SIMULSAT
TRANSPORT SYSTEM EXPLAINED
RF DRAWING

“ONE SYSTEM COMPLETE SOLUTION”
The **Simulsat RF Transport Solution** is a complete integrated RF ingest and distribution system. It combines the reception of multiple satellite feeds using our Simulsat antenna and their delivery into the headend building using our complete fiber TX/RX solution. Static and dynamic distribution of the satellite feeds are provided using our splitters and router. All components of this system are monitored and controlled with our VistaLINK® software and integrated spectrum analyzer.

- **Simulsat Multibeam Antenna** will view 35 satellites simultaneously (C and Ku-Band)
- **Simulsat Multibeam Antenna** for satellite backup/redundancy (C and Ku-Band)
- **L-Band Fiberoptic Links** for signal transport into the headend
- **Splitters** static signal distribution to the IRD’s
- **L-Band Router** dynamic signal routing to the IRD’s
- **Rack Mount Spectrum Analyzer** for spectrum monitoring and evaluation of RF signal
- **VistaLINK M&C Software** provides total monitoring capabilities of each individual signal path. It monitors and reports the current health of all RF components in the signal chain as well as controlling them.
THE SIMULSAT FAMILY

SIMULSAT 5B
• Receives, with uniform performance, signals from all satellites within a 70° view arc.
• C and Ku-Band Capability
• Performs equivalent to 4.5m TVRO C-Band Prime Focus Parabolic Antennas
• Performs equivalent to 2.4m TVRO Ku-Band Prime Focus Parabolic Antennas
• Requires Less Space - Takes up the same space as 3 parking spaces

SIMULSAT 7A
• ATCi’s Latest Advanced Model
• ATCi’s Largest Simulsat Model - geared toward large cable systems, teleports and broadcasters.
• More Arc Coverage - Receives, with uniform performance, signals from all satellites within a 70° - 75° view arc.
• C and Ku-Band Capability
• Performs equivalent to 6m TVRO C-Band Parabolic Prime Focus Antennas
• Performs equivalent to 2.4m TVRO Ku-Band Parabolic Prime Focus Antennas
**What is SIMULSAT?**

**Simulsat** is the world’s only true full-arc multiple satellite antenna that is capable of receiving satellite transmissions from 35 or more satellites simultaneously, without adjustment or degradation in performance from one satellite to the next. **Simulsat** is 2° compliant with the ability to capture signals from all C & Ku Band satellites within a 70° view arc.

Over the last 30 years, ATCi has been the world leader in multibeam technology, and the ATCi proprietary **Simulsat** has provided programming to more than 30 million cable subscribers in the U.S. and abroad.

Because satellite programming is constantly changing, satellite broadcast users need to constantly adapt to new and different channels and satellites. **Simulsat** antennas have long provided the ultimate multibeam antenna solution to these needs. The **Simulsat** improves users’ ability to take advantage of immediate and future revenue opportunities without the need for an antenna farm and without the trouble of additional permits or foundations that multiple antennas require.

Many systems have retrofitted parabolic dishes with dual or triple feeds in order to view more than one satellite. Multi-feed parabolics can view satellites across a 10° arc. However, since parabolics have but one true focal point, the adjacent satellites are offset, resulting in a degradation in reception quality on the fringe satellites. The **Simulsat** receives all satellites across a 70° arc with uniform performance.

The **Simulsat** curbs real estate costs because it is the size of about 3 parabolic dishes of equivalent performance. For those who are faced by high land costs and limited space, **Simulsat** is the solution.

Available in 2 different size and performance variations, the **Simulsat** is the ultimate solution for Broadcasters, Cable Television, Universities/Distance Learning, Television and Radio, Military/ Government and Business Corporations with multiple satellite reception requirements worldwide.

**How SIMULSAT Views 35 Satellites Simultaneously**

**70° View Arc**
The unique design of the Simulsat captures signals across a 70° view arc. All satellites are received with uniform performance.

**Up to 35 Focal Points**
Each satellite illuminates a specific area on the Simulsat. The signals reflect to their corresponding C or Ku-Band feed and then are relayed to your receiver.

**Uniform Signal Reception**
The Simulsat design recreates the signal capabilities of 35 C/Ku Parabolic antennas with consistent signal quality across the entire arc.
Summary

The 402LZ is a outdoor/indoor mounted fiber optic transmitter for RF signals in the satellite L-Band or wider frequency range. It accepts a single RF input on coaxial cable and provides a single output for optical transmission. Up to four 402LZ’s may be installed in the ATCi Link4i chassis. Fiber links offer superior performance to coax by preserving signal C/N and slope over distance, while also providing electrical isolation between antenna and facility, mitigating ground loop and lightning issues.

