HOW TO FILL OUT A PROGRAMMING WORK SHEET

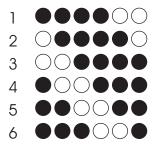
On the top of the sheet fill out the 'PROJECT NAME', 'SHEET NUMBERS' and the 'DATE'. The programmer will assign a 'PATTERN NAME' after the program is completed.

Make an 'X' to select the board to be programmed. Note the 6 Point board programming boundaries. The first two bits are not used. When you enter your pattern for a 6 Point board do not mark these bits. On the 32 point board note that the board pattern area is repeated twice on the sheet. You can enter a pattern that starts at the upper left, down to the bottom. Then start at the top middle and continue the pattern. The 64 point board pattern spans the entire sheet.

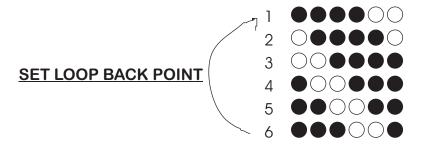
Down the left side of the sheet is a column marked "step #". Each step of the program you enter must have a step number. The programmer enters these same numbers while programming.

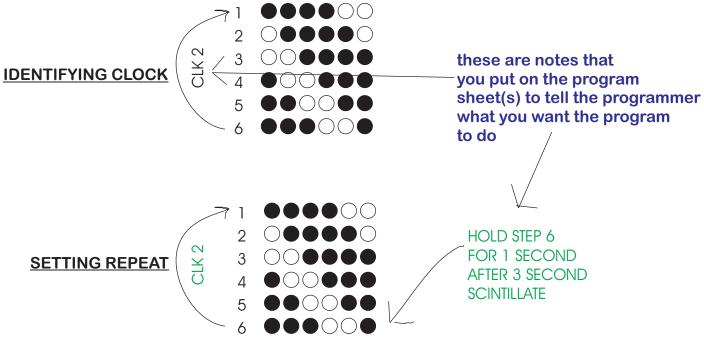
A SIMPLE 6 POINT PROGRAM

Lets start with a simple 6 point program. As shown below the lamps are set in a 4-on 2-off pattern. Each step of the program indicates a different sequence of lamps.



You must tell the programmer what you want this pattern to do. For instance if you want it to repeat make a notation showing the loop back point. If you want it to be controlled by a specific on-board clock then note this also. If you want the pattern to repeat a certain amount of times then make a note as to how many times you want the pattern repeated. If you want it to hold the last step for the duration of a second on-board clock then note this also. As an additional option you can request that the programmer program the on-board DIP switch to select the amount of times you want the pattern repeated. This allows you to set the repeat time yourself.





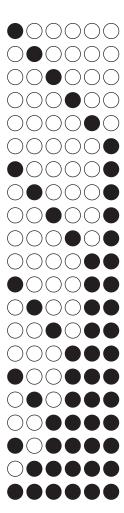
REPEAT FOR 3 SECONDS ADJUST WITH DIP SWITCH

SOME BASIC PATTERNS

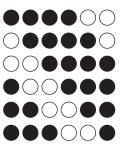
Each sign will have it's own unique patterns as described by the customer buying the sign. Don't limit yourself to the patterns that were used with the old mechanical flashers. With electronic flashers almost anything is possible. Check with the programmer to verify if your concept is programmable.

