

How to Enter a Program

This procedure assumes that you have completed a program worksheet, or know all the data relevant to your set point versus time profile. Before entering a program, peruse the following programming checklist.

Programming Checklist

- Be sure the first segment is a soak type. However, you can effectively bypass this requirement by entering a soak duration time of '0'.
- Do you know the configuration of all twelve events? If you don't know, see the Configuration section.
- Include any data for time-based events with the segment in which the on-time is to occur.
- The set point of a PV or DEV-based event can be entered with any segment and is effective until a new set point is entered in a subsequent segment. To make the PV or DEV event ineffective in a subsequent segment, use the high and low range limits as the High and Low set points in that segment.
- Do you know the values of the tuning constants for all nine PID groups (programmer controller) or the value of the set point output limits (programmer only)? If you don't know, see the Tuning section.
- Always include a PID group (programmer/controllers only) with the first segment since it will be effective until a different PID group is entered in a subsequent segment.
Remember: If no PID numbers are selected:
 Channel 1 will use PID 1 and channel 2 will use PID 5
 For Duplex operation (heat and cool)
 Channel 1 (heat) will use PID 1
 Channel 1 (cool) will use PID 2
 Channel 2 will use PID 5
- Do you need a different PV ratio/bias for a segment during program execution? If you do, be sure to enter values with PV-BIAS prompt during the programming of the segment. Otherwise, the PV ratio/bias values entered during configuration apply.
- Do you know range values assigned for linear input (4-20 mA dc or 1-5 Vdc). See the Configuration section for details.
- Include "CYCLE" number with appropriate segment to cycle a whole or a portion of a program. See How to Cycle a Program in this section for details.
- Include IF EXT, ON EXT, or END function with the segment in which you want it to occur.
- Be sure last segment is either a SOAK or a RAMP-X type.
- If your DCP has two channels, you can create another set point versus time profile (program) under the same program number for the second channel. However, you must enter the program in channel 1; then enter the program in channel 2 before pressing **PROG** to store the programs. To add a program for channel 2 under a program number that has a program stored under it for one channel, you must first delete the program.
- If your DCP has Relative Humidity actuation, you must create a program for the dry bulb and RH under the same channel number.


Entering a Program

The following steps outline the basic key sequences to use to enter any of the data listed under the "What You Can Program" paragraph. Obviously, some of the values and displays are for example only to illustrate the response you can expect when you enter a particular parameter. While not every segment, function and parameter prompt is detailed in these steps, the same general key sequence for one applies for all. Prompts and error codes will help guide you through the programming steps and keep you from entering the wrong data.

Display Designations:

- A-N — Alphanumeric (upper display)
- SP — Set Point
- TM — Time
- PV — Process Variable

NOTE: If power is interrupted while you are entering a program, the DCP will not let you get back into the program you were entering after power is restored. However, you can get around this by making a partial General Reset. Pull down the module door on the front of the DCP and be sure the memory protect switch lever is in the M.P. position. Locate the General Reset switch that is accessible through the hole marked G. R. to the left of the memory protect switch. While pressing the [RESET] key, use a pen or pencil to press the G. R. switch — an 8. appears in the SP display. Remove the pen or pencil and continue pressing the [RESET] key until you hear a beep (takes about 5 seconds) and the [SYNC] LED lights. This clears the partially entered program, but leaves all other previously stored and complete programs intact. You can now re-enter the program you were putting in when the power failed.

Step	Key	Displays	Numerical Mode	Comments
1				Pull down module door on front of DCP and be sure switch lever is in far right position (M.E.). MEMORY PROTECT SWITCH  Be sure the MAN LED is out. You cannot enter a program with the DCP in the manual mode.
2	[PARA]	A-N TIME UNIT SP 0 or 1		If DCP is in another mode and does not acknowledge [PARA], press [DISP] and then [PARA]. 0 in display means program time base is minutes/seconds; 1 means time base is hours/minutes. Is time unit correct one for program? YES—go to Step 2 (3) NO—go to Step 2 (1) to change time unit.
2 (1)	[ENTER]	A-N TIME UNIT SP 0	Key in desired time unit code.	0 = minutes/seconds 1 = hours/minutes
2 (2)	[ENTER]	A-N TIME UNIT SP 1*		Program time base will be hours/minutes.
2 (3)	[DISP]	A-N 1-1-1*		Exit configuration mode.
3	[PROG] [ENTER]	A-N 1-0-1 A-N 1-1-1*	Key in desired program number: 1 to 39	[NUM] LED blinks to show that DCP is in numerical mode. If you key in wrong number, press [CLR] to erase and key in correct number before you press [ENTER].
4	[←] [PROG]	A-N @ 1-1-1 SP 3540 TM FrEE		In program mode, number in SP display is available (free) bytes of memory. If you get an ERROR code, see the Error Code list in appendix and take appropriate action.

