Система UniSEqC на SPAUN

- могат да се свържат до 9 сателитни приемника
- наличните стенни контакти дават възможност за лесно регулиране на сигналните нива за всеки приемник
- системата се предлага както за серийни, така и за разклонени инсталации
- може да бъдат включени ефирни сигнали, с което системата става много икономична за ефирно и сателитно разпределение на сигнал в един кабел
SPAUN SUS 5581/33 NF
A very Easy-to-Install Satellite TV Signal Distribution

Satellite TV is so easily accessible today that more and more often you have not just one receiver in the living room but two or more of them located in different rooms of your apartment or house. Today’s higher class PVR receivers have usually two satellite tuners and to take full advantage of this feature, you should connect two independent coax cables to them. How many of us were so clever 10 years ago or earlier to foresee the need for that many cables?

To solve this kind of problems as well as to keep the cabling as simple as possible, a solution called SCR can be used. SCR stands for Satellite-Channel-Router and this is a European industry standard for distributing satellite signals over a single coaxial cable - CENELEC EN50494. SPAUN use their own trademark UNiSEQC to mark their products dedicated for this solution. We asked SPAUN to send us samples of their UNiSEQC products so that we could test them and inform our readers what they should expect when applying them.

As usually, SPAUN had been very responsive and we received their products very soon. It was the SUS 5581/33 NF cascadable SCR Multiswitch and a number of wall sockets dedicated for this solution. The sockets were of three different types: UNiSocket 310, 314 and 318.

Let us first describe the heart of the system – SCR multiswitch. SUS 5581/33 NF accepts either LNB Quattro or LNB Quad signals plus a signal from a terrestrial antenna. You can configure the multiswitch to generate a SCR signal either on one output or on three outputs. If you choose one output, you use only one coaxial cable on which you can hook up as many as eight UNiSockets. The system with three outputs lets you connect up to three sockets on each of the three coax cables. So, in the first configuration you can connect 8 independent receivers and in the second configuration – 9 receivers.

You must though keep in mind that all receivers used in this system must be compatible with SCR technology. If SCR is not clearly stated in the receiver specification, check if EN 50494 standard is mentioned or a term ”unicable” (another trademark for a SCR solution). If you can put your hands on the receiver in question,
enter its installation menu and check if you can set its LNB to “SCR” “UNISEQC” or “Unicable” type. The menu should also offer you the possibility to program the SCR frequencies or to detect them automatically.

During the system configuration, we need to assign a unique SCR frequency to each receiver. Two receivers can not operate on the same frequency. When using SUS 5581/33 NF in one output configuration, the available frequencies are: 1068, 1284, 1400, 1516, 1632, 1748, 1864 and 1980 MHz. The best idea is to assign the lowest frequency (1068 MHz) to the receiver which is the last one on the cable and thus must overcome the highest cable attenuation. Cable attenuation increases with frequency, so to make “life easier” for the last receiver, we should keep its operating frequency as low as possible. Of course the last but one receiver should operate on 1284 MHz and so on. The very first one should operate on 1890 MHz.

If a three cable installation makes more sense in your particular location, the following frequencies are available: 1068, 1284 and 1400 MHz on output no. 1, 1516, 1632 and 1748 MHz on output no. 2 and 1864, 1980 MHz on output no. 3. Of course, the laws of physics do not change when you use this configuration, so use output no. 3 for the shortest cable and output no. 1 for the longest cable. And, as explained above, the further is the receiver from the SCR multiswitch the lower should be its operating frequency.

All these frequencies are not listed in the well written and detailed user guide but also on the top cover of the SUS 5581/33 NF. Like all other SPAUN multiswitches, also this unit is perfectly finished off and its labels could not be more self-explanatory. You can see it for yourselves in the pictures presented alongside this report.

The SCR multiswitch is cascadable what means that you can connect another SUS 5581/33 NF to the trunk outputs and increase the number of the receivers in the installation. Of course, each receiver (or receiver tuner) will be full independent and capable of receiving any channel from the satellite antenna, equipped with Quad or Quattro LNB, is aimed at. While one multiswitch should be a sufficient solution for a family house, you may need to cascade a few multiswitches to serve a multi zy building.

Speaking of the distribution system configuration, it is worth mentioning that a valuable feature of the SUS 5581/33 NF is its versatility in powering it up. SPAUN supplies a wall mounting power supply unit but if this is not practical in your installation, you can power the multiswitch via its terrestrial trunkline. By the way, the included power supply unit have a convenient plug adapters which combined with its high input voltage range (100-240 V 50/60 Hz) makes it truly universal. There are also 5 pieces of 75 ohm terminators included in the package. You attach them to the trunk outputs if you are not using cascade.

