

KRG-Link Software Manual

The operating parameters of the OS KRG-01 can be set and changed from a PC by using this software. Since the OS U2S-1 USB adapter and power supply (receiver battery or 5V power source) are necessary, procure them beforehand and place into the state in which the U2S-1 is operated properly from the PC.

Note: The KRG-Link software is for Windows 10 / 8.1 / 7 / Vista / XP / 2000 use and is not compatible with other OS.

Downloaded Zip file extraction (decompression).....	P2
KRG-Link software installation	P2
U2S-1 and KRG-01 connection.....	P4
KRG-Link software usage method	P5
Changing the parameters.....	P8
Description of the function of each parameter	P9

Distribution & exemption of liability

- OS Corporation shall not be responsible for any damage caused by use of this software without regard to legal foundation. Use this software based on agreement to this.
- The copyright of this software and document resides with OS Corporation. Redistribution without the approval of the copyright holder is prohibited.
- Reverse engineering and modification of this software is strictly prohibited.

Downloaded Zip file extraction (decompression)

The downloaded KRG-Link_v1_0_eng.zip file is a Zip format file. Extract (decompress) this file. (*For Windows2000,separate decompression software is necessary.)

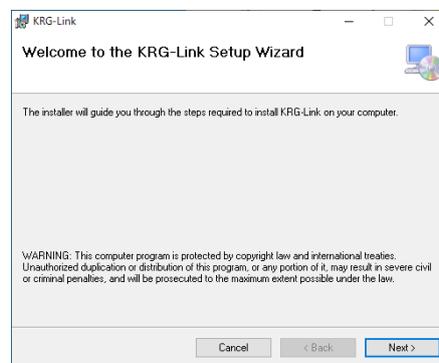
1. With Windows 10 / 8.1 / 7 / Vista / XP, double click file KRG-Link_v1_0_eng.zip to display its contents.
2. Click “Extract all files”. The Extraction Wizard launches.
3. Extract (decompress) Zip file KRG-Link_v1_0_eng.zip to the same location as the Zip file storage location. KRGLink.msi file and setup.exe file are extracted in the KRG-Link_v1_0_eng folder.

KRG-Link software installation

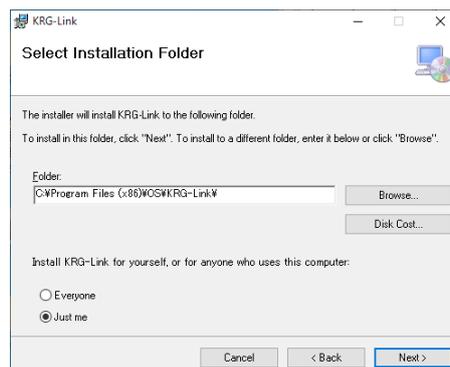
Before installing the KRG-Link software, confirm that all other applications are closed.

Close all virus check and other resident programs, if any.

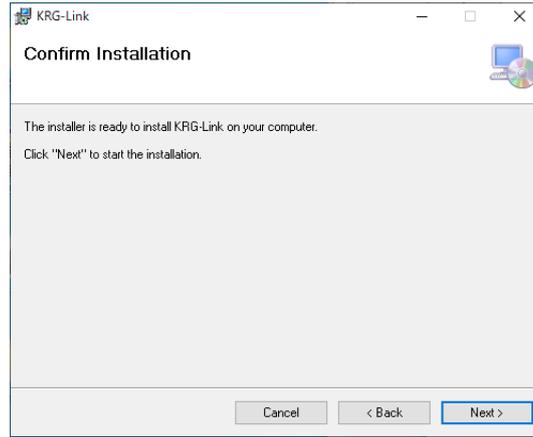
1. Select and double click the folder named KRG-Link_v1_0_eng created by downloaded Zip file extraction (decompression). The contents of the folder are displayed.
2. Double click the EXE file named “setup”, and push the “Next” button.



