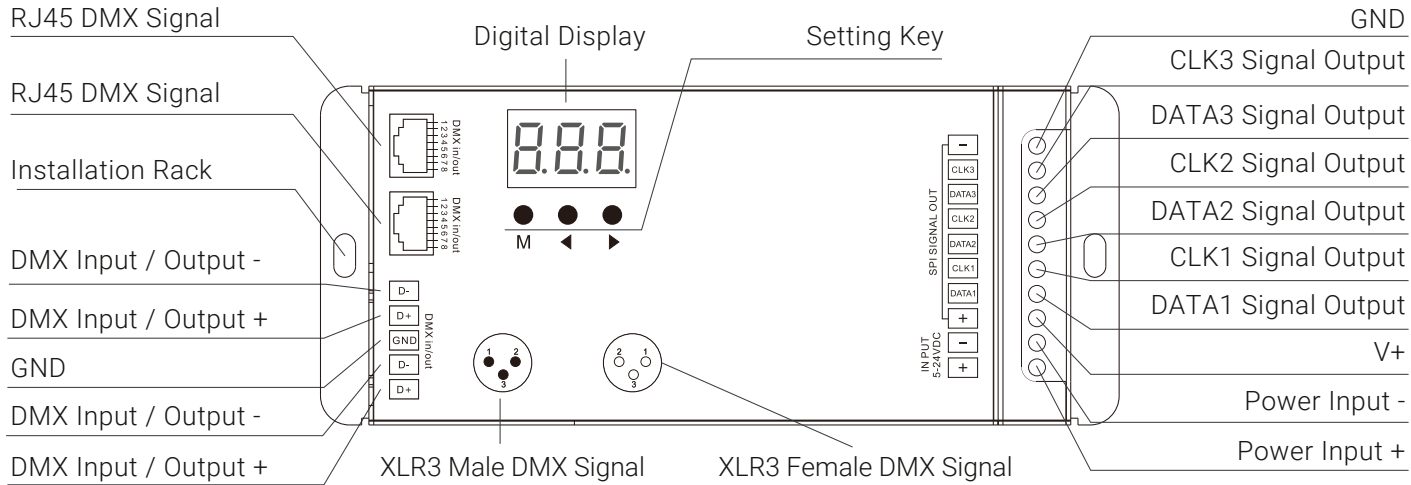


DMX512 to SPI Decoder

Data Sheet



DMX to SPI Decoder



Product Data

Input Voltage	Input Signal	Output Signal	Controllable Pixels	Size
5-24V DC	DMX512	SPI (TTL)x3	900 SPI pixels or 170 DMX pixels (RGB 510 channels)	L: 6 1/2" (165 mm) W: 2 3/4" (70 mm) H: 1 7/16" (37 mm)

Features

- High quality DMX512 to SPI LED Decoder.
- Controller mode available for standalone RGB control.
- Easy to read digital display.
- Durable metal casing.
- SPI signal output to control up to 900 pixels in standalone controller mode or up to 170 pixels in DMX decoder mode.
- Multiple data port options: XLR3 ports, RJ45 ports, and screw terminals.
- RDM bi-directional communication function allowing for real time remote monitoring.
- Reverse polarity protection.
- SPI Controller Mode or DMX Decoder Mode all in one device.

Under DMX Decoder Mode:

- Decoder detection, DMX address setting, and decoder information display functions.
- Two modes to choose from.

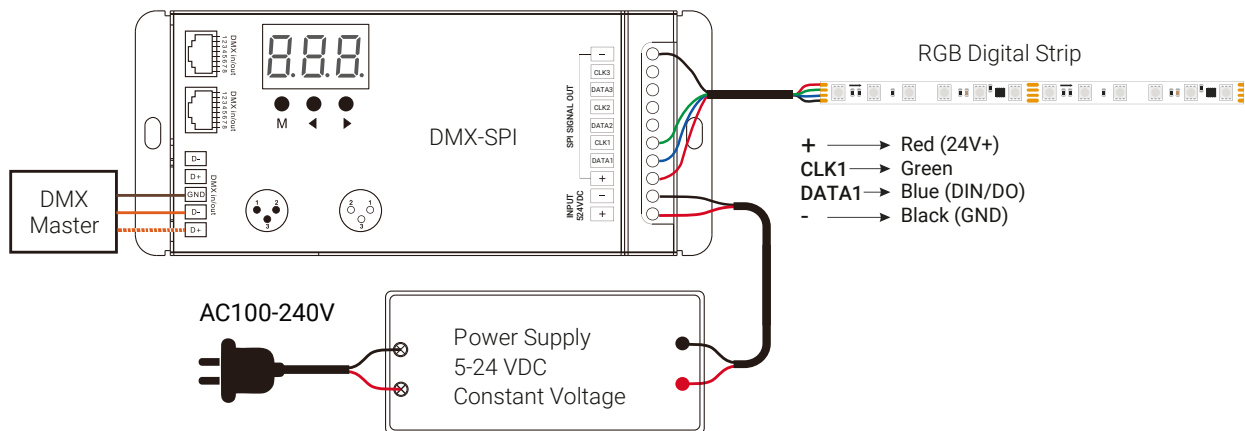
Under SPI Controller Mode:

