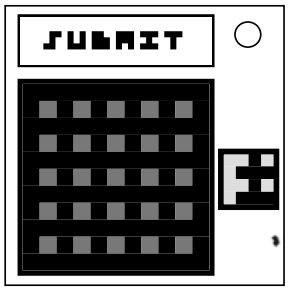
On the Subject of Wavetapping



Perhaps the craziest conference call I've ever heard. Don't hang up. DO NOT HANG UP.

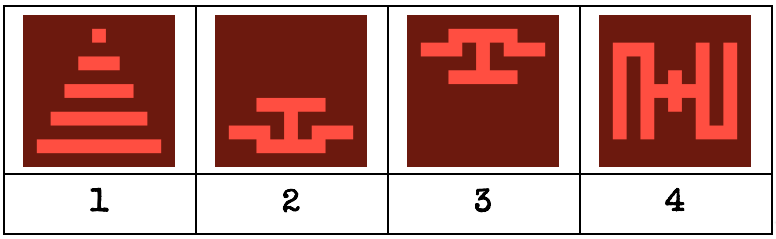
- This module contains a 11×11 pixel display, a 4×4 display to the right of that, and a submit button up top.
- You are required to enter a specific pattern based on the color of the 11×11 display.
- The 4×4 display shows 8 out of the 16 total colors available. Colors shown there will not be used for the three stages. This will be referenced when terms like "unused colors" are used.
- Find the segment of the manual applying to the color of the main display, and follow the directions provided to figure out what pattern needs to be entered.
- Every color has a unique solving method that needs to be followed in order to clear the stage. Repeatedly subtracting a specific number until within the numbers of the patterns (more commonly referred to as the "modulo" function) may - and probably <u>will</u> - be required.
- Pressing a pixel will turn it on or off. You can also hold and drag to enter the patterns faster.
- Complete 3 patterns to disarm the module.
- **TIP:** The first and last rows and columns on the 11×11 grid are **NEVER** used in any pattern. Also, there are 158 total patterns, **unevenly** distributed across the 16 colors.
- **NOTE:** If the serial number contains at least 3 of the following letters, rotate the patterns 180°:
  - S, R, F, M, U.

Section 1: Easy Colors

- These colors have a pattern count of 4 or less. There are 10 subsections in this section.

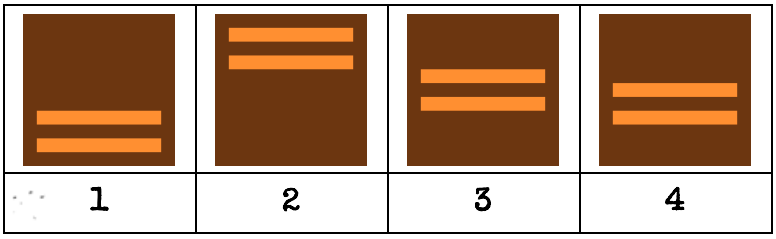
Subsection 1A: Red

- Pattern Count: 4
- Solving Method: Multiply the number of batteries (1 battery minimum) by the number of indicators (1 indicator minimum). Modulo 4 until in range.



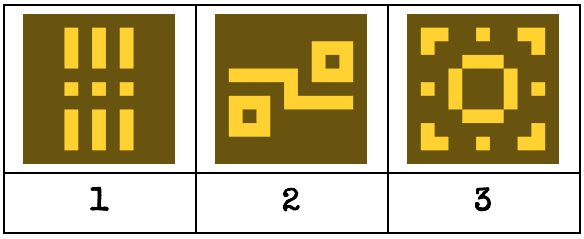
Subsection 1B: Orange

- Pattern Count: 4
- Solving Method: Multiply the current stage by the last digit of the serial number (use 1 if last digit is 0). Modulo 4 until in range.



Subsection 1C: Orange-Yellow

- Pattern Count: 3
- Solving Method: Enter the pattern corresponding to the current stage number. Unless the sum of the digits in the serial number is even, in which case, use the inverse of the current stage number (use 1 if current stage is 3, and vice versa).



