

Antenna Sets for Satellite Reception



* only included in HDS 166 plus

About This Guide

This document is part of the product.

- ▶ Read these instructions for use before the initial use of the antenna set.
- ▶ Perform all operating steps described in the manuals in the specified sequence.



Keep these instructions for future reference. Pass them on to any new owners when selling or transferring the unit.

For the most up-to-date version of this document, go to www.kathrein-ds.com.

Intended Use

The antenna sets HDS 166 and HDS 166 plus are suited for manually adjustable satellite reception.

If they are used in any other way or if the provisions of this document are disregarded, the guarantee and warranty will become void.

Scope of Delivery

HDS 166

- BAS 66 Skew planar antenna and instructions for use
- Sat tripod mast with 3 securing pegs and carry bag
- Adapter joint, star grip screws pre-mounted
- Coaxial cable with pre-assembled F-type conn., 15 m
- Instructions for use for HDS 166 / HDS 166 plus
- Carry bag for antenna and accessories

HDS 166 plus

- BAS 66 Skew planar antenna and instructions for use
- Sat tripod mast with 3 securing pegs and carry bag
- Adapter joint, star grip screws pre-mounted
- Coaxial cable with pre-assembled F-type conn., 15 m
- Instructions for use for HDS 166 / HDS 166 plus
- Carry bag for antenna and accessories
- **HDZ 66 Skew elevation indicator**
- **CAP converter**
- **12 V connection cable**
- **Button**
- **UFZ 131 WLAN USB adapter**

Transport and Storage

- ▶ Transport and store the device only in the permitted temperature range between -25 and +55 °C. For HDS 166 plus, the permitted temperature range of the CAP converter and UFZ 131 is between +5 and +40 °C.
- ▶ After the original packaging has been opened, it is possible to use the enclosed carry bags for storage and transportation.

Selecting the Antenna Location

Select a location for the sat tripod mast from which the antenna has a clear line of sight to the satellite.



Risk of injury due to the sat tripod mast with the attached satellite antenna and antenna cable! Trip hazard!

- ▶ Position the sat tripod mast and lay the antenna cable in such a way that neither you nor anyone else can trip over it or be obstructed or put at risk in any way.

Installing the Antenna Set

Erecting the sat tripod mast (unfolding, aligning and securing the sat tripod mast)

1. Loosen the star grip screw (① in Fig. 1).
2. Fold out the legs ⑤ of the sat tripod mast. To do this, push the joint head ② downwards until the struts ③ are horizontal.
3. Tighten the star grip screw.
4. Position the sat tripod mast at its chosen location.
5. Align the sat tripod mast such that the mast tube ④ is vertical.

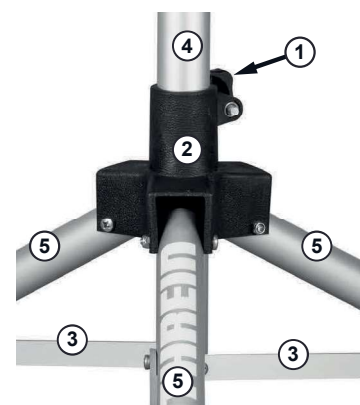


Fig. 1: Mast tube and legs



Fig. 2: Holes in the tripod mast legs

Risk of injury due to the sat tripod mast tipping over in a strong wind!

- ▶ Be sure to drive the securing pegs sufficiently firmly into the ground to provide an anchor.

6. Secure the sat tripod mast using the securing pegs supplied. Do this by inserting the securing pegs into the ground through the holes in the tripod mast legs (A in Fig. 2).

Preparing the extension

1. Loosen the star grip screw (© in Fig. 3).
2. Pull the extension © out until two engagement pin holes are visible.
3. Insert the engagement pin sufficiently far into the lower of the two holes until both grooves are engaged with the tube wall, see Fig. 4.

