HDTV Labs

20 dB Adj. Gain Satellite Selector for DISH Network

Model HDSSAG20DN
Instruction Manual

www.hdtvlabs.tv

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HDSSAG20DN Satellite Selector for DISH Network

Satellite Selector Features

* Professional-Grade Quality
* Frequency range of 950 MHz to 2150 MHz
* Input Power Range of -20dBm to -75dBm
* Adjustable gain of -5dB to 20dB on each of 4 channels
* Integrated voltage regulators
* External 18VDC Power Supply included
* Operating temperature of -40°C to +85°C

The **High Definition 20dB Adjustable Gain Satellite Selector for DISH Network (HDSSAG20DN)** is a combination of four power inserters, a 20dB adjustable gain amplifier, and independent power supply that ensures strong and consistent DC voltage levels to Dish Pro and Dish Pro Plus LNBs while also adding signal strength to the system. Capable of selecting and amplifying all transponder signals from any of the DISH Network satellites, the Satellite Selector can be used in residential, commercial, and SMATV systems where long cable runs exist between the dish antenna, system multi-switches, and television receivers.

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General Instructions

Caution: Ensure all cables and connectors have no short circuits. Make all cable connections before energizing the power supply connection or damage to the unit could occur.

1. Use High Definition RG-6 coaxial cable for all connections.
2. Termination of the Satellite Selector's input and output ports is not required on unused channels.
3. Each of the four Satellite Selector channels has a 20-turn potentiometer for precise gain control. Adjusting the tuning screw clockwise will increase the gain, counter-clockwise will reduce the gain. The gain adjustment will change more slowly at the lower end. The four potentiometers have no stop on either end as this is a built-in safety feature to prevent them from breaking.
4. Proper output signal should be checked with a meter to prevent overdriving any of the system's four channels.
5. Check our website at www.hdtvlabs.tv for the latest instruction manual updates. This is HDSSAG20DN Rev. 1.2.

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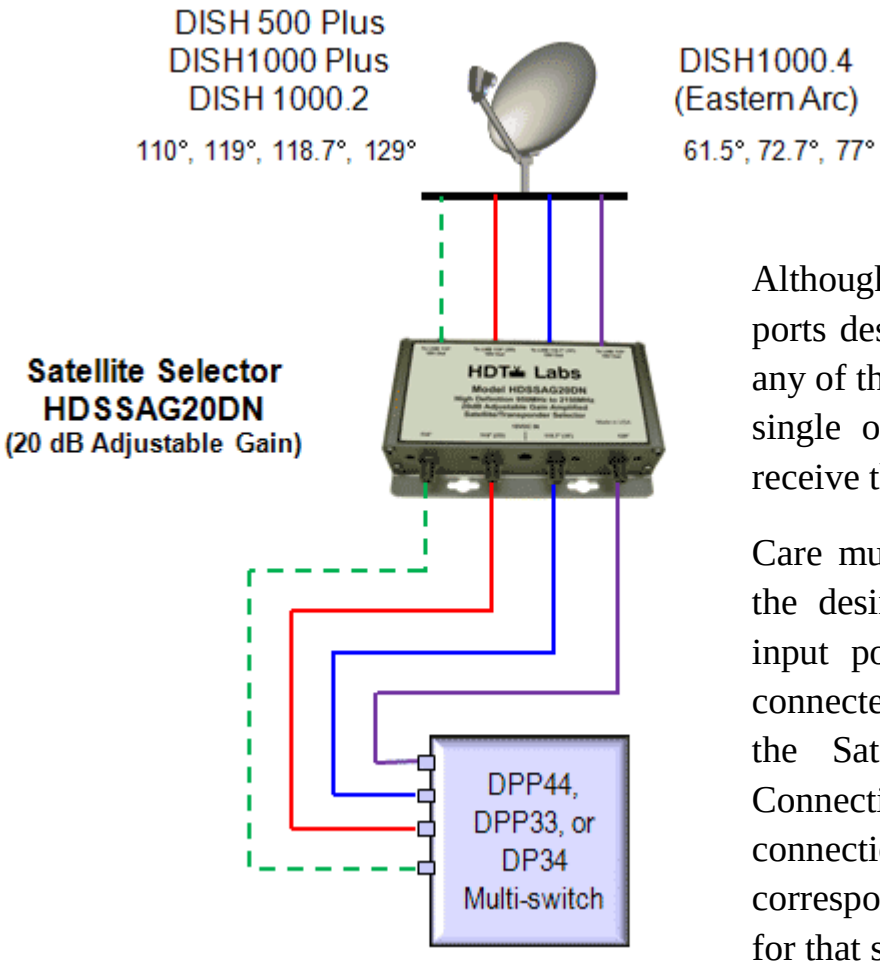
Multi-Switch Connection Diagram



Although the Satellite Selector may have input ports designating particular LNBs as a guide, any of the four input ports can be connected to single or multiple dish outputs in order to receive the desired satellite signals.

