



LD200 Coach lights manual  
Ver. 103

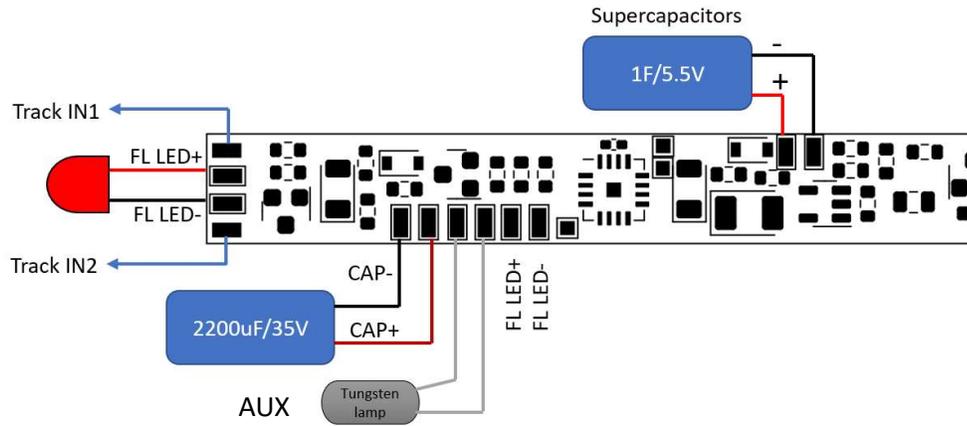
## 1. Features

- I. The LED provides seven groups of outputs. The main light has 11 LEDs built in 5 groups. Each group can be individually lit by the Fx. In addition, it provides the front and rear taillight LED connection points.
- II. LED brightness can be divided into 9 steps, each group can adjust the brightness alone.
- III. Support address number 1~9999.
- IV. Support DC and DCC digital system control lights (1).
- V. Reserve a large capacitor interface can be directly connected to the capacitor. To prevent poor contact with the wheel.
- VI. Supports N, HO scale.
- VII. Size 257mm x 7.5mm x 3mm. The length can be cut according to the vehicle.

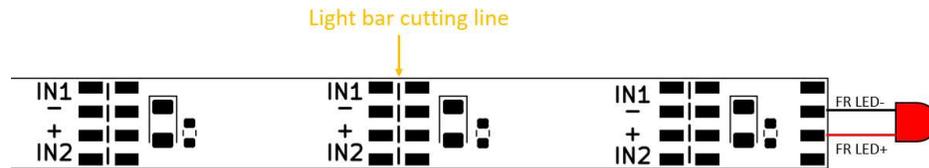
Note (1). The use of DC system control will directly light the LED. It cannot be controlled separately.

## 2. Connection method

- I. IN1, IN2 are connected to track power supply.
- II. CAP is connected to an electrolytic capacitor, the recommended capacity is 470~2200uF and the withstand voltage is 25V.
- III. The AUX output of the tungsten lamp is 12V, if it is connected to the LED, a 1K~10K resistor needs to be connected in series.
- IV. The polarity of the capacitor must be paid attention to when connecting the super capacitor, and the withstand voltage of the capacitor is 5.5V.



- I. The positive and negative symbols are the tail light LED connection terminals.
- II. The dotted line is the line segment that the light bar can cut. It can be cut according to the length of the vehicle.



I. LED group distribution



### 3. Fx Features

Fx	Instructions
F0	The taillights are turned on. The front and rear taillights are switched according to the direction.
F1	The first group of lights turns on.
F2	The second group of lights turns on.
F3	The third group of lights turns on.
F4	The fourth group of lights turns on.
F5	The fifth group of lights turns on.
F6	Turns on or off the tungsten lamp output.
F7	The door light of lights turns on.
F8	Randomly light the first group to the fifth group.
F9	adjust brightness

Note: Before using the F9 function, CV43 needs to write 4. The F9 function will be enabled.

### 4. CV List

CV	Instructions	Range	Reset
1	One byte address	1~127	3
7	SW version		3
8	Reset the decoder	8	164(drM number)
17	Extension Address		0
18	Extension Address		0
29	Bit0 Switch taillight direction Bit 5 Select short address or extension address	Bit0 0 :Normal.1 :Reverse Bit5 0 :short.1 :extension	2
33 ~ 46	Refer to function mapping description		33: 1 34: 2 35: 4 36: 8 37: 16 38: 32

			39: 64 40: 128 41: 1 42: 2 43: 0 44: 0 45: 0 46: 0
57	<ul style="list-style-type: none"> <li>● Group A LED</li> <li>● Single digits to adjust the brightness, the brightness range is 0~9.</li> <li>● Tens digit to adjust the lighting effect, the range is 0~4.</li> </ul>	Brightness 0~9 Effect: 0 No effect 1 Fade 2 Fluorescent 3 Strobe 4 Broken fluorescent lamp	29
58	<ul style="list-style-type: none"> <li>● Group B LED</li> <li>● Single digits to adjust the brightness, the brightness range is 0~9.</li> <li>● Tens digit to adjust the lighting effect, the range is 0~4.</li> </ul>	Brightness 0~9 Effect: 0 No effect 1 Fade 2 Fluorescent 3 Strobe 4 Broken fluorescent lamp	29
59	<ul style="list-style-type: none"> <li>● Group C LED</li> <li>● Single digits to adjust the brightness, the brightness range is 0~9.</li> <li>● Tens digit to adjust the lighting effect, the range is 0~4.</li> </ul>	Brightness 0~9 Effect: 0 No effect 1 Fade 2 Fluorescent 3 Strobe 4 Broken fluorescent lamp	29
60	<ul style="list-style-type: none"> <li>● Group D LED</li> <li>● Single digits to</li> </ul>	Brightness 0~9 Effect:	29