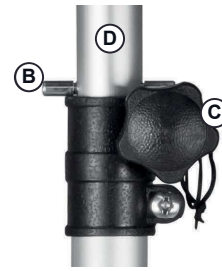


Fig. 3: Mast tube and extension



Fig. 4: Correct position of the engagement pin

Mounting the adapter joint

1. Fit the adapter joint on the mast tube as shown in Fig. 5.
2. Tighten the star grip screw (① in Fig. 5).



Fig. 5: Adapter joint

Fitting the antenna and extending the extension to the required height

1. If you want to use the HDZ 66 inclinometer, it has to be installed now as described in the enclosed instructions.



Alignment of the BAS 66 Skew antenna using the HDZ 66 inclinometer is only possible in connection with the CAP converter included with the HDS 166 plus or an alphasatronics SL line TV with a Kathrein control.

2. Mount the BAS 66 Skew antenna on the adapter joint as described in the enclosed instructions for use. If necessary, request a second person to assist you to hold the antenna steady until it is clamped on to the mast.
3. With the antenna mounted, use one hand to pull out the extension to the desired height, taking care not to exceed the maximum height.



Risk of injury due to pulling the extension completely out of the mast tube!

- ▶ Do not pull the extension out of the mast tube further than up to where the 5th pin hole is just visible. The extension must not project more than a maximum of 62 cm out of the mast tube.

4. With the other hand, insert the engagement pin sufficiently far into the engagement pin hole for the desired height, until both grooves are engaged with the tube wall (see Fig. 4).
5. Allow the extension to slowly slide down into the mast tube until the engagement pin rests on the top of the tube.
6. Align the antenna in the direction of the satellite.
7. Slightly tighten the star grip screw (© in Fig. 3).

Connecting the Antenna Cable (HDS 166)



Risk of injury due to the antenna cable, particularly trip hazard in darkness!

- ▶ Lay the antenna cable in such a way that neither you nor anyone else is obstructed or put at risk.

1. Connect the antenna cable to the antenna as described in the BAS 66 Skew instructions for use.
2. Lay the antenna cable from the antenna to the receiver or to a TV set with an integrated receiver.
3. Connect the antenna cable to the receiver as described in the receiver instructions for use.
4. Turn on the receiver and the TV set.
5. Select a channel.

Skew Adjustment

Explanation

The BAS 66 Skew planar antenna is mounted centrally on the skew adapter plate when delivered. This setting does not necessarily have to be changed in Central Europe to receive satellites with orbital positions in Central Europe.

In the peripheral regions of the southwestern and southeastern regions, the reception can be improved by adjusting the skew.

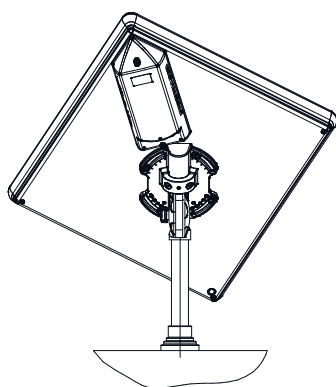
Change the skew settings of the satellite antenna as follows:

Country of stay	ASTRA 19.2° East	HOTBIRD 13° East	ASTRA 23.5° East	ASTRA 28.2° East
Albania	8	8	3	-2
Belgium	-5	-7	-8	-11
Bulgaria	14	13	9	4
Germany	0	-2	-4	-4
England	-7	-3	-10	-12
France	-9	-10	-11	-15
Greece	14	14	8	3
Italy	-3	-2	-5	-10
Norway	7	2	5	3
Austria	2	0	-2	-6
Portugal	-20	-20	-20	-20
Sweden	6	3	4	1
Spain	-17	-18	-20	-20
Turkey	20	18	18	12

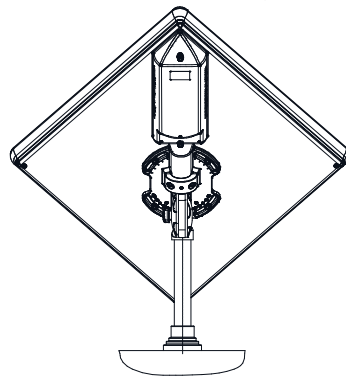
How to adjust the skew

In the following description, it is assumed that the BAS 66 Skew has been correctly erected and mounted.

