

2015

CONTROLLER FOR STAIRCASE LIGHTING 11-17k LCD RED (11-16k + 1k, 11-15k + 2k)

A device for the automatic control of stair treads lighting, with built-in timer.
Supports from 11 to 17 points of light.

NOWOSTER

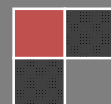
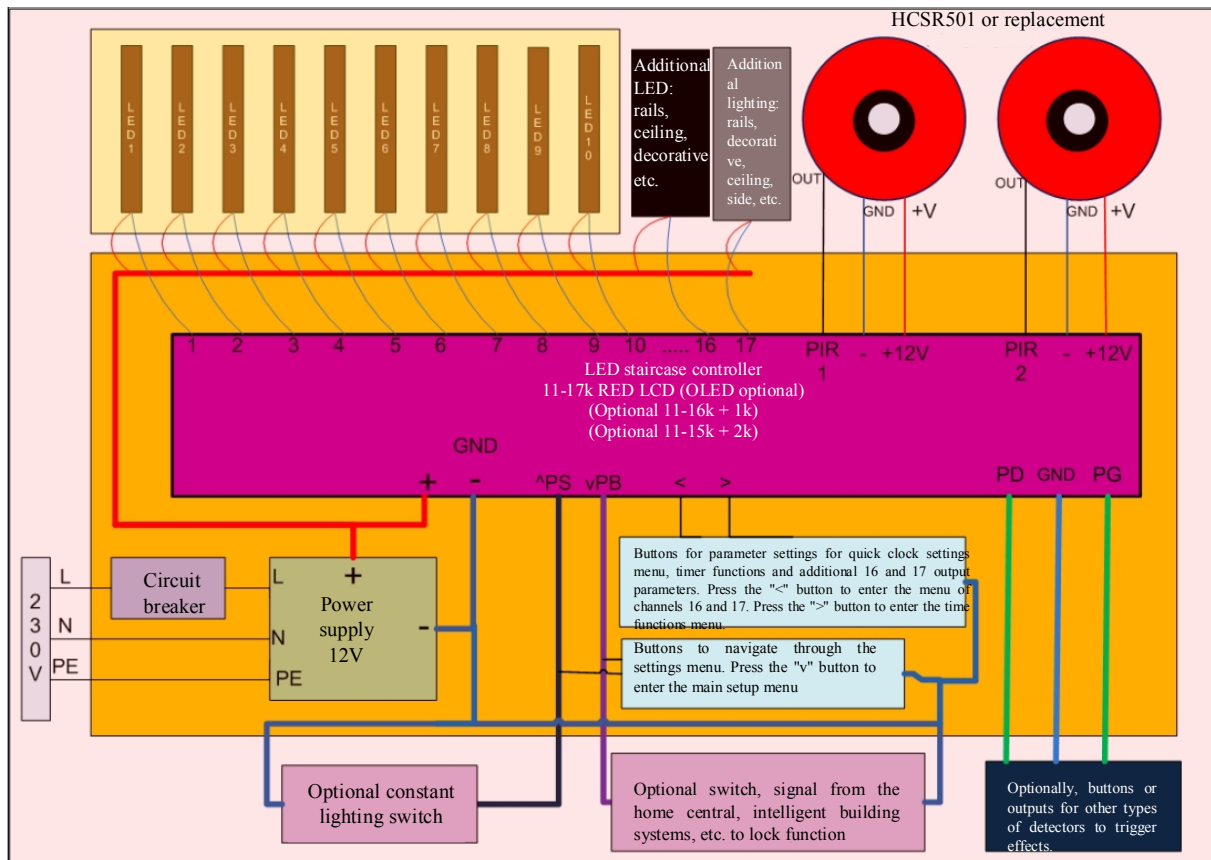


Table of Contents

1. Controller connection diagram.....	2
2. Settings and primary settings configuration menu.....	2
2.1. Configuration menu items	2
2.2 Settings and configuration menu for output channels 16 and 17.....	5
2.2.1 The menu for the output 17.....	5
2.2.2 The menu for the output 16.....	6
2.3 The clock settings and timer functions menu	6
2.3.1 Lock and luminosity settings	7
3. Status messages.....	8
4. Priorities of operation	9
5. Proceedings during assembly, installation and launch of the staircase controllers	9

1. Controller connection diagram



2. Settings and primary settings configuration menu

To access the basic settings configuration menu, press the vPB input button. Go to the next menu item by pressing vPB down or ^PS up. Setting the parameters is done using the "<" and ">" buttons. To exit the menu, press and hold vPB or ^PS, until the message "Exit menu, release the button" appears. You can also exit the menu by going to the end or the start of the menu.

