

User manual ENLINK 2RS Plus



1. Description

ENLINK 2RS Plus is a device used to maximize the security and reliability of remotely controlling models. Any, even the most perfect devices that are serially connected to the system always reduce the system's reliability. Using a parallel connection for control systems that are otherwise separated from each other has always been the most reliable approach. That is why the ENLINK 2RS Plus is designed to ensure increased operational reliability and safety. The only serial component in such a system (when excluding the transmitter) that potentially reduces the reliability of thy system is then the ENLIK 2RS Plus. Even in the worst case scenario the ENLIK 2RS Plus can deteriorate only one controlled function and not the whole system. If each servo in the model is connected via an ENLINK 2RS Plus, then through the parallel connection of these RS Plus devices, the reliability increases significantly.

ENLINK 2RS Plus is basically an intelligent switch. It selects one of the two input signals and copies it to the output. At the same time it combines two different power supplies with a common ground.

ENLINK 2RS Plus is mainly designed to be connected to the system using the parallel connection of two receivers in the model (e.g. Duplex receiver and REX FM receiver, or two Duplex receivers, two RSAT2 EX satellites). You can change a desired function of the ENLINK by a simple change of the firmware version. The Servo firmware is used for sending servo positions, the PPM firmware is used for sending the PPM signals. Use the USB Adapter to change the firmware, see chapter **5. Update and changing PPM/Servo software version.**

2. Connection

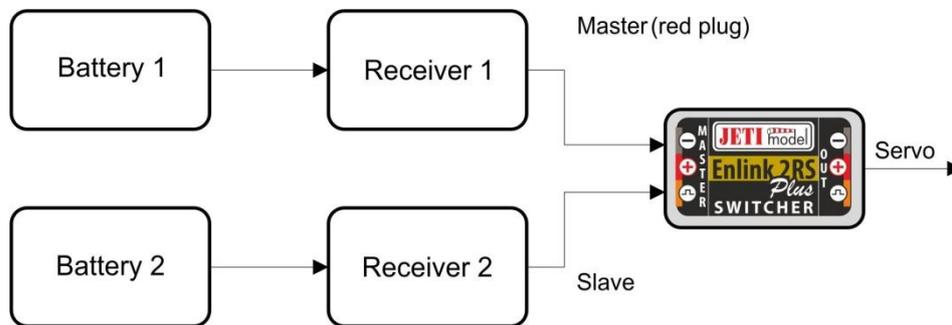
ENLINK 2RS Plus has two inputs that connect to outputs from the receivers. Part of ENLINK 2RS Plus are power supply separating diodes that ensure the separation of the power supply for individual receivers and thus prevents the mutual balancing of the power supply between the individual receivers. The result is that the receivers do not have to be powered from one source, or in the case of separate power supplies, the power sources do not have to be identical. E.g. it is possible to connect

one of the receivers to a 4xNiCd battery and the other to a 5xNiCd. The servo itself or the stabilization unit is then supplied with power from the receiver which has the higher supply voltage. In this example the servo is first supplied power from the 5xNiCd until the voltage of both batteries is equal. Nevertheless, we recommend using the same two sets of batteries.

On the Master input (main receiver, red connector) the output from the main receiver is connected, the output from the “back-up” receiver is connected to the Slave input (back-up receiver, black connector).

ENLINK 2RS Plus has two outputs for connecting two JR style connectors. The connection of both outputs is **parallel**. Thus, it is possible to connect e.g. two separate servos with the same function on the output.

