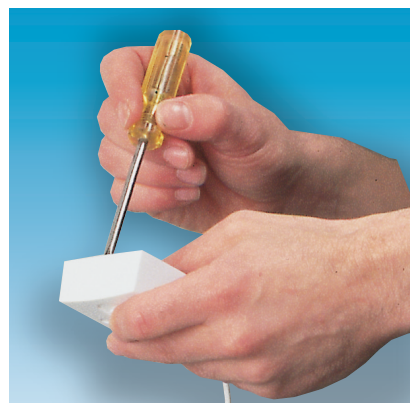# How To Guide

Telecoms & Accessories

Telecoms
With the trend towards working from home, there is an increase in communication equipment in the home such as telephones, fax machines, computers and modems to access the Internet. Multi function machines are now available which offer fax, copier, printer, PC-fax, scanner and e-mail from one unit.

Telephone
There are basically four types of telephone:

1. Analogue Corded
The traditional telephone with a fixed cord from the phone base to the handset.

2. Analogue Cordless
The first system of cordless technology with limited operating distances.

3. New Frequency Analogue Cordless
An enhanced system which uses eight channel technology, a new frequency range of 31-39MHz and gives clearer call and larger operating distance approx. 100m away from the base station.

4. DECT-Digital Enhanced Cordless Telephony
DECT phones that use digital cordless technology, operate on 1.8GHz and allow multiple handsets to be used from a single base station, offering significantly greater range than analogue models, improved reception and clearer speech.

Combined mobile/DECT cordless phones, provide mobile and DECT features in one smart handset, which can accept or make calls on both mobile and land line networks. These use DECT protocol close to the home and automatically switch to mobile use outside a certain range.

Fax Machines
Fax machines plug into a telephone socket and have built in software to enable the user to transmit data for instance a letter, which can be received normally by another fax machine. Early fax machines used thermal paper but more modern machines print directly onto standard A4 paper.
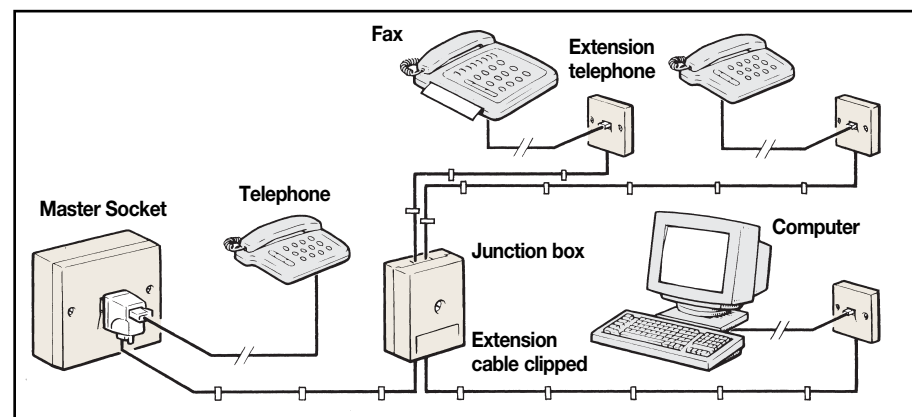
Internet, Modem and Interactive Services
A modem is a device which allows a computer or Digital Set Top Box (STB) to send and receive information over a telephone line. It can be an internal device built into the desktop, laptop, or STB, a separate external box that connects to a computer's serial port, or a PC card that plugs into the PC card slot found on most laptops.

Modems are available in a variety of speeds, the faster the modem, the quicker the data can be transferred and hence shorter and cheaper the phone call will be. This is provided the telephone line and other end of the line can support the modem speed and protocol.

To connect a modem to a telephone line the socket will need to be a BT style socket. See following section on BT style sockets and installing extensions.Faster access speeds are possible using ISDN digital phone lines, or services such as BT Highway which adds a digital line alongside your existing phone line. To connect your computer to the digital line you need an ISDN adaptor rather than a modem, and the Internet Service Provider you choose must offer ISDN support.

An alternative to the PC-modem-phone line or PC-ISDN approach is to connect through the mobile phone networks, either by linking a laptop to a mobile phone through a data card or an infra-red link. Cable modems and STB modems are often used as the return path for the interactive services offered by the terrestrial, satellite or cable operators. These modems may also offer internet access via the STB.

Telecom Accessories
Telephone Extensions
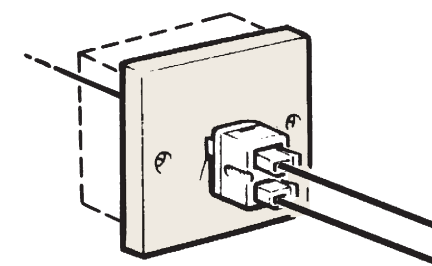
Before installing a telephone extension it is important to note the Ring Equivalent Number (REN). Telephones lines have a REN of 4- they can operate up to 4 telephone accessories (e.g. phones, fax, answerphone) each with a REN of 1.
An additional telephone extension can be provided by using a multi adaptor or by adding a new telephone extension socket. In more complex systems a junction box may be needed to join up to four lengths of telephone cable end to end.

