dCSS

A NEW AND INNOVATIVE MULTISWITCH IMPLEMENTING DCSS TECHNOLOGY

WHAT IS DCSS TECHNOLOGY?

dCSS technology is the evolution of the SCR technology, which characteristics are described below:

The SCR technology (Satellite Channel Router) allows full distribution of one or several satellite signals to multiple users over a single coaxial cable.
The relevant aspect here is the suppression of the multiple cables required to support the new reception devices; this is achieved by means of a static or dynamic user band assignment and the use of DiseQc commands for satellite signal tuning.

dCSS

A historical note: the SCR standard (EN50494) was defined in 2007. Based on the analogue concept, this technology considered the use of up to 8 user bands (User Bands) in the satellite IF band (950 MHz-2150 MHz). Each band is assigned a user tuner, and on each any input band and polarity can be selected using frequency processing.

Later, the dCSS technology (Digital Channel Stacking Switch), based on the EN50607 standard, introduces significant improvements, such as the increase in the number of satellites to be distributed, or the possibility to use 32 user bands in a single cable, which is almost equivalent to occupying the whole satellite band. Furthermore, the dCSS technology is backwards compatible with SCR.

The dCSS technology can be used in multiple scenarios (individual and communal distribution), and in dynamic or static operation modes. The latter is the most flexible and inexpensive alternative to the headends with intermediate frequency processing that came along with early analogue and digital satellite distributions.
Likewise, the dCSS technology can be combined with optical fibre, which significantly extends the reach of the satellite distribution.

In short, the dCSS Technology is quite a step forward in the distribution of satellite signals over a single coaxial cable, and it will make for the mass introduction of the new reception devices in homes; devices such as Home Gateways or PVR, the big bet of satellite operators in the short and medium terms.

A dCSS NEVOSWITCH IMPLEMENTING dCSS TECHNOLOGY

DCFLEX *functionality*

This exclusive functionality gives the product **complete control and flexibility to power the multiswitch from anywhere in the system**. The installer will have complete freedom to choose how to power the multiswitch and will be able to choose the best to suit a particular scenario.

This versatility is achieved via a switch (DC LINK) that can be used to isolate or not, from a DC point of view, the multiswitch from the cascade.

A new and innovative multiswitch implementing dCSS technology.

This **5 wire** cascadable multiswitch supports **SCR I (EN50494) and SCR II (EN 50607) standards and legacy mode,** making the multiswitch compatible with any existing or new set top box.

With 4 satellite inputs (Quattro) and terrestrial input, these multiswitches offer from 2 to 16 user outputs, with up to 16 user bands each.

REF.	DESCRIPTION	EAN 13
714101	**dCSS NEVOSWITCH 5x5x2 TERM./CASC.**	8424450188613
714102	**dCSS NEVOSWITCH 5x5x4 TERM./CASC.**	8424450188644
714103	**dCSS NEVOSWITCH 5x5x8 TERM./CASC.**	8424450196267
714104	**dCSS NEVOSWITCH 5x5x12 TERM./CASC.**	8424450196274
714105	**dCSS NEVOSWITCH 5x5x16 TERM./CASC.**	8424450196281

*Only available in reference 714101.

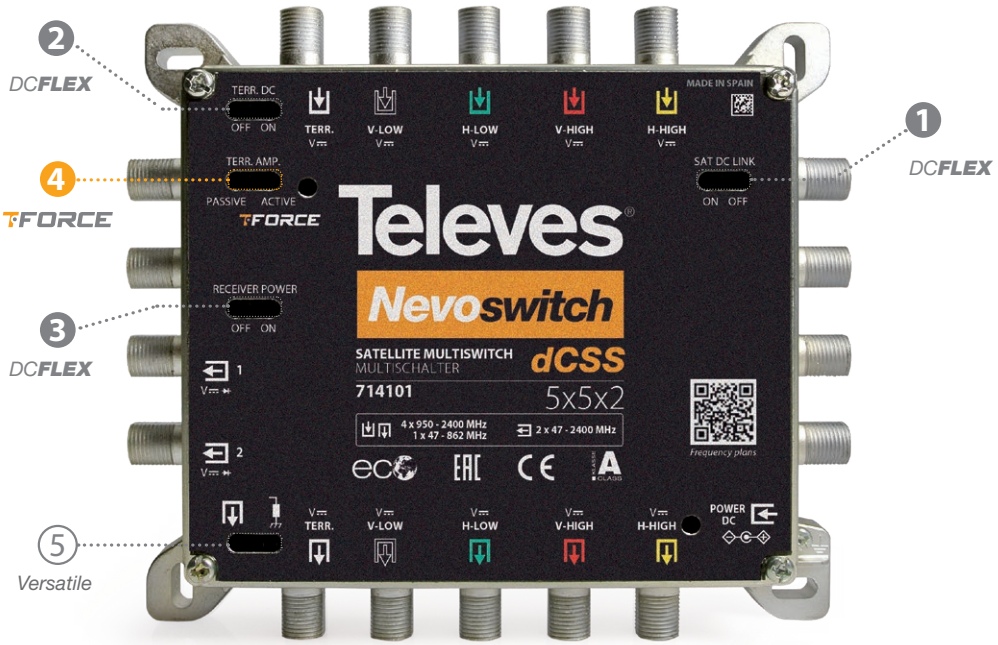
- **MULTIPLE POWERING OPTIONS:** Directly from a PSU, receiver outputs* or line power through the satellite inputs or outputs. Moreover, you could choose to line power only the terrestial side (TForce) of the multiswitch through the terrestrial inputs or outputs.

- **IT CAN BE EASILY ADDED TO AN EXISTING SYSTEM:** You just need to connect a power supply to the multiswitch and isolate it from the power on the cascade (flick the DC link switch). The power of the existing system will pass through the multiswitch unaltered and the dCSS NevoSwitch will only draw power from its own power supply. This will avoid any possible problems created by adding a new dCSS NevoSwitch to an existing system.