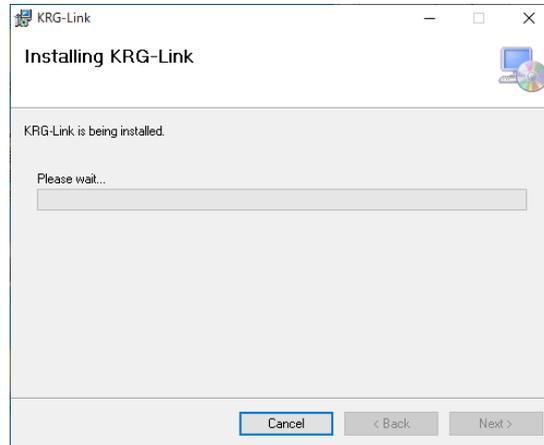
3. Choose the target folder, and push the “Next” button.



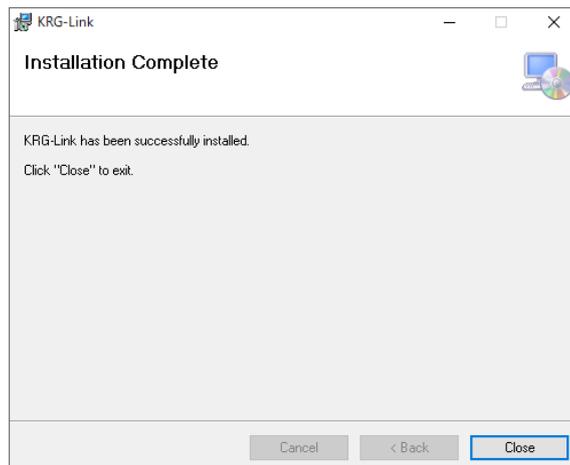
4. Push the "Next" button.



5. The install process begins.



6. The installer displays the following after the install process. Push the "Close" button.



U2S-1 and KRG-01 connection

Connect KRG-01, U2S-1 USB adapter and power supply as shown below.

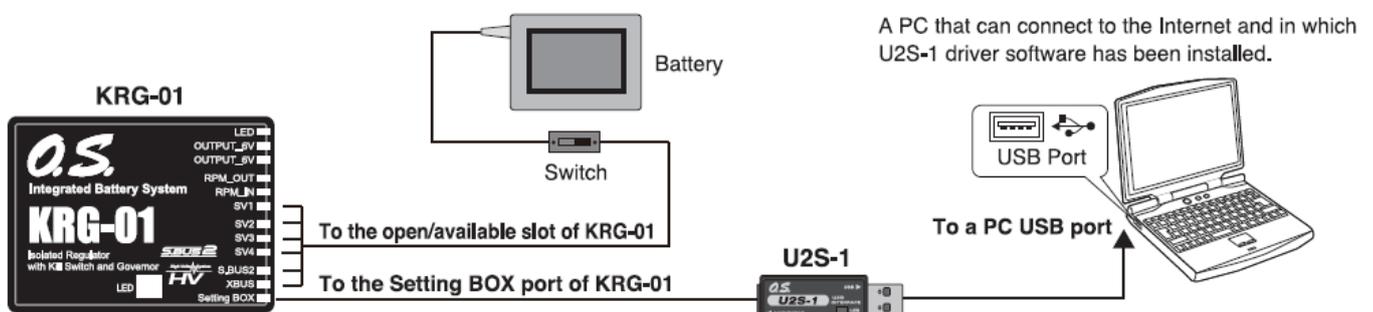
Installing the U2S-1 device driver

A U2S-1 USB adapter is necessary to execute this software. Before using this software, please install the U2S-1 device driver. If the U2S-1 USB device driver has already been installed, advance to the next step.

The U2S-1 device driver is available at the downloaded corner of our home page (<http://www.os-engines.co.jp/dll/air>).

