

# Evolution X3 Satellite Router

## High-speed, High-efficiency IP Broadband Connectivity for Enterprise Networks

Evolution X3 is the first next-generation satellite router featuring iDirect's highly efficient implementation of the DVB-S2 standard. With Adaptive Coding and Modulation (ACM) on the outbound carrier and iDirect's patented, deterministic TDMA return channel, Evolution X3 maximizes efficiency of satellite capacity to enable new opportunities for star topology networking.

Evolution X3 is ideally suited for broadband requirements such as Internet and VPN access to enterprise networks, as well as real-time VoIP and videoconferencing.

## Superior Quality of Service and Network Performance

iDirect's sophisticated Group QoS advanced traffic prioritization dynamically balances the demands of different applications according to their needs and bandwidth availability, across multiple sites and user sub-networks.

Features such as TCP and HTTP acceleration, in addition to local DNS caching, increase performance and maximize user experience.

## Seamless Terrestrial Integration

An integrated satellite modem and router with Ethernet interface, combined with a native IP architecture, ensuring easy integration of satellite-delivered connectivity into almost any data network.

Support for a rich set of IP protocols and features such as TCP, UDP, multicasting, NAT and DHCP guarantee compatibility with a wide range of applications and user needs, including corporate network extension, point of sale, SCADA, telemetry, multimedia and Internet cafés.

## Flexibility to Meet Changing Requirements

Over-the-air upgrade options can add strong data encryption or extend the remote's capabilities allowing operators to customize Evolution X3 to meet technical and budget requirements.

## Simple, Intuitive Network Management

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



## Features

- ◆ Star topology
- ◆ DVB-S2/ACM outbound for greater efficiency and enhanced network availability
- ◆ Deterministic MF-TDMA return channel
- ◆ Next-generation, extremely efficient 2D 16-State inbound coding
- ◆ Automatic end-to-end Uplink Power Control for reduced downtime
- ◆ Built-in TCP acceleration
- ◆ Advanced QoS and traffic prioritization
- ◆ Optional AES 256-bit encryption
- ◆ Low cost of entry

## Evolution X3 Satellite Router



### NETWORK CONFIGURATION

<b>Network Topology</b>	Star (DVB-S2/ACM downstream + Multi Frequency D-TDMA upstream)	
	<i>Downstream DVB-S2</i>	<i>Upstream TDMA</i>
<b>Modulation</b>	QPSK, 8PSK, 16APSK	BPSK, QPSK, 8PSK
<b>FEC</b>	LDPC, 1/4 - 8/9	Turbo, 0.431 - 0.793; 2D 16-State*, 1/2 - 6/7
<b>Max. Symbol Rate</b>	45 Msps	7.5 Msps
<b>Max. Info Rate</b>	150 Mbps <sup>1</sup>	11.8 Mbps <sup>2</sup>
<b>Max. Carrier IP Data Rate</b>	138 Mbps <sup>1</sup>	10.8 Mbps <sup>2</sup>
<b>Max. Remote IP Data Rate</b>	23 Mbps <sup>1</sup>	5.9 Mbps <sup>2</sup>
	<i><sup>1</sup>16APSK 8/9 FEC <sup>2</sup>QPSK .793 FEC Maximum downstream and upstream data rates cannot be achieved simultaneously Maximum rates are achieved with optimal configurations and unlimited NMS</i>	
<b>Eb/No</b>	For full list please refer to the latest iDirect Link Budget Analysis Guide	

### INTERFACES

<b>Satcom Interfaces</b>	TxIF: Type-F, 950–1700MHz, +7dBm / -35dBm RxIF: Type-F, 950–2150MHz, -5dBm (max) composite/ -125+10*log(Fsymb)dBm (min) single carrier Software controllable 10 MHz reference on TX Out and RX In ports
<b>BUC IFL Interface</b>	+24V, max. 70W, (120W PSU) (please refer to X3 Installation Manual for full list of supported BUCs)
<b>LNB IFL Interface</b>	+19V/+14V (Nominal), 500mA max 22KHz DiSEqC tone
<b>Data Interfaces</b>	LAN: 10/100 Ethernet, 802.1q VLAN RS-232: RJ45 (Console connection)
<b>Protocols Supported</b>	TCP, UDP, ACL, ICMP, IGMP, RIP Ver2, Static Routes, NAT, DHCP, DHCP Helper, Local DNS Caching, cRTP and GRE
<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, Authentication, AES-256 encryption**

### MECHANICAL/ENVIRONMENTAL

<b>Size</b>	W 11.5 in (29.2 cm) x D 9.9 in (D25.1 cm) x H 2 in (5.1cm)
<b>Weight</b>	4.3 lbs (1.95 Kg)
<b>Operating Temperature</b>	0° to +50°C (32° to +122°F) at Sea Level with temperature gradient of 1°C per 1 min 0° to +45°C (32° to +113°F) at 10,000 Feet with temperature gradient of 1°C per 1 min For ODU power consumption <70W (please refer to X3 Installation Manual for details)
<b>Humidity Max</b>	90% non-condensing humidity
<b>Input Voltage</b>	100–240 VAC Single Phase, 50–60 Hz, 2A max at 90 VAC, 1A max at 240 VAC
<b>Radio Standards</b>	EN 301-428 v1.3.1 — Ku-Band System Level Specification EN 301-443 v1.3.1 — C-Band System Level Specification
<b>Safety Standards</b>	Complies with IEC 60950, EN 60950-1, UL 60950-1, CSA C22.2 No.60950-1-03
<b>Emission Standard</b>	Complies with EN 55022 Class B, FCC Part 15 Class B, CISPR 22 Class B, EN 61000-3-2, EN 61000-3-3
<b>EMC/Immunity Standard</b>	Complies with EN 55024, EN 301-489-1, EN 301-489-12, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11
<b>Certification</b>	FCC, CE, and RoHS Compliant

\* In DVB-S2 mode only \*\* Optional