ABB Safety Configuration Report

A detailed description of functions and validation procedures can be found in the SafeMove application manual.

1. General Information

Created by:	admin
Creation date:	2022-12-12T08:37:50.4290348+01:00
System name:	15000-500105-CR-Gofa
Configuration version:	1.07.00
Controller image version:	1.07.00
Checksum:	266A4B060E8D546AFBB6C16E31A58C313E228905000C9C9DF63FC62C31DB455A
Protected elements checksum:	F1945CD6C19E56B3C1C78943EF5EC18116907A4CA1EFC40A57D48AB1DB7ADFC5

2. Safety Configuration

2.1 Drive Modules

Drive Module 1 Configuration

Max speed manual mode
250.000 mm/s

Drive Module 1 Configuration - ROB_1

Safe brake ramp start speed offset	Elbow offset	Baseframe	
100.000 mm/s	x: -50.000 mm y: -50.000 mm z: 50.000 mm	Position x: 0.000 mm y: 0.000 mm z: 0.000 mm Orientation x: 0.000 deg y: 0.000 deg z: 0.000 deg	

ROB_1 - Upper Arm Geometries

Upper Arm Geometries - Robot_Capsule_1

Type	Radius	Start	End
Capsule	160.000 mm	x: -30.356 mm y: -22.120 mm z: 30.485 mm	x: 186.565 mm y: 0.000 mm z: 100.000 mm

Upper Arm Geometries - Robot_Capsule_2

Type	Radius	Start	End
Capsule	140.000 mm	x: 380.000 mm y: 30.000 mm z: 150.000 mm	x: 520.000 mm y: 10.000 mm z: 150.000 mm

Upper Arm Geometries Verified: _____

Drive Module 1 Configuration - Synchronization

Activation	Synchronization status
Software synchronization	No signal

Synchronization - Sync position

Joint	position
1	0.000 deg
2	0.000 deg
3	0.000 deg
4	0.000 deg
5	0.000 deg
6	0.000 deg

Synchronization Verified: _____

Drive Module 1 Configuration - Cyclic Brake Check

Warning only, no stop	Max CBC test interval	Pre warning time	Standstill tolerance	Supervision threshold
true	48 h	6 h	2 rad (motor side)	0.02 rad (motor side)

Cyclic Brake Check - Joints

Joint	Enabled
1	true
2	true
3	true
4	true
5	true
6	true

Drive Module 1 Configuration - Tools

Tools - Tool

Activation	Active status	TCP	Orientation	Rigid Body
Permanently active	No signal	x: 0.000 mm y: 0.000 mm z: 0.000 mm	x: 0.000 deg y: 0.000 deg z: 0.000 deg	x: 0.000 mm y: 0.000 mm z: 0.000 mm Mass: 0.000 Kg ix: 0.000 Kgm² iy: 0.000 Kgm² iz: 0.000 Kgm²

Tool - Speed Supervision Points (Flange Coordinates)

Number	X	Y	Z

Tool - Tool Geometries

Tool Geometries - Tool_Capsule

Type	Radius	Start	End
Capsule	75.000 mm	x: 0.000 mm y: 0.000 mm z: 0.000 mm	x: 0.000 mm y: 0.000 mm z: 250.000 mm

Tool Geometries Verified: _____

Tool Verified: _____

Drive Module 1 Configuration - Safe Zones

Safe Zones - Transient_Contact_Zone

Tool speed supervision priority
Base

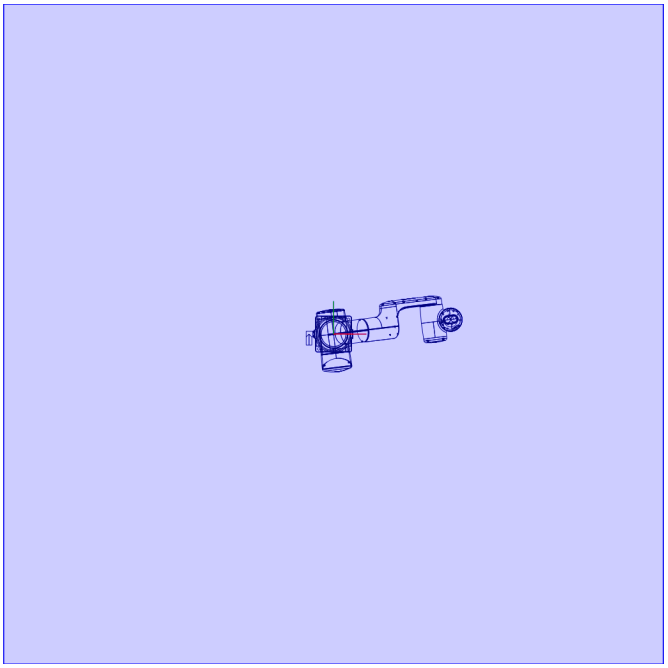
Transient_Contact_Zone - Coordinates

Top	Bottom
2000.000 mm	0.000 mm

Vertices

Number	X	Y
1	-1500.000 mm	-1500.000 mm
2	1500.000 mm	-1500.000 mm
3	1500.000 mm	1500.000 mm
4	-1500.000 mm	1500.000 mm

