



Welcome to ISDN 2e

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*Installing ISDN 2e
is just the beginning*

Welcome to the fast lane

Thank you for ordering ISDN 2e. This guide explains how to set up the service and get the most from it. It also tells you what your bill will look like and provides useful BT numbers to call in case you have an enquiry or encounter a service problem. We very much hope that you enjoy life in the fast lane with ISDN 2e.

ISDN 2e in a nutshell

ISDN 2e is a digital communications service from BT that speeds existing working and opens up the door to exciting new ways of working that will save you time and help you to control costs.

At its most simplistic, ISDN 2e transforms an existing phone line into two channels and enables you to do two things at once. For example, you can phone while you're receiving a fax, or take a phone call while you access your e-mail. Moreover, while you're working on the Internet, perhaps downloading files or searching for business information, you'll be able to do everything faster than you can with the fastest modem.

You also have the option of connecting a computer and other equipment (including supported digital phones, Group 4 fax machines and videoconferencing terminals) to ISDN 2e through a digital phone system (most modern digital phone systems, such as BT's Norstar and Meridian 1 ranges, are compatible with the service).

Take videoconferencing as an example. With the appropriate hardware (a dedicated terminal or an adapted computer) and software, you'll be able to see

and hear the person at the other end of the line, as well as see, discuss and amend work in real time. And you'll be able to do it through your phone system or in stand-alone mode.

Apart from the generic benefit of increased clarity for voice calls (digital lines are not so susceptible to interference as analogue ones), working through a phone system gives you the freedom to send and receive data directly from the desktop. What's more, you'll be able to do so faster than ever before (at up to 128k if you bond your two digital channels together to form a super-fast link). Other possibilities include LAN-to-LAN access and remote access to your company network when working from home.

Before we visit

Decide where you want your ISDN 2e box installed

Before our engineer arrives, you will need to decide where you would like your ISDN 2e box to be fitted. The best place is probably near your computer or phone system, as this will avoid the need for extension wiring.

If we're converting an existing line to ISDN 2e, we would typically replace your existing BT line box with its ISDN 2e equivalent. That said, we would be happy to locate your new box anywhere in your office/home at no extra charge. You should also bear in mind that a Terminal Adapter (which effectively connects your digital equipment to BT's ISDN network) needs a power supply to operate (see 'Communicating through your computer on page 6).

Important supporting information:

- If you want to use analogue phones, faxes, answer machines and so on, you'll need a Terminal Adapter with analogue ports. These are available from BT and other suppliers (see 'Communicating through your computer' on page 6).
- The number of digital extensions you can have is largely determined by how far they are located from your ISDN 2e box, although the maximum is eight devices, regardless of distance (see page 12 for more information)
- Plan where you may need extension wiring throughout your premises. We can install digital extension wiring for a fee. For advice, please call the ISDN Helpdesk on **Freephone 0800 18 15 14**. An alternative is to buy a wiring extension kit from another supplier and install it yourself. If you decide to do this, you must check that the wiring for digital extensions complies with Category 5 cabling, conforms to ISO/IEC 11801 and is fitted with RJ45 type plugs.

Check with your Internet Service Provider

If you already have an Internet Service Provider, check that they support digital access. If they do, inform them that you require ISDN 2e access. They may give you an alternative dial up number. You will then need to re-configure your Internet dialler software. This also applies to any file transfer or remote network access connections you may have.

If you want to take advantage of 128k digital working, you will need to refer to your Internet Service Provider or network administrator to check access is provided at this speed and determine any additional configuration changes that may be required. You will be charged for two calls when working at 128k.

When we visit

Simple installation

We can install your ISDN 2e box wherever you want within your building. It's simplicity itself to fit and very easy to service. The actual positioning will be dictated by how you're going to be using your new digital service. For example, if ISDN 2e is running off a phone system, you would want to locate your box close to that system. Similarly, if you're connecting ISDN 2e to a computer, the box should be positioned nearby, as this will avoid the need for extension wiring. And if you're videoconferencing, consider if you will need to move the computer or terminal in the future!

After we visit

Phone numbers

You will have one telephone number with ISDN 2e for your computer and other digital equipment. If you want a second number, perhaps for another computer, a Group 4 fax machine or for videoconferencing, there will be a connection charge of £20 but no additional line rental. That comes free.

