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made by David LABURTHE
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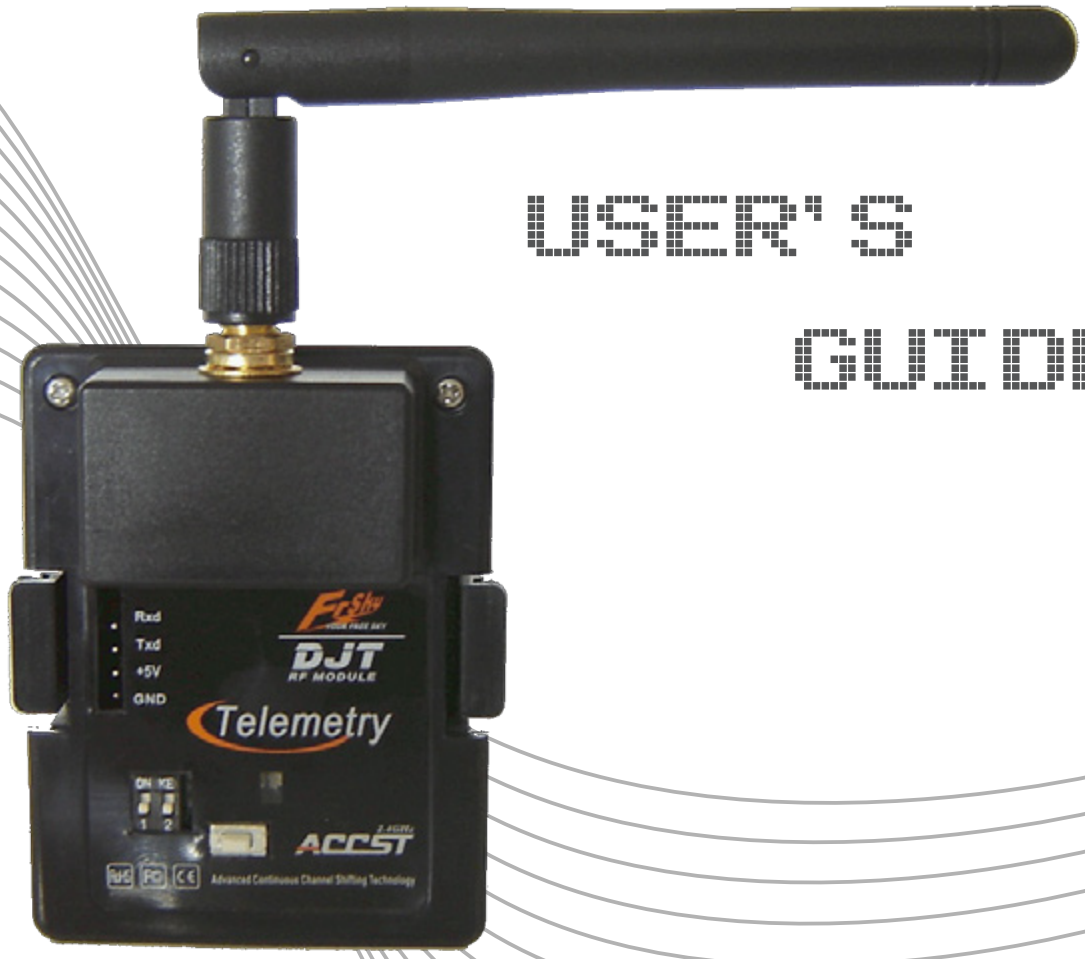
DJT *RC Transmitter Module*
2.4GHz *Two-Way Series*



USER'S GUIDE

2.4GHz ACCST Advanced Continuous Channel Shifting Technology

FrSky Electronic Co., Ltd - No. 1, Huize Road, Wuxi, 214081, Jiangsu, China - http://www.frsky-rc.com

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INTRODUCTION:

Thank you for purchasing the FrSky 2.4GHz RF radio control system. In order to fully enjoy benefits of this system, please, carefully read the instruction manual and set up the devices as described below.

We are glad to introduce the FrSky 2.4GHz Radio System. ACCST (Advanced Continuous Channel Shifting Technology) is our advanced technology. The ACCST 2.4GHz system shifts the frequency hundreds of times per second. It means there are no signal conflicts and interruptions.