Subsection 1D: Chartreuse

- Pattern Count: 2
- Solving Method: Enter pattern 1 if the majority of the unused colors are on the left side of the display. Enter pattern 2 if the majority is on the right. If the amount of unused colors is even on both sides, use the amount of port plates to find the value (1 if even, 2 if odd).

	
1	2

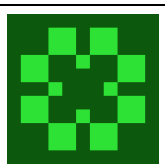
Subsection 1E: Lime

- Pattern Count: 2
- Solving Method: If there are more D batteries than AA batteries, enter pattern 1. If there are more AA batteries than D batteries, enter pattern 2. If the previous stage had a pattern count of 3 or less, switch the two conditions (D < AA=pat. 1, D > AA=pat. 2). If the amount of AA and D batteries are tied, use the first digit in the serial number to find the value (1 if odd, 2 if even).

	
1	2

Subsection 1F: Green

- Pattern Count: 2
- Solving Method: Take the number of pixels from the previous stage's correct pattern, and modulo 2 until in range. If this is the first stage, use the number of pixels from pattern 1 in the subsection of the first unused color in reading order.

	
1	2

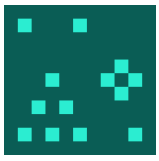
Subsection 1G: Seafoam Green

- Pattern Count: 2
- Solving Method: Enter pattern 1 if the majority of the unused colors are on the top half of the display. Enter pattern 2 if the majority is on the bottom half. If the amount of unused colors is even in both halves, use the amount of lit indicators to find the value (1 if odd, 2 if even).

	
1	2

Subsection 1H: Cyan-Green

- Pattern Count: 2
- Solving Method: If the first and last digits of the serial number are odd, enter pattern 1. If they're both even, enter pattern 2. Otherwise, use only the last digit of the serial number (1 if odd, 2 if even).

	
1	2

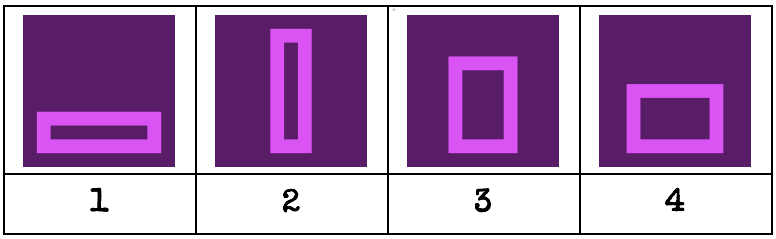
Subsection 1I: Dark Blue

- Pattern Count: 4
- Solving Method: Enter the pattern corresponding to how many Wavetapping modules there are on the bomb. Modulo 4 until in range.

			
1	2	3	4

Subsection 1J: Purple-Magenta

- Pattern Count: 4
- Solving Method: If the color from the previous stage was in Section 1 (or if this is the first stage), use one of the odd-numbered patterns. If it was from Section 2, use one of the even-numbered patterns. If the previous stage's correct pattern used was in the lower half of the total pattern count for that subsection* (or if this is the first stage), use the leftmost of the two patterns. If it was in the upper half*, use the rightmost pattern of the two.



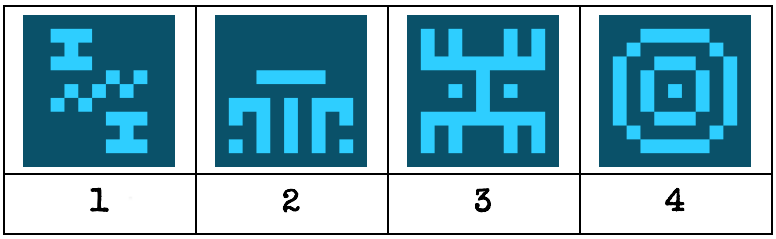
* If the pattern count is odd, the lower half is larger.

