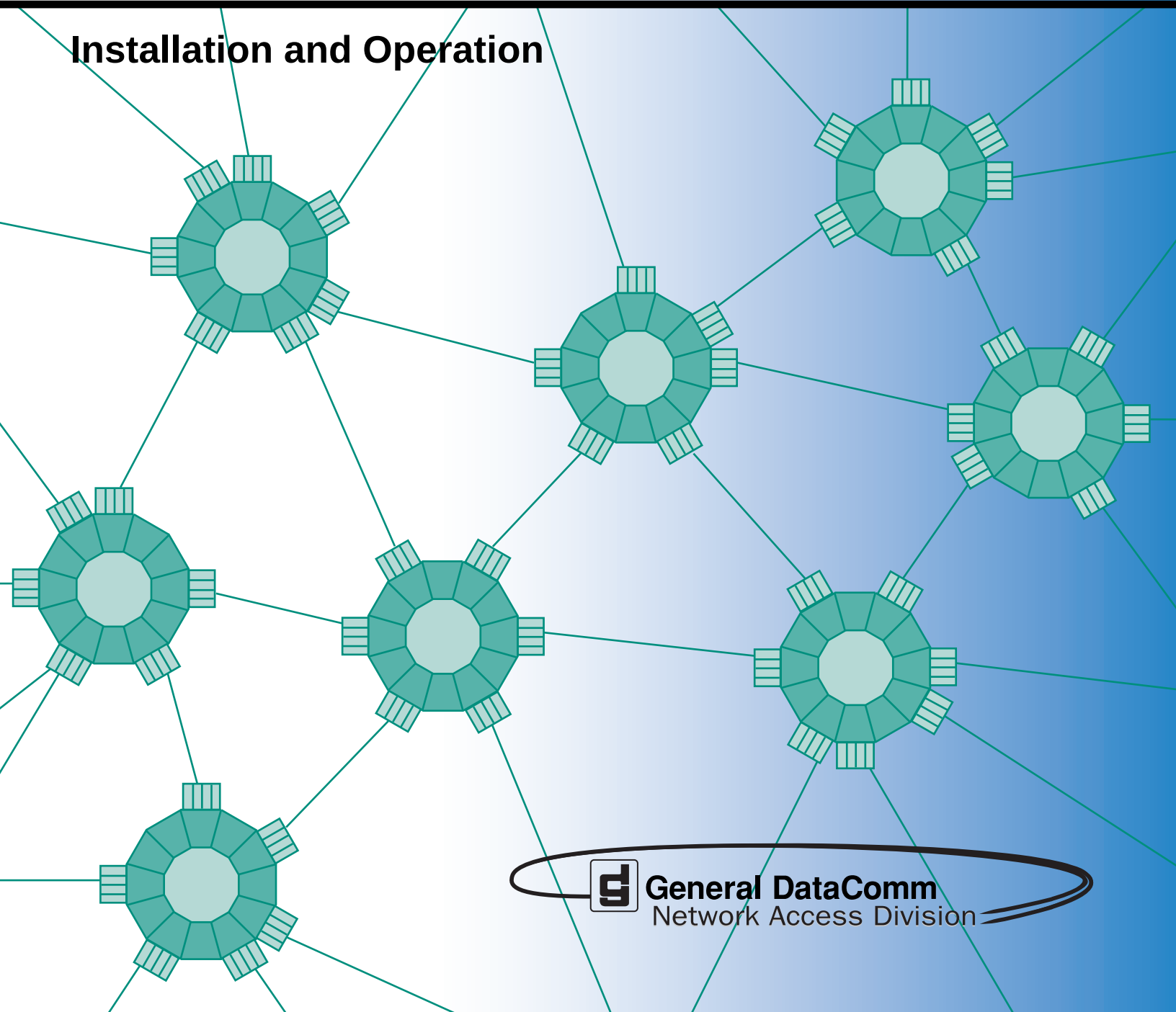
060R113-000
Issue 1

V.34 Dial Backup Unit

Installation and Operation



General DataComm
Network Access Division

060R113-000
Issue 1

V.34 Dial Backup Unit®

Installation and Operation

Copyright

©1999 General DataComm, Inc. ALL RIGHTS RESERVED.

This publication and the software it describes contain proprietary and confidential information. No part of this document may be copied, photocopied, reproduced, translated or reduced to any electronic or machine-readable format without prior written permission of General DataComm, Inc. The information in this document is subject to change without notice. General DataComm assumes no responsibility for any damages arising from the use of this document, including but not limited to, lost revenue, lost data, claims by third parties, or other damages.

If you have comments or suggestions concerning this manual, please contact:

Technical Publications Department
General DataComm, Inc.
Park Road Extension
Middlebury, Connecticut USA 06762-1299

Telephone: 1 203 758 1811

Trademarks

All brand or product names are trademarks or registered trademarks of their respective companies or organizations.

Documentation

Revision History

Issue Number	Date	Description of Change
1	Nov. 1999	First issue

Related Publications

A listing of related user manuals is provided below. In addition to the hardware and software manuals, always read the software System Release Notes supplied with your product.

Publication Name	Publication Number*
Installation and Operation SC V.F 28.8/33.6 Modem	060R112-REV
GDC SpectraComm/UAS Installation and Operation Shelf and Enclosure	010R302-REV-IS
GDC SpectraComm 2000 Shelf Installation and Operation	010R358-REV
Installation and Operation SpectraComm Manager Card	048R303-REV
Installation and Operation SC500A	048R302-REV
Installation and Operation SC521A	076R152-REV
Installation and Operation SC202	073R150-REV-IS

* For publications numbers, **REV** is the hardware manual revision (for example, -000, -001, etc.) **VREF** (if listed) is the software revision (for example, -V120 would read, Version 1.2) and corresponds to the most current revision.

Safety Guidelines

Always use the following guidelines when unsafe conditions exist or when potentially hazardous voltages are present:

- Always use caution and common sense.
- Repairs must be performed by qualified service personnel only.
- To reduce the risk of electrical shock, do not operate equipment with the cover removed.
- Never install telephone jacks in a wet location unless the jack is designed for that location.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Never install telephone wiring during an electrical storm.

Antistatic Precautions

Electrostatic discharge (ESD) results from the buildup of static electricity and can cause computer components to fail. Electrostatic discharge occurs when a person whose body contains a static buildup touches a computer component. The product may contain static-sensitive devices that are easily damaged. Proper handling, grounding and precautionary ESD measures are essential when installing parts or cards. Keep parts and cards in antistatic packaging when not in use or during transport. If possible, use antistatic floorpads and workbench pads.

When handling components, always use an antistatic wrist strap connected to a grounded equipment frame or chassis. *If a wrist strap is not available, periodically touch an unpainted metal surface on the equipment.* Never use a conductive tool, like a screwdriver or a paper clip, to set switches.

Preface

Scope

This manual describes how to install and operate the V.34 DBU (Dial Backup Unit) card. The information contained in this manual has been carefully checked and is believed to be entirely reliable. However, as General DataComm improves the reliability, function, and design of their products, it is possible that information may not be current. Contact General DataComm if you require updated information for this or other General DataComm products.

General DataComm, Inc.
Network Access Division
Park Road Extension
Middlebury, Connecticut, USA 06762-1299
Tel: 1 203 758 1811 Toll Free: 1 800 794 8246

Document Conventions

`This typewriter font designates output displayed on the terminal interface screens, input entered by you, or panel indicators.`

This bold font designates window names and menu selections .

Note *Indicates a note. It is something you should be particularly aware of; something not readily apparent. A note is typically used as a suggestion.*

Important *Indicates an emphasized note. It is something you should be particularly aware of; something not readily apparent. Important is typically used to prevent equipment damage.*

Safety Information

The CAUTION, WARNING, and DANGER statements that appear throughout this manual are intended to provide critical information for the safety of both the service engineer and operator. These statements also enhance equipment reliability.

The definitions and symbols for CAUTION, WARNING, and DANGER comply with ANSI Z535.2, American National Standard for Environmental and Facility Safety Signs, and ANSI Z535.4, Product Safety Signs and Labels, issued by the American National Standards Institute.

The following examples show the symbols and definitions of CAUTION, WARNING, and DANGER as they are used in this manual.

CAUTION *Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury. It may also be used to alert against unsafe practices.*

WARNING *indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.*

DANGER *indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.*

Service Support and Training

VITAL Network Services, a General DataComm company, is committed to providing the service support and training needed to install, manage, and maintain your GDC equipment.

GDC's VITAL Network Services provides hands-on training courses through **VITAL Network Services Global Technology Training Services**. Courses range from basic data communications, modems and multiplexers, to complex network and ATM systems. Training courses are available at our centers in the US, UK, France, Singapore and Mexico, as well as at a customer's site.

For more information regarding GDC's VITAL Network Services' service programs, training courses, or for assistance with your support requirements, contact GDC's VITAL Network Services at the address or phone number listed below, or visit our website at:

http//www.vitalnetsvc.com

VITAL Network Services World Headquarters
6 Rubber Avenue
Naugatuck, Connecticut 06770 USA

North America:	1 800 243 1030
	1 888 248 4825
	1 203 729 2461
Training Information:	1 203 729 2461
French Speaking Canada:	1 800 361 2552
North America Fax:	1 203 723 5012
	1 203 729 7611

VITAL Network Services Regional Sales and Service Offices:

Europe, Middle East, Africa

VITAL Network Services
Molly Millars Close
Molly Millars Lane
Wokingham, Berkshire RG41 2QF UK

Telephone:	+44 1189 657200
Training:	+44 1189 657240
Fax:	+44 1189 657279

Central America, Latin America

VITAL Network Services
Periferico Sur 4225, Desp. 306
C.P. 14210, Mexico D.F., Mexico

Telephone:	+52 5 645 2238
Training:	+52 5 645 2238
Fax:	+52 5 645 5976

Asia Pacific

VITAL Network Services
501 Orchard Road 05-05
Wheelock Place, Singapore 238880

Telephone:	+65 735 2123
Training:	+65 735 2123
Fax:	+65 735 6889

International Calling Code (+)

When calling from outside the country of origin, use the appropriate International Calling Code where the + symbol is shown.