3. Version with Servo Output Firmware

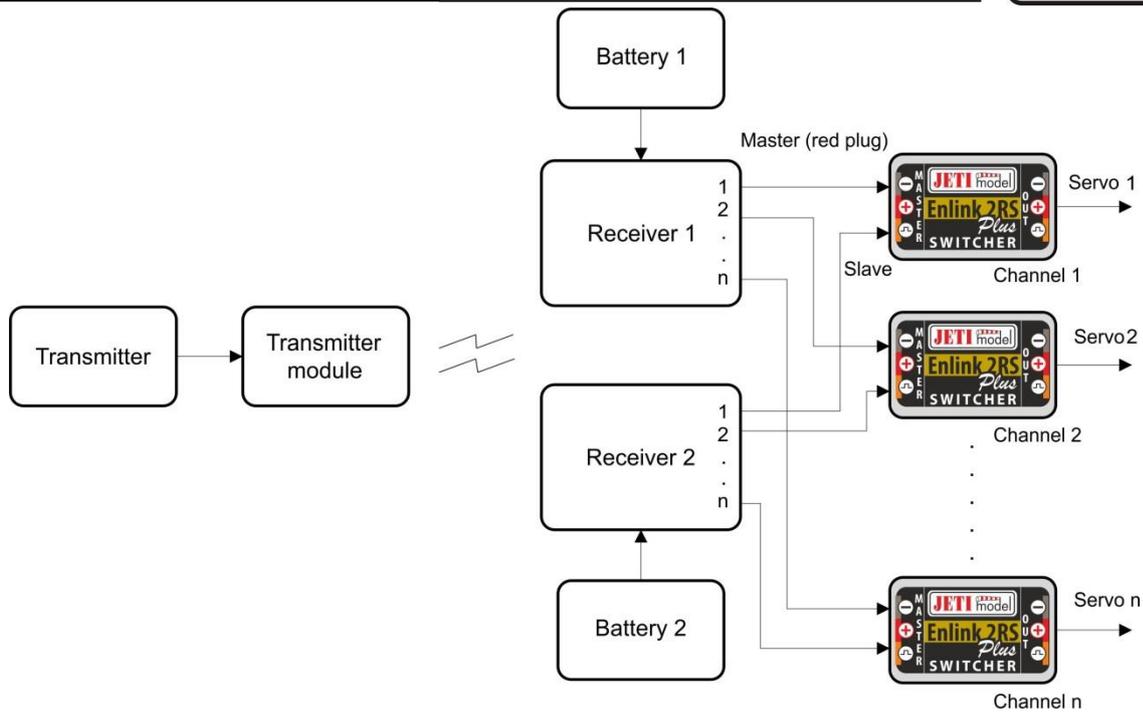


ENLINK 2RS Plus eliminates signal losses from individual receivers. In case of a total loss of both input signals, the ENLINK 2RS Plus switches to a preset mode.

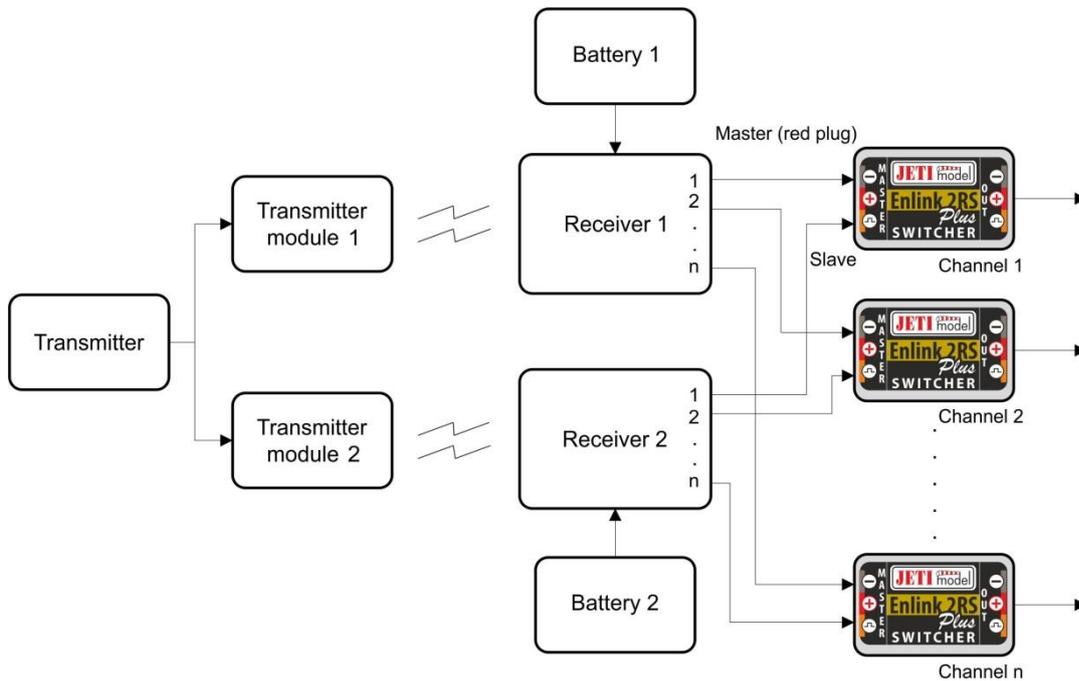
For the correct function of the ENLINK 2RS Plus device it is necessary to have the receiver being connected to MASTER labelled input set so that it does not generate any signal on its servo outputs in case of signal loss (e.g. repeating the last known value or activating Fail Safe of the receiver). If Fail Safe is required, it should only be set in the receiver connected to the ENLINK input labeled SLAVE or directly in the ENLINK setup.

