

IRC5 Industrial Robot Controller

Fifth generation robot controller

Based on more than four 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, opening 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 operator HMI.



RAPID programming language

It provides the perfect combination of simplicity, flexibility and powerfulness. RAPID is a truly unlimited language with support for well-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 interface functionality, 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 standard communication networks (GSM or Ethernet). Advanced diagnostic methods allow fast investigation on failure as well as monitoring of the robot condition throughout the life cycle. Service packages are available, including new services like backup management, reporting and proactive maintenance activities.

RobotStudio

A powerful PC tool for working with IRC5 data. Together with the FlexPendant, RobotStudio provides the benefits of a PC environment, including remote access. It 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 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.

Specification

Control hardware:	Multi-processor system PCI bus Flash disk for mass memory Energy back-up power failure handling USB memory interface
Control software:	Well proven real-time OS High-level RAPID programming language PC-DOS file format Preloaded software, also available on DVD Extensive functionality set, see separate RobotWare data sheet

Electrical Connections

Supply voltage:	200-600 V, 50-60 Hz Integrated transformer or direct mains connection
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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	12 kg
Drive Module	375 x 498 x 299 mm	24 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 ducts IP 33) Panel Mounted IP 20
Filter (optional)	- for moist particles - for moist dust
Fulfilment of regulations:	Machine directive 98/37/EC regulations Annex II B EN 60204-1:2006 ISO 10218-1:2006 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

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:	Up to 4096 signals
Digital:	24V DC or relay signals
Analogue:	2 x 0-10V
Serial channel:	1 x RS 232/RS 422
Network:	Ethernet(10/100 Mbits per second)
Two channels:	Service and LAN
Fieldbus master:	PROFINET PROFIBUS DP EtherNet/IP™ DeviceNet™
Fieldbus slave:	PROFINET PROFIBUS DP EtherNet/IP™ Interbus Allen-Bradley Remote I/O 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 Machine vision Force Control

Data and dimensions may be changed without notice

