

# Engineer Guide to Multiple Dwelling Units (MDU)

**TAPS & Sky Homes receive many calls each day asking for information on MDU (Multi Dwelling Unit) systems.**

We have worked closely together to deal with the most frequently asked questions and hope this pack will help make things a little clearer.

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## **Can I install Q in an MDU?**

No, is the simple answer. Even if the block has been upgraded it doesn't mean that the property you are attending will be ready for Q.

A cable from the property needs to be traced and transferred from the existing equipment over to the dSCR and in some cases an installed dSCR will have been removed from a block until the first customer is connected.

Please check the install details as you might only be there to add a Q mini to an existing system but if you are there to install the main Q box please follow the process below.

**Inform your manager and cancel using cancelation code 2212. The RST adviser will take you through the most appropriate route to get the installation resolved for the customer and will advise accordingly.**

# Sky Q service in an MDU system

**When on site at the customers property please follow the process below as detailed in iKnow2**

If you attend a MDU service for Q and notice the faceplate is dual feed and both connections are attached to the Q box this is not necessary. Only **one** of these cables will be attached to the dSCR or Plug-In Adapter. You can use the following steps below to test for the correct cable and the other can be utilised for Freeview/Sat based on the system type.

Make sure your SM3 is in standard mode and run a logger directly from the faceplate. This will enable your meter to power the switch directly and will bypass the power inserter if onsite.

If the loggers are marginal or show fails there is nothing you can do to rectify the fault. Export the logger as a PDF file and send to the customer via email so they can speak to their Managing Agent (MA) so arrangements can be made to have the block serviced. **Inform your manager and cancel using cancelation code 2212.**

If the logger passes on standard mode you will need to test the faceplate in dSCR mode to do this follow these steps:

- From the home menu of the Skymaster3 , select Mode then set:
- Change MODE to SCR/dSCR.
- LNB TYPE to dSCR user band # to 15.

**Please note : Don't test on BAND 3, 9, 11, 14 or 17 as these carry standard signals for Sky+ and will give you a low reading.**

If the SAT feed you are testing passes on standard mode but fails on dSCR mode then you might be testing the wrong SAT feed. In this case you should run the above tests again on the second SAT feed.

- If there's no signal on both ports, poor signal quality where the power's reading below 52dbuV or the transponders fail, **escalate the problem to your team manager with the MDU cancellation code 2212**, and advise the customer to contact the owner of their building, or there Managing Agent
- If the signal's good, perform a first data logger on Log1 with BAND# set to 15 (if you're downloading to SmartSky on iPad, select SAT1), then perform a second data logger on Log2 with BAND# set to 26 (if you're downloading to SmartSky on iPad, select SAT2). With these setting's your SM3 will test

the signal at the lower and upper end of the frequency scale

- If the loggers are marginal or show fails there is nothing you can do to rectify the fault. Export the logger as a PDF and send to the customer via email so they can get the Managing Agent to make arrangements to have the block serviced. **Inform your manager and cancel using cancelation code 2212.**

## Understanding more about MDU systems and our ASHA's

To enable customers to have Sky Q in Multiple Dwelling Units Sky initiated the Block Enhancement Project. The intention is to upgrade all MDU's so that the customers can enjoy all the benefits of Sky Q. The project is lead by Sky Homes who work with a network of third party businesses to carry out the requirements for this project. These third party businesses are known as Approved Sky Homes Agents or ASHA's, they complete both block enhancements and customer box installs once the block is Q ready.

### Who are the ASHA's?

The ASHA's that Sky Homes work alongside are below.



These third parties installers provide a wealth of knowledge on MDU systems, give national coverage and also have the ability to cope with ever changing demand.

### What is Block Enhancement?

To enable the customers who live in an MDU so that they can to receive Sky Q, meaning the current system in that MDU must be upgraded. This is very similar to a

normal DTH property needing the LNB upgraded to a wideband LNB. The ASHA completes a detailed survey of the MDU to make sure that when they upgrade the MDU they do not compromise the existing system in any way.

- The upgrade takes place alongside the original system.
- Once MDU has been upgraded then the new Q customer is transferred over to the new equipment

**The systems upgraded falls into two main areas with three main types of system.**

- Internal Systems - these systems are inside the MDU, usually located in riser cupboards or loft areas.
- External Systems - these are systems that are located on the external walls of the MDU inside weatherproof cabinets which normally require a key to access

**The three main systems that are seen are:**

- Shared Dish - these are separate satellite systems only and do not contain any terrestrial signals
- Single Feed IRS - these are an integrated reception system of satellite, terrestrial, & DAB (Digital Audio Broadcasting) etc and are supplied to the customer's property via a single cable.
- Dual Feed IRS - these are an integrated reception system of satellite, terrestrial and DAB which are supplied to the customer's property via two cables.

