SP Ramp Set Up Group

Introduction

Set Point Ramp, Set Point Programs and Set Point Rates can be configured in this group.

A single *Setpoint Ramp* [SP RAMP] can be configured to occur between the current local setpoint and a final local setpoint over a time interval of from 1 to 255 minutes.

A *Set Point Rate* [SPRATE] lets you configure a *specific rate of change* for any local setpoint change.

A single *Set Point Program* [SP PROG] with up to 20 segments can be configured.

You can start and stop the ramp/program using the **RUN/HOLD** key.

PV Hot Start is a configurable feature and means that, at initialization, the setpoint is set to the current PV value and the Ramp or Rate or Program then starts from this value.

Added Features not found in other UDC products:

- 20 segments instead of 12
- 10 Guaranteed Soak Settings (one for each Soak Segment)
- PID Set selection for each Segment

Function Prompts

Table 1 SPRAMP Group Function Prompts

Function Prompt Lower Display	**Selections or Range of Setting** Upper Display	**Parameter Definition**
SP RAMP *SP Program must be disabled for SP Ramp prompts to appear*		**SINGLE SETPOINT RAMP**—Make a selection to enable or disable the setpoint ramp function. Make sure you configure a ramp time and a final setpoint value. *SP Programming must be disabled.*
	DISABLE	**DISABLE SETPOINT RAMP**—Disables the setpoint ramp option.
	ENABLE	**ENABLE SETPOINT RAMP**—Allows the single setpoint ramp prompts to be shown.
TIME MIN	0 to 255 minutes	**SETPOINT RAMP TIME**—Enter the number of minutes desired to reach the final setpoint. A ramp timeof “0” implies an immediate change of setpoint.

Function Prompt Lower Display	**Selections or Range of Setting** Upper Display	**Parameter Definition**
FINAL SP	Within setpoint limits	**SETPOINT RAMP FINAL SETPOINT**—Enter the value desired for the final setpoint. The controller will operate at the setpoint set here when ramp is ended. **ATTENTION** If the ramp is on HOLD, the held setpoint can be changed by the ▲ and ▼ keys. However, the ramp time remaining and original ramp rate is not changed. Therefore, when returning to RUN mode, the setpoint will ramp at the same rate as previous to the local setpoint change and will stop if the final setpoint is reached before the time expires. If the time expires before the final setpoint is reached, it will jump to the final setpoint. **ATTENTION** SP RAMP and SP RATE will cause the SP portion of Accutune to abort. PV Tune will continue to function normally. Ramp is placed into HOLD while tuning (TUNE configuration).
HOTSTART	DISABLE ENABLE	**DISABLE**—LSP1 is used as the initial ramp setpoint. **ENABLE**—Current PV value is used as the initial ramp setpoint.
SP RATE *SP Rate operates only when both SP Ramp and SP Programming are in HOLD mode or when both SP Ramp and SP Programming are disabled.*	 DISABLE ENABLE	**SETPOINT RATE**—Lets you configure a specific rate of change for any local setpoint change. **DISABLE SETPOINT RATE**—Disables the setpoint rate option. **ENABLE SETPOINT RATE**—Allows the SP rate feature.
EU/HR UP	0 to 9999 in engineering units per hour	**RATE UP**—Rate up value. When making a setpoint change, this is the rate at which the controller will change from the original setpoint up to the new one. The ramping (current) setpoint can be viewed as SPn in the lower display. Entering a 0 will imply an immediate step change in Setpoint (i.e., no rate applies).
EU/HR DN	0 to 9999 in engineering units per hour	**RATE DOWN**—Rate down value. When making a setpoint change, this is the rate at which the controller will change from the original setpoint down to the new one. The ramping (current) setpoint can be viewed as SPn in the lower display. Entering a 0 will imply an immediate step change in Setpoint (i.e., no rate applies).

Function Prompt Lower Display	**Selections or Range of Setting** Upper Display	**Parameter Definition**
SP PROG (optional feature) *SP Ramp must be disabled for SP Program prompts to appear. If SP Rate is enabled, it does not operate while an SP Program is running.*	DISABLE ENABLE ENABLE2 ENABL12	**SETPOINT RAMP/SOAK PROGRAM**—Available only with controllers that contain this option. *SP RAMP must be disabled.* **DISABLE**—Disables setpoint programming. **ENABLE**—Enables setpoint programming–Loop 1. **ENABLE2**—Enables setpoint programming–Loop 2. **ENABL12**—Enables setpoint programming–Both Loop1 and Loop 2. **ATTENTION** Detailed information for the prompts for SP Programming may be found in Section **Error! Reference source not found.**. The listing below is only for reference purposes.
STRT SEG	1 to 19	Start Segment Number
END SEG	2 to 20 even numbers Always end in a soak segment (2, 4, ... 20)	End Segment Number
RAMPUNIT	TIME EU/MIN EU/HR	**RAMPUNIT**—Engineering Units for Ramp Segments **TIME** in hours: minutes **RATE** in Engineering units per minute **RATE** in Engineering units per hour
RECYCLES	0 to 99 recycles	Number of Program Recycles
PROG END	LASTSP (Hold at last setpoint in the program) F SAFE (Manual mode/Failsafe output)	Program Termination State
STATE	DISABLE HOLD	Program State at Program End
POWER UP	ABORT RESUME RESTART	This configuration determines what the Program will do in the case of a power outage during the Program. This prompt only appears on those instruments that have the Real Time Clock option. **ABORT**—Program terminated on power up **RESUME**—Continue at the same point in program **RESTART**—Restart program at beginning of the same cycle
KEYRESET	DISABLE	**KEY RESET**—Reset/Rerun SP Program **DISABLE**