2.1. Configuration menu items

1. "Configuration style 1" – style configuration choice within the range between 1 and 9. For every style you can define separate configuration items.
2. "The speed of turning the light on down> top 20" – lighting speed control from bottom to top within the range 0-255 (0 – fastest, 255 – slowest).
3. "The speed of turning the light off down> top 20" – turning off speed control from bottom to top within the range 0-255 (0 – fastest, 255 – slowest).
4. "The speed of turning the light on top > down 20" – lighting speed control from top to bottom within the range 0-255 (0 – fastest, 255 – slowest).

5. "The speed of turning the light off top > down 20 " – turning off speed control from top to bottom within the range 0-255 (0 – fastest, 255 – slowest).
6. "Uneven turning on" – regulation of nonlinearity (unevenness) of turning on lighting in the following range: 0-255 (0 – lack of non-linearity, 255 – the biggest non-linearity).
7. "Uneven turning off" – regulation of nonlinearity (unevenness) of turning off lighting in the following range: 0-255 (0 – lack of non-linearity, 255 – the biggest non-linearity).
8. "Smooth brightening blur 200" – control of blur effect for turning on in smooth mode in the following range: 0-255 (0– the smallest blur, 255 – the greatest blur).
9. "Smooth darkening blur 200" – control of blur effect for turning off in smooth mode in the following range: 0-255 (0– the smallest blur, 255 – the greatest blur).
10. "Algorithm/effect No. 9" – setting algorithm/effect in the following range: 1-10.
 - 1 – consecutive turning on, consecutive turning off – optimal for buttons
 - 2 – consecutive turning on, consecutive turning off; with a function of second button switch-off by pressing and holding for 2 sec. – optimal for buttons
 - 3 – consecutive turning on, turning off all at once – optimal for buttons
 - 4 – consecutive turning on, consecutive turning off – optimal for buttons and detectors
 - 5 – consecutive turning on, consecutive turning off, additional functions: from the opposite direction, turning back – optimal for buttons and detectors
 - 6 – consecutive turning on, turning off all at once – optimal for buttons and detectors
 - 7 – carriage, train effect
 - 8 – waterfall, cascade effects (in smooth mode, smooth random darkening) – optimal for buttons and detectors
 - 5 – consecutive turning on, random turning off – optimal for buttons and detectors
 - 10 – turning on and off all at once
11. "Maximum lighting time: 27s" – adjustable lighting time from the moment the effect reaches the end (stairs light up), until the lights begin to fade. In algorithms optimized for detectors fading also begins from the triggering. Time range control 0-44s.
 In carriage effect (Algorithm 7) on the menu instead of the max time there is the "Number of carriage segments: 10" – the number of the “carriages”, the width of the “train” in the algorithm.
12. "Leap turning on/off" – selection of the operating mode. Available modes are leap and smooth. In smooth mode, the spotlights, LED strips on the stairs smoothly brighten and dim.
13. "The level of resting brightness 0.0%" – adjusts the resting brightness (on standby) in the following range: 0-50%.

