

Vanbase Color



The Vanbase Color is a compact lighting control system with 4 dimmable RGBW outputs for use in DC electrical systems in the living area of vehicles.

It is intended for use in electrical systems from 10 V to 30 V DC and provides space-saving, clearly arranged and expandable control of lighting and switching functions.

- Very space-saving design
- Installation with a screwdriver only, without cable lugs or ferrules
- All connections are located on the underside
- Extra-large input terminals up to 35 mm²
- Bluetooth included
- Automotive blade fuse to protect the output, with status display in the app
- 4 dimmable RGBW outputs with current measurement in the app
- 2 digital inputs, e.g. for push buttons
- Freely expandable via CAN bus

Typical applications are ambient lighting, interior lighting, awning lighting, surrounding-area lighting and coloured accent lighting with RGBW LED strips.

The safety instructions must be read in full and observed before installation.

Intended use

The Vanbase Color is intended for controlling and fusing suitable DC loads within the technical data specified in this manual. Operation is permitted only in DC electrical systems that have been professionally planned and installed.

Model and firmware version

This manual applies to model versions `v1` to `v6` and refers to firmware version `core/v53`.

The model version can be read out in the app as soon as BLE is activated on the device.

Scope of delivery

Component	Description
Device	1 x Vanbase Color
Documentation	Operating manual in digital form

Before starting the installation, the delivery must be checked for completeness and the device must be checked for visible transport damage. A damaged device must not be installed or operated.

Safety

These safety instructions must be read in full before installation and commissioning. Improper installation can lead to malfunctions, damage to the device and hazards to persons and electrical systems.

This operating manual must be kept and made available to everyone who installs, inspects, configures or services the device.



WARNING

Incorrectly dimensioned cables, unsuitable fuses, loose terminal connections, reversed polarity or faulty wiring of inputs and outputs can lead to overheating, short circuits, uncontrolled switching operations and fire hazards.

Personnel qualification

- The device must be installed by qualified personnel only.
- Work on the electrical system must be carried out only by persons with the necessary professional qualifications.

Intended use

- The device must be operated with direct current (DC) only.
- The permissible voltage range is 10 V to 30 V DC.
- Operation outside this voltage range is not permitted and can damage the device.
- The device is intended exclusively for controlling and fusing suitable electrical loads within the specified technical data.
- The device must only be installed and operated in technically perfect condition.
- Improper modifications or use other than as intended are not permitted.

Mounting requirements

- All designated mounting points must be used.
- Suitable and professional tools must be used for the installation.
- The device must not be used if it shows visible damage.
- The device must only be mounted on a suitable surface with sufficient load-bearing capacity.
- The device must not be mounted on readily flammable materials.
- Highly flammable materials must not be located in the immediate vicinity of the device or the connected cables.



WARNING

Suitable cable strain relief is mandatory. Cables must not transfer mechanical forces to the connection terminals.

Electrical connection requirements

- The power supply must be switched off before any work is carried out.
- The power supply must be switched off before inserting, removing or replacing fuses.
- The connection must be made with flexible cables only.
- The connection must be made only with suitable cables within the permissible cross-section ranges.
- Cable cross-sections and fuse ratings must be dimensioned correctly.
- The specified tightening torque of the terminals must be observed when connecting.
- Cables must be prepared with the correct stripping length.
- The connected cables must additionally be secured by external strain relief so that no mechanical forces act on the terminals.
- The installation must comply with the applicable national regulations and the recognised rules of engineering practice.

Fuse protection requirements



WARNING

- All four channels are protected by one shared output fuse. Its fuse rating must not exceed 10 A.
- Only approved ATO type fuses must be used.
- The output fuse also limits the total current of all four channels to 10 A.
- Defective fuses must only be replaced by fuses of the same type and the same rating.
- Fuses must not be bypassed or replaced by unsuitable components.
- The system fuse marked **SYS** must not exceed 2 A.

Service and repair

- The device contains no parts that can be serviced or repaired by the user.
- Repairs and interventions on the device must be carried out by qualified personnel only.
- In the event of visible damage, fuses tripping repeatedly without an identifiable cause, or thermal abnormalities, the device must be taken out of service and inspected.

Installation

The safety instructions must be read in full and observed before starting the installation.

Mounting the device

The device must be fastened securely to the intended mounting surface. All designated mounting points must be used.

The device may be mounted in any orientation.

The mounting location must be dry, clean and mechanically suitable. The device must only be installed in places where it cannot be damaged by loose objects, strong vibration or direct heat.

