Series 8000
RJ8 Application Card
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/601988
NS/1282/1/P/601989
NS/1282/1/P/604238

LITHIUM BATTERY

The lithium used in the battery of this unit will react violently with water and most gases. Discharged batteries must not be crushed, incinerated or disposed of in the normal waste. Used batteries should be collected and disposed of in an approved land fill. The manufacturer and your local waste authority will provide more detailed information about their disposal.

Accidental charging and short circuiting of the battery may cause overheating and possible rupture.

Replace only with the same or equivalent type recommended by the equipment supplier.

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

This installation may only be performed by suitably trained and qualified engineers.

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Preface

This guide provides information for a suitably trained and qualified engineer to install the Series 8000 RJ8 Application Card in the 8210, 8310 Basic Unit and the 8325 Compact PSE.

This guide should be read in conjunction with the appropriate installation guide provided with the 8210, 8310 and 8325 chassis before attempting the installation.

An existing knowledge of the Series 8000 and appropriate terminology is assumed throughout. It is also assumed that the equipment originates from the Case Communications UK Factory

Those users who currently have digital PTT interfaces (e.g. British Telecom's Kilostream Service) are reminded of their obligations and should refer to the appropriate appendix in the Installation Guide of the relevant chassis.

Note that only the composite ports of the RJ8 Application Card carry network approvals.

If in doubt, contact your supplier for advice.

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1 Introduction

1.1 Requirements

You will need the following items:

- RJ8 Application Card (part number X870-603611)
- Medium flat-blade screwdriver
- Small pair of narrow-nosed pliers
- Original Installation Guide supplied with your chassis. (PTT interface Users)
- This Installation Guide (part number X890-304951)

The RJ8 Application Card is supplied with a number of cables, similar to those below. Check that they are all present (note that some part numbers may vary for different voltage specifications).

X890-403111	V.24 Composite Cable.
X870-401711	V.24 STP to 25-way D-type Converter (DTE).
X870-40871101	V.24 STP Patch cable (3m).

1.2 Physical Description

The RJ8 Application Card is a powerful multi-purpose processor card consisting of a 68000 microprocessor, RAM, battery-backed RAM (BRAM) and application specific EPROMs (see Figure 1-1). The front of the card has two 96-way connectors that mate with the motherboard in the relevant chassis. The back of each card has eleven connectors (see Figure 1-2), made up of a bank of eight V.24 8-way RJ45, two V.24 25-way D-type and one X.21 15-way D-type connectors. These connectors are all accessible from the back of the unit and provide connections to computers, terminals and other similar equipment.

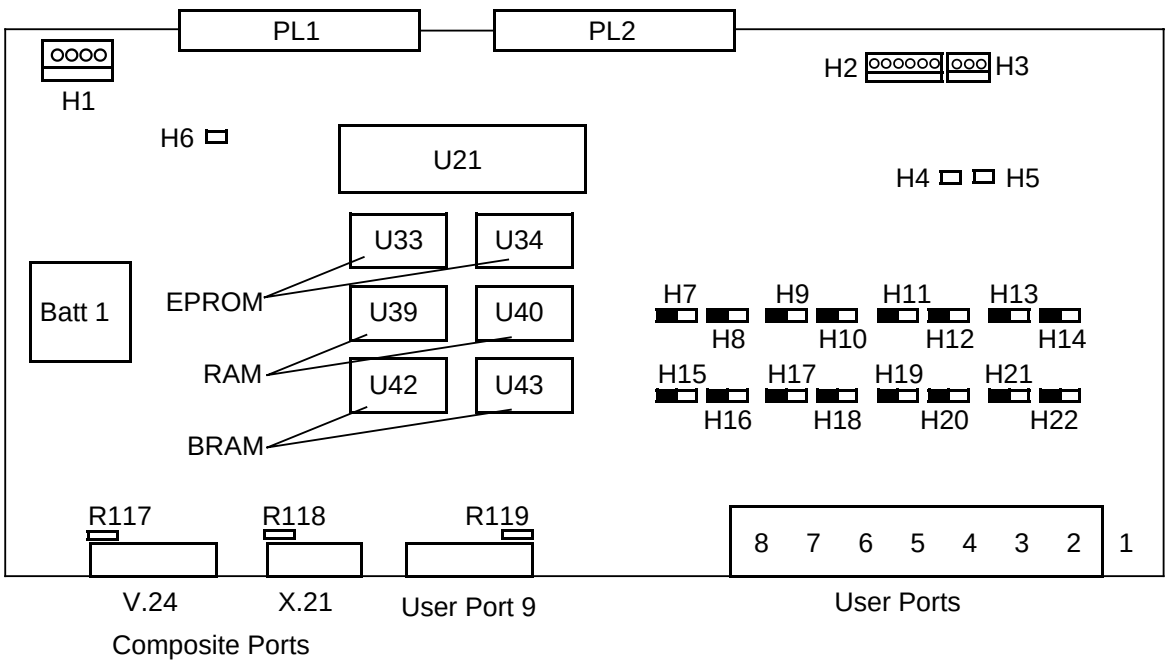


Figure 1-1 RJ8 Application Card (X870-603611)

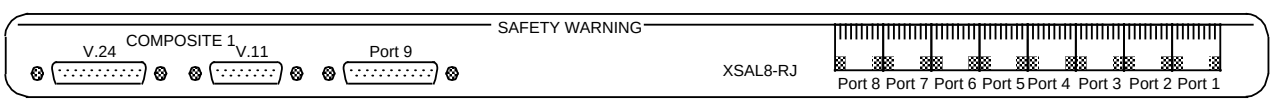


Figure 1-2 RJ8 Application Card Rear Panel (X870-603611)

1.3 Transmission distances

Table 1-1 illustrates the maximum distances over which RS-232-D and V.28 signals can be transmitted through CAT-5 twisted-pair wiring. This is greater than the standard V.24/RS-232 limits due to the superior performance of the cabling used.

Data Rate	Max. Distance
19.2 Kbps	300 ft (91 m)
9.6 Kbps	600 ft (183 m)
4.8 Kbps	1000 ft (305 m)

Table 1-1 RS-232-D Transmission Distances (CAT-5 Twisted Pair)

Note that both RS-232-D and V.28 are only specified for data rates up to 20 Kbps. The transmission distances are primarily determined by the combined capacitance of the line driver receiver implementation and the interconnecting wiring. The maximum capacitance is 2500 pF.

Normal copper wire has a typical capacitance of 150 pF/metre this normally limits the transmission distance to around 15 metres at 20 Kbps.

1.4 Earthing Point

It is imperative that the structured wiring used to connect RJ45 connectors is provided with a good chassis Earth. This is provided in all cases by the main Earthing points of the chassis assembly, into which the card is installed.

1.5 RJ45 Interfaces

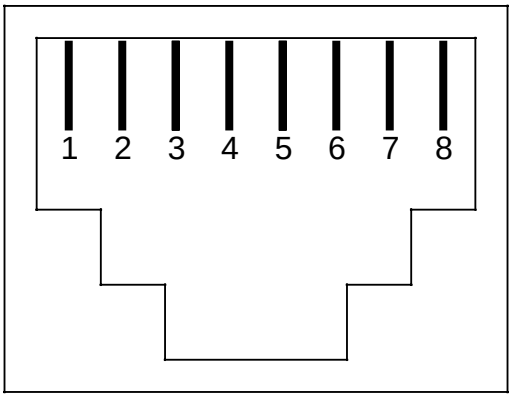
The screened RJ45 connectors used on this card present a standard asynchronous V.24 interface, using V.28 line driver/receivers. This is the same as RS-232-D for the purposes of this design. The product is designed to utilise CAT-5 STP 'patch' cabling, which is a mandatory requirement in order to maintain the EMC performance of the product.

