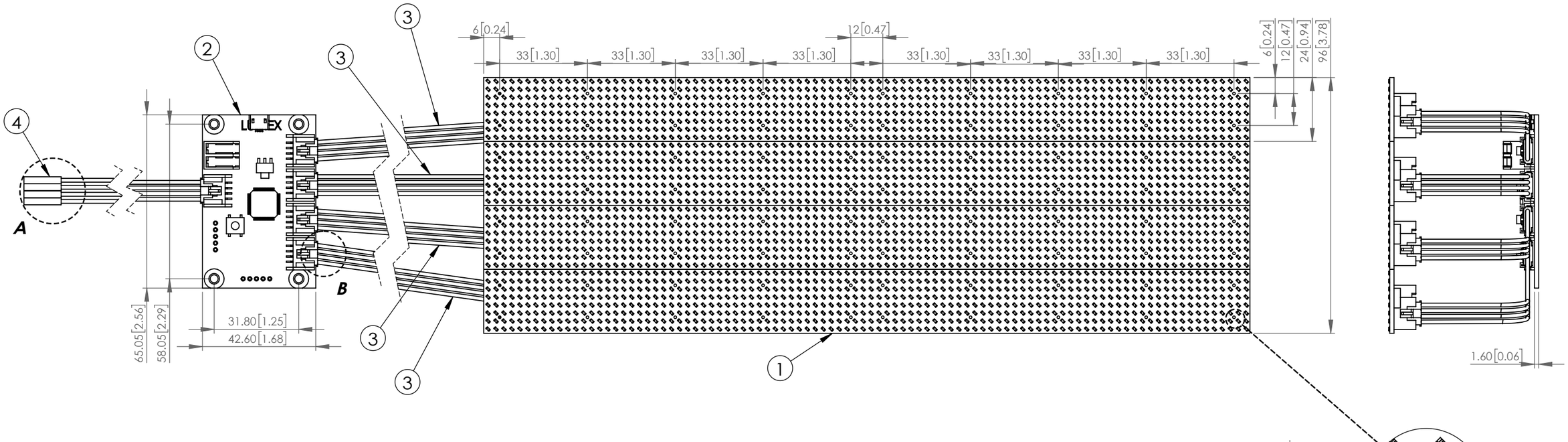
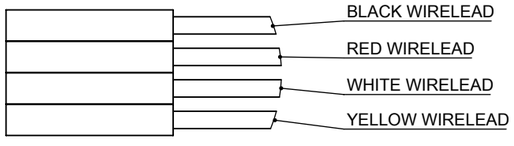
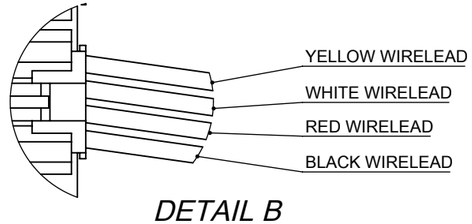
PART NUMBER	LDM-768-1LT-X4	REV.	--



DETAIL C



DETAIL A



DETAIL B

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= $^{+\text{DECIMAL PRECISION}}_{-0.00}$ MAX.= $^{+0.00}_{-\text{DECIMAL PRECISION}}$

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96 * 32 PIXELS, PCB WITH 768 PCS LEDS * 4

****THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.****

DATE : 2016/09/28	DRAWN BY : E.C.
PAGE : 1 OF 10	CHKD BY : K.C.
SCALE : NTF	APRVD BY : R.C.
UNIT : mm [INCH]	Pb

BOM :

P/N	ITEM	COMPONENT	QTY
LDM-768-1LT-X4	1	LDM-768-1LT-X4-PCB	1
	2	LDM-768-4LT	1
	3	WIRE001	4
	4	WIRE002	1

P/N INFORMATION :

PART NUMBER	COLOR
LDM-768-1LT-G4	GREEN
LDM-768-1LT-Y4	YELLOW
LDM-768-1LT-R4	RED

WIRELEAD DEFINITION :

COLOR	DEFINITION
YELLOW	TX1
WHITE	RX1
RED	5V
BLACK	GND

LOAD CURRENT & POWER CONSUMPTION WITH ALL LED ON :

