

SPAUN SMS 9989 U's

A tasty sandwich of antenna multiswitches

Multi-satellite reception means either a motorized dish or a multi-feed antenna system. If you care more for short switching time between satellites rather than a maximum number of receivable satellites, you will choose the second option. Additional advantage of such choice is the possibility to distribute the signals to many independent receivers. If more than one satellite receiver is to be used, the simple DiSEqC switch will not do. You will need a multiswitch. Maybe SMS 9989 U of SPAUN? What's so special about this particular model? And what has a sandwich to do with a multiswitch?

Attention to detail was our very first impression when we were unpacking multiswitches from SPAUN. Not only the hardware workmanship is perfect but also the 2 language (German/English) descriptions on the cases are so clear that you immediately understand how to connect cables to SMS 9989 U cascable multiswitch. The manufacturer even cared to show us the connectors via which the switch powers the Quatro LNB's and the value of current drawn from a receiver to power internal switch circuits (see the photographs).

However, we decided to check the excellent user instructions for 2 reasons. First, to make sure that for SMS 9989 U, the same device model is used as the main

multiswitch (connected directly to LNB's) as well as the extension unit (connected to trunkline outputs of the main multiswitch). In this way you do not have to buy 2 different models when you need more receiver outputs. Simple, isn't it? Normally, SMS 9989 U is connected to 2 Quatro LNB's and distributes signals to 8 receivers. When you connect the second and the third unit, you increase the number of receiver outputs to 16 and to 24. Manufacturer guarantees the proper operation for up to 24 receiver outputs.

If you have snap-on male-to-male connectors, you do not even have to produce a number of short coaxial cables terminated with F-connectors. Inputs

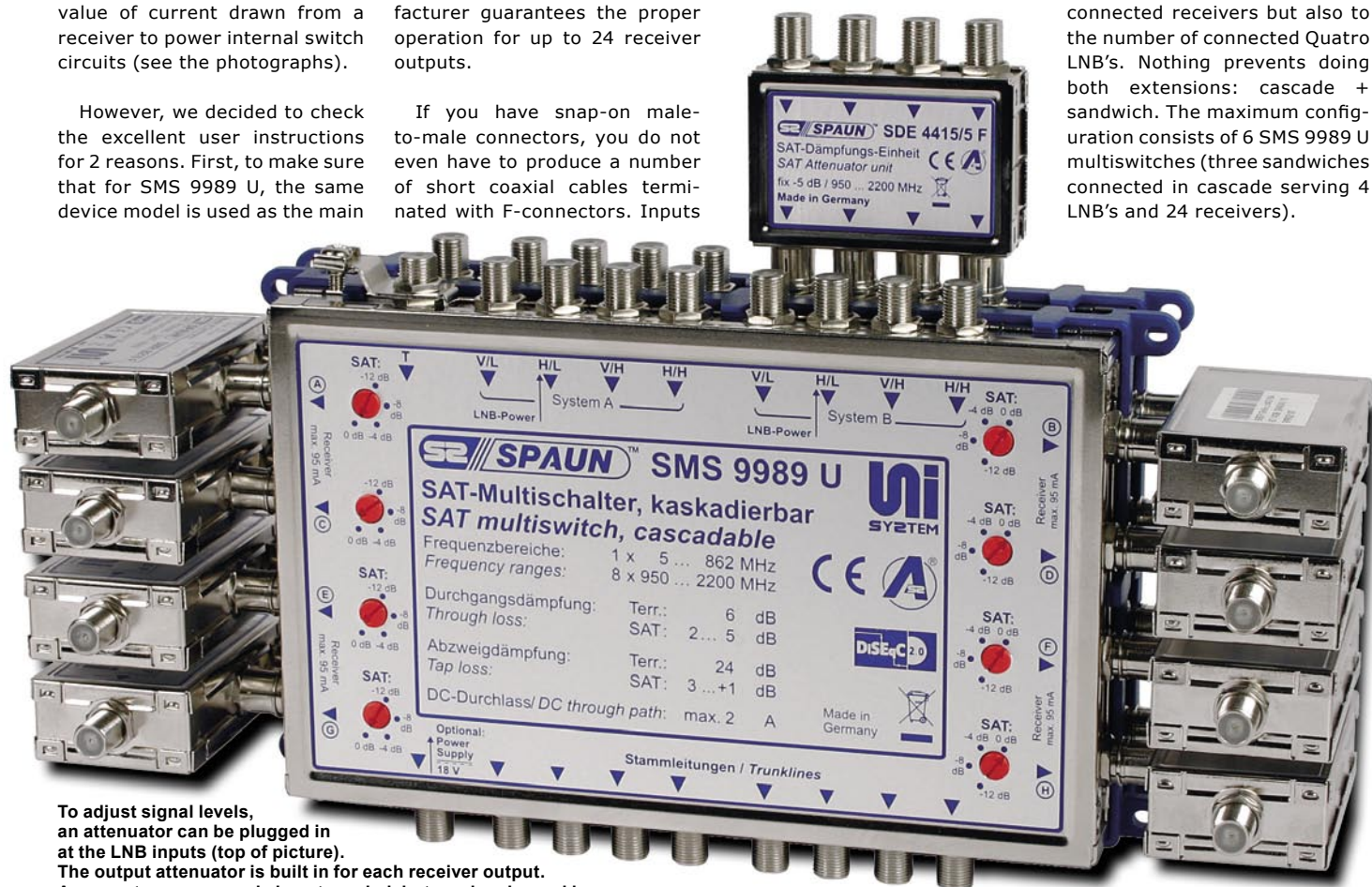
and outputs in SMS 9989 U are distributed on its front and back sides to match one another. This is the regular way of cascading multiswitches. But with SPAUN multiswitches, other connections are possible. And this was the second reason we referred to the instructions.