Table of Contents

Scope v
Document Conventions v
Safety Information v
Service Support and Training vii
Overview 1
Features 2
    V.34 DBU Operational Considerations 2
Options 3
    V.34 DBU Card Configuration 3
    SC V.F 28.8/33.6 Modem Configuration 4
    DSU Configuration 4
    SC202 Modem Configuration 5
Operation 5
    Manual Operation 5
    Automatic Operation 5
    Bypassing a Failed Modem Manually 6
    Typical AT command Set for V.F 28.8 Modem/V.34 DBU 9
Applications 10
Input/Output Signals 17
Technical Characteristics 20

V.34 Dial Backup Unit

Overview

The V.34 Dial Backup Unit (DBU) card is a plug-in piggyback card that is mounted on the basecard of the SpectraComm (SC) V.F 28.8/33.6 modem (see Figure 1). With it, you can use the V.F 28.8/33.6 modem to provide dial backup of the SpectraComm 521A or SpectraComm 500A DSU (Data Set Unit) or the SpectraComm 202 private line modem.

A special Y-cable connects the DTE to both the modem and to the DSU.

.

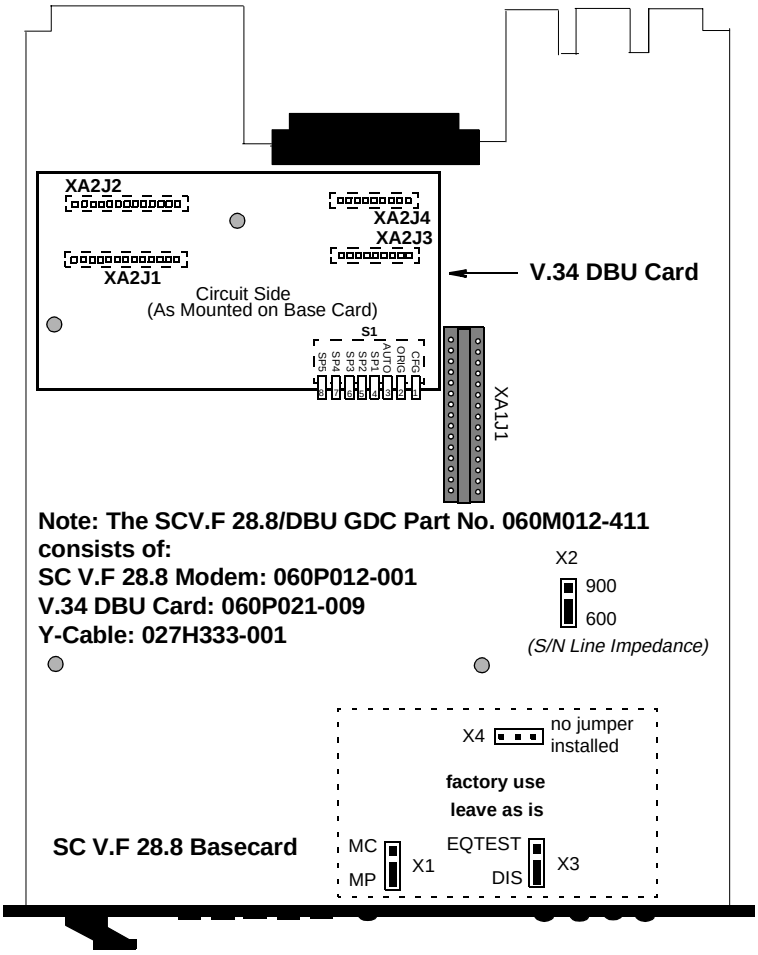


Figure 1 V.34 DBU Card Mounted On SpectraComm V.F 28.8/33.6 Basecard

Features

- Provides dial backup for the SC521A, SC500A DSUs or SC202 modem (referred to in this manual as a data set).
- Provides dial backup of circuits operating at the following data rates:
  - Asynchronous: 1.2, 1.8, 2.4, 4.8, 9.6, 19.2 kbps.
  - Synchronous: 2.4, 4.8, 9.6, 19.2, *56, and *64 kbps.

* V.35 to EIA232 converter required if DTE (Data Terminal Equipment) uses a V.35 interface

- Provides dial backup of both point-to-point or multipoint circuits.
- Supports polled and non-polled circuits.
- Supports both manual and automatic operation. Manual operation requires manual (or network managed) origination of a dial backup call. Automatic operation monitors DCD from the data set (DSU or SC202 modem) and originates the dial backup call automatically.
- Built-in microcontroller monitors Data Carrier Detect (DCD) from the data set and Data Set Ready (DSR) from the modem and switches the DTE signal to either the data set or the modem as required.

V.34 DBU Operational Considerations

To operate your V.34 DBU these guidelines must be followed:

- Use for TIA/EIA-232-F DTE interface only.
- The modem data rate depends on the modem connect speed. The line speed can be either 33.6, 31.2, 28.8, 26.4, 24, 21.6, 19.2, 16.8 14.4, 12, 9.6, 7.2, 4.8, 2.4, 1.2, kbps or 300 bps. During dial backup, the data rate to the DTE may be less than the DSU's data rate. The DTE must be able to accommodate this different rate.
- The modem can accept data from the DTE at a rate greater than the modem's line speed by either compressing the data, or using flow control to take data from the DTE in bursts, or by slowing down the clock to the DTE in synchronous transmission.
- When providing backup to an SC202 modem, the SC202 modem must be in 4-wire mode, and constant carrier. Also the SC202 modem fast-poll feature is not supported.

Security

Since the modems are connected to the switched network, security measures such as passwords, etc. should be considered. Passwords are explained in the associated modem manuals listed in the preface of this manual.

You can find helpful typical applications and the appropriate AT Commands for the V.F 28.8/33.6 modem in *Applications on page -10*.

Options

In addition to the options found on the V.34 DBU card, other field-selectable options on each product card adapt them to a variety of configurations. The following paragraphs describe the required option selections for the V.34 DBU card and modem/DSU cards used with this card. Check the factory default options, and alter if your application requires it. Detailed information of the modem and DSU product cards may be found in the manuals listed in the preface.

V.34 DBU Card Configuration

Before installing the V.F 28.8/33.6 modem, check the options on the V.34 DBU piggyback card via the configuration switch S1. See Figure 2, and refer to the following text. When mounted, the DBU card default options (**OFF**) are towards the basecard, and are in **BOLD** in the text that follows the illustration. Pushing each switch lever towards the DBU card selects (ON).

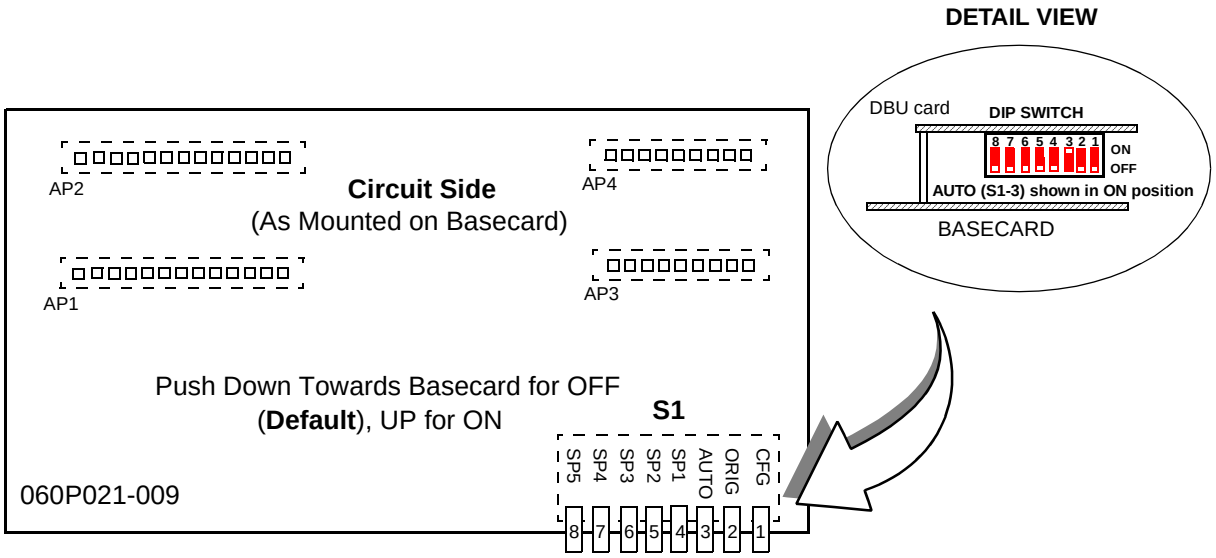


Figure 2 V.34 DBU Piggyback Card Option Selection

Switch S1 Description

S1-1 Configuration (CFG): **Normal (OFF)**/Configure (ON)

When set to configure, the DBU card will force the DTE to be connected to the modem, so that the modem can be configured from the DTE via the AT commands. Normal allows for normal dial backup operation.

