

dSCR (Digital satellite cable router) multiswitches SRM561, SRM581

Product description

Cascadable single cable wideband multiswitches SRM561 and SRM581 are intended for the distribution of satellite and terrestrial signals for up to 32 satellite tuners or receivers on each output pair.

The multiswitches have 4 passive Wideband SAT IF (for connecting 2 Wideband LNBs) and 1 active Terrestrial TV trunk lines.

SRM561 is cascadable 6 output single cable multiswitch with 3 independent signal processors and have 3 pairs subscribers outputs (6 outputs total) .

SRM581 is cascadable 8 output single cable multiswitch with 4 independent signal processors and have 4 pairs subscribers outputs (8 outputs total).

The multiswitches are intended for the distribution of satellite and terrestrial signals for up to 32 satellite tuners or receivers on each outputs pair and have 4 x DC power modes for convenient DC powering options (see chapter „**Installation instructions**“).

The devices ensures an independent access for every subscriber to any SAT IF or Terrestrial TV trunk line.

These multiswitches automatically detect SCR/dSCR commands from the receiver. The dSCR switches also feature fully automatic level control, negating the need for any gain or level adjustments in most installations.

Multiswitch is built into a zinc alloy die cast housing for extreme interference immunity. The housing of multiswitches meets more stringent screening requirements according to EN50083-2, class A.

Control according to EN50494/EN50607 (SCR/dSCR) commands as well as Legacy (+13 V/+18 V/22 kHz) commands.

According to the standard ETSI EN303354 V.1.1.1, TERR TV band amplifier of multiswitch type is Launch, selectivity classification 0.

Safety instructions

Installation of the multiswitches must be done according IEC60728-11 and national safety standards.

The multiswitches are powered from the stabilized power supply +20 V. This voltage is not dangerous to life.

External power supply must have a short circuit protection.

Any repairs must be made by skilled personnel.

To avoid damaging of the multiswitches do not connect the supply voltage until all cables have been connected correctly.

The device shall be mounted in vertical position with RF input connectors on the top side on a wall or other nonflammable surface.

The multiswitches must be fixed with screws. The screws are not included in a package.

Do not expose multiswitches to moisture or splashing water.

Avoid placing the multiswitches next to central heating components or direct sunlight and in areas of high humidity.

If the multiswitches have been kept in cold conditions for a long time, keep it in warm room no less than 2 hours before powering.

The ventilation should not be impeded by covering the multiswitches with items, such as newspapers, table-cloths, curtains.

The mains socket of external power supply must be easily accessible.

IMPORTANT WARNINGS!

Before connecting any products to a system, it is essential to make sure the **system power supply is switched off**. Avoid short-circuit or overload of any power supply. Never “HOT-SWAP” any system components as this may result in damage to the newly introduced or existing components.

The SRM561, SRM581 multiswitches are intended only for indoor installation or installation in a suitable weatherproof outdoor cabinet. These multiswitches must not come into contact with moisture or be installed in areas of high humidity or heat.

Always mount the multiswitches securely to a wall or bulkhead panel so it cannot hang or swing on its coaxial cables as this may strain the internal circuit board and components.

Always connect all of the coaxial cables to the multiswitches before connecting the power. These units are not designed to be “HOT-SWAPPED” or connected to a live system.

Always be sure that connecting cables shield and multiswitches functional grounding clamp have common potential before powering the system. Floating voltages can be created in an un-earthed system which may cause damage and can be dangerous.

Momentary short-circuit of any cables may be enough to damage the sensitive electronics within the multiswitch or the connected system.

Always allow plenty of ventilation around the multiswitch and do not allow it to be covered with materials such as loft insulation.

We recommend at least 5 cm of airspace around the multiswitch. Digital products can get hot to the touch and require a flow of air to avoid overheating.

The SRM561, SRM581 multiswitches are designed only to work with Ku band Wideband LNBs.

LNBs and other system equipment connected to the multiswitch SAT H1 and H2 trunks inputs/outputs can be powered from the same power supply as the multiswitch.



To avoid damage not covered by warranty **DO NOT EXCEED MAX. CURRENTS**. See “**Technical characteristics**” for max. current for external equipment.