The two-way system developed by FrSky provides not only the normal RC control but also a true telemetry system to return measurements from the model to the transmitter. This new capability allows for the real time display of quantities such as altitude, GPS location, battery levels, speed, etc. to the operator.

SYSTEM FEATURES:

- FrSky's Advanced Continuous Channel Shifting Technology (ACCST SYSTEM) giving a highly reliable link, especially in high interference environments.
- Easy to bind and instant link between transmitter and receiver.
- Excellent reboot times.
- All channels offer failsafe.
- Quick response.
- Very smooth servo movements.
- Alarms on monitored conditions in the receiver (e.g. low battery voltage, poor reception, etc.)
- Error-free link, through the use of a 48-bit CRC algorithm (Datas contain error detection bits)
- Low power consumption.
- True two-antenna diversity.
- Firmware upgradable.

For deeper information about FrSKY telemetry, refer to the Two Way Protocol available in the "downloads" section of the FrSky website (www.frsky-rc.com).
Should you have further questions, please feel free to contact FrSky technical support by e-mail: sales4tech@gmail.com

SPECIFICATIONS:

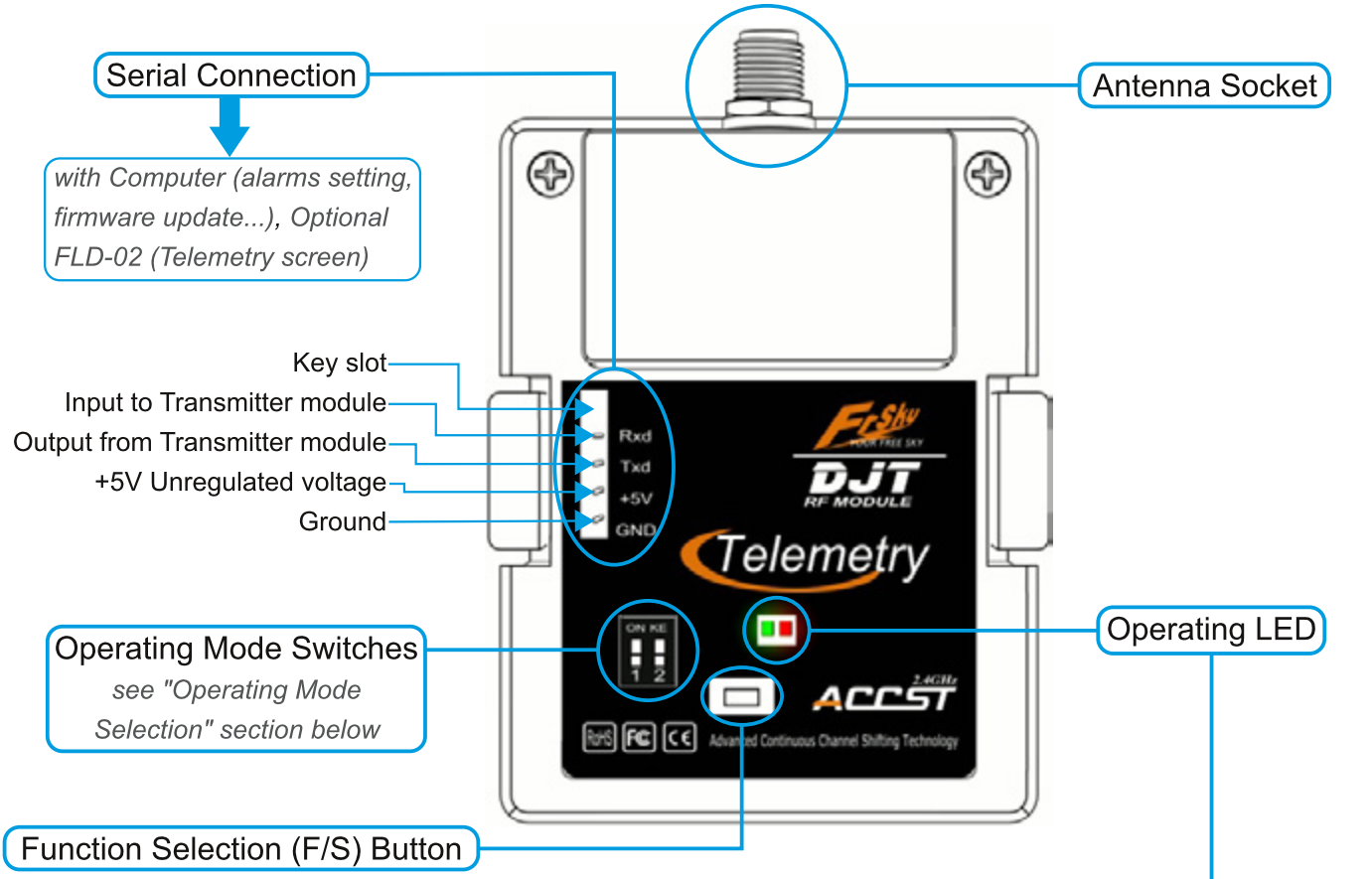
Model: DJT

Operating Voltage Range: 6.0V-13.0V
Operating Current: 50mA
Output Power: 60mW
Resolution: 3072

Compatible with the following transmitters:
JR: 347/388/783/U8/PCM10/PCM10S/PCM10SX/PCM10IIS/8103/J9303/PX/9XII
GRAUPNER/JR : 347/388/3810/MX-22

DJT is compatible with all FrSky V8 and Two Way receivers (you can consult the entire list on FrSky website).

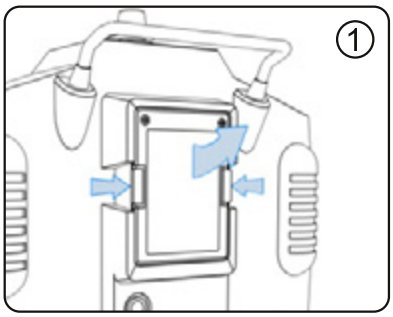
MODULE OVERVIEW:

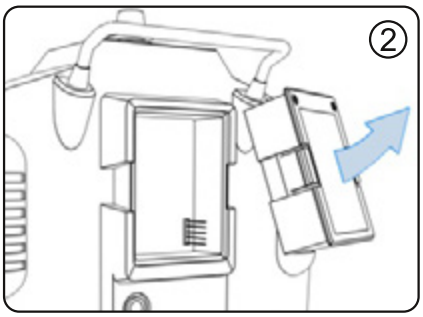


Green LED	Red LED	Operating status
Flashing	ON	Normal
Flashing	OFF	Range Check
ON	Flashing	Binding

INSTALLATION:

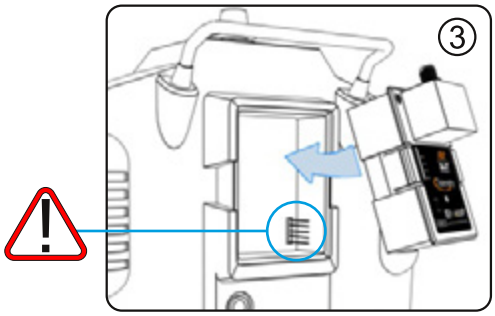
1 - Remove the original module from the transmitter:

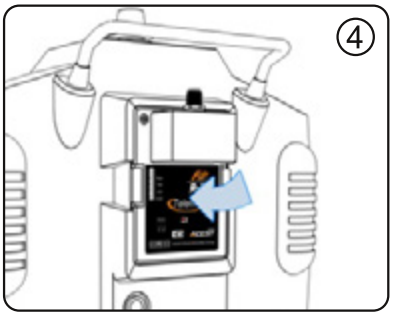




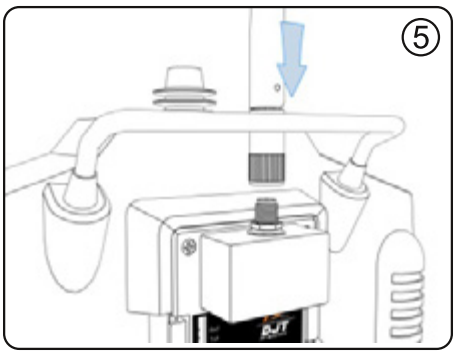
2 - Turn the transmitter on and set the emission mode to PPM (please refer to your transmitter manual if you need help), turn the transmitter off.

