

8210 Basic Unit Installation Guide

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STATUTORY NOTICES

APPROVED for connection to telecommunication systems specified in the instructions for use subject to the conditions set out in them.

NS/1282/1/P/604238

WARNINGS

The 8210 basic unit may have a removable blanking plate fitted at the rear. This panel may only be removed by suitably qualified personnel for installation or maintenance purposes, and must be replaced afterwards. Removal under any other circumstance would invalidate the safety type approvals.

Please refer to Appendix B of this manual for KiloStream ports in the 8210 basic unit.

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The Electro-Magnetic Compatibility (EMC) performance of this product is maintained through the use of screened cables as specified in Appendices B and C. The use of alternative cables may compromise this performance, for which the user will be required to correct at his own expense.

The Safety Status of all interconnection points of cards and/or modules in the 8210, that are for the connection of other equipment, are SELV (as defined by EN60950), and the mains power connector which is defined as 'excessive voltage'.

The protective earth should be in accordance with IEEE wiring regulations and BS 6701 Part 1 and 2 (code of practice for installation of apparatus intended for connection to certain telecommunications systems).

CZECH REPUBLIC SAFETY STATEMENT

Přístroj musí být umístěn v blízkosti síťové zásuvky. K odpojení přístroje od sítě slouží vidlice síťového přívodu.

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Preface

This guide provides information for network controllers (supervisors) to install the 8210 Basic Unit.

For details of information on the specific software concerned please refer to the relevant product manuals.

MORE STATUTORY NOTICES

IMPORTANT FOR UK USE

The wires in the mains lead of this apparatus are coloured in accordance with the following code:

Green & Yellow: Earth Blue: Neutral Brown: Live

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured Green & Yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol \perp , or coloured green, or green & yellow.

The wire which is coloured Blue must be connected to the terminal in the plug which is marked with the letter N or coloured black.

The wire which is coloured Brown must be connected to the terminal in the plug which is marked with the letter L or coloured red.

If the moulded mains plug is removed from the lead of this equipment, the plug must be disposed of immediately.

CE 168 X

Case Communications Ltd declare that this product conforms with the protection requirements of Council Directive 89/336/EEC on the approximation of the laws of the member states relating to electromagnetic protection.

Case Communications Ltd. declare that this product conforms with the requirements of the European Communities Directive of 73/23/EEC on the harmonisation of the laws of Member States to electrical equipment designed for use within certain voltage limits.

Case Communications Ltd. declare that this product conforms with the requirements of the Council Directive of 91/263/EEC on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity covering the following port types:

Port

Network Port, fitted with the appropriate cable as specified below:

Public Telecommunications Network(s)

Private Circuits using interfaces compatible with X.25 (1984) using interfaces compatible with X.21 (V.11) or X.21 *bis* (V.28) or X.21 *bis* (V.35) or X.21 *bis* (V.36).

Private Circuits using interfaces compatible at the physical with X.21 (V.11) or X.21 *bis* (V.28) or X.21 *bis* (V.35) or X.21 *bis* (V.36)

Interface Type

X.21 (V.11)
X.21*bis* (V.28)
X.21*bis* (V.35)
X.21*bis* (V.36)

Cable Part Number

X890-401011
X818-401211
X818-401311
X890-406611

All PCB assemblies contain Electrostatic Sensitive Devices (ESDs) which may be permanently damaged if incorrectly handled. This equipment must be handled in accordance with BS5783 code of practice for the handling of electrostatic sensitive devices.

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1.1 Introduction

The 8210 is a generic name for a two slot chassis from the 8000 series of products. The functionality of the 8210 unit depends on the configuration and the software running on the Application Card(s) installed. Both conventional Application Cards (using μ D connections) and Super Cards (using PIMs) are supported.

This equipment must only be installed by fully qualified personnel.

2.1 Preparation

The installation area should be clean, and free from environmental extremes. One unit may be stacked on top of another provided they are in free air which does not exceed 40°C. The units should be sited so that the indicator lights can be seen. The unit(s) must be installed near to a socket outlet which should be easily accessible.

2.2 The 8210 Unit

After unpacking, check the following are present:

- An 8210 unit.
- A mains cable (if mains powered).

The unit can be either mains or DC powered, according to the variant ordered. Refer to Section 2.4 or 2.5 as appropriate.

2.3 Other Equipment

Check interfaces between the 8210 unit and all other equipment which is to be connected (modems, computers, terminals) to ensure compatibility of data and control lines. Any changes necessary must be made in the other equipment or the interconnecting cables. Cable specifications are given in Appendices B and C.

2.4 Mains Connection

The 8210 unit is dual-fused: both the LIVE and NEUTRAL connections are fused. The cable connects to the 8210 unit with an IEC 320 connector which incorporates two 2.5A(T) @ 250V 20 mm UL listed cartridge fuses.

To replace a fuse first disconnect the mains supply, withdraw the IEC socket from the unit and use a screwdriver to ease out the panel marked **FUSE**. (This must only be carried out by qualified personnel.)

Fuses must only be replaced with the correct type and value, and must not be short circuited.

2.5 DC Connection

Connection to the DC supply is made using the integral cable. The cable terminates with stripped/tinned ends. The RED cable should be connected to DC positive (+), with the BLACK to DC negative (-). (Note: The 8210 is not polarity sensitive and will not be damaged by DC polarity inversion.)

The DC powered unit is internally fused with a 1.6 amp, 250V time delay, UL listed, 20mm cartridge fuse. To replace the fuse, first remove all power and data cables from the 8210. Undo the three rear panel screws, and in some cases the two front panel screws, and cleanly lift the lid off. A fuse is fitted to each of the DC/DC Converter PCBs present in the unit.

Fuses must only be replaced with the correct type and must not be short-circuited.

Before connection to the DC supply is made, check that the DC voltage rating of the 8210, i.e. +24, or +48V, matches the voltage of the DC supply (see Figure 3-3).

2.6 Earthing

2.6.1 Functional Earth

To comply with the EMC requirements for this product the metal case must be connected to a good earth.

On mains-powered units, the earth connection is provided via the IEC connector and mains cable. No further connection is required.

For DC-powered units a separate earth connection must be made between the earth terminal (see Figure 3-3) on the rear of the unit, and an earth point provided externally.

An earthing point is provided for attachment of anti-static wrist bands for service personnel. This connection is provided by a terminal post. On the DC powered variant it is also used for the main EMC earth connection (see Figures 3-2 and 3-3).

