

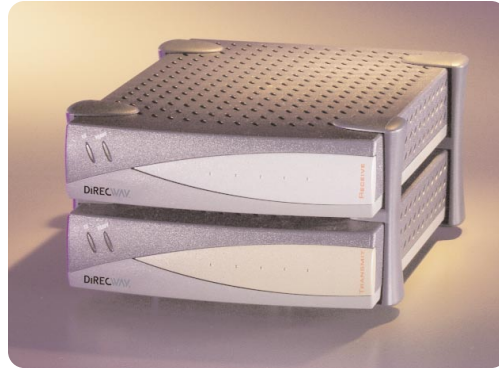
DW3000/DW4000 Series Systems

Satisfying the need for speed for the multimedia Internet

HUGHES
NETWORK SYSTEMS

DiRECWAY

DIRECWAY™ is a family of high-speed broadband solutions via satellite brought to you by Hughes Network Systems (HNS), the market leader in providing satellite products and services to consumers and enterprises alike. DIRECWAY satisfies the increasing demand by customers for greater bandwidth enabling a variety of high-speed multimedia applications.

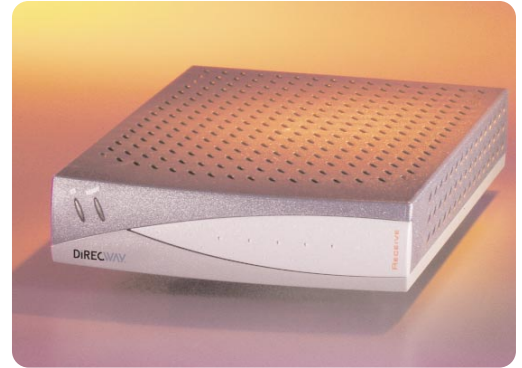


The DW3000/DW4000 series of DIRECWAY systems delivers the speed, security, ubiquity and scalability of broadband by satellite at a surprisingly affordable price. Now there is a faster, better, easier way to work and to play at your PC.

The DW4000 series DIRECWAY system communicates with geostationary satellites in a "two-way" manner; i.e. the receive (or downstream) data and the transmit (or upstream) data signals both operate through the system's antenna, over the satellite, and via the DIRECWAY Network Operations Center. No phone line, no dial-up connection. And with the DW4000 your DIRECWAY link is always on.

A more economical hardware package is available with the DW3000 series system. This system uses a dial-up telephone line connection for the upstream data, yet receives the same, high-speed DIRECWAY downloads and streaming media services over the satellite; just like the DW4000. Since transmit electronics are not included, the DW3000 becomes a very affordable solution for light-to-medium usage Internet users who are comfortable with occasional dial-up access.

And DW3000 users can later opt for an upgrade package to move up to two-way service. This feature makes broadband by satellite even more affordable and gives DIRECWAY users an option for upgrade.



And that's not all. Both DW3000/DW4000 series systems can be configured with an optional dual-LNB for receiving Direct Broadcast Satellite television signals. In the United States this is compatible with the DIRECTV® digital satellite television service. DIRECTV receivers and service are sold separately. Now the excitement of broadband Internet AND the quality choice of digital broadcast satellite television can be received on a single satellite system...DirecDuo™.

Equipment Details

The DIRECWAY DW3000 and DW4000 series systems consist of an oval satellite antenna, matching integrated outdoor electronics, and the indoor units which connect to a USB-enabled PC (see below for further descriptions). Outdoor equipment for international units varies based on which satellite is used.



Indoor Equipment

The indoor equipment consists of one or two USB satellite adapters:

- ITU (Indoor Transmit Unit, DW4000 series only)
- IRU (Indoor Receive Unit, DW3000/DW4000 series).

The IRU is a DVB compliant satellite adapter that can be used alone, in the one-way configuration, or together with the ITU for two-way operation. The DIRECWAY ITU is designed to be an add-on capability to a standard receive-only DIRECWAY IRU. When the ITU is installed and configured, the user will have the ability to select the satellite instead of the modem as the outbound route. When this option is selected the system is essentially "always on". This means you never have to wait for your PC to connect, or worry about ISP busy signals. And because the ITU is connected to the IRU through the ITU-IRU interconnection cable, only one USB port on your PC is required to operate the DIRECWAY indoor equipment.

Outdoor Equipment

The DIRECWAY antenna is equipped with the following:

- A single LNB to receive DIRECWAY data from the satellite (DW3000/DW4000 series)
- A radio unit to transmit DIRECWAY data to the satellite (DW4000 series only).

In addition, each DIRECWAY system can be optionally equipped with an additional dual-LNB to receive Direct Broadcast Satellite TV using the same antenna. This configuration is called DirecDuo and in the U.S. is compatible with the DIRECTV satellite television service.

The outdoor equipment is connected by two RG-6 coaxial cables to the indoor equipment.

Technical Specifications

User Requirements

The DIRECWAY system connects to your personal computer (PC) which must meet the following minimum requirements:

Processor:	333 Mhz Pentium II class or better
Interface:	One available USB port
Operating Systems:	Windows 98 SE, Windows ME, Windows 2000
Memory:	64 MB RAM (Win 98 SE and Win ME) 128 MB RAM (Win 2000)
Free Hard Disk Space:	20 MB
Display:	PCI or AGP video adapter, 800 x 600 minimum
Telco Modem (DW3000):	56 Kbps (hardware based)

Compatibility

Browsers:	Internet Explorer 5.0 and higher Netscape Navigator 4.76
Internet Applications:	All common TCP/IP applications
Interface:	USB 1.1 or higher

Satellite & Antenna Specifications

Encapsulation:	DVB
Information Rate:	≤ 45 Mbps
Symbol Rate:	≤ 30 Msps
Frequency Range:	Ku Band
Modulation (Receive):	QPSK
Modulation (Transmit):	OQPSK
Bit Error Rate (Receive):	10 ⁻¹⁰ or better
Bit Error Rate (Transmit):	10 ⁻⁷ or better
Antenna:	74cm oval, 89cm, 98cm and 120cm
Radio:	1 Watt
Encoding:	Receive: FEC at rates 7/8, 5/6, 2/3, 1/2, 188/204 byte Reed- Solomon block format for DVB); DVB-S Transmit: Rate 1/2 Convolutional

Mechanical & Environmental

ITU Weight:	1.3 LBS
IRU Weight:	1.35 LBS
IRU Power Supply Weight:	0.64 LBS
ITU/IRU Dimensions:	6.03" x 1.50"H x 9.0"D
Operating Temperature:	5 - 40° Celsius
Input Power:	■ IRU/ITU: Input – 100-240V ~ 2A, 50-60Hz AC Output – 19.5V DC @ 2.37A 6.5V DC @ 1.3A ■ IRU Only: Input – 100-240V ~ 1A, 50-60Hz AC Output – 19.5V DC @ 0.65A 6.5V DC @ 0.41A