# CaptiveWorks

How to Set Up a Motor

There are two modes of motor operation for small dish Diseqc motors. They are Diseqc 1.2 and USALS modes. Diseqc 1.2 was the original motor control scheme and then Stab developed the USALS system to simplify setup. If your motor supports USALS that is the easier route to setting up a motorized system. It is the recommended route.

The first thing you will need is a properly setup and aligned motorized dish. Actual dish installation is beyond the scope of this document. Installation is dependent on your particular motor/dish combination. Consult the manual that came with your motor.
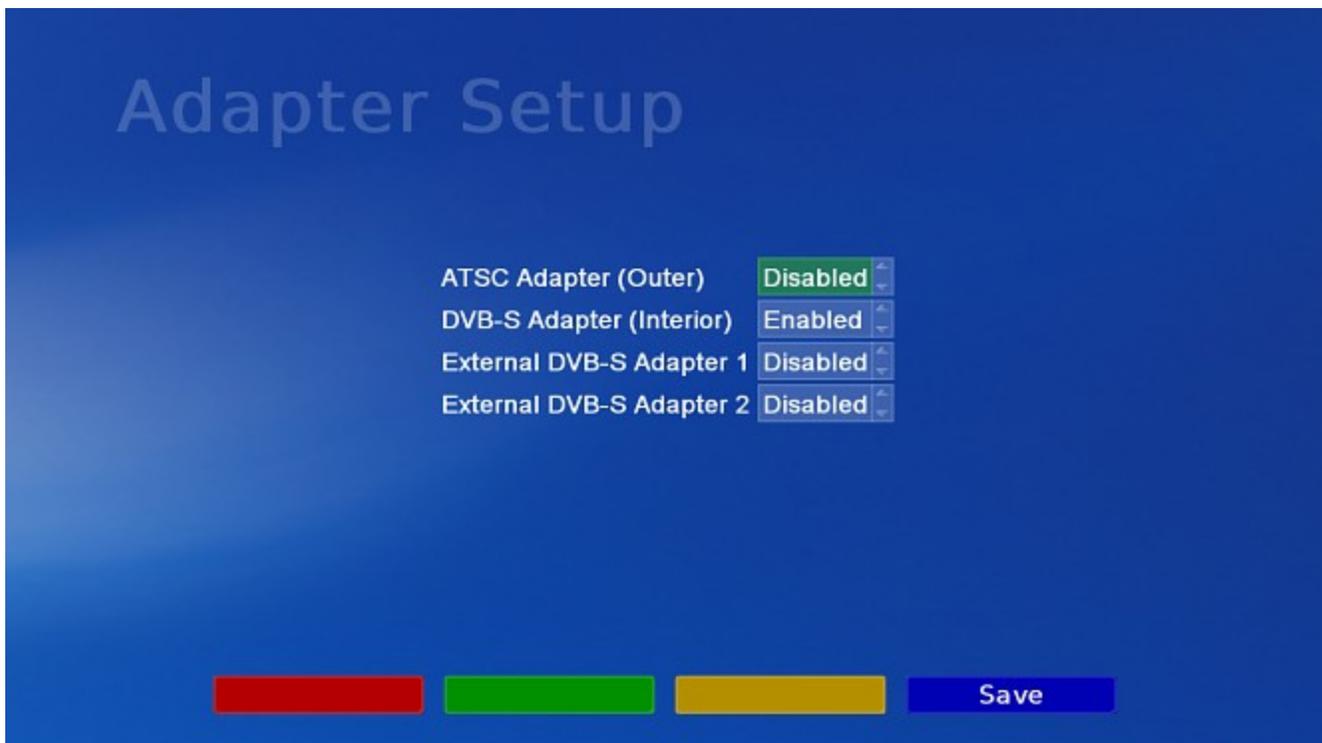
The first step to configuring the CW3000HD to work with a motor is to connect the motor to the CW3000HD. If you have a dual DVB-S system, you should connect the motor line to the upper connector on the vertical pair closest to the edge of the unit. You will not be able to use the second card in the system since only one line can control the motor. You should go to Admin->Configuration-> Adapter Setup. Disable the interior card. That will keep the system from trying to use this tuner with nothing connected to it.

