ABB

ROBOTICS

Operating manual
Getting started, IRC5 and RobotStudio

Operating manual

Getting started, IRC5 and RobotStudio

RobotWare 6.14.01

Document ID: 3HAC027097-001

Revision: Q

Table of contents

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Overview of this manual

About this manual

This manual is to be used when starting up the system for the very first time. It contains excerpts from other documents included in the robot system delivery.

> **i** **Note**
>
> This manual includes information for both RobotWare 5 and RobotWare 6.

Usage

This manual contains instructions for starting up the IRC5 robot controller for the very first time after the physical installation has been completed.

Who should read this manual?

This manual is intended for:

- Commissioning personnel

Prerequisites

The reader should be familiar with:

- Mechanically installing the robot hardware.
- Be trained in robot operation.

The contents of the manual assumes all hardware (manipulator, controller and such) has been installed correctly and connected to each other.

Organization of chapters

The manual is organized in the following chapters:

Chapter	Contents
1 Procedures	Procedures for setup and startup of the IRC5 robot system.
2 General	Descriptions of the parts in IRC5 robot system.

References

Reference	Document ID
Product manual - IRC5 IRC5 with main computer DSQC 639.	*3HAC021313-001*
Product manual - IRC5 IRC5 with main computer DSQC1000.	*3HAC047136-001*
Operating manual - IRC5 with FlexPendant	*3HAC050941-001*
Operating manual - RobotStudio	*3HAC032104-001*
Operating manual - Troubleshooting IRC5	*3HAC020738-001*
Technical reference manual - System parameters	*3HAC050948-001*
Application manual - MultiMove	*3HAC050961-001*

Revisions

Revision	Description
-	Replaces manual with document id 3HAC 021564-001. Released with RobotWare 5.08.
A	Polish translation added.
B	RobotStudio Online is integrated in RobotStudio. Title adjusted.
C	Updated information on installing and licensing RobotStudio.
D	Updated the section *Installation options and prerequisites on page 14* with the information on installing RobotStudio.
E	Released with RobotWare 5.13. Updated information in the section *Installation options and prerequisites on page 14* Added steps on downloading a system to a controller. See *How to create a system using RobotStudio on page 15*.
F	Released with RobotWare 5.13.02. Updated information about the RobotWare key delivery. See *How to create a system using RobotStudio on page 15*.
G	Released with RobotWare 5.14. • Added the procedure *How to switch off power*. See *How to switch off power on page 16*. • Removed references to RobotStudio trial period activation.
H	Released with RobotWare 5.14.02. Added information on IRC5 Compact and Panel Mounted Controller. Updated the procedures *How to switch on power on page 15* and *How to switch off power on page 16*.
J	Released with RobotWare 5.15 Updated and reworked the sections relating to RobotStudio installation, licensing and activation, under *Installation options and prerequisites on page 14*.
K	Released with RobotWare 5.60 • Updated information on the new main computer DSQC1000. See *Connecting a PC to the controller on page 18*. • Added a note on *MultiMove* being not supported in RW5.60. See *Procedure for MultiMove systems on page 13*.
L	Released with RobotWare 5.61 • Updated information on limitations. See *Connecting a PC to the controller on page 18*. • The option *MultiMove* is available in RobotWare 5.61. • Update the note on RW5.61 limitations in the section *Installation options and prerequisites on page 14*.
M	Released with RobotWare 6.0 • Removed references to dual controller. • Added a new section on *T10*. • Added a new section on RobotStudio Online Apps in *General information on page 27* section.
N	Released with RobotWare 6.03 Updated the chapter *General information on page 27*. "SMB memory" is renamed "robot memory" and "cabinet memory" is renamed "controller memory".

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Revision	Description
P	Released with RobotWare 6.08. • Removed references to DVD and added information about myABB Business Portal.
Q	Released with RobotWare 6.14.01. • Added information about a new version of the FlexPendant. • Removed information about T10.

Safety note

Overview

Please note that there is no information regarding safety aspects in this manual!

In an effort to keep this manual short, there is *no information* regarding:

- safe handling and operation of the equipment
- generic reference information
- detailed procedures

This information can be found in the *Product manuals* or the *Operating manuals* delivered with the robot system.

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1 Procedures

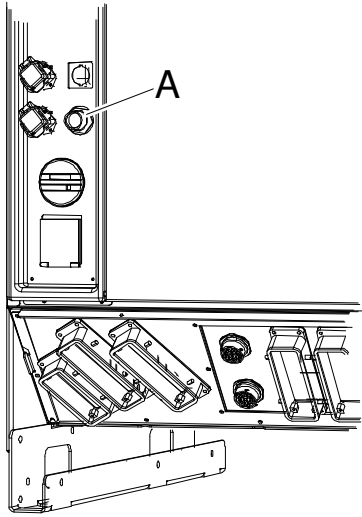## 1.1 Procedure for single robot systems

Overview

This instruction is valid for IRC5 single robot systems.

A single robot system contains any of the following

- Single Cabinet Controller (controller with integrated control module and drive module)
- IRC5 Compact Controller
- Panel Mounted Controller

How to get started

This procedure details how to get started with a single robot system.

	Action	Info/illustration
1	Mechanically install the robot and controller, and connect the electrical power and signal cables between them. Also connect the electrical power supply.	These procedures are detailed in the Product Manuals of robot and controller respectively.
2	Make sure all safety related connections are made correctly.	Refer to the work station wiring diagram.
3	Connect the FlexPendant to the controller.	xx0500001854 A: FlexPendant connector, Single Cabinet Controller ℹ **Note** The FlexPendant connector may be placed in different positions on different controllers, but they look similar on all controllers.

Continues on next page

1 Procedures

1.1 Procedure for single robot systems
Continued

	Action	Info/illustration
4	If the robot system is delivered with fully functional system software installed, you can proceed as detailed in section *How to switch on power* in *Installation options and prerequisites on page 14*. If no functional system software has been installed, please proceed as detailed in section *Installation options and prerequisites on page 14*.	