To convert a single socket to a multi socket outlet, Double and 3 Way Telephone Adaptors are available. It should be noted however, that running more than one lead from a single telephone socket might impair performance of the telephone equipment. The best option is to add in a new telephone extension socket.

Extension sockets are added to the existing telephone system from the master socket, which is installed by the Telephone Company such as British Telecom (BT) or Mercury. Extension sockets must not be used as replacements for the existing master socket. There are basically two types of BT master socket:

1. NTE5 socket
This type of socket is used on all new BT installations. The lower front half is removable to allow you to connect extensions by 'hard wiring'

2. BT 'old' socket
This older type of socket is the former socket used in BT installations. You can only connect extension sockets by plugging in.
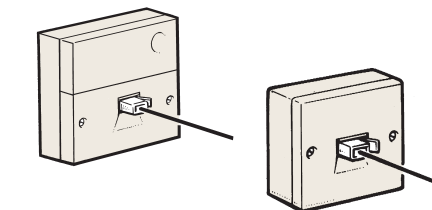
If your telephone line is provided by an operator other than BT, your socket may be different to those shown above. Contact the telecommunications operator for further information.
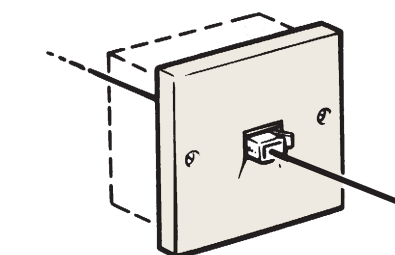
Extension Sockets

Types of Extension Socket
There are two basic categories of extension socket:

1. Flush Mounted Extension Sockets
If you are installing a telephone extension and have easy access to the wall, flush mounted extension sockets are the best way to supply a telephone extension to another room. Flush mounted outlets fit on a standard 25mm deep single metal mounting box, which is recessed into the plaster. Alternatively they can also be mounted on plastic surface mounted boxes. Telephone Flush Extension Sockets are available with both single and twin sockets.
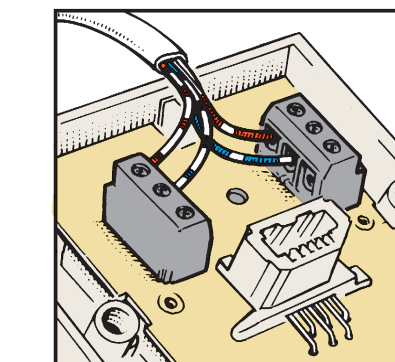
2. Surface Mounted Extension Sockets
If you do not have access to the walls the most common extension socket is a surface mounted outlet box which is available in either a standard format or a compact version.
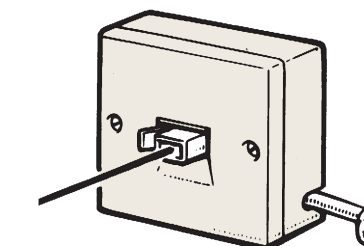
Connecting Telephone Cable in Extension Socket
When connecting telephone cable in extension sockets the following colour code must be observed:
1 Green/white ring
2 Blue/white ring
3 Orange/white ring
4 White/orange ring
5 White/blue ring
6 White/green ring

N.B. It is usual to only use 2,3,4 and 5 for domestic installations.

To connect the telephone cable into the back of outlet sockets there are two types of connection available –screw terminal and IDC.

Screw terminal connections
Prepare the cable by stripping away 20-30mm of outer sleeve exposing inner wires. Remove approximately 5mm of inner insulation to expose bare wire. Follow the colour code. Loosen screws, insert wires under screws and lightly tighten ensuring secure connections.

IDC terminal connections
Prepare the cable by stripping away 20-30mm of outer sleeve exposing inner wires.
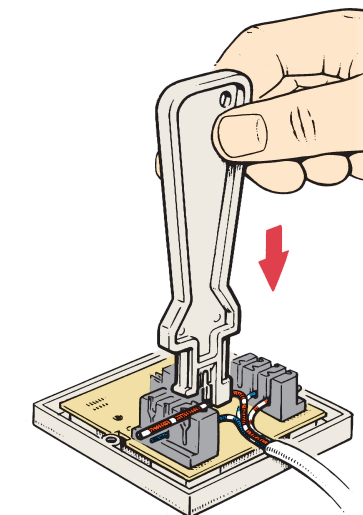
Do not remove inner wire insulation. Following the colour code, lay each wire in the corresponding notch of the connection terminal. Use the IDC cable connecting tool to firmly push the wires into the terminals.

Connect the telephone directly into extension socket or to extend the distance from the socket to the telephone, Telephone Extension Leads are available in 2m, 4m and 10m lengths.

Fax
Extension telephone
Telephone
Master Socket
Junction box
Computer
Extension cable clipped