**There are other variants that are used – MATV, Fibre etc, but the ones above are the most common.**

## What is an upgrade?

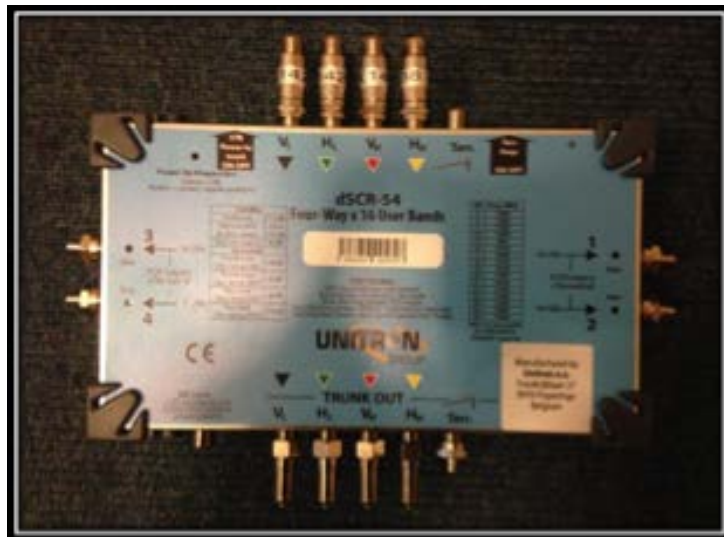
An upgrade to a system is where an ASHA has installed all the relevant equipment needed to make that MDU Sky Q ready. Once an upgrade is complete then information is stored on Sky's customer database that will then enable the sales teams to upgrade/sell Sky Q to that customer.

**A typical upgrade will see the following kit installed.**

- Splitter or Tap - to split the signal into the dSCR
- dSCR - Digital Single Cable Router- this will provide either classic or Sky Q signals to the customer.
- Power - this will either be provided by a power supply unit or power inserters.
- Terminators - these will either be DC blocked or non-DC blocked.
- Earth - making the system safe and within guidelines all new items fitted must be earthed.

# What is a dSCR?

A Digital Single Cable Router or dSCR is a switch which is able to support both Sky+ and Sky Q signals to the relevant set top box.



4 Way dSCR

It comes in three variants, 4 way, 8 way, & 16 way and the one Sky use is developed by Sky and Unitron.

dSCR's are designed to be installed in a distribution system and are fed via the four bands/polarities (H/L, H/H, V/L, V/H) from a Quattro LNB or Quattro Fibre GTU, along with DTT, FM and DAB terrestrial signals.

Each output port outputs 16 carriers on 16 pre-set user bands/frequencies.

## User Band - frequencies - Why user band 15 & 26?

A simple answer really - User band 15 has the lowest frequency and user band 26 has the highest frequency. Therefore logic would dictate that if these bands are ok everything in between should be as well.

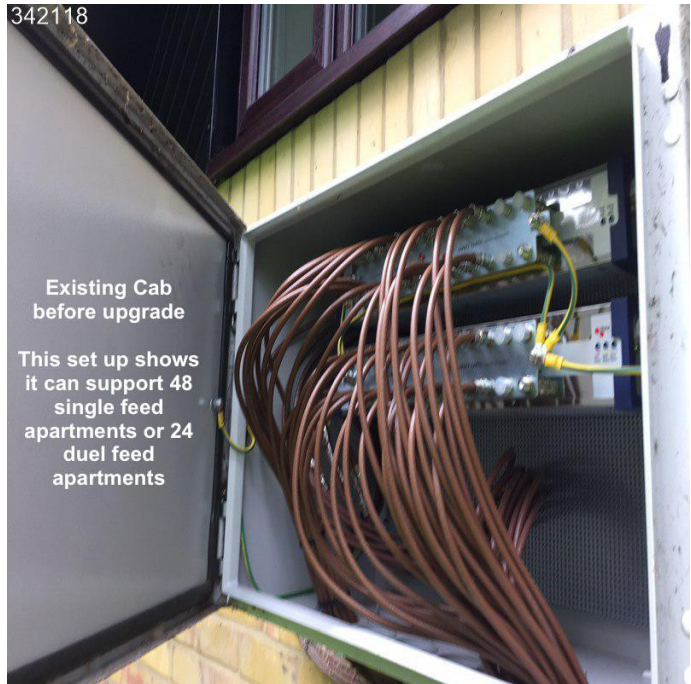
- 3 - 1680Mhz
- 9 - 1280Mhz

- 11 - 1380Mhz
- 14 - 1480Mhz
- **15 - 980Mhz - Lowest frequency**
- 16 - 1030Mhz
- 17 - 1080Mhz
- 18 - 1130Mhz
- 19 - 1530Mhz
- 20 - 1580Mhz
- 21 - 1630Mhz
- 22 - 1730Mhz
- 23 - 1780Mhz
- 24 - 1830Mhz
- 25 - 1880Mhz
- **26 - 1930Mhz - Highest frequency**

