HELP

ISDN30 user guide

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Connecting to ISDN30

ISDN30 Description.

ISDN30 is the trade name for BT's primary rate service for the delivery of digital exchange lines. **ISDN30** is a 2 Mbit/s digital connection from the BT telephone exchange to the Customer's Premises Equipment (CPE).

Each 2 Mbit/s system provides:

Up to 30 independent 64 kbit/s channels (for speech or data) 1 x 64 kbit/s channel for synchronisation and maintenance and 1 x 64 kbit/s channel used for signalling.

There are two versions of **ISDN30** available:

ISDN30 (DASS2)
This service uses the BT signalling system DASS2.

ISDN30e
The signalling used on this service is Q.931 (ETSI version) which conforms to the worldwide ITU-T (was CCITT) standard.

Delivery Options

Alternative Routing.

With this option, **ISDN30** services are routed via separate cables from the local serving exchange. Where possible, the cables may be installed in separate ducts.

Additional one-off charges will be raised if any extra duct or fibre is required. See diagram 1.

Diverse Routing.

With Diverse Routing, **ISDN30** access will be provided from the user's local exchange and the nearest appropriate alternative exchange.

Additional one-off charges will be raised for any extra duct or fibre used.

Two different numbers will be provided for both access types. See diagram 2.
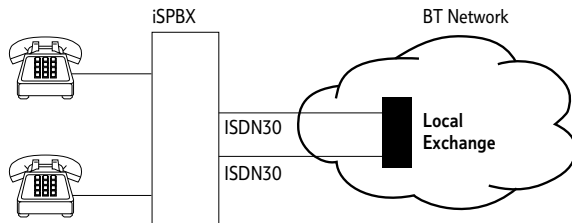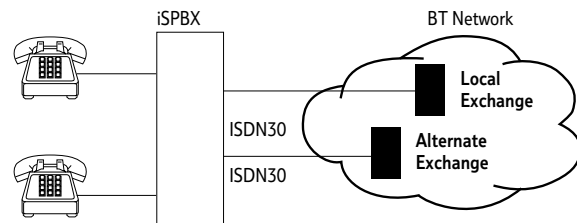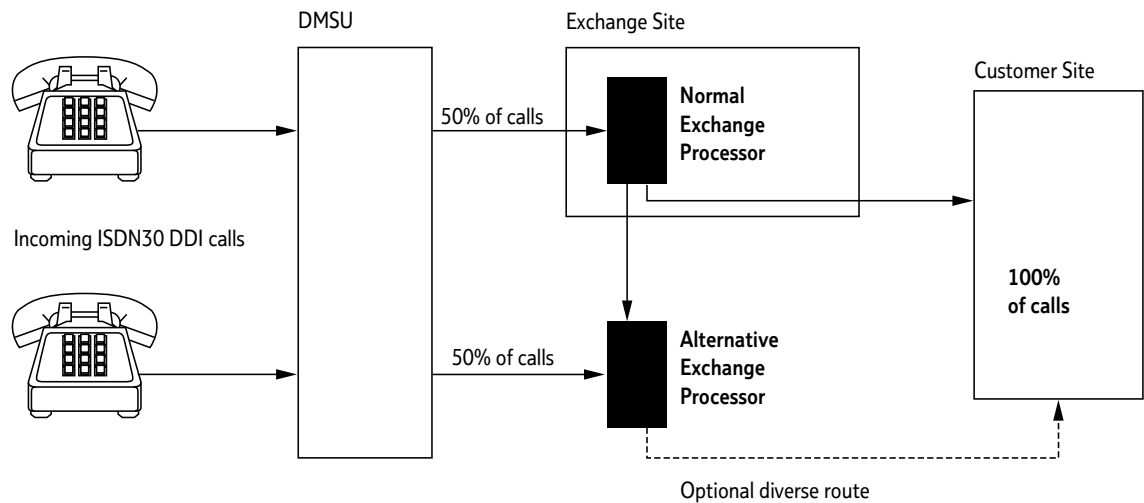
Diagram 1

Diagram 2

DDI Dual Parenting.