Current consumptiom	GREEN	YELLOW	RED	UNIT	GREEN	YELLOW	RED	UNIT
All LEDs off	113	113	113	mA	0.6	0.6	0.6	W
Diming level 0	625	1321	1345	mA	3.1	6.6	6.7	W
Diming level 1	1025	1793	1873	mA	5.1	9.0	9.4	W
Diming level 2	1393	2313	2473	mA	7.0	11.6	12.4	W
Diming level 3	1793	2793	2953	mA	9.0	14.0	14.8	W
Diming level 4	2153	3273	3433	mA	10.8	16.4	17.2	W
Diming level 5	2553	3713	3913	mA	12.8	18.6	19.6	W
Diming level 6	2873	4113	4353	mA	14.4	20.6	21.8	W
Diming level 7	3273	4553	4833	mA	16.4	22.8	24.2	W
Diming level 8	3593	4913	5273	mA	18.0	24.6	26.4	W
Diming level 9	3913	5353	5673	mA	19.6	26.8	28.4	W
Diming level 10	4153	5673	6073	mA	20.8	28.4	30.4	W
Diming level 11	4573	6073	6473	mA	22.9	30.4	32.4	W

UART CONFIGURATION :

ITEM	SETTING VALUE
BAUD RAT	115200
DATA BIT	8
STOP BIT	1
PARITY BIT	NONE
FLOW CONTROL	NONE

LED ELECTRO-OPTICAL CHARACTERISTICS TA =25° :

PARAMETER		MIN	TYP	MAX	UNITS	TEST COND
GREEN LED	PEAK WAVELENGTH		525		nm	If=20mA
	FORWARD VOLTAGE	2.7	3.3	3.7	Vf	If=20mA
	REVERSE VOLTAGE			5.0	Vr	Ir=20uA
	LUMINOUS INTENSITY	140		450	mcd	If=20mA
	VIEWING ANGLE		120		2x theta1/2	If=20mA
	EMITTED COLOR	GREEN				
	EPOXY LENS FINISH	WATER CLEAR				
YELLOW LED	PEAK WAVELENGTH		591		nm	If=20mA
	FORWARD VOLTAGE	1.7	2.0	2.4	Vf	If=20mA
	REVERSE VOLTAGE			5.0	Vr	Ir=20uA
	LUMINOUS INTENSITY	16	40		mcd	If=20mA
	VIEWING ANGLE		100		2x theta1/2	If=20mA
	EMITTED COLOR	YELLOW				
	EPOXY LENS FINISH	WATER CLEAR				
RED LED	PEAK WAVELENGTH		632		nm	If=20mA
	FORWARD VOLTAGE	1.7	2.0	2.4	Vf	If=20mA
	REVERSE VOLTAGE			5.0	Vr	Ir=20uA
	LUMINOUS INTENSITY	37	56		mcd	If=20mA
	VIEWING ANGLE		100		2x theta1/2	If=20mA
	EMITTED COLOR	RED				
	EPOXY LENS FINISH	WATER CLEAR				

LED LIMITS OF SAFE OPERATION AT 25° :

PARAMETER		MAX	UNITS
GREEN LED	PEAK FORWARD CURRENT	100	mA
	FORWARD CURRENT	25	mA
	POWER DISSIPATION	95	mW
	ELECTROSTATIC DISCHARGE	150	V
	OPERATING TEMP	-40~+85	°C
	STORAGE TEMP	-40~+90	°C
	SOLDERING TEMP	MAX +260°C @3 SEC	
YELLOW LED	PEAK FORWARD CURRENT	60	mA
	FORWARD CURRENT	25	mA
	POWER DISSIPATION	60	mW
	ELECTROSTATIC DISCHARGE	2000	V
	OPERATING TEMP	-40~+85	°C
	STORAGE TEMP	-40~+90	°C
	SOLDERING TEMP	MAX +260°C @3 SEC	
RED LED	PEAK FORWARD CURRENT	60	mA
	FORWARD CURRENT	25	mA
	ELECTROSTATIC DISCHARGE	2000	V
	POWER DISSIPATION	60	mW
	OPERATING TEMP	-40~+85	°C
	STORAGE TEMP	-40~+90	°C
	SOLDERING TEMP	MAX +260°C @3 SEC	