- 32 built-in programs for RGB and RGBW static and dynamic patterns.
- 10 levels of brightness.
- 8 levels of speed.

Wiring

1. Confirm that the power supply voltage matches the voltage of your LED strip and that the power supply is unplugged.
2. Connect the LEDs and power supply using the power input screw terminals. Power supply positive and negative should be connected to "+" and "-" terminals under "INPUT 5-24VDC", respectively. LED 24V+ should be connected to the "+" terminal under "SPI SIGNAL OUT". LED GND should be connected to the "-" terminal under "SPI SIGNAL OUT". LED DIN/DO should be connected to the DATA1 terminal. Connect the remaining wire to the CLK1 terminal.
3. Keep in mind that this decoder can be wired as a DMX Decoder or as an SPI Controller.
4. Power up the power supply.
5. Connect the DMX input and output (if applicable) to any of the "DMX in/out" ports. Note: Do not send DMX signals to the decoder while it is powered down.

DMX Decoder Mode Wiring



Note:

1. If the SPI LED pixel strip is single-wire controlled, the DATA and CLK output are the same, you can connect up to 6 LED strips.
2. If the SPI LED pixel strip is two-wire controlled, you can connect up to 3 LED strips.

Operation

Ensure that the power supply's voltage matches the input voltage of the LED strip. Make sure that the polarities are correct before turning the power on. **Do NOT make or break any connections to the digital LED strip while power is applied. Make all connections before applying power. Failure to follow this step can result in damage to your strip.** Please review and select all of the following settings on your unit to ensure your strip is being properly controlled:

Select the LED strip IC type



Press M and Left until you see the display starts with a C. Then press Left or Right to select the value of your LED strip light's IC type from the chart below.

No.	IC Type	Output Signal
C11	TM1803	DATA
C12	TM1809, TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815	DATA
C13	TM1829	DATA
C14	TLS3001, TLS3002	DATA
C15	GW6205	DATA
C16	MBI6120	DATA
C17	TM1814B (RGBW)	DATA
C18	SK6812 (RGBW), WS2813 (RGBW), WS2814 (RGBW)	DATA
C19	UCS8904B (RGBW)	DATA
C21	LPD6803, LPD1101, D705, UCS6909, UCS6912	DATA, CLK
C22	LPD8803, LPD8806	DATA, CLK
C23	WS2801, WS2803	DATA, CLK
C24	SK9822	DATA, CLK
C25	P9813	DATA, CLK
C31	TM1914A	DATA
C32	GS8206, GS8208	DATA
C33	UCS2904	DATA
C34	SM16804	DATA
C35	SM16825	DATA
C36	SM16714 (RGBW)	DATA
C37	UCS5603	DATA
C38	UCS2603	DATA

- Press M for 2 seconds or let it timeout after 10 seconds to quit the setting parameter.
- The decoder will enter the Controller mode if the DMX signal is disconnected or lost.

DMX Decoder Mode

Before you change any other settings, please determine whether you would like the device to be in SPI Controller or DMX Decoder mode. If you would like to use the device as a DMX Decoder, simply hook it up to a DMX Controller and the decoder will enter into DMX Decoder mode automatically. When no DMX signal is received, the unit will automatically revert to its standalone SPI Controller mode.

There are two DMX decoder modes available:

Press M, Left and Right at the same time for 3 seconds to switch between display d-1 (DMX decoder mode) and display d-2 (DMX decoder mode 2). Once you are done setting up the mode, press the M key for 2 seconds, and return to the DMX address interface.