See also 2.6.2.

2.6.2 Safety Earth (DC Powered Units Only)

A safety earth is not normally required with DC powered units; however an additional earth lead (GREEN), secured to an internal earth point, is supplied for customer satisfaction.

Note: If the safety earth is used, no additional earthing (EMC) is required.

See Statutory Notices re: BS6701.

2.6.3 Use of Screened Cables

The use of the specified screened cables is mandatory if Electro-Magnetic Compatibility (EMC) performance is not to be compromised. Refer to Statutory Notices.

Refer to the appropriate sections of the following manuals for specific details:

X890-303351 – Series 8000 Application Card Installation Guide

or

X890-300451 – Series 8000 Super Card Installation Guide

2.6.4 Frame Ground (Pin 1) to Signal Ground in V.24 and X.21 Applications

Refer to the appropriate sections of the following manuals for specific details:

X890-303351 – Series 8000 Application Card Installation Guide

or

X890-300451 – Series 8000 Super Card Installation Guide

2.6.5 Frame Ground To Signal Ground

The 8210 unit connects Frame Ground to Signal Ground through the use of a 100R resistor, (R11) and HF Bypass capacitor. These components are fitted to the internal motherboard and are not user accessible.

The user should seek expert advice, where products are to be interconnected across different phases of Mains supplies, or where the Potential Difference between Ground (Earth) points is excessive.

2.7 Installing the Application Cards

Details on installing the application cards are given in the Series 8000 Application Card Installation Guide (X890-303351) or Super Card Installation Guide (X890-300451).

Note: Any unoccupied card slot must be fitted with a blanking plate. See statutory notice on page 0-2.

The 8210 is a free-standing unit in a metal enclosure. It may contain one or two power supply units and up to two processor boards. The processor boards consist of a 68000 microprocessor, RAM, and battery-backed RAM (BRAM). The software resides in EPROMs. A small label on the edge plate of the processor board indicates the software variant, i.e. 8160, 8225, etc.

There are seven LED indicators which can be seen through the slots in the front bezel, as shown in Figure 3-1. Between each of the yellow and red LEDs is a small round hole. Located through the hole is a small push-button switch used for cold starting each card in the unit (see Chapter 5).

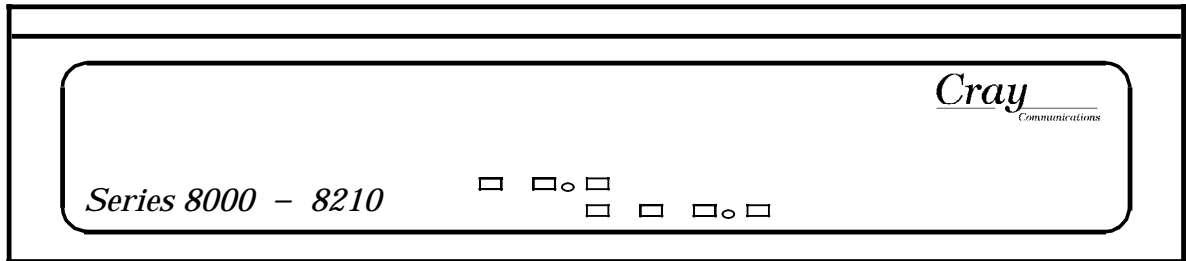


Figure 3-1 8210 Front View

Connections to computers, modems and terminals are made via 15-way micro D-type connectors or standard interface connectors located at the rear of the equipment, as shown in Figure 3-2 and 3-3.

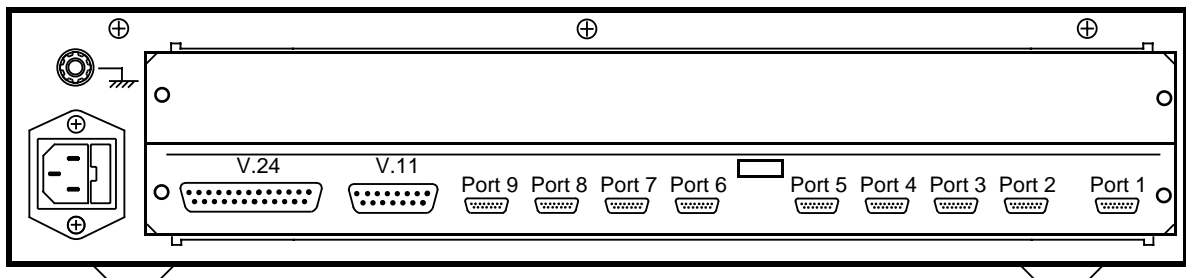


Figure 3-2 Mains Powered 8210 Rear View

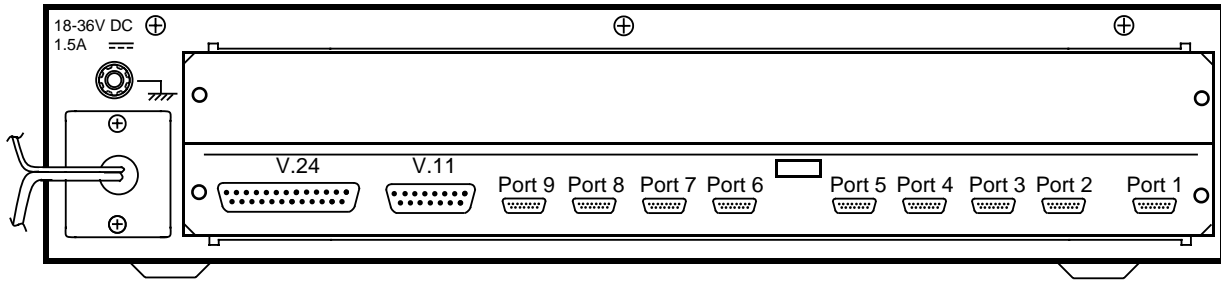


Figure 3-3 DC Powered 8210 Rear View (24V Version)

Indicators

When the 8210 unit is powered up the left-most green indicator on the bottom row will illuminate, indicating that power is applied to the unit, a further three indicators for each card slot may also illuminate. Their meanings differ depending on the software.

The bottom row of LEDs reflects the status for the bottom card and similarly the top row of LEDs relates to the top card.

