HomLiCon **LC12R**
12 Channel PWM LED Light Show Controller with Remote Control

Application:

The LC12R is designed for controlling dynamic illuminated installations such as:

- Advertising signs
- Light walls
- Podium and stage lighting
- Illuminated staircases
- Christmas lighting displays
- Other decorative or dynamic light effects

It supports controlling groups of LEDs, LED strips, or LED modules with 6 to 12 active channels.

Specifications

Number of active channels:	**6 – 12**
Supply voltage:	**12 V DC (9 – 16 V DC)** (by an ext. PSU)
Maximum output current per channel:	**2 A**
Maximum total output current:	**24 A**
Number of PWM levels per channel:	**110**
Controller supply current (no load):	**40 mA**
Ambient temperature:	**5 – 40 °C**
Dimensions LC12R:	**100 × 49 × 20 mm**
Dimensions Remote:	**85 × 40 × 7 mm**

Main Features

The LC12R controller is primarily designed for controlling advertising signs. The number of channels used can be adjusted from 6 to 12.

For each possible number of active channels (from 6 to 12) up to 16 programs can be used, divided into two groups:

- 8 programs with smooth light transition (PWM)
- 8 programs with quick ON/OFF transitions

Each of the 16 programs can be disabled, allowing users to select only the desired programs.

15 of the programs have three phases:

– Filling (channels are switched ON in a specific order)

– Hold (channels remain ON for 0 to 7 seconds)

– Turn OFF (channels are turned OFF in a specific order)

All settings can be configured using the remote control from up to 8 meters away, simplifying adjustments for larger lighting installations.

Settings options for all programs:

– Number of active channels: 6 – 12

– Backlight - light level of the channels that are turned OFF

– External illumination threshold for controller ON/OFF (via phototransistor)

Settings options for individual programs:

– Speed of channel switching: 0.04 – 1.2 seconds

– Number of repetitions for each program: 1 – 8

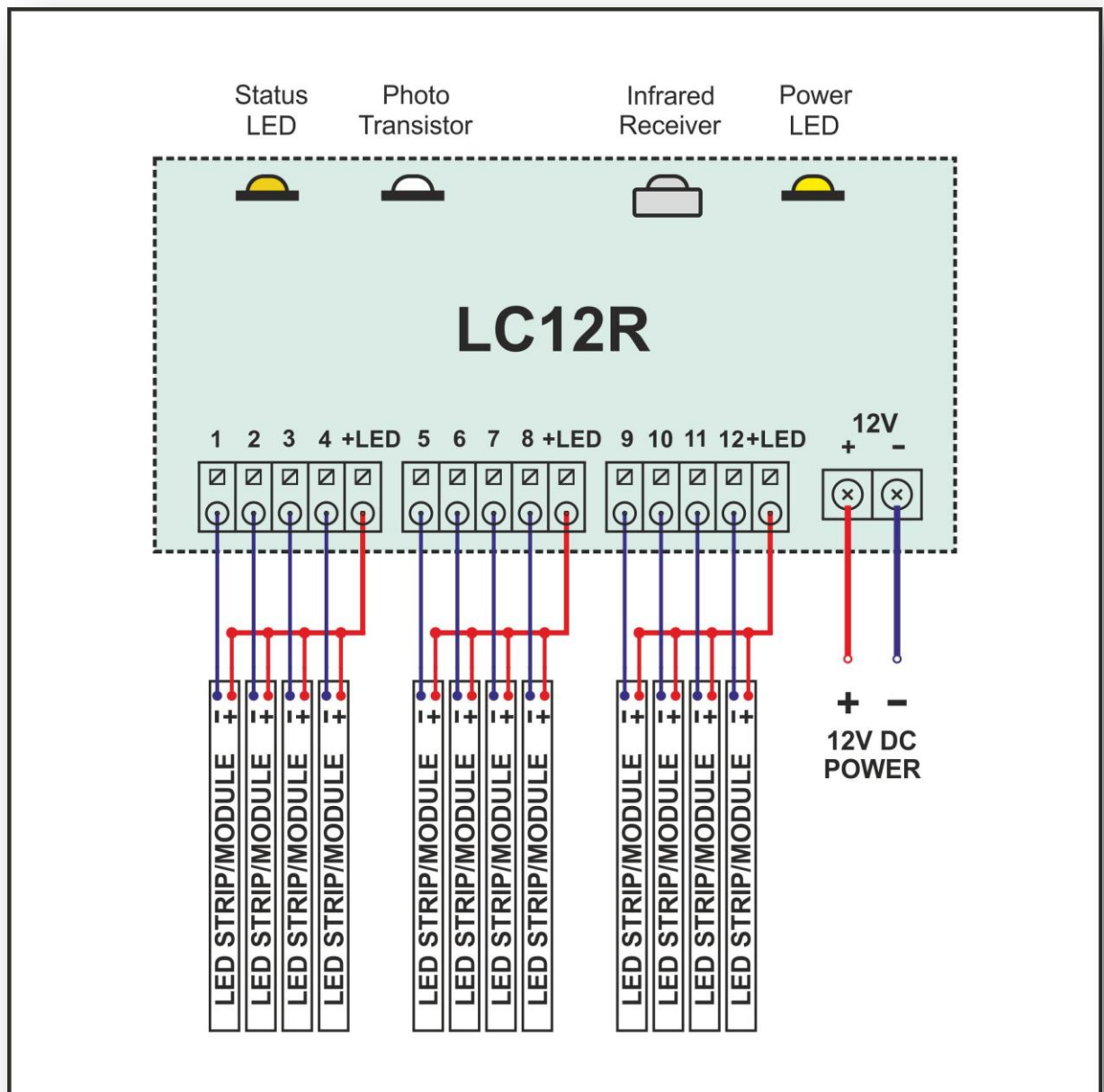– Hold time (channels remain ON): 0 – 7 seconds