Care must be taken, however, to ensure that the desired satellite signal connected to an input port of the Satellite Selector is also connected to the corresponding output port of the Satellite Selector as shown in the Connection Diagram. Each output port connection can then be routed to the corresponding multi-switch input connection for that satellite signal.

Connect the external power supply to the Satellite Selector “18VDC IN” jack.

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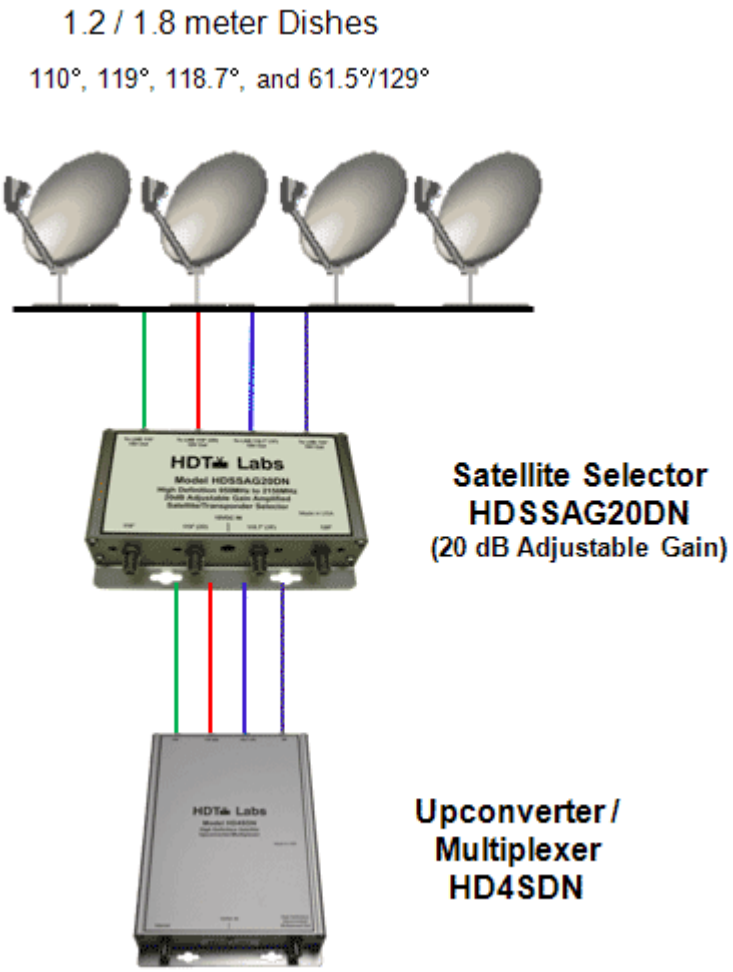
Upconverter / Multiplexer Connection Diagram



Although the Satellite Selector may have input ports designating particular LNBs as a guide, any of the four input ports can be connected to single or multiple dish outputs in order to receive the desired satellite signals.

Care must be taken, however, to ensure that the desired satellite signal connected to an input port of the Satellite Selector is also connected to the corresponding output port of the Satellite Selector as shown in the Connection Diagram. Route the corresponding satellite signals from the output ports of the Satellite Selector to the labeled input connections of the Upconverter / Multiplexer.

Connect the external power supply to the Satellite Selector “18VDC IN” jack.