- **INCREASED SAFETY FOR THE SET TOP BOXES** connected to the multiswitch, as these are completely isolated from the power in the cascade, avoiding potential issues with the power in the system affecting the end user equipment.

- **WIDE POWERING RANGE:** With voltages from 10V to 20V making it compatible with most of the systems out there.

- **ECO MODE:** The multiswitch isolated from the cascade can reduce its power consumption to zero when the set top boxes are turned off and terrestrial is passive. In case TForce is activated, the consumption is only 50mA. This is possible because the multiswitch will also dynamically adapt the way that it's powered in order to keep its consumption to the minimum. So it will automatically turn off any part of the circuit that is not been used in order to lower its consumption.



DCFLEX

HOW DOES THE DCFLEX FUNCTIONALITY WORK?

It can be controlled through the following switches:

1. **SAT DC LINK SWITCH (ON/OFF)**:
   It isolates or connects the power of the multiswitch to the power available from the cascade (satellite legs).

   OFF (isolated from the cascade): The MSW is powered locally (power supply) or from the user output without adding or drawing power from the cascade.

   ON (connected to the cascade): The MSW can add or draw (in the case that needs powering) current from the cascade.

2. **TERR. DC SWITCH (ON/OFF)**:
   It isolates or connects the power available from the cascade (only terrestrial leg). It can be useful to line power a masthead amplifier or a BOSS antenna, but it can also be use to line power the terrestrial side of other MSWs in the cascade.

3. **RECEIVER POWER SWITCH (ON/OFF)**[1]:
   It controls the DC pass from the user outputs towards the multiswitch. You can power the device from the dCSS set top box (if there is enough power available) or a power inserter.

TFORCE

The dCSS NevoSwitch also incorporates the innovative TForce technology, based on MMIC components and developed exclusively by Televes. TForce offers an **intelligent terrestrial level adjustment**[2].

4. You can activate it or not by means of a switch making the multiswitch **ACTIVE OR PASSIVE ON TERRESTRIAL**.
   - In active mode, the MSW automatically adjust the terrestrial output level to the **OPTIMUM LEVEL**.
   - In addition, this optimum level is kept balanced **IN EVERY USER OUTPUT** through the dCSS cascade.

MORE FEATURES:

- **Compatible** with existing Televes NevoSwitch and also with the non-Televes IRS systems.
- **Chassis made of Zamak**: Improved screening attenuation.

5. **Versatile**: Cascadable and standalone configuration in the same reference (with the flick of a switch).

- **Small size and compact design** (140x120x30mm).
- **European quality and design**, 100% manufactured and verified in our robotized lines.

[1] Only available in reference 714101.
[2] Only available in references 714101 & 714102. Active by default in references 714103, 714104 & 714105.

A dCSS NEVOSWITCH IMPLEMENTING dCSS TECHNOLOGY

APPLICATION EXAMPLE

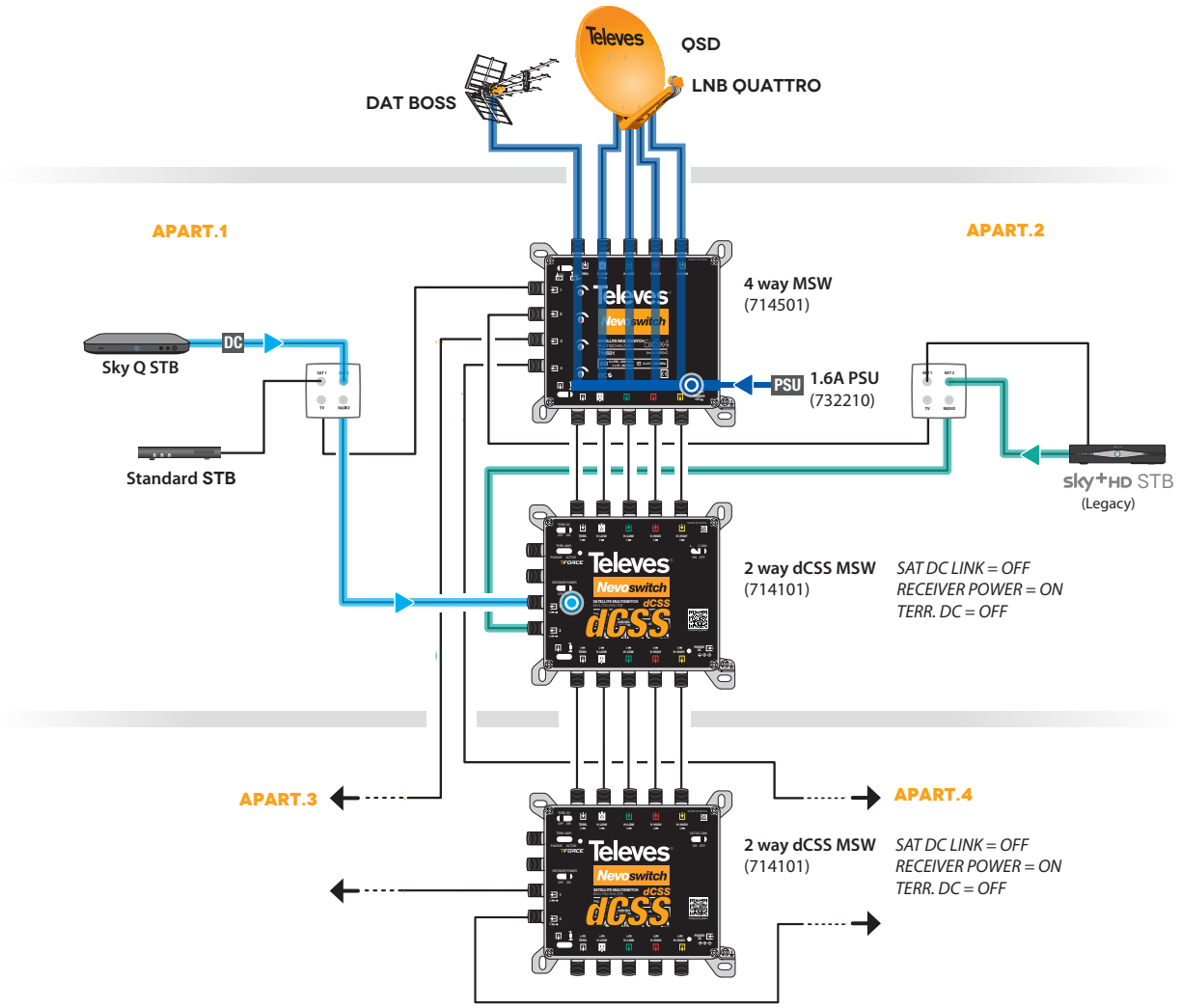
HYBRID dCSS & LEGACY SYSTEM IN A SINGLE OUTLET

