

# How Can You Test H-H Antenna Actuators?

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*H-H antenna actuators are sophisticated components that can turn any mono-feed antenna into a reception system for all locally available satellites. All H-H antenna actuators are DiSEqC 1.2 compatible and accept USALS (DiSEqC 1.3) commands generated by satellite receivers. The heart of any antenna actuator is a so-called stepper motor with very high positioning accuracy. Nonetheless, the occasional rotten apple may get you into all sorts of troubles. We'll show you how to pick the best system.*

The weak spot of antenna actuators is the power transmission from the gearbox to the antenna rotor. Antennas are fairly heavy and thus create a one-sided load on the rotating axis. To counteract this load electric energy is required, and this is where many problems begin. There is only so much energy available because

the antenna actuator draws its power from the coax line which transmits the required voltage from the receiver to the LNB. Receivers are capable of providing approximately 500 mA, which is a scarce resource considering LNBs alone consume some 120 mA. If we do the maths it turns out that less than 400 mA are available for the antenna actuator.

There is fierce competition among manufacturers to offer the most efficient stepper motor so that power requirements are reduced. Yet, it is not the stepper motor itself that is to blame, but the attached gearbox which transmits the rotation movement to the antenna rotor.

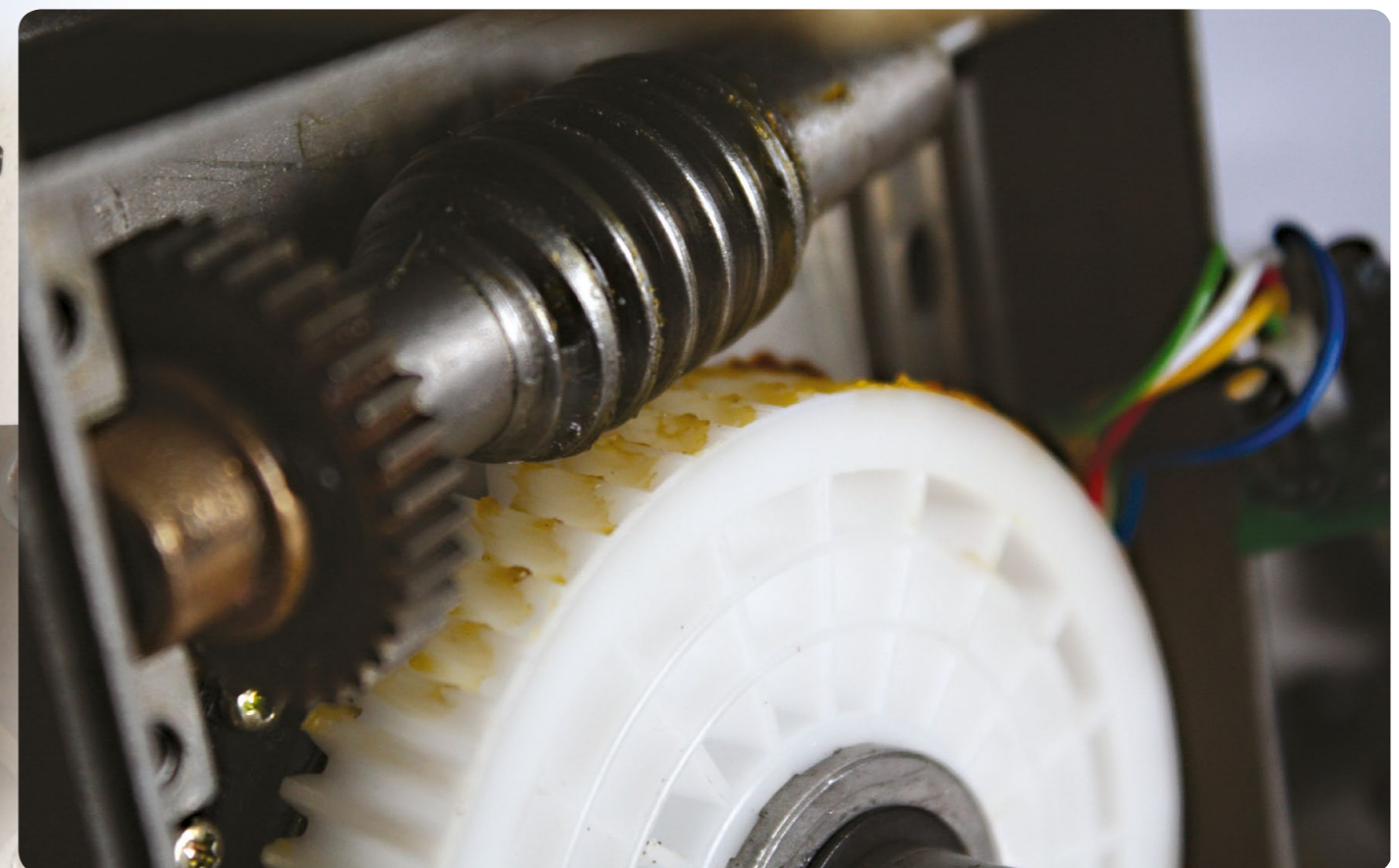
Most frictional loss occurs between the stepper motor's final shaft and the plastic gear ring of the antenna rotor against

which it is pressed. Most antenna actuators still use gear rings made of plastic, even though metal components are definitely on the rise. After all, adjustable contact pressure or fancy pressure mechanisms have sometimes not proven good enough.

