

globalinvacom Stacker/ De-Stacker

Two for the Price of One



PVR Twin Tuners, whether they are SD or HD boxes, are very high on everyone's wish list but in the end most don't buy their dream receiver for reasons as simple as the lack of an input cable. Most apartments are only supplied with a single cable connection and even in single family homes for many years it was never expected that a modern satellite receiver would need two independent signal sources. Occasionally, with a little effort, you might be able to snake a second cable through the walls into your living room but, more often than not, this is not possible.

The receiver manufacturers came up with a partial solution by fitting their boxes with a looped-through output from the first tuner so that both tuners could be connected to the same cable. But if you happen to be using tuner #1 for a recording, the available channels on tuner #2 are limited to the same polarization that is in use on tuner #1. You really can't have that much fun with your new Twin Tuner PVR with this kind of set up.

The British company **globalinvacom**, better known to our regular readers because of their new fiber optic LNB, decided to address this problem and came

up with a simple yet ideal solution. The Stacker and its counterpart, the De-Stacker, take the signals close to an antenna or Quattro-Multiswitch and com-

bine the two into one cable. The De-Stacker in the living room separates the two signals again so that the receiver can now have two fully independent satellite signals connected to it.

The Stacker is delivered from the factory in a stable, weather-resistant plastic housing. It should be installed as close as possible to the twin LNB or Quattro-Multiswitch; a cable tie is included to make it easy to install it directly on the satellite antenna mast. Mounting holes are also available for installation on a wall.

The heart of this discovery is inside the housing: a small

metal box with three satellite IF connections. Two of these connections are for LNB1 and LNB2 while the third is connected to the existing coax cable.

The LNB1 input is compatible with the 950-2150 MHz frequency range typical for DVB-S/DVB-S2 IF signals while the LNB2 input covers the range from 47-2150 MHz. This expanded range lets you also connect a terrestrial antenna onto the second input.

The workmanship of the Stacker is quite good; it is properly labeled and should therefore prevent any possible mistakes in connecting the cables. The system is designed to work in



Stacker/ De-Stacker Set



external temperatures ranging from -15°C to +40°C and is well protected from moisture. A separate power supply for the Stacker is not needed; it gets its power from the existing coax cable.

The De-Stacker is roughly 1/3 the size of the Stacker and is also fitted with three satellite IF connections. Since the De-Stacker would normally only be used inside, away from the elements, it does not come with a weather-proof housing. The connections are thus easily accessible.

The workmanship of the De-Stacker is just as good as the Stacker with all of the connections nicely labeled. Should you run into any problems, a service telephone number can be found on the back.

Unlike the Stacker, the De-Stacker does need its own power supply and for this purpose that manufacturer has included a 20V power supply that uses less than 5W.

Even though the Stacker/De-Stacker is for the most part self-explanatory, Inva-com went the extra mile and included a very detailed user manual that takes the installation and assembly and explains it step by step.

Everyday Use

Several years ago we tested a similar system from another manufacturer but because of some technical problems and a lack of sophistication, it never really was able to penetrate the market. Of course, this made it all the more interest-

ing for us when we connected the Stacker to a 75cm antenna with Twin LNB pointed to ASTRA2 at 28.2°.

The manufacturer recommends using CT100 coax cable between the Stacker and De-Stacker, a suggestion that we naturally listened to for the time being.

The distance between the Stacker and De-Stacker modules was roughly 65 feet (20 meters). To really put this system through the ringers, we selected four frequencies from each band at the start of the test with emphasis on frequencies that covered the edges of the bands.

As you can clearly see in Table #1, all four test frequencies were receivable at the De-Stacker without any problems. We were especially impressed that there was hardly any difference between the measured signal before the test without the new **globalinvacom** system and the measured signal with the new Stacker/De-Stacker system. For all practical purposes this difference was negligible.

Our tests also quickly showed that the LNB1 connection was slightly better able to process signals compared to LNB2. But this is expected and the manufacturer clearly states that in the specifications. The maximum C/N difference between a pass-through signal and one that was routed through the Stacker/De-Stacker was roughly 1.4 dB. For modern DTH satellites this is absolutely no problem.

The De-Stacker Plus comes

with a built-in amplifier and increases the LNB1 input level by approximately 9 dB and the LNB2 input by about 6 dB. This should take care of most signal loss conditions.

But we weren't going to let the **globalinvacom** system get off that easy. We decided to raise the difficulty rating by increasing the cable length between the Stacker/De-Stacker to about 115 feet (35 meters).