SPELL ON	OR	
SPELL OFF	OR	

STACK



SCINTILLATE



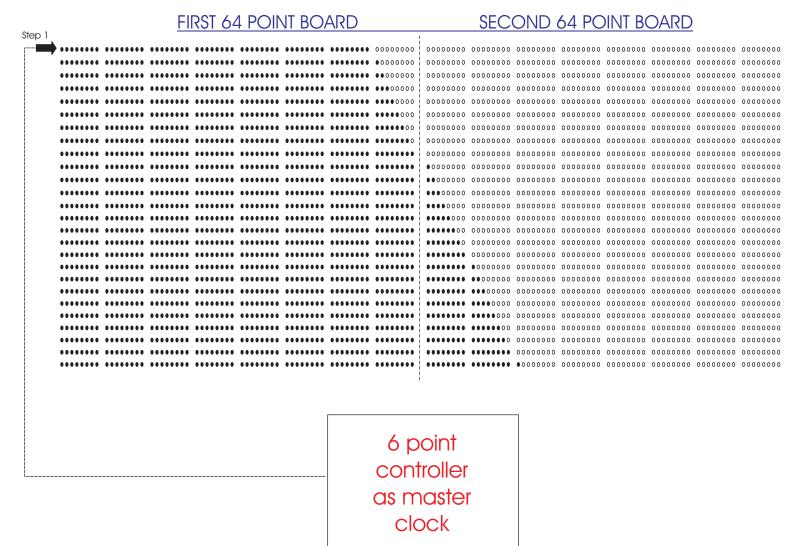
AND MANY MORE

ALDOR Electronic Services

COMBINING MULTIPLE 64 POINT CONTROLLERS

If more than 64 points are to be programmed the program sheets can be laid side by side and be filled out showing the pattern resumption onto the next board. Even if the second board does not start at the top of the page all of the steps must be shown side by side. Step one of the first board must be the same as step one of the second, third, forth... And so on. By the time you get to the third or forth board there may be nothing but a blank page for the first 100 steps. The steps on these blank pages must be included and be numbered to correspond with the previous boards. The programmer must program all of the blanks at their correct step locations.

A 6 point controller board will be used as the master clock to all of these boards to ensure that the steps stay in sync.

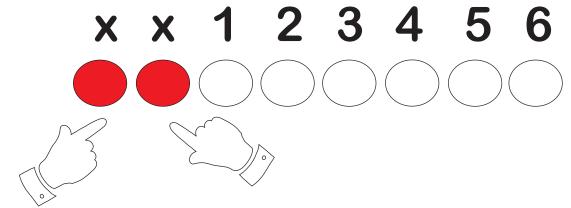


A SPECIAL NOTE CONCERNING PROGRAMMING THE 6 POINT CONTROLLER

Look closely at the programming sheet at the section on top where the programmers reference information is showing the RAM* address to program and the point positions.

The first two bits of the 6 point controller RAM are not used.

When you program the steps for the 6 point controller make sure that you leave the left most two bits blank.



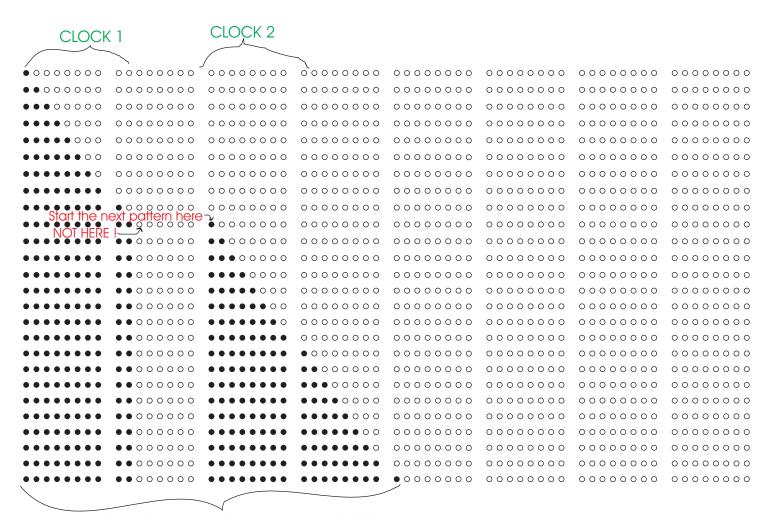
Don't use these two bits for the 6 point controller.

HOW TO MAKE THE PROGRAMMERS JOB EASIER

To start another pattern within the program sheet it is better to skip a couple of bits to the next 8 bit group instead of bunching the patterns together one after the other. This applies to the 32 and 64 point boards. The programmer programs in 8 bit bytes. To combine clock speeds across the same 8 bit byte is impossible.

If two clocks are needed across two different sections on the same line one of the patterns must be small.

Three clocks running at the same time at different points of the same line is almost impossible. In the following example the first spell on pattern could scintillate with a different clock because only 6 steps are being repeated over and over while the second pattern spells on. The first pattern could also be held on till the second pattern reaches the end then both patterns could be held on for a length of time set by a third clock.



ALL ON FOR LENGTH OF TIME SET BY CLOCK 3

SPECIAL PROGRAMMING NOTES

The output of one board can be linked to another board to tell this second board to start a pattern, stop a pattern, change a pattern or simply to reset the second board. All boards have a "Remote In" and a "Reset In" for this purpose.

A 6 point board can be used as a master clock to control a group of 64 point boards. There is a special program available that configures the 6 point board to first reset all boards then to clock the remote boards in sequence. The clocks on the 64 point boards are disabled to keep everything in step. Consult with the programmer about other special inter-board configurations.

