



KiloStream



Offices worldwide

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Network Terminating Unit 7

KiloStream Private Circuits

Contents

To report a fault with your KiloStream private circuit, please ring your BT Service Centre on this number:

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Please quote:

- your circuit type.....

- your circuit number(s)

.....

.....

.....

- your end address.....

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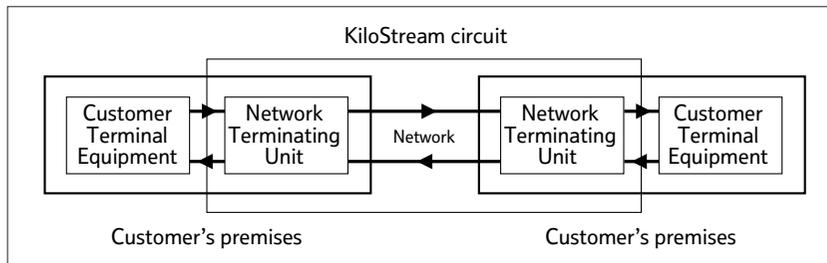
1 About this guide

This operating guide gives you information on KiloStream and KiloStream N private circuits including:

- Connecting your equipment to the Network Terminating Unit
- What the display means
- How to test your circuit.

2 About KiloStream & KiloStream N

KiloStream and KiloStream N are dedicated digital private circuit services, offering either data or voice transmission.



The KiloStream circuit

3 The equipment you will see

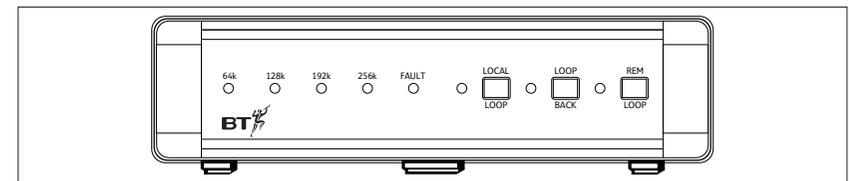
BT's digital private circuits terminate at your premises on a network terminating unit (NTU) which is provided within the rental price.

Any on-site wiring and equipment beyond the NTU is your responsibility and maintained by the relevant contractor. This may be BT or an independent supplier.

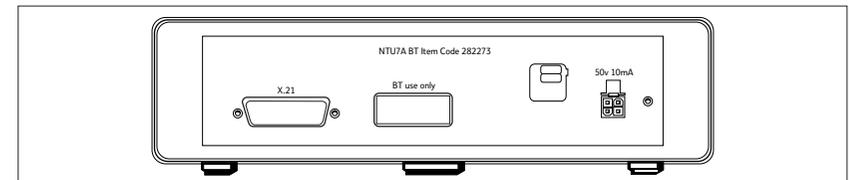
One of our engineers will connect the NTU to the BT network using the port on the NTU labelled as **Local Line**. If you alter this line connection in any way, you will set off remote alarms within the BT network and your service will be affected.

Single NTU7A

If you have ordered a single KiloStream 64kbit/s or KiloStream N (128, 192 or 256kbit/s) circuit, the unit is contained in a grey rectangular box. The lamps on the front of the unit show the operating state of the circuit. The unit can be wall mounted, using appropriate fixing screws, or laid flat.



NTU7A front view



NTU7A rear view

Multiple NTUs 7B

If you have ordered a number of lines or a network of services at a single site, you may need shelf mounted NTUs. This installation normally consists of a series of NTUs in 'card' form. Each 'card' will be shelf mounted in a 'stacking system'.

4 Connections from the NTU

NTU7 power requirements

The NTU7A (single unit) is normally powered from the line. In exceptions, where this is not possible, you will be supplied with a fused plug top adaptor for connection to a 13amp ac mains supply. If the unit is locally powered, then the procedure should be as follows:

- Connect the plug top power supply into the NTU7A
- Connect the line cord to the network
- Turn on the mains power supply.

Note the plug top power supply does not rely on a mains earth pin for safety purposes.

To change from line power to local power, the plug top power supply is simply inserted into the NTU7A and the power applied.

To change from local power to line power:

- Turn off the mains power
- Remove the power supply from the NTU7A
- Disconnect the line connection
- Reconnect the line connection.

Note the disconnection of the line is necessary to allow BT's network equipment to distinguish between a power fail event and a switch from local to line power.

The NTU7B (multiple unit) will be locally powered from within the shelf supplied with the installation.

Connecting your equipment to the NTU7

You must connect your terminal equipment to the 15-way D type connector located on the rear of the NTU, for single units, or on mounting strip for shelf units, with the correct type of cable. Your equipment supplier will normally provide this cable.