Dual Parenting enables *ISDN30* DDI to continue operating in the event of a customer's local exchange processor failing. This is achieved by connecting the customer to two separate local exchange processors, but keeping the same DDI telephone number range.

Whilst both local exchange processors are working normally, alternate incoming calls are sent to them by the DMSU (Digital Main Switching Unit, part of BT's core switching network) to which they are both connected. If there is a failure of either local exchange processor, all incoming calls are sent to the remaining exchange processor.

The following diagram illustrates this:

DMSU

Exchange Site

Customer Site

50% of calls

Normal Exchange Processor

Incoming ISDN30 DDI calls

100% of calls

50% of calls

Alternative Exchange Processor

Optional diverse route

ISDN30 Site Assurance

ISDN30 Site Assurance options enable customers to have their *ISDN30* (DASS2) or *ISDN30e* exchange calls re-routed to an alternative site, in a contracted time, if their normal site becomes unusable for any reason.

Customers will call their Customer Management Service Centre and will be required to give a security code, which will be verified by BT before the changeover is carried out. The service is available in two options:

Option 1.

This option is delivered using the existing *ISDN30* (DASS2) basic diversion services or *ISDN30e* basic forwarding services. This enables all incoming calls to a customer's site to be diverted to a pre-arranged single number. This could be either another of the customer's sites which is to be used as a standby, or a third party provider standby site.

On a customer request the Service Centre will arrange for changeover of service to the standby site within one hour.

Basic diversion operates for voice calls only on *ISDN30* (DASS2) and basic forwarding for voice and data on *ISDN30e*, assuming the standby site has an *ISDN30* service to receive such calls. The customer will be charged for the diverted part of all the calls when the diversion is activated.

Option 2.

This option is delivered by providing a group of *ISDN30* channels to a customer's standby site, which are configured as Incoming Calls Barred (ICB). New *ISDN30* circuits will have to be ordered at standard *ISDN30* connection and rental costs, where the standby site is off the same serving exchange as the customer site.

Network Termination.

The *ISDN30* service terminates on your premises in Network Terminating Equipment (NTE). The type of NTE varies according to whether the *ISDN30* is served over copper cables (transverse screened) or optical fibre cable. The NTE can be either installed in a wall/desk unit which can house 2 NTEs or a rack mounted unit which can house up to 4 NTEs.

Customer Interface

Many existing customers may have one of the following two NTEs.

ISDN30 (DASS2)

Regardless of the type of NTE fitted on your premises, a standard interface will be presented for connection to your CPE. The electrical interface conforms to CCITT recommendations G703 (75 Ohm unbalanced termination). This is presented by two coaxial cables each terminated with a BNC plug, conforming to BSI BS9210-N0001 part 2.

These coaxial leads are connected to the NTE at the traffic in (TFC in) and traffic out (TFC out).

ISDN30 (DASS2) NTE can either be installed in a rack mounted unit which can house up to 4 NTEs or a desk/wall unit which can house 2 NTEs. The two coaxial leads are supplied by your CPE provider.
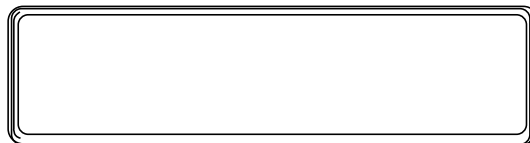
ISDN30e

For the *ISDN30e* service, the interface connector is an I.421 socket EN 28877 (RJ45) 120 Ohm balanced and subsequently an ISO 101173 (subject to ratification) connector to the CCITT I.421 standard.

