

User Guide

TMDS 5x C – Digital SCR Multiswitch for SkyQ

Model	Item no.
TMDS 54 C	307370
TMDS 58 C	307378
TMDS 516 C	307380
Version 891601C	Date 07/2016
	EN

Attention!

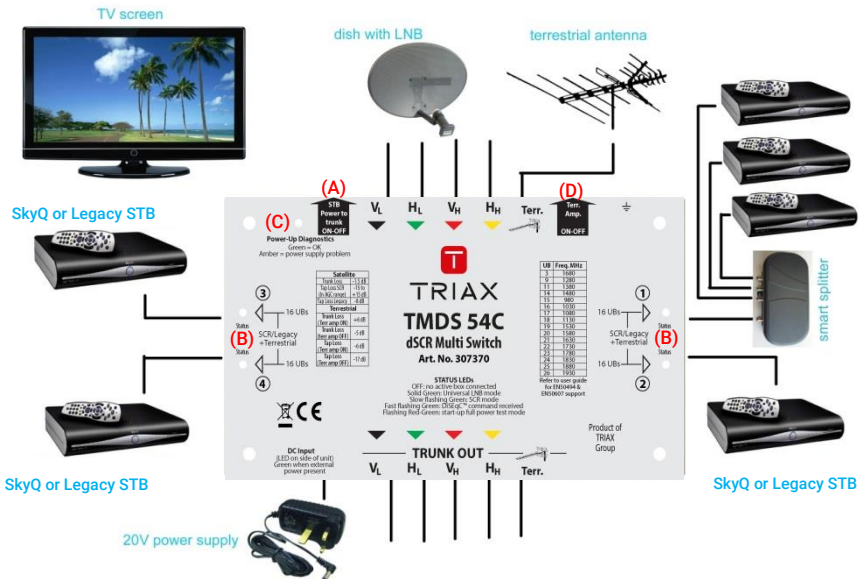
EN Failure to comply with the specified precautionary measures may cause serious injury to persons or damage to property. The installation and commissioning may only be performed by suitably qualified persons, technicians or installers in compliance with safety regulations. Damage due to improper installation and commissioning, defective connectors on cables or any other incorrect handling will void the warranty.

CAUTION: The safety requirements are according to EN 60728-11 and must be observed.

- Disconnect mains power before working on electrical systems.
- Any additional electrical wiring requirements should always be installed by a suitably qualified person(s).
- Installation or service work should NEVER be undertaken during electrical / thunderstorms.

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General product overview:

The TRIAX TMDS 5x Series provides:

- 4 x cascadeable LNB inputs from a universal Quattro LNB: VL HL VH HH
- 1 x terrestrial trunk.
- 4 x (TMDS 54 C), 8 x (TMDS 58 C) or 16 x (TMDS 516 C) - SCR/Legacy subscriber outputs for SkyQ boxes, each providing access to 16 x SCR User Bands or a single Legacy.
- 1 x DC input.
- 2 x Toggle Switches for: DC sourcing **(A)** and TER AMP (active/passive) **(D)**
- Diagnostic LED's: **(B)**

Voltage Input:	20V max	
Current	600mA max	
LNB Current	500mA max	
LNB Inputs:*	950MHz - 2150MHz	*LNB Trunk lines have DC Pass (20V)
Terrestrial Input:**	40MHz - 790MHz	**Terrestrial Trunk lines do <u>not</u> have DC Pass

All 4 LNB trunks are DC isolated from each other, so 13 and 18VDC can be supplied separately from trunk-out to trunk-in. Also, the 4 LNB trunks on the last unit should always be terminated with **DC-blocked** 75 Ohm terminators. Likewise, all unused SCR/Legacy outputs should be terminated with 75 ohm terminator for proper terrestrial signals.

STB Power to Trunk Switch **(A)**

- **OFF** ⇒ DC supply from trunk feeds the unit.
This is the default state as trunks will feed all cascaded units and the LNB. Power comes from DC inserted at the 'DC Input' or from one or more cascaded TMDS 5x C units.
- **ON** ⇒ The STB will feed the unit and the LNB.
This is only allowed when only one TMDS 5x C unit is used in the system. When 2 or more TMDS 5x C units are cascaded, the position "**OFF**" should be selected. Otherwise one single STB will need to feed all units.
- There is always DC pass-through on the SAT trunks, however they are individually isolated.

