

# Table of Contents

About the HDTV Digital Modulator .....	2
Installing the Modulator .....	3
Using the Modulator .....	11
Removing the Modulator .....	18
HDTV Codes .....	18
Limited Warranty .....	19
If You Need Assistance .....	20
Radio Interference.....	20

# About the HDTV Digital Modulator

The HDTV Digital Modulator (called “the modulator”) allows you to watch HDTV programming from DISH Network via satellite.

- ◆ The modulator works with the DISH Network Model 5000 satellite television receiver.

**Note:** The satellite TV receiver is called “the IRD” for “Integrated Receiver/Decoder” in these *Instructions* to distinguish it from a Digital Television (DTV) broadcast “set-top box” receiver.

- ◆ The modulator works with all ATSC-compatible HDTV sets with DTV broadcast tuner/decoders, and supports Dolby<sup>R</sup> Digital 5.1 in both HDTV and standard definition formats.

WARNING!



Please read all the *Safety Instructions* in the guide that comes with the Model 5000 IRD. Those instructions are hereby incorporated by reference into these *Instructions*.

ATTENTION!



In these *Instructions*, “seamless operation” means that the modulator works with the IRD to switch the HDTV set between HD and standard definition broadcasts *automatically*. So, you need to use only one remote control. “Non-seamless operation” means that you must switch the HDTV set between its DTV tuner input and its standard definition input, and select the channel (see the TV owner’s manual for instructions). So, you need to use two remote controls.

## Installing the Modulator

ATTENTION!



This kit provides the modulator and these *Instructions*. You must obtain the satellite TV system and the HDTV set separately.

## CONNECTING THE IRD TO A SATELLITE DISH

For instructions on connecting the Model 5000 IRD to a satellite dish, please see the guide that comes with the IRD.

## CONNECTING THE MODULATOR TO THE IRD

1. Make sure that the IRD power cord is unplugged.

WARNING!



Unplug the IRD power cord *whenever* you are connecting or disconnecting the IRD from other devices, in order to reduce the danger of electrical shock. Remember to plug the cord back in, when you are ready to use the IRD.

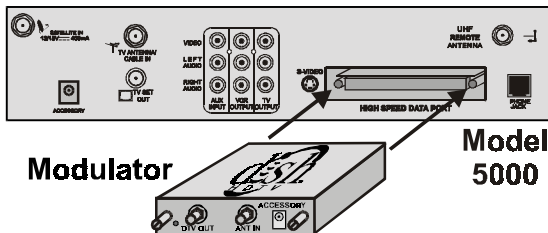
2. Remove the cover from the IRD back panel **High Speed Data Port**.

ATTENTION!



You *must* cover the **High Speed Data Port** when it is not in use, to prevent damage to the port. Damage to an uncovered port is *not* covered by the Limited Warranty in the guide that comes with the IRD.

3. Plug the modulator, logo side up, into the **High Speed Data Port**, and secure it with the two thumbscrews (see the diagram below).



## CONNECTING TO A HIGH DEFINITION TV SET

ATTENTION!



The wiring set-up described as follows provides the best quality video and supports correct “seamless” operation. Other setups may reduce the video quality and cause incorrect “seamless” operation.

WARNING!

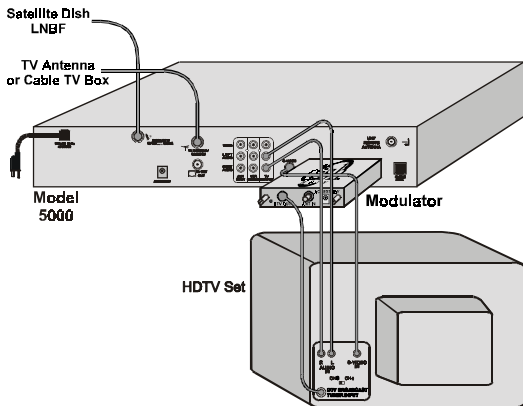


If your set-up includes multiple HDTV sets, you may need to install a line amplifier between the modulator and the HDTV set to boost the signal. You may also need to install an amplifier between the off-air antenna and the modulator to boost the off-air signal. In either case, if the DC power for an amplifier is carried on the coaxial cable, you *must* install the amplifier so that this DC power is isolated from the modulator. If DC power is applied directly to the modulator, damage to the modulator and/or the amplifier power supply may result.

