velorian E-BIKE BLINKERSET & velorian BLINKERBOX ALPHA21

Installation

Videos on assembly are available at https://velorian.de/de/ebike-blinker.php. A step-by-step instruction is described below.

General Safety Instructions

The velorian e-bike blinkerset contains small parts that can be swallowed by small children. There is a risk of injury when handling the cables and tools. We recommend assembly in a specialist workshop. The electronics in the indicator box are reverse polarity protected. This means that reversing the connection cables (mixing up plus and minus) on turn signals, switches or the power supply will not destroy the electronics or the connected components.
However, if the connections are interchanged, e.g. the power supply is connected to the cables for the turn indicator, the electronics will be destroyed when the current is switched on. Likewise, poor insulation of the connecting cables can cause short circuits that destroy the electronics.

Blinkerbox

The first decision is where to mount the indicator box on the bicycle. There, it should first be attached provisionally so that the cable lengths can be determined. The indicator box is splash-proof. Nevertheless, the side with the two cables and the opening of the sound generator should be fixed in such a way that no water can collect on the sound generator. This side should therefore preferably face downwards.

Cable Box

The next step is to mount the cable box on the handlebar stem with the longer cable ties. These are pulled through the outer tabs. The shorter cable ties can also be pulled through the inner tabs before mounting. After connecting all the cables, they serve to secure the cables in the cable box and thus as strain relief.

Switch and indicator in front

From the blinkerbox, the 10-wire cable should first be pulled to the handlebar. If the velorian cable box is used, the middle of the cable box is the end point. At this point, the cable can be shortened with a side cutter.
The cable, now shortened to length, can now be stripped, the individual strands stripped and fitted with **flat connector sleeves**. We recommend the use of appropriate tools for stripping and crimping.
Now mount the front indicators and switches, shorten the connecting cables to the right length, strip the cable ends and fit **flat plugs**.

Note: When shortening the cables, it is better to leave one or two centimetres too much cable than too little. Be sure to turn the handlebars to one side and run the cable along the other side to determine the length. Experience has shown that people tend to forget to turn in the handlebars and a cable is quickly too short. In this case, nothing is lost, the cable can be reordered and replaced.

Crimping the plug connections

We recommend that you fit the cables to the indicator box with the flat plug sleeves  and the indicators and switches with the flat plugs. 

As the cable cross-section of the single strands of 0.14 mm2 or 0.25 mm2 is considerably thinner than the cables with a cross-section of 0.75 mm2 usually used on bicycles, the use of special small flat connector sleeves is recommended. These are enclosed with the blinkerset in addition to the usual crimp contacts. After crimping, insulate the flat plug sleeves and flat plugs with the enclosed heat shrink tubing.

Connection of the power supply and first function test

Once the front turn signals and switches are connected to the indicator box, a first function test can be carried out. To do this, the 2-wire cable of the blinkerbox is connected directly to the e-bike battery or another source such as the connecting cable of the headlight. Alternatively, the test can be done with the help of a 12 volt power supply unit. For the connection, flat plug distributors are enclosed with the indicator set, with which the current-supplying cable can be divided. These flat plug distributors are plugged onto flat plugs, so flat plugs must be crimped onto the cable ends on both sides. After switching on, the front turn signals will now still flash very quickly. This is correct because the rear turn indicators are still missing.
If a function test carried out at this point is successful, the connection to the power supply should first be disconnected again to avoid short circuits during further assembly!
Finally, the cable box can be closed.

Rear indicator

First, the indicator bracket for the rear turn signals should be mounted on the bike and the turn signals mounted on the bracket. Now the 4-wire cable can be routed to the mounting position of the rear turn signals, shortened to the correct length, the cable ends stripped and fitted with flat plug sleeves. Similarly, the connecting cables of the turn signals are shortened to the correct length and the cable ends are stripped and fitted with flat plugs.
Once the rear turn signals are connected, the connection to the power supply can be re-established and a final function test carried out.

Mounting finish

At the end of assembly, the position of the switches and indicators should be checked and all screw connections tightened. The remains of the cables and the cable ties can be disposed of in the residual waste.

Function and operating instructions

The function complies with the requirements of the StVZO (Germany) and UN ECE 50.