With Multiple Subscriber Numbering (see 'Digital Select Services' on page 15), you can have up to 10 numbers associated with ISDN 2e. Each attracts a £20 connection charge and your quarterly line rental will go up in £2 increments. So, while there is no additional quarterly rental for a second number, you will pay an additional £2 a quarter for a third number, £4 for a fourth number and so on – up to £16 for all 10 numbers.

We recommend that you note down your numbers in the Useful Numbers section at the back of this guide and also on the label on the ISDN 2e box itself.

Phoning and faxing

As soon as your ISDN 2e box has been fitted, tested by the engineer and correctly configured, you should be able to plug in ISDN phones and use them straight away. Check with your supplier if and what configuration is necessary. If you have opted for Multiple Subscriber Numbering (see 'Digital Select Services' on page 15) individual phones, extensions, Terminal Adapters and videoconferencing terminals may need to be configured so that each knows when to allow another device to take an incoming call.

Phone systems may need expert installation and configuration, so it's absolutely vital to check with your supplier on this front.

Communicating through your computer

ISDN 2e will work with most desktop PCs and Apple Macintosh computers, as long as they are fitted with a suitable ISDN Card or connected to a suitable

Terminal Adapter and configured properly. The recommended minimum PC specification is a 486DX processor running at 100Mhz, or an Apple Mac with a 68040 processor.

Apple Mac computers will need additional software for dial-up applications, such as Internet access or remote access. This is available from most Apple Mac retailers.

If your computer isn't fitted with an ISDN Card (like a modem card but digital) or you haven't got a Terminal Adapter (like an external modem but digital, which connects to your computer's serial port), you will need to purchase ISDN 2e compatible hardware (meaning it is compatible with the latest version of ISDN). This equipment is available from BT and other suppliers.

ISDN Cards cost around £50 and Terminal Adapters cost from around £100. Details can be found on www.bt.com, or call us on **Freefone 0800 18 15 14**.

Important supporting information:

- While an ISDN Card offers you optimum performance, fitting one may invalidate your computer warranty. You should confirm this with your computer supplier.
- You will need to get in touch with your equipment supplier for advice on configuration issues. Their contact details are usually provided with their documentation.



Now you're connected

faster.



Quick transfer of files between computers

You can send or receive documents, images, presentations or reports at guaranteed speeds of 64k or up to 128k, compared to an absolute maximum of 56k with a modem. Any documents created on your computer can be sent in this super-fast way. This application requires a compatible ISDN Card or Terminal Adapter and e-mail or file transfer software. A 128k data call is treated as two simultaneous calls and will be charged as such.

Do two things at once

You can browse the Internet and talk to a customer at the same time, receive a fax while checking your e-mail, or even use the phone while accessing data from another office. You can also bond your digital channels together to achieve a transmission speed of 128k, enabling you to access remote networks and send large files even faster.

Rapid Internet access and downloading

You can surf the Internet much faster than with a modem. It also takes less time to download data, while the time you spend on-line is charged at normal rates. So you could save money too. This application requires access to an ISDN compatible Internet Service Provider, ISDN compatible Internet software and a compatible ISDN Card or Terminal Adapter.

Fax faster with laser print quality

With Group 4 faxing, you can send laser print quality faxes quickly without compromising on quality. For example, a two-page price list can be faxed in just 2.3 seconds. This application requires an ISDN compatible fax machine or fax software. To use your computer, you will need an ISDN Card or Terminal Adapter.

Use your PC for speedy calling

If you use a computer-based diary or address book, you can often connect your telephone directly to your computer. By hitting the appropriate button next to the number you wish to call, you can dispense with manual dialling. This application requires a compatible ISDN Card or Terminal Adapter, a compatible sound card, speakers and microphone and the appropriate software.

Videoconference around the world

If you link up videoconferencing equipment to ISDN 2e, you can hold meetings with overseas or UK based clients and suppliers without leaving the office. And because the service provides digital capability, high quality images are transmitted in real time. This application requires ISDN compatible videoconferencing hardware and software.

Work from home

With ISDN 2e installed in your home, you can access your office network without ever going there. So you could work as effectively at home and save time, money and the stress of travel. This application requires an ISDN compatible router in the office and a compatible ISDN Card or Terminal Adapter at home.

Link up with other offices

ISDN 2e is an invaluable tool when you need to work on a project with other offices. By connecting Local Area Networks (LANs), several people in different offices can access the same information on their computer screens through desktop conferencing. Everyone can also update information at the same time. This application requires an ISDN compatible LAN router or bridge at each office and the appropriate software.

