# LT-200
# LED Digital Controller

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.



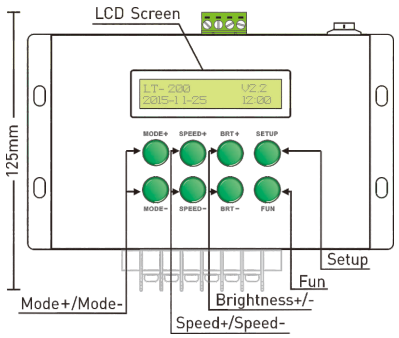


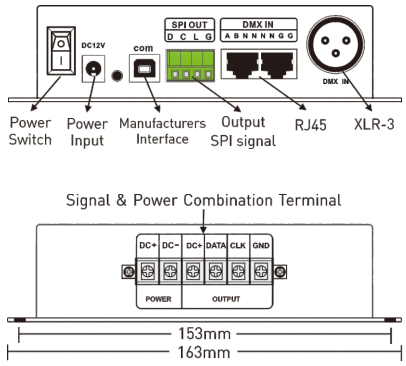
2.6 Supporting 2 output ports: green terminals and signal & power combination terminal (load 20A current)

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:



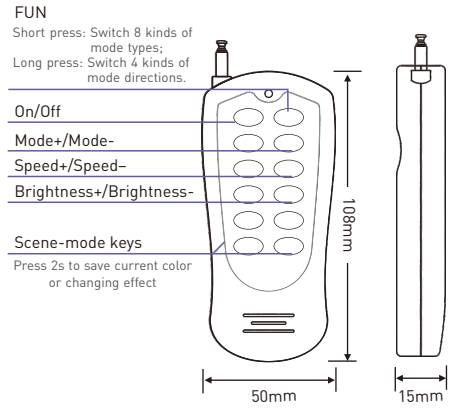

MODE+: Long press to black color mode.

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**




**ID Learning Method:**

Long press FUN 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 FUN (on controller) or FUN (on remote) to switch 8 mode types: JUMP, FLASH, SMOOTH, FADE, FLOW, CHASE, METEOR, FLOAT.

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

Adjust speed by press SPEED+ SPEED- (on controller) or B+ B- (on remote)

: : FLOAT SPEED:8 BRT:8

Adjust brightness by press BRT+ BRT- (on controller) or S+ S- (on remote)

| | | | | | |
|---|---|---|---|---|---|
| 29 | DMX decode | 29 DMX DECODE DMX 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)<br>Pixel width option (04, 08, 16, 32) | PIXEL NUMBER:0032<br>COLOR PIXEL: 08 | Press SPEED+ SPEED- to switch items.<br>Press BRT+ BRT- to adjust value. |
| 2 | Running times adjustment (range: 000-255)<br>(Only work for the modes 31~38) | RUN TIMES:255<br>000=NOT RUNNING | Press BRT+ BRT- to adjust running times. |
| 3 | Reset options to default | LOAD DEFAULT SET<br>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.

| NO. | Submenu Function (press mode+/- to switch) | LCD Display | Setting Methods |
|---|---|---|---|
| 1 | Set DMX address (range: 001~512)<br>Multiple setting (range: 01-32) | DMX ADDRESS:512<br>DECODE Mul:01 | Press SPEED+ SPEED- to switch items.<br>Press BRT+ BRT- to adjust value. |
| 2 | Duplicate channel value (range 003-510)<br>Repeat setting | DECODE NUM:003<br>REPEAT Out:NO | Press SPEED+ SPEED- to switch items.<br>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.

