Tactic's TTX650

Tactic enters the computer radio system market!

By Jim Wiggin

PHOTOGRAPHY: JIM WIGGIN

Unless one has been living under a rock these days, a few dollars can't buy as much as it used to. Trips to the gas station to fill up Jess, my Jeep, usually hover at $50.00 or more a tank and groceries are not much of a bargain either. So when a company announces a 20-model memory, six-channel computer transmitter for under $200.00, you can bet that this frugal (read cheap) New Englander will take notice. In an era where everyone's hobby budget is shrinking in some manner, it is nice to know there are still a few bargains out there to be had. So when Carol Pesch from Hobbico asked me to review the Tactic TTX650 2.4 GHz transmitter I was more than eager to see how it would match up against other well-established systems available on the market today.

Tactic is a relatively new name to the R/C world. They got their start with the Flyzone micro series of planes around 2009. They became known for their simple yet reliable 2.4 GHz system installed within the Flyzone micro models. Then in 2011, Tactic made a huge contribution to the modeling world when they introduced AnyLink. Now, no matter what transmitter brand or model you had, one could fly a plane with Tactic's SLT (Secure Link Technology) receiver in it.

Suddenly the Flyzone micros as well as the larger models were available to a larger audience thanks to AnyLink's technology. To see more on the AnyLink technology, see Frank Fanelli's excellent and in-depth report in the January 2013 issue of FLYING MODELS.

Soon after Tactic started offering a simple 6-channel system that was 2.4 GHz and offered a wireless trainer function. I can attest that this makes training the budding pilot a bit easier than doing the two-step over the trainer cord as in the past.

Don't let the name Tactic or the price fool you however. This radio has features that many higher end radios simply don't have. There are 6-channels with programming to allow you to control both airplanes and helis, a 20-model memory, switches that allow both dual rates and exponential on the rudder, elevator and aileron channels, a large, easy to read LCD screen, ball bearing gimbals that are adjustable, and, like the six-channel before it, a wireless training system. Not to mention that binding the radio to your favorite SLT protocol model is an easy one-step process.

Other great features include the throttle position alarm. If the throttle stick is in any position but full down and off, an alarm will get your attention. This is a great feature for the electric pilot. A battery cut-off alarm is also included and is also user programmed depending on your use of alkaline, Ni-Cd or Ni-MH batteries. You can even personalize your radio further by programming your name into the main system set up.

The ball bearing gimbals are smooth with a solid feel throughout all deflection directions. Like many transmitters, the gimbals' tension can be adjusted to as firm or loose as you like. Stick lengths are also adjustable, great for those who fly with thumbs or fingers. Digital trims as well as the servo end point adjustment are standard. The case has a nice ergonomic feel to it that is light but not toy-like at all. While not included with my review unit, a neck strap may be attached to the unit for those inclined to do so.

Overall I was impressed with the feel and look of the transmitter so it was off to my workshop to see how the models I own would benefit from the TTX650.

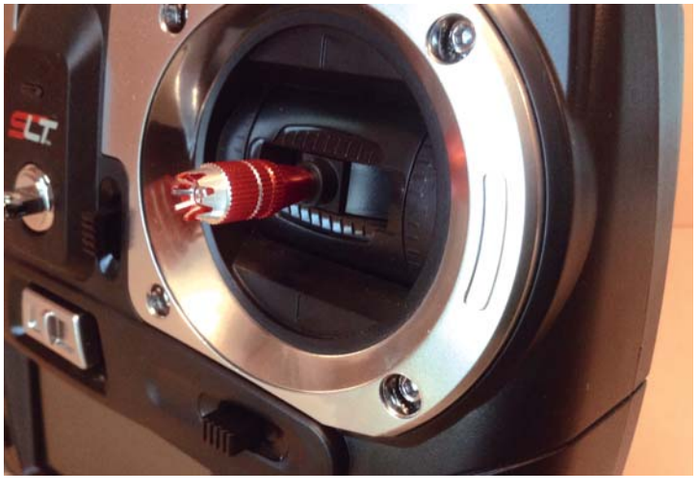
The Tactic TTX650 may be an economical sport radio, but don't let its price fool you, it's loaded with features. The ergonomic case **(above left)** is sculpted for many hours of comfortable flying. Two and three position switches **(above right)** are selectable through easy programming for programmable mixes and dual rates.