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= $^{+\text{DECIMAL PRECISION}}_{-0.00}$ MAX.= $^{+0.00}_{-\text{DECIMAL PRECISION}}$

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96 * 32 PIXELS, PCB WITH 768 PCS LEDS * 4

DATE : 2016/09/28	DRAWN BY : E.C.
PAGE : 2 OF 10	CHKD BY : K.C.
SCALE : NTF	APRVD BY : R.C.
UNIT : mm [INCH]	Pb

```
void Write_AT_Command(char *string)
{
  Serial.print(string);
  while (Serial.read() != 'E') {}
  delay(2);
}
```

COMMAND LIST :

Code	Function	Instruction of AT Command mode	API for Arduino	API of using Write_AT_Command() subroutine above

N/A	Sent a image(192X64 bitmap) to LED Display (An array consist of 1536 bytes bitmap information)	1. A ""for"" loop to send 1536 bytes user define display information
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			for (i = 0 ; i < 1536; i++)
			{
			Serial.write(User_define_array[i]);
			}
			while (Serial.read() !='E') {}
			delay(2);	

0x80	Write a 5X7 Character	1. AT80=(line,column,Character)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT80=(0,0,A)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT80=(0,0,A)")

0x81	Write a 8X8 String	1.AT81=(line,column,String)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT81=(0,0,ABCD1234)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT81=(0,0,ABCD1234)")

0x82	Write a 8X16 Character	1.AT82=(line,column,Character)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT82=(0,0,A)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT82=(0,0,A)")

0x83	Write a 8X16 String	1.AT83=(line,column,String)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT83=(0,0,ABCD1234)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT83=(0,0,ABCD1234)")

0x84	Dsiplay a 8X8 pattern	1. AT84=(X position,Y position,pattern ID)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT84=(16,32,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT84=(16,32,1)")

0x85	Dsiplay a 8X16 pattern	1.AT85=(X position,Y position,pattern ID)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT85=(16,32,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT85=(16,32,1)")

0x86	Dsiplay a 16X16 pattern	1. AT86=(X position,Y position,pattern ID)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT86=(16,32,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT86=(16,32,1)")

0x87	Dsiplay a 32X32 pattern	1. AT87=(X position,Y position,pattern ID)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT87=(16,32,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT87=(16,32,1)")

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Code	Function	Instruction of AT Command mode	API for Arduino	API of using Write_AT_Command() subroutine above

0x90	Draw a line	1. AT90=(X0 position,Y0 position,X1 position,Y1 position,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT90=(0,0,127,63,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT90=(0,0,127,63,1)")

0x91	Draw a Rectangle	1. AT91=(X0 position,Y0 position,X1 position,Y1 position,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT91=(10,10,100,49,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT91=(10,10,100,49,1)")

0x92	Draw a filled Rectangle	1. AT92=(X0 position,Y0 position,X1 position,Y1 position,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT92=(10,10,100,49,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT92=(10,10,100,49,1)")

0x93	Draw a Square	1. AT93=(X position,Y position,Width,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT93=(8,10,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT93=(8,10,30,1)")

0x94	Draw a Circle	1. AT94=(X position,Y position,Radius,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT94(64,32,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT94(64,32,30,1)")

0x95	Draw a filled Circle	1. AT95=(X position,Y position,Radius,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT95=(64,32,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT95=(64,32,30,1)")

0x96	Draw a tip upward Triangle	1. AT96=(X position,Y position,Height,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT96=(64,10,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT96=(64,10,30,1)")

0x97	Draw a filled tip upward Triangle	1. AT97=(X position,Y position,Height,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT97=(64,10,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT97=(64,10,30,1)")

0x98	Draw a tip downward Triangle	1. AT98=(X position,Y position,Height,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT98=(64,50,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT98=(64,50,30,1)")

0x99	Draw a filled tip downward Triangle	1. AT99=(X position,Y position,Height,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT99=(64,50,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT99=(64,50,30,1)")