Select the LED strip RGB order



Press M and Left for 3 seconds then short press M until you see the display starts with a 0. Then press Left or Right to select the value of your LED strip light's RGB order from the following options:

0-1 RGB	0-2 RBG	0-3 GRB	0-4 GBR	0-5 BRG	0-6 BGR
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Select the number of pixels used on your LED strip



Press M and Left for 3 seconds then short press M until you see the display starts with a 170. Then press Left or Right to select the number of pixels between 008 and 900 being 900 the longest setting. The default configuration is 170, which is the maximum amount of pixels available if using the unit in DMX Decoder Mode.

Enable or disable the automatic blank screen




If you do not want to have your device's display panel light on, you can use this function to enter Blank Screen Mode. Press M and Left for 3 seconds then quickly press M until the display starts with a lowercase B, then use the Left and Right buttons to select between bon (to turn Blank Screen Mode on) and boF (to turn Blank Screen Mode off).

Mode 1:

Change the color of the light by setting the DMX decoder address

DMX Decoder Address

 When the display is showing 001, you are in DMX Decoder Mode. Press M and then press the Left and Right buttons to change the DMX decoder start address between 001 and 512. Hold down the Left and Right buttons to speed up the process.

Decoder Channel Number

Hold down M for 2 seconds and use the Left and Right buttons. Once the display says dno, select the decoder channel number between 003 and 510 (for RGB). Set the decoder channel number to 510 in order to use the full DMX universe.

Pixel Length

Hold down M for 2 seconds and short press M until the display says Pno, then use the Left and Right buttons to adjust. The default configuration is 001 for the shortest pixel length. The higher the number, the longer your pixels will be.

- Once you are done setting up the decoder, press M for 2 seconds or let it timeout after 10 seconds to quit the setting parameter.

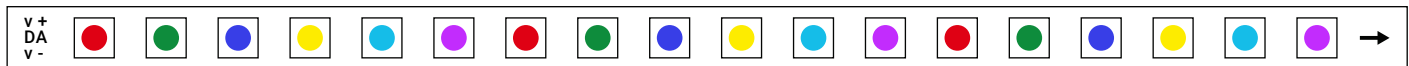
Example of the DMX to SPI decoder connected to an RGB digital strip:

DMX data from DMX512 console/controller:

DMX CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DMX Data	255	0	0	0	255	0	0	0	255	255	255	0	0	255	255	255	0	255

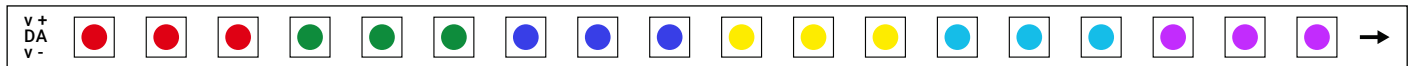
DMX-SPI decoder output configuration:

Start address: 001, decoder channel number: 18, pixel length: 001



DMX-SPI decoder output configuration:

Start address: 001, decoder channel number: 18, pixel length: 003



Mode 2:

Switch the dynamic modes for the light, control the brightness and the speed of the dynamic mode via three different DMX decoder addresses.

DMX Decoder Address

Press M and then press the Left and Right buttons to change the DMX decoder start address between 001 and 512. Hold down the Left and Right buttons to speed up the process.

For example, when the DMX start address is set to 001. Address 1 of the DMX console is for the dynamic light type setting (32 modes), address 2 is for the brightness setting (10 levels), and address 3 is for the speed setting (10 levels).

Address 1 of DMX console: Dynamic light mode

1:	0-8	9:	65-72	17:	129-136	25:	193-200
2:	9-16	10:	73-80	18:	137-144	26:	201-208
3:	17-24	11:	81-88	19:	145-152	27:	209-216
4:	25-32	12:	89-96	20:	153-160	28:	217-224
5:	33-40	13:	97-104	21:	161-168	29:	225-232
6:	41-48	14:	105-112	22:	169-176	30:	233-240
7:	49-56	15:	113-120	23:	177-184	31:	241-248
8:	57-64	16:	121-128	24:	185-192	32:	249-255

Address 2 of DMX console: Brightness (when addressed to less than 5, this turns off the light)

1:	5-25 (10%)
2:	26-50 (20%)
3:	51-75 (30%)
4:	76-100 (40%)
5:	101-125 (50%)
6:	126-150 (60%)
7:	151-175 (70%)
8:	176-200 (80%)
9:	201-225 (90%)
10:	226-255 (100%)

Address 3 of DMX console: Speed

1:	0-25 (10%)
2:	26-50 (20%)
3:	51-75 (30%)
4:	76-100 (40%)
5:	101-125 (50%)
6:	126-150 (60%)
7:	151-175 (70%)
8:	176-200 (80%)
9:	201-225 (90%)
10:	226-255 (100%)

Once you are done setting up the decoder, press M for 2 seconds or let it timeout after 10 seconds to quit the setting parameter.

