



Connection manual for a Vargov®Design composition

Suspended lighting and decorative compositions.
This document continues the mounting manual: it begins where every
element is already hanging in place.



EN

A WORD FROM VARGOV®DESIGN

Choose the scheme before drilling the ceiling: a place for the driver cannot be added afterwards.

All electrical work is carried out by a qualified electrician. Before starting, the line must be switched off and verified with a tester. Follow the steps strictly in order.

WHO THIS DOCUMENT IS FOR

This manual is universal: it describes the connection of any suspended Vargov®Design composition.

If an individual factory drawing came with your order, that drawing takes precedence. It states the actual number of branches, the driver rating and the element count on each output; here are the general rules those drawings are built on.

If the composition has no lighting, it has no electrical part: installation ends with the mounting manual.

STEP 1. What you need at hand

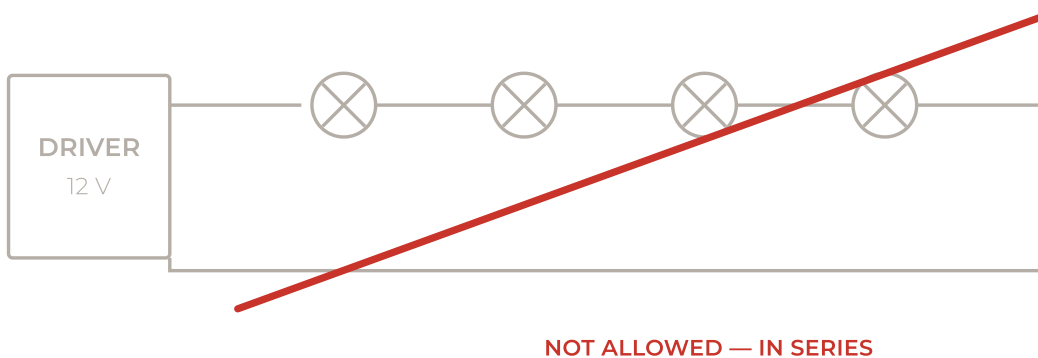
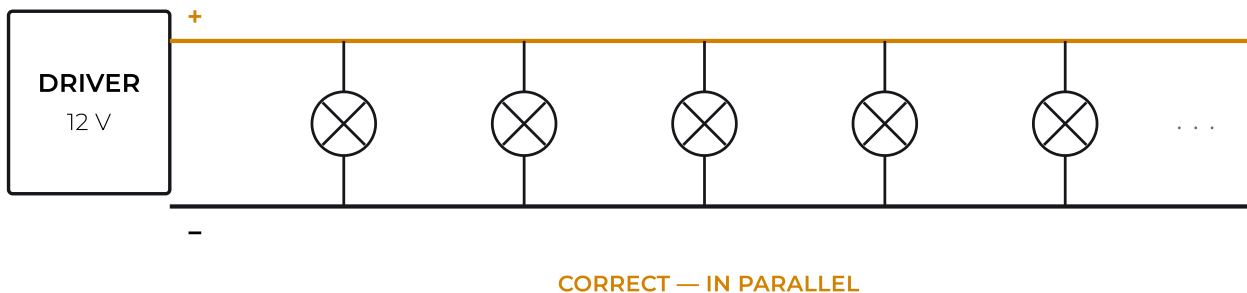
- 1 **The 1:1 mounting drawing** on banner fabric. The ceiling is already marked and drilled to it; the tag numbers on the wires match the positions on the drawing.
- 2 **The driver** — on 12 V compositions it is **included in the delivery**. It arrives as a separate item or already built into the base of the composition.
- 3 **Terminal connectors** — one per element.
- 4 **A voltage tester or multimeter** — to confirm the line is dead and to check polarity.
- 5 **Clean gloves.** A fingerprint on glass or polished metal is harder to remove than to avoid.

A WORD FROM VARGOV®DESIGN

- ◆ Do not remove the tags until the connection is finished: they are part of the project documentation and double as height stops.
- ◆ Work one branch at a time and do not start the next until the previous one is done. Wires mixed up mid-job cost more than the time saved.
- ◆ The ceiling must be dry, free of dust and with no traces of leaks.

