01 FEATURES

01 WiFi & RF SPI LED controller with SPI signal output, suitable for white, RGB, RGBW and RGBCCT LED pixel strip.

02 Tuya smart app cloud control: on/off, RGB colour, colour temperature and brightness adjustment, delayed on/off, timer, scene edit and music play.

03 Voice control with Amazon Alexa, Google Assistant, Tmall Genie and Xiaodu smart speakers.

04 Compatible with white, RGB, RGBW and RGB+CCT SPI LED strips using 53 chip types. Chip type and R/G/B/W/C colour sequence are configured in the app (default chip TM1809) – see page 7.

05 Painted segment colour mixing: full colour filling, colour pencil segment painting, eraser segment light off.

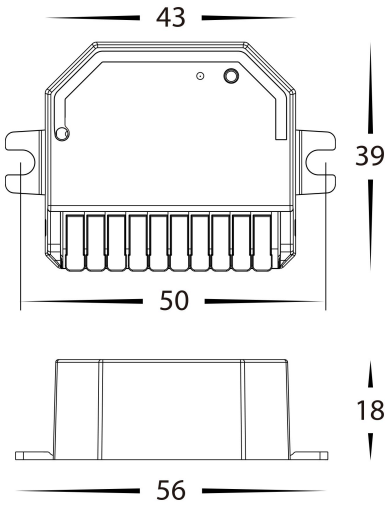
06 Rich dynamic effects: 44 default and 10+ custom dynamic scenarios, 16 variations, and 3 app music rhythms.

07 Supports both up and down direction push switch control.

08 Optional RF 2.4G SPI remote control can be matched.

03 MECHANICAL STRUCTURE & DIMENSIONS

MM



CALLOUTS

LED indicator · RF antenna · SET key · installation rack on the housing.

MOUNTING

Fix with the two slotted ears, 50mm centres. The mounting ears on both sides can be broken along the indentation to suit different mounting needs.

OVERALL

56 × 39 × 18mm (body 43mm wide).

02 TECHNICAL PARAMETERS

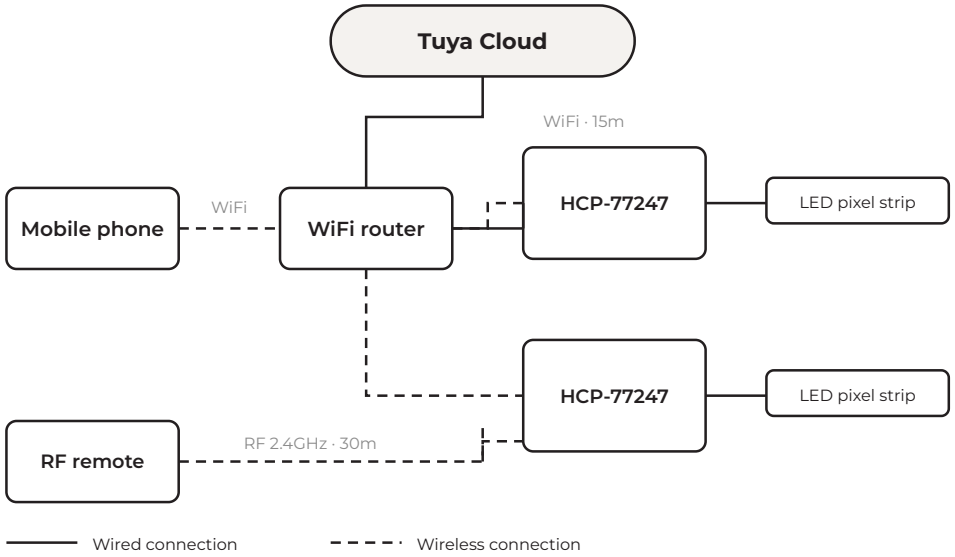
INPUT VOLTAGE	5–24V DC
INPUT CURRENT	5A
INPUT SIGNAL	WiFi + RF 2.4GHz + push
OUTPUT SIGNAL	SPI (TTL)
SCENARIO MODE	44 default · 10+ customisations
PIXEL DOTS	Max. 1000
OPERATION TEMPERATURE	Ta: −20°C to +55°C
CASE TEMPERATURE (MAX.)	Tc: +70°C
IP RATING	IP20
EMC STANDARD	EN IEC 55015 / EN IEC 61547
	ETSI EN 301 489-1/-3/-17
SAFETY STANDARD	EN 61347-1/-2
RADIO EQUIPMENT	ETSI EN 300 328 · EN 300 440
CERTIFICATION	CE · RoHS
PACKAGE SIZE	L60 × W60 × H40mm
GROSS WEIGHT	0.041kg
WARRANTY	5 years

