



USER MANUAL

The Servo Expander SE6 is a device that converts serial bus signal to standard PWM servo outputs. It offers up to six configurable servo outputs with optional period and fail-safe setting. The SE6 is a perfect choice for models with complex wing or tail mechanics where multiple servos may be connected to a primary receiver using just a single cable. In addition, if you are running out of receiver channels simply connect the SE6 to the receiver serial line and freely assign its own output channels.

Supported protocols:

- Futaba: S.Bus/S.Bus2
- Graupner: SUMD, Hott telemetry for setting
- JETI: EX Bus
- Multiplex: SRXL 12ch, SRXL 16ch

FEATURES

- Small dimensions and high current throughput via the integrated MR30 power connector.
- Automatic detection of serial data/telemetry after startup.
- Configuration through the transmitter or external terminal (JETIBOX/SMART-BOX).
- Firmware updates via USB interface.

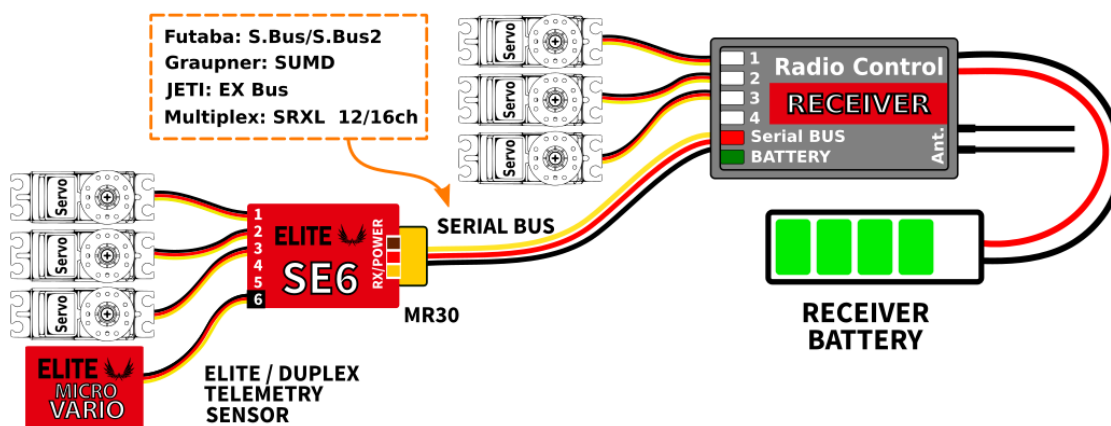
	SE6
Dimensions (including connectors)	34x19x8mm
Weight (including connectors)	5g
Servo output channels	5 or 6
Operating current	15mA
Operating temperature	-20 – 85°C
Supply Voltage	4 – 14V (recommended 5-8.4V)
Continuous current	15A
Peak current	60A (2sec)
Supported protocols	JETI Duplex, Multiplex, Graupner Hott, Futaba S.Bus
Status LED	YES

INSTALLATION

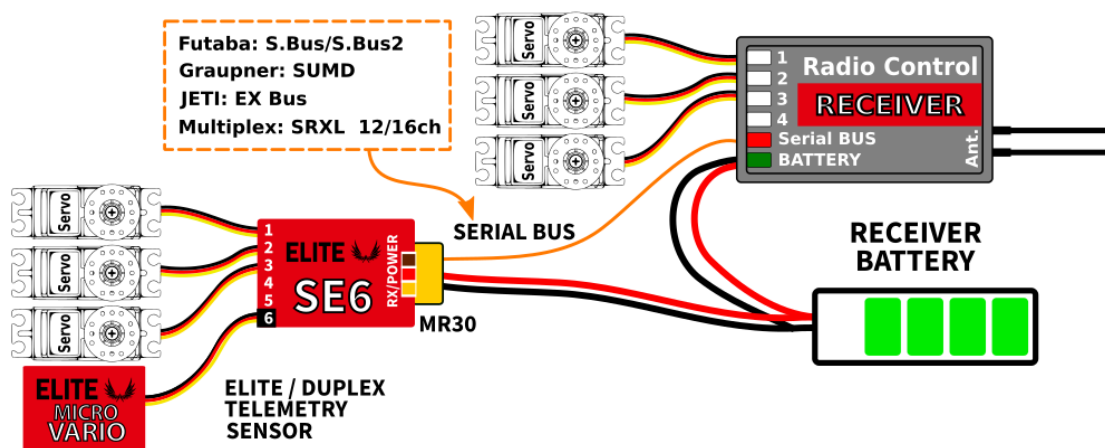
Attach the required servos to the SE6 servo expander. Connect the receiver – use its output port with serial data option. The SE6 uses the MR30 connector for primary data input.

