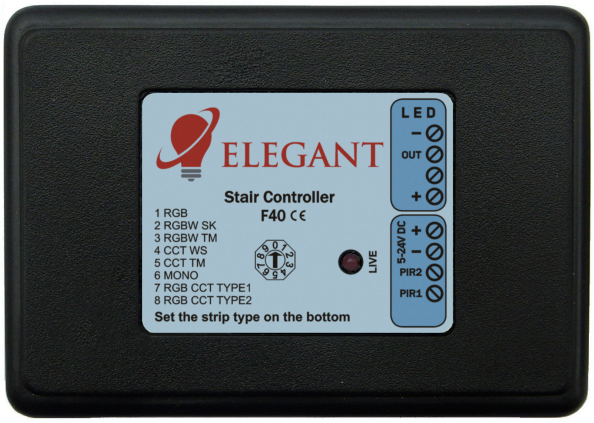
F40 STAIRWAY CONTROLLER

The F40 Stairway-Corridor Controller allows for an animated (unfolding) lighting effect for corridors or stair steps. The controller works with reflective motion sensors (e.g., FS1 type), which detect a person walking up the stairs or passing through the corridor. The presence of a person triggers an animation that unfolds in the direction of their movement. The animation “folds” back after a set time.
In stairway mode, the controller offers 67 effects, while in corridor mode, it provides 28 effects. The F40 controller is designed to support various types of digital LED strips (RGB, RGBW SK6812, RGBW TM1814, RGB+CCT, CCT WS2811, CCT TM1814, MONO).

Strip type	Maximum number of pixels	Maximum strip length [m]		
		60d/m 24V	60d/m 12V	30d/m 12V
RGB	1000	100	50	100
RGBW SK6812	700	70	35	70
RGBW TM1814	700	70	35	70
CCT WS2811	1000	100	50	100
CCT TM1814	700	70	35	70
MONO	1000	100	50	100
RGB+CCT WS2805	600	60	30	60
RGB+CCT WS2811	500	50	25	50



Configuration for RGB, RGBW SK 6812, RGBW TM 1814, RGB+CCT strips

Step 1: Selecting the LED strip
Before starting the configuration, use a screwdriver to set the switch located on the bottom of the controller to the desired type of LED strip:
0. RGB+CCT WS2811, 1. RGB, 2. RGBW SK6812, 3. RGBW TM1814,
4. CCT WS2811, 5. CCT TM1814, 6. MONO, 7. RGB+CCT WS2805

Step 2: Pairing the remote control with the controller (mandatory)
Each controller can be assigned a specific remote control (Fig. 1, buttons 5.). If this is not done, the controller will not respond to the remote control. To do this, follow these steps:
- Connect the digital LEDs to the controller
- Turn on the controller's power and within 2 seconds of powering on, briefly press “M”, and then “I” on first zone switch (5.). The LEDs should blink.

Step 3: Configuration mode
- To enter the configuration settings, press and hold the “M” button for 8 seconds.

Step 4: Color order
- After entering the configuration mode, the LEDs at the beginning of the LED strip should light up. Now, use the “S+” and “S-” buttons to ensure that the first three LEDs light up sequentially in the following colors: red, green, blue.
- Press the “M” button to proceed to the next step.

STAIRWAY MODE

Step 5: Mode selection
- Use the "S+" and "S-" buttons to set the first section of the LED strip to light up in GREEN (this indicates stairway mode).
- Press "M".

Step 6: Length of steps
- A portion of the strip will start blinking. The blinking section represents one step.
- Use the "S+" and "S-" buttons to set the length of the step, one pixel at a time.
- Adjust so the blinking green section fully covers the first step without overlapping the next step.
- Add the next step by pressing "I"/"ON" on the main switch (at the top of the remote).
- The strip section for the second step should now blink in RED. Again, adjust to fully cover the step.
- Set the next step (this time green again). Repeat these actions until all steps are configured.
- Press "M".

WARNING! Be careful not to add more steps than actually exist.
This will result in a delay for the upper sensor (steps that do not exist will “light up”). Remove extra steps by pressing “0”/"OFF" on the main switch (at the top of the remote).

Step 7: Direction
- Red dots should now move across the strip.
- Use the "S+" and "S-" buttons to ensure the dots move in one direction.
- Press "M".

Step 8: Overlap
- The first step will light up in white. Now, use the "S+" and "S-" buttons to adjust the "overlap." The larger the part of the second step that lights up in white, the greater the overlap.
- The overlap determines how much time before the animation for the first step finishes the next step begins to light up. A larger overlap results in longer blending of the animations for consecutive steps.
- Press "M".

Step 9: Animation speed
- The animation on the steps should now appear.
- Use the "S+" and "S-" buttons to adjust the animation speed for the unfolding of the stairs.
- Press "M".

Step 10: Fade out time
- Set the time after which the steps should fade out. The number of seconds is indicated by the number of sections lit at the beginning of the LED strip.
- Adjust the number of these sections (seconds) using the "S+" and "S-" buttons.
- Press "M". This will exit the configuration mode.