The LNB, terrestrial signal (or antenna) and 4 way NevoSwitch are powered by the 1.6A PSU.

Each dCSS multiswitch is powered by the STB, so a PSU is not required. An apartment with SkyQ needs to have a power injector.

Remark:

SkyQ is available in SAT2 connector (connected to the dCSS NevoSwitch)



DC flow from the main PSU

DC flow from the STB or power injector

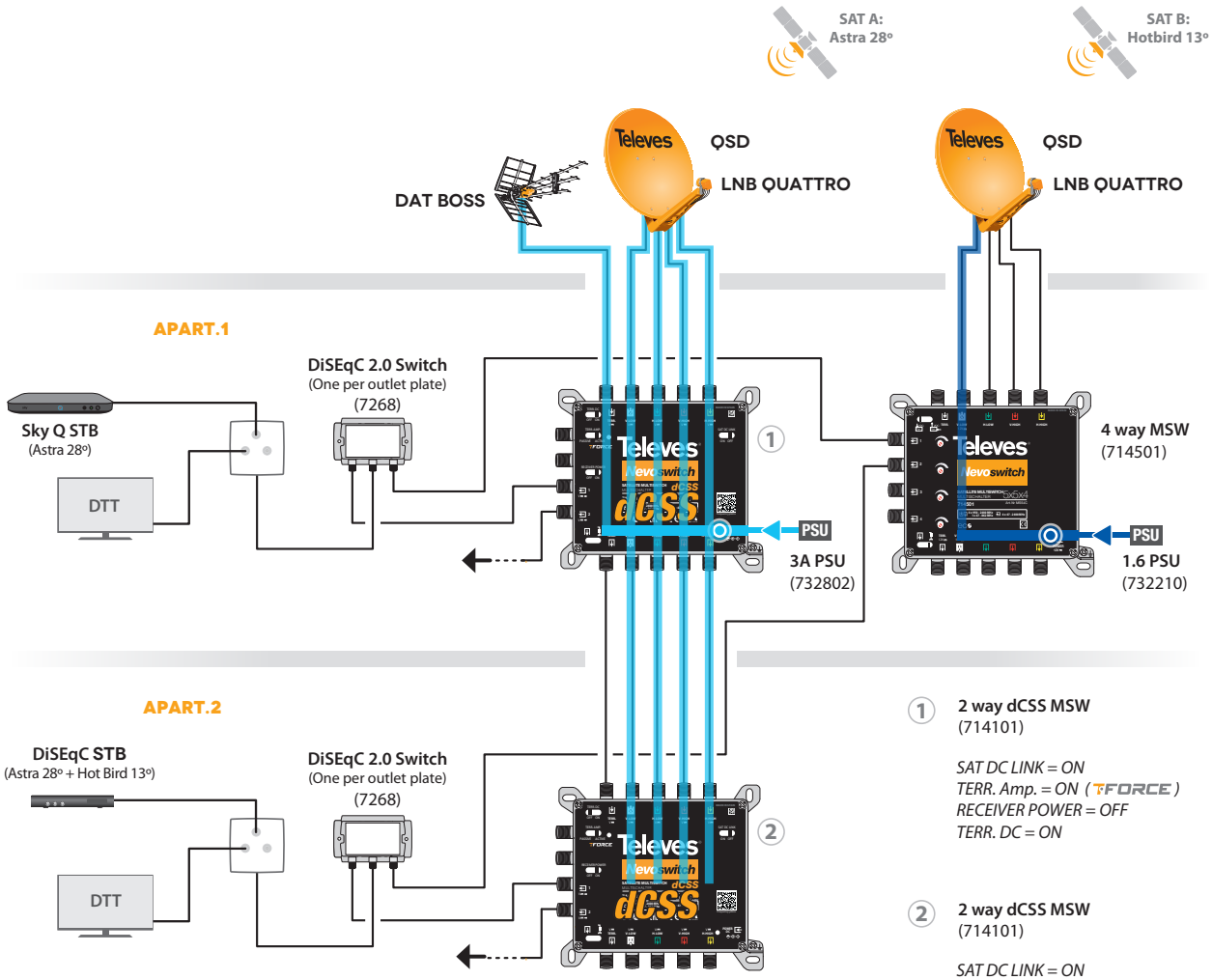
DC flow from the standard STB

APPLICATION EXAMPLE

HYBRID dCSS & LEGACY SYSTEM WITH 2 SATELLITES

The SAT B LNB and 4 way NevoSwitch are powered by the 1.6 PSU.

The SAT A LNB, terrestrial antenna and cascade of dCSS NevoSwitches are powered by a single 3A PSU.