Turn on the transmitter and apply the appropriate power source to the receiver. The status LED starts blinking as soon as the SE6 detects signal on the serial line.

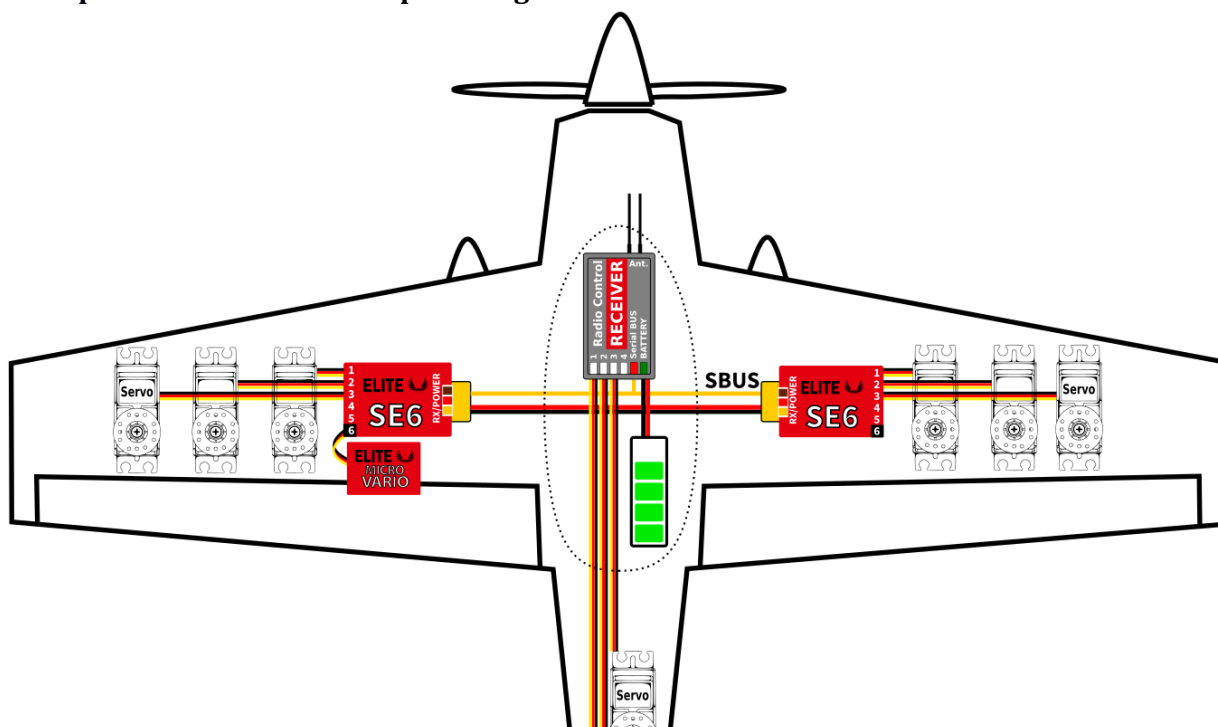
Basic installation:



High power installation:



Multiple installation in a complex wing:



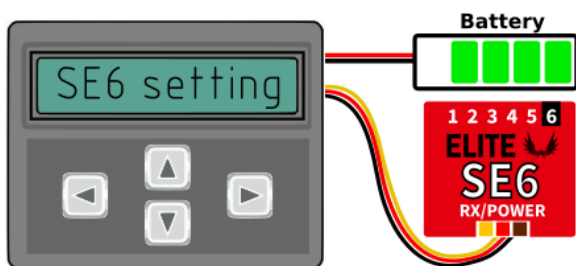
TELEMETRY AND SETTINGS

The device is compatible with JETIBOX for programming. The JETIBOX menu is divided into three sections:

- **Actual values** – displays the latest telemetry values (voltage, temperature, system status) together with minimums and maximums.
 - **System** – shows the detected serial protocol and its average frame rate.
 - **Fadeouts/FS** – number of frame misses and time spent in fail-safe mode. The number of frame misses is increased every time the interval between two consecutive servo frames noticeably exceeds the average period.
 - **Reset Min/Max** - press left+right buttons together to reset all minimums and maximums.
- **Settings** – basic settings of the sensor
 - **Language** – you can choose the language of the JETIBOX screen.
 - **Period** – you can specify a fixed servo output rate (5ms – 30ms), or automatic output rate synchronous to the serial input.
 - **Data Port (6)** – specify a function of the data port – either servo or sensor/terminal can be set.
 - **Fail-Safe Delay** – set the time period that must elapse before entering the fail-safe mode if there is no signal on the serial line.
 - **Ch.1-Ch.6** – here you can set the properties of each output channel. You can modify the receiver channel assignment to the outputs of the SE6. By pressing both left+right buttons you can change the behavior if there is no signal on the serial line:
 - <Hold> (default) – repeat the last known servo position.
 - <FS XX> - set the servo position to a fixed value XX%.
 - **Set Fail-Safe Now** - by pressing both left+right buttons the actual servo positions will be stored as fail-safe values.
- **Service** – In this menu you can view the device version and reset it to the default factory configuration.

JETIBOX or SMART BOX Connection

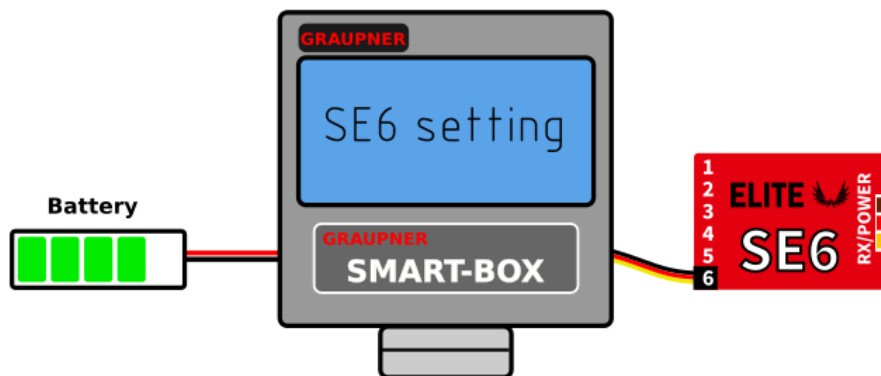
Plug the SE6 into the sensor slot of the JETIBOX/SMART-BOX. Power it up using a battery with appropriate voltage (4.5 - 8.4V). Now you can configure the device using the arrows on the JETIBOX/SMART-BOX.



Default connection of JETIBOX/SMART-BOX.
An adapter cable between MR30 and JR is necessary.

