

# Hardware Installation Manual

## for the GlobeServer System

May 2004

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## Radio Frequency Interference (RFI)

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The TCL TwinSync multiport adapter card has been verified to comply with the following international standards on RFI emissions:-

**BS 6527 (EN 55022) LIMIT B**

The TCL GlobeServer Unit has been verified to comply with the following international standards on RFI emissions:-

**BS 6527 (EN 55022) LIMIT A**

In order to meet these standards screened cable must be used between the TwinSync card, GlobeServer and the equipment to which it is connected.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna

Relocate the computer with respect to the receiver

Move the computer away from the receiver

Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004000003454.

## WARRANTY

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TCL warrants the TwinSync adapter and GlobeServer unit against defective materials or workmanship for a period of three (3) years from the date of original purchase.

This warranty does not apply if the adapter or units have been damaged by neglect, improper handling or by any other causes not arising directly from defective materials or workmanship.

## NOTICE

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# 1 Introduction

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## 1.1 Features

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The GlobeServer system allows a user to connect up to a maximum 64 asynchronous ports (dependant upon driver software) to a host PC in units of eight ports.

The GlobeServer system consists of two functional units. A TwinSync two channel high speed serial I/O adapter card which is installed into the host PC, and one or more GlobeServer units which are connected locally to the TwinSync card via high speed synchronous lines.

The GlobeServer unit supports eight asynchronous ports and one parallel I/O port. The GlobeServer may be placed up to 1200 Metres distant from the TwinSync card using a high speed synchronous 2-wire link. There is also the ability to run one GLOBEserver over a Synchronous or Asynchronous modem, ISDN Terminal Adapter or KiloStream NTU providing a remote cluster of ports.

The TwinSync controller card incorporates an AMD 80C186 processor with 512 KByte of RAM, (expandable to 1MByte) and a high speed Serial Communications Controller capable of running two channels at 1Mbps half duplex.

Control software is down loaded to the card at system power- up, allowing total flexibility in system application and configuration.

No host PC interrupts, I/O Address or DMA channels are used by the TCL supplied device drivers.

## 1.2 Quick Installation

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A simple step by step guide to installing a standard GlobeServer Multidrop System is given in Appendix 7.8 of this manual.

## 1.3 NOTE

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The GLOBEserver units can **NOT** be connected to a TCL PCC/MX system. Similarly the PCC/MX units can **NOT** be connected to a GlobeServer system. The GlobeServer protocol supports new features required for Windows 95 and NT. ( The PCC/MX system does not support these features).

## 2 Configuration TwinSync Card

### Caution

Components on the board can be permanently damaged by Static Electricity. Extreme care must therefore be taken before handling the board. To avoid the possibility of damaging the components in this way, be sure to touch a grounded object to release any static electricity before touching the controller.

### 2.1 Configuring the TwinSync-PCI Card

The TwinSync-PCI adapter card should not require any jumper setting. The card's memory address and Interrupt setting (if required) are allocated automatically by the host PC's ROM bios. The communication line settings are automatically set by the executive loaded onto the card by the device driver. The user may define the required settings by using the SETGS program. (See 5.2.2)

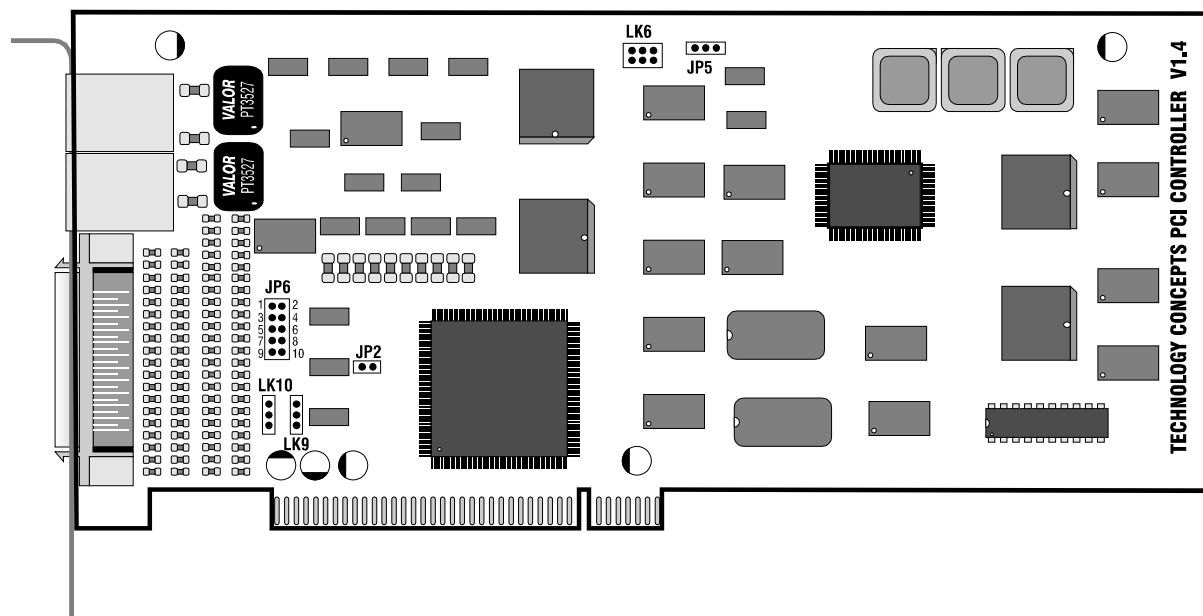
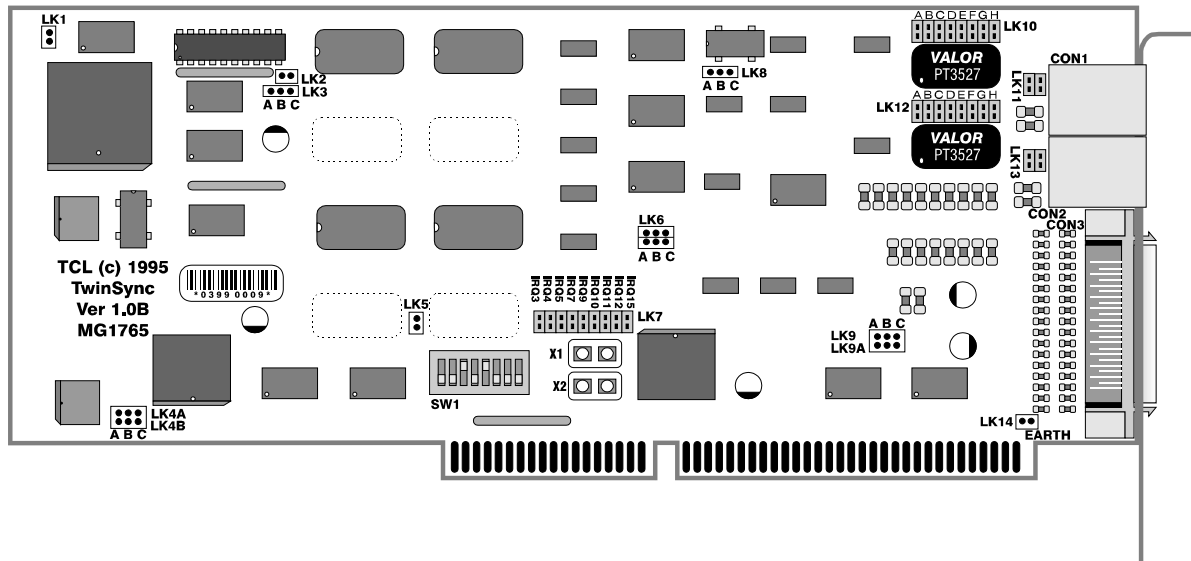


Figure 1 TwinSync-PCI Adatper Card for the PCI Bus

## 2.2 Configuring the TwinSync (ISA) Card

### 2.2.1 ISA Bus Address allocation

The address at which the ISA TwinSync card will be installed (the base address of the dual-ported memory window) is set via an 8- way switch SW1, (see **Figure 2**).



**Figure 2** TwinSync Adapter Card for ISA/EISA Bus.

Cards are factory set with a 4K+4K window at a base address of D6000h. This is compatible with most systems. It is essential, however, to ensure that no other board in the system occupies the same memory address location. The switch settings for the base address of D6000h are shown in **Figure 3**

SW1 SWITCH	1	2	3	4	5	6	7	8
POSITION	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF

**Figure 3** Switch Setting for D6000h base address

If more than one TCL Intelligent Multiport card is to be installed, the address of one of the other cards must be altered. The alternative recommended address is D8000h ,the required switch settings for which are shown in **Figure 4**.

SW1 SWITCH	1	2	3	4	5	6	7	8
POSITION	ON	ON	OFF	OFF	ON	OFF	OFF	OFF

**Figure 4** Switch Setting for D8000h base address

Full details of possible switch settings and their addresses are listed in Appendix 7.2. If more than one multiport card is to be installed, a note of the card's respective addresses should be made. On configuring the system, the cards should be numbered in order of these addresses, card 1 being at the lowest address.

## 2.2.2 ISA Bus Interrupt level

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The interrupt level of the ISA bus TwinSync adapter is selected via a 9 way IRQ header (LK7 see **Figure 2**). The supported interrupts are:

IRQ 3, 4, 5, 7, 9, 10, 11, 12 and 15.

No interrupt is used by the TCL device driver and the cards are factory set with no interrupt selected.

## 2.2.3 Line Mode Jumpers

The ISA Bus TwinSync card Line mode is selected via software, however it necessary to enable/disable the line isolation transformer when selecting between Local Multidrop mode and remote X21 modes on the TwinSync ISA card. The local Multidrop mode uses an isolation transformer to connect to the line. X.21 (Synchronous Kilostream/ISDN) connections do NOT require the use of an isolation transformer. The user of a TwinSync ISA card should check that the Jumpers LK10, LK11, LK12 and LK13 are set correctly for the required mode of operation. These jumpers do not affect the RS232 Asynchronous or Synchronous host connections.

ISA Bus TwinSync Line 1				ISA Bus TwinSync Line 2			
RS485 Multi-Drop Local		RS422 X21 ISDN/Kilostream		RS485 Multit-Drop Local		RS422 X21 ISDN/Kilostream	
LK-10A	Closed	LK-10A	Open	LK-12A	Closed	LK-12A	Open
LK-10B	Open	LK-10B	Closed	LK-12B	Open	LK-12B	Closed
LK-10C	Open	LK-10C	Closed	LK-12C	Open	LK-12C	Closed
LK-10D	Closed	LK-10D	Open	LK-12D	Closed	LK-12D	Open
LK-10E	Open	LK-10E	Closed	LK-12E	Open	LK-12E	Closed
LK-10F	Closed	LK-10F	Open	LK-12F	Closed	LK-12F	Open
LK-10G	Closed	LK-10G	Open	LK-12G	Closed	LK-12G	Open
LK-10H	Open	LK-10H	Closed	LK-12H	Open	LK-12H	Closed
LK-11A	Closed	LK-11A	Open	LK-13A	Closed	LK-13A	Open
LK-11B	Closed	LK-11B	Open	LK-13B	Closed	LK-13B	Open

**Figure 5** RS422 / RS485 Line Configuration Jumper settings for TwinSync (ISA) Card

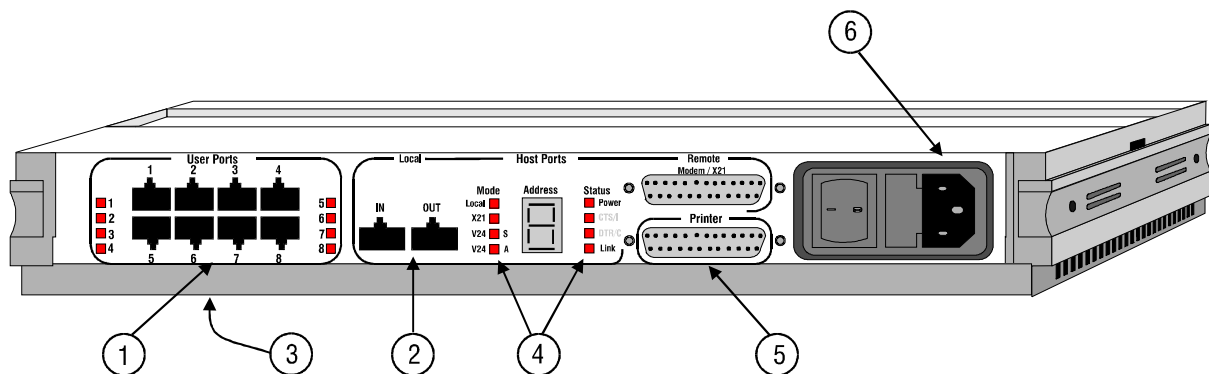
**NOTE:** The TwinSync-PCI adapter card has no line jumpers to set. ALL configuration is performed through software.

