7. Attention:

7.1 The product shall be installed and serviced by the qualified person.

7.2 This product is non-waterproof. Please avoid the sun and rain. When installed outdoors please ensure it is mounted in a water proof enclosure.

7.3 Good heat dissipation will prolong the working life of the controller. Please ensure good ventilation.

7.4 Please check if the output voltage of the LED power supply used comply with the working voltage of the product.

7.5 Please ensure that adequate sized cable is used from the controller to the LED lights to carry the current. Please also ensure that the cable is secured tightly in the connector.

7.6 Ensure all wire connections and polarities are correct before applying power to avoid any damages to the LED lights.

7.7 If a fault occurs, please return the product to your supplier. Do not attempt to fix this product by yourself.

8. Warranty Agreement:

8.1 We provide lifelong technical assistance with this product:

- A 5-year warranty is given from the date of purchase. The warranty is for free repair or replacement if cover manufacturing faults only.
- For faults beyond the 5-year warranty, we reserve the right to charge for time and parts.

8.2 Warranty exclusions below:

- Any man-made damages caused from improper operation, or connecting to excess voltage and overloading.
- The product appears to have excessive physical damage.
- Damage due to natural disasters and force majeure.
- Warranty label, fragile label and unique barcode label have been damaged.
- The product has been replaced by a brand new product.

8.3 Repair or replacement as provided under this warranty is the exclusive remedy to the customer. LTECH shall not be liable for any incidental or consequential damages for breach of any stipulation in this warranty.

8.4 Any amendment or adjustment to this warranty must be approved in writing by LTECH only.

★ This manual only applies to this model. LTECH reserves the right to make changes without prior notice.

LT-200
LED Digital Controller

FC   CE   RoHS   warranty 5 years   ISO9001:2008

LT-200 controls LED with the following compatible ICs: LPD1101/6803/8803/8806, WS2801/2803/2811/2812, UCS1903/1909/1912/2903/6909/6912, TM1804/1809/1812, TLS3001/3002, P9813, D705.

Supporting international standard protocol DMX512/1990 interface, with DMX administration mode to invoke the built-in functions for choosing mode, speed, brightness, types and direction changing by DMX512 console. Furthermore, it has the DMX decoder mode, customers could use DMX512 console to program & control every channel of the LEDs with the compatible ICs listed above. (0-100% dimming range, program any lighting effect required).

Built-in LCD operator display, powerful but simple easy to use. Two ways to adjust modes, speed & brightness either by RF remote or controller itself.

## 1. Product Parameter:

LT-200 LED Digital Controller

Working Voltage:	12Vdc [with a power adapter]	Control Qty:	1024 Pixels
Power Consumption:	<2W	Working Temperature:	-30℃~65℃
Output Signal:	SPI(TTL)	Dimension:	L163×W125×H40mm
3rd Part Port:	DMX512	Package Size:	L269×W129×H46mm
Change Mode:	540 Modes	Weight (G.W):	820g

2. Function Features:

2.1 Built-in a LCD screen, simple to set up parameters.

2.2 Built-in perpetual calendar, real-time display system clock, can be set up to play different programs in any time, Monday to Sunday or holiday.

2.3 540 lighting modes. Such as 7 static color, sync jumping and smooth, color flow, color chasing, smooth flow, meteor trailing, etc.

2.4 Multi-level changing speed, brightness, RGB grey scales adjustment, effect of movement direction, etc.

2.5 Feel free to define many changing modes into a step, 8 independent cycle steps maximum.

2.6 Supporting 2 output ports: green terminals and signal & power combination terminal (load 20A current)

2.7 Support third-party DMX512 interface, it can be realized DMX management mode, invoke controller's most function by DMX console.