1.2 Procedure for MultiMove systems

Overview

> **ℹ Note**
>
> The option MultiMove is not supported with RobotWare 5.60.
>
> The option *MultiMove* is available in RobotWare 5.15.xx/RobotWare 5.61.

This instruction is valid for IRC5 multi robot systems, that is, systems using the MultiMove option.

The ABB IRC5 controller has all components in one cabinet.

Additional drive modules can be connected to the controller. These are used in MultiMove applications where one controller is controlling up to four manipulators.
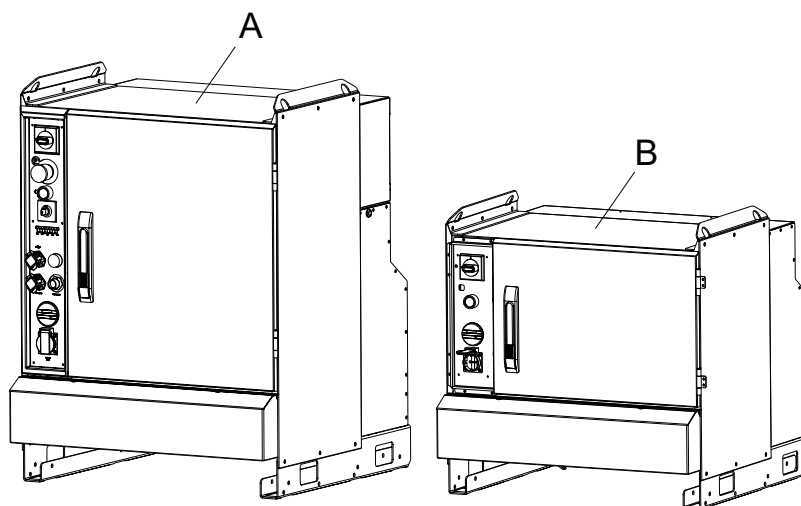
xx1300000678

A	IRC5 controller
B	Additional drive module

> **ℹ Note**
>
> IRC5 Compact Controller does not support MultiMove.

> **ℹ Note**
>
> All multi robot systems are configured as single robot systems on delivery. In order to be fully functional as multi robot systems, these systems must be re-configured. How to perform this is detailed in *Application manual - MultiMove*.

1.3 Installation options and prerequisites

Prerequisites

You should have administrator privileges on the PC before installing RobotStudio.

Installation options for RobotStudio

> ℹ️ **Note**
>
> RobotStudio is available for a 30 day trial period. For more information about the activation procedure, see *Operating manual - RobotStudio*.

RobotStudio is categorized into the following two feature levels:

- **Basic** - Offers selected RobotStudio functionality to configure, program, and run a virtual controller. It also includes online features for programming, configuring, and monitoring a real controller connected over Ethernet.
- **Premium** - Offers full RobotStudio functionality for offline programming and simulation of multiple robots. The Premium level includes the features of the Basic level and requires activation.

In addition to the Premium functionality, there are add-ins like PowerPacs and options for CAD converters available.

- PowerPacs provides enhanced features for selected applications.
- Options for CAD converters allows import of different CAD formats.

RobotStudio offers the following installation options:

- **Minimal** - Installs only the features required to program, configure, and monitor a real controller connected over Ethernet.
- **Complete** - Installs all the features required to run the complete RobotStudio. If installed with this option, additional features of Basic and Premium functionality are available.
- **Custom** - Installs user-customized features. This option allows excluding unwanted robot libraries and CAD converters.

> ℹ️ **Note**
>
> RobotStudio 6.0 is installed for the Complete installation option on computers that have a 64-bit operating system. The 64-bit edition allows large CAD-models to be imported as it can address more memory than the 32-bit version.
>
> However, the 64-bit edition has the following limitations:
>
> - ScreenMaker, SafeMove Configurator, and EPS Wizard are not supported.
> - Add-ins will be loaded from the following folder
>
>   ```
>   C:\Program Files (x86)\ABB Industrial IT\Robotics
>   IT\RobotStudio 6.0\Bin64\Addins
>   ```

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How to create a system using RobotStudio

If you have a single robot system, the RobotWare system is pre-installed on your IRC5 controller. However, if your system uses the option MultiMove, you must create a new system defining all robots in the system, see *Application manual - MultiMove*.

If you want to create or modify your RobotWare system, you need to use RobotStudio, see *Operating manual - RobotStudio* for details.
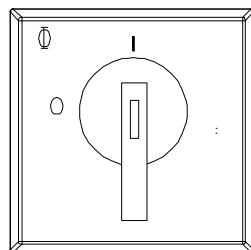
> **ℹ Note**
>
> For RobotWare 6 you use the Installation Manager. For RobotWare 5 you use the System Builder. Both tools are available in RobotStudio.

How to switch on power

The mains power switch is located on the front of the controller/module.

- For a Panel Mounted Controller, the placing of the switch can vary.

The following illustration shows the switch in power on state.

en0400000793

> **ℹ Note**
>
> The power switch can look different on a Panel Mounted Controller.

	Action	Information
1	Switch on the power to the Control Module.	If the system does not start up, or if the start window is not displayed, please proceed as detailed in *Operating manual - Troubleshooting IRC5*.
2	After switching the power on, proceed with loading calibration data.	See *How to load calibration data on page 16*.

How to load calibration data

The calibration data is normally stored on the serial measurement board of each robot, regardless of whether the robot runs an absolute measurement system (*Absolute Accuracy* option is installed, *AbsAcc*) or not. This data is normally transferred automatically to the controller when the system is powered up, and in such cases no action is required by the operator.

Verify that the correct SMB data has been loaded into the system as detailed below. In a MultiMove system, this procedure must be repeated for each robot.

	Action
1	On the FlexPendant, tap the **ABB** menu, then tap **Calibration** and select a mechanical unit.
2	Tap **Robot Memory** and then tap **Show status**. The data is displayed with status on the controller and robot memory.
3	If **Valid** is displayed under the headings **Controller Memory** and **Robot Memory**, calibration data is correct. If not, the data (on the robot or in the controller) must be replaced with the correct one as detailed below: • If, for instance, the SMB board has been replaced, transfer data from controller to robot memory. If the controller has been replaced, transfer transfer data from the robot to the controller memory. • Transfer data by tapping **Robot Memory**, **Update**, and then selecting which data to update.
4	After loading calibration data, proceed with updating the revolution counters. See *How to update revolution counters on page 16*.

