dacboxD DC

user manual

control with µWiFi technology
from any place in the World

TWO-CHANNEL CONTROLLER, 0-10V CONTROLLER; DIMMER; SPEED, POWER, POSITION CONTROLLER

SAFETY RULES

Do not connect the device to loads exceeding the permitted values.

Connect only in accordance with the diagram presented in the manual. Improper connections may be dangerous, it can damage the controller, and loss of the warranty.

The controller requires preconfiguration to match the output signal to the controlled device - read the manual before connecting the target device!

DANGER! Risk of electric shock! Even with the device turned off, the outputs may be live. All assembly work should be ALWAYS performed with the disconnected power circuit.

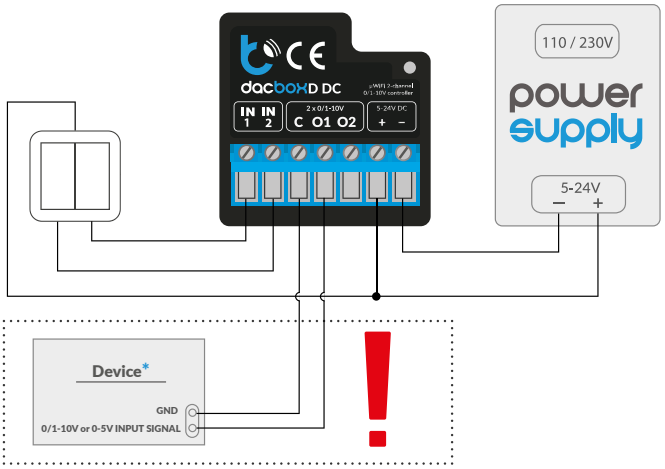
Connecting the device to a power supply that does not meet the quality requirements specified in EN 50081-1, EN 50082-1, UL508, EN 60950 will invalidate the warranty.

1 INSTALLATION - BASICS

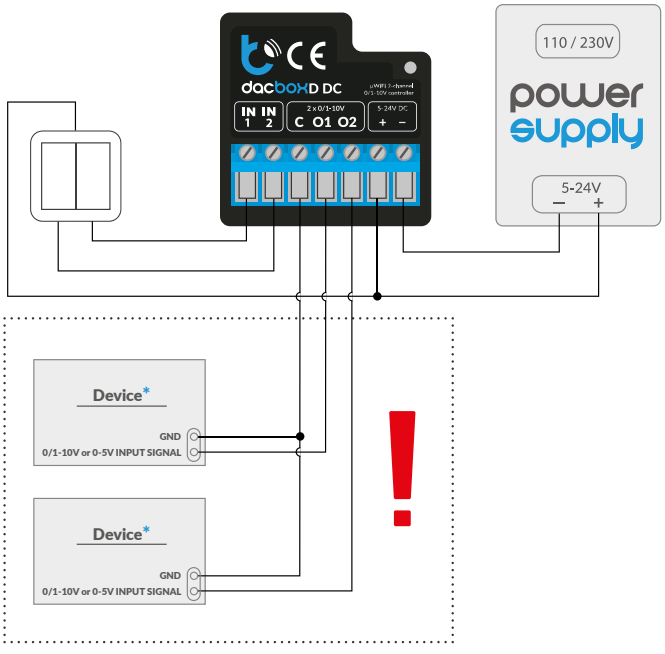
- Disconnect the installation supply voltage before installing the controller. Remember that any mounting works should be carried out when the mains voltage is disconnected (switch off the mains fuse or disconnect the power cord from the mains socket).
- The controller should be installed in a place protected against adverse environmental conditions, protected from third party access - in the flush box or inside the enclosure of the controlled device. Remember that metallic elements (wires, housing parts) have a negative influence on the range of the device, and consequently the comfort of use. It is recommended that the device be mounted in a stable and fixed position. It is necessary that the connectors of the controller be protected against accidental contacts or short circuits, which could cause fire or damage to the device.
- Read the diagram and then start assembling the controller. Pay special attention to the connector markings. Start by connecting the +5/+12/+24 power wires (red or black with a white dashed line) and ground (black). **DO NOT CONNECT THE LOAD** to the O1/O2 contacts - you will do this in the next step, after the initial configuration of the controller.
- If you only want a local control with a wall switch, connect the wall push-button according to the diagram. The controller supports all types of double monostable switches (so-called bell switches). To control using only your phone or Tablet, it is not necessary to install the wall push-button.
- After making sure that the device is connected in accordance with the diagram and that there are no metal components near the controller which may accidentally cause short-circuit, start the device by turning on the power (turning on the mains fuse or connecting the power cord to the power outlet).