For the 8160 and 8225:

RED indicator	ON:	Hardware failure.
	FLASHING:	Software failure.
	OFF:	Normal.
YELLOW indicator	ON:	Power up tests in progress.
	OFF:	Normal.
GREEN indicator	ON:	X.25 link (composite) 'up'.
	FLASHING:	X.25 link (composite) 'down'.
	OFF:	Power failure.

For the 8295 and 8260:

RED indicator	ON:	Power up tests in progress.
	FLASHING:	Hardware failure.
	OFF:	Normal.
YELLOW indicator	ON:	X.25 link B (port 9) 'up'.
	FLASHING:	X.25 link B (port 9) 'down'.
	OFF:	Power failure.

GREEN indicator **ON:** X.25 link A (composite) 'up'.
 FLASHING: X.25 link A (composite) 'down'.
 OFF: Power failure.

For the 8295 Super Card:

RED indicator **ON:** Power up tests in progress.
 FLASHING: Hardware failure.
 OFF: Normal.

YELLOW indicator **ON:** Normal.

GREEN indicator **ON:** X.25 link A (composite) 'up'.
 FLASHING: X.25 link A (composite) 'down'.
 OFF: Power failure.

For the 8295 Super Card:

RED indicator **ON:** Power up tests in progress.
 FLASHING: Hardware failure.
 OFF: Normal.

YELLOW indicator **OFF:** Normal

GREEN indicator **ON:** X.25 link A (composite) 'up'.
 FLASHING: X.25 link A (composite) 'down'.
 OFF: Power failure.

1. Turn on/connect mains/DC power. The power indicator will illuminate and the three other indicators per slot should illuminate solidly for a moment, and then start cycling on and off for a few seconds while power-up diagnostics are being performed. Eventually, the following should result:
 - a. For the 8160 and 8225 cards:

The **RED** and **YELLOW** indicators should extinguish and the **GREEN** will remain on or flashing. If the **RED** indicator remains on then the card in that slot is faulty.
 - b. For the 8295 and 8260 cards:

The **RED** indicator should extinguish and the **GREEN** and **YELLOW** should remain on or flashing. If the **RED** indicator remains on or flashing then the card in that slot is faulty.
 - c. No card present:

All LEDs should remain off.

The cards in the 8210 can be 'cold started' (provided that the software variant in your card(s) support cold start). This procedure will return the card to its default (factory) configuration state.

1. Disconnect the unit from the mains/DC power supply.
2. Determine which card is to be cold-started: top or bottom. Locate the cold start push-button switch relating to that card through the appropriate hole in the front panel between the yellow and red LEDs.
3. Using a small screwdriver, or similar, depress the push-button switch and simultaneously power-up the unit.
4. Keep the switch depressed for ten seconds and then release.

6

Power Supply Failure

Some units may be equipped with a dual power supply. Externally, these units are identical to their single power supply counter-parts.

In the event of a PSU failure being detected, the power indicator (normally green) will flash red.

Furthermore an event may be signalled to any NMC attached to the system. If this happens you should contact your supplier.

The unit can operate indefinitely on the remaining good PSU.

A separate event will be generated for each card in the system.

Appendix A Specification Summary

Mains Supply

Power	100-240V \pm 10% 0.8 - 0.4A 50-60 Hz 45 Watts maximum
Cable	A cable of approximately 2 metres is supplied fitted with an appropriate mains plug.
Fuse Rating	2.5A(T) @ 250V 20mm (\times 2) UL listed

DC Supply

Power	nominal +24 VDC (18-36), or nominal +48 VDC (36-60) 50 Watts maximum
Fuse Rating (Internal)	1.6A(T) @ 250V 20mm (\times 1) UL listed
Cable	Approximately 2 metres of flying lead with tinned ends is provided.

Unit Dimensions (approx)	Height: 95 mm Width: 430 mm Depth: 380 mm
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Weight	<4 kg (9 lbs) (less external cables)
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Environment

Ambient temperature	Operating: +5°C to +40°C Storage: -25°C to +55°C
Relative Humidity	5% to 95% non-condensing at +40°C
Altitude	Up to 3000 metres
Atmospheric Pressure	800-1100 mb.

All interconnections on the 8210 conform either to CCITT V.24/V.28 interface, terminating in either a 25-way D-type or 15-way micro D-type plug, or to CCITT X.21/V.11 interface, terminating in a 15-way D-type plug, or CCITT V.35 interface, terminating in a 35-way MRAC connector.

Figure B-1 gives a rough guide to cable requirements when using factory-supplied cables.

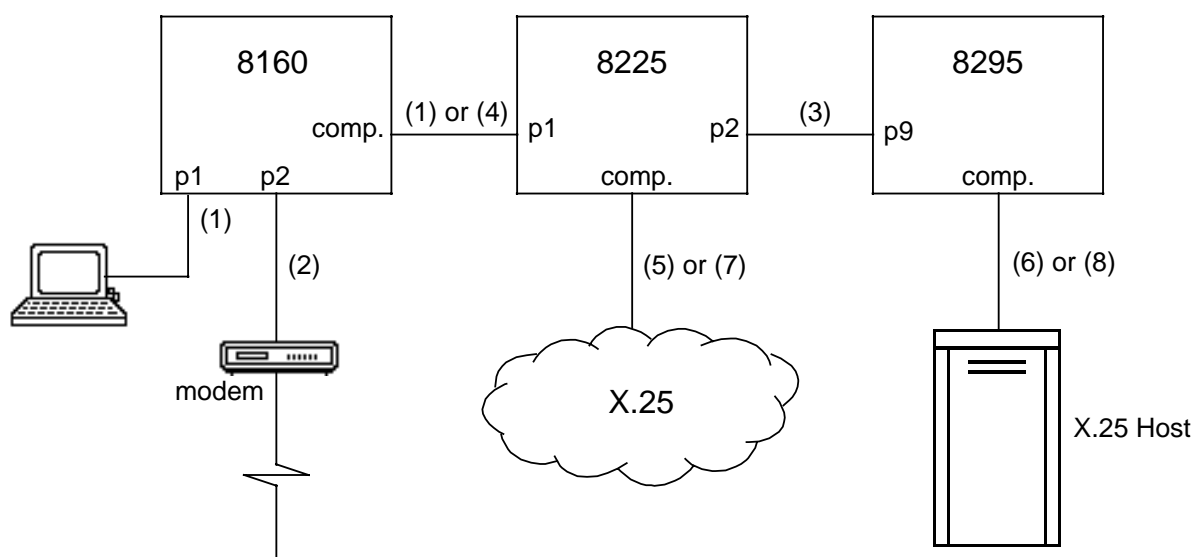


Figure B-1 8210 Cable Connections

For 8160, 8225, 8295 and 8260 Ports 1-9

- (1) 8210 Card to DTE (e.g. terminals) use cable X890-409911, Figure B-2 or stub cable X890-411111.
- (2) 8210 Card to DCE (e.g. modem) use cable X890-410111, Figure B-3.
- (3) 8210 Card to another 8210 Card ports 1 to 9 use cable X890-410411, Figure B-4.
- (4) 8210 Card composite to 8210 Card ports 1 to 9 use cable X890-410311, Figure B-2. (This cable is the same as (1) but shorter in length.)