S1-2 Origination (ORIG): **Disable (OFF)**/Enable (ON)

When set to enable, allows the DBU card to turn on DTR to the modem, to originate a dial backup call. The modem must be configured to originate a call upon seeing a transition on DTR. Origination applies only in Automatic mode, that is, both the ORIG switch and the AUTO switch must be ON to enable origination.

When set to disable, the DBU card will not turn on DTR to the modem. Instead the DBU card expects an incoming call. The modem must be configured to answer an incoming call.

S1-3 Mode (AUTO): **Manual (OFF)**/Automatic (ON)

When set to Manual, the DBU card will not monitor the data set DCD control lead. Dial backup calls must be initiated from the network manager or from the modem front panel. When set to Automatic, the DBU card will monitor the data set DCD lead, and automatically initiate a call (if Origination is enabled) or force off RTS to the data set to trigger the far-end to originate, as required.

S1-5-8 SP1 through SP5 - Unused spares - Leave in factory default positions.

Note *The modem cannot be configured to originate and answer at the same time. A second user profile may be saved in the originating modem and then selected in the event that it has to answer a call.*

SC V.F 28.8/33.6 Modem Configuration

The following describes the ***minimum configuration*** required for both modems, in order to work properly with the V.34 DBU card.

Note that since the modem must always answer incoming calls and switch over from the DSU immediately, some form of security is essential such as passwords, etc. They are explained in the associated modem's manual.

Configuration for Originating Modem

- reset to factory defaults - &F
- program with the telephone number of the answering modem - &Z
- configure to dial out on a DTR off-to-on transition - %Z
- configure for DSR to follow carrier - &S2
- configure to hang up upon loss of DTR - &D2
- configure to disable character abort - %K1
- ***Optional*** - configure to use a Steadfast Security (See Password entry) - %S1

Configuration for Non-Originating Modem

- reset to factory defaults - &F
- configure to answer on the first incoming ring - S0=1
- configure for DSR to follow carrier - &S2
- configured to disable character abort - %K1
- ***Optional*** - configure to use a Steadfast Security - %S1

DSU Configuration

When the DBU card is in manual mode, the DSU may be configured for controlled carrier or constant carrier. In constant carrier, dial restoral will be activated when the originate location looses carrier. Therefore, the preferred configuration for the DSU at the non-originating end is controlled carrier (RTS not forced on). This allows the DBU card at the non-originating end to force off DSU carrier to the originating end when the non-originating end detects loss of DSU carrier. This feature provides protection against a partial fault in the line (fault in the direction towards the non-originating end only). This operation is supported at speeds up to 56 kbps.

SC202 Modem Configuration

When the SC202 modem is optioned for controlled carrier, a 30-second anti-streaming timer is automatically enabled in the SC202 modem. If RTS from the DTE remains on for more than 30 seconds, the anti-streaming timer forces off CTS to the DTE and turns off modem carrier until RTS turns off. For this reason, the SC202 modem must be configured for constant carrier for automatic dial backup applications. A line fault that causes loss of carrier towards the non-originating end only will not automatically initiate a dial backup call and other means must be used to restore the circuit.

Multipoint Dial restoral for SC202 modems must be initiated at the host (manual or with the TDC-2)

Operation

You have to configure the modem with AT Commands. (Refer to *Typical AT command Set for V.F 28.8 Modem/V.34 DBU on page -9*). The DBU card is configured via a hardware switch for either manual or automatic operation.

Manual Operation

The DBU card monitors the modem's DSR lead and switches the DTE from the data set to the modem whenever modem DSR turns on. It will not monitor the DCD lead from the data set. *Manual operation is preferred in a network-managed application.*

Automatic Operation

The DBU card monitors the data set DCD lead to determine if it should automatically initiate a dial backup call.

In automatic operation, the DBU card is also configured via a hardware switch to either enable or disable origination of a dial backup call. If the DBU card is at both ends of the circuit, only one card should be optioned to originate a call.

If origination is enabled, the DBU monitors DCD from the data set. If it turns off for more than 20 seconds, the DBU card will turn on DTR to the modem, causing it to dial a pre-stored number. When the modem connects, it will turn on its DSR control lead, which causes the DBU card to switch the DTE signals from the data set to the modem. If DCD from the data set turns back on for at least 20 seconds, the backup connection will be aborted and the DTE signals switched back to the data set.

If origination is disabled, and a loss of data set DCD occurs for more than 300 ms, the DBU card drops data set RTS and causes a loss of DCD on the far end originating data set if that has not already occurred. This causes the DBU on the modem at far end to originate a call after 20 seconds. If data set DCD turns back on for more than 300 ms, the DBU card turns on RTS to the data set to restore the far end data set's DCD which terminates the backup call after 20 seconds.

Note *1-A line fault that causes loss of carrier at the originating end will always result in initiation of a dial backup call. A line fault that causes loss of carrier at the non-originating end only requires that the non-originating data set be configured for switched carrier so that the DBU card can force off carrier to the originating end in order to initiate the dial backup call.*

2-Any diagnostics you perform on the data set that causes DCD to turn off, such as a Local Loopback, will initiate a dial backup. Therefore, before performing these diagnostics, disable dial backup by first placing the modem in Local Loopback (LL) test.

Bypassing a Failed Modem Manually

The V.34 DBU increases your availability of the circuit since a failure in either the DSU or in the DDS network can be bypassed by using the DBU to restore the connection. However, since the DTE data travels through the modem and the DBU card, a failure in the modem (e.g. power supply) or in the DBU card will cause your circuit to go down.

In the event of a modem failure or maintenance in order for you to quickly bypass the modem, disconnect the DTE straight-through cable (No. 027H333-001) from the Y-cable, and connect it directly to the DSU. See Figure 3 and Figure 4.

Note *The DBU and the modem work together as a system. Unplugging the modem will interrupt the private line operation.*

.

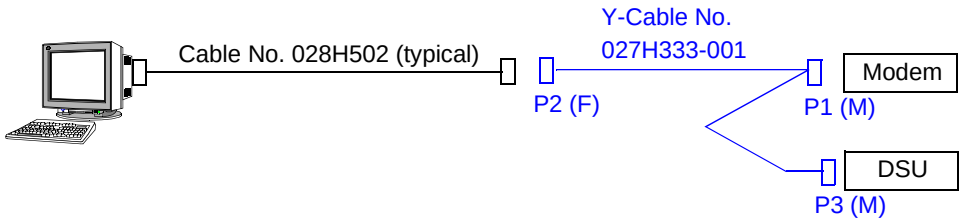


Figure 3 Normal Operation

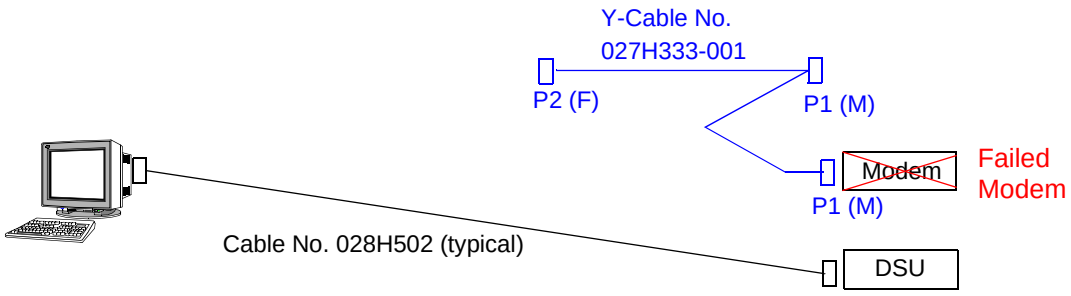


Figure 4 Manual Bypass of Failed Modem

Figure 5 illustrates the special Y-Cable and Table 1 describes the pin outs.