CONNECTION DIAGRAMS

1. General diagram of connecting the controller to one device with 0/1-10V or 0-5V input



2. General diagram of connecting the controller to two devices with 0/1-10V or 0-5V input

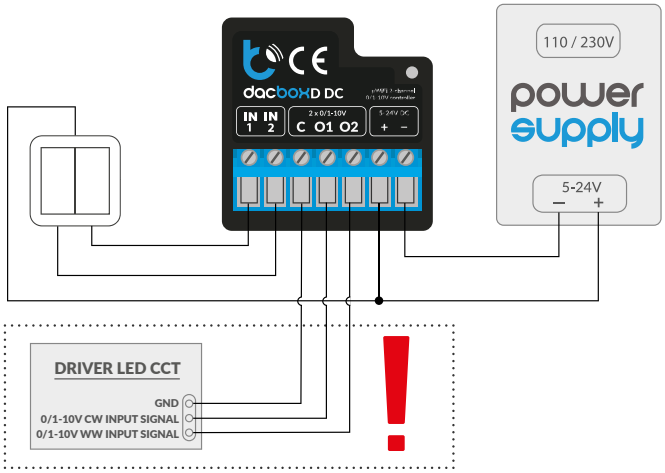


* Driver, dimmable LED power supply / lighting fixture

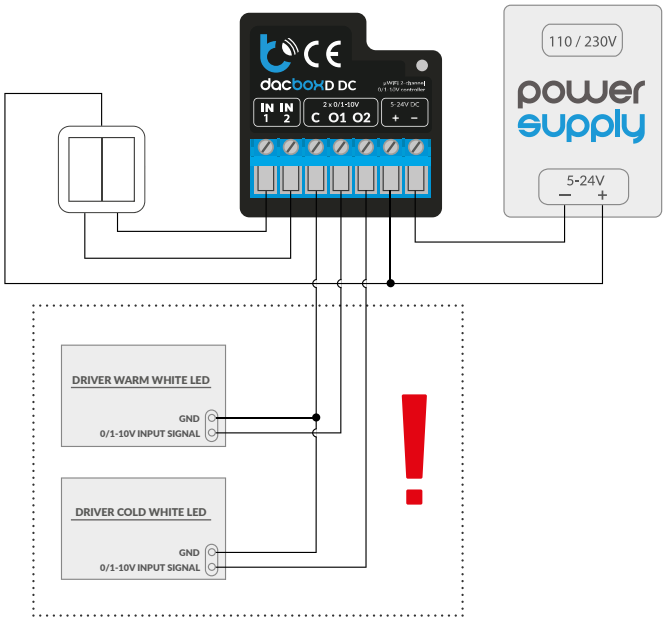
Turbo fan / Ventilation damper

Inverter

3. Diagram of connecting a two-channel LED CCT driver - 2x 0/1-10V



4. Diagram of connecting two single-channel LED 0/1-10V drivers in CCT mode



WARNING!

The controller requires pre-configuration of the output voltage. **DO NOT CONNECT THE LOAD** (LED driver, fan, etc.) before configuring the controller.

2 FIRST START

- Download the **free wBox application**. If you have an Android mobile device, you will find the application in the Play Store. For iOS devices the application is in the App Store.
- By using your mobile phone or tablet, connect it to the device wireless network. To do this, go to your smartphone or tablet settings, then go to setting of the WiFi network and find the network name "dacBox-xxxxxxxxxx" where xxxxxxxxxx is the serial number of the device. Connect to this network.
- Turn on the wBox application. You will see your device on the main screen. In order to add it to your application account, select "Add device to account". If you are the installer and do not want to assign the device to your account, select "Use only once".
- You can also configure the network settings using a web browser. After connecting to the controller's wireless network, turn on the browser and go to www.blebox.eu
- Go to settings ("Settings" icon in the upper right corner of the screen) to the "Device Settings" section and select the appropriate option in the "Device type" field depending on the connected device. The available options include: "MONO" for a single-channel controller (e.g. lighting, fan, etc.) and "CCT" for two-channel controllers (e.g. lighting controllers with variable color temperature, i.e. with a warm and cold shade of white - CCT, CW/WW).
- The "Output Mode" option determines how the output signal is calculated for a given percentage of the setpoint. For controlling LED lighting, the "Gamma Correction" setting works better (since the human eye perceives visible light in a non-linear manner), while the "Linear" setting is required for controlling fan motors.