For 8160, 8225, 8295 and 8260 Composites

- (5) 8210 Card to V.24 DCE use cable X890-403111, Figure B-5.
- (6) 8210 Card to V.24 DTE (8100 provides clocks) use cable X890-403011, Figure B-6.
- (7) 8210 Card to X.21 DCE use cable X890-401011, Figure B-7.
- (8) 8210 Card to X.21 DTE (8210 Card provides clock) use cable X818-400511, Figure B-8.

For KiloStream connections refer to Appendix C.

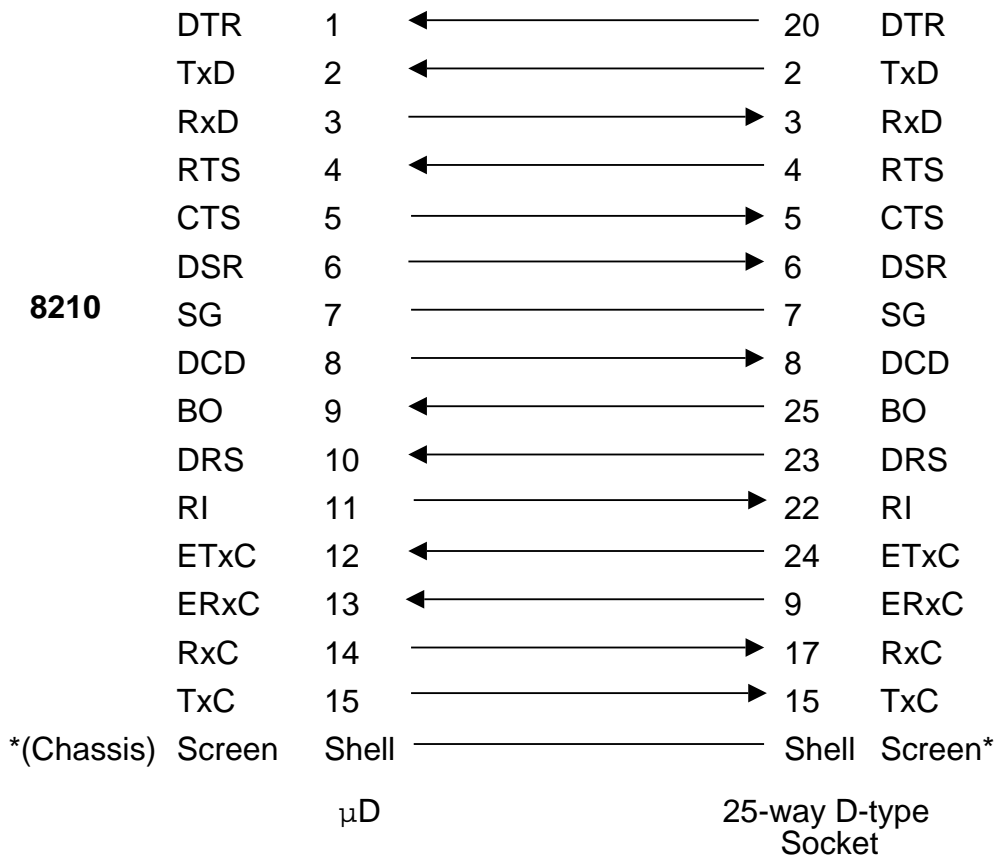


Figure B-2 V.24 Interconnect Cable

- Part No.: X890-410311 (0.75m)**
X890-409911 (3m)
X890-410011 (5m)
X890-411111 (stub cable)

* X890-411111 Stub Cable only, (screen is unterminated at the D-type end on all other cables)

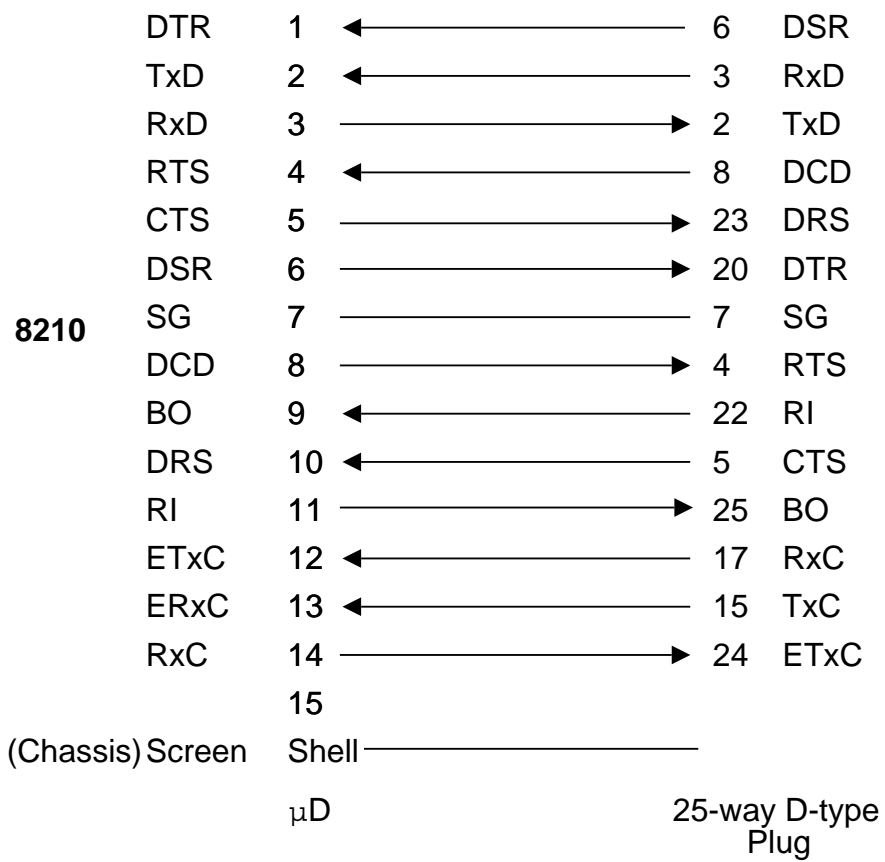


Figure B-3 V.24 Crossover Cable

Part No.: X890-410111 (3m)
X890-410211 (5m)

