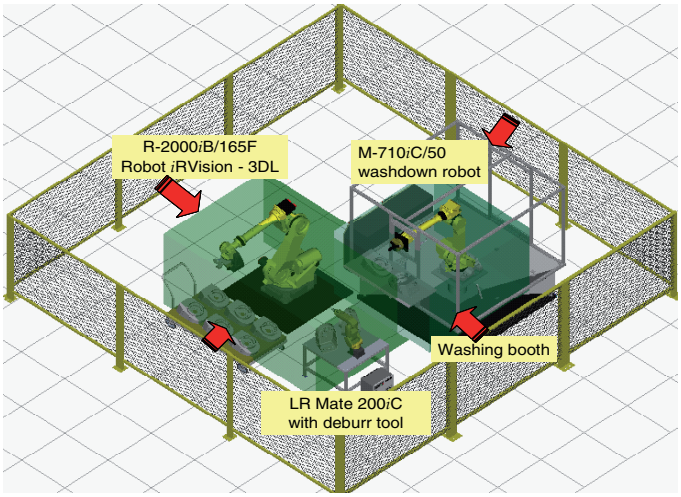
R-30*i*A™ Dual Check Safety (DCS) Position and Speed Check

Basic Description

Dual Check Safety (DCS) Position and Speed Check software option provides safety rated speed and position monitoring without additional hardware or external switches or relays. With proper risk assessment, the DCS Position and Speed Check software option can be applied to robotic automation systems to reduce floor space, increase overall system reliability and reduce overall system cost by eliminating the need for external dynamic axis limiting devices.

The DCS Position and Speed Check software option setup allows the robot to either stop immediately (e.g. Emergency Stop) or in a controlled manner (e.g. decelerate to stop), before shutting down the servo power.



DCS limits the robot work space to the required operating space

General Specification

Dual Check Safety Position and Speed Check software option consists of the following safety rated functions:

- Joint Position Check
- Joint Speed Check
- Cartesian Position Check
- Cartesian Speed Check

FEATURES & BENEFITS

Joint Position Check

This function checks whether a joint position is inside or outside of a specified zone. When the joint position is not in the specified zone, the function shuts down motor power. This function can be enabled / disabled for each axis using the safety rated input signals provided in R-30*i*A Controller (these signals are not available on the R-30*i*A Mate).

Joint Speed Check

This function shuts down the motor power if the joint speed of a motor exceeds the specified joint speed limit. This function can be enabled / disabled for each axis or group of axes using the safety input signals provided in R-30*i*A Controller.

Cartesian Position Check

This function checks whether a defined TCP position is inside or outside a specified Cartesian safety zone. When the TCP position is not in a specified zone, the function shuts down power to the servo motors. This function can be enabled / disabled dynamically using the safety input signals provided in R-30*i*A Controller.

Cartesian Speed Check

This function checks whether the defined TCP speed exceeds a specified speed limit. It shuts down the motor power when the TCP speed exceeds the specified limit. This function can be enabled/disabled for each motion group using the safety rated input signals provided in R-30*i*A Controller.

Safety I/O

R-30*i*A Controller provides built-in safety rated digital inputs to control the enabling/disabling of position and speed functions from external events (e.g. operator stepping on the safety mat). This feature eliminates the need for an external safety PLC for applications that requires operator to enter the robot operating space (e.g. to load or unload a part from a fixture) during production operation.

Security

A unique DCS passcode controls access to DCS settings and configurations. This feature prevents any unauthorized person making changes to DCS zone and speed check that could impact the safety operation of the robot during production.

DCS Change Status

DCS safety related information can also be monitored and validated for changes using a unique signature with time and date stamp. An output signal is available for external indication (e.g. turn on a light to indicate robot parameter was changed) of any changes to caution the operator.

DCS Setup

DCS setup can be done off-line using ROBOGUIDE® or at the robot using the teach pendant. ROBOGUIDE provides the tools to visualize DCS zone within the work cell. The pendant provides a simple menu driven setup process for DCS.