*Typical display—shown for reference only

Step	Key	Displays	Numerical Mode	Comments
5	<input type="button" value="▲"/>	A-N SOAK		Do you want this to be a SOAK segment? NOTE: SOAK and G.SOAK are only prompts that can be displayed in first segment, since it must be a soak type. YES—Go to Step 6 NO—Alternately press <input type="button" value="▲"/> or <input type="button" value="▼"/> to step forward or backward through segment prompts—SOAK, G.SOAK, RAMP-T, RAMP-X, and RAMP-E to find desired segment type. Proceed to Step 6 but substitute parameter prompts listed for desired segment in "What You Can Program" paragraph (Page 4-2) for alphanumeric displays shown in Step 6.
6	<input type="button" value="ENTER"/>	A-N SET-POINT SP 0	Key in desired set point value.	<input type="button" value="NUM"/> LED blinks. If you get an ERROR code, see Error Code list in Appendix and take appropriate action. Use <input type="button" value="CLR"/> to erase wrong values before <input type="button" value="ENTER"/> is pressed.
	<input type="button" value="ENTER"/>	A-N DURATION SP 350* TM 0.00*	Key in desired soak duration time.	350 is entered as set point value.
	<input type="button" value="ENTER"/>	A-N DURATION SP 350* TM 2.00*		2 hours is entered as time of soak duration.
7				Do you want to include other FUNCTIONS in this segment? YES—Go to Step 7 (1). NO—Go to Step 8.
7 (1)	<input type="button" value="FUNC"/>	A-N TM-EVT		NOTE: TM-EVT, PV-EVT, and DEV-EVT will not appear if you have not configured any of the events. See Configuration section for details. Use <input type="button" value="▲"/> or <input type="button" value="▼"/> to step forward and backward through function prompts—TM-EVT, PV-EVT, DEV-EVT, CYCLE, PV-BIAS, PID-NO, IF EXT, ON EXT, and END—to find desired functions. See "What You Can Program" paragraph (Page 4-2) for appropriate parameter prompts and enter data in similar fashion as shown for TM-EVT in Steps 7 (1) through 7 (5).
7 (2)	<input type="button" value="ENTER"/>	A-N EVT-NO SP 0	Key in appropriate event number.	<input type="button" value="NUM"/> LED blinks. Use <input type="button" value="CLR"/> to erase wrong values before <input type="button" value="ENTER"/> is pressed.

*Typical display—shown for reference only

Step	Key	Displays	Numerical Mode	Comments
7 (3)	ENTER	A-N ON-TIME SP 1* TM 0.00	Key in time when event must come on.	1 is entered as event number.
7 (4)	ENTER	A-N OFF-TIME SP 1* TM 1.05* PV 0.00	Key in time when event must go off.	1 hour and 5 minutes is entered as time when event comes on.
7 (5)	ENTER	A-N OFF-TIME SP 1* TM 1.05* PV 2.00*		NUM LED off. 2 hours is entered as time when event goes off. Do you want to enter another FUNCTION? YES—Press FUNC and see Comments for Step 7 (1). NO—Go to Step 8.
8	SEG	A-N @ 1-1-2 SP 3529 TM FrEE		Segment number is automatically increased by one (+ 1). You can delete an entered segment at this time by pressing CLR and SEG together—segment decreases by one (- 1).
9				Repeat steps 5 through 8 until all program data is entered for channel 1. If you have a two channel DCP, press CH instead of SEG after last segment data for channel 1 is entered. Then, repeat Steps 5 through 8 until all program data is entered for channel 2.
10	PROG	A-N 1-1-1		When data for last segment is entered, press PROG instead of SEG to store the program. NOTE: Pressing RESET aborts programming procedure (i.e., the program is lost). See other paragraphs in this section to copy, delete, verify/edit, or upload/download a program. NOTE: If ALARM 96 message appears, some program data has been lost. To recover from ALARM 96, press ENTER to get prompt for lost data to appear, key in data values, and press ENTER . This clears ALARM 96 and completes the programming operation.

*Typical display—shown for reference only

Programming Example The following steps present the key sequences used and the displays encountered to enter the profile data shown in Figure 4-1 into the DCP as program number 14.

Example assumes that memory protect switch is in the far right position.