① 2 way dCSS MSW
(714101)

SAT DC LINK = ON
TERR. Amp. = ON (TFORCE)
RECEIVER POWER = OFF
TERR. DC = ON

② 2 way dCSS MSW
(714101)

SAT DC LINK = ON
TERR. Amp. = ON (TFORCE)
RECEIVER POWER = OFF
TERR. DC = OFF

In order to receive signals from satellite B you will require a satellite box implementing DiSEqC 2.0 or above

DC flow from the 1.6A PSU

DC flow from the 3A PSU

A dCSS NEVOSWITCH IMPLEMENTING dCSS TECHNOLOGY

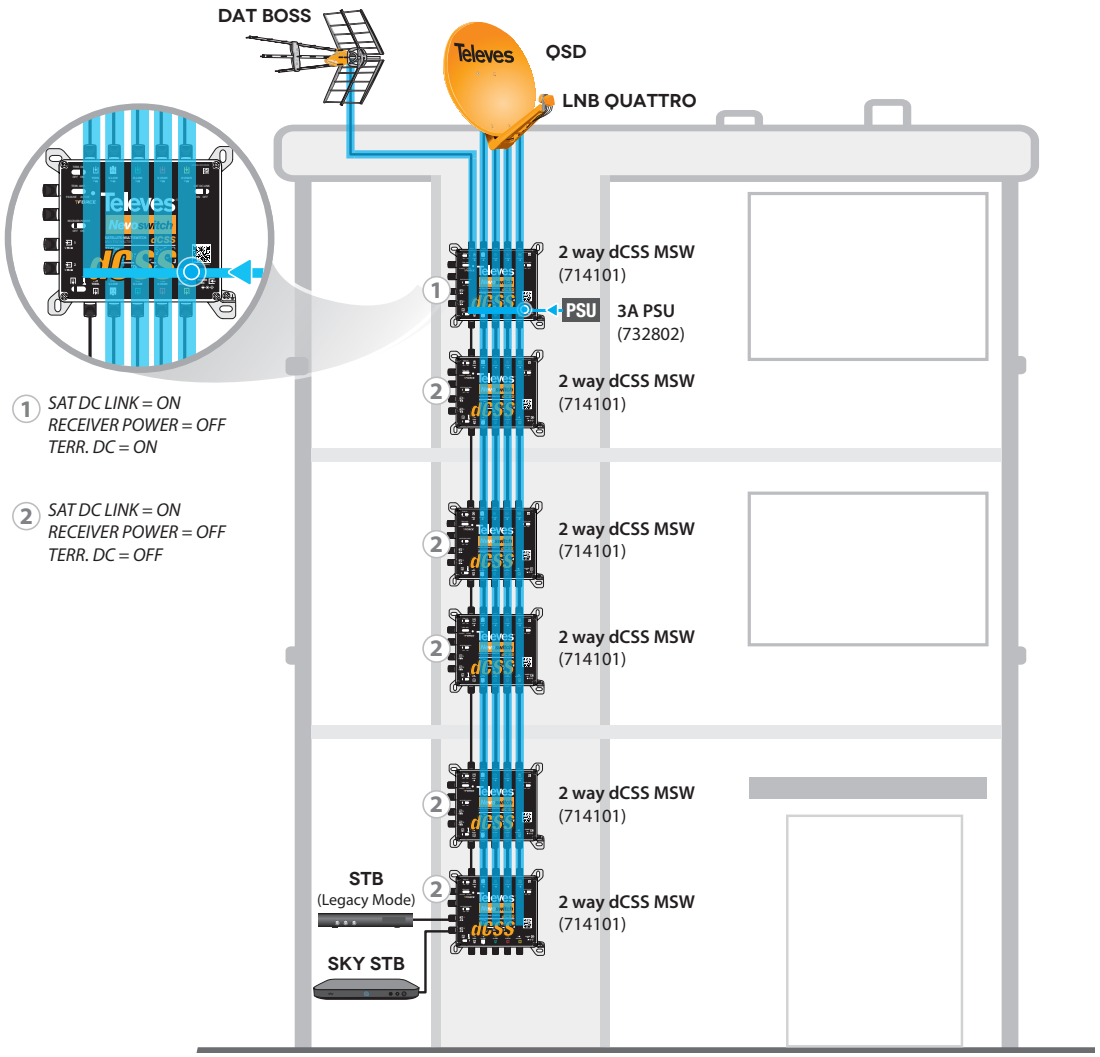
APPLICATION EXAMPLE

FULL dCSS CASCADE SYSTEM

The cascade of multiswitches is powered by a single 3A PSU.

Thanks to "Receiver power" switch, STBs are DC isolated from the cascade and protected against overcurrent.

The dCSS multiswitch supports Sky STBs and also standard STBs (legacy mode).