If an output fuse is already inserted, it must be removed before starting the installation.

The output fuse must not be inserted until the connected loads and the associated wiring have been fully installed and checked. Voltage is always present at the positive-side outputs on the device side.

Connecting the power supply

The power supply must not be connected until the device has been securely mounted and the power supply has been switched off.



WARNING

Incorrect connection of positive and negative or an unsuitable upstream fuse can lead to damage to the device as well as short circuit and fire hazards.

When connecting the power supply, the labelling of the connection terminals on the device must be observed. The supply must only be connected in accordance with the markings for positive **+** and negative **-**.

The permissible conductor cross-section of the **VIN** terminal is 0.5 mm² to 35 mm².

For a safe connection, the cables must be prepared appropriately and the screw terminals must be tightened with the correct tightening torque. The tightening torque specifies how firmly the terminal screw must be tightened.

Values for the **VIN** terminal

Property	Value
Permissible conductor cross-section	0.5 mm ² to 35 mm ²
Stripping length	18 mm
Tightening torque	2.5 Nm to 4.5 Nm

For cables with a cross-section below 25 mm², the tightening torque is 2.5 Nm. From a conductor cross-section of 25 mm² upwards, the tightening torque is 4.5 Nm.

The upstream fuse of the supply cable must be selected to match the cable cross-section used.

Cable cross-section	Maximum fuse rating
4 mm ²	30 A
6 mm ²	40 A
10 mm ²	60 A
16 mm ²	80 A
25 mm ²	80 A
35 mm ²	80 A

The values given in the table are guide values only. They are based on a cable length of approx. 1 m.

Responsibility for the correct dimensioning of the upstream fuse remains with the installer. The fuse protection actually required must be verified in each individual case, taking into account the actual cable length, the installation method, the ambient temperature and the connected loads.

The four channels of the Vanbase Color are protected by one shared output fuse. It must not exceed 10 A and at the same time limits the total current of all four channels.

Connecting the push button and output terminals

A conductor cross-section of 0.2 mm² to 6 mm² is permissible for the push button and output terminals.



WARNING

If push button or output terminals are operated with unsuitable cable cross-sections, faulty wiring or terminals that are not tightened sufficiently, there is a risk of malfunctions, overheating and damage to the device or to connected loads.

For the push button and output terminals too, the cables must be prepared appropriately and the screw terminals must be tightened with the correct tightening torque.

Values for the push button and output terminals

Property	Value
Permissible conductor cross-section	0.2 mm ² to 6 mm ²
Stripping length	8 mm
Tightening torque	0.5 Nm to 0.6 Nm

The outputs must be dimensioned in accordance with the technical data and the connected loads. All four channels are supplied through a shared output fuse. Its fuse rating must not exceed 10 A.

System fuse

In addition to the output fuse, the device has a separate system fuse. It is marked **SYS** on the device and protects the device electronics.

The system fuse must not exceed 2 A. The power supply must be switched off before inserting, removing or replacing the system fuse.

System layout and CAN connection

This page describes important information for operating several Vanbase devices in shared systems.

Standard layout with a shared voltage source

If several Vanbase units are operated in a classic system layout and the positive and negative supply of all devices comes from the same battery or from the same electrically shared supply system, the CAN connection can generally be established as intended.

This also applies when several devices are connected and the negative potential of all devices is identical.

The prerequisite is that all devices are operated on the same shared DC system and that no separate or isolated voltage sources are connected to one another.

Several Vanbase units with different voltage sources

If several Vanbase units are operated with different voltage sources and are connected to one another via the CAN bus at the same time, particular attention must be paid to the electrical system layout.

This applies in particular to isolated system layouts. In an isolated system layout, the negative potential of one voltage source is not directly connected to the negative potential of the other voltage source.

A CAN connection between the devices may still be required for full functionality. In this case, however, the connection must not be made with a complete RJ45 cable without verification.

Special considerations for isolated system layouts

In isolated system layouts, a standard RJ45 cable must not simply be used for the CAN connection if this would also connect additional lines besides the CAN communication, in particular a power supply via Power over Ethernet.

For this application, a suitable adapter must be used in which only the CAN lines are connected and no additional power supply is transferred between the devices.

Safety information



WARNING

- If several Vanbase units in isolated system layouts are connected using an unsuitable RJ45 cable, unwanted equalising or leakage currents can occur.
- Such currents can lead to malfunctions, damage to devices or cables and, in the worst case, to overheating and fire.
- In isolated systems, therefore, only a suitable CAN connection with a matching adapter must be used.
- In case of doubt, support must be contacted before commissioning so that the specific system layout can be assessed on a case-by-case basis.

