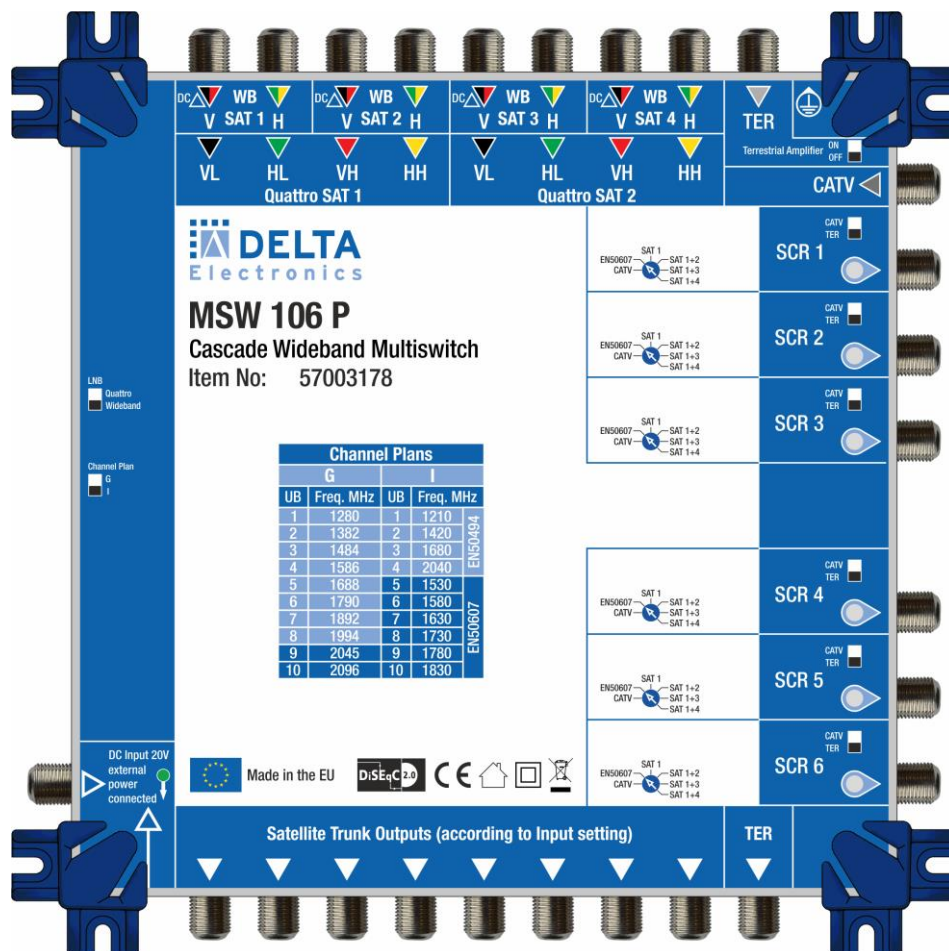


User Manual

dCSS-/dSCR-Multi Switch

MSW 106 P

Item No: 57003178



CONTENT

CONTENT	2
1. INTRODUCTION.....	3
Product Description	3
Packing Content	3
Operating Elements	4
2. INSTALLATION	4
3. CONFIGURATION OF THE MSW 106 P	5
Selection of the used LNBs	5
Satellite Inputs	5
Terrestrial Input.....	5
Terrestrial Amplifier.....	5
CATV Input.....	5
Selection Switch CATV / Terrestrial (for each subscriber output).....	5
SCR-Mode-Control-LED	5
Subscriber Outputs.....	5
Output Mode Switch	5
Trunk Line Outputs	6
Power Supply Inputs.....	6
Supply Control LED.....	6
Channel Plan Selection Switch.....	6
4. STB CONFIGURATIONS	7
5. TECHNICAL SPECIFICATION.....	9
6. SAFETY INSTRUCTIONS.....	10
7. TERMS OF GUARANTEE.....	11

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1. INTRODUCTION

Product Description

The MSW 106 P is designed to support a wide range of installations even in combination with existing multiswitches.