Stay in touch with your customers

ISDN 2e offers you a number of value-added features. For example, you can use Calling Line Identity (CLI) to see the number of whoever is calling you before you pick up the phone. So you could have a customer's account details on screen before you start to speak to them! This application requires a subscription to Calling Line Identity Presentation (CLIP) and the appropriate hardware and software for Computer and Telephony Integration (CTI). For more information about these services, see 'Digital Select Services' on page 15.

further.



For fast advice on any of the following applications and how to connect them,
call our Helpline on **Freefone 0800 18 15 14**



for savings.

Save time and spend less

All calls within the UK are charged at normal rates. So you won't be paying more for the privilege of working faster. What's more, where you may have waited up to 30 seconds for a modem to connect, the digital service on ISDN 2e connects in about 4 seconds. Also, because you can send data faster than the fastest modem, your calls may be shorter, meaning you can save even more on your call charges.

Keep costs down

Now that you're connected to ISDN 2e, you don't need to worry about postal or courier charges, because you can send information directly to another computer for the cost of a phone call. And with videoconferencing, you can cut the cost of accommodation and travelling to meetings and presentations.

Take advantage of BT call discounts

If you find yourself using the ISDN 2e service a great deal for short calls, you'll benefit from the Short Call Discount option. For a quarterly fee of £20, this reduces the minimum call charge from 4.2p to 2.5p between 8am and 6pm Mon-Fri, and to 2p during the evening and at weekends.

BT has a range of discount options to suit businesses of all sizes. To find out more contact your BT account manager or the ISDN Helpdesk on **Freefone 0800 18 15 14**.



Technical information

Your ISDN 2e box



- Green SERVICE LED (indicates that the digital service is working when lit)
- ISDN sockets (digital equipment sockets)
- S-Bus configuration switches (used for digital wiring. Switch 1 is set to IN and Switch 2 is set to S by default. An engineer uses these when installing extension wiring).

Do two things at once

You will now be able to use any two pieces of equipment simultaneously, except when you're accessing the Internet at 128k, which counts as two calls.

Important supporting information:

- When both channels are being used simultaneously for digital calls, incoming calls will receive an engaged tone.
- You will not be able to make outgoing phone calls when using both channels or without first closing the connection or switching the connection to use only one channel.

ISDN extension wiring

If you are fitting extension wiring terminate the cable with an RJ45 plug and use either of the two linebox sockets. Cable to specification ISO/IEC 11801 should be used to complete the installation. Please refer to Table 1 for RJ45 plug wiring and Diagram 1 for sample wiring configuration/switch settings. All extension wiring must have a Type 2 socket (which incorporates terminating resistors), as the last socket. Up to eight terminals may be connected to an ISDN 2e line using extension wiring. The number of terminals is determined by the length of extension wiring.

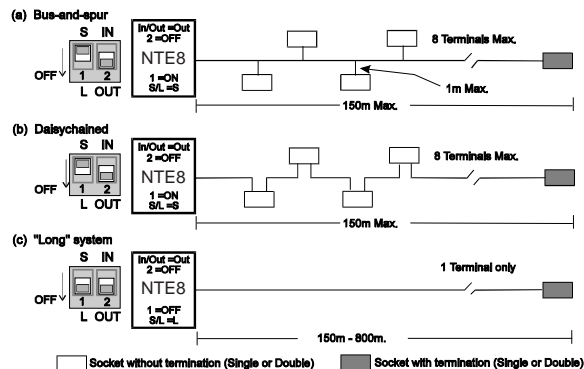


Diagram 1 – ISDN Extensions

Diagram 1a & b.

Up to eight extensions can be added to one ISDN 2e linebox. In these scenarios the Type 2 (terminating socket) must be no more than 150m from the linebox. The L/S switch should be set to S.

Diagram 1c

If just one terminal is to be connected to the linebox, it may be up to 800m from the linebox. In this case, the L/S switch should be set to L.

Note.

ISDN sockets look similar to ordinary phone sockets but the plugs and other wiring accessories are not interchangeable.

Caution

It is very important to operate the L/S switch only when there are no terminals in use, as this could result in data corruption or the call being lost. Do not alter the position of the IN/OUT switch when any terminal is in use, because this could result in data corruption or the call being lost.

