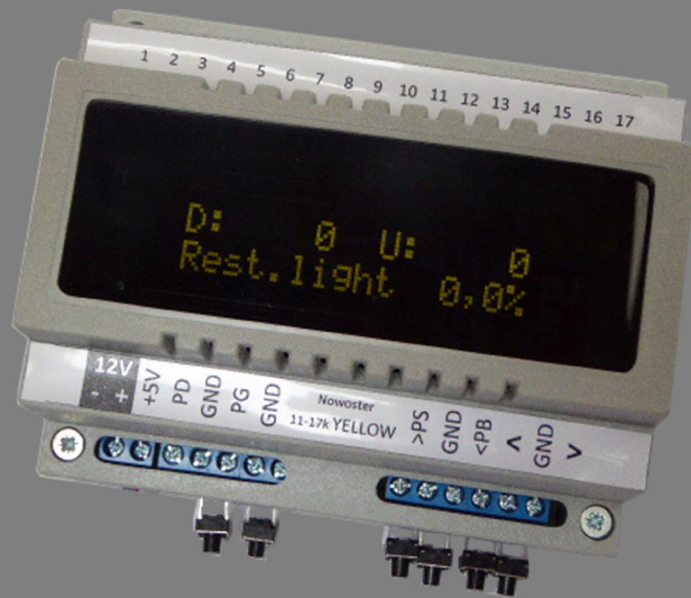


2016

CONTROLLER FOR STAIRCASE LIGHTING 11-17k LCD **YELLOW**

A device for the automatic control of stair treads lighting, with 9 configuration styles. Supports from 11 to 17 points of light.



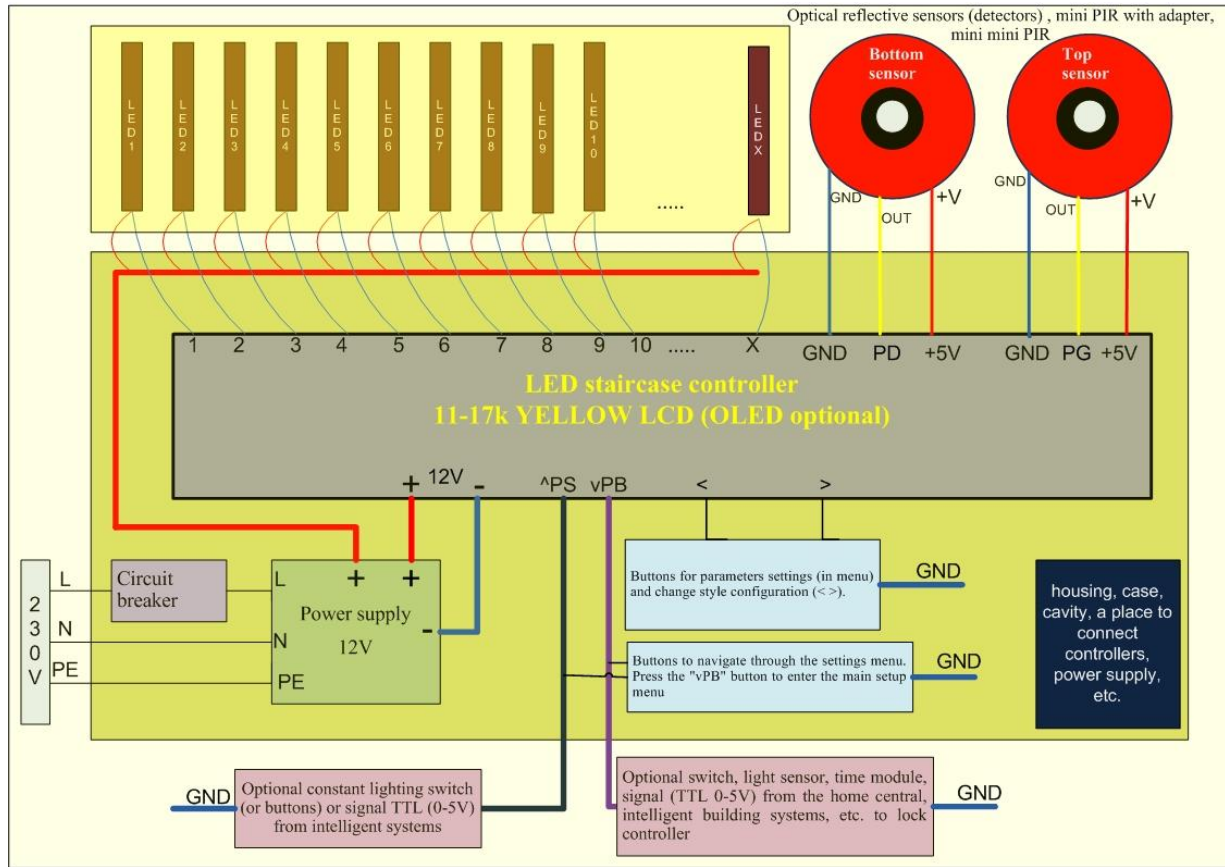
NOWOSTER



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1. Controller connection diagram



2. 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.