Operation with indicator switch (toggle switch)

When the toggle switch is mounted on an appropriately configured blinkerbox triggers flipping the toggle switch to the left the turn signals to flash on the left side. When the switch is returned to its original position the flashing stops.
Flipping the toggle switch to the right causes the indicators on the right to flash.
If the switch is not returned to the home position, **the flashing stops automatically after 4 minutes**. Returning the toggle switch to its original position and switching it on again will restart the flashing.
Triggering the hazard warning lights is not possible with the toggle switch.

Operation with buttons

When the push-buttons are mounted on an appropriately configured blinkerbox triggers a short press on the left push-button flashing of the turn signals on the left side. If the left button is pressed again, the left turn signals stop flashing. Pressing the button on the right side causes the indicators on the right side to flash. If the right button is pressed again, the flashing stops. Switching the flashing from e.g. left to right can be achieved by pressing the other button in each case.
If the indicators are not switched off manually, **the flashing stops automatically after 4 minutes.**
The hazard warning lights are triggered by switching on the other side. Pressing and holding one button and pressing the other button starts the warning flashing. It can be stopped again by pressing one of the buttons.
The warning flashing stops automatically after 30 minutes.

Warning function in case of failure of one of the turn signals (only with configuration for 4 turn signals)

If, for example, one of the rear turn signals fails:
- The front indicator flashes twice as fast. If the front indicator fails, the rear indicator flashes twice as fast.
- The separate status LED (if installed) flashes twice as fast.
- The sound generator in the flasher unit (if active) ticks twice as fast.

Configuration of the Blinkerbox

The indicator box can be configured for different operating modes. The push-buttons or a corresponding device and a connection to the power supply are necessary for configuration.

The configuration mode is set as follows: Keep one button permanently pressed and press the other button eight times in succession. Then release both buttons. A short tone sequence sounds. Now the indicator box is in configuration mode and the software version can be set. The following is an overview of which button presses determine which setting:

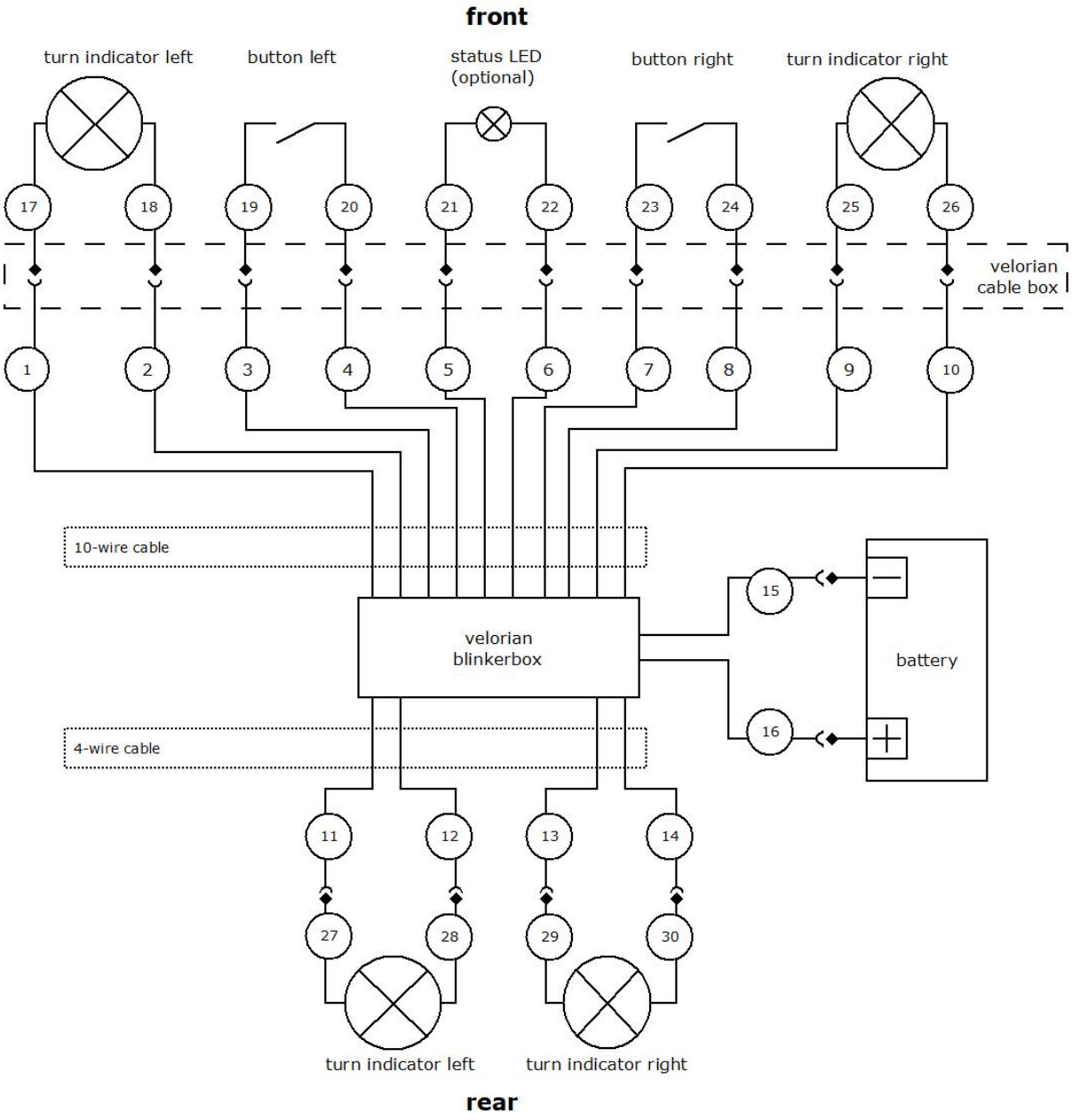
1st button press:	number of installed turn signals	left button = 2 turn signals	right button = 4 turn signals
2nd keystroke:	button or switch operation	left button = push button	right button = switch
3rd button press:	indicator sound on or off	left button = indicator sound off	right button = sound on

