

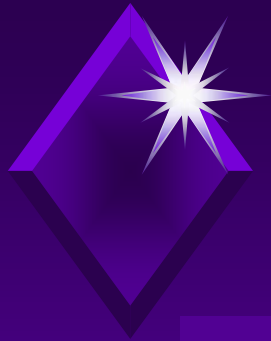
Company Profile



TeleSystems International Corp.

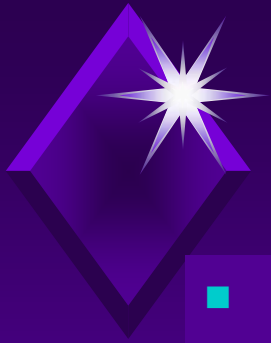
**804 West Diamond Avenue, Gaithersburg
Maryland 20878 U.S.A.**

**Tel: 1-301-216-2700 :: Fax: 1-301-216-1328
www.TSI-USA.com :: www.TSITek.com**



TeleSystems International Corp.

- **U.S.-Based Advanced Technology Satcom System Innovator**
- **Incorporated in March 1989 to Provide State-of-the-Art Cost Effective & Quality Satcom Products and Turnkey Solutions**
- **A Leading Supplier of USAT & VSAT Networks for Fixed, Mobile, and Portable Satcom Applications**
- **Headquarters in Gaithersburg, Maryland, at I-270 Technology Corridor in Metropolitan Washington, D.C. Area**
- **Manufacturing and System Integration Facility at Silicon Valley in Fremont, California (TSI Technology, Inc.)**
- **Asian-Pacific Regional Office with Satellite System Maintenance Center in Taipei, Taiwan**
- **Joint Ventures and Team Partners for OEM and R&D Support**
- **Worldwide Sales Reps, Distributors & Maintenance Centers**



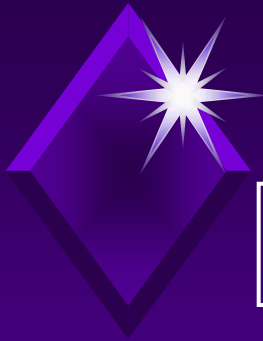
Major Corporate Milestones

- **Mar 1989** Incorporated in Maryland, USA
- **Jan. 1990** Delivered 1st Voice & Data Turnkey Network (4-Node, 8 Mbps TDMA DAMA System)
- **Oct. 1990** Received 1st Technical Consulting Contract (5-year contract awarded by DGT for design & development of Domsat system)
- **Oct. 1992** Delivered 1st TV Program Relay Turnkey Network (12-Node with 3 SNGs & NOC, capable of relaying 5 TV Ch)
- **July 1994** Developed 1st Engineering Model CDMA Terminals (1 fixed & 2 portable terminals for proof-of-concept field test)
- **Aug 1994** Incorporated Asian-Pacific Regional Office in Taiwan with a Satcom Maintenance Center
- **Jan. 1995** Received 1st Software Development Contract (2-year project awarded by Allied Signal for development and technology transfer of Flight Dynamic Facility for LEO satellite TT&C)
- **July 1995** Delivered 1st MPEG DSS Uplink Turnkey Network (distribution of 16 TV Ch to 150+ cable head-ends)
- **Nov. 1997** Delivered 1st TTC&M Turnkey Contract
- **Dec. 1997** Delivered 1st MPEG-2 DVB DTH DBS System (40 TV Ch)



Major Corporate Milestones (Cont'd)

- **Oct. 2000** **Delivered 1st UltraSAT® CDMA DAMA Pilot Network (total 68 CDMA channels with few PTs & MTs)**
- **July 2001** **Delivered 1st 100 ADE for UltraSAT® CDMA DAMA Shipboard Mobile Satcom Network**
- **Sep. 2001** **Acquired Assets & Product Lines of SSE Telecom (a \$40M NASDAQ listed company); Formed TSI Technology, Inc.**
- **July 2002** **Acquired Assets & Product Lines of ParaGea Communications, Inc. (a COMSAT spin-off company)**
- **Aug 2002** **Formed Datang Satcom Joint Venture with Datang Telecom Tech. & Industry Group (a major consortium in PRC with Research Institutes, holding companies & 10,000+ employees)**
- **Oct. 2002** **Signed OEM & Distributor Agreement with Ericsson**
- **Feb. 2003** **Obtained Taiwan FSS Operator License**
- **Apr. 2003** **Teamed with a Major European Defense Contractor on development of Airborne, Shipboard & Man-Pack Satcom Terminals for NATO Member Countries**



TeleSystems International Corp.