Table 1. Terminal connections for extension wiring.

Terminal	Wire colour code	Function
1.	White/orange band	Power source 3
2.	Orange/white band	Power source 3
3.	White/green band	Transmit
4.	Blue/white band	Receive
5.	White/blue band	Receive
6.	Green/white band	Transmit
7.	White/brown band	Power sink 2
8.	Brown/white band	Power sink 2

L/S switch

The ISDN 2e linebox incorporates a switch marked L/S, which enables you to select the appropriate mode of operation, depending on the wiring configuration you have chosen.

- For one or two terminals plugged directly into the linebox, with no extension wiring, select S.

- When using extension wiring up to 150 metres in length overall from the linebox, select S.
- When using Medium or Long extension wiring between 150 and 800 metres in length overall from the linebox, select L.

In/Out switch

The ISDN 2e linebox incorporates a switch marked IN and OUT which enables you to select the correct operating conditions, depending on the wiring configuration you have chosen.

- If no extension wiring is connected switch to IN.
- If there is extension wiring connected, switch to OUT.

It is essential that the switch is repositioned in this way whenever the extension wiring is connected or disconnected even temporarily.

Usage tips

- It is very important you check that your dial-up software, or router, is not set-up to make unnecessary multiple short calls. You can view the cost of calls made since your last bill by visiting www.bt.com/billing-payments. We advise that you do this soon after your equipment has been connected to ISDN 2e. BT will not refund call charges raised due to incorrectly configured equipment. If you do require your equipment to make lots of short calls then why not consider our Reduced Minimum call fee discount scheme (see page 10).

Important information:

- Do not, under any circumstances, open the ISDN 2e box or remove it from the wall. There are no customer serviceable parts inside.
- Although ISDN/digital sockets look similar to standard phone sockets, they are not compatible. A standard plug will not fit into an ISDN socket and using force may result in damage to the unit.
- When using the digital service, care must be taken to end the call correctly. Simply turning off the computer may not close the connection. Failure to end a call correctly may result in it continuing until the line is next used, which can result in unnecessarily long calls. Please ensure that anyone using your computer or other ISDN equipment is aware of how to end a call correctly. For further information about terminating calls, contact your equipment supplier.

ISDN 2e is not compatible with RedCARE analogue or any other analogue alarm line security services. Please check with your security supplier.

- ISDN 2e digital ports are ISDN 2e (European) compatible. Any approved ISDN 2e equipment (ISDN Telephones, ISDN PC Cards, Terminal Adapters and so on) will work with ISDN 2e. However, some ISDN Telephones will require an Auxiliary Power Supply (a mains power transformer) to work correctly. You should confirm this with your supplier.

Digital Select Services

For a nominal charge you can take advantage of the following Digital Select Services for equipment connected to either socket on your ISDN 2e box:

Direct Dialling In (DDI)

Allows you to use ISDN 2e for all your office communications. For example, you could group your ISDN 2e lines together and use hunt groups and line hunting when they're connected to a phone system.

If you had three ISDN 2e lines (i.e. 6 channels), you could have 10 numbers associated with each one, which adds up to a possible total of 30 different extension numbers. One of those numbers could then become a central number for customers to call. The other 29 could serve as personal extension numbers, so that regular customers could contact individuals directly, without having to go through your switchboard.

Customer Controlled Call Forwarding Services for voice and data calls

- Call Forwarding on Engaged (providing you ensure that any overflow traffic at one location can be answered elsewhere). Your calls will be automatically re-routed to any telephone number that you choose that is capable of receiving the calls. This will happen when both digital channels are busy, or when individually-called digital devices are busy.
- Call Forwarding on Ring Tone No Reply allows your calls to be forwarded to any telephone number that you choose that is capable of receiving the calls if unanswered within approximately 20 seconds.

- Unconditional Call Forwarding allows you to have all incoming calls forwarded to any telephone number that you choose that is capable of receiving the calls.

Important supporting information:

If you use Customer Controlled Call Forwarding, you will be charged for the forwarding part of calls. Customer Controlled Call Forwarding is activated and controlled by your equipment, be that an ISDN phone, phone system, Terminal Adapter, Router or ISDN Card, so you must make sure any equipment you have connected to the digital sockets supports Customer Controlled Call Forwarding and that it is set-up correctly. Any Customer Controlled Call Forwarding using customer equipment will overwrite any BT set up Call Forwarding options on the line.

