Fifth generation robot controller
Based on more than four decades of robotics experience, the IRC5 sets a benchmark in the robotics industry. In addition to ABB’s unique motion control it brings flexibility, safety, modularity, customer adapted user interface, multi robot control and PC tool support.

Safety
Operator safety is a central quality of the IRC5, fulfilling all relevant regulations with good measure, as certified by third-party inspections. Electronic position switches and SafeMove represent a new generation of safety, enabling more flexible cell safety concepts, e.g. involving collaboration between robot and operator.

Motion control
Based on advanced dynamic modelling, the IRC5 optimizes the performance of the robot for the physically shortest possible cycle time (QuickMove) and precise path accuracy (TrueMove). Together with a speed-independent path, predictable and high-performance behavior is delivered automatically, with no tuning required by the programmer. What you program is what you get.

Modularity
The IRC5 comes in different variants in order to provide a cost-effective solution for every need. The ability to stack modules on top of each other, put them side by side or distributed in the cell is a unique feature, leading to optimization of footprint and cell layout.

The panel-mounted version comes without a cabinet, enabling integration in any encapsulation for exceptional compactness or for special environmental requirements.

FlexPendant
The FlexPendant is characterized by its clean, color touch screen-based design and 3D joystick for intuitive interaction. Powerful customized application support enables loading of tailor-made applications, e.g. operator screens, thus eliminating the need for a separate operator HMI.

RAPID programming language
RAPID programming provides the perfect combination of simplicity, flexibility and power. It is a truly unlimited language with support for structured programs, shop floor language and advanced features. It also incorporates powerful support for many process applications.

Communication
The IRC5 supports the state-of-the-art field busses for I/O and is a well-behaved node in any plant network. Sensor interfaces, remote disk access and socket messaging are examples of the many powerful networking features.

Remote Service enabled
Remote monitoring of the robot is available through GSM or Ethernet. Advanced diagnostics allow fast investigation on failure as well as monitoring of the robot condition throughout the life cycle. Service packages include backup management, reporting and proactive maintenance activities.

RobotStudio
A powerful PC tool for working with IRC5 data on-line as well as off-line. In off-line mode, RobotStudio provides a perfect digital copy of the robot system together with strong programming and simulation features.

MultiMove
Control of up to four robots from one controller, with a compact drive module added for each additional robot. MultiMove opens up previously unthinkable operations, thanks to the perfect coordination of complex motion patterns.
**IRC5 Design 2014**

### Specification

**Control hardware:**
- Multi-processor system
- PCIe bus
- Pentium® CPU
- Flash disk for mass memory
- Energy back-up power failure handling
- USB memory interface

**Control software:**
- Object-oriented design
- High-level RAPID programming language
- Portable, open, expandable
- PC-DOS file format
- RobotWare software products
- Preloaded software, also available on DVD

### Electrical Connections

**Supply voltage:**
- 3 phase 200-600 V, 50-60 Hz
- Integrated transformer or direct mains connection

**Physical**

<table>
<thead>
<tr>
<th>Type</th>
<th>Size H x W x D</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single cabinet</td>
<td>970 x 725 x 710 mm</td>
<td>150 kg</td>
</tr>
<tr>
<td>Drive module</td>
<td>720 x 725 x 710 mm</td>
<td>130 kg</td>
</tr>
<tr>
<td>Empty cabinet for customer</td>
<td>small 720 x 725 x 710 mm</td>
<td>35 kg</td>
</tr>
<tr>
<td></td>
<td>large 970 x 725 x 710 mm</td>
<td>42 kg</td>
</tr>
</tbody>
</table>

**Panel Mounted *)**

- Control module: 375 x 498 x 271 mm, 12 kg
- Drive module small **) 375 x 498 x 299 mm, 24 kg
- Drive module large **) 658 x 498 x 425 mm, 40 kg

*) IRB 140, 340, 1600, 260

**) IRB 2400, 2600, 4400, 4600, 6620, 6640, 6650, 7600, 660, 760

### Safety

**Basic:**
- Safety and emergency stops
- 2-channel safety circuits with supervision
- 3-position enabling device

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

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

### Machine Interfaces

**Inputs/outputs:**
- 12000 signals

**Digital:**
- 24V DC or relay signals

**Analogue:**
- 2 x 0-10V, 3 x ±10V, 1 x 4-20mA

**Serial channel:**
- Optional

**Network:**
- Ethernet(10/100 Mbits per second)

**Channels:**
- Service and WAN, Multiple LAN

**Fieldbus Master:**
- DeviceNet™
- PROFINET™
- PROFIBUS DP
- Ethernet/IP™

**Fieldbus Slave:**
- DeviceNet™
- PROFINET™
- PROFIBUS DP
- Ethernet/IP™
- Allen-Bradley Remote I/O
- CC-link

### Sensor Interfaces

- Search stop with automatic program shift
- Seam/contour tracking
- Conveyor tracking
- Machine vision
- Force Control

### Environment

**Ambient temperature:**
- 0-45°C (32-113°F) option 0-52°C (32-125°F)

**Relative humidity:**
- Max. 95% non condensing

**Level of protection:**
- IP 54 (cooling ducts IP 33)
- Panel Mounted IP 20

**Fulfilment of regulations:**
- Machine directive 98/37/EC regulations
- Annex II B
- EN 60204-1:2006
- ISO 10218-1:2011
- ANSI/RIA R 15.06 - 1999
- UL 1740-1998

### User Interfaces

**Control panel:**
- On cabinet or remote

**FlexPendant:**
- Weight 1 kg
- Graphical color touch screen
- Joystick
- Emergency stop
- Hot plug
- Support for right and left-handed operators
- USB Memory support

**Maintenance:**
- Status LEDs
- Diagnostic software
- Recovery procedures
- Logging with time stamp
- Remote Service enabled

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Panel mounted controller

[www.abb.com/robotics](http://www.abb.com/robotics)