CORRIDOR MODE

Step 5: Mode selection
- Use the "S+" and "S-" buttons to set the first section of the LED strip to light up in RED (this indicates corridor mode).
- Press "M".

Step 6: Strip length
- Set the length of the LED strip:
  Use the "S+" and "S-" buttons to set the strip length, one pixel at a time.
  Ensure the entire strip lights up, but do not set more than needed (no surplus).
- Press "M".

Step 7: Animation speed
- Set the animation speed using the "S+" and "S-" buttons.
- Press "M".

Step 8: Fade out time
- Set the time after which the lighting should fade out. The number of seconds is indicated by the number of blue sections lit at the beginning of the strip.
- Adjust the number of these sections (seconds) using the "S+" and "S-" buttons.
- Press "M". This will exit the configuration mode.

Configuration for CCT WS2811, CCT TM1814, MONO strips

Step 1: Selecting the LED strip
Before starting the configuration, use a screwdriver to set the switch located on the bottom of the controller to the desired type of LED strip:
0. RGB+CCT WS2811, 1. RGB, 2. RGBW SK6812, 3. RGBW TM1814,
4. CCT WS2811, 5. CCT TM1814, 6. MONO, 7. RGB+CCT WS2805

Step 2: Pairing the remote control with the controller (mandatory)
Each controller can be assigned a specific remote control (Fig. 1, buttons 5.). If this is not done, the controller will not respond to the remote control. To do this, follow these steps:
- Connect the digital LEDs to the controller
- Turn on the controller's power and within 2 seconds of powering on, briefly press “M”, and then “I” on first zone switch (5.). The LEDs should blink.

Step 3 (optional): Animation smoothness. NOTE! This can only be done for COB MONO strip!
- By default, the controller is set to standard animation smoothness, but it can be increased. This change is made using a paired remote control. On the zone switch (5), briefly press "I" on the first zone FIVE TIMES, on the second zone ONCE, on the third zone TWICE, on the fourth zone TWICE.
The pixels should light up sequentially. If this does not happen, press the "O"/"OFF" button on the main switch (1) repeatedly until the pixels move sequentially. To save the changes, wait 3 seconds and disconnect the controller from the power supply.
To reverse the process (reduce animation smoothness), on the zone switch (5) briefly press "I" on the first zone FIVE TIMES,on the second zone THREE TIMES, on the third zone TWICE, on the fourth zone TWICE.
The LED diodes should blink. To save the changes, wait 3 seconds and disconnect the controller from the power supply. After the LED on the controller turns off, turn the power back on.

Step 4: Configuration mode
- To enter the configuration settings, press and hold the “M” button for 8 seconds.

STAIRWAY MODE

Step 5: Mode selection
- Using the "S+" and "S-" buttons, set the first section of the LED strip to BLINK (this means staircase mode)
- Press "M"

Step 6: Length of steps
- A portion of the strip will start blinking. The blinking segment represents one step.
- Use the "S+" and "S-" buttons to adjust the step length, pixel by pixel
- Set it so the blinking segment fully covers the first step without overlapping the next one
- Add the next step by pressing "I"/"ON" on the main switch (at the top of the remote)
- Now the blinking segment should correspond to the second step. Adjust it again to fully cover the step.
- Configure the next step. Repeat these actions until all steps are configured.
- Before proceeding to the next step, you can verify the configuration: odd steps will light brighter, even steps dimmer, and the last edited step will blink.
- Press "M"

WARNING: Be careful not to add more steps than actually exist. This will cause a delay in the top sensor's operation (steps that don't physically exist will "light up"). You can remove extra steps by pressing “0”/"OFF" on the main switch (at the top of the remote).

Step 7: Direction
- White dots should now run along the strip
- Use the "S+" and "S-" buttons to set the direction of the dots so they run in one direction
- Press "M"

Step 8: Overlap
- The first step will light up in white. Now, using the "S+" and "S-" buttons, set the "overlap." The more of the second step that lights up in white, the larger the overlap. The overlap determines how early the next step begins to light up before the animation for the current step ends. The greater the overlap, the more the animations for the steps will overlap.
- Press "M"

Step 9: Animation speed
- An animation should now appear on the steps
- Adjust the speed of the staircase unfolding animation using the "S+" and "S-" buttons
- Press "M"

Step 10: Fade out time
- Set the time after which the steps should turn off. The number of seconds is represented by the number of white sections lit at the beginning of the LED strip
(sections light up every other one to make counting easier)
- Set the number of these sections (seconds) using the "S+" and "S-" buttons
- Press "M". This will exit the configuration mode

CORRIDOR MODE

Step 5: Mode selection
- Using the "S+" and "S-" buttons, set the first section of the LED strip to light up CONTINUOUSLY (this means corridor mode)
- Press "M"