A DTE/DCE interface is determined by the use of appropriate cables and/or adapters, although for purposes of signal direction, a DCE interface is presented here. The limited subset of available V.24 control signals precludes the ability to offer V.54 loopbacks. (A sister product offers this additional functionality, at the expense of replacing the RJ45 connectors with uDs.)

Pin	V.24	RS-232	Pairing	I/O
1	RTS	Request to Send	a	I
2	DSR	Data Set Ready	a	O
3	RXD	Receive Data	d	O
4*	DCD	Data Carrier Detect	b	O
4*	DRS	Data Rate Select		I
5	TXD	Transmit Data	b	I
6*	DTR	Data Terminal Ready	d	I
6*	BO	Busy Out		I
7	SGND	Signal Ground	c	–
8	CTS	Clear to Send	c	O
Shield	FG	Frame Ground	–	–

(* indicate link selectable options on that pin)

Table 1-2 RJ45 Socket Wiring Configuration (DCE)



(Shown when looking into the RJ45 socket as per Figure 1-2)

Figure 1-3 RJ45 Socket Pin Configuration

The pin-out is designed to accommodate the following wiring schemes (Table 1-3):

a) EIA/TIA-568B

b) AT&T 256A

These schemes are all but identical, except that pairs 2 and 3 are interchanged. Both are compatible with ISDN applications.

RJ8 Pin	EIA/TIA-568B	AT&T 256A
1	T2	T3
2	R2	R3
3	T3	T2
4	R1	R1
5	T1	T1
6	R3	R2
7	T4	T4
8	R4	R4

Table 1-3 EIA/TIA-568B and AT&T 256A Wiring Configurations

The scheme is *not* compatible with:

a) TM-0101 System Centre terminal Server.

b) USOC wiring for 1, 2, 3 or 4 pairs.

1.6 Mapping of V.24 Signals

The following signals will be made mappable, via the use of simple 'hand-bag' links on the board, on a 'per-channel' basis as described by Table 1-4.

RJ45 Pin Number	V.24 Signal Name	Where Used
Pin 4	DCD (o/p)	3 wire & DTE modes
	DRS (i/p)	DCE mode
Pin 6	DTR (i/p)	3 wire & DTE modes
	BO (i/p)	DCE modes

Table 1-4 Mappable V.24 Signals

In both cases the supervisor software will advise that when these options are selected in the software, the hardware links must be appropriately set.

1.7 Line Termination for Incoming V.24 Signals

All incoming V.24 controls on the RJ45 interfaces are provided with a simple termination network that will force the signal into an inactive 'OFF' state. This is intended to allow for users who fail to connect to all incoming control signals of the RJ8. Without this termination, the long lengths of cable used in structured wiring can cause severe crosstalk problems, which can in turn cause software to behave in an erratic manner.

2 Installation Procedure

This installation may only be performed by suitably trained and qualified engineers.

2.1 Site Preparation

This section makes the following assumptions about the location of the unit in which you are going to install the card:

– The unit is sited in a standard 19" rack.

– The unit has a full complement of cards and interconnect cables.

– The EMC blanking panel(s) is fitted.

– The unit is at a suitable working height.

Note the following points:

– There is normally no need to remove the unit from the rack.

– There may be a need to remove data cables from other cards in the unit if the cable management is not adequate to allow sufficient access to the empty slot required for installation.

– The entire process should take approximately 5 minutes.

– Power need not be removed from the working unit, as the card is designed for LIVE insertion.

Working from the rear of the unit in which you are going to install the card:

– Identify and suitably label all data cables attached to the unit (should they need to be removed you will be able to reconnect them correctly at a later stage).

– Make sure you have available facilities to guard against the effects of static electricity (wrist straps, and so on).

– Using a small flat-bladed screwdriver, release the two fixings of the blanking panel, and remove. (Store in a safe place for future use.)

You are now ready to proceed with the installation.

2.2 Preparation of the New Card

Before the new card can be installed, some preparation must first be undertaken as described in the following section.

2.2.1 Configuration of Links, H4, H5 and H6

There are a number of links provided on the board which *must* be left in the factory configured setting, where and when the headers are fitted, H4, H5 and H6. In most cases the header strips for the links will not be factory fitted, so this section can be ignored. Where they are fitted, with reference to Figure 1-1, the current settings of your board should be checked against Table 2-1. Any discrepancies should be corrected now.

Link	Description	Setting
H4*	Watchdog Enable	Link removed
–	Watchdog Disable	Link fitted
H5*	No Reset	Link removed
–	Reset Applied	Short link
H6*	No Emulator	Link removed
–	Emulator Fitted	Link fitted

(* indicates Factory Setting, when fitted)

Table 2-1 Link Settings

2.2.2 Configuration of RJ45 V.24 Signals

As previously explained in Chapter 1, the RJ8 Application card provides the ability to configure the functionality of two of the pins within each of the eight RJ45 equipped user ports. The configuration is achieved, on a per port basis by the positions of a pair of 'handbag links', in accordance with Table 2-2.

With reference to Figure 1-1, the appropriate links may be located on the board.

Links H7-H14 inclusive control the DTR/BO setting for ports 8 through to 1 respectively. The silk screen on the PCB indicates to which port (channel) any particular header applies. A header fitted in the 'left-most' position (D) will select DTR operation, 'right-most' (B) will select BO

operation. Table 2-1 illustrates a typical setting for ports 1 and 2 (also shown in Table 2-2 where indicated):

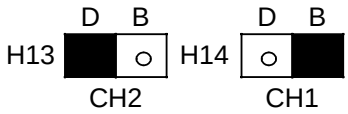


Figure 2-1 Example DTR/BO Link Settings

Links H15-H22 inclusive, control the DCD/DRS setting for ports 8 through 1 respectively. The silk screen on the PCB indicates to which port (channel) any particular header applies. A header fitted in the 'Left-most' (Output) position will select DCD operation as an output, whereas fitted in the 'Right-most' (Input) position it will select DRS operation as an input. Figure 2-2 illustrates a typical setting for ports 1 and 2 (also shown in Table 2-2 where indicated):