Make copies of the programming sheets before giving them to the programmer. It may be necessary to consult over the phone.

If you have any questions or problems please call Alan Dorman at 702-631-3400 or fax your question to 702-631-3401.

Following is a standard program sheet. Keep it as a master and make copies.



PROJECT NAME	SHT OF
PATTERN NAME	DATE

Check the box of the board type this program is for

6	PO	INT	CON	ITRO	71 1	FR

Ram # | 30H | 30H

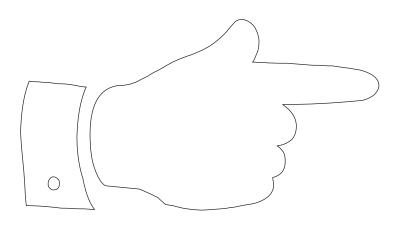
☐ 32 POINT CONTROLLER

Ram # |__30H__||_31H__||_32H__||_33H__||_30H__||_31H__||_31H__||_32H__||_33H__ 1111111 11122222 22222333 1111111 11122222 2222333 Point 12345678 90123456 78901234 56789012 12345678 90123456 78901234 56789012

☐ 64 POINT CONTROLLER

STEP#		•=	LAMPISON O	LAMP IS OFF			
0000000	0000000	0000000	0000000	0000000	0000000	0000000	00000000
00000000	0000000	0000000	0000000	0000000	0000000	0000000	00000000
00000000	00000000	00000000	0000000	0000000	0000000	0000000	00000000
00000000	00000000	00000000	0000000	0000000	0000000	0000000	00000000
00000000	00000000	00000000	00000000	0000000	0000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	0000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
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00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
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00000000	00000000	0000000	0000000	00000000	0000000	0000000	00000000

ON THE FOLLOWING 4 PAGES ARE SOME SAMPLES OF SOME COMMON PROGRAMMING SHEETS.
AS YOU CAN SEE THEY ARE LOGICAL AND EASY TO UNDERSTAND.





PROJECT NAME SHT_ OF_

PATTERN NAME THE PROGRAMMER FILLS OUT THIS SPACE

DATE__ 4-4-98

Check the box of the board type this program is for

☐ 6 POINT CONTROLLER

Ram # | 30H | 30H

☐ 32 POINT CONTROLLER

Ram # |__30H__|| 31H__|| 32H__|| 33H__|| 33H__|| 30H__|| 31H__|| 32H__|| 33H__ 1111111 1112222 2222333 1111111 1112222 2222333 Point 12345678 90123456 78901234 56789012 12345678 90123456 78901234 56789012

64 POINT CONTROLLER

STEP#

■ = LAMP IS ON ○ = LAMP IS OFF

		•0000000	0000000	00000000	0000000			00000000	0000000
-	2								00000000
-	3	••000000			00000000			00000000	00000000
-	4	•••00000			0000000			0000000	0000000
-	5	•••••			0000000			0000000	0000000
$\overline{\zeta}$		•••••			0000000	••••••		0000000	0000000
SIS	<u>6</u> 7	••••••	0000000	00000000	0000000	••••••	••••0000	0000000	0000000
II-	8	••••••	0000000	00000000	0000000	••••••	••••0000	0000000	0000000
SPEED	9	•••••	0000000	00000000	0000000	••••••	•••••	0000000	0000000
	10	•••••	•0000000	00000000	0000000	••••••	•••••	0000000	0000000
O	10	••••••	••000000	00000000	00000000	•••••	••••0000	00000000	00000000
=	11	••••••	•••00000	00000000	00000000	•••••	••••0000	00000000	00000000
SPELI	12	•••••	••••0000	00000000	00000000	••••••	••••0000	00000000	00000000
-	13	•••••	•••••	00000000	00000000	•••••	$\bullet \bullet \bullet \bullet \circ \circ \circ \circ$	00000000	00000000
-	14	•••••	•••••	00000000	00000000	•••••	$\bullet \bullet \bullet \bullet \circ \circ \circ \circ$	00000000	00000000
-	15	•••••	•••••	00000000	00000000	•••••	$\bullet \bullet \bullet \bullet \circ \circ \circ \circ$	00000000	00000000
-	16	•••••	•••••	00000000	00000000	•••••	••••0000	00000000	00000000
-	17	•••••	•••••	•0000000	00000000	•••••	••••0000	00000000	00000000
_	18	•••••	•••••	••000000	0000000	•••••	••••0000	00000000	00000000
_	19	•••••	•••••	•••00000	0000000	••••••	••••0000	00000000	00000000
_	20	•••••	•••••	••••0000	00000000	••••••	••••0000	00000000	00000000
_	21	•••••	•••••	•••••	0000000	••••••	••••0000	00000000	00000000
_	22	•••••	•••••	•••••	0000000	••••••	••••0000	00000000	00000000
_	23	••••••	••••••	•••••	00000000	•••••	••••0000	00000000	00000000
2	245	••••••	•••••	•••••	00000000	•••••	••••0000	00000000	0000000
<u>~</u>	257	••••	••••••	0000000	00000000	•••••	••000000	0000000	0000000
II.	26≝	0000000	••••	•00••••0	0000000	0	••••000000	0000000	0000000
	27 🖀	0000000	•••••	••••••	0000000	0000000	•••••	0000000	00000000
SPE	28 ≧ ₹		0000000	••••	0000000	•00•••0			0000000
SCINT	29 💆		0000000	•••••	0000000	•••••	0000000	0000000	0000000
SC	30 🞖		•00••••	0000000	0000000	••••	•00•000d	0000000	0000000
Ę	31 💆	÷00000000							0000000
8	32 🖁		ALLC	N / ALL ŌĒĒ TĬN	00000000 ME SET BY CLK 3	•••••	•••••0000	0000000	
9	33 🗸	7			0000000		00000000	0000000	00000000



