Cisco T1 DSU/CSU
WAN Interface Card (WIC-1DSU-T1)

Integrated Solution Simplifies Internet/Intranet Access by Reducing Deployment and Management Tasks

The Cisco Systems' T1 data service unit/channel service unit (DSU/CSU) WAN interface card is an integrated, fully managed DSU/CSU for T1 or fractional T1 service. Supported on the Cisco 1600, 1720, 2600, and 3600 series routers, it provides a cost-effective router-DSU/CSU combination with the following benefits of integration:

- Fewer devices and cables to deploy and manage
- Remote and local configuration, monitoring, and trouble-shooting via Cisco IOS® command-line interface (CLI)
- Flexibility and investment protection
- Single-vendor support
- Enhanced reliability
- Physical space savings

Key Features

- T1 or fractional T1 network interface
- N X 64 kbps or N X 56 kbps, nonchannelized data rates (N = 1 to 24)
- Standards based, including ANSI T1.403 and AT&T Publication 62411
- Full management features
  - *Configuration*—Capability for remote configuration via Telnet from Cisco IOS CLI
  - *Monitoring*—Router and DSU/CSU manageable as single SNMP entity; extensive DSU/CSU statistics provided by Cisco IOS CLI
  - *Troubleshooting*—Extensive loopbacks (including manual button for network line loopback), bit error rate tester (BERT) test patterns, alarm counters, and performance reports—all of which are accessible from Cisco IOS CLI. LEDs for carrier detect, loopback, and alarm functions

Benefits of an Integrated, Fully Managed Solution

The T1 DSU/CSU WAN interface card enables trouble-free Internet/intranet access with a simple, fully managed, integrated solution from a single vendor. Its ease of configuration and management differentiates it from external/separate DSU/CSUs. Additionally, full management capability and modularity differentiates the T1 DSU/CSU WAN interface card from other integrated router-DSU/CSU solutions, which typically have limited management and fixed configuration. This card delivers flexibility and investment protection, extending the growing family of WAN interface cards for the Cisco 1600 and 3600 routers.

Reduced Deployment and Management Time and Costs

Ease of Configuration and Management. The T1 DSU/CSU WAN interface card simplifies tasks in the following ways:

- Easily configures via Cisco IOS initial SETUP, a utility that prompts a series of basic configur- ation questions upon router startup. Also, ClickStart,™ a Web browser- based interface tool, provides point-and-click initial configuration for the WAN interface card and the Cisco 1600 routers.
- Allows simplified remote and local configuration, management, and troubleshooting of the DSU/CSU from Cisco IOS CLI
  - Using the familiar Cisco IOS CLI eliminates the need to learn/use a second set of command syntax for an external DSU/CSU
  - Convenient Telnet connection to router eliminates the need for out-of-band management of external DSU/CSUs.
  - Cisco IOS CLI provides extensive DSU/CSU statistics (such as 24-hour history) and troubleshooting capability (such as DSU/CSU self test, loopbacks, DSU/CSU reset, alarm counters, T1 statistics, and so on)
- Simplified Simple Network Management Protocol (SNMP) management, with router and DSU/CSU managed as a single SNMP entity through CiscoWorks/CiscoView. The T1 DSU/CSU WAN interface card SNMP agent supports the standard Management Information Base II (MIB II), Cisco integrated DSU/CSU MIB, and T1 MIB (RFC 1406). All T1 performance statistics can be monitored. Additionally, the router generates the appropriate SNMP traps in response to DSU/CSU alarms.

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- End-user-initiated manual loopback button allows users at remote sites to easily initiate a T1 network line loopback by pushing a recessed button on WAN interface card front panel without having to access the router via console port or Telnet.
- LEDs for carrier detect, loopback, and alarm allow for quick troubleshooting.

Physical Convenience. No additional space is needed because the DSU/CSU WAN interface card is inserted into the router. Additionally, this integrated solution eliminates the need for a bulky serial cable, reducing deployment time and cost.