Note: ROBOGUIDE® is a registered trademark of FANUC LTD.

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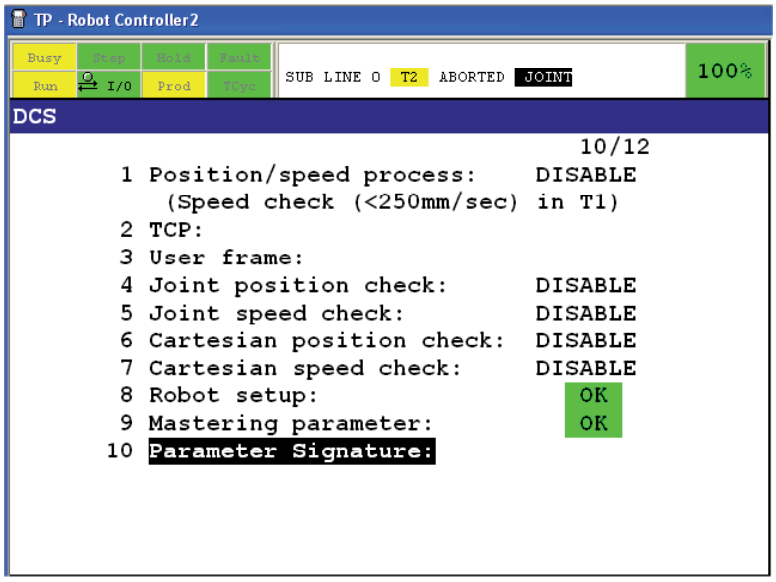
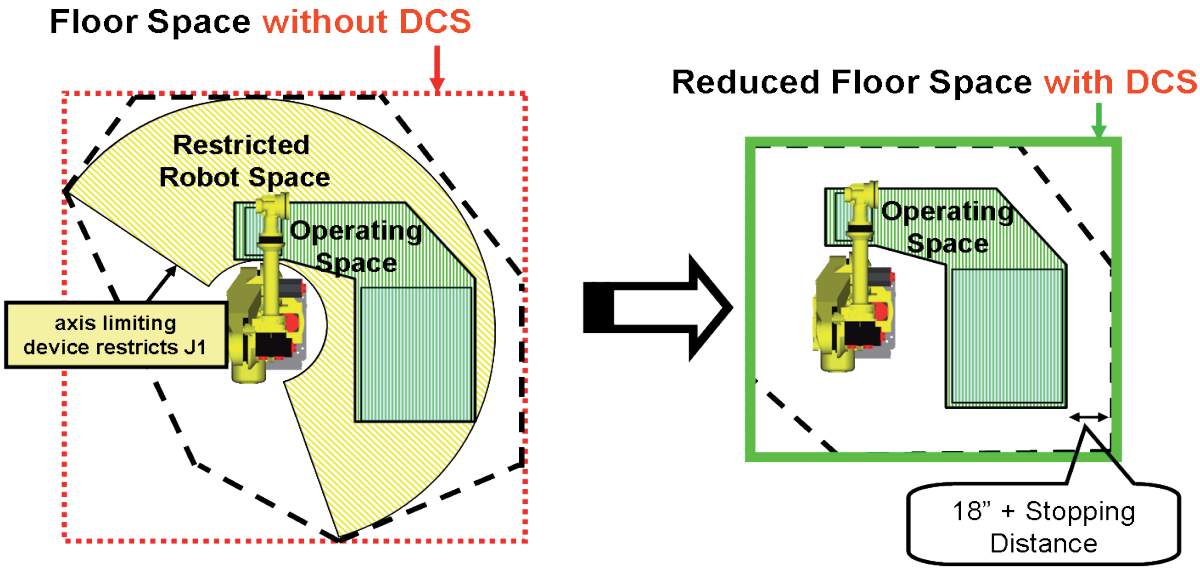
Simple Setup Using Robot Teach Pendant



Floor Space Reduction Example



*Note - For Systems Using T1 Mode

Intelligent Robot Solutions

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