



IRC5

Industrial Robot Controller



Fifth generation robot controller

Based on more than three decades of robotics experience, the IRC5 sets a new benchmark in the robotics industry. Bringing previous achievements in motion control, flexibility, usability, safety and robustness along, it adds new breakthroughs in modularity, 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 add the first touch of a new generation of safety, replacing earlier electro-mechanical solutions, open up for flexible and robust cell interlocking. For even more flexible cell safety concepts, e.g. involving collaboration between robot and operator, SafeMove offers a host of useful safety functions.

Motion control

Based on advanced dynamic modeling, 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.

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 cell HMI.

RAPID

The RAPID programming language provides the perfect combination of simplicity, flexibility and powerfulness. It is a truly unlimited language with support for well-structured programs, shop floor language and advanced features, like automatic error handling and customization support. It also incorporates powerful support for many applications, like arc and spot welding.

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 interface functionality, remote disk access and socket messaging are examples of the many powerful networking features.

RobotStudio

The IRC5 comes with a powerful PC tool for working with IRC5 data, RobotStudio, the perfect companion to the FlexPendant, providing the benefits of a PC environment, including remote access. RobotStudio can also be used off-line, providing a perfect digital copy of the robot system together with strong programming and simulation features.

MultiMove

Through MultiMove, the IRC5 is able to control up to four robots from one controller, with a compact drive module added for each additional robot. MultiMove provides a cost-effective solution for multi-robot operation through reduced hardware, cycle times, etc. Furthermore, it opens up previously unthinkable operations, thanks to the perfect coordination of complex motion patterns. With the help of RobotStudio, such complex programs can be created at the touch of a button.



TECHNICAL DATA, IRC5 INDUSTRIAL ROBOT CONTROLLER

PERFORMANCE

| | |
|------------------|---|
| Control hardware | Multi-processor system PCI bus Flash disk for mass memory Energy back-up for power failure handling USB memory interface |
| Control software | Object-oriented design High-level RAPID robot programming language Portable, open, expandable PC-DOS file format RobotWare software products Pre-loaded software. Also available on CD-ROM and down load |

ELECTRICAL CONNECTIONS

| | |
|----------------|--|
| Supply voltage | 200-600 V, 50-60 Hz Integrated transformer or direct mains connection |
|----------------|--|

| PHYSICAL | Size H x W x D | Weight |
|--------------------------------------|--|----------------|
| Single cabinet | 970 x 725 x 710 mm | 150 kg |
| Dual cabinet | 1370 x 725 x 710 mm | 180 kg |
| Control module | 720 x 725 x 710 mm | 50 kg |
| Drive module | 720 x 725 x 710 mm | 130 kg |
| Empty cabinet for customer equipment | - small 720 x 725 x 710 mm - large 970 x 725 x 710 mm | 35 kg 42 kg |
| Panel Mounted | | |
| Control module | 375 x 498 x 271 mm | 20 kg |
| Drive Module | 375 x 498 x 289 mm | 25 kg |

ENVIRONMENT

| | |
|---------------------------|--|
| Ambient temperature | 0-45°C (32-113°F) option 0-52°C (32-125°F) |
| Relative humidity | Max. 95% |
| Level of protection | IP 54 |
| Cooling | Filter - for moist particles - for moist dust |
| Fulfilment of regulations | Machine directive 98/37/EC regulations Annex II B EN 60204-1:2005 ISO 10218-1:2006 ANSI/RIA R 15.06 - 1999 UL 1740-1998 |

USER INTERFACES

| | |
|---------------|--|
| Control panel | On cabinet or remote |
| FlexPendant | Weight 1.3 kg Graphical color touch screen Joystick Emergency stop 8 hard keys only Hot plug Support for right and left-handed operators |
| Maintenance | Status LEDs Diagnostic software Recovery procedures Logging with time stamp Remote Service enabled |

SAFETY

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|------------------------------|--|
| 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 | Up to 4096 signals |
| Digital | 24V DC or relay signals |
| Analogue | 2 x 0-10V |
| Serial channel | 1 x RS 232/RS 422 |
| Network | Network Ethernet(10/100 Mbits per second) |
| Two channels | Service and LAN |
| Fieldbus scanners | DeviceNet PROFINET PROFIBUS DP |
| Fieldbus slaves | PROFINET Allen-Bradley Remote I/O Ethernet/IP Interbus CC-Link |
| Process encoder | Up to 6 channels |
| Process interfaces | Connections for signals to manipulator upper arm Space in controller for extra equipment |

| | |
|--------------------------|--|
| SENSOR INTERFACES | Search stop with automatic program shift Seam tracking Contour tracking Conveyor tracking |
|--------------------------|--|

FEATURES AND FUNCTIONALITY

See separate RobotWare data sheet

ABB reserves the right to change specifications without notice.