We wanted to learn what the function was of 4 small devices that were additionally included in the package. All were designated as SMR 9210 F SAT relays. We learnt that they were dedicated to make a "sandwich" connection out of two SMS 9989 U's. To do that, you put one unit on top of another, push a little bit until you hear a click and the plastic frame binds both units together. But the sandwich is not complete yet. Now you take SMS 9210 F units and attach them on the left

and/or right sides of the multi-switches in such way to combine the same receiver outputs with one SAT relay (e.g. receiver A from the bottom and from the top switch). You can install up to 8 SAT relays depending on how many receivers you want to connect.

The bottom SMS 9989 U can even be fixed to the wall before you do a "sandwich" connection. It is still a device for satellite A and B. The top unit will be used for another 2 satellites (C and D). Thanks to the SMS 9210 F SAT relays, "the sandwich" now looks to every connected receiver as a multiswitch not for 2 but for 4 satellites!

So, you can extend those SPAUN multiswitches not only with respect to the number of connected receivers but also to the number of connected Quatro LNB's. Nothing prevents doing both extensions: cascade + sandwich. The maximum configuration consists of 6 SMS 9989 U multiswitches (three sandwiches connected in cascade serving 4 LNB's and 24 receivers).



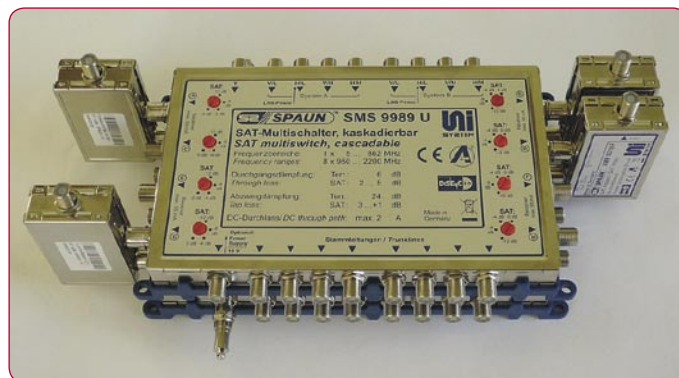
To adjust signal levels, an attenuator can be plugged in at the LNB inputs (top of picture). The output attenuator is built in for each receiver output. A separate power supply is not needed, but can be plugged in.

Measurements

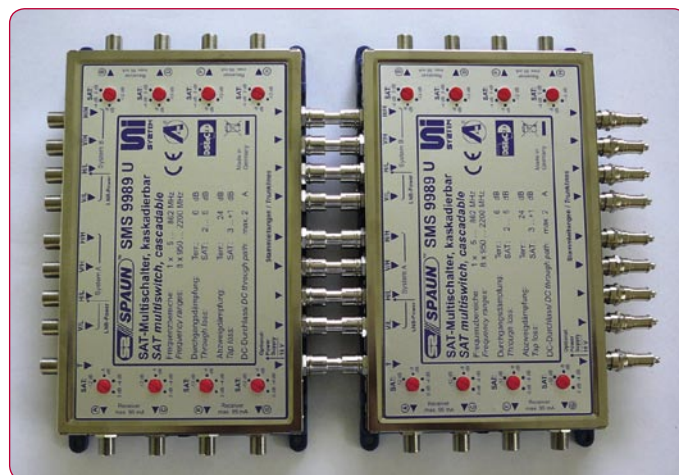
Tap loss (between the LNB and the receiver) has been specified as 3...+1 dB. In our measurements we got visibly better results. As you can see in the graphs, the tap loss was in most cases a gain rather than a loss - no matter vertical/horizontal polarization or high band / low band. Only one measurement represented a loss (-1.2 dB).

taps? Our third graph proves that practically all of them are equal.