Planning recommendation

Before connecting several Vanbase units with different voltage sources, the following must be checked:

- whether the system layout is isolated or non-isolated
- whether different ground or negative potentials exist between the devices
- whether only the CAN lines are used for the connection
- whether a suitable adapter is used for isolated systems

Only after this check may the CAN connection be established and the overall system put into operation.

Commissioning

The safety instructions and the installation requirements must be read in full and observed before commissioning for the first time.

Checks before switching on

Before switching on the supply voltage, the following must be checked:

- whether the device is securely fastened
- whether all designated mounting points have been used
- whether the external cable strain relief is present and effective
- whether all cables are connected correctly according to the labelling
- whether the positive and negative cables have not been interchanged
- whether the cables have been prepared with the correct stripping length
- whether all terminals have been tightened with the specified tightening torque
- whether a suitable ATO fuse with the correct rating is used as the output fuse
- whether the upstream fuse of the supply cable does not exceed 10 A
- whether connected loads are operated within the technical data of the device

Switching on for the first time

Once the check has been completed, the supply voltage can be switched on.

A steady light blue status LED indicates that the Vanbase Color is ready for operation.

Function test after installation

A complete function test must be carried out after commissioning:

1. Switch on the supply voltage.
2. Check the status LED.
3. Actuate both inputs individually.
4. Check the assigned outputs for correct switching and dimming behaviour.
5. Check the dimming function for dimmable loads.
6. Make sure that no unintended switching operations occur.
7. Check the cables and terminals for abnormalities during the first few minutes of operation.

What to do in case of abnormalities



WARNING

- Heating, odour, discolouration, flickering loads or fuses tripping repeatedly are not a permissible operating condition.
- In this case, the power supply must be switched off immediately and the installation must be inspected by qualified personnel.

Delivery state and factory settings

This page describes the delivery state of the Vanbase Color and how to restore the factory settings.

Operating state after switching on

The Vanbase Color starts once the supply voltage is switched on. A steady light blue status LED indicates that it is ready for operation.

Factory assignment of inputs and outputs

In the delivery state, a factory basic configuration for controlling the RGBW output is active.

Once suitable push buttons have been connected to the inputs, the factory-preset lighting function can be actuated immediately.

Push button behaviour in the delivery state

In the delivery state, the following basic functions apply to push button operation:

- Briefly pressing a push button switches the assigned output on.
- Briefly pressing it while the output is switched on switches the output off again.
- Pressing and holding it while the output is switched on dims the assigned load down to minimum brightness or until the push button is released.
- After releasing, pressing and holding again dims the output back up.

If a push button is pressed and held while the light is switched off, the **ALL Off** scene is activated. This switches off all outputs that are currently switched on.

This function also acts on other Vanbase devices in the system via the CAN bus, provided that the corresponding channels have not been configured differently in the app.

BLE in the delivery state

In the delivery state, Bluetooth Low Energy (BLE) is initially deactivated.

To connect to the app, BLE must first be activated on the device. There are two push buttons on the top of the device. To activate BLE, briefly press the right push button (function button). The status LED then starts flashing light blue. The device is now ready for pairing.

Once a connection to a mobile device has been established successfully, BLE remains activated. It can be deactivated later via the app.

Restoring the delivery state

The delivery state can be restored by performing a reset.

Procedure:

1. Press and hold the right push button (function button).
2. While doing so, briefly press the reset button (left push button).
3. Keep the function button pressed until the status LED changes to red.
4. As soon as the status LED lights up red, the reset is carried out.

If several Vanbase devices are connected to one another via the network, the function button must be held down until the status LED lights up red on all devices in the network.

Only then may the function button be released.

The device is then back in its delivery state.

Configuration

The configuration is device-dependent and varies according to the products used and the system layout.

General information

- A smartphone is required to change the configuration.
- Configuration changes are only possible while the device is supplied with power.
- The basic functions of the device can also be used without the app.
- After every configuration change, the inputs and outputs must be checked for correct operation.

App and system integration

If the system consists of several connected devices, configuration changes can also be transferred to other devices in the system, or carried out there, via the connected device.