14. "The level of resting brightness in time mode 0.0%" – adjusts the resting brightness in time mode (on standby) in the following range: 0-50%. The range of hours in time modes is set in the clock and timing menu.
15. "Resting brightness, two extremes"– resting highlight setting. Available options are "extreme", where on standby, first and last points/stairs are highlighted, and "all", where all the points (stairs) are highlighted.
16. "The maximum brightness of the effect 100%" – adjusts the maximum brightness in an effect in the following range: 50-100%.
17. "Timer function button 124 s" – time of activation of constant lighting function in the timer function triggered from input by ^PS button. After launching from the ^PS input the lighting of all channels will activate with the set brightness for a set time in the following range: 4-999 s. You can always turn steady light off by pressing ^PS.
18. "Brightness of ^PS input lighting 100%" – adjusts the brightness of light/stair launched from the ^PS input (steady or timer mode) in the range 0-100%.
19. "Brightness of lighting in time mode 100%" – adjustment of the brightness of light/stair treads in the following range: 0-100%, triggered at certain times according to the time function. The range of hours is set up in the clock settings and timer functions menu.
20. "vPB input lock brightness 1.5%"– adjusts the brightness of light points/stairs launched from the blocking vPB input in the following range: 0-100%.
21. "Time function lock brightness 0.0%"– adjusts the brightness of light points/stairs launched from lock time function in the following range: 0-100%. The range of lock hours is set in the clock settings and timer functions menu.
22. "Locking the second detector 0s" – second input (second detector) lock for launch .For fast detectors, so that the controller does not detect e.g. two legs instead of only one person, the lock time can be set so that one person rather than two legs is detected. The range of lock time 0-9s.
23. "The number of stair treads 15" – setting the number of stairs connected in the range from 11 to 17.
24. "Launch delay – stab. of detectors 00s" – delayed launch – stabilization of the PIR detectors. The parameter setting the time of controller launch delay from the moment of turning the power on. Set within a range of 0s to 99s. If you choose 0s – there is no launch delay. Launch delay function is provided for systems with PIR motion detectors. PIR motion detectors after dosing the supply voltage for several seconds, determine the work background and during that time they can work falsely 1-2 times, despite the lack of movement in front of detectors. Delayed launch causes that the driver, after turning on power supply, waits for PIRs to stabilize so that there is no light effect switch when power is turned on.

2.2 Settings and configuration menu for output channels 16 and 17

To access the configuration settings menu for output channels 16 and 17, press "<". One of the following messages will appear: "Setup menu for output 16 and 17" (for the set number of 15 stairs or less) or "Setup menu for output 17" (for the set number of 16 stairs). If you choose the number of active (connected) stair treads = 17, an attempt to enter the menu results in displaying the message: "No additional output channels".

Going to the consecutive menu items is done using vPB button (bottom) and ^PS button (top). Parameter setting is done using the "<" and ">" buttons. To exit the menu, press vPB or ^PS button and hold for approx. 2s, until the message "Exit menu, release the button" appears. Exiting the menu is also done by going to the end or the beginning of the menu.

2.2.1 The menu for the output 17 (available for the set number of 16 stairs or less)

1. "Minimum/output brightness 17 0.0%" – adjustment of brightness for output 17 in standby/when waiting for an input trigger (normal resting brightness).

Control range: 0-100%.

2. "Maximum/output brightness 17 100%" – adjustable brightness for output 17 since the upper or lower input is triggered. Control range: 0-100%.

3. "Time of lighting/output 17 50s" – adjustable lighting time for channel 17 since the launch within the range 0-1300s, with 5-second leap. During the lighting since the launch, another launch of the PD (PIR1) or PG (PIR2) inputs resets the timer.

4. "Brightening/output speed for 17 5" – smooth brightening speed for channel 17 in the following range: 0-255 (0 – fast, 255 – slow).

5. "Darkening/output speed 17 5" – the speed of smooth dimming for channel 17 in the following range: 0-255 (0 – fast, 255 – slow).

6. "Input brightness ^PS/output 17 100%" – brightness of the output channel 17 since the launch of input ^PS (permanent or timer) in the following range: 0-100%.

7. "Const.-time brightness/output 17 100%" – the brightness of constant light in the time function of output 17 in the following range: 0-100%. The range of hours in the time function is set in the clock settings and timer functions menu.

8. "Input vPB/output brightness 17 0.0%" – brightness for output 17 since the vPB lock launch in the following range: 0-100%.

9. "Brightness lock-time /output 17 0.0%" – brightness for output 17 since the launch of the time lock function in the following range: 0-100%. The range of hours in the lock time function is set in the clock settings and timer functions menu.

10. "Rest-time brightness/output 17 1.5%" – the resting brightness of the output 17 in the time function in the following range: 0-100%. The range of hours in the rest time function is set in the

clock settings and timer functions menu. Resting brightness (standby) is set by the minimum brightness (point 1) and resting brightness in the time function (higher priority).