DASS2 NTE

TFC in   TFC out

Lamp test button
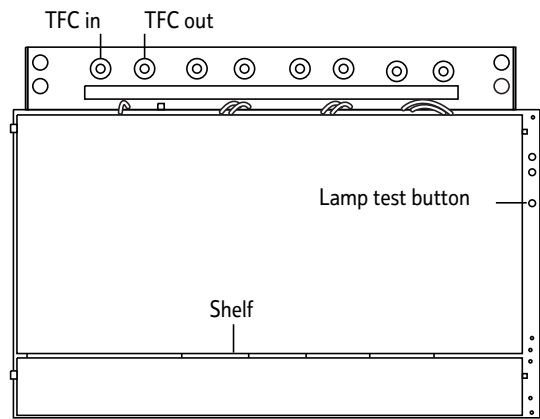
Shelf
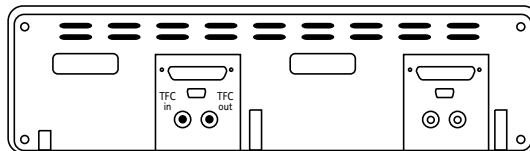
Cabinet with shelf mounted NTEs

Front

Rear

TFC in   TFC out

Table or wall mounted NTEs case

Network (Amber)
On when network faulty or not connected

NTE fail (Red)
On when NTE faulty

Customer (Amber)
On when CPE is not connected or faulty

Power (Green)
On when power connected

Front view

CUSTOMER NETWORK NTE FAIL POWER

MON IN

MON OUT

|Monitor point

|Monitor point

Rear view

BT ISDN 30 (I.421) NTE 3A

Cct No.........

CUSTOMER NETWORK

PWR IN EARTH

Out
RJ45 120Ω

In
Network

Out
BNC 75Ω

Most new customers have the following NTE.

Front view

Light	Status	Indication
PWR Green	ON	NTE on mains power
PWR Green	OFF	No power to NTE
PWR Green	Flashing	NTE on Standby Battery
Cust Amber	OFF	Inputs OK
Cust Amber	ON	One input disconnected
Cust Amber	Flashing	Two or more inputs disconnected
BT Red	OFF	Network OK
BT Red	ON	Network Faulty
Test Amber	OFF	OK
Test Amber	ON or Flashing	BT Testing

Rear view

Four circuits can be supplied: TRIB 1, 2, 3 and 4. *ISDN30* (DASS2) and MegaStreams: Presented as two 75 Ohm BNC connections IN and OUT. *ISDN30e*: Presented as a single 120 Ohm RJ45 connection.

Power Supply.

The *ISDN30e* NTE requires a 13 amp 240V mains socket within three feet of the NTE.

The 2 Mbit/s NTE fitted when copper cable is used does not require a power supply as power is line fed from the BT exchange over the copper cable.

The 2 Mbit/s NTE fitted when fibre optic cable is used does require a power supply. A single 13 amp 240V mains socket is required within three feet of the NTE.

If required, standby batteries can be supplied at a charge, giving up to five hours backup supply. Alternatively, power can be supplied from CPE equipment if it has standby power.

This will give protection in the case of a power failure so that calls can be made, but only if the iSPBX has standby power as well.

If no standby power is fitted and the power is switched off to the NTE, service will automatically be restored when the power comes back on.

Connection of CPE & Supplementary Services.

The CPE must be approved for connection to the network. This should be checked with your supplier.

ISDN30e

The CPE can be disconnected from the network without activating urgent alarms.

ISDN30 (DASS2)

Once the CPE is connected, it is advisable not to disconnect as automatic alarms will be activated in the local telephone exchange reporting a break in service.

Reconnecting the CPE will restart the service, but if five breaks occur in one hour, the service will need reactivating in the exchange. This can be done by calling *Free*fone 0800 800 *154* and explaining the situation.

Supplementary Services	DASS2	ISDN30e
Calling Line Identity Presentation (CLIP)	Yes	Yes
Administration provided Basic Diversion - Voice Only	Yes	No
Administration provided Diversion on Busy - Voice Only	Yes	No
Administration provided Diversion on Ringtone No Reply - Voice Only	Yes	No
Administration set up Call Forwarding - for all calls - Voice & Data	No	Yes
Administration set up Call Forwarding - on Busy - Voice & Data	No	Yes
Administration set up Call Forwarding - on No Reply - Voice & Data	No	Yes
Administration provided permanent Outgoing Call Barring (OCB)	Yes	Yes
Customer Controlled Services:*		
Diversions (Basic, Busy/Failure, Ringtone No Reply)	Yes	No
Channel Busying	Yes	No
Call Barring	Yes	No
Administration provided Selective Outgoing Call Barring		
All calls, International, Operator calls, National and International	Yes	Yes
Administration provide permanent Incoming Call Barring (ICB)	Yes	Yes
Call Charge Indication (CCI)	Yes	No
Sub Addressing	Yes (6 Octet)	Yes (20 Octet)
DDI	Yes	Yes
Total care	Yes	Yes

