

# Evolution 8000 Series Satellite Router

## Highly Secure, Reliable, and Fast IP Broadband Connectivity

Developed to meet the most rigorous mobility and security requirements, the Evolution 8000 Series Satellite Router provides fast, secure and reliable military grade connections.

With the integration of spread spectrum technology and DVB-S2/ACM, along with advanced FIPS-certified TRANSEC security and advanced QoS functionality, the Evolution 8000 Series provides an optimal efficiency balance of high-speed and security.

## Greater Flexibility

The Evolution 8000 Series offers the choice between iNFINITI TDM or DVB-S2/ACM on the outbound, providing more flexibility for network design and bandwidth optimization. Combined with the highly efficient Adaptive TDMA or SCPC Return technology and 2D 16-State coding on the inbound, the Evolution 8000 Series delivers speeds up to 11.8 Mbps in TDMA on the inbound and up to 20 Mbps in SCPC Return.

Available in various models, the Evolution 8000 Series allows for maximum customization and easy integration into existing equipment.

## Greater Mobility

Leading spread spectrum technology enables use of ultra small and phased-array antennas on aircrafts, ships, and land based vehicles. The Evolution 8000 Series is fully enabled for iDirect's Global Network Management System (GNMS) and automatic beam switching technology allowing for a seamless network with truly global coverage.

## High Security

Compliant with the highest military security requirements, the Evolution 8000 Series features embedded AES encryption and TRANSEC with advanced FIPS 140-2 Level 2 compliance, X.509 digital certificate encryption, and automatic over the air key exchange.

## Superior Quality of Service

Flexible Quality of Service and prioritization capabilities enable network operators to not only prioritize traffic and applications over their networks; with iDirect's state-of-the-art Group QoS they can segregate bandwidth by groups of remotes, multiple sub-networks, and multiple mission-critical applications.

## Simple, Intuitive Network Management

The Evolution 8000 Series is easily configured, monitored, and controlled through the iVantage™ network management system, a complete suite of software-based tools for configuring, monitoring and controlling networks from one location.



## Features

- ◆ Multiple topologies: Star, Mesh, iSCPC
- ◆ Two modes of operation: iNFINITI TDM or DVB-S2/ACM outbound
- ◆ Adaptive TDMA or SCPC Return channel
- ◆ Extremely efficient 2D 16-State inbound coding
- ◆ Spread spectrum waveform technology supports very small antennas/mobility
- ◆ Unique TRANSEC and FIPS 140-2 L2 security with AES 256-bit encryption
- ◆ Advanced QoS and traffic prioritization options
- ◆ Extended L-Band (950-2000 MHz) for WGS support
- ◆ Built-in 8-port Ethernet switch

**Evolution 8000 Series  
Satellite Router  
Models e8350, e8350-48,  
e8350-FIPSL2, e8350-FIPSL2-48**



e8350 shown

**Configuration**

<b>Network Topology</b>	Star, Mesh and iSCPC	
<b>Modulation</b>	Downstream DVB-S2/ACM or (iNFINITI TDM)	Upstream ATDMA or (SCPC Return*)
<b>FEC</b>	QPSK, 8PSK, 16APSK (BPSK, QPSK, 8PSK)	BPSK, QPSK, 8PSK (BPSK, QPSK, 8PSK)
<b>Maximum Rates</b>	LDPC, 1/4-8/9 (TPC, 0.495–0.879)	TPC**, 0.431–0.793; 2D 16-State 1/2-6/7 (2D 16-State 1/2-6/7)
<b>Symbol</b>	45 Msps (15 Msps)	7.5 Msps (15 Msps)
<b>Info</b>	150 Mbps <sup>1</sup> (21 Mbps <sup>2</sup> )	19.2 Mbps <sup>4</sup> (38.5 Mbps <sup>5</sup> )
<b>Line Card IP Data</b>	149 Mbps <sup>1</sup> (20 Mbps <sup>2</sup> )	16 Mbps <sup>4</sup> (19.3 Mbps <sup>5</sup> )
<b>Remote IP Data</b>	38.5 Mbps <sup>1</sup> (17 Mbps <sup>3</sup> )	11.8 Mbps <sup>4</sup> (19.8 Mbps <sup>5</sup> )
<b>Notes:</b>	<sup>1</sup> 16APSK 8/9 FEC; <sup>2</sup> QPSK, .897 FEC; <sup>3</sup> QPSK, .793 FEC; <sup>4</sup> 8PSK 438 6/7 FEC; <sup>5</sup> 8PSK 438 6/7 FEC Maximum downstream and upstream data rates cannot be achieved simultaneously Maximum rates are achieved under optimal conditions	
<b>Spread Spectrum</b>	Spreading Factor (2, 4 and 8) Max Chip Rate (15 Mcps)	1, 2, 4, 8, and 16 (SCPC R: 2, 4 and 8) 7.5 Mcps (SCPC Return: 15 Mcps)

