T-SMART® T1 Intelligent CSU

In-Service Monitoring of T1 Circuits

The T-SMART® CSU provides in-service monitoring of both ESF and SF (D4) networks for early detection of developing problems.

Both network and terminal sides are monitored. The performance results of the last 24 hours, stored in 15-minute intervals, can be accessed with an ACSCII terminal. Problems can be further isolated and diagnosed using user-selectable loopback tests and a built-in test signal generator.

Network and terminal sides can be independently configured for ESF or SF and B8ZS or AMI. The T-SMART CSU will then automatically convert signals as necessary. The T-SMART CSU is fully compatible with AT&T TRs 54016 and 62411, ANSI T1.403 ESF standards and FCC Parts 68 and 15.

The Shelf Interface Unit (SIU) provide control access to large numbers of T-SMART CSUs in shelf applications.

Features

- Intelligent local management of T1 and ISDN PRI circuits
- In-service performance monitoring
- Alarm reporting and diagnostics
- Built-in diagnostics
- Converts between different line code and framing types
- Extended temperature range
- Available in stand-alone or plug-in shelf versions

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APPLICATIONS

Basic voice network

As T1 circuits become more competitive, more companies are taking advantage of the lower cost and high reliability of T1 service to meet their communication requirements. A common application uses a T1 circuit to connect a PBX to a carrier switch (Figure 1).

Figure 1: The T-SMART monitors both network and terminal sides.

Point-to-point networking

Many companies are using T1 circuits to provide high volume service to remote locations. A point-to-point T1 circuit may connect two PBXs, MUXs, switches, DCSs or any two devices within a T1 interface (Figure 2).

Figure 2: Point-to-point network application.

Wireless carriers

Circuit performance is a critical component of cellular reliability and profitability. The T-SMART's ability to monitor performance and detect signal degradation before circuit failure allows proactive management of your T1 network.
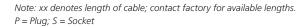
ORDERING INFORMATION

DESCRIPTION	CATALOG #
T-SMART Plug in card	77120
T-SMART Stand-alone unit	77961
Shelf Interface Unit (SIU)	77101

CABLES AND ACCESSORIES	CATALOG #
To Terminal Equipment	
❶ 25-pair RJ48H Plug/Socket (12-slot shelf only)	930xx061
25-pair RJ48H Plug/Stub (12-slot shelf only)	930xx071
25-pair RJ48H Plug/Stub (12-slot shelf only)	930xx171
For use Terminal Side with 77830 only	
DA15P to Stub	930xx101
DA15P to RJ48C Plug	930xx121
DA15P to RJ48C Jack Adapter	77892
❷ RJ48H Socket to 12x RJ48C Jack	77830
Requires 930xx171 cable	
RJ48H Plug to 12x DA 15S	77840
To Network	
25-pair RJ48H Plug/Socket	930xx061
25-pair RJ48H Socket/Stub	930xx081
DA15S to Stub	930xx111
DA15S to RJ48C Plug	930xx151
RJ48H Socket to 12x RJ48C Jack	77830
DA15S to RJ48C Jack Adapter	77891

Note: xx denotes length of cable; contact factory for available lengths.
P = Plug; S = Socket

CABLES AND ACCESSORIES *(continued)*	CATALOG #
Power Supplies and Mounting Accessories	
24 VDC wall mount, 6W, up to 1 unit	77995
48 VDC, 100W, up to 2 shelves (24 units)	72073-ACPS
48 VDC, 100W x 2 (4 shelves) or	
100W redundant (2 shelves)	72075-ACPS
CSU standard shelf, 12 slots	77020
Blank Plug-in Panel	77070
19" mounting tray for up to 2 units	78480
Blank Plug-in Panel	77070

Protect your network investment with support plans and technical training

To keep your network healthy and productive, Kentrox offers maintenance options. Additionally, Kentrox technical training courses are available online, at your site, or at the Kentrox campus to help you get the most out of your Kentrox products. For details, visit our website at www.kentrox.com/support.