Step 6: Strip length
- Set the length of the LED strip:
  Use the "S+" and "S-" buttons to adjust the length of the strip, pixel by pixel
  Make sure the entire strip lights up, but no more than that—do not set it with extra length (more than needed)
- Press "M"

Step 7: Animation speed
- Adjust the animation speed using the "S+" and "S-" buttons
- Press "M"

Step 8: Fade out time
- Set the time after which the lighting should fade out. The number of seconds is represented by the number of white sections lit at the start of the LED strip

(sections light up every other one to make counting easier)
- Set the number of these sections (seconds) using the "S+" and "S-" buttons
- Press "M". This will exit the configuration mode

Using the remote control

The main switch (1.) allows you to turn on the lighting permanently (by pressing "-" / "ON") or switch to automatic mode controlled by motion sensors (by pressing "0").

The color wheel (2.) selects the color (or set of colors) used for lighting effects. Some effects (e.g., the rainbow) do not respond to the color wheel.

The brightness slider (3.) adjusts the brightness of the animation effect.

The program buttons (4.) "S-" and "S+" are used to select the desired animation effect.

The "I" and "0" buttons on zone 1 of the remote control (5.) adjust the brightness of the constant backlighting (when the controller is inactive—that is, when no motion is detected by the sensors). Constant backlighting can be completely turned off only for some of the available effects.

The saturation slider (6.) adjusts the color saturation.

The slider (7.) changes the white color temperature.

The button (8.) turns on white color. Subsequent presses change the white color temperature.

SUPPORTED REMOTE CONTROLS:
Mi-Light / MIBOXER
FUT089, FUT092, FUT096, C8
B3, T3, B4, T4, K1, FUT007, T1

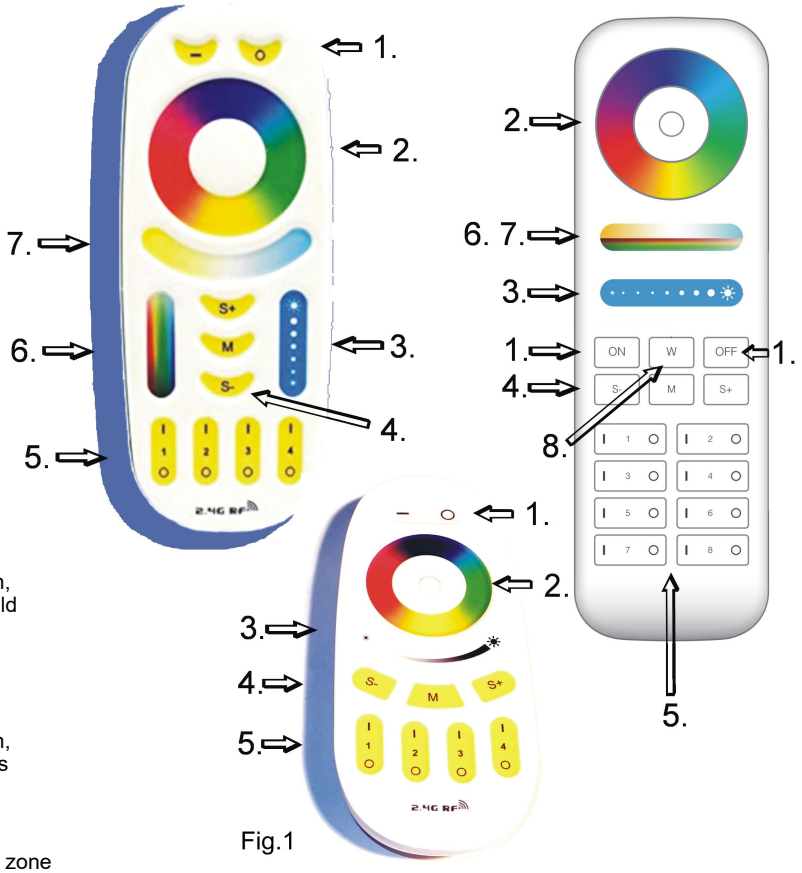


Fig.1

1. Main switch. Turns all zones on and off.
2. Color wheel (color selection).
3. Brightness slider.
4. Program buttons (S+ S-).
5. 4 or 8 zone switches.
6. Color saturation slider.
7. White color temperature slider.
8. White color switch.

Deleting a remote control from the controller's memory.
- connect digital LED strips to the controller
- turn on the controller's power and within 2 seconds of powering on, briefly press “M”, and then “0” on any zone switch (5.). The LEDs should blink.

Deleting all remote controls from the controller's memory.
- connect digital LED strips to the controller
- turn on the controller's power and within 2 seconds of powering on, briefly press “M”, and then "0"/"OFF" on the main switch (1.). The LEDs should blink.