The selected channel must be identical for both receivers set and have the same function for both receivers. It is advisable to use a system with digital data transfer (Duplex) as the main receiver.

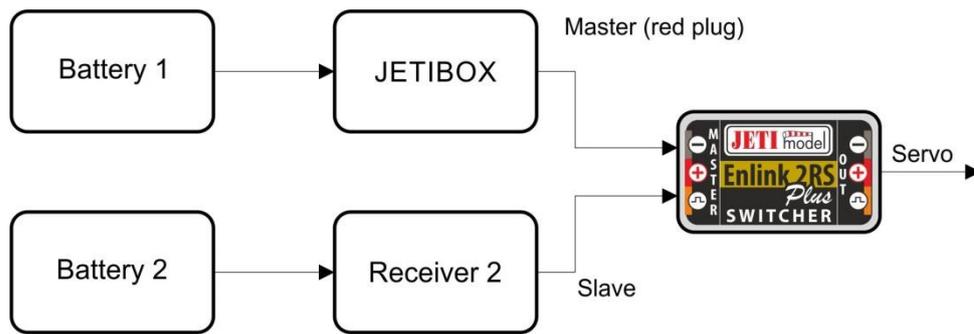
When connecting the ENLINK 2RS Plus to two separate receivers, the correctness of the signal starts to be continuously evaluated on both outputs of the receivers. If there is a valid signal on the Master's input, the ENLINK 2RS Plus prefers validity of this servo position and generates this signal unchanged to the servo output. In case an incorrect signal on the Master's input is detected, the ENLINK 2RS Plus starts generating a signal from the Slave input to the servo output if this signal is valid. Otherwise, the ENLINK 2RS Plus goes back to the default state (it turns off output servo impulses, repeats last valid position or switches to Fail Safe).



It is possible to reach an even greater level of safety by using two transmitter modules (e.g. Duplex or FM and Duplex) and two receivers.



The JETIBOX terminal is used to set the parameters of the ENLINK 2RS Plus. The ENLINK's three-wire cable (red connector) with the JR style connector can be connected directly to the JETIBOX. Then it is necessary to ensure power supply for the JETIBOX e.g. using a 4xNiCd battery. At the same time it is possible to connect the Slave input not only the JETIBOX, but also servo impulses from one of the receivers. Then you can connect a servo to the ENLINK output and check the actual servo position on the JETIBOX:



3.1 Setting up the ENLINK 2RS Plus using the JETIBOX

ENLINK 2RS Plus can be used with no further setup. With a JETIBOX it is possible to change parameters and settings in the ENLINK 2RS Plus. Using the JETIBOX also enables following the statistics of input signal losses of the receiver that occurred during operation.