Cabling distance

In order to achieve the best performance from your KiloStream 64kbit/s or KiloStream N circuit, the cabling distance between the NTU and your terminal equipment should not be more than 10 metres. If you have to relocate the terminal equipment at any time, please don't exceed this distance.

Configuration of service

BT engineers will have configured your KiloStream 64kbit/s and KiloStream N circuit to the service option and circuit capacity that you specified when placing your order. Please note that your terminal equipment must also be configured to the same specification, otherwise the service will not function properly.

5 Getting started

When the power is applied to the NTU, it will run its self test procedure. If the NTU fails this self test, the fault LED will remain illuminated along with one of the data rate LEDs. Periodically these LEDs will flash.

If the self test passes, the LEDs will flash in sequence (any faulty LEDs can be identified at this point).

The unit will then enter its local line system synchronisation scan mode. The unit will indicate 64k for a period of about 30 seconds, followed by 256k for about 8 seconds until line system synchronisation is achieved.

If the circuit is set for a data rate of 64kbit/s, then the NTU should acquire synchronisation while scanning for the '64k' local line rate. Synchronisation is indicated by the Red Fault LED going OFF.

If the circuit is set to 128, 192 or 256kbit/s data rate, then the NTU will only acquire synchronisation when scanning for the '256k' local line rate. After initial local line synchronisation is acquired, at this rate, the NTU will select the configured data rate, as indicated by the appropriate LED.

The BT engineer will leave the unit in its agreed circuit configuration state.

6 Testing your KiloStream 64kbit/s or KiloStream N circuit

The front of the NTUs have the following indicators and test facilities:

- Four separate data rate indicators (green LEDs). These indicate the user rate in use and also double up as a power on indicator (as one of them will always be on).
- A fault LED (red). This indicates that the unit is in a fault state.

This may be due to:

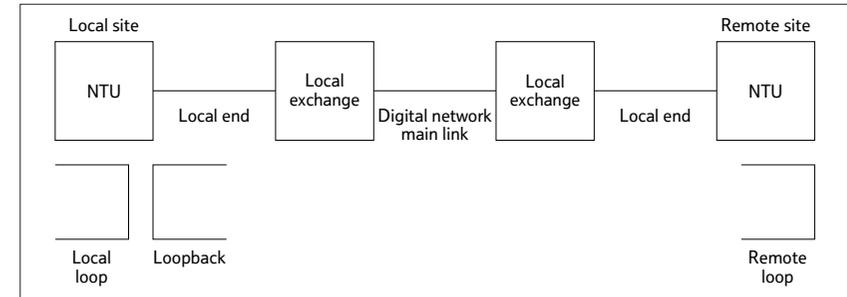
- a) self-test failure
- b) loss of line sync
- c) invalid communication message

- A **LOCAL LOOP** button. Pressing this will apply a customer facing loop.
- A **LOOPBACK** button. Pressing this will apply a network facing loop.
- A **REMOTE LOOP** button. Pressing this will apply a loopback at the distant NTU.

A yellow LED, one for each loop, will illuminate to indicate the presence of the respective loop.

7 Looping your circuit

You can use the Local Loop, Loopback and Remote Loop buttons to help further with fault location.



Types of Test Loops

- Activation of a **LOCAL LOOP** allows you to directly test the operation of your equipment.
- Activation of a **REMOTE LOOP** allows you to test the operation of your equipment across BT's network by a loopback at the distant NTU.
- Activation of a **LOOPBACK** helps BT engineers to test the connection from the network.

8 Testing the operation of your Data Terminal Equipment (DTE)

To test the connection and operation of your Data Terminal Equipment you can either:

- test via the customer interface and a loop on the local NTU (Local Loop) towards your DTE.
- test via the customer interface of the local NTU and a Loopback, at the distant NTU, towards your DTE, ie Remote Loop operation.

Local Loop control

The Local Loop within the NTU7 can be controlled either by local user action at the local NTU7 or by control signals from your DTE.

Local Loop control by local user action at the NTU

To activate the loop press the Local Loop button. This applies a Local Loop and the Local Loop LED is illuminated.

To remove the loop press the Local Loop button again.

Local Loop control from your DTE

It may possible to activate the local NTU Local Loop by transmission of the appropriate signalling and data conditions from your own Data Terminal Equipment (DTE). This mode of operation is only available if you have the X.21 Control/Indicate signalling enabled across BT's network (ie this is a BT service option).