**Interfaces**

<b>SatCom Interfaces</b>	TX Out: Type-F, 950–2000 MHz, +5dBm/-35dBm RX In: Type-F, 950–2000 MHz, -5dBm (max) composite/ -130+10*log(Fsym)dBm (min) single carrier RX Out: Type-F, 950–2000 MHz Software controllable 10 MHz reference on TX Out
<b>BUC IFL Interface</b>	+24V (Optional +48V supports up to 16W Ku-band or 20W C-band)
<b>LNB IFL Interface</b>	+19V (Nominal), 500mA max; DiSEqC (Voltage 14V/19V + 22 KHz tone)
<b>Data Interfaces</b>	LAN: Model e8350: Single 10/100 and 8-Port 10/100 Switch, 802.1q VLAN; Console: Console connection; RS-232: GPS input or Antenna Control Signaling; 10 MHz: External reference clock ( <i>future release</i> )
<b>Protocols Supported</b>	TCP, UDP, ICMP, IGMP, RIPv2, Static Routes, NAT, DHCP, DHCP Helper, Local DNS Caching, OpenAMIP, cRTP and GRE
<b>Security</b>	AES Link Encryption (256-bit), TRANSEC (iNFINITI and S2 modes), FIPS 140-2 Level 2 Compliant (optional), x.509 digital certificates authentication, Automatic Key Management
<b>Traffic Engineering</b>	Group QoS, QoS (Priority Queuing and CBWFQ), Strict Priority Queuing, Application Based QoS, Minimum CIR, CIR (Static and Dynamic), Rate Limiting
<b>Other Features</b>	Built-in Automatic Uplink Power, Frequency and Timing Control (star and mesh), Authentication, Antenna Control Interface (OpenAMIP)

**Mechanical/Environmental**

<b>Size</b>	W 17.5 in x D 13.0 in x H 1.75 in (W 44.45 cm x D 33 cm x H 4.4 cm)
<b>Weight</b>	Models e8350, e8350-48: 10 lbs (4.55 Kg); Models e8350-FIPSL2, e8350-FIPSL2-48: 10.8 lbs (4.90 Kg)
<b>Operational Temperature</b>	-20° to +60°C (-4° to +140°F) at Sea Level with temperature gradient of 1°C per 1 min -20° to +55°C (-4° to +131°F) at 10000 feet (3048m) with temperature gradient of 1°C per 1 min Operational: MIL STD 810F Method 501.4 Procedure II and Method 502.4 Procedure II Survival: MIL STD 810F Method 501.4 Procedure I and Method 502.4 Procedure I
<b>Altitude</b>	Operational: Up to 10,000 feet (3048m); MIL STD 810F Method 500.4 Procedure II Storage: up to 30,000 feet (9144m); Survival: MIL STD 810F Method 500.4 Procedure I
<b>Vibration</b>	Operational: MIL STD 810F Profile in Figure 514.5C-3 tested in accordance with Method 514.5 Procedure I Survival: MIL STD 810F Profile in Figure 514.5C-2 tested in accordance with Method 514.5 Procedure I
<b>Shock</b>	Operational: MIL STD 810F Profile in Figure 516.5-8 tested in accordance with Method 516.5 Procedure I
<b>Relative Humidity</b>	Max 92% non-condensing humidity; MIL STD 810F Method 507.4
<b>Input Voltage</b>	100–240 VAC Universal Input, 50–60 Hz, 4A max at 100 VAC
<b>Safety Standards</b>	Complies with IEC/EN 60950-1, UL 60950-1, CSA C22.2 No.60950-1-03
<b>Emission Standard</b>	Complies with EN 61000-3-3, EN 55022 class B, FCC Part 15 class B, IEC/CISPR 22, ICES-003
<b>Immunity Standard</b>	Complies with EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11, EN 301 489-1 v1.6.1 and EN 301-489-12 v 1.6.1
<b>Certification</b>	FCC, CE, and RoHS Compliant

\*SCPC Return can only be operated when using DVB-S2 \*\*TPC not supported for use with DVB-S2 outbound in iDX3.0 and above