JETI model RR3900NA Radio Control Transceiver User Manual

Contents

JETI model RR3900NA Radio Control Transceiver

Product Information

Specifications:

- **Model:** REX3, REX6, REX7, REX7S, REX9S, REX10, REX12
- **Dimensions** (mm): 40x22x7, 38x25x11, 42x28x11, 60x16x13, 51x28x11
- **Weight** (g): 70, 75
- **Operating Temperature:** -10°C to +85°C
- **Frequency Range** (MHz): 2400-2483
- **Power Supply:** DC/DS JETIBOX
- **Channels:** 15
- **Signal Strength:** -106 dB
- **Frequency Band:** 863 – 870 MHz (EU)

Product Usage Instructions

Introduction

The Complex Radio Control System is a high-quality control system designed for use in various applications. This user manual provides detailed instructions on how to use the system
effectively.

Technical Data

1. **Receivers 2.4GHz**

   The system supports receivers with a frequency range of 2400-2483 MHz. The receivers available for this system are REX3, REX6, REX7, REX7S, REX9S, REX10, and REX12. Each receiver has different dimensions and weight.

2. **Receivers 900MHz**
   For long-range applications, the system also supports receivers with a frequency range of 863-870 MHz (EU). The RSAT 900 and RSAT 900NG are the available receivers in this frequency range.

Installation

1. **Supply voltage and connection examples**
   The system requires a supply voltage of 3.5-8.4V. The user manual provides detailed connection examples for different setups.
2. **Binding**
   To establish a connection between the transmitter and receiver, the binding process needs to be performed. Follow the instructions in the user manual to bind the system successfully.
3. **Using receivers in Clone mode**
   The system allows for using multiple receivers in Clone mode, where all receivers receive the same control signals. Refer to the user manual for instructions on how to set up receivers in Clone mode.

Receiver setup (RSAT 900/NG)

1. **Main settings**
   The user manual provides detailed information on configuring the main settings of the RSAT 900/NG receiver. Follow the instructions carefully to ensure proper functionality.
2. **Alternative pin configuration**
   If needed, the system supports an alternative pin configuration for connecting servos and sensors. Refer to the user manual for instructions on how to set up the alternative pin configuration.

Frequently Asked Questions (FAQ)

1. **Q: What is the operating temperature range of the Complex Radio Control System?**
   A: The system can operate within a temperature range of -10°C to +85°C.
2. **Q: What is the frequency range of the system?**
   A: The system supports a frequency range of 2400-2483 MHz for 2.4GHz receivers and 863-870 MHz (EU) for 900MHz receivers.
3. **Q: Can I use the DC/DS JETIBOX as a power supply for the system?**
   A: Yes, the DC/DS JETIBOX can be used as a power supply for the system.
4. **Q: How many channels does the system support?**
   A: The system supports 15 channels.
5. **Q: What is the signal strength of the system?**
   A: The signal strength is -106 dB.

REX Receivers

Introduction

- DUPLEX REX is a modernized series of receivers and satellite receivers designed for operation with

transmitters of the DUPLEX DC/DS series or with transmitter modules of the

- DUPLEX Tx series operating in the 2.4 GHz and 900 MHz bands.

Features:

- modern construction with a long perspective due to software updates
- user adjustable outputs
- integrated expander for connecting telemetry sensors
- wide power supply range
- easy configuration directly from the DUPLEX transmitter
- integrated telemetry (voltage, signal strength and quality)
- compact dimensions and low weight
- support for EX Bus, S.Bus, PPM+, PPM-, UDI 12, UDI 16 protocols

The JETI model company portfolio has a large offer of electronic equipment for models such as voltage regulators (BEC/SBEC), speed controllers (ESC), telemetry sensors and last but not least DC/DS transmitters. The production policy of the JETI model company is highest quality products.