Satellite

Switch	Mini DiseqC					
Port	LNB	Name				
No. 1	Motor	None			Scan	Edit
No. 2	Motor	None			Scan	Edit
No. 3	None	None			Scan	Edit
No. 4	None	None			Scan	Edit

Scan All	Add Sat	Channels	Save

Next you will want to go to Admin->Antenna->Satellite. If you have a combined linear/circular LNB you can set a switch type. Then choose motor for the LNB Type. If you use a switch fill in motor for both switch ports. The line(s) will grey out except for the Edit button.
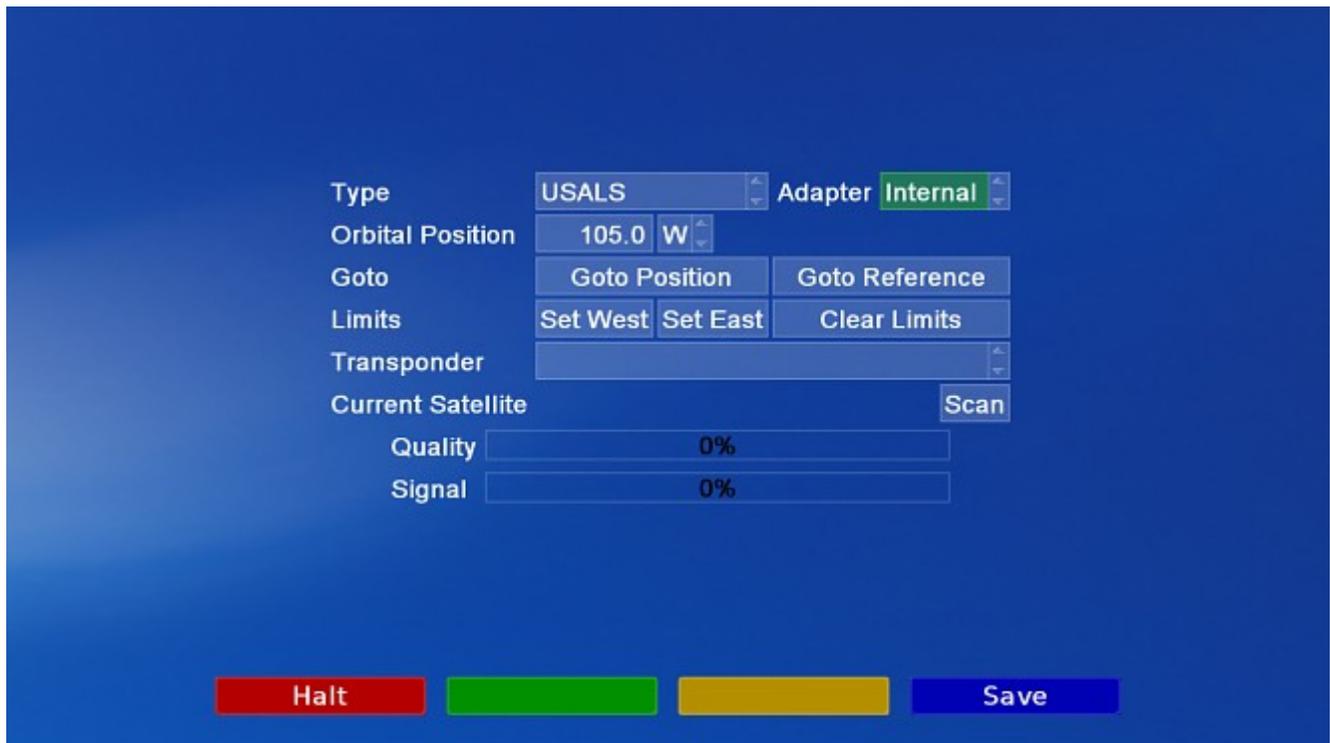

Longitude	0.0 W	
Latitude	0.0 N	
LNB Type	None	

Screen: 1

None		Setup	Edit
None		Setup	Edit
None		Setup	Edit
None		Setup	Edit

<	>

			Save

Now move to the edit button and press Enter on the remote. On this screen you fill in your latitude and longitude for USALS mode as well as the LNB type. If you will not be using USALS you can leave the latitude and longitude 00.0. Choose the correct LNB type for your installation. Fill in the long boxes with the satellites you wish to set up. If you have more than 4 satellites you wish to setup, the arrows below satellite boxes will move you to additional screens. Be sure to press the Blue save button before changing screens.

