Robotics

RobotWare
The world's leading robot controller software

The world's leading robot controller software just got even better. RobotWare's open and future proof design increases productivity and delivers new application functionality in a familiar and feature rich environment.

Based on more than four decades of robotics experience, the next generation of RobotWare is a benchmark for the robotics industry.

In addition to its unique motion control, RobotWare brings flexibility and reliability combined with built-in process control functionality and broad communication capability.

Programming language

RobotWare speaks RAPID, a flexible, high-level robot programming language. On the surface its 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 also incorporates powerful support for many process applications.

ABB motion technology

Motion control is the key to a robot's performance in terms of path accuracy, speed, cycle time, programmability and synchronization with external devices like conveyors and vision cameras. Because RobotWare optimizes the control of these parameters, it is able to improve quality, productivity and reliability. Additionally, its predictable and high performance behavior guarantees a speed-independent path which does not require tuning.

The number #1 choice for developers

This release of RobotWare is the biggest for developers since the introduction of IRC5 in 2004.

It includes an extensive toolbox which gives you access to deep kernel features and functionality. This allows for the creation of even richer features and tailor-made robotic applications and solutions. Sensor and modern programming interfaces together with specific application packages are all examples of the many powerful tools now available from RobotWare.

Communications and Human Machine Interface (HMI)

RobotWare supports state-of-the-art field busses for industrial I/O and cooperate well within any plant network.

It also offers an intuitive user experience for the casual user as well as the expert. It is designed to work with a large selection of HMI devices including ABB's FlexPendant, industrial displays, and commercially available tablets as well as smartphones.

Manage your robot anywhere, anytime with any devices.

Standard features

Motion technology		
QuickMove 2nd generation		A unique self-optimizing motion control feature that keeps cycle times to a minimum by ensuring maximum acceleration at every moment. ABB robots cycle times are up to 25% shorter than competitors.
TrueMove 2nd generation		TrueMove ensures that the motion path followed by the robot is the same as the programmed path regardless of the robot speed.
Additional axes		Up to 36 axes can be run from the control system. The robot main axes can be coordinated with external mechanical structures such as work-piece positioners and track-motion devices or gantries.
Electronically linked motors		Create robot control master/slave motor configurations to replace mechanical driving shafts in gantries or positioners.
Motion Process modes	NEW	Optimize robot behavior based on specific needs, i.e. optimize the performance of the robot for a specific application.
Motion Error Handler	NEW	Maintain RAPID execution when motion errors such as collision and singularities occur

Programming technology		
Error handling		Exceptional robot behaviour is ensured through customized error handlers which can be set up to take a certain action depending on error type.

Communications technology		
Robot web services	NEW	Programming interface based on HTML5 to communicate with robot from from any device, regardless of operating system.
Socket messaging		Allows for the exchange TCP/IP messages over a network for machine-to-machine communication.

Service technology		
Remote Service enabled		A robot in need of maintenance will, through wireless technology, alert ABB so we can offer quick support.
Service Information System		Predicts robot service needs. It includes operating time, calendar time and advanced algorithms for calculation of gearbox services.

General technology		
User-authorization system (UAS)		The data, functionality, and commands of a controller are protected by the UAS, which defines the access rights for the individual users of the robot controller.
Power failure support		If the power supply is cut off during operation, the robot restarts at the exact same position and system status as before the power failure.
Installation Manager	NEW	Installing RobotWare and adding new options has never been as hassle free and easy.
Improved jogging response	NEW	Manual robot movement, also known as jogging, is more responsive.

Options

Motion performance		
Advanced Robot Motion		Functionality for optimizing the robot's motion control and for minimizing path deviation.
Absolute Accuracy		Makes your robot even more precisely. Perfect for off-line programming and fast replacements of robots.

Motion coordination		
MultiMove™		Allows four robots to run on one controller with a compact drive module added for each additional robot. The motion of the robots can be either coordinated or independent of each other.
Conveyor tracking		Coordinates the robot motion with a conveyor line.
Machine synchronization		Adjusts the robot speed to external moving equipment (e.g. a press or a conveyor) with the help of a sensor.

