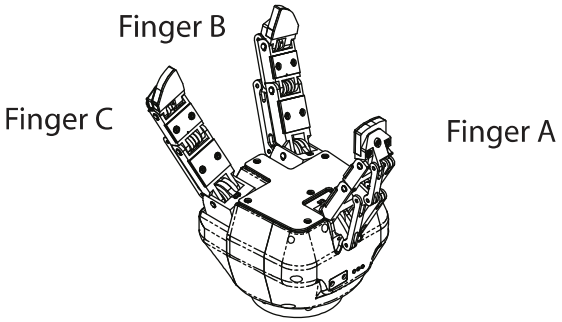
Robotiq Adaptive Gripper S-Model Control Summary



Status LEDs

Power	Blue	Off	Gripper not supplied
		On	Gripper supplied, control board running
Comm	Green	Off	No network detected
		On	Network detected, connection established
		Blinking	Network detected, no connection
Fault	Red	Off	No fault detected
		On	Action and/or communication fault occured
		Blinking	A major fault occured

Operation Modes

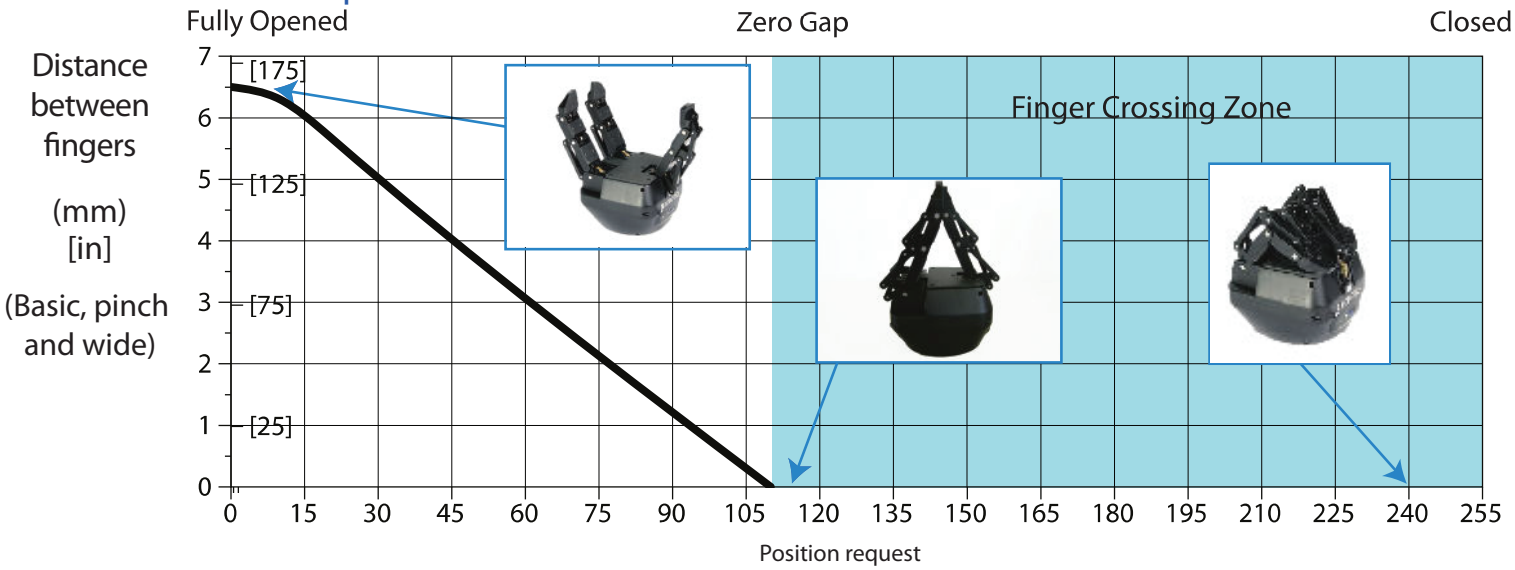
BASIC (00)