Technical data

Receivers 2.4 GHz

Basic data	REX3	REX6	REX7	REX7S*	REX9S*	REX10	REX12*
Dimension [mm]	40x22x7	38x25x11	42x28x11	60x16x13	60x16x13	51x28x11	51x28x11
Weight [g]	7	11	13	13	13	16	24
Antenna lenght [mm]	2×100	2×100	2×200	2×200	2×200	2×200	2×400
Num. of output ch.	3	6	7	7	9	10	12

Temp. range [°C]	-10 to +85	-10 to +85	-10 to +85	-10 to +85	-10 to +85	-10 to +85	-10 to +85
Supply voltage [V]	3.5 – 8.4	3.5 – 8.4	3.5 – 8.4	3.5 – 8.4	3.5 – 8.4	3.5 – 8.4	3.5 – 8.4
Average current [mA]	70	75	75	75	75	75	75
Real time transmission of telemetry data	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Programming	DC/DS JETIBOX	DC/DS JETIBOX	DC/DS JETIBOX	DC/DS JETIBOX	DC/DS JETIBOX	DC/DS JETIBOX	DC/DS JETIBOX
Support satellite receiver (Rsat)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power output [dBm]	15	15	15	15	15	15	15
Receiver sens. [dBm]	-106	-106	-106	-106	-106	-106	-106
Frequency [MHz]	2400-2483	2400-2483	2400-2483	2400-2483	2400-2483	2400-2483	2400-2483

- * External Power Connector -the receiver has a power supply cable with an MPX connector

- * S – Slim design, slim receiver for using in narrow fuselage

Receivers 900 MHz

Basic data	Rsat 900	Rsat 900 NG
Dimensions [mm]	40x22x7	40x22x7
Weight [g]	11	11
Antenna lenght [mm]	2x300	2x260
Number of output channels	3	3
Temperature range [°C]	-10 do+85	-10 do+85
Supply voltage [V]	3.5 – 8.4	3.5 – 8.4
Average current [mA]	70	50
Real time transmission of telemetry data	Yes	Yes
Programming	DC/DS/JETIBOX	DC/DS
Power output [dBm]	14	14
Receiver sensitivity [dBm]	-110	-120
Frequency [Mhz]	863 - 870 (EU) 902 - 928 (US) 918 - 926 (AU)	863 - 870 (EU) 902 - 928 (US) 918 - 926 (AU)

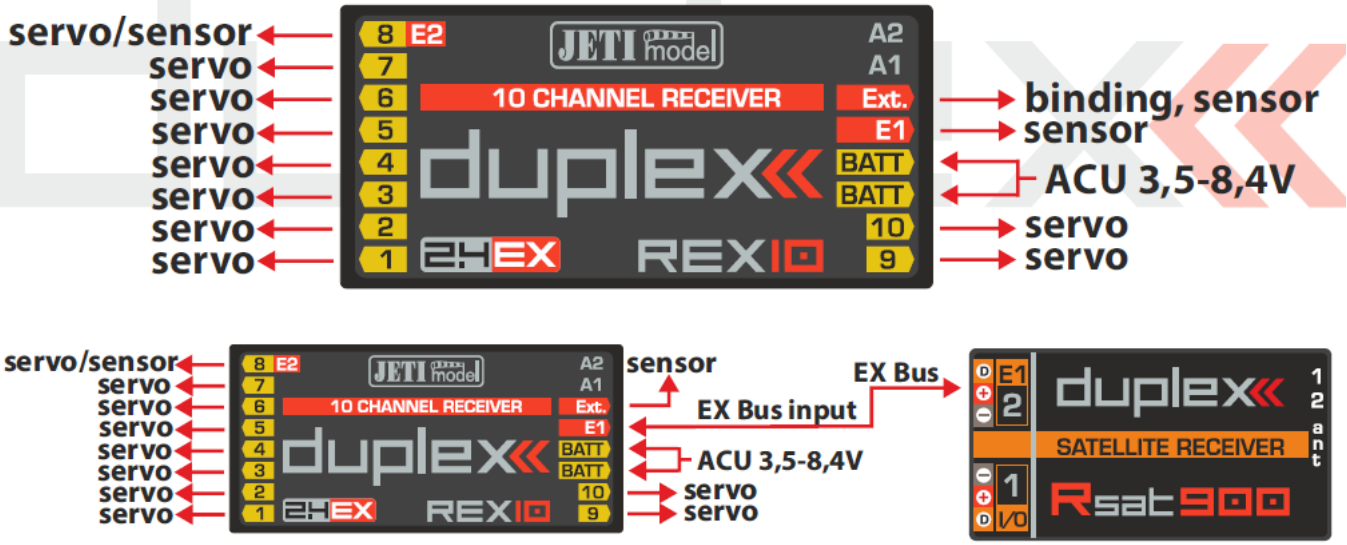
Note:
RSAT900 and RSAT900NG satellite receivers are not compatible with all transmitters. The RSAT900NG satellite receiver is compatible with DUPLEX DS 12, DUPLEX DC/DS 16II and DUPLEX DC/DS 24II transmitters. The RSAT 900 satellite receiver is intended for first generation DUPLEX DC/DS 24 transmitters.

