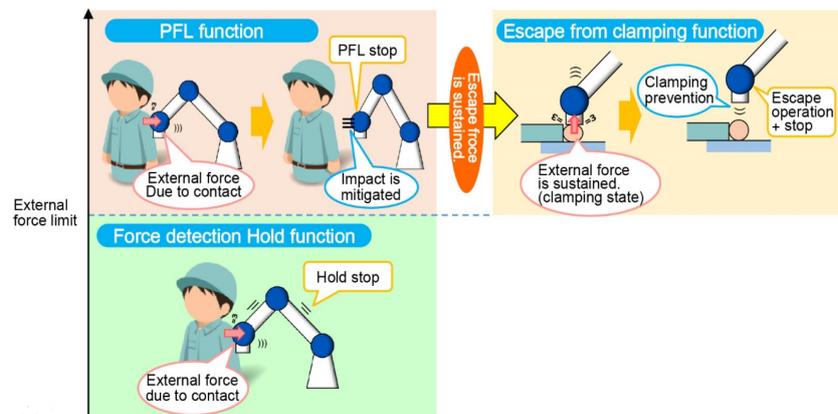
■ PFL Function

When enabled, the collaborative PFL (Power and Force Limiting) function will stop Robot motion according to measured external forces.

The PFL function monitors the external forces acting on the TCP and each axis of the manipulator. If the external forces exceed the preset limit, it performs a protective stop and puts the manipulator into the stop position monitoring state, i.e., the condition under which the manipulator is subject to stop position monitoring. This is shown in the figure below. Refer to [section 3.1.2 “Changing PFL Settings” on page 3-4](#) for instructions to configure the external force monitor value.

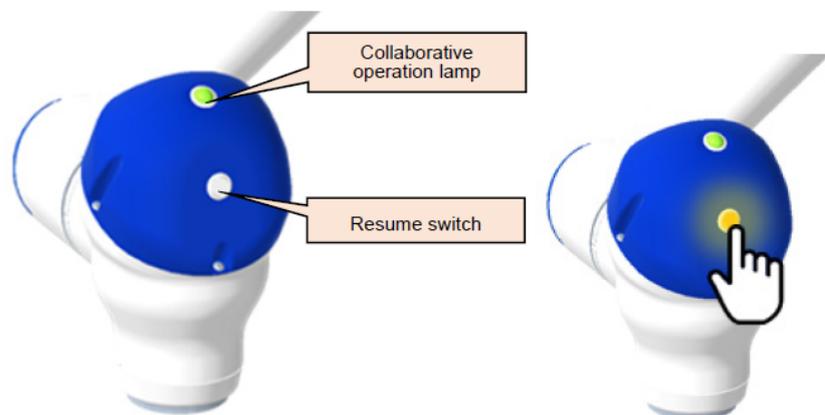
NOTICE

If an external force continually detects in the stop position monitoring state, the “Escape from Clamping” function (see details) may initiate robot motion in an attempt to safely reduce/eliminate the external force.



With collaborative operation enabled, the collaborative operation lamp, located on the cover between the T- and B-axes of the manipulator, lights up green. If the Robot is in the stop position monitoring state, the resume switch (shown below) located below the collaborative operation lamp lights up yellow.

Pressing the resume switch cancels the stop position monitoring and allows the operator to resume the operation from the protective stop position.

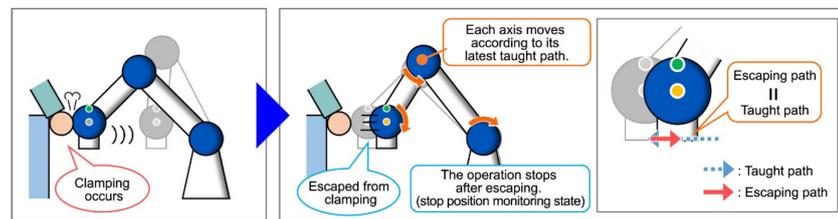


■ Escape from Clamping Function

When enabled, the PFL function described above starts the stop position monitoring in which the Robot is not operable if an object is clamped (stuck) between the manipulator and surrounding environment or between the joints of the manipulator. The escape from clamping function allows the manipulator to escape from such a state. If the PFL function performs a protective stop during collaborative operation and the manipulator detects a clamped state, the escape from clamping function performs the escape operation.

The escape operation moves in the direction of its previously taught path. During this process, the angular speed of each axis is limited to 5 [deg/s]. The escape operation finishes and the manipulator changes to the stop position monitoring state when the Robot achieves one of the following two conditions:

- The clamped state has successfully been removed OR
- Any axis moves by more than 3.0 [deg] during the escape operation



The user can neither disable the escape from clamping function nor change the escape operation. During the escape operation, the external force limit of the PFL function is temporarily set to the value larger than the current external force. After escaping from the clamping, the external force limit is reset to the original setting and the job goes into the suspended state. The user can resume the job from the suspended position by pressing the resume switch to cancel the stop position monitoring state and then pressing the [START] button on the pendant.

- For additional information on the Escape from Clamping function, refer to [chapter 2.5 Escape from Clamping Function of the YRC1000/YRC1000micro Collaborative Operation Instructions](#).