The MSW 106 P offers:

- 8 Sat-Cascade-inputs and outputs for 2 Universal Quattro LNB or 4 Wideband-LNB
- 1 terrestrial Input (with Cascade-Output) and 1 CATV-Input (internally terminated)
- 6 SCR-Outputs with 10 User-Bands each
- 2 DC-Inputs (F-Jack and 5.5/2.1mm DC Plug)
- Up to 10 User-Bands with support of all SCR-Versions.

This includes OLT, SCR, CSS, EN50494, EN50607 and more new versions.

The CATV-Input supports signals up to 1 GHz, including Cable-TV and DOCSIS. Each SCR-Output can be changed to the terrestrial Signal. This terrestrial input supports FM /DAB / DVB-T signals up to 862 MHz.

The trunk lines allow cascading of several multi switches in order to create installations with more than 100 subscribers.

The DC supply can be realized on each product within the installation. In cascaded systems several power supplies can be necessary (please see Power Supply Control LED). The suggested power supply is the DCT DELTA power supply NT 20-3.3 F (Item-Nr. 57003401) or NG 2012 (Item-Nr. 57002648) for 2 Quattro-LNB.

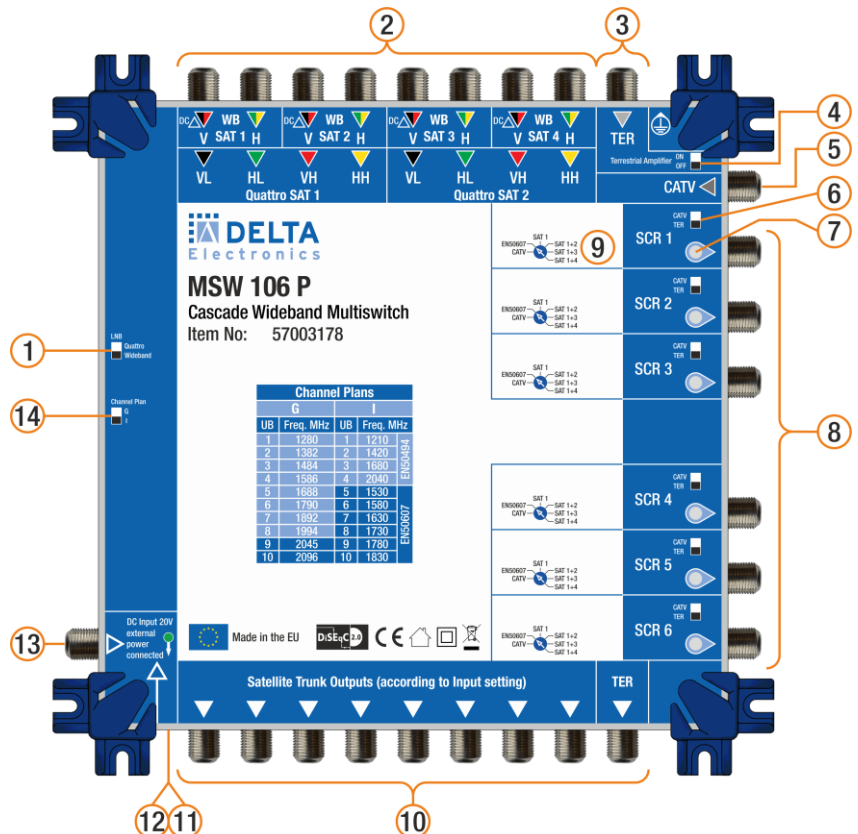
Packing Content

1x digital SCR multi switch MSW 106 P (without power supply)