After connecting the ENLINK 2RS Plus to the JETIBOX the welcome screen is displayed. The first line of the display contains identification of the device. In the second line, there is statistic data of the backup (Slave) receiver failure. The first number, given as a percent, informs about the proportion of the time the ENLINK 2RS Plus was switched to the Slave input relative to the total operation time since the last reset. The second number, in the min:sec:thousandth format, indicates the longest recorded period during which the ENLINK 2RS Plus was switched to the Slave due to incorrect signal on the Master input. Both failure data sets are automatically deleted if both inputs are disconnected (i.e. power supplies of the receivers are disconnected) and at the same time a valid signal on the Master input is detected after switching on again.

Example of measured statistics: S 10.0% 00:05:569

The 10.0% value means that the ENLINK 2RS Plus was switched to the backup receiver during 10% of the "flight time". The 00:05:569 indicates that ENLINK 2RS Plus was switched to the backup receiver for 5.569 seconds as the longest uninterrupted period.

Scroll between the menu items using the arrow up or down buttons (direction towards the welcome screen). Carry out each menu setting using the left arrow and right arrow. The menu will gradually show the following settings:

Reverse mode - allows you to reverse the output sensing (center = 1.5 ms).

Signal Fault - sets the action of the switch in the event of loss or invalid signal detection on both inputs: *repeat* - repeats the last valid deflection, *out off* - output off after a preset delay, *Fail Safe* - goes to the preset of output (Output Fail Safe) after a preset time delay.

Fail Safe Delay - indicates for how long the output will wait to switch to the preset for output or the output is switched off when a lost or invalid signal is detected at both inputs.

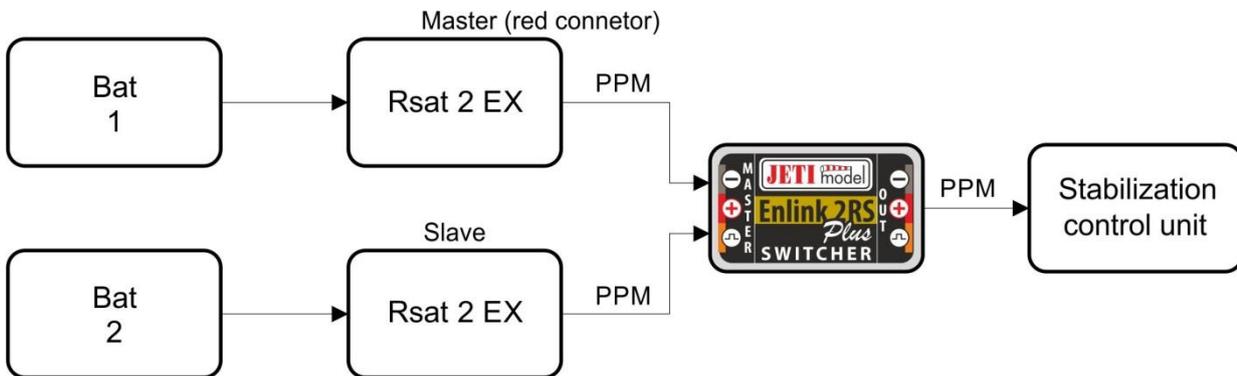
Fail Safe Out - Setting of the output in the event a lost or invalid signal is detected at both inputs.

ATV High Limit - the maximum output limit.

ATV Low Limit – the minimum output limit.

Default Setting - pushing buttons on the right and left will reset all values to the factory settings.