Multiple Subscriber Numbering

Allows you to have up to 10 directory numbers allocated to the digital service on ISDN 2e, so you could advertise different telephone numbers for fax, video, telephone and data devices. This option is highly recommended if you're connecting more than two digital devices to ISDN 2e.

Important supporting information:

Your terminal equipment must be able to support the Multiple Subscriber Numbering service, as individual directory numbers will need to be programmed into the equipment. The total number of telephone numbers available on ISDN 2e is 10 .

Sub Addressing (for ISDN or *BusinessHighway* to ISDN or *BusinessHighway* calls only)

Allows you to associate different combinations of characters (up to 20 alphanumeric characters, except #) to the number you are dialling, so you can select particular ISDN devices (or processes within computers) but still call a single number.

Important supporting information:

Calls from ISDN 2e to ISDN 2 or ISDN 30 (DASS2) lines are restricted to 6 characters. Likewise, calls from ISDN 2 or ISDN 30 (DASS2) lines will only send 6 alphanumeric characters.

Calling Line Identity (CLI)

Allows your telephone number to be displayed on the terminal equipment of the person you're calling (assuming they have subscribed to CLIP).

Calling Line Identity Presentation (CLIP)

Allows you to see who is calling you. You will only receive this information if the caller has not restricted the sending of their number.

Calling Line Identity Restriction (CLIR)

You can ask for your telephone number(s) not to be released. This service is available free of charge on ISDN 2e.

Connected Line Identity Presentation (COLP)

Allows you to confirm that the number you have dialled is the number you are connected to and that you have not been forwarded to another location. Activation/deactivation of this facility is not available on a per call basis.

Connected Line Identity Restriction (COLR)

You can ask for your telephone numbers not to be released to callers. This service is available free of charge on ISDN 2e. Please note that activation/deactivation is not available on a per call basis.

Terminal Portability

Allows equipment to be disconnected from its digital socket and reconnected to another digital socket on the same extension during a call without losing the call, if the equipment itself supports this facility.

Call Barring

Permanent Outgoing Call Barring to, for example, International numbers, is available, as is Incoming Call Barring.

ISDNconnect

This service, unique to BT, enables small packets of data to be sent to a pre-determined site from your ISDN 2e line without making a call. So you can make large volumes of short data calls without call charges. While this is going on, you can still use your two digital channels to make calls and send data.

ISDNconnect is ideal for simple data transactions, such as credit card validation, remote telemetry and remote monitoring. You can also use ISDNconnect to notify you of new e-mail and send data overnight without raising call charges. For more information about this service, visit the ISDN web site at www.bt.com/isdn.

Call Waiting and Call Hold

These services are provided together and are similar in functionality to Call Waiting and Call Hold on normal PSTN phone lines, but they support data calls on ISDN 2e and **BusinessHighway**. The functionality for these services is controlled by your equipment, be that an ISDN phone, Terminal Adapter, Router or ISDN Card, so you must make sure any equipment you have connected to the digital sockets supports Call Waiting and Call Hold and is set-up correctly. Call Hold allows you to switch between calls without losing either call. These calls can be incoming or outgoing. Call Waiting alerts you to another voice or data call trying to get through and gives you the option to take that call. Call Waiting is able to keep up to four voice or data calls waiting for a limited time and the called party is able to accept any one of those calls.

Call Deflection

Allows ISDN 2e, **BusinessHighway** and ISDN 30e customers to deflect up to 4 incoming voice or data calls to another ISDN number during the alerting phase of the incoming call. Call Deflection can be set up by customers equipment to deflect calls of certain types, calls from certain numbers or calls to specific numbers or DDI extensions. The functionality for these services is controlled by your equipment, be that an ISDN phone, phone system, Terminal Adapter, Router or ISDN Card, so you must make sure any equipment you have connected to the digital sockets supports Call Deflection and is set-up correctly.

Straightforward billing

- You will receive one quarterly bill.
- You will receive a summary sheet of all calls made.
- Connection or conversion charges will appear on the summary sheet as a one-off payment.
- When two channels are used simultaneously (i.e. two computers at 64k or one computer at 128k), they will be shown as two simultaneous calls. Remember, when you use one computer working at 128k, you will be charged for two calls.