It is very important to set the "Output voltage" option correctly depending on the controlled device. It determines the range of voltages that will appear at the controller's output. The setting of this option depends on the permissible input voltages of the controlled device - you should familiarize yourself with its technical specifications. **Do not change the "Output voltage" option during normal operation of the controller** - this may damage the controlled device!

- After saving the above settings - "Save" button in the upper right corner of the screen, disconnect the power from the device.
- Connect the controlled device to the O1 and C (common) terminals. For dual-channel control (CCT mode), connect the O2 terminal to the second channel. Then connect the power supply.
- Start the device by turning on the power (turning on the mains fuse or connecting the power cord to the power outlet).
- Again, using your mobile phone or tablet, connect to the device's wireless network. Turn on the wBox application. The device will be visible on the main screen. Test the device operation - set the desired value with the slider. Depending on the controlled device, the expected reaction should occur - a change in the brightness of the light source or the fan speed.
- The control panel also has an additional effects menu – the access to it is achieved by moving-up the screen from the bottom ("More" at the bottom of the screen). Effects settings only make sense when controlling a lighting device. In the menu you can choose predefined colors and set the duration of the color, or choose a predefined lighting effect and set the transition times.

3 WIFI CONNECTION AND SERVICE CONNECTION (AP) SETTINGS

- Go to the WiFi network settings ("Settings" icon in the top right corner of the screen, "Connection" section), where you can connect the device to the home WiFi network to be able to control the device via it or from anywhere in the world. To do this, select the network name from the list of available networks and press "Connect". If required, enter your WiFi password. When connecting the device to the home network, the phone / tablet may disconnect from the device's network.
- You can also configure the network settings using a web browser. After connecting to the controller's wireless network, turn on the browser and go to www.blebox.eu
- After reconnecting the phone to the controller's WiFi network, check the "WiFi Client status" and "Remote access status" fields. The controller is equipped with a network connection supervision system which in case of problems with connection to the WiFi or the Internet will report the problem

and its possible causes. If the network is working properly both fields will be set to “Connected”.

- In order to communicate with the device from outside the local WiFi network, from anywhere in the world, via the wBox application, the device automatically connects to the BleBox cloud system service by default. The remote access system is fully encrypted and secure, the data are transmitted by European servers from reputable companies. It is possible to disable the remote access service - after clicking the “Configure” button, toogle the switch next to the “Remote access” option. Remember that disabling “Remote access” will result in no access to the controller from outside the local network as well as disabling the notifications and external integration systems, therefore we recommend that you leave this option enabled (default setting). event log

- Enabling the “Event log” option will cause the device to record events (e.g. about sent notifications set in the “Actions” section) in the BleBox cloud system. This allows the history of the events to be viewed later also when the controller is offline.

- After completing the WiFi network configuration, you can disconnect from the device network and connect the phone / tablet directly to your home WiFi network. Control from the wBox application will work in the same way as when the phone / tablet is connected to the device’s network. If as a user you leave the local network, eg leaving your home or enclosing mobile data, the wBox application will signal this status as “Remote mode”. In this case, you will have access to the device data, but for security reasons settings options will not be available.

- In the “Service connection (AP)” section, you can change the name and give the password of the WiFi network emitted by the device. Remember that changing the network name or password can cause disconnection with the device immediately after clicking the “Save” button, so you should reconnect to the WiFi network.

- It is also possible to completely disable the access point emitted by the device. To do this move the “Access point” slider to the off position and confirm the selection with the “Save” button.

- Attention! If the controller does not have a stable connection to the WiFi network (“WiFi client status”: “Connected”, without any error warnings), restarting the access point will not be possible - in this situation, the only solution is to reset the controller to the factory settings. Disabling the access point is recommended only after the complete driver configuration and making sure that the entire system is working properly.

4 DEVICE SETTINGS

- Go to the device settings (the “Settings” icon in the top right corner of the screen). In the “Name and icon” section you can change the name of the device under which it is displayed in the wBox application. In the “Device Settings” section it is possible to turn off the LED diode built into the device.

- Also check the selection in the “State after restart” option, which determines how the controller behaves after a restart caused by, for example, a power failure. You can choose whether the load should be off or remain as before the restart (if it was off then it has to continue off).

- The “Minimum value” and “Maximum value” options allow you to “stretch” the set output voltage range to the full adjustment range (0-100%) of the control bar. This option is useful when controlling,eg. a fan that starts to rotate only from eg. 20% of the value set on the main control slider. Setting 20% in the “Minimum value” option will “stretch” the 20-100% voltage range to the 0-100% control slider range. Similarly, we can limit the maximum fan speed to, eg. 90% by setting the “Maximum value” option. Then, setting 100% on the control bar will actually the fan to only 90% because the controller will calculate the operating range accordingly.

