ISDN 2e

Changing the way we work

Table for customer to record directory number

Directory number	Person/Device
Supplementary services	

Contents

For more information
www.isdn.bt.com

Introduction

Thank you for purchasing BT's ISDN 2e service which provides a fast, flexible and reliable way of sending and receiving voice, data, text and image communications across the public BT network.

ISDN 2e provides two separate channels over a single telephone line. These can be used to make two simultaneous voice or data calls, or one data call and one voice call; the flexibility afforded by ISDN 2e means that any combination of communication is possible.

ISDN operates according to internationally agreed standards I.420, and is available to virtually every business in the UK.

Supplementary services

Call forwarding services set up by Administration for (speech & data calls)

Call forwarding on Engaged
Call forwarding on engaged is provided so that customers have the opportunity to ensure that any overflow traffic at one location can be answered elsewhere. Calls will automatically be re-routed by the network, to an alternative pre-arranged telephone number.

Call forwarding on Ring Tone No Reply
Provision of call forwarding on Ring Tone No Reply means that calls will be forwarded to a pre-arranged telephone number if the call is not answered within approximately 20 seconds.

Unconditional call forwarding
This service allows customers to pre-arrange to have all incoming calls forwarded to the directory number that was nominated to receive the forwarded calls.

Note
Customers who activate any of the forwarding services will be charged for the forwarding part of the calls.

Note
Call forwarding set up by Administration can be overwritten by using terminal equipment on the line that supports call forwarding services.

Multiple Subscriber Numbering

This service allows a customer to have up to 10 directory numbers allocated to one ISDN 2e line.

This allows you to advertise different telephone numbers for the equipment you have connected to the ISDN 2e line, one for Fax, video, telephone, and data device etc.

Your terminal equipment must be able to support the MSN service as individual directory numbers will need to be programmed into the equipment.

DDI (Direct Dialling In)

Standard DDI is also available over ISDN 2e for one or more lines where 10 or more than 10 numbers are required.

Sub Addressing

Note
Calls from ISDN 2e to ISDN 2 are restricted to 6 characters.

For ISDN to ISDN calls only this allows you to add up to 6 Alpha numeric characters (except #) to the number you are dialling. For ISDN 2e to ISDN 2e calls only this allows you to send up to 20 alpha numeric characters (except #). Different combinations of characters are then allocated to each device connected to an ISDN 2e line.

This allows you to select the destination or end point beyond that indicated by the national telephone number. E.g. A device connected to a LAN, individual devices connected to an ISDN 2e line or an application on a host computer.

Calling Line Identity (CLI)

This facility is available on an ISDN to ISDN and PSTN calls enabling the recipient to have the number of the caller displayed on their terminal assuming the caller has authorised the release of his number and you have subscribed to the (CLIP) Calling line presentation service.

The following are also available
1470 (release CLI per call) when CLIR is applied to line

Note
1471 is not available.

141 (To switch off CLI per call).

Calling Line Identity Presentation (CLIP)

This service allows the called customer to receive the calling parties line identity (telephone number) before answering the call. The called party will only receive this information if the calling party has agreed to send their number (CLI).

Calling Line Identity Restriction (CLIR)

Customers can request that their identities (telephone numbers) are not released at any time. This service is available free of charge for the ISDN 2e line.

Connected Line Identity Restriction (COLR)

Customers can request that their identities (telephone numbers) are not released to ISDN customers that are calling them. This service is free of charge for ISDN 2e line(s).

Activation/deactivation of this facility on a per call basis is not available.

Terminal Portability

This facility allows for a terminal to be disconnected from its ISDN 2e socket and reconnected to another socket on the same ISDN 2e line during a call without losing the call. The terminal equipment must be able to support this facility.

Selective Outgoing Call barring (OCB)
(also known as: Administration controlled, pre-arranged, OCB)

Selective OCB is available to any customer that requires BT to bar certain categories of outgoing calls.

For permanent I/C or O/G call barring this service is free of charge when ordered at the same time as the ISDN 2e line.

Maintenance

StandardCare
This is the default level of service provided from 0800 hrs to 1700 hrs Monday to Friday excluding Bank and Public Holidays.

PromptCare
Is not available on ISDN 2e.

