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:	Janda
Creation date:	2025-11-02T18:47:31.2039643+11:00
System name:	6700-550483
Configuration version:	1.03.01
Controller image version:	1.03.08
Checksum:	AA10 7339 2A22 7D44 0F09 24A2 4678 5945 CB38 3CF4 70B8 98B4 1A38 9DDA C302 D548
Protected elements checksum:	F194 5CD6 C19E 56B3 C1C7 8943 EF5E C181 1690 7A4C A1EF C40A 57D4 8AB1 DB7A DFC5

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	Moved by	Elbow offset	Baseframe	
100.000 mm/s	TRACK_1	x: -262.000 mm y: 0.000 mm z: 361.000 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 - Capsule_1

Type	Radius	Start	End
Capsule	420.000 mm	x: -236.444 mm y: 0.000 mm z: 88.390 mm	x: 1446.525 mm y: 0.000 mm z: 156.153 mm

Upper Arm Geometries Verified: _____

Drive Module 1 Configuration - Additional Axes

Additional Axes - TRACK_1 - Joint 7

Type	Baseframe
Track	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

TRACK_1 - Joint 7 - Joint Information:

Joint Id	Servo lag	Servo delay factor (x4 ms)	Max speed manual mode
7	5 rad	3	41.126001 rad/s (on motor side)

TRACK_1 - Joint 7 - Transmission Information:

Transmission gear ratio	Type
-228.48	Linear axis

TRACK_1 - Joint 7 - Measurement Channel Information:

Link	Node	Board position
1	7	1

TRACK_1 - Joint 7 - Brake Ramp Supervision:

Ramp delay	Brake ramp limit	Start speed offset
200 ms	1 m/s^2	100.000 mm/s

Drive Module 1 Configuration - Synchronization

Activation	Synchronization status
Software synchronization	No signal

Synchronization - Sync position

Joint	position
1	86.919 deg
2	9.654 deg
3	27.891 deg
4	0.501 deg
5	50.596 deg
6	-4.004 deg
7	1388.984 mm

Synchronization Verified: _____

Drive Module 1 Configuration - Cyclic Brake Check

CBC: Inactivated

Drive Module 1 Configuration - Tools

Tools - tTCMaster

Activation	Active status	TCP	Orientation
Permanently active	No signal	x: 0.000 mm y: 0.000 mm z: 207.500 mm	x: 0.000 deg y: 0.000 deg z: 0.000 deg

tTCMaster - Speed Supervision Points (Flange Coordinates)

Number	X	Y	Z

tTCMaster - Tool Geometries

Tool Geometries - SSV

Type	Radius	Width	Height	Position	Orientation
Rounded Box	300.000 mm	100.000 mm	300.000 mm	x: -75.000 mm y: 0.000 mm z: 0.000 mm	x: 0.000 deg y: 90.000 deg z: 0.000 deg