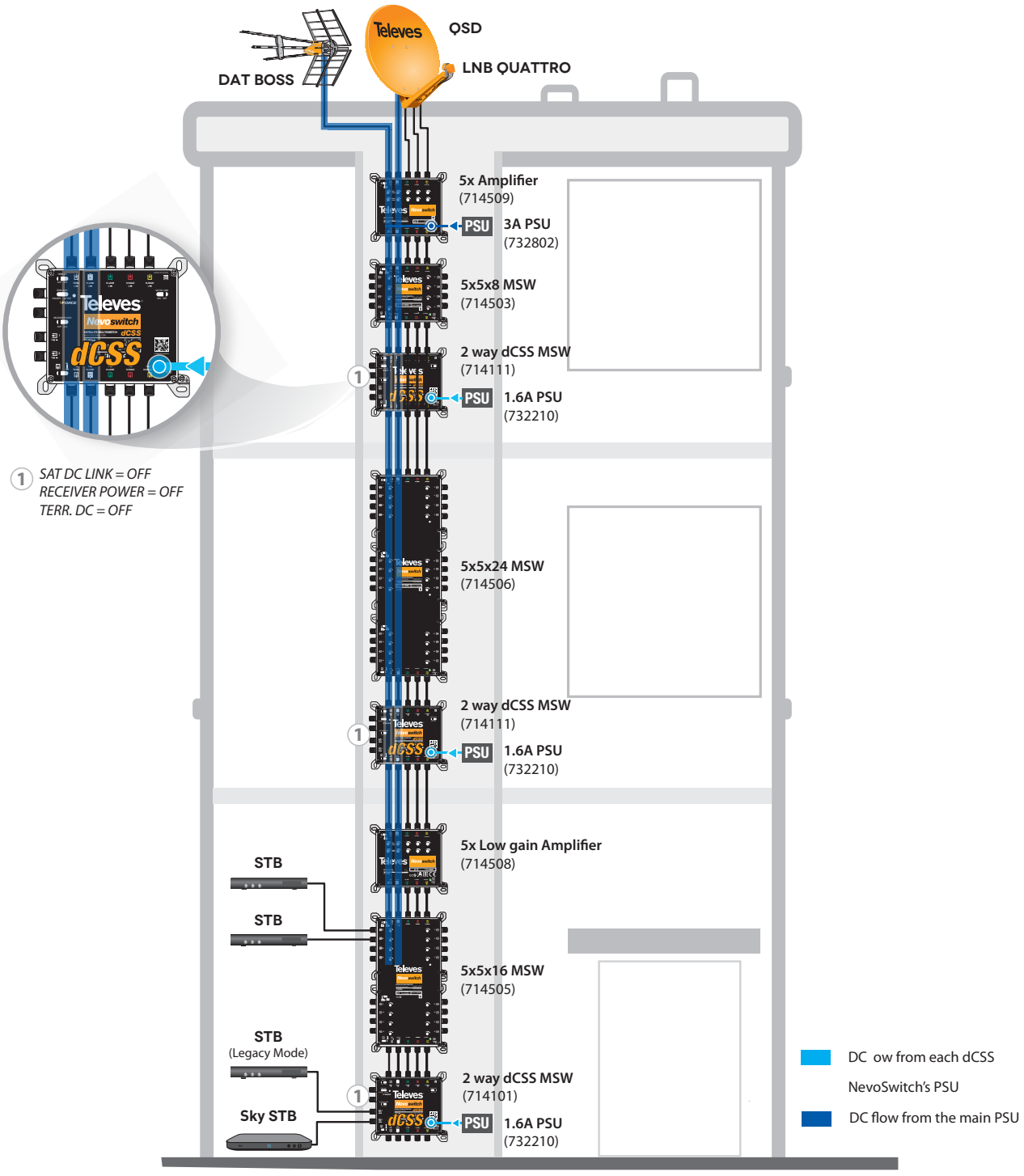


APPLICATION EXAMPLE

ADDITION TO EXISTING CASCADE SYSTEM

The 3A PSU powers the whole existing system (V-Low and Terrestrial).

Each added dCSS multiswitch is powered by its own 1.6A PSU, without interfering with the cascade current.