This results in the following key combinations to select the software versions in configuration mode:
L designates the left button, R the right button:

2 indicators switch with sound	LRR	4 indicators switch with sound	RRR
2 indicators button with sound	LLR	4 indicators button with sound	RLR
2 indicators switch without sound	LRL	4 indicators switch without sound	RRL
2 indicators button without sound	LLL	4 indicators button without sound	RLL

After entering the key combination, the configuration is completed and another short tone sequence sounds. If no switch is pressed is made, the configuration mode is automatically exited after approx. 2 minutes. The configuration is retained even after disconnection from the power supply.

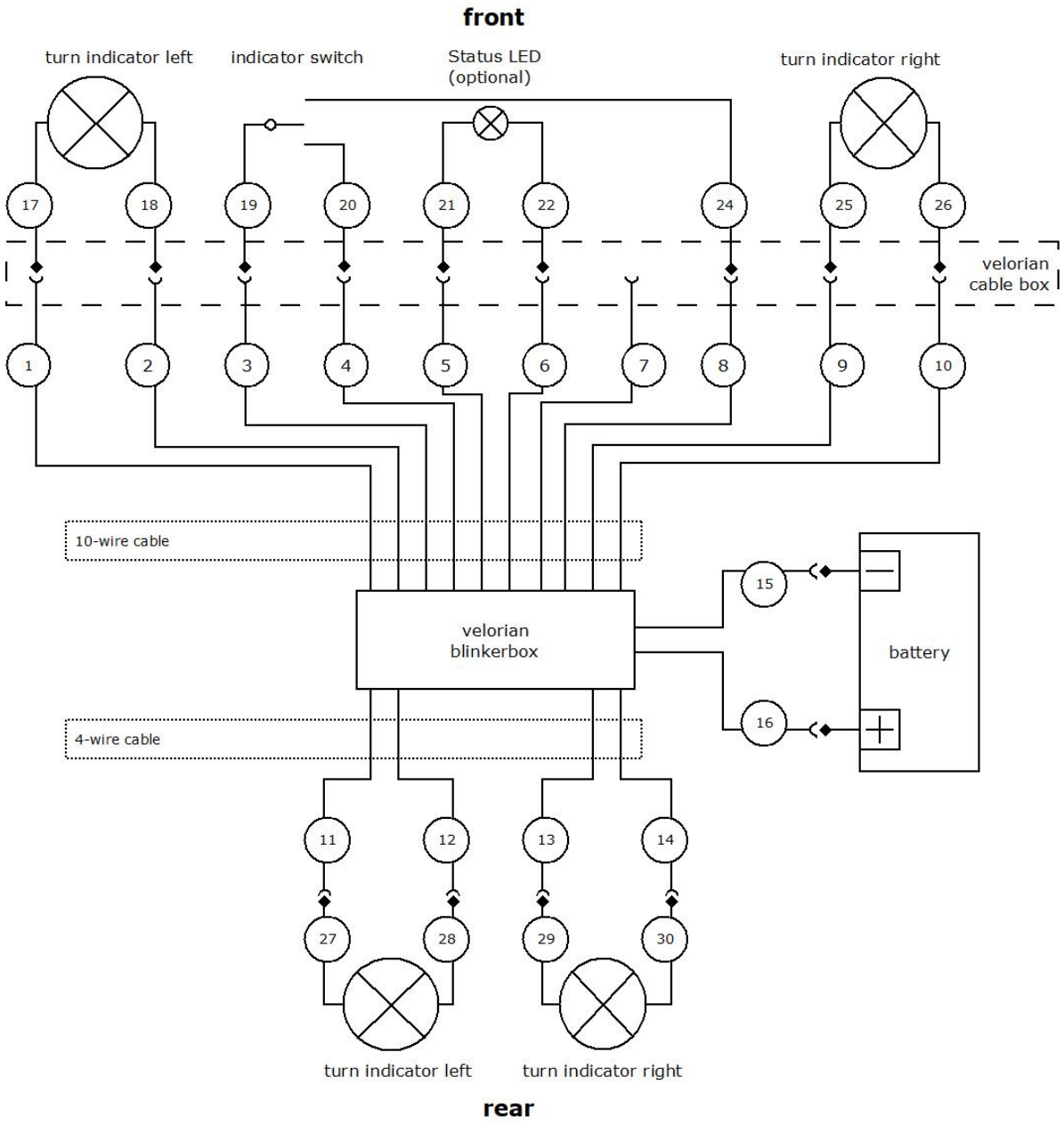
Subject to technical changes.



Pin assignment for push button operation

10-wire cable of the blinkerbox			
1	blue	17	Indicator front left + (yellow)
2	red	18	Indicator front left - (black)
3	green	19	Button left front (+ / -)
4	yello	20	Button left front (+ / -)
5	white	21	LED -
6	brown	22	LED +
7	grey	23	Button right front (+ / -)
8	pink	24	Button right front (+ / -)
9	black	25	Indicator front right + (yellow)
10	violet	26	Indicator front right - (black)
4-wire cable of the blinkerbox			
11	yellow	27	Indicator rear left + (yellow)
