FrSky DHT module installation

In this tutorial I am going to show how to install the FrSky 2.4G DIY Transmitter module into a Turnigy 9X. My transmitter came without its own module so you might like to remove that first. An easy job and I am not going to describe that here. The DIY module has no box and is pretty much just the circuit board, some wires switches and the antennae.

Before we start is worth checking out Bruce's review on RC Model Reviews. Bruce has a lot of technical info in his review, it is of the non telemetry version but I'm guessing it all still applies. Bruce also has an excellent video on installing the non telemetry DIY version of the module.

My method differs a little from Bruce's in that once finished it allows the back to be completely removed and separated. Other methods the the antenna wire remains connected between the front and back halves. It also locates the module closer to the MCU which allows an easier telemetry connection later on.

Another very easy option is the DF FrSky JR module but it will make it difficult later on to fully integrate the telemetry data onto your 9X lcd.
I also went for the DIY module as it leaves room on the back for later mods. Perhaps a second 2.4Ghz module or even an FM module.

Still interested? Read on.

Required:
Turnigy 9x, I used this one without the module.
FrSky DHT 8ch DIY Telemetry Compatible Transmitter Module
Small soldering Iron.
Drill and drill bits.
Hot glue.

Difficulty: Medium

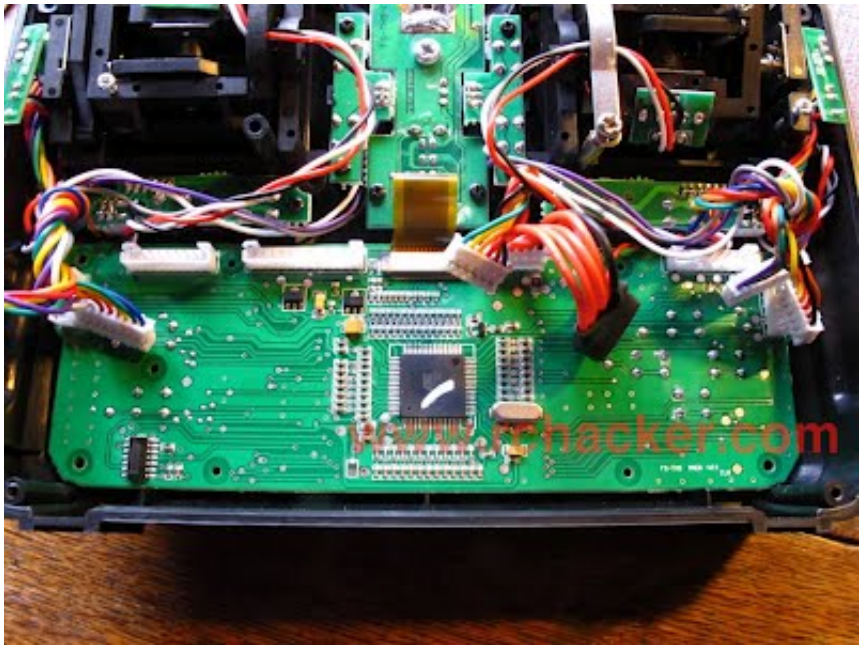
Step one: Connect the DHT module.

Here it is nothing to see on the front except the piezo buzzer.

The back has some very useful labels. Right now we are interested in the PPM, - and +. These are connected to the bare wires coming off the module. We are going to connect these to the back of the main board. The four pins at the base will be used in later in another tutorial to set up the telemetry.

To start take your 9X apart. Six screws on the back and you will find that you have to unplug one cable from the main board to completely remove the back. The cable is a little stiff but it will come out.

Back of the back.



The back of the front.

Now you want to take out the main board. There are 9 screws 5 more plugs and the lcd ribbon to remove.