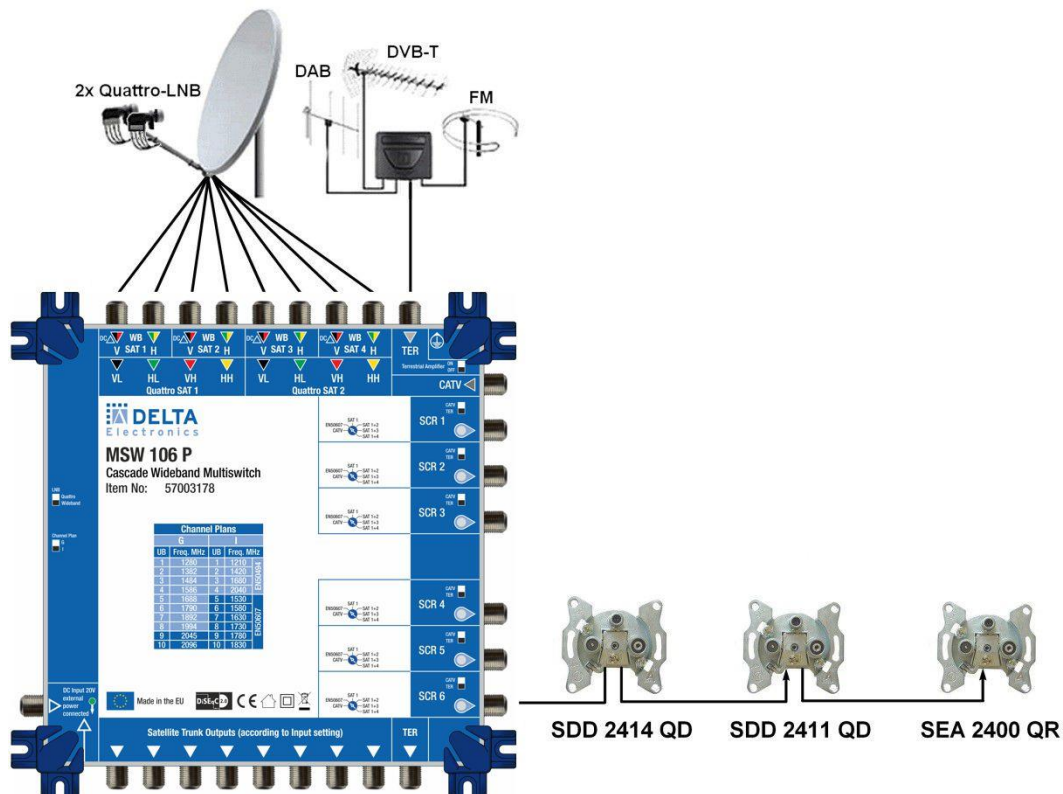
1x User Manual

Operating Elements

- 1 Selection Switch Quattro-/Wideband-LNB-Mode
- 2 Sat-IF-Inputs, either 2x Quattro or 4x Wideband-LNB
- 3 terrestrial Input
- 4 On/Off-Switch for terrestrial Amplifier
- 5 CATV-Input, ready for return channel
- 6 Selection Switch CATV / Terrestrial
- 7 SCR-Mode-Status-LED
- 8 Subscriber Outputs
- 9 Output Mode Switch
- 10 Trunk Line Outputs
- 11 Power Supply DC connector
- 12 Supply-Status-LED
- 13 Power Supply F Jack
- 14 Channel Plan Selection Switch G/I



2. INSTALLATION



3. CONFIGURATION OF THE MSW 106 P

Selection of the used LNBs ①

Quattro: You can connect 2 Quattro-LNBs for 2 Sat-Positions

Wideband: You can connect 4 Wideband-LNBs (**LO 10.41 GHz**) for 4 Sat-Positions

A combined operation is not possible!

Satellite Inputs ②

The satellite Inputs are meant for satellite signals in a range of 290 to 2340 MHz.

All Inputs for vertical signals are routing the power to the devices in front (Multi switches, Amplifiers, LNB)

Terrestrial Input ③

The terrestrial trunk line is not ready for return channels. An LTE filter can be additionally needed, depending on the application.

The terrestrial trunk line should always be terminated with a 75 Ohms terminator if it is not connected to a following device.

Terrestrial Amplifier ④

The gain of the terrestrial Signal can be switched On or OFF with this switch.

With amplifier On, the through loss is 8 dB only, without it is 20 dB.

CATV Input ⑤

This input is supporting frequencies up to 1218 MHz and is forwarded to the subscriber outputs through a passive low-loss tap of -12 dB. Therefore it is suitable for DOCSIS (Internet + Telephone through the CATV provider).