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. "Speed light ON down > up 20" – lighting speed control from bottom to top within the range 0-255 (0 – fastest, 255 – slowest).
3. "Speed light OFF down > up 20" – turning off speed control from bottom to top within the range 0-255 (0 – fastest, 255 – slowest).
4. "Speed light ON up > down 20" – lighting speed control from top to bottom within the range 0-255 (0 – fastest, 255 – slowest).
5. "Speed light OFF up > 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 brighten. 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. *"Turning mode <leap>"* – 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. *"Level of resting brightness 0,0%"* – adjusts the resting brightness (on standby) in the following range: 0-50%.
14. *"Resting brightn. <two extremes>"* – resting highlight setting. Available options are "<two extremes>", where on standby, first and last points/stairs are highlighted, and "<all>", where all the points (stairs) are highlighted.
15. *"Max. brightn. of effect 100,0%"* – adjusts the maximum brightness in an effect in the following range: 50-100%.
16. *"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.

17. *"Brightness light. ^PS input 100,0%"* – adjusts the brightness of light/stair launched from the ^PS input (steady or timer mode) in the range 0-100%.
18. *"Brightness lock vPB input 1.5%"* – adjusts the brightness of light points/stairs launched from the blocking vPB input in the following range: 0-100%.
19. *"Locking second detector 0 s"* – 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.
20. *"The number of stair treads 15"* – setting the number of stairs connected in the range from 11 to 17.
21. *"Launch delay 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.
22. *"Reset – default settings"* – return to the typical initial settings.

3. Status messages

I LCD display line

“D: X U: Y”

where X and Y is the number of activating the PD and PG (calculated from power-on). It's very useful in the diagnosis, to adjust the sensors sensitivity, eliminate of interferences (reflections, drafts etc.)

II LCD display line

1. *"Rest.light. 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.
2. *"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.
3. *"The 'Timer' from ^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.
4. *"Constant light. 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.

5. *"Stabilization 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.
6. *"ON D> U"* – lighting up from bottom to top (down → up).
7. *"OFF D> U"* – turning off from bottom to top (down → up).
8. *"ON U> D"* – lighting up from top to bottom (up → down).
9. *"OFF U> D"* – turning off from top to bottom (up → down).
10. *"All lights ON"* – lighting of all levels as the effect reaches the end after lighting.

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. 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.

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 the PIR motion detectors or optical sensors 0.8m (or other co-operating with the controller) to the PD and PG (and power) according to the descriptions of each type of detector. Check detectors action. Depending on your needs, adjust the angle of action (Fresnel lens or a sleeve, covering the PIR element) and sensitivity (potentiometer, switch, etc.).

Warning:

Directly with the controller can be used: optical detectors 0.8m, mini mini PIR detectors or other floating (not giving output voltage), which in the active state will give 0V (logical 0). Such detectors may not expose the output voltage of 12V and 230V, because the driver could be damaged.

Mini PIR detector HC - SR501 have the opposite logic and can be connected to the staircase controller only through dedicated adapter.

Analog optical Sharp sensors cooperate with the Nowoster stair controller only when using the *"Time module supporting optical Sharp sensors"*.

13. In the case of optical Sharp detectors the *"Time module supporting optical Sharp sensors"* is needed. Detectors have to be connected to the timer module inputs C1 and C3. To power the time module please use 9-15V - typically 12V.

Detectors' operation can be tested using the "sensors testing mode" available in the *"Time module supporting optical Sharp sensors"* (see the *"Time module..."* manual).

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 current 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 connect the module to the controller (W1 to PD, W2 to PG and optionally W3 to PB). Power supply of the staircase controller and *"Time module supporting optical Sharp sensors"* with the same power supply (supply minus is common ground).

14. 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.

15. If you are using other sensors than optical Sharp sensors it is also possible to use "*Time module to the controller*" (eg. to block the staircase lighting during the day). Time module outputs must then be set up as follows: W1 to PS and / or W2 to PB.
16. 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. By using "Reset – default settings" you can easily return to the typical initial settings.