

TO COMPLETE THIS PROJECT YOU WILL NEED...

[Brick Bolster](#)
Club Hammer
Filling Knife
Power Drill Bits
Power Drill (cordless)
Screwdriver
Spanners
[Stepladder/Access](#)
Equipment
Trimming Knife
[Cable Clips/Ties](#)
[Cable Splitters](#)
[Coaxial Cable](#)
[Coaxial Plugs](#)
[FM Aerial](#)
[Mounting Brackets & Fixings](#)
[Mounting/Outlet Boxes](#)
[Plaster Filler](#)
Pvc Conduit
[Separate TV & FM Outlets](#)
[Signal Booster](#)

1 - CHOOSING THE AERIAL POSITION

You will always get the best reception from aerials mounted outdoors, either on a chimney stack, above the roof line at a gable end or on a mounting pole. However, such an installation does involve working at height, and you may prefer to leave the job to a professional installer or to consider installing the aerial elsewhere. In areas receiving strong or normal-strength signals, you will get adequate results from an aerial installed in your loft space, which is generally easier to reach than a chimney stack. If your analogue signal is weak, mounting the aerial on an outside wall instead will improve the signal strength. To get the best reception for digital TV, use an external aerial mounted as high as possible.

[This interactive site may help you site your aerial.](#)

2 - CHOOSING THE RIGHT TV AERIAL

Loft TV aerials come in two main types; a standard version for areas with normal or strong signals, and a so-called high-gain version for weak signal areas. Both can also be fitted on an outside wall or in the loft. If you want an [external TV aerial](#), check what type your neighbours have, since this will reveal how strong the TV signal is in your area. You will need an aerial with 10 elements if the signal is strong, one with 14 elements in normal-signal areas and one with 18 if the signal is weak. Most homes receive their signals from a main transmitter. To receive them, the aerial is installed pointing towards the transmitter and with the elements horizontal. If your signal comes from a relay transmitter, the aerial elements should be vertical rather than horizontal. Again, check how neighbours' aerials are installed if you don't know which type of transmitter you have in your area.

3 - CHOOSING THE RIGHT TV AERIAL

The best choice in FM radio aerials is probably an [omni-directional](#) type which can receive signals from several FM transmitters. Omni-directional aerials are C-shaped and are mounted horizontally. [Directional dipole aerials](#) are mounted with the bar of the T horizontal, and have to be pointed at the transmitter from which they are to receive the radio signals. If you live in a weak-signal area and have only one significant local FM transmitter, a directional dipole aerial will make the most of the weak-signal strength. It is pointed towards the transmitter with the dipole horizontal. A [high-gain version](#) with two or three elements may be worth considering if the signal is really poor.

4 - DISTRIBUTING THE SIGNALS

You use [coaxial cable](#) to carry TV and FM signals down from the aerial to special [outlets](#) close to the receiving equipment. Use double-screened cable, which suffers less interference than the standard type and reduces the chance of losing signal power. You can make the connections between aerials and outlets in several different ways. The simplest way is to run a download from each aerial to just one [outlet](#), to plug in a short coaxial lead and to connect this to the TV set or radio tuner as appropriate. If you live in an area with a strong broadcast signal, you can fit a [splitter](#) into the main aerial download to provide aerial connections to two TV sets or two tuners, but you can do this only once, as each splitting halves the signal strength the set receives. If you have both TV and FM aerials, you can avoid multiple downloads by using [a pair of TV/FM diplexers](#). One is sited near the aerials, and a lead from each aerial is plugged into the appropriate inputs. Then a single coaxial download is run from the output down to wherever the TV and tuner are situated, where it is wired into the inputs of an identical TV/FM diplexer. Separate aerial leads then connect the diplexer outputs to the TV and tuner

5 - USING SIGNAL BOOSTERS

If your received signal is weak, or you want to run more than two TV sets or tuners from a single aerial download, you need a [signal booster](#). The simplest type resembles a plug adaptor, and fits into any existing 13-amp socket outlet. The aerial download is plugged into the booster, and up to four leads can be connected and taken on to the TV sets or tuners. Larger boosters can be installed wherever convenient, so long as they are near to a convenient mains supply. The best have variable-gain controls, allowing you to select the level of amplification you need for good results. You can also use a booster unit if long cable runs from aerial to outlet are unavoidable - in three- storey buildings, for example, or if you need a high mast to get a good signal in the first place. If you have a satellite dish, you can view satellite programmes on all your TV sets if you take its output to a booster and then run separate leads on to each set position.