5 ACTIONS

- The controller allows you to send control commands to other BleBox controllers via the WiFi network through the API. Each action will be deployed on particular trigger, eg. like short click.

- Two, the simplest, exemplary actions are set at the factory. They allow you to control a given output using a button, connected to the corresponding input.

- When adding an action in the “When” tab select one of the possible options, like “Short click / Long click/ Trailing edge / Leading edge / Edge” as “Trigger type”. In the “Input” field, indicate the input to which the given action applies.

- In the “Execute” tab select one of the possible option. Not all options are available for certain types of actions.

- If you want to control another device from the wBox series select “Control other device” as “Result”, confirm. Click on the “Select device” icon. The device will search the network for compatible devices and display them in a list. Choose the device you want to control. If the device is not listed you must use the general API control method described below or update the firmware in target device.

- Then in the “Call API” field enter the API command that the driver will call.

- The most popular API control commands /s/ for switchBox and shutterBox are presented below:

  Switching on the radiator via switchBox: 1

  Switching off the radiator via switchBox: 0

  Toogle the output of switchBox: 2

  Opening the roller shutter via shutterBox: u

  Closing the roller shutter via shutterBox: d

  Turning on the light bulb connected to the first output (O1) of switchBoxD: 0/1

  Turning off the light bulb connected to the first output (O1) of switchBoxD: 0/0

  Toogle the second (O2) output in switchBoxD to the opposite: 1/2

- If the device was not on the found list or you want to control another device in the network, select “Call URL” as “Action type”.

- In the “URL” field, enter the API command preceded by the http protocol prefix and the IP address of the wBox device which will be controlled. The IP address can be found in the device settings. Caution! All the controllers must be in the same subnet, usually the subnet of a home router.

- The most popular API commands for switchBox and shutterBox are presented below. It was assumed that the IP address of the device which will be controlled is: 192.168.1.123

  Switching on the radiator via switchBox: http://192.168.1.123/s/1

  Switching off the radiator via switchBox: http://192.168.1.123/s/0

  Toogle the output of switchBox: http://192.168.1.123/s/2

  Opening the roller shutter via shutterBox: http://192.168.1.123/s/u

  Closing the roller shutter via shutterBox: http://192.168.1.123/s/d

  Turning on the light bulb connected to the first output (O1) of switchBoxD: http://192.168.1.123/s/0/1

  Turning off the light bulb connected to the first output (O1) of switchBoxD: http://192.168.1.123/s/0/0

  Toogle the second (O2) output in switchBoxD to the opposite: http://192.168.1.123/s/1/2

- In the “Summary” tab name the action, check its correctness and confirm the entry with the “Save” button.

- A detailed description of how to control other controllers of the wBox series is available in the FAQ at blebox.eu webpage, while all the technical documentation API of the wBox controllers is available at: http://technical.blebox.eu

- The added action will be displayed on the list. By expanding its details it is possible to preview the status of its last execution.

  Selected, custom controllers’ API actions that can implement more behaviors:

  /s/dec/1a00/ - decrease brightness of first channel by 10%

  /s/inc/0033/ - increase brightness of second channel by 20%

  /s/incdec/00ff/ - decrease or increase the brightness of the second channel by 100%

  /s/incdec/00ff/colorFadeMs/5000 - decrease or increase the brightness of the second channel by 100%, the change from 0% to 100% will take 5 seconds

  /s/dec/ff00/pauseOnMin - decrease the brightness of the first channel by 99%, after calling the action again the brightness of the first channel will decrease to 0%

  /s/offon/ch/10/last/ - enable/disable last selected value on channel 1

  /s/offon/ch/01/last/ - enable/disable last selected value on channel 2

  /s/offon/ch/10/last/colorFadeMs/1000 - turns on/off the last selected value on channel 1, changing from 0% to 100% will take 1 second

6 NOTIFICATIONS

- The controller allows you to display a system notification on a phone with the wBox application installed on the particular trigger, e.g. like short click.
- Notifications only work when the controller has a stable Internet access and the “Remote access” option is enabled (default setting).
- Notifications are added similarly to “Actions” - fill in the form fields and in the “Execute” tab select “Notification” as “Result”. Confirm with the “Save” button.
- In order for the notification to be displayed on the phone it is necessary to allow the controller to display notifications. Go to the main menu of the wBox application, to the “Notifications” tab. Then go to the settings (the “Settings” icon in the upper right corner of the screen). Find the device on the list and select “Action notification” from the drop-down list next to the device name. You can also select other types of available notifications or µPortal notifications. Confirm the change of preferences with the “Save” button in the upper right corner of the screen.
- If notifications are not displayed despite their configuration check in the phone system settings (Android / iOS) whether the wBox application is authorized to display system notifications.