04 TERMINAL FUNCTIONS

TERMINAL	GROUP	FUNCTION
V− / V+	POWER IN	Power input − / +
V+	SPI OUTPUT	Output +
DO	SPI OUTPUT	DATA signal output
CO	SPI OUTPUT	CLK signal output
V−	SPI OUTPUT	Output −
GND	PUSH SWITCH	Push switch common
P1	PUSH SWITCH	On/off push switch
P2	PUSH SWITCH	UP push switch
P3	PUSH SWITCH	DW push switch

05 SYSTEM WIRING

TUYA CLOUD · WIFI · RF



01 The distances are measured in a spacious (no obstacle) environment. Refer to the actual test distance before installation.

02 Check that the WiFi router network is in the 2.4G band – 5G is not available – and do not hide your router network.

03 Keep the distance between the HCP-77247 device and the router close, and check the WiFi signal.

04 WiFi signal strength: open the device interface in the app and click “check device network” for testing.

06 WIRE PREPARATION

01 The wiring can be solid or stranded with a cross-sectional area of 0.5–1.5mm². Conventional 1mm² can withstand 10A output current. Strip 8–9mm.

02 When wiring is installed, the terminals must be tightened. If not tightened, the contact point resistance will be too high and the terminals will easily burn due to heat when used at full load for a long time.

07 INSTALLATION PRECAUTIONS

01 If the SPI LED strip is a single-wire control method, the DATA and CLK signal line outputs of the controller are the same, and one controller can connect 2 LED strips.

02 When the load of the light strip exceeds 5A, power the strip from another power supply (strip and supply must share the same ground) and connect only the DATA/CLK and GND lines between the controller and the strip.

03 The output power of the constant voltage power supply must be at least 1.2 times that of the output load, otherwise full power output will easily cause the lights to flicker or shake automatically.

04 The voltage of the power supply must be the same as the voltage of the light strip to avoid the strip not lighting or lighting slightly.

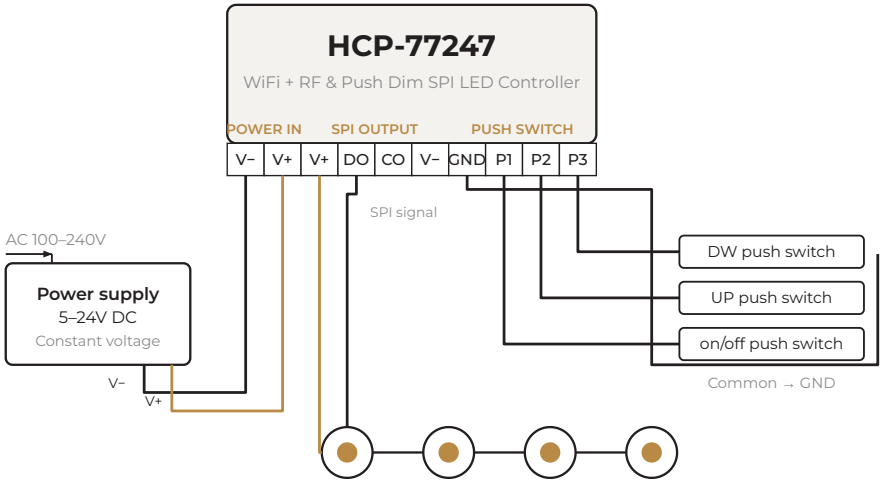
05 The length of the signal line (DATA/CLK) must be ≤ 10 metres. Beyond 10 metres, use an SPI signal amplifier (common ground) to avoid signal interference.

06 Separate the SPI signal lines (DATA, CLK) from strong power (100–240VAC) lines by ≥15cm to avoid the magnetic field from the strong power interfering with the signal.