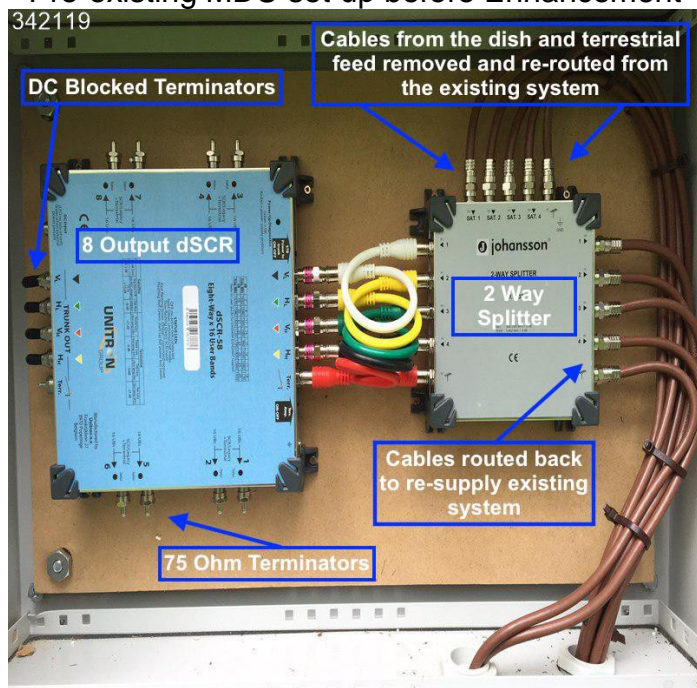
Lets look at the dSCR set up in the pictures below.



External cabs



Pre-existing MDU set up before Enhancement



Internal view the new cab added to house dSCR

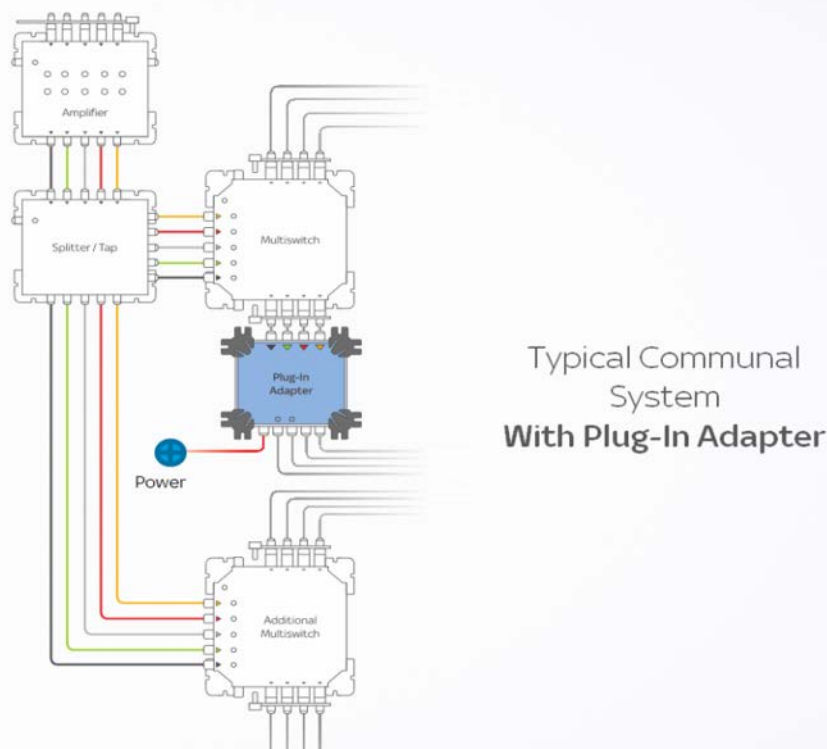
When the upgrade is completed by the ASHA the new dSCR will support the existing subscriber base in that block and will also have capacity for additional customers when required.

This can be upgraded again to a 16 output dSCR if demand warrants the upgrade.