How to update revolution counters

In a MultiMove system, this procedure must be repeated for each robot.

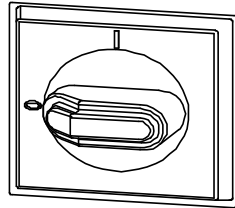|	Action	Information
1	Manually jog the robot to a position close to the calibration position.	The calibration position of each axis is indicated by the calibration marks.
2	After positioning all axes within the scale indicated by the calibration marks, store the revolution counter settings. On the FlexPendant, tap the **ABB** menu, then tap **Calibration**. Select the mechanical unit to be calibrated. Tap **Update revolution counters** and follow the instructions provided.	⚠ **CAUTION** If a revolution counter is incorrectly updated, it will cause incorrect robot positioning, which in turn may cause damage or injury! Verify the calibration position very carefully after each update.

How to switch off power

The mains power switch is located on the front of the controller/module.

• For a Panel Mounted Controller, the placing of the switch can vary.

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The following illustration shows the switch in power off state.

en1000001317

	Action	Information
1	Switch off the power to the control module.	The system will now shut down, which will take a couple of minutes.

1.4 Connecting a PC to the controller

General

In general there are two ways of physically connecting a PC to the controller, to the service port or to the factory network port.

The service port

The service port is intended for service engineers and programmers connecting directly to the controller with a PC.

The service port is configured with a fixed IP-address, which is the same for all controllers and cannot be changed, and has a DHCP server that automatically assigns an IP-address to the connected PC.

The factory network port

> **ⓘ Note**
>
> The factory network port is referred as LAN port for DSQC 639 and WAN port for DSQC1000.

The factory network port is intended for connecting the controller to a network.

The network settings can be configured with any IP-address, typically provided by the network administrator.

Limitations

> **ⓘ Note**
>
> The maximum number of connected network clients using Robot Communication Runtime (RobAPI) is:
> - WAN: 3 (LAN for DSQC 639)
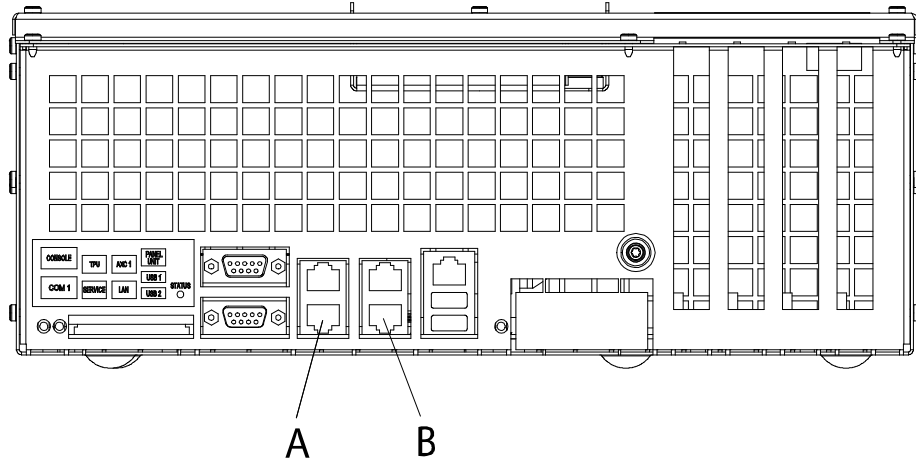> - Service: 1
> - FlexPendant: 1
>
> The maximum number of applications using RobAPI running on the same PC connected to one controller has no built-in maximum. However, UAS limits the number of logged-on users to 50.
>
> The maximum number of concurrently connected FTP clients is 20.

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Ports on the computer unit DSQC 639

The illustration below shows the two main ports on the computer unit DSQC 639, the service port and the LAN port.

connecti

A	Service port on the computer unit (connected to the service port on the controller front through a cable).
B	LAN port on the computer unit (connects to factory network).

> **Note**
>
> The LAN port is the only public network interface to the controller, typically connected to the factory network with a public IP-address provided by the network administrator.

Ports on the computer unit DSQC1000

The illustration below shows the two main ports on the computer unit DSQC1000, the service port and the WAN port.

xx1300000609

A	Service port on the computer unit (connected to the service port on the controller front through a cable).
B	WAN port on the computer unit (connects to factory network).

ℹ Note

The WAN port is the only public network interface to the controller, typically connected to the factory network with a public IP-address provided by the network administrator.
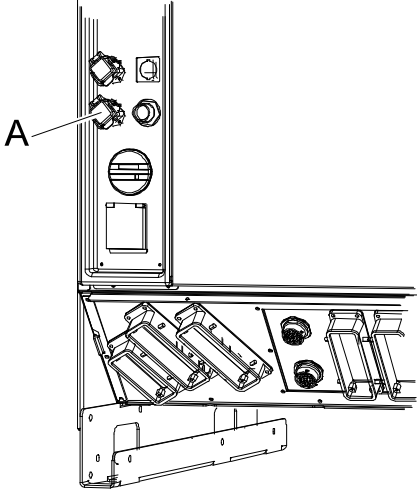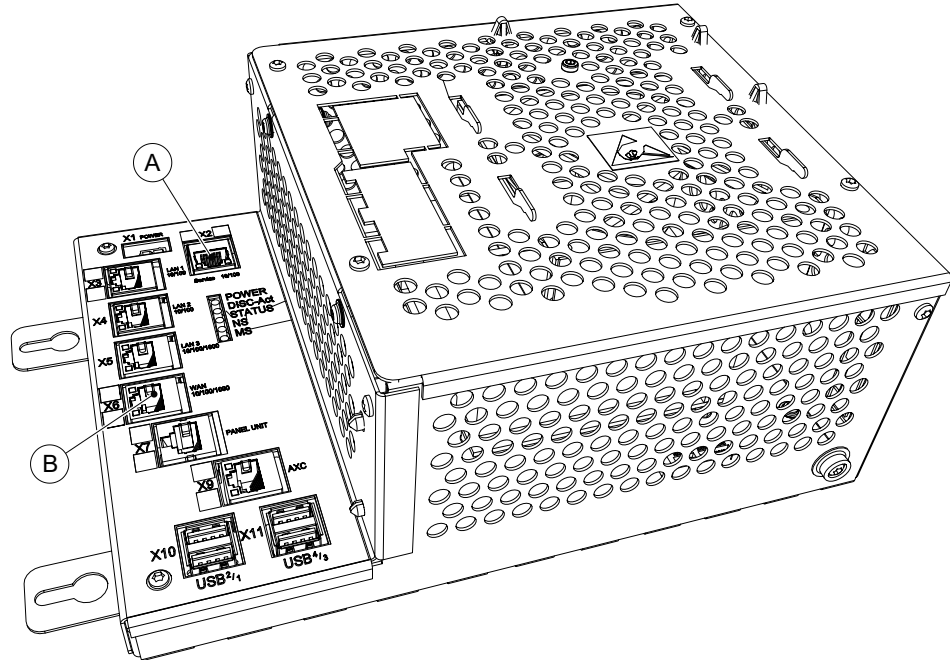
LAN1, LAN2, and LAN3 can only be configured as private networks to the IRC5 controller.