Selection Switch CATV / Terrestrial (for each subscriber output) ⑥

CATV Signals of the CATV-Input (5) will be forwarded to the subscriber output, including DOCSIS

TER Signals of the terrestrial Input (3) will be forwarded to the subscriber output

SCR-Status-Control-LED ⑦

SCR-Mode: **green light** (permanent) if receivers are connected
green blinking while receiveing SCR commands

Subscriber Outputs ⑧

6 subscriber outputs are available with 10 user bands each, each of them separately selectable for the range of signal sources. The different choices are depending on the combination of the CATV / Terrestrial Selection Switch and the LNB-Selection switch and are explained in the following section.

Output Mode Switch ⑨

SAT 1 Signals of satellite position 1 together with CATV or terrestrial signal are forwarded

SAT 1+2 Signals of satellite positions 1 & 2 together with CATV or terrestrial Signal are forwarded

SAT 1+3 Signals of satellite positions 1 & 3 together with CATV or terrestrial Signal are forwarded

SAT 1+4 Signals of satellite positions 1 & 4 together with CATV or terrestrial Signal are forwarded

EN50607 Signals of satellite positions 1 to 4 together with CATV or terrestrial Signal are forwarded

CATV Only CATV or das terrestrial signal is forwarded

Selection switch CATV / TER	LNB Selection switch	Output Mode Switch					
		SAT1	SAT1+2	SAT1+3	SAT1+4	CATV / TER	EN50607
CATV	Quattro	Sat 1 & CATV	Sat 1 & 2 & CATV	Sat 1 & 2 & CATV	Sat 1 & 2 & CATV	only CATV	Q Sat 1 & 2 & CATV
	Wideband	Sat 1 & CATV	Sat 1 & 2 & CATV	Sat 1 & 3 & CATV	Sat 1 & 4 & CATV	only CATV	WB Sat 1 to 4 & CATV
TER	Quattro	Sat 1 & TER	Sat 1 & 2 & TER	Sat 1 & 2 & TER	Sat 1 & 2 & TER	only TER	Q Sat 1 & 2 & TER
	Wideband	Sat 1 & TER	Sat 1 & 2 & TER	Sat 1 & 3 & TER	Sat 1 & 4 & TER	only TER	WB Sat 1 to 4 & TER

Trunk Line Outputs 10

To forward the signals to further dSCR multi switches (or legacy multi switches if Quattro-LNB is selected).
If the outputs are unused, you have to terminate them with DC blocking 75 Ohms terminators.

Power Supply Inputs 11 13

To connect 15 to 20 V DC power supplies (only one)

- With 5.5 / 2.1mm-DC jack → NT 15-3.3 (recommended)
- or F-male connector → NT 20-3.3 F (recommended)

Supply Status LED 12

The LED shows **green** light if the power supply is sufficient.

The LED shows **red** light if the power supply is too low or the power supply is not connected correct or it is defect but the MSU 106 P is powered by the subscriber outputs.

Channel Plan Selection Switch 14

This switch is changing the user band table from G (Germany) to I (Italy). In switch position "G" you can connect up to 8 Unicable 1 receivers. In switch position "I" there are only 4 user bands for Unicable 1 receivers available (see the following table).

Channel Plans

G		EN50494 EN 50607
UB	Freq. MHz	
1	1280	
2	1382	
3	1484	
4	1586	
5	1688	
6	1790	
7	1892	
8	1994	
9	2045	
10	2096	

I		EN50494 EN 50607
UB	Freq. MHz	
1	1210	
2	1420	
3	1680	
4	2040	
5	1530	
6	1580	
7	1630	
8	1730	
9	1780	
10	1830	

