

Programming Tips for the Spektrum DX Family of Tx

Date of last update: 3-14-15

WARNING - *This information may only apply to the latest version of a given "DX{channel number} Transmitter (Tx). New versions may be significantly different from older versions and upgrades may make significant changes, so this information may be date sensitive. Check with HH or Spektrum or RCGroups for the latest information. Newer Tx like the DX7 will have the full name on a sticker on the back of the case which says DX7 G2 (i.e second generation).*

The first thing you need to know is that the core programming is nearly the same for the latest versions of DX18, DX9, DX7, and DX6. There are limitations for the number of channels in the Tx and the number of receiver ports in your receiver. There are more programming options in the DX18 Tx models.

Next, programming menus are "context sensitive". This means that as you program, the choices presented in following menus will be limited or changed based on your earlier selections. Because of this it is always best to start at the top of the setup menu and choose carefully as you go down the list. Note that the Monitor and Channel Assignment screens in particular will change and rename ports based on your choices, which is meant to help you plug servos into the correct receiver ports.

At this time Digital Switch Setup is available in both the DX9 and DX18, but Analog Switch Setup is only available in the DX18. Digital Switches have discrete outputs such as 0, 1 or 2 (for 3 position switches). Analog devices such as the two control sticks output analog data, that is a continuous stream of data between the two extreme stick positions.

Software updates are available when you register your new Tx, so do that immediately and you can also sign up for email notifications of software upgrades, but upgrades may be announced on Spektrum's Facebook page and RCGroups several weeks before emails are sent. Airware updates are specific for each transmitter. Each update you download has your transmitter serial number coded into the update to ensure that you are updating with the Airware version intended for your transmitter model.

Note: As new products are released and existing products updated with new software, more functions may be added or changed, so use this as a starting point and follow up by reading the manual and RCGroups.

Steve

**The following items were posted in the following thread in RCGroups:
Aircraft>General>Radios> (New Product) Spektrum DX6, DX7, DX9, Dx18G2 and
Dx18T Questions and Answers not in the manual !**

Comments Originally Posted by **AndyKunz** in RC Group Forum identified above.

Note: Andy is Sr Firmware Engineer for Spektrum Aircraft Transmitters (Horizon Hobby).

Ah, but there are simple rules! (Expounded upon in the early DX8 days, for those so inclined to search a little).

They vary a little based on sailplanes (no throttle, generally).

TAER will always be TAER, or the "right" side of any compound surface. (Note: TAER is throttle, aileron, elevator, rudder)

GEAR will be Gear in a simple plane, or the flap in a 2-aileron plane.

AUX1 in Acro is going to be the flap control on a simple model, the left aileron, or in heli always Pitch.

AUX2 will be an aux or flap in 2-flap wings. On DX7 it can be second elevator or rudder.

Note that wing types and tail types are limited based on availability of channels, so you can't have too many dual surfaces.

AUX3 will be an aux or second rudder.

AUX4 will be an aux or second elevator or canard on an elevon plane.

There are some other assignments that happen based on wing type in the DX18, but those should cover most modelers' needs.

In short, the radio generally tries to use the smallest receiver possible to control the flight surfaces you ask of it. It can't always do that, but it tries.

Andy

PS - I might have made a mistake in there. Not claiming perfection without source code in front of me!

Originally Posted by **AndyKunz**:

OK, I see you don't understand one of the concepts on which a radio is built. I'll go into a little more detail because I know others have this question.

A radio system has raw inputs (sticks, sliders, switches, trimmers) and at the far end, servos. In between there are several stages.

The raw inputs are first normalized (ie, processed by calibration functions). These calibrated values are fed into functions like D/R and Expo which give them another value, the control inputs. These control input values then are fed into control systems which use the wing type and related stuff to create function outputs through canned mixes (ie, they create the elevon function). Then things like differential come through. The interim outputs are then mixed with other auxiliary inputs to create servo commands, which then run through the Travel, Sub Trim, Reverse, and Balance functions.

