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 waterproof 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 damage 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- The product has been replaced by a brand new product.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. LITECH 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 LITECH only.

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

LT-200 LED Digital Controller

LT-200 controls LED with the following compatible ICs: LPD1011/1012/1013/1014/1015/1016, WS2811/2812/2811/2813/2811, UCS1903/1909/1912/2903/2906/2912, TLM1804/1809/1812, TLS3001/3002, PHP13, 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, 10-100% 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:

<table>
<thead>
<tr>
<th>LT-200 LED Digital Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Voltage: 12Vdc [with a power adapter]</td>
</tr>
<tr>
<td>Power Consumption: &lt;1W</td>
</tr>
<tr>
<td>Output Signal: SPI(TTL)</td>
</tr>
<tr>
<td>3rd Port: DMX512</td>
</tr>
<tr>
<td>Change Mode: 512 Modes</td>
</tr>
</tbody>
</table>

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.

2.3 360 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:

![Configuration Diagram](image)

- **MODE+/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 LTID learning process.

### Controller

**FUN**
- Short press: Switch 8 kinds of mode types.

**On/Off**

**Mode+/Mode-**
- Long press: Switch mode.

**Brightness+/Brightness-**

**Scene+mode keys**
- Press 2s to same current color or changing effect.

**RF Remote Control**

- **Buzzer on/off**: Long press “On/Off” button on the remote.

### ID Learning Method:

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

### Table of Changing Modes:

<table>
<thead>
<tr>
<th>No.</th>
<th>Color</th>
<th>Display</th>
<th>No.</th>
<th>Color</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>36</td>
<td>16</td>
<td>Red/Purple</td>
<td>72</td>
</tr>
<tr>
<td>2</td>
<td>Red</td>
<td>36</td>
<td>17</td>
<td>Green/Yellow</td>
<td>69</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
<td>36</td>
<td>18</td>
<td>Blue/Cyan</td>
<td>69</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
<td>36</td>
<td>19</td>
<td>Blue/Purple</td>
<td>72</td>
</tr>
<tr>
<td>5</td>
<td>Yellow</td>
<td>36</td>
<td>20</td>
<td>Blue/Cyan</td>
<td>69</td>
</tr>
<tr>
<td>6</td>
<td>Purple</td>
<td>36</td>
<td>21</td>
<td>Yellow/Purple</td>
<td>72</td>
</tr>
<tr>
<td>7</td>
<td>Cyan</td>
<td>36</td>
<td>22</td>
<td>Yellow/Cyan</td>
<td>69</td>
</tr>
<tr>
<td>8</td>
<td>White</td>
<td>36</td>
<td>23</td>
<td>Purple/Cyan</td>
<td>72</td>
</tr>
<tr>
<td>9</td>
<td>Red/White</td>
<td>36</td>
<td>24</td>
<td>Red/Green</td>
<td>69</td>
</tr>
<tr>
<td>10</td>
<td>Green/White</td>
<td>36</td>
<td>25</td>
<td>Red/Blue</td>
<td>72</td>
</tr>
<tr>
<td>11</td>
<td>Blue/White</td>
<td>36</td>
<td>26</td>
<td>Green/Blue</td>
<td>69</td>
</tr>
<tr>
<td>12</td>
<td>Yellow/White</td>
<td>36</td>
<td>27</td>
<td>Red/Green/V.</td>
<td>72</td>
</tr>
<tr>
<td>13</td>
<td>Purple/White</td>
<td>36</td>
<td>28</td>
<td>All Color</td>
<td>72</td>
</tr>
</tbody>
</table>

### 1-28 General Modes

- **[note]**
- 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 to switch 8 mode types: JUMP, FLASH, SMOOTH, FADE, FLOW, CHASE, METEOR, FLOAT.
- Adjust speed by press or .

### 29-30: DMX512 Control Modes

- **DMX decode**
- **DMX mode**

### 31-38: Automatic Change Modes

- **Play1 off**
- **Play2 off**
- **Play3 off**
- **Play4 off**
- **Play5 off**
- **Play6 off**
- **Play7 off**
- **Play8 off**

### 39: Automatic Time Running Mode

- Press “MODE+” / “MODE-” button to switch modes.
5. **“SETUP” Key Instruction:**

5.1 In the mode 1-26, press \[ \text{ } \] button for 3 seconds to enter submenu, see the form below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Submenu Function (press M 0-3 to switch)</th>
<th>LCD Display</th>
<th>Setting Method</th>
</tr>
</thead>
</table>
| 1   | Pixel No. option [range 0002-1024]  
Pixel width option [3, 8, 16, 32] | PIXEL NUMBER [0002-1024]  
COLOR PIXEL [3, 8, 16, 32] | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. | |
| 2   | Running times adjustment [range 00-999]  
[Only work for the modes 31-38] | RUN TIMES [000-999]  
DO NOT RUNNING | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust running times. | |
| 3   | Reset options to default | LOAD DEFAULT SET  
pres S 1-7 - KEY | Press \[ \text{ } \] to restore the default value of the current mode. | |

5.2 In the mode 27, press \[ \text{ } \] button for 3 seconds to enter submenu, see the form below.

<table>
<thead>
<tr>
<th>Submenu Function</th>
<th>LCD Display</th>
<th>Setting Methods</th>
</tr>
</thead>
</table>
| Set DMX address | DMX ADDRESS 012 | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. | |
| Multiple setting | DMX ADDRESS 012 | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. | |

Press \[ \text{ } \] to save and exit submenu.