Call Charges

- All UK calls are charged at the same rate as normal phone calls. You pay more for 128k access (two calls).
- If you have opted for an inclusive call allowance, eligible calls include those made to Lo-Call numbers (e.g. 0845), which are common numbers for Internet access via Internet Service Providers. Ineligible calls for inclusive call allowances on Start Up and Call Plan are: Operator controlled calls, calls to Premium Rate services, non-geographic calls charged at national rate (e.g. 0870), calls to mobile networks, calls to Directory Enquiries (including Chargecard calls), and Digital Select Service facility fees.

Ineligible calls for inclusive call allowances on BT Together for Business are: Operator controlled calls, calls to Premium Rate services, non-geographic calls charged at national rate (e.g. 0990), calls to Directory Enquiries (including Chargecard calls), calls made via the CreditCall Service, calls to Information Services,

Chargecard calls via an operator, and Digital Select Service facility fees.

Please also bear in mind that any unused call allowances cannot be carried forward to your next ISDN 2e bill.

- If you are billed monthly or the bill does not cover the full quarterly period, your rental and any associated call allowance will be reduced pro rata.

- International data calls are charged at a higher rate. For further details on these rates, consult BT's Pricing Information Service on **Freefone 0800 800 990**, or visit www.bt.com



Troubleshooting

Answering your questions

Q. Can I use ISDN 2e straight away?

A. You can plug Group 4 fax machines, ISDN phones and videoconferencing terminals into either socket on your ISDN 2e box and once configured, use them straight away. To connect a computer, you'll need a properly configured ISDN Card or a Terminal Adapter. These are available from BT and other suppliers and cost around £50 for an internal device and around £100 for an external one. You'll also need to check that your Internet Service Provider supports digital access. On top of that, you'll have to configure your software to make ISDN calls. If you're connecting a digital phone system to ISDN 2e, you'll need to refer to the documentation that came with your PBX and/or consult your supplier.

Q. How many calls can I make at any one time?

A. Two. You can make two simultaneous digital voice calls, two data calls or one digital voice call and one data call.

Q. How many digital phones, computers and other devices can I attach to the line at once?

A. Eight, any two of which can be used simultaneously. To use analogue phones, faxes, answering machines and modems, you'll need an ISDN Terminal Adapter with analogue ports. These are available from BT and other suppliers from around £150.

Q. What is channel bonding?

A. This is the option to combine your two 64k ISDN 2e channels to create a super-fast digital link operating at 128k. If you want to do this over the Internet, you'll

need to refer to your Internet Service Provider for advice. This will probably involve re-configuring your access application (typically Dial-up Networking). You should also remember that a 128k digital call is treated as two calls and you will be charged as such.

Q. How can I tell if I have been disconnected from a call?

A. Most phone systems and Group 4 fax machines provide a straightforward method for indicating call status. In order to avoid paying for unnecessarily long calls, you should familiarise yourself with how each device displays whether or not a call is connected. When using computers, ask your ISDN Card or Terminal Adapter supplier how your software indicates call status.

Q. How do I get extension wiring?

A. BT can install digital ('S' Bus) extension wiring for an additional charge. Alternatively, you can buy a wiring extension in kit form from other suppliers and install it yourself. The cabling must be Category 5 compliant, conform to ISO/IEC 11801 and be fitted with RJ45 type plugs. Please refer to 'ISDN Extension wiring' on page 12 for details of how to connect extension wiring.

Q. Can I use Select Services on ISDN 2e?

A. No. Select Services, such as Call Sign, Call Minder and Call Diversion, cannot be used with ISDN 2e. However, a range of comparable Digital Select Services, such as Call Forwarding, Call Barring and Calling Line Identity (CLI), are available. Some new Digital Select Services are also now available, these include Customer Controlled Voice and Data Call Forwarding, Call Waiting and Call Hold and Call Deflection. Digital Select Services are controlled and activated by your equipment, be that an ISDN phone, phone system, Terminal Adapter, Router

or ISDN card, therefore you must ensure that your equipment supports Digital Select Services and is configured correctly.

Q. Can I use ISDN 2e to connect to a customer or supplier who only has an analogue modem?

- A. It depends on the ISDN interface you have in your computer. Some modern ISDN Cards can emulate an analogue modem, which effectively limits its speed to that of the modem being dialled. If your equipment supports this feature, you should have no difficulty in connecting to someone with an analogue modem.