Motion functions		
World Zones		Defines actions when a robot enters a defined area of the working space.The zones can be used to stop the robot from entering a zone, either permanently or only when another robot is working in the zone.
Independent Axis		Makes an additional axis (linear or rotating) run independently of the other axes in the robot system.
Path Recovery		Stores all system data, when an interrupt occurs (fault message or other) and restores them after necessary actions have been taken. Useful for service interrupts.
Path Offset		Tracks the programmed robot path at a given offset distance. The robot can alternate following the path and making an offset, depending on inputs from an AI/DI or serial channel.
SoftMove		In applications where materials or tools cannot be precisely positioned, the robot can be set to Soft Servo mode, allowing the robot to act like a mechanical spring when encountering resistance from the environment.
Collision Detection		Protects equipment and robot from severe damage. It stops the robot if the motion torque values are exceeded.

Communications		
FTP and NFS Client		FTP/NFS Client makes it possible to read information on a remote hard disk directly from the controller.
PC interface		PC Interface provides the communications interface between the robot and a network PC. This is useful when you want to: – Use an OPC server interface for SCADA integration. – Use RobotStudio® to interact with the controller over a network connection. Note: For local connection over the service channel, PC Interface is not required.

User interaction applications		
Robotstudio App Connect		Allows for the use of standard commercially available tablets for commissioning at the shop floor as an alternative to the FlexPendant.
FlexPendant Interface		Allows users to run their own application on the FlexPendant, e.g. an operator panel. Applications are developed in Microsoft's Visualstudio.net.

Engineering tools		
Multi-tasking dialogue		Run up to 14 RAPID programs simultaneously. Use them for supervision of external equipment, operator or advanced calculations.
Continuous Application Platform*		Used for designing continuous path process applications, such as arc welding applications. By using CAP, the development work is much faster and results in robust high performance applications.
Discrete Application Platform		Used for designing discrete point process applications, such as spot-welding applications. By using DAP, the development work is much faster and results in robust high performance applications.
Sensor Interface		Toolbox to integrate sensors based on serial communication.
Externally Guided Motion (EGM)	NEW	Enables external sensors and controllers to control the robot motion with very fast robot response.
Production Screen		Production Screen is a user-friendly graphical based HMI for your FlexPendant. The software is based on widgets, graphical elements that are used to execute features of your choosing.

Servo Motor Control		
Servo Tool Change		Enables on-line change of tools (e.g. spot welding guns). The robot keeps track of the design data of up to 8 different tools.

Vision		
Integrated Vision interface		Makes the most advanced vision tools an integral part of ABB robots. Enables a variety of applications with minimum experience and programming time.

Applications options		
RobotWare-Arc		Optimizes the robot for arc welding. The positioning of the robot and the process control and monitoring are handled in one and the same instruction as well as process equipment supervision, error recovery, etc.
RobotWare Spot		This option provides dedicated spot weld instructions for fast and accurate positioning combined with gun manipulation, process start and supervision of the weld equipment.
RobotWare Dispense		This option provides support for different types of dispensing processes such as gluing and sealing.
Multiprocess		Use to apply RobotWare-Arc or RobotWare-Dispense to multiple robots in a MultiMove system.
Prepared for PickMaster		PickMaster applications are configurable for the integration of robots, vision systems and conveyors.
RobotWare Force Control		Allows the robot to be contact force controlled. Typically this is useful in assembly and machining. The option requires dedicated hardware sensors.
RobotWare Machining		This is a set of instructions, which facilitate the use of robots for machining applications.
RobotWare Cutting		A software product primarily developed for laser cutting and other similar cutting methods requiring advanced robot motion performance.
RobotWare Machine Tending		A software product for programming, installation and operation of ABB robots in machine tending and material handling applications. The software makes it easier to manage the robot and the peripheral equipment in handling applications, both for the operator as well as for the programmer.

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