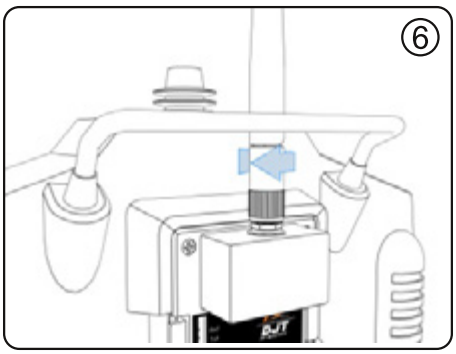
3 - Put the FrSky 2.4GHz transmitter module into the module port of your transmitter being careful not to bend the pins on your transmitter side:





4 - Screw thoroughly the module antenna without undue stress:





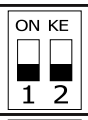
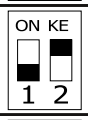
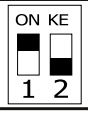
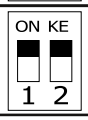
5 - Turn the transmitter on and check the LED status on the module. Normal operation on the transmitter is indicated with the RED LED on and the GREEN LED flashing.

Note: ***The receiver installation is covered in its respective instruction manual.***

MODULE SETUP

OPERATING MODE SELECTION:

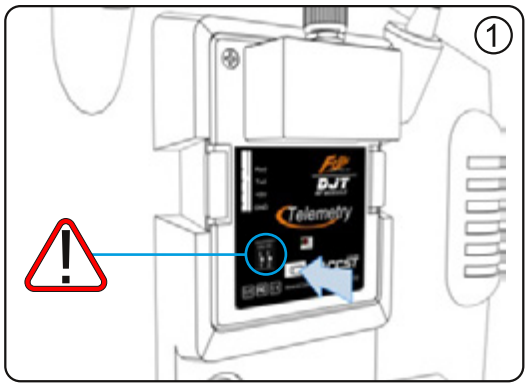
The DJT module can operate in 4 different ways according to the following chart:

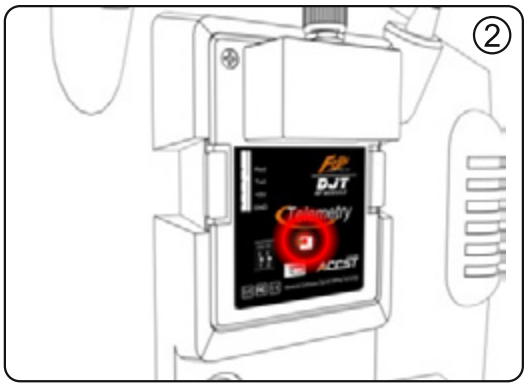
Diagram	Mode	Switch 1	Switch 2	Mode
	1	OFF	OFF	Two-way Mode (Telemetry)
	2	OFF	ON	V8 Mode (one way)
	3	ON	OFF	Not Defined
	4	ON	ON	Firmware Upgrade

BINDING A RECEIVER:

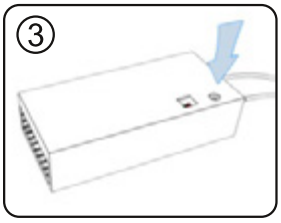
Binding is the process of uniquely associating a particular receiver and transmitter, to exclude any potentially interfering transmitters. A transmitter can be bound to multiple receivers (not to be used simultaneously). A receiver can only be bound to one transmitter. This association is a key component in newer 2.4 GHz radio systems and must be done before the equipment can be used.

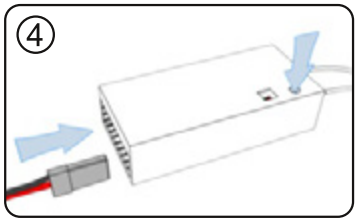
1 - Turn your transmitter on while holding the F/S button on the transmitter module (Set the *Operating Mode Switches* according to your receiver type). Release the button.
The RED LED on the transmitter module will flash and the module will beep every 5 blinkings, indicating the transmitter is ready to bind the receiver. The GREEN LED will be on.