- Products Development
- Systems Engineering
- Turnkey System Provider
- CDMA DAMA USAT Systems
- TDMA & SCPC DAMA Systems
- DCME Trunking System
- SCADA VSAT Systems

Europe Sales Office
Amsterdam, Netherlands

TeleSystems, Inc.
Taipei, Taiwan

- R&D Support
- Engineering Support
- Fields Service Support
- Customers Support
- Satcom Systems
- Maintenance Center



TSI Technology, Inc.
Fremont, California

- Products Development
- Manufacturing
- System Integration & Testing
- Star & TS Series Transceivers
- SM Series Satellite Modems
- X-band & Tri-band Terminals

Joint Ventures, OEM and R&D Partners

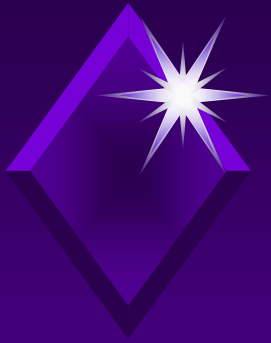
Maintenance Center
Worldwide

- North America
- Europe - multiple locations
- Middle East - multiple locations
- South America
- Asia - multiple locations
- Africa - multiple locations



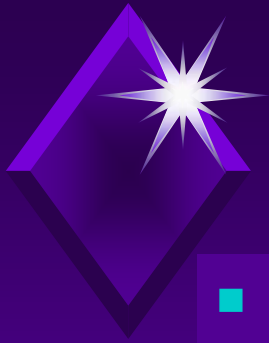
Expertise and Capability

- **Design and Development of State-of-the-Art Satcom Equipment & Networks for Mobile and Portable Satcom Applications**
- **Design and Development of Software for TTC&M, Network Management and IT Applications**
- **System Design, Engineering, and Turnkey Provision of Satcom Networks for Voice, Data, Video, and IP-Based Applications**
- **Design and Turnkey Provision of Computer Networks for Information System Applications**
- **Technology Transfer, Engineering Service, Technical Support**



Major Product Lines

- **UltraSAT[®] CDMA DAMA USAT System**
- **UltraSAT[®] SCPC DAMA VSAT System**
- **UltraSAT[®] TDMA DAMA VSAT System**
- **TerraVoice[®] DCME Voice Trunk System**
- **SCADAStar[™] Remote Data M&C SCADA System**
- **UltraIP[™] TCP Transport IP Gateway Platform**
- **Outdoor Transceivers: Ku-band, X-band and C-band**
- **SM Series Satellite Modems: 70/140 MHz & L-band**
- **MEPG-2 DVB SNG, Fly-Away, and Suitcase SNG**
- **Uplink Stations for DTH DBS & Broadcasting Applications**
- **Turnkey Networks for Voice, Data, Video & IP Applications**
- **Portable Satcom Terminals: Ku-, C-, X-, & Ka-band**
- **Mobile Satcom Terminals: shipboard, airborne, train, and vehicles in S-, C-, X-, Ku-, & Ka-band**
- **Satellite TTC&M Facility**
- **Information System & Computer Networks**

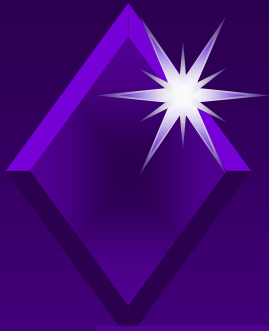


UltraSAT[®] CDMA DAMA System

Major Features & applications

- **Field Proven Bandwidth-On-Demand CDMA DAMA System**
- **0.25~0.75m Ultra-Small Antennas for 2-Way Voice, Data, Video, VoIP & Other IP-Based Applications**
 - * **Airborne Satcom Terminals**
 - * **Shipboard Satcom Terminals**
 - * **Portable Satcom Terminals**
 - * **Transportable & Fixed Satcom Terminals**
- **Intelligent Network Management System**
- **8kbps G.729 Toll-Quality Voice; Low Rate opt**
- **9.6~384 kbps Data; Option Up To 5 Mbps**
- **Full-Mesh Network Architecture**
- **Ku-, C-, X- & Ka-band; Rapid Deployment**
- **Bandwidth Sharing, No Hard Limit System**
- **Flexible Operations & Network Expansion**
- **Homeland Security, National Defense, Law Enforcement, Relief Operations, Special Events, Portable SNG, other Airborne, Shipboard, and Portable Satcom Applications**