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Model HDSSAG20DN

High Definition 20dB Adjustable Gain Satellite/Transponder Selector

Description

The HDSSAG20DN is a Professional-Grade 4-channel adjustable gain satellite/transponder selector designed to work with DISH Network dish antennas. The HDSSAG20DN selects and amplifies transponder signals from satellites 110°, 118.7°, 119°, and 129°. Each channel has an adjustable gain of –5dB to 20dB and covers a frequency range of 950MHz to 2150MHz. The amplifier is designed to recover low-level signals that may be well below the threshold of most satellite power meters. The HDSSAG20DN is used in conjunction with residential, stacked, multiswitch, and head-end systems. **MADE IN USA**

Features:

- Wide signal dynamic range capability
- Ultra-low level signal recovery
- Integrated voltage regulators
- Corrosion-resistant connectors
- Rugged aluminum construction

Specification	**Minimum**	**Typical**	**Maximum**
Frequency……	950MHz		2150MHz
Noise Figure…….		3.5dB	
Absolute Maximum Total Input Power[1]……..			0dBm
Input Power Range……..……	-75dBm[2]		-20dBm[3]
Individual Transponder Maximum Output Power……...		0dBm	
Gain at maximum setting			
at 950MHz…….	19.0dB	20.0dB	21.0dB
at 1450MHz……...	19.0dB	20.0dB	21.0dB
at 1650MHz..……	19.0dB	20.0dB	21.0dB
at 2150MHz……...	18.0dB	19.0dB	20.0dB
Channel-to-Channel Isolation[4]…….		45dB	

Specification	Minimum	Typical	Maximum
Input Return Loss			
at 950MHz…….		25dB	
at 1450MHz……...		20dB	
at 1650MHz……...		28dB	
at 2150MHz……...		14dB	
Output Return Loss			
at 950MHz…….		18dB	
at 1450MHz…….…….		18dB	
at 1650MHz……...		15dB	
at 2150MHz……...		11dB	
1dB Input Gain Compression Point[5]			
at 950MHz……..		-3dBm	
at 1450MHz…….……..		-3dBm	
at 1650MHz……		-4dBm	
at 2150MHz……..……..		-4dBm	
Input Signal Power for 3rd Order Intermod Rejection Ratio of 40dB[6]			
at 950MHz……..		-13dBm	
at 1450MHz…….……..		-13dBm	
at 1650MHz……		-14dBm	
at 2150MHz……..……..		-15dBm	
DC Supply Voltage……...		18.0VDC	20.0VDC
DC Supply Current……		1.0A	1.5A
Transponder LNB Voltage…….……..	17.0VDC	18.00VDC	20.0VDC

For Indoor Use Only. The HDSSAG20DN is supplied with an external 18VDC power supply. Operating temperature of the HDSSAG20DN is –40°C to +85°C. The mechanical dimensions are 6.4”W × 4.4”L × 1.5”H. (Specifications subject to change without notice.)

Notes:

1. Absolute Maximum Power is the total power that arrives at the amplifier input from 950MHz to 2150MHz. Satellite power meters typically read the power level of a single transponder at a time. If all transponders are active from 950MHz to 2150MHz and the power of all transponders are equal, then total available input power across the 950MHz to 2150MHz bandwidth is approximated by taking the satellite power meter reading at 1450MHz and adding 20dB. Make sure not to exceed -15dBm as measured with a satellite power meter.
2. The –75dBm level assumes that the overall system noise figure is not too high such that the carrier-to-noise ratio of the satellite signal has not been degraded such that signal recovery is not possible. Signal levels lower than –75dBm can be recovered with properly designed systems having over-all low system noise figures. Low noise figure systems are achieved by avoiding the addition of too many attenuators or too much loss in front of an amplifier block. It is always better to add loss after an amplifier to minimize system noise figure as long as the signal at the amplifier input does not over-drive that amplifier.
3. Assumes maximum power levels as measured with a satellite power meter and all transponder signals active from 950MHz to 2150MHz. (See note 1) If transponder power levels are equal, limit the maximum power to –20Bm at all frequencies. An easy method to determine if the amplifier is being over-driven is to connect a satellite power meter to the output of the amplifier and check C/N, BER, and IRD performance. If acceptable transponder power levels are measured but low C/N values, high BER values, and low IRD levels are measured, reduce the input level into the amplifier until good C/N, BER, and IRD results are measured.
4. Channel-to-Channel Isolation is measured referenced to the output of each amplifier. Channel-to-Channel Isolation has a typical value of 35dB at 2150MHz.
5. Measured using a single CW signal. No transponder signals present.
6. Measured using two CW signals with 1MHz spacing. No transponder signals present.

