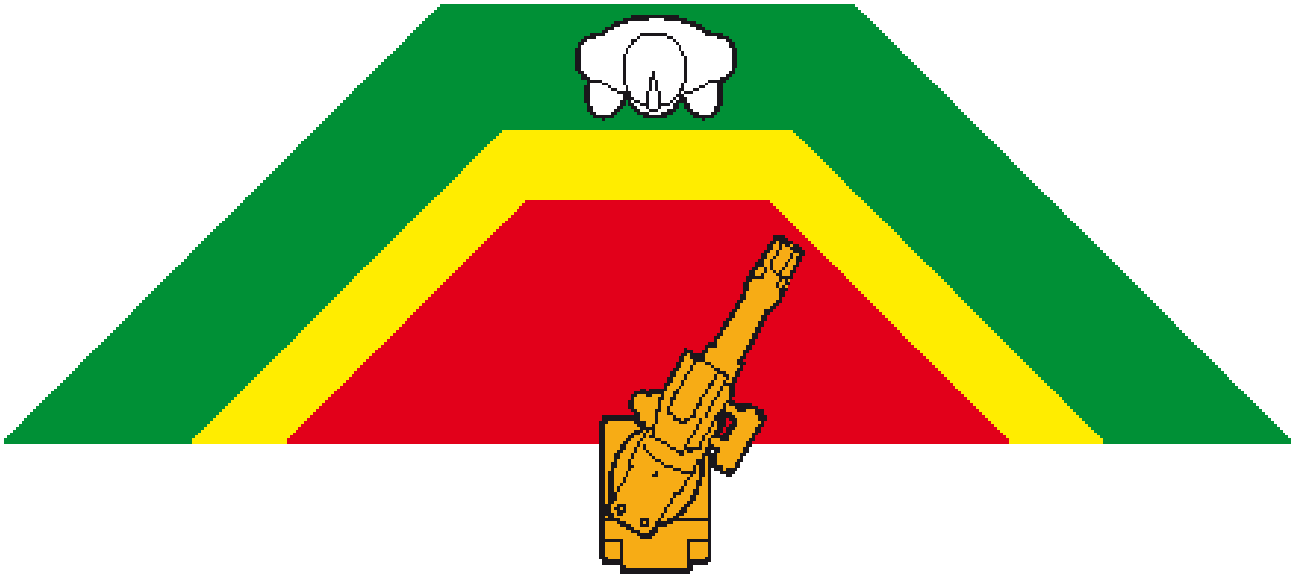
Robotics

SafeMove
Robot Safety Option



SafeMove – new generation robot safety

Don't let safety fence you in

SafeMove marks a major step in removing the bonds placed on heavily regulated industrial robots that toil in isolated settings. Developed and tested to comply with international safety standards, SafeMove is a software and electronics based safety solution that ensures safe and predictable robot motion. It brings leaner, more economic and more flexible operation.

Open up for man-machine collaboration

Now, robots and operators can collaborate much more closely. SafeMove enables operators and robots to work together without compromising on safety. It uses geometrical and speed restrictions, maintaining automatic operation. This combines the flexibility of human interaction with the precision and handling capacity of robots.

Save space in robot cell design

SafeMove brings great savings on floor space by restricting robot motion to precisely what is needed by the application. Further savings on space can be achieved by adding speed limitations, which reduces safety distances.

Spend less on safety devices

SafeMove reduces the need for many safety devices such as light curtains, safety relays, mechanical position switches, protective barriers, etc, and instantly saves money on installation and maintenance.

SafeMove

Safe Tool Zone – for restricting robot motion

Safe Tool Zone enables cell size optimization and simplifies the safeguarding of installations. It protects operators and enhances machine and equipment safety. Safe Tool Zone defines a detailed three dimensional work zone. The zone restricts robot motion to stay either inside or outside the defined zone. It also restricts tool orientation if desired.

Safe Axis Range – replaces electro-mechanical position switches

Safe Axis Range replaces electro-mechanical position switches, increases control and flexibility, and reduces maintenance requirements. It provides extended control of up to nine axes. Both robot axes and additional axes can be supervised through Safe Axis Range. In combination with Safe Tool Zone, it can be used to define complex working envelopes for a robot.

Safe Speed – supervises speeds so operators can work close to robots

Safe Robot Speed supervises speed at a defined level so an operator can work within the proximity of the robot. It supervises the speed of all robot parts, including the tool. Safe Axis Speed gives the possibility to supervise also the speed of individual axes.

Safe Stand-Still – keep motors running

Safe Stand-Still supervises the stand-still of robot axes without having to switch the robot to Motors Off. It enables operators to perform tasks in the immediate vicinity of the robot, saving cycle time and wear to contactors and brakes. Safe Stand-Still can also secure the stand-still of selected additional axes.

Specifications

General	
Monitoring:	Reflects status on safe output
Supervision:	Violations will immediately stop the robot Category 0 or 1 stop can be selected
Safe robot speed	Speed 0-250 mm/s Checks tool, flange and elbow Supervision only
Safe stand-still	Up to 4 sets of 1-9 axes each Supervision and/or monitoring
Safe tool zone	8 zones (inclusive or exclusive) Each zone defined by 3-8 coordinates (x, y) with arbitrary z extension
The following can be combined with a zone:	Maximum speed Minimum speed 1-3 additional axes limits Tool orientation limits Supervision and/or monitoring (minimum speed, only monitoring)
Safe axis speed	One set of axis speed limits for axis 1-9 Supervision only
Tool definition	1-4 tools, each tool defined by a TCP and up to 8 additional points
Communication	8 safe inputs for dynamic activation of functions 8 safe outputs for communicating status to safety switchgear Virtual IO read access from Rapid
Safe axis range	8 sets of axis limits (min and max per axis 1-9) Supervision and/or monitoring
Configuration	Performed in RobotStudio. Activation by pin code, by authorized Safety User only.
Remarks:	Multiaxes mechanical units (except the robot itself) are not supported In a separate product, Electronic Position Switches, safe axis range is available for 7 axes with 5 sets of axis limits.