4. STB CONFIGURATIONS

Output switch position	Unicable 1 Receiver (EN 50494)	Unicable 2 Receiver (EN 50607)	Bemerkung
	Terr. Freq. Range 5-1218 (862) MHz Sat. Freq. Range --- User bands: --- *1	Terr. Freq. Range 5-1218 (862) MHz Sat. Freq. Range ---	No transmission of satellite signals. No Unicable Support Broadband Internet (if suitable CATV amplifier is installed and CATV / TER switch is set to „CATV“)
	Terr. Freq. Range 5-1218 (862) MHz Sat-Position(s) WB LNB: 4 Sat-Position(s) Quattro-LNB: 2 User bands: --- *1	Terr. Freq. Range 5-1218 (862) MHz Sat-Position(s) WB LNB: 4 Sat-Position(s) Quattro LNB: 2 User bands: 10 (1280 - 2096 MHz)	*1: No Communication possible between receiver and multi switch ==> improper configuration Broadband Internet (if suitable CATV amplifier is installed and CATV / TER switch is set to „CATV“)
	Terr. Freq. Range 5-1218 (862) MHz Sat Position(s) WB LNB: 1 Sat Position(s) Quattro-LNB: 1 User Bands: 8 (1280 - 1994 MHz)	Terr. Freq. Range 5-1218 (862) MHz Sat-Position(s) WB LNB: 1 Sat-Position(s) Quattro-LNB: 1 User Bands: 10 (1280 - 2096 MHz)	Broadband Internet (if suitable CATV amplifier is installed and CATV / TER switch is set to „CATV“)
	Terr. Freq. Range 5-1218 (862) MHz Sat Position(s) WB LNB: 2 Sat Position(s) Quattro-LNB: 2 User Bands: 8 (1280 - 1994 MHz)	Terr. Freq. Range 5-1218 (862) MHz Sat-Position(s) WB LNB: 2 Sat-Position(s) Quattro-LNB: 2 User Bands: 10 (1280 - 2096 MHz)	Broadband Internet (if suitable CATV amplifier is installed and CATV / TER switch is set to „CATV“)
	Terr. Freq. Range 5-1218 (862) MHz Sat Position(s) WB LNB: 2 Sat Position(s) Quattro-LNB: 2 User Bands: 8 (1280 - 1994 MHz)	Terr. Freq. Range 5-1218 (862) MHz Sat-Position(s) WB LNB: 2 Sat-Position(s) Quattro-LNB: 2 User Bands: 10 (1280 - 2096 MHz)	Broadband Internet (if suitable CATV amplifier is installed and CATV / TER switch is set to „CATV“)
	Terr. Freq. Range 5-1218 (862) MHz Sat Position(s) WB LNB: 2 Sat Position(s) Quattro-LNB: 2 User Bands: 8 (1280 - 1994 MHz)	Terr. Freq. Range 5-1218 (862) MHz Sat-Position(s) WB LNB: 2 Sat-Position(s) Quattro-LNB: 2 User Bands: 10 (1280 - 2096 MHz)	Broadband Internet (if suitable CATV amplifier is installed and CATV / TER switch is set to „CATV“)

NOTE: The referred channel plan is „G“ (Germany)

Output Switch Position	Receiver 1 at Output n	Receiver 2 at Output n	Comment
	CATV or DVB-T Receiver	Cable Modem (only if CATV / TER Switch = CATV)	Possible Configuration No Satellite signal!
	Unicable 1 Satellite Receiver	Unicable 1 Satellite Receiver	Improper Configuration No Satellite signal for Unicable 1 Receiver
	Unicable 1 Satellite Receiver	Unicable 2 Satellite Receiver	Improper Configuration No Satellite signal for Unicable 1 Receiver
	Unicable 2 Satellite Receiver	Unicable 2 Satellite Receiver	Best Configuration Signals of 4 Satellite Positions 10 User Bands
	Unicable 1 Satellite Receiver	Unicable 1 Satellite Receiver	Possible Configuration Only signals from Sat 1
	Unicable 1 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1
	Unicable 2 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1
	Unicable 1 Satellite Receiver	Unicable 1 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 2
	Unicable 1 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 2
	Unicable 2 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 2
	Unicable 1 Satellite Receiver	Unicable 1 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 3
	Unicable 1 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 3
	Unicable 2 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 3
	Unicable 1 Satellite Receiver	Unicable 1 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 4
	Unicable 1 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 4
	Unicable 2 Satellite Receiver	Unicable 2 Satellite Receiver	Possible Configuration Only signals from Sat 1 & 4
	CATV or DVB-T Receiver	Cable Modem (only if CATV / TER Switch = CATV)	CATV / Internet or DVB-T can be received in every switch position

