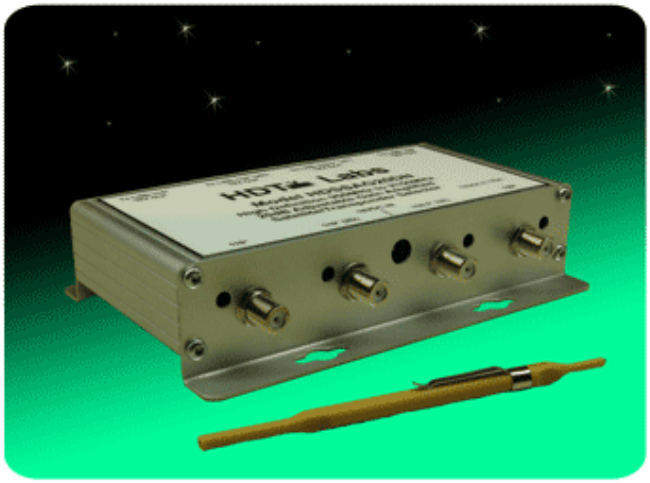
# HDTV Labs

## 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.