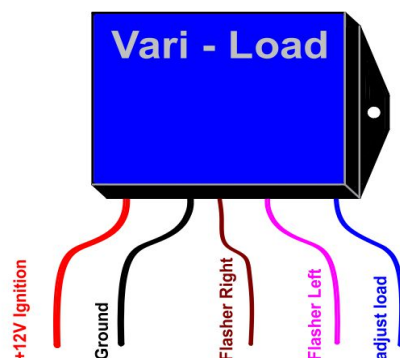


# Installation of the Vari Load

**No time for manuals?** We know, but it will take only 2 minutes of your time to read this manual, and then about 20 minutes for the installation and adjusting the Vari Load. Promise! :-)

The Vari Load is a programmable Load-Equalizer that affords you to use LED Flasher in any bike. LEDs only have a very small load footprint. This often leads to the fact that the flasher relay flashes too fast or the ECU produces an error message. Depending on the used LED-Flashers there has to be a load resistor, wired parallel to the flasher. But which one? The Vari Load makes it easy to find it out. It emulates 50 different resistors and makes the choice for the right resistance value easy. After getting the right adjustment, the Vari Load can simply stay in the bike or could be replaced by a standard available resistor, stated in the chart on page 2.



**+12V Ignition (red):** Connect this cable behind the Ignition switch to the plus pole. It only supplies Vari Load's internal microcontroller with a few milliamperes.

**Ground (black):** This cable is connected to the frame or the minus pole of the battery. Please always ensure a „good“ grounding. A bad or faulty conducting can end up in malfunctions.

**Flasher right (brown):** This cable is connected to the right flasher.

**Flasher left (violet):** This cable is connected to the left flasher.

**Load adjust (blue):** With this cable you can adjust the load. If you touch and hold this cable to +12V (plus), the Vari Load increases the load up to about 10 Watt in 50 steps. The load decrease down to 0 Watt if you touch the cable to ground (minus). The built in LED indicate the adjusted load with the number of flashes. Every flash increase the load at about 0,2 amperes what result in a higher load or a lower resistance. The lowest value is about 1 Watt. The LED glow permanently if the Vari Load reaches the lowest or highest point. At the lowest point, the load is 0 watts, at the highest point, it is about 10 watts. **You can wire both load inputs parallel in order to get a higher virtual load if you need more load.** However in this case you only can make your adjustments on one side ;-) Just disconnect the blue cable when you have figure out the right load value. The device saves this value and the blue cable is no longer needed. By the way, you might insolate the blue cable to make sure that is no change of the value by accident if you leave the device implemented in your bike.

## Automatic mode:

By the way, the Vari Load can search for the right load for your bike and store it. Just wire the blue cable to ground **before** you switch on the ignition. Now activate the flasher function after switching on the ignition and the Vari Load start to measure the flasher frequency and increase his load until the flasher frequency is down to about 90 flashes / minute. The search for the right load is indicated with flashes of the internal led. The led is permanent on in the moment when the flasher frequency is down to 90 flashes / minute. Now you can remove the blue cable from ground and the load value is stored in the Vari Load.

Please consider that the Vari Load may only be installed by qualified service-technicians. Any liability of the manufactor for damages or accruing disadvantages of the user caused by inappropriate using or installing the Vari Load are distinctly excluded. **Please notice the respective traffic regulations. Further on, the Company Axel Joost Elektronik declares that the Vari load is applicable to the usable CE-Norms and the regulations of ROHS are accomplished. The Vari Load is conform to 2014/53/EU, EN50364, EN00330. For further quesitions just feel free to send a mail to [info@elektronikbox.de](mailto:info@elektronikbox.de).**

**Chart of loads** (The load can have about 10% tolerances, depending of the battery voltage value)

Flashrate	Load	Resistance	Suggested Res.
1	0,5 Watt	380 Ω	360 Ω, 1 Watt
2	0,8 Watt	237 Ω	240 Ω, 1 Watt
3	1,3 Watt	146 Ω	150 Ω, 1 Watt
4	1,5 Watt	127 Ω	120 Ω, 2 Watt
5	1,9 Watt	100 Ω	100 Ω, 2 Watt
6	2,1 Watt	90 Ω	82 Ω, 2 Watt
7	2,4 Watt	80 Ω	82 Ω, 2 Watt
8	2,7 Watt	70 Ω	68 Ω, 2 Watt
9	3 Watt	63 Ω	68 Ω, 2 Watt
10	3,3 Watt	58 Ω	56 Ω, 2 Watt
11	3,6 Watt	52 Ω	56 Ω, 2 Watt
12	3,9 Watt	49 Ω	47 Ω, 2 Watt
13	4,1 Watt	46 Ω	47 Ω, 5 Watt
14	4,5 Watt	42 Ω	39 Ω, 5 Watt
15	4,8 Watt	40 Ω	39 Ω, 5 Watt
16	5,1 Watt	37 Ω	39 Ω, 5 Watt
17	5,4 Watt	35 Ω	33 Ω, 5 Watt
18	5,7 Watt	33 Ω	33 Ω, 5 Watt
19	6 Watt	32 Ω	33 Ω, 5 Watt
20	6,3 Watt	30 Ω	33 Ω, 5 Watt
21	6,6 Watt	29 Ω	27 Ω, 5 Watt
22	6,9 Watt	28 Ω	27 Ω, 5 Watt
23	7,2 Watt	26 Ω	27 Ω, 5 Watt
24	7,5 Watt	25 Ω	27 Ω, 5 Watt
25	7,8 Watt	24 Ω	22 Ω, 5 Watt
26	8,1 Watt	23 Ω	22 Ω, 5 Watt
27	8,4 Watt	23 Ω	22 Ω, 5 Watt
28	8,7 Watt	22 Ω	22 Ω, 5 Watt
29	9,1 Watt	21 Ω	22 Ω, 5 Watt
30	9,4 Watt	20 Ω	22 Ω, 5 Watt
31	9,7 Watt	20 Ω	22 Ω, 5 Watt
32	10,1 Watt	19 Ω	18 Ω, 10 Watt *
33	10,3 Watt	18 Ω	18 Ω, 10 Watt *
34	10,5 Watt	18 Ω	18 Ω, 10 Watt *
35	10,8 Watt	18 Ω	18 Ω, 10 Watt *
36	11,1 Watt	17 Ω	18 Ω, 10 Watt *
37	11,4 Watt	17 Ω	18 Ω, 10 Watt *
38	11,7 Watt	16 Ω	15 Ω, 10 Watt *
39	12 Watt	16 Ω	15 Ω, 10 Watt *
40	12,2 Watt	16 Ω	15 Ω, 10 Watt *
41	12,5 Watt	15 Ω	15 Ω, 10 Watt *
42	12,7 Watt	15 Ω	15 Ω, 10 Watt *
43	13 Watt	15 Ω	15 Ω, 10 Watt *
44	13,2 Watt	14 Ω	15 Ω, 10 Watt *
45	13,5 Watt	14 Ω	15 Ω, 10 Watt *
46	13,9 Watt	14 Ω	15 Ω, 10 Watt *
47	14,3 Watt	13 Ω	12 Ω, 10 Watt *
48	14,6 Watt	13 Ω	12 Ω, 10 Watt *
49	14,8 Watt	13 Ω	12 Ω, 10 Watt *
50	15 Watt	13 Ω	12 Ω, 10 Watt *

Pls. note that flashers are usually „on“ in half of the time, the suggested load values for the resistors could be lower, as far as wire-resistors are in use. \* The load values above 10 Watt are only usable for a short term workshop use.