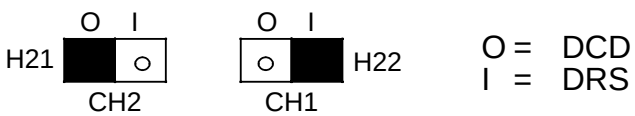


Figure 2-2 Example DCD/DRS Link Settings

Port	Header	Setting	RJ45 Pin	V.24 Signal	Configuration
1	H22	Left (O)	4	DCD (o/p)	3 wire & DTE modes
		Right (I)*		DRS (i/p)	DCE mode
	H14	Left (DTR)	6	DTR (I/p)	3 wire & DTE modes
		Right (BO)*		BO (I/p)	DCE modes
2	H21	Left (O)*	4	DCD (o/p)	3 wire & DTE modes
		Right (I)		DRS (i/p)	DCE mode
	H13	Left (DTR)*	6	DTR (i/p)	3 wire & DTE modes
		Right (BO)		BO (i/p)	DCE modes
3	H20	Left (O)	4	DCD (o/p)	3 wire & DTE modes
		Right (I)		DRS (i/p)	DCE mode
	H12	Left (DTR)	6	DTR (i/p)	3 wire & DTE modes
		Right (BO)		BO (i/p)	DCE modes
4	H19	Left (O)	4	DCD (o/p)	3 wire & DTE modes
		Right (I)		DRS (i/p)	DCE mode
	H11	Left (DTR)	6	DTR (i/p)	3 wire & DTE modes
		Right (BO)		BO (i/p)	DCE modes
5	H18	Left (O)	4	DCD (o/p)	3 wire & DTE modes
		Right (I)		DRS (i/p)	DCE mode
	H10	Left (DTR)	6	DTR (i/p)	3 wire & DTE modes
		Right (BO)		BO (i/p)	DCE modes
6	H17	Left (O)	4	DCD (o/p)	3 wire & DTE modes
		Right (I)		DRS (i/p)	DCE mode
	H9	Left (DTR)	6	DTR (i/p)	3 wire & DTE modes
		Right (BO)		BO (i/p)	DCE modes
7	H16	Left (O)	4	DCD (o/p)	3 wire & DTE modes
		Right (I)		DRS (i/p)	DCE mode
	H8	Left (DTR)	6	DTR (i/p)	3 wire & DTE modes
		Right (BO)		BO (i/p)	DCE modes
8	H15	Left (O)	4	DCD (o/p)	3 wire & DTE modes
		Right (I)		DRS (i/p)	DCE mode
	H7	Left (DTR)	6	DTR (i/p)	3 wire & DTE modes
		Right (BO)		BO (i/p)	DCE modes

(* illustrates Figures 2-1 and 2-2)

Table 2-2 Mappable V.24 Signals

2.3 Cabling Considerations

2.3.1 Use of Screened Cables

The use of the specified screened cables is mandatory if Electro-Magnetic Compatibility (EMC) performance is not to be compromised. (See Statutory Notice on page 0-2.)

2.3.2 RJ45 Cables

All Cray specified cables that connect to RJ45 connectors on this product are high quality fully screened CAT-5 STP specification 'patch' cables. The screen is terminated to the RJ45 shell and thus to rear panel and hence Frame Ground (chassis). The screen is *not* normally connected at the 'D-type' end, when adapters are used. In this case, and whenever alternative cables are utilised, it is the users responsibility to ensure that any connecting cable is suitably screened, in order to maintain the EMC performance.

Appendix A specifies the appropriate Cray cables, and their specified pin-out and wiring details.

2.3.3 D-type Cables (15- and 25-way)

Not all Cray specified cables that connect to conventional 'D-type' connectors on this product are screened. Where screened cables are specified, it is the users responsibility to ensure that any connecting cable is suitably screened, in order to maintain the EMC performance.

Appendix A specifies the appropriate Cray cables, and there specified Pin-out and wiring details.

2.4 Pin 1, Frame Ground to Signal Ground in V.24 and X.21 Applications

Where D-type connectors are provided, at the rear panel(s), for these interfaces, Pin 1 (Frame Ground) is connected to Signal ground through the use of a shorting link (0R resistor). However, Pin 1 is not normally connected in Cray specified cables. Where alternative cables are used the user should seek expert advice to avoid problems caused by earth-loops created through connections to Pin 1.

Where it is not possible to isolate this connection at any other point in the system then the relevant resistors may be removed. Identify the appropriate port(s), with reference to Figure 1-1:

Composite, V.24, 25-way D-type	R117
Composite, X.21, 15-way D-type	R118
User Port 9, V.24, 25-way D-type	R119

2.5 Other Equipment

Check all the interfaces between the 8210,8310 or 8325 and all other equipment which is to be connected (such as modems, computers, terminals and so on) to ensure compatibility of data and control lines. Details are given in the appropriate 8160 reference manual. Where the flexibility of this product is not sufficient, the changes necessary must be made in the interconnecting cables.

2.6 Installing the New Card

Now you can begin the process of putting the newly-configured card into the existing chassis. The procedure is as follows:

Working from the Rear:

1. Position the card in the card guides of the appropriate slot. Gently slide it in, when the card is almost fully in the unit, give a firm push with your thumbs, so that the connectors plug firmly into the motherboard.
2. Using a small flat-bladed screwdriver, secure the card to the chassis, using the two fixing screws.
3. Affix the appropriate composite cable.
4. Affix the appropriate User port cables into the RJ45 connectors.
5. Re-fit any data cables previously removed from the unit.
6. It is important that the earth wire fitted to the stud on the rear-panel of the chassis is connected to an appropriate Earthing point.
7. That completes the installation, you are now ready for commissioning.

Note that each card slot must be occupied by either a card or a blanking plate (refer to the statutory notices in the installation guide for the appropriate chassis).

Carefully dispose of any old parts, remembering to store the blanking panel in a safe place for future use.

3 Commissioning

3.1 Indicators

When the unit is powered up, a number of indicators are displayed on the front panel display:

Fault indicator	ON:	Hardware failure
	FLASHING:	Software failure
	OFF:	Normal
Ready 2 indicator	ON:	Power up tests in progress
	OFF:	Normal
Ready 1 indicator	ON:	X.25 link (composite) 'up'
	FLASHING:	X.25 link (composite) 'down'
	OFF:	No power to the card

The method of displaying this information varies, and is dependent on the chassis concerned.

3.1.1 8210

The green LED (leftmost on the bottom row) indicates that DC power is applied.

The status of each card is reflected by the appropriate row of 3 LEDs (the bottom row of LEDs reflects the status of the bottom card and likewise the top row for the top card.

Red	Fault
Yellow	Ready 2
Green	Ready 1

3.1.2 8310/8325

The green LED below the <ENTER> button indicates that DC-power is applied.

The status of each card is given on the LCD display. Each slot is numbered between 1 and 5, and has three indicators:

f	Fault
*	Ready 2
r	Ready 1

The letter P appears before the f, * and r indicators, indicating that the card is a PAD.

3.2 Logging On

There are two ways to gain access to the 'Manager', locally, via a local attached terminal or remotely from another X.25 triple-X PAD.

3.2.1 Locally

The method of logging on locally requires a VT100 compatible terminal, which is referred to as the 'supervisor terminal'. Connections to this supervisor terminal from each card should be made using cable X870-401711 (STP patch cable) and X100-408711 (RJ45 to 25-way D-type converter).

1. Attach the supervisor terminal to any of ports 1 to 8. The supervisor terminal must have the following attributes:

speed:	1200, 2400, 4800, 9600 or 19k2 bps
data bits:	7 with space parity, or 8 with no parity
stop bits:	1

2. Enter <CR>. A beep should be heard, indicating auto baud rate detect.
3. Enter <CR>. The 8160 will display the banner and give a prompt.
4. Type logon and enter <CR>. You will be prompted for a password. Enter <CR> again (as there is no default password). The 8160 will then display its top level menu.

3.2.2 From X.25

The 'manager' of each card may be accessed remotely from any X.25 triple-X PAD. If the X.3 parameters of the remote PAD are configurable then the following values are recommended:

Parameter 2:	0	(echo off)
Parameter 3:	2	(packet forwarding on CR)
Parameter 4:	4	(packet forwarding on time-out)

1. Make a call using an X.121 address that matches the remote manager address. The default subaddress is 00.
2. If no password is configured then the top-level menu will be displayed. Otherwise a password will be prompted for. Enter the correct password followed by <CR>. The top-level menu will be displayed.

3. If the password is incorrectly entered four times, or takes longer than a minute, then the call will be automatically cleared.

Appendix A Interconnections

All interconnections on the RJ8 Application Card conform to either CCITT V.24/V.28 (RS-232) interface, terminating in either a 25-way D-type or RJ45 connectors; or to CCITT X.21/V.11 interface, terminating in a 15-way D-type connector.