Once the satellite boxes are filled in as you wish, move to the setup button and press enter. Here is where you actually move the dish and find the satellite. Type is either USALS or Diseqc 1.2. Choose accordingly. If you are using an external Genpix adapter/Skywalker, choose External for Adapter.

USALS

For USALS mode the orbital position will be filled out for you. The Goto Position button will send the command to move the motor to that position based on the latitude and longitude you supplied.

Goto Reference will send the motor to the due south position in most cases. A few motors will move to the extreme east position but those are few and far between.

The set East and West Limits is to allow you to set the farthest point the motor will move in either direction. This is useful if your particular installation has an obstruction that will not allow the motor to move all the way in either direction. To use this move the motor to the point where you wish it to quit moving and then Press Enter on the set East or West Limit accordingly. You can clear any set limits by pressing Enter on the Clear limits button.

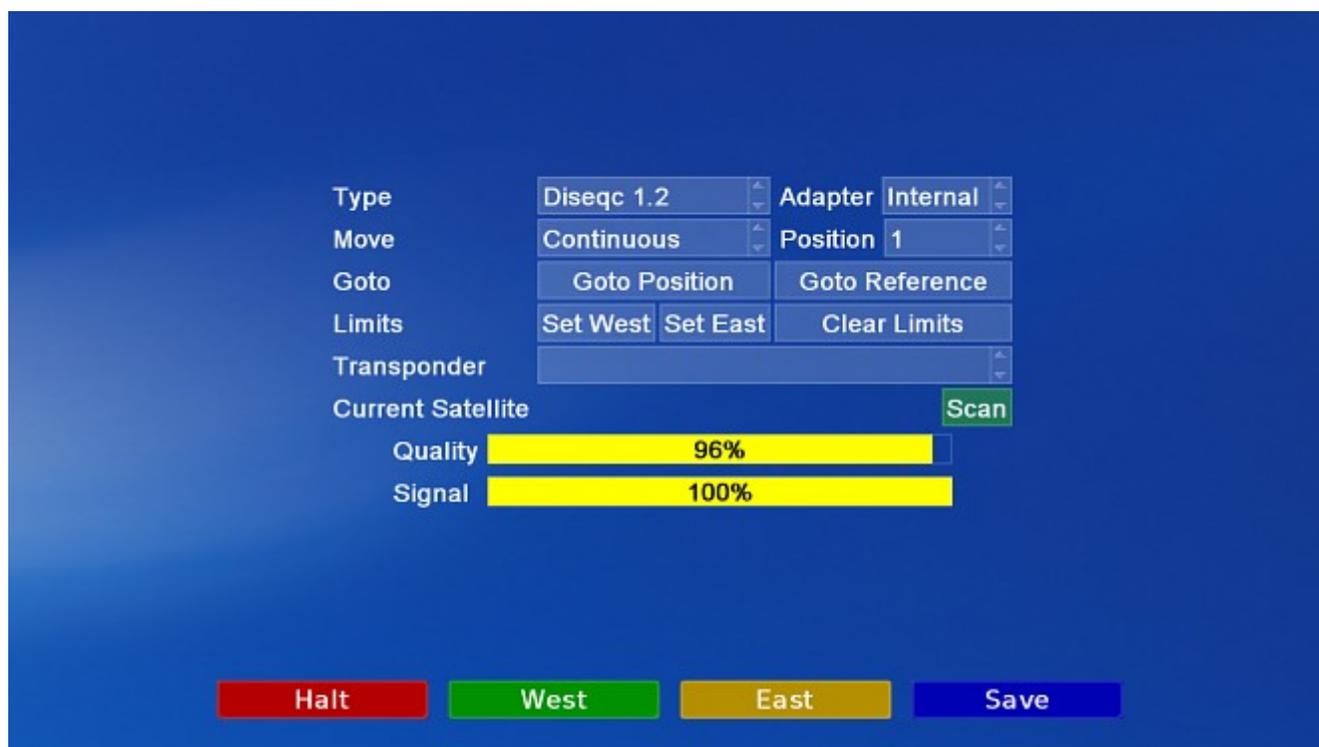The Scan button will take you to a screen to actually scan for channels.

