3021 E1 NTU/DSU
Configuration Guide

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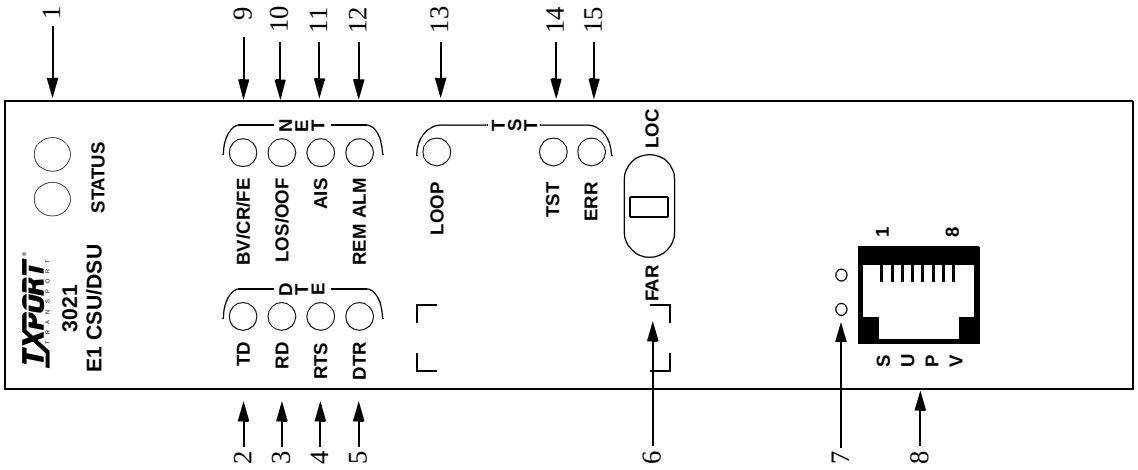
1.0



SUPV Port

Pin	SUPV Port Interface
1	Control Out
2	Signal Ground
3	Data Out
4	Data In
5	Signal Ground
6	Control In

Front Panel Description

Index	Item	Function
1	STATUS	If neither LED is On, the 3021 is not powered. If only the green LED is On, the 3021 is powered and may be functioning normally. If only the red LED is On, there is a fault that exceeds alarm thresholds or another type of 3021 failure.
2	TD	This green LED is On during a mark condition on the high-speed transmit data line.
3	RD	This green LED is On during a mark condition on the high-speed receive data line.
4	RTS	This green LED is On when the request-to-send signal is active.
5	DTR	This green LED is On when the data-terminal-ready signal is active.
6	FAR/LOC Switch	This switch is used for local testing and setting the SUPV port rate when downloading firmware for the Flash PROM. For testing, setting the switch to LOC performs a network LLB and setting the switch to FAR sends five seconds of in-band loop code and then sends the BERT pattern selected in the user interface. The default pattern is QRSS.
7	Activity Indicators	These two small, recessed LEDs indicate supervisory/network manager port activity.
8	SUPV Port	The supervisory jack provides direct terminal access to control and monitor the 3021.
9	BV/CR/FE	This LED is On when the unit detects bipolar violations, cyclic redundancy checking errors, or framing errors.
10	LOS/OOF	This LED flashes when the unit detects a loss-of-signal condition or remains On during an out-of-frame condition.
11	AIS	This LED is On when the network interface is receiving an alarm indication signal.
12	REM ALM	This LED is On when the network interface is receiving a remote alarm indication.
13	LOOP	This LED is On when the network interface is in a line loopback.
14	TST	This LED is On when a BERT is in progress.
15	ERR	This LED is On when BERT pattern errors are detected.

Specifications

Network Interface

Service Types:	CEPT/E1
Line Rate:	2.048 Mbps (±50 ppm)
Framing:	CAS or CCS
Line Code:	AMI or HDB3
Input Signal:	0 to -22.5 dB ALBO
Line Connection:	75 Ω: BNC 120 Ω: DB-15, twinax, and RJ-48
Output Signal:	Per G.703 with 75-Ω or 120-Ω option
Surge Protection:	1000 volts
High-Speed Data Port Compatibility:	ITU V.35 female DB-25, female 34-pin through adapter cable, ITU X.21 female DB-15; EIA-530 DB-25
Rate:	Synchronous, N×56, or N×64 kbps (N = 1 to 31)
Clocking:	Internal or external
Data Invert:	Enabled or disabled

Configuration

Configuration:	Card-edge switches Terminal interface on the supervisory port, Telnet session using the 8100A SNMP Management System. Soft configuration is non-volatile.