STEP 2. The one rule: parallel connection only

Every element of the composition is wired **in parallel**: each on its own pair of wires to the common supply rails. The rule is the same for every composition — at 12 V and at 220 V alike.



Why:

- ◆ every element sees the same voltage, so the whole composition lights evenly;
- ◆ one failed element does not switch off the rest;
- ◆ a branch can be extended or shortened without recalculating the others.

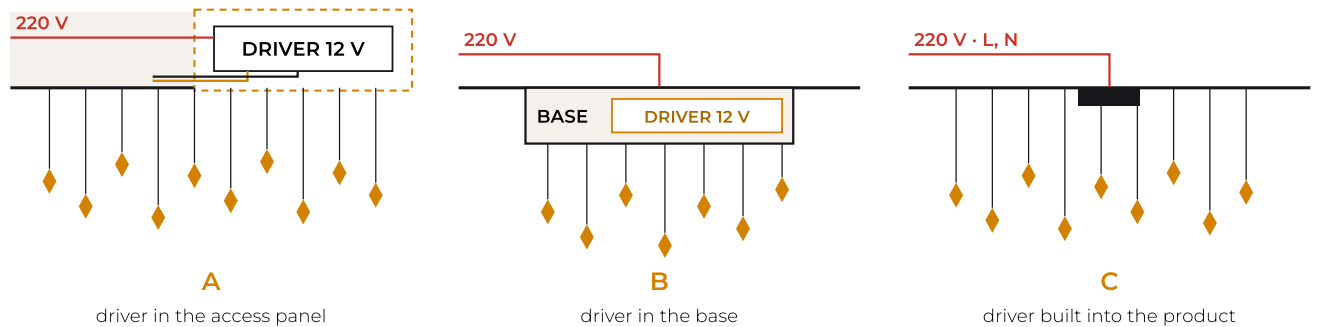
Series connection is not permitted: the voltage would be divided between the elements, the light would become uneven, and with a large element count the composition would not light at all.

A WORD FROM VARGOV@DESIGN

Every factory drawing opens with the words «Parallel Circuit» and a diagram with a plus and a minus. That is not title-page decoration — it is the only wiring scheme the product allows.

STEP 3. Three supply schemes. Choose one

The only difference between them is where the driver sits. The wiring of the elements themselves is identical in all three cases: parallel.



SCHEME	WHAT REACHES THE COMPOSITION	WHEN TO CHOOSE IT
A · driver in the access panel	12 V DC, one pair of wires per branch	Recommended. The driver stays reachable, the ceiling stays clean, no base needed
B · driver in the base	220 V to the base, 12 V onwards inside	When the ceiling cannot be prepared: a single 220 V feed is enough
C · 220 V feed	live and neutral only	When the driver is already built into the product

IMPORTANT

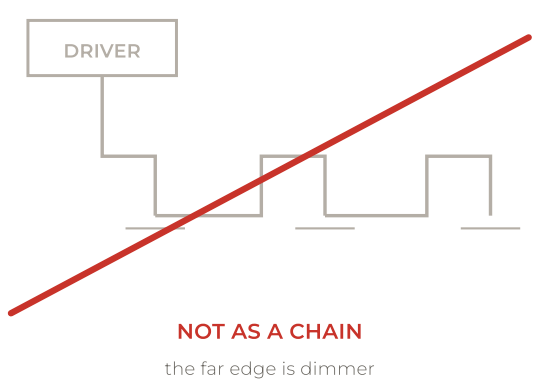
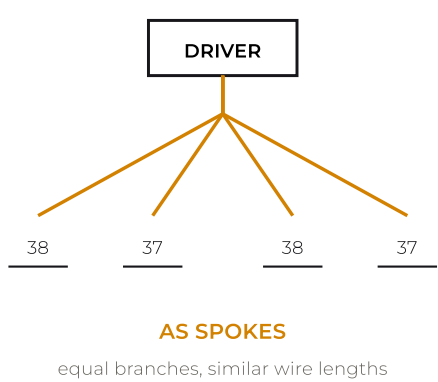
The driver must remain reachable. Do not place it in a closed ceiling void without an access panel, and do not seal it inside the base of a large composition.