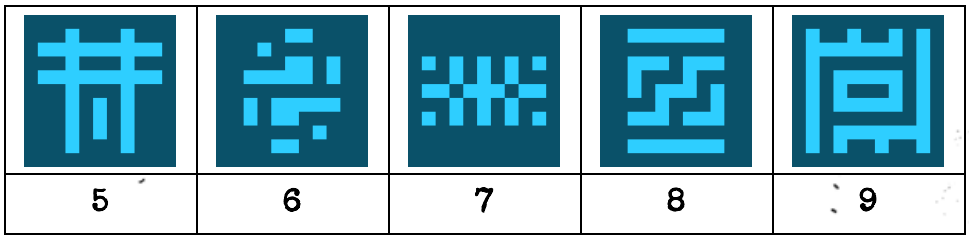
Section 2: Difficult Colors

- These colors have a pattern count of more than 4, along with some more complex solving methods. There are 6 subsections in this section.

Subsection 2A: Turquoise

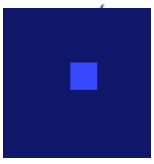
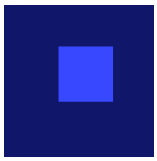
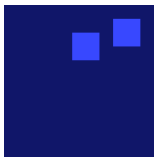
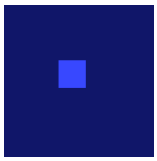
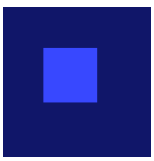
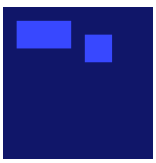
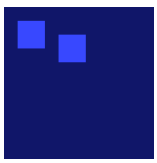
- Pattern Count: 9
- Solving Method: Take the number of port plates (1 plate minimum) multiplied by the number of indicators (1 indicator minimum, lit indicators count as 2, BOB counts as 5 regardless of light status). Modulo 9 until in range.





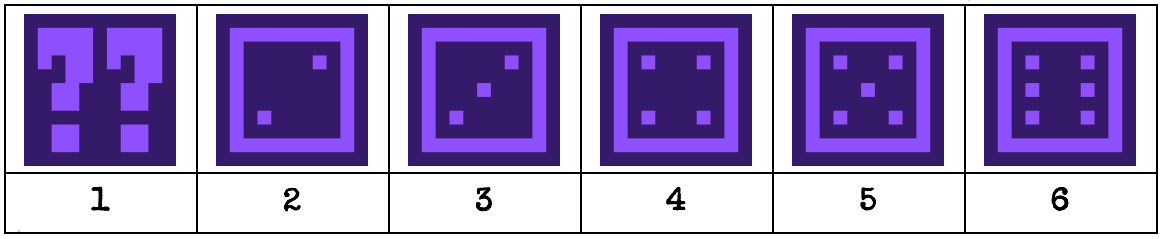
Subsection 2B: Indigo

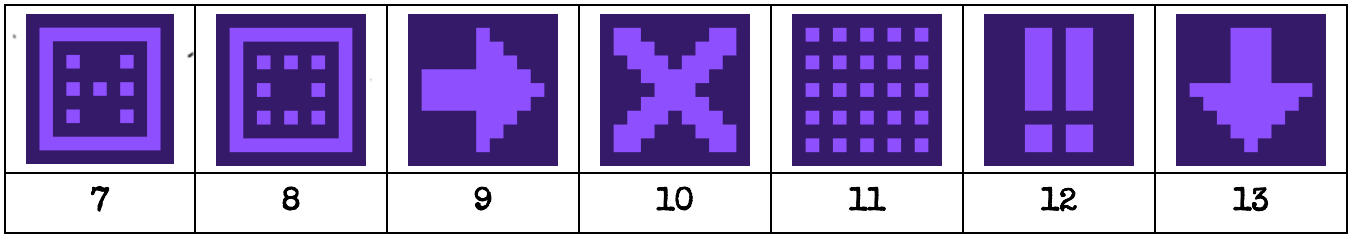
- Pattern Count: 40
- Solving Method: Take the sum of the pattern numbers from the previous stage(s) (substitute the sum of the digits in the serial number if this is the first stage), multiplied by the number of modules on the bomb (needies included). Modulo 40 until in range.