6 References

6.1 Manuals

List of manuals referenced throughout this Quick Start Guide:

Global P/N	Americas P/N	Title
HW1484764	181437-1CD	YRC1000/YRC1000micro Collaborative Operation Instructions
HW1485083	184672-1CD	MOTOMAN-HC10DT INSTRUCTIONS
RE-CTO-A222	181274-1CD	YRC1000micro INSTRUCTIONS
HW1485285	184757-1CD	YRC1000micro SUPPLEMENTARY INSTRUCTIONS FOR HC10/HC10DT
HW1485509	184775-1CD	YRC1000/YRC1000micro INSTRUCTIONS FOR Smart Pendant
HW1484544	183448-1CD	YRC1000micro OPTIONS INSTRUCTIONS FOR FUNCTIONAL SAFETY FUNCTION
NA	188449-1	READ FIRST!! YRC1000micro GPIO and Direct-IN Connections

6.2 Customer Support

If needing assistance with any aspect of the Smart Series HC10DT Collaborative Robot, contact a local Customer Support using the information on the back cover.

When calling, have the following information available:

- Primary Application
- Robot Controller software version
- Smart Pendant software version
- Robot Serial Number (Located on the robot data plate)
- Robot Sales Order Number (Located on the controller data plate)

NOTICE

Fig. 2-11 "Controller and Pendant Software Version" on page 2-8 shows the location of the Controller and Pendant software version information.

For routine technical inquiries, Customer Support can be contacted using the local YASKAWA website listed on the back cover.

When using the website to contact Customer Support, provide a detailed description of the issue, along with complete contact information. Allow up to 36 hours for a response.

YASKAWA SMART SERIES HC10DT COLLABORATIVE ROBOT QUICK START GUIDE

WITH SMART PENDANT AND YRC1000micro

For inquiries or after-sales service on this product, contact your local YASKAWA representative as shown below.

YASKAWA ELECTRIC CORPORATION

2-1 Kurosakishiroishi, Yahatanishi-ku, Kitakyushu, 806-0004, Japan
Phone: +81-93-645-7703 Fax: +81-93-645-7802
<http://www.yaskawa.co.jp>

YASKAWA AMERICA, INC. (MOTOMAN ROBOTICS DIVISION)

100 Automation Way, Miamisburg, OH 45342, U.S.A.
Phone: +1-937-847-6200 Fax: +1-937-847-6277
<http://www.motoman.com>

YASKAWA EUROPE GmbH (ROBOTICS DIVISION)

Yaskawastrasse 1, 85391, Allershausen, Germany
Phone: +49-8166-90-100 Fax: +49-8166-90-103
<http://www.yaskawa.eu.com>

YASKAWA NORDIC AB

Verkstadsгатan 2, Box 504, SE-385 25 Torsas, Sweden
Phone: +46-480-417-800 Fax: +46-486-414-10
<http://www.yaskawa.se>

YASKAWA ELECTRIC (CHINA) CO., LTD.

22F, One Corporate Avenue, No.222 Hubin Road, Huangpu District, Shanghai 200021, China
Phone: +86-21-5385-2200 Fax: +86-21-5385-3299
<http://www.yaskawa.com.cn>

YASKAWA SHOUGANG ROBOT CO., LTD.

No.7 Yongchang North Road, Beijing E&T Development Area, Beijing 100076, China
Phone: +86-10-6788-2858 Fax: +86-10-6788-2878
<http://www.yqr-motoman.cn>

YASKAWA ELECTRIC KOREA CORPORATION

35F, Three IFC, 10 Gukjegeumyung-ro, Yeongdeungpo-gu, Seoul, 07326, Korea
Phone: +82-2-784-7844 Fax: +82-2-784-8495
<http://www.yaskawa.co.kr>

YASKAWA ELECTRIC TAIWAN CORPORATION

12F, No.207, Sec. 3, Beishin Rd., Shindian District, New Taipei City 23143, Taiwan
Phone: +886-2-8913-1333 Fax: +886-2-8913-1513
<http://www.yaskawa.com.tw>

YASKAWA ASIA PACIFIC PTE. LTD.

30A Kallang Place, #06-01, 339213, Singapore
Phone: +65-6282-3003 Fax: +65-6289-3003
<http://www.yaskawa.com.sg>

YASKAWA ELECTRIC (THAILAND) CO., LTD.

59, 1st-5th Floor, Flourish Building, Soi Ratchadapisek 18, Ratchadapisek Road, Huaykwang, Bangkok 10310, Thailand
Phone: +66-2-017-0099 Fax: +66-2-017-0199
<http://www.yaskawa.co.th>

PT. YASKAWA ELECTRIC INDONESIA

Secure Building-Gedung B Lantai Dasar & Lantai 1 Jl. Raya Protokol Halim Perdanakusuma, Jakarta 13610, Indonesia
Phone: +62-21-2982-6470 Fax: +62-21-2982-6471
<http://www.yaskawa.co.id>

YASKAWA INDIA PRIVATE LIMITED (ROBOTICS DIVISION)

#426, Udyog Vihar Phase-IV, Gurgaon, Haryana 122016, India
Phone: +91-124-475-8500 Fax: +91-124-475-8542
<http://www.yaskawaindia.in>

Specifications are subject to change without notice for ongoing product modifications and improvements.

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MANUAL NO.

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