A dCSS NEVOSWITCH IMPLEMENTING dCSS TECHNOLOGY

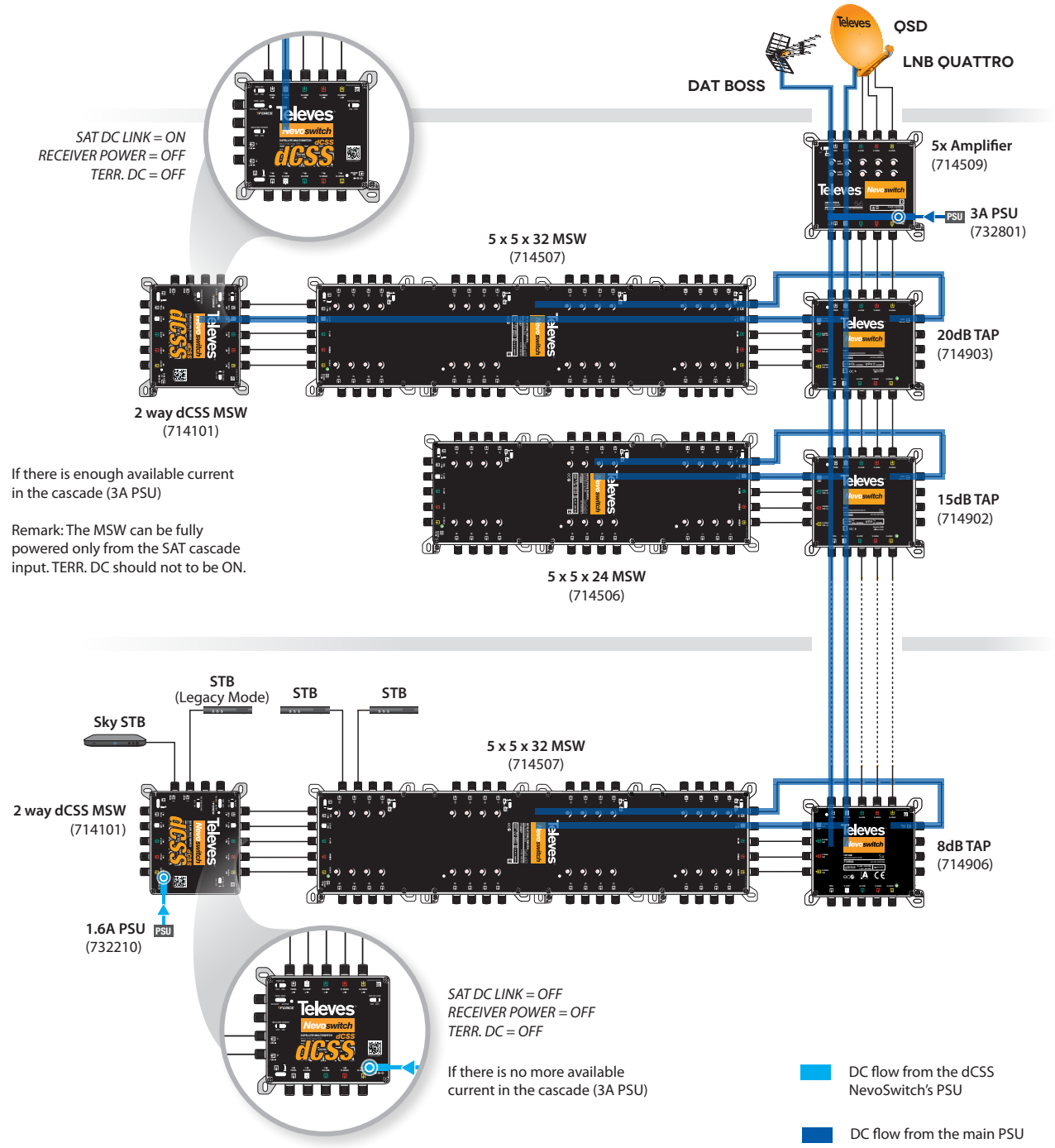
APPLICATION EXAMPLE

ADDITION TO EXISTING CASCADE SYSTEM WITH TAPS

The 3A PSU powers the whole existing system with taps (V-Low and terrestrial).

An added dCSS NevoSwitch can be powered in two different ways.

- From the cascade, if there is enough current (by 3A PSU)
- By its own PSU, without interfering with the cascade current.

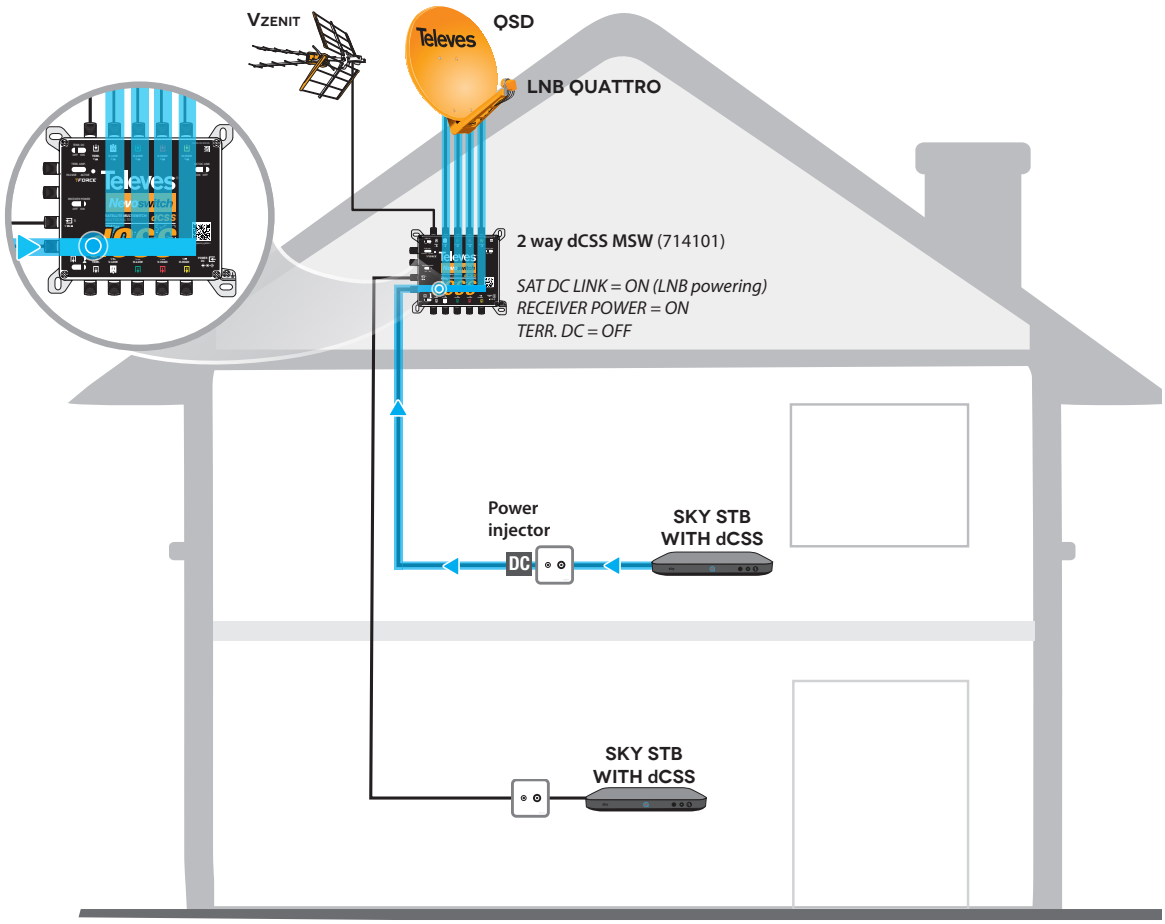


APPLICATION EXAMPLE

A DOMESTIC dCSS APPLICATION

The LNB and dCSS multiswitch are powered from the user output by the STB and a DC injector.

A PSU is not required.