TotalCare
Is available separately tariffed. TotalCare provides customers with a contractual guarantee that, in the event of a fault report, BT will respond within 4 hours, 24 hours a day, 365 days a year.

A wide range of facilities are available with BT's ISDN 2e service. Further details are available from your account manager or the ISDN Helpline on 0800 181514.

ISDN applications

A wide range of applications can run individually or
simultaneously on an ISDN 2e line. These are some examples:

Remote LAN access

Remote LAN access allows workers in remote sites
(at home or at branch offices) to access information on
computer networks in their main offices almost instantly.

Video conferencing

Video conferencing offers low-cost instant visual contact
between geographically separated parties using either
studio-based or desktop units.

File transfer

With ISDN, you can transfer files containing data, text or
image far faster and cheaper than with a conventional
modem. The speed of ISDN even allows audio or video clips
to be transmitted cost effectively, without having to send
magnetic media.

LAN to LAN bridging

Local Area Network (LAN) bridge/routers allow flexible
interconnection between LANs using ISDN, with charges
only incurred when information is actually transmitted.

Voice and data integration

Allows you to make both voice calls and data calls over one ISDN 2e line.

Internet or Intranet access

Allows a high bandwidth connection to Internet or Intranet services.

Desktop conferencing

This enables computer users in geographically separate locations to share and amend any graph, text, spreadsheet or image on their own computer screens, whilst discussing the information simultaneously.

Group 4 fax

An A4 sheet can be sent in just two seconds with laser printer quality and significant cost savings.

Video Surveillance

Dial up access using videocodecs provides advanced surveillance on demand.

Broadcasting

Via ISDN and digital codecs, broadcasters can convey music, news items or sports commentaries with absolute clarity.

Accessing information services

The fast call set up and high bandwidth of ISDN are ideal for accessing information services and databases.

Home working (Teleworking)

Convenient retrieval, processing and storage of files is possible for the home worker, using ISDN 2e lines to give high speed access to information held in the office.

Leased circuit backup

Essential backup for leased KiloStream circuits can be provided using ISDN as required, rather than costly duplicated leased permanent circuits.
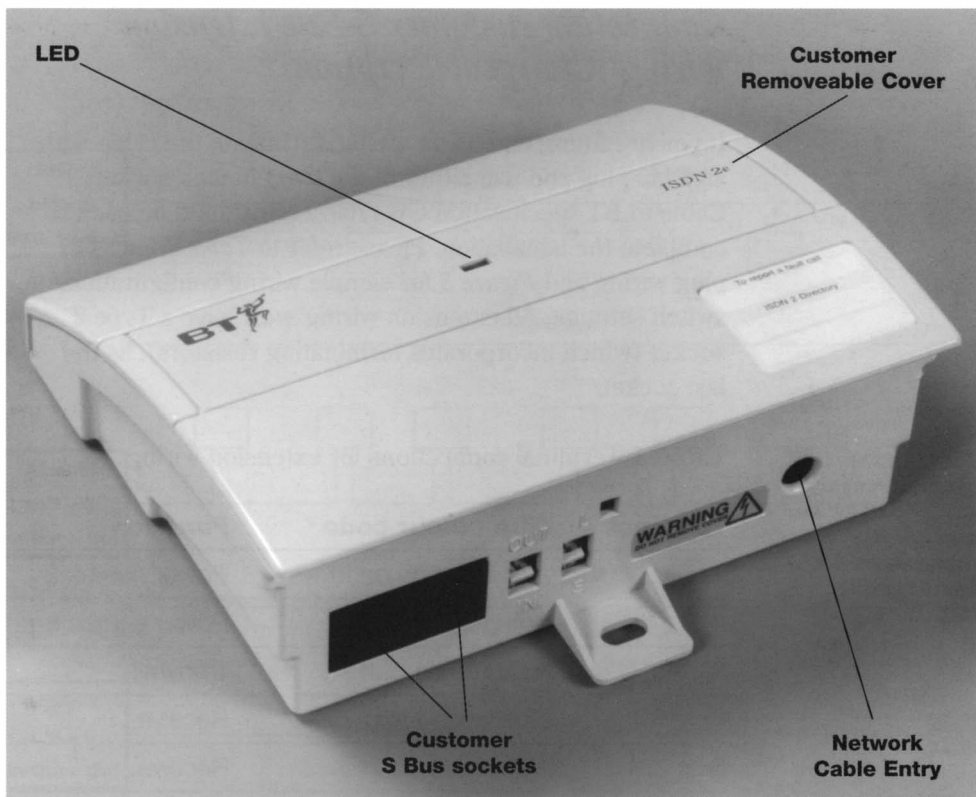
Features & Facilities