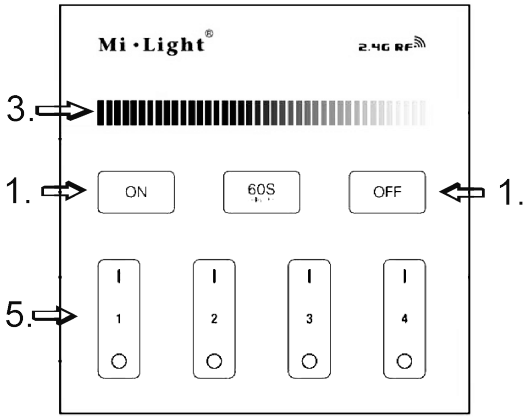
Restoring Factory Settings
Factory settings can be restored using a paired remote control. On the zone switch (5), briefly press "I" on the first zone FIVE TIMES,on the fourth zone TWICE.
The red LED on the controller should turn off for approximately 3 seconds.

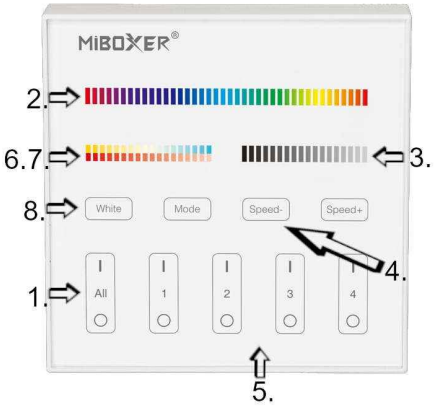
WARNING! The 4-zone remotes of the mono type B1, K1, T1, and FUT007 cannot access the configuration menu or change effects.

Pairing a B1 or T1 remote with the controller
- Connect the LED strips to the controller.
- Turn on the controller’s power and within 2 seconds of powering on, press “I” three times on one selected zone switch (5.).
- The LED strips should blink.

Deleting a B1 or T1 remote from the controller’s memory
- Connect the LED strips to the controller.
- Turn on the controller’s power and within 2 seconds of powering on, press “0” three times on any zone switch (5.).
- The LED strips should blink.

Deleting all B1 or T1 remotes from the controller’s memory
- Connect the LED strips to the controller.
- Turn on the controller’s power and within 2 seconds of powering on, press OFF three times.
- The LED strips should blink.





9.

Pairing the K1 Panel
- Connect the LED strips to the controller.
- Turn on the controller's power and within 2 seconds of powering on, press the "SET" button (9) multiple times on the back of the panel. The LEDs should blink several times – the panel has been successfully paired.

Pairing the FUT007 Remote
- Connect the LED strips to the controller.
- Turn on the controller's power and within 2 seconds of powering on, press the "I" button (5) on the zone switch panel multiple times. The LEDs should blink several times – the remote has been successfully paired.

Controller Specifications
- Power supply voltage: Controller F40 - 5...24V
- Sensor inputs: active low state, inputs are pulled up to the power supply plus with 3.6kOhm resistors inside the controller
- Maximum LED current when powered through the DC connector (5.5/2.1mm): 5A
- Maximum LED current when powered through the screw terminal: 9A
- Dimensions: 60 x 84 x 30mm
- Remote control operating frequency: 2.4GHz, powered by 2 x AAA batteries
- Supported ICs (digital LEDs):
APA104, M16703A, M1824, PD9823, SK6812, SM16703, TM1803, TM1804, TM1809, TM1814, TM1824, UCS1903, UCS1909, UCS1912, UCS2903, UCS2909, UCS2912, WS2805, WS2811, WS2812B, WS2812D, WS2812F, WS2812S, WS2813, WS2814, WS2815, WS2818

5.