Diagnostics

Performance:	RFC1406 (with the 8100A)
Status:	Front panel LEDs for network, testing, and DTE
Network Loopbacks:	Line, payload, and proprietary
E1-DTE Loopbacks:	Line and proprietary
DTE Loopbacks:	Responds to V.54 in-band loop codes and performs bidirectional fractional-port loopback

Power

Power:	-48 VDC, 150 mA, max; 7.2 W, (24.6 BTU, max)

Mechanical

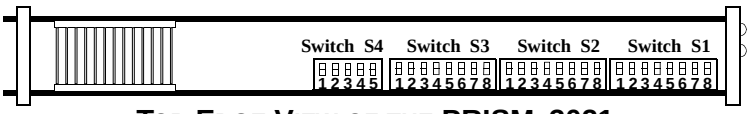
Mounting:	Wall, vertical, horizontal rack, TxPORT 1051 chassis, or standalone
Weight:	1 pound, nominal

Compliance

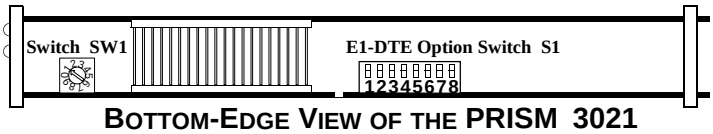
FCC Compliance:	Part 15, Class A, Subpart B
US Safety:	UL 1950, 3rd Ed. (Pending)
Canadian Safety:	CSA: C22.2 No. 950-95 (Pending)
G.703:	Signal Waveform
G.704:	Framing
G.732:	Multiframing
G.823:	Jitter
G.831:	Framing Requirement

Environmental

Operating Temp:	0° to 50°C (32° to 122°F)
Storage Temp:	-20° to 85°C (-4° to 185°F)
Relative Humidity:	95% max., non-condensing



TOP-EDGE VIEW OF THE PRISM 3021



BOTTOM-EDGE VIEW OF THE PRISM 3021

Switch S1

S1-1: Sets network framing.
Down: CAS Up: CCS

S1-2: Sets CRC4.
Down: Enabled Up: Disabled

S1-3: Selects network line code.
Down: HDB3 Up: AMI

S1-4 and **S1-5:** Select the unit's timing source.

Timing Source	S1-4	S1-5
Network	Down	Down
Internal	Down	Up
E1 DTE	Up	Down
DTE or External	Up	Up

S1-6: Selects keep alive framed and unframed ones.
Down: Keep alive unframed ones
Up: Keep alive framed ones

S1-7: Selects normal or inverted data mode.
Down: Normal Up: Inverted

S1-8: Used for programming the Flash memory.
Down: Disabled Up: Enabled

Switch SW1

SW1: Sets the national bit.

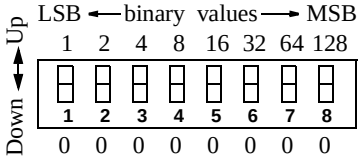
National Bit	Switch Position
None	0
SA4	1
SA5	2
SA6	3
SA7	4
SA8	5
None	6-9

Factory default settings are underlined.

Switch S2

Switch S2 sets the unit address. When using the 3021 with an 8100A Site Controller, each element in a group must have a unique unit address. As many as 50 units (with addresses from 1 to 50) can exist in a group. If the unit is not connected to a site controller, the NMS unit address should be left at the factory default setting of 1 where Position 1 is Up and all other positions are Down.

Switch S2 has eight positions used to create an 8-bit binary code for an address in the range of 1 to 50. Switch position S2-1 is the least significant bit (LSB) and S2-8 is the most significant bit (MSB). If a switch is down, its value is 0. If up, its value is that of the upper location. The values are additive. For example, to set a unit address to 5, position S2-3 (binary value is 4) and position S2-1 (binary value is 1) would be set **Up** for a unit address of 5 (4+1). All other positions would be set **Down**.



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Switch S3

S3-1 and **S3-2:** Set the NMS port rate. Configure the port for 8 bits, no parity, and 1 stop bit.

NMS Port Rate	S3-1	S3-2
19200 bps	Down	Down
9600 bps	Down	Up
2400 bps	Up	Down
1200 bps	Up	Up

S3-3 and **S3-4:** Set the SUPV port rate. Configure the port for 8 bits, no parity, and 1 stop bit.

SUPV Port Rate	S3-3	S3-4
38400 bps	Down	Down
19200 bps	Down	Up
9600 bps	Up	Down
2400 bps	Up	Up

S3-5 and **S3-6:** Set the boot mode.

Boot Mode	S3-5	S3-6
Switches	Down	Down
RAM	Down	Up
ROM	Up	Down
Reserved for future expansion.	Up	Up

S3-7: Selects the DTE rate multiplier.
Down: N×64
Up: N×56

S3-8: Selects the channel assignment mode.
Down: Contiguous
Up: Alternating

Switch S4

S4-1 through **S4-5:** Set the DTE rate.