6 - WORKING WITH COAXIAL CABLE

To fit a [connector](#) to the end of a coaxial cable, slit the outer sheath of the cable lengthways, peel it back and cut off about 50mm. Then undo the connector and slip its screw cap onto the cable. Roll back the screening wires and wrap them round the outside of the sheath. Then cut off 25mm of the insulation on the inner copper wire and push the wire into the hole in the other half of the connector. Push up the screw cap and screw the two parts together. The soft metal clamp inside the connector should grip the screening wires and stop them touching the central copper core. Make sure that the cable and connector joint is tight. Snip off any core wire left sticking out of the end of the connector. Repeat the process to fit another connector at the other end of the lead, and plug the connectors in.

Alternatively, see our guide on [Fitting an F-Connector](#)

7 - INSTALLING THE AERIAL

How you install your aerial depends on where it is being fitted. The bracket for an external aerial may be screwed to a [wall](#) or a [chimney](#) stack using metal expansion anchors, or it may be fitted round the stack with some form of [metal strapping](#). Brackets on poles have special clamps to hold them in place. [Loft brackets](#) are screwed directly to the floor joists with ordinary woodscrews. Connect one end of some coaxial cable to the aerial terminals, which are housed inside a small insulator cap on the body of the aerial. Two types of insulator cap are common place - the Selfix/Emax type and the high-gain type. Follow the wiring diagram for the type you have purchased. If the aerial is outside, it is often simplest to run the cable down the house wall and in through a hole in the wall (follow the manufacturer's advice on the minimum recommended bending radius to avoid damaging the cable) or in a wooden window frame. You can then take it to the position you have chosen for your socket by [clipping it to the skirting board](#), taking it beneath the floorboards or hiding it in PVC conduit set in a channel (chase) cut in the wall plaster. If the aerial is in the loft, plan a route for the cable - perhaps via an airing cupboard at first-floor level. Either surface-mount the cable, or cut chases down the walls, bury PVC conduit in them, then feed the cable through the conduit to its final destination. If you don't want to spoil existing decorations, conceal the cable inside 16mm square surface-mounted white PVC mini-trunking. It is self-adhesive, and the cover

strip snaps on to conceal the cable inside. When you next redecorate, you can remove it and cut chases for the cable in the plaster.

8 - FITTING AERIAL SOCKETS

If you have surface-mounted the coaxial cables, you can use small [surface mounted outlets](#) too. Single outlets can be used for either TV or FM reception, while twin outlets can contain a diplexer and can serve both a TV set and a tuner from a single download. If you have concealed the cable in conduit, flush-mounted outlets complete the job very neatly and are available in styles and materials to match your existing switches and power points. Again [single outlets](#) and [diplexer twin outlets](#) are available, and there is also a twin outlet designed for use with two separate downloads. All fit on a standard 25mm deep [single metal mounting box](#), which is recessed into the plaster. You can use these outlets on plastic surface-mounted boxes too. To connect the aerial lead into the back of the outlet, secure the central copper core beneath the screw-down terminal, and tighten the circular metal clamp down over the screening wires. Make sure no wisps of wire are loose and able to touch the central core and mar the reception. Then fit the cover of a surface-mounted outlet, or screw the faceplate of a flush-mounted one to its mounting box.

9 - FINE-TUNING THE SYSTEM

To get the best reception, you have to point your aerial at your local transmitter. If other houses nearby have external aerials, you should be able to see the direction in which they are pointing, and copy this when positioning yours.

Aerial installers use a device called a signal strength meter to work out precisely how to line up an aerial. You will have to do it by eye and ear, with a helper at the TV or tuner position to tell you how good the analogue picture or sound reception is while you make fine adjustments to the position of the aerial. You need a special set-top box or an integrated digital TV set to receive digital TV, and you must be in an area that receives satisfactory signal quality from a digital transmitter.

For further information, contact DAS.