

SC1 Gen2 V2 by Draper

SC1 Programming Summary

- Abbreviations used in this document: # = Main Channel of the SC1 gen2 - factory default is **1**; **O** = Open; **C** = Close;
S = **STOP**; **N** = SC1 Channel between 1 and 60; **Chan** = SC1 Channel; **O_x O_y O_z** = Multi-button sequences using **Open** commands as integers 0-9 (O10 as 0, O1 as 1, O2 as 2, ...); **SPST** = Single Pole Single Throw; **SPDT** = Single Pole Double Throw
- Note that **O#** can also be **OALL** if you want to program more than one SC1 gen2V2 motor control.
- See **SC1 Gen2 V2 Application Notes** for Minimum Load Threshold and Stall Load Threshold information.
- See **SC1 Gen2 V2 Application Notes** for additional technical information relating to SC1 commands and features.
- See **SC1 Gen2 V2 Command Summary** for additional technical information relating to SC1 gen2V2 commands and protocol.
- See **SC1 Gen2 Specifications and Installation Instructions** for wiring instructions and electrical schematics.
- These items all use the **RED** Programming LED except where endnote is referenced.

		<i>To program this . . .</i>	LED:	on	blink	blink	off
Resets		Reset all options and main channel to default	S+7+7	OALL	hold 5 sec. until LED blink		S
		Reset everything <i>except</i> main channel to factory default	S+7+7	O#	CALL		S
Channels		Main Channel to N (<i>N</i> = 1 through 60)	S+7+7	O#	C1	ON	S
		Set 1 st Group Channel to N	S+7+7	O#	C2	ON	S
		Set 1 st Group Channel OFF (factory default)	S+7+7	O#	C2	OALL	S
		Set 2 nd Group Channel to N (same as above)	S+7+7	O#	C3	ON	S
		Set 3 rd Group Channel to N (same as above)	S+7+7	O#	C4	ON	S
		Set 4 th Group Channel to N (same as above)	S+7+7	O#	C5	ON	S
		Set 5 th Group Channel to N (same as above)	S+7+7	O#	C13	ON	S
		Set 6 th Group Channel to N (same as above)	S+7+7	O#	C14	ON	S
		Set "Specific Stop" Channel to N (same as above)	S+7+7	O#	C22	ON	S
		Turn OFF "Special Action" Channel	S+7+7	O#	C20	OALL	S
	Set "Special Action" Chan to N with the following features: sequential, no Intermediate Positions	S+7+7	O#	C20	ON ¹	S	
	reversed, no Intermediate Positions, not sticky	S+7+7	O#	C20	ON O1	S	
	reversed, no Intermediate Positions, sticky	S+7+7	O#	C20	ON O2	S	
	reversed, Intermediate Positions A & B	S+7+7	O#	C20	ON O3	S	
Motor Action		Reset the following options to factory default	S+7+7	O#	C6	OALL	S
		Momentary Motor Action ²	S+7+7	O#	C6	O1	S
		Reverse Motor Direction ³	S+7+7	O#	C6	O2	S
		Do NOT Act on ALL Chan commands from Input Devices	S+7+7	O#	C6	O3	S
		Fast Motor Release Time	S+7+7	O#	C6	O7	S
		Stop On Transmitter/Keypad Button Release ⁴	S+7+7	O#	C6	O8	S
Manual Inputs		Reset the following options to factory default	S+7+7	O#	C7	OALL	S
		SPST Manual Input ⁵	S+7+7	O#	C7	O1	S
		Slow Change Timing on Manual Inputs (i.e. X10)	S+7+7	O#	C7	O2	S
		Stop On SPDT Manual Input Release	S+7+7	O#	C7	O3	S
		"Sticky" action on SPDT Manual Input	S+7+7	O#	C7	O4	S
		Swap Open and Close on SPDT, Invert SPST	S+7+7	O#	C7	O5	S
		Enable SPST on Manual Inputs as Override/Lockout Motor will move based on the switch change to lock	S+7+7	O#	C7	O6	S
		Enable SPST on Manual Inputs as Override/Lockout Motor will NOT move based on the switch change to lock	S+7+7	O#	C7	O7	S
Sticky		Reset the following options to factory default	S+7+7	O#	C23	OALL	S
		Enable "Sticky" on Main Channel	S+7+7	O#	C23	O1	S
		Enable "Sticky" on 1 st Group Channel	S+7+7	O#	C23	O2	S
		Enable "Sticky" on 2 nd Group Channel	S+7+7	O#	C23	O3	S