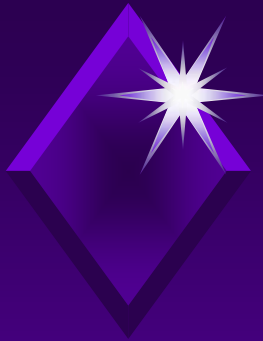


UltraSAT® SCPC DAMA System

Major Features & applications

- **Field Proven Bandwidth-On-Demand SCPC DAMA VSAT System**
- **Full-Mesh Network: Single-Hop Direct-Link for All Connections**
- **QPSK Modulation: 70 MHz IF or L-Band IF**
- **FEC: Rates 1/2 and 3/4 FEC or Turbo Coding**
- **Toll-Quality Voice: 8 kbps G.729 and 16 kbps G.728**
- **Built-In Digital Echo Canceller: G.168/G165**
- **Group III Fax & Voice Band Data; opt to 14.4 kbps**
- **DAMA Data - Up to 38.4 kbps; Option to 2Mbps**
- **Sync Data - 9.6 kbps to 2.048 Mbps**
- **Support Multiple Transponders Operation**
- **External Encryption Device Interface**
- **Available in Ku-Band, C-Band, X-band & Ka-Band**
- **Rural Network, Thin-Route, Private & Public Networks**





UltraSAT® TDMA DAMA VSAT System

Major Features & applications

- **Field Proven Bandwidth-On-Demand TDMA DAMA VSAT System**
- **Telephony and Internet VSAT Suitable for Rural Network, Thin-Route, Private & Public Network Applications**
- **Slotted Aloha TDMA Inbound/TDM Outbound**
- **Star Network or Distributed Star Network**
- **Stackable Remote IDU**
- **Each IDU Supports 1 Data + 4 or 8 Voice Circuits**
- **E1/T1 at Hub Station for Connection with PSTN**
- **Platform Independent SNMP Supported NMS in Redundant or Non-Redundant Configuration**
- **Industry's Smallest Remote IDU & Hub Baseband**
- **Flexible Configuration, Operations & Expansion**