The Transponder box allows you to choose the transponder the system is trying to tune to. Make sure you choose a transponder that is available at your location on that satellite. Not all transponders will work for all locations.

The quality and signal bars will vary according to signal strength. If a satellite is found, the quality bar will turn green and the Current satellite will show you which satellite you are aimed at.

Typically for a USALS setup you would simply set USALS for Type and choose the correct adapter. Then press the Goto Position button and then choose a transponder that is valid for your location.

If your motor is not dead on in alignment, sometimes changing the orbital position by a few 10ths will get you a better signal. Just add or subtract a 10th or 2 at a time and press the Goto Position after the modification. Compare the signal strength after each movement. It the strength goes up that's good if it goes down you are going in the wrong direction. Once you have found the best position, remember the difference between the actual orbital position and the position that gives you the best signal. You can then just add or subtract accordingly as you set up more satellites. You won't have to repeat this process.

Once you have the strongest signal press the Blue button to save the configuration to the CW3000HD.

Type	Diseqc 1.2	Adapter	Internal
Move	Continuous	Position	1
Goto	Goto Position		Goto Reference
Limits	Set West Set East		Clear Limits
Transponder			
Current Satellite			Scan
Quality	96%		
Signal	100%		

| Halt | West | East | Save |

Diseqc 1.2

For Diseqc 1.2 setup you will see a Move box and a Position. If your motor has been setup by a previous system and you know the position numbers for the satellite locations you can just choose the position number accordingly and things should work.

If you do not know the position number you can trial and error your way through the number or start over.

The Move box is the amount of movement that occurs when you tell the motor to move east or west. It can be set to continuously move or move a number of steps. Setting to continuous can make things difficult. Generally the easiest way to do things is to start from a known position like the reference position. That will correspond to the longitude of your location. So if you are at a longitude of 96 then using the Goto Reference will aim the dish at 96 degrees. From there you can use the Green and Yellow buttons to move west or east.

A good idea is to set it to a large step number and move the motor either east or west depending on the direction the satellite is located relative to the position of the dish. So, if you were aimed at the reference at 96 deg and you wanted to set up AMC3 at 87 deg You would move the motor to the east. The numbers go down as you move east and up as you move west.

When you are moving the motor it is not an instantaneous change. The motor takes time to move. If you are moving at 10 steps at a time give ~5 seconds between button presses. This way the motor can move and the tuner has time to see what it can find. Once you get close, decrease the number of steps to fine tune the setting. Once you have the strongest signal press the Blue save button to store the location to the motor and the CW3000HD. Once saved simply pressing the Goto Position button will move the motor to that position.

Scanning Etc.

Once you have found the satellite in question, move to the scan button and press enter. Here you would press the Green scan button to scan for channels. You may choose individual transponders to scan by picking them in the transponder box.

The progress will show how far in along the scan is. The Quality bar will change from yellow to green as transponders are locked and the signal and quality bars will change to reflect the signal strength and quality. Once the scan is complete press the Blue button to save the channels that were found.

The above process needs to be repeated for each and every satellite you wish to tune to. Initial setup for a diseqc 1.2 system can take a while. USALS is relatively quick.

Once you have setup and scanned all the satellites you wish back out the main screen where you chose the motor and press the blue button to save and create the config file that the satellite application will use to find the satellites as you switch channels. Skipping this step will have you watching a blank screen.

That should get you a working motor setup with your CW-3000HD.