KO PROPO®

VFS-FR3 Instruction Manual Ver1.01

Thank you for purchasing this product. Please read this manual to make the best use of the performance of this product.

Read me first

Warning and attention are displayed in this book, the explanation of the display and the sign should be especially paid attention to.

○This product is intended for RC models for ground use. Please do not use this product for other applications. ○Make sure to insert the connectors of servos, speed controllers, etc. into the receiver to the deepest position. ○Be sure to check that the band (frequency) is free before switching on the 27/40MHz transmitter. ○Do not run in the rain, in places where there are puddles of water, or where thunder is heard. ○Always disconnect the running battery from the product after driving. Do not use the wrong polarity for the battery. Please be sure to use our genuine products for the transmitter, receiver, servo, and other optional parts. We are not responsible for any damage caused by using other than our genuine products. ○Do not touch the motor, speed controller, or other hot parts of the machine after it has been driven. ○Do not short-circuit the battery cord, motor cord, or each lead wire. ○ Do not give strong shocks to this product.

○Due to the nature of radio-controlled models, we cannot be held responsible for the results of your use of this product.

Features

VFS (Variable Frequency System) PAT. (*Patented)

High performance model with variable frequency system (VFS) backed by a variable frequency system (VFS) that can be set according to throttle position.
Frequency setting range is 0.50 (±0.3) to 7.00 (±0.3) KHz; 64 steps of frequency setting are possible at each of the 32 positions in the forward side area.
Recommended VFS curves are already installed as shipped. **[LiPo] 12T or more recommended [LiFe, NiMH, NiCD] 23T or more recommended**

ICS (Interactive Communication System)

Various parameters can be set other than drive frequency through ICS (InteractiveCommunicationSystem) connected to a PC.

①Brake frequency ②Neutral brake ③Throttle response current limiter ④Throttle mode
⑤Power saving voltage ⑥Back-timer

* To change the settings for ①, ②, and ③, a computer with Windows 10 or later OS, the optional ICS USB Adapter HS No.61028, FR3 Manager (available for free download from the KOPROPO website) are required.

Compatible with various batteries such as Li-Po, Li-Fe, Ni, etc. (6.6-8.4v)

Power saving voltage can be selected as standard setting.
NiMH,NiCD:2.5V / LiFe:6.0V LiPo:6.4V

For brushed RC power motors only

The wiring cord will accommodate two motors.
*Cannot be used with brushless motors (motors with three motor wires).

HCS (Highspeed Communication System) mode

HCS mode, which compresses the time required to control to 1/4 of the conventional time, is supported. VFS-FR3 automatically discriminates between Normal and HCS mode, so there is no need to make any settings.
*When using in HCS mode, a compatible transmitter/receiver is required.
*Conventional normal mode can also be used.

Back-timer

Backing timer can be set as a standard setting.
Prevents unintended backing up during pumping brake.

Technical spec

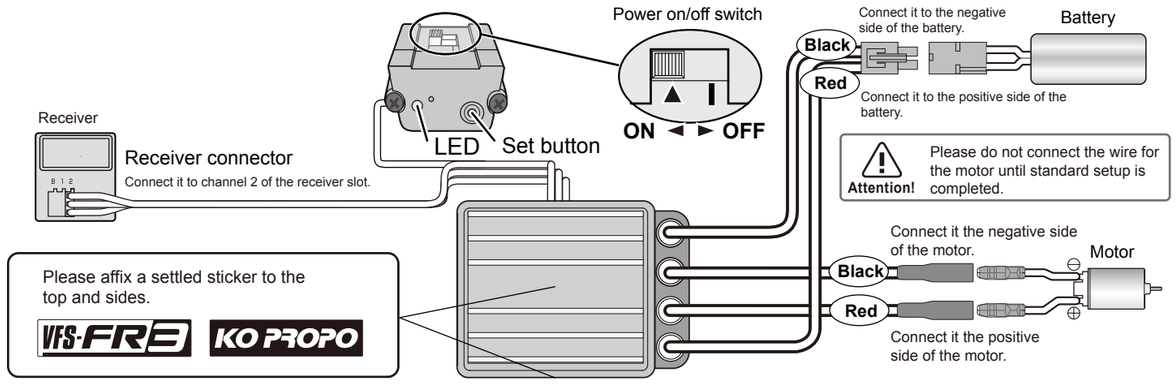
●Control method: Changeable control ●Maximum peak current: 1200A (FET spec) ●Maximum continuous current: 300A (FET spec) ●Rated current: 120A (FET spec)
●Proper operating voltage: 6.6-8.4V (LIxx 2cells, NIxx6cells) ●Drive frequency: 0.50(±0.3) - 7.00(±0.3)kHz (64step) ●Output voltage for receiver: 6V (input 7.2v)
●Output current for receiver: 3A (Peak) ●Size:32.6×29.0×19.4mm (size of case) ●Weight: 25.3g (Main Unit Only)

※Battery connector and motor connector solder by manufacture.
※Generally, the number of turns of a motor and the load to the speed controller are not necessarily related. Although it is possible to use a motor as long as it is marketed for electric cars. According to the usage condition, the thermal protector works regardless of the number of turns. Please decrease the load by changing the gearing, timing, motor etc. when the thermal protector is engaged.

How to install

●Fix the VFS-FR3 to the chassis/mechanical plate with double-sided tape. Install the switch in a position that is easy to operate.
*When fixing with double-sided tape, remove dust, moisture, oil, etc. thoroughly before fixing securely.
●Efficiency will decrease if the temperature rises to an extreme. To prevent temperature rise, create a gap to allow air flow.
●Mount the product in a safe location in case of a collision, etc.