## 3 Configuring a GlobeServer Unit

Each GlobeServer connected into the system must be configured for four parameters;

- Ubit Address
- Line Mode
- Diagnostic Mode
- Termination Mode

The four parameters are set via the DIL switch on the base of the GlobeServer unit. The GlobeServer unit only reads the switch setting at power on, thus any changes made to the



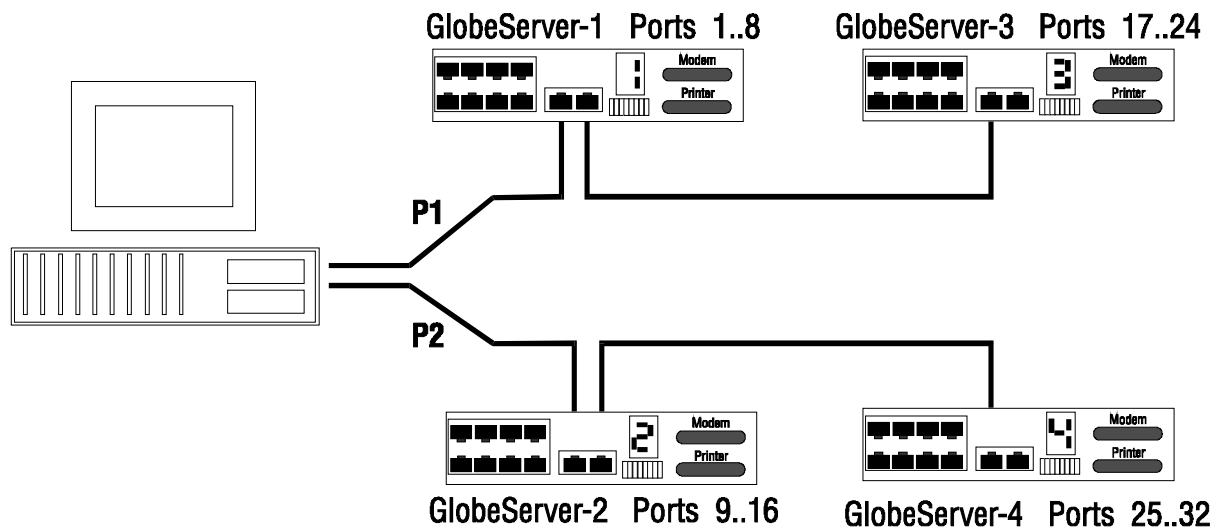
**Figure 6** GlobeServer Unit

switch setting should be followed by resetting the GlobeServer unit by switching it off and on.

- 1 Eight Asynchronous ports with 8 Way RJ45 Type connectors.
- 2 In/Out RS485 Host Connections 8 Way RJ45 Type connectors.
- 3 Switch for Address Line Mode and Diagnostic Selection (On Base of Unit).
- 4 Power and System Status Indicators.
- 5 Parallel Printer Port.
- 6 IEC Mains Power Connector.

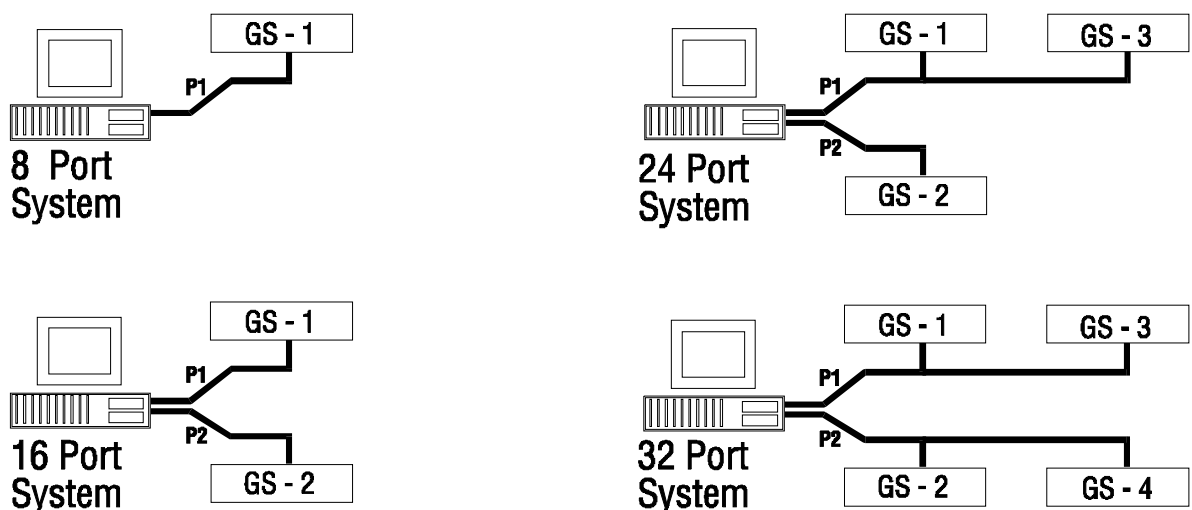
### 3.1 GlobeServer Unit Addressing

Each GlobeServer connected to the TwinSync card must have a unique address. Each line supports four addresses. Line P1 supports GlobeServer addresses 1, 3, 5, and 7 while line P2 supports GlobeServer addresses 2, 4, 6, and 8. ("P1" and "P2" is marked on the TwinSync card endplate). See **Figure 8**



**Figure 8** GlobeServer System Topology

The GlobeServer should be addressed and connected as shown in **Figure 8**. **Figure 8** also shows which ports are associated with each GlobeServer unit address.



**Figure 7** Valid GlobeServer Topologies

1	2	3	4	5	6	7	8	
<b>GlobeServer Address</b>			x	x	DOW N	DOW N	x	
<b>S1</b>	<b>S2</b>	<b>S3</b>						
On	Off	Off	Unit - 1					
Off	On	Off	Unit - 2					
On	On	Off	Unit - 3					
Off	Off	On	Unit - 4					
On	Off	On	Unit - 5					
Off	On	On	Unit - 6					
On	On	On	Unit - 7					
Off	Off	Off	Unit - 8					

**Figure 9** GlobeServer Address Switch Settings

Switch bits 1,2 and 3 of the DIL switch on the base surface of the GlobeServer unit are used for selecting GlobeServer Address, See **Figure 9**

## 3.2 GlobeServer Line Mode

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The GlobeServer may be connected to the TwinSync card using one of four different interfaces.

RS485	MultiDrop	For local connections up to 1200 Metres. Two wire connection. Line speeds from 250Kbps to 1Mbps. Four GlobeServer units may be connected to one line. ( <i>STANDARD MODE</i> )
RS422	Point to Point	For Leased line X21 type interface (Kilostream synchronous 64Kbps). A maximum of two GlobeServer units per line may be used, supporting 16 ports at a remote location. On an ISDN circuit only ONE GlobeServer may be used per line, supporting 8 ports plus a parallel* port at a remote location.
RS232S	Point to Point	For Leased or dial up line using V34 or faster Synchronous modems. ( 14K4..28K8bps). Only one GlobeServer unit may be attached - supporting 8 ports plus a parallel* port at a remote location.
RS232A	Point to Point	For Leased or dial up line using Async modems capable of supporting 38K4..57K6bps connection speeds. Only one GlobeServer unit may be attached - supporting 8 ports plus a parallel* port at a remote location.

***(\*Parallel Printer support is dependent upon the Operating System driver support.)***

For normal use around an office or factory site the standard two wire RS485 mode is recommended. If the distance of the furthest GlobeServer unit on the line is less than 360 Metres then the 1Mbps speed may be selected for optimum throughput.

The GlobeServer system will also support a GlobeServer unit in distant locations (greater than 1200 Metres via leased lines or dial up modems. **NOTE other than Kilostream circuits, a line configured to operate over a leased line or modem may only have one GlobeServer unit attached to that line.**

Each of the two TwinSync lines may be configured independently. It is possible to configure line P1 for RS485 - 1Mbps operation with one or more GlobeServer units attached while line P2 is configured for RS232 ASYNC use via a dial up modem with one GlobeServer unit attached at the remote end.

Switch bits 4,5 and 6 on the base surface of theGlobeServer unit are used for selecting Line Mode, See **Figure 10**

1	2	3	4	5	6	7	8
X	X	X	GlobeServer Line Mode			DOWN	X
<b>Usage</b>			<b>S4</b>	<b>S5</b>	<b>S6</b>	<b>Mode</b>	<b>Speed</b>
Local up to 360 Metres			Off	Off	Off	RS485	1Mbps
Local up to 1200 Metres			On	Off	Off	RS485	250Kbps
Remote X21 ISDN/ KiloStream			Off	On	Off	RS422	64Kbps
Reserved			On	On	Off	-	-
V24 Remote Synchronous Link			Off	Off	On	RS232	14K4bps
V24 Remote Asynchronous Link			On	Off	On	RS232	38K4bps
V24 Remote Asynchronous Link			Off	On	On	RS232	57K6bps
Reserved			On	On	On	-	-

**Figure 10** GlobeServer Line Mode Selection

**NOTE** If the GlobeServer is to be used for an X21 connection (RS422 Synchronous - Kilostream or ISDN) then the user should check that the TwinSync card jumpers are set correctly. As standard the ISA TwinSync adapter card is shipped with the jumpers set for Multidrop operation. Details on how to perform this check are described in **Figure 5**.

### 3.3 GlobeServer Line Termination

When a line is configured for RS485 Multidrop operation the GlobeServer attached to end of the line must have its line termination circuit enabled. The other GlobeServer units on the line must have their termination circuitry disabled. See **Figure 11** .

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
X	X	X	X	X	X	X	
<b>Description</b>						<b>Termination</b>	
Disable Line Termination Circuitry in GlobeServer						Disabled	Off
Enable Line Termination Circuitry in GlobeServer						Enabled	On

**Figure 11** GlobeServer Line Termination Mode

### 3.4 GlobeServer Diagnostic Modes

For normal operation all diagnostic modes should be OFF. Diagnostic modes are disabled when Switch 7 is On. For further information on the diagnostic modes available see Section 6, 6.1.