Installation

Voltage supply
Receivers of the REX series have a wide supply voltage range of 3.5-8.4V. So you can optimize the voltage according to the supply voltage of the connected servos (standard or HV).

- if the receiver has MPX connector with cables, use it for power supply as priority
- if the receiver has inputs marked as BATT, use it for power supply as a priority

Connection examples:



Note: the connection method of the satellite receiver RSAT900 and RSAT900NG are identical

Binding
When using a new receiver or transmitter, the device has to be bound.

Method:

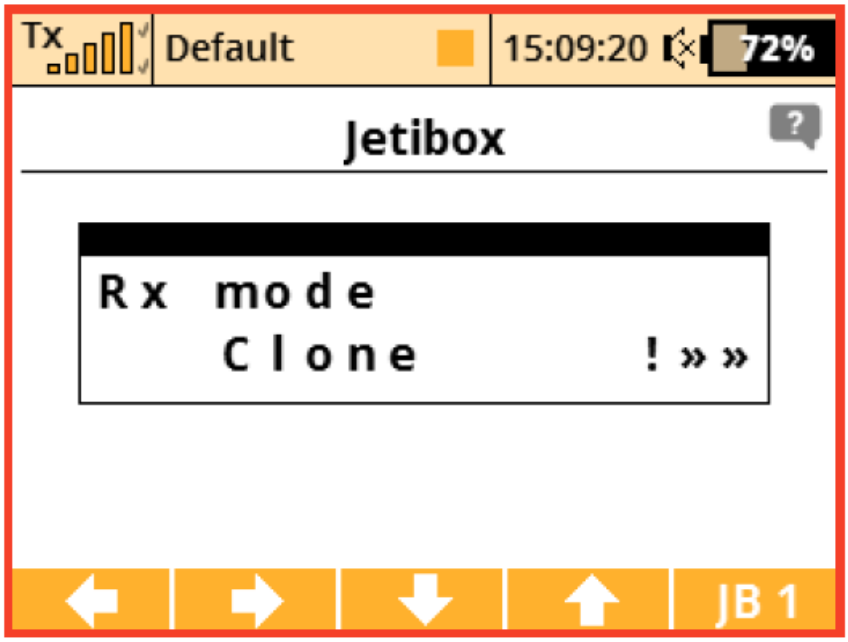
1. Insert the BIND PLUG (included in the package) into the output of the receiver Ext.
2. **Switch on the receiver** – (connect a proper voltage supply to the receiver). Binding of the receiver may now be performed within 60 seconds. After the 60 seconds elapse the receiver returns to setup mode and the binding process has to be repeated by starting again from step 1.
3. **Switch on the transmitter** – the transmitter emits an acoustic signal announcing the detection of a new receiver.
4. Disconnect the BIND PLUG from the receiver

Note: if binding fails, turn off the transmitter and receiver and repeat all the procedures from point 1.
If the binding was successful, the transmitter, receiver and the specific model that was currently active in the transmitter are bound to the same group.

Operation of receivers in "Clone" mode
The Duplex system allows many of receivers to be bound with one model. Always one receiver that transmits telemetry data has to be in "Normal" mode. All others can be manually switched to "Clone" mode.

Setting procedure (see chapter 3.2 for details):

1. Bind the transmitter with the receiver, which you want in "Clone" mode.
2. In the transmitter menu "Menu/Applications/Jetibox/" use the F1-F4 keys to scroll through the item "RX/Main Setting/RX mode" and select "Clone". Turn off the receiver and the transmitter.
3. Bind the transmitter with the receiver, which will be in "Normal" mode, turn off the receiver and the transmitter.
4. Turn on the transmitter and both receivers at the same time.



Note:
in this mode, both receivers have to always be switched on at the same time. Switching the receiver from “Clone” mode to “Normal” mode is possible using the same procedure, but during procedure there has to be a BIND PLUG connected to receiver (Ext. input) all the time.