2.2.2 The menu for the output 16 (available for the set number of 15 stairs or less)

11. "Minimum/output brightness 16 0.0%" – adjustment of brightness for output 16 in standby/when waiting for an input trigger (normal resting brightness).

Control range: 0-100%.

12. "Maximum/output brightness 16 100%" – adjustable brightness for output 16 since the upper or lower input is triggered. Control range: 0-100%.

13. "Time of lighting/output 16 50s" – adjustable lighting time for channel 16 since the launch within the range 0-1300s, with 5-second leap. During the lighting since the launch, another launch of the PD (PIR1) or PG (PIR2) inputs resets the timer.

14. "Brightening/output speed for 16 5" – smooth brightening speed for channel 16 in the following range: 0-255 (0 – fast, 255 – slow).

15. "Darkening/output speed 16 5" – the speed of smooth dimming for channel 16 in the following range: 0-255 (0 – fast, 255 – slow).

16. "Input brightness ^PS/output 16 100%" – brightness of the output channel 16 since the launch of input ^PS (permanent or timer) in the following range: 0-100%.

17. "Const.-time brightness/output 16 100%" – the brightness of constant light in the time function of output 16 in the following range: 0-100%. The range of hours in the time function is set in the clock settings and timer functions menu.

18. "Input vPB/output brightness 16 0.0%" – brightness for output 16 since the vPB lock launch in the following range: 0-100%.

19. "Brightness lock-time /output 16 0.0%" – brightness for output 16 since the launch of the time lock function in the following range: 0-100%. The range of hours in the lock time function is set in the clock settings and timer functions menu.

20. "Rest-time brightness/output 16 1.5%" – the resting brightness of the output 16 in the time function in the following range: 0-100%. The range of hours in the rest time function is set in the clock settings and timer functions menu. Resting brightness (standby) is set by the minimum brightness (point 1) and resting brightness in the time function (higher priority).

2.3 The clock settings and timer functions menu

To access the configuration settings menu for clock and timer functions, press the ">" button. A message "clock settings menu" will appear. Going to the consecutive menu items is done using vPB button (bottom) and ^PS button (top). Setting the parameters is done using the "<" and ">" buttons.

To exit the menu, press vPB or ^PS button and hold for approx. 2s, until the message "Exit menu, release the button" appears. Exiting the menu is also done by going to the end or the beginning of the menu.

1. "Hours 22" – setting hours from 0 to 23.
2. "Minutes 59" – setting minutes from 0 to 59.
3. "Days of the week Tuesday" – Setting the days of the week (Monday, Tuesday, Wednesday etc.).
4. "The days of the month 14" – setting the days of the month from 1 to 31.
5. "Month 4" – setting the months from 1 to 12 (where 1 is January, 2 is February 3 is March etc.).
6. "Year 15" – setting years from 0 to 99.

2.3.1 Lock and luminosity settings

7. "Jan-Dec permanent – launch set. 19> 21" – setting the launch times of constant lighting for the months of January and December (setting in full hours, from 0 to 23)
8. "Jan-Dec permanent – off set. 19> 21" – setting the off times of constant lighting for the months of January and December (setting in full hours, from 0 to 23)

For the example above, permanent lightening will be launched in December and January between 19 and 21 hours, with the intensity set in the main configuration menu and the menu for output channels 16 and 17. Similarly, you should set the launch and off time for constant light for the remaining pairs of months: February-November, March-October, April-September, and so on.

9. "Jan-Dec lock – launch set. 10> 17" – setting the launch times of locking operation for the months of January and December (setting in full hours, from 0 to 23)
10. "Jan-Dec lock – off set. 10> 17" – setting the off times of locking operation for the months of January and December (setting in full hours, from 0 to 23)

For the example above the lock of PD and PG (PIR1 and PIR2) inputs will be active from 10 to 17. During these hours the entries of detectors are not taken into account. The intensity of the light since the time lock is set in the main configuration menu and menu for outputs 16 and 17. Similarly, you should set the lock time for the remaining pairs of months: February-November, March-October, April-September, and so on.

