99-Mode Light Controller — Mode Sequences

Two-loop view: 2nd loop repeats 1st loop when not explicitly defined. Icons 10% smaller. Minimal margins.

#	Description	User Entry	Sequence (1st loop)	Sequence (2nd loop)
01	Steady sequence: Red → Green → Yellow.	Seconds: Red (**SPR**), Green (**SPG**), Yellow (**SPY**)	R → G → Y	R → G → Y
02	Steady sequence: Red → Yellow → Green → Yellow.	Seconds: Red (**SPR**), Yellow (**SPY**), Green (**SPG**)	R → Y → G → Y	R → Y → G → Y
03	Steady sequence: Red → Red+Yellow → Green → Yellow.	Seconds: Red (**SPR**), Red+Yellow (**SPRY**), Green (**SPG**), Yellow (**SPY**)	R → RY → G → Y	R → RY → G → Y
04	Steady: Red → Red+Yellow → Green → Green+Yellow.	Seconds: Red (**SPR15**), Red+Yellow (**SPRY15**), Green (**SPG15**), Green+Yellow (**SPGY15**)	R → RY → G → YG	R → RY → G → YG
05	Steady: Red → Green → Green+Yellow → Red.	Seconds: Red (**SPR14**), Green (**SPG14**), Green+Yellow (**SPGY14**), Red (2nd) (**SPR214**)	R → G → YG → R	R → G → YG → R
06	+ caution: Red → Red+Yellow → Green → Pause → Flash Green ×3 → Yellow.	Seconds: Red (**SPR16**), Red+Yellow (**SPRY16**), Green (**SPG16**), OFF gap / All-flash period (**SPALLF**), Yellow (**SPY16**) Speed: Green speed (**SPD_GRN**)	R → RY → G → PAUSE → Flash G x3 → Y	R → RY → G → PAUSE → Flash G x3 → Y
07	+ caution: Red → Yellow → Green → Pause → Flash Green ×3 → Yellow.	Seconds: Red (**SPR17**), Yellow (**SPY17**), Green (**SPG17**), OFF gap / All-flash period (**SPALLF**) Speed: Green speed (**SPD_GRN**)	R → Y → G → PAUSE → Flash G x3 → Y	R → Y → G → PAUSE → Flash G x3 → Y

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08	+ caution: Red → Green → Pause → Flash Green ×3 → Yellow.	Seconds: Red (**SPR18**), Green (**SPG18**), OFF gap / All-flash period (**SPALLF**), Yellow (**SPY18**) Speed: Green speed (**SPD_GRN**)	R → G → PAUSE → Flash G x3 → Y	R → G → PAUSE → Flash G x3 → Y
09	+ caution: Red → Green → Pause → Flash Green ×3.	Seconds: Red (**SPR19**), Green (**SPG19**), OFF gap / All-flash period (**SPALLF**) Speed: Green speed (**SPD_GRN**)	R → G → PAUSE → Flash G x3	R → G → PAUSE → Flash G x3
10	Steady (start Green): Green → Yellow → (Transition) Red+Yellow → Red.	Seconds: Green (**SPG**), Yellow (**SPY**), Green+Yellow (**SPGY14**), Red (**SPR**)	G → Y → RY → R	G → Y → RY → R
11	Steady (with Green+Yellow step): Green → Green+Yellow → Yellow → Red+Yellow → Red.	Seconds: Green (**SPG**), Green+Yellow (**SPGY14**), Yellow (**SPY**), Red (**SPR**)	G → YG → Y → RY → R	G → YG → Y → RY → R
12	Steady (start Red): Red → Red+Yellow → Yellow → Yellow+Green → Green.	Seconds: Red (**SPR**), Green+Yellow (**SPGY14**), Yellow (**SPY**), Green (**SPG**)	R → RY → Y → YG → G	R → RY → Y → YG → G
13	Steady (start Green): Green → Yellow+Green → Yellow → Red+Yellow → Red.	Seconds: Green (**SPG**), Green+Yellow (**SPGY14**), Yellow (**SPY**), Red (**SPR**)	G → YG → Y → RY → R	G → YG → Y → RY → R
14	Simple cycle + pause: Green → Yellow → Red → Pause.	Seconds: Green (**SPG**), Yellow (**SPY**), Red (**SPR**), OFF gap / All-flash period (**SPALLF**)	G → Y → R → PAUSE	G → Y → R → PAUSE
15	Red/Green with pauses: Red → Pause → Green → Pause.	Seconds: Red (**SPR**), OFF gap / All-flash period (**SPALLF**), Green (**SPG**)	R → PAUSE → G → PAUSE	R → PAUSE → G → PAUSE
16	Timed transitions: Red+Yellow → Yellow+Green → Red+Green.	Seconds: Green+Yellow (**SPGY14**)	RY → YG → RG	RY → YG → RG