Flexibility and Investment Protection

The T1 DSU/CSU WAN interface card extends Cisco's commitment to provide customers with maximum flexibility and investment protection through modular WAN interface cards that are supported on award-winning router platforms. When WAN bandwidth requirements or service provider pricing change, users can easily change WAN services either by changing software configuration or replacing the WAN interface card. Because the same card can be used on Cisco 1600 and 3600 router platforms, the number of stocking units can be reduced, and the WAN interface card can be redeployed from one platform to another.

Single-Vendor Support

Because the DSU/CSU plays an equally critical role as the router in ensuring WAN connectivity, many customers feel that it is important to have a support contract for both. However, if the router and DSU/CSU are from different vendors, it can be inconvenient to manage support contracts from multiple vendors. Further, when you need service and support, it is difficult to pin-point a problem when phone calls have to be made to different vendors.

Cisco Systems provides single-vendor support for its routers, integrated DSU/CSUs, and other network equipment. With its dedication to reliable support and customer satisfaction, Cisco offers a wide range of support programs to meet your business needs, including onsite support. A single phone call to a single vendor: Cisco takes full ownership of support when needed.

Enhanced Reliability

An integrated solution has fewer components and hence fewer points of failure (for example, an integrated solution has one less power supply and uses fewer cables). This leads to enhanced reliability.

Specifications

Product Number	Description
WIC-1DSU-T1	One-port T1/fractional T1 DSU/CSU WAN interface card

Cisco IOS Software Release
For Cisco IOS Release 11.2: 11.2(12)P and up
For Cisco IOS Release 11.3: 11.3(3)T and up

Dimensions and Weight	
Width	3.1 in. (7.9 cm)
Height:	0.8 in. (2.1 cm)
Depth	4.8 in. (12.2 cm)
Weight (minimum)	0.13 lb (57g)
Weight (maximum)	0.19 lb (85 g)

Network Interface	
Transmit Bit Rate	1.544 Mbps +/- 50 bps
Receive Bit Rate	1.544 Mbps +/- 100 bps
Line Code	AMI, B8ZS
AMI Ones Density	Forced / bit robbing (N X56) HDLC data inversion (N X64)
Framing Format	D4 (SF) and ESF
Output level (LBO)	0, -7.5, or -15 dB
Input Level	+1dB0 down to -24 dB0

Data Interface	
Data Rates	N X 64 kbps (N = 1 through 24); nonchannelized N X 56 kbps (N = 1 through 24); nonchannelized
Interface Connector	RJ-45
System Timing	Network and internal

Diagnostics

Loopbacks	Network line loopback – user initiated
	Recessed push button for network line loopback; toggle on/off
	Network line loopback – Telco initiated
	Network payload loopback
	Local DTE loopback
	Remote line and payload loopback (codes: V.54[1] loop up, and loop down)
Self Test	Self test activated by user
Test Patterns (BERT)	1:1, 1:2, 1:4, 1:8, 3:24, QRW, all zeroes, all ones, two user-programmable 24-bit patterns
Network (T1) Alarms	Loss of network signal (red alarm), loss of network frame, receive (blue alarm) (AIS) from network, receive (yellow alarm) from network
Performance Reports / Error Counters	CRC, BPV, OOF, errored seconds, burst errored seconds, severely errored seconds, Ft and Fs framing errors for SF framing, FPS framing errors for ESF framing, 24-hour history stored in 15-minute increments
LEDs	CD (Data Carrier Detect)
	LP (LooPback)
	AL (Alarm)

1. V.54 loopback support available on Cisco IOS Release 11.2(14)P and up.

Management

Telnet /Console	Remote and local configuration, monitoring, and troubleshooting from Cisco IOS CLI
SNMP	Router and DSU/CSU managed by single SNMP agent; router/DSU/CSU appear as single network entity to user
	Standard MIB (MIB II)
	Cisco integrated DSU/CSU MIB
	RFC 1406 T1 MIB
SNMP Traps	Generated in response to alarms

Regulatory Compliance

FCC Part 15 Class B
FCC Part 68
CS-03
UL 1950 (3rd edition; incorporates UL 1459)

Standards

AT&T Pub 62411
ANSI T1.403

Environmental

Operating Temperature	0 to 40ºC (32 to 104 F)
Storage Temperature	-20 to +65ºC (-4 to 149 F)
Relative Humidity	10 to 85% noncondensing operating; 5 to 95% noncondensing, nonoperating

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