1. Connect the coaxial cable from the satellite dish LNB to the **SATELLITE IN** connection on the IRD. Connect the cable from the off-air TV antenna or cable TV box to the **TV ANTENNA/CABLE IN** connection on the IRD (see the following diagrams).

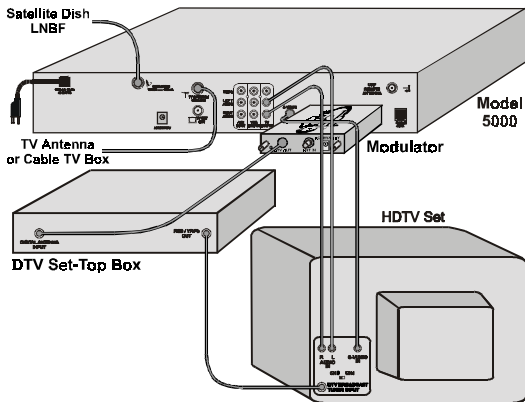
**Note:** Using the modulator does *not* affect the IRD's capability to process analog or digital off-air signals.

2. *If the HDTV set has an internal DTV broadcast tuner, connect a cable from the **DTV OUT** connection on the modulator to the DTV broadcast tuner input on the HDTV set. Connect the IRD's **LEFT** and **RIGHT AUDIO (RCA)** outputs and **S-VIDEO** connection directly to the HDTV set (see the diagram below).*



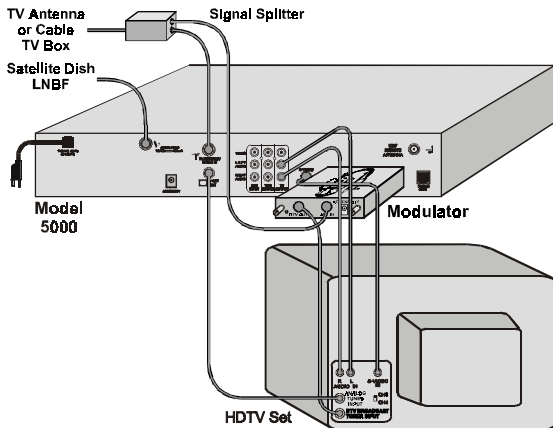
If the HDTV set does not have an internal DTV broadcast tuner, connect the modulator's **DTV OUT** connection to the **Digital Antenna Input** on a DTV broadcast “set-top box” receiver. Connect the HDTV set and the receiver, following the manuals for these devices. Connect the IRD's **LEFT** and **RIGHT AUDIO (RCA)** outputs and **S-VIDEO** connection to the HDTV set or the receiver, as applicable (see the diagram below).

**Note:** The HDTV set may have more than one S-VIDEO input, but the modulator will work with only one when providing “seamless operation.” You may need to try each input to see which one works.



3. Optionally, connect an off-air TV antenna cable or the cable from a cable TV box to the **ANT IN** connection on the modulator (see the diagram below).

**Note:** This connection is useful *only* if you can receive off-air or cable DTV channels. You may use a signal splitter to route off-air or cable signals to both the IRD and the modulator, as shown below.



4. Optionally, route an infra-red (IR) extender from the **ACCESSORY** output on the modulator to the IR sensor on the HDTV set (see the TV owner's manual to find the IR sensor).

**Note:** The IR extender allows the modulator and IRD to control the HDTV set *only* in “seamless operation,” *not* in “non-seamless operation.” If you do not set up the modulator for “seamless operation,” there is no need for an IR extender.

# Using the Modulator

To use the modulator, you first set up the system for HDTV (see below), and then choose an HDTV-content program to watch (see page 16).

## SETTING UP THE SYSTEM

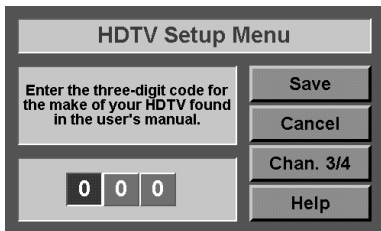
ATTENTION!



For instructions on displaying menus such as those used in the following procedure, please see the guide that comes with the IRD.