* For customer controlled services, the CPE connected to the ISDN30 service must have the capability to activate these services.
  Please contact your supplier for further information.

Description of Supplementary Services.

Calling Line Identity (CLI)

This facility - available on ISDN to ISDN and PSTN calls - enables 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 Calling Line Identity Presentation service.)

Calling Line Identity Presentation (CLIP)

This service allows the called customer to receive the caller's 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 when ordered with the ISDN30 line.

Administration Provided Call Diversion/Call Forwarding Services

Basic Diversion/Forwarding - for all calls (Voice & Data *ISDN30e*, Voice Only DASS2)

All calls incoming to the diverting group of lines are immediately diverted to the directory number that was nominated to receive the diverted calls.

Diversion/Forwarding on Busy (Voice & Data *ISDN30e*, Voice Only DASS2)

Diversion/Forwarding on Busy is provided so that customers have the opportunity to ensure that any overflow traffic at one location can be answered elsewhere. *ISDN30* (DASS2) will divert calls when all channels are busy. *ISDN30e* will forward calls when either all channels are busy or when a specific DDI extension is signalled to be busy by the iSPBX.

Diversion/Forwarding on Ring Tone/No Reply (Voice & Data *ISDN30e*, Voice Only DASS2)

Provision of Diversion/Forwarding on Ring Tone or No Reply means that calls will be diverted to a pre-arranged telephone number if the call isn't answered within approximately 20 seconds.

Customer Controlled Diversions Service - Voice Only (DASS2 only)

This service allows customers to manage the temporary diversion of incoming calls to a group of channels. The customer is charged for the diverted part of the call. The customer also requires the relevant software on his iSPBX to activate this service. (Please check with the supplier of the equipment.)

Basic Diversion

All voice calls incoming to the diverting group of lines are immediately re-routed to the directory number that was nominated to receive these calls.

Diversion on Busy

If all channels within an **ISDN30** (DASS2) group are engaged then calls are diverted to a pre-arranged telephone number, set by the customer when activating the service.

Diversion on No Reply

When activated, all incoming calls that remain unanswered for approximately 20 seconds will be re-directed to the telephone number previously set by the customer.

Customer Controlled Channel Busying (DASS2 only)

Customer Controlled Channel Busying allows a customer with a group of exchange lines to reduce the number of channels over which the local exchange presents calls. This service is typically used to route all calls incoming to a hunt group at certain times of the day - to particular channels.

Customer Controlled Call Barring (DASS2 only).

The option to bar different types of calls is under the customer's control.

Incoming Call Barring (ICB

ICB restricts use of lines to outgoing calls only. Customers have a choice of invoking the service on a per channel basis, or against a whole group of channels.

Outgoing Call Barring (OCB)

OCB restricts use of lines to incoming calls only. Customers have the option of barring a single channel, or of barring an entire group.

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.

Call Charge Indication (DASS2 only)

With Call Charge Indication, the public network informs the calling customer's ISDN equipment of the approximate cost of a call. The information is not an audible message, but is a digital information stream sent down the signalling channel to the user's equipment for display or storage at the end of the call - before final clearing. This, however, will not take into consideration any business discount options that have been taken.

Sub Addressing (also known as Network Address Extension)

For *ISDN30* this would apply to equipment that supplies *ISDN2e* ports to the user.