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Connecting a PC to the controller

	Action	Note
1	Make sure that the network setting on the PC to be connected is correct. **When connecting to the service port:** • The PC must be set to "Obtain an IP address automatically" or set as described in **Service PC Information** in the **Boot Application** on the FlexPendant. **When connecting to the factory network port:** • The network settings for the PC depend on the network configuration setup by the network administrator.	Refer to the system documentation for your PC, depending on the operative system you are running.
2	Connect a network cable to the network port of your PC.	
3	**When connecting to the service port:** • Connect the network cable to the service port on the controller, or to the service port on the computer unit. **When connecting to the factory network port:** • Connect the network cable to the factory network port on the computer unit.	 connectb A Service port on the controller

1.5 Creating a system using RobotStudio

How to create a system

If you want to create or modify your RobotWare system, you need to use RobotStudio, see *Operating manual - RobotStudio* for details.

> **Note**
>
> For RobotWare 6 you use the **Installation Manager**. For RobotWare 5 you use the **System Builder**. Both tools are available in RobotStudio.

How to create a MultiMove system

If your system uses the option MultiMove, you must create a new system defining all robots in the system.

For MultiMove systems, more information is also described in *Application manual - MultiMove*.
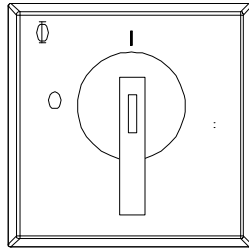
1.6 Switching on the power

How to switch on power

The mains power switch is located on the front of the controller/module.

- For a Panel Mounted Controller, the placing of the switch can vary.

The following illustration shows the switch in power on state.

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	Note

The power switch can look different on a Panel Mounted Controller.

	Action	Information
1	Switch on the power to the Control Module.	If the system does not start up, or if the start window is not displayed, please proceed as detailed in *Operating manual - Troubleshooting IRC5*.
2	After switching the power on, proceed with loading calibration data.	See *How to load calibration data on page 16*.

1.7 Loading calibration data

How to load calibration data

The calibration data is normally stored on the serial measurement board of each robot, regardless of whether the robot runs an absolute measurement system (*Absolute Accuracy* option is installed, *AbsAcc*) or not. This data is normally transferred automatically to the controller when the system is powered up, and in such cases no action is required by the operator.

Verify that the correct SMB data has been loaded into the system as detailed below. In a MultiMove system, this procedure must be repeated for each robot.

	Action
1	On the FlexPendant, tap the **ABB** menu, then tap **Calibration** and select a mechanical unit.
2	Tap **Robot Memory** and then tap **Show Status**. The data is displayed with status on the controller and robot memory.
3	If **Valid** is displayed under the headings **Controller Memory** and **Robot Memory**, calibration data is correct. If not, the data (on the robot or in the controller) must be replaced with the correct one as detailed below: • If, for instance, the SMB board has been replaced, transfer data from controller to robot memory. If the controller has been replaced, transfer data from the robot to the controller memory. • Transfer data by tapping **Robot Memory**, **Update**, and then selecting which data to update.
4	After loading calibration data, proceed with updating the revolution counters. See *How to update revolution counters on page 16*.

1.8 Updating revolution counters

How to update revolution counters

In a MultiMove system, this procedure must be repeated for each robot.

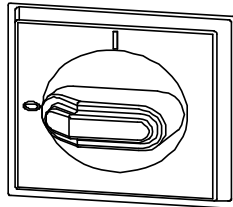|	Action	Information
1	Manually jog the robot to a position close to the calibration position.	The calibration position of each axis is indicated by the calibration marks.
2	After positioning all axes within the scale indicated by the calibration marks, store the revolution counter settings. On the FlexPendant, tap the **ABB** menu, then tap **Calibration**. Select the mechanical unit to be calibrated. Tap **Update revolution counters** and follow the instructions provided.	⚠ **CAUTION** If a revolution counter is incorrectly updated, it will cause incorrect robot positioning, which in turn may cause damage or injury! Verify the calibration position very carefully after each update.

1.9 Switching off the power

How to switch off power

The mains power switch is located on the front of the controller/module.

- For a Panel Mounted Controller, the placing of the switch can vary.

The following illustration shows the switch in power off state.

en1000001317

	Action	Information
1	Switch off the power to the control module.	The system will now shut down, which will take a couple of minutes.

2 General information

2.1 The FlexPendant

Introduction to the FlexPendant

The FlexPendant is a hand held operator unit that is used for many of the tasks when operating a robot: running programs, jogging the manipulator, modifying programs, and so on.

The FlexPendant is designed for continuous operation in harsh industrial environment. Its touchscreen is easy to clean and resistant to water, oil, and accidental welding splashes.

