

This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

How to Correct Axis Limits for Weld and Spot Robots in MotoSim

Introduction

Several Robot models share the same structure but have different axis reach limits. A GP12 and an AR1440 are essentially the same robot, just that the AR1440 has less reach; to preserve the thru-arm cables. However, in MotoSim, both models have the same reach as the GP12. This could pose a problem when programming with a weld robot because it is using the larger reach limits of the handling model. Below are instructions on changing the reach of the affected robot models.





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How to Adjust Robot Axis Rotation

Limits Customization

For most of the Welding or Spot robot models, the reach can be adjusted by navigating to the CONTROLLER tab / MAINTENANCE MODE / SETUP / OPTION FUNCTION / LIMITS CUSTOMIZATION. See the MotoSim Manual, section 13.7.1 for more information.





PARTNER SUPPORT Shared Integration Experience This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

CHANGE TO STANDARD





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Soft Limits

One of the Weld Robots, the AR3120, is strictly a US model and does not have an alternative Limits Customization to choose from. For this model, use the Soft Limits option as seen below.

Select the ROBOT menu / SOFTLIMIT SETTINGS / DISPLAY / Coordinate Change...change ± axis limits that match the AR3120 specs.

ROBOT / SOFTLIMIT SETTING

PLAY TEACH	START HO	LD SERVO ON E	STOP SYNC.							Match	n limi	ts to ΔR ²	8120 sn	ecs on last n	age
JOB E	DIT DISPLAY U	TILITY 1221	😫 🛅 🖵 👇	DISF	PLAY /	Coord	dinate	Change		Water	• • • • • • •)120 SP		uge
JOB		× 100	OVERRUN		H _ :	START	HOLD	SERVO ON EST	OP SYNC.						
ARC WELDING	POSITION	-7 100L	&S-SENSOR	DATA E	DIT	DISPLAY	UTILITY]1224(%)	10 🕞 👇						
	COMMAND POSITION	INTERFERENCE	JIMIT RELEASE	JOB	SOFT CO	oordinate . hange				PLAY	TEACH	START	HOLD	SERVO ON ESTOP	SYNC. 🍎 😭
VARIABLE B001	SERVO MONITOR	SHOCK SENS	🖶 ARM CONTROL	ARC WELDING	R1 :S	-254	434	CURRENT 0	SOFTLIMIT(+) 254434 216576	DATA	ED	IT DISPLAY	UTILITY	12≧∕13⊗1⊠	📮 (h)
	WORK HOME POS	Ser coordinate	나는 SHIFT VALUE	VARIABLE	UR	-144 -159 -186	384 549 182	0	410839 186182	JO		SOFTLIMIT SE COORDINATE SOFT	TTING : ANGLE IMIT(-)	CURRENT	SOFTI IMIT(+)
ROBOT	12 SECOND HOME POS	HOME POSITION	SOFTLIMIT SETTING	IN/OUT	T	-14/ -244	912 156	0	244156	ARC WE		R1 :S -10	80.0000 des. 90.0000 des.	0.0000 deg. 0.0000 deg. 0.0000 deg.	180.0000 deg. 135.0000 deg. 206.0002 deg.
SYSTEM INFO	T DROP AMOUNT	MANIPULATOR TYPE	HOCK SENS LV.	ROBOT						VARIA	BLE	R -20 B -1	00.0002 des. 50.0009 des.	0.0000 deg. 0.0000 deg.	200.0002 deg. 150.0009 deg.
	POWER ON/OFF POS	analog monitor		SYSTEM INFO						IN/C		T <u>-2</u>	<u>)9.9982</u> deg.	0.0000 deg.	<u>209.9982</u> deg.
Main Menu	Simple Menu									ROB	OUT				
											2				
				Main Menu	Simple	Menu									
										Main N	fenu	Simple Menu			



Shared Integration Experience

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Robot Models Affected

AR1440				
Axes	Maximum motion range			
	degrees			
S	±170			
L	+155/-90			
U	+140/-85			
R	±150			
в	+90/-135			
т	±210			

AR1730			
Axes	Maximum motion range		
	degrees		
S	±180		
L	+155/-105		
U	+160/-86		
R	±150		
в	+90/-135		
т	±210		

	AR3120
Axes	Maximum motion rang
	degrees
S	±180
L	+135/-90
U	+206/-80
R	±200
в	+150
т	±210
	Axes S L U R B T

SP80				
Axes	Maximum motion range			
	degrees			
s	±180			
L	+155/-90			
U	+90/-80			
R	±205*			
в	±120*			
т	±180*			

SP150R					
Axes	Maximum motion range				
	degrees				
S	±180				
L	+80/-130				
U	+78/-79.4				
R	±205*				
в	±120*				
т	±180*				

	SP165
Axes	Maximum motion range
	degrees
S	±180
L	+76/-60
U	+90/-86
R	±210*
в	±125*
т	±210*

AR2010

S

U

R

в

Т

Maximum

motion range

degrees

±180

+155/-105 +160/-86

±150

+90/-135

±210

SP165-105				
Axes	Maximum motion range			
	degrees			
S	±180			
L	+76/-60			
U	+90/-86			
R	±210*			
в	±125*			
т	±210*			

tion range

	SP185R
Axes	Maximum motion ran
	degrees
S	±180
L	+80/-130
U	+78/-78.4
R	±205*
в	±120*

±180*

SP210				
Axes	Maximum motion range			
	degrees			
S	±180			
L	+76/-60			
U	+90/-86			
R	±210*			
в	±125*			
т	±210*			

SP235				
Axes	Maximum motion range			
	degrees			
S	±180			
L	+76/-60			
U	+197/-77.8			
R	±205*			
в	±120*			
т	±180*			

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