411 S. Pearl St., Spiceland, IN 47385 USA ■ 765-987-7999
www.draperinc.com ■ fax 765-987-7142

SC1 Gen2 V2 Programming Summary

	Enable "Sticky" on 3 rd Group Channel	S+7+7	O#	C23	O4	S
	Enable "Sticky" on 4 th Group Channel	S+7+7	O#	C23	O5	S
	Enable "Sticky" on 5 th Group Channel	S+7+7	O#	C23	O6	S
	Enable "Sticky" on 6 th Group Channel	S+7+7	O#	C23	O7	S
	Turn OFF "Sticky" action on ALL Channel	S+7+7	O#	C23	O8	S
	<i>To program this . . .</i>	LED:	on	blink	blink	off
Intermediate Positions A & B	Turn off all Intermediate Positions A & B (factory default) ⁶	S+7+7	O#	C10	OALL	S
	Enable "Intermediate Positions A & B" on Main Channel ¹³	S+7+7	O#	C10	O1	S
	Enable "Int. Positions A & B" on 1 st Group Channel ¹³	S+7+7	O#	C10	O2	S
	Enable "Int. Positions A & B" on 2 nd Group Channel ¹³	S+7+7	O#	C10	O3	S
	Disable "Int. Positions A & B" on 3 rd Group Channel ¹³	S+7+7	O#	C10	O4	S
	Enable "Int. Positions A & B" on 4 th Group Channel ¹³	S+7+7	O#	C10	O5	S
	Enable "Int. Positions A & B" on 5 th Group Channel ¹³	S+7+7	O#	C10	O6	S
	Enable "Int. Positions A & B" on 6 th Group Channel ¹³	S+7+7	O#	C10	O14	S
	Enable "Int. Positions A & B" on the ALL channel ¹³	S+7+7	O#	C10	O7	S
	Enable "Int. Positions A & B" on Manual Inputs ¹³	S+7+7	O#	C10	O8	S
	Intermediate Positions Highest Accuracy ^{7 8}	S+7+7	O#	C10	O9	S
	Calibrate the travel times and auto set current thresholds ³	S+7+7	O#	C10	O10	⁹
	Reference the close limit (bottom) instead of open limit (top) ^{3 8}	S+7+7	O#	C10	O11	S
	Auto-Tilt ¹⁰ and reset new Intermediate Position defaults ¹¹ <i>optionally set the travel time to 100x+10y+z seconds</i>	S+7+7	O#	C10	O12 ¹ <i>O_x O_y O_z</i>	S
	Set the Travel Time to 100x+10y+z seconds Min = 0 0 1 (1 sec), Max = 2 9 9 (299 sec)	S+7+7	O#	C10	O13 ¹ <i>O_x O_y O_z</i>	S
Intermediate Position A (Open Button) <i>Set to 10x+y percent of travel time away from reference</i> Min = 0 0 (at reference), Max = 9 9 (opposite limit) Nudge this position 1/40 th second away from the ref. Nudge this position 1/40 th second towards the reference	S+7+7 S+7+7 S+7+7	O# O# O#	C11 C11 C11	O _x ¹ O _y O11 O12	S S S	
Intermediate Position B (Close Button) <i>Set to 10x+y percent of travel time away from reference</i> Min = 0 0 (at reference), Max = 9 9 (opposite limit) Nudge this position 1/40 th second away from the ref. Nudge this position 1/40 th second towards the reference	S+7+7 S+7+7 S+7+7	O# O# O#	C12 C12 C12	O _x ¹ O _y O11 O12	S S S	
Intermediate Positions C & D	Turn off all Intermediate Positions C & D (factory default)	S+7+7	O#	C15	OALL	S
	Enable "Intermediate Positions C & D" on Main Channel ¹³	S+7+7	O#	C15	O1	S
	Enable "Int. Positions C & D" on 1 st Group Channel ¹³	S+7+7	O#	C15	O2	S
	Enable "Int. Positions C & D" on 2 nd Group Channel ¹³	S+7+7	O#	C15	O3	S
	Enable "Int. Positions C & D" on 3 rd Group Channel ¹³	S+7+7	O#	C15	O4	S
	Disable "Int. Positions C & D" on 4 th Group Channel ¹³	S+7+7	O#	C15	O5	S
	Enable "Int. Positions C & D" on 5 th Group Channel ¹³	S+7+7	O#	C15	O6	S
	Enable "Int. Positions C & D" on 6 th Group Channel ¹³	S+7+7	O#	C15	O14	S
	Enable "Int. Positions C & D" on the ALL channel ¹³	S+7+7	O#	C15	O7	S
	Enable "Int. Positions C & D" on Manual Switches ¹²	S+7+7	O#	C15	O8	S
	Intermediate Position C (Open Button) <i>Set to 10x+y percent of travel time away from reference</i> Min = 0 0 (at reference), Max = 9 9 (opposite limit) Nudge this position 1/40 th second away from the ref. Nudge this position 1/40 th second towards the reference	S+7+7 S+7+7 S+7+7	O# O# O#	C16 C16 C16	O _x ¹ O _y O11 O12	S S S
	Intermediate Position D (Close Button) <i>Set to 10x+y percent of travel time away from reference</i> Min = 0 0 (at reference), Max = 9 9 (opposite limit) Nudge this position 1/40 th second away from the ref. Nudge this position 1/40 th second towards the reference	S+7+7 S+7+7 S+7+7	O# O# O#	C17 C17 C17	O _x ¹ O _y O11 O12	S S S