ESC connections



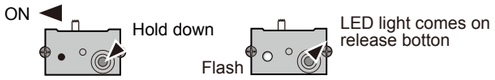
Set up

The standard and its setting are memorized by the signal from the transmitter in VFS-FR3. The settings are memorizes and do not disappear even if the power supply is turned off.

Attention!
●Please set-up the standard (Factory Default Setting) for the transmitter in the beginning. This will not operate properly if the standard is not set.
●Please do not connect the motor when you set the standard. (Please connect it after all settings are done.)

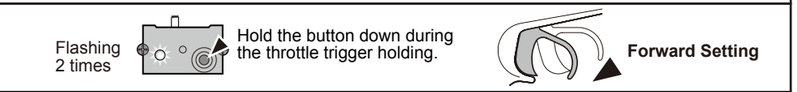
●Before the setting
■The battery for the transmitter and the battery in the car should be charged before use. ■The speed controller should be connected referring to the preceding instructions. ■The switch of the transmitter should be turned on first. ■Factory setting of the throttle trigger on the transmitter should be assigned. (Original setting when it was shipped) ■When the KO transmitter is shipped, the setting is 100% for the brake and throttle trim is neutral. Please make it to turn off ABS and Acceleration functions that are provided in the transmitter.

1 Hold down the set button while switching the power to the on position. Hold the button down until the LED light comes on and release.

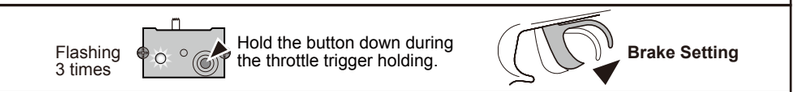


2 The LED light will repeat a pattern of flashing once. Leave the throttle trigger in the neutral position and press the set button once.

3 The LED light will repeat a pattern of flashing two times. The throttle trigger should be pulled to the full forward position and held while the set button should be pushed once.

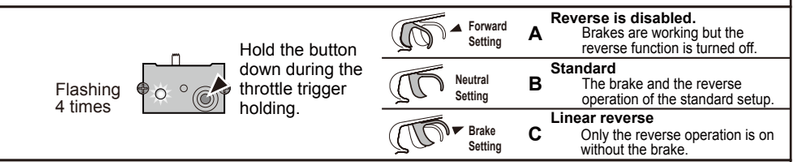


4 The LED light repeats a pattern of blinking three times. The throttle trigger is pushed to the full brake position and held while pushing the set button once.



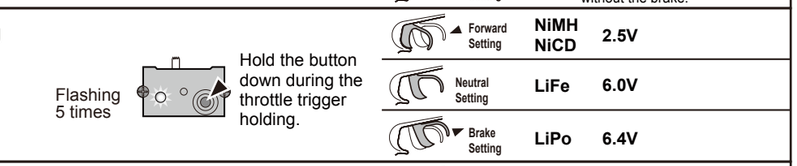
5 ●Throttle mode setting

The LED repeats the blinking pattern four times. The setting is made according to the trigger position when the set button is pressed.



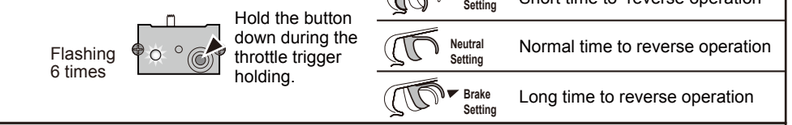
6 ●Power Saving Voltage setting

The LED repeats the blinking pattern 5 times. The setting is made according to the trigger position when the set button is pressed.



7 ●Reverse Timer setting

The LED repeats the blinking pattern 6 times. The setting is made according to the trigger position when the set button is pressed.



8 Once the standard settings have been completed, **Turn the switch OFF once and turn it ON again.** This completes the standard setup.
● **Forward high point** ● **Neutral** ● **Full brake** **Check that the LED lights up with each trigger operation.**
*If the switch is turned off before the standard settings are completed, the settings will not be stored. The standard settings must be made again.

The power saving voltage setting can be confirmed by the number of times the LED blinks when the switch is turned on.
● 1 blink: NiMH, NiCD ● 2 blink: LiFe ● 3 blink: LiPo

Operation of throttle mode and reverse

● When the back-up operation is performed from the forward side of the trigger, the brake operation is first performed. Then, by returning the trigger to neutral and then operating it backward, the back-up operation is performed.
*If the throttle trim of the transmitter is changed after the standard setting, it may not back up. After changing the trim, please make the standard setting again.
● Repetitive brake operation (pumping brake) may cause the driver to unexpectedly back up. Please prohibit backing up or adjust the backing timer.
● When set to linear reverse, the load on the motor and speed controller is increased. Heat protector may be activated.

Communication mode

1 Connect the 2-wire cable (white and black), ICS USB adapter(HS) and VFS-FR3 receiver connector.
2 Connect a battery pack to VFS-FR3.
3 Hold down the set button while switching the power to the on position. Hold the button down until the LED light comes on and data communication with VFS-FR3 Manager is possible in this state.

VFS-FR3 Manager download in a below URL. https://www.kopropo.co.jp/en/supports/view/335
Also, when you download the recommended data from the KOPROPO home page , you can experience the VFS immediately . (From time to time will be released)

Contact us

●In this case...
■ Please do not use this product if the VFS-FR3 gets wet. Remove excess water at once and let it dry. After it dries, do not use this product. We recommend sending it to our repair department for inspection for possible water damage.
■ The heat protection in the VFS-FR is activated by overload and operation will stop. Please perform your car's maintenance like motor (cutting the com and changing brushes) and drive train system, etc. and making sure that gearing is correct.

●Repair & Questions...
Please contact your local distributors. If you could not find distributor in your country, Please contact us.

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