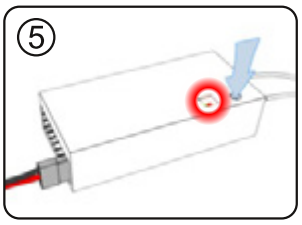


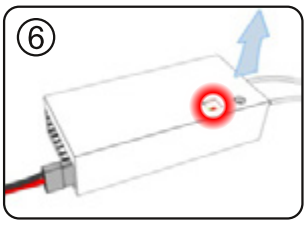


2 - Turn on the receiver while holding the F/S button.
The RED LED on the receiver will flash, indicating the binding process is completed.









3 - Turn off both the receiver and the transmitter.

4 - Turn on the transmitter and the receiver.
The RED LED on the receiver will be on and the GREEN LED on the receiver will continually flash as the commands from the transmitter are received.

5 - After the steps above are completed, both the transmitter and receiver are ready to be used.

RANGE CHECK:

It is highly recommended that you perform a pre-flight range check. Caution must be paid when you do a range check in an environment with metal fences, concrete buildings, or rows of trees. Loss of signal may be experienced around these objects.

Follow the steps below to perform a range check with a completed model:

1 - Place the model at least two feet (60cm) above the ground (like on a wooden bench). Shallowly buried metal may disturb this check. Keep any part of the model's receiver antenna from the ground.

2 - Place the antenna of the transmitter in a vertical position. (no directly pointing at the model)

3 - Turn on the transmitter and receiver, press the F/S button of the transmitter for 4 seconds to enter the special range check mode, the RED LED of the transmitter module will be off and the module will beep (2 seconds interval) indicating much reduced power output. The effective working distance will be decreased to 1/30.

4 - Walk away from the model while simultaneously operating the controls on the transmitter, confirming that all controls are completely and correctly operational at least 30 meters away.

5 - Push and release the transmitter module F/S button, the transmitter will exit range check mode.

About Safe Flying Distance:

The two-way system has a feature to return the Received Signal Strength Indication (RSSI) of the receiver to the transmitter. The transmitter develops an internal voltage representing the receiver signal strength. Alarms are programmed in the transmitter to warn the pilot when the model is near the maximum control range.
These alarms are given arbitrary color designations in this manual (not on equipment). The meaning each of these levels and the result is given in the table below.

Number	Color Code	Meaning	Transmitter alarm
0	Green	The signal strength is strong	No Beeps
1	Yellow	The signal strength is adequate	Single Beeps
2	Orange	The model is far, but safe range	Constant double Beeps
3	Red	The model in near maximum range	Constant triple Beeps

Note: It is normal to hear an intermittent, and not frequent, single beep as the model flies through signal fade points. Control will not be affected.

FAILSAFE:

For those instances when the model flies out of range of the transmitter for more than a brief instant, the receiver provides a settable failsafe function on all servo channels. There are two implementations of this failsafe function.
The ROM A version is shipped with all modules.

- ROM A version

To use the failsafe function, follow the steps below.

1 - Bind the receiver first (see binding section above).

2 - Move the transmitter controls for all channels to the desired position whenever failsafe occurs.

3 - Press briefly the F/S button of the receiver (less than 1 second), the transmitter module will make a long “beep”, indicating the failsafe position is stored in the receiver. These settings will be stored until the receiver is bound again to the transmitter.

- ROM B version

This version is provided as a user installed firmware upgrade. The firmware is available from the download section of the FrSky website. With this version you can set failsafe position on the Transmit module at any time during your flight.

1 - Bind the receiver first (see binding section above).

2 - Move the transmitter controls for all channels to the desired position whenever failsafe occurs.

3 - Press briefly the F/S button of the Transmitter module (less than 1 second), the transmitter module will make a long “beep”, indicating the failsafe position is remembered by the receiver, even when flying. The same action can be achieved when the model is on the ground by pushing the F/S button on either the transmitter or the receiver.

If you want to disable the failsafe function, with either ROM version, re-bind the receiver to the transmitter. This will set the failsafe feature in the normal off state.

Note that if you accidently press the “F/S Range” button of the transmitter module during your flight (with ROM B), you will update the failsafe positions inadvertently.

ALARMS OPERATION:

The transmitter module can monitor 2 differents voltages (A1 and A2) and the RSSI from receiver and notifies the user by audible alarm. The alarm thresholds and direction (either above or below threshold) can be programmed into the transmitter module using a standard PC and a special cable available from FrSky.