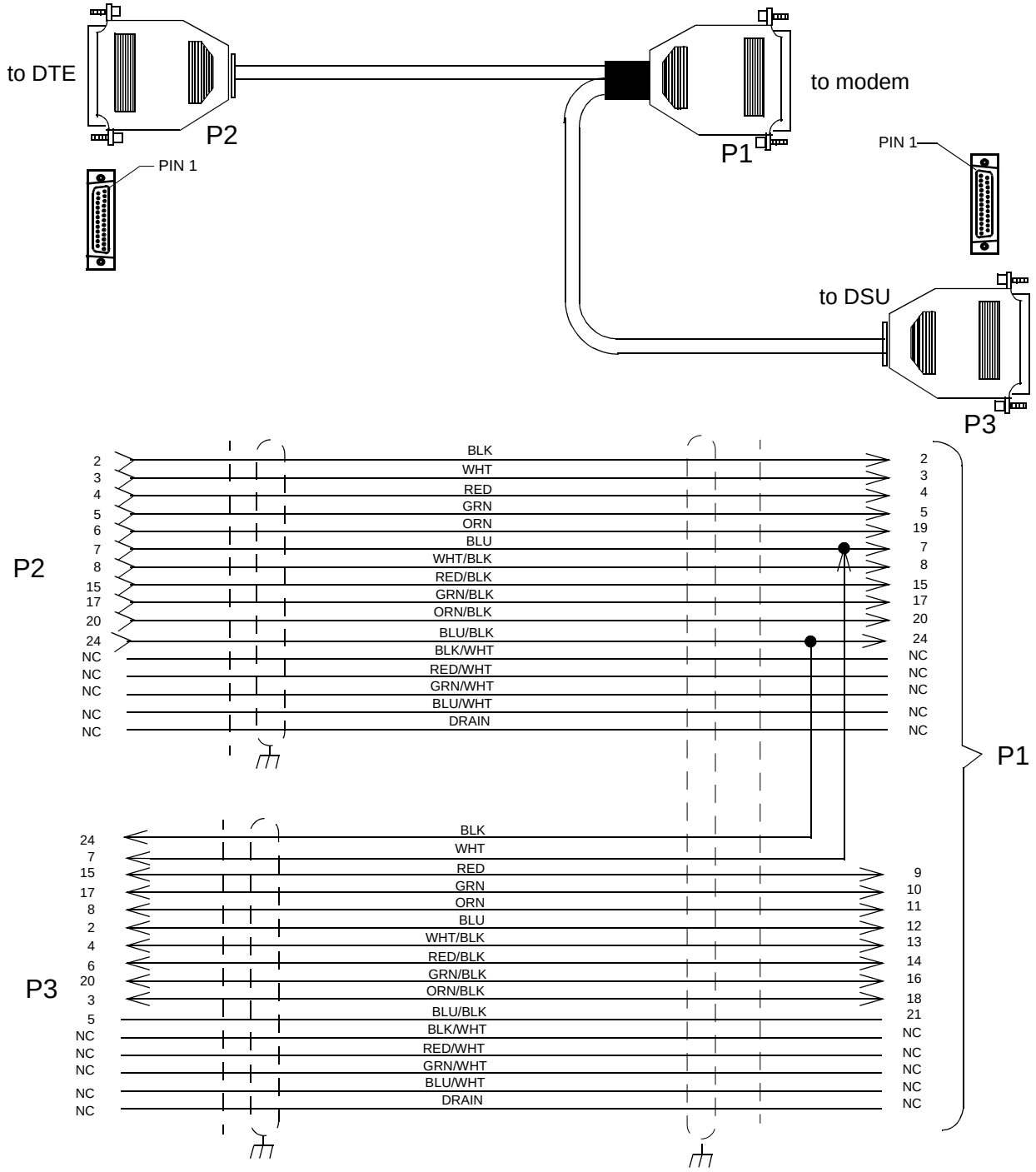


Figure 5 Y-Cable, 027H333-001

Table 1 Y-Cable Connections

Signal	DTE DB25M	Modem DB25M	DSU DB25M	Comments
TXD	2	2	-	DTE->Modem->DSU
		12	2	
RTS	4	4	-	DTE->Modem->DSU
	-	**13**	4	
EXT. TMG	24	24	-	DTE->Modem->DSU
	-		**24**	
DTR	20	20	-	DTE->Modem->DSU
		16	20	
RXD	-	**18**	3	DSU->Modem->DTE
	3	3	-	
CTS	-	**21**	5	DSU->Modem->DTE
	5	5	-	
DSR	-	**14**	6	DSU->Modem->DTE
	6	**19**	-	
DCD	-	**11**	8	DSU->Modem->DTE
	8	8	-	
TXC	-	**9**	15	DSU->Modem->DTE
	15	15	-	
RXC	-	10	17	DSU->Modem->DTE
	17	17	-	
GND	-	-	7	
	7	7	-	

Note: Pin numbers in **bold** are non-standard EIA uses for these pins.

Typical AT command Set for V.F 28.8 Modem/V.34 DBU

Table 2 describes the AT commands used in conjunction with the V.34 DBU card for the applications found starting with Figure 6. Password security and other AT commands which are user specific are not included in these tables. Refer to V.F 28.8/33.6 Installation and Operation manuals listed in the Preface of this manual.

Table 2 V.F 28.8/33.6 Modem AT Commands Used With DBU

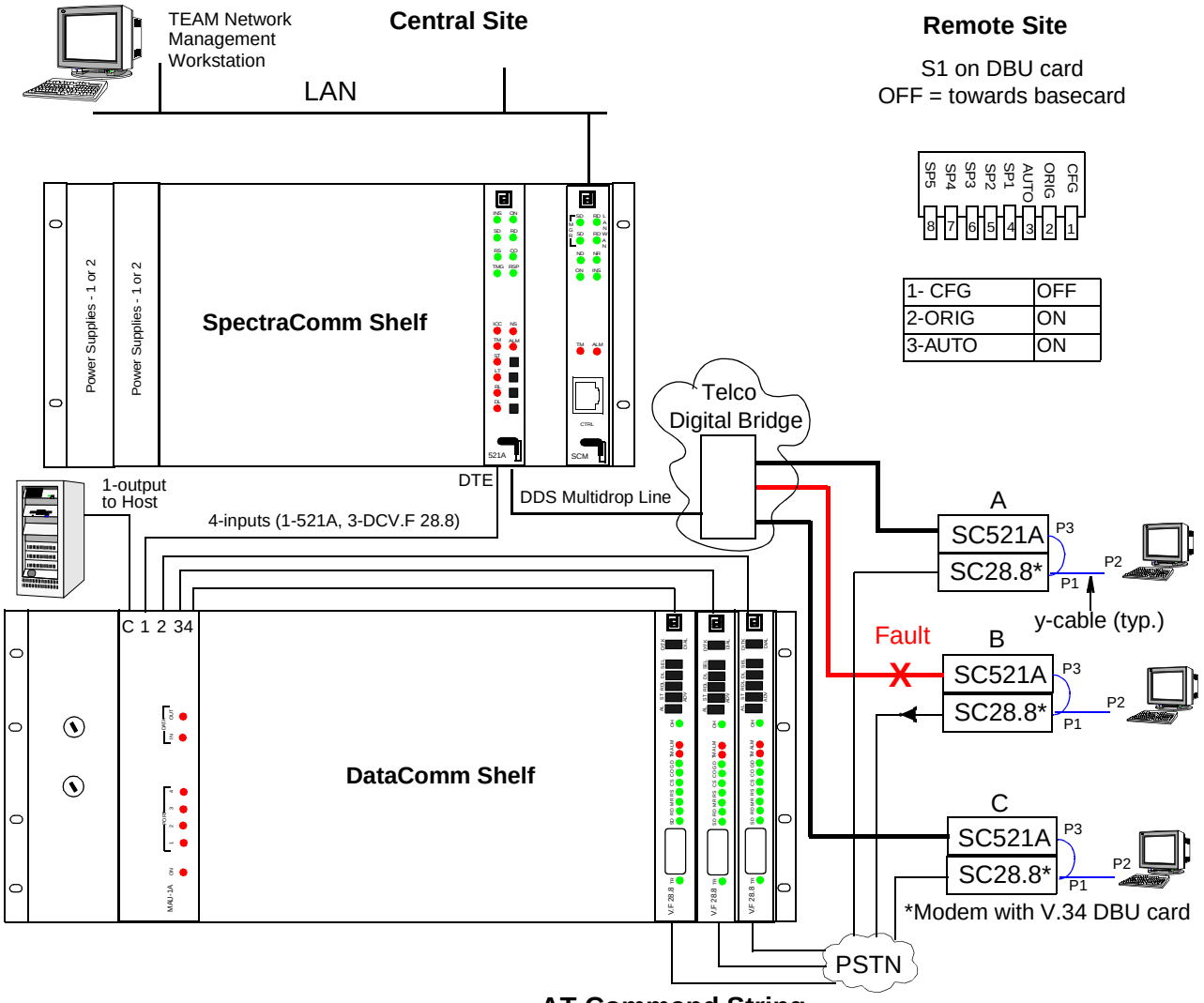
&C1	Selects DCD to be real
&D0	Causes the modem to ignore Off transitions and forces internal DTR On
&D2	Causes the modem to recognize Off transitions of DTR and respond by hanging up.
E0	Disables echo.
&En	Simulated controlled carrier - enable or disable.
&E0	Enable in transmit and receive paths.
&E1	Enable in transmit path only.
&Fn	Loads the modem with factory defaults.
&Hn	Switched network handshake mode.
%K1	Character abort disabled.
\Mn	Selects the synchronous protocols that are available to the modem.
&Mn	Operating mode.
&M0	Asynchronous data mode.
&M1	Asynchronous command mode/synchronous data mode, with DTR-to-data delay (S-Register 25).
\Nn	Asynchronous protocol.
\N1	Direct ITU-T V.14 asynchronous mode.
\N6	Simulated controlled carrier.
AT%Pn=xxx	Passwords - The V.F 28.8 modem provides a variety of configurable password security arrangements. n is the password memory cell number and xxx is the password.
Q1	Quiet mode.
&S2	Selects DSR to follow carrier detect.
\Tn	In conjunction with &Hn, controls DTE speed.
&Wn	Directs the modem to write the current settings for user defined and storable options into memory. Up to four configurations profiles can be saved (N = 0-3). The originating and answering modem both can thus be optioned for the factory default by this command.
&Xn	Transmit clock source.
&Zn=nnn	Stores a phone number - This command stores a telephone number (nnn) in a memory cell (n). The equal sign can be followed by up to thirty-six characters, including any of the commands that can be used in a dial string. There are 10 cells (n = 0 to9) available in which to store telephone numbers.
%Z1=n	Dial cell n on DTR Off-to-On transition

Important *For Security Commands refer to Technical Reference Guide FastPro II Chapter 3 - Operation "Password Security" GDC Part No. 060R124-000-03.*

Applications

Figure 6 through Figure 12 show typical V.34 DBU applications.

Multidrop - 521A Automatic Restoral - Figure 6 Calls can be originated automatically from the remote. Dial restoral will only be actuated when the originate location loses carrier.



