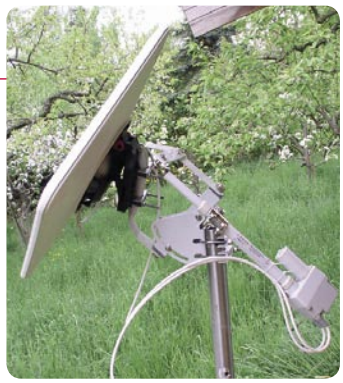
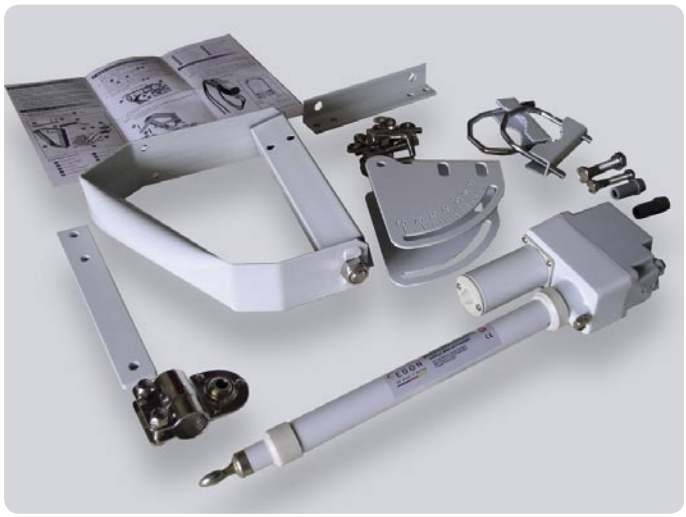


# A new DiSEqC motor for large satellite antennas?

**If the range of products** and equipment increases for a certain system this can be taken as proof that the system has been established as a new standard. The DiSEqC 1.2 protocol, which has made possible the automisation of antenna positioning, is a prime example for this assumption. With its "Mini Actuator", EDON is now introducing a new construction principle which has the potential of replacing the H-H mount. TELE-satellite has tested the mechanical aspects of one of the first antenna motors of this innovative series.



The EDON actuator comes as a kit with different components

## The "Mini Actuator" consists of various components that need to be assembled

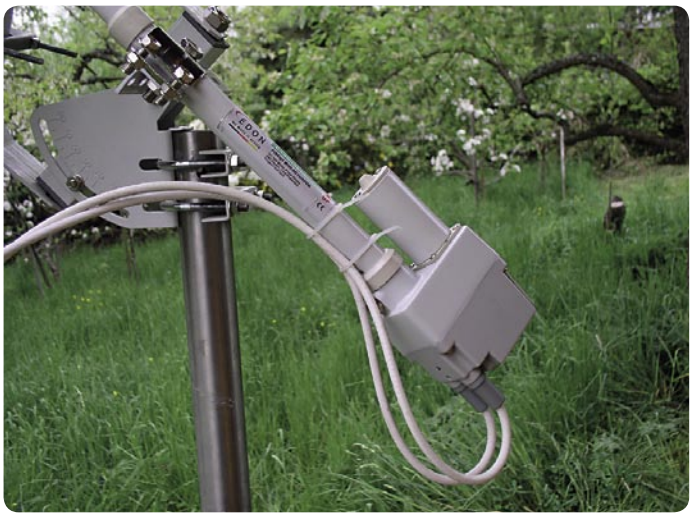
Thanks to the included manual the assembly of the individual components should be a hassle-free affair for everyone with some experience of putting together furniture bought at 'you-know-which' Swedish furniture stores. The user's manual is printed on an A4 page and with the help of a set of flat spanners (which are not included in the package) assembly should not take longer than 30 minutes.

## Assembling the components teaches how the system works

Of course the antenna is mounted parallactically in such a set-up, which means it rotates around its own axis which is aligned towards the polar star (hence the name polar mount). The motor, however, does not sit on this axis any longer. Contrary to the H-H mount the pivot axis is not fixed to the motor, which avoids unilateral wear and tear of the motor bearings due to the weight of the antenna. This new principle therefore allows moving larger and thus heavier antennas as well. The "Mini Actuator" we tested is currently limited to antenna sizes of up to 120 cm.