2.8 Work as DMX-SPI decoder, using DMX512 console to control every channel and program new changing effect.
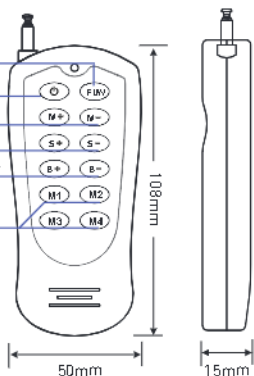
3. Configuration Diagram:
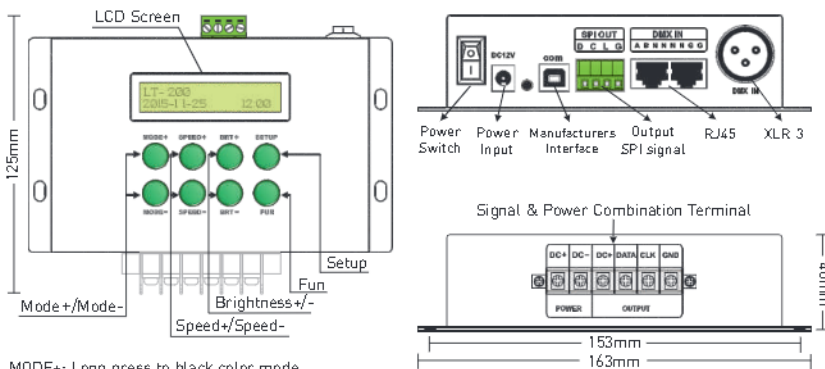
MODE+: Long press to black color mode.
MODE-: Long press to mode 31.
SETUP: Short press to adjust the mode direction. Long press to enter menu setting interface.
FUN: Short press to switch changing type. Long press to ID learning process.

Controller

FUN
Short press: Switch 8 kinds of mode types;
Long press: Switch 4 kinds of mode directions.

On/Off
Mode+/Mode-
Speed+/Speed-
Brightness+/Brightness-

Scene-mode keys
Press 2s to save current color or changing effect

ID Learning Method:

Long press button on the controller for 2 seconds, there is a buzzer beep, keep pressing:

Learning ID:
Press any key on the remote **in 3s.**

Canceling ID:
Press any key on the remote **over 3s.**

Buzzer on/off: Long press "On/Off" button on the remote.

RF Remote Control

4. Operating Instructions:

8 function keys on the controller : MODE+, MODE-, SPEED+, SPEED-, BRT+(brightness), BRT-, SETUP, FUN.

Table of Changing Modes.

No.	Color	Display	No.	Color	Display
1	Black	01 BLA 2017-02-10 12:00	16	Red/Purple	16 R/P FLOAT SPEED :8 BRT :8
2	Red	02 RED FLOAT SPEED :8 BRT :8	17	Green/Yellow	17 G/Y FLOAT SPEED :8 BRT :8
3	Green	03 GRN FLOAT SPEED :8 BRT :8	18	Green/Cyan	18 G/C FLOAT SPEED :8 BRT :8
4	Blue	04 BLU FLOAT SPEED :8 BRT :8	19	Blue/Purple	19 B/P FLOAT SPEED :8 BRT :8
5	Yellow	05 YLW FLOAT SPEED :8 BRT :8	20	Blue/Cyan	20 B/C FLOAT SPEED :8 BRT :8
6	Purple	06 PUR FLOAT SPEED :8 BRT :8	21	Yellow/Purple	21 Y/P FLOAT SPEED :8 BRT :8
7	Cyan	07 CYN FLOAT SPEED :8 BRT :8	22	Yellow/Cyan	22 Y/C FLOAT SPEED :8 BRT :8
8	White	08 WHI FLOAT SPEED :8 BRT :8	23	Purple/Cyan	23 P/C FLOAT SPEED :8 BRT :8
9	Red & White	09 R/W FLOAT SPEED :8 BRT :8	24	Red/Green	24 R/G FLOAT SPEED :8 BRT :8
10	Green/White	10 G/W FLOAT SPEED :8 BRT :8	25	Red/Blue	25 R/B FLOAT SPEED :8 BRT :8
11	Blue/White	11 B/W FLOAT SPEED :8 BRT :8	26	Green/Blue	26 G/B FLOAT SPEED :8 BRT :8
12	Yellow/White	12 Y/W FLOAT SPEED :8 BRT :8	27	Red/Green/ Blue	27 RGB FLOAT SPEED :8 BRT :8
13	Purple/White	13 P/W FLOAT SPEED :8 BRT :8	28	All Color	28 ALL FLOAT SPEED :8 BRT :8
14	Cyan/White	14 C/W FLOAT SPEED :8 BRT :8			
15	Red/Yellow	15 R/Y FLOAT SPEED :8 BRT :8			

1-28 General Modes

[Attn]
How to select 7 static colors:

In the mode 2-8, select Jump type and change the speed in maximum 8 or minimum 1.

