

# VBAR NEO

QUICK START GUIDE  
EXPRESS-FIRMWARE



**Mikado**  
Model Helicopters

# Welcome to VBar NEO!

**VBar NEO** is an innovative product setting new standards for model helicopters in terms of flight performance and programming capacity.

## **Features:**

- Easy Start setup via using either VBar Control.
- Fine adjustments can be done at the field using VBar Control.
- Ready for online updates as they become available.
- Built-in Governor for electric model helicopters (IC powered models require the Pro firmware).
- Fully compatible with VBar Control. **For setup using VBar control, please refer to your VBar Control manual.**

## **FCC Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm / 7.87 in from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users must be provided with transmitter operating conditions for satisfying RF exposure compliance.

# Safety Instructions

**An R/C controlled helicopter is not a toy!** While moving, the rotor blades pose a serious danger to persons and things. You must obey all safety instructions of the manufacturer for operation of your helicopter.

**VBar is not an autopilot!** VBar may be installed in model helicopters which are suitable for flying without flybar. During installation and operation you must follow all instructions given in the software of the radio and in manuals. VBar may not be operated in wet conditions (high humidity or rain). If the helicopter shows vibrating behavior during flight, operation of the helicopter is to be stopped immediately. Do not continue flying until the cause for vibration has been eliminated.

- **Since the ESC is directly connected to the VBar, disconnect the motor wires or remove the pinion gear to avoid accidental spooling up of the helicopter while setting up the speed controller (ESC) functions. The same applies when loading unknown setup or preset-files, as they may transport other receiver and speed controller settings as you have on your heli!**
- **The external gyro sensor (set with sensor included) must not be connected to a different connector than Sensor, else it will be destroyed beyond repair immediately.**
- **Make sure you use a sufficient power supply.**
- **Fail safe will be set automatically by VBar/VBar Control (motor off, servos on hold position).**

# 1. Items needed for first installation

## ***On first installation, you will need:***

- VBar NEO with built in VBar Control Satellite and a VBar Control radio
- Power supply (BEC or receiver battery).
- Helicopter with servos installed, **but not yet connected! Only digital servos allowed!**
- Pitch Gauge (swash plate levelling tool)
- For updates and extensions of VBar NEO you need the *VBar Control Manager* software which you can download conveniently from [www.vstabi.info](http://www.vstabi.info) as well as a *Mini USB wire* and a *Boot Plug*.

## Contents

VBar NEO with built-in VBar Control Receiver, USB wire, Boot Plug, Gyro Pad, external gyro sensor (\* optional).



## 2. Update and Registration

Before beginning a setup, update your VBar Control and VBar NEO. Open the VBar Control Manager, plug the *Boot Plug* into the Sensor port, connect to your computer and power up your VBar. The LED will flash white. The update will be performed automatically if necessary. During the update, the LED will light up yellow briefly, then start flashing green. Disconnect the *Boot Plug* and the USB wire and power cycle your VBar. If you want to use the VBar Control Manager again (e.g. to access the App Store), just power cycle your VBar. It will start up in update mode again as long as the *Boot Plug* is connected.

Click on *Applications* in the VBar Control Manager to access the App Store, where you can register your new VBar to your MikadoID with one click of your mouse.

Perform an update of your VBar Control, too.

## 3. Preparing the Helicopter

First you need to assemble the helicopter in accordance with manufacturer's instructions. Flybarred rotor systems are not supported. It is very important that you assemble the helicopter mechanically correct with exact symmetry and geometry. This is to ensure that you do not run into problems resulting from mechanical inconsistencies later.

## 4. Bind procedure, programming

VBar will go into bind mode after approx. 10 seconds. The LED will flash green-red to indicate it's ready for binding.

Refer to your VBar Control Manual to bind your VBar to your VBar Control Transmitter.

## 5. Wiring your VBar

### **Connectors**

ESC	Electronic Speed Controller
TAIL	Tail servo
CH1-4	Swash plate servos according to diagram in the software
AUX1-3	Additional functions
RPM	RPM sensor input
Sensor	External gyro sensor (optional), NO power supply!
USB	USB wire
TELE 1, TELE 2	Telemetry bus for VBar Control.

Power supply may be connected to any port except *Sensor*. There is no voltage divider needed for rpm sensors. For further applications (additional functions) see App in VBar Control and online manual on [www.vstabi.info](http://www.vstabi.info).

## 6. Pre-flight check

**Before each flight you must double-check the active direction of the swash plate and the tail rotor.** To do so, lift the helicopter up and move it along the three axis.

## 7. Initialization (Pitch Twitch, V is lit)

During Initialization, VBar goes through a self-test. The helicopter must be at rest during this test. When the test is finished, you will see a brief twitching (jump) of the swash plate, VBar Control will show ,Connect'. Also the V will light up solid green.

## 11. Operation

Upon successful initialization of the VBar and pre-flight check you may proceed to the maiden flight with your VBar. At the field you may further adjust any setting using your VBar Control.

### *Trim flight:*

During a trim flight, VBar performs all necessary trims of the helicopter automatically (elevator, aileron, tail). A trim flight is not necessary if the servo linkages are installed mechanically correct, the swash plate is leveled, and the center of gravity is set properly.

To perform a trim flight, turn on the helicopter while the stick for collective is at full positive. The VBar confirms this with a **short double-twitch (jump)** of the swash plate. It is best to perform the trim flight in very calm weather conditions. For further information on how to perform a trim flight, click on **“Trim flight info”** in the flight menu.

## 9. Miscellaneous

### ***Exemption from Liability***

Mikado does not assume liability for completeness or correctness of the content of this manual and of the software.

The user assumes all liability for all potential damages or claims that might arise from the operation of the VBar and his helicopter.

### ***Technical Data***

Supply Voltage	3.5-8.4 V (2S LiPo)
Current Consumption	ca. 80 mA
Operating Temp.	-5 to 60 °C / 23 to 140 °F
Dimensions/weight	45 x 25 x 15 mm / 14 g .177 x .098 x .059 in / .5 oz

### ***Accessories***

You will find accessories to be used with VBar on Mikado's website [www.mikado-heli.de](http://www.mikado-heli.de)

### ***Support***

Forum and extensive online manual at [www.vstabi.info](http://www.vstabi.info)

Email: [service@mikado-heli.de](mailto:service@mikado-heli.de)

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v1.03 12-2018