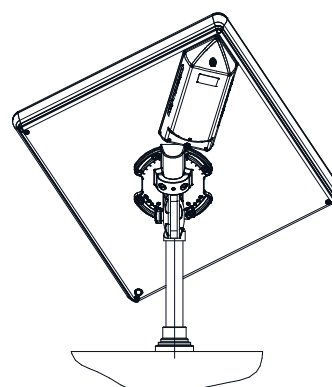
1. Loosen the fixing screws of the antenna with a suitable hex key (size 5).
2. Set the planar antenna to the desired degree
3. Retighten the hexagon socket screws with a torque of 7 Nm



Mounting -20°



Mounting 0° (Standard)



Mounting +20°

Using the inclinometer

The determination of the planar antenna's inclination HDZ 66 (order no. 20410057) is only supported in the standard setting (mounted centrally on the skew adapter plate -0°). To adjust the elevation using the inclinometer HDZ 66, the planar antenna must first be positioned centrally. Once the satellite has been found, the reception can be optimised by adjusting the skew.

In contrast to this, the successor HDZ 66 Skew (order no. 204500002) allows the inclination to be determined even with the skew set. A central alignment of the planar antenna is no longer necessary.

Manual Antenna Alignment (HDS 166)

The BAS 66 Skew planar antenna can easily be aligned with the desired satellite using a smartphone with compass app and spirit level app. Depending on the smartphone and the operating system, the apps might be pre-installed.

✓ A compass and spirit level app is installed on your smartphone.

1. Look up the setting values in the enclosed azimuth/elevation table for the BAS 66 Skew planar antenna.
2. Start the spirit level app.
3. Place the smartphone on the planar antenna.
4. Set the inclination (elevation) of the antenna as follows:
 - a) Loosen the star grip screw (① in Fig. 6) so that the antenna angle can be changed without resistance.
 - b) Set the desired angle. If no app is available, use the scale on the adapter joint.
 - c) Tighten the star grip screw (① in Fig. 6).
5. Set the lateral alignment (azimuth) of the antenna as follows:
 - a) Determine the satellite position using the compass app (in an iPhone, for example, it is on the second page of the compass app). For example: The satellite position for Astra 19.2° East in the Munich area is 169.80°.
 - b) Loosen the star grip screw on the adapter joint (① in Fig. 5).
 - c) Turn the antenna in the direction which was determined in step a).
 - d) Tighten the star grip screw after the picture has appeared and the best image quality has been achieved.



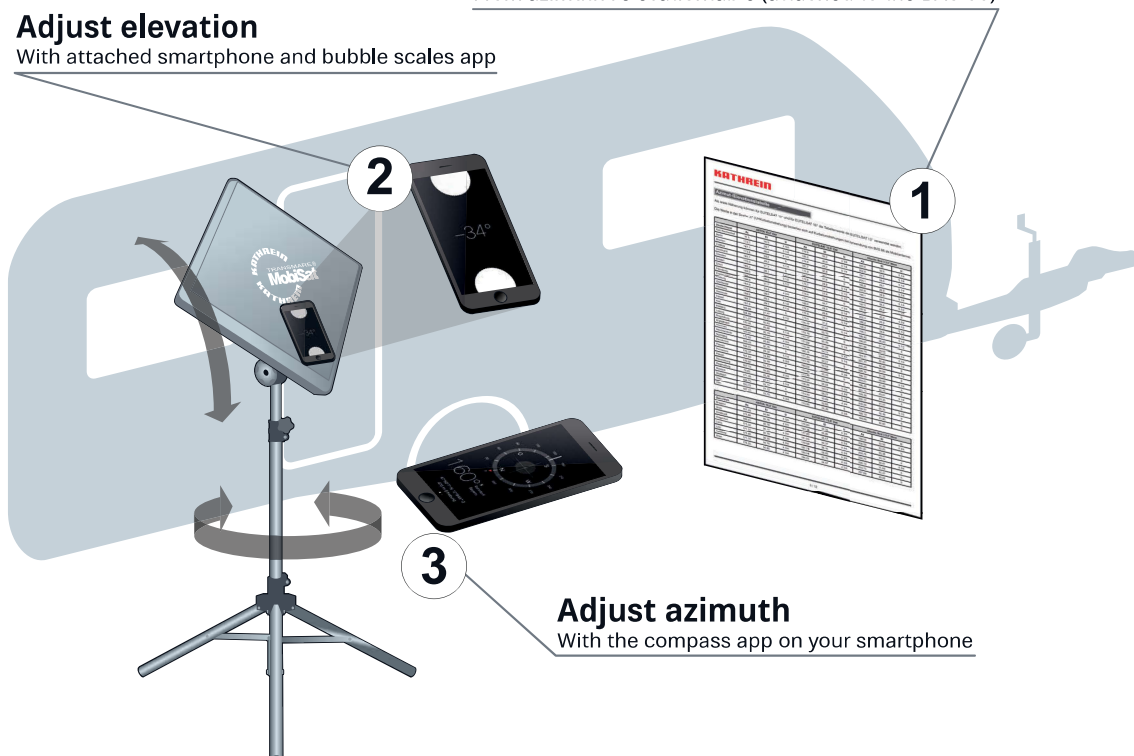
Fig. 6: Star grip screw on the adapter joint