1	2	3	4	5	6	7	8
X	X	X	X	X	X	<b>Diagnostics</b>	
<b>Diagnostic Modes</b>						<b>S7</b>	
<b>DISABLED</b> (Setting for NORMAL Operation)						Off	
User Diagnostic Test Mode						On	

**Figure 12** GlobeServer Diagnostic Mode

# 4 Installation

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## 4.1 General instructions

**Always ensure that the mains supply is disconnected before attempting to connect or disconnect any kind of equipment.**

All electronic components are extremely susceptible to damage from an electro-static charge. Always touch a grounded object before handling the TwinSync controller or GlobeServer unit.

Please refer also to manufacturer's guide supplied with the computer system for instructions on installing an adapter card.

A quick installation guide is given in Appendix 7.8.

## 4.1 Installing the TwinSync controller card

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Ensure that the TwinSync card is configured correctly (see Section 2).

Disconnect the mains supply from the system unit, then with the power off, disconnect the keyboard and any peripheral devices. Remove the system-unit cover with reference to the manufacturer's instructions.

The TwinSync card can then be fitted in an available 16-bit ISA/EISA or PCI slot (depending on card type) by first aligning, then pressing the card firmly into the connector. It is important that the TwinSync card end plate is screwed firmly to the system unit chassis. The system-unit cover should then be replaced. The keyboard and other peripheral devices can now be reconnected to the computer.

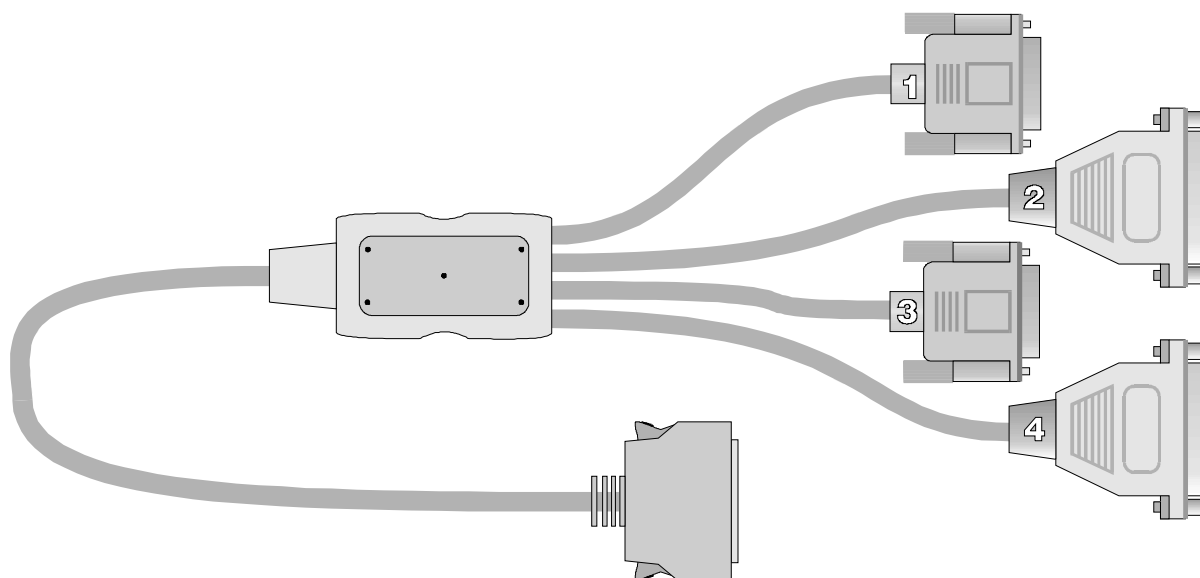
Once the TwinSync card has been installed, the cables for attaching the GlobeServer units may be attached. Local connections are made to the RJ45 sockets on the end-plate of the TwinSync card. Remote connections require the TwinSync distribution cable (See section 4.2) to be fitted to the 50-Way High Density connector on the TwinSync card end plate. Check that both retaining clips of the connector are correctly seated to provide a secure connection.

The GlobeServer units may then be connected up, first connect all the Terminal and Communication cables then connect the Mains power with the IEC cable. Sections 4.3 to 4.5 explain the cabling systems required for various installations.

On power up the GlobeServer will display a series of diagnostic signs on the LEDs on the front panel of the unit. The Seven Segment LED will continue to flash the GlobeServer unit's address until a signal connection is made with the host TwinSync card. Once a connection is established the LED will stop flashing and will give a steady display of the unit's address number.

## 4.2 Fitting the external distribution cable

An external distribution cable (Part No. 9528) is supplied with the TwinSync card. This cable consists of one 50 Way D-Type connector to which two 15 Way D-Type and two 25 Way D-Type Plugs are connected. This distribution cable may be used to support **RS422 X21 Lines and RS232 Async/Sync Lines**.



**Figure 13** TwinSync Distribution Cable Part No. 9528 (for Remote Connections).

<b>Line 1</b>	RS422 X21 Interface on 15 Way D-Type	Labled <b>(1)</b>
	RS232 Async/Sync Interface on 25 Way D-Type	Labled <b>(2)</b>
<b>Line 2</b>	RS422 X21 Interface on 15 Way D-Type	Labled <b>(3)</b>
	RS232 Async/Sync Interface on 25 Way D-Type	Labled <b>(4)</b>

## 4.3 Local Multi-Drop Installation

Ensure the TwinSync card line mode jumpers (Section 2.) and the GlobeServer switches (Section 3.) are configured for Local Multidrop mode.

The GlobeServer unit supports two 8 Way RJ-45 type connectors (marked as **Local Host Ports** on the front panel) for Multidrop connection. One connector (marked **IN** on the front panel) may be used for connecting the first GlobeServer to the TwinSync card the other connector (marked **OUT** on the front panel) may be used for linking to an additional GlobeServer unit. The connectors are electrically identical so it does not matter which connector is used for which connection.

TCL can supply a 5.0 Metre cable for Multidrop connections Part No. 9532

For standard Multidrop Line Mode connect the GlobeServer unit (Address 1) to the TwinSync RJ-45 Socket **P1** on the TwinSync card end-plate. Use the TCL Multidrop cable Part No. 9532 for the connection. The GlobeServer unit (Address 2) should be connected to the TwinSync RJ-45 Socket **P2** on the TwinSync card end-plate, again using the TCL Multidrop cable Part No. 9532.

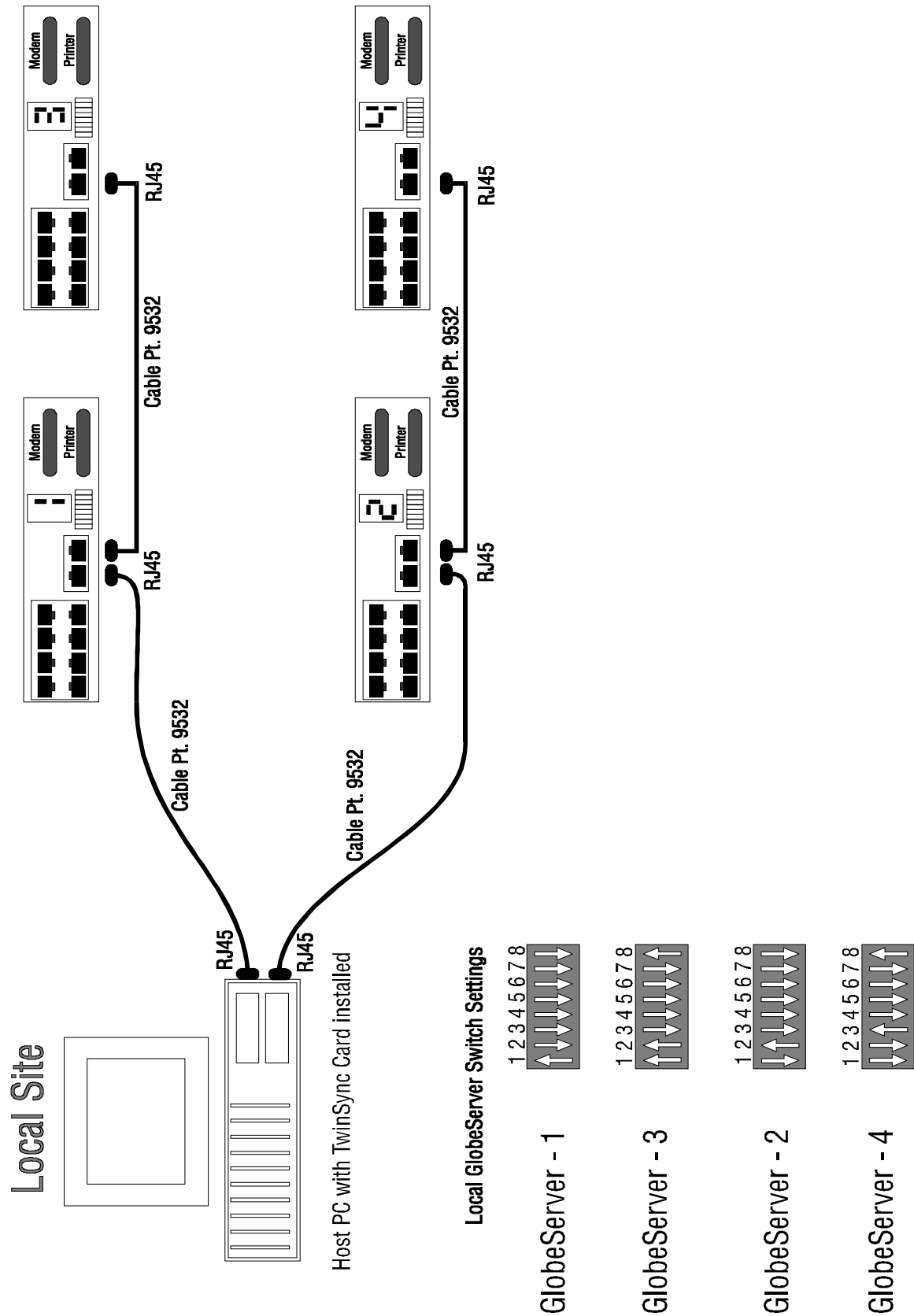
Additional GlobeServer units may then be daisy chained into the system. Odd addressed units (3,5,and 7) should be daisy chained from GlobeServer unit-1, and even addressed units (4, 6, and 8) should be daisy chained from GlobeServer unit-2. using any of the above multidrop cables. See **Figure 14**.

Once all the terminal cables and multidrop cables in the System are connected, then connect the mains supply to the GlobeServer Unit via the IEC mains plug on the front panel of the unit. Switch on the mains power to the unit.

When powered up each GlobeServer unit will display its address number on the **Address** LED. The **status Power** LED and **mode Local** LED should also be lit.

The address LED will flash until a signal connection is made with the host TwinSync card. Once a signal connection is established the **Address** LED will stop flashing and will give a steady display of the GlobeServer Address Number.

<u>GlobeServer Unit Number</u>	<u>First User Port on Unit</u>	<u>Last User Port on Unit</u>
1	1	8
2	9	16
3	17	24
4	25	32
5	33	40
6	41	48
7	49	56
8	57	64



**Figure 14** 1Mbps Local Multidrop GlobeServer Switch Setting and Cabling Diagram.

## 4.4 Remote RS232 Dial-Up / Leased Line Installation

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### 4.4.1 Types of Modem for Dial Up / Leased Line use

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Synchronous RS232 modems capable of line speeds of 9600bps and above or Asynchronous modems capable of supporting a 57K6 or 38K4 baud rate may be used to connect the TwinSync card to a remote GlobeServer via a leased line or Dial-Up line.

The operational parameters of both modems should be configured to meet the requirements of the GlobeServer.

