

Thank you for purchasing this product. Please read this manual to make the best use of the performance of the VFS-FR and enjoy RC. Also, please use it accordingly when there are displays of warning and attention, etc. and for safety. Please keep in mind the cautions after you have read these instructions. When you cannot understand the manual enough, please contact our service department and do not use the product.

Features

Variable Frequency System PAT. (* The patent has been acquired.)

KO PROPO

The further evolution of the VFS-1 has accomplished the changeable frequency systems. This is a high performance model with a backbone of the successful functions of the VFS Series. The frequency setting width is 5.3KHz-460Hz. 64 different frequency settings can be set in each step across the slide area of 32 steps. A setting with high accuracy that is demanded from a race etc. for eight minutes is achieved. *The setting adaptor or PC software VFS-FR manager is necessary for the frequency change and the setting change (sold separately).

Various parameters can be set by ICS (Interactive Communication System) besides the drive frequency.

- Frequency of brake:** Initialization is about 2.0KHz. The brake frequency can be changed to 64 different frequencies ranging from 460Hz-5.3KHz.
- Throttle mode setting:** The operation of the brake and reverse can be selected from three modes.
- The power save voltage:** The power supply output supplied to the receiver can be set while maintaining a constant voltage. This allows for a steady to the last minute run.
- Throttle response:** The throttle operation of the beginning grasp can be changed to be mild. This combined with the punch function of the transmitter can have your car start like a rocket. This especially benefits if the surface conditions are slippery.
- Current limiter:** A large current to the motor can be suppressed. A set value OFF is also possible. This setting aids in extending runtime by not over using the current that you would need.

Micro and light 25.3g (* Excluding wires and connectors)

The demand of making a low center of gravity and space-saving esc for today's cars is here.

The small slide switch is adopted in the power on/off switch.

A consistent operation, durability, and reliability are achieved.

- ※ The setting adaptor for VFS-2000 cannot be used. The setting card and the multi setting adaptor for the VFS-FR can only be used.
- ※ The ICS PC interface for your personal computer can be used with the correct software.
- ※ Please use the download service from our website for software downloads and upgrades with the ICS PC interface.

Use caution when handling, especially when it is noted to use safe attention.

When mishandling a RC model it is very dangerous. This type of matter should be especially noted to avoid and should be used safely as much as possible.

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

Warning This display shows the content where the possibility of owing the death or the serious injury is assumed, and a disadvantageous accident can occur at high frequency.

This product is manufactured and sold for the RC model ground use only. - Please do not use it for anything else. - Make sure the connector of the servo, speed controller, etc. is properly inserted into the receiver. - There is a possibility of driving recklessly when the connector(s) become disconnected due to the vibration during operation. - Always turn on your transmitter first before turning on the speed controller to make sure the band (frequency) is not being used. - Operating on a "in use" band (frequency) is dangerous and reckless. - Do not operate during thunder or electrical storms. - Lighting may strike the antenna of the transmitter. - Do not operate when it is raining or there is standing water. - If water enters the equipment, you will lose control and drive recklessly. - If you are tired, drinking alcohol, or are under medication, do not operate this equipment. - An unexpected accident is maybe caused by the lack of judgment. - After a run, disconnect and remove the battery. - When the switch is turned on by mistake, the model can drive recklessly and can catch on fire. - The transmitter, the battery, and the model, etc. should be kept in the place where children cannot reach. - The danger of poisoning, burn, and injury may occur by accidental ingestion.

Attention This display shows the content to which a possibility and/or a disadvantageous accident may occur causing injury.

- Do not make a mistake in the polarity connection of the battery. - The equipment will be damaged. - The transmitter, receiver, servo, and other option parts used should only be genuine KO PROPO products. - Our company cannot assume the responsibility of damage etc. that occur because of the combination of non-genuine KO PROPO products. - When turning on the power supply do it in this order (transmitter → speed controller). Turning off the power in this order (speed controller → transmitter). - When the order is reversed, the receiver will pick up noise and may go out of control. - For low turn modified motors (15 or lower) we recommend using the Ultimate Shotki [Double] (Optional Part) - After operation, do not touch hot surfaces such as the motor and the speed controller. - Caution combustible. - Please do not short-circuit the leads like the battery wire and the motor wire etc. of this product. - The equipment will be damaged. - Please remove or disconnect the motor when you set up this product. - Please do not operate this on the street or where people are present. - Please send this to our service department when there is damage or when this product gets wet. - It may cause corrosion and the breakdown of the product. - Please avoid high impacts to this product. - It may cause damage. - Please read the manual thoroughly before using this product and keep it handy for future references. Please inquire of our service depart when you cannot understand the manual.

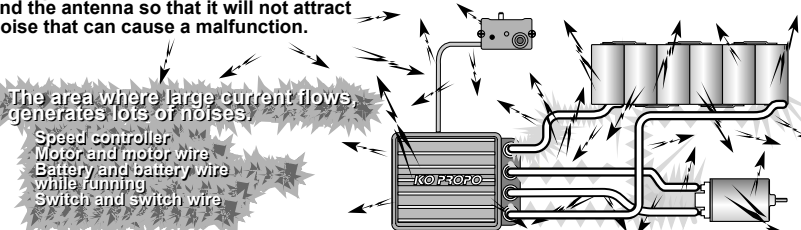
We are not able to assume the responsibility in the result that the customer and/or how the RC model is used. Please acknowledge it beforehand.