SC1 Gen2 V2 Programming Summary

Run Time	Set the Run Time to 100x+10y+z seconds (000 = forever) Min = 0 0 1 (1 sec), Max = 2 9 9 (299 sec / 5 min's) ¹³	S+7+7	O#	C8	O _x ¹ O _y O _z	S
-----------------	--	-------	----	----	---	---

<i>To program this . . .</i>		LED:	on	blink	blink	off
Load Thresholds	Set Minimum Load Threshold See SC1 Gen2 V2 Application Notes for threshold ¹⁴ Min=0 (x=0, y=0), Max=9.8Amps (x=5, y=1)	S+7+7	O#	C18	O _x ¹ O _y	S
	Nudge this threshold less sensitive by ¼ y (higher current)	S+7+7	O#	C18	O11	S
	Nudge this threshold more sensitive by ¼ y (lower current)	S+7+7	O#	C18	O12	S
Stall & Min. Load Thresholds	Set Stall Load Threshold See SC1 Gen2 V2 Application Notes for threshold Min=0 (x=0, y=0), Max=9.8Amps (x=5, y=1)	S+7+7	O#	C19	O _x ¹ O _y	S
	Nudge this threshold less sensitive by ¼ y (higher current)	S+7+7	O#	C19	O11	S
	Nudge this threshold more sensitive by ¼ y (lower current)	S+7+7	O#	C19	O12	S

¹ The LED will turn **GREEN** then back to **RED**, between each Open command, to indicate you are in a multi-button sequence.

² *Fast Motor Release Time* automatically enables Momentary Motor Action.