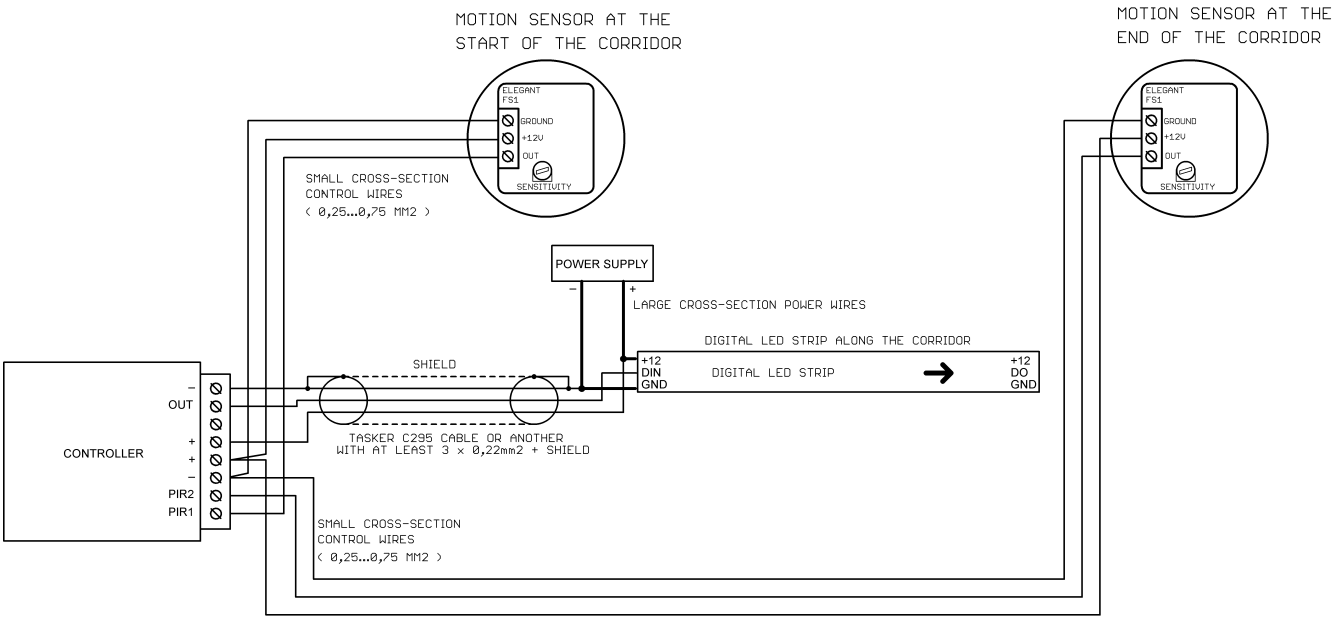
Required Operating Conditions:
- Ambient temperature: +1°C to +40°C
- Relative humidity: 30% to 75%
- The device may only be installed by a person with the appropriate qualifications.
- The LED strip control wire (connected to the device output) should not exceed 10cm. If longer wiring is needed, the control signal must be transmitted using a shielded (coaxial) cable. The responsibility for selecting the correct cable and addressing potential radio interference caused by improper wiring lies with the installer.
- The connected digital LED strip or digital LED modules must comply with applicable electromagnetic compatibility standards.
- Connect the device only when the power supply is disconnected.