The quality of gearbox engineering is definitely a deciding factor. You can of course always open the antenna actuator to closely inspect the gearbox, even though we advise against that as you will almost certainly forfeit any warranty that comes with the product. There are, however, other ways of checking an antenna actuator before it is installed.

## Manual test

Take the antenna actuator in your hand



■ Plastic gear ring and gearbox shaft

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■ Shaking the antenna rotor

and shake the antenna rotor. You should feel no play, as this would restrict positioning accuracy in everyday use.

## Electrical test

For this you connect the antenna actuator to a 14 or 18 V power source (inner conductor is plus) using a short coax cable. Connect an ampere meter to the circuit to find out the exact power consumption. Next, switch on the motor using the corresponding button(s) and have it perform a full East to West rotation. Power consumption must not peak above 400 mA at any position.

## Corrosion test – prior to installation

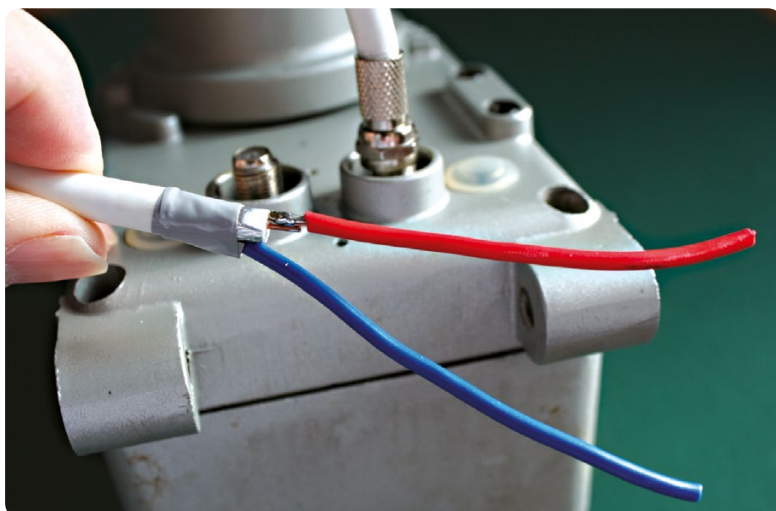
Right when unpacking the antenna actuator before installation you should make sure all fastening screws are made of high-grade stainless steel. If this is not the case it pays off to replace all screws so that you won't be faced with corrosion issues as early as after a single year of use.

## Range test

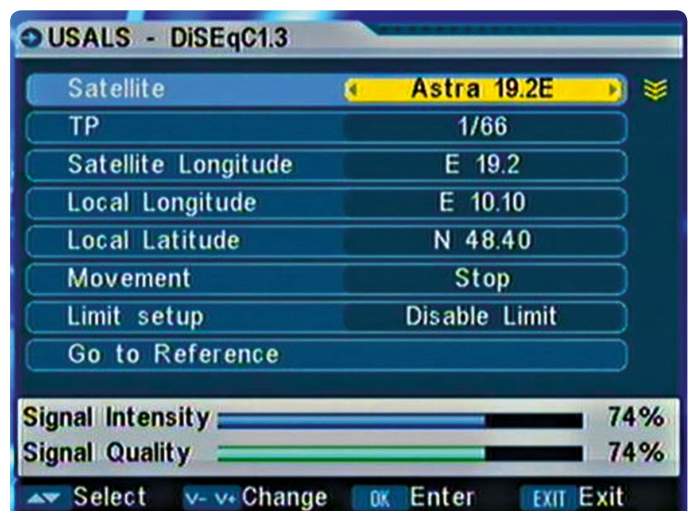
When performing the electrical test please make a point of having the motor rotate to both end positions so that you can be sure the antenna will be able to move to all available orbital positions.

## Is the antenna actuator GOTO X compatible?

The standard DiSEqC 1.2 protocol provides two options of storing satellite positions. One is the rather outdated and interference-prone internal memory of the antenna actuator (using the Store-*nn* and Goto-*nn* commands) which should only be used if the receiver itself cannot store satellite positions. More modern receivers (featuring the USALS and/or DiSEqC 1.3 specification) have their own memory for satellite positions and send Goto-*x* commands to the antenna actuator, complete with all other transponder details. Consult the manual of the antenna actuator to find out whether or not it comes with the Goto-*x* feature.



■ Hooking up the antenna actuator for the electrical test



■ Menu with USALS settings