High Power startup mode: status LED's blinks alternating between **green** and **red**.

This is a special mode only initiated at startup (when the trunks are powered, but not when STBs power the unit). In this mode, the unit will consume the maximum power.

This allows the installer to check that there will be adequate power for the system under full (SCR) load. This "**High power startup mode**" provides the installer a 15 second time window to check the performance of the power supplies. After 15 seconds, the unit will enter into one of the two operational modes (SCR or Legacy).

During the 15 seconds startup diagnostic, the power-up diagnostic LED **(C)** of all TMDS 5x C units should be visually inspected.

- If the voltage level on the trunks is too low for the unit(s) to operate, then the Power Up Diagnostic LED **(C)** will be orange ⇒ then connect DC supply to DC input.
- If the voltage level on the trunks is OK, then the LED **(C)** will be green.

The Terrestrial trunk should always be terminated with a 75 Ohm terminator on last unit.

The Terrestrial trunk has an integrated amplifier that can be turned into bypass- or amplified-mode (passive or active – **switch D**).

Only in bypass/passive mode DOCSIS signals can pass through.

- The TMDS 5x C can work in two modes on each output independently – SCR Mode or Legacy Mode
- Default the module is set to Legacy mode (non SCR use).
- When an SCR set top box is connected the module will automatic switch from Legacy to SCR mode upon the first DiSEqC command.
- If SCR mode has been activated the output should be powered-off to go to Legacy mode.

Output ports - Digital SCR Modes: (B)

- SCR mode : status LED is slow blinking green**
 When an SCR compatible Set Top Box is connected and set in 'SCR Mode', up to 16 User Channel Bands can be generated and can be tuned independently of each other to look at any LNB input and any transponder frequency on that input. The TMDS 5x C reacts on the Sky, CLC TS50607 and EN50494 CENELEC-standards. Using DiSEqC commands the set top box automatically transmits the desired data for the LNB input and frequency to be selected.
- Legacy mode : status LED is solid green**
 When a Legacy Set Top Box (non-SCR Compatible) is connected to any of the ports, that port will work like a standard multiswitch allowing only one tuner to be connected to each output and allowing the tuner to select a single band, polarity and frequency from the relevant transponder using 13/18VDC and 0/22kHz tone switching.

SCR DiSEqC User Band versus frequency allocations					
BSkyB		EN 50607		EN 50494	
User Band	Freq.(MHz)	User Band	Freq. (MHz)	User Band	Freq. (MHz)
3	1680	4	985	0	1210
9	1280	5	1050	1	1420
11	1380	6	1115	2	1680
14	1480	7	1275	3	2040
15	980	8	1340		
16	1030	9	1485		
17	1080	10	1550		
18	1130	11	1615		
19	1530	12	1745		
20	1580	13	1810		
21	1630	14	1875		
22	1730	15	1940		
23	1780				
24	1830				
25	1880				
26	1930				
Blank User Bands and frequencies are not used.					