Connection method

1. Connect the U2S-1 to the USB port of the PC.
2. Using the connection cord connect the 3 pin connector of the U2S-1 to the Setting BOX input connector of the KRG-01.
3. Connect the receiver battery or a 5V power source to the sensitivity input connector of the KRG-01.

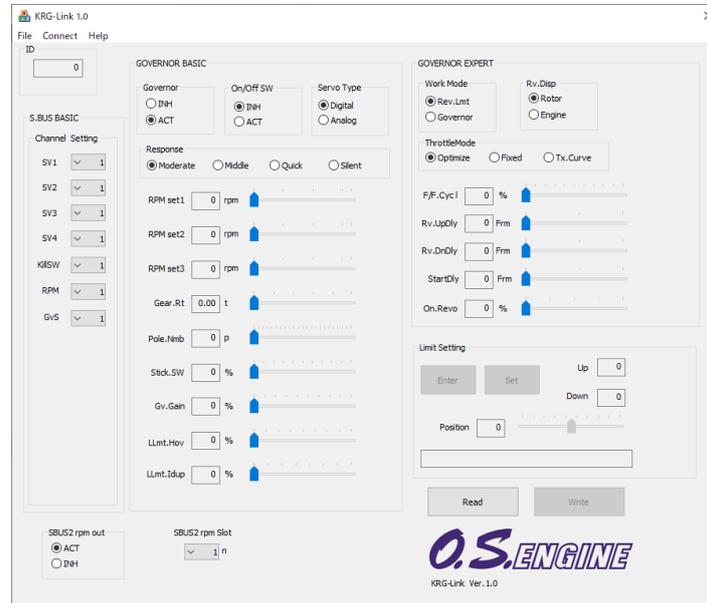


KRG-Link software usage method

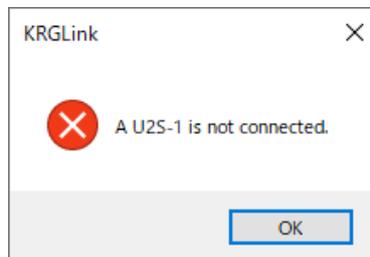
Connecting the KRG-01 and PC

1. Select desktop lower left side “Start” button – “All Programs” – “OS” – “KRG-Link”, in that order.

The KRG-Link software starts up.



- *If the following message appears, the U2S-1 is not properly connected to the PC. Recheck the connection and re-execute the program.

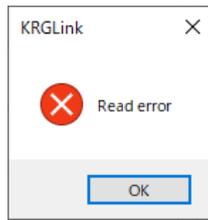


Reading parameters data from KRG-01

1. Press the “Read” button. When connection to the PC is complete, the following message box will appear.

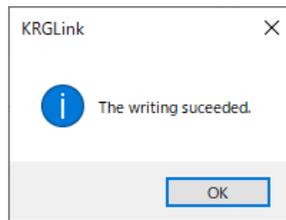


- *If communication between the KRG-01 and the PC could not be started normally; the following message box will appear. ✖KRG-01 Temporarily disconnect the U2S-1 from the PC, and then reconnect the U2S-1 and the PC and press the “Read” button again.

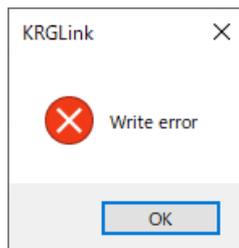


Writing parameters data to the KRG-01

1. After parameters setting is complete, press the “Write” button. This operation transfers the modified parameters data to the KRG-01.
2. If the data was transferred to the KRG-01 normally, the following message will appear.