Tool Geometries Verified: _____

tTCMaster Verified: _____

Drive Module 1 Configuration - Safe Zones

Safe Zones - Safe_Zone_Inside

Tool speed supervision priority
Normal

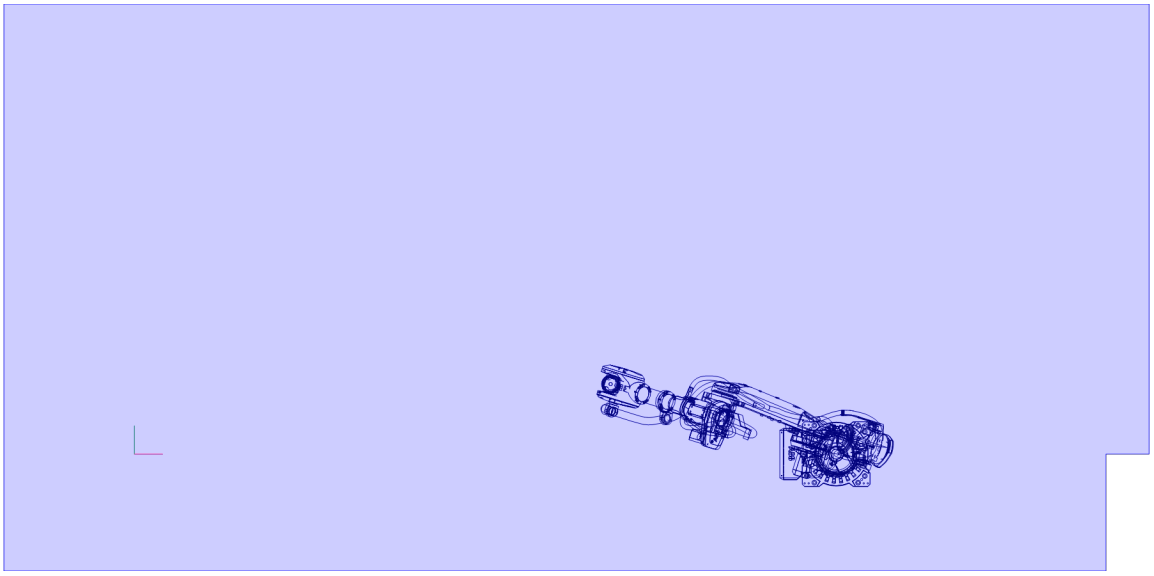
Safe_Zone_Inside - Coordinates

Top	Bottom
2800.000 mm	-500.000 mm

Vertices

Number	X	Y
1	-1450.000 mm	-1300.000 mm
2	10800.000 mm	-1300.000 mm
3	10800.000 mm	0.000 mm
4	11280.000 mm	0.000 mm
5	11280.000 mm	5000.000 mm
6	-1450.000 mm	5000.000 mm

Safe_Zone_Inside - Floor plan



Safe_Zone_Inside - Tool Position Supervisions

Tool Position Supervisions - Safe_Zone_Inside_TPO

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

Include upper arm geometry	Allow inside
true	true

Safe_Zone_Inside - Contact Application Tolerances

Contact Application Tolerances - Safe_Zone_Inside_CAP

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

Tolerances

Joint	Tolerance
1	5.000 deg
2	5.000 deg
3	5.000 deg
4	5.000 deg
5	5.000 deg
6	5.000 deg

Joint	Tolerance
7	100.000 mm

Safe_Zone_Inside Verified: _____

Safe Zones - Safe_Zone_Track

Tool speed supervision priority
Normal

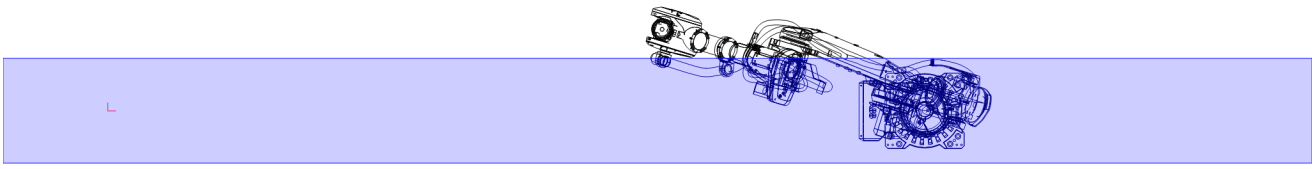
Safe_Zone_Track - Coordinates

Top	Bottom
50.000 mm	-570.000 mm

Vertices

Number	X	Y
1	-1000.000 mm	-500.000 mm
2	11500.000 mm	-500.000 mm
3	11500.000 mm	500.000 mm
4	-1000.000 mm	500.000 mm

Safe_Zone_Track - Floor plan



Safe_Zone_Track - Tool Position Supervisions

Tool Position Supervisions - Safe_Zone_Outside_TPO

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

Include upper arm geometry	Allow inside
true	false

Safe_Zone_Track - Contact Application Tolerances

Contact Application Tolerances - Safe_Zone_Outside_CAP

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

Tolerances

Joint	Tolerance
1	5.000 deg
2	5.000 deg
3	5.000 deg
4	5.000 deg
5	5.000 deg
6	5.000 deg
7	87.267 mm

