



Dream Link Ltd.

USB LED Message Board

Developer Manual v1.0

Created by : Alvin Wong
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Change Notes

Version	Dates	Descriptions
v1.0	12 Nov, 2008	First Release

1 INTRODUCTION

This product consists of a USB Device with a 21x7 LED Matrix.



2 TECHNICAL INFORMATION

2.1 USB Descriptor Information

The product is accessed through USB Human Interface Device (HID). To use the device, simply enumerate the USB device and find the device with the following VID and PID.

Name	Value
Vendor ID	0x1D34
Product ID	0x0013
Manufacturer String	Dream Link
Product String	USB LED Message Board v1.0
Version	0x01
Serial Number	1

2.2 LED Configuration

There are 21x7 LEDs on the message board. We configure the LED as follows:

Column	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Row 1																					
Row 2																					
Row 3																					
Row 4																					
Row 5																					
Row 6																					
Row 7																					

2.3 USB Packets

The USB report has the size of 8 bytes. The packets are defined in the following format.

Byte	0	1	2	3	4	5	6	7
Description	Brightness	Row #	1 st row Data	1 st row Data	1 st row Data	2 nd row Data	2 nd row Data	2 nd row Data

Remarks:

- a. The value of brightness ranged from 0 to 2. 0 is the maximum brightness.
- b. The row number should be 0, 2, 4, 6.
- c. As each packet contains two rows' data, so the packet with Row # = 0 includes the data from Row 1 and Row 2.
- d. The LED will turn on shortly after receiving the packet. So the software should keep refreshing the device.
- e. For row data, 1=off and 0=on.

2.3.1 Row Data

For each two rows, the data are stored as follows:

LED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
row/bit	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	byte 4							byte 3							byte 2							1	1	1
2	byte 7							byte 6							byte 5							1	1	1

2.3.2 Examples

Assume the following pattern is to be displayed:

Column	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U		
Row 1									x														
Row 2								x		x													
Row 3							x				x												
Row 4						x						x											
Row 5							x				x												
Row 6								x		x													
Row 7									x														

We need to send the following packets to the device:

Packet\Byte	0	1	2	3	4	5	6	7
0	0x00	0x00	0xFF	0xFE	0xFF	0xFF	0xFD	0x7F
1	0x00	0x02	0xFF	0xFB	0xBF	0xFF	0xF7	0xDF
2	0x00	0x04	0xFF	0xFB	0xBF	0xFF	0xFD	0x7F
3	0x00	0x06	0xFF	0xFE	0xFF	/	/	/

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