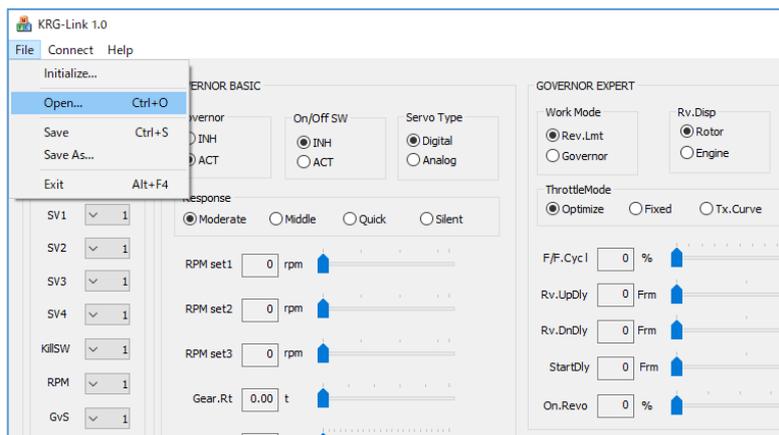


*If the following message appeared, check the connections and then press the “Write” button again.



Reading parameters data saved at the PC

1. Select the “Open” command from the “File” menu.



2. A file open dialog opens. Select the file you want to open, and press the “Open” button. When reading is complete, the parameters data on the screen is changed.

*At the time the file was read data is not transferred to the KRG-01. To write data directly to the KRG-01, check the read contents and transfer the parameters data to the KRG-01 by pressing the “Write” button.

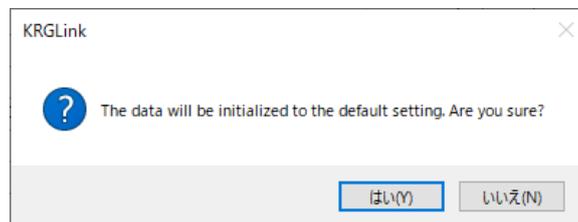
Saving parameters data to PC

1. Select the “Save” or “Save As” command from the “File” menu. The “Save” command overwrites an existing filename. The “Save As” command saves the data under a new filename.
2. The parameters file is saved to the PC by pressing the save button in the data save dialog.

