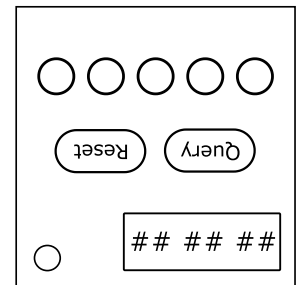# The Subject of Mastermind Restricted Cruel

Why did he also send Mastermind Cruel to the same developer? That isn't wise...

This module may look familiar to [Mastermind Cruel (Mastermind%20Cruel.html)](Mastermind%20Cruel.html) however there are some changes the implementer performed on this module.

- The entire module is rotated 180°.
- The "Submit" button has been replaced with a "Reset" button.
- The "Query" and "Reset" buttons are aligned at the center of the module rather than on the edge. Likewise, the LEDs are aligned near the edge of the module rather than the center.
- There are 5 LEDs to cycle between 8 different colors rather than 5 LEDs to cycle between 6 different colors.
- The display has the gray borders on the top and bottom of the screen rather than on the left and right of the screen.
- When pressing the "Query" button, 3 colored numbers will be shown on the upside-down display. These numbers are referred to by the condition on the next set of pages.
- The defuser has 12 distant queries to submit the correct sequence of colors to disarm the module. Using all 12 distant queries without a correct sequence of colors will result in a strike and reset the module from the beginning. The reset button can be used to achieve the same effect without a strike.

When the module resets, a new correct sequence will be generated alongside resetting the number of distant queries left to 12. All queries relating to the previous correct sequence will also be cleared. The module will always reset when it is loaded in.

A distant query is defined as a set of colors that is not yet been checked by the module after the reset. In fact, the defuser may use the same sequence of colors from previous queries to recheck the result.

The module will reveal the correct answer if all 12 distant queries have been used up or if the defuser manages to get 5 correct colors in their correct positions.

Interepting The Display: The Base Result

When reading the display right-side up, the color of the left number and the color of the right number are used to determine the base result of the query before the modifications for each number left to right.

From the table provided:
- J refers to the number of correct colors in their correct positions.
- O refers to the number of correct colors not in their correct positions.
- L refers to the number of colors not in the correct sequence.
- I refers to the number of queries left before the module attempts to strike.

Left #'s Color	Right #'s Color	Base Values Display
White	Red	J, O, L
	Yellow	O, L, J
	Cyan	L, J, O
	White	J, L, O
Yellow	Red	L, O, J
	Yellow	O, J, L
	Cyan	I, O, L
	White	O, L, I
Green	Red	L, I, O
	Yellow	I, L, O
	Cyan	L, O, I
	White	O, I, L
Magenta	Red	J, I, L
	Yellow	I, L, J
	Cyan	L, J, I
	White	J, L, I
Red	Red	L, I, J
	Yellow	I, J, L
	Cyan	J, O, I
	White	O, I, J
Cyan	Red	I, J, O
	Yellow	J, I, O
	Cyan	I, O, J
	White	O, J, I

Interepting The Display: The Modifier

When reading the display right-side up, the color of the middle number is used to determine the how the query result is modified for each number. The modifier obtained after shifting is then added to these numbers in their respective positions to get the result you see on the display. Do bare in mind some words have been removed to fit to the table on this page, I.E serial number is shortened to S.N; port plates are referred to as plates; the word "of" bring trimmed but still refer to edgework; etc. "*" refers to when you query for the given sequence, which denotes the values may change upon a requery. In the case any value is greater than 100, the module will only display the last 2 digits of that result.

Center #'s Color	Modifier (L, M, R)
Red	(first digit in S.N, 2nd digit in S.N, last digit in S.N)
Cyan	(# lit indicators, # unlit indicators, # indicators)
Green	(# solved mods.*, # unsolved mods*, # needies)
Yellow	(# AA bat., # D bat., # bat. holders)
Magenta	(# strikes*, # [solvables + needies], # minutes starting % 60)
White	(# unique port types, # dupe port types, # plates)
Orange	(# digits in S.N, sum of digits in S.N, # letters in S.N)

To determine how many times to shift the base modifier from the table:

- Start with the number of modules that are present that contain "Mastermind" in its name. This includes itself.
- Subtract the number of modules whose display name starts with a digit.
- Add the number of ReGret-B Filtering, ReGrettaBle Relay, Color Generator, modules that are present.
- If at this point the value is negative, make it positive.
- This is how many times you need to shift the modifier to the left. You may modulo this result by 3 to make shifting easier.