Typical configuration options of the Vanbase Color

- Removing the numerical assignment of push button and output
- Brightness of the status LED
- Use of push buttons or switches on the inputs
- Maximum and minimum brightness of the outputs
- Outputs dimmable or non-dimmable
- State of the outputs after the voltage returns or after the device is switched on
- Automatic switch-off of the outputs after a defined time
- Assignment of new inputs to the outputs
- Scene management, e.g. `All Off` and user-defined scenes

Operation

The Vanbase Color is used to control and fuse suitable electrical DC loads. In normal operation, it is used via the connected inputs and the assigned outputs.

The Vanbase Color starts once the supply voltage is switched on. A light blue LED indicates that it is ready for operation.

Status LED colours and their meaning

Status LED	Meaning
 off	No voltage is present or the LED has been deactivated in the app.
 steady light blue	Normal state. The Vanbase is ready for operation.
 steady green	A push button is currently being actuated. This makes it possible to check whether a button press is detected.
 flashing yellow	The device is currently starting up and is in the boot process.
 flashing light blue	Bluetooth is being activated. The device uses this to signal that it can be paired.
 steady yellow	The Vanbase is connected to a Bluetooth device.
 steady red	The device is being reset to its delivery state.

Operating information

- Operation is only permitted within the technical data given in the specification.
- Before switching on again after any work on the system, all terminals, cables and fuses must be checked for correct seating and proper condition.
- Fuses that trip repeatedly are not a normal operating condition and indicate an overload, a fault in the load or a wiring error.
- A complete function test must be carried out after every change to the wiring or the configuration.

Information on inputs and outputs

The 4 outputs are designed as RGBW channels and intended for connecting suitable LED strips. All four channels are supplied through a shared output fuse. The total current of all channels must not exceed 10 A.

The 2 digital inputs can be assigned to push buttons, for example. Any number of push buttons can be used per lighting circuit.

The Vanbase Color is intended for switching and dimming RGBW LED strips. RGB LED strips can also be used in combination with a separate warm white light.

Fault states

This page describes typical fault states during practical operation of the Vanbase Color and the measures to be derived from them.

Typical fault states

Situation	Possible cause	Expected consequence / required measure
The output fuse trips	Overload, short circuit, defective load, faulty wiring	Determine the cause. Only replace the fuse when de-energised and only with the same type and rating.
The upstream fuse of the supply cable trips	Fault in the supply cable, incorrect fuse protection, wiring error	Switch off the power supply. Check the wiring and the dimensioning of the supply cable in full.
Unusual heating at terminals or cables	Loose terminal connection, cable cross-section too small, load too high	Take the device out of service and inspect the installation. Check contact resistances and cable dimensioning.
A load does not switch as expected	Incorrect assignment of input and output, configuration error, wiring error	Check the inputs and outputs as well as the configuration. Then carry out a complete function test.
Recurring malfunction at an output	Recurring overload, defective load or unsuitable installation	Do not ignore the fault by repeatedly switching back on. Check the affected circuit in full.
Incorrect behaviour in networked systems	Unsuitable CAN connection, particularly in isolated system layouts	Check the CAN system layout. In isolated systems, use only suitable adapters and exclusively the intended CAN lines.
CAN bus connection error	CAN bus terminating resistor not plugged in	Plug in the CAN bus terminating resistor. Then check the connection and the system function again.

Situation	Possible cause	Expected consequence / required measure
Visible damage, burning smell or scorch mark	Thermal overload, material defect or mechanical damage	De-energise the device immediately and do not continue to operate it. Inspection by qualified personnel is required.

Principles for safe return to service

- The cause of the fault must be unambiguously eliminated before switching on again.
- Simply changing a fuse without investigating the cause is not permitted.
- A complete function test must be carried out after every repair, change to the wiring or change to the configuration.
- If abnormalities recur, support must be contacted.

Maintenance and inspection

The Vanbase Color requires very little maintenance. Regular visual and function checks are nevertheless necessary for safe and reliable operation.

Regular visual inspection

The following must be checked at regular intervals:

- whether the device is securely fastened
- whether all cables are seated firmly in the terminals
- whether the external strain relief is still effective
- whether fuses, cables or terminals show visible damage
- whether there are discolourations, scorch marks or other signs of thermal overload

Checking the fuses

Fuses must be checked regularly for proper condition. Defective fuses must only be replaced by fuses of the same type and the same rating.

The power supply must be switched off before inserting, removing or replacing fuses.

Checking the terminal connections

Terminal connections must be checked regularly for firm seating and proper condition. Loose terminals can lead to increased contact resistance, heating and, subsequently, to malfunctions or fire hazards.