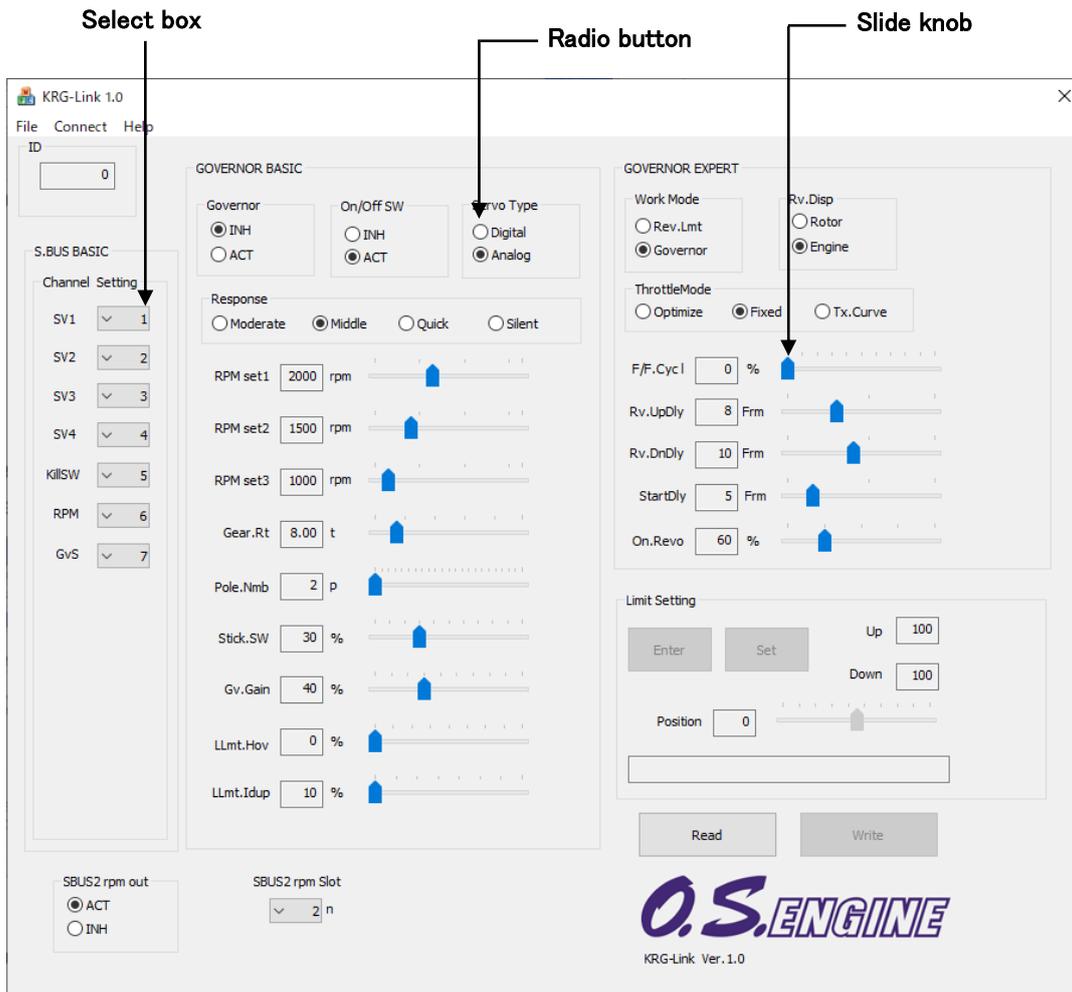
Initializing the parameters data

1. Select the “Initialize” command from the “File” menu. A confirmation message appears.
2. When Yes (Y) is clicked, the parameters data on the screen is changed to the default state.

*At the time the parameters data was initialized, the data is not transferred to the KRG-01. The KRG-01 parameters data is initialized to the initial values by pressing the “Write” button.



Changing the parameters



(Parameters setting screen)

1. You can change the Channel parameters by clicking the down arrow next to the number and selecting a different channel.
2. Select the function you want to set for the Governor Mode, Governor on/off, Servo Type, Response Setting Mode and Governor Expert parameter items.
3. When the slide knob of each item on the screen is changed, the set value is changed. When setting an exact value, the value can be changed in minimum units by PC cursor key operation.
4. Set the Limit parameter after the KRG-01 is mounted to the fuselage. When the “Enter” button is pressed, the setting mode is entered. Slide scale bar to set the limit position. Memorize this position by pressing the “Set” button.
5. After the optimum value of each item was set, the new parameters can be written by clicking the “Write” button.

Note: Do not disconnect the KRG-01 and do not turn off power while writing the parameter.

Note: Always confirm the normal operation in the ground test after installing it in the fuselage enough.

Description of the function of each parameter

●ID

Serial number, which you cannot change.

S.BUS basic settings

CH (channel) settings for each function according to your transmitter
KRG-01 requires an S.BUS2 receiver.

●Channel (default: kill switch=5, RPM = 6, Governor ON/OFF = 7) (setting range 1 – 16 channel, DG1, DG2)

You can use SV1 – SV4 freely.

Decide CH number of Kill switch channel, RPM setting channel, Governor ON/OFF channel.

Governor basic settings

Whenever you use governor function, governor basic settings is necessary.

※After completing throttle linkage, set the servo limit setting first and foremost before any other settings.

※In case you use a Futaba transmitter, set the throttle channel of Servo reverse function “REVERSE”.

●Servo limit point settings (default: Left = 100, Right = 100) (setting range: 50 – 150)

This is to set the moving angle of a servo. The settings are to be done after mounting KRG-01 on the aircraft. Click “INPUT” to enter the setting mode. Move the slide knob to the end and check the servo movement not to push/pull the linkage too much. Click “SET” button to memorize the position. Then move the slide knob to the other end and do the same. The limit value cannot be set less than 50%. When the both positions are decided, click “Write” button to transmit the data to KRG-01.

●Governor movement (default: INH)

This is to set the governor movement. Default setting is governor INH. Select INH in case you do not use the governor.