AT Command String

DC V.F 28.8/33.6
Central Site

Sync (19.2k)
AT&F&C1&D2%K1&E2&S2&M1\M1&H1\T11&X1&W
ATE0Q1&W
Async (19.2k)
AT&F&C1&D2%K1&E2&S2\N6&H1\T11&W
ATE0Q1&W

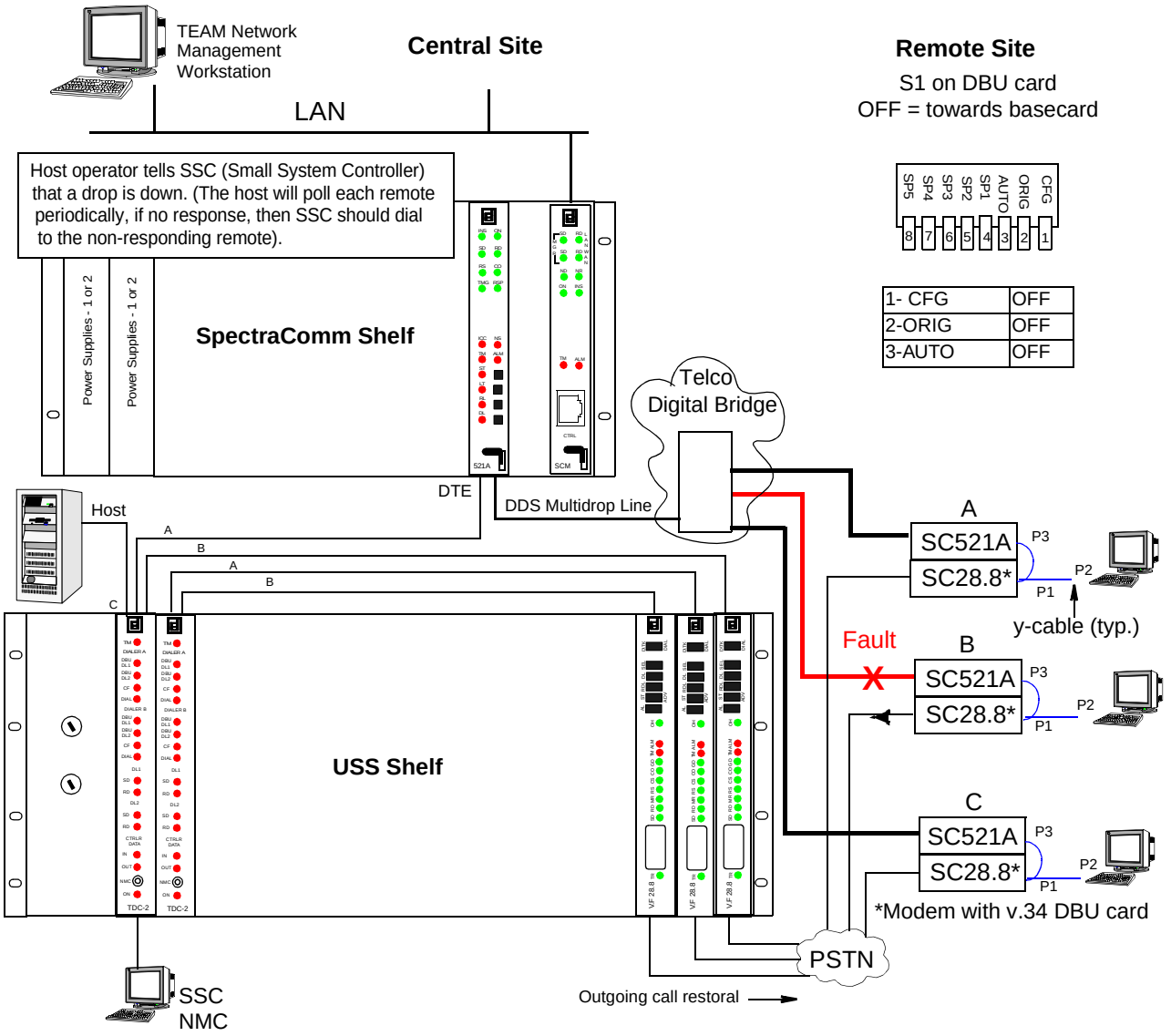
nnn=phone number

SC V.F 28.8/33.6
Remote Site

Sync (19.2k)
AT&F&C1&D2%K1&E1&S2S26=50&M1\M1&H1\T11%Z1=0&X2&W
AT&Z0=nnn
ATQ1E0&W
Async (19.2k)
AT&F&C1&D2%K1&E1&S2S26=50\N6&H1\T11%Z1=0&W
AT&Z0=nnn
ATQ1E0&W

Figure 6 DBU Application - Multidrop - Automatic Restoral

Multidrop - 521A Central Site Dials Out - Figure 7 - The DBU card is optioned to for manual operation. Central site data set and modem are optioned for constant carrier. Remote data sets and modems are optioned for switched carrier.



AT Command String

DC V.F 28.8/33.6
Central Site

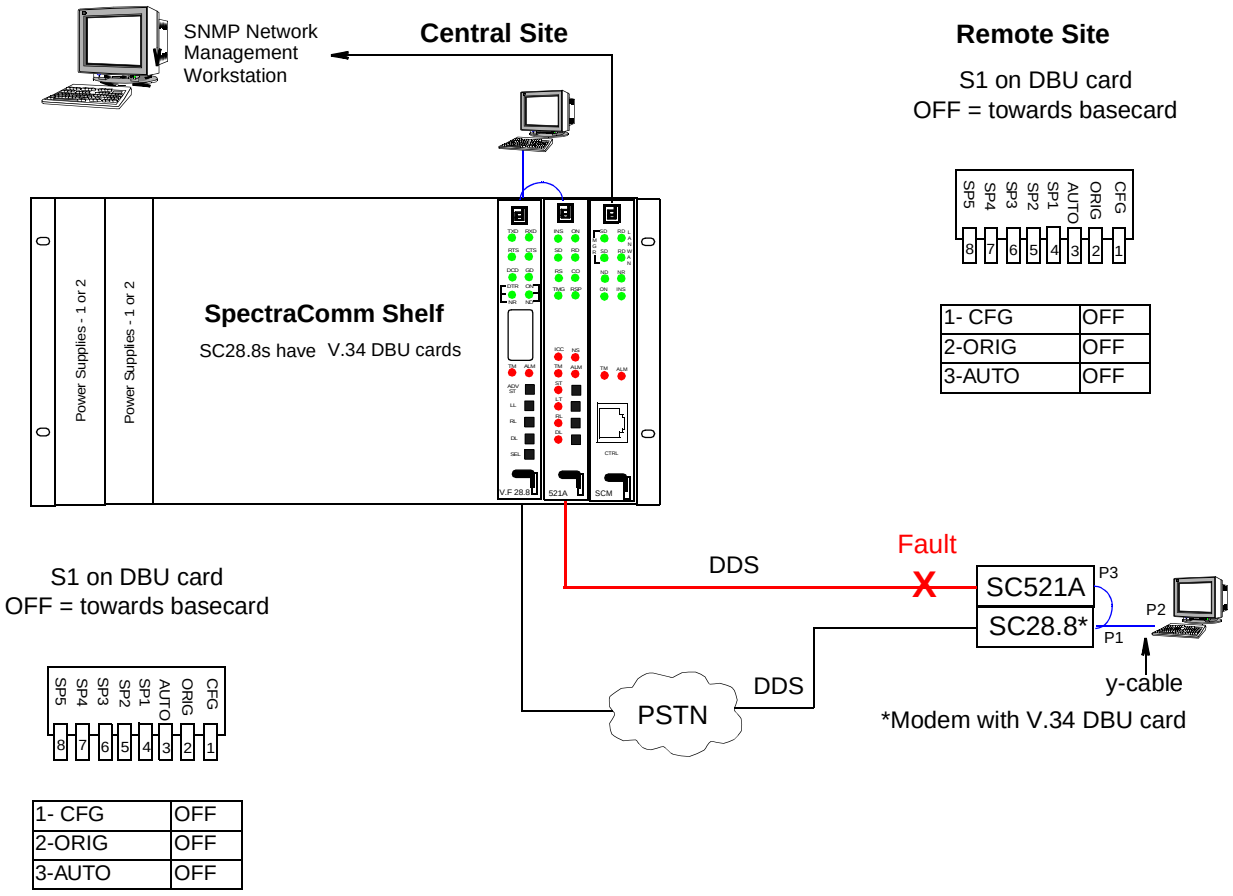
Sync (9600)
AT commands controlled by SSC.
Async (9600)
AT commands controlled by SSC

SC V.F 28.8/33.6
Remote Site

Sync (9600)
AT&F&C1&D0%K1&M1&H5\T7\M1S26=50
&X2&E0&S2&W
ATE0Q1&W
Async (9600)
AT&F&C1&D0%K1\N6&H5\T7S26=50&E0
&S2&W
ATE0Q1&W

Figure 7 DBU Application - Multidrop - Central Site Dials Out

Point-to-Point - Network Managed - Figure 8 -This application is network managed, and so both DBU cards are optioned for manual operation. A line fault will generate an alarm and the network operator will initiate a dial backup call. Both central and remote site data set and modem may be optioned for either constant or switched carrier.