Setting values for location

From azimuth-/elevationtable (attached to the BAS 66)

Adjust elevation

With attached smartphone and bubble scales app



Adjust azimuth

With the compass app on your smartphone

Fig. 7: Aligning the HDS 166 antenna



It is also possible to align the BAS 66 Skew antenna using the HDS 66 display unit (separately available, order no. 20410060)

Connecting the CAP Converter to 12 V (HDS 166 plus)



Danger to life from electric shock when touching electrical installations!

- ▶ For installation of the 12 V connection cable (included) contact a specialist dealer.

Connecting the Antenna Cable (HDS 166 plus)



Risk of injury due to the antenna cable, particularly trip hazard in darkness.

- ▶ Lay the antenna cable in such a way that neither you nor anyone else can be obstructed or put at risk.

1. Connect the antenna cable to the antenna as described in the BAS 66 Skew instructions for use.
2. Connect the other side of the antenna cable to the **IF INPUT** socket (see ② Fig. 8) of the CAP converter.



If you do not want to install the CAP converter permanently in your caravan or motorhome and connect it to the 12 V supply, you can use the separately available power supply unit (order no. 1683660) to connect it to a 230 V supply.

Semi-automatic Antenna Alignment (HDS 166 plus)

The HDS 166 plus antenna set enables the alignment of the BAS 66 Skew planar antenna in combination with the free **CAPcontrol app for Android and iOS**.

- ✓ The **CAPcontrol** app is installed on your smartphone.
 - ✓ The UFZ 131 WLAN USB adapter is connected to the USB socket of the CAP converter before the CAP converter is switched on.
 - ✓ The CAP converter is connected to 12 V and switched on.
 - ✓ The push button is connected to the **Control Unit** socket on the CAP converter.
1. Connect your smartphone/tablet to the WLAN network **KATHREIN_.....** (the network key (PIN) can be found on the sticker on the top side of the CAP converter).
 2. Start the **CAPcontrol** app and select **SatFinder** from the menu.
 3. In the drop-down menu, select the satellite with which the antenna is to be aligned.
 4. Set the elevation of the antenna as follows (see Fig. 11):
 - a) The app displays the current antenna elevation and indicates whether the antenna angle should be steeper or flatter. This information is also given by voice output: **steiler** (steeper) or **flacher** (flatter).
 - b) Loosen the star grip screw (Ⓢ in Fig. 6).
 - c) The correct antenna elevation is indicated in the app by a green tick next to Elevation and by voice output (**Stop**).
 5. Set the azimuth of the antenna as follows (see Fig. 12):
 - a) If the antenna is not moved for two seconds, the voice output gives the following instruction: **Antenne Richtung Süden drehen** (turn the antenna to the south).
 - b) Turn the antenna to the south until a second green tick appears and the voice output gives the following information: **Antenne empfangsbereit** (antenna ready for reception).

Live TV with the HDS 166 plus



The BAS 66 Skew is a TWIN antenna. This means that two devices can be operated at the same time. Live TV can be watched on two TV sets or on a TV set and a mobile device (mobile phone, tablet, notebook) simultaneously (see Fig. 9).