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17	Steady + ALL flashes with pauses: Red → Yellow → Green → Pause → ALL → Pause → ALL → Pause.	Seconds: Red (**SPR**), Yellow (**SPY**), Green (**SPG**), OFF gap / All-flash period (**SPALLF**)	R → Y → G → PAUSE → ALL → PAUSE → ALL → PAUSE	R → Y → G → PAUSE → ALL → PAUSE → ALL → PAUSE
18	Steady: Red → Red+Yellow → ALL → Pause.	Seconds: Red (2nd) (**SPR22**), Red+Yellow (**SPRY22**), ALL ON (**SPALL22**), OFF gap / All-flash period (**SPALLF**)	R → RY → ALL → PAUSE	R → RY → ALL → PAUSE
19	Steady (extended): Red → Red+Yellow → ALL → Yellow+Green → Green → OFF.	Seconds: Red (2nd) (**SPR23**), Red+Yellow (**SPRY23**), ALL ON (**SPALLO23**), Red+Yellow (**SPRY23**), Red (2nd) (**SPR23**)	R → RY → ALL → YG → G → OFF	R → RY → ALL → YG → G → OFF
20	Steady with ALL-on block: Red → ALL → Green → Pause.	Seconds: Red (**SPR**), ALL ON (**SPALLO23**), Green (**SPG**), OFF gap / All-flash period (**SPALLF**)	R → ALL → G → PAUSE	R → ALL → G → PAUSE
21	Steady + flash: Red → Flash Red ×4 → Green.	Seconds: Red (**SPR11**), Green (**SPG11**) Speed: Red speed (**SPD_RED**)	R → Flash R x4 → G	R → Flash R x4 → G
22	Steady + flash: Red → Green → Flash Green ×4.	Seconds: Red (**SPR12**), Green (**SPG12**) Speed: Green speed (**SPD_GRN**)	R → G → Flash G x4	R → G → Flash G x4
23	Steady + yellow flashes: Red → Flash Yellow ×2 → Green → Flash Yellow ×2.	Seconds: Red (**SPR**), Green (**SPG**) Speed: General speed (**SPD24**)	R → Flash Y x2 → G → Flash Y x2	R → Flash Y x2 → G → Flash Y x2
24	Steady + yellow flashes: Green → Flash Yellow ×3 → Red.	Seconds: Green (**SPG**), Red (**SPR**) Speed: General speed (**SPD24**)	G → Flash Y x3 → R	G → Flash Y x3 → R
25	ALL flash between Red/Green holds: Flash ALL ×1 → Red → Flash ALL ×1 → Green.	Seconds: Red (**SPR**), Green (**SPG**) Speed: General speed (**SPD24**)	Flash ALL x1 → R → Flash ALL x1 → G	Flash ALL x1 → R → Flash ALL x1 → G