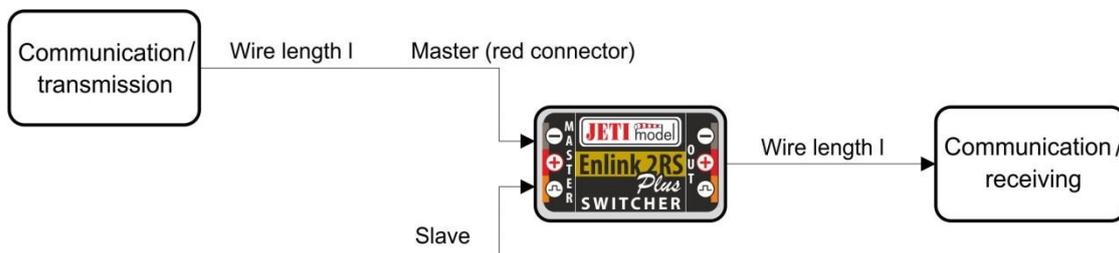
4. Version with PPM Output Firmware



ENLINK 2RS Plus with the PPM software is primarily used to transfer the PPM signal. The PPM signal brought to one of the ENLINK inputs is copied to the output. ENLINK 2RS Plus checks if there is signal on Master. If there is, it is immediately, without delay, copied to the output. If a signal loss occurs on the Master, the ENLINK switches to Slave and starts copying signal from the Slave in case there is any on its input. As soon as the signal is restored, the ENLINK switches back to copying the Master signal.

In the version with the **PPM** firmware, it is **not possible to set the ENLINK via JETIBOX terminal**.

ENLINK 2RS Plus is even able to copy some types of communication (such as UDI, EX Bus) up to the speed of 125kbps. Therefore, it can be used even in cases when it is necessary to use longer wiring that can cause deterioration of the communication quality. The ENLINK 2RS Plus therefore functions as a repeating device, where you just plug in one of the ENLINK 2RS Plus inputs.



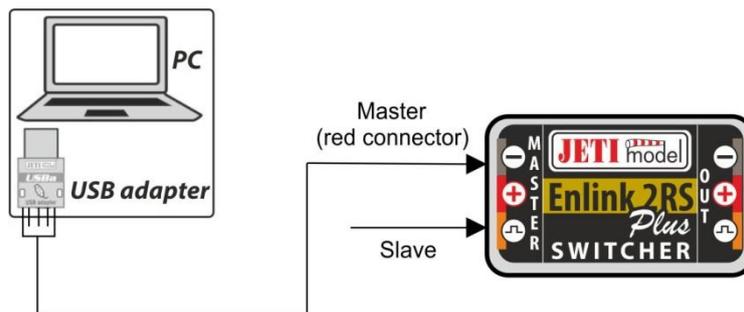
The ENLINK 2RS Plus copies the signal unidirectionally, therefore it cannot be used to transmit the two-way communication.

5. Update and changing PPM/Servo firmware version

The ENLINK 2RS Plus allows updating of its firmware via PC. Updating is done using the JETI USB adapter.

Procedure:

- Find the program to update to the latest firmware on the manufacturer's website under „Downloads“. Save it to your computer.
- Connect the USB adapter to your computer. The procedure of installing the drivers for the USB adapter is included in the USB adapter manual.
- Run the firmware update on your PC and select the firmware version – either PPM or Servo.
- Connect the USB adapter via the three-wire cable to the Master input of the ENLINK 2RS Plus.
- After connecting the device the update will begin.



6. Technical data for the ENLINK 2RS Plus

Technical data:	ENLINK 2RS Plus
Recommended input voltage	5 – 8.4 V
Maximum input voltage	16 V
Customize current consumption	Typ. 3.5mA
Output pulse current	12 A
Output constant current	3 A
Max. number of connected servos	2 pcs
Operating temperature	- 20°C up to +85°C
Weight	11 g
Dimensions	38 x 12 x 6.5 mm

7. Warranty

This product is covered by warranty for 24 months after the day of purchase provided that it has been operated in accordance with these instructions at the specified voltage and is not mechanically damaged. When claiming warranty repairs for the product, always attach a proof of purchase. Warranty and post-warranty service is provided by your dealer or the manufacturer.

In case you are not sure about the setup or some functions of the product, do not hesitate to contact our technical support. You can contact either your dealer, or directly the manufacturer JETI model s.r.o.. For further information see our webpages www.jetimodel.cz.

The manufacturer: **JETI model s.r.o. Příbor, www.jetimodel.cz**

8. ENLINK 2RS Plus menu diagram for the Servo firmware version