When using high speed Asynchronous RS232 Modems it is best to configure the modems to disable their error correction and data compression as these features are handled by the GlobeServer system. In asynchronous mode a fixed DCE/DTE baud rates must be used (ie the modems automatic fall back mode should be disabled).

When using high speed Synchronous RS232 Modems the minimum line speed that the GlobeServer system will operate at is 9600 baud. When using high speed Sync Modems (14K4, 16K8, 19K2, or 28K8 baud) automatic fall back may be enabled as long as the fall back speed does NOT drop below 9600 baud.

When using a Dial-Up modem (that can be configured for Lease Line use) on a leased line circuit check that the BT wall socket is configured for Pins 2 & 5 operation. Telephones and Dial-Up modems normally use Pins 2 & 5, for signal connections while leased lines use Pins 1 & 6 of the BT wall socket for signal connection. On modern BT leased line equipment it is possible to jumper the connections from 1 & 6 to 2 & 5 .

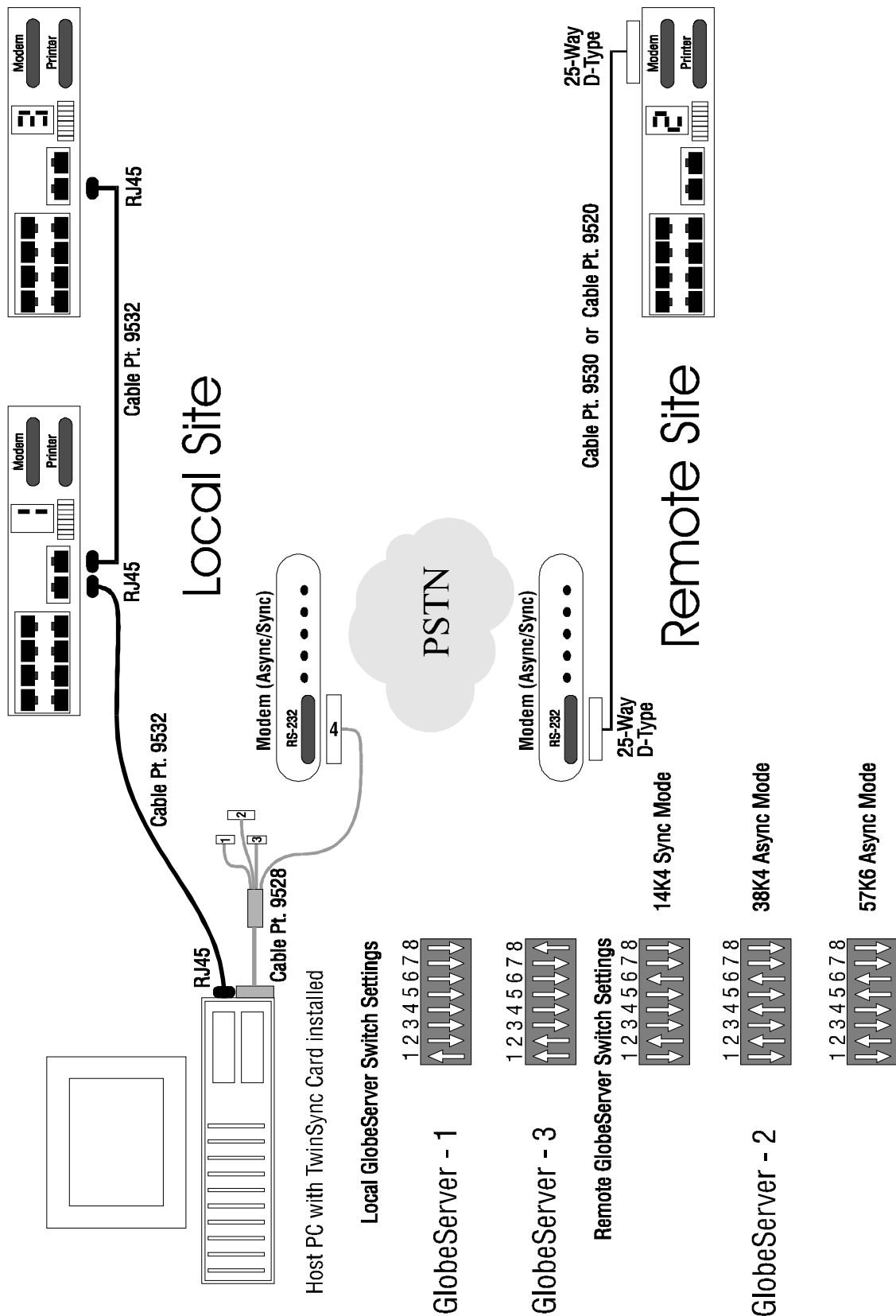
### 4.4.2 RS232 Remote GlobeServer System Line Configuration

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Each line P1 and P2 of the TwinSync card may be configured independently. Thus either line or both lines may be configured to support an RS232 link to a remote GlobeServer via a Synchronous or Asynchronous Modem. However only ONE GlobeServer can be supported on a RS232 Dial-Up or Leased line.

If only one GlobeServer is required in the system then line P1 of the TwinSync card should be configured for RS232 Async or Sync mode operation according to the modem type to be used.

**If more than one GlobeServer is required in the system and one of the lines is to be configured for Multidrop use, then Line P2 should be configured for RS232 Async or Sync operation and line P1 used for Multidrop operation.**



**Figure 15** Cabling and Switch setting for RS232 Remote GlobeServer Link with a 1Mbps Local Multidrop Link.

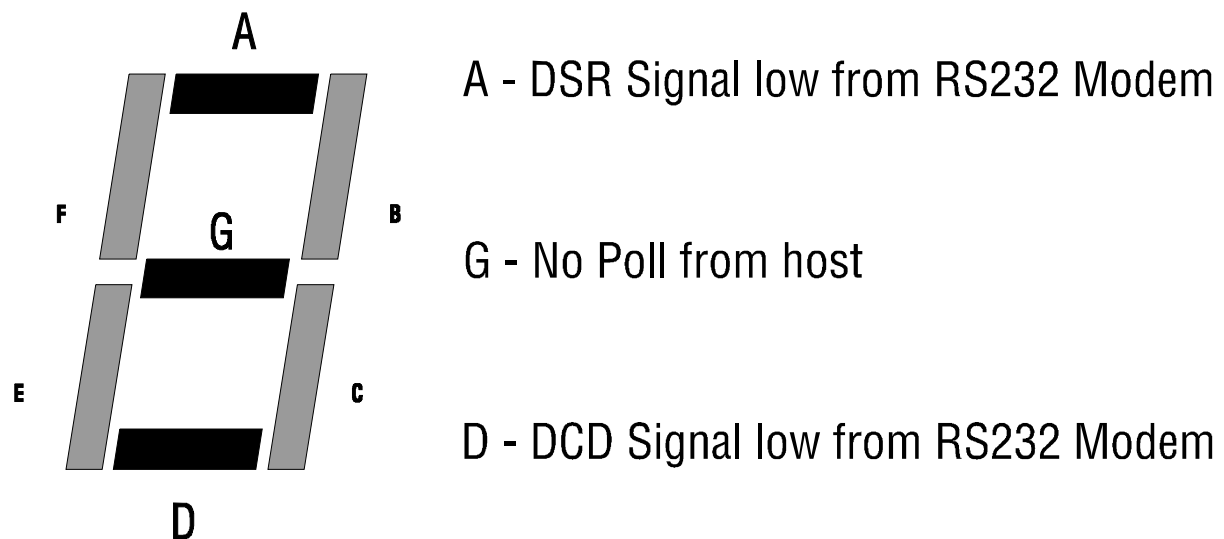
Once the Line configuration has been chosen, confirm the GlobeServer line mode switches (Section 3) have been set correctly.

Run the DOS program SETGS program to configure the executive files to reflect the chosen Line parameters. For each line the "Line Mode" and "Line Speed" should be set (See Section 5.2.2 and 5.2.3). The executive files are GSVSYNC.SYS, TCGSVR1.SYS, and TCLSYNC.SYS

**Figure 15** shows the switch and cabling for a RS232 Remote link and a local multidrop link GlobeServer system.

#### 4.4.3 RS232 Remote GlobeServer Modem Status Indicator

When in RS232 Asynchronous or Synchronous mode the GlobeServer front panel **Address** L.E.D. will display the state of the DSR and DCD signals from the Remote Host interface. The segments "A" and "D" will light up if either of the two modem signals are not present. See **Figure 16**.



**Figure 16** GlobeServer Address L.E.D. Modem Line Status Indication

## 4.5 Remote Kilostream / ISDN GlobeServer Line Installation

---

### 4.5.1 X21 (RS422 64Kbps) Line Use

---

The TwinSync card may be linked to a remote GlobeServer via an X21 interface providing a RS422 64Kbps Synchronous connection. The connection service may be a BT Kilostream 64Kbps X21 service which will provide a point to point connection. The customer will have requested BT to install this service. BT will install a Network Termination Unit (NTU) at the host and remote sites.

An alternative to a Kilostream point to point service is a switched service provided by ISDN. With an appropriate *Terminal Adapter* this can give a X21 64Kbps Synchronous service. The customer will have requested an ISDN line to their host and remote site premises. The customer will then provide a *Terminal Adapter* at each site. Each site will be allocated an ISDN number by BT (similar to a telephone number). Both the TwinSync and the GlobeServer will raise the X21 "C" lead on completion of their initialisation. Typically one *Terminal Adapter* will have been configured to dial a preset number on the "C" lead going high, the other *Terminal Adapter* being programmed to ignore the "C" lead effectively operating in auto answer mode.

### 4.5.2 X21 Remote GlobeServer Line Configuration

---

Each line P1 and P2 of the TwinSync card may be configured independently. Thus either line or both lines may be configured to support an RS422 X21 link to a remote GlobeServer via a Kilostream or ISDN link. Normally only ONE GlobeServer can be supported on a RS422 Point-to-Point connection. However by making a special "Y" cable it is possible to multidrop one additional GlobeServer at the remote location. See Appendix 7.3.7.