0x9a	Draw a tip leftward Triangle	1. AT9a=(X position,Y position,Width,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT9a=(16,32,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT9a=(16,32,30,1)")

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Code	Function	Instruction of AT Command mode	API for Arduino	API of using Write_AT_Command() subroutine above

0x9b	Draw a filled tip leftward Triangle	1. AT9b=(X position,Y position,Width,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT9b=(16,32,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT9b=(16,32,30,1)")

0x9c	Draw a tip rightward Triangle	1. AT9c=(X position,Y position,Width,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT9c=(120,32,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT9c=(120,32,30,1)")

0x9d	Draw a filled tip rightward Triangle	1. AT9d=(X position,Y position,Width,0 or 1)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT9d=(120,32,30,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT9d=(120,32,30,1)")

0x9e	Set a pixel for positive display (show pixel)	1. AT9e=(X position,Y position)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT9e=(120,32)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT9e=(120,32)")

0x9f	Set a pixel for negative display (clear pixel)	1. AT9f=(X position,Y position)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("AT9f=(120,32)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("AT9f=(120,32)")

0xa0	Display image row by row Up Ward	1. ATa0=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa0=(20)")
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa0=(20)")

0xa1	Display image row by row Down Ward	1. ATa1=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa1=(20)")
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa1=(20)")

0xa2	Display image column by column Left Ward	1. ATa2=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa2=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa2=(20)")

0xa3	Display image column by column Right Ward	1. ATa3=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa3=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa3=(20)")

0xa4	Erase image row by row Up Ward	1. ATa4=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa4=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa4=(20)")

0xa5	Erase image row by row Down Ward	1. ATa5=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa5=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa5=(20)")

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Code	Function	Instruction of AT Command mode	API for Arduino	API of using Write_AT_Command() subroutine above

0xa6	Erase image column by column Left Ward	1. ATa6=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa6=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa6=(20)")

0xa7	Erase image column by column Right Ward	1. ATa7=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa7=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa7=(20)")

0xa8	Display image Inside Out	1. ATa8=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa8=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa8=(20)")

0xa9	Display image Outside In	1. ATa9=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATa9=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATa9=(20)")

0xaa	Erase image Inside Out	1. ATaa=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATaa=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATaa=(20)")

0xab	Erase image Outside In	1. ATab=(Speed in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATab=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATab=(20)")

0xd0	Clear display	1. ATd0=()
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd0=()");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd0=()")

0xd1	Show the data in the display memory	1. ATd1=()
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd1=()");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd1=()")

0xd2	Scroll the whole display upward	1. ATd2=(shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd2=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd2=(20)")

0xd3	Scroll the whole display downward	1. ATd3=(shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd3=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd3=(20)")

0xd4	Scroll the whole display leftward	1. ATd4=(shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd4=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd4=(20)")

Code	Function	Instruction of AT Command mode	API for Arduino	API of using Write_AT_Command() subroutine above

0xd5	Scroll the whole display rightward	1. ATd5=(shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd5=(20)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd5=(20)")

0xd6	Scroll the section display upward	1. ATd6=(X0 position,Y0 position,X1 position,Y1 position, shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd6=(10,16,120,50,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd6=(10,16,120,50,1)")

0xd7	Scroll the section display downward	1. ATd7=(X0 position,Y0 position,X1 position,Y1 position, shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd7=(10,16,120,50,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd7=(10,16,120,50,1)")

0xd8	Scroll the section display leftward	1. ATd8=(X0 position,Y0 position,X1 position,Y1 position, shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd8=(10,16,120,50,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd8=(10,16,120,50,1)")

0xd9	Scroll the section display rightward	1. ATd9=(X0 position,Y0 position,X1 position,Y1 position, shif time in ms)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATd9=(10,16,120,50,1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATd9=(10,16,120,50,1)")

0xda	Display quarter of display memory
	(Available for Mode0, 1, and 2 only)
		1. ATda=(Quadrant 0~3)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATda=(1)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATda=(1)")

0xf0	Turn display Off	1. ATf0=()
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATf0=()");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATf0=()")

0xf1	Turn display On	1. ATf1=()
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATf1=()");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATf1=()")