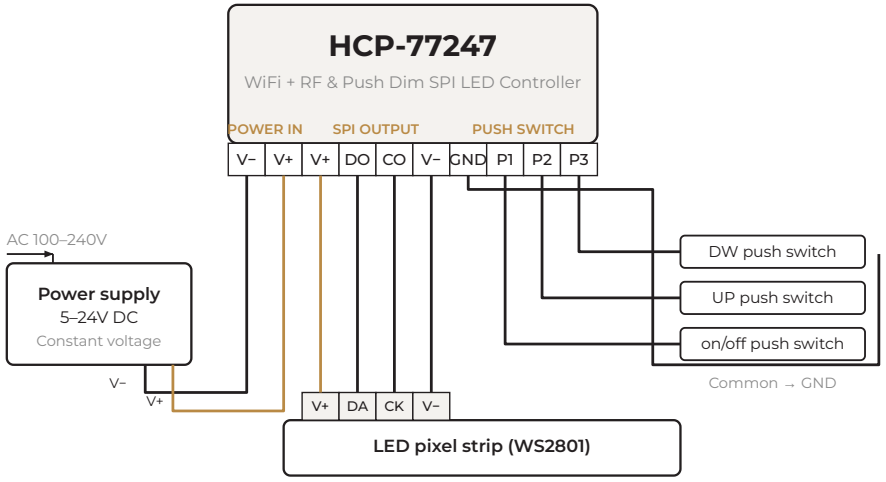
07 Each signal output port (DATA/CLK) can only be connected to one set of light strips.

08 If the light strip is always on without control, the signal line (DATA/CLK) may be open or the strip chip damaged – replace the signal line or the light strip.

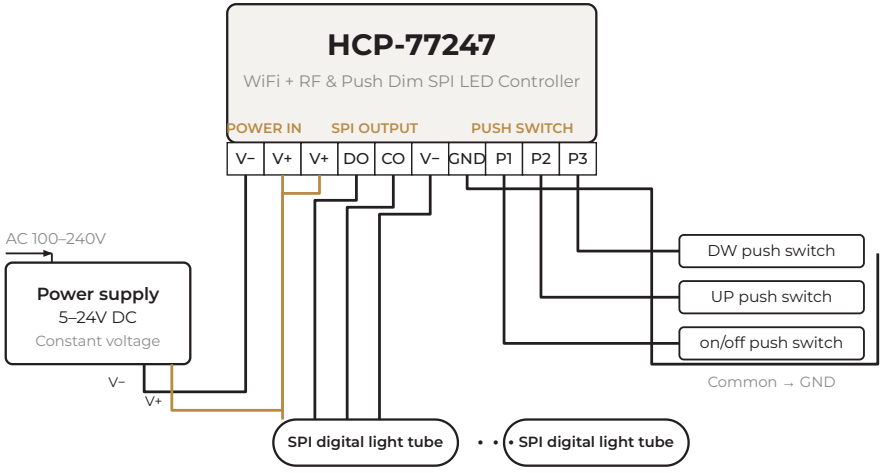
08 CONNECT WITH SPI SPOTLIGHT (TM1803)



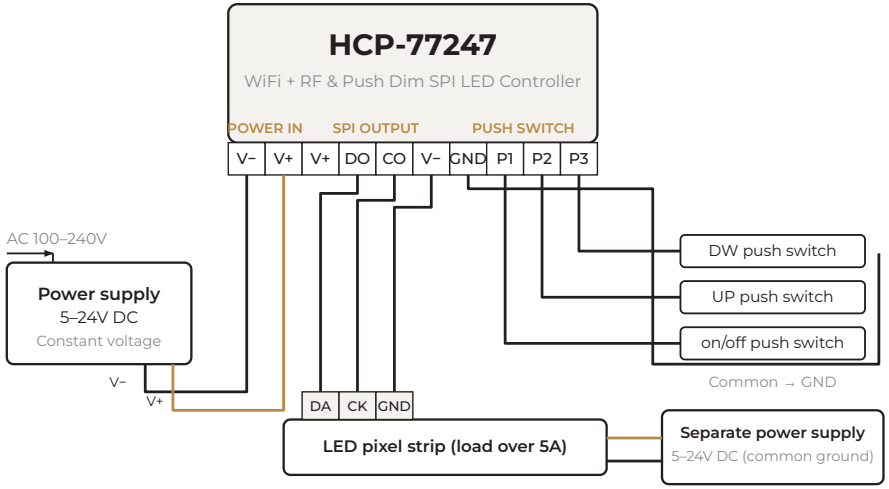
09 CONNECT WITH ONE SPI PIXEL STRIP (WS2801)



10 CONNECT WITH SPI DIGITAL LIGHT TUBE (TM1809)



11 CONNECT WITH ONE SPI PIXEL STRIP (LOAD OVER 5A)



12 SET KEY FUNCTION

1. LIGHT TYPE SETTING

Set the correct light type with the SET key before connecting the app or matching an RF remote. Long press the SET key to switch between the 4 light types in sequence – each 2s long press switches one, and the LED indicator turns the corresponding colour and flashes once.