Linebox

- External overall dimensions of 153mm wide x 121mm high x 48mm deep

- BT grey in colour

- Two S/T interface RJ45 type customer sockets wired in parallel

- A write-on label for the customer's directory and fault reporting number

  On the bottom of the linebox:

  - A Long/Short switch (L/S) to provide adaptive timing on the S-Bus

  - An In/Out switch for the S-Bus terminating resistors

- A customer confidence LED

- Will provide a maximum of 420mW emergency power to *one* designated customer terminal

- A BT Engineer-only-removable cover

Connecting to ISDN 2e

Figure 1 ISDN 2e Linebox

You can either plug your ISDN equipment directly into the ISDN 2e Linebox, or run wiring extensions from it, to suit your needs. Various arrangements of extensions are possible, depending on the number of terminals you have and their distance from the Linebox.

BT will install extension wiring for you for a small charge, or you can arrange it yourself.

Connecting customer S-Bus extension wiring (Chargeable Option)

If you are fitting extension wiring, terminate the cable with an RJ45 plug and use either of the two Linebox sockets. Cable to BT specification CW1700/1750 should be used to complete the installation. Please refer to *Table 1* for RJ45 plug wiring and *Figure 3* for sample wiring configuration/ switch settings. All extension wiring *must* have a Type 2 socket (which incorporates terminating resistors), as the last socket.

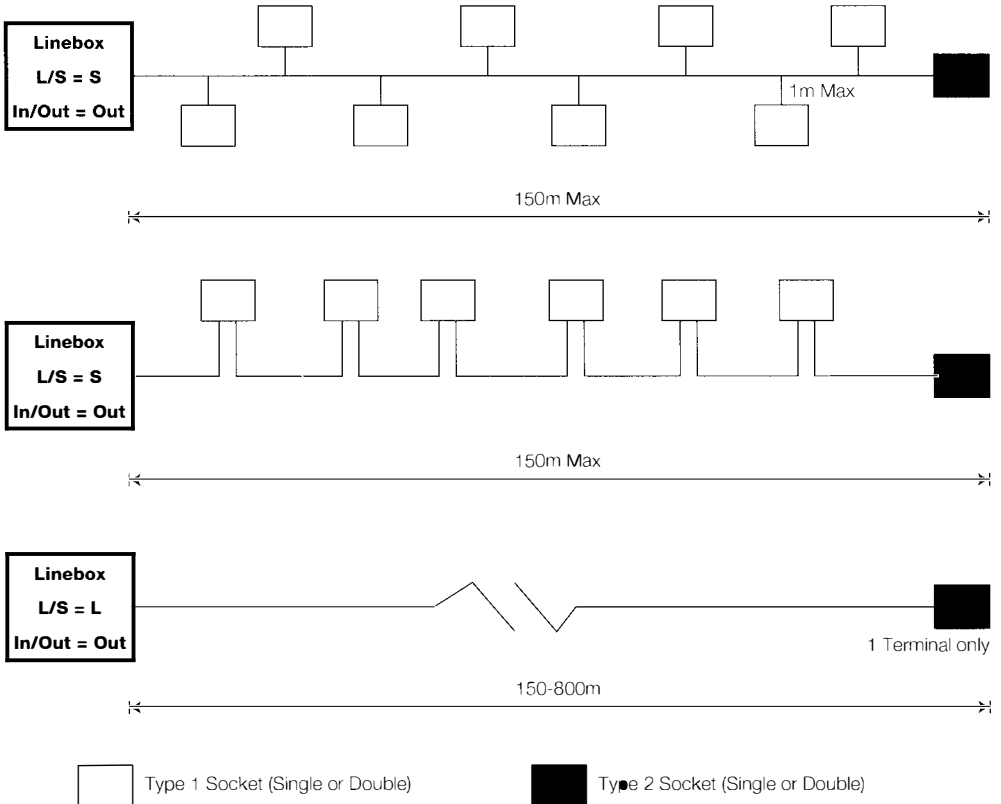**Table 1** Terminal connections for extension wiring

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

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.