The 402LZ is modular and hot-swappable, allowing for easy system expansion and service. A full power RF monitor output offers a convenient means of obtaining peak satellite signal strength, or additional signal distribution. The 402LZ allows gain to be adjusted manually or managed automatically via AGC. The 402LZ also offers SmartMON™ which relays monitoring parameters including incoming RF signal strength, LNB current, temperature and other data over the fiber output for monitoring through SNMP/VistaLINK® (requires SmartMON™ capable companion fiber receiver). The 402LZ also provides LNB power and comprehensive LED indicators for status information on input DC power, RF drive level and LNB power status.

Features & Benefits:

- Wide frequency range for extended L-Band, over the air DTV and other signals
- Protocol independent design - transports all modulation formats
- DC pass through and 13V DC modes for LNB power
- Active LNB current limit & short circuit protection (no fuses needed)
- Minimizes coaxial cable length for superior C/N performance
- 22kHz tone on/off for LNB local oscillator control
- RF monitor output for signal peaking and signal distribution
- Tri-color LED status indicators for Link RF drive strength, LNB voltage and DC input voltage level
- Designed for extended temperature range operation
- SmartMON™ capability: Provides remote status monitoring via SNMP without a separate data connection
- LNB current monitoring to provide advance warning of LNB failure
- Manually adjustable or AGC gain modes
- Available with 16 CWDM wavelengths for fiber-limited applications
- Wide band
- Indoor / Outdoor
- SmartMON™
The 7708/7807LR Series are modular L-Band fiber receiver cards that complete the link to the 402LZ fiber transmitters. These cards mount in the 7800FR series of modular frames, providing a highly flexible and completely hot swappable (without de-cabling coax or fiber) solution. The 7708LRA is a single channel card, while the 7807LR-2 is a dual-channel card which provides a high-density solution of up to 30 fiber receiver channels in a single 3RU frame.

The 7708/7807LR Series provide extensive monitoring and control capabilities both locally at the card edge and remotely through SNMP/VistaLINK®. SmartMON™ capability allows in-band monitoring data sent by a companion 402LZ to also be monitored locally or remotely through VistaLINK®.

Features & Benefits:

- Built-in gain for optimal signal level tuning.
- Gain may be adjusted manually in 0.5dB steps, or through AGC or IGC modes. AGC automatically maintains a fixed target level, while IGC provides simple automatic compensation for fiber loss by making the output level track the input level at the SmartMON™-enabled fiber transmitter.
- Dual, isolated, full-power outputs may be used for extra signal distribution or monitoring functions
- RF output level is independent of optical loss (within available gain range)
- Protocol-independent – passes all modulation formats including 32APSK and other emerging technologies
- Industry’s best specs for frequency response, return loss and C/N, preserving signal quality across the fiber link
- Wide frequency range for extended L-Band, over the air DTV and other signals
SPLITTERS
ACTIVE L-BAND SPLITTERS
4-WAY / 8-WAY / 16-WAY / 32-WAY

The 7702DA / 7703DA Active Splitters provide amplification and distribution of RF signals from 40MHz to 3GHz. They handle any RF input modulation format and provide 4, 8 or 16 isolated outputs for signal distribution. Typical applications include amplification and distribution of 950MHz - 2150MHz L-Band and 70MHz-140MHz IF signals. The 7702DA Series splitters are simple, unity-gain products while the 7703DA Series provides adjustable gain and extensive monitoring and control capabilities both locally at the card-edge and remotely through SNMP/VistaLINK®.

The 7702/7703DA Series mount in the 7800FR series of modular frames, providing a high density, highly flexible and completely hot swappable (without de-cabling) solution. Up to fifteen 4-way splitters and up to seven 8-way or 16-way splitters may be installed in a single 3RU frame.

