



## Features

- **Lowest Entry Level Price: Starting at \$50,000 for a fully-functional Hub including 4 inbound carriers (Upgradeable to 96)**
- **Maximum Flexibility: Economically Scalable**
- Up to 155 Mbps Throughput\*
- Up to 135 Mbps Forward link\*
- Up to 24 Mbps Return Link\*
- Support for 10 to 500 terminals
- DVB-S/S2 RCS
- Includes an Advantech Wireless Layer 3 Router!
- Up to 8 Mbps inbound per carrier
- DVB-S2 CCM outbound maximizes bandwidth efficiency (VCM/ACM option)
- Optimized for IP and multi-media content
- Open standard design (DVB-RCS)
- Qualified with multiple IP/DVB broadcast platform vendors
- Interoperable with 3rd party SatLabs certified terminal vendors
- Unique and powerful multi-carrier demodulation technology
- World-class scheduling efficiency, maximizing bandwidth utilization
- Always-on
- User-friendly Network Management System (NMS100)
- Mesh Overlay (peer-to-peer) capability (option)

\*Higher rates available on special order

## Overview

The Discovery Hub is the perfect starter system offering better value for your dollar than any other manufacturer. You get a fully functional hub, with 4 inbound carriers, scalable as your needs grow via software license, all for \$50,000. This means no downtime for throughput upgrades.

We have removed all barriers to entry. Advantech Wireless has configured many systems for quick turnaround. For example: If you are looking for a turnkey package, a complete fully functional Hub along with 50 Remote Terminals (our S4120), you can be operational for less than \$100,000.

Advantech Wireless, a world leader in satellite communications, offers the world's leading, two-way, open standard (DVB-RCS), broadband satellite access system. The Discovery Hub and in particular its Return Link Sub-System (RLSS), the RLS100, is at the heart of the broadband access system.

Hubs (including the RLS100, FLS100) are turn-key systems which can be installed in days to enable a wide range of public and/or private network topologies with satellite interactive terminals.

The RLS100 is a modular hub sub-system which can be integrated with new or installed IP/DVB broadcast platforms and IP switch/routing equipment to provide two-way satellite broadband access services. It is designed to receive inbound traffic, handle inbound and outbound signalling, schedule and control networks of satellite interactive terminals (available from multiple suppliers). A single scalable RLSS unit can support networks ranging from ten to 500 simultaneously logged-on terminals.

The FLS100 is the outbound equivalent of the RLS100. The FLS100 takes IP traffic and using Multi-Protocol Encapsulation (MPE) transforms the data into an MPEG2 format for transmission on the outbound using its embedded DVB-S/S2 modulator.

## System Costs

Advantech Wireless' Hubs and Terminals are highly flexible and several different network architectures are possible. Some key features of the DVB-RCS Hub include:

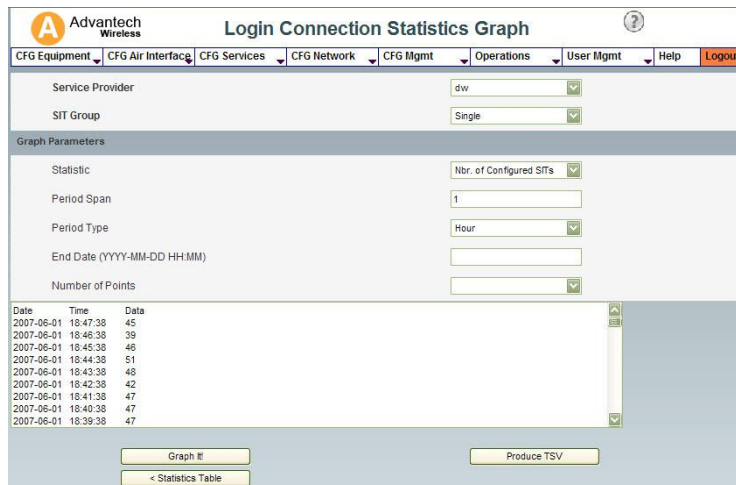
- Frequency independent—hubs, terminals and onboard processors can be operated in any frequency band (e.g., Ku, Ka, C, X or hybrids of these).
- Satellite versatility—the system can operate with the forward and return link on the same satellite, or on different satellites.
- Terminal diversity—networks can support receive-only terminals at the same time as two-way terminals, as well as both mesh and star topologies of terminals.
- Network Architecture supported – Star, Mesh, OBP

Advantech Wireless' entire system, as well as the DVB-RCS standard, have been designed to minimize the cost of scaling a broadband access network from terminal populations as small as a few tens of terminals to hundreds.