³ Reference and motor direction must be set **before** calibrating. Auto Calibration procedure automatically optimizes Travel Time and Run Time.

⁴ Sticky overrides *Stop on Transmitter/Keypad Button Release* if both are enabled.

⁵ Override switch is SPST so that mode is automatically enabled. **WARNING:** if the OPEN-COM terminals are not shorted, then commands will be locked out (programming commands will still work).

⁶ This action also turns off *Highest Accuracy* mode and resets the reference to default. This action does not affect the *Travel Time*, or the *Intermediate Position* percentages or nudge amounts. This may mean that the unit will need to be re-calibrated.

⁷ *Highest Accuracy* with respect to *Intermediate Positions* means the motor always moves away from the reference to arrive at an Intermediate Position.

⁸ By default, Open (top) is the reference. Changing the reference to Close does two things: "Auto-Reset" goes to the Close (bottom) limit instead of Open (top) limit, and when moving to a position in Highest Accuracy mode, the motor will only open to an Intermediate Position.

⁹ Motor will start calibration when O10 is released, which will cause the motor to auto calibrate. DO NOT interrupt this sequence, STOP will be ignored unless pressed for at least 2 seconds which will abort the calibration.

¹⁰ Used for tilting blinds (Silhouette™, wood blinds, etc). Travel time is optional, and set to 10 seconds if no value is entered. If used with SC1 gen2V2 commands, the results may be unexpected.

¹¹ Auto-Tilt defaults are 2, 4, 6, and 8%.

¹² If all four Intermediate Positions are enabled on a channel, Positions A & B take precedence.

¹³ Run Time can be set to "forever" using O10 > O10 > O10, accordingly. This allows bi-directional motor control for an indefinite length of time plus a **STOP** command.

¹⁴ Accuracy may require experimentally derived values. Refer to **SC1 Gen2 V2 Application Notes** for additional technical information relating to Minimum and Stall Load Thresholds.

SC1 Gen2 V2 Programming Summary

Factory Defaults:

Channels:

Main Channel = 1 using standard action, Groups 1-6 = Off and not Sticky, no Special Action channel, no Specific Stop channel, **ALL** button on Transmitter acted on using Sticky action.

Motor Actions:

Maintained Motor Action, Standard Motor Direction, Standard Motor Release Time, Do not Stop on Transmitter Button Release.

Manual Inputs:

SPDT, Standard Timing, Do Not Stop On Manual Input Release, Standard action (not sticky), Manual Inputs as labeled, Override Disabled.

Run Time:

180 seconds.

Intermediate Positions:

Standard accuracy, reference is at the Open limit, Auto-Tilt not enabled, Travel Time = 10 seconds. Intermediate Positions A & B enabled on 3rd Group Channel, Intermediate Positions C & D enabled on 4th Group Channel, all other channels and switches do not have Intermediate Positions enabled. Intermediate Position A (Open command) = 20%, Intermediate Position B (Close command) = 80%, Intermediate Position C (Open command) = 40%, Intermediate Position D (Close command)=60%, and no nudge amount.

Load Sensing:

Minimum Load Threshold = approximately .05 Amp (6W at 115VAC, 12W at 230VAC). This default value is overwritten during Auto Calibration.

Stall Load Threshold = 0 (ignored). This default value is overwritten during Auto Calibration.

LED:

On power-up, the LED will blink red, red, green. (• • •)

Change History:

V1 to V2:

1. Resolved issue related to nudging Intermediate Positions A&B.
2. Resolved issue related to unintended movement when rapid button presses from an SC1 Input Device (transmitter or keypad).
3. Resolved issue related to unintended movement on power-up related to Manual Inputs.
4. Resolved issue related to unexpected results while moving to a new position from an SC1 gen2V2 move command while already in motion to limit via any previous command.
5. Updated SC1 gen2V2 Manual Input (switch) reporting to always be enabled.