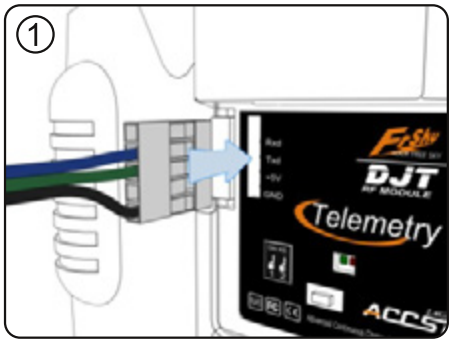
Please refer to the receiver instruction manual about its telemetry capabilities (ports and specifications).

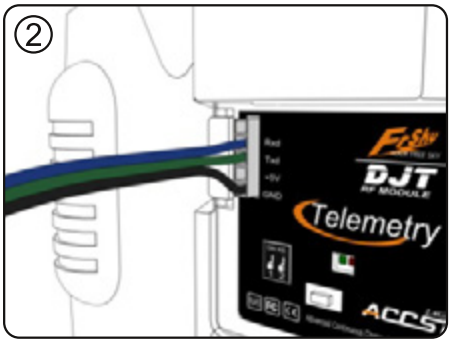
You can set 2 differents alarm states for each voltage A1 and A2 and there are 3 differents alarm states for the RSSI (see "About Safe Flyind Distance" section).

Note: The RSSI alarm setting is adjusted at the factory.

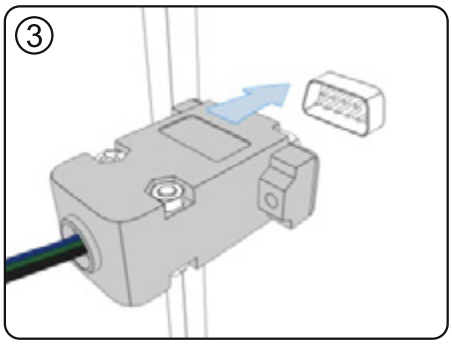
Setting Alarms with the provided serial cable (FSC-1) and fdd-lite software:

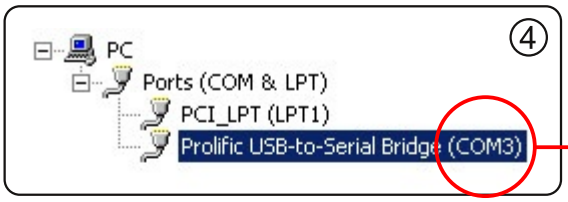
1 - Plug the cable to the serial port of the TX FrSky module.



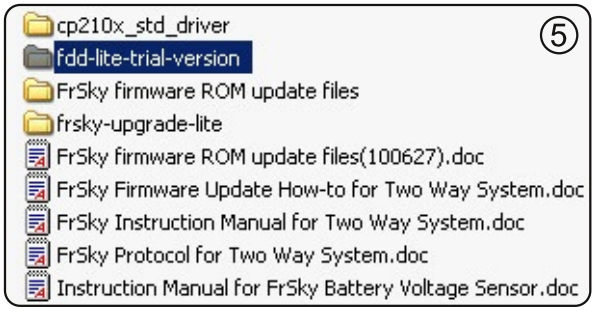


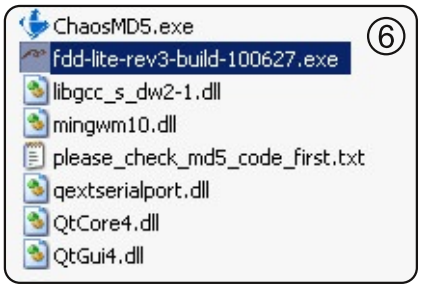
2 - Plug the serial PC conector (db9) to a serial port on your PC computer (you can use a serial to USB adapter) and note the serial port number (when using a serial to usb adapter on Windows, the serial port number can be obtained in the Device Manager under the line "Ports (COM & LPT)"). Switch on the transmitter.





3 - Open the folder "fdd-lite-trial-version" on your FrSky CD ROM (or download it on http://www.frsky-rc.com) and double click the "fdd-lite-***.exe" file.