When the antenna alignment is completed, there are two options for displaying the TV picture.

Live TV on a TV set/receiver

- Connect the antenna input of your TV set/receiver and the **IF OUTPUT** (see ① Fig. 8) port of the CAP converter to a suitable SAT connection cable (not included).



Risk of malfunction!

- ▶ Do not interchange the cables.

- The CAP converter starts automatically as soon as the TV set/receiver is turned on. It goes into standby mode as soon as the TV set/receiver is switched off.

Live TV on a mobile phone, tablet or notebook



The CAP converter is ready for operation if the LED on the push-button cable is green. If the LED is permanently red (CAP converter in standby), press the push-button on the cable once to put the converter into operating mode.

- ✓ Your smartphone/tablet is connected to the **KATHREIN_.....** WLAN network (the network key (PIN) can be found on the sticker on the top side of the CAP converter).
- ✓ The **CAPcontrol** app is opened and the item **TV and Radio** is selected from the menu.
- Live TV on Android devices:
 - Click on the programme you want to watch
 - A small preview window appears in the top left corner showing the selected programme
 - Click on the preview window to get into full screen mode
 - Swipe from left to right or from right to left to switch to the next or previous channel
 - Swipe from top to bottom or from bottom to top to turn the volume up or down
 - Click on the Back button to return to the channel list

- Live TV on iOS devices:



The **VLC for Mobile** app is required for watching live TV on iOS devices.

- Click on the programme you want to watch
- The VLC player is started and displays the selected programme
- Click on the Back button to return to the channel list

- Live TV on a notebook:



The VLC player must be installed on your notebook. Also required is the **Astra19_2.m3u** file, which can be downloaded from www.kathrein-ds.com.

- Start the VLC player on your notebook
- In the menu, select **Media -> Open file ...** and click on the downloaded m3u file
- The playback starts automatically with the “Das Erste” channel
- In the menu, select **View-> Playlist** to display the channel list and double-click to select the desired channel
- Double-click on the preview window in the bottom left corner to get into full screen mode
- In full screen mode, click on the N or P button to switch to the next or previous channel

More Information About the CAP Converter

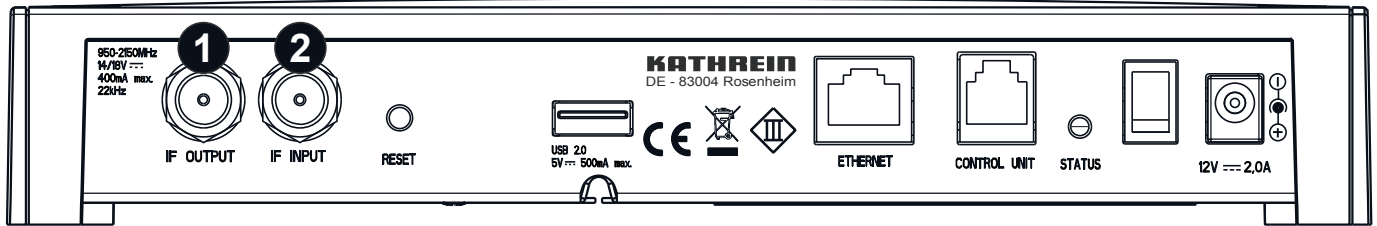


Fig. 8: Connections on the CAP converter

LED status indicator on the CAP converter/external push-button

LED permanently red	CAP converter in standby
LED permanently green	Satellite has been found
LED flashes green	Connection to antenna is OK, no satellite has been found
LED flashes red	No connection to the antenna



To return the CAP converter to normal operation:

1. Check the cause of error.
2. Press the push-button once to acknowledge the error. The CAP converter then returns to normal operation.



You can wake up the CAP converter from standby mode by switching on the TV set/receiver or by pressing the external push-button.

