

Ultamation UC-DMX-210 Controller Profile

Revision: 1.0.4

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Notes

This document describes the interface profile for the UC-DMX-210 controller. The profile defines the parameters and supported features that should be used in conjunction with the generic protocol document.

Addressing

The UC-DMX-210 Controller is addressed at 0x0000.

This provides access to the individual channel data and the 2 “live” pattern generators.

Controller Parameters (Address 0x0000)

Parameter Definition

Param	Description	Type	R/W/F
0x0001	DMX Channel 1	n*(ASCII HEX 2)	R/W
..			
0x0200	DMX Channel 512	n*(ASCII HEX 2)	R/W
		Read request take a single ASCII HEX 4 value to indicate how many channels to return	

Special Functions

0x1000	Channel Fill Any data that overwrites a running pattern will result in that pattern being stopped.	ASCII HEX 4 start ASCII HEX 4 end n*(ASCII HEX 2) Channel data to repeat	W
0x1003	Fade Each fade is limited to 5 channels, Limited to 58 concurrent fades.	ASCII HEX 4 start ASCII HEX 8 time(ms) n*(ASCII HEX 2) Channel data to fade to	W
0x1004	Fade Stop	ASCII HEX 4 start	W
0x1012	Read and return pattern from NVRAM	See detail	R

Pattern Generators

0x1100-0x11FF	Pattern Generator 1 (see detail below)
0x1200-0x12FF	Pattern Generator 2

Pattern Generator Definitions

Param	Description	Type	R/W
0x1p01	Run/Stop	ASCII BOOL	R/W
0x1p02	Name (15 char max)	STRING	R/W
0x1p03	Rate (signed)	ASCII HEX 4	R/W
0x1p04	Channel Start/End/Step (1 base)	2*(ASCII HEX 4)+ASCII HEX 2	R/W
0x1p05	Pattern Span	ASCII HEX 4	R/W
0x1p06	Sequence Step Count	ASCII HEX 4	R/W
0x1p07	Sequence Relative Position	ASCII HEX 4	R/W
0x1p08	Snap Mode	ASCII BOOL	R/W
0x1p09	Bounce Mode Buggy in normal mode	ASCII BOOL	R/W
0x1p0A	Sequence Channel 1 Data (e.g. Red)	n*(ASCII HEX 2)	R/W
0x1p0B	Sequence Channel 2 Data (e.g. Green)	n*(ASCII HEX 2)	R/W
0x1p0C	Sequence Channel 3 Data (e.g. Blue)	n*(ASCII HEX 2)	R/W
0x1p0E	One Shot Mode Not yet implemented	ASCII BOOL	R/W
0x1p0F	Load Pattern from NVRAM (Pattern Store Slot 1-255) and optional Run, Stop or leave unchanged. A further optional parameter allows the channel start, end and step parameters to be overridden.	ASCII HEX 2 [CHAR 'R' 'S' 'U'] [ASCII HEX 4 ASCII HEX 4 ASCII HEX 2]	W
0x1p10	Store Pattern to NVRAM	ASCII HEX 2 (Slot)	W
0x1p11	Stop Pattern and set all channels to '0'	n/a	W
0x1p12	Read/Write Complete Pattern	See detail	R/W

Where p=pattern number

ASCII BOOL '0' or '1'

ASCII HEX 2 '00' – 'FF'

ASCII HEX 4 '0000' – 'FFFF'

ASCII HEX 8 '00000000' – 'FFFFFFFF'

Fade Command

This is a special command to allow smooth transitions across a range of channels to a new setting.

The channels selected will fade from their current values to the values we for the duration determined by rate.

An example, fading the 3 channel light located at the 100th channel (so the 33rd light in our case) from the colour it was when it started to rgb(0,40,255), over the span of 1 second.

S:0000:1003:0012:0001000003E80030FF

Breaking this down, we have:

S - SET

0000 - The device address

1003 - The fade function

0012 - The payload length (18 characters) - 4 for the start address, 8 for the fade time and then 6 for the number of channels (need 6 to change 3 channels).

0064 - The start channel address (100 decimal => 64 hex)

000003E8 - The rate you want the fade to be in milliseconds, in this case the fade will last a second (1000 decimal => 03E8 hex)

0040FF - The channel data you wish the selected light to fade to (0 => 00, 64 => 40, 255 => FF). This can be 2-10 Hex characters, depending on how many channels you need the light to fade to (1-5 Channels).

DATASHEET



Read/Write pattern definition from/to NVRAM (0x100F)

When reading a pattern, the message will take the following form (using the GET command):

Char(s)	Description	Type
00	Pattern Slot (1-255)	ASCII HEX 2

And will return

Char(s)	Description	Type
00	Pattern Slot (1-255)	ASCII HEX 2
02-17	Pattern name (null padded, max 16)	STRING[16]
18	Run on/off	ASCII BOOL
19	Snap on/off	ASCII BOOL
20	Bounce on/off	ASCII BOOL
21	One Shot on/off	ASCII BOOL
22-25	Rate	ASCII HEX 4
26-29	Position	ASCII HEX 4
30-33	Channel Start (1-512)	ASCII HEX 4
34-37	Channel End (1-512)	ASCII HEX 4
38-39	Channel Step (1-255)	ASCII HEX 2
40-42	Overlay/Pattern Operation (Deprecated)	STRING[3]
45-46	Steps	ASCII HEX 2
47-78	Step data (Ch1)	16*ASCII HEX 2
79-110	Step data (Ch2)	16*ASCII HEX 2
111-142	Step data (Ch3)	16*ASCII HEX 2
143	Pattern is valid	ASCII BOOL

When writing the pattern, the return form (as above) should be issued using the SET command, and the "Valid" Boolean is optional and ignored. The board will respond with acknowledge.