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26	Flash Red.	Speed: Red speed (**SPD_RED**)	Flash R x1	Flash R x1
27	Flash Yellow.	Speed: Yellow speed (**SPD_YEL**)	Flash Y x1	Flash Y x1
28	Flash Green.	Speed: Green speed (**SPD_GRN**)	Flash G x1	Flash G x1
29	Blink Red then Blink Green (ALT with OFF).	Speed: General speed (**SPD24**)	ALT R <-> OFF → ALT G <-> OFF	ALT R <-> OFF → ALT G <-> OFF
30	Blink Yellow (ALT with OFF).	Speed: General speed (**SPD24**)	ALT Y <-> OFF	ALT Y <-> OFF
31	Blink Red+Yellow then Yellow+Green (ALT with OFF).	Speed: General speed (**SPD24**)	ALT RY <-> OFF → ALT YG <-> OFF	ALT RY <-> OFF → ALT YG <-> OFF
32	Blink Red+Green (ALT with OFF).	Speed: General speed (**SPD24**)	ALT RG <-> OFF	ALT RG <-> OFF
33	Alternate Red ↔ Yellow.	Speed: ALT speed (R<->Y) (**SPD_XING**)	ALT R <-> Y	ALT R <-> Y
34	Alternate Red ↔ Green.	Speed: ALT speed (R<->G) (**SPD_RG**)	ALT R <-> G	ALT R <-> G
35	Alternate Yellow ↔ Green.	Speed: ALT speed (Y<->G) (**SPD_YG**)	ALT Y <-> G	ALT Y <-> G
36	Alternate (Red+Yellow) ↔ Green.	Speed: General speed (**SPD24**)	ALT RY <-> G	ALT RY <-> G
37	Alternate (Yellow+Green) ↔ Red.	Speed: General speed (**SPD24**)	ALT YG <-> R	ALT YG <-> R
38	Alternate (Red+Green) ↔ Yellow.	Speed: General speed (**SPD24**)	ALT RG <-> Y	ALT RG <-> Y
39	Alternate (Red+Yellow) ↔ (Red+Green).	Speed: General speed (**SPD24**)	ALT RY <-> RG	ALT RY <-> RG
40	Alternate (Red+Yellow) ↔ (Yellow+Green).	Speed: General speed (**SPD24**)	ALT RY <-> YG	ALT RY <-> YG
41	Alternate (Red+Green) ↔ (Yellow+Green).	Speed: General speed (**SPD24**)	ALT RG <-> YG	ALT RG <-> YG
42	Alternate (Red+Green) ↔ (Red+Yellow).	Speed: General speed (**SPD24**)	ALT RG <-> RY	ALT RG <-> RY

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43	Step chase: R → Y → G → Y.	Speed: General speed (**SPD24**)	R → Y → G → Y	R → Y → G → Y
44	Step chase: R → Y → G.	Speed: Step speed (**SPD25**)	R → Y → G	R → Y → G
45	Step chase with OFF: R → Y → G → OFF.	Speed: Step speed (**SPD30**)	R → Y → G → OFF	R → Y → G → OFF
46	Step chase with OFF: R → Y → G → Y → OFF.	Speed: General speed (**SPD24**)	R → Y → G → Y → OFF	R → Y → G → Y → OFF
47	Reverse step: G → Y → R → OFF.	Speed: General speed (**SPD24**)	G → Y → R → OFF	G → Y → R → OFF
48	Bounce step: R → Y → G → Y → R → OFF.	Speed: General speed (**SPD24**)	R → Y → G → Y → R → OFF	R → Y → G → Y → R → OFF
49	Double-step: R → R → Y → G → G → Y.	Speed: General speed (**SPD24**)	R → R → Y → G → G → Y	R → R → Y → G → G → Y
50	Step with blanks: R → OFF → Y → OFF → G → OFF.	Speed: General speed (**SPD24**)	R → OFF → Y → OFF → G → OFF	R → OFF → Y → OFF → G → OFF
51	Step pairs: RY → YG → RG.	Speed: General speed (**SPD24**)	RY → YG → RG	RY → YG → RG
52	-step: R → RY → Y → YG → G → OFF.	Speed: General speed (**SPD24**)	R → RY → Y → YG → G → OFF	R → RY → Y → YG → G → OFF

#	Description	User Entry	Sequence (1st loop)	Sequence (2nd loop)
53	Pair-step with blanks: RY → OFF → YG → OFF → RG → OFF.	Speed: General speed (**SPD24**)	RY → OFF → YG → OFF → RG → OFF	RY → OFF → YG → OFF → RG → OFF
54	-step: R → RY → Y → YG → G.	Speed: General speed (**SPD24**)	R → RY → Y → YG → G	R → RY → Y → YG → G
55	-step (duplicate pattern): R → RY → Y → YG → G.	Speed: General speed (**SPD24**)	R → RY → Y → YG → G	R → RY → Y → YG → G
56	Reverse -step: G → YG → Y → RY → R.	Speed: General speed (**SPD24**)	G → YG → Y → RY → R	G → YG → Y → RY → R
57	Step ALL ↔ OFF.	Speed: General speed (**SPD24**)	ALL → OFF	ALL → OFF
58	Pulse blocks: R → OFF → R → OFF → G → OFF → G → OFF.	Speed: General speed (**SPD24**)	R → OFF → R → OFF → G → OFF → G → OFF	R → OFF → R → OFF → G → OFF → G → OFF
59	Fast sequence: Y → G → Y → G → R → G → R → G.	Speed: Mode-20 speed (**SPD20**)	Y → G → Y → G → R → G → R → G	Y → G → Y → G → R → G → R → G