Transient_Contact_Zone - Floor plan



Transient_Contact_Zone - Tool Speed Supervisions

Tool Speed Supervisions - Transient_Contact_TSS

Activation	Function active status	Violation stop category	Violation signal
Permanently active	No signal	Category1Stop	No signal

Max speed
434.000 mm/s

Transient_Contact_Zone Verified: _____

Safe Zones - Quasi_Static_Contact_Zone_1

Tool speed supervision priority
Base

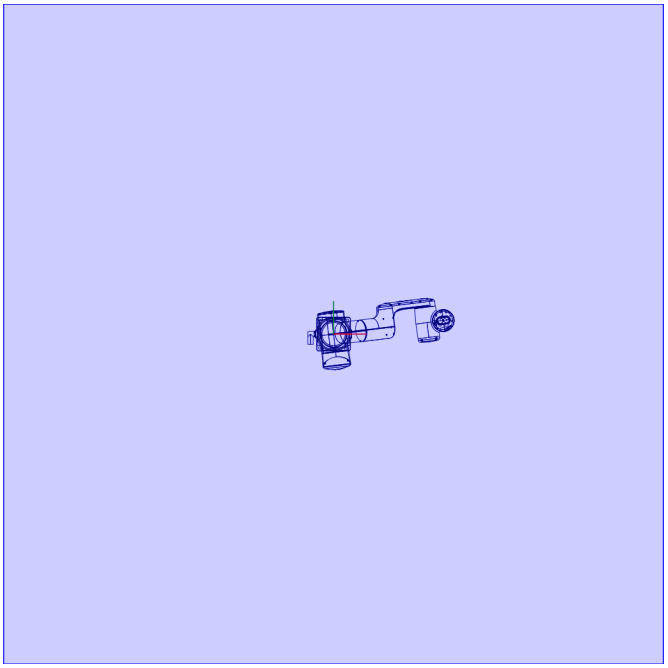
Quasi_Static_Contact_Zone_1 - Coordinates

Top	Bottom
10.000 mm	-1000.000 mm

Vertices

Number	X	Y
1	-1600.000 mm	-1600.000 mm
2	1600.000 mm	-1600.000 mm
3	1600.000 mm	1600.000 mm
4	-1600.000 mm	1600.000 mm

Quasi_Static_Contact_Zone_1 - Floor plan



Quasi_Static_Contact_Zone_1 - Tool Speed Supervisions

Tool Speed Supervisions - Quasi_Static_Contact_TSS

Activation	Function active status	Violation stop category	Violation signal
Permanently active	No signal	Category1Stop	No signal

Max speed
20.000 mm/s

Quasi_Static_Contact_Zone_1 - Tool Force Supervisions

Tool Force Supervisions - Quasi_Static_Contact_TFS

Activation	Function active status	Violation stop category	Violation signal
Permanently active	No signal	Category1Stop	No signal

Max force
70 N

Quasi_Static_Contact_Zone_1 Verified: _____

Safe Zones - Quasi_Static_Contact_Zone_2

Tool speed supervision priority
Base

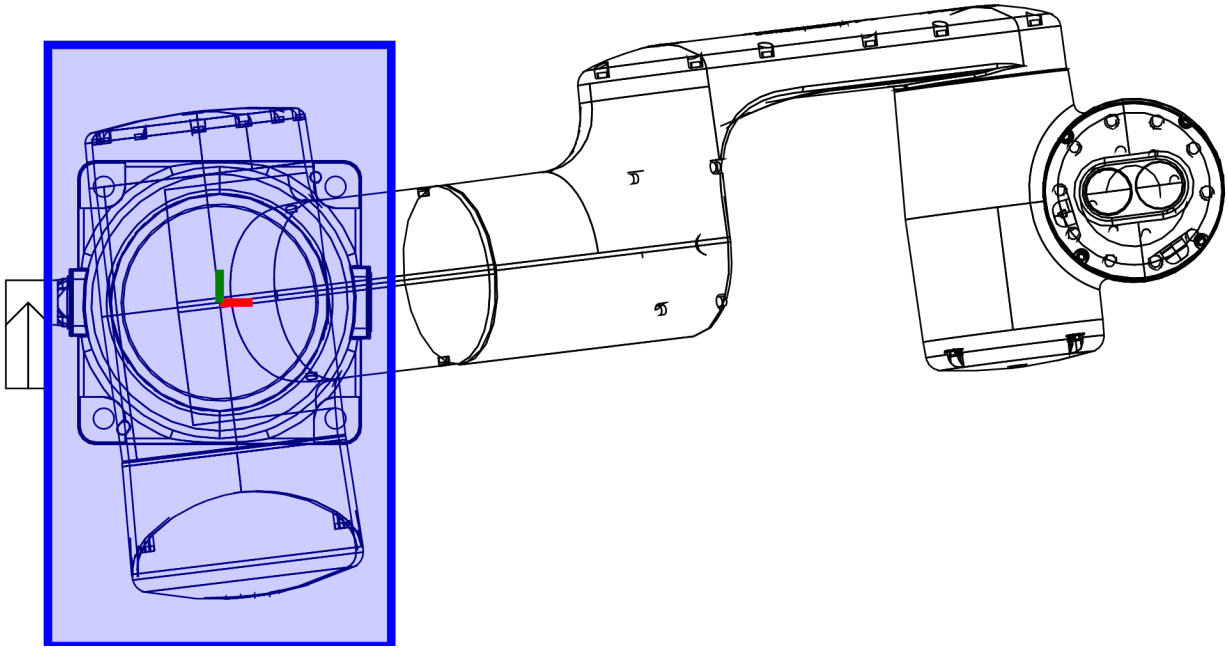
Quasi_Static_Contact_Zone_2 - Coordinates