The FlexPendant consists of both hardware and software and is a complete computer in itself. It is connected to the robot controller by an integrated cable and connector.

The hot plug button option makes it possible to disconnect the FlexPendant in automatic mode and continue running without it.

The FlexPendant is available in different versions, as the hardware has been updated over the years. The exact appearance on the graphics might therefore differ slightly from reality.

> **Note**
>
> If protective gloves are used, these must be compatible with touchscreens when using the FlexPendant.
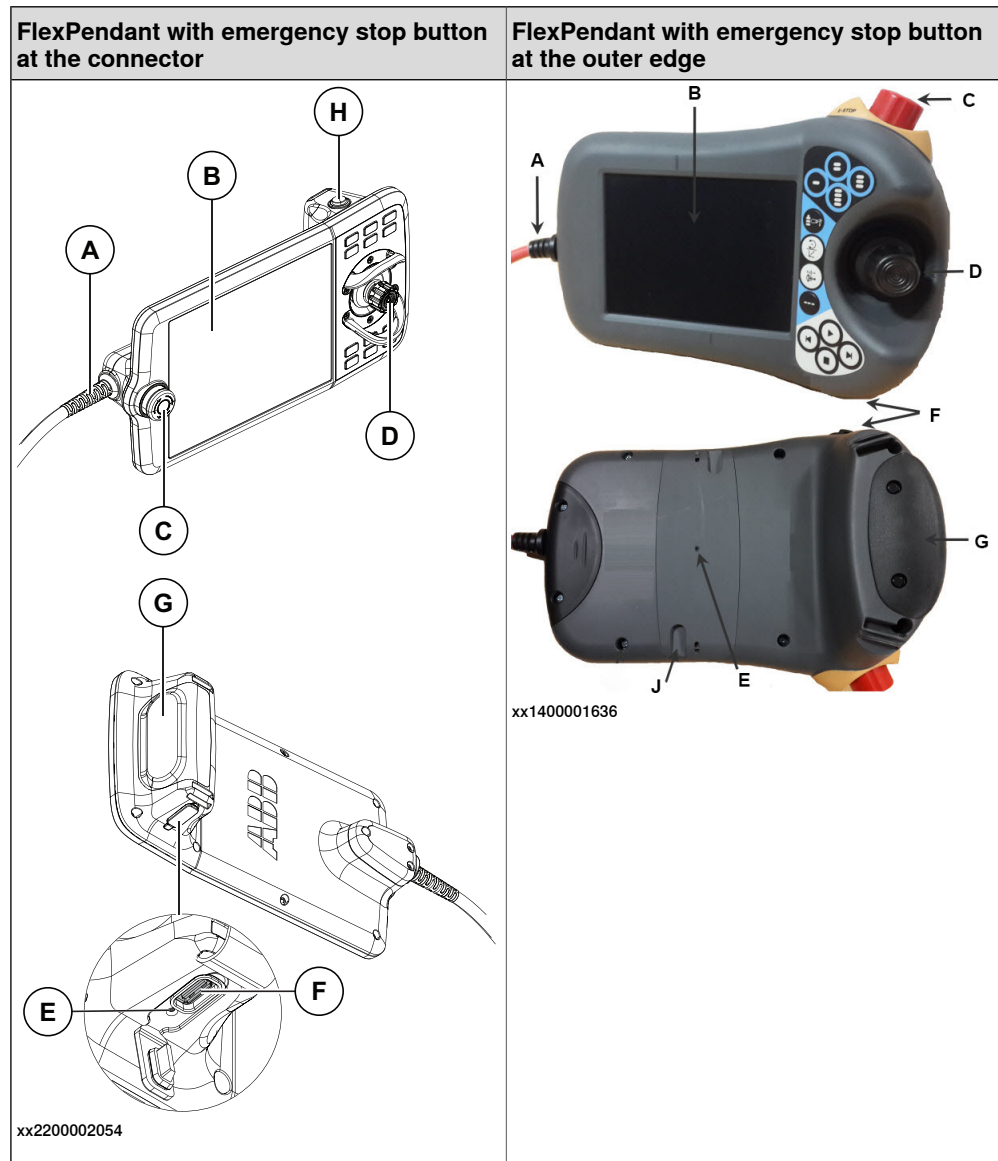
Main parts

These are the main parts of the FlexPendant.

FlexPendant with emergency stop button at the connector	FlexPendant with emergency stop button at the outer edge
xx2200002054	xx1400001636

A	Connector
B	Touchscreen
C	Emergency stop button
D	Joystick
E	Reset button
F	USB port
G	Three-position enabling device
H	Thumb button (Not available on all versions of FlexPendant.)
J	Stylus pen (Not available on all versions of FlexPendant.)

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Joystick

Use the joystick to move the manipulator. This is called jogging the robot. There are several settings for how the joystick will move the manipulator.

Reset button

If the FlexPendant freezes during operation, press the reset button to restart the FlexPendant.

The reset button resets the FlexPendant, not the system on the controller.

USB port

Connect a USB memory to the USB port to read or save files. The USB memory is displayed as drive */USB:Removable* in dialogs and FlexPendant Explorer.

ℹ️	**Note**

Close the protective cap on the USB port when not used.

Stylus pen

The stylus pen included with the FlexPendant is located on the back. Pull the small handle to release the pen.

Use the stylus pen to tap on the touch screen when using the FlexPendant. Do not use screw drivers or other sharp objects.

(Not available on all versions of FlexPendant.)

Hard buttons

The following hard buttons are available on the FlexPendant.

Button	Description
	Programmable keys, 1 - 4.
	Select mechanical unit.
	Toggle motion mode, reorient or linear.
	Toggle motion mode, axis 1-3 or axis 4-6.
	Toggle increments.
	Step BACKWARD button. Executes one instruction backward as button is pressed.
	START button. Starts program execution.
	Step FORWARD button. Executes one instruction forward as button is pressed.
	STOP button. Stops program execution.