- The device cannot operate near heat sources, harmful radiation, or strong electromagnetic fields.
- Clean the housing with a damp cloth, ensuring the power is disconnected.
- Do not connect the power supply if the device has visible damage.
- Protect the device from contact with water and other liquids.

Required Storage Conditions:
- Only in enclosed spaces where the atmosphere is free of vapors and corrosive substances.
- Ambient temperature: -30°C to +40°C, air humidity: 30% to 90% (non-condensing).

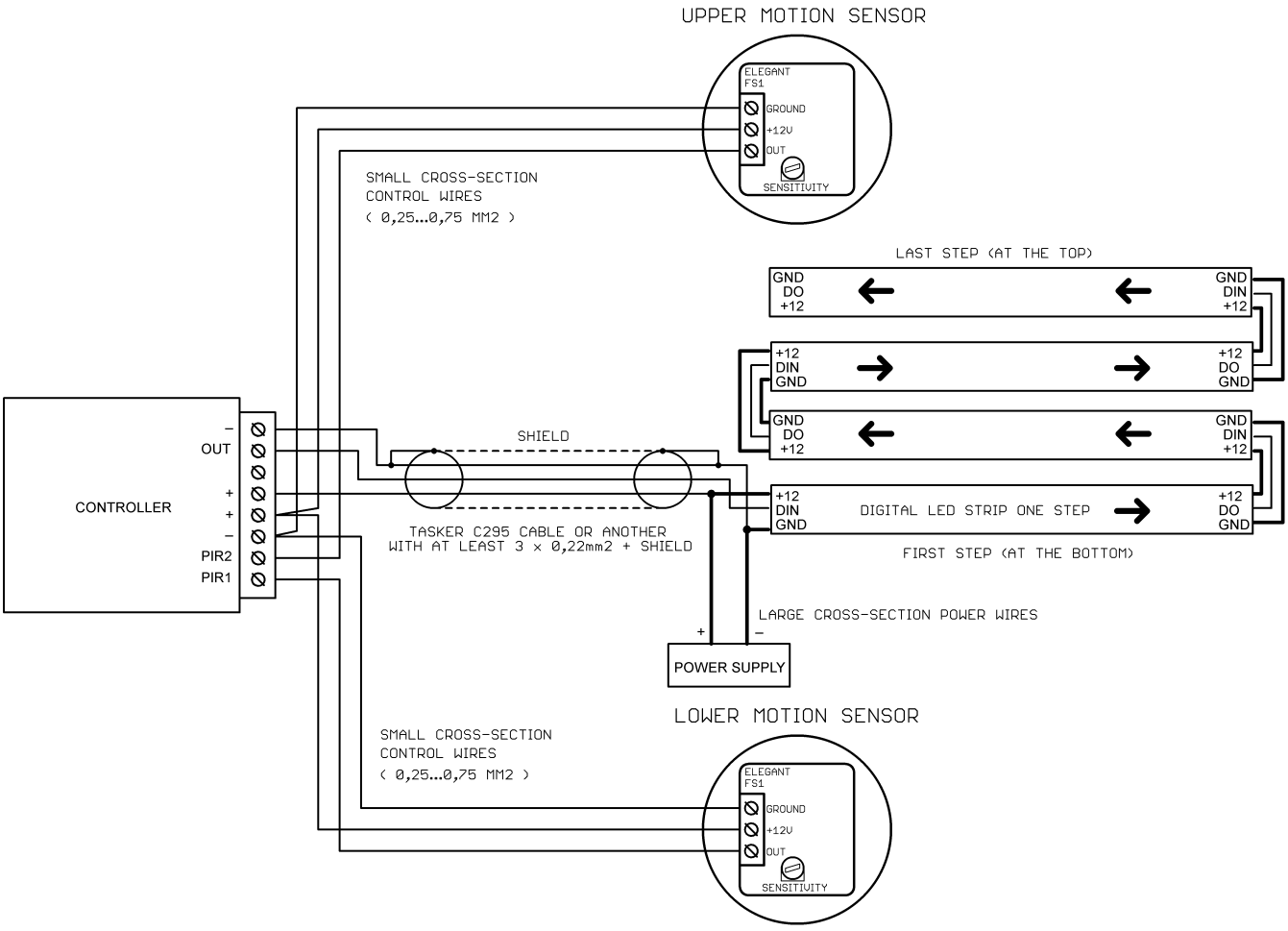
Device Disposal:
The device must not be discarded in regular waste bins. Unneeded or used products should be delivered to specialized recycling centers operated by municipal authorities.