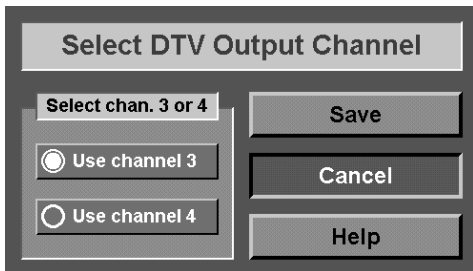
Note, however, that unless the modulator is attached to the IRD, the IRD will *not* display the menus described in this procedure.

1. Display the **System Set-up** menu. Select the **HDTV** option on this menu to display the **HDTV Set-up** menu.



HDTV Setup Menu	
Enter the three-digit code for the make of your HDTV found in the user's manual.	Save
	Cancel
	Chan. 3/4
	Help
0 0 0	

2. On the **HDTV Set-up** menu, enter the three-digit code for your model HDTV set. Select the **Save** option.  
**Note:** See *HDTV Codes* on page 18 for some HDTV set codes. If the right code is not available, go on to step 3.  
**Note:** A code is *required* for “seamless operation,” but the modulator will provide “non-seamless operation” *without* such a code.
3. Display the **HDTV Set-up** menu again, and select the **Chan. 3/4** option to display the **Select DTV Output Channel** menu. Select the channel on which you want your satellite programming to appear, and select the **Save** option. This displays the **HDTV Set-up** menu again.  
**Note:** Selecting the DTV output channel is *unrelated* to selecting the channel 3/4 setting for the Model 5000 IRD.



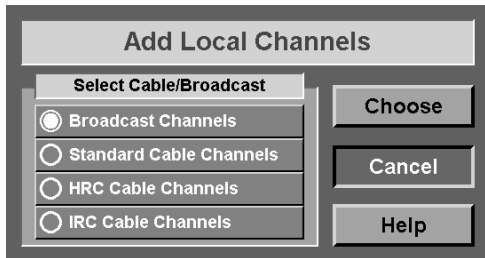
## ADDING LOCAL DTV CHANNELS

Do the following to add local DTV channels to the **Selected Local Channels** list. This feature is supported by “seamless operation.”

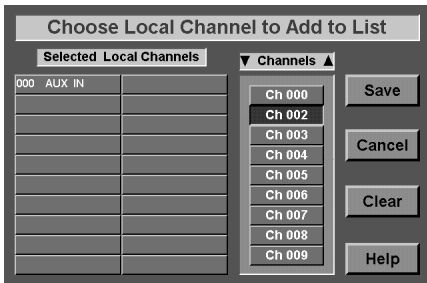
**Note:** If you are not setting up the modulator for “seamless operation,” then steps 1 through 8 below do not apply.

In this case, return from the **System Set-up** menu to watching programs. Then, go on to *Choosing an HDTV-Content Program to Watch* on page 16.

1. On the **System Set-up** menu, select the **Installation** option to display the **Installation and Set-up** menu.
2. On the **Installation and Set-up** menu, select the **Add Local Chan.** option to display the **Add Local Channels** menu.



3. On the **Add Local Channels** menu, make sure that the **Broadcast Channels** option is selected.
4. Still on the **Add Local Channels** menu, select the **Choose** option to display the **Choose Local Channel to Add to List** menu.



5. In the **Choose Local Channel to Add to List** menu, highlight and select a channel that you want to add. This displays the **Edit Local Channel Name** menu. See the *example* on the next page.

### Edit Local Channel Name

Channel Name:

A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R
S	T	U	V	W	X	Y	Z	0
1	2	3	4	5	6	7	8	9
space						◀ back		

Save

Cancel

Clear

Help

6. On the **Edit Local Channel Name** menu, enter a channel name for the channel you added in step 5. Select the **Save** option. This displays the **Select DTV & Network Affiliation** menu.

### Select DTV & Network Affiliation

Ch 002-

☐ ABC

☒ CBS

☐ NBC

☐ None

☒ DTV

Save

Cancel

Help

Choose a network affiliation and check "DTV" if a DTV broadcast channel.