0xf2	Set the brightness of the LED Module	1. ATf2=(levele of brightness 0~11)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATf2=(5)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATf2=(5)")

0xf3	Inverse image	1. ATf3=()
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATf3=()");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATf3=()")

0xf6	Change Instruction mode
	(0 for Hex Coammand, 1 for AT Command)
		1. ATf6=(0)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATf6=(0)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATf6=(0)")

0xf7	Change Display Mode	1. ATf7=(Display Mode)
		2. Wait until receive a module available byte ('E') from LED Display
		3. Wait 2ms
			Serial.print("ATf7=(0)");
			while (Serial.read() !='E') {}
			delay(2);
				Write_AT_Command("ATf7=(0)")

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96 * 32 PIXELS, PCB WITH 768 PCS LEDS * 4

ASCII code of 5X7 fonts and 8X16 fonts

Hex	Symbol	Hex	Symbol	Hex	Symbol
0x20		0x40	@	0x60	`
0x21	!	0x41	A	0x61	a
0x22	"	0x42	B	0x62	b
0x23	#	0x43	C	0x63	c
0x24	$	0x44	D	0x64	d
0x25	%	0x45	E	0x65	e
0x26	&	0x46	F	0x66	f
0x27		0x47	G	0x67	g
0x28	(	0x48	H	0x68	h
0x29	)	0x49	I	0x69	i
0x2a	*	0x4a	J	0x6a	j
0x2b	+	0x4b	K	0x6b	k
0x2c	,	0x4c	L	0x6c	l
0x2d	-	0x4d	M	0x6d	m
0x2e	.	0x4e	N	0x6e	n
0x2f		0x4f	O	0x6f	o
0x30	0	0x50	P	0x70	p
0x31	1	0x51	Q	0x71	q
0x32	2	0x52	R	0x72	r
0x33	3	0x53	S	0x73	s
0x34	4	0x54	T	0x74	t
0x35	5	0x55	U	0x75	u
0x36	6	0x56	V	0x76	v
0x37	7	0x57	W	0x77	w
0x38	8	0x58	X	0x78	x
0x39	9	0x59	Y	0x79	y
0x3a	:	0x5a	Z	0x7a	z
0x3b	;	0x5b	]	0x7a	{
0x3c	<	0x5c	\	0x7a	|
0x3d	=	0x5d	[	0x7a	}
0x3e	>	0x5e	^	0x7a	~
0x3f	?	0x5f	_	0x7a	<-

ASCII code of 16X16 fonts

Hex	Symbol
0x30	0
0x31	1
0x32	2
0x33	3
0x34	4
0x35	5
0x36	6
0x37	7
0x38	8
0x39	9

No. of 8X16 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

No. of 32X32 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	℃
11	℉
12	

No. of 8X8 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

No. of 16X16 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= $^{+\text{DECIMAL PRECISION}}_{-0.00}$ MAX.= $^{+0.00}_{-\text{DECIMAL PRECISION}}$

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96 * 32 PIXELS, PCB WITH 768 PCS LEDS * 4

PART NUMBER	LDM-768-1LT-X4	REV.	--

768 LED MODULE CONFIGURATION MODE :

M0(96X32)

1	M000
2	M001
3	M002
3	M003

M1(192X16)

1	M100	3	M102
2	M101	4	M103

M2(384X8)

1	M200	2	M201	3	M202	4	M203

M3(96X128)

1	M300
1	M301
1	M302
1	M303
2	M304
2	M305
2	M306
2	M307
3	M308
3	M309
3	M310
3	M311
4	M312
4	M313
4	M314
4	M315

M4(192X64)

1	M400	3	M408
1	M401	3	M409
1	M402	3	M410
1	M403	3	M411
2	M404	4	M412
2	M405	4	M413
2	M406	4	M414
2	M407	4	M415

M5(384X32)

1	M500	2	M504	3	M508	4	M512
1	M501	2	M505	3	M509	4	M513
1	M502	2	M506	3	M510	4	M514
1	M503	2	M507	3	M511	4	M515

M6(96X512)