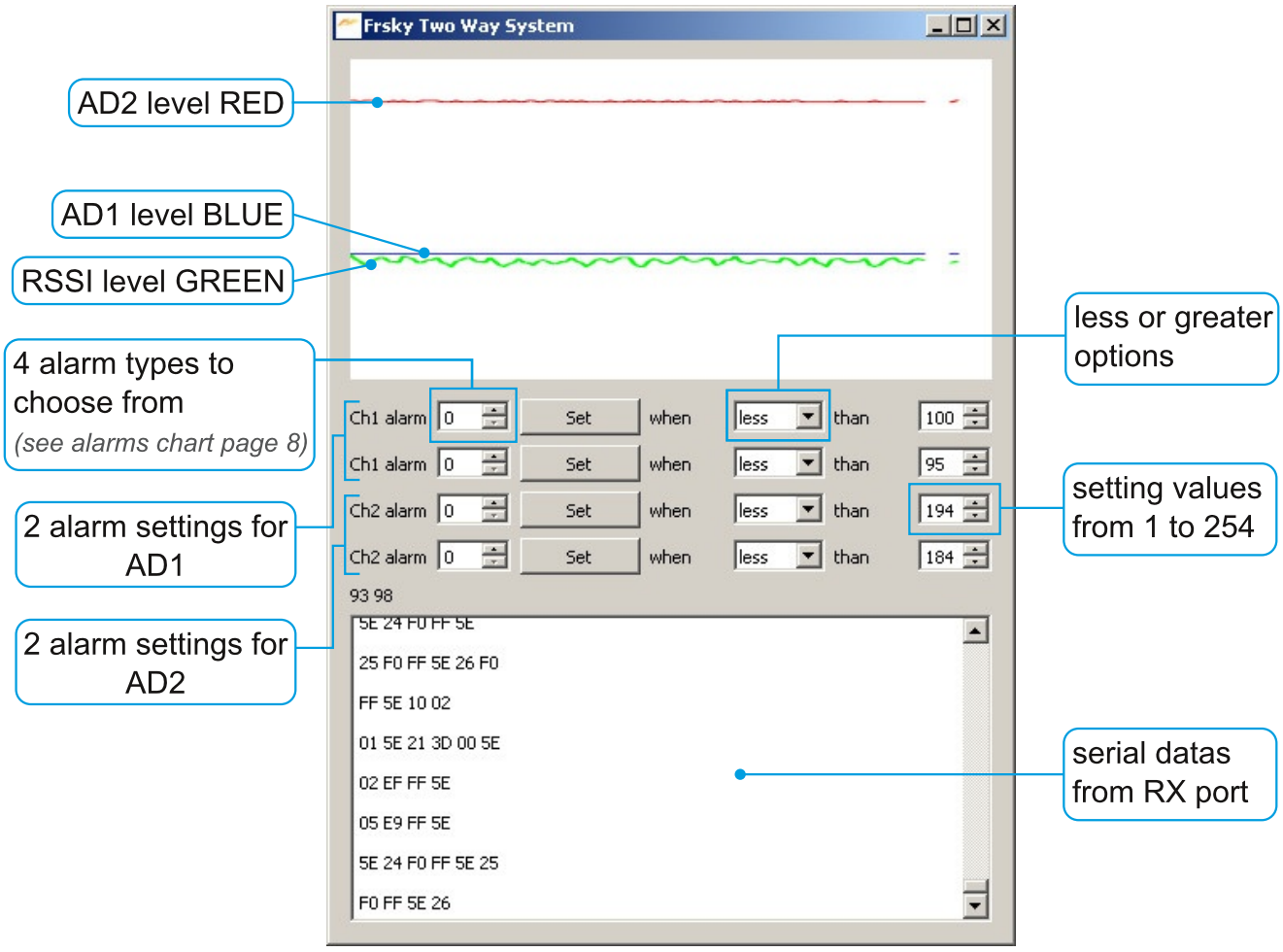


4 - You should get a window asking you which port you have connected the cable to (you noted it in step 2). Then click OK.

5 - Now you can modify the 4 alarms choosing the differents values and finally clicking on the set button.

More informations on the corresponding meaning of the values can be found in the receivers and sensors instruction manuals.