DTE Rate	N×56 (kbps)	N×64 (kbps)	S4-1	S4-2	S4-3	S4-4	S4-5
N=31[1,2]	1736	1984	Down	Down	Down	Down	Down
N=30[1]	1680	1920	Up	Down	Down	Down	Down
N=29[1]	1624	1856	Down	Up	Down	Down	Down
N=28[1]	1568	1792	Up	Up	Down	Down	Down
N=27[1]	1512	1728	Down	Down	Up	Down	Down
N=26[1]	1456	1664	Up	Down	Up	Down	Down
N=25[1]	1400	1600	Down	Up	Up	Down	Down
N=24[1]	1344	1536	Up	Up	Up	Down	Down
N=23[1]	1288	1472	Down	Down	Down	Up	Down
N=22[1]	1232	1408	Up	Down	Down	Up	Down
N=21[1]	1176	1344	Down	Up	Down	Up	Down
N=20[1]	1120	1280	Up	Up	Down	Up	Down
N=19[1]	1064	1216	Down	Down	Up	Up	Down
N=18[1]	1008	1152	Up	Down	Up	Up	Down
N=17[1]	952	1088	Down	Up	Up	Up	Down
N=16[1]	896	1024	Up	Up	Up	Up	Down
N=15	840	960	Down	Down	Down	Down	Up
N=14	784	896	Up	Down	Down	Down	Up
N=13	728	832	Down	Up	Down	Down	Up
N=12	672	768	Up	Up	Down	Down	Up
N=11	616	704	Down	Down	Up	Down	Up
N=10	560	640	Up	Down	Up	Down	Up
N=9	504	576	Down	Up	Up	Down	Up
N=8	448	512	Up	Up	Up	Down	Up
N=7	392	448	Down	Down	Down	Up	Up
N=6	336	384	Up	Down	Down	Up	Up
N=5	280	320	Down	Up	Down	Up	Up
N=4	224	256	Up	Up	Down	Up	Up
N=3	168	192	Down	Down	Up	Up	Up
N=2	112	128	Up	Down	Up	Up	Up
N=1	56	64	Down	Up	Up	Up	Up

[1] This selection is not valid if the Channel Assignment is set to Alternating.
[2] This selection is not valid for CAS mode.

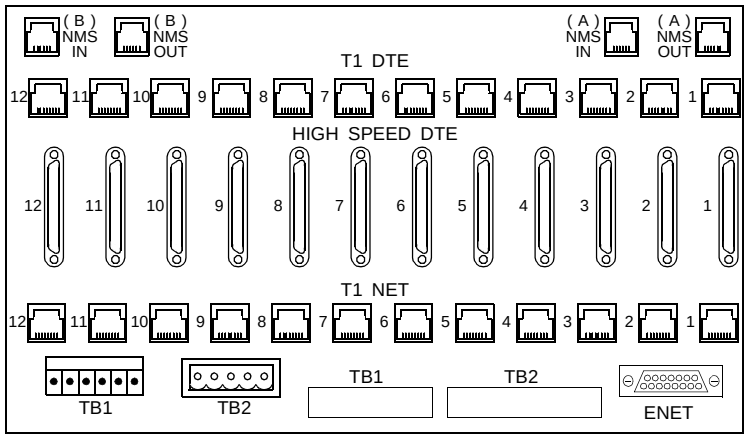
E1-DTE Option Switch S1

S1-1: Sets CRC4.
Down: Enabled Up: Disabled

S1-2: Selects the E1-DTE line code.
Down: HBD3 Up: AMI

S1-8: Selects the E1-DTE line termination.
Down: 75 ohm Up: 120 ohm

For 3021 applications, read E1 in place of T1 on the rear of the 1051 chassis.



Rear Panel of the TxPORT 1051-2 Chassis

Rear Panel Connections

Pin	E1 NET (labeled T1 NET)	NMS IN	NMS OUT	TB1 Network/ Clock	TB2 Alarm/ Power	E1 DTE (labeled T1 DTE)
1	Data In	Not Used	Not Used	Ntwk In	48-V Return	Tip Output
2	Data In	Signal Gnd	Signal Gnd	Ntwk In	Signal Gnd	Ring Output
3	Not Used	Data Out	Data Out	Ntwk Out	-48 VDC	Not Used
4	Data Out	Data In	Not Used	Ntwk Out	Frame Gnd	Tip Input
5	Data Out	Signal Gnd	Signal Gnd	Station Clk	Alm Contact	Ring Input
6	Not Used	Not Used	Not Used	Station Clk	Common	Not Used
7	Not Used	N/A	N/A	N/A	N/A	Chassis Gnd
8	Not Used	N/A	N/A	N/A	N/A	Chassis Gnd

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