1	M600
1	M601
1	M602
1	M603
1	M604
1	M605
1	M606
1	M607
1	M608
1	M609
1	M610
1	M611
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1	M613
1	M614
1	M615
2	M616
2	M617
2	M618
2	M619
2	M620
2	M621
2	M622
2	M623
2	M624
2	M625
2	M626
2	M627
2	M628
2	M629
2	M630
2	M631
3	M632
3	M633
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4	M656
4	M657
4	M658

M7(192X256)

1	M700	3	M732
1	M701	3	M733
1	M702	3	M734
1	M703	3	M735
1	M704	3	M736
1	M705	3	M737
1	M706	3	M738
1	M707	3	M739
1	M708	3	M740
1	M709	3	M741
1	M710	3	M742
1	M711	3	M743
1	M712	3	M744
1	M713	3	M745
1	M714	3	M746
1	M715	3	M747
2	M716	4	M748
2	M717	4	M749
2	M718	4	M750
2	M719	4	M751
2	M720	4	M752
2	M721	4	M753
2	M722	4	M754
2	M723	4	M755
2	M724	4	M756
2	M725	4	M757
2	M726	4	M758
2	M727	4	M759
2	M728	4	M760
2	M729	4	M761
2	M730	4	M762
2	M731	4	M763

M8(384X128)

1	M800	2	M816	3	M832	4	M848
1	M801	2	M817	3	M833	4	M849
1	M802	2	M818	3	M834	4	M850
1	M803	2	M819	3	M835	4	M851
1	M804	2	M820	3	M836	4	M852
1	M805	2	M821	3	M837	4	M853
1	M806	2	M822	3	M838	4	M854
1	M807	2	M823	3	M839	4	M855
1	M808	2	M824	3	M840	4	M856
1	M809	2	M825	3	M841	4	M857
1	M810	2	M826	3	M842	4	M858
1	M811	2	M827	3	M843	4	M859
1	M812	2	M828	3	M844	4	M860
1	M813	2	M829	3	M845	4	M861
1	M814	2	M830	3	M846	4	M862
1	M815	2	M831	3	M847	4	M863

M9(768X64)

1	M900	1	M908	2	M916	2	M924	3	M932	3	M940	4	M948	4	M956
1	M901	1	M909	2	M917	2	M925	3	M933	3	M941	4	M949	4	M957
1	M902	1	M910	2	M918	2	M926	3	M934	3	M942	4	M950	4	M958
1	M903	1	M911	2	M919	2	M927	3	M935	3	M943	4	M951	4	M959
1	M904	1	M912	2	M920	2	M928	3	M936	3	M944	4	M952	4	M960
1	M905	1	M913	2	M921	2	M929	3	M937	3	M945	4	M953	4	M961
1	M906	1	M914	2	M922	2	M930	3	M938	3	M946	4	M954	4	M962
1	M907	1	M915	2	M923	2	M931	3	M939	3	M947	4	M955	4	M963

M10(1536X32)

1	M1000	1	M1004	1	M1008	1	M1012	2	M1016	2	M1020	2	M1024	2	M1028	3	M1032	3	M1036	3	M1040	3	M1044	4	M1048
1	M1001	1	M1005	1	M1009	1	M1013	2	M1017	2	M1021	2	M1025	2	M1029	3	M1033	3	M1037	3	M1041	3	M1045	4	M1049
1	M1002	1	M1006	1	M1010	1	M1014	2	M1018	2	M1022	2	M1026	2	M1030	3	M1034	3	M1038	3	M1042	3	M1046	4	M1050
1	M1003	1	M1007	1	M1011	1	M1015	2	M1019	2	M1023	2	M1027	2	M1031	3	M1035	3	M1039	3	M1043	3	M1047	4	M1051

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= +DECIMAL PRECISION -0.00 MAX.= +0.00 -DECIMAL PRECISION

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96 * 32 PIXELS, PCB WITH 768 PCS LEDS * 4

DATE :	2016/09/28	DRAWN BY :	E.C.
PAGE :	9 OF 10	CHKD BY :	K.C.
SCALE :	NTF	APRVD BY :	R.C.
UNIT :	mm [INCH]		Pb

768 LED MODULE CONFIGURATION MODE :

M11(768X256)