Technical spec

- Control method: Changeable control
- Continuous, maximum current: 240A (FET specs.)
- The maximum peak current: 960A (FET specs.)
- Size: 32.6×29.0×19.4mm (size of case)
- 25.3g in weight (The silicon wire excluded.)
- Proper power-supply voltage: 4.8-8.4V (4-7 cells)
- Drive frequency: 0.56-5.3KHz(64steps) initialization 2.0KHz
- ※ 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.
- Output voltage for receiver: 6V (input 7.2v)
- Output current for receiver: 2A (maximum peak)

Installing method

- Arrange the placement of the receiver and the antenna so that it will not attract noise that can cause a malfunction.



Moreover, a carbon chassis and a metallic chassis also pick up and transmit these noises.

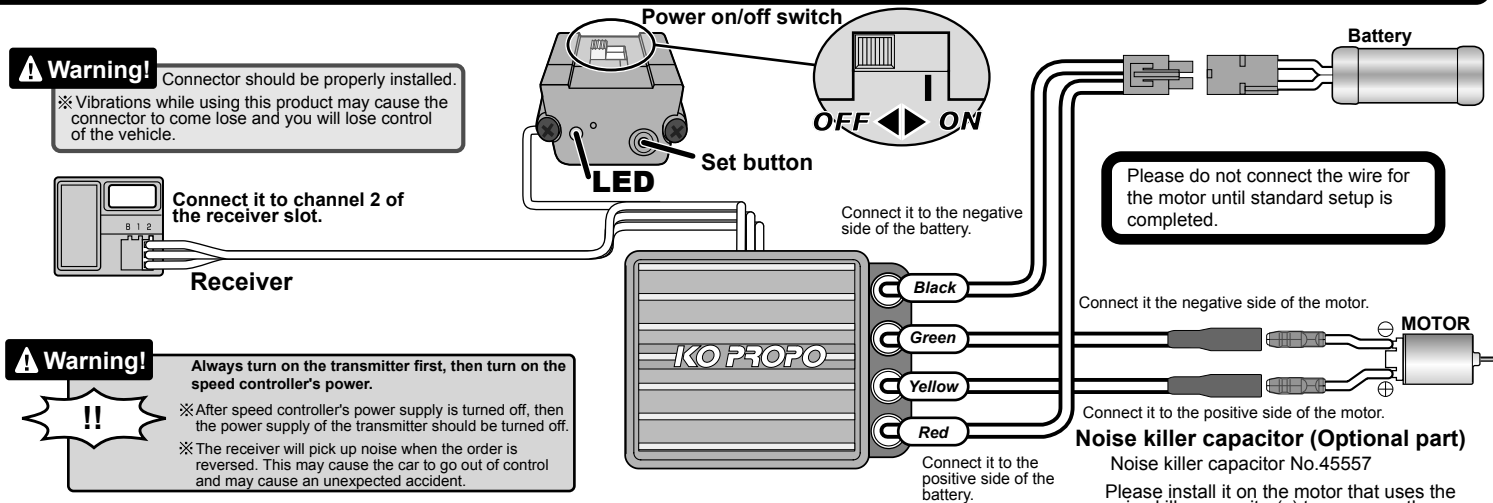
Please think about the placement of wire for the battery for the speed controller, motor, the motor wire, the battery wire switch, and the switch. These large currents flow generates noises. This type of noise is an electric wave and it will radiate. (Moves in all directions.) Therefore, if you bring the antenna close to this source, it is likely to pick up the noise. The position of the high frequency speed controller to where the receiver is installed is very important. If the antenna is intersected with the silicon wire or the speed controller, the receiver will pick up noise easily. This will cause a malfunction, etc. Also, the noise can be transmitted to a carbon and a metallic chassis.

Please install the receiver and antenna wire (especially the crystal area) to be isolated from noise sources.

VFS-FR is fixed to the chassis plate with the double-sided tape. Install the switch in a position where it can be easily operated.

Please mount with double-sided tape in a location that will be free from dust, moisture, oil, etc.

Part names and wiring



Setup

The standard is set.