Performance of access layer protocols is highly dependent on traffic profile. Advantech Wireless' implementation of DVB-RCS, utilizing dynamic assignment techniques mandated in the DVB-RCS specification, has been specifically designed and tuned for multi-media traffic. In comparison, other VSAT systems are less dynamic and less flexible.

## NMS100





Advantech Wireless' has responded to market demands by developing a powerful management system capable of meeting the functional and scalability requirements of a variety of system configurations. The Hubs feature the NMS100, which provides Hub & Network Operator Tools, Service Provisioning Tools and Multiple User Interfaces. The management of SLAs, Return Link and Forward Link Quality of Service (QoS) and the daily management of SITs, is made easy with the use of the NMS100.



# Discovery Series DVB-RCS VSAT Hubs



## Advantech Wireless Hub Systems Offerings

	Discovery	Challenger	Millennium	Raptor
				
<b>Standard Rates Supported</b>				
Throughput Mbps*	155	n x 155	n x 155	155
Forward Link Mbps*	135	n x 135	n x 135	135
Return Link Mbps*	24	48 (2x24)	120 (5x24)	24
# of Terminals Supported	10 – 500	100 – 1,500	1,000 +	10 – 500
*Maximum. Other rates are available on special order. n = number of outbound links				

### Air Interface—Outbound

Modulation  
Information Rates  
DVB-S or DVB-S2, CCM/VCM/ACM, IP over MPEG  
QPSK (DVB-S), QPSK, 8PSK, 16APSK, 32APSK (DVB-S2)  
Up to 135 Mbps (1MSPS to 45MSPS)

### Air Interface—Inbound

Modulation  
Max Burst Info rates  
DVB-RCS, IP over ATM or MPEG, Multiple Access Method MF-TDMA  
QPSK, 8PSK  
128 kbps—8 Mbps

### Coding

RS/Convolutional or LDPC on the outbound; Turbo Convolutional Coding (TCC) on the inbound

### MAC Layer—Inbound

Protocol  
QoS  
Capacity Requesting  
Bandwidth on Demand  
(Return Link)  
CF-DAMA (Combined Free & Demand-Assigned Multiple Access)  
Constant Rate Assignment (CRA), Volume Based Dynamic Capacity (VBDC),  
Rate Based Dynamic Capacity (RBDC), Free Capacity Assignment (FCA)  
0-8 Mbps updated every 26.5 ms, framed in 1, or 2 ATM or 1 MPEG packet,  
with in-band and out-of-band capacity requesting mechanisms

### Interfaces

Network  
NMS  
Tx & Rx  
IP over Ethernet (10/100/1000BaseT)  
NMS100, web interface control, remote terminal management, VNO  
3rd Party Equipment—Standard SNMP interfaces available  
Frequency Independent (can use any combination of C, Ku, Ka, X, etc.)  
Can interface with any frequency at L-band IF frequency

### Features

Fade Countermeasure  
Redundancy  
Network Architecture  
Scalability  
Multicast  
ClearSky™  
Non-Redundant, Hitless Hot Swap Redundant (option)  
DVB-RCS, Star  
Scalable forward & return link capacities + number of supported remotes  
From hub or from behind remote

### Options

Geographic Redundancy  
Mesh  
Higher Layer Protocol Options  
Automatic switchover between geographically redundant gateways  
Mesh overlay  
IPSec/VPN, VLAN, VCM/ACM, TCP/HTTP Acceleration & Data Compression,  
Virtual Telephony™, Advanced QoS

### NORTH AMERICA

USA  
Tel: + 1 703 788-6882  
Fax: +1 703 788-6511  
info.usa@advantechwireless.com

### CANADA

Tel: +1 514 420-0045  
Fax: +1 514 420-0073  
info.canada@advantechwireless.com

### EUROPE

UNITED KINGDOM  
Tel: +44 1480 357 600  
Fax: +44 1480 357 601  
info.uk@advantechwireless.com

### RUSSIA & CIS

Tel: +7 495 971 59 18  
info.russia@advantechwireless.com

### SOUTH AMERICA

USA  
Tel: + 1 703 788-6882  
Fax: +1 703 788-6511  
info.latam@advantechwireless.com

### BRAZIL

Tel: +55 11 3054 5701  
Fax: +55 11 3054 5701  
info.brazil@advantechwireless.com

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