Figure A-1 gives a rough guide to cable requirements.

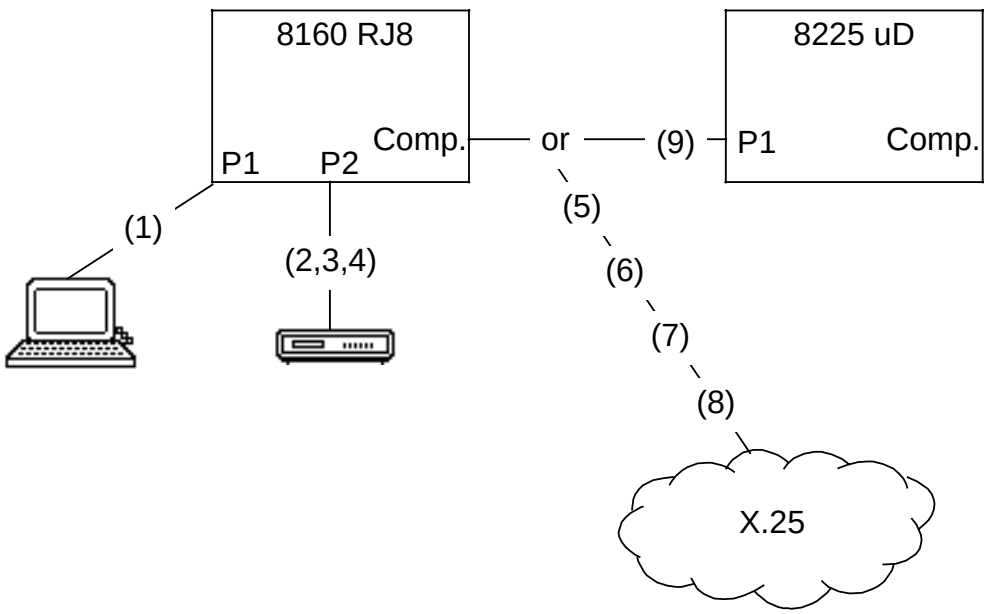


Figure A-1 RJ8 Application Card Cable Connections

For Ports 1-9:

(1) RJ8 Application Card to DTE (e.g. terminals) use cable X100-408711, Figure A-2, with converter X870-401711, Figure A-3.

(2) RJ8 Application Card to DCE (e.g. Asynchronous modem) use cable X100-408711, Figure A-2, with converter X870-401911, Figure A-4.

(3) RJ8 Application Card to DCE (e.g. Asynchronous Dial-in modem) use cable X100-408711, Figure A-2, with converter X870-402011, Figure A-5.

(4) RJ8 Application Card to DCE (e.g. Asynchronous Leased-line modem) use cable X100-408711, Figure A-2, with converter X870-402111, Figure A-6.

For Composite Ports:

(5) RJ8 Application Card to V.24 DCE use cable X890-403111, Figure A-7.

(6) RJ8 Application Card to V.24 DTE (8160 provides clocks) use cable X890-403011, Figure A-8.

(7) RJ8 Application Card to X.21 DCE use cable X890-401011, Figure A-9.

(8) RJ8 Application Card to X.21 DTE (8160 provides clocks) use cable X818-400511, Figure A-10.

(9) RJ8 Application Card to uD Application Card ports use cable X890-410311, Figure A-11.

For Kilostream Connections:

Refer to the relevant appendix of the appropriate 8210, 8310 or 8325 Installation Guide.

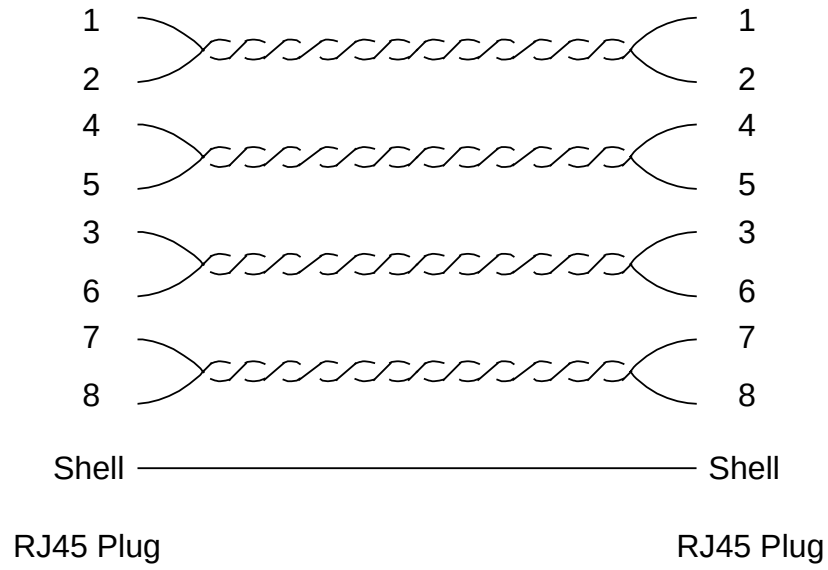


Figure A-2 RJ8 Application Card V.24 STP Patch Cable

Part Number: X100-40871102 (0.75m)
X100-40871101 (3m)
X100-408711 (10m)

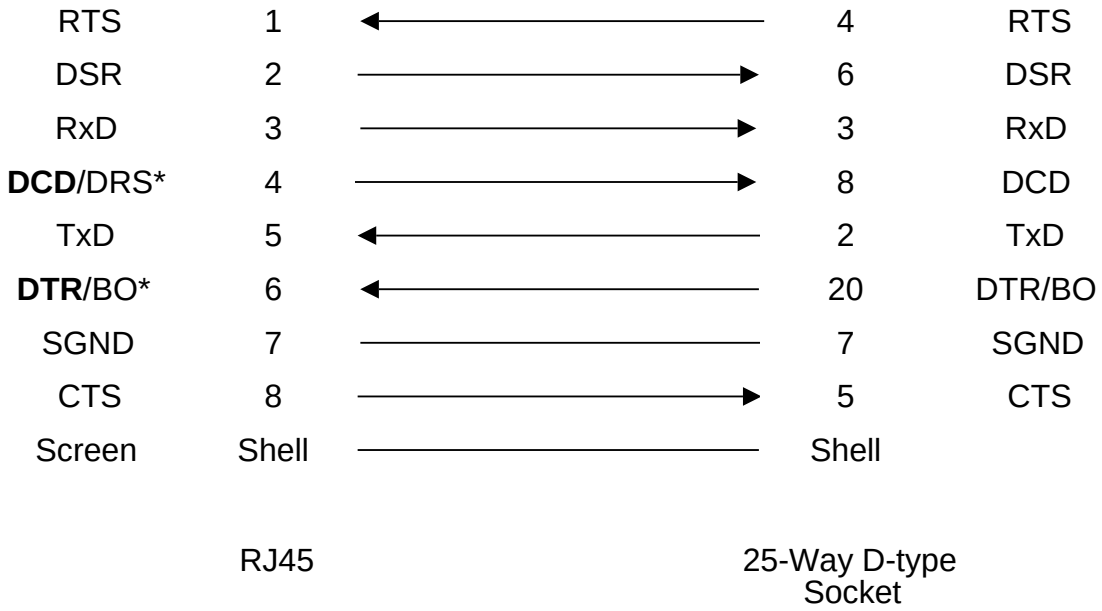


Figure A-3 RJ8 Application Card V.24 STP to 25-way D-type Converter (DTE - Terminal)

Part Number: X870-401711

Note:

* assumes the appropriate handbag link selection has been made on the RJ8 Application Card (see Table 2-2).

