LED Pattern Programming Guide

Funiki SPLASH

- Pattern programming for the Funiki SPLASH Eurorack module

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Description

- Funiki SPLASH drives a strip of 256 LEDs with a preprogrammed pattern of colors and intensities
- The LED patterns are based on a stored memory map inside a 8-bit programmable EEPROM
- The EEPROM is user accessible on the back side of the Funiki SPLASH Eurorack module
- Each LED requires 3 bytes (24-bits) arranged in RGB sequence
- Each complete LED strip has 256 LEDs, therefore one pattern is made up of 256 x 3 bytes of data (768 bytes, or 02FFh bytes)
- There are 64 patterns in the EEPROM, which uses up 64 x 768 bytes of memory (49152 total bytes)
- The memory is addressed from 000000h to 00BFFFh
- The memory IC is a SPI bus serial EEPROM, number 25AA1024

Memory Map of LED Patterns

- The EEPROM chip holds 1Mbit of memory arranged in bytes
- Each LED RGB value is directly stored in the memory locations assigned for each pattern
- There are 64 patterns arranged in the memory starting from address 000000h
- Data stored at address 00C000h and above is ignored and not used

25AA1024 EEPROM full memory map

PATTERN DATA	ADDRESS	
Unused data	01FFFF	
	00C000	
	00BFFF	LED at end of strip
Pattern 64		
	00BD00	LED at beginning of strip
	00BCFF	LED at end of strip
Pattern 63		
	00BA00	LED at beginning of strip
	00B9FF	LED at end of strip
Pattern 62		
	00B700	LED at beginning of strip
.	.	
Pattern 4-61	.	
.	.	
	0008FF	LED at end of strip
Pattern 3		
	000600	LED at beginning of strip
	0005FF	LED at end of strip
Pattern 2		
	000300	LED at beginning of strip
	0002FF	LED at end of strip
Pattern 1		
	000000	LED at beginning of strip

Memory Map of LED Byte Values

- This is a memory map of the full pattern 1 image
- Each LED requires 3 bytes, which are stored in the memory as shown in the map
- There are 256 LEDs, therefore the three bytes for the last LED are located at 0002FD, 0002FE, 0002FF, as shown in the map

Memory Map for Pattern 1

Data Bytes	Address	LED number
BLU byte value	0002FF	LED256
GRN byte value	0002FE	LED256
RED byte value	0002FD	LED256
BLU byte value	0002FC	LED255
GRN byte value	0002FB	LED255
RED byte value	0002FA	LED255
BLU byte value	0002F9	LED254
GRN byte value	0002F8	LED254
RED byte value	0002F7	LED254
	.	
Byte values	.	LED4-253
	.	
BLU byte value	000008	LED3
GRN byte value	000007	LED3
RED byte value	000006	LED3
BLU byte value	000005	LED2
GRN byte value	000004	LED2
RED byte value	000003	LED2
BLU byte value	000002	LED1
GRN byte value	000001	LED1
RED byte value	000000	LED1

Getting Help

The EEPROM on the back of the Funiki SPLASH module is easy to remove and reprogram with custom LED patterns. The memory map information in this document will help you create custom light patterns for the LED strips.

If you are still having difficulty, please reach out to our tech support department, and they'll be glad to help you out.

Unagi Tech Support: techinfo@unagi.net