2 General information

Three-position enabling device

> ⚠️ **CAUTION**
>
> The person using the three-position enabling device is responsible to observe the safeguarded space for hazards due to robot motion and any other hazards related to the robot.

The three-position enabling device is located on the FlexPendant. When continuously held in center-enabled position, the three-position enabling device will permit robot motion and any hazards controlled by the robot. Release of or compression past the center-enabled position will stop the robot motion.

> ⚠️ **CAUTION**
>
> For safe use of the three-position enabling device, the following must be implemented:
>
> - The three-position enabling device must never be rendered inoperational in any way.
> - If there is a need to enter safeguarded space, always bring the FlexPendant. This is to enforce single point of control.
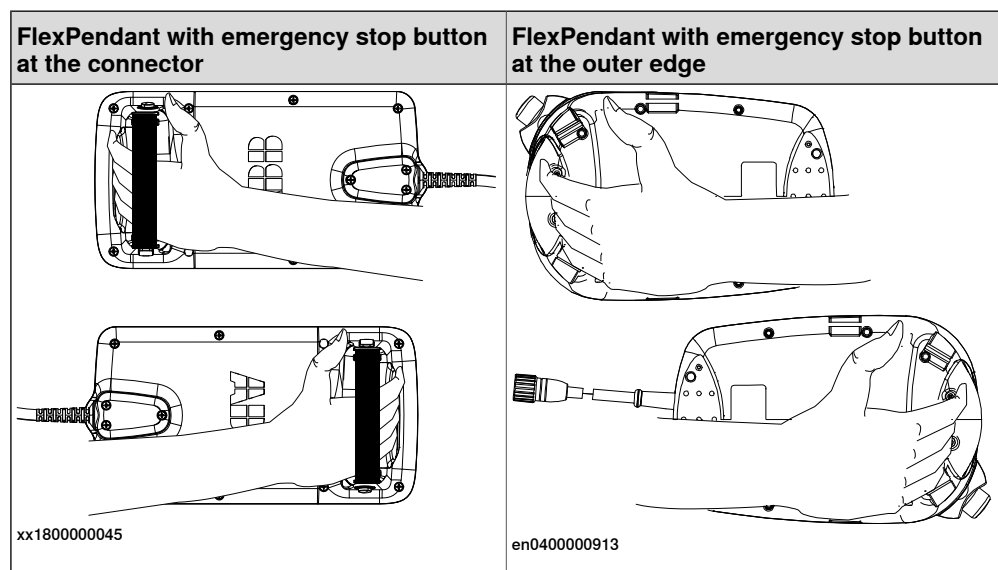
Thumb button

The thumb button is only available on the FlexPendant with emergency stop located at the connector.

The thumb button is used for hold-to-run.
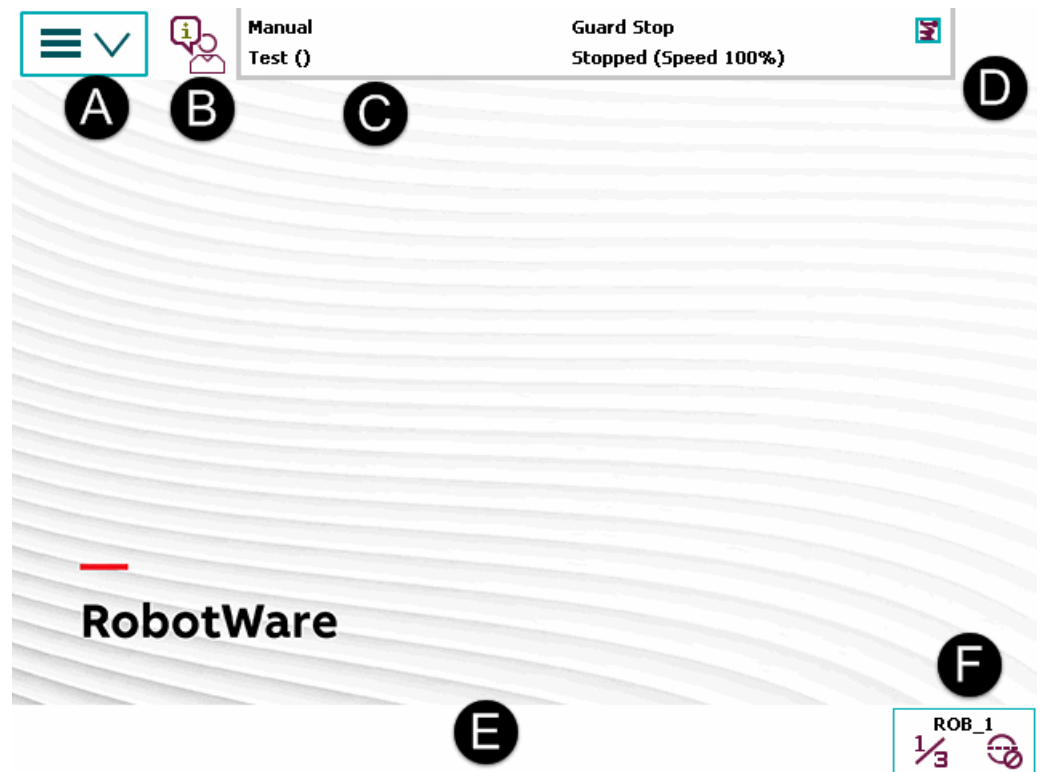
How to hold the FlexPendant

FlexPendant is typically operated while being held in the hand. The right-handed users use their left-hand to support the FlexPendant while their right-hand performs the operations on the touch screen. However, the left-handed users can easily adapt FlexPendant for their use.

FlexPendant with emergency stop button at the connector	FlexPendant with emergency stop button at the outer edge
xx1800000045	en0400000913

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Touchscreen elements

The illustration shows important elements of the FlexPendant touchscreen.

xx1400001446

A	Main menu
B	Operator window
C	Status bar
D	Close button
E	Task bar
F	Quickset menu

Main menu

The following items can be selected from the Main menu:

- HotEdit
- Inputs and Outputs
- Jogging
- **Production Window**
- **Program Editor**
- **Program Data**
- **Backup and Restore**
- **Calibration**
- **Control Panel**
- **Event Log**

- FlexPendant **Explorer**
- **System Info**
- etc.