NOTE: The above comments are based on an installation with 4 Wideband LNBS

5. TECHNICAL SPECIFICATION

Inputs		
Trunk Line Inputs	-	1 x Terrestrial; 1 x CATV; 8 x Satellite
Frequency ranges	Mhz	Terr.: 88-862 CATV: 5-1218 Sat. In: 290-2340
Satellite Input Level Range	dBµV	63-105
Terrestrial Input Level	dBµV	max. 104
Return Loss IN/OUT	dB	Terr.: -10 Sat.: -10
Outputs		
Trunk Line Outputs	-	1 x Terrestrial; 8 x Satellite
Through Loss Trunk Lines	dB	Terr.: -3 to -4 Sat.: -1.5 to -3
Channel Bandwidth	MHz	45
dCSS/dSCR Outputs	Stck.	6
SCR User bands per Output	Stck.	10
Return Loss	dB	-10
Terrestrische Through Loss aktive / passive	dB	-8 to -11 / -20 to -23
CATV Through Loss	dB	-12 to -13
Signal Connectors	-	75 Ohm F type (Female)
dCSS/dSCR Output Level	-	86 dBµV (AGC)
TER + SAT Trunk Line Termination	Ohm	75 Ohms DC blocking F terminator
General		
Power Consumption	W	24
Supported LNB Types		Quattro (LO: 9750/10600MHZ) Wideband (LO:10410MHz)*
Supported Standards		EN50494 EN50607
Environment Temperature	°C	-20 to 50
Dimensions	mm	220 x 220 x 50
Weight	kg	1.2 (Device only) / 1.4 (incl. Carton & manual)

* ATTENTION: L.O. Frequency 10410 MHz – Please use the correct LNB (e.g. 5700 3268 UCW 12)

6. SAFETY INSTRUCTIONS



Please read the instruction carefully before you connect the device



To avoid fire, shortage and electric shocks:

- Never expose the device to rain or humidity.
- Install the device in a dry place without the danger of humidity or condensation.
- Protect the device against dripping and splashing water.
- Don't place any with liquids filled containers onto the device.
- If liquids run into the device, please pull the power plug immediately.



To avoid overheating:

- Install the device in a well ventilated location. To ensure a good ventilation make sure to keep a minimum distance of at least 10 cm to other devices or walls.
- Don't put any things onto the device, that could block the ventilation holes (newspaper, table cloth, curtains, ...).
- Never place open flames like burning candles onto the device.
- Install the device in a dust free environment.
- Use the device only in environments with moderate humidity.
- The minimum and maximum operating temperatures need to be maintained in every season.



To avoid electric shock:

- Connect the device only properly grounded.
- The power plug needs to be easily accessible at all time.
- Pull out the power plug before you make any changes on the installation.
- Under no circumstances open the device as long as it is powered.



Maintenance and care



Only use dry and soft cloth to clean the device



Don't use any solvents



For repair and maintenance please contact qualified installers.



Recycling according to local regulations

7. TERMS OF GUARANTEE

DCT DELTA AG guarantees for a period of 24 months after the purchase, that the device is free of material and production defects.

Should the product show any material or production defects during normal application within the guarantee period, DCT DELTA AG will replace or repair the product at its own discretion. Please bring or send the defect device back to your dealer.

The guarantee is only valid for material and production defects and does not cover defects caused by:

- Abuse or usage of the product outside its specification.
- Installation or usage which is not compliant to the local safety regulations
- Usage of unsuitable accessories (Power Supplies, Adaptors, ...).
- Installation in a not proper environment.
- External sources outside the influence of DCT DELTA AG, like e.g. drop, accident, stroke of lightning, water, fire, insufficient ventilation ...

The guarantee commitment ends even ahead of time if:

- The production date or serial number is not readable anymore or has been changed, deleted, removed or in any other way manipulated.
- The device has been opened or repaired by unauthorized people.



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