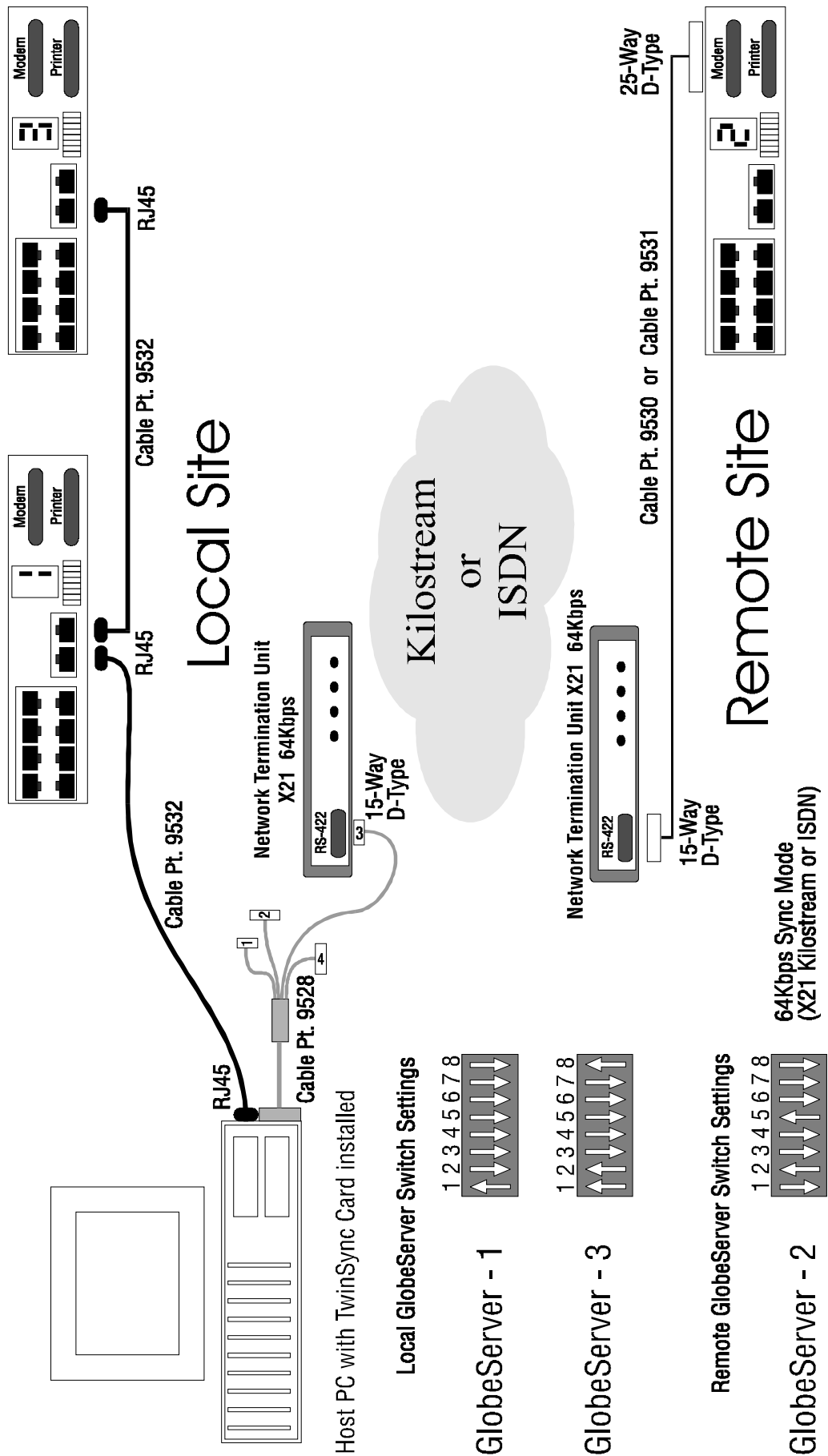
If only one GlobeServer unit is required in the system then line P1 of the TwinSync card should be configured for RS422 X21 mode of operation.

**If more than one GlobeServer unit is required in the system and one of the lines is to be configured for Multidrop use then Line P2 should be configured for RS422 X21 operation and line P1 used for Multidrop operation.**

When using either the P1 or P2 (or both) lines in X21 mode, connections to the TwinSync card MUST be made using the distribution cable Part No. 9528, see **Figure 13**.

The TwinSync card MUST be jumpered for RS422 X21 operation (see Section 2. for details) similarly the GlobeServer switches must be set for RS422 X21 operation (see Section 3. for details).

The Cable Part No. 9528 should be used to connect from the TwinSync card to the NTU or ISDN *Terminal Adapter*. To connect the GlobeServer to the NTU or ISDN *Terminal Adapter* use the TCL cable Part No. 9530 or 9531.



**Figure 17** Cabling and Switch settings for X21 GlobeServer Link with a 1Mbps Local Multidrop Link.

## 5 Software Configuration

### 5.1 Synchronous Executives for TwinSync

The protocol and control code (referred to as the Executive code) for the TwinSync card is loaded onto the card by the host operating system at boot time. The executive is stored as a file on disk. The following table indicates which executive file may be used with which operating systems;

	GlobeServer System Executives		
Maximum Units Supported	8	4	4
Operating System	TCLSYNC.SYS	GSVSYNC.SYS	TCGSVR1.SYS
PC DOS 3.31		X	
Multiuser Dos R5.xx (Retail)		X	
PC MOS V3.0, V4.0, V5.0		X	
Windows 95	X		
Windows NT	X		
OS/2 v1.3, V2.0, V2.1		X	
OS/2 v3, v4 Lan Distance	X		
SCO Xenix V2.3.4		X	
SCO Unix 3.2v4.0 3.2v4.2		X	X
iX386 Unix 3.2 v2.3		X	X
AT&T Unix 3.2.2		X	X
Unixware 1.x		X	X
UnixWare 2.x	X		
Solaris x86	X		
OS/9000 v1.1, v1.2		X	
Flexos 286/386 V2.3		X	

**Figure 18** TwinSync Executive support for Operating Systems

The **GSVSYNC.SYS** provides standard Input/Output support for host 16-bit operating systems through to the asynchronous ports at the GlobeServer unit. The **TCGSVR1.SYS** executive in addition to providing a transparent path through to the async. ports of the GlobeServer units, may also be used to support multiple virtual screens for terminals, printers attached to terminals, Scan to ASCII keyboard translation, and various Escape Sequence translations. Both these executives support a maximum of four units or 32 **User** ports. **TCLSYNC.SYS** provides standard Input/Output support for TCL's 32-bit device drivers, supporting 8 GlobeServer units for a maximum of 64 **User** ports.

## 5.2 SETGS Program

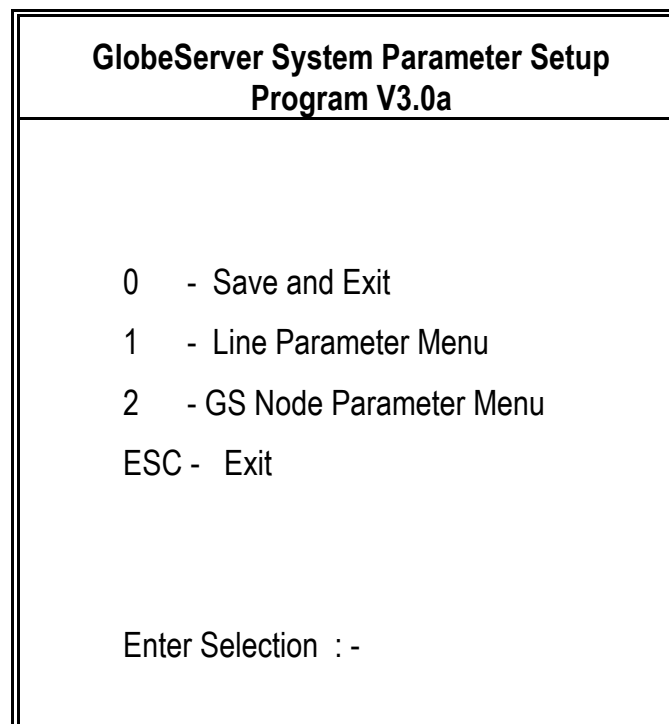
---

The Line configuration information is stored in the( GSVSYNC, TCGSVR1, TCLSYNC) executive file. The executive files are supplied as standard with both lines (P1 and P2) configured for RS485 Multidrop operation at 1Mbps. If this is the operational mode required then the SETGS program need not be run.

To set any other type of line configuration it is necessary to setup the executive by running the SETGS program on the appropriate executive. At the command line type;

SETGS FILENAME.EXT      Where FILENAME.EXT is the name of the  
Executive file to setup. EG: TCLSYNC.SYS

The program displays a simple menu of four items;



**Figure 19**      SETGS Program main menu

Parameters must be typed in and terminated with the RETURN KEY. To skip over a parameter not requiring change simply press the RETURN KEY.

---

## 5.2.1 Poll Period Configuration

---

Selecting the Line Parameter menu allows the POLL period to be set. For all line types the POLL PERIOD should be set to ZERO, this allows the executive code to determine the optimum poll period itself.

---

## 5.2.2 Line Type Configuration

---

The following strings in "quotation marks" are accepted for the LINE TYPE prompt;

- "RS485" - Standard Multidrop Mode.
- "RS422" - X21 RS422 Point to Point Synchronous Mode.
- "RS232S" - RS232 Point to Point Leased Line or Dial up Line Synchronous Mode.
- "RS232A" - RS232 Dial Up Line Asynchronous Mode.

---

## 5.2.3 Line Speed Configuration

---

The following strings in "quotation marks" are accepted for the LINE SPEED prompt. The LINE TYPEs which support the valid speeds are given in brackets.

- "1M" - 1Mbps [RS485]
- "500K" - 500Kbps [RS485]
- "250K" - 250Kbps [RS485]
- "64K" - 64Kbps [RS422]
- "38K4" - 38K4bps [RS232A / RS232S]
- "19K2" - 19K2bps [RS232A / RS232S]
- "14K4" - 14K4bps [RS232S]
- "9K6" - 9K6bPS [RS232S]

**NOTE** *The Line Speed variable is not used directly for RS422 and RS232 Synchronous modes as the Transmit and Receive clocking rate is supplied by the DCE device (eg. modem, NTU or TA). The information is only used to determine the data bandwidth available for the transmission and reception of data.*

---

## 5.2.4 GlobeServer Time out Count Configuration

---

There should be no need to change this parameter as the executive itself will calculate an appropriate value. Should it be necessary to change the GlobeServer time out count, it may be set from the NODE PARAMETER menu.

In Multidrop mode the standard value for the TIME OUT COUNT is 2. If the GlobeServer is connected through a public exchange or an asynchronous modem the executive increases the TIME OUT COUNT to a higher value (eg: 6) to allow for the Transmit / Receive delays through the exchange equipment.

# 6 GlobeServer Unit Diagnostics

This Section describes the operation of the standalone diagnostics of the GlobeServer Unit. Wiring diagrams for the cables and connectors needed to carry out the diagnostic tests are given in the Appendix - 7.7.

The GlobeServer unit is capable of performing a number of self tests. These are standalone tests and do not require the GlobeServer to be connected to the host TwinSync board.

Some of the tests need a terminal attached to one or more of the GlobeServer **User** ports and, if so desired, a printer can be attached to the GlobeServer **Printer** port to test the connection to the printer.

Four diagnostic modes are supported. The mode is selected only at power on time by setting the DIP switches on the base surface of the GlobeServer unit.

A diagnostic mode will only be entered when Switches 7 is set to ON.

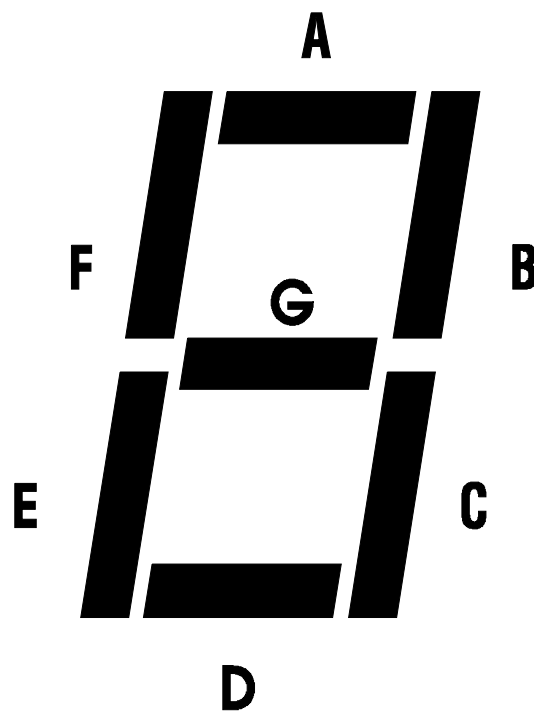
1	2	3	4	5	6	7	8
X	X	X	<b>Mode</b>			<b>Diagnostics</b>	X
Normal Operation Diagnostics Disabled			X	X	X	DOWN	
User Diagnostic Test Mode			DOWN	DOWN	DOWN	UP	
Manufacturing Internal Loop Back Tests			UP	DOWN	DOWN	UP	
Manufacturing External Loop Back Tests			DOWN	UP	DOWN	UP	
--			UP	UP	DOWN	UP	
--			DOWN	DOWN	UP	UP	
--			UP	DOWN	UP	UP	
Setup Mode			DOWN	UP	UP	UP	
Software Upgrade			UP	UP	UP	UP	

**Figure 20** GlobeServer Diagnostic Modes

In each diagnostic mode, the GlobeServer performs a series of self tests. A symbol is displayed on the **Address** LED to indicate which test is currently in progress.