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60	Pair-strobe sweep: Strobe RY ×2 → OFF → Strobe YG ×2 → OFF → Strobe RG ×2 → OFF.	Speed: FX speed (**SPD26**)	Strobe RY x2 → OFF → Strobe YG x2 → OFF → Strobe RG x2 → OFF	Strobe RY x2 → OFF → Strobe YG x2 → OFF → Strobe RG x2 → OFF
61	Pulse ladder: Flash R ×1 → Flash Y ×2 → Flash G ×3 → Flash ALL ×1 → OFF.	Speed: General speed (**SPD24**)	Flash R x1 → Flash Y x2 → Flash G x3 → Flash ALL x1 → OFF	Flash R x1 → Flash Y x2 → Flash G x3 → Flash ALL x1 → OFF
62	Flash ALL ×6 → Pause.	Seconds: OFF gap / All-flash period (**SPALLF**) Speed: General speed (**SPD24**)	Flash ALL x6 → PAUSE	Flash ALL x6 → PAUSE
63	Flash pairs: RG ×1 → YG ×1 → RY ×1.	Speed: General speed (**SPD24**)	Flash RG x1 → Flash YG x1 → Flash RY x1	Flash RG x1 → Flash YG x1 → Flash RY x1
64	Flash Red ×2 then Flash Green ×2.	Speed: Mode-13 speed (**SPD13**)	Flash R x2 → Flash G x2	Flash R x2 → Flash G x2
65	Flash Red ×2 then Flash Yellow ×2.	Speed: FX speed (**SPD28**)	Flash R x2 → Flash Y x2	Flash R x2 → Flash Y x2
66	Flash: Red ×2 → Yellow ×2 → Green ×2.	Speed: General speed (**SPD24**)	Flash R x2 → Flash Y x2 → Flash G x2	Flash R x2 → Flash Y x2 → Flash G x2
67	Flash: Red ×2 → Yellow ×2 → Green ×2 → Yellow ×2.	Speed: General speed (**SPD24**)	Flash R x2 → Flash Y x2 → Flash G x2 → Flash Y x2	Flash R x2 → Flash Y x2 → Flash G x2 → Flash Y x2
68	Flash: Red ×3 → Yellow ×3 → Green ×3.	Speed: General speed (**SPD24**)	Flash R x3 → Flash Y x3 → Flash G x3	Flash R x3 → Flash Y x3 → Flash G x3

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69	Flash: Red ×3 → Yellow ×3 → Green ×3 → Pause.	Seconds: OFF gap / All-flash period (**SPALLF**) Speed: General speed (**SPD24**)	Flash R x3 → Flash Y x3 → Flash G x3 → PAUSE	Flash R x3 → Flash Y x3 → Flash G x3 → PAUSE
70	Flash (uneven): Red ×2 → Yellow ×3 → Green ×4.	Speed: General speed (**SPD24**)	Flash R x2 → Flash Y x3 → Flash G x4	Flash R x2 → Flash Y x3 → Flash G x4
71	Strobe: Red ×3 → Yellow ×3 → Green ×3.	Speed: Strobe speed (**SPD27**)	Strobe R x3 → Strobe Y x3 → Strobe G x3	Strobe R x3 → Strobe Y x3 → Strobe G x3
72	Strobe: Red ×5 → Yellow ×5 → Green ×5.	Speed: General speed (**SPD24**)	Strobe R x5 → Strobe Y x5 → Strobe G x5	Strobe R x5 → Strobe Y x5 → Strobe G x5
73	Strobe: Red ×2 → Yellow ×2 → Green ×2 → Yellow ×2.	Speed: General speed (**SPD24**)	Strobe R x2 → Strobe Y x2 → Strobe G x2 → Strobe Y x2	Strobe R x2 → Strobe Y x2 → Strobe G x2 → Strobe Y x2
74	Strobe ALL ×3.	Speed: General speed (**SPD24**)	Strobe ALL x3	Strobe ALL x3
75	Flash Red ×1 → hold Yellow → Flash Green ×1.	Seconds: Yellow (**SPY**) Speed: General speed (**SPD24**)	Flash R x1 → Y → Flash G x1	Flash R x1 → Y → Flash G x1
76	Flash (Red+Green) ×2 → hold Yellow.	Seconds: Yellow (**SPY**) Speed: General speed (**SPD24**)	Flash RG x2 → Y	Flash RG x2 → Y
77	Steady + strobe: Red → Strobe Yellow ×5 → Green.	Seconds: Red (**SPR**), Green (**SPG**) Speed: General speed (**SPD24**)	R → Strobe Y x5 → G	R → Strobe Y x5 → G

