The Markus B8 controller is recommended for use with motors such as SPEED-280, SPEED-300.

The technical data:

Continuous current	8 A
Max. peak current	10 A
Cells elements of battery:	
NiCd/NiMh	6-10
LiPo	2-3
Frequency (PWM):	3 KHz
Cable cross-section (input /output)	0,5 mm^2
BEC: Voltage:	5 V
Maximum current:	1,5 A
Weight (include all cables):	5,5 g

Features:

- low torque "soft start" prevents damage to fragile gearboxes
- smooth mode of motor cut-off when the voltage of the flight batteries decreases to the preset value
- auto shut down motor when signal is lost or radio interference becomes severe
- over-temperature protection
- ready to fly immediately, without programming
- small dimensions and weight
- audible and LED signal
- simple setup

Programming Features:

Battery type – 2 settings:

"Auto Li-xx"	automatically determination of a battery voltage (from 2 till 3 cells LiPo packs)
"Ni-xx"	from 6 till 14 cells NiCd/NiMh packs

1. INSTALLING AND CONNECTING THE CONTROLLER

The motor is connected to the side of the controller (there is "**MOT**" on the label) that has two power wires. The two speed controller wires should be soldered directly to the two motor wires. The connection is also possible by using the connectors, ensuring a reliable contact and designed for the appropriate current.

The places of connection wires should necessarily be isolated!

To change the rotation direction of your motor, swap any two motor wire connections.

Connect the speed controller receiver connector (the three color wires with a connector) to the proper channel on your receiver (usually channel 3).

The battery pack is attached to the side of the controller (there is "**BAT**" on the label) that has two power wires (red and black) and also has the radio connector. Attach the wires of battery pack to the wires of controller (the red controller wire to the red battery wire, the black controller wire to the black battery wire).

IMPORTANT NOTE: You must be sure that the polarity is correct when connecting the speed controller. Incorrect polarity could permanently damage the controller! We recommend using connectors, ensuring that the polarity is correct!

Install the speed controller in the model so that it is isolated from vibration and shock, using double sided foam tape. Allow space around the speed controller for cooling. Make sure that there is sufficient cooling of the motor and speed controller by the directing adequate cooling air from the outside airflow.

The BEC can hold peak currents up to 1,5A. Be careful when determining the range of the set, especially when using more batteries – in case of signal loss servos might turn to their maximum which would cause significant rise in drawn current. This might lead to a power overload of BEC with all its consequences. At connection servo type it is recommended to be guided by the following table:

Servo type	6 cells NiCd/NiMh	7-8 cells NiCd/NiMh 2 cells LiPo	9-10 cells NiCd/NiMh 3 cells LiPo
Micro servos	4	3	2
Standard servos	3	2	1
High Torque servos	1	1	-

2. THE SOUND INDICATION OF CUT-OFF VOLTAGE

The sound signal is heard only at the included motor.
Switch on your transmitter. Move the throttle arm to the lowest position on your transmitter.
Connect the battery pack to the speed controller. After two seconds you will hear:

	one "beep"	6-10 cells NiCd/NiMh
or	two "beeps"	2 cells LiPo - 6,0 V
or	three "beeps"	3 cells LiPo - 9,0 V

This sound signal is indication of cut-off voltage.
Controller ready to fly!

Attention! In a mode "Auto Li-xx" should be used only **fresh charged LiPo batteries!** Correct number setting is possible only for full or partial charge battery. For discharge battery is not possible automatic setting correct number of cells.
Always connect the motor battery pack just before flight and disconnect it immediately after landing the model.
If you do not use model, always disconnect the battery, because the small current refresh by the battery, can unload batteries below than allowed voltage.
If you hear short "beeps" in low tones every two seconds, it is because of loss of transmitter signal or excessive radio noise cutoff.

3. VIEWING AND PROGRAMMING OF SETTINGS

Enter Programming Mode:
1. Connect the speed controller receiver connector to the proper channel on your receiver (usually channel 3).
2. Switch on the transmitter and move to the throttle arm to the highest position.
3. Connect the battery pack to the speed controller.
4. After five seconds, you will hear a "tee-lee-lee".
If you input into the programming mode by mistake, move the throttle arm to the lowest position on your transmitter. This will return the controller in the normal mode.
5. Move the throttle arm to the middle position on your transmitter; you will hear "tee-lee-lee".
Move the throttle arm to the highest position on your transmitter. You will hear **one** high "beep":

Battery type

Move the throttle arm to the middle position on your transmitter. You will hear:

- one "beep" - "Ni-xx" (6-10 cells NiCd/NiMh) *** or
- two "beeps" - "Auto Li-xx" (2-3 cells LiPo)

For change of defaults settings move the throttle arm to the lowest position on your transmitter, you will hear one "beep".
Move the throttle arm to the middle position on your transmitter you will hear one "beep" or two "beeps". The audible signal is monitored a new setting.

If you want to **escape from the Programming Mode**, move the throttle arm to the middle or highest position on your transmitter and disconnect the battery pack.

NOTE: factory defaults are indicated by asterisks (***)

4. WARRANTY

All Markus products are accompanied by an **one-year** manufacturer warranty against defects in materials and workmanship.
This warranty does not cover damage due to misuse, abuse, neglect, or incorrect wiring.
Controllers must has original packing and label!

WARNING: Controllers WILL NOT be covered under the warranty for:

- connecting more battery cells to the controller than the max. number specified in the technical data
- reversing connections to the accumulator
- overloading
- overloading of the BEC with bigger currents or bigger power loss than is specified in technical data
- water in the controller
- mechanical damages

Do not connect the speed controller to just "any" kind of power source. Take care to ensure the right polarity of NiCd/NiMH or LiPo power packs only.
Do not connect the motor battery to the wrong polarity, the speed controller will be severely damaged.