Top	Bottom
350.000 mm	0.000 mm

Vertices

Number	X	Y
1	-100.000 mm	-200.000 mm
2	100.000 mm	-200.000 mm
3	100.000 mm	150.000 mm
4	-100.000 mm	150.000 mm

Quasi_Static_Contact_Zone_2 - Floor plan



Quasi_Static_Contact_Zone_2 - Tool Speed Supervisions

Tool Speed Supervisions - Quasi_Static_Contact_TSS_1

Activation	Function active status	Violation stop category	Violation signal
Permanently active	No signal	Category1Stop	No signal

Max speed
20.000 mm/s

Quasi_Static_Contact_Zone_2 - Tool Force Supervisions

Tool Force Supervisions - Quasi_Static_Contact_TFS_1

Activation	Function active status	Violation stop category	Violation signal
Permanently active	No signal	Category1Stop	No signal

Max force
70 N

Quasi_Static_Contact_Zone_2 Verified: _____

2.2 Stop Configurations

ProtectiveStop

Mode	Stop category
Auto	Category1Stop

ProtectiveStop Verified: _____

ExternalEmergencyStop

Stop category	Decoupled
Category1Stop	Coupled

ExternalEmergencyStop Verified: _____

LocalEmergencyStop

Stop category
Category1Stop

LocalEmergencyStop Verified: _____

3. Safe I/O Configuration

3.1 Global Signals

Name	Type	Default	Offset	width	protected	direction
AutomaticMode	BOOL	0	0	1	false	output
DriveEnable	BOOL	0	1	1	false	output
DriveEnableFeedback	BOOL	0	2	1	false	output
EmergencyStopActivated	BOOL	0	3	1	false	output
EnableSwitch	BOOL	0	4	1	false	output
ExternalEmergencyStopStatus	BOOL	0	5	1	false	output
LocalEmergencyStopStatus	BOOL	0	6	1	false	output
ManualFullSpeedMode	BOOL	0	7	1	false	output
ManualMode	BOOL	0	8	1	false	output
ProtectiveStop	BOOL	0	9	1	false	output
SafetyEnable	BOOL	1	10	1	false	output

3.2 Networks

Feedback

Feedback - Devices

SC_Feedback_Dev

Devices - Signals

Signals - Output

Name	Type	Default	Offset	width	protected	direction
AutomaticMode	BOOL	0	0	1	false	output
DriveEnable	BOOL	0	1	1	false	output
DriveEnableFeedback	BOOL	0	2	1	false	output
EmergencyStopActivated	BOOL	0	3	1	false	output
EnableSwitch	BOOL	0	4	1	false	output
ExternalEmergencyStopStatus	BOOL	0	5	1	false	output
LocalEmergencyStopStatus	BOOL	0	6	1	false	output
ManualFullSpeedMode	BOOL	0	7	1	false	output
ManualMode	BOOL	0	8	1	false	output
ProtectiveStop	BOOL	0	9	1	false	output
SafetyEnable	BOOL	1	10	1	false	output

ScLocIO

3.3 Function Mappings

Function	Signal	Mandatory	Description
AutomaticMode	AutomaticMode	true	
CommissioningModeActive		false	
DriveEnable	DriveEnable	true	
DriveEnableFeedback	DriveEnableFeedback	true	
EmergencyStopActivated	EmergencyStopActivated	true	

Function	Signal	Mandatory	Description
EnableSwitch	EnableSwitch	true	
ExternalEmergencyStopStatus	ExternalEmergencyStopStatus	true	
ExternalPowerControlActive	ExternalPowerControlActive	true	
ExternalPowerControlFeedback	ExternalPowerControlFeedback	true	
LocalEmergencyStopStatus	LocalEmergencyStopStatus	true	
ManualFullSpeedMode	ManualFullSpeedMode	true	
ManualMode	ManualMode	true	
ProtectiveStop	ProtectiveStop	true	
SafetyEnable	SafetyEnable	true	

4. Combinatorial Logic Configuration

4.1 Pre Logic

Name	Expression

4.2 Post Logic

Name	Expression

Complete functionality verified and tested

Date	Signature