The tests will halt on the first failure that occurs (except in interactive mode). The **Address** LED then indicates the point in the sequence of tests at which the unit failed.

The seven segments of the **Address** LED display are identified throughout this document by the first seven letters of the alphabet as shown in **Figure 21**.



**Figure 21** Designation of Seven Segment LED Segments

## 6.1 Power On Diagnostic Sequence (sw7 = off)

With no diagnostics selected, a simple power on test sequence is followed before the GlobeServer enters its normal operational state as defined by the switch settings. If any of the tests fail, the GlobeServer halts and the **Address** LED displays a symbol indicating in which test the problem was detected.

6.1.1 First of all, each LED segment is lit in the sequence a,b,c,d,e,f,g and turned off in the reverse order.

6.1.2 Following this, there is a short memory check in which the GlobeServer memory is filled with a set pattern and the memory is read back to check for this pattern. The first memory location is set to all possible values and read back to check for errors. If any error occurs the appropriate segments of the **Address** LED will be lit to indicate the error type.

<u>LED Segments</u>	<u>Meaning</u>
<b>CEG</b>	Unacceptable memory size. (valid memory size is, 256K)
<b>CDEG</b>	Failed on memory pattern 00h. (i.e.could not zero memory)
<b>CDEFG</b>	Bit test on first memory location failed
<b>CDE</b>	Failed on memory pattern 55h.
<b>DE</b>	Failed on memory pattern AAh.
<b>E</b>	Failed on memory pattern FFh.

6.1.3 Following the memory test the middle segment (**g**) of the **Address** LED will flash. If the unit is in Asynchronous Host link mode then a single digit indicating the host line speed setting will be displayed The GlobeServer will then enter the Checksum test phase.

5 = RS232 Async 57K6

3 = RS232 Async 38K4

6.1.4 After the Host Asynchronous Line speed display (Async. Host **Mode** only), the checksum of the GlobeServer's EEPROM is calculated and checked against the value stored in EEPROM. The start of the sequence may easily be identified as it is preceded with the LED flashing a "c" character (Segments D,E,G). The four hex digits of the checksum are displayed one after the other on the **Address** LED. If the checksum test is passed, the GlobeServer then enters normal operational mode and flashes the unit's ID number on the **Address** LED, and one of the **Mode** LEDs will be lit to indicate the operating mode of the unit.

<u>LED Segments</u>	<u>Meaning</u>
<b>DEG</b>	EEPROM Code Checksum test failed.

## 6.2 GlobeServer User Diagnostic Tests (SW7=On, SW4,5,6 = Off)

The purpose of User Diagnostic Mode is to verify the GlobeServer is functioning and that the User serial ports are working.

- 6.2.1 All the **User** ports and the Host **Remote** channel are programmed for asynchronous operation with the following parameters :

19200	Baud
8	Data Bits
1	Stop Bit
No	Parity
CTS	Flow Control

- 6.2.2 Terminals can be connected to the **User** ports using the wiring as shown in Appendix 6 and for the Host Remote port a terminal may be connected (see Appendix **Figure 43**). A parallel printer can also be connected to the printer port.
- 6.2.3 On powering up in User Diagnostic Mode, there is a short memory test and a checksum test.
- 6.2.4 Having completed the checksum test, 80-character ASCII strings are continuously output from every **User** port and the Host **Remote** port and printer port.
- 6.2.5 All ports except for the printer port are scanned for input. If two consecutive ESCAPE characters are received at any port, transmission of ASCII strings immediately stops at all ports and all ports will now echo any characters they receive.
- 6.2.6 To cancel echo mode type two consecutive ESCAPE characters at the attached terminal, then all ports immediately go back to transmitting ASCII strings.
- 6.2.7 Power must be switched off and the diagnostic mode switches (i.e. SW7) must be changed in order to get out of User Diagnostic Mode.
- 6.2.8 The power up test sequence in User Diagnostic Mode is exactly as described in Section 6, 6.1 (Diagnostics Off).

# 7 Appendices

## Appendix 7.1 Technical details TwinSync Adapter

Channels:	2 Serial Channels configureable for Synchronous or Asynchronous operation.		
Processor:	AMD 20MHz 80C186	(PCI Version AMD 40MHz 186EM)	
Communication:	Data rates up to 1Mbps Synchronous self clocking data. Up to 4Mbps using user supplied clock. Asynchronous data rates up to 38K4bps.		
Interface:	Software selectable for V.24/RS-232, or RS422, jumper selectable RS485 option on both ports.		
RS232 Signals:	RX TX DTR DSR RTS CTS DCD RI RX-CLK TX-CLK OP-CLK		
RS422 Signals:	RX TX CONTROL INDICATE CLOCK		
Connectors:	2 x 8-Way RJ45 Sockets for RS485 Connection. 1 x 50-Way High density distribution cable attachment.		
Distribution Cable:	Part No. 9528 providing:	2 x 25-pin D-Type Female for RS232 2 x 15-pin D-Type Male for RS422	
Address allocation:	ISA TwinSync cards require an 8KB memory address allocation. PCI TwinSync cards require 1MB memory address allocation.		
Interrupt level:	Interrupts supported :-	IRQ 3, 4, 5, 7, 9, 10, 11, 12, 15.	
Size	PCB Card Size	253.5 x 106.5 x 15mm	
	Outline Size	267 x 128 x 19mm (ISA) 245 x 128 x 19mm (PCI)	
Weight	170 gm (ISA) / 190 gm (PCI)		
Power		(ISA)	(PCI)
	+5v @	0.85A	0.95A
	+12v @	0.10A	0.10A
	-12V @	0.10A	0.10A

## Appendix 7.2 TwinSync Memory address allocation

Each switch of the SW1 bank selects the value of one address bit (see **Figure 22**). The OFF position of each switch sets an address bit equal to 1. The ON position sets it equal to 0.

Switch	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
Address Bit	SA13	SA14	SA15	SA16	SA17	SA18	SA19	x

**Figure 22** SW1 Switch bit assignments

### TCL Card Setting SW1

ADDRESS	1	2	3	4	5	6	7	8
C0000..C1FFF	ON	ON	ON	ON	ON	OFF	OFF	OFF
C2000..C3FFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF
C4000..C5FFF	ON	OFF	ON	ON	ON	OFF	OFF	OFF
C6000..C7FFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
C8000..C9FFF	ON	ON	OFF	ON	ON	OFF	OFF	OFF
CA000..CBFFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
CC000..CDFFF	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
CE000..CFFFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
D0000..D1FFF	ON	ON	ON	OFF	ON	OFF	OFF	OFF
D2000..D3FFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
D4000..D5FFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
D6000..D7FFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
D8000..D9FFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
DA000..DBFFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
DC000..DDFFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
DE000..DFFFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
E0000..E1FFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
E2000..E3FFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
E4000..E5FFF	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
E6000..E7FFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
E8000..E9FFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
EA000..EBFFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
EC000..EDFFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
EE000..EFFFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF

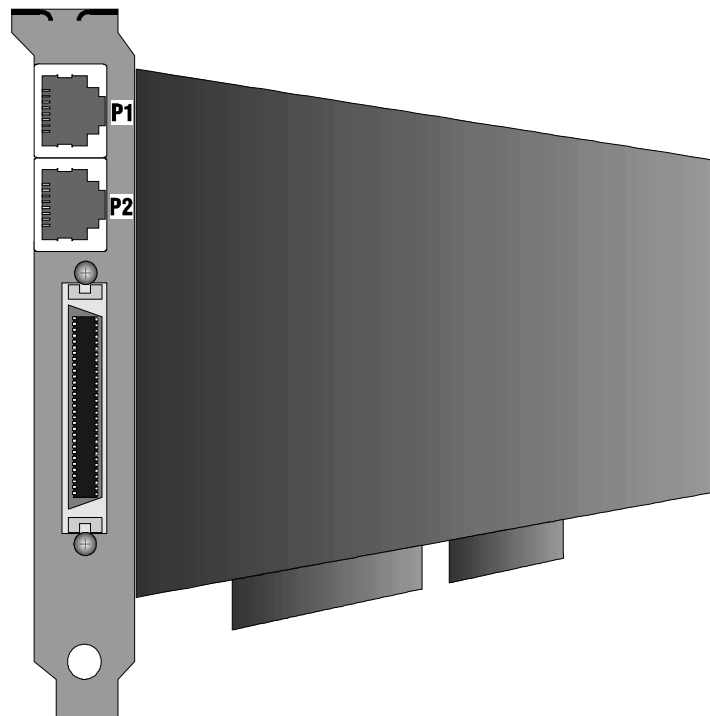
## Appendix 7.3 System Wiring Details

### AP7.3.1 TwinSync Multidrop 8-Way RJ45 Pin Out

RS485 signals are output on the 8-Way RJ45 connectors marked P1 and P2 on the TwinSync card end plate. Only Pins 3 and 6 are used for Multidrop connections to the TCL GlobeServer unit.

Signal Name	Signal Type	Pin
<b>8 Way RJ45 Connector</b>		
TxD+	o/p	1
TxD-	o/p	2
<b>RxD+</b>	<b>i/p</b>	<b>3</b>
n/c		4
n/c		5
<b>RxD-</b>	<b>i/p</b>	<b>6</b>
RxClk+	i/p	7
RxClk-	i/p	8

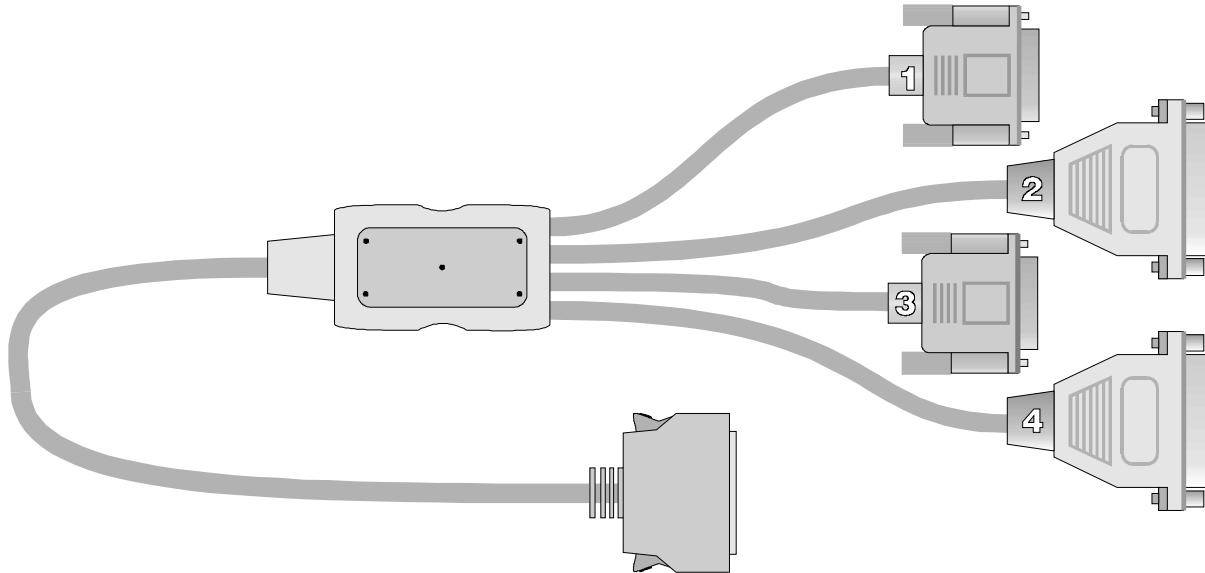
**Figure 23** TwinSync 8-Way RJ45 Connector Pin Out



**Figure 24** TwinSync Adapter Endplate Sockets

**AP7.3.2 TwinSync RS422 and RS232 Distribution Box Pin Out**

The 15-Way D-Type connectors should be used for RS422 X21 connections and the 25-Way D-Type connectors should be used for RS232 Asynchronous and Synchronous connections.