LIGHT TYPE	DIM	RGB	RGBW	RGBCCT
LED indicator colour	White	Red	Green	Blue

2. MATCH RF REMOTE CONTROL

Match: short press the match key, then immediately press the on/off key of the remote. The LED indicator fast flashes a few times when matching succeeds.
Delete: press and hold the match key for 10s to delete all matches. The LED indicator fast flashes a few times when all matched remotes are deleted.

3. TUYA SMART APP NETWORK CONNECTION

Push the SET key twice, or press and hold it for 5s, to enter WiFi connecting mode and clear the previous network connection – the LED indicator flashes purple quickly. It stops flashing when the connection succeeds. In the Tuya Smart app the device appears as RGB-SPI / RGBW-SPI / RGBCCT-SPI (a DIM strip appears as RGB-SPI).
If the network connection is poor, the light can be controlled by Bluetooth within range. It cannot be controlled by Bluetooth without WiFi configuration.

4. RESTORE FACTORY DEFAULT

Defaults: RGB light type, pixel length 300, TM1809 chip type.
Press and hold SET 10s: restores defaults, indicator flashes once. RGB colour and W white cannot be on at the same time (RGBW setting).
Press and hold SET 15s: restores defaults, indicator flashes twice. RGB colour and W white can be on at the same time (RGBW setting).

13 PUSH SWITCH DIMMING

P1 · ON/OFF PUSH SWITCH

Short press: turn the light on/off (lights on/off at the same time).
Double click: switch multi-colour types in sequence (Tables 4 and 5).
Long press 2s: switch change types in sequence (Table 3). After a 10s timeout it returns to long-press brightness adjustment.
Long press (1–6s): adjust brightness continuously (5–100%).

P2 · UP PUSH SWITCH

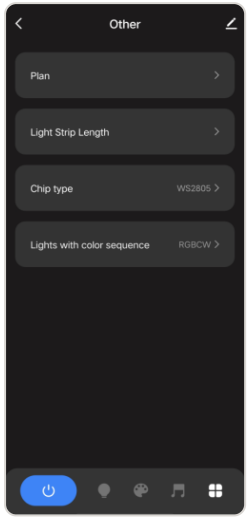
Short press: turn the light on/off (lights turn on in forward sequence and turn off at the same time).
Long press (1–6s): adjust brightness continuously (5–100%).

P3 · DW PUSH SWITCH

Short press: turn the light on/off (lights turn on in reverse sequence and turn off at the same time).
Long press (1–6s): adjust brightness continuously (5–100%).

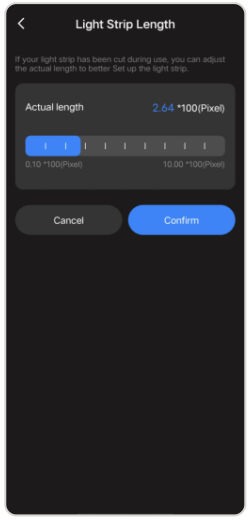
14 TUYA SMART APP INTERFACE

SMART LIFE · TUYA SMART



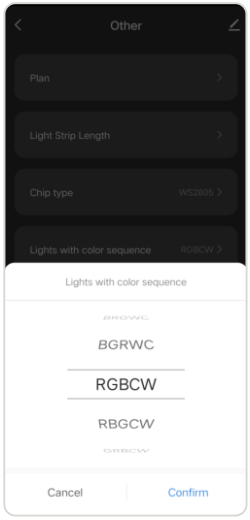
OTHER INTERFACE

For first-time use, set the LED strip length, chip type and colour sequence.



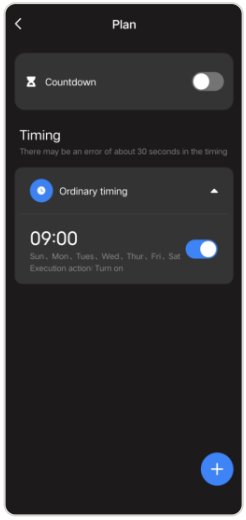
LIGHT STRIP LENGTH

Select the number of pixels to suit the actual strip length, 10–1000.



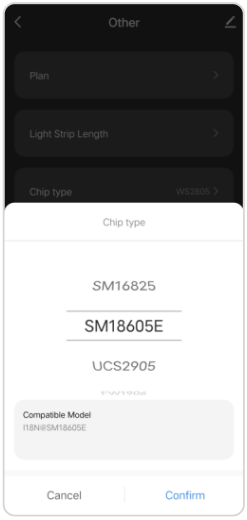
COLOUR SEQUENCE

Select the R/G/B/W/C sequence to match the strip (Table 1).