We also checked how good the output attenuators are. They allow you to set 0, -4 dB, -8 dB or -12 dB attenuation. We checked that it is accurate within ± 1 dB what is more than enough for the attenuators used for leveling the signal levels depending on cable length.

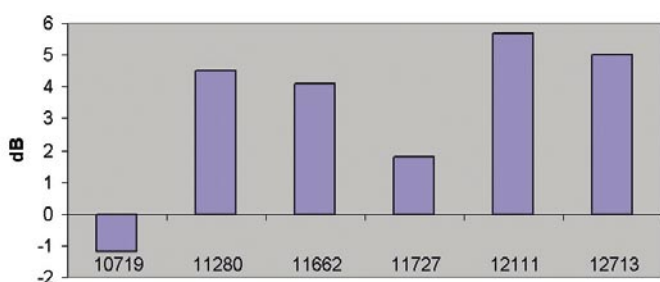


Put two units SMS 9989 U on top of each other, each getting signal from two Quatro LNBs, and add a SMS 9210 F for each receiver. Thus, each receiver is connected to 4 LNBs



One unit SMS 9989 U from SPAUN is good to feed up to 8 receiver, all of them having access to the signals from two Quatro LNBs

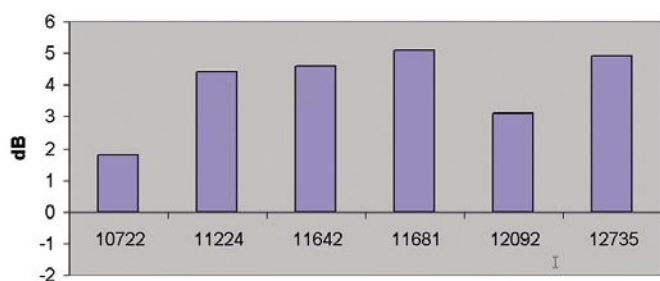
Tap gain. Vertical polarization transponders.



But perhaps the SAT relay SMS 9210 F introduces significant attenuation? Not really. We found it to be around 3 dB.

We did not mention it earlier but SMS 9989 U is not powered from a mains power supply unit but from the satellite receivers

Tap gain. Horizontal polarization transponders.



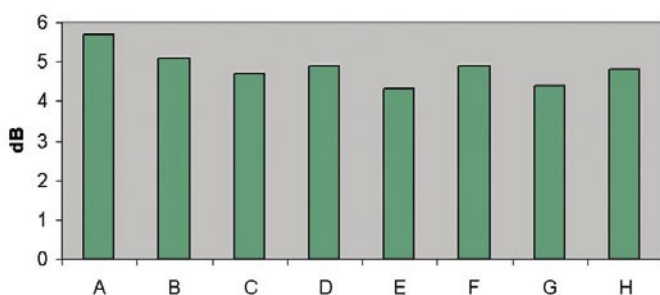
For the through loss (between the LNB input and trunkline output), we "managed" to discover a loss of only 2.5 dB vs. specified 2...5 dB.

connected to it. At first, we felt a bit uncomfortable about this, but after we had measured that a system consumed 276 mA for the multischwächer and Quatro LNB together, we relaxed. Practically every satellite receiver can provide that much current.

Are there any privileged outputs among A-H receiver

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Tap gain vs. receiver output



TECHNIC

DATA

Manufacturer	SPAUN Electronic, Byk-Gulden-Str. 22 D-78224 Singen, Germany
Internet	www.spaun.de
E-mail	info@spaun.de
Phone	+49 - 7731-86730
Fax	+49 - 7731-64202
Model	SMS 9989 U
Description	Extendable Multiswitch
Inputs	8 satellite + 1 terrestrial
Receiver outputs	8
Cascade outputs	8+1
Input frequency	950-2200 MHz (Sat.) and 5-862 MHz (Terr.)
DiSEqC	2.0 (including tone burst)
IF tap gain	-3...+1 dB
IF pass-through loss	2...5 dB
Terrestrial tap loss	24 dB
Terrestrial pass-through loss	5 dB
Current drawn from receiver	95 mA + LNB (320 mA max.)
Operating temperature range	-20... + 50° C/dry indoor use

Expert Conclusion

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SMS 9989 U's not only have a very modern look but are very well finished-off too. Their actual technical parameters surpass the specifications. Except for the expected cascade extension, these versatile multiswitches can be connected in "sandwich" system, what extends their inputs from 2 to 4 satellites.



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None