What's in the box

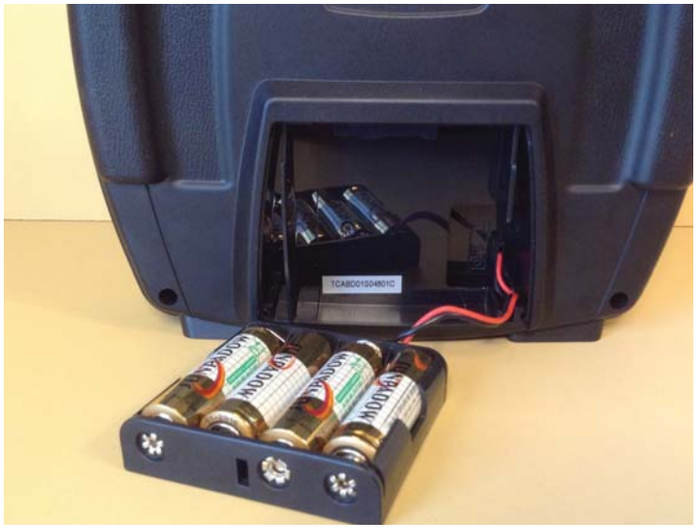
Tactic has kept things simple. Contained in the box is the TTX650 transmitter, instruction booklet and tension spring without detents that can be installed easily on the throttle gimbals for heli pilots. If you do not have a model that includes a Tactic SLT receiver or TX-R labeled model, you'll need to pick up a receiver. Use Tactic TR624 6-Channel SLT 2.4 GHz receiver, part #TACL0624.

Four AA alkaline batteries are also included but for most of us, we'll want to replace those alkaline batteries with either a Ni-Cd or Ni-HM pack and wall charger. The Hobbico HydriMax Ultra 4.8V Ni-MH 2000 mAh AA pack, part #HCAM6321, is a drop-in replacement. Simply remove the alkaline batteries and the dry battery holder and unplug the wire harness and replace with the HydriMax pack. For charging simply use the Hobbico TX/RX leads, part #HCAP0101, and your favorite charger. Like all Futaba radios, the center pin is positive.

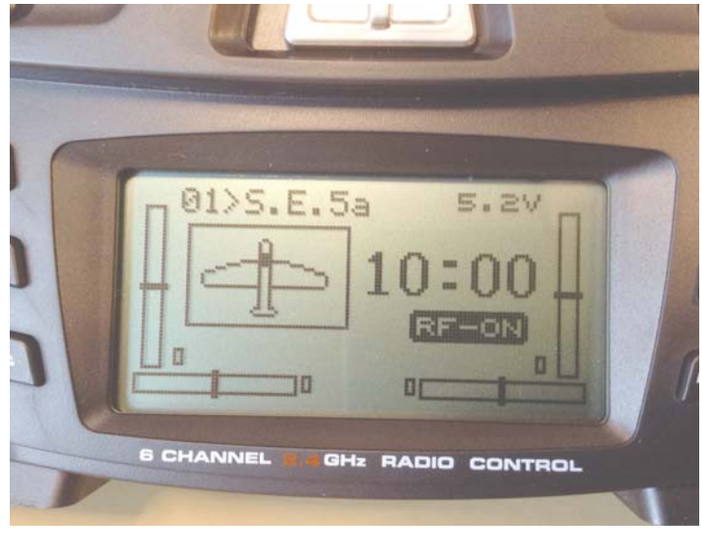
Rather than just go on about the features of the radio, I always like to see real world testing, so what better excuse to test out a new transmitter than to set up a few different planes from different ends of the playing field. I chose to set up my transmitter for three different models. For indoor, my Flyzone S.E.5a; for outdoor aerobatic, the Flyzone *Acro Wot MkII,* and for heli, the Helimax *SQ1* quad. Let's get started.



Gimbals are smooth thanks to ball bearings. Digital trims and adjustable sticks **(above left)** are standard. Both a firmware and charge jack **(above right)** are included for future software updates and for keeping rechargeable batteries up to peak performance. Four alkaline AA batteries are included to get you started **(below left)**; however, these can be replaced by a rechargable Ni-MH pack. Text has details. Should you leave the throttle position at anywhere but bottom, the TTX650 will force you **(below right)** to either lower the throttle position or select the ENTER key to continue.