## The rotation is controlled by a driving rod

The centrepiece of the construction principle is the trapezoid antenna support, which is freely movable around the polar axis. As usual the antenna is fixed to a 38 mm pole with 30° offset incline to make sure its elevation scale is within the standard range.



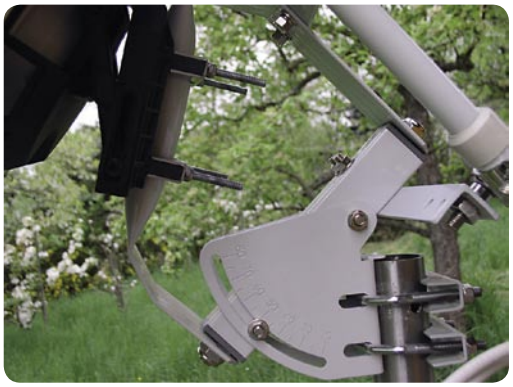
This drive motor moves the antenna support

The movement of the antenna is controlled by a laterally fixed drive motor, and there is no more multiphase motor on the axis. An intelligent control system moves the antenna support with the driving rod and aligns the dish to the selected satellite position. The simplicity of this approach is amazing – but how well does it really work?

## Driving rod control in press bearings

For the positioning of the antenna the thrust forces are led through two joints which are unfortunately designed as press bearings. We would have preferred frictionless bearings to minimise wear and tear which might eventually reduce the accuracy of the positioning process. Apart from all other aspects fric-

Mounting the EDON actuator on the top of the pole



The latitude scale is used to align the dish according to the geographic latitude of the location

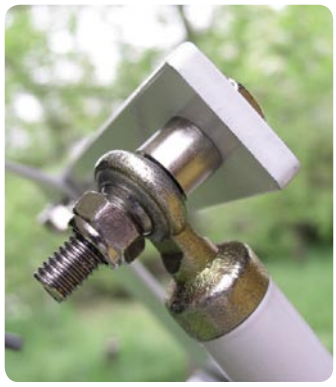
tion loss should also be avoided for the sake of minimising power consumption, otherwise some receivers with a 400 mA output might not be strong enough to support the system.

In same cases the driving rod might create a spatial problem because the cylinder which holds the rod points away from the antenna and is rather long. With a full East to West rotation of the antenna it performs an arc which needs up to 45 cm of space. This is why we recommend a rooftop installation with enough free space to all sides.

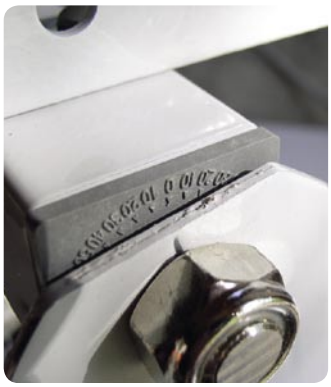
## Searching for satellites

Our test model was not yet equipped with a fully functional DiSEqC 1.2 control (a later test will be performed with this feature) and so we were not able to check the accuracy using receiver commands. However, with the buttons for manual control we were able to align the antenna to any desired position within the positioning range. We particularly appreciated the fact the individual buttons for left and right movement are available. The alignment scale on the pivot axis of the antenna support is difficult to read and should be made larger.

The positioning speed is about average and the motor does a quiet and reliable job. The driving rod construction is currently limited to an arc from 50° East to 50° West, which is sufficient for the reception of most satellites. Only die-hard DXers will miss the possibility to receive birds that are close to the horizon.



**The drive joint is designed as a press bearing**



**Rotation angle scale to determine the position manually**

## Test results

| | |
|---|---|
| **Power supply** | 220 to 320 mA |
| **Switch-on pulse** | >500 mA |
| **Positioning range** | 50° East to 50° West |
| **Speed** | 0,9 °/sec at 19V and 1,2 °/sec at 14 V |
| **Motor noise** | quiet |
| **Mounting pole** | 38 to 65 mm diameter |
| **Mounting type** | on pole top, not height adjustable |
| **Distance from wall** | West 20 cm, South 35 cm, East 45 cm |
| **Antenna offset** | 30° |
| **Antenna feed** | 38 mm diameter |

## Expert conclusion

**An interesting concept which seems to be fit for the future. We should definitely keep an eye on it. Even though not all features were fully functional at the time of testing there should be no doubt that future upgrades will shortly be available.**

**Heinz Koppitz**
TELE-satellite
Test Center
Germany