Before the setting

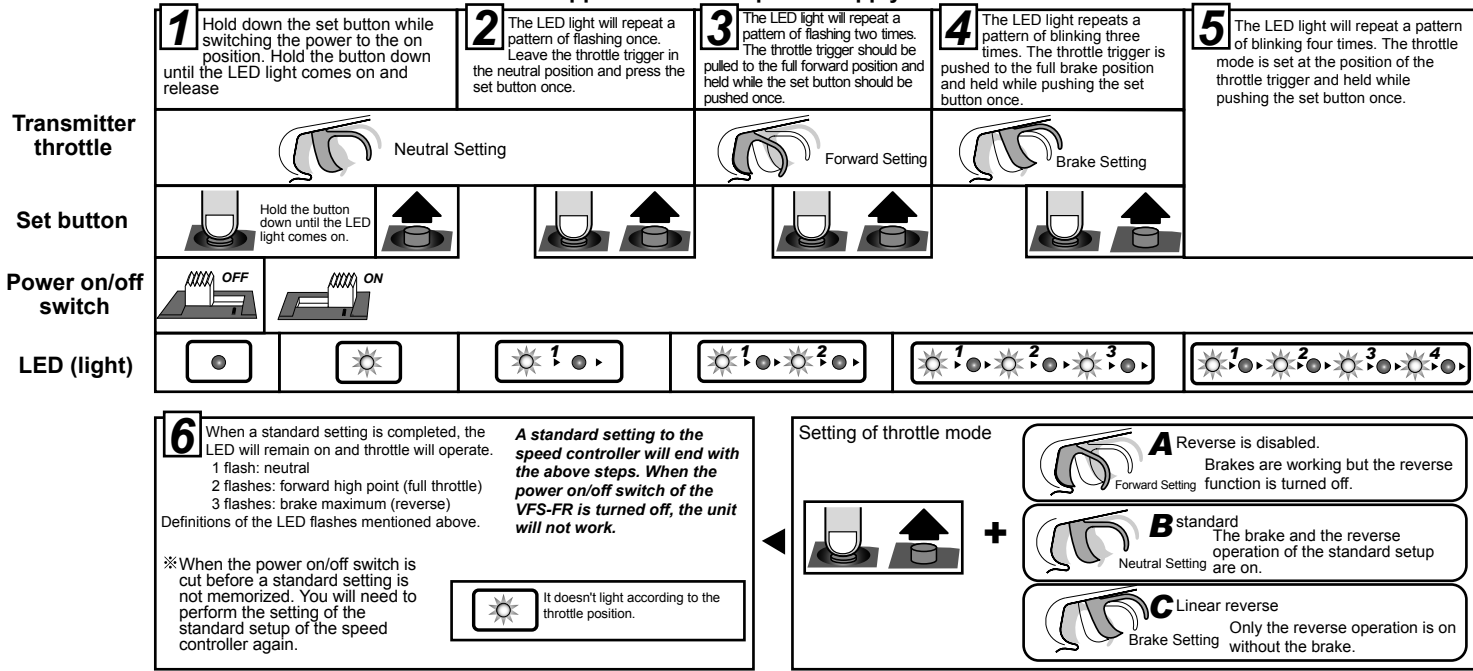
- The battery for the transmitter and the battery in the car should be charged before use.
- The speed controller should be connected referring to the preceding instructions.
- The switch of the transmitter should be turned on first.
- Factory setting of the throttle trigger on the transmitter should 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.

Caution!

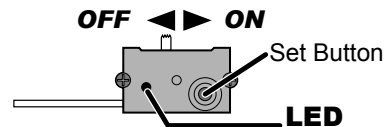
- Please set-up the standard (Factory Default Setting) for the transmitter in the beginning. This will not operate properly if the standard is not set.
- Please do not connect the motor when you set the standard. (Please connect it after all settings are done.)

Standard Setup

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



Power on/off switch



Operation of throttle mode and reverse

- ※ The braking feature will operate on the VFS-FR when moving the throttle trigger from the forward position to the braking position in the standard setup. Reverse will only be engaged by returning to the neutral position after braking, then moving to the reverse position. When reversing and you are not in the neutral position, forward will not work. Moreover, please note that reverse might not start well when a neutral position is adjusted by the trim of the transmitter after it has been set.
- ※ The load to the motor and the speed controller might increase when changing to the linear reverse setting. The thermo-heat protector may engage early. Please use it after it has cooled down.

Communication mode

To enter the communication mode. First, hold the set button down and then turn the power switch to the on position. While holding the set button down, the LED light will come on. Keep holding the button down until the LED light goes off and then release the set button. You are now in the communication mode. This is the mode used for the hand setting adaptor and the VFS-FR setting adaptor for personal computers.

When the VFS-FR doesn't operate normally.

In this case...

- Internal parts may be damaged by heat. Also the signs of transformation of the case by the excessive generation of heat displays possible damage. We would recommend sending it in for repairs and checking.
- Please do not use this product if the VFS-FR 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.
- When there is an abnormal generation of heat and there is a nasty smell coming from VFS-FR, we would recommend discontinuing usage and send it in to your local authorized service department.

When you think that something is damaged...

- Please inspect it and reread this manual again. If you still do not understand what has happened, please consult your local authorized service department. Please inform them of the situation with as much detail as possible.
- ※ What is being used. (battery and car for the transmitter, receiver, servo, and the number of turns of the motor.)
- ※ You should also have ready the symptom of usage conditions and the problems associated with it.
- ※ Customer's address, name, and contact phone number
- ※ Please send the information mentioned above in detail as possible when a repair is requested.
- ※ Please pre-pay the postage when the repair goods are forwarded to the service department.
- ※ Returned repairs will include repair fees, postal fees and a total.

<http://www.kopropo.co.jp>

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