						
1	2	3	4	5	6	7
						
8	9	10	11	12	13	14
						
15	16	17	18	19	20	21
						
22	23	24	25	26	27	28
						
29	30	31	32	33	34	35
						
	36	37	38	39	40	

Subsection 2C: Purple

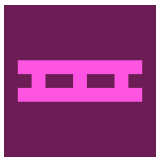
- Pattern Count: 13
- Solving Method: Take the sum of all characters in the serial number (translating letters to their A1Z26 numeric counterparts), and multiply that by the number of batteries (If no batteries are present, multiply by 13). Modulo 95 until you end up with a number between 1 and 95. Find the number in that position in the following sequence.
- Note that 2-digit numbers are parenthesized, and spaces and parenthesis do not count in the sequence. In order to save time, the amount of numbers in each individual line are given. The number obtained corresponds to what pattern you need to enter.
  - 1 727863264649(10)(10)(10)(10)(10) Line 1: 18
    1 727833354649(10)(10)(10)(10)(10) Line 2: 18
    1 727852648243(10)(10)(10)(10)(10) Line 3: 18
    1 72788433374733678633778263464 Line 4: 30
    (11) Line 5: 1
    (12)(12)(12)(12)(12)(12)(12)(12)(12)(13) Line 6: 10





Subsection 2D: Magenta

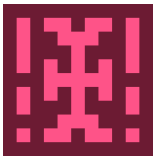
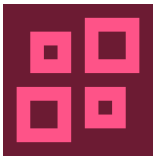
- Pattern Count: 8‡
- Solving Method: Take the sum of the first 3 characters in the serial number†, multiplied by the sum of the last 3 characters in the serial number†. Modulo 8 until in range. If the answer is 0, use pattern 1.
- If the total is over 2222, rotate the resulting pattern 90° (It doesn't matter if it's rotated clockwise or counter-clockwise, it's still going to look the same either way).

			
1	2	3	4
			
5	6	7	8

† Convert letters to their A1Z26 counterparts.
‡ Technically, there are 16 patterns if you include the >2222 rule, but use 8 if you need the pattern count for another color's solving method.

Subsection 2E: Pink

- Pattern Count: 21
- Solving Method: Take all the digits in the serial number from left to right to form one number. If the number is 0, use the pattern number from the previous stage (unless it is the first stage, in which you need to use the A1Z26 value of the leftmost letter in the serial number). Modulo 21 until in range.

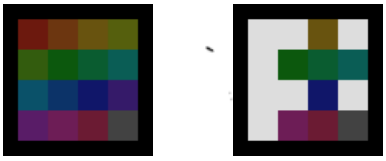
						
1	2	3	4	5	6	7
						
8	9	10	11	12	13	14
						
15	16	17	18	19	20	21

Subsection 2F: Grey

- Pattern Count: 38
- Solving Method: Take the sum of the pattern counts from the 8 colors that are not being used. Modulo 38 until in range.

						
1	2	3	4	5	6	7
						
8	9	10	11	12	13	14
						
15	16	17	18	19	20	21
						
22	23	24	25	26	27	28
						
29	30	31	32	33	34	35
						
		36	37	38		

- Also, for future reference, the picture on the left is the layout of a full unused color display. The picture on the right is an example of an unused color display that can appear on an active module. The colors will never change position.



- The 8 colors that appear on an unused color display on an active module are guaranteed to **not** appear as stages on said module.
- The 8 light-grey boxes that replace the other 8 colors have a chance of appearing as stages on the module. Only 3 of these will be chosen to be stages.
- Colors do not repeat in later stages.
    - Example: If the stage color for stage 1 is red, the stage colors for stages 2 and 3 can't be red.
- If you enter a correct pattern, a check mark will blink on the grid before moving on to the next stage. If a wrong pattern is entered, an "X" will blink on the grid, give a strike, and return to Stage 1.
- When the module resets, if you completed a stage, its pattern will appear on the display, and the defuser is only required to press "Submit".
- If a strike is given, the stage colors will still be the same sequence as they were before the strike.
    - Example: If the sequence was (Red – Orange – Purple) before the strike was given, the sequence after the strike is given will still be (Red – Orange – Purple).
- Due to certain colors looking vaguely similar to each other, a blinking green pixel will be located on the square corresponding to the current stage's color on the 4×4 display. Use the left picture and/or following table for reference. The below table refers to the relevant section in this manual.

1A	1B	1C	1D
1E	1F	1G	1H
2A	1I	2B	2C
1J	2D	2E	2F