For mode 1-28:

Press or FUN to switch 8 mode types: JUMP,
[on controller] [on remote]
FLASH, SMOOTH, FADE, FLOW, CHASE, METEOR, FLOAT.

For mode types FLOW/CHASE/METEOR/FLOAT,
press or long press FUN to switch 4 directions:
[on controller] [on remote]
(↑)forward, (↓)reverse, (↕)close, (↕)split.

Adjust speed by press SPEED+ SPEED- or B+ B-
[on controller] [on remote]

FLOAT SPEED :8 BRT :8

Adjust brightness by press BRT+ BRT- or S+ S-
[on controller] [on remote]

| 29 | DMX decode | 29 DMK DECODE DMK ADDRESS :001 | 30 | DMX mode | 30 DMX MODE |

29~30: DMX512 Control Modes

31	Play1 off	31 PLAY1 OFF 2017-02-15 12:00	35	Play5 off	35 PLAY5 OFF 2017-02-15 12:00
32	Play2 off	32 PLAY2 OFF 2017-02-15 12:00	36	Play6 off	36 PLAY6 OFF 2017-02-15 12:00
33	Play3 off	33 PLAY3 OFF 2017-02-15 12:00	37	Play7 off	37 PLAY7 OFF 2017-02-15 12:00
34	Play4 off	34 PLAY4 OFF 2017-02-15 12:00	38	Play8 off	38 PLAY8 OFF 2017-02-15 12:00

31-38: Automatic Change Modes

| 39 | Play1-Play8 | 39 PLAY1-PLAY8 2017-02-15 12:00 |

39: Automatic Time Running Mode

Press "MODE+" / "MODE-" button to switch modes.

5. "SETUP" Key Instruction:

5.1 In the **mode 1-28**, press ⊙ SETUP button for 3 seconds to enter submenu, see the form below.

NO.	Submenu Function (press mode+/- to switch)	LCD Display	Setting Method
1	Pixel No. option (range: 0032-1024) Pixel width option (04, 08, 16, 32)	PIXEL NUMBER:0032 COLOR PIXEL:　08	Press ⊙SPEED+ ⊙SPEED- to switch items. Press ⊙BRT+ ⊙BRT- to adjust value.
2	Running times adjustment (range: 000-255) (Only work for the modes 31-38)	RUN TIMES:255 000=NOT RUNNING	Press ⊙BRT+ ⊙BRT- to adjust running times.
3	Reset options to default	LOAD DEFAULT SET PRESS BRT+ - KEY	Press ⊙BRT+ ⊙BRT- to restore the default value of the current mode.

Press ⊙SETUP to save and exit submenu.

5.2 In the **mode 29**, press ⊙SETUP button for 3 seconds to enter submenu, see the form below.

Submenu Function	LCD Display	Setting Methods
Set DMX address (range: 001-512) Multiple setting (range: 01-06)	DMX ADDRESS:512 DECODE　Mul:01	Press ⊙SPEED+ ⊙SPEED- to switch items. Press ⊙BRT+ ⊙BRT- to adjust value.

Press ⊙SETUP to save and exit submenu.

5.3 In the **mode 30**, press ⊙SETUP button for 3 seconds to enter submenu, see the form below.

Submenu Function	LCD Display	Setting Methods
Set DMX address (Range: 0-512)	DMX ADDRESS:512	Press ⊙BRT+ ⊙BRT- to adjust value.

Press ⊙SETUP to save and exit submenu.

Table of 29-30 Functional Modes.

Modes	Channel	Function
29 DMX Decoder Mode	1st channel	0-255(R) : Red LED 0-100% dimming
	2nd channel	0-255(G) : Green LED 0-100% dimming
	3rd channel	0-255(B) : Blue LED 0-100% dimming
30 DMX Manage Mode	1st channel	0-255: Select 1-29 modes, 256(0-255) values divided into 32 portion (8 value per portion). The 29th mode occupy 4 portions (32 value).
		When 1st channel select the 1-28 modes / When 1st channel select 29 mode
	2nd channel : Speed (8 levels).	2nd channel 0-255(R) : Red LED 0-100% dimming
	3rd channel : Brightness (8 levels).	3rd channel 0-255 (G): Green LED 0-100% dimming.
	4th channel : Mode type	4th channel 0-255 (B): Blue LED 0-100% dimming.
	5th channel : Direction changing	———————
	6th channel : Dynamic strobe	———————

【Note】 • The above changes by the DMX console are shown on the LCD screen accordingly.
• (⇓) This sign on the screen indicates console signal.