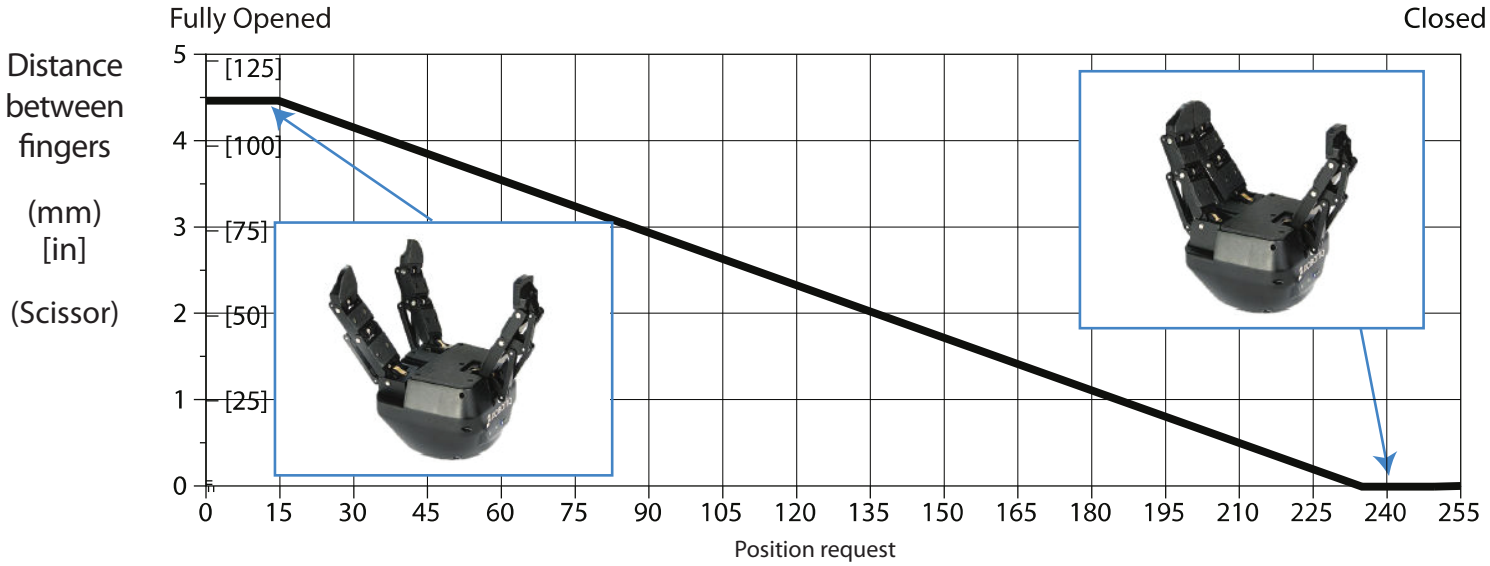
WIDE (01)

PINCH (10)

SCISSOR (11)

"Go To Position Request" command





Functionality Registers

Register		Name	Functionality	Bit	Description
Byte 0	**ACTION REQUEST**	rACT	Initialization	0	0 – Reset Gripper. 1 – **Activate** Gripper (must stay on after activation routine is completed).
		rMOD	Operation mode	1 & 2	00 – Go to **Basic** Mode 10 – Go to **Pinch** Mode 01 – Go to **Wide** Mode 11 – Go to **Scissor** Mode
		rGTO	Go to requested	3	0 – Stop 1 – **Go to** requested position
		rATR	Automatic release	4	0 – Normal 1 – Automatic release
		rRS0	Reserved	5 to 7	Reserved
Byte 1	**GRIPPER OPTIONS 1**	rGLV	Glove mode	0	0 – Normal 1 – Enable Glove Mode (Use only when a glove provided by Robotiq is installed)
		rRS1	Reserved	1	Reserved
		rICF	Finger Individual Control	2	0 – Normal 1 – Enable Individual Control of Fingers A, B and C
		rICS	Scissor Individual Control	3	0 – Normal 1 – Enable Individual Control of Scissor, disable Mode Selection
		rRS2	Reserved	4 to 7	Reserved
Byte 2	**GRIPPER OPTIONS 2**	rRS3	Reserved	0 to 7	Reserved
Byte 3	**POSITION REQUEST (A)**	rPRA	Position	0 to 7	Set **Position Request** for the Gripper (finger A in individual control mode) 0x00 (fully opened) to oxFF (fully closed).
Byte 4	**SPEED (A)**	rSPA	Speed	0 to 7	Set **Grasping Speed** for the Gripper (finger A in individual control mode) 0x00 (minimum velocity) to oxFF (maximum velocity).
Byte 5	**FORCE (A)**	rFRA	Force	0 to 7	Set **Gripping Force** for the Gripper (finger A in individual control mode) 0x00 (minimum force) to oxFF (maximum force).
Byte 6	**POSITION REQUEST (B)**	rPRB	Position	0 to 7	Set Position Request for Finger B 0x00 (fully opened) to oxFF (fully closed).
Byte 7	**SPEED (B)**	rSPB	Speed	0 to 7	Set Grasping Speed for Finger B 0x00 (minimum velocity) to oxFF (maximum velocity).
Byte 8	**FORCE (B)**	rFRB	Force	0 to 7	Set Gripping Force for Finger B 0x00 (minimum force) to oxFF (maximum force).
Byte 9	**POSITION REQUEST (C)**	rPRC	Position	0 to 7	Set Position Request for Finger C 0x00 (fully opened) to oxFF (fully closed).
Byte 10	**SPEED (C)**	rSPC	Speed	0 to 7	Set Grasping Speed for Finger C 0x00 (minimum velocity) to oxFF (maximum velocity).
Byte 11	**FORCE (C)**	rFRC	Force	0 to 7	Set Gripping Force for Finger C 0x00 (minimum force) to oxFF (maximum force).
Byte 12	**POSITION REQUEST (S)**	rPRS	Position	0 to 7	Set Position Request for the Scissor axis 0x00 (fully opened) to oxFF (fully closed).
Byte 13	**SPEED (S)**	rSPS	Speed	0 to 7	Set Grasping Speed for the Scissor axis 0x00 (minimum velocity) to oxFF (maximum velocity).
Byte 14	**FORCE (S)**	rFRS	Force	0 to 7	Set Gripping Force for the Scissor axis 0x00 (minimum force) to oxFF (maximum force).