PLAN INTERFACE

Countdown: custom time (max. 24 hours) to perform the on/off action. Timer: custom multiple times to switch the light on/off.



CHIP TYPE

Select the chip that matches the light strip (Table 2).

15 COLOUR SEQUENCE

TABLE 1

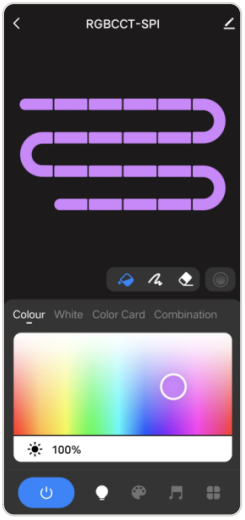
LIGHT TYPE	R/G/B/W/C SEQUENCE
RGB	RGB, RBG, GRB, GBR, BRG, BGR
RGBW	RGBW, RBGW, GRBW, GBRW, RGW, BGRW, WRGB, WRBG, WGRB, WGBR, WBRG, WBGR
RGBCCT	RGBWC, RBGWC, GRBWC, GBRWC, BRGWC, BGRWC, RGBCW, RBGCW, GRBCW, GBRCW, BRGCW, BGRCW, WRGBC, WRBGC, WGRBC, WGBRC, WBRGC, WBGRC, CRGBW, CRBGW, CGRBW, CGBRW, CBRGW, CBGRW

16 STRIP LENGTH NOTES

01	In the app a light strip is fixed with 20 segments: strip length (total pixels) ÷ 20 = pixels per segment.
02	The maximum strip length is 1000 pixels. For example, a 5m strip at 60 pixels/m can be set to 300 pixels – 20 segments of 15 pixels.
03	For strips of 20 pixels or fewer (10–20), each pixel corresponds to each segment from the beginning.
04	If the strip length is not a multiple of 20, the remainder displays the colour of the last segment. Set a longer length that is a multiple of 20.
05	If the set length is less than the actual length, the back part of the strip cannot be controlled.
06	If a dynamic mode cycle interval is too long, reset the correct pixel length.
07	If static or dynamic colours do not match the app interface, re-select the strip colour sequence.

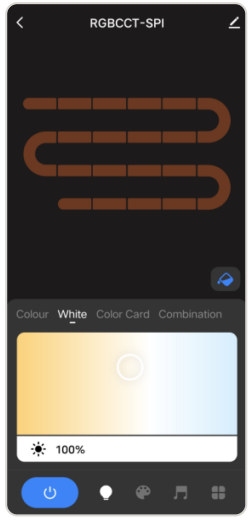
17 COLOUR, SCENE & MUSIC CONTROLS

TUYA SMART APP



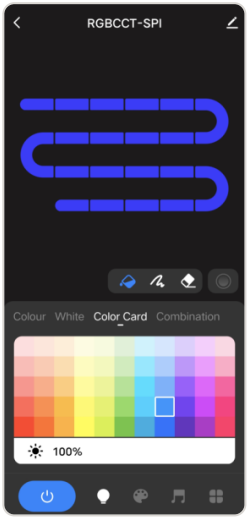
COLOUR

Touch the colour rectangle to adjust colour and saturation. Touch the brightness slide to adjust brightness.



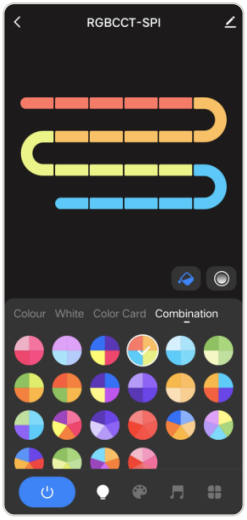
WHITE

Touch the colour rectangle to adjust colour temperature. Touch the brightness slide to adjust brightness.



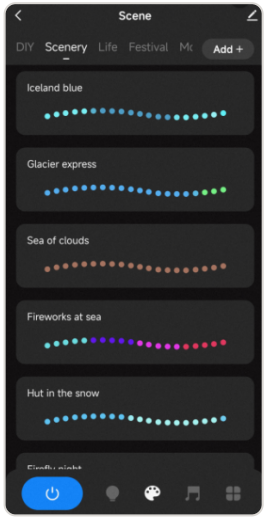
COLOUR CARD

Touch the colour card array to select from many colours. Touch the brightness slide to adjust brightness.



