



Please read through and understand **all** instructions **before** proceeding with your install. If you retune/rescan your freesat box the channels on your box may be set into a completely different order and if you are not correctly pointing at the right satellite you may delete all your channels and replace with foreign/wrong channels.

If you find it hard to line up your dish to the correct satellite have someone inside looking at the TV or signal monitor on your box, once you think you have a satellite locked using your satellite finder try the channels on your satellite receiver/box. If you are unable to view any of the channels **DONT** retune/rescan your box as you are probably on the wrong satellite! Simply move the satellite SLOWLY left and right and up and down until you pick up the correct satellite (Astra 28.5 degrees + Eurobird)

If you have any other problems or require further help, please call or email us on: [Websales@tradeworks.tv](mailto:Websales@tradeworks.tv) and we will endeavour to respond as quickly as we can.

Thank you very much for choosing to shop with us, we do hope you have had an enjoyable and rewarding experience.

# HOWTO: FREESAT SATELLITE TV - A DIY INSTALLATION GUIDE

## Synopsis

A straightforward introduction for the DIY enthusiast to assist with understanding how to receive FreeSat TV channels (a subscription free digital TV service in the UK). The aim of this guide is to provide information about the FreeSat digital TV service and more importantly has been written to give a starting point for learning about how to install FreeSat yourself. Fitting Freesat is within the reach of anyone with basic DIY skills, so we hope this guide will help get you started.

## About FreeSat

FreeSat is a subscription free digital satellite TV service available in the UK. There is no monthly subscription charge for receiving FreeSat. FreeSat is the name used by a collaboration between the BBC and ITV, and confusingly is also the same name used by Sky (BSkyB) for their subscription free digital TV service.

FreesatfromSky is the name given to the ability to receive Free To Air (FTA) channels with a Sky satellite receiver. If you have a satellite dish and a Sky receiver it is possible to receive most of the FTA channels for free without a Sky viewing card. For a one off fee of £20 you can obtain a viewing card from Sky that additionally allows you to watch Channel 4, Five and Sky Three. Sky receivers can be purchased very cheaply second hand through eBay and elsewhere.

In May 2008 the BBC & ITV launched a new digital TV service also called Freesat, which offers all of the channels available on the terrestrial Freeview TV service (available with an aerial), with the added bonus of High Definition TV channels from the BBC and ITV (an HD receiver is required to watch the High Definition channels). No subscription or viewing card is required for the BBC/ITV FreeSat service.

Both the FreesatfromSky and the BBC/ITV Freesat service are transmitted from the same Astra 2/Eurobird group of satellites (located at the same position in the sky - 28.2° East of due South), so if you have a satellite dish setup for one of these services you can just swap between receivers without having to change the position of the dish.

## Introduction

Installing a FreeSat dish and cabling is normally a relatively easy job for anyone who is happy with basic DIY jobs around the house. No technical experience is required. The most difficult part is likely to be physically mounting the dish on the building. Initially it can be a bit tricky to get the dish aligned to receive the correct signal, but with a bit of patience, a compass and a satellite finder it can be completed without any specialist knowledge.

## Installation Steps

Below is a brief summary of the main tasks involved when setting up a FreeSat TV system:

- 1) Locate a suitable position for the satellite dish - the dish needs a clear 'line of sight' view of the south eastern horizon with the minimum of obstructions from buildings, trees, etc.
- 2) Run high quality coaxial cable between the dish and the satellite receiver, and fit F type connectors at each end - ideally the cable run should be continuous without joints, as any break in the cable will introduce signal loss.
- 3) Attach the satellite dish to the building (see the section below for options when mounting the dish).
- 4) Align the satellite dish to point at the Astra 2/Eurobird group of satellites (28.2° East) - a compass and satellite finder is handy for this. It may also be useful to have someone inside checking the signal at the receiver to ensure you have got the right satellite!
- 5) Finally, sit back and enjoy a cold beer while you and your family enjoy High Definition TV for free!

## Choosing a Dish Mounting Site

Finding a suitable satellite dish mounting location and actually fixing the dish to the building can be the toughest part of the installation. As mentioned above the dish needs to be mounted in a location with a clear view of the south eastern horizon. Any buildings, trees or other obstructions in the way between the dish and the satellites signal will cause interference or loss of signal. Normally the higher the dish is mounted on the building the less obstructions to the signal.

If the view of the horizon is obstructed by trees, bear in mind that trees move when the wind blows and have different levels of leaf coverage during the year. Moving trees and increased leaf growth can cause havoc with a satellite signal.

## Satellite Dish Mounting Options

There is a choice when it comes to satellite dish mounting methods. Below is a brief summary of the available options:

Built-in wall mounts - the standard Sky/FreeSat 44cm and 60cm mini-dish comes with a built-in wall mount that can be bolted securely to external walls. The mount features a swinging arm that can be used to point the dish in the right horizontal direction. This is the simplest and easiest way to mount a satellite dish.

Pole mounted -

## Pointing the Dish at the Correct Satellite

Assuming the dish is fixed to a mount and that you have run coaxial cable between dish and Freesat receiver, the final step is to align the dish so that it is pointing at the correct satellite group.

There are number of satellites in orbit over the Equator in Africa that are transmitting over Europe, but to receive a Freesat signal you need to find the Astra group of satellites located at 28.2° East from due South. From that group of satellites we are particularly interested in the signal from Astra 2D, which is aimed directly over the UK and parts of Ireland. Interestingly the Astra group is currently the first satellite group you will find as you swing a dish from East to South, which makes it a little easier to find.