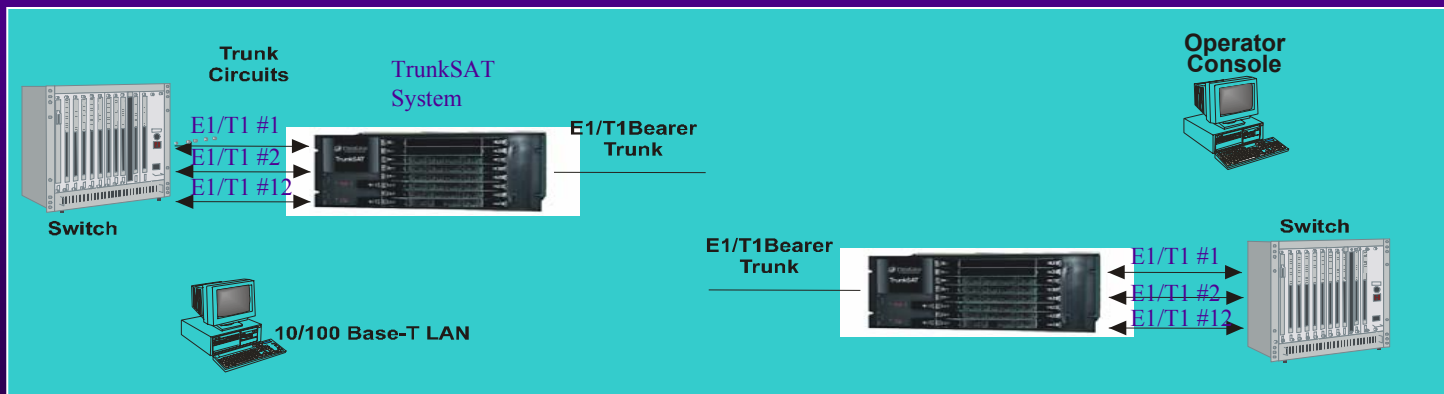




TerraVoice[®] DCME Trunk System

Major Features & applications

- **Cost Effective, High Density, Long-Haul Solution Widely Used in Voice Resale and Cellular Trunking Applications**
- **High Efficiency Voice Trunk Service**
 - * 12:1 Voice Compression; Optional 15:1 or 20:1 Compression
 - * Toll-Quality 8 kbps G.729 Voice; >99% Data and Fax Relay Capability
- **Bypass for IP Access, Fax and Voice Band Data Applications**
- **Field Proven Technology-Carrying 2 Billions Call-Minutes per Week**
- **Standards-Based Design - Compact PCI, H.110, G.729**
- **Compact, Easy to Install and Maintain**
 - * Up to 360 Voice Channels in One 4U Chassis
 - * Minimize Time to Revenue and Profit





SCADAStar™ SCADA System ***Major Features & applications***

- **Field-Proven TDM/TDMA Star-Based Low Cost Product for Light-Traffic Data Network Services**
- **All-in-One Outdoor SCADA Remote Terminal**
- **Rugged, Easy to Install, Low Maintenance Cost**
- **Scalable up to 10,000 VSAT Sites**
- **Support Specialized SCADA Protocols**
- **9.6 to 64 kbps Asynchronous Data**
- **Optional TCP/IP & DAMA Voice**
- **Available in Ku-, C-, Extended C-band**
- **Wide-Range Operating Temperature**
- **Low Power Consumption (Ku: 15W, C: 30W)**
- **Economical Telemetry, Monitor and Control System suitable for extracting information and for monitor and control systems at remote and/or isolated locations such as oil pipelines, water, utility, seismic, gas, and railway, etc.**



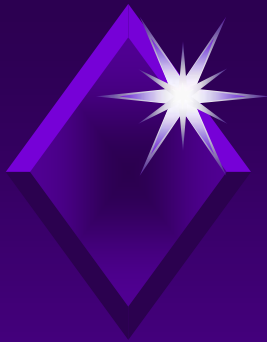


UltraIP™ TCP Transport IP Gateway Major Features & applications

- **Field Proven Complete IP gateway for satellite wide-area network (WAN), ISP, VPN, and Other IP-based Applications**
- **IP routing static and (future) dynamic & multicast**
- **Gateway capable of 1~6 Tx carriers & 1~10 Rx carriers per chassis**
- **64 kbps to 2 Mbps in binary or 8kbps steps**
- **DVB Up to 45 Mbps Planned in 2003**
- **Highly scalable and flexible modular architecture**
- **IPmax feature provides TCP-optimized satellite transport, up to 95% mitigation of satellite round-trip delay effect on TCP**
- **Bandwidth Aggregation balances traffic load between multiple satellite channels and aggregates multiple channels into a single virtual channel**
- **Simple Network Management Protocol (SNMP) agent for interoperability with existing network management systems**



Router
TCP/acceleration
- IPMax
Sat Modem
RF Upconversion.



Transceivers and Satellite Modems

Ku-, X, C -Band RF :: 70/140 MHz or L-Band IF

Worldwide Customer Acceptance

- ◆ AT&T
- ◆ Belcom
- ◆ Loral-Cyberstar
- ◆ U.S. Navy
- ◆ Plenexis
- ◆ Global One
- ◆ ND Satcom
- ◆ Mercury
- ◆ Telespazio
- ◆ Alcatel
- ◆ Korea Telecom
- ◆ Belgacom
- ◆ Hungarian Telecom
- ◆ Singapore Telecom
- ◆ OPTUS
- ◆ India Space Agency
- ◆ Chinese National Petroleum Co.
- ◆ BSNL
- ◆ Verestar A.G.
- ◆ DBP Telekom
- ◆ British Telecom
- ◆ Televerkers
- ◆ Matra Marconi
- ◆ Swiss PTT
- ◆ Telekom S.A.
- ◆ INVSAT
- ◆ INTV s.r.o
- ◆ ETISATAL
- ◆ Comm. Auth. Thailand
- ◆ A Long List of Many Others





CSTAR Transceivers

- **C-Band & Extended C-Band**
- **2 to 600W**
- **70 or 140 MHz IF Interface**
- **RF Output Monitor Port**
- **RS-485 & RS-232 Remote M&C**
- **Weather-Proof Outdoor Package**
- **-40 degrees to +60 °C Operating Range**
- **High Stability Over Temperature**
- **Reliable High Quality Product**
- **Hand Held Controller - Quick Configuration**
- **90~260V 47~63 Hz Universal A.C. Power**
- **CE/VDE Certified; BZT Certified at Ku Band**