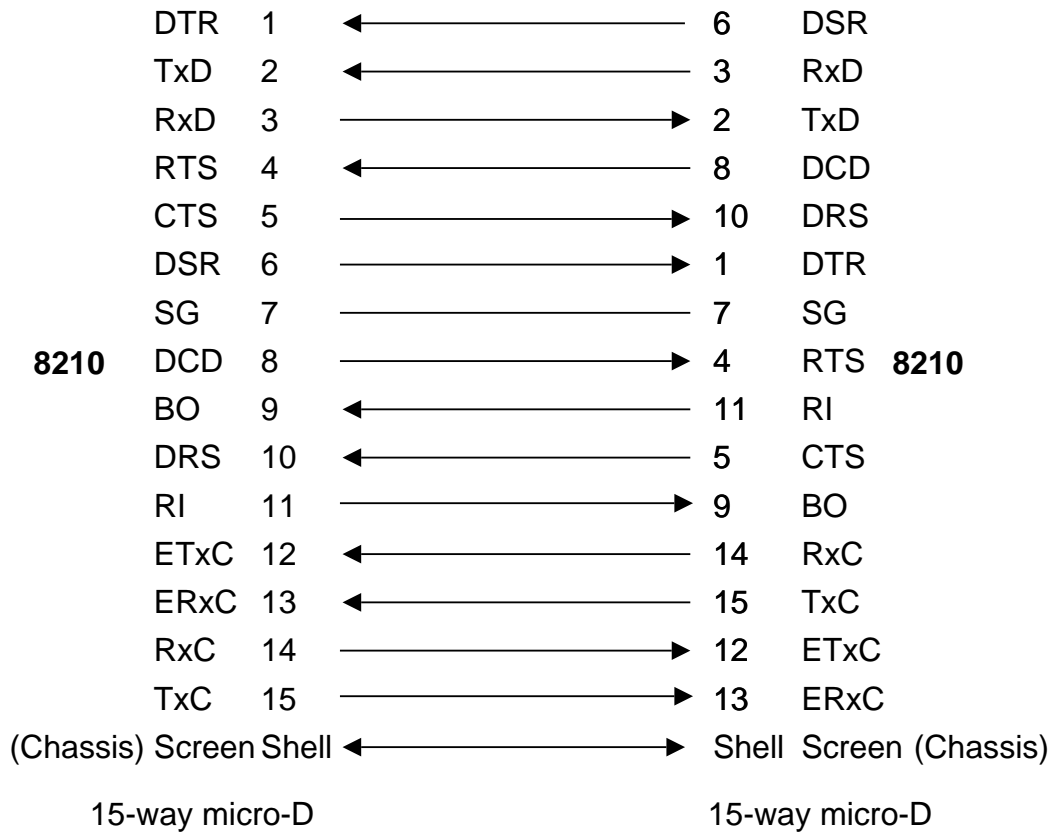


Figure B-4 8210 Card to 8210 Card Cable

Part No.: X890-410411

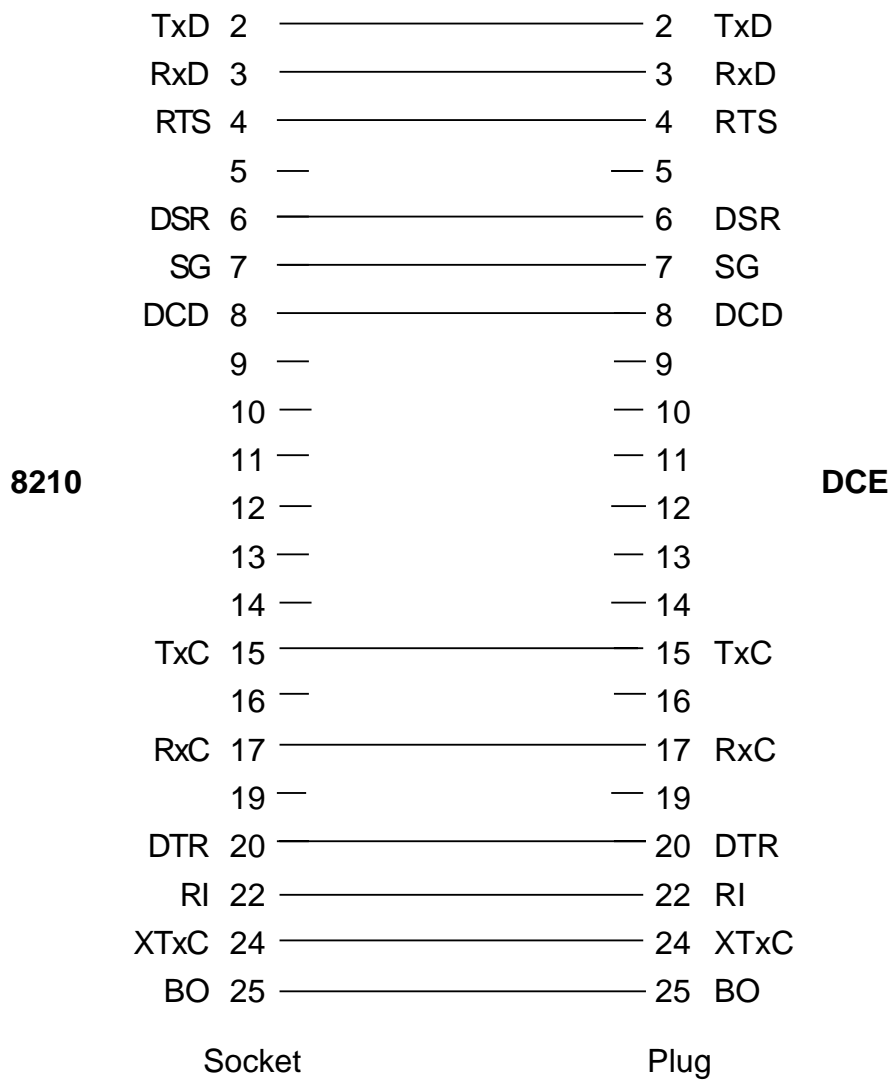


Figure B-5 V.24 Composite Cable

Part No.: X890-403111 (3m)