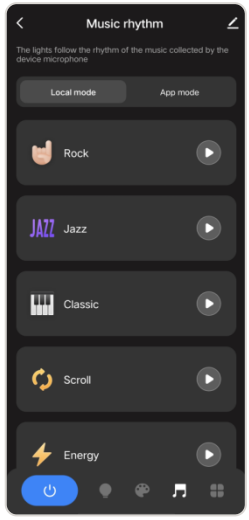
COMBINATION

Select a proportional distribution of the multi-colour circle – colours are spread evenly along the LED strip.



SCENE

44 predefined and 10+ custom dynamic scenarios. Custom scenarios offer 16 variations, 1–8 colours, full or segment control, forward/reverse direction, adjustable brightness and speed.



MUSIC RHYTHM

6 local music modes (rock, jazz, classical, rolling, energy, spectrum) and 3 app modes (music rhythm, game, romance). The light follows the music picked up by the phone microphone. Note: the controller only supports App mode.

18 PAINTED SEGMENT TOOLS

TOOL	FUNCTION
Colour fill	Change the colour of the full segment of the LED strip.
Colour pen	Change the colour of a single segment of the LED strip.
Eraser	Erase the colour of a single segment, i.e. turn off the light.
Colour transition	With multiple colours on the strip, turn the colour segment gradient transition on or off.

19 CHIP TYPES · WHITE / RGB

TABLE 2

CHIP TYPE	COMPATIBLE CHIP	OUTPUT
TM1803		DATA
TM1809	TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815, SM16703P	DATA
TM1829		DATA
TLS3001	TLS3002	DATA
GW6205		DATA
MBI6120		DATA
LPD6803	LPD1101, D705, UCS6909, UCS6912	DATA CLK
LPD8803	LPD8806	DATA CLK
WS2801	WS2803	DATA CLK
P9813		DATA CLK
SK9822		DATA CLK
TM1914A		DATA
GS8206	GS8208	DATA
UCS5603		DATA
UCS2603		DATA
SM16714D		DATA

20 CHIP TYPES · RGBW / RGBCCT

TABLE 2 CONTINUED

LIGHT TYPE	CHIP TYPE	COMPATIBLE CHIP	OUTPUT
RGBW	**UCS2904**		DATA
RGBW	**SM16804**		DATA
RGBW	**TM1814B**		DATA
RGBW	**SK6812**	WS2813, WS2814	DATA
RGBW	**UCS8904B**		DATA
RGBW	**SM16714**		DATA
RGBW	**UCS7604**		DATA
RGBW	**UCS7804**		DATA
RGBCCT	**SM16825**		DATA
RGBCCT	**SM18605E**		DATA
RGBCCT	**UCS2905**		DATA
RGBCCT	**FW1906**		DATA
RGBCCT	**WS2805**		DATA

21 CHANGE TYPE

TABLE 3

NO.	NAME	NO.	NAME
1	**Static**	9	**Bouncing**
2	**Flow**	10	**Shuttle**
3	**Chasing light**	11	**Jump**
4	**Chase**	12	**Fade**
5	**Pile-up**	13	**Breath**
6	**Floating**	14	**Chaotic flashing**
7	**Tail dragging**	15	**Flicker**
8	**Tail dragging + black segment**	16	**Flash**

22 RGB / RGBW COLOUR TYPE

TABLE 4

NO.	NAME	NO.	NAME
1	**Red**	9	**R/G/B 3 colour**
2	**Orange**	10	**7 colour**
3	**Yellow**	11	**Red + yellow**
4	**Green**	12	**Red + purple**
5	**Cyan**	13	**Green + yellow**
6	**Blue**	14	**Green + cyan**
7	**Purple**	15	**Blue + cyan**
8	**White**	16	**Blue + purple**

23 RGBCCT COLOUR TYPE

TABLE 5

NO.	NAME	NO.	NAME
1	**Red**	12	**7 colour**
2	**Orange**	13	**Red + yellow**
3	**Yellow**	14	**Red + purple**
4	**Green**	15	**Green + yellow**
5	**Cyan**	16	**Green + cyan**
6	**Blue**	17	**Blue + cyan**
7	**Purple**	18	**Blue + purple**
8	**White**	19	**W + WW**
9	**Warm white**	20	**W + CW**
10	**Cool white**	21	**WW + W + CW**
11	**R/G/B 3 colour**	22	**WW + CW**

Colour types 19–22 suit dynamic change type applications.