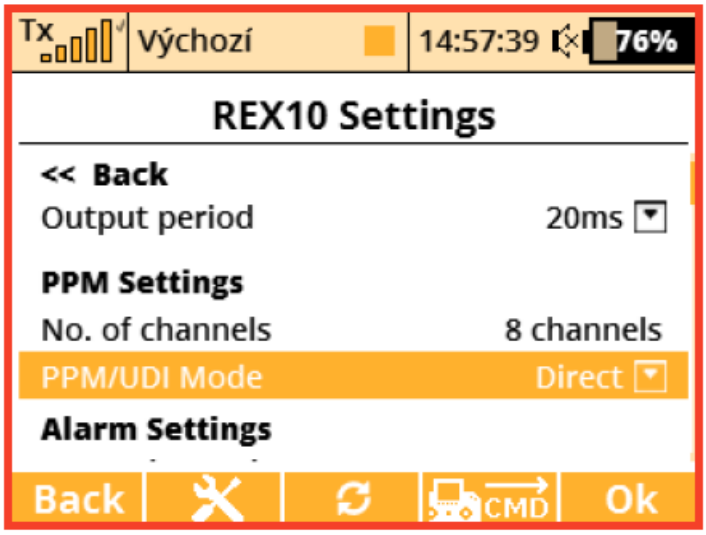
Receiver setup

There are two receiver setup modes. The first is receiver setup via the JETIBOX, JETIBOX profit or JETIBOX emulation in the DC/DS transmitters, the second one is direct setup of the receiver with a DC/DS transmitter (device explorer).

Receiver set-up via the DC/DS transmitter
All setting scan be made in the transmitter menu “Menu/Model/Device explorer/REX”.

Main Setting

- **Output Period** – signal period setting for servos. At lower values, the servos have a faster response and more consumption. For analog servos, the recommended period is 20ms, for digital “Auto”.
- **Number of channels –** setting the number of channels for PPM output.



- **PPM/UDI (S.BUS) mode** – method of processing data from the transmitter
- **Direct** – all receiver settings (e.g. Fail-Safe) are not included in serial communication
- **Computed** – all receiver settings (e.g. Fail-Safe) are part of serial communication
- **Low voltage alarm** – setting the threshold for alarm activation (power supply)

Fail-Safe
If the Fail Safe function is disabled, there are no signals generated on receiver outputs in case of signal loss, either serial communication in “Direct” mode. When the function is on, all receiver outputs can be set individually with the following options:

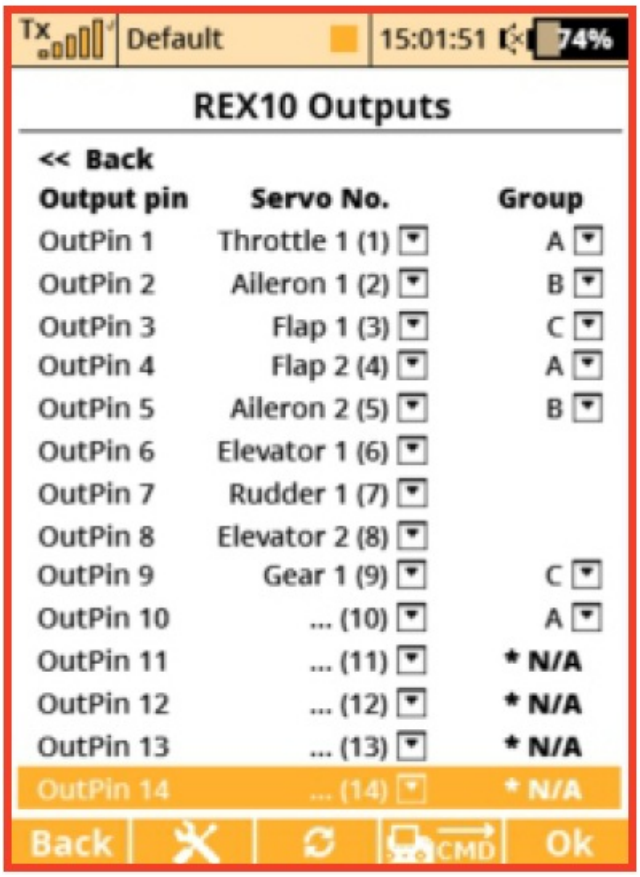
- **Repeat:** the receiver at the output keeps the last known value
- **Turn off the pin:** the output is disabled, no pulse is generated
- **Fail-Safe:** the output is set to the value specified in the “Value” parameter.
- **Fail-safe delay**: setting the time for which the system goes after signal loss to Fail-Safe mode.
- **Set fail-safe position now:** when this option is activated, the current values of the positions are set for all outputs set to “Fail-Safe” mode.