Connection Diagrams

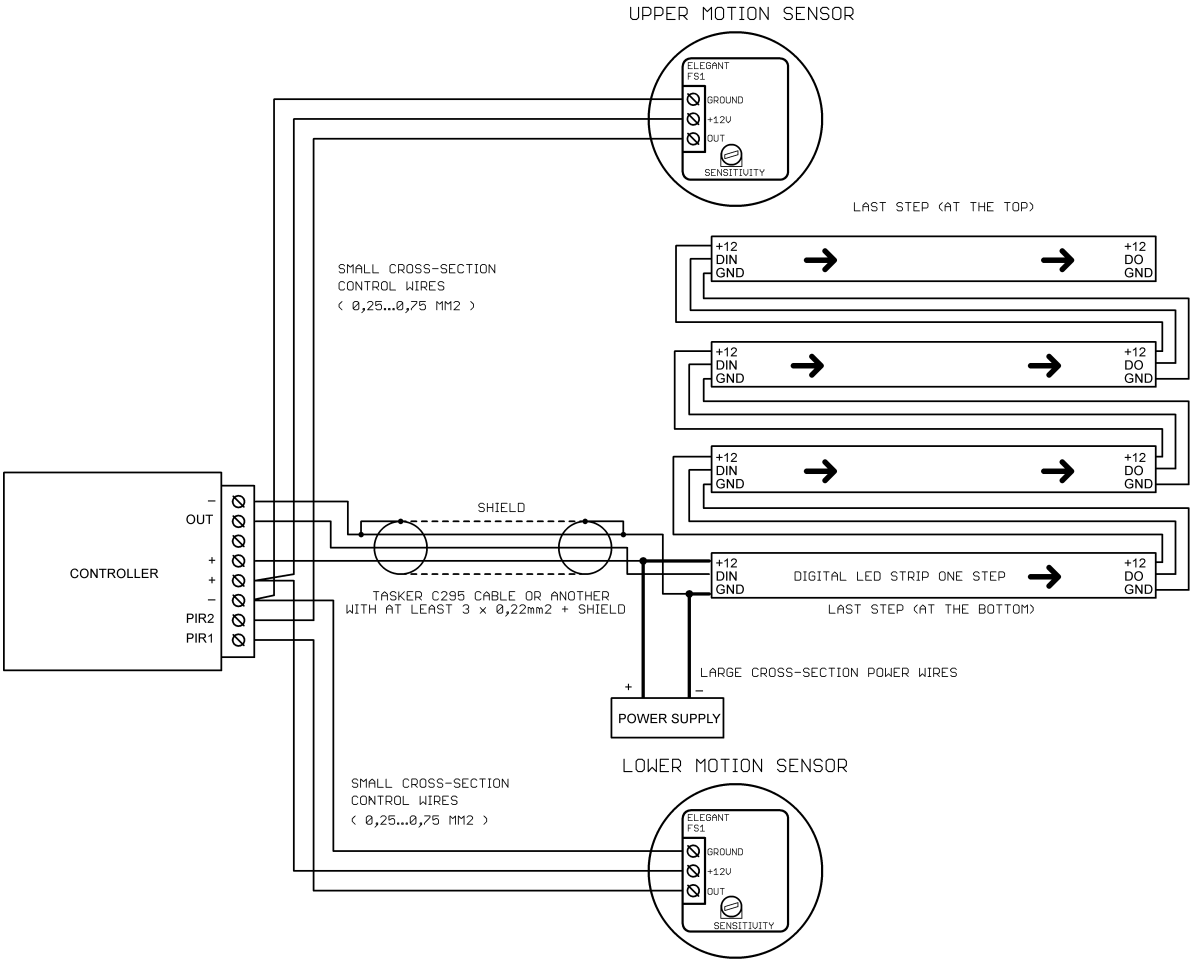
Example Connection - Corridor



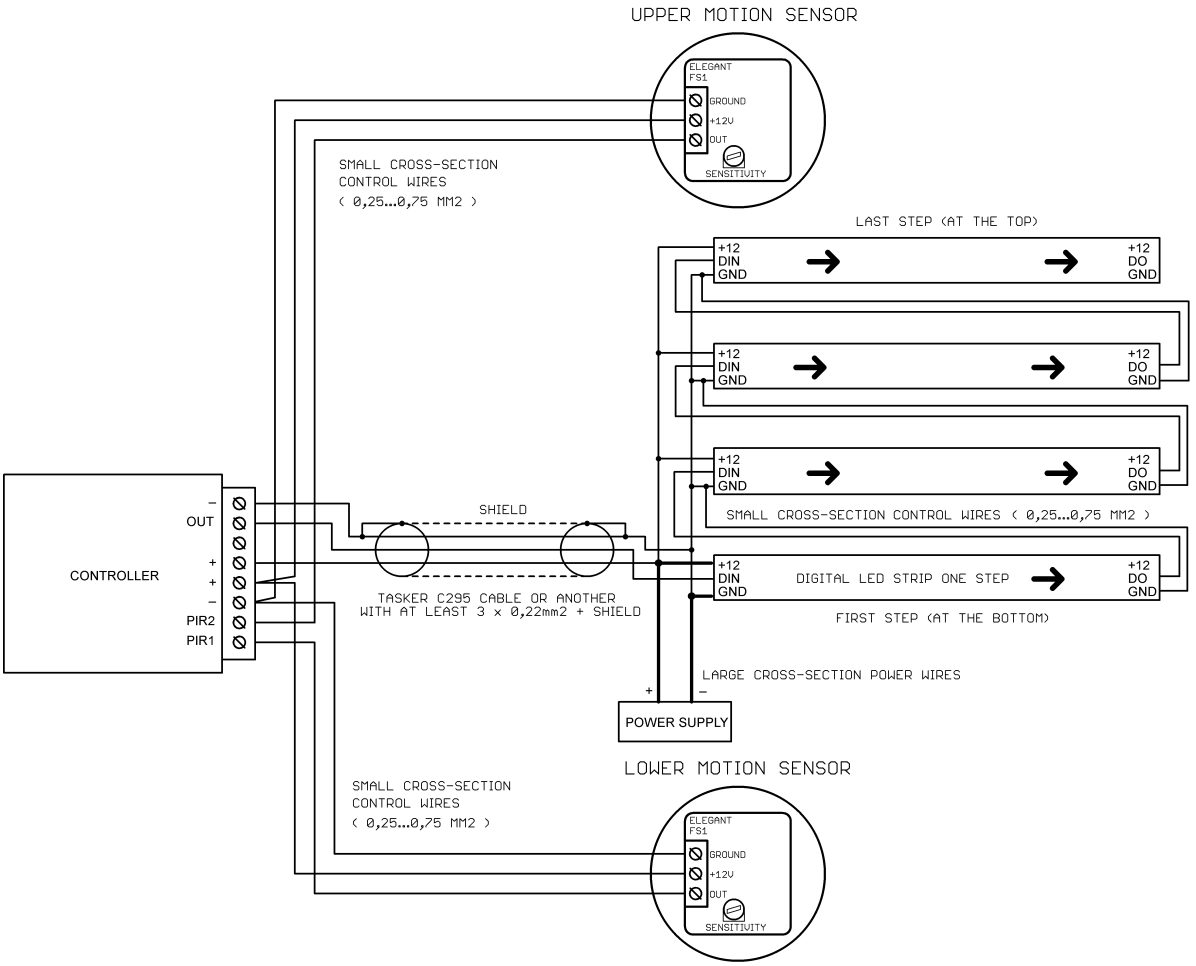
Example Connection on Stairs -
LED Strip Arranged in Two Directions (Snake-Like Pattern)