1.0   **Wiring Diagram and Description**

Wiring Instructions

1. Connect the 12 V DC power supply to the controller's terminals marked "+" and "−".
2. Connect each negative (−) terminal of the LED strips or modules to the controller's output terminals labeled 1, 2, 3, ..., 12.
3. The controller provides three separate +LED connection points:
   - Channels 1–4 share one +LED terminal
   - Channels 5–8 share one +LED terminal
   - Channels 9–12 share one +LED terminal

For each group, connect the positive (+) terminals of the LED strips or modules to a common external terminal block (connector for combining wires). From this terminal block, run a single wire to the corresponding +LED terminal on the controller.

NOTE: The +LED terminals on the controller are internally common with the + supply input. They are provided only as convenient connection points for grouping LED strips or modules.

Connecting the wires to the spring terminal blocks:
– strip 8 - 10 mm from the end of the wires
– press and hold the button on the terminal with a screwdriver and insert the stripped wire
Note: First, install spacers in the mounting holes on the board to protect the installed components.

WARNING – RISK OF PERMANENT DAMAGE

- **No Output Protection:** The controller outputs are **not** protected against short circuits, overloads, or reverse polarity.
  → **Always double-check all wiring before powering ON.**
- **Pre-Test All Loads:** Verify that each LED strip, module, or lamp operates correctly before connecting it to the controller.
- **Current Limiting Required:** For individual LEDs or high-power LEDs, use appropriate series resistors to limit current to their nominal value. LED strips and modules typically have built-in resistors.
- **Prohibited Connections:** Do **not** connect high-power LEDs or LED COBs that are powered by a driver or inverter (small electronic board).

2.0   Settings Overview

All settings are made using the supplied remote control.

There are seven setting groups. The main group selects the number of active channels; the other groups can be adjusted only when necessary.

Access each group by pressing and releasing two buttons within 2 seconds, preventing accidental changes.

2.1   Set Number of Active Channels (MENU, 1)

1. Press and release **MENU** , then press and release **1** within 2 seconds to enter channel selection mode. After this sequence, the active channels turn ON and the last channel flashes every 0.5 seconds.
2. Press **+** or **−** to select the number of active channels (6 – 12). The last channel flashes to indicate the selected number.
3. Press ↰ to save and restart, or ⏻ to restart without saving.

2.2   Smooth Light Transition Programs (MENU, 2)

2.2.1 Enter Smooth Transition Program Settings

Press and release **MENU** , then press and release **2** within 2 seconds to access the group of 8 programs with smooth light transition (PWM). After this sequence, the first active program in this group is displayed (Program 1 by default).

2.2.2 Select Program

Press ▶▶ to switch to the next active program (up to 8 by default) or ◀◀ to switch to the previous active program (Program 1 by default). Settings apply only to the current program and can differ for each program, except for the backlight level, which is shared.

2.2.3 Deactivate Programs

Press **C** to deactivate the current program and display the next active one (or the previous one if no next program exists). You cannot activate a single deactivated program — press **TEST** to enable the entire group of 8 programs (Program 1 is displayed). If all 8 programs in this group are deactivated, channels 2 and 4 turn ON. This is possible only if at least one program in the other group is active.