# What is a Plug-In Adapter?

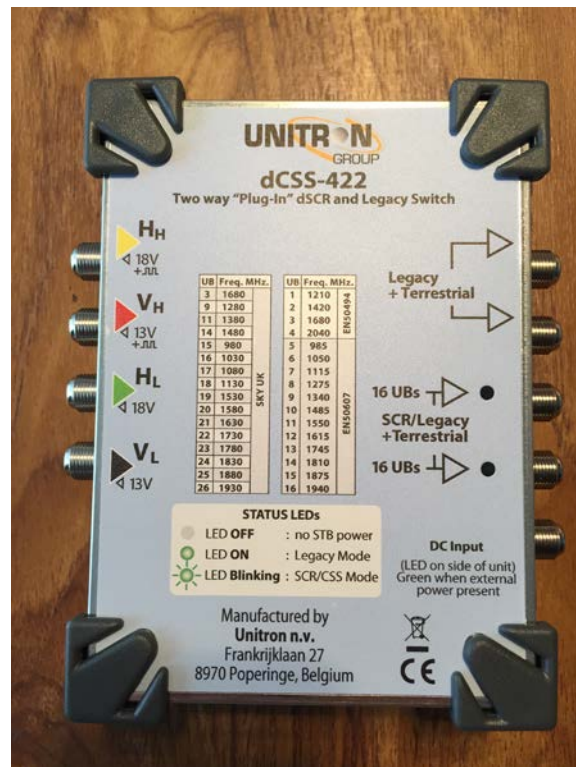
To keep up with the Sky Q demand and with recent advancements in technology we can now make Sky Q easier and more accessible to our customers in a flat. Using a Plug-In Adapter takes away the need to do a full “Block Enhancement”

- How will we do this? - By using the new ‘**Plug-In Adapter**’ made for us by Unitron in the communal area of the block’s TV system, we can change the signal sent through a resident’s cable to their set-top box in order to receive Sky Q. This new equipment will be installed like the dSCR by **our Sky ASHA engineers**.
- What does it mean to Sky, to you and our customers? Speeds up installation times, the right type of engineer attending the install and a **smoother customer journey!**



What a Plug-In Adapter looks like installed in a MDU





Unitron dCSS-422 Plug-In Adapter

## dSCR and Plug-In Adapter Power

The dSCR and Plug-In Adapter also requires power to work and can take power from the following:

- Trunk lines – These are the cables that feed the dSCR it's signals, and power can pass through all satellite trunk cables to the dSCR. When completing Block upgrades this method of powering the dSCR is not used as when we split into the original system we do not want to take power from that system as this could cause issues, so DC in line blockers are fitted to the trunk input feeds of the dSCR to prevent this.
- Power Port - Power Supply Units (PSU). This is the preferred method of powering the dSCR or Plug-In Adapter switch, it means they have their own power supply and this will generate all the power required to run the switch correctly and power all the output ports. This is connected to the dSCR or Plug-In Adapter via the power port through an F type DC power connector. DC blocked terminators are fitted to the trunk outputs of a dSCR to stop power loss.
- Output ports - Supplied via the subscriber cable with a dedicated OEM Power Inserter connected within the residents' property – this will only power the port it's connected to and the LNB. This method is used as the Sky Q box does not on it's own supply enough power to the dSCR or Plug-In Adapter and so it

needs a little boost from a Power Inserter. A Sky+HD set top box does not need a Power Inserter connected. Subscriber 75 Ohm terminators are fitted to all ports not being used to prevent signal loss.

dSCR's perform a P.O.S.T (Power On Self-Test) on initial powering of the switch (except where powered via a power inserter). This will fully load all the ports and will take the maximum current drain to determine if there is adequate power for the switch to work under full load.

On 'Power Up' the individual Output Port LED's will flash Red/Green alternately for 15 seconds whilst P.O.S.T. test is being carried out.

Once complete the Power Diagnostic LED will remain Green if there is adequate power or turn Amber if there is insufficient power.

Output Port LED's will then indicate status of connected customer to that port.

- OFF – No STB connected
- Solid Green – STB connected in legacy mode
- Slow Flashing Green – STB in SCR mode connected

## Power Inserters



If you come across a power inserter during a service visit these should be left plugged in and never removed from the property as they are used to power individual ports of the dSCR or Plug-In Adapter. There are two models of Power Inserter, SP160 which only works with Sky Q 1TB boxes and SP161 which is compatible with Sky Q 1TB and 2TB boxes.

If you feel that the Power Inserter may be faulty then please follow the cancellation process as explained in the Sky Q Service section of this article.

# Connections

## When using a dSCR or Plug-In Adapter in an MDU:

- Sky Q set top box will only require **one** cable to be connected, you must also ensure the set top box is set up correctly for this by going into the menu on the Sky Q box and setting the LNB type to SCR, once you have done this the set top box will need to be power cycled to ensure this mode will be set correctly. This will mean the Sky Q box will have full functionality as if it were connected to a normal wideband LNB.
- Sky+ this will be dependent on the system if it is a single cable IRS then only one cable can be used, and the customers will either have to have the set top box in single feed mode (not full functionality) or a splitter can be fitted in the customer property to allow both tuners to function fully. If it is a dual feed system then both feeds must be connected to the dSCR or Plug-In Adapter and then both feeds in the customers property to the set top box allowing full functionality.

For any further information on the ASHA's, Enablement Project or if you have any feedback on the content please contact.

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