An important thing you should remember is that the input signal from Quad or Quattro type LNB should be rather high (65-90 dBuV). This is not a problem if you are going to receive a strong European satellite like ASTRA 1 on 19.2° and you have enough room to install 90 cm dish, but if this is a weaker satellite, you should think of either a bigger dish or a booster. In this case, you should consider using a “collective” reception or an additional amplifier between LNB and SCR multiswitch input.

Although the UNiSockets are much simpler products than the SCR multiswitch, their performance also counts in the whole system. We got tree socket types. Although they look identical except for the type number printed on them, they differ in the insertion and tap losses. UNiSocket 310 has the lowest tap loss – only 10 dB, but its insertion loss is the highest from the three models – 3 dB. You should better choose this model for the most distant socket from the SCR switch. Model 318 has the highest tap loss – 18 dB but the lowest insertion loss – only 1 dB. This model should be considered for the sockets located close to the SCR switch. Model 314 is an interim model with moderate tap loss – 14 dB and insertion loss – 2 dB. All these parameters are the typical values and according to the product specifications, you should be ready to accept +/- 2 dB tolerance of the tap loss for every model.

We started our tests with measuring the sockets. The results were very satisfactory for the insertion loss – all three models had lower average loss than specified. Model 314 had the average insertion loss 2.49 dB, model 318 – 1.99 dB and model 314 – 1.80 dB. The average variation was small in the whole IF frequency range (950-2150 MHz). We can say that the sockets were 0.5 dB better than specified.

When we took the measurements, the total insertions of the taps on the cable, the average results were still in the specifications: 11.96 dB for 310, 15.85 dB for 318 and 17.98 dB for 318, but slightly higher than typical 17 dB. We built a test distribution system then. A high output power Quad LNB was driving our SUS 5581/33 NF. Later, we switched to a Quattro LNB and everything worked equally good. The SCR multiswitch was configured for one output, we connected a quite long cable (over 30 meters) to its output. The first UNiSocket 318 was connected to the cable end and after this socket we connected the other seven ones: 2 x 318, 3 x 314 and 2 x 310. Between the sockets we connected cables of various lengths: from 30 cm to 6 meters. The whole system from the SCR multiswitch to the last socket measured about 30-55 meters.

A cable of such length attenuates the signal by about 15 dB and usually does not pose a problem for a normal satellite reception in which an LNB is routed directly to a receiver. However, in our case, every socket was installed on the cable added its attenuation (insertion loss). The SCR multiswitch has automatic gain control that regulates its output signal to about 90 dBuV output if only the input signal from the Quad or Quattro LNB is in the range 65-90 dBuV. The above table presents the signal levels we achieved at each of the sockets.

We were quite anxious when we connected our receiver. Would it be able to lock to the signal? We used a modern Iotcrypt STC66D0 HD DVR. The receiver was locked to the signal and showing channel video without any problem, no matter to which socket we connected it and which SCR frequency we chose. Its
signal strength was at 90% and signal quality at 80%. Not bad, not bad at all, if you take into account that the signal was attenuated by a long cable and the sockets.

However, in real life, you do not always have the most modern receivers well prepared for the SCR system. Therefore, we decided to check how an old receiver would perform. We took a 5 years old receiver with SCR feature. At that time it was quite a novelty. We were full of doubts if it would be able to lock to the signal when connected to the last socket and of course our receivers were absolutely no problem in locking to the signal. But this was not the end of our test. SPAUN claims in their user guide that “By internal electronics of the device, the use of special protection sockets (with shut-down on reception of non-standard DiSEqC commands to EN 50494) is not necessary.” Such statement is nothing but a challenge for a dedicated tester.

So, apart from the EN 50494 compatible receivers, we connected a class-
al receiver to the single ca-
bile system built with SPAUN components and operated it in such a way to make it send various DiSEqC commands (1.0, 1.1 and 1.2). We were changing reception system configuration in the receiver menu and then zapp-
ing channels.

And indeed, in line with SPAUN’s promise, nothing could disturb the operation of UniSEqC compatible receivers. They continued to deliver undistorted video and audio. We know, how-

ever, that not every SCR system offered on the mar-
ket has so advanced rout-
ers as SPAUN. So the SPAUN UNiSEqC offers the addi-
tional advantage of being foolproof against users con-
necting regular receivers or badly configured receivers - SPAUN’s system simply ig-
nores these commands and keeps working perfectly.

The UNiSEqC system, once configured, works reliably without any maintenance. After a power shortage, the receivers boot and send commands to the SCR multi-
switch to activate “their” fre-
quencies. Everything starts to work again.

We are sure that this is the simplest and cheapest solution to make an existing installation suitable for twin tuner receivers with only one cable entering every room. The system is also attractive for new installation as the complexity of cabling is sig-
nificantly reduced. You can easily combine classical multi-
switches and the UNiSEqC system. Several wiring ex-
amples are provided in the user guide. The only precon-
dition is: you must use SCR compatible receivers. Fortu-
nately, more and more new receivers are equipped with this feature.