When used with the 8160 port type 'DTE/3Wire' (using the default link settings for RJ45 pins 4 and 6) it provides connectivity to a typical asynchronous video terminal or printer. For full 8-bit transparency, RTS/CTS flow control may be used, with port type 'DTE'. The terminal DTR control signal should be set in such a way as to always be ON (if this is not possible, then the 'DTE/3Wire' port type must be used, where in-band X-on/X-off flow control must be utilised.).

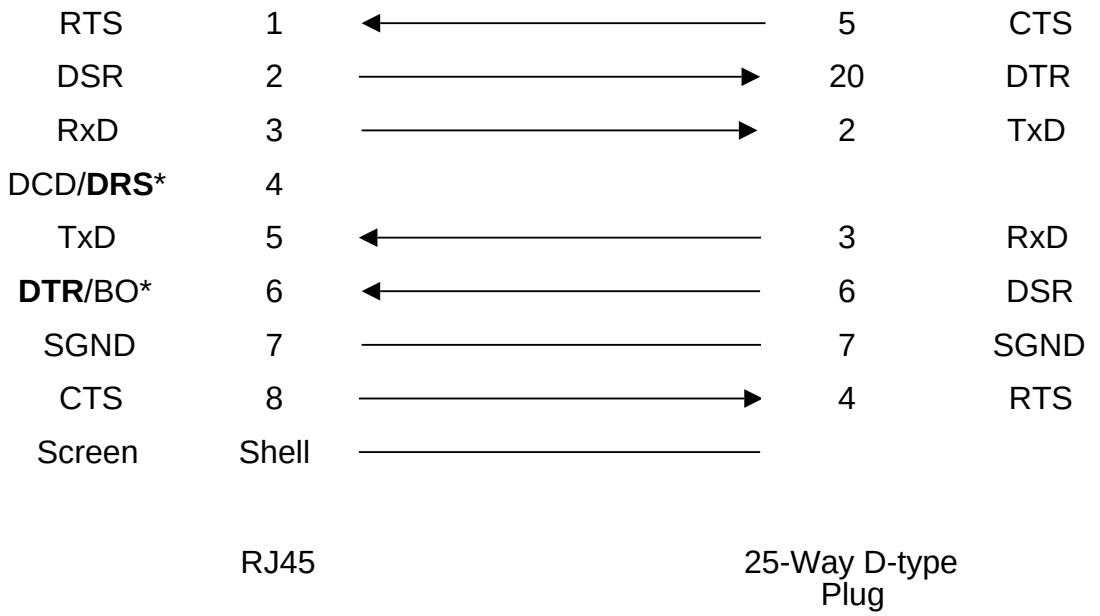


Figure A-4 RJ8 Application Card V.24 STP to 25-way D-type Crossover Converter (DCE - 'Hayes' Modem)

Part Number: X870-401911

Note:

* assumes the appropriate handbag link selection has been made on the RJ8 Application Card (see Table 2-2).

When used with the 8160 port type 'DTE/3Wire' (using the default link settings for RJ45 pins 4 and 6) provides connectivity to a typical 'Hayes' type asynchronous modem. This allows dial in/out PSTN calls to be made to/from the X.25 network. For full 8-bit transparency, RTS/CTS flow control may be used, with port type 'DTE', where the modem DSR control signal, should be set in such a way as to always be ON (if this is not possible, then the 'DTE/3Wire' port type must be used, where in-band X-on/X-off flow control must be utilised.) In either case, modem error correction facilities should be utilised.

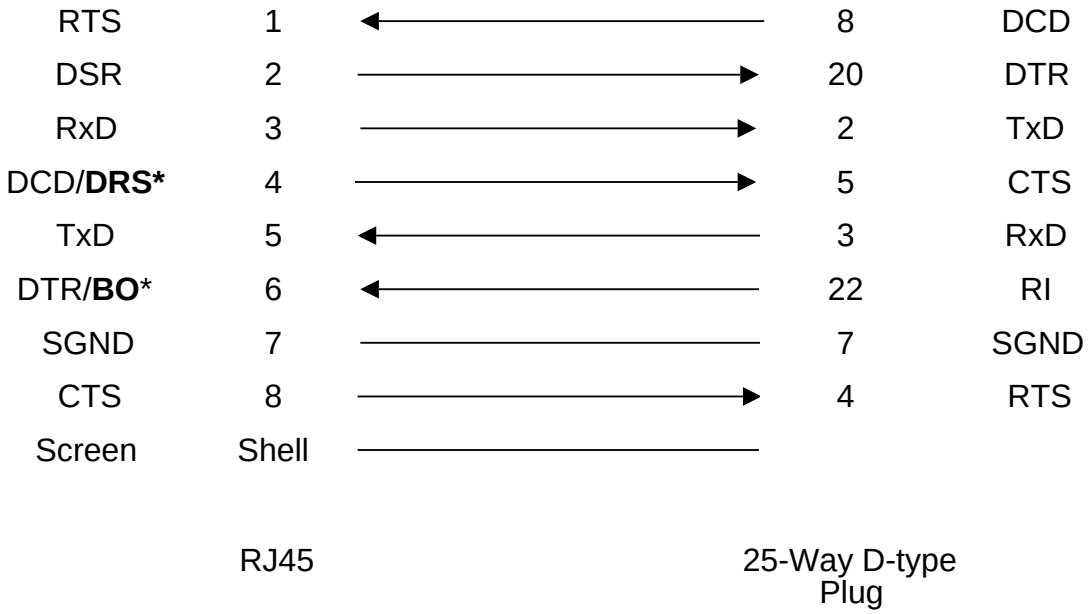


Figure A-5 RJ8 Application Card V.24 STP to 25-way D-type Crossover Converter (DCE - Dial-in Modem)

Part Number: X870-402011

Note:

* assumes the appropriate handbag link selection has been made on the RJ8 Application Card (see Table 2-2).

When used with the 8160 port type 'DCE' (using the DRS and BO link settings for RJ45 pins 4 and 6) provides connectivity to a typical asynchronous modem, operating the Connect Dataset to Line (ITU V.24 108.1) protocol. This allows dial-in PSTN calls to be made to the X.25 network, and may be used in conjunction with the 8160 'Auto-call' feature. For full 8-bit transparency, DRS/CTS flow control may be used.

The 8160 'DCE' port type, monitors the modem Ring Indicator (RI) control signal, when recognised as ON the 8160 puts the DTR control signal ON, this in-turn causes the modem to 'pick-up' the PSTN call. Provided that the modem DCD control signal goes ON within the 8160 'DCE/V.54 port - DTR held' time (default is 15 seconds), the 8160 will initiate the 'DCE/V.54-DCD stabilisation' timer (default 2 seconds) – during this period the 8160 will discard any data from the modem. When the modem DCD control has been ON for longer than this stabilisation time, the 8160

bridges any DCD 'dips' (carrier detect drop-outs) shorter than the 8160 'DCE-DCD dip' time (default 2 seconds).

