Configuring a DMXW Node for Addressable LED Pixel Strips

The node must be running the DMXW_Node_Pixel_Strip firmware (rather than the generic DMXW_Wireless_Node firmware). This firmware only supports control of a single addressable LED strip. It is not programmed to support multiple strips, nor generic analog and digital outputs.

By default the remote node is configured to control the addressable LED strip using Moteino digital output 4 (Digital low power #1 on the J7 connector in schematic “DMXW_Driver_Board”, rev 1.1, dated 2014-07-16). To change this to a different pin, use console command “ledCtrl”

The LED strip needs to be configured on the remote node

- The console command is “led”
- LED strip length: the number of ganged tricolour LEDs (pixels)
  - 12 Vdc strips gang together three tricolour LEDs per “pixel”
  - 5 Vdc strips have one tricolour LED per pixels
- Control frequency: usually 800 Khz
- LED colour wiring order: usually GRB (?)

After changing either of the above, use console command “save” to save the configuration changes to EEPROM, and power cycle the node for the changes to take effect.

Programming Effects:

The node defines a number of ports with pre-defined functions. Port can be mapped to arbitrary DMXW channels which can, in turn, be assigned to arbitrary DMX-512 channels.

The node's port assignments are shown in the table below.

Port #	Function	
1	Delay (in milliseconds): 0 = all LEDs off; 255 = hold current effect settings • The hold setting can be used to hold an effect while other ports are changed (e.g. Manually) in advance to selecting new effect settings when Delay is taken out of hold mode. • Not all effects obey delay settings in the range 1 – 254 (refer to individual effect setting in the following table)	
2	Effect: Selects the type of effect to run. To aid in manual selection via (noisy) potentiometers, each effect occupies a decade of values (refer to the following table).	
3	Parameter Arg1	The various types of effect take varying numbers of parameters that are specified via these ports. (Refer to the following table.)
4	Parameter Arg2	
5	Parameter Arg3	
6	Parameter Arg4	
7	Parameter Arg5	
8	Parameter Arg6	
9	Parameter Arg7	

Table 1: Port Assignment Summary

The various types of effects are summarized in the following table.

Effect Name	Effect Value Range	Description	Parameters
Colour Wipe	10 - 19	End-to-end wipe from previous colour (black is initial colour) to newly selected colour.	Arg1 (**red**) Arg2 (**green**) Arg3 (**blue**) Affected by the **Delay** setting.
Rainbow	20 - 29	Wipe in a rainbow pattern.	Only affected by the **Delay** setting.
Rainbow Cycle	30 - 39	Lengthwise rolling rainbow pattern.	Only affected by the **Delay** setting.
Theatre Chase	40 - 49	Theatre marquis-style motion.	Arg1 (**red**) Arg2 (**green**) Arg3 (**blue**) Affected by the **Delay** setting.
Theatre Chase Rainbow	50 - 59	Theatre marquis-style motion with gradual colour change spanning the rainbow.	Only affected by the **Delay** setting.

Water and Embers	60 - 69	Undulating colour variation effect that can be used to simulate wavy waters or glowing embers.	Arg1 (**red** range **low** setting)
			Arg2 (**green** range **low** setting)
			Arg3 (**blue** range **low** setting)
			Arg4 (**red** range **high** setting)
			Arg5 (**green** range **high** setting)
			Arg6 (**blue** range **high** setting)
			Arg7 (**rate** of colour changes)
			Affected by the **Delay** setting.
			
			Suggested settings:
			• For wavy waters:
			  • Red range: 0 – 0
			  • Green range: 140 – 170
			  • Blue range: 50 – 60
			  • Depth: 25
			  • Delay: 3
			• For glowing embers:
			  • Red range: 100 - 255
			  • Green range: 20 – 30
			  • Blue range: 0 – 3
			  • Depth: 5
			  • Delay: 3

Effect Name	Effect Value Range	Description	Parameters
Twinkle	70 - 79	Bright white twinkles on a selected background colour.	Arg1 (**red**) Arg2 (**green**) Arg3 (**blue**) Arg4 (**min** delay x 10 between twinkles) Arg5 (**max** delay x 10 between twinkles) Arg6 (max **number** of pixels that can twinkle simultaneously) Arg7 (**hold** time for a twinkle, in milliseconds) (The normal Delay range settings have no affect.)

Table 2: Effects Settings Summary