Connection Examples and Alignment

Twin operation

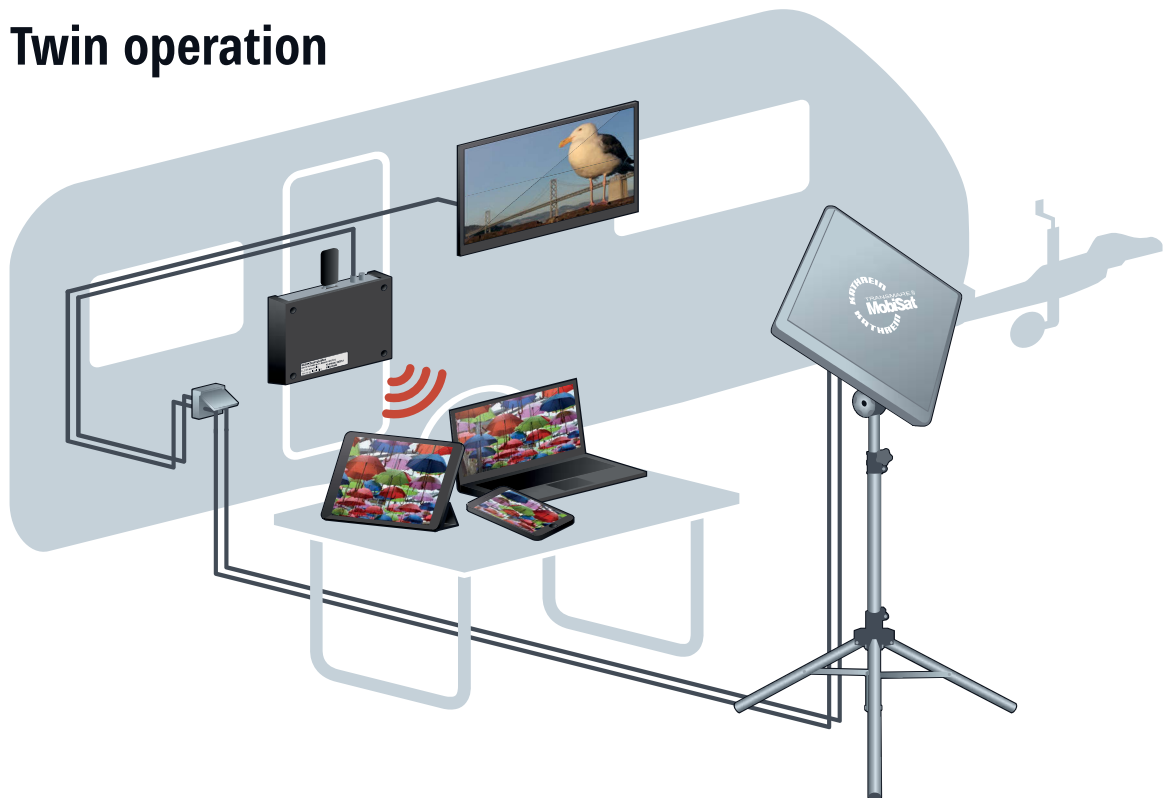


Fig. 9: Twin operation with the HDS 66 plus

Streaming on laptop, tablet oder smartphone



Fig. 10: Live TV on mobile devices with the HDS 166 plus

Adjust elevation

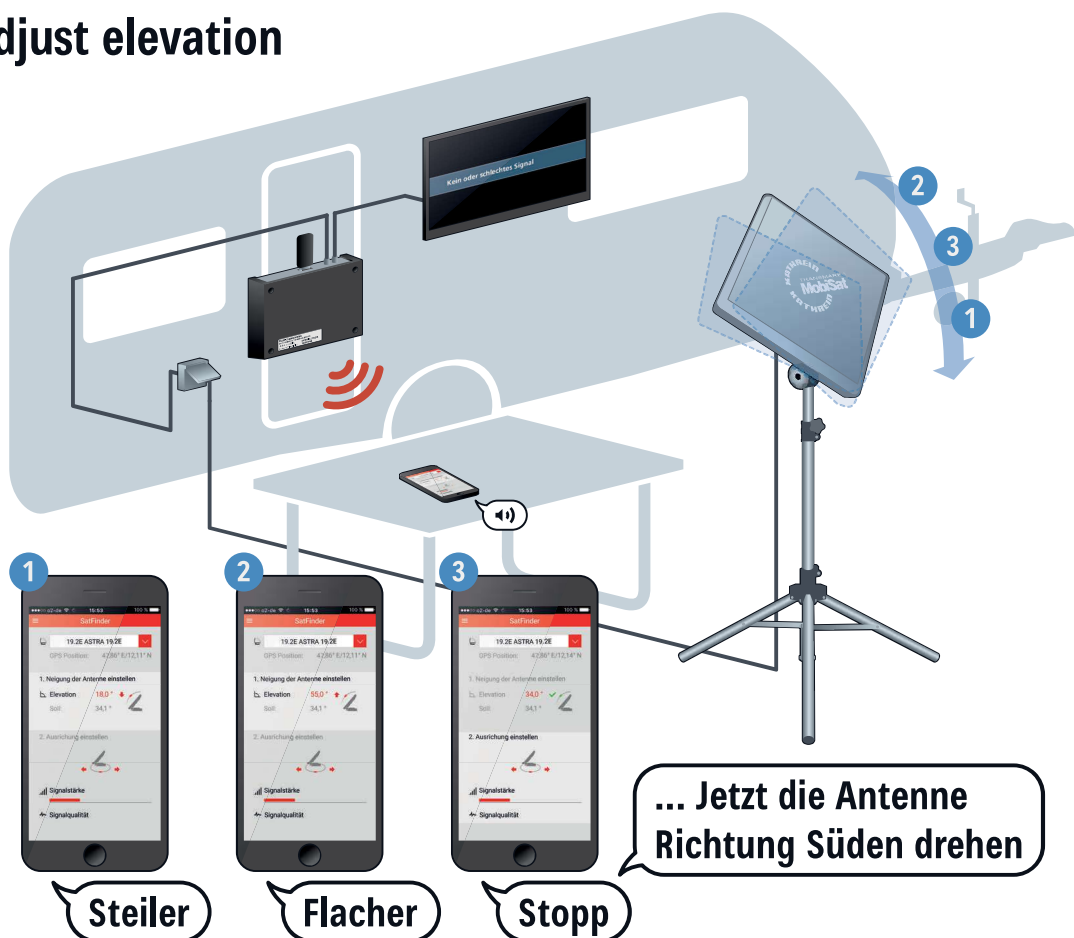


Fig. 11: Setting the elevation

Adjust azimuth

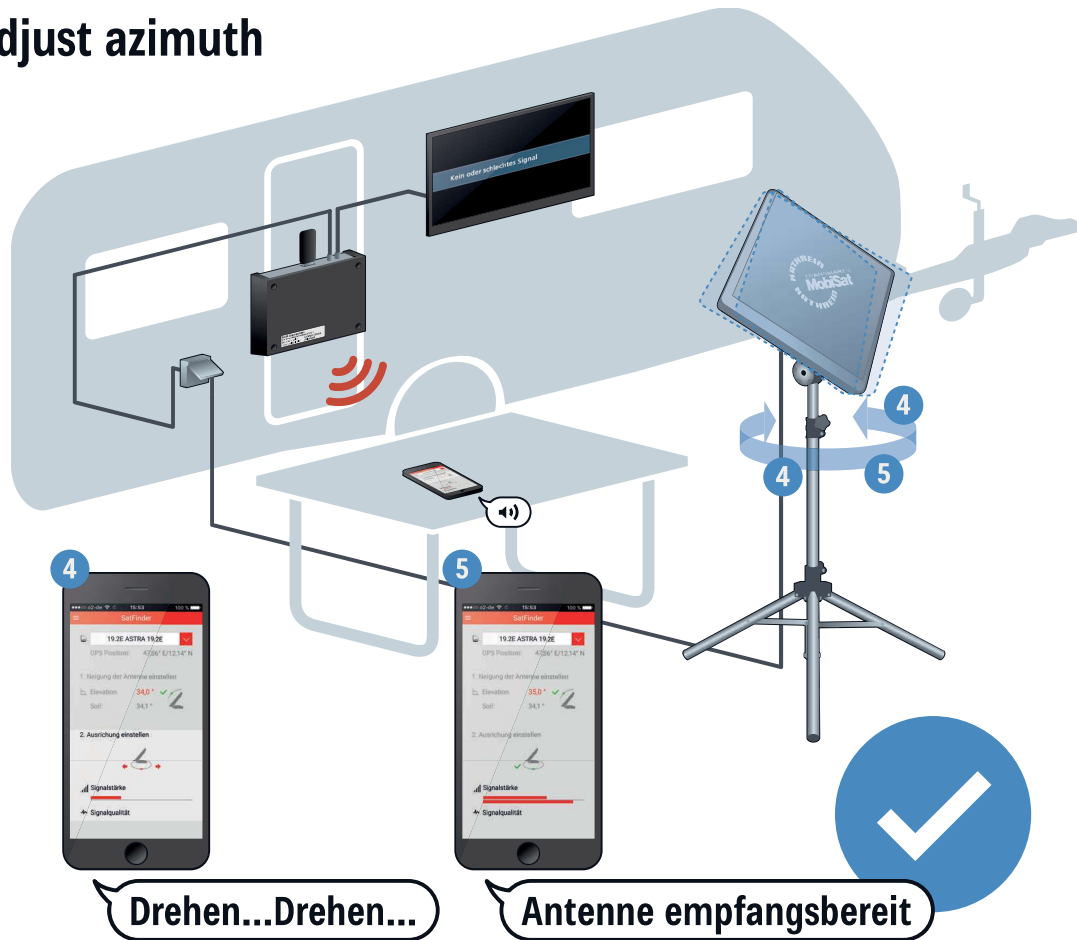


Fig. 12: Setting the azimuth

Disassembling the Antenna Set



Risk of injury due to the sat tripod mast with the antenna fitted tipping over!

- ▶ If necessary, request a second person to assist you if, contrary to these instructions, you fold up the sat tripod mast with the antenna still attached.



Crush hazard when pushing the tripod mast legs together!

- ▶ When pushing the tripod mast legs together, hold the tripod mast by the mast tube above the joint head.

1. Loosen the star grip screw (① in Fig. 5).