2.2.4 Adjust Backlight Level

Press **6** to increase backlight or **9** to decrease it. Backlight settings apply to all 16 programs and affect how smooth transitions are perceived and may influence the apparent speed. Recommended: Adjust backlight first. After each change, the current program restarts from the beginning.

2.2.5 Adjust Program Speed

Press **+** or **−** to change the speed for the current program.

2.2.6 Adjust Number of Repetitions

Press **4** or **7** to set repetitions (1 – 8). Channels 1 – 8 are used for visualization. Press once to preview (visualize), press again to adjust. After visualization, the current program restarts from the beginning.

2.2.7 Adjust Hold Time

Press **5** or **8** to set the hold time (0 – 7 seconds) during which channels remain ON after the filling phase. Channels 1 – 8 are used for visualization. Press once to preview (visualize), press again to adjust. After visualization, the current program restarts from the beginning.

### 2.2.8 Save or Restart Without Saving

Press � to save and restart, or ⏻ to restart without saving.

2.3 Quick ON/OFF Transition Programs (MENU, 3)

2.3.1 Enter Quick ON/OFF Transition Program Settings

Press and release **MENU** , then press and release **3** within 2 seconds to access the group of 8 quick ON/OFF transition programs. After this sequence, the first active program in this group is displayed (Program 1 by default).

2.3.2 Select Program

Press ▶▶ to switch to the next active program (up to 8 by default) or ◀◀ to switch to the previous active program (Program 1 by default). Settings apply only to the current program and can differ for each program, except for the backlight level, which is shared.

2.3.3 Deactivate Programs

Press **C** to deactivate the current program and display the next active one (or the previous one if no next program exists). You cannot activate a single deactivated program — press **TEST** to enable the entire group of 8 programs (Program 1 is displayed). If all 8 programs in this group are deactivated, channels 2 and 4 turn ON. This is possible only if at least one program in the other group is active.

2.3.4 Adjust Backlight Level

Press **6** to increase backlight or **9** to decrease it. Backlight settings apply to all 16 programs and affect how smooth transitions are perceived and may influence the apparent speed. Recommended: Adjust backlight first.

2.3.5 Adjust Program Speed

Press **+** or **−** to change the speed for the current program.

2.3.6 Adjust Number of Repetitions

Press **4** or **7** to set repetitions (1 – 8). Channels 1 – 8 are used for visualization. Press once to preview (visualize), press again to adjust. After visualization, the current program restarts from the beginning.

2.3.7 Adjust Hold Time

Press **5** or **8** to set the hold time (0 – 7 seconds) during which channels remain ON after the filling phase. Channels 1 – 8 are used for visualization. Press once to preview (visualize), press again to adjust. After visualization, the current program restarts from the beginning.

2.3.8 Save or Restart Without Saving

Press � to save and restart, or ⏻ to restart without saving.

2.4   Startup Group Selection (MENU, 4) (Indication: channel 4 ON)

2.4.1 Enter Settings

Press and release **MENU**, then press and release **4** within 2 seconds to access this settings group. After this sequence, channel 4 turns ON.

2.4.2 Select Startup Group of Programs

Select which group of programs to run first after a restart:

Press ⏮ to set the Smooth Light Transition Program group (PWM). (Indication: channel 1 ON)

Press ⏭ to set the Quick ON/OFF Transition Program group. (Indication: channel 2 ON)

2.4.3 Save or Restart Without Saving

Press ↰ to save and restart, or ⏻ to restart without saving.

2.5   Mode Selection (MENU, 5) (Indication: channel 5 ON)

1.   Press and release **MENU** , then press and release **5** within 2 seconds to access this settings group. After this sequence, channel 5 turns ON.

2.   Press **TEST** to turn ON all active channels. (Indication: channel 8 ON)

     Press ▶ to activate Light Show mode. (Programs run according to current settings) (Indication: channel 8 OFF)

3.   Press ↰ to save and restart, or ⏻ to restart without saving.

2.6   Reset to Factory Settings (MENU, 6) (Indication: channel 6 ON)

1.   Press and release **MENU**, then press and release **6** within 2 seconds to access this settings group. After this sequence, channel 6 turns ON.

2.   Press **0** to select reset. The indication changes to channels 6 and 8 ON. If the reset is not saved within 3 seconds, it is canceled.

3.   Press ↰ to save and restart, or ⏻ to restart without saving.

2.7 ON/STANDBY Threshold Setting Based on Light Level (MENU, 7)

(Indication: channel 7 ON)

1. Press and release **MENU**, then press and release **7** within 2 seconds to access this settings group. After this sequence, channel 7 turns ON.