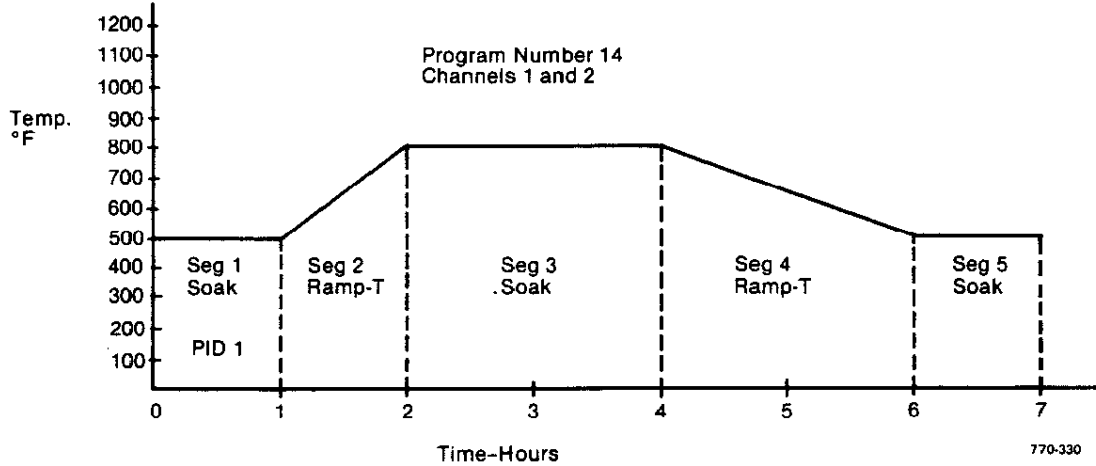


Figure 4-1—Set point versus time profile for programming example

Step	Key	Displays	Numerical Mode (NUM LED blinks; key in value)
1	PARA	A-N TIME UNIT SP 0	
2	ENTER	A-N TIME UNIT SP 0	FILE 1
3	ENTER	A-N TIME UNIT SP 1	
4	DISP	A-N 1-4-1	
5	PROG	A-N 1-0-1	FILE 1, DISP 4
6	ENTER	A-N 1-14-1	
7	← PROG	A-N @ 1-14-1 SP (bytes) TM FrEE	
8	▲	A-N SOAK	
9	ENTER	A-N SET POINT SP 0	FUNC 8, ← 0, ← 0
10	ENTER	A-N DURATION SP 500 TM 0.00	FILE 1, ← 0, ← 0
11	ENTER	A-N DURATION SP 500 TM 1.00	
12	FUNC	A-N TM-EVT	
13	▲ (5)*	A-N PID NO	
14	ENTER	A-N PID NO SP 0	FILE 1

*Number in parentheses is number of times key was pressed to read parameter shown.

Step	Key	Displays	(NUM Numerical Mode LED blinks; key in value)
15	ENTER	A-N PID NO. SP 1	
16	SEG	A-N @ 1-14-2 SP (bytes) TM FrEE	
17	▲ (3)*	A-N RAMP-T	
18	ENTER	A-N RAMPRATE SP 0.0	VRFY ³ , ◀ ⁰ , ◀ ⁰ , ◀ ⁰
19	ENTER	A-N RAMPRATE 300.0	
20	SEG	A-N @ 1-14-3 SP (bytes) TM FrEE	
21	▲	A-N SOAK	
22	ENTER	A-N SET POINT SP 0	PROG ³ , ◀ ⁰ , ◀ ⁰
23	ENTER	A-N DURATION SP 800 TM 0.00	TUNE ² , ◀ ⁰ , ◀ ⁰
24	ENTER	A-N DURATION SP 800 TM 2.00	
25	SEG	A-N @ 1-14-4 SP (bytes) TM FrEE	
26	▲ (3)*	A-N RAMP-T	
27	ENTER	A-N RAMPRATE 0.0	FILE ¹ , FUNC ⁵ , ◀ ⁰ , ◀ ⁰
28	ENTER	A-N RAMPRATE 150.0	
29	SEG	A-N @ 1-14-5 SP (bytes) TM FrEE	
30	▲	A-N SOAK	
31	ENTER	A-N SET POINT SP 0	FUNC ⁵ , ◀ ⁰ , ◀ ⁰
32	ENTER	A-N DURATION SP 500 TM 0.00	FILE ¹ , ◀ ⁰ , ◀ ⁰
33	ENTER	A-N DURATION 500 1.00	
34	CH	A-N @ 2-14-1 SP 1073 TM FrEE	
35	Repeat Steps 8 through 33 for Channel 2		
36	PROG	A-N 1-14-1	

*Number in parentheses is number of times key was pressed to reach parameter shown