AT Command String

SC V.F 28.8/33.6
Central Site
(constant carrier)

Async (9600)
AT&F&C1&D2%K1\N1&G7%Z1=0&S2&W
AT&Z0=nnn
ATQ1E0&W

Sync
AT&F&C1&D2%K1&X0&M1\M0%ZF0&S2&W
AT&Z0=nnn
ATQ1E0&W

nnn=phone number

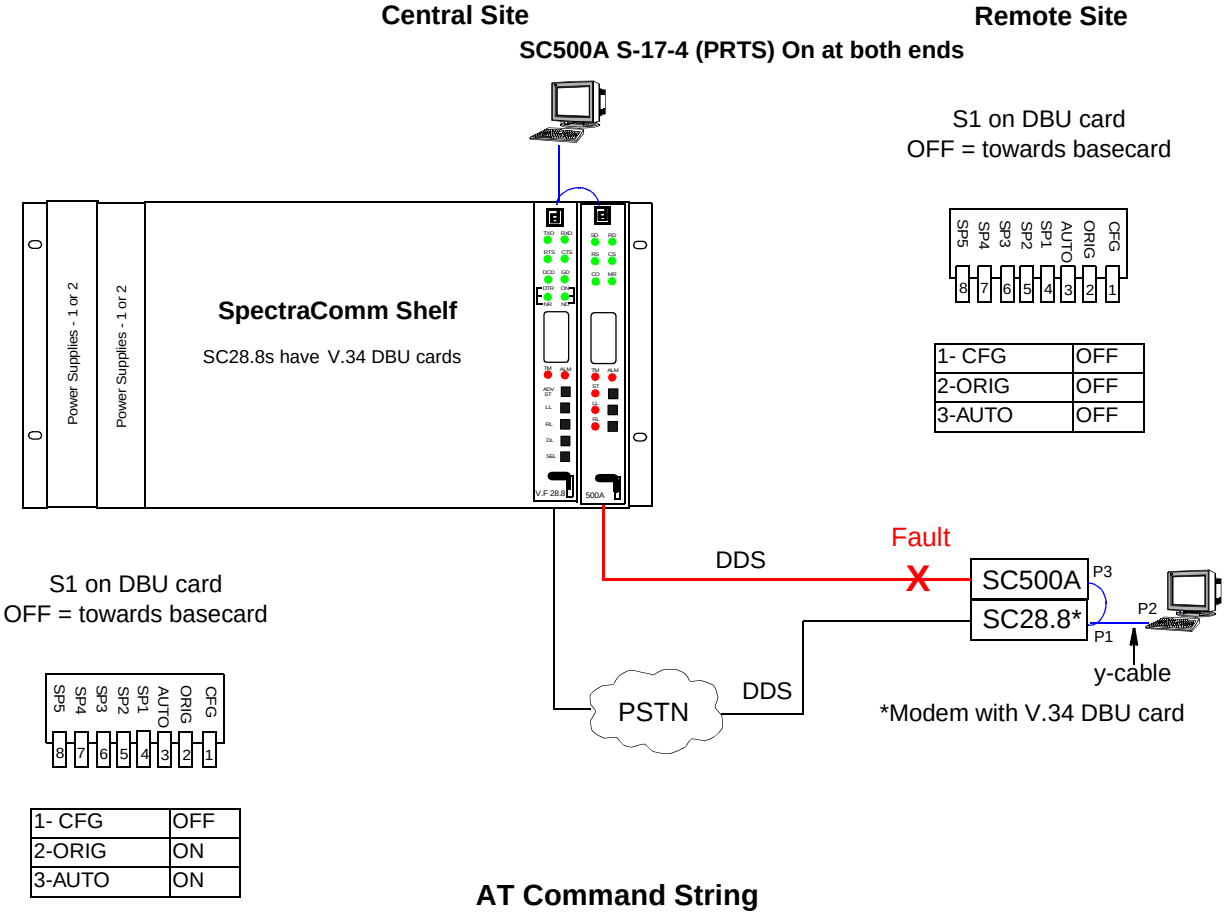
SC V.F 28.8/33.6
Remote Site
(constant carrier)

Async (9600)
AT&F&C1&D0%K1\N1&G7&S2&W
ATQ1E0&W

Sync
AT&F&C1&D0%K1&X2&M1\M0&S2&W
ATQ1E0&W

Figure 8 DBU Application - Point-to-Point - Network Managed

Point-to-Point - 500A Non-Managed Auto Dial- Figure 9 -This application is not network managed. The DSUs are non-managed SC500As. The central site DBU card is optioned for origination enabled. The remote DBU card is optioned for origination disabled. Central site data set and modem are optioned for constant carrier. Remote data sets and modems are optioned for constant carrier. Dial restoral will only be activated when the originate location loses carrier.



AT Command String

SC V.F 28.8/33.6
Central Site

Async (9600)**
AT&F&C1&D2%K1\N1&H1\T7%Z1=0&S2&W
AT&Z0=nnn
ATQ1E0&W

Sync (9600)**
AT&F&C1&D2%K1&X0&M1&H1\T7%Z1=0&S2&W
AT&Z0=nnn
ATQ1E0&W

nnn=phone#

** For other speeds use appropriate **\T** command (refer to SC V.F 28.8/33.6 manual)

For sync and highest throughput use **\T0** or **&M2** for sync data compression.

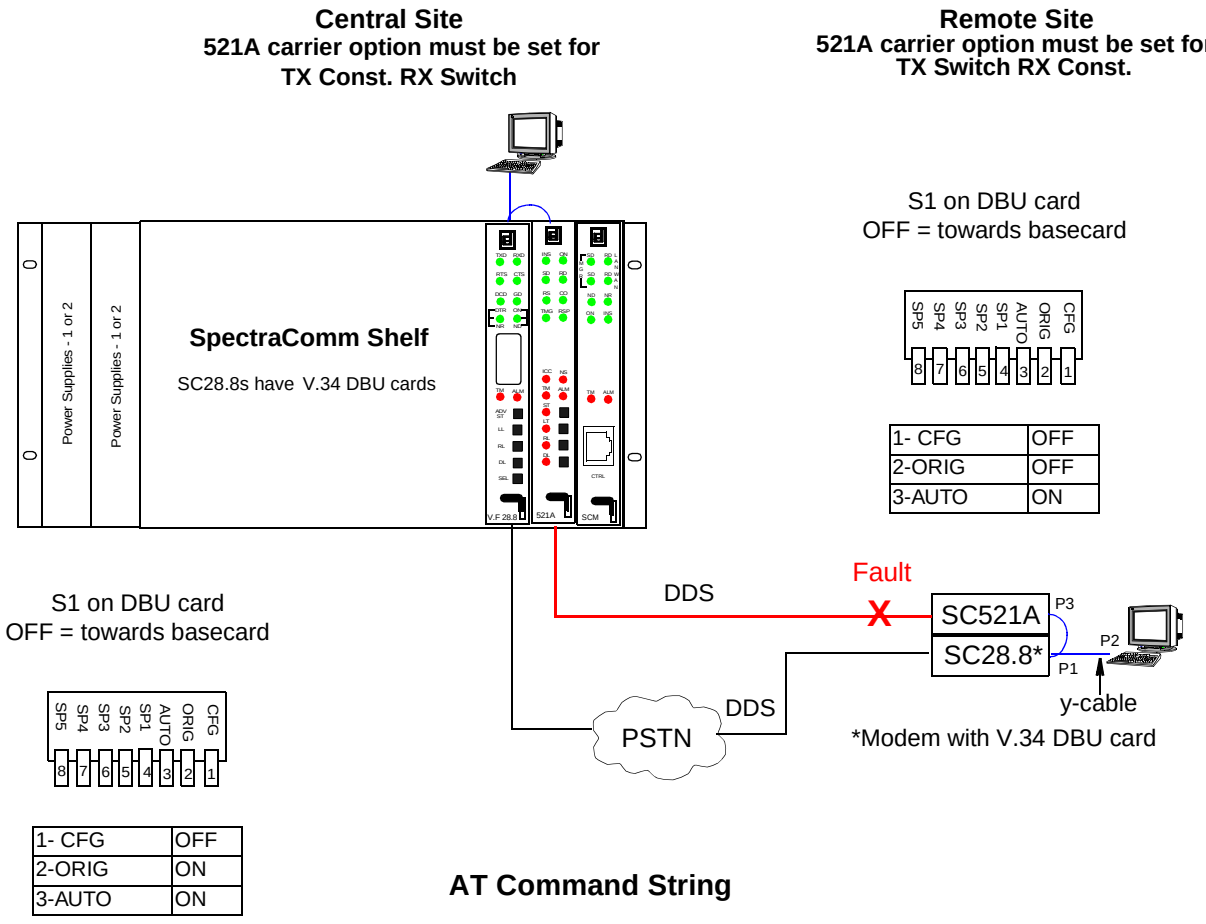
SC V.F 28.8/33.6
Remote Site

Async (9600)**
AT&F&C1&D0%K1\N1&H1\T7&S2&W
ATQ1E0&W

Sync (9600)**
AT&F&C1&D0%K1&M1&H1\T7&X2&S2&W
ATQ1E0&W

Figure 9 DBU Application - Point-to-Point - 500A Non- Managed Auto Dial

Point-to-Point - 521A Non-Managed Auto Dial Restoral - Figure 10 -This application is not initiated by the network manager. Remote DBU card is optioned for originate disabled, central site DBU cards are optioned for originate enabled. This configuration provides constant carrier to the customer equipment (DTE) at both ends of the circuit.



AT Command String

SC V.F 28.8/33.6
Central Site
(constant carrier)

Async (9600)**
AT&F&C1&D2%K1\N1&H1\T7%Z1=0&S2&W
AT%Z0=nnn
ATQ1E0&W

Sync (9600)**
AT&F&C1&D2%K1&X0&M1&H1\T7%Z1=0&S2&W
AT&Z0=nnn
ATQ1E0&W

nnn=phone#

** For other speed use appropriate **\T** command (refer to SC V.F 28.8/33.6 manual)

For sync and highest throughput use **\T0** or **&M2** for sync data compression.