As you can see, D/R comes way early in the process. It is converting a calibrated stick input into an axis (roll, pitch, yaw) command. Servos aren't anywhere close to being involved yet. It would make things like differential pretty funky to do. THAT's why there is no left and right dual rates.

More comments taken from RCGroups (edited for clarity):

1. Based on your Wing Type the Tx will assign various functions to various channels and in some cases or most cases it does so using the smaller Rx possible which means in the event you have a Dual Aileron and Flap Wing Type chances are the Tx will use the Gear channel for Flap function....

All you have to do is connect your retracts in the next available aux channel and in the "NEXT" screen of the Channel Assignment Menu simply assign the Gear Switch aka Sw.A to that aux channel.....

The function named Gear may be removed and replaced by flaps in certain wing types.

If your wing type disables the Gear function, you can use the Channel Assign screens to put the gear input switch of your choice onto the AUXiliary function of your choice, and then put that auxiliary function onto the receiver port of your choice.

2. Hey y'all! I just bought an AR610 DSMX receiver and when I bound it to my DX9 it showed DSM2? Any ideas on how to change it to DSMX? Thanks so much! I love my DX9!

Go to the Frame Rate screen and make sure it says DSMX there. Just leave it on DSMX all the time; it will automatically select what the receiver can do that way.

If you were too close to the Rx when binding, it's possible it didn't hear the transmitter properly. You need about 6' between Rx and Tx.

Andy

3. The transmitter includes a set of default sound categories, with the option to add your own (up to a total of 16 categories). You may also modify or remove the default sound categories. Sound Categories can be accessed from any screen that enables you to select a sound.

1. To select a sound, highlight the sound and then press the roller.
2. To select a sound from a different Sound Category, highlight Select Category and then press the roller. Select the desired sound from the list.
3. To add a sound to a different Sound Category, select Add Sound to Category. A sound can appear in as many categories as you wish.
4. The default Sound Category is All Sounds. To change the default Sound Category, select Sort Categories then move the desired category to the top of the list.
5. To remove a Sound Category, select Rename/Delete Category and then edit the name. Change the first character of the name to a blank space. When you exit the screen, the category will be removed.

4. Andy, hate to bother you again. I have DX9 with AR6400 (RE onboard) and want to do elevons. The rudder servo is on left wing and elevator servo is on right wing. I tried choosing elevon wing type but can't get this sorted. Hate when I can't figure this out. Indoor flying tomorrow and want to maiden. Any help appreciated.

Piper J3

Different AR6400's have different programming. The Vapor brick maps aileron channel to rudder. Others support 4-channel properly.

So, it depends on which AR6400 you have.

I suggest you do the mixing manually to figure it out. It may be you need to mix AIL > RUD and ELE > RUD to do it.

Andy

5. How to set up FPV:

Well, it's actually real simple. You select the FPV mode. This gives you the ability to define which of the first 4 channels come from the master radio and which come from the slave.

Then you click on NEXT. This screen allows you to assign the incoming head tracker channels to different channels on the receiver. For instance, if your head tracker uses channels 1 & 2 for yaw and pitch, and you have those plugged into the AUX2 and AUX3 slots on your receiver, you select AUX2, set mode to SLAVE (FPV), change the Input Channel to 1, adjust how much travel you want it to allow (because head trackers are notoriously disconnected from reality), and set the direction as Normal or Reverse.

Then you go up to Output Channel AUX3 and do the same things.

It's SUPER SIMPLE! Don't get yourself hung up trying to "understand" it without actually trying it on your radio. If you don't grasp it in 5 minutes or less, we failed to make it simple enough. So far everybody that I've talked to hasn't even taken that long.

It took me 5+ minutes to type this in, going through it on my radio as I typed. Honestly, if you try to overanalyze this you'll be paralyzed! Just do it!!!

Andy