11. "Jan-Dec rest brightness – launch set. 21>23" – setting the launch times of resting brightness for the months of January and December (setting in full hours, from 0 to 23)
12. "Jan-Dec rest. brightness – off set. 21> 23" – setting the off times of resting brightness for the months of January and December (setting in full hours, from 0 to 23)

For the example above resting brightness will be launched in December and January between 21 and 23, with power set in the main configuration menu and the menu for output channels 16 and

17. Similarly, you should set the lock time for the remaining pairs of months: February-November, March-October, April-September, and so on.

3. Status messages

I LCD display line

1. "23:34:29 1 feb" alternating "tuesday", "2015." – The time, day, date, year, etc.

II LCD display line

2. "Rest. brightness 0.5%" – the value of the resting brightness for the two extremes or all channels with an exemplary 0.5% intensity. There are no time functions for the above message.

3. "Rest. brightness 21>23 0.0 %" – the value of the resting brightness for the two extremes or all channels in the time function. An exemplary 0% value between the hours: 21-23.

4. "ST 19>21 10 0%" – value and hour range of constant lighting for time function (PD and PG, PIR1 and PIR2 inputs are not working). For example, outputs of stairs emit a light with 100% intensity between the hours: 19-21.

5. "ST 19>21 10 0%" – value and hour range of lock time function (PD and PG, PIR1 and PIR2 inputs are not working). For example, stair tread outputs do not emit light (0%) between the hours: 10-17.

6. "Lock input vPB" – blocking the action since the launch of the physical vPB input (light intensity set in the configuration menu and the menu for outputs 16 and 17). Lock from vPB input from is for switch to ground above 2 seconds. Below this time is the entrance to the main settings configuration menu.

7. "The 'Timer' from the ^PS input" – LCD message in two lines. Time function triggered by an impulse from PS input (pulse less than 2 seconds). Time lighting with the set brightness. Timer function can be turned off at any time, by triggering ^PS input again with a pulse to ground. The intensity of the light is set in the main configuration menu and menu for outputs 16 and 17.

8. "Constant lighting from ^PS input" – LCD message in two lines. Constant lighting initiated by a switch to ground of ^PS input for minimum 2s. The outputs are driven to the set power as long as there is a ^PS input switch to ground.

9. "Stabilization of PIR detectors: 25s" – LCD message in two lines. After launching power supply, the controller waits for a set time due to the stabilization of PIR. The set time is counted down to zero. After this time, it switches to normal operation. PIR stabilization time is provided due to the fact that after the voltage supply the PIR may falsely give a signal in stabilizing the background.

10. "Launch B> T" – lighting up from bottom to top.

11. "Off B> T" – turning off from bottom to top.

12. "Launch T> B" – lighting up from top to bottom.

13. "Off T> B" – turning off from top to bottom.

14. "Max output est." – lighting of all levels as the effect reaches the end after igniting.

4. Priorities of operation

1. The highest priority of operation is triggering constant light from the ^PS input (constant lighting or timer function).
2. Lock from the ^PB input
3. Time functions for constant lighting, locks and rest lighting.
4. The lowest priority are the effects from PD and PG inputs.

For example, if the lock function from the PB input is on and there is an input signal to PS, a constant light function will be launched, because it has a higher priority.

The time rest lighting has a higher priority than the standard rest lighting. If standard rest lighting is set for 0% and time rest lighting is set for 0.5% at certain times, in these hours there will be 0.5% time rest lighting.

5. Proceedings during assembly, installation and launch of the staircase controllers

1. Setting up copper wires (typically 0.5 mm pairs) between the points of light (LED points, LED strips), and the place where the stair controller will be placed (cabinet, box, bay, basement, attic, safe, utility room, etc.)
2. Setting up 3-core wires (they can be thin, because they are signal, low-current wires) between the hole, the place of the bottom detector and the controller and between the hole, the place of the top detector and the controller.
3. Optional setting up wires with a minimum of 2 cores, 0.5mm to 1mm, to highlight handrails, railings, ceiling, top, side or decorative lighting.
4. Setting up the additional wires e.g. from switches, constant lighting buttons, lock, etc. For example, for the constant light function it is possible to connect a few buttons in different places at the same time.
5. Setting up wires for 230V network (3 wires L, N and PE) in the cabinet, bay, box, etc., to connect the 12V power supply.
6. Connecting the LED point, LED strip to the wires (preferably soldering or screwing with the use of terminals). Not recommended to use dip connectors.
7. Check that there are short-circuits on LED strips or point wires, for example, with a meter (ohmmeter) and/or by connecting each point of light to 12V and making sure that it emits light. If there is a short-circuit, you need to locate it and remove it. If the controller is connected to stripes with a short-circuit it may cause damage to the respective transistor of the controller channel.
8. Connecting the stair controller to 12V (if possible, check that the voltage on the power supply is not higher than 12V). In case of impulse module power supply, you can adjust the output voltage of the power supply. If a light is on in the controller (eg. yellow, red), you can go to the next step.