X890-408611 (5m)

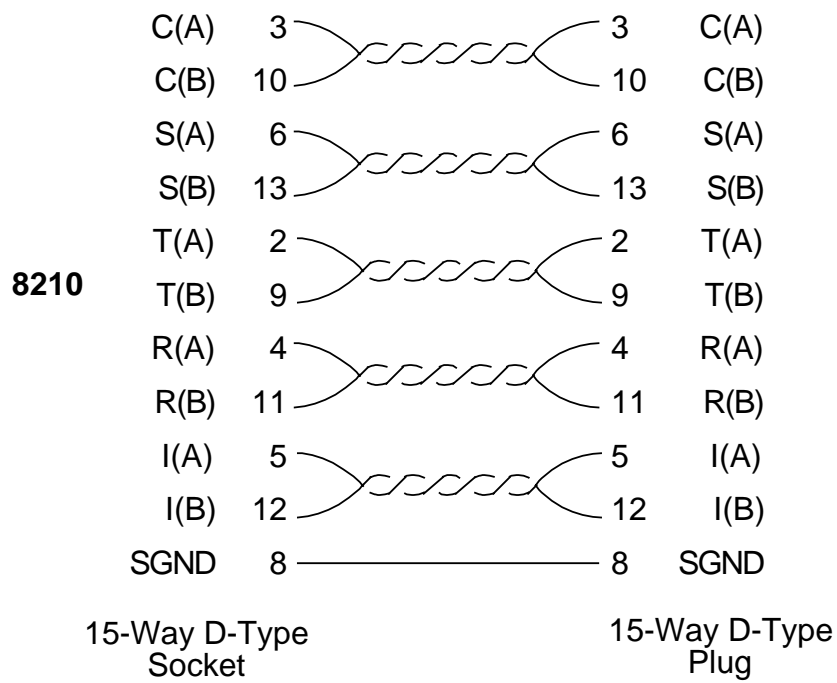


Figure B-7 Composite to X.21 DCE Cable

Part No.: X890-410611 (0.75m)
X890-401011 (3m)
X890-408811 (5m)

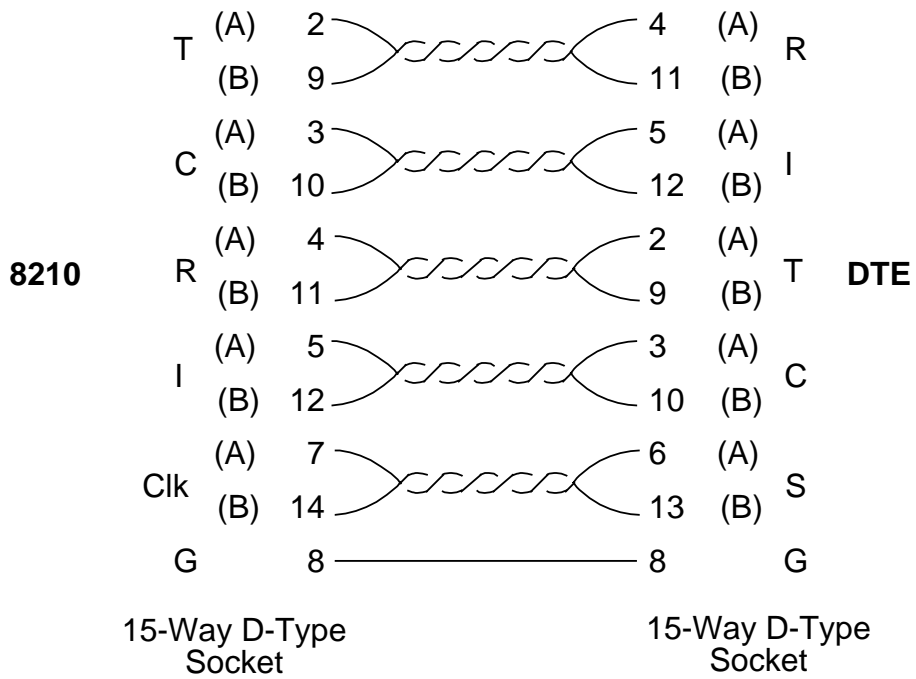


Figure B-8 Composite to X.21 DTE Cable
Part No.: X818-400511 (3m)

(Note that this cable is not symmetrical, the 8210 Card generates clock on pins 7 and 14.)

Appendix C UK PSS and KiloStream

C.1 General

In order to meet the safety requirements of PSS/KiloStream approval it is important to make sure that the equipment is correctly installed and maintained.

When delivered from the factory for use in the UK the physical interfaces of ports which can be connected to PSS and KiloStream are given in Table C-1.

INTERFACE TYPE	CONNECTOR TYPE	CABLE PART NUMBER
V.24 up to 19K2 bps	25-way D-type male (tooled)	X818-401211
V.24 up to 19K2 bps	15-way micro-D to 25- way D-male (tooled)	X890-410511
X.21 up to 64K bps	15-way D-type male	X890-408411
V.35 up to 64K bps	15-way D-type male (tooled)	X818-401311

Table C-1 Permissible UK PSS/KiloStream Connections

Connection to PSS and KiloStream NTUs must be made with the cables specified in Tables C-2, C-3 and C-4, and they must be installed by a competent engineer.

C.2 NET1 Considerations

Normal Lodger Cards

The V.24 composite and channel interfaces are for connection to PTO Service Category 1.

To comply with NET 1 this product provides DTE Uncontrolled Not Ready protocol on the X.21 interface. This protocol may fail to operate satisfactorily at line speeds below 4800 bps.

The V.24 interface on channels 1 to 9 is approved for connection only to a relevant branch system. For the purposes of approval the interface cable X890-410511 constitutes the relevant branch system.

The V.24 composite and X.21 composite interfaces are approved for direct connection to digital networks using cables X818-401211 and X890-408411 respectively.

The V.24 composite and channel interfaces can only operate up to 9600 bps for PSS connection, but up to 19K2 bps for KiloStream connection.