When cables are reconnected, the stripping lengths and tightening torques specified in the installation instructions must be observed.

What to do in case of abnormalities

The device must be taken out of service and inspected by qualified personnel if:

- fuses trip repeatedly without an identifiable cause
- unusual heating occurs
- damage to the housing, terminals or cables is detected
- a burning smell, discolourations or scorch marks are apparent

Decommissioning and storage

Temporary decommissioning

If the Vanbase Color is temporarily not in use, the device must be taken out of service in a controlled manner.

Procedure:

1. Switch off all connected loads.
2. Switch off the power supply of the system.
3. Make sure the system is de-energised before working on the cables or fuses.
4. If necessary, remove any inserted fuses where this is required for transport, inspection or modification.

Extended periods of non-use

For extended periods of non-use, the following also applies:

- Keep the device dry, clean and protected against mechanical stress.
- Avoid direct heat sources, moisture and aggressive ambient conditions.
- Check cables and terminals for firm seating and proper condition before returning the device to service.
- After an extended shutdown, carry out a complete visual and function check before switching on again.

Switching on again after a shutdown

The following must be checked before operating the device again:

- whether the device is undamaged
- whether all cables are connected correctly
- whether the fuses comply with the technical requirements
- whether there is no visible corrosion, discolouration or thermal abnormality

The device may only be put back into operation once it has passed this check.

Specification

Technical data

Property	Value
Input voltage	10 - 30 V DC
Inputs	2
Dimmable outputs	RGBW (4): red, green, blue, white
Output switching type	negative switched
Total current (all channels)	10 A
Current consumption (quiescent current)	35 mA
Output fuse	automotive blade fuse (ATO), max. 10 A
System fuse	max. 2 A
Vin terminal	0.5 - 35 mm ²
Push button terminal	0.2 - 6 mm ²
Output terminal	0.2 - 6 mm ²
Degree of protection	IP20
Bluetooth	included
CAN bus	included
Connection direction	from below
Operating temperature	-20 °C to +50 °C
Dimensions (L x W x H)	14.5 cm x 7.3 cm x 5 cm

Installation and ambient conditions

Property	Value
Permissible mounting orientation	any
Installation location	dry, clean, mechanically suitable
Cable strain relief	required
Mounting on readily flammable materials	not permitted

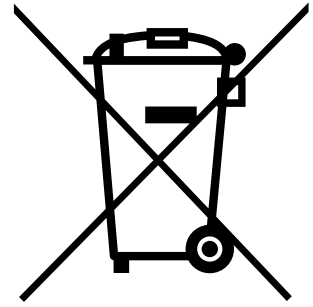
Manufacturer and registration details

Property	Value
Manufacturer	Flextronic GmbH
Address	Mehrstedter Str. 3, 99994 Nottertal-Heilingen Höhen OT Schlotheim, Germany
Contact	service@flextronic.net
CE marking	present
RoHS compliance	compliant
WEEE reg. no.	DE 55988634

CE

Grüner Punkt

WEEE



Disclaimer and disposal

Disclaimer

The Vanbase Color must be installed, configured and operated in accordance with this operating manual, the technical data and the applicable national regulations.



WARNING

- Improper installation, commissioning, configuration or use can lead to damage to property, short circuits, overheating and fire.
- No liability is accepted, as far as legally permissible, for damage resulting from failure to observe this operating manual, incorrect installation, unsuitable fuse protection, incorrect wiring or use other than as intended.
- This also applies to damage caused by unauthorised modifications to the device, the use of unsuitable components or operation outside the specified technical data.
- Responsibility for professional installation and for the correct dimensioning of the entire electrical system lies with the installing specialist.

Mandatory statutory claims, in particular under product liability law, remain unaffected.

Warranty

Unless expressly agreed otherwise, the statutory warranty rights apply.

The warranty does not cover damage caused in particular by improper installation, overloading, incorrect wiring, unsuitable fuse protection, operation outside the technical data, the use of force or impermissible modifications to the device.

Disposal

Electrical and electronic equipment must not be disposed of with household waste.



DISPOSAL INFORMATION

The crossed-out wheeled bin symbol indicates that the device must be collected separately and taken to a suitable collection point for waste electrical and electronic equipment.

End-of-life devices must be handed in at suitable collection points for waste electrical and electronic equipment, for example:

- at municipal recycling centres
- at public-sector collection points
- at other take-back points that accept waste electrical and electronic equipment

Separate collection and proper disposal protect the environment and health and return valuable raw materials to the recycling process.