This is further described in section *The ABB Menu* in *Operating manual - IRC5 with FlexPendant*.

Operator window

The operator window displays messages from robot programs. This usually happens when the program needs some kind of operator response in order to continue. This is described in section *Operator window* in *Operating manual - IRC5 with FlexPendant*.

Status bar

The status bar displays important information about system status, such as operating mode, motors on/off, program state and so on. This is described in section *Status bar* in *Operating manual - IRC5 with FlexPendant*.

Close button

Tapping the close button closes the presently active view or application.

Task bar

You can open several views from the Main menu, but only work with one at a time. The task bar displays all open views and is used to switch between these.

Quickset menu

The quickset menu provides settings for jogging and program execution. This is described in section T*he Quickset menu* in *Operating manual - IRC5 with FlexPendant*.

2.2 RobotStudio

Overview of RobotStudio

RobotStudio is an engineering tool for the configuration and programming of ABB robots, both real robots on the shop floor and virtual robots in a PC. To achieve true offline programming, RobotStudio utilizes ABB VirtualRobot™ Technology.

RobotStudio has adopted the Microsoft Office Fluent User Interface. The Office Fluent UI is also used in Microsoft Office. As in Office, the features of RobotStudio are designed in a workflow-oriented way.

With add-ins, RobotStudio can be extended and customized to suit the specific needs. Add-ins are developed using the RobotStudio SDK. With the SDK, it is also possible to develop custom SmartComponents which exceed the functionality provided by RobotStudio's base components.

For more information, see *Operating manual - RobotStudio*.

RobotStudio for real controllers

RobotStudio allows, for example, the following operations when connected to a real controller:

- Installing and modifying RobotWare systems on controllers, using the **Installation Manager 6**.
- Text-based programing and editing, using the **RAPID Editor**.
- File manager for the controller.
- Administrating the User Authorization System.
- Configuring system parameters.

2.3 RobotStudio Online

Introduction to RobotStudio Online

RobotStudio Online is a suite of **Windows Store** applications intended to run on **Windows 10** tablets. It provides functionality for the shop floor commissioning of robot systems.
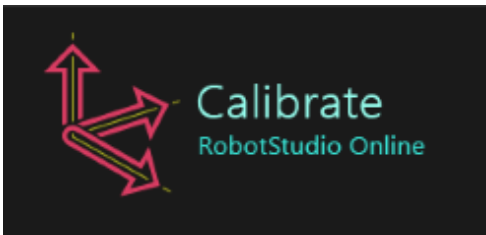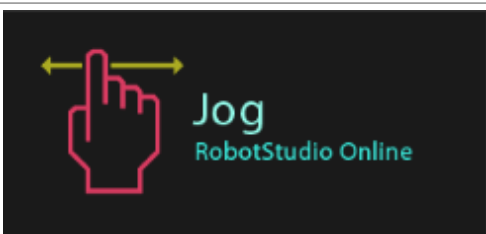
You can run these apps on a tablet that communicates with the robot controller wirelessly. To enable certain functionality, such as entering manual mode and enabling power to the mechanical unit motors, you need a safety device that is connected to the robot using the same plug that alternatively is used to connect the FlexPendant.

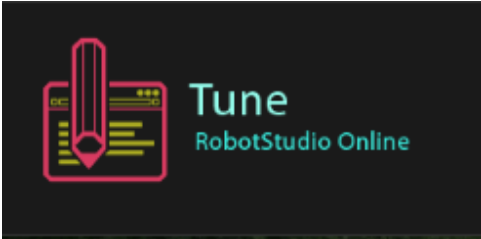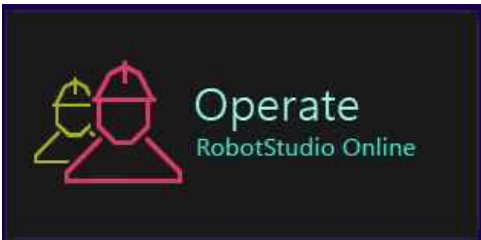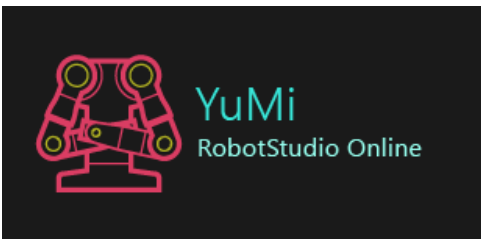The following RobotStudio Online apps are available in the Microsoft *Windows Store*:

> **Note**
>
> You must have **Windows 8.1** to run these Apps.

RobotStudio Online Apps	Description
Manage RobotStudio Online xx1400002047	**Manage** is a tool to manage IRC5 controllers on a network.
Calibrate RobotStudio Online xx1400002049	**Calibrate** is a tool for calibration and definition of frames with IRC5 controllers.
Jog RobotStudio Online xx1400002048	**Jog** is a tool for manual positioning (moving or jogging) with IRC5 controllers.

Continues on next page

Operating manual - Getting started, IRC5 and RobotStudio
3HAC027097-001 Revision: Q

RobotStudio Online Apps	Description
xx1400002050	**Tune** is a tool for shop floor editing of RAPID programs with IRC5 controllers.
xx1400002511	**Operate** is a tool used in production to view the program code.
xx1500000832	**YuMi** is a tool for programming of the YuMi robot, IRB 14000 from ABB. It will help the users to get a fast introduction to robot programming using lead-thru and graphical programming.

2.4 What is RobotWare?

Concept

> **ℹ Note**
>
> RobotWare concept provided here applies to RobotWare 5. For RobotWare 6 details, see *Operating manual - RobotStudio*.

RobotWare is a generic term for all software to be installed in the robot designed to operate the robot.

RobotWare is installed and stored in the mediapool (`Mediapool`) folder on a PC/server. The mediapool is described in section *About the mediapool on page 37*.

RobotWare is installed on the controller on delivery, and it can be downloaded online from *www.abb.com/robotics*. RobotWare contains software for all available robot models, options, and such.