2. Press **+** or **−** to set the light level threshold (1 – 6) for switching the controller between ON and STANDBY, based on the light detected by the phototransistor mounted on the board. Channels 1–6 indicate the selected threshold:
   - Level 1 – Switches ON in low light (evening ON / early morning OFF)
   - Level 5 – Switches ON in daylight (early evening ON / late morning OFF)
   - Level 6 – Controller always ON (default setting)

   Note:
   - Channel 8 indicates whether the controller is ON or OFF according to the set threshold and the current light conditions.
   - Changes to the light level or threshold take 6 seconds to take effect, due to data averaging that prevents activation by accidentally directed light.
   - Default setting: Level 6 – controller always ON. (Indication: channels 6, 7, 8 ON)

3. Press ↰ to save and restart, or ⏻ to restart without saving.

3.0 Light Show

After the power supply is switched ON, the controller runs the programs according to their settings. First, the active programs from the *Smooth Light Transition Program* group run in sequence, followed by the active programs from the *Quick ON/OFF Transition Program* group, and then the cycle repeats. (The startup group can be changed.)

In Light Show mode, the following commands are available:

TEST, ⏻   – to toggle between ON and STANDBY.

TEST, ⏮   – skip the current group of programs (PWM or ON/OFF) and display the first active program from the other group.

4.0 Status LED Indication

The STATUS LED indicates received infrared pulses and the current state of selected functions.

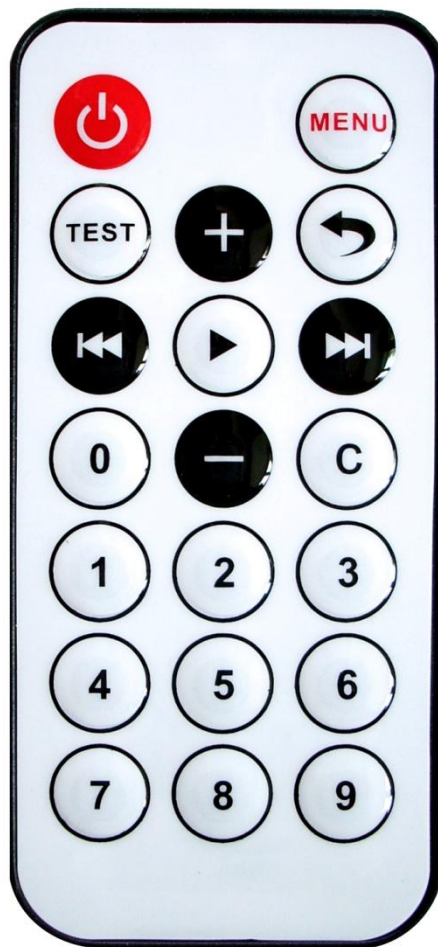| STATUS LED	CURRENT STATE
Flashes	Infrared pulses received
Flashes for 2 seconds (on/off every 0.1 sec.)	Pressing the **MENU** button
Flashes with short pulse (0.01s) and a long pause (1s)	STANDBY mode activated by phototransistor
ON	STANDBY mode activated by the **TEST**, ⏻ key sequence

     After pressing **MENU**, the STATUS LED stays active for 2 seconds (ON/OFF every 0.1 s) to indicate the controller is waiting for the next button press.

5.0   Remote control

Remote Control Button Functions

Enter Settings Buttons	Adjust Buttons	Function	Section
MENU, **1**	**+** **−**	Set Number of Active Channels	2.1
MENU, **2** Smooth Light Transition Programs **MENU**, **3** Quick ON/OFF Transition Programs		Program Settings:	2.2 / 2.3
	▶▶ ◀◀	Select Program	2.2.2 / 3.2.2
	C **TEST**	Deactivate program/ Activate full group	2.2.3 / 3.2.3
	6 **9**	Adjust backlight	2.2.4 / 3.2.4
	+ **−**	Adjust speed	2.2.5 / 3.2.5
	4 **7**	Adjust repetitions	2.2.6 / 3.2.6
	5 **8**	Adjust hold time	2.2.7 / 3.2.7
MENU, **4**	▶▶ ◀◀	Startup Group Selection	2.4.2
MENU, **5**	**TEST** ▶	Turn ON all active channels Light Show Mode	2.5
MENU, **6**	**0**	Reset User Settings to Factory Defaults	2.6
MENU, **7**	**+** **−**	ON/STANDBY Threshold Setting Based on Light Level	2.7
ALL Settings	↰ ⏻	Save and restart Restart without saving	

Remote control view:

Battery CR2025 (not included in the kit)