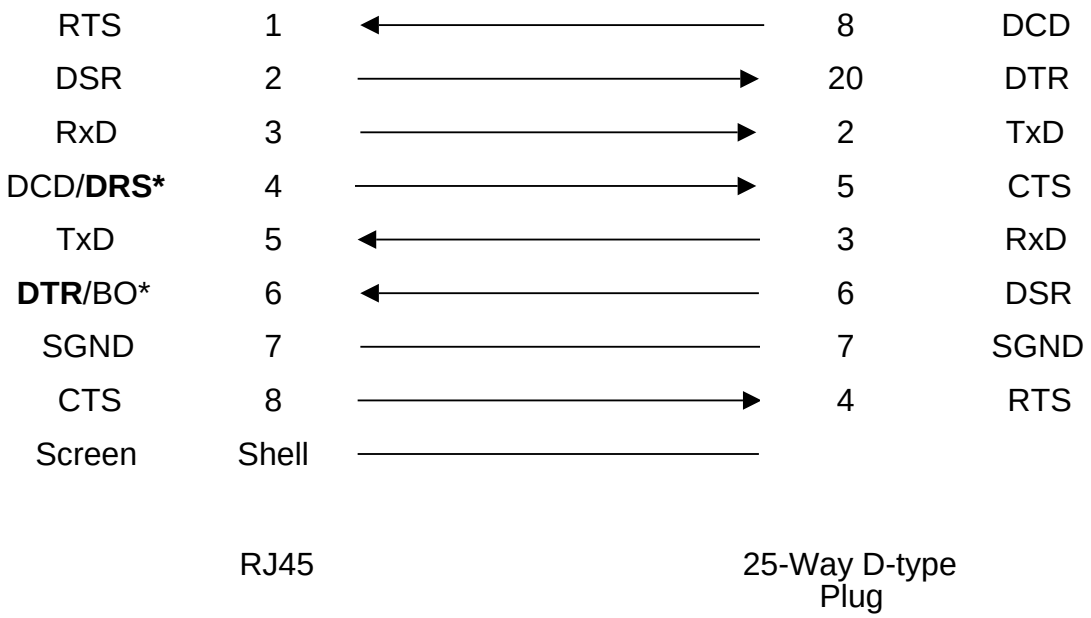


Figure A-6 RJ8 Application Card V.24 STP to 25-way D-type Crossover Converter (DCE- Leased-line Modem)

Part Number: X870-402111

Note:

* assumes the appropriate handbag link selection has been made on the RJ8 Application Card (see Table 2-2).

When used with the 8160 port type 'V.54' (using the DRS link setting for RJ45 pins 4) provides connectivity to a typical asynchronous leased/permanent-line modem or line driver. For full 8-bit transparency, DRS/CTS flow control may be used. Additionally, the status of the modem DCD control signal may be reported to a network management centre, when the 8160 'Physical Circuit Events to NMC' port option is enabled.

When the modem DCD control signal goes ON the 8160 will initiate the 'DCE/V.54 - DCD stabilisation' timer (default 2 seconds); during this period, the 8160 will discard any data from the modem. When the modem DCD control has been ON for longer than this stabilisation time, the 8160 bridges any DCD 'dips' (carrier detect drop-outs) shorter than the 8160 'DCE-DCD dip' time (default 2 seconds).

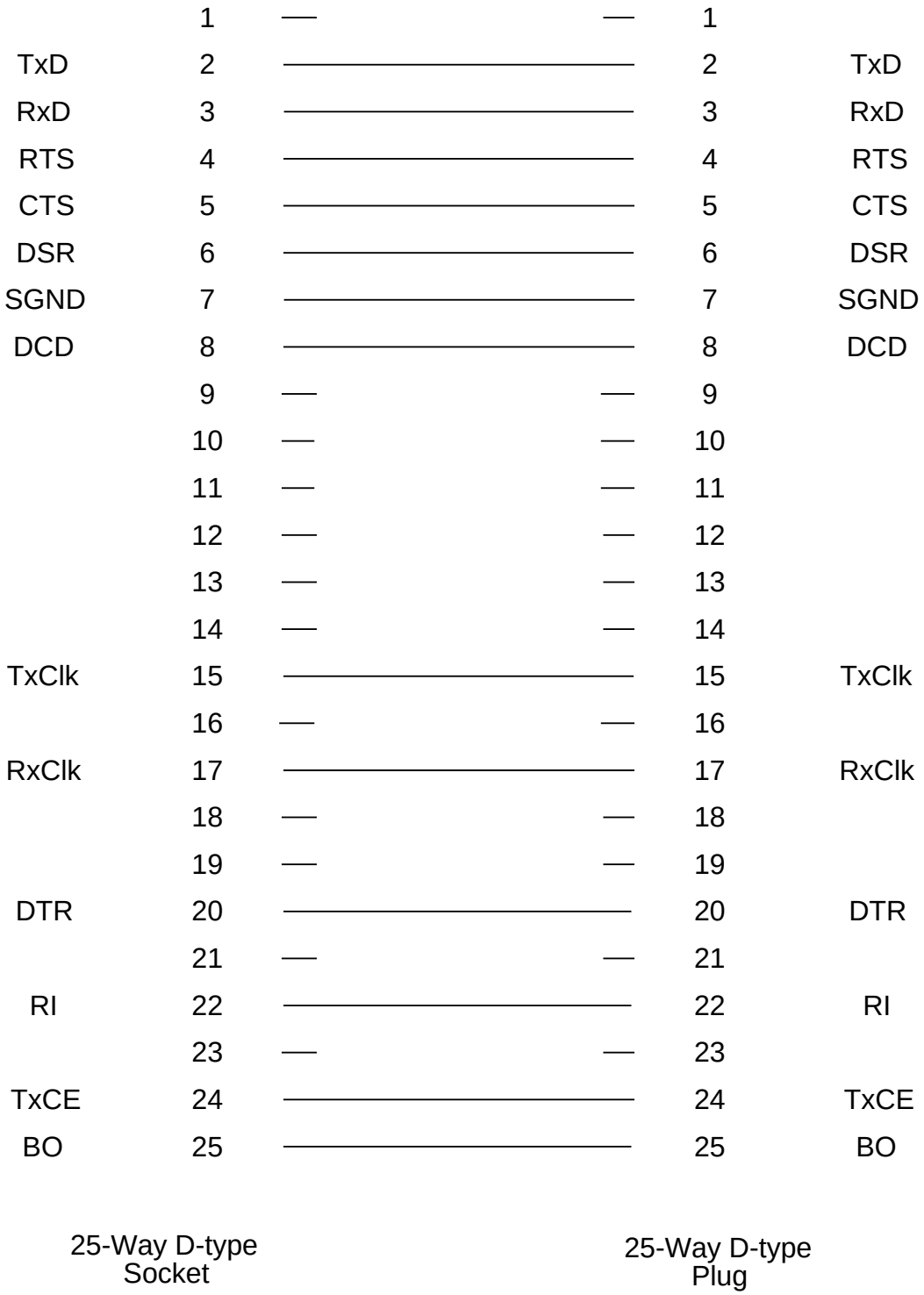


Figure A-7 V.24 Composite Cable (DCE)

Part Number: X890-403111 (3m)
X890-408611 (10m)

