

DMX PLAYBACK MK2 RS232 API

Version	2.0
Last Revision:	09/01/17
Status:	Public Protocol

Overview:

This document defines the Serial communications protocol between the host (any RS232 compatible device) and the ENTTEC DMX Playback MK2 (Part No. 70014).

Operation:

Either use the included RS232 cable, or a FTDI chip based USB to RS232 converter for best results.

RS232 connection details: 9600 baud rate, no handshaking, 1 stop bit, no parity.

To test if the connection is good, please issue **V** command, and the unit will reply with the version information in text. An un-supported or bad command will result in error: **?**

SUPPORTED RS232 COMMANDS

<i>Code</i>	<i>Name</i>	<i>Type</i>	<i>Description</i>
V	Version	ASCII	Returns Firmware Version of the unit
H	Show	ASCII	Control Show(s) within the unit
L	Load Scene	HEX	Load Scene to the DMX Output
F	Fade Scene	HEX	Fade between Two Scenes
S	Set DMX	HEX	Set DMX Properties for sending DMX output
X	DMX Buffer	HEX	Update DMX Buffer
R	Baud rate	ASCII	Set a different baud rate for RS232 communication.

Please note: Each command (ASCII or HEX), must be sent in correct order and size (1 byte per Label). More details on sending commands can be found at the end of this document.

Version

V Command

This command will return a string representing the version information of the unit. Useful for testing your RS232 connection between the unit and your RS232 system.

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>Description</i>
1	V	1	ASCII	Version Command

Result:

DPBMk2 V0.9

Select Show

Select Show Command

This command will select the show to run, HA is the first show HB the second and so on.

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>Description</i>
1	H	1	ASCII	Show Command
2	<show_id>	1	ASCII	Show ID Valid Show ID values are: A to Z

To run a different show you must first stop the current show, set the show to run and then start the show again. See examples ahead.

Control Show

Control Show Command

This command is used to start or stop a show and set the show to run.

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>Description</i>
1	H	1	ASCII	Show Command
2	<control>	1	ASCII	Show Control option Valid Show Control values are: 0: Stop Show 1: Start Show 2: Get current show

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>Description</i>
				3: Start Show with loop times

Examples:

Select Show to Run

This command will set the show to run, HA is the first show HB the second and so on.

To run a different show you must first stop the current show, set the show to run and then start the show again.

To run show C you would send the following commands (one after another):

H1 Stops the current show

HC Select Show C

H0 Starts selected show

To get current running show

H2

Result: if a show is running, the device will return the letter of the corresponding show

If no show is running 0 (zero) will be returned

Start Show

H0

If no show is selected this will have no effect

Result:

! = OK

? = Command error or not understood

Stop Show

H1

Result:

! = OK

? = Command error or not understood

Load Scene

This command is used to Load a selected scene to the DMX output/memory.

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>HEX</i>	<i>Description</i>
1	L	1	HEX	0x4C	Load Scene Command
2	x	1	HEX	0x00	Destination memory page. Use 0 for DMX Transmit Use 1 for Next Scene
3	y	1	HEX	0x41	Source show (A to Z) valid values: 0x41 to 0x5A
4	z	2	HEX	0x00 0x00	Scene Index. (Starts from 0) Sent as 2 bytes always. MSB First

Examples:

Load Scene Index 4 from Show A to DMX output

This command will load the specified Scene to DMX output (memory page 0).

0x4C 0x00 0x41 0x00 0x03

Result:

! = OK

? = Command error or not understood

Load Scene Index 21 from Show C to Next Scene

This command will load the specified Scene to Next Scene (memory page 1)

0x4C 0x01 0x43 0x00 0x20

Result:

! = OK

? = Command error or not understood

Fade Scene

This command is used to Load a selected scene to the DMX output/memory.

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>HEX</i>	<i>Description</i>
1	F	1	HEX	0x46	Load Scene Command
2	x	1	HEX	0x30	Fade Start Memory. Always use 0x30 (DMX Transmit)
3	y	1	HEX	0x31	Fade End Memory. Always use 0x31 (Next Scene)
4	n	2	HEX	0x00 0x00	Fade Time in 1/10 th of a second. Sent as two bytes

Examples:

Fade Scene from 0 to 1 in 3.2 seconds

This command will fade the specified Scenes from Memory pages.