| NO. | Submenu Function | LCD Display | Setting Methods |
|---|---|---|---|
| 1 | 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<br>OPEN1 SAVE1 | Press SPEED+ SPEED- to switch items. OPEN1 OFF SAVE1<br>Press BRT+ BRT- to switch 2 options: ON/OFF<br>Select "ON" to 39 automatic time running mode.<br>OPEN1 OFF SAVE1<br>Load 31~38 modes to 1~28 modes. press BRT+ BRT- to confirm.<br>Save 1~28 modes to 31~38 modes. press BRT+ BRT- to confirm. |
| 2 | Setting operation week | RUN WEEK :MTWTFSS<br>TIME :18:00-06:00 | Press SPEED+ SPEED- to switch items. MTWTFSS 00:00-00:00 (day of the week) (time)<br>M Monday T Tuesday W Wednesday T Thursday F Friday S Saturday S Sunday<br>Press BRT+ BRT- to adjust value.<br>(if you do not choose the Monday to Sunday, the screen will appear "_" the one mark) |
| 3 | Operate time and date 1 | DATE01 :0101-0103<br>TIME :00:00-00:00 | Press SPEED+ SPEED- to switch items. 01 01-01 03 (date) 00:00-00:00 (time)<br>Press BRT+ BRT- to adjust value. |
| 4 | Operate time and date 2 | DATE02 :0501-0503<br>TIME :00:00-00:00 | Press SPEED+ SPEED- to switch items. 05 01-05 01 (date) 00:00-00:00 (time)<br>Press BRT+ BRT- to adjust value. |
| 5 | Operate time and date 3 | DATE03 :1001-1007<br>TIME :00:00-00:00 | Press SPEED+ SPEED- to switch items. 10 01-10 07 (date) 00:00-00:00 (time)<br>Press BRT+ BRT- to adjust value. |
| 6 | System clock setting | DATE/TIME SETUP<br>2012-01-01 12:00 | Press SPEED+ SPEED- to switch items. 2012-01-01 12:00<br>Press BRT+ BRT- to adjust value. |
| 7 | IC types and RGB sequence setting | CHIP :TM1809<br>ORDER:RGB | Press SPEED+ SPEED- to switch CHIP and ORDER.<br>Press BRT+ BRT- to adjust value.<br>Chip option: TM1809, LPD6803, LPD8806, WS2801,P9813, TLS3001.<br>Order option: RGB, RBG, GRB, GBR, BRG, BGR |
| 8 | Modes restore default value | LOAD DEFAULT SET<br>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

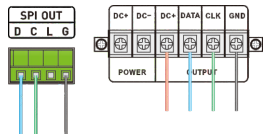
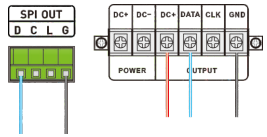
Press BRT+ BRT- to restore default value of mode 39.

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.

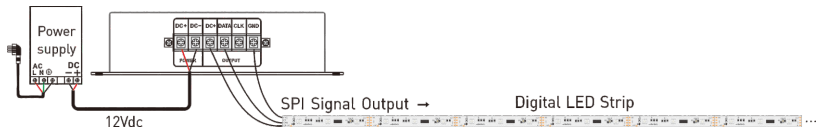




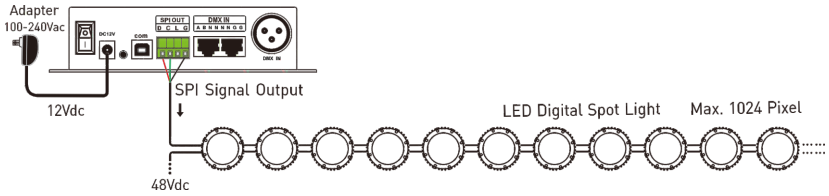
## 6. Wiring Diagram:

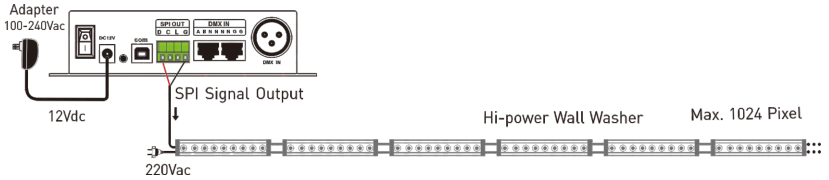
| Wiring Method | Signal cable | Choosing IC | Compatible ICs |
|---|---|---|---|
|  | Two cables<br>DATA CLK | CHIP : LPD6803<br>ORDER:RGB | LPD6803, LPD1101, D705<br>UCS6909, UCS6912 |
| | | CHIP : LPD8806<br>ORDER:RGB | LPD8803, LPD8806 |
| | | CHIP : WS2801<br>ORDER:RGB | WS2801, WS2803 |
| | | CHIP : P9813<br>ORDER:RGB | P9813 |
|  | Single cable<br>DATA | CHIP : TM1809<br>ORDER:RGB | TM1804, TM1809, TM1812<br>UCS1903, UCS1909,<br>UCS1912, UCS2903,<br>UCS2909, UCS2912, WS2811 |
| | | CHIP : TLS3001<br>ORDER:RGB | TLS3001, TLS3002 |

6.1 Sharing power supply

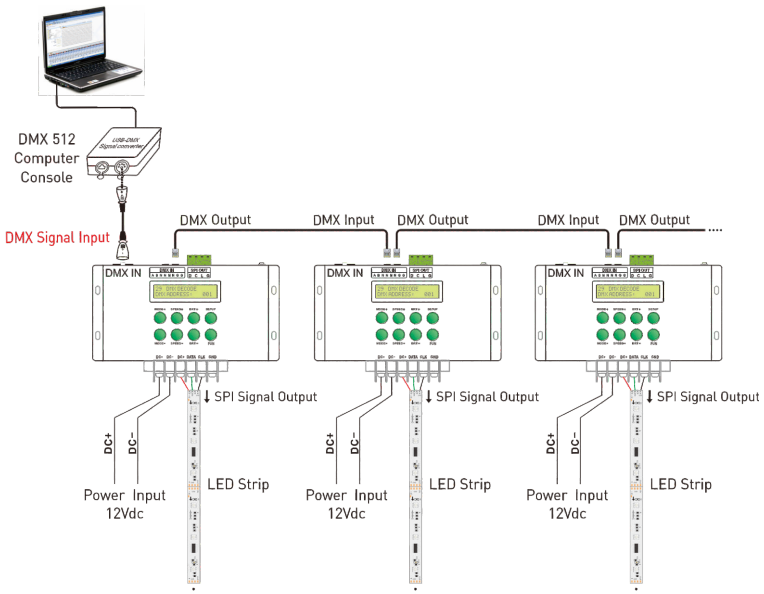



6.2 Power-up separately

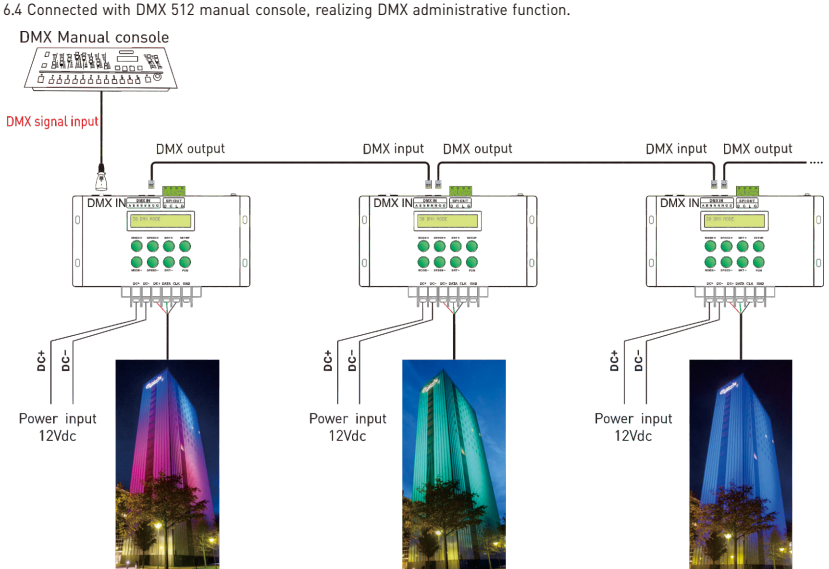


6 3 Connected with DMX 512 computer console to realize DMX decoding function.




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








## 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.



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