●Governor ON/OFF switch (default: ACT)

This is to turn ON/OFF the governor using a lever switch on the transmitter.

Setting of the governor function by an ON/OFF switch

※Choose the channel for the ON/OFF switch in S.BUS2 basic setting, “governor ON/OFF channel”

When you turn on the switch, the governor is ready to work as follows.

- When the throttle stick is moved up from the bottom to 60% up or more, the governor is turned ON.
- When the throttle stick is moved down to the bottom, the governor is still ON
- When the ON/OFF switch is turned off, the governor is turned OFF.



Governor can be turned on and off by a switch.

●Choosing the servo type (default: analog servo)

This is to decide which type of servos is used. Digital servos respond quicker than analog ones.

The servo type parameters within the KRG-01 must match the type of servo you are using. Incorrect setting may damage the servos, possibly resulting in a loss of control during flight.

●Governor response (default: Middle)

This is to set the speed of governor response. The governor performs best when the speed of governor response and the speed of acceleration/deceleration of the engine (motor) is the same. Generally, the setting of this parameter we recommend is as follows.

Glow engine → Middle

Gasoline engine → Moderate

Brushless motor → Quick

Brushless motor using a RPM sensor, which picks up RPM data directly from an ESC → Silent

●RPM setting (setting range: 700 – 4,000 rpm)

This is to set rpm of the main rotor. Determine the engine rpm from the gear ratio of the main shaft.

●Determine the gear ratio (Default: 8.00) (setting range: 1 – 50)

Input the gear ratio of the main shaft.

About the rotor gear ratio

Incorrect gear ratio setting makes discrepancy between the set rpm and the actual rpm of the engine.

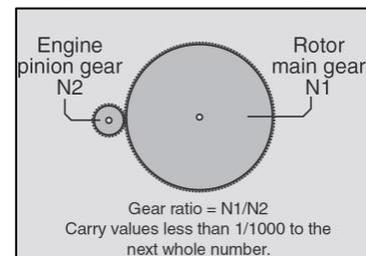
The gear ratio is written in instruction manual of the aircraft (helicopter). Determine the gear ratio as follows in case not.

Engine pinion gear N2

Rotor main gear N1

Gear ratio = $N1/N2$

※Round off the value less than 1/1000



●Pole number (default: 2p) (setting range: 2p – 24p)

This is to set the poles of motor. Input the quantity of pole in the brushless motor to detect rpm. In case of using an internal combustion engine, input the value 2P (default setting).

The range of input signal of the rotation sensor should be between 0V and 3.0V. Make sure not to exceed the maximum voltage not to damage the KRG-01.

●Stick switch (default: 30%) (setting range 0% - 100%)

The governor can be activated by throttle stick position. When the governor ON/OFF switch function is inhibited (INH), or the governor ON/OFF switch is not functioned, the stick switch is always activated (ACT).

When idle up

When the throttle curve is set at idle up, when the throttle output is over the set value (default: 30%), the governor will always remain ON even if the stick is lowered to the bottom.

When turn ON/OFF the governor with the switch

In advance, select the ON/OFF switch channel with "GOV sw channel" on "SBUS BASIC" menu.

When the governor turned ON/OFF by switch, setting the switch to the ON position turns on the governor. The following describes this operation.

- When the stick switch stays within a governor ON position and output level is more than 60% → the governor is ON
- When the stick switch stays within a governor ON position → the governor is kept turned ON
- When the stick switch is moved down lower than the governor ON position → the governor is turned OFF

(Governor operating point)

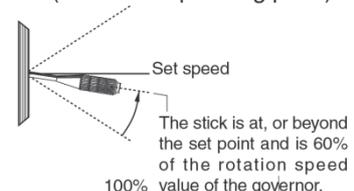
Set speed

Set point or more and 60% of set speed

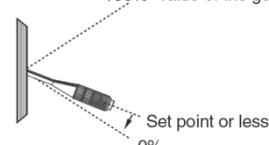
(OFF at slow side)

Set point or less (OFF range)

(Governor operating point)



100%



(OFF at slow side)

- **Governor gain (default: Moderate = 30%, Middle = 40%, Quick = 60%, Silent = 10%) (setting range: 10% - 100%)**

This is to set the governor operation sensitivity. When the response of the governor is changed, all the settings become default. Too low of number causes fluctuation of the RPM with collective pitch and cyclic changes. Too high of gain causes the RPM oscillation and possibly surging during flight.