FDD LITE Software window:



FIRMWARE UPGRADE:

FrSky has developed a mechanism to allow firmware upgrade of these radios. This allows the user to upgrade to new version of software as soon as it's available.

Upgrading the module firmware with the provided serial cable (FSC-1) and frsky_update software:

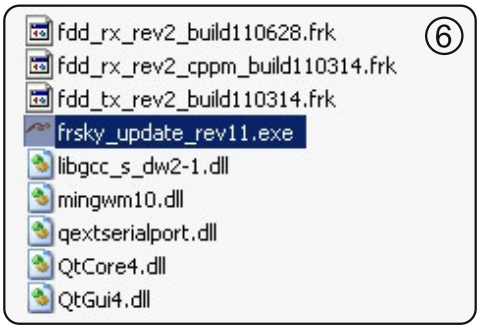
1 - Download the new firmware and upgrade loader from the FrSky web site.

2 - Set the FrSky module to Upgrade Mode (*see "Operating Mode Selection" section*).

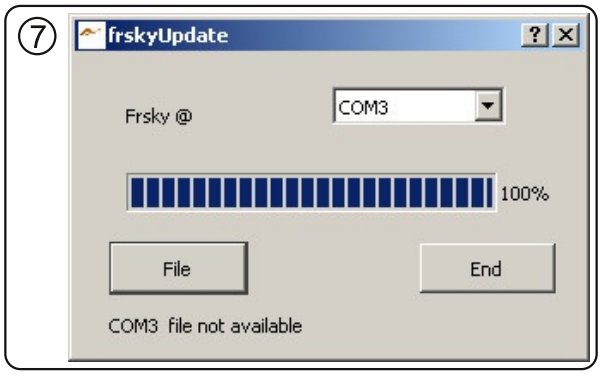
3 - Plug the cable to the serial port of the TX FrSky module (*see "Settings Alarms" section above*).

4 - Plug the serial PC conector (db9) to a serial port on your PC computer (you can use a serial to USB adapter) and note the serial port number (when using a serial to usb adapter on Windows, the serial port number can be obtained in the Device Manager under the line "Ports (COM & LPT)") (*see "Settings Alarms" section above*). Switch on the transmitter.

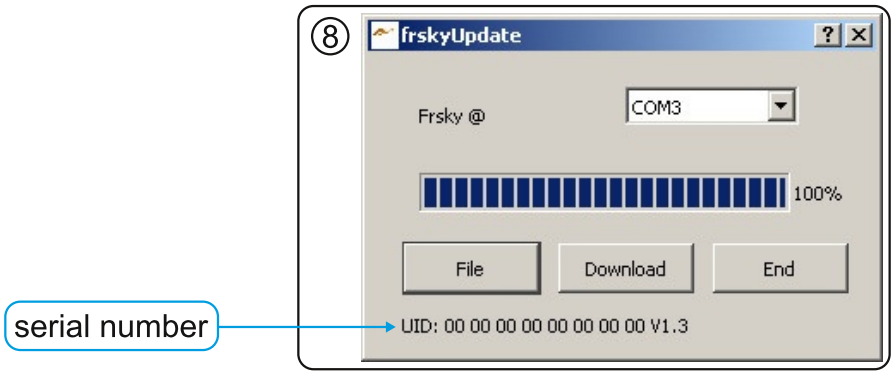
5 - Locate the "frsky_update_***.exe" software in the downloaded files and double click it.



6 - Select the corresponding serial port and click on the file button to load the upgrade file (see the readme file to choose the right file).



7 - After the Serial Number is retrieved by the program click "Download".



8 - After the progress bar reached 100% the software of the module is updated.

Note: An USB Version of the serial cable is available from FrSky.

FCC Statement

Changes or modifications not expressly approved by the party responsible for compliance 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.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

CE

The product may be used freely in these countries: Germany, UK, Italy, Spain, Belgium, Netherlands, Portugal, Greece, Ireland, Denmark, Luxembourg, Austria, Finland, Sweden, Norway and Iceland.
France: The law permits the emission band 2400 to 2483.5 MHz with the limitation of transmission power of 100 mW (reduced to 10 mW between 2454 and 2483.5 MHz for outdoor flying).

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