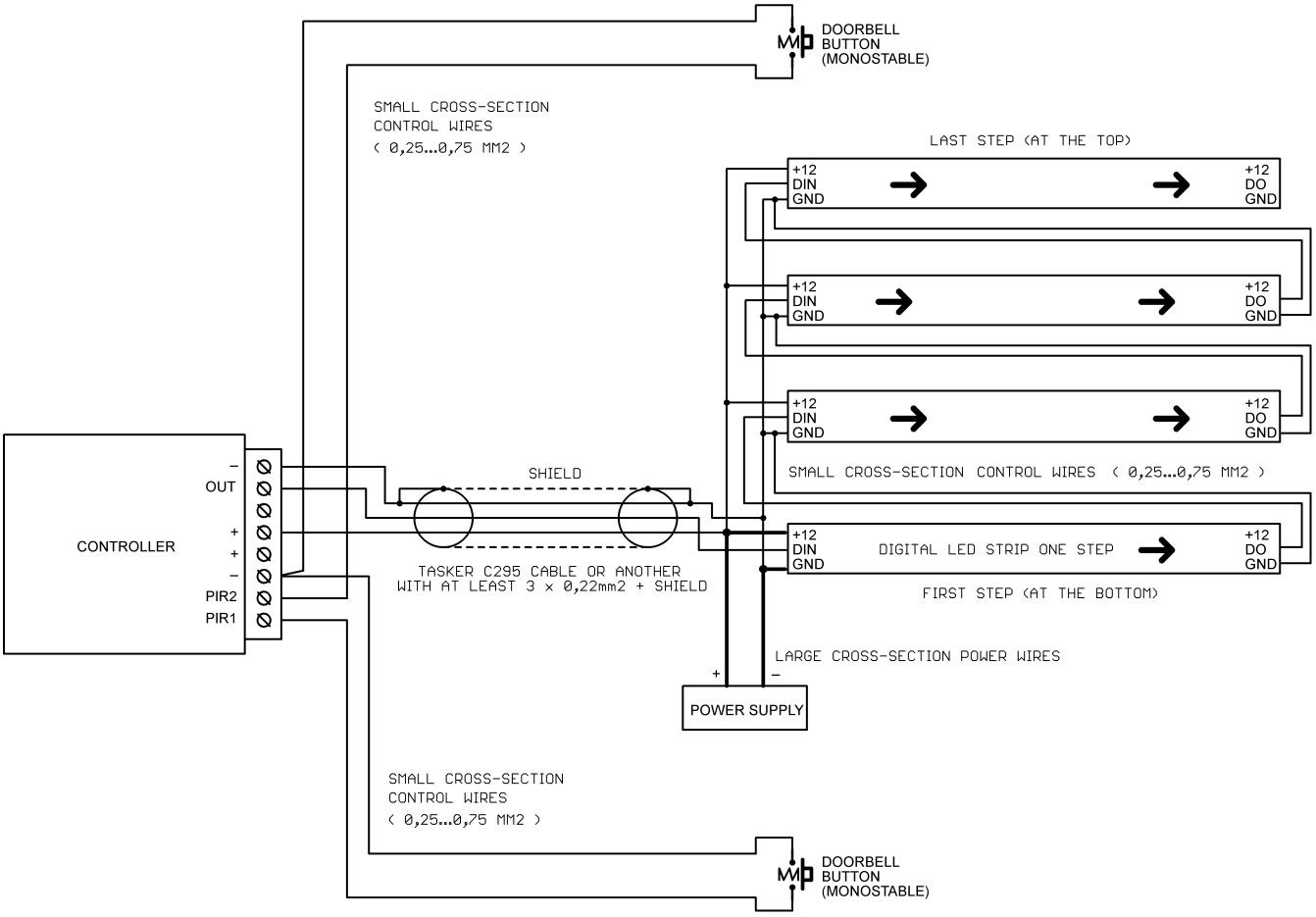
Example Connection on Stairs -
LED Strip Arranged in One Direction

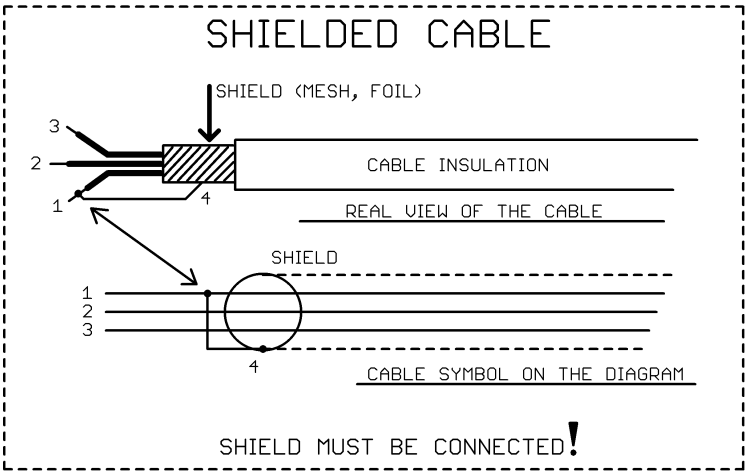
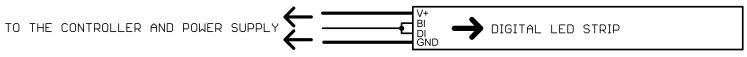


Example Connection on Stairs -
LED Strip Arranged in One Direction,
Power Wires on One Side



Example Connection of Momentary Buttons (Monostable) Instead of Motion Sensors





CONNECTION IN THE CASE OF FOUR-WIRE STRIPS
(WS2813, WS2815, WS2818)