2.5 About the mediapool

Overview

The mediapool is a folder on your PC that contains the RobotWare software. It is from the mediapool that you select programs and options when building systems.

> **ℹ Note**
>
> Mediapool is valid only for RobotWare 5.

The default mediapool

If RobotWare is installed with default settings on the PC, the default media pool is located in the folder *C:\Program Files\ABB Industrial IT\Robotics IT\Mediapool*.

Customized mediapools

You can create customized mediapools by creating new folders to which you copy RobotWare files from existing mediapools. You can also update or modify a mediapool by importing new parts of RobotWare using the *Import Option* tool in RobotStudio.

In RobotStudio, you then choose which mediapool to use when creating new systems.

2.6 When to use different jogging devices

Overview

For operating and managing the robot, you can use any of the following:

- FlexPendant: Optimized for handling robot motions and ordinary operation
- RobotStudio: Optimized for configuration, programming and other tasks not related to the daily operation.
- RobotStudio Online Apps : Optimized for jogging, managing, working with the frames, calibration methods and RAPID programs available in the robot controller.

Start, restart and shut down the controller

To...	Use...
Start the controller	The power switch on the controller's front panel.
Restart the controller	The FlexPendant, RobotStudio, RobotStudio Online Apps or the power switch on the controller's front panel.
Shut down the controller	The power switch on the controller's front panel or the FlexPendant, tap **Restart**, then **Advanced**.
Shut down the main computer	The FlexPendant.

Run and control robot programs

To...	Use...
Jog a robot	The FlexPendant.
Start or stop a robot program	The FlexPendant, RobotStudio or RobotStudio Online Apps.
Start and stop background tasks	The FlexPendant, RobotStudio or RobotStudio Online Apps.

Communicate with the controller

To...	Use...
Acknowledge events	The FlexPendant or RobotStudio Online Apps.
View and save the controller's event logs	RobotStudio, FlexPendant or the RobotStudio Online Apps.
Back up the controller's software to files on the PC or a server	RobotStudio, FlexPendant or the RobotStudio Online Apps.
Back up the controller's software to files on the controller	The FlexPendant or RobotStudio Online Apps.
Transfer files between the controller and network drives	RobotStudio, FlexPendant or the RobotStudio Online Apps.

Program a robot

To...	Use...
Create or edit robot programs in a flexible way. This is suitable for complex programs with a lot of logic, I/O signals or action instructions	RobotStudio to create the program's structure and most of the source code and the FlexPendant to store robot positions and make final adjustments to the program. When programming, RobotStudio provides the following advantages: • A text editor optimized for RAPID code, with auto-text and tool-tip information about instructions and parameters. • Program check with program error marking. • Close access to configuration and I/O editing.
Create or edit a robot program in a supportive way. This is suitable for programs that mostly consist of move instructions	The FlexPendant. When programming, the FlexPendant provides the following advantages: • Instruction pick lists • Program check and debug while writing • Possibility to create robot positions while programming
Add or edit robot positions	The FlexPendant with a combination of suitable RobotStudio Online Apps.
Modify robot positions	The FlexPendant with a combination of suitable RobotStudio Online Apps.

Configure the robot's system parameters

To...	Use...
Edit the system parameters of the running system	RobotStudio, FlexPendant or the RobotStudio Online Apps.
Save the robot's system parameters as configuration files	RobotStudio, FlexPendant or the RobotStudio Online Apps.
Load system parameters from configuration files to the running system	RobotStudio, FlexPendant or the RobotStudio Online Apps.
Load calibration data	RobotStudio, FlexPendant or the RobotStudio Online Apps.

Create, modify and install systems

To...	Use...
Create or modify a system	RobotStudio together with RobotWare and a valid RobotWare Key for systems based on RobotWare 5. RobotStudio together with RobotWare and license file for systems based on RobotWare 6.
Install a system on a controller	RobotStudio
Install a system on a controller from a USB memory	The FlexPendant.

Calibration

To...	Use...
Calibrate base frame etc.	The FlexPendant or the RobotStudio Online Apps.

2 General information

To...	Use...
Calibrate tools, work objects etc.	The FlexPendant or the RobotStudio Online Apps.

Related information

The table below specifies which manuals to read, when performing the various tasks referred to:

Recommended use...	for details, see manual...	Document number
FlexPendant	*Operating manual - IRC5 with Flex-Pendant*	3HAC050941-001
RobotStudio	*Operating manual - RobotStudio*	3HAC032104-001

2.7 Product documentation

Categories for user documentation from ABB Robotics

The user documentation from ABB Robotics is divided into a number of categories. This listing is based on the type of information in the documents, regardless of whether the products are standard or optional.

> 💡 **Tip**
>
> All documents can be found via myABB Business Portal, *www.abb.com/myABB*.

Product manuals

Manipulators, controllers, DressPack/SpotPack, and most other hardware is delivered with a **Product manual** that generally contains:

- Safety information.
- Installation and commissioning (descriptions of mechanical installation or electrical connections).
- Maintenance (descriptions of all required preventive maintenance procedures including intervals and expected life time of parts).
- Repair (descriptions of all recommended repair procedures including spare parts).
- Calibration.
- Troubleshooting.
- Decommissioning.
- Reference information (safety standards, unit conversions, screw joints, lists of tools).
- Spare parts list with corresponding figures (or references to separate spare parts lists).
- References to circuit diagrams.

Technical reference manuals

The technical reference manuals describe reference information for robotics products, for example lubrication, the RAPID language, and system parameters.

Application manuals

Specific applications (for example software or hardware options) are described in **Application manuals**. An application manual can describe one or several applications.

An application manual generally contains information about:

- The purpose of the application (what it does and when it is useful).
- What is included (for example cables, I/O boards, RAPID instructions, system parameters, software).
- How to install included or required hardware.
- How to use the application.

Continues on next page

- Examples of how to use the application.

Operating manuals

The operating manuals describe hands-on handling of the products. The manuals are aimed at those having first-hand operational contact with the product, that is production cell operators, programmers, and troubleshooters.

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