Status Registers

Register		Name	Functionality	Bit	Description
Byte 0	**GRIPPER STATUS**	gACT	Initialization echo	0	0 – Gripper reset 1 – Gripper activation
		gMOD	Operation mode echo	1 & 2	00 – **Basic** Mode 10 – **Pinch** Mode 01 – **Wide** Mode 11 – **Scissor** Mode
		gGTO	Go to Requested echo	3	0 – Standby (or performing activation/automatic release) 1 – **Go to** Position Request
		gIMC	Initialization & Mode status	4 & 5	00 – Gripper in reset (or automatic release) state 10 – Activation in progress 01 – Mode change in progress 11 – Activation and mode change are completed
		gSTA	Gripper status	6 & 7	00 – Gripper is in motion towards requested position (if gGTO = = 1) 10 – Gripper is stopped. One or two fingers stopped before requested position 01 – Gripper is stopped. All fingers stopped before requested position 11 – Gripper is stopped. All fingers reached requested position
Byte 1	**OBJECT STATUS**	gDTA	Detection A	0 & 1	00 – Finger A is in motion (if gGTO = = 1) 10 – Finger A has stopped due to a contact while opening 01 – Finger A has stopped due to a contact while closing 11 – Finger A is at requested position
		gDTB	Detection B	2 & 3	00 – Finger B is in motion (if gGTO = = 1) 10 – Finger B has stopped due to a contact while opening 01 – Finger B has stopped due to a contact while closing 11 – Finger B is at requested position
		gDTC	Detection C	4 & 5	00 – Finger C is in motion (if gGTO = = 1) 10 – Finger C has stopped due to a contact while opening 01 – Finger C has stopped due to a contact while closing 11 – Finger C is at requested position
		gDTS	Detection S	6 & 7	00 – Scissor axis is in motion (if gGTO = = 1) 10 – Scissor axis has stopped due to a contact while opening 01 – Scissor axis has stopped due to a contact while closing 11 – Scissor axis is at requested position
Byte 2	**FAULT STATUS**	gFLT	FAULT	0 to 3	0x00 – No fault Pirority fault 0x05 – Action delayed, activation must be completed prior to action 0x06 – Action delayed, mode change must be completed prior to action 0x07 – The activation bit must be set prior to action Minor fault 0x09 – Communication is not ready 0x0A – Changing mode fault, interferences detected on scissor axis (less then 20s) 0x0B – Automatic release in progress Major fault 0x0D – Action fault, verify that no interference or other error occured 0x0E – Changing mode fault, interferences detected on scissor axis (more then 20s) 0x0F – Automatic release completed. Reset and activation required
		gRS1	Reserved	4 to 7	Reserved (zeros)
Byte 3	**POSITION REQUEST (A)**	gPRA	Echo	0 to 7	Echo of **Position Request** for the Gripper (finger A in individual control mode) 0x00 (fully opened) to oxFF (fully closed)
Byte 4	**FINGER A POSITION**	gPOA	Position	0 to 7	Position of finger A, 0x00 (fully opened) to 0xFF (fully closed)
Byte 5	**FINGER A CURRENT**	gCUA	Current	0 to 7	0.1*Current (in mA)
Byte 6	**POSITION REQUEST (B)**	gPRB	Echo	0 to 7	Echo of **Position Request** for the finger B 0x00 (fully opened) to oxFF (fully closed)
Byte 7	**FINGER B POSITION**	gPOB	Position	0 to 7	Position of finger B, 0x00 (fully opened) to 0xFF (fully closed)
Byte 8	**FINGER B CURRENT**	gCUB	Current	0 to 7	0.1*Current (in mA)
Byte 9	**POSITION REQUEST (C)**	gPRC	Echo	0 to 7	Echo of **Position Request** for the finger C 0x00 (fully opened) to oxFF (fully closed)
Byte 10	**FINGER C POSITION**	gPOC	Position	0 to 7	Position of finger C, 0x00 (fully opened) to 0xFF (fully closed)
Byte 11	**FINGER C CURRENT**	gCUC	Current	0 to 7	0.1*Current (in mA)
Byte 9	**POSITION REQUEST (S)**	gPRS	Echo	0 to 7	Echo of **Position Request** for the scissor axis 0x00 (fully opened) to oxFF (fully closed)
Byte 10	**FINGER S POSITION**	gPOS	Position	0 to 7	Position of scissor axis, 0x00 (fully opened) to 0xFF (fully closed)
Byte 11	**FINGER S CURRENT**	gCUS	Current	0 to 7	Current of scissor axis, 0.1*Current (in mA)