Also located at 28.2° East is the Eurobird 1 satellite, which transmits the FreeSat Electronic Programme Guide (EPG) and the software for Freesat receivers.

In addition the dish needs adjusting to point at the correct elevation in the Sky. In other words the dish needs to point at the right height in the sky so that it collects a signal from the correct satellite. The standard FreeSat or Sky mini-dish is actually an offset focus type dish, which means that the dish reflects the signal down towards the LNB. This offset focus design means the dish is normally mounted in an upright vertical position for most locations in the UK, rather than being pointed up into the sky.

## Steps for Aligning a Satellite Dish

Below are some simple steps that should help make it easier to align a satellite dish:

### Step 1

Ensure the satellite feed cable is connected to the satellite receiver at one end and connected to the LNB on your mounted dish at the other end - you may want to connect a satellite meter inline on the cable to assist with location and fine tuning of the best signal (a short patch lead with F connectors at each end will be handy for connecting up a satellite meter inline to the satellite feed cable in this way).

**Important Note:** Don't turn on the satellite receiver until you have connected up the coaxial cable. Satellite receivers supply a small voltage (18V) up the satellite feed cable for controlling the LNB, so make sure you connect everything up before turning the satellite receiver on, otherwise you could damage your receiver.

### Step 2

Turn on the Freesat receiver, select channel BBC one (101).

### Step 3

Go back to the dish with a compass and point the dish so that it is aimed directly South. If you are in the UK and it's a standard FreeSat/Sky mini-dish ensure the rim of the dish is vertical, i.e. the rim is standing upright (see the diagram below). Next VERY slowly move the dish to the East until your satellite meter indicates a strong signal. It's likely you will find a number of strong signals with other values before you get to the 28.2° East group of satellites. Your freesat box from [www.Tradeworks.tv](http://www.Tradeworks.tv) is pretuned with the UK Freesat channel listing. Once you have the correct satellite your TV channels will suddenly start to work. If the picture breaks up, you will need to slightly adjust the dish to get the best possible signal.

### Step 4

Once you have the receiver locked on to the correct satellite the final step is to fine tune the position of the dish to obtain the best signal strength. Move the dish on the mount in very small increments first left and right horizontally and then up and down vertically to get the best possible signal strength.

This is where the satellite meter becomes especially useful as you can fine tune to your heart's content. Otherwise you will need to rely on the Signal Strength and Signal Quality values displayed on the TV screen, which obviously requires two people.

## Troubleshooting Dish Alignment

If you are getting a no signal message displayed even though the meter says you have a strong signal then it's likely you are pointing the dish in the wrong direction, either horizontally or vertically. You may also be moving the dish too fast and moving it straight past the signal before the satellite receiver gets chance to lock on.

An alternative method of finding the correct Astra 2D signal is to start the swing of the dish from as far East as the dish will point. Sweep the dish towards the South until you find the first strong satellite signal. The Astra satellite group at 28.2° East is currently the first signal you should find. This may be easier than starting the sweep from due South.

A satellite meter is especially useful if you are working alone as you can first find a signal, make small adjustments to get a good signal and then go and check on the TV screen to see if the satellite receiver is locked onto the correct satellite.

You will also need tools for cutting and stripping cable, mounting and aligning the dish, etc., e.g. a sharp craft knife (Stanley Knife), cable cutters, power drill, screwdrivers and spanners.

## **Important Safety Notes**

If your satellite dish needs to be mounted at some distance from the ground then please be careful and ensure you follow good safety practice.

If you need to use a ladder please read the Government Health & Safety Executive leaflet Top Tips For Ladder Safety (<http://www.hse.gov.uk/pubns/indg405.pdf>) before starting work.

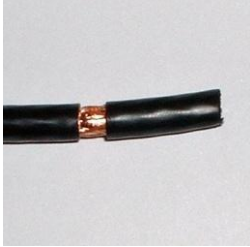
## **References**

Freesat from BBC/ITV - <http://www.freesat.co.uk/>

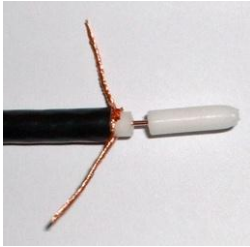
Freesat from Sky - <http://www.freesatfromsky.co.uk/>

## How to fit an F-type connector:

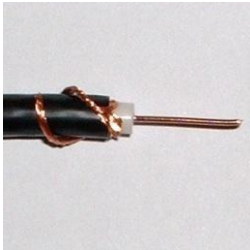
Using a sharp knife carefully remove 20mm of the outer plastic of the cable, ensuring not to cut the shield braiding below. Take half the braiding to each side and twist, creating two tails.



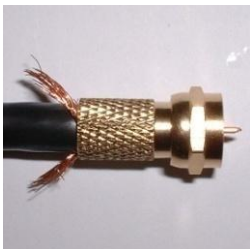
Remove the metal foil to expose the insulator below. With your knife trim the insulator to about 2-3mm from the base of the exposed cable, ensuring not to cut the inner cable.



Ensure that none of the braids from the outer tails are loose. Pull the tails down and twist them round the outer insulator in a 'helter-skelter' formation.



Twist the connector down so it bites onto the braiding and outer insulator. Check that there is no connection between the inner core and braiding and tighten until the inner insulator is in line with the inside hole



Trim any excess braiding with a sharp. For outdoor use (ie satellite dish/masthead amp) it is recommended that use the included amalgamating tape – simply remove plastic then stretch to activate. If you are using a quad Inb this is not needed as the quad should have a cover that will pull down over the end.