Safe_Zone_Track Verified: _____

Safe Zones - Safe_Zone_Bed

Tool speed supervision priority
Normal

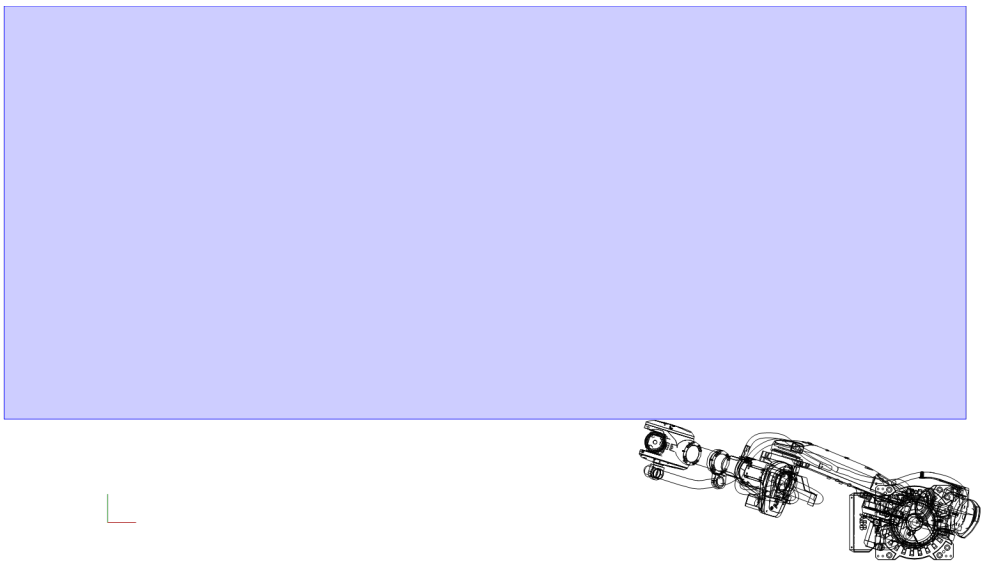
Safe_Zone_Bed - Coordinates

Top	Bottom
-270.000 mm	-570.000 mm

Vertices

Number	X	Y
1	-1000.000 mm	1000.000 mm
2	8300.000 mm	1000.000 mm
3	8300.000 mm	5000.000 mm
4	-1000.000 mm	5000.000 mm

Safe_Zone_Bed - Floor plan



Safe_Zone_Bed - Tool Position Supervisions

Tool Position Supervisions - Safe_Zone_TS_Wall_TPO

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

Include upper arm geometry	Allow inside
true	false

Safe_Zone_Bed - Contact Application Tolerances

Contact Application Tolerances - Safe_Zone_TS_Wall_CAP

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

Tolerances

Joint	Tolerance
1	5.000 deg
2	5.000 deg
3	5.000 deg
4	5.000 deg
5	5.000 deg
6	5.000 deg
7	87.267 mm

Safe_Zone_Bed Verified: _____

Drive Module 1 Configuration - Safe Ranges

Safe Ranges - Safe_Range

Safe_Range - Joint limits

Joint	Lower bound	Upper bound	Invert
1	-17.000 deg	170.000 deg	false
2	-65.000 deg	85.000 deg	false
3	-180.000 deg	70.000 deg	false
4	-300.000 deg	300.000 deg	false
5	-90.000 deg	130.000 deg	false
6	-95.000 deg	95.000 deg	false

Safe Ranges - Contact Application Tolerances

Contact Application Tolerances - Safe_Range_CAP

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

Tolerances

Joint	Tolerance
1	5.000 deg
2	5.000 deg
3	5.000 deg
4	5.000 deg
5	5.000 deg
6	5.000 deg
7	87.267 mm

Safe Ranges Verified: _____

3. Safe I/O Configuration

3.1 Global Signals

Name	Type	Default	Offset	Width	Direction	Protected
SafetyEnable	BOOL	1	0	1	output	
AutomaticMode	BOOL	0	1	1	output	
ManualMode	BOOL	0	2	1	output	
ManualFullSpeedMode	BOOL	0	3	1	output	
DriveEnable	BOOL	0	4	1	output	
DriveEnableFeedback	BOOL	0	5	1	output	
LocalEmergencyStopStatus	BOOL	0	6	1	output	
ExternalPowerControlActive	BOOL	0	7	1	output	
ExternalPowerControlFeedback	BOOL	0	8	1	output	

3.2 Networks

Profinet

Profinet - Devices

PN_Internal_Device

Devices - SDO_8_bytes

Source address	Destination address	Timeout
1	7	500 ms

SDO_8_bytes - Signals

Devices - SDI_8_bytes

Source address	Destination address	Timeout
1	8	500 ms

SDI_8_bytes - Signals

Feedback

Feedback - Devices

SC_Feedback_Dev

Devices - Signals

Signals - Output

Name	Type	Default	Offset	Width	Direction	Protected
SafetyEnable	BOOL	1	0	1	output	
AutomaticMode	BOOL	0	1	1	output	
ManualMode	BOOL	0	2	1	output	
ManualFullSpeedMode	BOOL	0	3	1	output	
DriveEnable	BOOL	0	4	1	output	
DriveEnableFeedback	BOOL	0	5	1	output	
LocalEmergencyStopStatus	BOOL	0	6	1	output	
ExternalPowerControlActive	BOOL	0	7	1	output	

Name	Type	Default	Offset	Width	Direction	Protected
ExternalPowerControlFeedback	BOOL	0	8	1	output	

3.3 Function Mappings

Function	Signal	Mandatory	Description	
AutomaticMode	AutomaticMode	true		
DriveEnable	DriveEnable	true		
LocalEmergencyStopStatus	LocalEmergencyStopStatus	true		
ManualMode	ManualMode	true		
ManualFullSpeedMode	ManualFullSpeedMode	true		
SafetyEnable	SafetyEnable	true		
ExternalPowerControlActive	ExternalPowerControlActive	true		
ExternalPowerControlFeedback	ExternalPowerControlFeedback	true		
DriveEnableFeedback	DriveEnableFeedback	true		

4. Combinatorial Logic Configuration

4.1 Pre Logic

Name	Expression

4.2 Post Logic

Name	Expression

Complete functionality verified and tested

Date	Signature