7. On the **Select DTV & Network Affiliation** menu, select the network affiliation for the channel that you added in step 5, and check the **DTV** check box if the channel is a DTV broadcast. Select the **Save** option. This displays the **Choose Local Channel to Add to List** menu again, so that you can repeat steps 5, 6 and 7 to add other channels (if desired).  
**Note:** To remove a channel, just select that channel.
8. On the **Choose Local Channel to Add to List** menu, select the **Save** option to save your changes. Next, use the **Cancel** option to return via the **Installation and Setup** menu to the **System Setup** menu, and then to watching programs.

## CHOOSING AN HDTV-CONTENT PROGRAM TO WATCH

ATTENTION!



To find an HDTV-content program, please see the on-screen **Program Guide** or printed TV listings. HDTV-content programs are indicated by **(HD)** in the on-screen **Program Guide**.

1. When you find an HDTV-content program that you want to watch, select that program (see the guide that comes with the IRD for instructions).

2. *If you are watching a broadcast that is input to the HDTV set via the S-VIDEO connection, then in “seamless operation,” the modulator and IRD will switch the HDTV set to an HDTV broadcast automatically.*

*In “non-seamless operation,” the IRD will display a message telling you what to do next. For example, you may need to switch the HDTV set to its DTV tuner input (see the HDTV set owner’s manual for instructions). You may also need to tune the HDTV set to the channel that you selected in *Setting Up the System* on page 11.*

### **If you want to watch a standard definition program:**

1. Select the desired program (as above, see the IRD guide).
2. As above, in “seamless operation” the modulator and IRD *automatically* will switch the HDTV set to a standard definition broadcast input to the HDTV set via the S-VIDEO connection.

*In “non-seamless operation,” the IRD will not display any message. The HDTV set may display only a blank screen. You may need to switch the HDTV set to its standard definition S-VIDEO input and tune the set to the appropriate channel. See the TV owner’s manual for instructions.*

## Removing the Modulator

Because the modulator is not a permanent fixture, the IRD could be damaged if the modulator is bumped while they are being transported. If you need to relocate the IRD, *first unplug the IRD*. Then, gently remove the modulator. To protect the **High Speed Data Port**, put the port cover back on the IRD.

## HDTV Codes

Mitsubishi HDTV with Mitsubishi Receiver, Model #HD-1080	700
Philips HDTV, Model #64PP990103	710

**Note:** More codes may have become available since these *Instructions* were published. To get these codes, please call the Service Center at 1-800-333-DISH (3474). Have your HDTV set model name and number ready. Or, see the DISH Network web site at [www.dishnetwork.com](http://www.dishnetwork.com).



# If You Need Assistance

1. Call the Service Center at 1-800-333-DISH (3474). Have the date of purchase and your customer account number ready. Also, keep the green light on the modulator back panel in view; the light may provide an indication useful to the Customer Service Representative.
2. The Representative will assist you. He or she will attempt to troubleshoot any problem you may be having, and also will determine whether your product is covered under this warranty.
3. If the Representative determines that you should return your device, you will be given a Return Authorization (RA) number. *Before shipping* any equipment, you *must* get a Return Authorization number from the Service Center.
4. You *must* package returned equipment properly. Follow the instructions given to you by the Representative.
5. Write the RA number in large, clearly visible characters on the *outside* of the shipping box used to return the equipment. *To avoid confusion and misunderstandings, shipments without an RA number clearly visible on the outside of the box will be returned to you at your expense.*
6. The device will be evaluated, and coverage under the warranty verified. Any device found to be defective will be replaced with a new or refurbished one. If the defective device is covered under the warranty, the replacement unit will be shipped at no cost to you. If a defective device is not covered under the warranty, you will be notified. You may be assessed a flat rate charge for a replacement unit, including shipping and insurance.

## Radio Interference

The receiver complies with the limits for a Class B digital device, as specified in Part 15 of the FCC Rules. This compliance helps ensure against radio interference with other equipment in a typical residential location. Except for the telephone cable, you are required to use shielded cables and cords, such as coaxial and communication cables, to maintain FCC compliance.

The receiver does use radio frequencies during operation. If you do not install or use the receiver properly, radio energy may be generated that can interfere with radio communications. Also, it is possible that radio interference can occur even in a proper installation. The typical symptom of radio interference is distortion of television or radio reception. You can determine if the receiver is the cause by confirming that the interference stops if you unplug the receiver from the power outlet, and the interference returns when you plug the receiver back into the outlet.