Tactic TTX650



Any of the newer Flyzone and Great Planes micros can be flown with the TTX650 and give the pilot more adaptability in control throws and rates. The Flyzone S.E.5a **(above left)** was the first model programmed into the TTX650. The main screen for the S.E.5a **(above right)**. Clearly seen is the model name, transmitter usable voltage, digital trim positions and the user programmed flight timer. Programming the S.E.5a only took a few minutes.

Flyzone S.E.5a micro

The following is how I set my S.E.5a up based on my personal preferences. I was able to set the model up with dual rates and exponential. Feel free to personalize your rates and expo based on your comfort level. The first thing you will want to do is to name your model.

Model Name: Turn on the transmitter and hold down the ENTER key for two seconds. Here we find the Model Setup menu. Using the minus key, scroll down to MODEL MANAGEMENT and select ENTER. Here we see a new menu but we are only concerned right now with the first two on the list. The type will be highlighted and should be set at Airplane, if not select ENTER and use the minus or plus key to select the airplane and select ENTER.

Now using the minus key, scroll down to Name: and select ENTER. Naming is easy, Scroll through the characters until you land on the desired character and select ENTER. It is here that I entered S-.-E-.-5-a. When finished, select ESC three times to get to the Home menu. You should now see S.E.5a in the upper left hand corner of the screen.

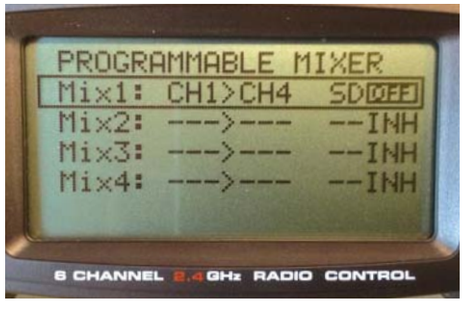
Model Set Up: Now to set up our aircraft to the transmitter. Binding a Flyzone, Helimax, Hobbico or Great Planes model with the SLT receiver is easy. Shut down the TTX650 and connect a freshly charged battery in the model, in my case, the S.E.5a. Keep the prop clear of everything including your fingers. All the aforementioned models have a soft start but I always like to play it safe. Now turn on the TTX650. That is it, the model is bound.

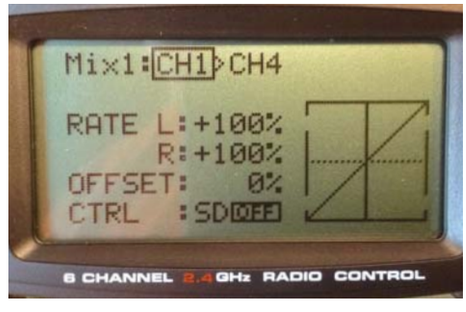
A few things you will notice, the throttle will need to be reversed and with most three channels, you will want rudder control on the right aileron stick. Remove the battery from the model and select ENTER once. You are now in the Settings menu. Servo set will be highlighted, select ENTER and you will be taken into the menu that will allow you to reverse any servo on any channel 1–5. Using the minus key scroll down to the throttle servo, in this case channel 3. Select ENTER and NOR will be highlighted. Using the plus or minus key will reverse the channel, then select ENTER once again.

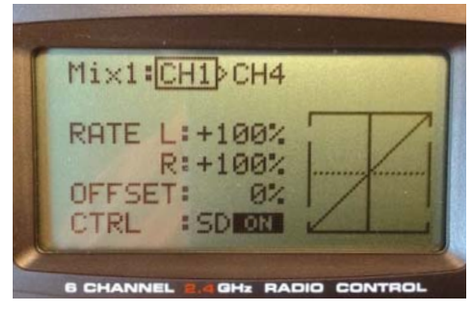
Plug the battery into the model and check the setting. You should hear one beep, advance the throttle and hear another beep, reduce throttle and hear two beeps, the model is armed and ready.