12	green	28	Indicator rear left- (black)
13	brown	29	Indicator rear right + (gelb)
14	white	30	Indicator rear right - (black)
2-wire cable of the blinkerbox			
15	brown		Power supply – (black)
16	white		Power supply + (black/white)

Technical Data Blinkerbox alpha21 (Art.-Nr: 1010101310)	
EMC approval	EN 55016-2-1; 2014-12 EN 55016-2-2; 2011-09 CISPR12 , ISO 11451-1; 2015, ISO 11451-2; 2015, EN 15194
Operating voltage	6-55 Volt
Output	6 Watt
Operating temperature	-20 up to +85 °C
Flashing frequency	90 pulses ± 30 pulses per minute
Protection class	IP 67



Pin assignment for switch operation

10-wire cable of the blinkerbox			
1	blue	17	Indicator front left + (yellow)
2	red	18	Indicator front left - (black)
3	green	19	Switch Ground (black)
4	yello	20	Switch left (red)
5	white	21	LED -
6	brown	22	LED +
7	grey	23	unoccupied
8	pink	24	Switch right (yellow)
9	black	25	Indicator front right + (yellow)
10	violet	26	Indicator front right - (black)
4-wire cable of the blinkerbox			
11	yellow	27	Indicator rear left + (yellow)
12	green	28	Indicator rear left- (black)
13	brown	29	Indicator rear right + (gelb)
14	white	30	Indicator rear right - (black)
2-wire cable of the blinkerbox			
15	brown		Power supply – (black)
16	white		Power supply + (black/white)

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