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78	Mixed flashes + holds: Flash RY ×3 → G → Flash YG ×3 → R → Flash RG ×3 → Y.	Seconds: Green (**SPG**), Red (**SPR**), Yellow (**SPY**) Speed: General speed (**SPD24**)	Flash RY x3 → **G** → Flash YG x3 → **R** → Flash RG x3 → **Y**	Flash RY x3 → **G** → Flash YG x3 → **R** → Flash RG x3 → **Y**
79	Random single (no immediate repeat) (varies).	Speed: Random speed (**SPD21**)	Random Single NR (varies)	Random Single NR (varies)
80	Random single or pair (varies).	Speed: General speed (**SPD24**)	Random Any (varies)	Random Any (varies)
81	Random pair (varies).	Speed: General speed (**SPD24**)	Random Pair (varies)	Random Pair (varies)
82	Random single → OFF (varies).	Speed: General speed (**SPD24**)	Random Single (varies) → OFF	Random Single (varies) → OFF
83	Random 3-step waterfall (varies).	Speed: General speed (**SPD24**)	Random WF3 (varies)	Random WF3 (varies)
84	Random ALT pattern (varies).	Speed: General speed (**SPD24**)	Random ALT (varies)	Random ALT (varies)
85	Random single then flash ×3 → OFF (varies).	Speed: General speed (**SPD24**)	Random Flash x3 (varies) → OFF	Random Flash x3 (varies) → OFF
86	Mixed random chain: Single NR → Pair → Any (varies).	Speed: General speed (**SPD24**)	Random Single NR (varies) → Random Pair (varies) → Random Any (varies)	Random Single NR (varies) → Random Pair (varies) → Random Any (varies)
87	Random pair → OFF → Random pair (varies).	Speed: General speed (**SPD24**)	Random Pair (varies) → OFF → Random Pair (varies)	Random Pair (varies) → OFF → Random Pair (varies)

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88	Random any → OFF → Random any (varies).	Speed: General speed (**SPD24**)	Random Any (varies) → OFF → Random Any (varies)	Random Any (varies) → OFF → Random Any (varies)
89	Random WF3 → OFF → Random ALT (varies).	Speed: General speed (**SPD24**)	Random WF3 (varies) → OFF → Random ALT (varies)	Random WF3 (varies) → OFF → Random ALT (varies)
90	Random single → Flash ALL ✕1 → OFF (varies).	Speed: General speed (**SPD24**)	Random Single (varies) → Flash ALL x1 → OFF	Random Single (varies) → Flash ALL x1 → OFF
91	Random ALT → OFF → Random flash ✕2 (varies).	Speed: General speed (**SPD24**)	Random ALT (varies) → OFF → Random Flash x2 (varies)	Random ALT (varies) → OFF → Random Flash x2 (varies)
92	Step sequence then Speed++ (tempo increases).	Speed: General speed (**SPD24**)	R → Y → G → Y → Speed++	R → Y → G → Y → Speed++
93	Random pair → Speed++ → Random any → Speed++ (varies, tempo increases).	Speed: General speed (**SPD24**)	Random Pair (varies) → Speed++ → Random Any (varies) → Speed++	Random Pair (varies) → Speed++ → Random Any (varies) → Speed++
94	Speed++ then ALT R ↔ G (tempo increases).	Speed: General speed (**SPD24**)	Speed++ → ALT R <-> G	Speed++ → ALT R <-> G
95	R → Speed++ → Y → Speed++ → G.	Speed: General speed (**SPD24**)	R → Speed++ → Y → Speed++ → G	R → Speed++ → Y → Speed++ → G

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96	Speed++ then Flash ALL x3.	Speed: General speed (**SPD24**)	Speed++ → Flash ALL x3	Speed++ → Flash ALL x3
97	Speed++ then Single NR x3 (varies, tempo increases).	Speed: General speed (**SPD24**)	Speed++ → Random Single NR (varies) → Random Single NR (varies) → Random Single NR (varies)	Speed++ → Random Single NR (varies) → Random Single NR (varies) → Random Single NR (varies)
98	Random WF3 → Speed++ → Random WF3 (varies, tempo increases).	Speed: General speed (**SPD24**)	Random WF3 (varies) → Speed++ → Random WF3 (varies)	Random WF3 (varies) → Speed++ → Random WF3 (varies)
99	Morse SOS on Yellow (special).	Speed: General speed (**SPD24**)	Morse SOS (Y)	Morse SOS (Y)