SHT OF 2

PATTERN NAME THE PROGRAMMER FILLS OUT THIS SPACE

DATE 4-4-98

Check the box of the board type this program is for

☐ 6 POINT CONTROLLER

Ram # | 30H | 30H

32 POINT CONTROLLER

|__31H__||__32H__||__33H__||__30H__| 1111111 11122222 22222333 90123456 78901234 56789012 12345678 31H 1.1 32H \perp 33H 1111111 1112222 2222333 90123456 78901234 56789012

☐ 64 POINT CONTROLLER

■ = LAMP IS ON ○ = LAMP IS OFF

STEP# 6 POINT SCINT SPEED SET BY CLK 3 / TIMES THROUGH SET BY DIP SWITCH 1 3 4 80088880 08888008 88800888 80088880 08888008 88800888 80088880 08888008 5 ••••••• •••••• o 7 ALL OFF 0 ALL ON 9 ••••••• •••••• 10 11 12 ••••0000 13 •••00000 14 ••000000 16 0000000 0000000 17 \sim 00000000 18 ●●●○○ ○○○○○○○ 19 ●●●●○○○ ○○○○○○○ ●●●●●○○○ ○○○○○○○ 20 **••••**0000 0000000 ●●●●○○○○ ○○○○○○○ 21 ●●●○○○○○ ○○○○○○○ •••00000 00000000 ●●○○○○○○ ○○○○○○○ ••00000 0000000 23 ●0000000 00000000 •000000 0000000 •••• 0000000 0000000 0000000 0000000 25 •••• 0000000 0000000 26 •••••• 00000000 0000000 •••••• 27 •••000 0000000 0000000 •••••ooo ooooooo ooooooo 28 ●●●●○○○○ ○○○○○○○○ ••••0000 0000000 0000000 29 ●●○○○○○○ ○○○○○○○○ **•• •••**00000 0000000 0000000 30 **•**0000000 00000000 00000000 31 32 33 34



__sht_2_of_2

PATTERN NAME THE PROGRAMMER FILLS OUT THIS SPACE

DATE 4-4-98

☐ ✓ Check the box of the board type this program is for								
6 POINT CONTROLLER								
Ram # Point		30H_ xx123456	30H_ xx123456	30H xx123456	30H_ xx123456	30H xx123456		30H xx123456
□ 32 P	OINT CONT	roller						
Ram #	30H	31H 1111111			30H		32H	33H
Point	12345678			22222333 56789012	12345678		78901234	22222333 56789012
	OINT CONT	TROLLER						
Ram #	30H			33H			36Н	37H
Point	12345678	1111111 90123456			33333334 34567890			
					= LAMP IS OFF			
STEP#	:			LAWF IS ON U	· LAWIF 13 OFF			
35	••••0000	00000000	00000000	00000000	••••0000	00000000	00000000	00000000
36	•••00000	00000000	00000000	00000000	•••00000	00000000	00000000	00000000
37	••000000				••000000			
38	•0000000p	00000000000000000000000000000000000000	STHERIBACK	0000000	•0000000	00000000	00000000	00000000
39	0000000	0000000	00000	00000000	00000000	00000000	00000000	00000000
	00000000	00000000	0000000	00000000	00000000	00000000	00000000	00000000
-	00000000	00000000	ood				000	00000000
	00000000	00000000	000		NOT STATED CL		000	00000000
	00000000	00000000	000		SED TO SET THIS		000	00000000
	00000000	00000000	000		RAMMED AS A		1000	0000000
	00000000	00000000	Ω		d 2 and 5 tim Oper delays.		1()()(0000000
	0000000	0000000	000		THE 5 SECON		000	0000000
	00000000	0000000	000		OMATICALLY BI		000	0000000
	0000000	0000000	000				ooc	0000000
	0000000	0000000	0000000	00000000	0000000	0000000	00000000	0000000
	0000000	0000000	0000000	0000000	0000000	0000000	00000000	0000000
	0000000	0000000	0000000	0000000	00000000	0000000	0000000	00000000
	00000000	0000000				00000000		
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	00000000	00000000	00000000	0000000 0000000 0000000	00000000	0000000 0000000 0000000 0000000	00000000	0 00000000
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PROJECT NAME_