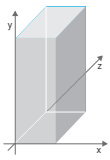


DC flow from the STB or power injector

A dCSS NEVOSWITCH IMPLEMENTING dCSS TECHNOLOGY

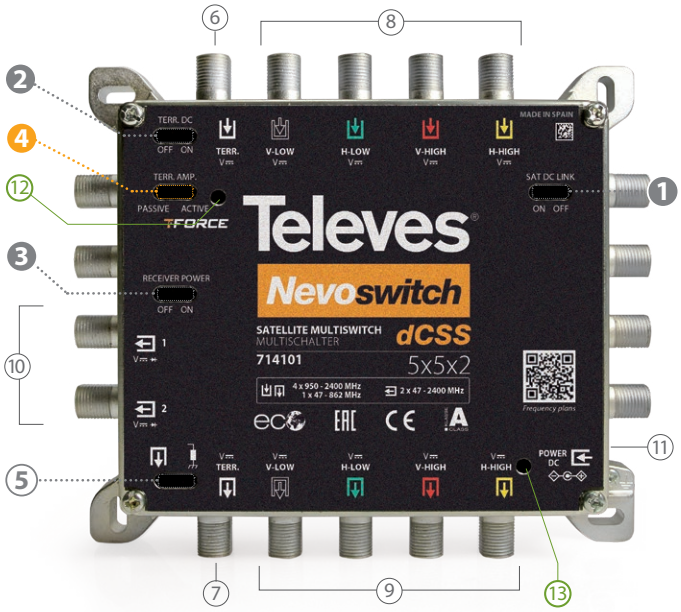
TECHNICAL SPECIFICATIONS

		714101	714102	714103	714104	714105
Type		5x5x2	5x5x4	5x5x8	5x5x12	5x5x16
SAT IN						
Frequency range	MHz	950...2150	950...2150	950...2150	950...2150	950...2150
Input level	dBµV	60 ... 97	60 ... 97	65 ... 97	67 ... 97	70 ... 100
Through losses	dB	2	1,5 ... 3	3 ... 6	4,5 ... 9	6 ... 12
Cross-polarity Isolation		> 30	> 30	> 25	> 25	> 25
DTT IN						
Frequency range	MHz	47… 862	47… 862	47… 862	47… 862	47… 862
Input level	dBµV	75 ... 100 (passive: 65-110)	75 ... 100 (passive: 65 ... 110)	78 ... 100	80 ... 100	83 ... 100
Terr. trunk power	V / mA	10 ... 20 / 500	10 ... 20 / 500	10 ... 20 / 500	10 ... 20 / 500	10 ... 20 / 500
Through losses	dB	< 2.5	< 2.5	< 5	< 8	< 10
dCSS OUT						
dCSS user outputs	No.	2	4	8	12	16
Output modes		SCR I/II, Legacy	SCR I/II, Legacy	SCR I/II, Legacy	SCR I/II, Legacy	SCR I/II, Legacy
dCSS channel bandwidth	MHz	46	46	46	46	46
dCSS user bands		2 x 16	4 x 16	8 x 16	12 x 16	16 x 16
dCSS standard		EN50494 EN50607 Sky UK	EN50494 EN50607 Sky UK	EN50494 EN50607 Sky UK	EN50494 EN50607 Sky UK	EN50494 EN50607 Sky UK
Output level	dBµV	84 ± 2	84 ± 2	84 ± 2	84 ± 2	84 ± 2
DTT OUT						
Frequency range	MHz	47… 862	47… 862	47… 862	47… 862	47… 862
Attenuation (passive - TForce deactivated)	dB	-16	-23	-	-	-
Maximum Gain (Out 1...4 / Out 5...8 / / Out 9...12 / Out 13...16)	dB	15 ... 12	11 ... 8	10...7 / 7...4	10...7 / 7...4 / 4...1	10...7 / 7...4 / 4...1 / 2 ... -1
Automatic gain range (TForce activated)	dB	25	25	25	25	25
Output level (Amp. active / 2 channels)	dBµV	87±3 (input 70-95uV)	87±3 (input 70-95uV	87±3 (input 70-95uV	87±3 (input 70-95uV	87±3 (input 70-95uV
POWER						
Power supply voltage	V	11-20	11-20	11-20	11-20	11-20
Maximum power consumption (@12V) (dCSS + Terr. amp. + Auto Load)	mA	340 + 50 + 25	625 + 50 + 25	1250 + 100 + 25	1875 + 150 + 25	2500 + 200 + 25
DTT input supply current	mA	500	500	500	500	500
User out max. current (Receiver power ON)	A	1	0,4	0,4	0,4	0,4
IF Trunk 4 lines max. current	A	3	3	3	3	3
GENERAL						
Operating temperature range	ºC	-5…45	-5…45	-5…45	-5…45	-5…45
	ºF	23…113	23…113	23…113	23…113	23…113
Protection level	IP	20	20	20	20	20
Weight	g	455	480	1020	1520	2040
Dimensions (xyz)	mm	140 x 120 x 30	140 x 120 x 30	280 x 120 x 30	420 x 120 x 30	560 x 120 x 30



DESCRIPTION

Ref. 714101



SWITCHES

1.	**SAT DC LINK Switch**	
2.	**TERR. DC Switch**	*DC**FLEX** funcionality*
3.	**RECEIVER POWER Switch** [1]	
4.	**TForce activation switch** [2]	**TForce technology**
5.	CASCADE or STANDALONE switch	

CONNECTORS

6. Terrestrial input
7. Terrestrial output
8. Satellite inputs (Quattro)
9. Satellite outputs (Quattro)
10. User outputs
11. DC powering input (for a PSU)

LEDs

12. TForce status LED

13. Power status LED

Ref. 714102

Ref. 714103

Ref. 714105

Ref. 714104

[1] Only available in reference 714101.