0x46 0x30 0x31 0x00 0x20

Result:

! = OK

? = Command error or not understood

Load Two Scenes from Show A and Fade between them

HA

Select Show A (optional)

0x4C 0x00 0x41 0x00 0x00

Load Scene 1 from A to DMX Out

0x4C 0x01 0x41 0x00 0x01

Load Scene 2 from A to Next Scene

0x46 0x30 0x31 0x00 0x32

Fade between 2 scenes for 5 seconds (50 = 0x32)

Set DMX Command

Modify the DMX512 TX parameters

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>HEX</i>	<i>Description</i>
1	S	1	HEX	0x53	Set DMX properties
2	<property>	1	HEX	0x30	accepts the following properties: 1: Stop DMX (0x31) 2: Start DMX (0x32) 3: Set Start DMX buffer (0x33)

Examples:

S1 Stop DMX

0x53 0x31

S2 Start DMX

0x53 0x32

S3 Set Start DMX buffer

0x53 0x33 0x00 ...

511 bytes to follow

Result:

! = OK after each data byte

Update DMX Buffer

This command must be used to update the DMX TX buffer and read the DMX RX buffer

Page 0 is the default DMX TX page.

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>HEX</i>	<i>Description</i>
1	X	1	HEX	0x58	Update DMX Buffer
2	<property>	1	HEX	0x30	accepts the following properties: 0: Write DMX buffer page (0x30) 4: Write One byte to DMX buffer (0x34)
3	y	2 or 512	HEX	0x00	DMX Data (512 bytes) – used with X0 only DMX Channel address – used with X4 only
4	z	1	HEX	0x00	DMX Value – used with X4 only

Examples:

X0 Update DMX Buffer

0x58 0x30 0x00 ...

511 bytes to follow

Result:

! = OK after each data byte

X4 Write 1 Byte (32) to Channel 4

0x58 0x34 0x00 0x03 0x20

Result:

! = OK

? = Error. Value not accepted or bad channel.

Set RS232 Baudrate

This command will set the RS232 communications protocol parameters

Warning: After a communications speed change, the result code will be returned at the new speed.

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>Description</i>
1	R	1	ASCII	Set RS232 Baudrate command
2	<n>	1	ASCII	accepts the following rates: n = A set the speed to 230400 bauds n = B set the speed to 115200 bauds n = C set the speed to 57600 bauds n = D set the speed to 28800 bauds n = E set the speed to 14400 bauds n = F set the speed to 7200 bauds n = G set the speed to 3600 bauds n = H set the speed to 1800 bauds n = I set the speed to 76800 bauds n = J set the speed to 38400 bauds n = K set the speed to 19.2 bauds n = L set the speed to 9600 bauds (default) n = M set the speed to 4800 bauds n = N set the speed to 2400 bauds

<i>Field</i>	<i>Command</i>	<i>Size</i>	<i>Type</i>	<i>Description</i>
				n = O set the speed to 1200 bauds n = P set the speed to 600 bauds

The unit will return the Result code 3 times.

It is strongly recommended to work at the highest possible speed. On low communication speeds the DMX TX may be paused for long periods while downloading buffers.

Examples:

Set the RS232 baud rate to 115200

RB

Result:

! = OK

Sending RS232 Commands from PC

ENTTEC recommends the use of a capable Terminal program, such as Tera-Term, that allows sending of commands in correct format (HEX or ASCII).

Download Tera-Term (Open source software):

<https://en.osdn.jp/projects/ttssh2/releases/>

- Make the connection to the COM Port. (Baudrate=9600)
- Type **V** in the terminal. You should see the version string instantly as a reply
- To send ASCII commands, you can just type the characters one after the other.
- No need to press Enter at any time.
- To send HEX commands, use the Macro feature (Control -> Macro)
- Sample HEX commands are available as Macro files ([download here](#))
- Simply open the macro files in a text editor to change the values as needed
- Follow the same procedure with another RS232 System, just make sure each value is sent as 1 byte and in correct format.