LeM Electronics UK Ltd

Using the LeM SCX Range of Multiswitches

Congratulations on buying a LeM SCX multiswitch, one of the most advanced multiswitches on the market.

This information is designed to help you through the installation of the multiswitch and not the pairing of the switch with the Sky (or other) Set Top Box. Please refer to our separate instructions for this process. We recommend that you read through these guidelines completely before attempting an installation.

The SCX53 range either in 2, 4, 6 or 8 output versions is a combined Legacy, meaning standard 13/17 volt/22KHz. switching, and SCR (Single Cable Router) which works both on the BSkyB and EN50494 software.

The term SCR is also known as CSS, Channel Stacking System, Unicable and Sky have recently adopted the term Single Cable System, they all work in basically the same way and to the same software protocols noted above.

FYI in other parts of the world the software may be different and would not work on this version of switch. It is primarily designed for the UK & Eire as well as Mainland Europe.

The switches can be used to replace a standard multiswitch in pre existing IRS systems where a single cable has been installed and there is a requirement to upgrade to a PVR solution, Sky+ for example. The switches can also be used in conjunction with new amplifiers and a dish feed to replace a good quality MATV system without re-wiring.

Each output provides for 3 tuners, as an example in a sky set up this could be1 x Sky+ and 1 x Sky Multiroom the cable being split by a suitable splitter after the faceplate in the living room.

Splitters must be voltage passing from the output to the input only so that voltages do not run in both directions. failure to use the right type of splitter will make the operation impossible. If you are installing a Sky+ set top box only then a 2 way splitter is all that is needed. For a multiroom installation then a 3 way splitter is needed. SCR channels are 9, (1280MHz.) 11 (1382MHz.) and 14 (1484MHz.) which need to be programmed to the set top box. We reccommed that channel 9 is used on the Multiroom box and 11 and 14 on the Sky+ box

PREPARING TO INSTAL

When arriving on site, the first thing to do is to make some measurements so that you have a baseline to work from. These should be taken from the output of the existing switch. Log these so that you have all the outputs listed.

No Power Supply is needed to use the SCX53 switch however you will need a PSU to power the LNB if none is available, Our modal number AL1000 is designed for this and a connection is provided on the switch to provide a DC path to the LNB. Please note that existing amplifiers, assuming they are working can be re-used, in which case no PSU will be required as the amplifier provides power to the LNB.

Once you have completed the measurements, remove the existing switch and install the new SCX53 in its place, taking care to ensure that the output cables can reach the output sockets on the SCX switch. You may need to extend or cut-back the cables to suit. In some instances it can be useful to terminate the existing drop cables on to a "Barrel Bar" and then run new short leads to the SCX53 switch, this will tidy up the installation.

If more than one switch is being used at the same location, connect the two (or more) switches together either by a short fly-leaf or using "F" male to "F" male push on connectors, these are available from you LeM stockist as a pack of connectors, part number, Trunk Connect 5. Where you are cascading the switches at different locations then the existing input and output trunk cables can be used.

Once all the drop cable connections have been made, terminate any exposed outputs, both drop and trunk with a 75Ω terminating resistor. Failure to do this will affect the performance of the switch.

PLANNING THE SYSTEM

To ensure that the system you are installing will work you need to do some calculations, particularly on thru loss and trunk cable lengths.

Model	Thru Loss Satellite	Thru Loss Terrestrial	Tap Loss Terrestrial
SCX53/2	2dB	2.5dB	12dB
SCX53/4	2dB	2.5dB	14dB
SCX53/6	3dB	4dB	16dB
SCX53/8	4dB	5db	18dB

When planning the system remember that the input levels will drop by a factor of the thru loss added to the cable loss between switches. However because of the input AGC circuit as long as you are between the levels mentioned above than the number of switches in a line is only limited by the signal level at the inputs. repeater amplifiers can be used in a line. or splitting to form two (or more) lines makes sense.

TERRESTRIAL PLANNING

The terrestrial circuits are purely passive and no amplification is included in the SCX53 switch, so it is important that both the thru loss and tap loss is taken into account., the table above shows the losses for all four models. we recommend where two different models are being used at the same location, an 8 output and a 4 output for example, the largest switch goes first in line, the lower tap loss of the four way will alleviate the higher thru loss.

Amplification is needed for the terrestrial side of the switches and you will need to make calculations based on Thru loss, tap loss and cable lengths,. please note that the stepped output amplifier does not affect terrestrial signal levels.

Where you are replacing switches that have passive terrestrial then the SCX53 range should operate in the same way, however where replacing switches with active terrestrial you will need to take into account the losses as described above.

SETTING UP THE SWITCH.

Taking into account the measurement you took earlier the SCX53 can now be set up to match, as near as possible, the original signal levels.

Input Levels.

The SCX53 is fully AGC controlled and does not need setting up in terms of adjusting input levels to the output level. The input variation can be anywhere between 50 and 100dBuV for satellite levels. However care needs to be taken where individual transponders have a high level of difference, As an example currently there is some 12dB of difference between the highest and lowest transponders on the Vertical Low band of ASTRA 28º East. Bearing this in mind we suggest that the lowest transponder input level should be set at 60dBµV meaning that the highest is 72dbµV this is usually achievable from a standard 80cm. dish with a good quality high gain Quattro LNB. Our AS44 satellite amplifiers can help increase levels if required

The AGC circuit will then set the drop cable levels to the output you set with the small amplifier setting on each drop cable output. In general terms set the switch to 0dB for short cable runs, 6dB for medium cable runs and 12dB for long cable runs.
Please note that the SCR levels are 10dB higher than those for Legacy, this is because there are far less transponders on the cable at any one time.

Output Setting

Mode	Max Output 0dB	Max Output +6dB	Max Output +12dB
Legacy	70dBµV	76dBµV	80dBµV
SCR	80dBµ	86dBµV	92dBµV

Again taking the original signal levels from the output sockets set the amplifier gain selector to match your requirements. The selector is a 3 step selection it is not fully variable. Take care using either you fingers or a small screwdriver to change the setting, do not force the switch as this will invalidate your guarantee.