**Figure 25** TwinSync Distribution Cable 9528

15-Pin D-Type Female			25-Pin D-Type Female		
Signal Name	Signal Type	Pin	Signal Name	Signal Type	Pin
<b>RS422 Signals</b>			<b>RS232 Signals</b>		
GND		1	GND		1
TXD	+ o/p	2	TXD	o/p	2
RTS	+ o/p	3	RXD	i/p	3
RXD	+ i/p	4	RTS	o/p	4
CTS	+ i/p	5	CTS	i/p	5
RXCik	+ i/p	6	DSR	i/p	6
0v		8	0v		7
TXD	- o/p	9	DCD	i/p	8
RTS	- o/p	10	TXCik	i/p	15
RXD	- i/p	11	RXCik	i/p	17
CTS	- i/p	12	DTR	o/p	20
RXCik	- i/p	13	RI	i/p	22
			RATE SLCT	o/p	23
			TRCik	o/p	24

**Figure 26** Distribution Cable 9528 Pin Out

AP7.3.3 GlobeServer Unit X21 and Modem Pin Outs

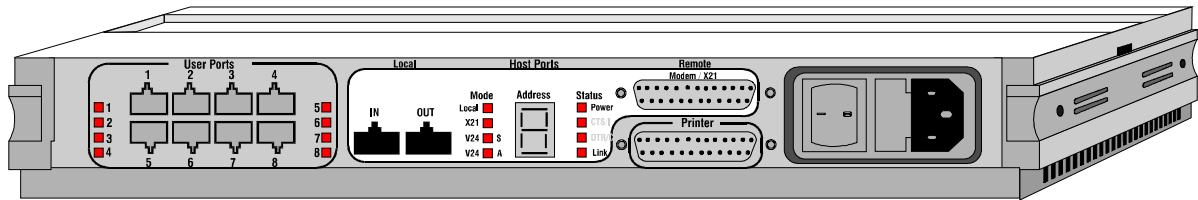


Figure 28 GlobeServer Host Line Connectors

The two 8-Way RJ45 connectors labelled **IN** and **OUT** support the RS485 connections. The pin out of both connectors is identical. [Rx/Tx+ Pin-3, Rx/Tx- Pin-6]

The 25-Pin D-Type male connector labelled **MODEM/X21** supports the RS232 and RS422 signals.

25-Pin D-Type Female						
Signal Name	Signal Type	Pin		Signal Name	Signal Type	Pin
<b>RS422 Signals</b>				<b>RS232 Signals</b>		
GND		1		GND		1
TXD	+ o/p	13		TXD	o/p	2
RTS	+ o/p	19		RXD	i/p	3
RXD	+ i/p	11		RTS	o/p	4
CTS	+ i/p	16		CTS	i/p	5
RXCik	+ i/p	9		DSR	i/p	6
0v		8		0v		7
TXD	- o/p	25		DCD	i/p	8
RTS	- o/p	18		TXCik	i/p	15
RXD	- i/p	23		RXCik	i/p	17
CTS	- i/p	14		DTR	o/p	20
RXCik	- i/p	21		RI	i/p	22
				TRCik	o/p	24

Figure 27 GlobeServer Remote Modem/X21 RS232/RS422 Line Connector Pin Out

### AP7.3.4 Wiring Details for TwinSync to GlobeServer

To connect a Multidrop line from the TwinSync adapter card to a GlobeServer use the TCL cable Part No.9532 or make up a cable with a 8-Way RJ45 plug at each end (See **Figure 30** for wiring details).



**Figure 29** TwinSync RS485 5 Metre Multidrop Cable Part No. 9532

<b>Cable Part No 9532</b>		
<b>8-Way RJ45 Plug</b>	<b>Signal Name</b>	<b>8-Way RJ45 Plug</b>
3	RxD / TxD +	3
6	RxD / TxD -	6
<b>Connect to TwinSync</b>		<b>Connect to GlobeServer</b>

**Figure 30** RS485 Multidrop Cabling Pin Out

AP7.3.5 Wiring Details for MODEM to a GlobeServer Host Port



**Figure 31** GlobeServer Remote Distribution cable for Modem and X21 Interfaces Part No 9530

To connect a modem to the GlobeServer **Remote** connector use the TCL Distribution cable Part No. 9530.

Cable Part No 9530		
25-Pin D-Type Female	Signal Name	25-Pin D-Type Male
1	Screen	1
2	TXD	2
3	RXD	3
4	RTS	4
5	CTS	5
20	DTR	20
6	DSR	6
8	DCD	8
22	RI	22
15	TXClk	15
17	RXClk	17
7	0v	7
<b>Connect to GlobeServer</b>		<b>Connect to Modem</b>

**Figure 32** Cable Wiring Detail for Connecting a Modem to a GlobeServer Host Modem Interface

**AP7.3.6 Wiring Details for GlobeServer to a X21 Interface**

The Distribution Cable Part No. 9528 should be connected to the TwinSync card. Check that the TwinSync card and GlobeServer have been configured for X21/RS422 operation (See Sections 2 and 3). The cable Part No. 9530 or 9531 should be used to connect the GlobeServer **Remote** connector to the X21 interface.



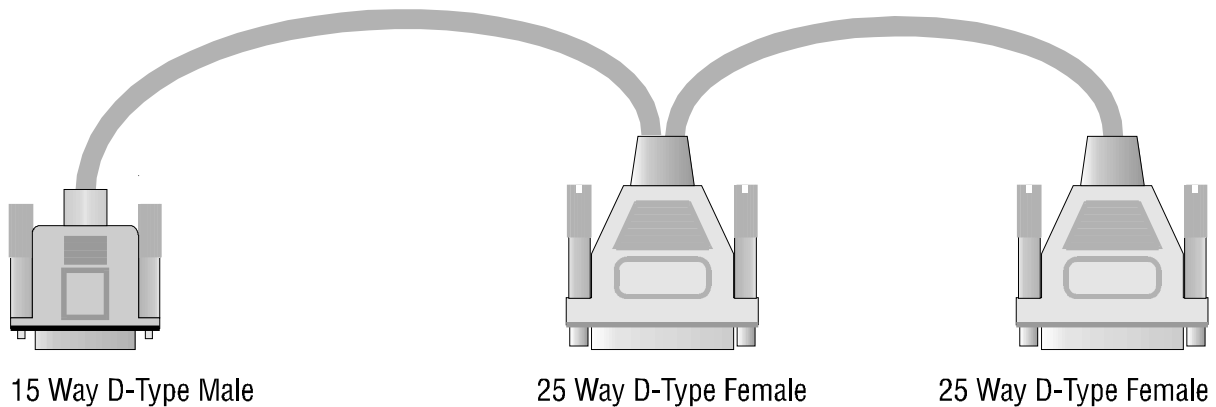
**Figure 34** GlobeServer Remote X21 Cable Part No 9531

<b>Cable Part No 9531 or 9530</b>		
<b>25-Pin D-Type Female</b>	<b>Signal Name</b>	<b>15-Pin D-Type Male</b>
1	Screen	1
13	TXD+	2
19	RTS+	3
11	RXD+	4
16	CTS+	5
9	RXCik+	6
7	0v	8
25	TXD-	9
18	RTS-	10
23	RXD-	11
14	CTS-	12
21	RXCik-	13
<b>Connect to Remote/X21 GlobeServer Interface</b>		<b>Connect to X21 N.T.U. or Terminal Adapter</b>

**Figure 33** Cable Wiring Details for Connecting a NTU or TA to the GlobeServer X21 Host Interface

**AP7.3.7 Wiring Details for GlobeServer X21 Multidrop Interface**

When using a Leased line X21 interface it is possible to multidrop one additional GlobeServer unit from the Kilostream NTU. Both GlobeServer units and the TwinSync line must be configured for RS422 X21 operation. (See Sections 2 and 3). A cable must be made up using the pin outs described in **Figure 35**. **NOTE** this cabling and mode of operation cannot be used with ISDN Terminal Adapters.



**Figure 36** Multidrop Cable No. 9533 for GlobeServer Remote X21 Connections

<b>GlobeServer X21 Multidrop Cable No. 9533</b>			
<b>15-Pin D-Type Male</b>	<b>Signal Name</b>	<b>25-Pin D-Type Female</b>	<b>25-Pin D-Type Female</b>
1	Screen	1	1
2	TXD+	13	13
3	RTS+	19	--
4	RXD+	11	11
5	CTS+	16	16
6	RXClk+	9	9
8	0v	7	7
9	TXD-	25	25
10	RTS-	18	--
11	RXD-	23	23
12	CTS-	14	14
13	RXClk-	21	21
<b>Connect to X21 N.T.U.</b>		<b>Connect to Main GlobeServer</b>	<b>Connect to Second Interface</b>

**Figure 35** Cable Wiring Details for Connecting a NTU or TA to the GlobeServer X21 Host Interface

## Appendix 7.4 GlobeServer Parallel Printer Pin Out

### AP7.4.1 TwinSync Multidrop 8-Way RJ45 Pin Out

The GlobeServer supports one parallel printer for output only. The connector conforms to the PC-AT 25-Pin Female D-Type Standard, so a standard 25-Pin D-Type to Centronics connector cable may be used.

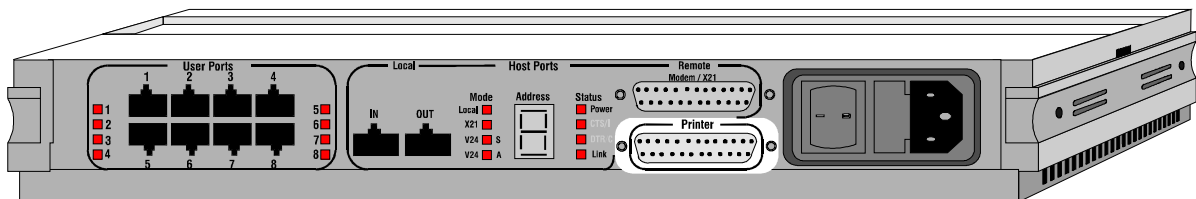


Figure 37 GlobeServer Parallel Printer Connection

GlobeServer Parallel Printer Connector Pin Out (Female)					
Pin	I/O	Signal Name	Pin	I/O	Signal Name
1	I/O	-STROBE	14	O	-AUTO FEED
2	I/O	DATA 0	15	I	-ERROR
3	I/O	DATA 1	16	O	-INIT
4	I/O	DATA 2	17	O	-SLCT IN
5	I/O	DATA 3	18		Ground
6	I/O	DATA 4	19		Ground
7	I/O	DATA 5	20		Ground
8	I/O	DATA 6	21		Ground
9	I/O	DATA 7	22		Ground
10	I	-ACK	23		Ground
11	I	BUSY	24		Ground
12	I	PE	25		Ground
13	I	SLCT			

Figure 38 GlobeServer Parallel Printer Connector pin out

## Appendix 7.5 GlobeServer User 8-Way RJ45 Connector Pin Out

The GlobeServer supports eight asynchronous **User** ports labelled 1...8. These are RJ45 8-Way connectors supporting an RS232 interface. A factory fitted option of RS422/RS485 drivers for the **User** ports is also available. The pin out of interface are shown in Figure **Figure 39** and **Figure 40**.