TS Series Transceivers

L-Band IF & 70/140 MHz IF

- **Ku-Band: 1 to 400W**
- **C-Band: 2 to 600W; opt. Extended C-Band**
- **L-Band IF: 950~1450/1525 MHz**
- **70 or 140 MHz IF**
- **RF Output Monitor**
- **RS-485 Remote M&C**
- **Weather-Proof Outdoor Package**
- **-40 degrees to +60 °C Operating Temperature**
- **High Stability Over Temperature**
- **Reliable High Quality Product**
- **90~260V 47~63 Hz Universal A.C. Power**
- **CE Certified**





SM Series Satellite Modems

Wide Customer Acceptance

■ **SM4500 & SM4500L**

1.2kbps to 4.9Mbps with Built-in BERT, L-Band IF or 70/140 MHz IF, opt. Turbo Product Code, and IBS multiplexer with Reed-Solomon Codec

■ **SM4000**

Open Networks 9.6kbps to 10Mbps; BPSK, QPSK, 8-PSK

■ **SM3000 & SM2000**

9.6kbps to 10Mbps
BPSK, QPSK, 8-PSK



- **Low Profile 1U Chassis**
- **+5dBm High Output**
- **Low Power Consumption**
- **90~260V Universal A.C.**
- **70 and 140MHz IF**
- **L-Band IF (SM4500L)**
- **Fully Programmable**
- **Reconfigurable at Fields**



Applications Highlight

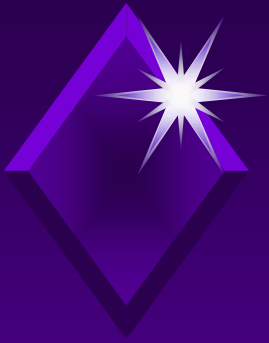
- **Rural Network, Thin-Route, Corporate, Private Networks and Other VSAT and USAT Network Applications**
- **Fixed, Mobile, and Portable Satcom Networks for Voice, Data, Video, Audio Applications as well as for VPN, VoIP, and Other TCP/IP-Based Network Applications**
- **SNG and Fly-Away Satellite Services**
- **Direct-To-Home (DTH) DBS TV Service**
- **MPEG-2 DVB TV Program Uplink Service**
- **CD Quality Audio Program Uplink Service**
- **Video Conferencing**
- **Tele-Seminar**
- **Distance Learning**
- **Tele-Medicine and Tele-Diagnostics**
- **Telemetry, Monitor and Control Remote/Isolated Systems**



Turnkey Satcom Networks and Uplink Stations

- Various Sizes Antennas up to 12 Meters for Voice, Broadband Data, Video, and Audio Applications
- DTH DBS, DAB, and Cable Networks Services
- Available in C-, X-, Ku-, S-Band and Ka-Band
- Using CDMA, TDMA, SCPC & MCPC Technologies in DAMA and/or PAMA Operations for Trunking, Thin-Route and Other VSAT/USAT Network Applications





Satellite News Gathering (SNG)

Fly-Away SNG & Portable SNG

- MPEG-2 DVB for Compressed Digital Video with CD Quality Audio and Voice/Data Orderwire/Cue Channels
- Available in Vehicle SNG, Fly-Away SNG and Portable SNG for Quick Deployment Live Coverage of News, Emergency and Special Events
- Available in Ku-, C-, X- and Tri-Band; Opt. Ka-Band
- DoD Certified X and Tri-Band Fly-Away Terminals





Information Technology

- **Satellite Tracking, Telemetry, Control and Monitor (TTC&M) Facility**
- **Network Management System (NMS)**
- **Remote Sensing**
- **TCP/IP and Other Internet Applications**
- **Other Software Applications**





Customers Partial List

(Turnkey Systems Excluding VSAT Projects)

- **Allied Signal Technical Service, USA**
- **American Mobile Satellite, USA**
- **Contel, USA**
- **Cosmos International Satellite Communications,
(Cosmos), Taiwan**
- **CTA International, USA**
- **Cycloria, Inc., Taiwan**
- **Chinese Television Service (CTS), Taiwan**
- **Dacom, Korea**
- **EagleStar Company, Inc., Philippines**
- **Ericsson Componedex, UK**
- **Federal Communications Committee (FCC), USA**
- **Formosa Television Co., (FTV), Taiwan**