Common Features & Benefits:
• Wideband frequency response for use with L-Band, 70/140MHz IF and off-air DTV signals
• Protocol-independent – passes all modulation formats including 32APSK and other emerging technologies
• Industry’s best specs for frequency response, return loss and C/N, preserving signal quality throughout the distribution system
• High port-to-port isolation to minimize cross-loading effects
• Fully hot-swappable from the front of the frame

The 7703DA Series adds:
• Output gain of –10dB to +20dB manually adjustable in 0.5dB steps
• AGC mode with adjustable target level
• Input RF signal strength and LNB current monitoring indication
• Optional LNB power (@ +13V or +18V DC with built-in current limiting) and 22kHz tone for LO control
• LNB power option includes LNB current monitoring with adjustable alarm thresholds for monitoring LNB health
• Remote monitoring through SNMP and VistaLINK® capability
Router / Matrix Switch

Key Features

- Redundancy
- Reliability
- LNB Power and 10 MHz
- Fiber Input
- Expandability
- Performance
- Control
- Signal Monitoring
- RF Gain
- Modular

Summary

Evertz offers the most advanced and comprehensive RF signal matrices which are built upon reliable, modular and hot swappable architecture ensuring signal continuity for 24x7 mission critical application. With 1,000’s of both small and large scale installs, this platform is the industries first and clear choice when it comes to RF switching applications. Major Teleports, Earth Stations, Broadcasters and Headends across the globe have adopted Evertz RF platform for matrices requirements.

Starting from a small 4x4 modular 7800 chassis based configuration, the 7800R-4x4RF platform is available in various square and non square configurations with software expansion to maximum of 8x16. The XRF1A features 8x8 and 16x16 in 1RU chassis and max of 32x32 in multi-chassis. The XRF6 is a modular RF router with intra-frame expansion of 64x64 and beyond with multiple chassis.

The latest and largest in the series is the XPRF platform with up to a 128x128 configuration in a mere 14RU chassis. In addition to its unique features like Input, Output and Mid-Point redundancy, this platform also features an integrated 19” touch screen and spectrum analyzer.

All Evertz RF routers feature optional LNB power supply and Fiber input using 2307LR miniature receiver.

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4x4 to 128x128 RF Router  Expandable to 2048x2048

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Key Features

- Modular design, allowing flexible configurations along with easy system reconfiguration and service
- Up to two units may be mounted in the 7801FR and used with the 7801CP, providing a dual-IRD solution in 1RU
- Future-proof with upgrade paths to support future modulation and encoding technologies
- Standard support for advanced modulation schemes, including DVB-S2 with 16APSK and 32APSK
- Flexible decoding of SD, and HD as standard
- Available DVB-CI slot for conditional access modules
- Available BISS and BISS-E decryption
- Flexible mid-stage access to compressed domain signals, including ASI and optional IP output along with ASI and optional IP inputs
- Straight pass through or PID filtering/remapping of compressed stream outputs
- Standard Dolby pass through and decode of Dolby AC-3 and MPEG2 Layer 1 audio

Summary

The 7881IRD is the basis of a professional platform for receiving, demodulating and decoding digital DVB-S/S2 satellite signals. With a compact, modular form-factor the 7881IRD represents one of the highest density and most flexible solutions in the industry. An innovative removable front control panel and 1RU chassis allow the IRD to be packaged in the traditional IRD form-factor, while maintaining all of the benefits of modularity.

Applications include signal reception for broadcasters, cable, DTH and IPTV providers, or any other small to large head-end operators who need to receive and utilize or re-distribute satellite content. The 7881IRD series provides ASI and IP outputs, ideal for turnaround, transcoding, monitoring or other applications where the received signal remains in the compressed domain. For baseband output, the 7881IRD utilizes an advanced decoder with support for both MPEG2 and H.264/AVC, SD or HD encoded signals, optionally up to 4:2:2 10-bit.
VistaLINK® PRO

VistaLINK® PRO is an advanced end-to-end network management system (NMS) for the broadcast, cable, satellite, and IPTV industry. VistaLINK® PRO provides a single interface to manage the entire operational ecosystem to allow for reduction in operational expenditures (OPEX) and increase in quality of service.

VistaLINK® PRO enables operators to monitor and manage complex systems more effectively than before. VistaLINK® PRO offers a wide range of functionality including web access, fault management, configuration management, alarm/event notification, report and log management, intelligent correlation and root cause analysis, user-defined graphic views/dashboards, scheduling and automation, auto-response, and much more.

Spectrum Analyzer

- Covers full satellite L-band plus cable and wireless bands from 5 MHz to 3 GHz
- Built-in Carrier Monitoring function
- External 10 MHz reference or internal reference
- Web browser or API control
- SNMP status interface
- Available as 7800 module as well as integrated +SA optional on the XPRF router