# MDRIVE™ Series Sensorless Brushless DC Motor Controller Quick Guide

MDRIVE™ series controller use ESC-View software in PC for parameters programming and testing. We strongly suggest user to set up connection with PC first before using it in the field. The ESC View software is on CD in package or user can directly download from the Website: www. motortron.com.

Wire Connection

Brushless Sensorless Motor
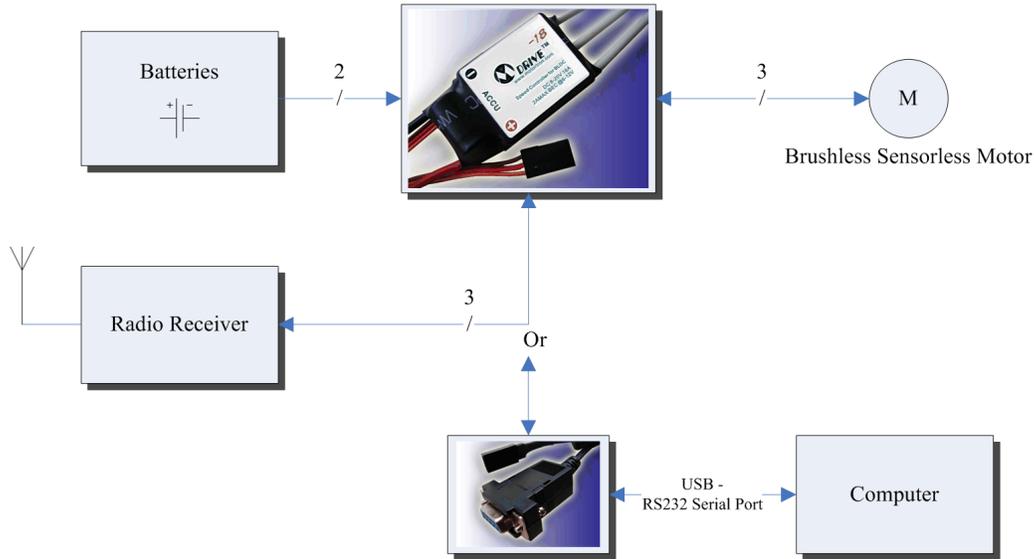
Always power on the radio transmitter first with throttle and the trim in the minimum position, and then connect battery connector to controller, before running a motor.

MDRIVE™ controllers use universal signal connector to the receiver. If user does not hear arming tones (deedee, dodo, dada) from the motor after the transmitter and controller are powered up, please reverse signal connector.

The safety start feature: The controller will not arm the motor unless the throttle stick position is below pre-selected throttle start point. If the motor still does not produce the arming tones, please raise the throttle start point pulse width on Adanved Setting screen in the ESC-View software. The detail is on the FAQ. The factory default start point is 1.10ms.

The factory default parameters of each User Mode in controller:

	(In-run motor)	(In-run motor)	(Out-run motor)
Parameter	**User Mode1**	**User Mode 2**	**User Mode 3**
Cutoff Voltage	**70% of Power On**	**70% of Power On**	**70% of Power On**
Cutoff Type	**Soft**	**Soft**	**Soft**
Brake Type	**Off**	**Medium**	**Off**
Advanced Motor Timing	**5 Degree**	**5 Degree**	**15 Degree**
PWM Frequency	**8 KHz**	**8 KHz**	**16 KHz**
Acceleration Delay	**0.51 sec.**	**1 sec**	**0.17 sec.**

Note1: User mode1 is default mode, not programmable in ESC-View software.
Note2: User Mode 2 setting is for fewer poles like in-run motors. (Programmable)
        User Mode 3 setting is for out-run motors with more poles. (Programmable)
Note3: Only one User Mode work at time during power on, Battery power connector must be disconnected and connect again to change another User Mode.

Enter User Mode Selection Mode

Power on radio transmitter first with throttle in maximum high position, then power on controller. Listen to the beeps carefully. Move throttle to minimum low position to select user mode.

Power on sequence of audible indications

Long beep means controller is powered up

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Listen: 1 or 2 or 3 beeps. 1 beep means currently controller is in User Mode1 2 beeps means currently controller is in User Mode2 3 beeps means currently controller is in User Mode3.

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There is a 2 second silent window to check radio throttle position.

If throttle position is in low*, ⟹ deedee-dodo-dada (arming tones) ⟹ Run motor

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If throttle position is in high*, ⟹ Adjacent rising tones (Into User Mode selection mode) ⟹ Listen: 1, 2 or 3 beeps. (5 second interval between each beep) User selects the User Mode by moving the throttle down to low position during 5 second interval to select desire user mode. This procedure will repeat itself if no action is taken. After 1 beep, throttle downs the minimum <u>without a pause</u> to select User Mode 1(Default Mode) After 2 beeps, throttle downs the minimum <u>without a pause</u> to select User Mode 2 After 3 beeps, throttle downs minimum <u>without a pause</u> to select User Mode 3 <u>Note: Keep the throttle on minimum position still for 5 seconds after the selection.</u> ⟹ deedee (User Mode selection confirmed) ⟹ deedee-dodo-dada (arming tones) ⟹ Run motor.

Note: Throttle position is in low* --- throttle below 1.3 ms pulse width can confirm the User Mode, but must below pre-selected the start point to arm the motor. The factory default start point is: 1.10ms.

Throttle position is in high* -- throttle is above 1.7 ms pulse width

SAFETY PRECAUTIONS: It is essential that the user exercise extreme caution when attaching the battery, but especially when the motor propeller is engaged. Spinning at such high RPMs, the propeller can strike, hurting a person very seriously. Eye protection is recommended. The controller and the motor can deliver explosive high power output in a blink of an eye. Children must be kept from playing with this type of controller.