Super Card

The X.21 interfaces on Super Card **do not** provide 'DTE Uncontrolled NOT READY'.

V.24, X.21 and V.35 interfaces are approved for direct connection to digital networks using the cables specified in Table D-1.

The V.24 interface (PIM1) is for connection to PTO Service Category 1.

The V.35 interface (PIM3) is for connection to PTO Service Category 2.

The V.35 interface can only operate up to 9k6 bps for PSS connection, but up to 19k2 bps for KiloStream connection.

C.3 NTU Pin Assignments

The pinout Tables C-2, C-3 and C-4 show the V.24, X.21 and V.35 interface pin assignments presented to a PSS/KiloStream NTU at the NTU end of the cables specified in Table C-1. For the pinouts at the 8210 end of the cables refer to Appendix C.4.

PIN NO.	DIRECTION	ASSIGNMENT
2	output	Transmit Data (TxD)
3	input	Receive Data (RxD)
4	output	Request To Send (RTS)
5	input	Clear To Send (CTS)
6	input	Data Set Ready (DSR)
7	-	Signal Ground (SGND)
8	input	Data Carrier Detect (DCD)
15	input	Transmit Clock (TxC)
17	input	Receive Clock (RxC)
20	output	Data Terminal Ready (DTR)

**Table C-2 V.24 Interface Pin Assignments
(At NTU End of Cable X818-401211 and X890-410511)**

PIN NO.	DIRECTION	ASSIGNMENT
3	output	Control (CA)
10	output	Control (CB)
6	input	Signal Element Timing (SA)
13	input	Signal Element Timing (SB)
2	output	Transmit Data (TA)
9	output	Transmit Data (TB)
4	input	Receive Data (TA)
11	input	Receive Data (TB)
5	input	Indication (IA)
12	input	Indication (IB)
8	-	Signal Ground (G)

**Table C-3 X.21 Interface Pin Assignments
(At NTU End of Cable X890-408411)**

PIN NO.	DIRECTION	ASSIGNMENT
Y	Input	Transmit Clock (TxCA)
AA	Input	Transmit Clock (TxCB)
V	Input	Receive Clock (RxCA)
X	Input	Receive Clock (RxCB)
R	Input	Receive Data (RxDA)
T	Input	Receive Data (RxDB)
P	Output	Transmit Data (TxDA)
S	Output	Transmit Data (TxDB)
B	–	Signal Ground
C/H	Output	Request To Send (RTS)
D	Input	Ready for Sending (RFS)
F	Input	Data Carrier Detect (DCD)

**Table C-4 V.35 Interface Pin Assignments
(At NTU End of Cable X818-401311)**

C.4 Cable Pinouts

Figures C-1 to C-4 give the pinouts of the four available PSS/KiloStream cables.