Customers Partial List (cont'd)

(Turnkey Systems Excluding VSAT Projects)

- **Greek PTT**
- **International Telecommunications Union (ITU), Switzerland**
- **Long Distance Telecom Administration (LDTA), Taiwan**
- **National Space Program Office (NSPO), Taiwan**
- **Orbital Science Corporation (OSC), USA**
- **Procurement Bureau, MND**
- **Pt. MediaCitra Indostar (MCI), Indonesia**
- **Public Television Service (PTS), Taiwan**
- **Shin-Shin Corporation, Taiwan**
- **StarTrade Communication Technology, Ltd., Taiwan**
- **SuperSat Telecommunications, Inc. (SuperSat), Taiwan**
- **Taiwan Television Enterprise (TTV), Taiwan**
- **Telecommunications Laboratory (TL), Taiwan**



VSAT & USAT Major Projects

<u>Year</u>	<u>Location</u>	<u>Type and Number of VSAT System Installation</u>
2003	Africa	UltraSAT® T1000: SCPC DAMA Network expansion for military voice and data network applications
2003	Asia	UltraSAT® T1000: SCPC DAMA Network expansion for military voice and data network
2002	Asia	UltraSAT® T2000 TDMA DAMA: 1 Hub, 12 Gateway Stations, 750 VSAT Remotes for telephony and IP-based applications for a petroleum company
2002	Asia	UltraSAT® CDMA System: 24 CDMA DAMA terminals for voice and data portable satcom applications
2002	Asia	UltraSAT® CDMA System: 30 CDMA DAMA Mobile Terminal ADE for voice and data applications
2001	Asia	UltraSAT® CDMA System: 124 CDMA DAMA Mobile Terminal ADE for voice and data applications
2001	Asia	UltraSAT® CDMA DAMA System to provide voice & data services for mobile, portable, transportable and fixed satcom applications
2000	Africa	UltraSAT® T1000: SCPC DAMA Network for military voice and data network applications data & voice encrypted network



VSAT & USAT Major Projects (Cont'd)

<u>Year</u>	<u>Location</u>	<u>Type and Number of VSAT System Installed</u>
2000	Asia	UltraSAT® T1000: 23 SCPC DAMA stations for a shipping company voice and data network
2000	Asia	UltraSAT® T1000: SCPC DAMA Network for military
1999	Canada	SCADASTar™ SCADA: 35 Remotes for pipeline monitoring
1999	C. America	UltraSAT® T1000: 9 stations SCPC DAMA data network
1999	Asia	UltraSAT® T1000: SCPC DAMA network operating together with SCADASTar™ to include 1 hub, 9 mini-hub (gateway), and 340 VSAT for water level monitoring
1998	Brazil	UltraSAT® T1000: 1 hub and 36 remote sites SCPC DAMA for voice, data, and video conferencing
1998	S. America	UltraSAT® T1000: 8-site SCPC DAMA telephony network
1998	S. Africa	UltraSAT® T1000: 7-site SCPC DAMA on ocean mining ships for voice and data applications
1998	Mid-East	UltraSAT® T1000: 17-site SCPC DAMA gateway for telephony and fax applications
1998	Asia	UltraSAT® T1000: 24-site SCPC DAMA gateway for air traffic control voice and data applications



VSAT & USAT Major Projects (Cont'd)

<u>Year</u>	<u>Location</u>	<u>Type and Number of VSAT System Installed</u>
1998	Europe	SCADASTar™ SCADA: 3 hubs and 100 remotes for seismic monitoring application
1998	Canada	SCADASTar™ SCADA: 100 sites for pipeline monitoring in Canada for Shared Hub Service
1997	Asia	UltraSAT® T1000: 1 hub and 30 remotes SCPC DAMA for voice/fax and data applications
1997	Asia	SCADASTar™ SCADA: 10-site banking and Internet network
1997	S. America	UltraSAT® T1000: 16-site SCPC DAMA for rural telephony application
1997	Canada	SCADASTar™ SCADA: 2 hubs and 800 remotes for pipeline monitoring
1996	Africa	UltraSAT® T1000: 5-site SCPC DAMA for military satcom
1996	Mid-East	SCADASTar™ SCADA: 6 hubs with 600 remote sites for internet access
1996	Asia	UltraSAT® T1000: 1 hub and 8 remotes SCPC DAMA voice and data network for a shipping company
1996	India	UltraSAT® T1000: 1 hub and 15 remotes SCPC DAMA for military communications

Notes:

The UltraSAT® T1000 and UltraSAT® T2000 projects include those delivered under the brand name of Terrasat delivered by Comsat or ParaGea Communications prior to TSI acquisition of such product lines in 2002.