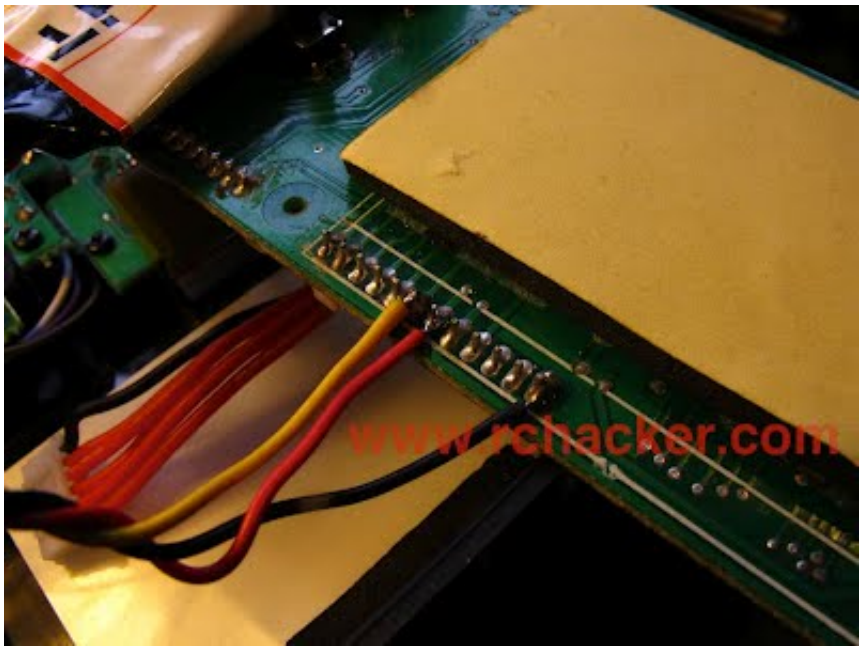
Be careful with the LCD ribbon it is fragile. Push the two black tabs upwards at the same time and it slides right out.

The marked pins are the base of the module pins. Most others solder the DHT module on here we will not. I've noted it here just for reference. I made a mistake here the +5 is actually the voltage of your battery and is turned on and off with the main switch. From the specs the module can handle from 6 to 13 volts, no worries.

I connected the main board back up to the back then traced the power ground and ppm lines to the back of the main plug on the main board. Bit of a mouth full that. I'd suggest checking it yourself just in case you have a different 9X version.

A reminder of which are which.
Black - GND
Red - Power
Yellow - ppm

Here is the view of the back of the main board with the DHT wires soldered on.



Counting from the right, If ground is pin number 1 then the red wire is pin number 6 and the yellow wire pin number 7.

And a view of the main plug on the front of the main board with the DHT wires.

If you have not done so already, and you have one, now is a good time to put the back light for the LCD in otherwise you can put the main board back in.

Step Two: Fit the bind switch and LED.

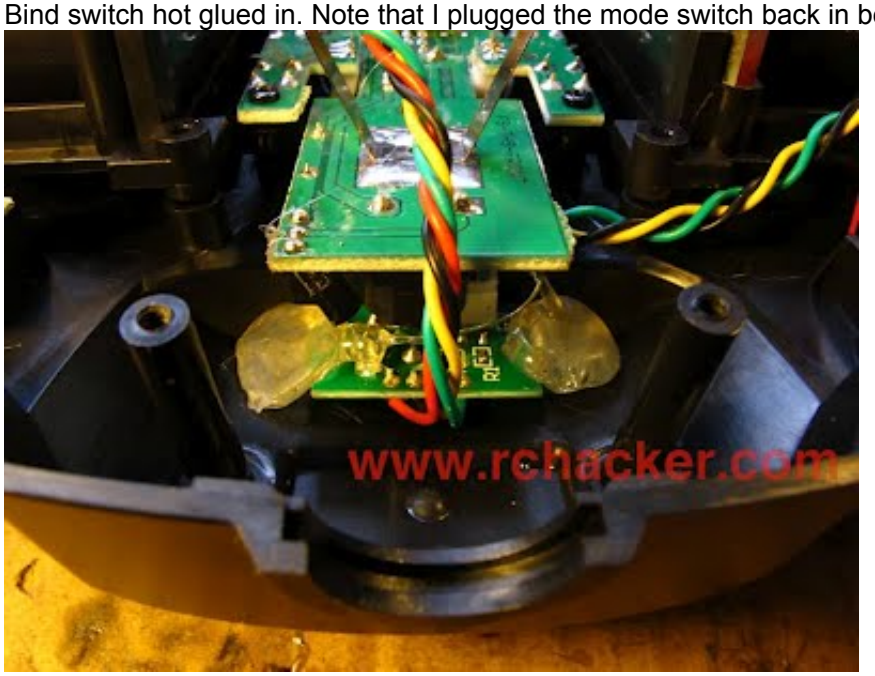
Here is your bind switch. On the back of it is a plug for the mode switch I have disconnected the mode switch for now. More on that later.