To activate a Local Loop the DTE must send the pattern 11110000 (ALT) on the transmit (T) circuit for a minimum of 16 bits. The control (C) must be in the OFF state during this phase. When the NTU applies the loop, the DTE must set the C circuit to the ON state before sending data around the loop. The Local Loop LED will be illuminated at this point.

At the end of the test, the loop can be deactivated by turning the C circuit back to the OFF state. The Local Loop LED should then be extinguished.

Note this loop should only be used when the NTU is in sync. If there is no local line sync, the Local Loop should be applied from the NTU front panel.

Remote Loop control

A loopback at the distant NTU can be controlled either by local user action at the local NTU7 or by control signals from your DTE.

Remote Loop control from the local NTU7

To activate the loop, press the Remote Loop button. This applies a Loopback on the distant NTU and a Remote Loop LED is illuminated.

To remove the loop, press the Remote Loop button again.

Note this loop can only be used when the NTU is in sync and with a circuit operational with a remote NTU (eg NTU7) that supports V.54 Remote Loop signalling.

Remote Loop control from your DTE

It may possible to activate a loopback at the distant NTU by transmission of the appropriate signalling and data conditions from your own Data Terminal Equipment (DTE). This mode of operation is only available if you have the X.21 Control/Indicate signalling enabled across BT's network (ie this is a BT service option).

To activate a Remote Loop, the DTE must send the pattern 11001100 (ART) on the transmit (T) circuit for a minimum of 16 bits. The control (C) must be in the OFF state during this phase. When the distant NTU applies the loop, the DTE must set the C circuit to the ON state before sending data around the loop. The Remote Loop LED will be illuminated at this point and the distant end NTU will have its loopback LED illuminated.

At the end of the test, the loop can be deactivated by turning the C circuit back to the OFF state. The Remote Loop LED should then be extinguished.

Note this loop can only be used when the NTU is in sync and with a circuit operational with a remote NTU (eg NTU7) that supports V.54 Remote Loop signalling.

9 Testing the connection from the network

To test the connection and operation from the network through the local end and the NTU, BT engineers may ask you to apply a loopback to help them locate the fault. To do this:

- Press the Loop Back button.
This applies a loopback and the loopback light is illuminated.

To remove the loop:

- Press the Loop Back button

10 If you have a problem

If you think there is a problem with your private circuit, you may try the checks below to solve the problem.

A RED lamp illuminated on front of NTU indicates a fault on the BT equipment and should be reported via your normal BT contact.

By applying loops using the buttons on the front of the NTU, it may be possible to identify if the problem is with your own terminal equipment or with the circuit. If the problem proves to be the circuit, then the fault should be reported via your normal BT contact.

If a fault proves to be in your terminal equipment or on-site wiring, rather than in the private circuit, BT reserves the right to charge for time spent on a visit to your premises. It's in your interest to carry out these checks first.

An explanation of NTU Self Test detected conditions are as follows:

Conditions detected after power up [i.e. Self Test routine]	Diagnosis	Operation possible
FAULT and 64k LEDs illuminated	Internal EPROM fault	No
FAULT and 128k LEDs illuminated	Internal RAM fault	No
FAULT and 192k LEDs illuminated	Internal Framer fault	No
FAULT and 256k LEDs illuminated	Internal EEPROM fault	Yes
Some LEDs flash in sequence	LED fault	Yes
All LEDs flash in sequence	TEST PASS	Yes

11 How to report a fault

BT has established Service Centres to deal exclusively with maintaining KiloStream, KiloStream N and MegaStream digital private circuits.

Before you contact a service centre, you may want to:

- ensure that the fault is in the private circuit or NTU and isn't due to your own wiring or terminal equipment
- ensure that all plugs are properly connected and that there is power to the equipment (where required)
- ensure that any non-BT maintained equipment is working
- carry out the tests described in the section Testing your KiloStream 64kbit/s or KiloStream N circuit.

If the fault is with the private circuit or the NTU, please telephone the nominated service centre, as shown on the inside cover of this guide.

When you ring, you'll need to give the following information:

- the circuit reference number which you'll find on the cover of your NTU
- the name and telephone number of the person whom we can contact while the fault is being traced: when the line is clear, we will inform the same person.
- a description of the fault.

The BT Service Centres are manned by specialist staff who have access to computer-aided facilities to speed the handling of any problem with your private circuit; these facilities include access to alarm information.

The Service Centre staff will keep you informed of progress made towards restoring your service, and will report back to you when service has been restored.

You can report a problem outside normal office hours (0900 to 1700, Monday to Friday). You will need to state if access to your premises is available outside normal office hours.

Note: Service Centre staff do not have test access to equipment beyond your NTU, nor can they provide diagnostic information about equipment beyond your NTU.