A driver has a shorter service life than the composition, and replacing it must not require dismantling the product. Factory drawings for large orders carry this requirement as a line of its own.

STEP 4. Splitting into branches

A composition is divided into several branches. A branch is a group of elements wired in parallel onto one pair of wires from a driver output.

- ◆ **No more than 50 elements per pair of wires.** Factory drawings put between 8 and 50 elements on one output, and fifty is the line the factory does not cross.
- ◆ **Keep branches roughly equal** in element count: 37 and 38, not 60 and 15.
- ◆ **Run branches as spokes from the driver**, not chained one after another.



ELEMENTS	SPLIT INTO BRANCHES	DRIVERS
16	8 + 8	one, 50 W
100	50 + 50	one, 100 W
120	30 + 30 + 30 + 30	two of 150 W
150	37 + 38 + 37 + 38	two of 150 W
198	29 + 29 + 28 × 5	seven compact
250	(42 + 42 + 41) × 2	two of 200 W

Splits taken from factory drawings of real orders. The rule is visible: a larger composition gets more branches, not longer ones.

STEP 5. Sizing the driver

TWO STEPS

- 1 **Total load** = number of diodes × diode power.
- 2 **Add a 20–30 % margin** and take the next size up from the 45 / 50 / 100 / 150 / 200 W range. A driver running at its limit gets hot and lasts less.

WHERE TO FIND THE DIODE POWER AND THE NUMBER OF DIODES

The diode power is on the product page at vargov.ru, in the «Element parameters» block, the line «Diode power». On most compositions it is 2 W; 0.5, 1, 4, 5 and 10 W also occur.

The number of diodes is not always the number of elements: an element may carry one diode or two, and some elements carry none — the diode then hangs separately next to them. So for an order, take the total load from the factory's individual scheme or from the configurator; the examples below are for checking the driver and getting the order of magnitude.

EXAMPLE	LOAD	DRIVER
20 elements, one 2 W diode each	$20 \times 2 = 40 \text{ W}$	50 W
100 elements, one 0.5 W diode each	$100 \times 0.5 = 50 \text{ W}$	100 W, branches of 50
40 elements, two 1 W diodes each	$40 \times 2 \times 1 = 80 \text{ W}$	100 W
120 elements, one 2 W diode each	$120 \times 2 = 240 \text{ W}$	two of 150 W

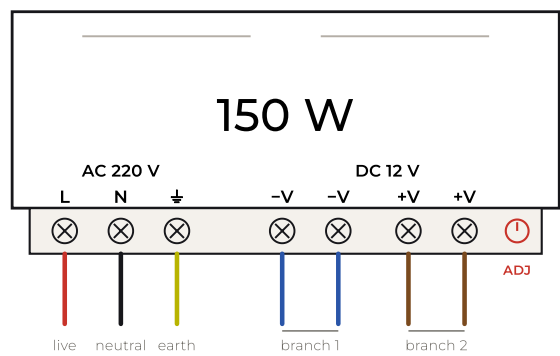
When one driver is not enough, use two and split the composition in half — by the number of diodes, not by area: a half of small elements and a half of large ones draw different loads.

IMPORTANT

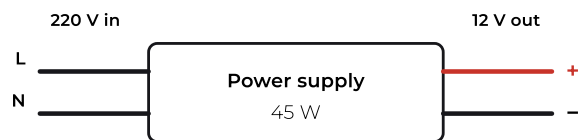
The driver voltage must match the composition. It is printed on the driver housing and on the product tag. **A 12 V composition must never be connected directly to 220 V mains** — that destroys every element at once.