30 DMX MODE ⇓
P.W FADE　　S3B3

5.4 In the **mode 31-38**, press ⊙SETUP button for 3 seconds to enter submenu, see the form below.

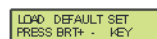| NO.	Submenu Function (Press MODE+/- to switch)	LCD Display	Setting Methods
1	Setting switch state	31 PLAY1 OFF OPEN1　　SAVE1	Press ⊙SPEED+ ⊙SPEED- to switch items.　OFF OPEN1 SAVE1 Press ⊙BRT+ ⊙BRT- to switch 2 options: ON/OFF. Select "ON" to 39 automatic time running mode. OFF OPEN1 SAVE1 Load 31-38 modes to 1-28 modes. press ⊙BRT+ ⊙BRT- to confirm.　Save 1-28 modes to 31-38 modes. press ⊙BRT+ ⊙BRT- to confirm.
2	Setting operation week	RUN WEEK:MTWTFSS TIME:18:00-06:00	Press ⊙SPEED+ ⊙SPEED- to switch items.　MTWTFSS (day of the week) 00:00-00:00 (time) Press ⊙BRT+ ⊙BRT- to adjust value. (if you do not choose the Monday to Sunday, the screen will appear "_" the one mark) M Monday / T Tuesday / W Wednesday / T Thursday / F Friday / S Saturday / S Sunday
3	Operate time and date 1	DATE01:0101-0103 TIME:00:00-00:00	Press ⊙SPEED+ ⊙SPEED- to switch items.　0101-0103 (date) 00:00-00:00 (time) Press ⊙BRT+ ⊙BRT- to adjust value.
4	Operate time and date 2	DATE02:0501-0503 TIME:00:00-00:00	Press ⊙SPEED+ ⊙SPEED- to switch items.　0501-0501 (date) 00:00-00:00 (time) Press ⊙BRT+ ⊙BRT- to adjust value.
5	Operate time and date 3	DATE03:1001-1007 TIME:00:00-00:00	Press ⊙SPEED+ ⊙SPEED- to switch items.　1001-1007 (date) 00:00-00:00 (time) Press ⊙BRT+ ⊙BRT- to adjust value.
6	System clock setting	DATE/TIME SETUP 2012-01-01　12:00	Press ⊙SPEED+ ⊙SPEED- to switch items.　2012-01-01 12:00 Press ⊙BRT+ ⊙BRT- to adjust value.
7	IC types and RGB sequence setting	CHIP:TM1809 ORDER:RGB	Press ⊙SPEED+ ⊙SPEED- to switch CHIP and ORDER. Press ⊙BRT+ ⊙BRT- to adjust value. Chip option: TM1809, LPD6803, LPD8806, WS2801, P9813, TLS3001. Order option: RGB, RBG, GRB, GBR, BRG, BGR
8	Modes restore default value	LOAD DEFAULT SET PRESS BRT+ - KEY	Press ⊙BRT+ ⊙BRT- to restore default value of the current setting automatic mode.

Press ⊙SETUP to save and exit submenu.

5.5 In the **mode 39**, press ⊙SETUP button for 3 seconds to enter submenu.

LOAD DEFAULT SET
PRESS BRT+ - KEY　　Press ⊙BRT+ ⊙BRT- to restore default value of mode 39.

In mode 39, will play the corresponding mode at some fixed time as pre-saved in mode 31-38, only factory reset is available of this submenu, please use cautiously.
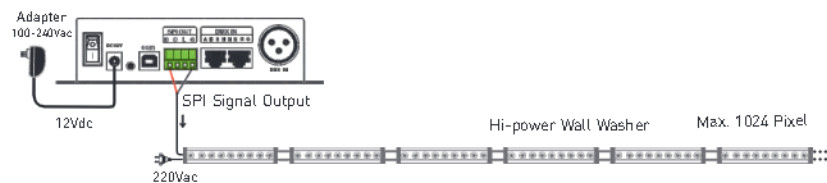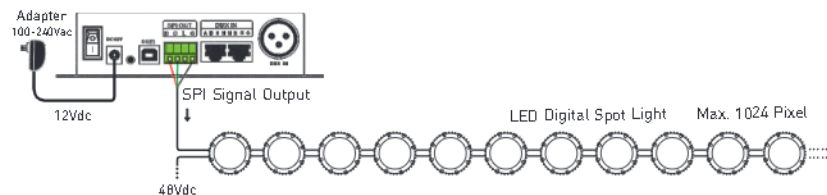
6. Wiring Diagram:

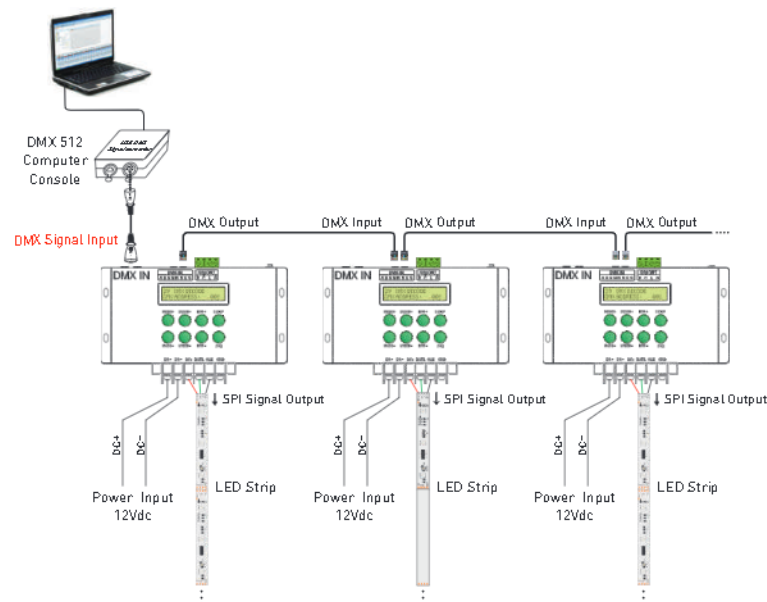| Wiring Method	Signal cable	Choosing IC	Compatible ICs
SPI OUT D C L G / DC+ DC- DC+ DATA CLK GND POWER OUTPUT	Two cables DATA CLK	CHIP : LPD6803 ORDER : RGB	LPD6803, LPD1101, D705 UCS6909, UCS6912
		CHIP : LPD8806 ORDER : RGB	LPD8803, LPD8806
		CHIP : WS2801 ORDER : RGB	WS2801, WS2803
		CHIP : P9813 ORDER : RGB	P9813
SPI OUT D C L G / DC+ DC- DC+ DATA CLK GND POWER OUTPUT	Single cable DATA	CHIP : TM1809 ORDER : RGB	TM1804, TM1809, TM1812, TM1914, TM1914A, UCS1903, UCS1909, UCS1912, UCS2903, UCS2909, UCS2912, WS2811, WS2812, KL592D, GS8206(BGR), SM16703
		CHIP : TLS3001 ORDER : RGB	TLS3001, TLS3002

6.1 Sharing power supply

Power supply — 12Vdc — SPI Signal Output → Digital LED Strip

6.2 Power-up separately

Adapter 100-240Vac — 12Vdc — SPI Signal Output ↓ — 48Vdc — LED Digital Spot Light — Max. 1024 Pixel

Adapter 100-240Vac — 12Vdc — SPI Signal Output ↓ — 220Vac — Hi-power Wall Washer — Max. 1024 Pixel

6.3 Connected with DMX 512 computer console to realize DMX decoding function.

DMX 512 Computer Console

DMX Signal Input

DMX Output — DMX Input — DMX Output — DMX Input — DMX Output

DMX IN — DMX IN — DMX IN

↓ SPI Signal Output — ↓ SPI Signal Output — ↓ SPI Signal Output

DC+ DC-

Power Input 12Vdc — LED Strip — Power Input 12Vdc — LED Strip — Power Input 12Vdc — LED Strip

6.4 Connected with DMX 512 manual console, realizing DMX administrative function.

DMX Manual console

DMX signal input

DMX output — DMX input — DMX output — DMX input — DMX output

DMX IN — DMX IN — DMX IN

DC+ DC-

Power input 12Vdc — Power input 12Vdc — Power input 12Vdc