[2] Only available in references 714101 & 714102. Active by default in references 714103, 714104 & 714105.

dCSS OPTICAL CONVERTER WITH TWIN SMATV OUTPUT

dCSS converter, which receives an **optical input** and **recovers the original RF signal**, obtaining at its outputs a mixed signal of terrestrial band and the four combinations of satellite bands. The converter supports **Legacy**, **SCR I** (EN50494), **SRC II** (EN50607) and **SKY SCR** modes. Besides, others highlights are:

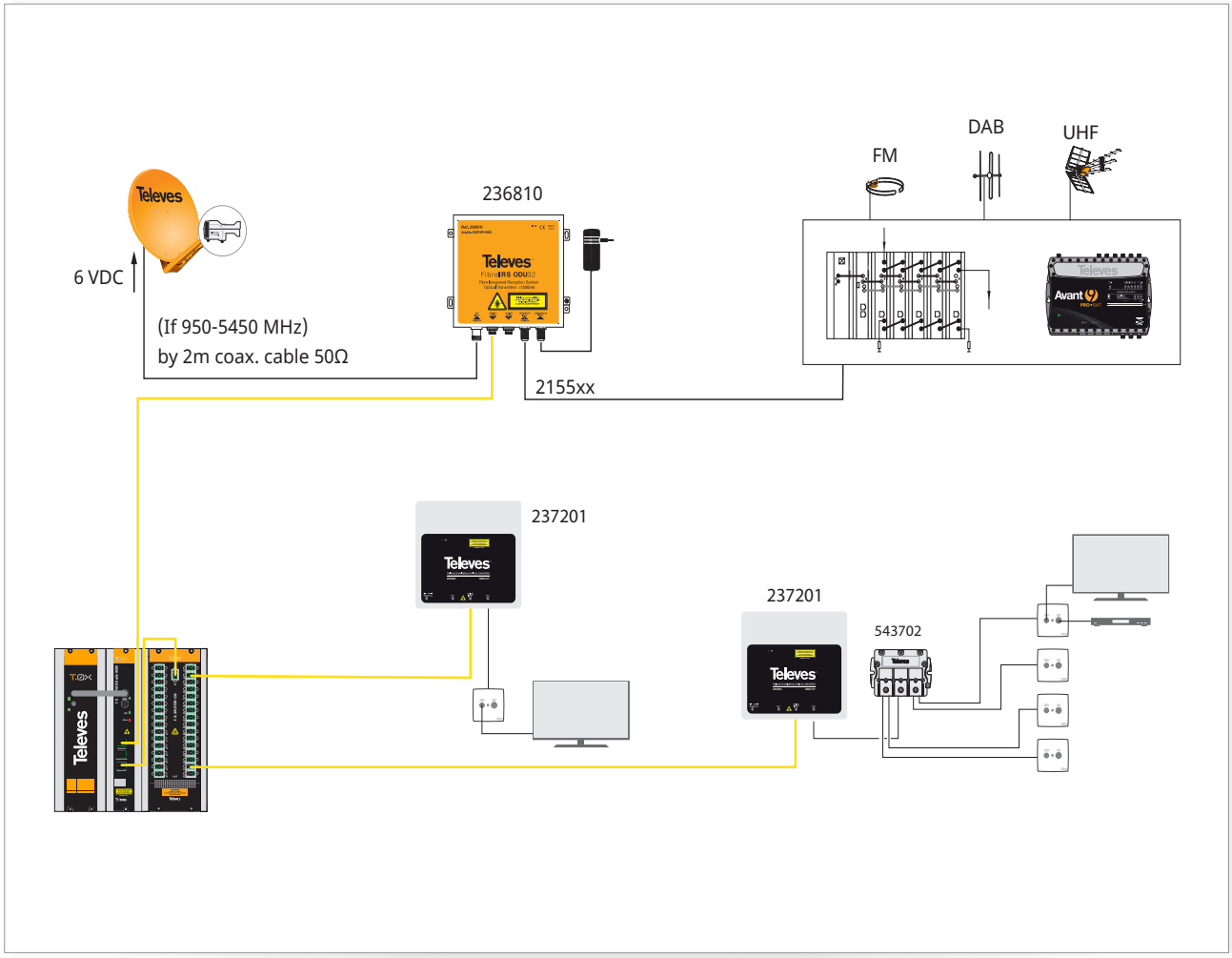
- Optical wavelenght input from **1100 to 1650nm**.
- **Status Indicator** with green LED.
- **Plastic cover included**, to protect the unit and the connectors.

REF.	DESCRIPTION	EAN 13
237201	**dCSS OP./RF CONVERTER TWIN**	8424450184653

Reference			237201	
RF Output				
Satellite				
Frequency Bands	Horizontal High	MHz	1100 - 2150 ≥15.5V + 22kHz	
	Vertical High		1100 - 2150 ≤14.5V + 22kHz	
	Horizontal Low		950 - 1950 ≥15.5V	
	Vertical Low		950 - 1950 ≤14.5V	
Return Loss		dB	≥ 10	
Normal Impedance		Ω	75	
Gain Variation Across Band		dB	≤ 7	
Terrestrial Rejection		dB	35	
Nominal Outputs Level (Legacy)		dBµV	75	
SCR				
SRC Standard			SCR I (EN50494) / SCR II (EN50607) / SKY UK	
dSCR User Bands			2x16	
Nominal Outputs Level (dSCR)		dBµV	72	
FM/DAB/DTT				
Frequency Range		MHz	47 - 790	
	FM		88 - 108	
	DAB		174 - 240	
	DTT		470 - 790	
Return Loss		dB	≥ 10	
Normal Impedance		Ω	75	
Gain Variation Across Band		dB	≤ 5	
Satellite Rejection		dB	35	
Typical Output Level	Multiplexes	dBµV	FM/DTT	DAB
	1		76	64
	6		71	60

Reference			237201
Optical Input			
Optical			
Optical Wavelenght		nm	1100 to 1650
Optical Return Loss		dB	45
Optical Input Power	Min.	dBm	-12
	Max.		-3
General			
Electrical			
Power Supply Voltage		V	20 (AC/DC Adaptor)
Current Consumption		mA	≤ 430
Mechanical			
Temperature ranges	Operating	ºC	-5 ... +50
	Storage		-40 ... +70
Optical Input		type	FC/PC
RF Output connectors		type	F-female

APPLICATION EXAMPLE



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