

Simple  friendly

# Kawasaki Robot

EUROPE



***CUBIC-S***

## Intelligent safety for your automation

- Cubic-S is a robot motion monitoring safety unit
- A total of eight different individual functions are available
- Extremely space-saving application cells can be realised
- Can be used to establish a man-machine interface (MMI)
- Expensive additional safety equipment is not necessary
- Certified (TÜV) Cat. 3

### Motion Area Monitoring Function

Motion area boundaries can be set up individually and monitored electronically. If the robot reaches these boundaries in its programmed motions, it is stopped automatically by cutting its motor power. This function can be individually enabled or disabled, and assigned to specified safety inputs. So it is possible to restrict and release areas as needed.

### Axis Monitoring Function

Each axis of the robot is electronically monitored, similar to motion area monitoring. Predefined axis values limit the possible motions. If the robot leaves these areas, it stops automatically.

### Speed Monitoring Function

Shuts down the robot if a predefined speed is exceeded. This function can be individually programmed or, in the standard configuration, uses a maximum speed of 250 mm/s. The monitored points are either the flange speed, TCP, or any freely defined points in the tool.

### Stop Monitoring Function

Monitors the stop status of the robot axes and/or up to three external axes of the robot. If axes that should be stopped at this moment according to the safety specification move, the robot is shut down. This function is coupled with the safety signals of the system.

### Tool Orientation Monitoring Function

Shuts down the robot if the orientation of the tool leaves predefined areas. This function allows you to program five different orientation areas.

### Protective Stop Function

This function is coupled with light curtains and other safety devices to stop the robot. Coupled with the safety signals of the system, this function can be enabled and disabled.

The following categories can be implemented with this function:

- Stop category 0: When triggered, the motor power is cut immediately.
- Stop category 1: When triggered, the motor power is cut after a controlled stop. At the same time, stopping is monitored via Cubic-S. If the delay does not seem sufficient, the motor power is cut immediately.
- Stop category 2: When triggered, the motor power is not cut after a controlled stop, and the robot is kept in operation via stop monitoring. At the same time, stopping is monitored via Cubic-S. If the delay does not seem sufficient, the motor power is cut immediately. When cancelled, the robot resumes its motion.

### Emergency Stop Function

This function is connected to the emergency stop circuit and stops the robots immediately when the Emergency Stop button has been pressed. The stop categories 0 and 1 can be selected.

### Safety State Output Function

Outputs the status of all the described functions of Cubic-S or the status of the safety inputs.



### Sample application 1: Process planning

→ Function: Motion Area Monitoring

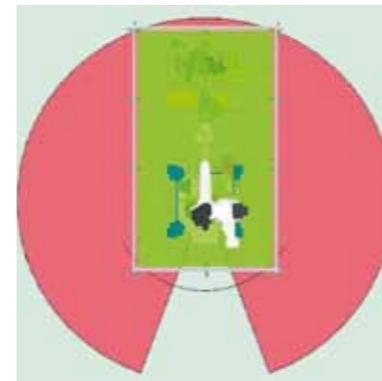
Depending on whether the robot is working in the left or right cell area, the opposite area can be released for process planning. Access by workers is continuously monitored by appropriate safety devices.



### Sample application 2: Inspection or assembly

→ Function: Stop Monitoring

The robot moves to a stop position when requested. Light curtains monitor access by workers for checking or assembling the part. The robot continues to hold the part in its gripper and waits with active motor power until it is released.



### Sample application 3: Cell optimisation

→ Function: Motion Area Monitoring

By monitoring the robot motion area, the area can be limited, allowing maximum reduction of application cell sizes.

#### Notes:

- Only Kawasaki external axes can be monitored
- Cannot be combined with all software options
- Not all functions can be run in parallel
- Not available with E7x controller

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## *Cautions to be taken to ensure safety*

For those persons involved with the operation / service of your system, including Kawasaki Robot, they must strictly observe all safety regulations at all times. They should carefully read the Manuals and other related safety documents.

Products described in this catalogue are general industrial robots. Therefore, if a customer wishes to use the Robot for special purposes, which might endanger operators or if the Robot has any problems, please contact us. We will be pleased to help you.

## *Inquiries*

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## *Agent*