Alternative pin configurations
The outputs of REX receivers can be set to various functions. Outputs marked as E1, E2 …:

- **Servo** – classic servo output (except E1 output for REX10) JETIBOX/Sensor – for connecting JETIBOX or telemetry sensor with EX communication
- **EX** Bus – digital communication for connected devices supporting this standard, for example M Vario2 (rev.2).
- **EX Bus** input/backup – EX Bus communication for connecting others receivers and satellite receivers.
- **Digital output** -the output pin is in a stable LOW condition (log. 0) if the position of this channel is negative, otherwise this pin is in HIGH condition (log.1) (max. current 1mA).
- **Digitl input** – the logical value (log.1/0) at the input can be used in further programming of transmitter functions.
- **PPM pos.** – standard form of PPM signal generation with positive logic at PPM outputs. The bus idle state is log. 0.
- **PPM neg.-** standard form of PPM signal generation with negative logic at PPM outputs. The bus idle state is log.1.
- **Serial UDI 12chch/16** – serial output for devices supporting UDI (Universal Data Interface)
- **S.BUS** – serial output for devices supporting S.BUS
- **Outputs marked as Ext.:** connection of JETIBOX or telemetry sensors (EX or EX Bus), the output has automatic detection.
- **Standard outputs:**
    - **Servo** – standard impulse output for servos (-100% = 1ms, 0%= 1,5ms / +100% = 2ms)
    - **Digital input/output** – see description of E1, E2

Receiver outputs

- Display of functions and their assignment to receiver outputs. If necessary, it is possible to redirect any functions to the other outputs in this menu.
- Group – individual outputs can be assigned to groups A/B/C. For servos in one group, the pulses are time-synchronized. It is recommended to use all groups equally. However, assign servos controlling one function, for example two servos in one aileron, to the same group.
- Reset to default settings – after activation, the receiver is set to the factory settings.



Assignment table of receiver outputs:

	REX 3	Rsat 900 900NG	REX 6	REX 7	REX7S	REX9S	REX 10	REX 12
Pin1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1
Pin2	Y2/E1	Y2/E1	Y2	Y2	Y2	Y2	Y2	Y2
Pin3	Y3/E2	Y3/E2	Y3	Y3	Y3	Y3	Y3	Y3
Pin4	Ext.	Ext.	Y4	Y4	Y4	Y4	Y4	Y4
Pin5			Y5/E1	Y5	Y5/E2	Y5/E2	Y5	Y5
Pin6			Y6/E2	Y6/E1	Y6	Y6	Y6	Y6
Pin7			Ext.	Y7/E2	Y7	Y7	Y7	Y7
Pin8				Ext.	Batt.	Y8	Y8/E2	Y8/E2
Pin9					E1	Y9/E1	Y9	Y9
Pin10					Ext.	Ext.	Y10	Y10
Pin11							Bat.	Y11
Pin12							Bat.	Y12
Pin13							E1	E1
Pin14							Ext.	Ext.

Output types:

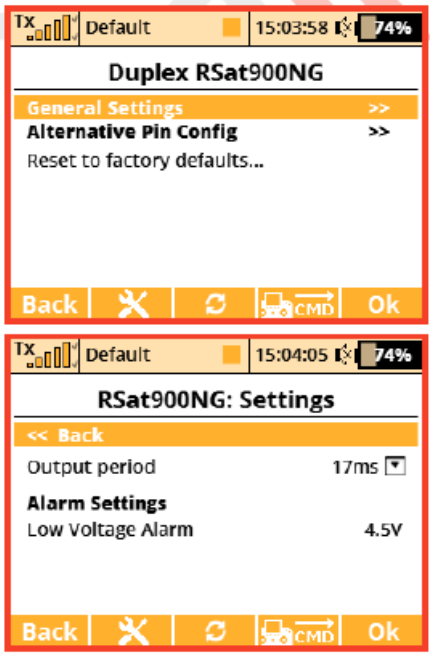
- Y – servo output, dig. out, dig. input
- E1,2 – JETIBOX-EX, PPM out, PPM input, EX-Bus, UDI, S.BUS Ext. – JETIBOX-EX, telemetry sensors
- Batt. – battery input