1	M11000	1	M11016	1	M11032	1	M11048	3	M11128	3	M11144	3	M11160	3	M11176
1	M11001	1	M11017	1	M11033	1	M11049	3	M11129	3	M11145	3	M11161	3	M11177
1	M11002	1	M11018	1	M11034	1	M11050	3	M11130	3	M11146	3	M11162	3	M11178
1	M11003	1	M11019	1	M11035	1	M11051	3	M11131	3	M11147	3	M11163	3	M11179
1	M11004	1	M11020	1	M11036	1	M11052	3	M11132	3	M11148	3	M11164	3	M11180
1	M11005	1	M11021	1	M11037	1	M11053	3	M11133	3	M11149	3	M11165	3	M11181
1	M11006	1	M11022	1	M11038	1	M11054	3	M11134	3	M11150	3	M11166	3	M11182
1	M11007	1	M11023	1	M11039	1	M11055	3	M11135	3	M11151	3	M11167	3	M11183
1	M11008	1	M11024	1	M11040	1	M11056	3	M11136	3	M11152	3	M11168	3	M11184
1	M11009	1	M11025	1	M11041	1	M11057	3	M11137	3	M11153	3	M11169	3	M11185
1	M11010	1	M11026	1	M11042	1	M11058	3	M11138	3	M11154	3	M11170	3	M11186
1	M11011	1	M11027	1	M11043	1	M11059	3	M11139	3	M11155	3	M11171	3	M11187
1	M11012	1	M11028	1	M11044	1	M11060	3	M11140	3	M11156	3	M11172	3	M11188
1	M11013	1	M11029	1	M11045	1	M11061	3	M11141	3	M11157	3	M11173	3	M11189
1	M11014	1	M11030	1	M11046	1	M11062	3	M11142	3	M11158	3	M11174	3	M11190
1	M11015	1	M11031	1	M11047	1	M11063	3	M11143	3	M11159	3	M11175	3	M11191
2	M11064	2	M11080	2	M11096	2	M11112	4	M11192	4	M11208	4	M11224	4	M11240
2	M11065	2	M11081	2	M11097	2	M11113	4	M11193	4	M11209	4	M11225	4	M11241
2	M11066	2	M11082	2	M11098	2	M11114	4	M11194	4	M11210	4	M11226	4	M11242
2	M11067	2	M11083	2	M11099	2	M11115	4	M11195	4	M11211	4	M11227	4	M11243
2	M11068	2	M11084	2	M11100	2	M11116	4	M11196	4	M11212	4	M11228	4	M11244
2	M11069	2	M11085	2	M11101	2	M11117	4	M11197	4	M11213	4	M11229	4	M11245
2	M11070	2	M11086	2	M11102	2	M11118	4	M11198	4	M11214	4	M11230	4	M11246
2	M11071	2	M11087	2	M11103	2	M11119	4	M11199	4	M11215	4	M11231	4	M11247
2	M11072	2	M11088	2	M11104	2	M11120	4	M11200	4	M11216	4	M11232	4	M11248
2	M11073	2	M11089	2	M11105	2	M11121	4	M11201	4	M11217	4	M11233	4	M11249
2	M11074	2	M11090	2	M11106	2	M11122	4	M11202	4	M11218	4	M11234	4	M11250
2	M11075	2	M11091	2	M11107	2	M11123	4	M11203	4	M11219	4	M11235	4	M11251
2	M11076	2	M11092	2	M11108	2	M11124	4	M11204	4	M11220	4	M11236	4	M11252
2	M11077	2	M11093	2	M11109	2	M11125	4	M11205	4	M11221	4	M11237	4	M11253
2	M11078	2	M11094	2	M11110	2	M11126	4	M11206	4	M11222	4	M11238	4	M11254
2	M11079	2	M11095	2	M11111	2	M11127	4	M11207	4	M11223	4	M11239	4	M11255

M12(1536X128)