Figure 3
Simple wiring configuration/switch settings

Linebox	
L/S = S	
In/Out = Out	1m Max

150m Max

Linebox	
L/S = S	
In/Out = Out	

150m Max

Linebox	
L/S = L	
In/Out = Out	1 Terminal only

150-800m

Type 1 Socket (Single or Double)   Type 2 Socket (Single or Double)

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.

Call charges

All UK calls regardless of their type, and international voice calls made using BT's ISDN services, are charged at ordinary telephone rates and therefore vary according to duration, destination and time of day.

A separate tariff applies to international ISDN data calls. For details on UK and international tariff rates please contact your account manager or the ISDN Helpdesk on **Free***fone* **0800 181 514**.

Fault Reporting

This section explains what you should do if you experience problems with your ISDN 2e service or ISDN equipment. If the LED is not lit the line or the Linebox is faulty please call BT by dialling 154 or your Service Centre.

Terminal equipment

If you have problems with your terminal equipment, try substituting equipment that is known to be working. This should enable you to isolate the fault to an individual terminal. Contact your supplier or maintainer to correct the fault.

Extension wiring

If you are using extension wiring connected to your ISDN 2e Linebox, the problem may be associated with this wiring.

1   Unplug the extension wiring.

2   Ensure the **L/S** switch is in the **S** position.

3   Ensure **In/Out** switch is in the **IN** position.

4   Plug a terminal into one of the Linebox sockets.

If the terminal works satisfactorily, the problem is probably in the extension wiring, and you need to arrange for the supplier or maintainer of your wiring to check and correct the fault. Meanwhile, you can continue to use up to two terminals plugged directly into the Linebox sockets until the fault is fixed.

If the problem persists contact BT by dialling 154.

General enquiries

For all enquiries other than the fault reports described above, call your BT account manager or local sales office, or the ISDN Helpline on **Free***fone 0800* **181 514** or ISDN Web page www.isdn.bt.com.

Operation in event of mains failure

In the event of a local mains failure or exhaustion of battery power your ISDN terminal may not perform normally and your use of the ISDN 2e service may be restricted or lost entirely.

Under these conditions the ISDN 2e service will support the provision of 420mW of power. A terminal device may be capable of being configured as 'designated' if it consumes less than 420mW of power under these conditions. Please consult the supplier of your terminal equipment for details.

Remember that only one terminal should be configured as the designated terminal but if more than one 'designated' terminal is connected during power failure, with a total power requirement exceeding 420mW, then a loss of communication will result.

Things to remember

The following cautions should be observed when using your ISDN 2e line.

• Do not, under any circumstances, remove the cover of the Linebox. There are no customer serviceable parts inside.

• Ordinary telephones and other devices designed to connect to conventional telephone lines can be used on ISDN 2e, but only via a suitable terminal adapter, and not plugged in directly.

• **Note:** ISDN 2e sockets look similar to ordinary phone sockets but the plugs and other wiring accessories are not interchangeable.

• ISDN 2e extension wiring should be routed at least 2 inches (50mm) from the mains electricity supplies as with normal telephony wiring extensions.

• The last socket on any extension wiring **must** be a BT 'Type 2' socket, or other supplier's equivalent *(see diagram on page 14)*. Failure to install a suitable last socket will endanger reliable performance of the ISDN 2e service. (The 'Type 2' socket contains resistors to ensure correct timing of the signalling circuits.)

• When communicating with a customer connected to an overseas ISDN at 56 kbit/s, for example in the USA, it is necessary for the UK customer's terminal equipment to perform rate adaptation from 64 kbit/s.

• To ensure a digital route end-to-end, the code 000 must replace the standard international access code of 00 when making international ISDN data calls. You will be informed when this is no longer required.

Notes

BT

Offices in Europe, North America,
Japan and Asia Pacific.