7 TIME AND LOCATION OF THE DEVICE

- Go to settings, to the “Time and location” section. In the “Device time” tab, select your region and location from the list, confirming the changes with the “Save” button. The device will synchronize its time with the NTP time server (if the controller is in a WiFi network with Internet access) or will download the time from the phone / tablet. Since the controller does not have a clock backup battery, the clock resets itself when the power is disconnected. Hence, it is recommended that the controller is always connected to a WiFi network with internet access so that it can automatically synchronize its clock. This is especially important in controllers that have the function of working with the schedule.
- You can specify the location of the controller using your smartphone or tablet. In the “Device location” tab click the “Set location” button. The application will ask whether to share the location - allow. The approximate coordinates of your location should appear in the “Coordinates” box. If the “Set location” button flashes red with “Error” or the “Coordinates” field has not changed the value from “Not set” to numerical data there has been a failure in retrieving the location. You should then make sure that the phone / tablet has a GPS module and that the wBox application has access rights to download the location in the phone settings. Setting the location is especially important in controllers that have the function of working with the schedule, in which the schedule is based on sunrise and sunset.

TECHNICAL SPECIFICATIONS

supply voltage	5-24V DC
energy consumption	<1W
protection type	short-circuit protection, reverse connection
number of outputs	2
type of outputs	analog voltage
output voltage range	0-10V / 1-10V / 0-5V
maximum load	20mA / channel
protection type	short-circuit protection, reverse connection, surge protection
number of inputs	2
inputs type	optoisolated, logical, configurable, 5-24V DC, shorted to GND
supported switches	monostable (push-button), bistable (traditional, cross switch), not-illuminated
mounting method	in the flush-mounted box (deepen or double) in the receiver case - e.g. lamp, fan etc.
housing	made of polyurethane composition not containing halogens, self-extinguishing for thermal class B (130 °C)
dimensions	41 x 39 x 17 mm
protection level	IP20
controller operating temperature	from -20°C to +50°C
API	open
communication standard	µWiFi, compatible with WiFi, 802.11g/n
radio frequency	2.4 GHz
transmission type	bi-directional, encrypted
mode	direct connection (as Access Point), Wi-Fi connection via a stan- dard router, connection with access from any location in the world (requires only access to the Internet)
encryption	WPA2-PSK and authenticated encryption with associated data (AEAD)
compatible devices and systems	Apple iPhone, Apple iPad, iPad Mini, Android

ADDITIONAL INFORMATION

SCHEDULE

The controller has the ability to work according to a given schedule.

Adding schedule entries can be performed by clicking the “Add item” button in the “Schedule” section of settings. You can select the days in which the task will be performed, the type of entry (at a specific time, or relative to sunrise / sunset - only having a correctly set location) and set the parameters of the task. The set tasks will be visible as a list, individual entries can be edited, deleted or temporary disabled.

SOFTWARE UPDATE

In order to update the software in the controller it must be connected to the home WiFi network (see “WiFi connection settings” section) which is connected to the Internet. Go to settings, to the “Details, update and help” section and click the “Check for update” button. If an update is available the button changes to “Download new software”. After clicking it, wait about 1 minute without closing the interface or taking any other actions. The device will download the latest software and then reboot. You can read the device ID, hardware and software versions in the device details.

HELP

The latest versions of the manual, additional informations and materials about products are available on our website: blebox.eu

General questions: info@blebox.eu
Service and technical support: support@blebox.eu

Before contacting our service, if it is possible, prepare the “Service key” of the given controller available in its settings, in the “Details, update and help” tab. By clicking the icon, the key will be copied to the phone’s clipboard. Prepare also the “Installation key” of the wBox application, available in the main application menu, in the “Settings” tab.

Factory reset manual is available at: blebox.eu/start/reset

Attention! Factory reset does not remove the controller from the user account assigned to it. The device must be independently removed from the account - select “Manage devices” from the main menu of the wBox application, then select the device and click the “Remove device” button. Alternatively, you can log into the portal.blebox.eu system, go to the “Devices” tab, choose the device and select “Remove device” from the top-right “Actions” menu.

for more information visit our website

www.blebox.eu

or send us an email to: info@blebox.eu

support is available at support@blebox.eu

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