STEP 6. Driver terminals: what goes where

Two kinds of driver appear in the kits. They work the same way — 220 V in, 12 V out — but they are marked differently.



large driver, metal housing



compact driver, plastic housing

WHAT YOU CONNECT	LARGE DRIVER	COMPACT DRIVER
Live	● red, terminal L	per the L marking
Neutral	● black, terminal N	per the N marking
Earth	● yellow-green, terminal $\perp$	not provided
Plus to the elements	● brown, terminal +V	● red, lead +
Minus to the elements	● blue, terminal -V	● black, lead -

IMPORTANT

Identify a terminal by the marking beside it, not by the colour of the wire. On the compact driver the plus is red. On the large one red is the 220 V live and the plus is brown. A habit formed on one driver causes a short circuit on the other.

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The **ADJ** screw on the large driver trims the output voltage. It is set at the factory for the elements of your composition. Leave it alone: half a turn changes the brightness of the whole composition and the life of the diodes.

STEP 7. Order of work

- 1 **Confirm the line is dead** — with a tester, not by the position of the breaker.
- 2 **Fix the driver** in the access panel, the distribution board or the base: on a solid surface, not buried in insulation, with an air gap all round. A driver gets hot and needs to shed that heat.
- 3 **Bring 220 V to the driver input** — live, neutral and earth if the circuit has one. Earth goes to the $\perp$ terminal on the driver itself; the low-voltage side is not earthed.
- 4 **Run pairs of wires from the -V and +V outputs** to the branch positions. Allow generous cross-section and length: at 12 V a long thin wire drops noticeable voltage, and the far edge of the composition will be dimmer.
- 5 **Join the element wires to the branch wires** with terminal connectors, observing polarity. One branch at a time.
- 6 **Check the mechanics:** no wire pinched by the access hatch, resting on a sharp edge or pulled taut. Every wire should have slack.
- 7 **Close the driver** and only then switch on.

A WORD FROM VARGOV@DESIGN

Do not test as you go, switching on after every branch. Half a wired composition under power means bare wire ends next to your hands. Testing is done once, when everything is connected.

STEP 8. Check before switching on

- ☐ The line is dead — and has been dead throughout the work.
- ☐ Every element is in place and the tags are still on.
- ☐ Polarity is correct in every connector.
- ☐ No strand sticks out of a connector or touches its neighbour.
- ☐ The driver is fixed, not covered by insulation, not resting on wires.
- ☐ Earth is connected if the circuit has one.
- ☐ No branch carries more than 50 elements.
- ☐ The total element load does not exceed the driver rating.

STEP 9. Switching on for the first time

WHAT YOU SEE	WHERE TO LOOK
Nothing lights at all	No 220 V at the driver input, or the driver's overload protection has tripped. Switch off, check the feed and the total load.
One branch is dark	Reversed polarity on that branch, or a wire not clamped in the output terminal. Switch off and swap the two conductors.
One element is dark	Its connector. Switch off, open the joint and remake it.
Dim or flickering light	The driver is at its limit. Check the total load and the margin.
The far edge is dimmer	Voltage drop along a long wire. Run the branches as spokes of roughly equal length, not as a chain.

STEP 10. Caring for the composition

- ◆ **Switch the composition off before any cleaning.**
- ◆ Remove dust with a clean dry cloth.
- ◆ Remove marks with a slightly damp cloth, then dry at once.
- ◆ **Alcohol and acidic products are not allowed:** they leave matt traces on glass and strip the polish from metal.
- ◆ Do not wash elements under running water, and do not install a composition on a ceiling with traces of leaks.

WHAT MUST NOT BE DONE

- ◆ Wire elements in series.
- ◆ Put more than 50 elements on one pair of wires.
- ◆ Replace the driver with a weaker one or with one of a different voltage.
- ◆ Turn the ADJ screw.
- ◆ Cover the driver with insulation or seal it in without access.
- ◆ Work under power.

SAFETY

Electrical work is carried out by a qualified electrician. All work is done with the power off. The warranty does not cover damage caused by connection that departs from this manual or from the individual factory drawing.

SUPERVISED INSTALLATION BY VARGOV@DESIGN

Large and complex compositions can be entrusted to our installers — on site, with responsibility for the result and formal handover. Terms and enquiries: vargov.ru/en/installation

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