We are going to put it about here: Please excuse my mankey bandaid.

Holes drilled and cleaning them up. The holes are slighty different sizes so measure them carefully. Perhaps make your self a template to help with the positioning.

I have scored around the inside with a hobbyknife so the hot glue has something to stick to.

Bind switch hot glued in. Note that I plugged the mode switch back in before gluing it.



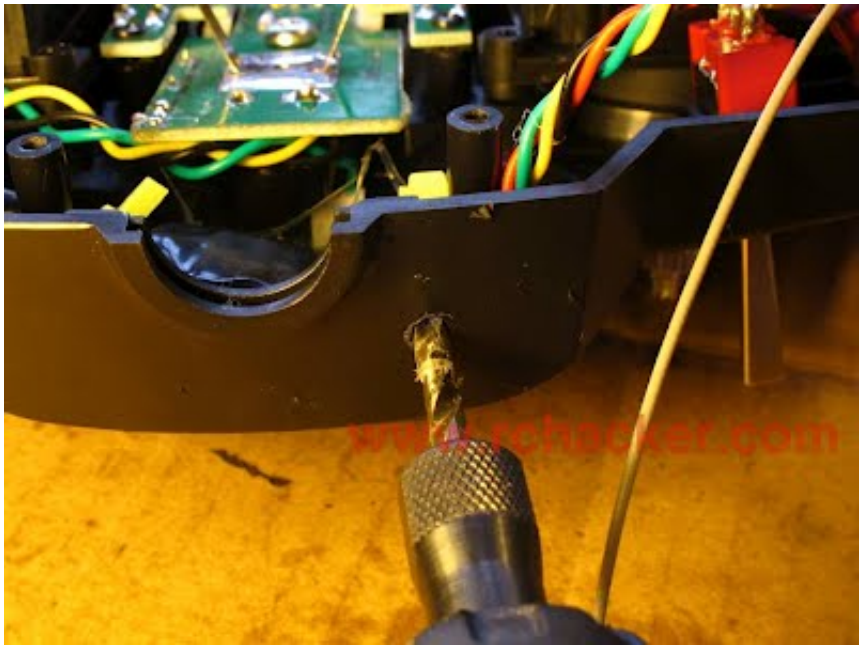
Very nice, not too obtrusive and easy to see and get to.

Step Three: Decide what to do with the mode switch.

What you do with this is personal preference. For now I only have two way modules so I don't expect to be using this switch very much at all. We could install it on the outside of the transmitter but imagine what would happen if you accidentally hit this while in flight. Also note that unplugging it from the bind switch board is the same as having it in two way mode. I left it plugged in, set on 2 way mode put some tape around it and tucked it in behind the bind switch. That way if I do decide to fit it later all I need to do is drill a new hole.

Step 4: Fit the antennae.

Question is where? The logical choice is to put it in the antennae hole but I wanted to keep all the new components in the front of the 9X to allow easy opening. So I put it just to the side of the usual place on the front part of the 9X. It also leaves room to put a good old FM antennae in later on.



A tip to stop the drill bit getting pulled in and drilling your circuit boards, run it backwards for the last part.

Below also shows the taped up mode switch. Trivial to put it on the other side of the antennae if you really wanted to.

Put it back together and you done!.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Next step is to get Open9X installed and telemetry working.