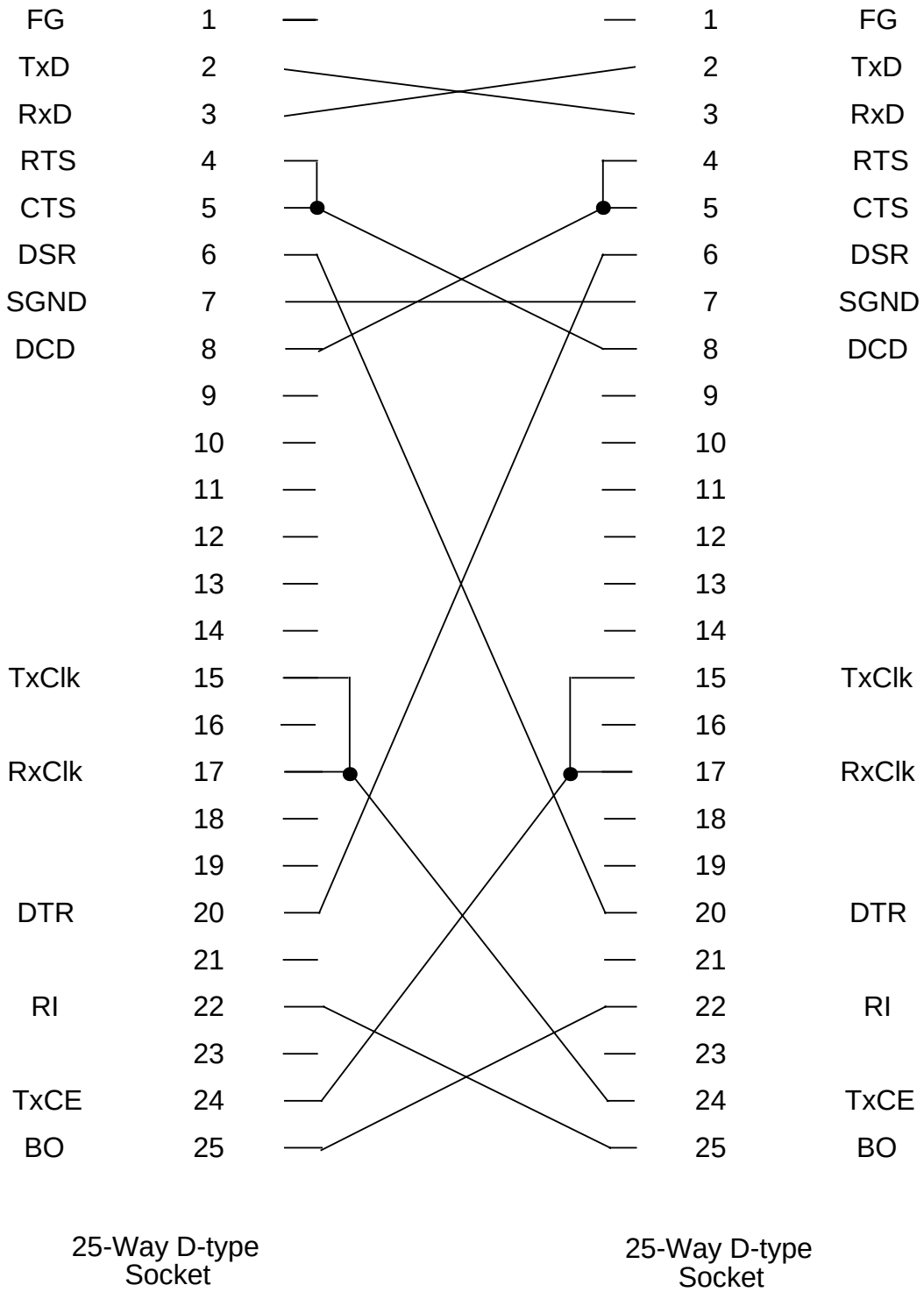


Figure A-8 V.24 Composite Crossover Cable (Ext. Clock)

Part Number: X890-410711 (0.75m)
X890-403011 (3m)
X890-408711 (10m)

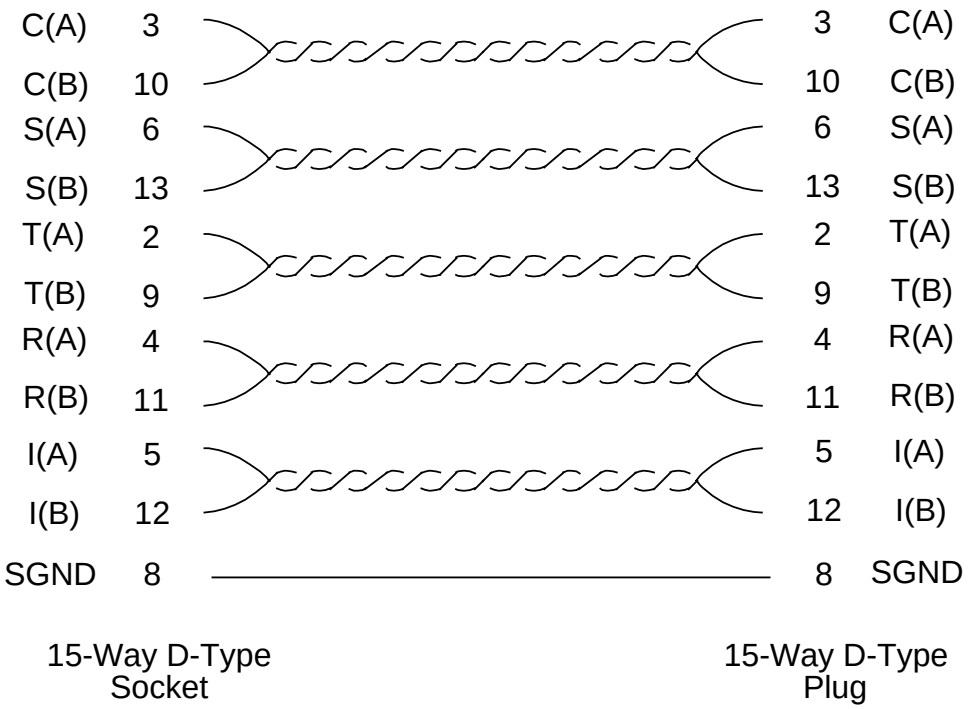


Figure A-9 8160 to X.21 DCE Composite Cable

Part Number: X890-410611 (0.75m)
X890-401011 (3m)
X890-408811 (5m)

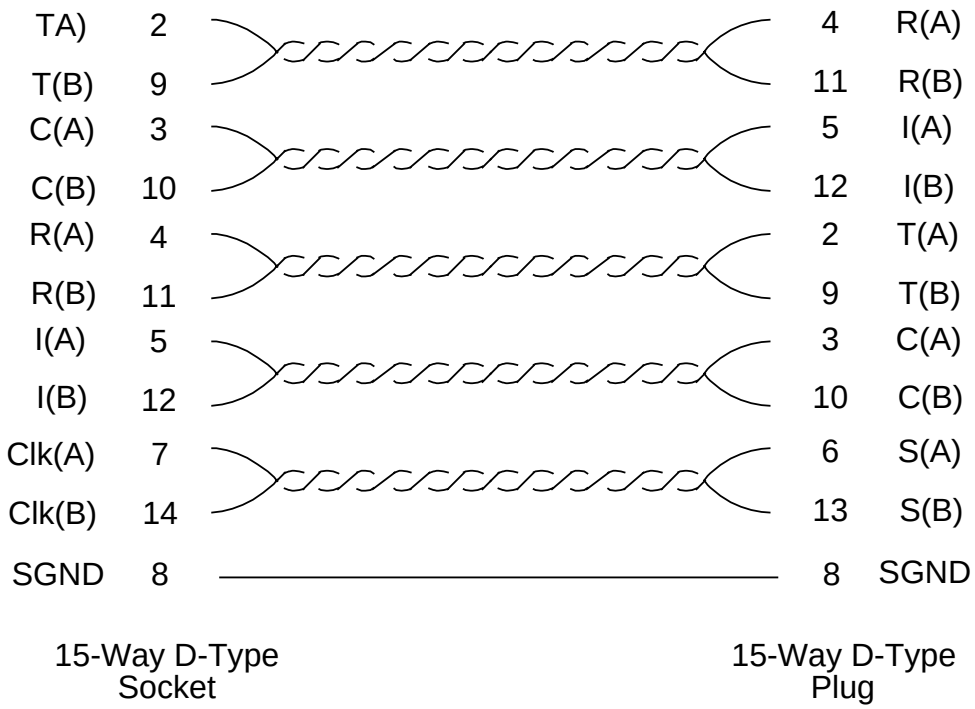


Figure A-10 Composite to X.21 DTE Composite Cable

Part Number: X818-400511 (3m)

Note:
This cable is not symmetrical, the 8160 generates clock on pins 7 and 14.