Function Prompt Lower Display	**Selections or Range of Setting** Upper Display	**Parameter Definition**
	ToBEGIN	**RESET TO BEGINNING OF SETPOINT PROGRAM**— When enabled, this selection allows you to reset via the keyboard to the beginning of the program and resets the Recycle value to 0. The program mode is placed in HOLD. If the current Local Setpoint 1 value is at any value other than that Setpoint value used in the first Soak segment in the program, then the program will restart at the current Local Setpoint 1 value and at the beginning of the first Ramp segment in the program. If the current Local Setpoint 1 value is at the same Setpoint value as that used for the first Soak segment in the program, then the first Ramp segment is skipped and the program will restart at the beginning of the first Soak segment in the program.
	RERUN	**RERUN CURRENT CYCLE**—When enabled, this selection allows you to reset the program via the keyboard to the beginning of the current cycle. The Recycle value is not affected. The program mode (RUN or HOLD) is not affected.
HOTSTART	DISABLE ENABLE	**HOT START**—This feature allows the SP Program to start at the current PV value rather than the current Setpoint value.
SEG1RAMP or **SEG1RATE**	0-99 hours.0-59 minutes Engineering units/minute or Engineering units/hour	Segment #1 Ramp Time or Segment #1 Ramp Rate **Select TIME, EU/MIN, or EU/HR at prompt RAMPUNIT. All ramps will use the same selection.**
SEG1PID	1-4	PID Set Selection **ATTENTION** The PID Set Selection prompts will only show up when PID SETS in the Control 1 or Control 2 Setup Group is set to 4 KEYBD.
SEG2 SP	Within the Setpoint limits	Segment #2 Soak Setpoint Value
SEG2TIME	0-99 hours.0-59 minutes	Segment #2 Soak Duration
SOAK2DEV	0.000 to 99.99	**Guaranteed Soak Deviation Value For Soak Segment #2**—The number selected will be the PV value (in engineering units) above and below the setpoint outside of which the Soak Segment timer halts. A value of 0.000 is equivalent to no Guaranteed Soak.

Function Prompt Lower Display	**Selections or Range of Setting** Upper Display	**Parameter Definition**
SEG2 PID	1-4	PID Set Selection – this selection is Loop dependent. **ATTENTION** The PID Set Selection prompts will only show up when PID SETS in the Control 1 or Control 2 Setup Group is set to 4 KEYBD.
SEG3RAMP or **SEG3RATE** **SEG3 PID** **SEG4 SP** **SEG4TIME** **SOAK4DEV** **SEG4 PID** **SEG5RAMP** or **SEG5RATE** **SEG5 PID** **SEG6 SP** **SEG6TIME** **SOAK6DEV** **SEG6 PID** **SEG7RAMP** or **SEG7RATE** **SEG7 PID** **SEG8 SP** **SEG8TIME** **SOAK8DEV** **SEG8 PID** **SEG9RAMP** or **SEG9RATE** **SEG9 PID** **SG10 SP** **SG10TIME** **SOAK10DEV** **SG10 PID** **SG11RAMP** or **SG11RATE** **SG11 PID** **SG12 SP** **SG12TIME** **SOAK12DEV** **SG12 PID** **SG13RAMP** or **SG13RATE** **SG13 PID** **SG14 SP** **SG14TIME** **SOAK14DEV**	Selections are same as above.	Same as above

Function Prompt Lower Display	**Selections or Range of Setting** Upper Display	**Parameter Definition**
SG14 PID **SG15RAMP** or **SG15RATE** **SG15 PID** **SG16 SP** **SG16TIME** **SOAK16DEV** **SG16 PID** **SG17RAMP** or **SG17RATE** **SG17 PID** **SG18 SP** **SG18TIME** **SOAK18DEV** **SG18 PID** **SG19RAMP** or **SG19RATE** **SG19 PID** **SG20 SP** **SG20TIME** **SOAK20DEV** **SG20 PID**		