

ABB unveils breakthrough in robot safety

SafeMove will allow robots and operators to work together more closely, efficiently, and safely

ABB, the global power and automation technology group, has today unveiled SafeMove, a software and electronics based safety controller, integrated in the IRC5 robot controller. SafeMove provides safety rated supervision of robot motion, enabling leaner robot cell solutions. SafeMove also enables collaborative applications where robots and operators can work closer together.

SafeMove offers a host of leading-edge safety functions, such as electronic position switches, safe speed limits, safe standstill positions, safe tool and orientation zones, and an automatic brake test. SafeMove reduces the need for traditional safety equipment – such as light curtains, safety relays, mechanical stops, mechanical position switches, and protective barriers so organisations save money on installation and maintenance.

SafeMove enables more compact cells by restricting robot motion to precisely what is needed for a specific application, instead of relying on more inflexible mechanical stops.

Since robots move at very high speeds and often carry loads weighing hundreds of kilograms, humans and robots are normally kept apart by specially-designed safety fences, roll doors, or turntables. By letting SafeMove restrict robot motion this separation can be relaxed, so that the operator can work closer together with the robot, combining human creativity and flexibility with the strength and precision of robots. This will make the operation of industrial robots leaner, more economic, and more flexible.

An important function in SafeMove is the ability to confine robot motion to safe zones which can have complex three-dimensional shapes, adaptable to any need, such as optimizing cell size. Zones can be switched on and off in the work cycle as needed, to ensure that a robot working at full speed is at a safe distance from the operator. A zone can also be inverted so that the robot is not allowed to enter, safeguarding expensive equipment.

In “safe standstill” mode, robot movement is inhibited completely, yet all drives are powered. The purpose of this operating mode is to allow the worker to approach the robot in safety, for instance to load a work piece into the gripper or carry out maintenance on the tooling without the need to switch the motors on and off. As such, SafeMove not only saves cycle time when operation is resumed, it also reduces wear on the brakes and contactors needed to shut the unit down.

In “safe speed” mode, the robot is allowed to move at a speed that is slow enough to pose no threat to the worker, and thus allowing the worker to enter the work cell once a safe speed has been achieved. In combination with other controls – such as safe zones – workers and robots can now perform manufacturing tasks together, something that has not previously been allowed. Safe speed can also be used simply to reduce safety distances and thus save floor space.



Orientation supervision ensures that an emitting process such as laser cutting is pointing in a safe direction, avoiding harm to humans and equipment.

Because the safety of a robot ultimately relies on its ability to stop, or to be stopped, when a hazardous situation arises, SafeMove contains an automatic brake test procedure that periodically checks the mechanical brakes of the robot.

SafeMove also sets new standards in protecting the security of configuration data. Instead of relying on passwords that are not always kept secret, a patented safety mechanism can be used to activate SafeMove via a public code which is specific to a single configuration, thus removing the possibility for unauthorized personnel to modify the configuration data. As a result, data stored in SafeMove is as secure as the money stored in a bank account.

“ABB remains at the forefront of the fast-growing robotics industry, and SafeMove is yet another example of our commitment to innovation in this exciting area,” says Mats Myhr, Product Manager, ABB. “We are now eagerly looking forward to seeing how system integrators and other creative professionals in this industry will make use of the enormous potential in this breakthrough in robot safety.”

About ABB Robotics

ABB has one of the world's largest installed base of industrial robots - also providing robot software, peripheral equipment and modular manufacturing cells for tasks such as assembly, painting and finishing and machine tending. Key markets include the automotive, foundry, packaging, material handling and consumer industries. A strong solution focus leverages thousands of successful applications for manufacturers worldwide.

About ABB

This group is part of ABB Ltd. who is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group operates in around 100 countries and employs about 107,000 people.

For more information please contact:

ABB Robotics
Mats Myhr
Tel: +46 21 344080
Mobile: +46 70 2684080
mats.myhr@se.abb.com