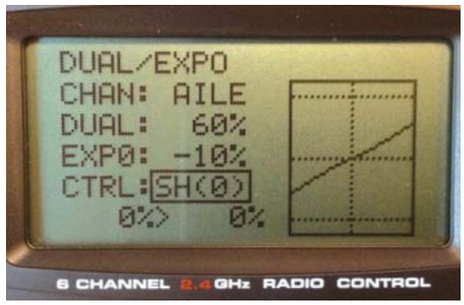
Now you'll notice the elevator is reversed, using the same steps above for the throttle, reverse the elevator channel, in this case

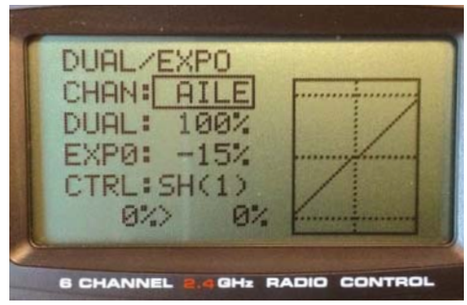
Setting up a micro three-channel model such as the Flyzone S.E.5a is simple. By entering the SETTINGS menu **(above left)** and selecting SERVO SET, you can easily set servos for normal or reverse orientation **(above center)**. Setting up right stick control is easy with the programmable mix **(above right)** and selecting channels 1 and 4 **(below left)**. Selecting switch D to the off position **(below center)** will allow the model to fly with just the rudder. Selecting switch D in the on position **(below right)** allows the functionality of both the left and right stick, rudder and aileron controls.



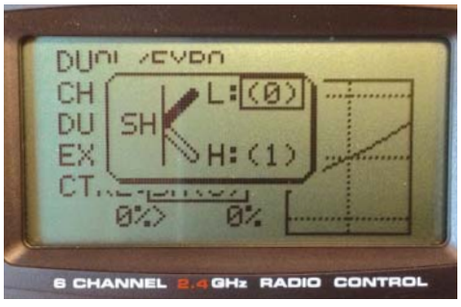


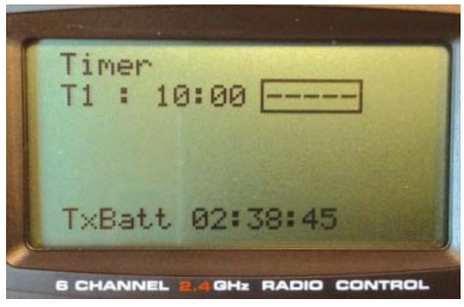






Even a small micro model will benefit from some added programming features. Selecting the ENTER key once will take you to the main menu. Scrolling down to DUAL, EXPO **(above left)** will take you to that main screen **(above center)**. Each channel is selectable **(above right)** as well as selecting a designated switch **(below left)**. The timer function **(below center)** is simple to set up on any designated switch or in this case the throttle **(below right)**.





channel 2. The rudder is also reversed so change this now on channel 4.

Mixing, Dual Rates and Expo: Out of the box you'll find that the S.E.5a is set up with the rudder on the left stick as it should be, however many of us like to fly three-channel planes with the rudder on the right stick. One problem I have had with this however is once the channel is switched, I find myself ground looping sometimes when landing and wishing I had rudder control with my left stick for takeoff.

Fortunately the Tactic has us covered and to do so is easy. With the radio on, select ENTER and using the minus key, scroll down to Programmable Mixer and select ENTER. Scroll down to Mix 1 and select ENTER. In this screen you are able to mix two channels to work in conjunction with one another. We are going to want to mix aileron CH1 to rudder CH4. Use the minus and plus keys to navigate here and enter to effect the change.

Now we need to have a rate of throw. Scroll down to the RATE select ENTER to darken the small box and enter +100 for Left. Now select ENTER and scroll down and do the same for the right throw. We won't worry about offset at this time.

Next the Tactic allows you to select a switch, scroll down to CTRL and select ENTER. The TTX650 will now ask you to select a Control Switch. In my case I selected D. With switch D off, the S.E.5a will only have rudder and control will be on the left stick. With switch D on, I now have complete deflection with both the aileron and rudder stick. Select ESC twice to return to the main menu.

Small models such as the Flyzone series of WWI scouts benefit greatly from both dual rates and expo. Dual rates gives you a low setting for indoor while wide open deflection may be desired when flying outside. Expo will soften the throws and also help get rid of the jerky flight pattern. From the main screen, select ENTER. scroll down to DUAL, EXPO and select ENTER. Our first control surface is the aileron. To make things simple, I elected to put all three rates on one switch, in this case, switch H.