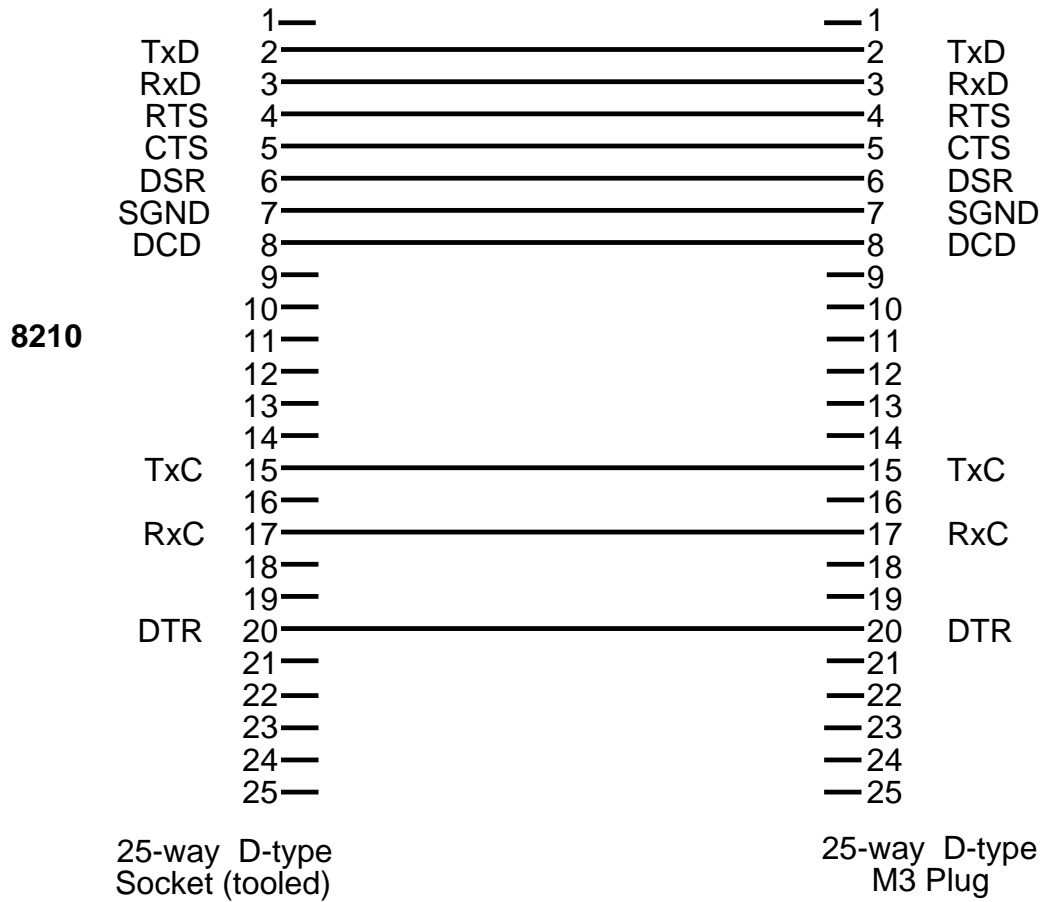


Figure C-1 V.24 PSS/KiloStream Cable Part Number X818-401211

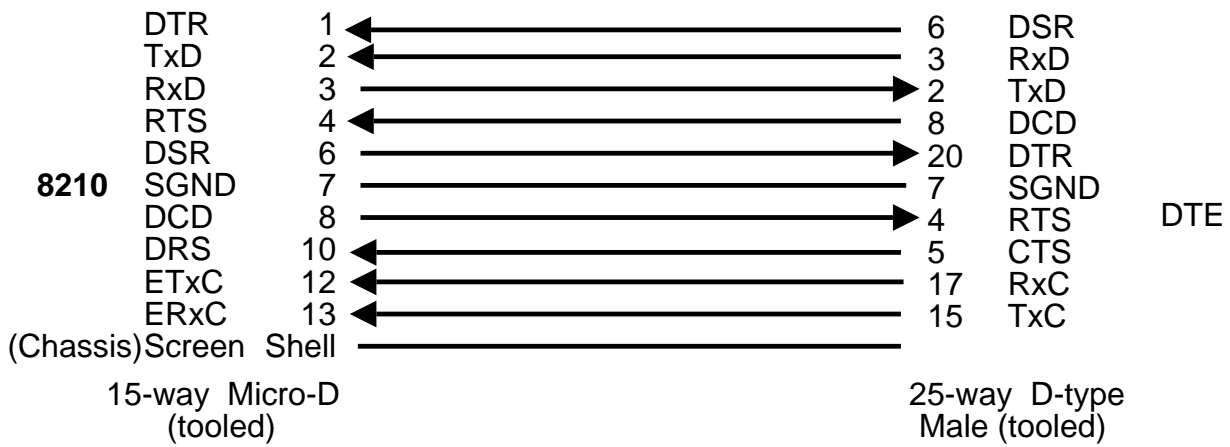


Figure C-2 V.24 PSS/KiloStream Cable Part Number X890-410511

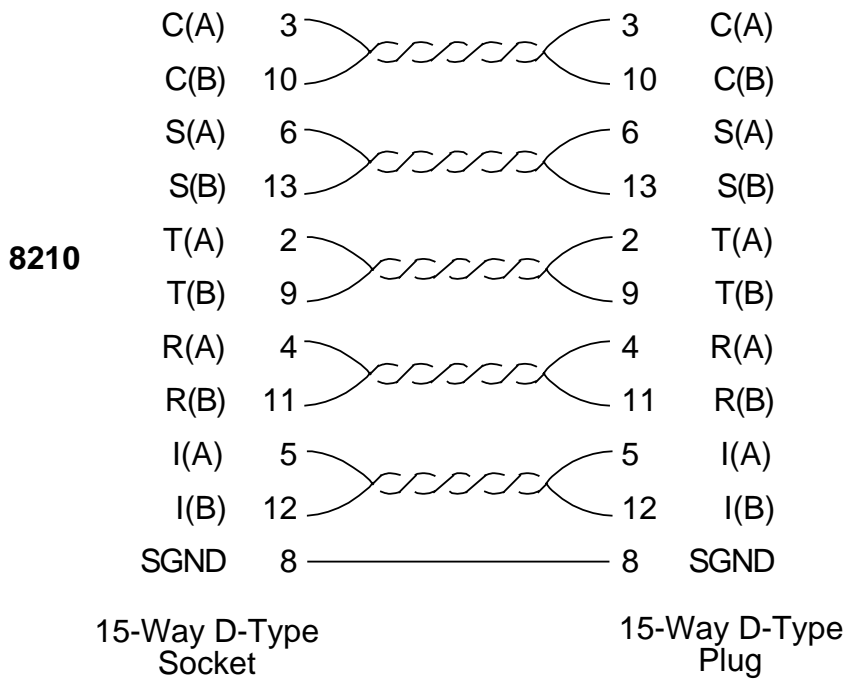


Figure C-3 X.21 PSS/KiloStream Cable Part Number X890-408411

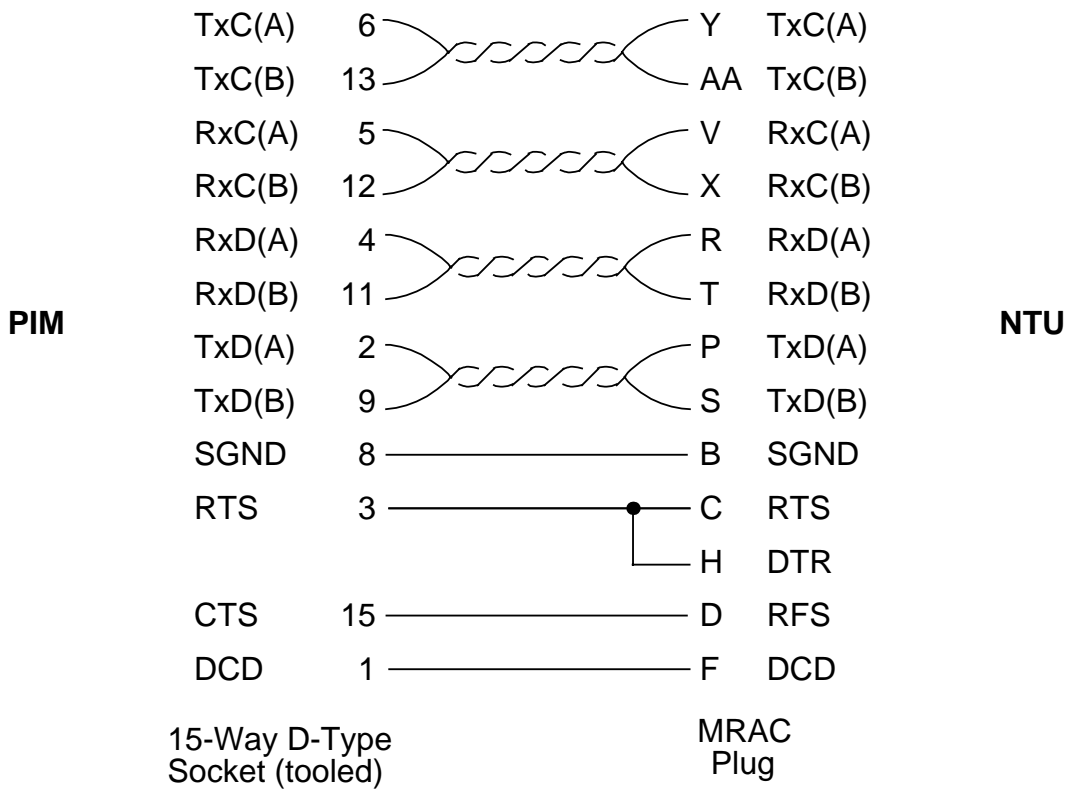


Figure C-4 V.35 PSS/KiloStream Cable Part Number X818-401311