5.3 In the mode 30, press \[ \text{ } \] button for 3 seconds to enter submenu, see the form below.

<table>
<thead>
<tr>
<th>Submenu Function</th>
<th>LCD Display</th>
<th>Setting Methods</th>
</tr>
</thead>
</table>
| Set DMX address  | DMX ADDRESS 012 | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. | |

Press \[ \text{ } \] to save and exit submenu.

**Table of 29-30 Functional Modes.**

<table>
<thead>
<tr>
<th>Modes</th>
<th>Channel</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 DMX, Decoder Mode</td>
<td>1st channel</td>
<td>0-256(R) : Red LED 0-100% dimming</td>
</tr>
<tr>
<td></td>
<td>2nd channel</td>
<td>0-2560:00 : Green LED 0-100% dimming</td>
</tr>
<tr>
<td></td>
<td>3rd channel</td>
<td>0-2560:00 : Blue LED 0-100% dimming</td>
</tr>
<tr>
<td></td>
<td>4th channel</td>
<td>0-2560:00 : Multi-color LED 0-100% dimming</td>
</tr>
<tr>
<td></td>
<td>5th channel</td>
<td>0-2560:00 : Custom LED 0-100% dimming</td>
</tr>
<tr>
<td></td>
<td>6th channel</td>
<td>0-2560:00 : Dynamic strobe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>30 DMX Manage Mode</th>
<th>1st channel</th>
<th>0-256, Select 1-29 modes, 2560-253 values divided into 32 portion 8 value per portion. The 27th mode occupy 4 portion (32 value).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd channel, Speed (levels)</td>
<td>2nd channel</td>
<td>0-2560:00 : Red LED 0-100% dimming</td>
</tr>
<tr>
<td>3rd channel, Brightness (8 levels)</td>
<td>3rd channel</td>
<td>0-2560:00 : Green LED 0-100% dimming</td>
</tr>
<tr>
<td>4th channel, Mode type</td>
<td>4th channel</td>
<td>0-2560:00 : Blue LED 0-100% dimming</td>
</tr>
<tr>
<td>5th channel, Direction changing</td>
<td>5th channel</td>
<td>Custom LED 0-100% dimming</td>
</tr>
<tr>
<td>6th channel, Dynamic strobe</td>
<td>6th channel</td>
<td>Dynamic strobe</td>
</tr>
</tbody>
</table>

**Note:**
- The above changes by the DMX console are shown on the LCD screen accordingly.
- \[ \text{ } \] This sign on the screen indicates console signal.

6. **“SETUP” Key Instruction:**

5.4 In the mode 31-38, press \[ \text{ } \] button for 3 seconds to enter submenu, see the form below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Submenu Function (Press MODE+ to switch)</th>
<th>LCD Display</th>
<th>Setting Methods</th>
</tr>
</thead>
</table>
| 1   | Setting switch state | ON, OFF  
PREV - KEY | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. | |
| 2   | Setting operation week | FULL WEEK, MON, TUE, WED, THU, FRI, SAT, SUN  
TIME [00:00-00:00] | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. |
| 3   | Operate time and date 1 | DMX02:0150:000  
TIME [00:00-00:00] | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. |
| 4   | Operate time and date 2 | DMX01:0150:000  
TIME [00:00-00:00] | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. |
| 5   | Operate time and date 3 | DMX01:0150:000  
TIME [00:00-00:00] | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. |
| 6   | System clock setting | SYSTEM DATE: 2012-01-01  
SYSTEM TIME: 00:00:00 | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. |
| 7   | I/O types and RGB sequence setting | CHAP + M1/R  
ORDER RGB | Press \[ \text{ } \] to switch items.  
Press \[ \text{ } \] to adjust value. |
| 8   | Modes restore default value | LOAD DEFAULT SET  
pres S 1-7 - KEY | Press \[ \text{ } \] to restore default value of the current setting automatic mode. |

Press \[ \text{ } \] to save and exit submenu.

5.5 In the mode 39, press \[ \text{ } \] button for 3 seconds to enter submenu.

<table>
<thead>
<tr>
<th>Submenu Function</th>
<th>LCD Display</th>
<th>Setting Methods</th>
</tr>
</thead>
</table>
| LOAD DEFAULT SET  
pres S 1-7 - KEY | Press \[ \text{ } \] 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.

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6. Wiring Diagram:

<table>
<thead>
<tr>
<th>Wiring Method</th>
<th>Signal cable</th>
<th>Choosing IC</th>
<th>Compatible ICs</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPI OUT</td>
<td>DATA, CLK</td>
<td>LPD6803, LPD1110, CY7C68063, UC56805, UC56812</td>
<td></td>
</tr>
<tr>
<td>SPI OUT</td>
<td>DATA, CLK</td>
<td>LPD6802, LPD6806</td>
<td></td>
</tr>
<tr>
<td>SPI OUT</td>
<td>DATA, CLK</td>
<td>W5801, W5803</td>
<td></td>
</tr>
<tr>
<td>SPI OUT</td>
<td>DATA, CLK</td>
<td>PF8913</td>
<td></td>
</tr>
<tr>
<td>SPI OUT</td>
<td>DATA</td>
<td>TM1804, TM1807, TM1808, TM1812, TM1814, TM1816A, UC581003, UC581009, UC581100, UC582003, UC582009, UC582102, W52801, W52803, K8522, G58206/BOR, 5M16703</td>
<td></td>
</tr>
<tr>
<td>SPI OUT</td>
<td>DATA</td>
<td>TLS3001, TLS3002</td>
<td></td>
</tr>
</tbody>
</table>

6.1 Sharing power supply

![Diagram showing power supply connection]

6.2 Power-up separately

![Diagram showing separate power-up connection]