Receivers settings RSAT 900 and 900NG

- DUPLEX RSAT 900 and 900NG satellite receivers are designed for operation with DUPLEX transmitters in the 900MHz band. This band is intended primarily as a backup system in case of failure of the main system in the 2.4GHz band. This significantly increases the stability of data transmission and safety of the model.
- RSAT 900 and RSAT 900NG receivers are not compatible. The RSAT 900NG receiver is compatible with DUPLEX DS 12, DUPLEX DC/DS 16II and DUPLEX DC/DS 24II. The
- RSAT 900 satellite receiver is intended only for the first generation of DC/DS 24 transmitters. The settings and connections of both types are the same.

General Settings

- **Output period** – setting the output period, see REX receivers (chapter 4.1.1). We recommend setting the same value in all DUPLEX devices in one model.
- **Low voltage alarm** – setting the threshold for alarm activation (power supply)

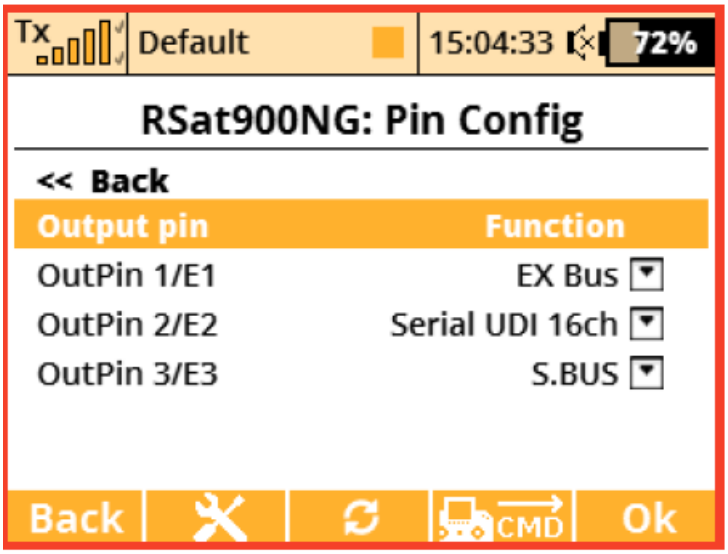


Alternative pin configurations

The receiver has three user adjustable outputs E1-E3 and one standard Ext.

Output settings E1, E2, E3:

- **EX-Bus** – digital communication for transmission of servos deflection, telemetry and configuration data. This setting is suitable, for example, for connection to a Central Box or a device that supports EX-Bus.



- BUS – digital communication for transmission of servos deflection (16 channels only). This setting is suitable, for connecting to a device that supports S.BUS.
- UDI 12 – serial data output suitable for connection of devices with unidirectional UDI interface (12 channels).
- UDI 16 – serial data output suitable for connection of devices with unidirectional UDI interface (16 channels).
- Output settings Ext. : This pin is used only to bind the receiver by a jumper (bind plug).
- Reset to factory defaults: resets all configurable items to the default settings.

Receiver update

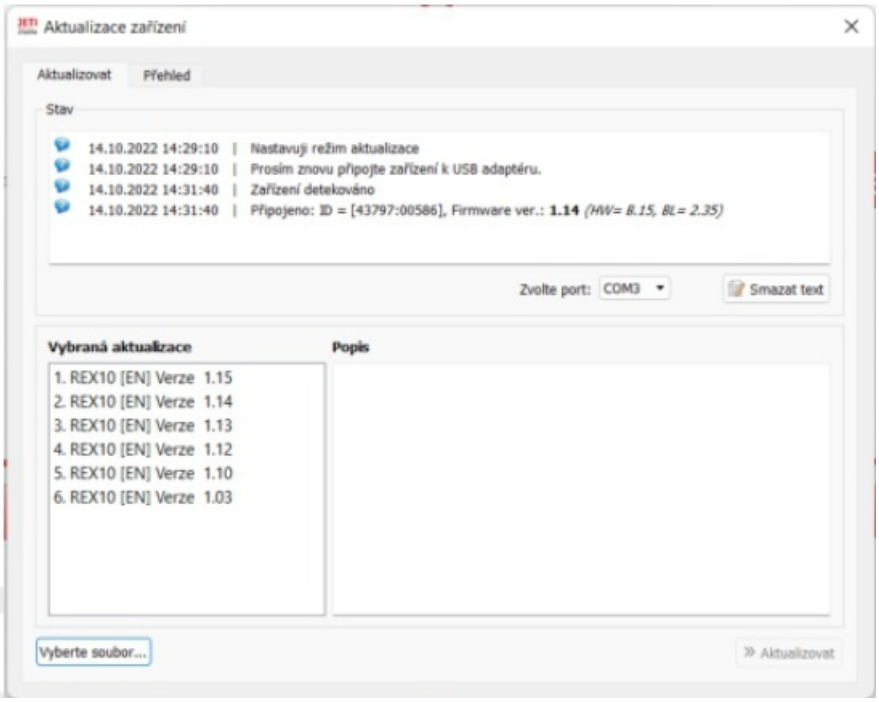
Duplex REX receivers can be updated by the JETI USB adapter and the JETI Studio program. JETI Studio is free to download from the manufacturer's website www.jetimodel.com