	<p>adjust the brightness, the brightness range is 0~9.</p> <ul style="list-style-type: none"> <li>● Tens digit to adjust the lighting effect, the range is 0~4.</li> </ul>	<p>0 No effect            1 Fade            2 Fluorescent            3 Strobe            4 Broken fluorescent lamp</p>	
61	<ul style="list-style-type: none"> <li>● Group E LED</li> <li>● Single digits to adjust the brightness, the brightness range is 0~9.</li> <li>● Tens digit to adjust the lighting effect, the range is 0~4.</li> </ul>	<p>Brightness 0~9            Effect:            0 No effect            1 Fade            2 Fluorescent            3 Strobe            4 Broken fluorescent lamp</p>	29
62	<ul style="list-style-type: none"> <li>● FL LED</li> <li>● Single digits to adjust the brightness, the brightness range is 0~9.</li> <li>● Tens digit to adjust the lighting effect, the range is 0~4.</li> </ul>	<p>Brightness 0~9            Effect:            0 No effect            1 Fade            2 Fluorescent            3 Strobe            4 Broken fluorescent lamp</p>	19
63	<ul style="list-style-type: none"> <li>● FR LED</li> <li>● Single digits to adjust the brightness, the brightness range is 0~9.</li> <li>● Tens digit to adjust the lighting effect, the range is 0~4.</li> </ul>	<p>Brightness 0~9            Effect:            0 No effect            1 Fade            2 Fluorescent            3 Strobe            4 Broken fluorescent lamp</p>	19
64	<ul style="list-style-type: none"> <li>● AUX</li> <li>● Single digits to adjust the</li> </ul>	<p>Brightness 0~9            Effect:            0 No effect</p>	29

	brightness, the brightness range is 0~9. ● Tens digit to adjust the lighting effect, the range is 0~4.	1 Fade 2 Fluorescent 3 Strobe 4 Broken fluorescent lamp	
105	User defined CV1	0~255	0
106	User defined CV2	0~255	0
107	Ack The controller reads the response.	1: Enable Ack,0: Disable Ack	1
108	Single digits to Header/Trail light linkage Tens digit to AUX linkage.	Header/Trail light 0: Trail 1: Extension(F0) 2: Extension(F5) AUX 0: AUX independent 1: Linkage	0
110	Fluorescent delay time	0~255	80
111	Strobe delay	0~200	50
112	Broken fluorescent lamp delay time	0~19	13
120	SW sub version		11
121	HW version		200

Table 1

## 5. function mapping description

CV	adjust	Random	Full light	AUX	Group E	Group D	Group C	Group B	Group A	FR	FF
33				128	64	32	16	8	4	2	1
34				128	64	32	16	8	4	2	1
35				128	64	32	16	8	4	2	1
36				128	64	32	16	8	4	2	1
37				128	64	32	16	8	4	2	1
38				128	64	32	16	8	4	2	1

39				128	64	32	16	8	4	2	1
40				128	64	32	16	8	4	2	1
41	4	2	1								
42	4	2	1								
43	4	2	1								
44	4	2	1								
45	4	2	1								
46	4	2	1								

- I. CV33 corresponds to F0 forward, CV34 corresponds to F0 retrograde, CV35 corresponds to F1, CV36 corresponds to F2, CV37 corresponds to F3, CV38 corresponds to F4, CV39 corresponds to F5, CV40 corresponds to F6, CV41 corresponds to F7, and CV42 corresponds to F8.
- II. All lights represent Group A~E light up together.
- III. Random means that Group A~E lights up randomly.
- IV. For example, when you press F1, the headlight and the first group of lights are on, you need to fill in 5 in CV35 (the table corresponds to 00000101)
- V. The conversion method of the corresponding value in the table is 1, 2, 4, 8, 16, 32, 64, 128 from the right to the left. If the headlight (number 1) and Group A (number 4) need to be on together, fill in the value equal to  $1+4=5$ .
- VI. The colored areas represent valid and can correspond.
- VII. When the value of CV43 is 4, the light brightness adjustment function is turned on. After the light is turned on, the brightness will decrease a little every time F9 is pressed. This function will return to the original brightness after power off.

## 6. Write CV value

- I. Direct Mode
  - i. Write the CV value. Select Direct mode to write the CV value on the controller. After writing the CV value. You will see the LED flashing rapidly. After writing, please re-power on. The newly written value will be loaded.
  - ii. When writing different CV values, please wait 5 seconds.
  - iii. Wafer support CV value readout, please use Direct mode.

- iv. CV value range please refer to Table 1.

## **7. Reset decoder**

- I. Reply to the original factory settings. Write the value in the CV address 8. 8. After the decoder completes, the decoder will reply back to the factory settings. Please refer to Table 1.

## **8. Precautions**

- I. Do not short-circuit any wire when wiring, so as not to burn the decoder.
- II. Do not exceed DC20V DC power supply.
- III. DCC Digital System Support N, HO scale. Scales 1 and G are not supported. Do not use in these scales.
- IV. Do not replace the parts on the PCB.
- V. Use 470uF~2200uF for the external capacitor. Use a capacitor with a withstand voltage of 25V or more. The capacitance will be modified according to the condition of the vehicle.
- VI. Do not use more than 15mA of external LED.
- VII. This product is not a toy. Do not use it under the age of 14.