Q. Can I use a modem with the digital lines?

- A. You cannot plug a modem directly into the ISDN 2e box, however you can plug a modem into an analogue port on a Terminal Adapter – you will then be able to send data this way but will not see any of the speed enhancement benefits of ISDN.

Q. What happens to the digital connection if I am using both channels and someone picks up the phone?

- A. Unlike analogue connections, the digital connection will not be disrupted, but the person picking up the phone will not hear a dial tone and will not be able to dial out.

Q. Do call charges differ from normal analogue lines?

- A. Voice call charges are exactly the same as before. Data calls in the UK are also the same, but international 64k data calls are charged at different rates.

Q. What do I do if ISDN 2e isn't working?

- A. Follow the Troubleshooting tips.

ISDN 2e

Troubleshooting tips

Q. I don't think anything is wrong. I just want more information.

- A. Call the ISDN Helpdesk on **Freefone 0800 18 15 14**.

Q. The green SERVICE LED has gone out.

- A. There may be a fault on the line or exchange. Call BT Fault Reporting on **Freefone 0800 800 154**.

Q. I'm having trouble getting ISDN 2e to do what I want.

- A. Check that the green SERVICE LED is lit. If it is, check that your hardware (phone, fax, phone system or router) is compatible with ISDN 2e and is properly configured. This may involve contacting your hardware supplier. Remember that you can only make two simultaneous calls. So, if others are using the service, you won't be able to. If you still have a problem, phone the ISDN Helpdesk on **Freefone 0800 18 15 14**.

Q. My computer doesn't seem to be working with ISDN 2e.

- A. Check that the green SERVICE LED is on. Ensure that your computer is correctly fitted with an ISDN PC Card or a Terminal Adapter. If you're using extension wiring, plug your digital device directly into either of the sockets on the ISDN 2e box. If it works, you may have a problem with your extension wiring and will need to check the S-Bus configuration switches on your ISDN 2e box and/or refer to your kit supplier. If you can't get on the Internet or access a remote computer, check the paragraph below.

Q. I'm having trouble accessing a remote computer or network/Internet Access.

- A. Ensure that your application (typically Dial-Up Networking) is configured to make digital calls. Consult your software and hardware supplier or the ISDN Helpdesk on **Freefone 0800 18 15 14**. Have you told your Internet Service Provider that you require digital access? They may give you a different number to call. If you're dialling into a remote computer or network, make sure that it supports digital access and that your software is configured correctly. If you still can't get on the Internet or access your office network, phone the ISDN Helpdesk on **Freefone 0800 18 15 14**.

Q. I can connect to the Internet at 64k, but not at 128k.

- A. Ensure that your Internet Service Provider offers access at 128k and that you have told them that you wish to work at this speed. Ask your equipment supplier if your equipment is capable of operating at 128k and ensure that it's properly configured.

Q. A large number of short calls are appearing on my bill.

- A. Your equipment may not be properly configured. Some computers, LAN applications and routers can be set to 'poll' each other at regular intervals, raising a minimum call charge each time. Some e-mail applications send e-mails as soon as they are written. The best way to avoid this happening is to set your routers to 'poll' each other less frequently and to re-configure your e-mail application so that it sends e-mails in batches, rather than individually. You can check to see if this has worked by visiting www.bt.com/billing-payments. Bear in mind that a short call discount scheme is available for ISDN calls. For a quarterly fee, this reduces the minimum call

charge from 4.2p to 2.5p between 8am and 6pm Mon-Fri, and to 2p during the evening and at weekends. For more information, call the ISDN Helpdesk on **Freefone 0800 18 15 14**.

Useful numbers

If you have any questions relating directly to ISDN 2e, please call the relevant free number below. Alternatively, you will find more information about ISDN 2e on our website at:

www.bt.com/isdn

- ISDN Helpdesk: **Freefone 0800 18 15 14** (8am to 6pm Monday to Friday).
- Fault Reporting: **Freefone 0800 800 154** (24 hours/7days a week).

Please use the space below to note down important numbers:

- Main number

- MSN numbers

- Computer help line number

- ISDN Card/Terminal Adapter help line number

- Internet Service Provider help line number

- Internet Service Provider digital access dial-up numbers: (64k)

(128k)



Offices worldwide

The telecommunications services described in this publication are subject to availability and may be modified from time to time. Services and equipment are provided subject to British Telecommunications plc's respective standard conditions of contract. Nothing in this publication forms part of any contract.

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