Direct-To-Home DBS Systems Turnkey Projects Partial List

- **Indostar Direct-To-Home DBS System**
 - * **Turnkey Design, Installation, Delivery and Commission of DTH Master Control Station**
 - * **50 Channels Program Uplink Facility**
 - * **MPEG-2 DVB Program Exchange Facility**
 - * **50 Channels Program Gateway Facility**

- **EagleStar Direct-To-Home DBS System**
 - * **40 Channels Program Uplink Facility**
 - * **MPEG-2 DVB Compliant DTH DBS System**
 - * **Broadcast Operations Center**
 - * **Program Gateway Facility**



TTC&M Facilities Turnkey Projects Partial List

- **Indostar DBS Satellite
Tracking, Telemetry &
Control Station**
- **Rocsat-1 LEO Satellite
Ground Segment Flight
Dynamic Facility**



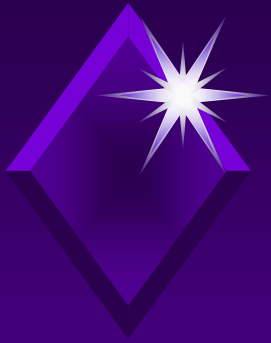
TV Programs Uplink System Turnkey Projects Partial List

- **Cycloria/Cosmos TV Program Uplink**
 - * 16 Channels MPEG-1 & MPEG-2 TV Programs
 - * 150+ Cable Head-Ends with 1000+ PIRDs
- **SuperSat TV Program Uplink Facility**
 - * 16 Channels MPEG-1 & MPEG-2 TV Programs
 - * 150+ Cable Head-Ends with 1000+ PIRDs
- **StarTrade TV Program Uplink Station**
 - * 8 Channels MPEG-1 TV Programs



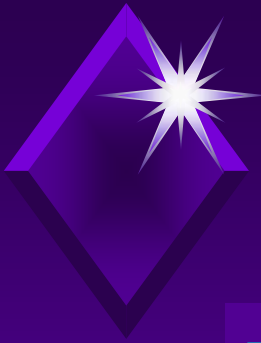
SNG and TV Program Relay Turnkey Projects Partial List

- **TTV Satellite TV Network**
 - * 3 Satellite News Gathering (SNG)
 - * 1 Base Station, 5 Receive Stations
 - * Network Operations Center
 - * DigiCipher-1 SCPC TV Service
- **CTS Satellite TV Network**
 - * 1 SNG, 1 Base Station
 - * Network Operations Center
 - * MPEG-2 DVB SCPC TV Service
- **FTV Satellite TV Network**
 - * 2 SNG, 1 Base Station, 116 R/O Stations
 - * Network Operations Center
 - * MPEG-2 DVB MCPC & SCPC TV Network
- **PTS Satellite TV Network I&T& Commission**
 - * 2 SNG, 1 Base Station, 10 Receive Stations
 - * Network Operations Center
 - * Analog and Compressed Digital TV



Voice and Data Trunk Network Turnkey Projects Partial List

- **4-Node CSIST TDMA Voice and Data Satcom Network**
- **6-Node CSIST MCPC Voice and Data Satcom Network**
- **6-Node CSIST Mobile Satellite Voice and Data Network**
- **TL Satcom Applications Voice, Data, and Audio System**



Consulting Contracts Partial List

- **LDTA Domsat Network Design, Procurement, and Implementation**
- **DGT Domsat System Design and Development**
- **TTV TV & SNG Network Design, Procurement, and Implementation**
- **PTS TV & SNG Network Design, Procurement, and Implementation**
- **Dacom Satellite System Design**
- **Greek Satellite Network Development Program**
- **Contel ASC Satellite Network Program**
- **Amsat Satellite Network Testing Program**

The End

Thank You

TeleSystems International Corp.

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www.TSI-USA.com :: www.TSITek.com**