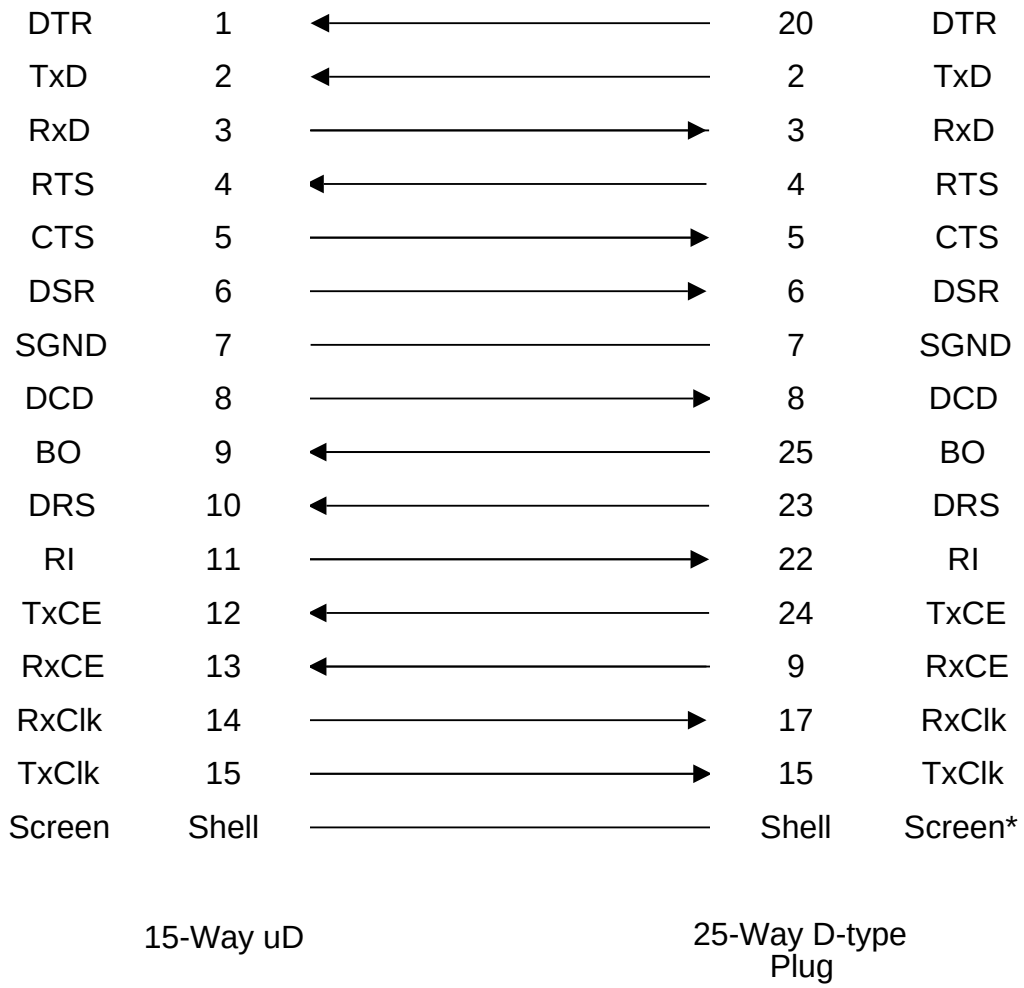


Figure A-11 Application Card V.24 Interconnect Cable (uD)

Part Number:	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).

Appendix B Example Configuration

The 8210, 8310 and 8325 are versatile communications devices, for which there are many ways in which they may be used and connected. A typical setup is explained here.

B1 32-port Triple-X PAD

This requires one 8225 card (in the top slot 5) and four 8160 cards, installed in an 8310 basic unit.

Using four V.24 interconnect cables (X890-410311, see Appendix A-8) connect the following ports and cards together:

8225 port 1 to 8160 (in slot 1) V.24 composite
8225 port 2 to 8160 (in slot 2) V.24 composite
8225 port 3 to 8160 (in slot 3) V.24 composite
8225 port 4 to 8160 (in slot 4) V.24 composite

The X.25 connection from the PSE (Packet Switch Exchange) should go into the 8225 card V.24 or X.21 composite port, as applicable.

The system is now ready to configure. For full details refer to the 8160 and 8225 User Guides.

On each 8160:

Check that the default configuration for the X.25 link is:

Physical layer:	Clocking 19K2 bps, external and V.24 interface type.
Data Link Layer:	DTE operation.
Network Layer:	DTE operation.

Check also that the remote manager access is enabled, access via the NMC is enabled, remote manager subaddress is 99, and NMC subaddress is 98.

On the 8225:

Check that the default configuration for X.25 links 1 to 4 is:

Physical layer:	Clocking 19K2 bps internal.
Data Link Layer:	DCE operation.
Network Layer:	DCE operation.

Link 0 connects to the PSE and should be suitably configured.

Configure the transparent manager as follows:

For connection 1:	Description:	8160 in slot 1
	Link number:	1
	X.121 address:	199
	Password:	

For connection 2:	Description:	8160 in slot 2
	Link number:	2
	X.121 address:	299
	Password:	
For connection 3:	Description:	8160 in slot 3
	Link number:	3
	X.121 address:	399
	Password:	
For connection 4:	Description:	8160 in slot 4
	Link number:	4
	X.121 address:	499
	Password:	
For connection 5:	Description:	8225 MANAGER
	Link number:	MANAGER
	X.121 address:	
	Password:	

Enable the transparent manager menu.

Configure the routing as follows:

	Address	**Destination Link**
1	*99	MANAGER
2	*98	NMC
3	*1??	1
4	*2??	2
5	*3??	3
6	*4??	4

The minimum configuration for the 32-port PAD is now complete and it is ready for use.

The ports may be accessed as follows:

Ports	**X.121 Address**
First 8	<PAD address> 101-108
Second 8	<PAD address> 201-208
Third 8	<PAD address> 301-308
Fourth 8	<PAD address> 401-408

Where <PAD address> is the 12-digit address supplied by the network.

Appendix C RS-232 Signal Naming Convention

From DTE	From DCE	Mnemonic	Definition
1	1	PGND	Protective Ground
2	–	TxD	Transmitted Data
–	3	RxD	Received Data
4	–	RTS	Request to Send
–	5	CTS	Clear to Send
–	6	DSR	Data Set Ready
7	7	SGND	Signal Ground
–	8	DCD	Received Line Signal Detector (Data Carrier Detect)
–	15	TxClk	Transmission Signal Element Timing
–	17	RxClk	Receiver Signal Element Timing
20	–	DTR	Data Terminal Ready
–	21	BO	Signal Quality Detector (Busy Out)
–	22	RI	Ring Indicator
–	23	DRS	Data Signal Rate Select
24	–	TxCE	External Transmission Signal Element Timing

Table C-1 RS-232 Signal Naming Convention for DTE and DCE Ports