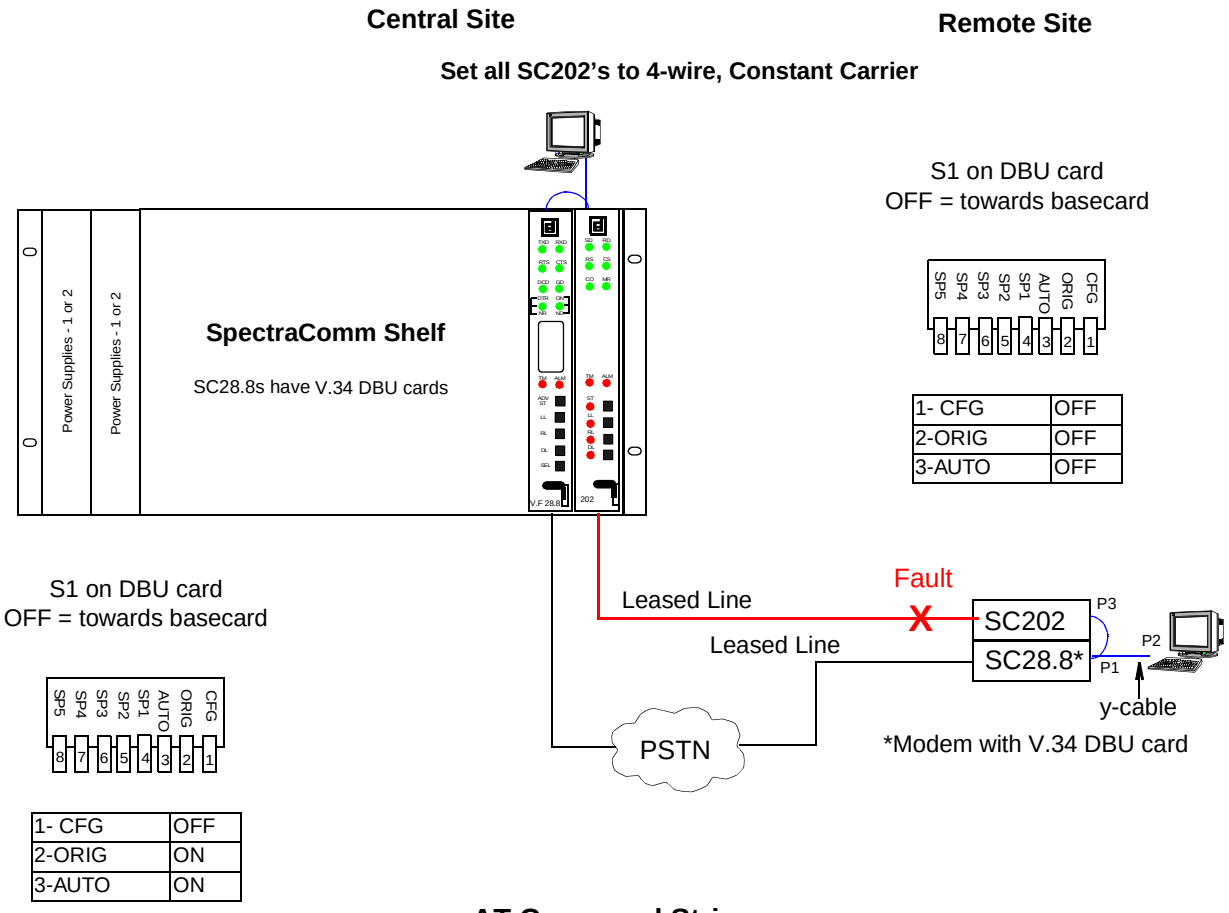
SC V.F 28.8/33.6
Remote Site
(constant carrier)

Async (9600)**
AT&F&C1&D0%K1\N1&H1\T7&S2&W
ATQ1E0&W

Sync (9600)**
AT&F&C1&D0%K1&X2&M1&H1\T7&S2&W
ATQ1E0&W

Figure 10 DBU Application - Point-to-Point - 521A Non-Managed Auto Dial Restoral

Point-to-Point - Non-Managed with SC202 - Figure 11 -This application is not network managed. The data sets are non-managed SC202's. The central site DBU card is optioned for origination enabled. The remote DBU card is optioned for origination disabled. Dial restoral will only be activated when the originate location loses carrier.



AT Command String

SC V.F 28.8/33.6
Central Site

Async (1200)
AT&F&C1&D2%K1&R1\N1\T3&H8%Z1=0&S2&W
AT&Z0=nnn
ATQ1E0&W

SC V.F 28.8/33.6
Remote Site

Async (1200)
AT&F&C1&D0%K1&R1\N1\T3&H8&S2&W
ATQ1E0&W

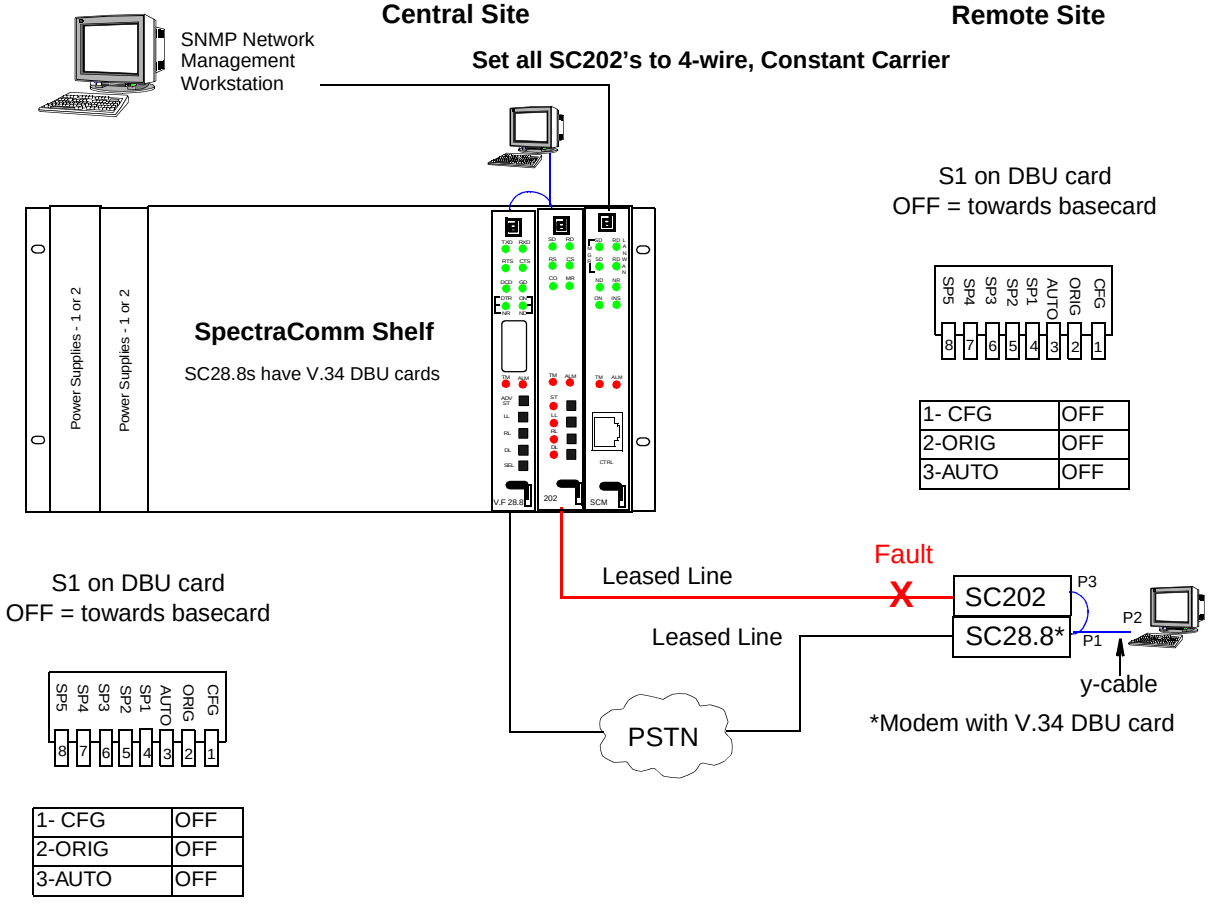
Notes:

1 - In order to dial-backup 1800 bps async with a SC28.8 modem, you must configure the modems for sync, 7200 bps:
(**ORIG**) AT&F&C1&D2%K1&H1\T6&M1&R1%Z1=0&S2&W (**ANS**) AT&FC1&D0%K1&H1\T6&M1&R1&W
AT&Z0=nnn
ATQ1E0&W

2 - Manual dial-backup - first configure another user profile on the originating modem the same as the one you are using, except disable the Dial on DTR (%Z0). Then bridge a phone on the same line as the modem. Set Auto-DBU Off on the DBU card. Once this is done, invoke new modem user profile (which has DTR disabled %Z0) using the front panel, then dial the phone number of the other modem using the phone. As soon as you hear answer tone activate the talk data button and hang up the phone quickly.

Figure 11 DBU Application - Point-to-Point - Non- Managed - SC 202 Modem

Point-to-Point - Network Managed with SC202 - Figure 12 -This application is network managed, and so both DBU cards are optioned for manual operation. A line fault will generate an alarm and the network operator will initiate a dial backup call.