SPI Controller Mode

The standalone mode of the device features pre-programmed modes and allows you to control the speed and brightness of each mode. The decoder will enter Controller mode if the DMX signal is disconnected or lost.

Pre-Programmed RGB Modes

Control a total of 32 programs. Press M and then Left or Right to select between preset modes when in the menu labeled P01-P32.

No.	Dynamic Mode	No.	Dynamic Mode	No.	Dynamic Mode
P01	Red horse race white ground	P12	Blue White chase	P23	Purple float
P02	Green horse race white ground	P13	Green Cyan chase	P24	RGBW float
P03	Blue horse race white ground	P14	RGB chase	P25	Red Yellow float
P04	Yellow horse race blue ground	P15	7 color chase	P26	Green Cyan float
P05	Cyan horse race blue ground	P16	Blue meteor	P27	Blue Purple float
P06	Purple horse race blue ground	P17	Purple meteor	P28	Blue White float
P07	7 color multi horse race	P18	White meteor	P29	6 color float
P08	7 color horse race close + open	P19	7 color meteor	P30	6 color smooth sectionally
P09	7 color multi horse race close + open	P20	Red float	P31	7 color jump sectionally
P10	7 color scan close + open	P21	Green float	P32	7 color strobe sectionally
P11	7 color multi-scan close + open	P22	Blue float		

Brightness Control



Press M for 2 seconds within a program and then short press M until you see the display that starts with a lowercase B. Then press Left or Right to select a brightness level between 1 and F with F being the brightest setting.

Speed Control



Press M for 2 seconds within a program and then short press M until you see the display that starts with 5. Then press Left or Right to select a speed level between 1 and 8 with 8 being the fastest setting.

- Press M for 2 seconds or let it timeout after 10 seconds to quit the setting parameter.

Restore Factory Settings

Press and hold both Left and Right keys until the digital displays RES. Then release the keys and the display will turn on again, and all settings will be reset to factory settings, which are:

- DMX Decoder Mode
- DMX Address: 001
- Decoder Channel Number: 510
- Pixel Length: 001
- Dynamic Mode: P01
- IC Type: C12
- RGB Order: RGB
- Pixel Length: 170
- Blank Screen Mode: Off

Warranty Information

Limited Warranty

This product has a 5 year limited warranty from the date of shipment. This warranty only includes the main product outlined in this specification sheet and does not include the additional accessories that are used as a reference. Complete warranty details for fixtures and additional accessories are available at: <https://www.flexfireleds.com/warranties/> within the Policies section. For warranty related questions please contact our product support team at (support@flexfireleds.com).

Consumer's Acknowledgment

Flexfire LEDs, Inc. stands behind its products when they are used properly and according to our specifications. When you purchase our products, you are agreeing to the terms and conditions outlined in our warranty section. We try our best to make recommendations, but the burden of proper installation, design, and maintenance relies on the purchaser. This limited warranty does not include product failures that are the result of: Not using a voltage regulated power supply to connect the LED product or controls; Connecting LED products to the wrong output voltage; Improper connection of power supplies, LED products, or controls; Connecting LED products or controls directly to any AC power source if they are stated for DC only input; Connecting power supplies backwards to an AC power source; Products used in an inappropriate location or in environmental conditions (temperature, humidity, moisture, etc.) outside the normal specified range; Water damage to products not specifically sold as waterproof products; Electrical power surges and spikes; Damage from hail, flooding, tornado, fire, wind, earthquake, lightning, electrical storm, or any other natural disasters or "force majeure" incidences; Damage caused by a vehicle or other accident; Damage caused when transporting the item; Damage to any products that were modified by the user, used for purposes other than as intended or directed, or connected to LED systems or components not purchased from Flexfire LEDs; Products that have been subjected to misuse, mishandling, misapplication or accident. Products used in connection with any components, devices or systems other than those explicitly approved as compatible with Company's products and listed on Company's website. Excessive wear and tear and/or physical or accidental abuse, loss, or theft. Improper repairs or warranty services performed by someone other than Flexfire LEDs will void this warranty.



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