Using the minus key, scroll down to DUAL and select ENTER. For the S.E.5a low rate, I used the minus key to give me 60% throw. Now, select ENTER again, allowing you to move to the next setting, EXPO. Here, I set the expo to -10%. Like Futaba, expo is in negatives, not positive. Now as before, select ENTER and select the minus key to the CTRL field. This field will allow us to choose which switch to use in going from low rates to high and back again. By selecting the ENTER key, you will see a small window pop up asking you to choose the control switch.

For the S.E.5a, I chose the large switch on the right top of the transmitter, switch H. Simply toggle the switch and another small window will appear. In my case a S for switch and H for the toggle I chose followed by a graphic showing the position of the switch. The 0 on the switch is the designated low rates while the 1 is the high rates. Set your switch to the low position and select ESC. Low rates for the ailerons are now locked in. Flip the H switch to the 1 position and you will see the rates change to 100% throw and 0 EXPO.

For high rates, I left the ailerons at 100% deflection and changed the EXPO to -15%. You can now see the changes in the stick provided by the small graph on the right side of the screen. Cycle up to CHAN, select ENTER and using the plus or minus key, select the elevator. Low rates on the elevator are set at 75% throw with -10% EXPO, high rates are 100% throw and an EXPO of -20%.

Again, switch H is set for the rate change on this channel as it was on the ailerons. Now cycle through and change the rudder as follows: Low rate throw of 90% with an EXPO of -15%, high rates at 100% throw and -25% EXPO. The rate switch is set to the H switch.

With the rates done, select ESC twice and return to the main menu. Already, we have taken a simple micro model and given it the capability to use the rudder with either the left or right stick and given the small model dual rates, making it a bit more manageable than the simple transmitter that came with it.

Perhaps you would also like a timer and while you are at it, make that timer start when you advance the throttle. No problem! From the main screen, select ENTER once and using the minus key scroll down to TIMER. Select ENTER and you will be taken to the timer screen. Select ENTER and use the plus or minus keys to enter a time, in this case, 10 minutes.

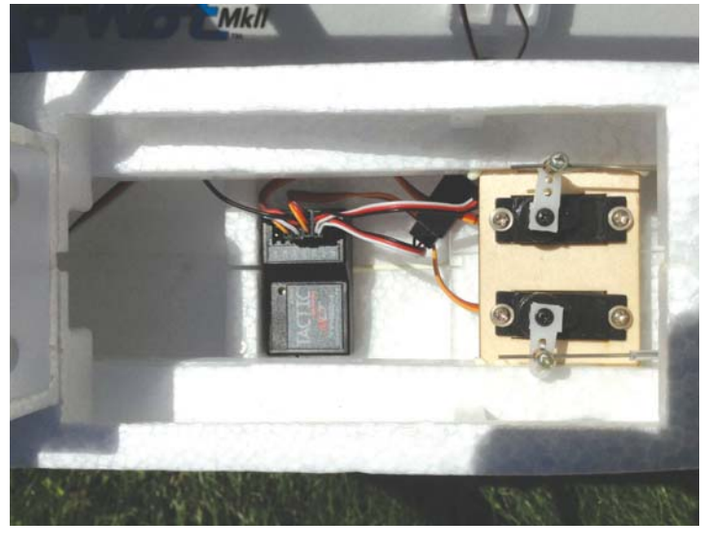
Now select ENTER and scroll to the third field, select ENTER. You will be prompted to select a control switch in this case, advance the throttle. Another small window will appear with a START/STOP field and below it a THROTTLE field that should read +98.

Now simply advance the throttle, in my case only to +92% and select ENTER. Now the menu START/STOP field should read +92, meaning that as soon as you advance the throttle to 92% full power, the timer will start, counting down from 10. Select ESC three times to be brought back to the start screen.

The time will be displayed in the center of the right hand of the screen. Test it by advancing the throttle and you should see the timer start to count down. This is a lot easier than remembering to select a switch to set your timer on your electric models. Once it gets down to ten seconds, the TTX650 sounds a warning beep for each second down to zero. After zero, the alarm will beep twice per second telling you, "Hey buddy, time to land!"

In the setting up of the S.E.5a I hope I have shown you a few things: setting up a small micro and the ease of programming within the TTX650. The next two aircraft are slightly different but, since you now have a sense of the flow of the Tactic's programming, I have added the settings for each one in a separate box. That said, try each model out with those settings and feel free to experiment on your own.