For ISDN to ISDN calls only, this facility permits users to add up to six (Alpha numeric characters except #) Octets to the number they're dialling. With *ISDN30e*, up to 20 Octets can be sent to other *ISDN30e* or *ISDN2e* lines. This allows the caller to select a destination, device or end-point beyond that indicated by the called national number (for example a process in a host computer or a device connected to a LAN, or individual devices connected to an *ISDN2* port). Assuming your equipment supports this facility, the caller may send his calling sub address but the called party must have CLIP to receive this facility.

Direct Dialling In (DDI)

Direct Dialling In combines the benefits of direct access to extension users without the need for individual exchange lines to be associated with each user or going via the operator.

The principle by which DDI works is that typically the last six digits of the dialled number are forwarded to the iSPBX over a group of ISDN lines and are used for call routing. This enables a range of public exchange numbers to be allocated to the iSPBX, and for each extension user to have the equivalent of his or her own exchange line. Frequent callers can then call directly to the person they wish to contact.

A number from within the DDI range can be allocated as the main number for calls to the iSPBX operator. This would be the Company's main published number for callers who do not know the relevant DDI number of the person or department they wish to contact.

The Benefits of DDI

- Quick direct access to individuals without the need to call via the operator.

- Lower work level for the operator, freeing time/resource for other duties.

- Efficient utilisation of the exchange lines.

ISDN applications

LAN ACCESS and LAN to LAN

ISDN30 can be used at the central site for LAN access from remote locations, via *ISDN2*. This is ideal for small sites or home workers who require the use of the central resources intermittently throughout the day.

Provides flexible bandwidth between LANs depending on the amount of data to be transported.

Call Centres

With the introduction of computer aided telephony, *ISDN30* is the only delivery mechanism that can supply the CLI information from ISDN and PSTN BT customers. This triggers the database to deliver the customer information on screen before the call is answered. CLIP must be ordered to receive the CLIs.

Benefits

- Fast call answering increases productivity per position.
- Market analysis of calls and location.
- Call capturing for callers who hang up before being answered; they can then be called back.

Bandwidth on Demand

With the use of CPE equipment connected to the *ISDN30* line, flexible bandwidth can be achieved from 64bit/s to 1920kbit/s for large file transfer, videoconference and disaster backup.

Speech

High quality speech for iSPBXs for low cost bulk delivery of exchange lines and future proofing facilities.

ISDN to the Desk

ISDN30 can be split to provide digital service on extension to a number of desktops around your site.

Videoconferencing

Using ISDN, meetings can take place face-to-face without expensive and time-consuming travel.

Call Charges

All UK calls regardless of their type; speech, data, text, video, etc. made using BT's ISDN services are charged at ordinary telephone rates and therefore vary according to duration, destination and time of day.

For international calls using ISDN, speech calls are at the standard call tariff but separate tariffs apply to international data calls. For details on UK and international tariffs please contact your account manager or the ISDN help desk on *Free*fone 0800 **18 15 14.**

To ensure a digital end to end route on international data calls, the international code 00 must be replaced with 000. This is planned to be changed to 00 around April 2000 and you will be contacted when the extra 0 is no longer necessary.

Fault reporting

Before reporting a problem to BT, customers are advised that it is in their interest to ensure that the fault is on the *ISDN30* service and not their CPE. The following checks should be carried out.

- Check that all plugs are properly connected and that power is switched on and directed to all relevant equipment.
- Check that any non-BT maintained equipment is functioning correctly.
- Remember, if on inspection, BT equipment and lines are found to be working correctly, you may be liable to pay for abortive work carried out by BT.

Fault Information

When reporting a fault the following information is required:

1. Directory number(s) of lines on the *ISDN30* service.
2. The circuit number i.e. IM/ABC 1234.
3. Description of the fault.
4. Name and telephone number of the person who will be the liaison point for BT regarding the fault.

Maintenance

Business repair service level called PromptCare is provided as standard maintenance cover for the *ISDN30* service.

BT will respond within four working hours of the fault report between hours 0800-1700 Monday to Saturday.

TotalCare is available as a chargeable extra for cover 24 hours a day, 365 days a year. Report any faults to *Free*fone 0800 *800 154*.

Now there's no stopping you

ISDN 30

Offices Worldwide