1	M11000	1	M11016	1	M11032	1	M11048	2	M11064	2	M11080	2	M11096	2	M11112	3	M11128	3	M11144	3	M11160	3	M11176	4	M11192	4	M11208	4	M11224	4	M11240
1	M11001	1	M11017	1	M11033	1	M11049	2	M11065	2	M11081	2	M11097	2	M11113	3	M11129	3	M11145	3	M11161	3	M11177	4	M11193	4	M11209	4	M11225	4	M11241
1	M11002	1	M11018	1	M11034	1	M11050	2	M11066	2	M11082	2	M11098	2	M11114	3	M11130	3	M11146	3	M11162	3	M11178	4	M11194	4	M11210	4	M11226	4	M11242
1	M11003	1	M11019	1	M11035	1	M11051	2	M11067	2	M11083	2	M11099	2	M11115	3	M11131	3	M11147	3	M11163	3	M11179	4	M11195	4	M11211	4	M11227	4	M11243
1	M11004	1	M11020	1	M11036	1	M11052	2	M11068	2	M11084	2	M11100	2	M11116	3	M11132	3	M11148	3	M11164	3	M11180	4	M11196	4	M11212	4	M11228	4	M11244
1	M11005	1	M11021	1	M11037	1	M11053	2	M11069	2	M11085	2	M11101	2	M11117	3	M11133	3	M11149	3	M11165	3	M11181	4	M11197	4	M11213	4	M11229	4	M11245
1	M11006	1	M11022	1	M11038	1	M11054	2	M11070	2	M11086	2	M11102	2	M11118	3	M11134	3	M11150	3	M11166	3	M11182	4	M11198	4	M11214	4	M11230	4	M11246
1	M11007	1	M11023	1	M11039	1	M11055	2	M11071	2	M11087	2	M11103	2	M11119	3	M11135	3	M11151	3	M11167	3	M11183	4	M11199	4	M11215	4	M11231	4	M11247
1	M11008	1	M11024	1	M11040	1	M11056	2	M11072	2	M11088	2	M11104	2	M11120	3	M11136	3	M11152	3	M11168	3	M11184	4	M11200	4	M11216	4	M11232	4	M11248
1	M11009	1	M11025	1	M11041	1	M11057	2	M11073	2	M11089	2	M11105	2	M11121	3	M11137	3	M11153	3	M11169	3	M11185	4	M11201	4	M11217	4	M11233	4	M11249
1	M11010	1	M11026	1	M11042	1	M11058	2	M11074	2	M11090	2	M11106	2	M11122	3	M11138	3	M11154	3	M11170	3	M11186	4	M11202	4	M11218	4	M11234	4	M11250
1	M11011	1	M11027	1	M11043	1	M11059	2	M11075	2	M11091	2	M11107	2	M11123	3	M11139	3	M11155	3	M11171	3	M11187	4	M11203	4	M11219	4	M11235	4	M11251
1	M11012	1	M11028	1	M11044	1	M11060	2	M11076	2	M11092	2	M11108	2	M11124	3	M11140	3	M11156	3	M11172	3	M11188	4	M11204	4	M11220	4	M11236	4	M11252
1	M11013	1	M11029	1	M11045	1	M11061	2	M11077	2	M11093	2	M11109	2	M11125	3	M11141	3	M11157	3	M11173	3	M11189	4	M11205	4	M11221	4	M11237	4	M11253
1	M11014	1	M11030	1	M11046	1	M11062	2	M11078	2	M11094	2	M11110	2	M11126	3	M11142	3	M11158	3	M11174	3	M11190	4	M11206	4	M11222	4	M11238	4	M11254
1	M11015	1	M11031	1	M11047	1	M11063	2	M11079	2	M11095	2	M11111	2	M11127	3	M11143	3	M11159	3	M11175	3	M11191	4	M11207	4	M11223	4	M11239	4	M11255

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= $^{+\text{DECIMAL PRECISION}}_{-0.00}$ MAX.= $^{+0.00}_{-\text{DECIMAL PRECISION}}$

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96 * 32 PIXELS, PCB WITH 768 PCS LEDS * 4

****THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.****

DATE :	2016/09/28	DRAWN BY :	E.C.
PAGE :	10 OF 10	CHKD BY :	K.C.
SCALE :	NTF	APRVD BY :	R.C.
UNIT :	mm [INCH]		Pb