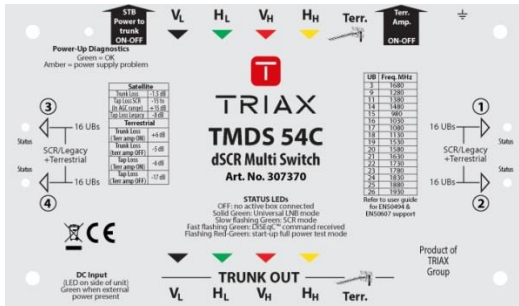


Fig. 1 - TMD5 54 C front panel

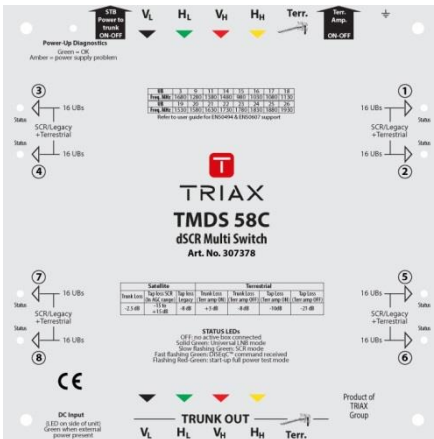


Fig. 2 - TMD5 58 C front panel

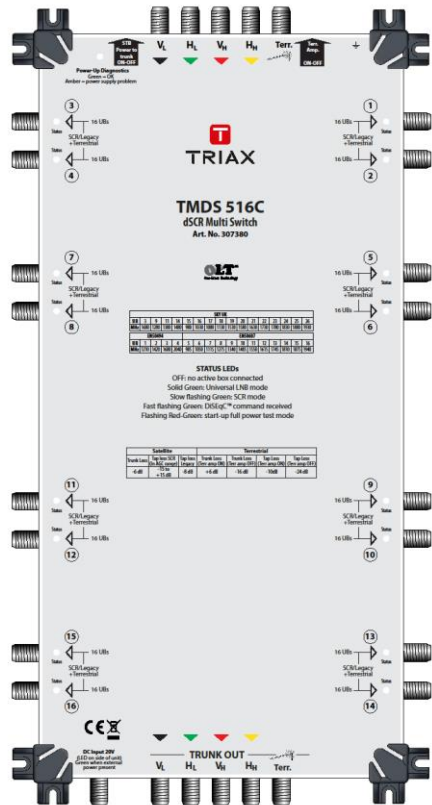


Fig. 3 - TMD5 516 C front panel

Type		TMDS 54 C	TMDS 58 C	TMDS 516 C
Art. no		307370	307378	307380
Functionality		Multiswitch with digital SCR capability for SkyQ		
SAT				
Frequency Range	MHz	950..2150	950..2150	950..2150
Max. and min. Input Txp Power Level	dBm*	-35 to -5	-35 to -5	-35 to -5
Trunk loss (typ.)	dB	-1.5	-2.5	-6
Tap-out loss, SCR mode (typ.)	dB	-15..+15	-15..+15	-15..+15
Tap-out loss, Legacy mode	dB	-5 max, 0 typ.	-5 max., 0 typ.	-13 max., 8 typ.
Isolation, Channel to channel, SCR mode	dB	>35	>35	>35
Return Loss, trunk	dB	>10	>10	>10
Return Loss, outputs (SCR + TER)	dB	>7	>7	>7
SCR Output Power per Txp (AGC)	dBm*	-23 (min.), 21 (typ.)	-23 (min.), 21 (typ.)	-23 (min.), 21 (typ.)
Legacy Output Power per Txp (no AGC)	dBm*	-15 (min.)	-15 (min.)	-15 (min.)
TER				
Frequency Range	MHz	40..790	40..790	40..790
Max. Input Mux Power Level (active mode)	dBμV	96	96	88
Trunk loss (passive mode)	MHz	-5	-8	-16
Trunk loss (active mode)	Ohm	+6	+3	+6
Tap-out loss (passive mode)	dB	-17	-21	-24
Tap-out loss (active mode)	dB	-6	-10	-10
Max. Output Mux Power Level (active mode)	dBμV	103	99	96
Max. Output Mux Power Level SCR (active mode)	dBμV	90	86	86
Return Loss, trunk	dB	>8	>8	>8
General Data				
Controls		BSkyB SCR CENELEC EN 50494 CENELEC EN 50607 Universal LNB tone & volts		
Connectors		F-female		
Current consumption, max.	mA	600 @ 20VDC		
Supply current for LNB, max.	mA	500 @ 20VDC		
Input voltage	VDC	10..20		
Operating temperature, indoor	°C	-20...+50		
Accessories				
Power Inserter TMS 1230 PSU BS (optional)		(100...240VAC +20VDC/3.0A) Article no.: 307372		
*) dBμV = 108.75 + dBm ₇₅₀				



For further information
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