Update procedure:

1. Install the JETI Studio program on the PC and start it.
2. Connect the USB adapter to the PC. In the lower right corner of the JETI Studio screen, select the correct COM port. On the USB adapter, the green LED (power) lights up and the red LED (communication) starts flashing.
3. In JETI Studio, select the "Tools/Device Update" item.
4. Connect the cable from the USB adapter to the receiver (Ext. input).
5. Select the update version and confirm "Update".

Note: device updates are free and important. Your devices may get new functions, higher performance and higher stability through updates. Always make sure your device has the latest software.

Device update in JETI Studio



ELECTROSTATIC SENSITIVE DEVICE OBSERVE HANDLING PRECAUTIONS

- For receivers 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.
- We wish you successful flying with the products of: JETI model s.r.o. Příbor, www.jetimodel.com

FCC Warning

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUB JECT TO THE FOLLOWING TWO CONDITIONS:

1. THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
2. THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

NOTE:

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.
- These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
    - Reorient or relocate the receiving antenna.
    - Increase the separation between the equipment and receiver.
    - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
    - Consult the dealer or an experienced radio/TV technician for help.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

RF Exposure Safety Statement
To satisfy RF exposure requirements, this device and its antenna must operate with a separation distance of at least 20 centimeters from all persons and must not be colocated or operating in conjunction with any other antenna or transmitter.

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)

- This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.
- For proper treatment, recovery and recycling, please lake these products to designated collection points, where they will be accepted on a free of charge basis.
- Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.
- Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could othervvise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.
- Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

- If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information. Information on Disposal in other Countries outside the

European Union

- This symbol is only valid in the European Union.
- If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Declaration of Conformity

- in accordance with the regulations of EU Directive
- RED 2014/53/EU and RoHS 2011/65/EU.
- This declaration of conformity is issued under the sole responsibility of the manufacturer.
- **Producer:** JETI model s.r.o.
- Lomená 1530, 742 58 Příbor, Česká republika IČ 26825147
- declares, that the product
- Type **designation:** receiver DUPLEX EX
- **Model number:** RSAT 900
- **Frequency band:** 863,0 – 870,0 MHz
- **Max power:** 25 mW e.r.p.

The stated product complies with essential requirements of RED Directive 2014/53/EU and RoHS Directive 2011/65/EU.

Harmonised standards applies:

- **Measures for the efficient use of the radio frequency spectrum [3.2]**
  EN 300 220-2 V 3.1.1
- **Protection requirements concerning electromagnetic compatibility [3.1(b)]**
  - EN 301 489-1 V 2.1.1
  - EN 301 489-3 V 2.1.1
  - EN 301 489-17 V 3.1.1
- **Electrical Safety and Health [3.1(a)]**
  - EN 62368-1:2015
  - EN 62479:2010
- **RoHS**
  EN 50581:20 12

Příbor, 11.5.2021

- JETI model s.r.o.
- Lomená 1530, 742 58 Příbor

- Czech Republic – EU
- www.jetimodel.com
- info@jetimodel.cz

Documents / Resources

	JETI model RR3900NA Radio Control Transceiver [pdf] User Manual 2BA2X-RR3900NA, 2BA2XRR3900NA, RR3900NA, RR3900NA Radio Control Transceiver, Radio Control Transceiver, Control Transceiver, Transceiver

References

- jetimodel.com
- jetimodel.cz
- User Manual