Tactic TTX650



The next test of the TTX650 was to set it up for the Flyzone *Acro Wot MkII* **(above left)** and try the system's ease in programming of dual rates, expo and a timer. Jim used the Tactic TR 624 2.4 GHz receiver **(above right)** in the *Acro Wot*. Binding is easy with a simple push of the binding button on the receiver's top cover. With its six channels, small size and lightweight design, it is surprising and refreshing to see the retail price is only $39.99.

Flyzone Acro Wot MkII

Since my review of this little acrobatic plane in the April 2013 issue of ***FM***, I have had a lot of fun with it. What better test bed for the Tactic TTX650? Here are the bullet points for setup:

Model Name: Tactic allows up to 6 character spaces on the display name of the model. Using the flow chart as outlined in the S.E.5a setup, I entered AcroWT for the name of model 2.

Fortunately, I had filled my instruction sheet for the *Arco Wot* and had access to the rates the folks at Flyzone recommend. It is always a good idea to keep the manual for future reference. Flyzone outlines the suggested low and high rates within the manual so this is where I started. Expo on the other hand is a personal thing, as such, Flyzone does not have settings outlined in the manual. Check the box located on this page for the rates and expo I used and use it as a starting point. These rates work for me as I would describe myself as the average sport modeler.

This time however when I assigned the rates for the *Acro Wot*, I used a dedicated switch for each flying surface. You can program the TTX650 to use just one switch for high and low rates as I did with the S.E.5a if you are more comfortable with that.

Last but not least, I added the timer function to this model. Flyzone recommends setting your timer up for 7 minutes with the *Acro Wot*, so like before I set the time function up to count down from seven once the throttle was advanced about 5%. As time goes on or as new batteries with longer run times are introduced, editing the timer function will be a piece of cake.

With the programming out of the way, it was time to head to the field and see how the model would fly with the settings I had programmed.

On cue, the timer started its count down as soon as I started to taxi. When the throttle was reduced to zero, the timer stopped too. After verifying that all flying surfaces were deflecting in the correct direction and that all my rates were in the low setting, I pointed the *Acro Wot* down the runway, advanced the throttle and took off.

In low rates the model was just as I had described in my review, solid and steady with no bad habits. I then turned the high rates on for ailerons and did a series of nice rolls. With all channels in high rates, the *Acro Wot* does a great snap roll. Soon the timer sounded so I brought the *Acro Wot* in for a nice landing on low rates. Even without a neck strap, the transmitter felt good with positive control and easy access to all switches.

Following the rates provided within the *Acro Wot MkII*'s instruction manual, Jim further customized the model by adding exponential and was very pleased at the model's response to control inputs.

Acro Wot MkII Setup

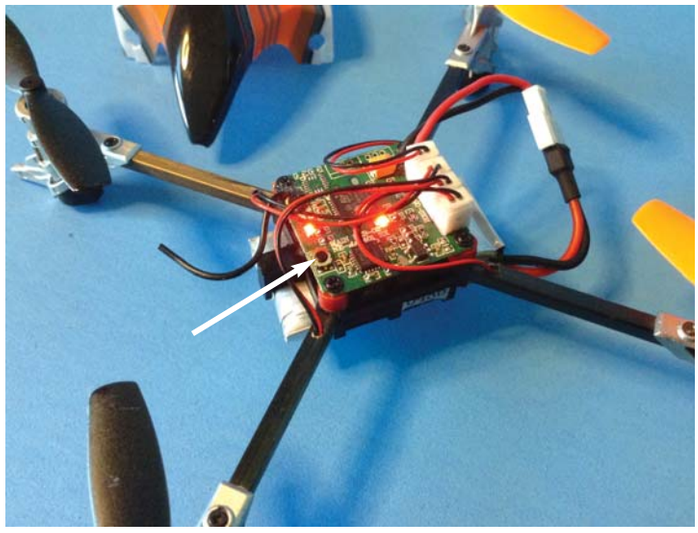
Basic adjustments

- Channel 1 Ailerons = NOR
- Channel 2 Elevator = NOR
- Channel 3 Throttle = REV
- Channel 4 Rudder = REV

Dual Rates and Expo

Low Rates:
- Channel 1 Aileron: +/– 65 Expo: –20 Switch: D in 0
- Channel 2 Elevator: +/– 50 Expo: –15 Switch A in 0
- Channel 3 Rudder: +/– 65 Expo: –15 Switch H in 0
- Channel 4 Throttle: None