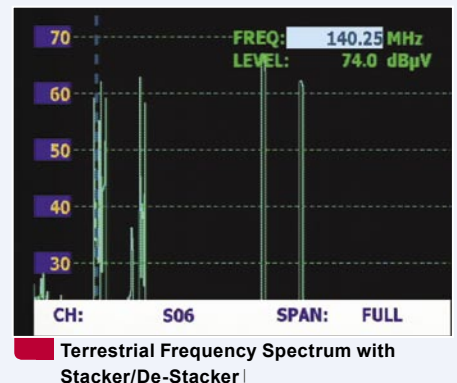
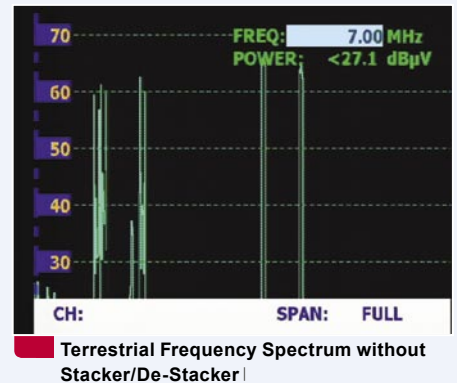
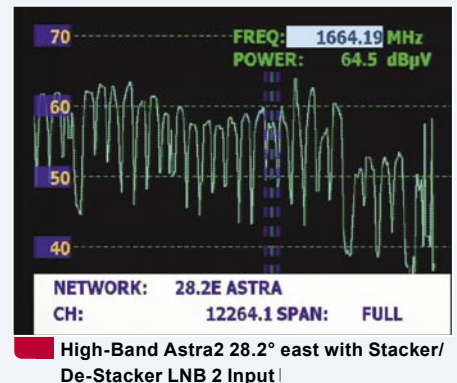
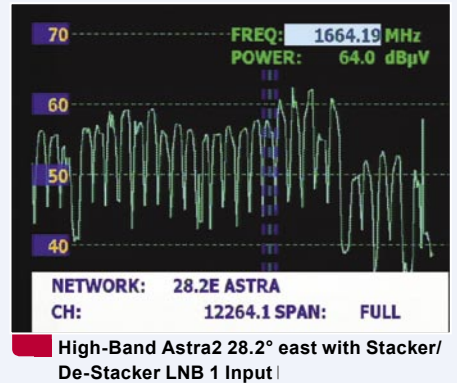
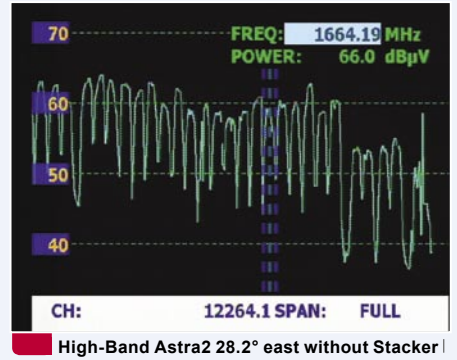
But even this could not disturb the **globalinvacom** Stacker even though the manufacturer recommends that the De-Stacker Plus be used for cable lengths over 100 feet (30 meters). The De-Stacker Plus guarantees interference-free reception with cable lengths up to 200 feet (60 meters).

In addition to connecting this system to a twin LNB, it is also possible to connect the Stacker/De-Stacker to a Quattro-Multiswitch. To check the validity of the manufacturers claim we linked the Stacker to two outputs from our 5/18 multiswitch (four LNB inputs for the Quattro LNB plus terrestrial input) and as expected, the **globalinvacom** product did not disappoint us.

We do have to mention though that the Stacker/De-Stacker system is not designed to be used when DISEqC signals are present. DISEqC signals will not pass through the **globalinvacom** system; only the 22 kHz switching signals for low and high band will pass through as will the voltage switching for polarization. Therefore, the Stacker/De-Stacker system can be used on these three applications:

- Reception of two satellites each with their own LNB
- Reception of one satellite using a twin LNB
- Reception of one satellite with a Quattro-LNB and multiswitch

As we already mentioned, the entire terrestrial frequency range can be handled by the LNB2 connection. Figure 4 shows the frequency spectrum with a direct connection of our TV Explorer II analyzer to the multiswitch. Figure 5 shows the terrestrial signal through



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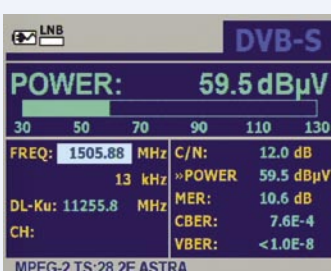


Table 1:

ASTRA2	Stacker LNB 1	Stacker LNB 2	without Stacker
11256V	59.8dBµV/CN 12.4 dB	61.0dBµV/CN 11.6 dB	62.2dBµV/CN 13.1 dB
10961H	59.5dBµV/CN 14.5 dB	63.3dBµV/CN 14.7 dB	64.5dBµV/CN 15.0 dB
12204V	66.0dBµV/CN 16.0 dB	66.0dBµV/CN 15.1 dB	68.7dBµV/CN 15.8 dB
12262H	54.1dBµV/CN 13.3 dB	64.5dBµV/CN 13.4 dB	66.0dBµV/CN 14.7 dB

Signal comparison Stacker/De-Stacker System and direct cable connection

the Stacker/De-Stacker system. In addition to all of the DVB-T channels, we were also able to receive the analog camera signal from the main entrance of our test lab without any problems and at nearly the same level (63 dBuV).

If you happen to have a wall outlet, in most cases this can also be used as long as it can support frequencies up to 3850 MHz. The manufacturer recommends wall outlets from Global Euroframe and Euromod HQF.

Does it have to be CT100 coax cable?

Up until now, we only used CT100 cable between the Stacker and De-Stacker as recommended by the manufacturer. But in reality, most end users already have cable that is of lesser quality. This was reason enough for us to test this as well.

We happened to find a roll of older coax cable gathering dust in our storeroom and decided to replace the high quality coax with this older cable. As long as the cable lengths were fairly short, we did not encounter any problems but, as the cable lengths increased, the more problematic the transmission became.

Therefore we strongly recommend that you use the cable suggested by the manufacturer especially if a length of more than 33 feet (10 meters) is to be used.

How does the Stacker/De-Stacker actually work?

As the name suggests, the signals of a twin LNB or a multiswitch are stacked on top of each other. In normal satellite reception, the LNB converts the incoming satellite signals to the 950-2150 MHz so that they can be efficiently carried by a coax cable. The Stacker does nothing more than transfer the LNB2 signals in the 47-2150 MHz range while taking the LNB1 input signals and converting them to the 2650 to 3850 MHz range. The Stacker essentially expands the useable frequency range.

The job of the De-Stacker is to take the higher frequency signals that are now on the LNB1 input and reconvert them such that both De-Stacker outputs are in the 950-2150 MHz range and thus compatible with DVB-S/DVB-S2 receivers. A built-in amplifier makes up for any signal loss that may have occurred.



Stacker/De-Stacker Applications

Expert Opinion

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The *globalinacom* Stacker/De-Stacker passed all of our tests quite convincingly. If high quality cable is used, there should be no problems using cable lengths of 100 feet (30 meters) or more; the De-Stacker Plus model according to the manufacturer can do 200 feet (60 meters) or more. The installation is simple and its workmanship is quite good. Even if you don't take the manufacturer up on the recommended cabling, the Stacker/De-Stacker still functioned without any problems.



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PVRs can be used only with Twin LNBS or Quattro-Multi-switches, that is, for a single satellite

TECHNIC DATA

Manufacturer	globalinacom Winterdale Manor, Southminster Road Althorne, Essex, CM3 6BX, UK
Tel	+44 (0)1621 743440
Email	sales@globalcom.co.uk
Model	Stacker/De-Stacker
Function	Transmission of 2 separate signals via one coax cable
Input Frequency Range Stacker LNB 1	950-2150 MHz
Input Frequency Range Stacker LNB 2	47-2150 MHz
Output Frequency Range Stacker	47-3850 MHz
Signal Loss Stacker LNB 1	0 dB
Signal Loss Stacker LNB 2	-2 dB
Power Usage Stacker	supplied through De-Stacker
Dimensions Stacker	155x122x35mm
Operating Temperature Stacker	-15 bis +40 °C
Input Frequency Range De-Stacker	37-3850 MHz
Output Frequency Range De-Stacker LNB 1	950-2150 MHz
Output Frequency Range De-Stacker LNB 2	47-2150 MHz
Signal Loss De-Stacker LNB 1	0 dB (+9 dB De-Stacker Plus)
Signal Loss De-Stacker LNB 2	-2 dB (+6 dB De-Stacker Plus)
Power Supply	External AC Adapter
Dimensions	116x90x32mm
Min. Input Level up to 100 feet (30m)	+68 dBµV
Min. Input Level up to 200 feet (60m)	+70 dBµV
Max. Input Level at LNB 1 Input:	+95 dBµV

ENERGY DIAGRAM



After turning it on, the De-Stacker's power usage remains constant. Switching operations in the De-Stacker do not affect its energy usage.