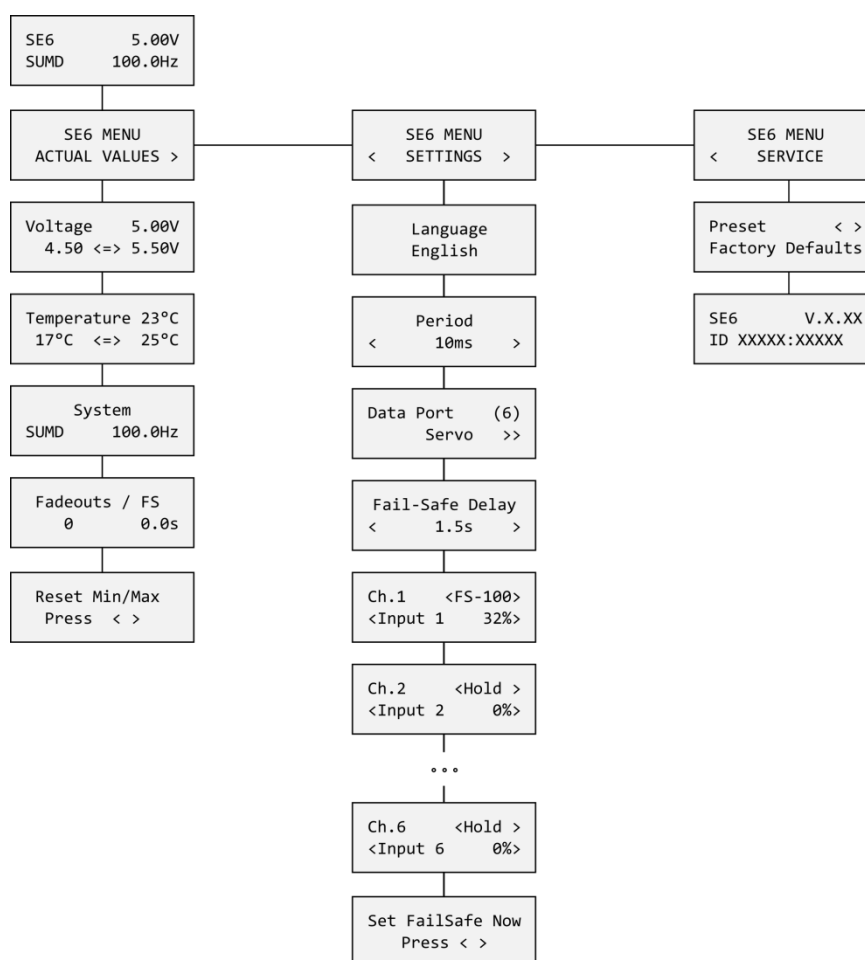


Optional type of connection. The output No.6 must be configured to a "Sensor" option.



Optional SMART-BOX connection. The output No.6 must be configured to the “Sensor” option and SUMD signal must be detected on the MR30 connector.

Complete JETIBOX menu structure:



Graupner Hott Menu Structure:

SE6 offers text telemetry as a standard EAM telemetry module.

SE6	VX.XX
VOLTAGE	5.0V
	4.5/5.5V
TEMPERATURE	24°C
FAIL-SAFE	0/ 0S
>RESET MIN/MAX	
	1/3

SE6	VX.XX
>LANGUAGE	English
PERIOD	Auto
FS DELAY	1500ms
DATA PORT	SERVO
FACTORY DEFAULTS	
	2/3

SE6	VX.XX
>1) INPUT 1	<FS-100>
2) INPUT 2	<Hold>
3) INPUT 3	<Hold>
4) INPUT 4	<Hold>
5) INPUT 5	<Hold>
6) INPUT 6	<FS 0>
Set FailSafe Now	

SAFETY INFORMATION

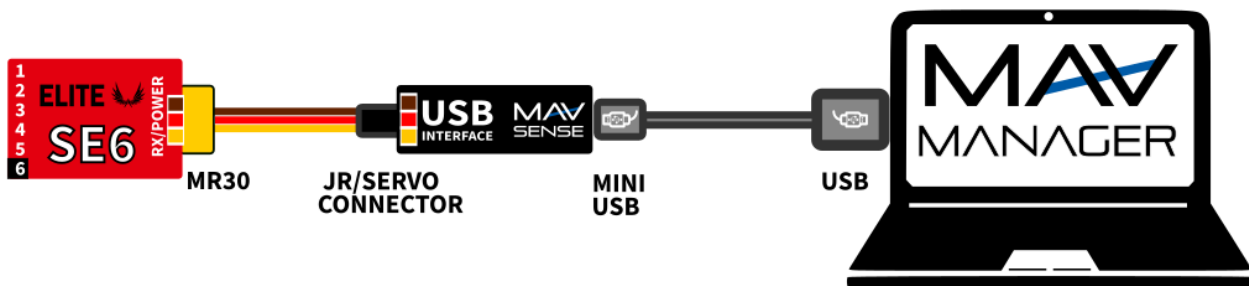
- Operate the SE6 always in dry environment and within the device limits stated in this guide. Never expose the device to excessive heat or cold.
- Do not remove the heat shrink tube from the device and do not try to implement any changes or modifications. This can lead to a total destruction and to the denial of any warranty claims.
- Always check the polarity of the connection. Never inverse the polarity – this could lead to total destruction.
- Always use a sufficient power source according to the consumption of the attached servos. Never exceed the maximum allowed operating voltage of the attached servos.
- If you use analog servos please make sure that the servo output period is not below 15ms. Otherwise the servos may behave unexpectedly.

FIRMWARE UPDATE

Firmware updates for the SE6 are transferred from a PC via the USB interface. The required programs and files are available at www.espritmodel.com/

Install the MAV Manager software and the USB drivers on your computer. Check the system requirements.

- 1) Disconnect all servos from SE6.
- 2) Connect the USB interface to your PC, run MAV Manager and select the correct COM Port.
- 3) Connect the SE6 according to the picture below.
- 4) Select the *.BIN file and press the Update button.



WARRANTY

We grant a warranty of 24 months from the day of purchase under the assumption that they have been operated in conformity with these instructions at recommended voltages and that they were not damaged mechanically. Warranty and post warranty service is provided by the manufacturer.