### AP7.5.1 RS232 8-Way RJ45 Connector Pin Out

<b>User Ports RS232 8-Way RJ45 Connector Pin Out</b>			
<b>Pin</b>	<b>Signal</b>	<b>Function</b>	<b>Direction</b>
1	DSR	Data Set Reay	INPUT
2	RTS	Request To Send	OUTPUT
3	DCD	Data Carrier Detect	INPUT
4	TxD	Transmit Data	OUTPUT
5	RxD	Receive Data	INPUT
6	Gnd	Signal Ground	
7	CTS	Clear To Send	INPUT
8	DTR	Data Terminal Ready	OUTPUT

**Figure 39** RS232 Pin Out for GlobeServer 8-Way RJ45 User Ports

**AP7.5.2 RS422 / RS485 8-Way RJ45 Connector Pin Out**

NOTE: All input signals are terminated with a 120R resistor across the input pair.

The RTS signal is used to enable the Transmit Data and DTR control output line drivers. RTS High (1) enables the TxD and DTR drivers, RTS low (0) tri-states the output of the TxD and DTR drivers.

The 8-Way RJ45 connector chassis is connected to mains earth.

<b>User Ports RS422 / RS485 8-Way RJ45 Connector Pin Out</b>			
<b>Pin</b>	<b>Signal</b>	<b>Function</b>	<b>Direction</b>
1	I+	Clear To Send	INPUT +
2	I -	Clear To Send	INPUT -
3	TxD+	Transmit Data	OUTPUT+
4	RxD+	Receive Data	INPUT +
5	RxD -	Receive Data	INPUT -
6	TxD-	Transmit Data	OUTPUT -
7	C+	Data Terminal Ready	OUTPUT+
8	C -	Data Terminal Ready	OUTPUT -

**Figure 40** RS422/RS485 Pin Out for GlobeServer 8-Way RJ45 User Ports

NOTE: The GlobeServer **User** port RS422/RS485 line drivers are configured for RS422 operation. In some installations using RS485 (two wire) configuration it may be necessary to bias the line to a fail safe state (ie when no device is driving the line). If this is not performed by any device on the RS485 network it is possible to order the GlobeServer with its user ports biased permanently for RS485 operation.

## Appendix 7.6 Serial Terminal Cabling Specifications

The RS232 8-Way RJ45 **User** ports on the GlobeServer may be connected to the various terminal types as shown in the following tables.

PC COM1/2 (9 Way) to GlobeServer User Port 8-Way RJ45			
COM1/COM2 9 Way D-Type Female (DTE)		GlobeServer User Port 8-Way RJ45	
DTR	4	<----->	1 DSR
CTS	8	<----->	2 RTS
DCD	1	<----->	3 DCD
RXD	2	<----->	4 TxD
TxD	3	<----->	5 RxD
Gnd	5	<----->	6 Gnd
RTS	7	<----->	7 CTS
DSR	6	<----->	8 DTR

**Figure 41** 9-Way D-Type PC COM Port to GobeServer User Port Wiring Details

Note: In some installations where the USER device is a DTE device it may be necessary to link the DCD signal to the DTR signal if the software being used to drive the port expects the DCD signal to be driven. This may be achieved at the GlobeServer port by connecting Pin-4 of the COM1/2 9-Way D-Type connector to Pin-3 of the 8-Way RJ45 connector. At the USER device this may be achieved by connecting Pin-1 of the 9-Way D-Type to Pin-8 of the 8-Way RJ45 connector.

Terminal or PC COM Port to GlobeServer User Port			
DTE 25 Way D-Type Male		GlobeServer User Port 8-Way RJ45	
DTR	20	<----->	1 DSR
CTS	5	<----->	2 RTS
DCD	8	<----->	3 DCD
RxD	3	<----->	4 TxD
TxD	2	<----->	5 RxD
GND	7	<----->	6 GND
RTS	4	<----->	7 CTS
DSR	6	<----->	8 DTR

**Figure 42** 25-Way D-type DTE port to GlobeServer User port Wiring Details

Note: In some installations it may be necessary to link the DCD signal to the DTR signal. This may be achieved at the GlobeServer port by connecting Pin-20 of the DTE 25-Way D-Type connector to Pin-3 of the 8-Way RJ45 connector. At the DTE device this may be achieved by connecting Pin-8 of the 25-Way D-Type to Pin-8 of the 8-Way RJ45 connector.

Modem to GlobeServer User Port 8-Way RJ45			
DCE 25 Way D-Type Male		GlobeServer User Port 8-Way RJ45	
DSR	6	<----->	1 DSR
RTS	4	<----->	2 RTS
DCD	8	<----->	3 DCD
TxD	2	<----->	4 TxD
RxD	3	<----->	5 RxD
GND	7	<----->	6 GND
CTS	5	<----->	7 CTS
DTR	20	<----->	8 DTR

**Figure 43** Modem (25 Way D-Type) to GlobeServer User Port Wiring Details

Note: The Modem wiring details shown in **Figure 43** above represent a general specification for standard DCE to DTE connections. In certain cases various modifications may need to be made, as all the signals shown above are not supported by some modems. Please contact your dealer for details.

## Appendix 7.7 GlobeServer Diagnostic Loopback Wiring details

### AP7.7.1 Loopback for RS232 8-Way RJ45 User Ports on the GlobeServer.

RS232 User Port 8-Way RJ45 loop-back Plug		
SIGNAL NAME	PIN	LINKS TO MAKE
RTS, CTS	2 - 7	LINK
DTR, DSR, DCD	8 - 1 - 3	LINK
TX, RX	4 - 5	LINK

**Figure 44** GlobeServer User RS232 Port RJ45 Loop Back Plug Wiring Details

### AP7.7.2 Loopback for the 25-Way D-Type Remote port on the GlobeServer

25 Way D-Type Loopback (Male Connector)		
SIGNAL NAME	PIN	LINKS TO MAKE
<b>RS232 Loop Back Connections</b>		
RTS, CTS, RI	4 - 5 - 22	LINK
DTR, DSR, DCD	20 - 6 - 8	LINK
TX, RX	2 - 3	LINK
<b>RS422 Loop Back Connections</b>		
TX, RX-	25 - 23	LINK
DTR, CTS +	19 - 16	LINK
DTR, CTS -	18 - 14	LINK
TX, RX-	13 - 11	LINK

**Figure 45** GlobeServer Remote Host Port Loop Back Connector

## Appendix 7.8 Quick Setup Guide for Standard Operation

- Set Memory Address of ISA TwinSync Card to select address D6000h (SW1= Off, Off, On, Off, On, Off, Off, Off) (TwinSync-PCI cards are automatically allocated an address by the PC.)
- Install TwinSync card into computer.
- Set all GlobeServer's line mode to RS485 Multidrop mode by setting the switches 4,5 and 6 on the GlobeServer base (SW= 4, 5, 6, Off).
- Set GlobeServer diagnostic mode switch 7 to be disabled (SW= 7 Off).
- Set GlobeServer Address with Switches 1, 2, and 3.
- Connect required number of GlobeServer units in sequence as listed below.
- Connect from TwinSync connector P1 to GlobeServer Address 1
- Connect from TwinSync connector P2 to GlobeServer Address 2
- Connect GlobeServer Address 1 to GlobeServer Address 3
- Connect GlobeServer Address 2 to GlobeServer Address 4
- Power up GlobeServers Units and then power up the host computer and load the appropriate operating system. Ensure the correct executive TCLGSRV.SYS (or GSVSYNC.SYS / TCGSRV1.SYS for older 16-bit Operating Systems) is installed on the machine. (The executive is normally automatically installed as part of the driver installation process).

NODE ADDRESS	PORTS	SWITCH SETTING							
		1	2	3	4	5	6	7	8
Unit - 1	1...8	On	Off	Off	Off	Off	Off	Off	Off
Unit - 2	9...16	Off	On	Off	Off	Off	Off	Off	On
Unit - 3	17...24	On	On	Off	Off	Off	Off	Off	Off
Unit - 4	25...32	Off	Off	On	Off	Off	Off	Off	On

**Figure 46** Standard GlobeServer Switch Settings

## Installation Hints

- Ensure the memory address selected for the ISA TwinSync host adapter card does not conflict with other I/O adapters such as **network cards** and **SCSI disk controllers**.

**When the ISA TwinSync card is installed in the computer and the Device Driver cannot “find” the card, then check the following items::**

VGA bios/screen is operating in **BYTE** mode. (Some VGA adapters allow a word mode of operation).

Check shadow ROM bios is disabled.

Check shadow VGA memory is disabled.

For PCI machine check in the ROM BIOS settings that the High Memory area occupied by the ISA TwinSync card is enabled.

## Appendix 7.9 Technical details GlobeServer Unit

Processor:	AMD 32MHz 80C186EM	
Memory:	256K Byte Static Memory, 256K Byte EEPROM	
Host Port:	1 Serial Channel configureable for Synchronous Multidrop (RS485), KiloStream (X21), Leased Line (RS232) and Asynchronous RS232. All serial lines protected by AVX Transguard surge protection devices.	
Host Link Speeds:	Data rates 250Kbps or 1Mbps Synchronous self clocking data for two wire multidrop operation. 64Kbps for X21 operation. 14K4 or 28K8 RS232 Synchronous Leased line operation and Asynchronous data rates of 38K4bps and 57K6bps.	
Host Interface:	Switch selectable for V.24/RS-232, RS485 Multidrop, or RS422 X21	
Host RS232 Signals:	RxD TxD DTR DSR RTS CTS DCD RI RX-CLK TX-CLK	
Host RS422 Signals:	RxD TxD CONTROL INDICATE CLOCK (15 Way D-Type Cable 9530 or 9531)	
Host RS485 Signals:	RxD/TxD (Transformer Isolated)	
Connectors:	2 x 8-Way RJ45 Sockets for RS485 Connection (Multidrop connection). 1 x 25-Way D-Type Male for RS232 Sync/Async and X21 (TCL Cable 9530 or 9531 provides 15-D-Type X21 i/f)	
Distribution Cable:	Part No. 9530 providing:	1 x 25-pin D-Type Male for RS232 1 x 15-pin D-Type Male for RS422
	Part No. 9531 providing:	1 x 15-pin D-Type Male for RS422
User Ports	8 Asynchronous RS232 Ports (RS422/RS485 Option available) Baud rates: 50..115K2, Data bits: 5..8, Parity: None, Odd, Even, Mark, Space, Stop bits: 1,2. Flow Control: RTS/CTS, DTR/DSR, XON/XOFF All serial lines protected by AVX Transguard surge protection devices. LED indicators for TxD and RxD activity monitoring.	
User Port Signals	TxD, RxD, DTR, DSR, RTS, CTS, DCD	
Size	340 x 150 x 70mm	
Weight	1.4Kg	
Power	90 - 260VAC, 47 - 63 HZ Fuse: 2A Anit-Surge	

**NOTES**

**NOTES**