2. Remove the antenna together with the adapter joint from the sat tripod mast. If necessary, request a second person to assist you to hold the antenna while you remove it from the tripod mast.
3. Loosen the star grip screw (© in Fig. 3).
4. Pull out the extension slightly (© in Fig. 3).
5. With your other hand, remove the engagement pin ⑥ from the extension.
6. Insert the pin into the second pin hole from the top.
7. Allow the extension to slowly slide down into the mast tube until the engagement pin rests on the top of the tube.
8. Fold in the tripod mast legs.
9. Tighten the star grip screw on the sat tripod mast.

Technical Data

Type	Unit	HDS 166	HDS 166 plus
Order number		20310052	2030000002
Dimensions, sat tripod mast			
Height	mm	1500 max.	1500 max.
Stand diameter	mm	1200 max.	1200 max.
Tube diameter	mm	35	35
Dimensions, antenna BAS 66 Skew (H x W x D)	mm	495 x 495 x 120	495 x 495 x 120
Weight			
Tripod mast, approx.	kg	2.4	2.4
BAS 66 Skew with the adapter joint, approx.	kg	6.4	6.4
CAP converter	kg		0.574
Package dimensions (H x W x D)	mm	792 x 177 x 1030	792 x 177 x 1030

Repair and Replacement

CSS Caravan-Sat-Service GmbH

Repair Centre

Bahnhofstr. 110

83224 Grassau

Germany

Phone +49 8641 69984 -27

Fax +49 8641 69984-29

Email: service@css-grassau.de

<http://www.css-grassau.de>

Technical Customer Support

KATHREIN Digital Systems GmbH

Phone +49 731 270 909 70

Email: support@kathrein-ds.com

Camping & Caravan Customer Support

If, after reading this manual, you have outstanding questions or cannot solve a problem, contact our Camping & Caravan customer support at:

www.kathrein-ds.com ▶ [Support](#) ▶ [Servicestellen](#) ▶ [Camping & Caravan](#)

Disposal



Electronic equipment

Electronic equipment is not domestic waste – in accordance with directive 2012/19/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL dated 04th July 2012 concerning used electrical and electronic appliances, it must be disposed of properly. At the end of its service life, take this unit for disposal at a designated public collection point.