High Rates:
- Channel 1 Aileron: +/– 100 Expo: –25 Switch: D in 1
- Channel 2 Elevator: +/– 90 Expo: –25 Switch A in 1
- Channel 3 Rudder: +/– 90 Expo: –20 Switch H in 1
- Channel 4 Throttle: None



The Heli-Max *1SQ* micro quad **(above left)** seemed like a natural candidate for the TTX650 using the transmitter's helicopter programming and in the end proved that the programming was just as easy. Binding is as simple as turning on the TTX650, connecting a flight pack and pushing the small black button **(above right)** until the blinking LED becomes solid. Use the settings as found in the box below that Lennie Morgan from Hobbico recommends for best results.

Heli-Max *1SQ* quad

Because the Tactic TTX650 can also be used for helicopters, I wanted to test it on a rotary wing model, however I must admit, most of my flight time with helicopters is just basic flight and currently I have none in my hangar. Fortunately my girlfriend Angela's son, Jared, received a new Heli-Max quad *1SQ* for Christmas. Looking through the manual however, I could not find any settings for the quad. A quick call into the fine folks at Hobbico had me in touch with R&D engineer and heli pilot Lennie Morgan.

Lennie has done some extensive testing with the *1SQ* and the TTX650 and the rates and set up recommendations found on this page will suit most pilots of the *1SQ*. Again, the gyro tends to be a personal thing, so test the quad at different gyro settings until you are comfortable. I recommend you set up the *1SQ*'s rates in the TTX650 before binding the model.

Binding the *1SQ* is a bit different. Power up the TTX650 and make sure your throttle hold, switch H, is off, position 0. If you should forget this, the TTX650 will remind you that the throttle hold is on both with a window on the main screen and an audible alarm, very much the same as the throttle position in the airplane mode. With the TTX650 on, carefully remove the polycarbonate body of *1SQ* and insert a fresh flight battery. Connect the battery and notice a small black button on the PC board. Carefully depress the button until the red LED goes from blinking to solid. The radio and craft are now bound.

At low rates, I found the model very easy to fly, high rates were snappy and I'm sure in the hands of a much more capable heli pilot, would be able to do some interesting aerobatics.

I ended up handing the transmitter over to Jared; he is the happy owner of the *1SQ* after all. Jared's first response to the TTX650 was typical of a 14-year-old. "this transmitter is cool!" Jared went on to fly three more batteries on the quad, flying it both indoors and out. Jared also felt a difference in the ease of handling compared to the stock transmitter that came with the *1SQ*. He also commented that the transmitter felt good in his hands which led to more flights and the subsequent, "Hey I need that back now." Looks like Angela has a birthday idea for Jared now.

In conclusion, my goal has been to show you how three different models programmed into the TTX650 can benefit. It really was not that long ago we spent just as much if not more on a standard FM system that was capable of only six or ten model memories. Adding to the value in savings is the fact that the Tactic TR624 6-Channel SLT 2.4 GHz Receivers retail for $39.99 and are usually sold for $20.00. That means one can easily outfit a large if not all of their fleet of aircraft into 2.4 GHz if you are still holding out on 72 MHz.

With the now wide array of models we all fly, from micro airplanes to sport electrics and even quads, we no longer need a transmitter for each type of model. Now thanks to Tactic, there is a high quality, economical sport radio for the sport modeler that can do it all.

Jared Haynes received his Heli-Max *1SQ* for Christmas and has really enjoyed flying it. Using the Tactic TTX650, Jared found the controls much smoother and the transmitter easier to hold than the stock transmitter.

HeliMax SQ1 Setup

Basic adjustments

- All channels 1–6 are set to NOR
- Gyro is set at 30
- Swash Ring is set at 100

Dual Rates and Expo

Low Rates:

- Channel 1 Aileron: +/– 80 Expo: –20 Switch: B in 0
- Channel 2 Elevator: +/– 80 Expo: –20 Switch B in 0
- Channel 3 Throttle: +/– 100 Expo: 0
- Channel 4 Rudder: +/– 100 Expo: 0

High Rates:

- Channel 1 Aileron: +/– 100 Expo: 0 Switch: B in 0
- Channel 2 Elevator: +/– 100 Expo: 0 Switch B in 0
- Channel 3 Throttle: +/– 100 Expo: 0
- Channel 4 Rudder: +/– 100 Expo: 0