KENTROX MAINTENANCE OPTIONS	CATALOG #
Basic 5x8 electronic support	ServicePack1-Enterprise
Standard 24x7 NBD	ServicePack2-Enterprise
(next business day - covers out of warrant advance replacements)	

KENTROX TECHNICAL TRAINING	CATALOG #
Customer site/Kentrox campus	
Custom quote.	
Contact Kentrox support	TRAININGPACK-ENTERPRISE

SPECIFICATIONS

NETWORK INTERFACE
Line Rate:	T1, ISDN PRI (1.544 Mbps)
Framing:	SF/ESF (selectable)
Line Code:	AMI/B8ZS (selectable)
Input Signal:	DSX-1 to -27 dB, typical
Output Signal:	DSX-1 with LBO 0, -7.5, -15, or 22.5 dB (selectable)
Signal Monitor:	Low Pulse Density and Keep Alive

TERMINAL INTERFACE
Line Rate:	T1 (1.544 Mbps)
Framing:	SF/ESF (selectable)
Line Code:	AMI/B8ZS (selectable)
Input Signal:	DSX-1 to 6 dB
Output Signal:	DSX-1 to 655 ft. equalized

DIAGNOSTICS
Loopbacks:	Line loopback (network interface)
	Test loopback (network payload)
	Local loopback (terminal loop)
Loop Codes:	Generate and detect eight in-band codes
	Five ESF facility data link commands
Test Codes:	Generate and detect QRS, 1-in-8
Activation:	Local front panel and control port remote in-band and ESF data link code

ALARM RELAY
Contacts:	Normally Open
Activation:	LOS, OOF AIS, YEL, Keep Alive, Excessive Error Rate (selectable)
ACO (Alarm Cut Off):	Front panel or control port

PERFORMANCE MONITORING
Data Storage:	24 hours in 15 minute increments
	Stored in non-volatile memory
Monitors:	Monitors both network and terminal interface
Separate Registers:	Separate registers for both carrier and user
Service Parameters:	BPVs, CRCs, Errored Seconds, Bursty Seconds, Failed Seconds, Out of Frame Seconds, Alarm Condition, Error Rate
Reports:	Detailed performance reports include time, date, service parameter counts, alarm states and current error rate

CONTROL PORT
Human Interface:	Menu driven, easy to use
Electrical:	EIA-232D
Mechanical:	RS232C
Interface Device:	Serial ASCII suitable for ASCII terminal
	Terminal Server
	Cisco Router Aux Port

ALARM MESSAGE
Electrical Interface:	See Control Port Interface
Reporting Options:	Local or remote alarm reporting
Auto Dialing:	Using standard AT command set
Telephone Number:	20 characters
Message Contents:	Alarm Set or Clear, Alarm Type, Date, Time, Address, Site Name

COMPATIBILITY
TR 54016
ANSI T1.403
TR 194

REGULATORY
FCC compliance:	Part 68 Reg. #F814HV-19244-DE-N
	Part 15 Class A
UL Listed:	UL 1459 Second Edition
DOC:	CS-03
CSA:	C22.2 No. 0.7
PUB 62411:	T1 interface specifications

POWER
Power Option:	LINE/LOCAL selection
Line Power:	57 to 150 ma 32 V drop @60 ma
Local Power:	20 to 56 VDC, 2 watts maximum

DENSITY MONITOR
Minimum Density:	12.5% average pulse density
Maximum Zeros:	Selectable 15, 47 or disable
Keep Alive Timing:	80 consecutive zeros
Keep Alive Signal:	Selectable framed/unframed, all-ones

PHYSICAL
Mounting:	Desk, wall or equipment rack
Stand-alone Unit:	6.75" W x 1.625" H x 10.5" D
12-slot Shelf:	19" W x 6.75" " H x 10.5" D
Connector 12-slot Shelf:	RJ48H 25-pair adapters available for NI, TI

JACK ACCESS
Toward Network:	Bantam jacks In, Out and Monitor
Toward Equipment:	Bantam jacks In, Out and Monitor

ENVIRONMENTAL
Operating Temperature:	-20 to 60° C
Relative Humidity:	0 to 95% R.H., non-condensing

For more information, visit www.kentrox.com, email info@kentrox.com or call 800-733-5511 or +1 614 798 2000.

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