9. Connect the stair treads lighting wires (optional on the railing of the upper lighting, ceiling, etc.) to the staircase controller.

10. Check the operation of the controller using the attached micro-buttons. First, you can check the operation of the PS input. Then, check the operation by simulating the detector on micro-buttons for PD and PG inputs. If the simulation of the staircase controller is carried out successfully, you can proceed to the next step. Micro-buttons can be left connected to the connectors.

11. Select algorithm, effect and adjust pre-speed parameters etc.

12. Connect PIR motion detectors, infrared barriers to PD and PG inputs (and power) according to the descriptions of each detector. Check the operation on the detectors. Depending on your needs, adjust the angle of action (Fresnel lens or sleeve) and sensitivity (potentiometer, switch, sealing an element of PIR). Note: Mini PIR detectors HC-SR501 and reflective proximity sensors must not be connected directly to the staircase controller only with the time module into the detector. The detectors operate under 5V voltage (5V is from the time module) and the mini PIR detector has a reverse mechanism of operation (high active state at the time module menu).

13. If you are using; "Time module into the detector" to connect the detector to the module (and time module power supply): during the test, when operating, on the LCD screen of the time module there will be a visible countdown of lock (e.g. 3s, 2s, 1s etc.). If the detector does not detect any movement, the countdown of lock should not appear on the LCD screen. When testing the time module and the entire staircase LED lighting system, night-time must be set on the time module so that the detectors are not locked from the time lock function (or you should reset the lock hours for the month). If the lock time interval is set, and the real time clock timer module will be in this range, the time module does not give the starting signal to the staircase controller. If the detectors are properly connected and working with time module is correct then you can proceed to the next step.

14. Connect the time module to the controller (W1 to PD and W2 to PG). Power supply of the staircase controller and time module into the detector with the same power supply (supply minus is common ground). Mini PIR detector HC-SR501 (or replacements) cooperate only with time module into the detector. For those detectors in the unit of time, high active state must be selected. If the mini PIR detectors are connected to the C1 and C3 inputs, for these inputs, for 1 and 3 you must select high active state in the menu. If during the installation the detectors are not connected and high state will be selected, the time module will give signals constantly. Active high state should be set for the correct connection of detectors. If the inputs C2 and C4 are not connected to anything, the activation of the menu must be set to a low state.

15. NOTE: For PIR motion detectors after turning on power supply, wait approx. 1-2 minutes to stabilize PIR. PIR detectors need time so that the background for the PIR sensor element is stabilized to properly detect movement during normal operation. After turning on the power supply while the detectors are stabilizing, during these tens of seconds of stabilization false signals for motion detection may occur. It is "normal" for PIR motion detectors at power up.

16. If you are using "controller time module", connect output W1 to PS and/or W2 to PB

17. If you are connecting a LAN controller module using the controller functions, you need to connect the power supply, twisted computer wire from a Wi-Fi router, and configure the router as described in the LAN module description. The LAN module via a web browser or program for android can manage both the functions of the staircase controller (eg.11-20k LCD PARTY/RELAX) and via relay or transistor modules, you can attach your tablet, phone, laptop, PC, TV and more. Independent lighting in the living room, dining room, decorative lighting etc.

18. Tune to your needs, adjust the times, speed, select the effect, algorithm etc. for typical conditions prevailing on the stairs and expectations regarding the action. For 11-20 LCD versions it is good to note the factory settings, so that if the settings that are incomprehensible or cause adverse effects (e.g. speed not adapted to the algorithms, etc.), you can easily return to the typical initial settings.