AT Command String

SC V.F 28.8/33.6
Central Site

Async (1200)
AT&F&C1&D2%K1&R1\N1\T3&H8%Z1=0&W
AT&Z0=nnn
ATQ1E0&W

SC V.F 28.8/33.6
Remote Site

Async (1200)
AT&F&C1&D0%K1&R1\N1\T3&H8&W
ATQ1E0&W

Figure 12 DBU Application - Point-to-Point - Network Managed - SC 202 Modem

Input/Output Signals

The V.34 DBU card sits between the DTE connector of the SpectraComm V.F 28.8/33.6 modem and the modem itself. It accepts signals from the DTE connector and routes them to either the modem or back out on the connector to the data set via the special Y-cable. Table 3 describes the signals for the SpectraComm V.F 28.8/33.6, Table 4 describes the pinouts of the SpectraComm 521A DSU, and Table 5 describes signals for the SpectraComm 202 modem. (Only associated pins are described).

Table 3 SpectraComm V.F 28.8/33.6 DTE Connections

Pin	Direction	Signal	EIA	ITU-T	Description
1	-	Frame Ground	AA	-	No connection on the card
2	From DTE	TXD	BA	103	Transmit data from DTE
3	To DTE	RXD	BB	104	Receive data to DTE
4	From DTE	RTS	CA	105	Request to send
5	To DTE	CTS	CB	106	Clear to send
6	To DTE	DSR	CC	107	Data set ready
7	-	Signal Ground	AB	102	-
8	To DTE	DCD	CF	109	Data carrier detect
15	To DTE	TC	DB	-	Transmitter clock
17	To DTE	RC	DD	-	Receiver clock
18	From DTE	LL	LL	141	Local loopback
20	From DTE	DTR	CD	-	Data terminal ready
21	From DTE	RL	RL	140	Remote loopback
22	To DTE	RI	CE	-	Ring indicator
23	To DTE	CI	CI	-	Data rate selector
24	From DTE	ETC	DA	-	External transmit clock
25	To DTE	TM	TM	-	Test mode

Table 4 SpectraComm 521A DTE Connections

Pin	Direction	Signal	EIA	Description
1	-	Frame ground	AA	No connection on the card
2	From DTE	TXD	BA	Transmit data from DTE
3	To DTE	RXD	BB	Receive data to DTE
4	From DTE	RTS	CA	Request to send
5	To DTE	CTS	CB	Clear to send
6	To DTE	DSR	CC	Data set ready
7	-	Signal ground	AB	Data carrier detect
8	To DTE	DCD	CF	Data carrier detect
9	-	-	-	+12V
10	-	-	-	-12V
15	To DTE	TC	DB	Transmitter clock
17	To DTE	RC	DD	Receiver clock
18	From DTE	LL	LL	Local loopback
20	From DTE	DTR	CD	Data terminal ready
21	From DTE	RL	RL	Remote loopback
22	To DTE	RI	CE	Ring indicator
23	To DTE	CI	CI	-
24	From DTE	EXT TMG	DA	External transmit clock
25	To DTE	TM	TM	Test mode

Table 5 SpectraComm 202 DTE Connections

Pin	Signal	EIA	ITU-T	Description
1	Frame ground	AA		No connection on the card
2	TXD	BA	103	Transmit data from DTE
3	RXD	BB	104	Receive data to DTE
4	RTS	CA	105	Request to send
5	CTS	CB	106	Clear to send
6	DSR	CC	107	Data set ready
7	Signal ground	AB	102	Data carrier detect
8	DCD	CF	109	Data carrier detect
9	-	-		+12V
10	-	-		-12V
18	LL	LL	141	Local loopback
21	RL	RL	140	Remote loopback
25	CFRES	-	-	Carrier Detect reset signal from DTE (not part of EIA-232)

Technical Characteristics

Table 6 describes the specifications of the V.34 Dial Backup card.

Table 6 Technical Characteristics

Item	Specifications
Data sets supported: SC521A DSU, SC500A DSU, SC202 modem	
Format	Serial synchronous and asynchronous binary data.
Data Rates Supported	56, 64, 19.2, 9.6, 4.8, 2.4 kbps synchronous. 19.2, 9.6, 2.4, 1.2 kbps asynchronous.
DTE Interface	EIA/TIA-232-F
Timers:	
Automatic, Origination Enabled (S1-2,3 ON)	
Power up delay before data set DCD is monitored (500A and 521A Only)	40 seconds
Loss of data set DCD to modem DTR On	20 seconds
Recovery of data set DCD to modem DTR Off	20 seconds
Redial Timer: After the modem DTR is On, if the modem DSR is not available within 75 seconds, the DBU will turn Off modem DTR, and turn it On again to make another call.	75 seconds
Automatic, Origination Disabled (S1-3 ON)	
Loss of data set DCD to data set RTS Off	300 ms
Recovery of data set DCD to data set RTS On	300 ms
Duration of data set RTS Off	30 seconds (DBU controls RTS signal to the data set)
Duration of data set RTS On	30 seconds (DBU controls RTS signal to the data set)
Physical	
Height	0.5 inches (13 mm)
Width	3.625 inches (92 mm))
Depth	2.10 inches (54 mm))
Compliance (when installed on the SCV.F 28.8/33.6 modem): Refer to modem manual	

Index

A

Applications 10
AT command Set for SC V.F 28.8 Modem/V.34 DBU 9
Automatic Operation 5

B

Bypassing a Failed Modem Manually 6

C

Configuration for Non-Originating Modem 4
Configuration for Originating Modem 4

D

DSU Configuration 4

F

Features 2

I

Input/Output Signals 17

M

Manual Operation 5
Multidrop - Central Site 11
Multidrop Remote Site 10

O

Options 3
Overview 1

P

Point-to-Point - Remote Site 12, 13, 14, 15, 16

S

SC V.F 28.8 Modem Configuration 4
SC202 Modem Configuration 5
Security 2
SpectraComm 521/521A DTE Connections 18
SpectraComm V.F 28.8 DTE Connections 17

T

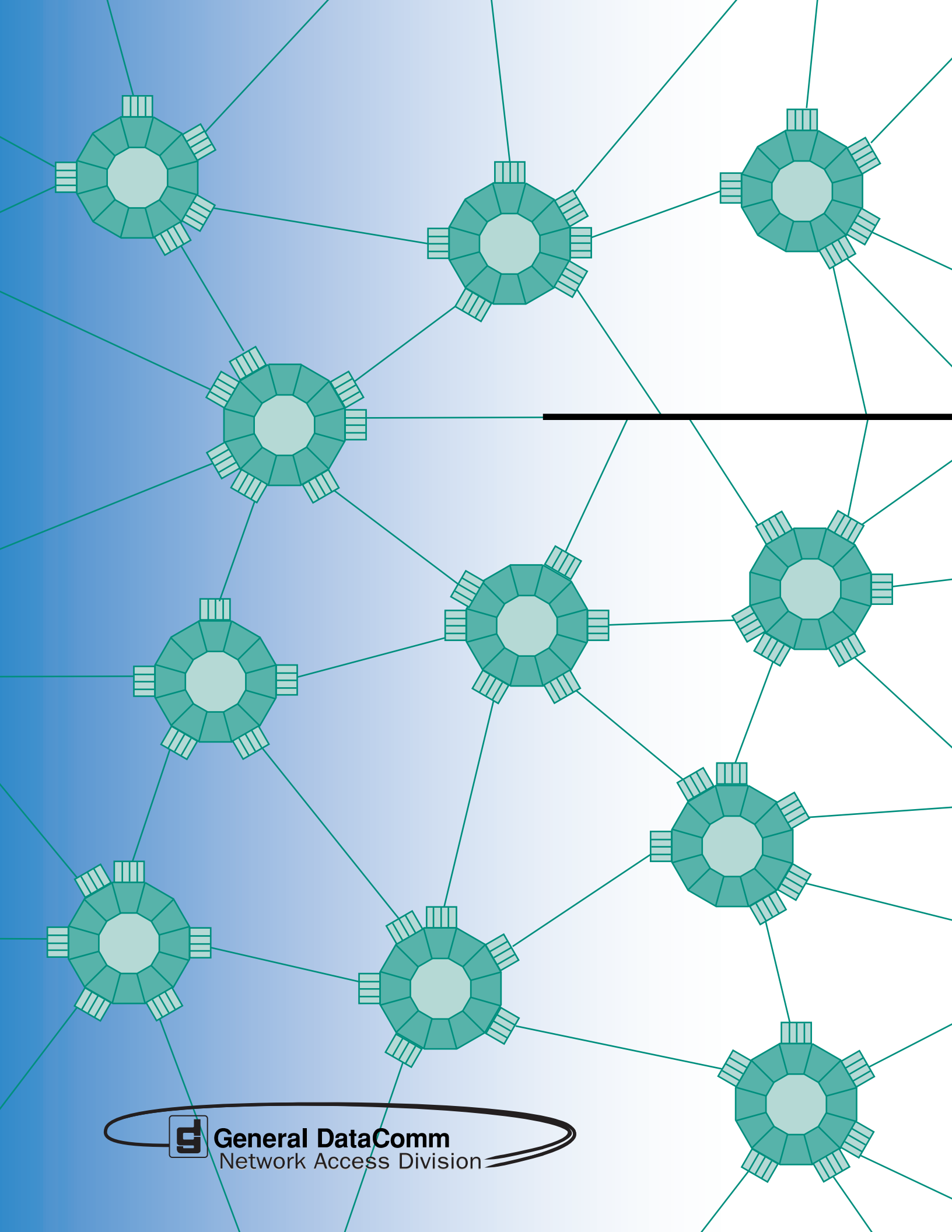
Technical Characteristics 20

V

VF.34 DBU Card 3
VF.34 DBU Operational Considerations 2

Y

Y-Cable Pinouts 8


General DataComm
Network Access Division