

Four lights (1)

In the range 1 - 20:

7 numbers have no effect,
9 numbers light one colour,
4 numbers light two colours.

The device only responds to positive integers. Its range is 1 to 999999.

10	rb
20	r
30	rb
40	r
50	rb
60	r
70	rb
80	ro
90	rb

10000	r
20000	r
30000	r
40000	r
50000	r
60000	r
70000	r
80000	ro
90000	r

100000	r
200000	r
300000	r
400000	r
500000	r
600000	r
700000	r
800000	ro
900000	r

100	r	400	r	700	r
200	r	500	r	800	ro
300	r	600	r	900	r

1000	r	4000	r	7000	r
2000	r	5000	r	8000	ro
3000	r	6000	r	9000	r

The smallest numbers greater than 10000 which light both green and orange are 10043 and 10142.

Four lights (2)

6	12	18	24	30	36	42	48	54	60	66	72
	b	b		br	b			b	r	g	b

7	14	21	28	35	42	49	56	63	70	77	84
	b			bro			b		rb	gb	

8	16	24	32	40	48	56	64	72	80	88	96
o	b		b	r		b		b	ro	g	b

9	18	27	36	45	54	63	72	81	90	99	108
	b		b	r	b		b		rb	gb	

210	321	432	543	654	765	876	987
br		b		b	r	b	

The only single-digit numbers which have any effect are 5 and 8.

In the first 100 numbers there are only two numbers which light exactly three colours. They are 35 and 55.

The smallest numbers greater than 1000 which light green, blue, and orange are 1034 and 1133.

The smallest numbers greater than 100000 which light green, blue, and orange are 100034 and 100133.

Four lights (3)

These are the only numbers between 1000 and 2000 that light up exactly three colours:

1034 1070 1115 1133 1155 1210 1232 1250 1331
1375 1595 1610 1650 1815 1870.

In the range 1 - 20:

red lights 4 times, green once, blue 10 times, orange twice

In the first 100 numbers the longest chains of numbers to produce no effects are:

1 - 4 46 - 49 81 - 84

There are many chains of 11 numbers all of which show some effect. Examples are: 30 - 40 70 - 80 150 - 160 430 - 440 and many, many others.

In the first 100 numbers there are

5 that end in 1

4 that end in 4

5 that end in 3

3 that end in 2

5 that end in 7

3 that end in 6

5 that end in 9

3 that end in 8

which have no effect at all.