

IRC5

Industrial Robot Controller



Based on more than four decades of robotics experience, the IRC5 is the robotic industry's benchmark in robot controller technology. In addition to ABB's unique motion control it brings flexibility, safety, modularity, application interfaces, multi-robot control and PC tool support. The IRC5 comes in different variants to provide a cost-effective and optimized solutions for every need.

Fast and accurate

The IRC5 gives our robots the ability to perform their tasks in a highly efficient manner. Based on advanced dynamic modelling, the IRC5 automatically optimizes the performance of the robot by reducing cycle times (QuickMove®) and providing precise path accuracy (TrueMove®). Thanks to ABB's IRC5 technology, a robot's motion is predictable and its performance high, with no tuning required by the programmer. What you program is what you get.

Safe

Operator safety is a leading benefit of the IRC5. It fulfills all relevant regulations and is certified by third party inspectors worldwide.

SafeMove represent a new generation of safety, enabling more flexible robotic cell safety concepts, e.g. enabling floor space reduction and collaboration between robot and humans.

Compatible

No matter where in the world your robot is located, and regardless of what regulatory standards apply, the IRC5 is up to the task. ABB's controller is compatible with various types of main voltages and can handle a broad spectrum of environmental conditions. IRC5 communicates with other machines in a manufacturing environment; in a safe and predictable way. It supports the majority of all state-of-the-art industrial networks for I/O. Sensor interfaces, remote access and a rich set of programmable interfaces are examples of the IRC5's many powerful networking features.

Programmable

All ABB robot systems are programmed with RAPID™, ABB's flexible, high-level programming language. On the surface RAPID's basic features and functionality are easy to use, but dig deeper and you will find that this programming language allows you to create highly sophisticated solutions. It is a truly universal language on and off the shop floor which supports structured programs, and advanced features. It also incorporates powerful support for the most common robot process applications such as welding and assembly.

FlexPendant TPU4

ABB Robotics is continuously enhancing the user experience of its FlexPendant TPU (Teach Pendant Unit) and starts to deliver TPU4 for IRC5 controllers from March 2023. This fourth generation TPU is based on the design of the OmniCore FlexPendant and offers a more intuitive and efficient user interface for industrial applications.

How does ABB support customers

TPU4 comes with pre-installed software that supports the latest RobotWare versions. ABB Robotics continues to support older RobotWare versions via RobotStudio add-In.

Benefits of TPU4

- Larger 8" screen and intuitive multi-touch interface with access to swipe and scroll
- Faster time and touch response (capacitive instead of resistive touch)



IRC5 Single Cabinet Controller

- Designed for high IP protection and full expandability.
- Provides a protected environment for auxiliary equipment in the robot system.
- Capable of control of up to four robots in a MultiMove® setup. Just add a compact drive module to each additional robot.
- MultiMove® opens up previously unthinkable operations, thanks to the perfect coordination of complex motion patterns.

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Technical information

Electrical Connections

Supply voltage	3 phase, 200-600 V, 50-60 Hz
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Physical

Dimensions

Single cabinet	970 x 725 x 710 mm
MultiMove® drive modules	720 x 725 x 710 mm

Weight

Single cabinet	150 kg
MultiMove® drive modules	130 kg

Environment

Ambient temperature	0-45°C, optional: 0-52°C
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Relative humidity	Max. 95% non condensing
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Safety	SafeMove: Supervision of stand-still, speed, position and orientation (robot and additional axes): 8 safe inputs for function activation, 8 safe monitoring outputs
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Extended safety	Electronic Position Switches: 5 safe outputs monitoring axis 1-7
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Degree of protection	IP54 (cooling ducts IP33)
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IRC5C Compact Controller

- Offers the capabilities of the powerful IRC5 controller in a compact format.
- Delivers space saving benefits and easy commissioning through one phase power input
- External connectors for all signals and a built in expandable 16 in, 16 out I/O system.

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Technical information

Electrical Connections

Supply voltage	Single phase 220/230 V, 50-60 Hz
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Physical

Dimensions	320 x 449 x 442 mm
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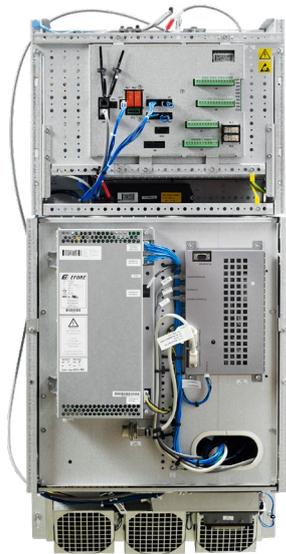
Weight	28.5 kg
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Environment

Ambient temperature	0-45°C
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Relative humidity	Max. 95% non condensing
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Degree of protection	IP20
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IRC5 PMC Panel Mounted Controller

- Comes without a cabinet
- Can be integrated into any enclosure for customization or for special environmental requirements

Technical information

Electrical Connections

Supply voltage 3 phase 200-600 V, 50-60 Hz

Physical

Dimensions

Control module	375 x 498 x 271 mm
Drive module small	375 x 498 x 299 mm
Drive module large	685 x 498 x 425 mm

Weight

Control module	12 kg
Drive module small	24 kg
Drive module large	40 kg

Environment

Ambient temperature 0-45°C
 Relative humidity Max. 95% non condensing

Safety SafeMove. Supervision of stand-still, speed, position and orientation (robot and additional axes)
 8 safe inputs for function activation,
 8 safe monitoring outputs

Extended safety Electronic Position Switches:
 5 safe outputs monitoring axis 1-7

Degree of protection IP20

IRC5P Paint Controller

- Provides full control of the paint process by integrating hardware and software seamlessly
- Reduces cycle time, saves paint, and is environmentally-friendly.
- Is certified as an associated equipment for interfacing manipulators/equipment for hazardous location.
- The IRC5P FlexPaint Pendant is Ex certified for use in hazardous locations; includes soft keys, a dual joystick, a 3.5 inch back lit screen; supports Asian language characters and has an emergency stop.
- Includes RobView 5, which automatically adapts the robot system to the specific paint application.

Technical information

Electrical Connections

Supply voltage 3 phase 200-600 V, 50-60 Hz

Physical

Dimensions 1450 x 725 x 710 mm
 Weight 180 kg

Environment

Ex classification: II (2) G [Ex ib px] IIB T4
 II (2) D [Ex pD 21] T65°C
 FM Class I, II. Div.1,
 Group C, D, E, F, G 135°C

Ambient temperature Max. 95% non condensing

Relative humidity 0-48°C

Degree of protection IP54



Benefits of TPU4

- Larger 8" screen and intuitive multi-touch interface with access to swipe and scroll
- Faster time and touch response (capacitive instead of resistive touch)

FlexPendant

Functions

Graphical multi-touch 8" color screen
LED status diodes
Joystick
Hot-swappable- add/remove during operation IP65
Membrane keyboard with 12 buttons
USB 3.0 support

Safety functions

Emergency stop
3-position enabling switch (dual circuit)
Hold-to-run 100% manual speed button