- **Low limit hovering (default: 0%) (setting range 0% - 80%)**

This is to set the limit to control excessive throttle close during hovering when the governor is activated.

- **Low limit idle up (default: 10%) (setting range 10% - 80%)**

Low RPM limit sets the minimum amount of throttle that the governor will command during an over-speed situation. Too low of the value, the engine could shut off or would not recover power quickly enough during the next collective movement. If the value is set too high, the governor will not control over-speed with the rotor head unloaded.

Governor expert settings

- **Governor working mode (default: governor mode)**

This is to set the governing type mode.

RPM is entirely controlled by the governor once it has engaged. The governor will do whatever it takes to hold a constant RPM throughout flight. In Rev. limit mode, set the throttle data mode "Tx curve" mode and set the throttle curve with a transmitter.

- **RPM display mode (default: ENGINE)**

Ability to choose to display desired Rotor RPM or Engine RPM.

- **Throttle data mode (default: Fixed)**

This parameter selects the throttle input operation.

Optimize: KRG-01 sets the throttle input signal to optimum. There is no need to consider the throttle curve setting on the transmitter.

Fixed: The fixed throttle input is utilized related to the revolution. It is recommended for electric motors.

Tx. Curve: KRG-01 uses the exact throttle input from the transmitter. The throttle curve setting on the transmitter is required. When the Rev. limit mode is selected, this mode should be selected.

- **Feed forward cyclic mode (default: 0%) (setting range: 0% ~)**

Increasing the value will add throttle with cyclic commands to aid in RPM stability.

- **Revolution up delay (default: 8) (setting range: 2 – 20)**

How quickly the RPM changes when increasing RPM between two different RPM conditions and flight modes. A higher value slows the RPM change rate; a lower value speeds up the RPM change rate.

- **Revolution down delay (default: 10) (setting range: 2 – 20)**

How quickly the RPM changes when reducing RPM between two different RPM conditions and flight modes. A higher value slows the RPM change rate; a lower value speeds up the RPM change rate.

- **Start delay (default: 5) (setting range 2 – 20)**

How quickly the RPM stabilized to the set RPM from when the governor is turned ON. A higher value slows down the spool up rate; a lower value speeds up the spool up rate.

- **Governor ON revolution setting (default: 60%) (setting range: 50 – 90%)**

This parameter tells the governor at what percentage of the set RPM it is to become active. The default value is 60%. In this case, the governor will not engage until the engine RPM reaches 60% of the set RPM. IF you feel that the time for governor engagement is too slow, decrease the value to 50 – 55%. The starting time will become faster.

●**SBUS2 rpm out (RPM display on transmitter) (default: ACT)**

When displaying the rpm with the telemetry function, set it to ACT.

●**SBUS2 rpm Slot(RPM display on transmitter) (default: 2n) (setting range: 1n – 31n)**

Set the slot number of the telemetry rotation sensor registered on the transmitter side.

●**SBUS2 rpm**

By the telemetry function, the number of revolutions read by the governor sensor can be displayed on the monitor of the transmitter.

In order to be able to display, activate the telemetry rotation sensor (SBS-01RM) on the transmitter and set the gear ratio to 1.00.

Note: It can not be used when the transmitter is FASSTest 12CH system and XBus system.

***When using the KRG-01 for the first time, or when making changes in the throw of a servo and its linkage, always perform the limit setting operation.**

***For Futaba transmitters, set the throttle channel reverse function to reverse.**