SAMPLE #3

PATTERN NAME THE PROGRAMMER FILLS OUT THIS SPACE DATE 4-4-98

Check the box of the board type this program is for

6 POINT CONTROLLER

Ram # | 30H | 30H

32 POINT CONTROLLER

Ram # |__30H__||_31H__||_32H__||_33H__||_30H__||_31H__||_31H__||_32H__||_33H__ 1111111 11122222 22222333 1111111 11122222 2222333 Point 12345678 90123456 78901234 56789012 12345678 90123456 78901234 56789012

☐ 64 POINT CONTROLLER

= LAMP IS ON	= LAMP IS OFF

STEP	#	CLK	_	3 POINTSCINT 1	TILL STEPS 1 THRU	J 20 SPELL ON		
1	•0000000				0000000		00000000	00000000
2	••000000	00000000	00000000	•0••0•0d	00000000	0000000	0000000	00000000
3	••••0000	0000000	00000000	0000000	\00000000	0000000	0000000	0000000
4	•••••	0000000	00000000	0000000	0000000	0000000	0000000	0000000
5	•••••	0000000	0000000	Q0000000	100000000	0000000	0000000	00000000
6	••••••	0000000	0000000	00000000	0000000	0000000	0000000	00000000
S 7	••••••	0000000	0000000	0000000	00000000	00000000	0000000	00000000
1 8 8	•••••••	00000000	0000000	0000000	0000000	00000000	0000000	00000000
<u>~</u> 9	•••••••	•0000000	0000000	0000000	0000000	0000000	0000000	00000000
<u>lij</u> 10	•••••••	••000000	0000000	0000000	0000000	0000000	0000000	00000000
<u>₩</u> 11	••••••	•••00000	0000000	00000000	0000000	00000000	00000000	00000000
	••••••	••••0000	0000000	00000000	00000000	0000000	00000000	00000000
<u> </u>	••••••	•••••	00000000	00000000	00000000	00000000	00000000	00000000
<u> 14</u>	••••••	•••••	00000000	00000000	00000000	00000000	00000000	00000000
5 15	••••••	•••••	00000000	00000000	00000000	00000000	00000000	00000000
16	••••••	•••••	00000000	00000000	00000000	00000000	00000000	00000000
17	••••••	•••••	•0000000	00000000	00000000	00000000	00000000	00000000
18 19	••••••	•••••	••000000	00000000	00000000	00000000	00000000	00000000
		•••••		00000000			00000000	
		••••••		PET TILL DEMOT	E INPUT DETECTION	0000000	00000000	00000000
21	0000000	0000000	000000000		0000000	00000000	00000000	00000000
22	00000000	00000000	0000000	0000000	00000000	00000000	00000000	00000000
23	00000000	00000000	0000000	00000000	00000000	00000000	00000000	00000000
24 25	00000000	00000000	0000000	00000000	0000000	00000000	00000000	00000000
	0000000	00000000	0000000	00000000	00000000	00000000	00000000	00000000
26	00000000	00000000	0000000	00000000	0000000	00000000	00000000	00000000
27	0000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
28	0000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
29	0000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
30	0000000	00000000	0000000	00000000	00000000	00000000	00000000	00000000
31	00000000	00000000	0000000	00000000	0000000	00000000	00000000	00000000
32	00000000	00000000	0000000	0000000	0000000	00000000	00000000	00000000
33	00000000	00000000	0000000	0000000	0000000	00000000	00000000	00000000
	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000