DO NOT OPERATE THE DC POWER TO H TRUNK LINES SWITCH (see Figure 1, pos.21) unless you totally understand the power demands of the system and confirmed they are 2 A or less. **ALWAYS LEAVE THE DC POWER TO H TRUNK LINES SWITCH IN THE "OFF" POSITION** when inserting SRM561, SRM581 into an existing multiswitches installation.

Damage caused by current overload is not covered by the manufacturer’s warranty.

External view

SRM581

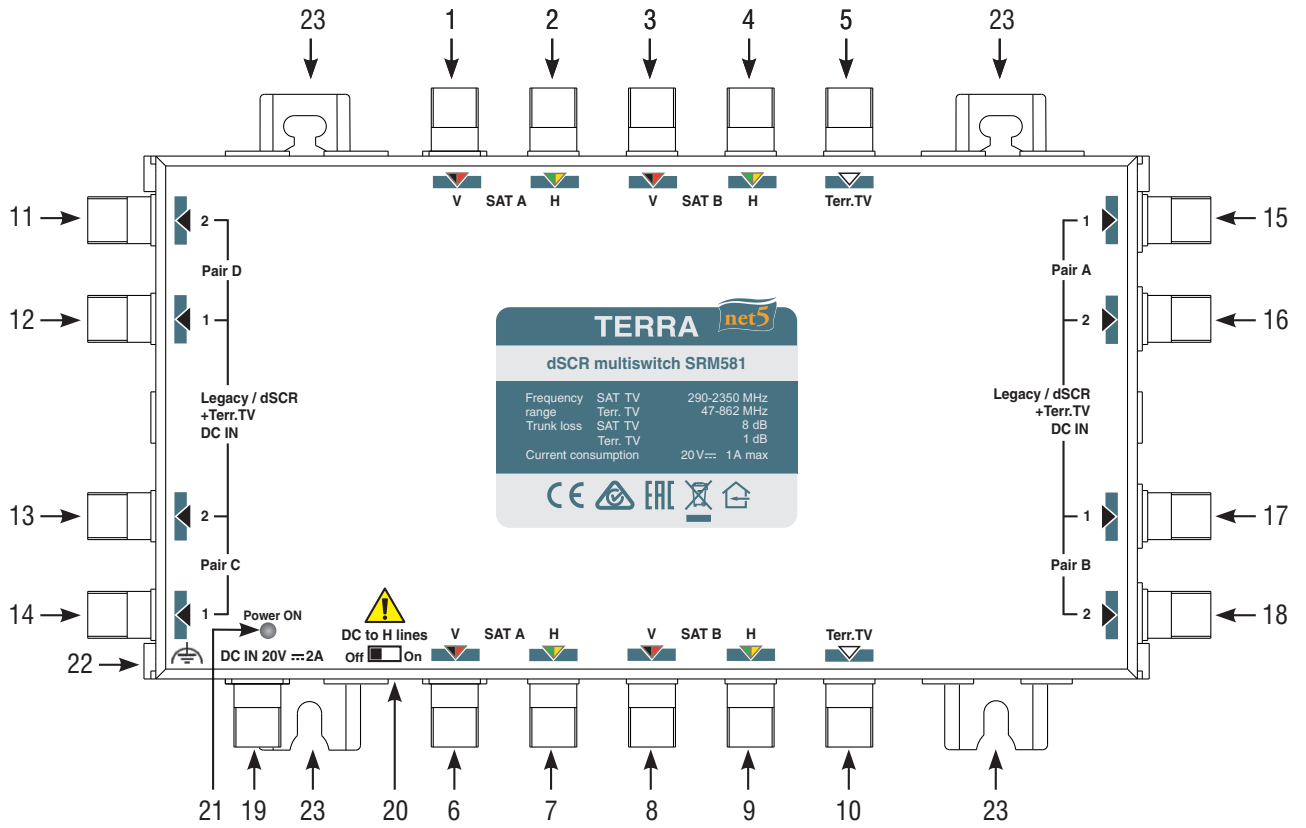


Figure 1. External view of the multiswitch SRM581

SRM561

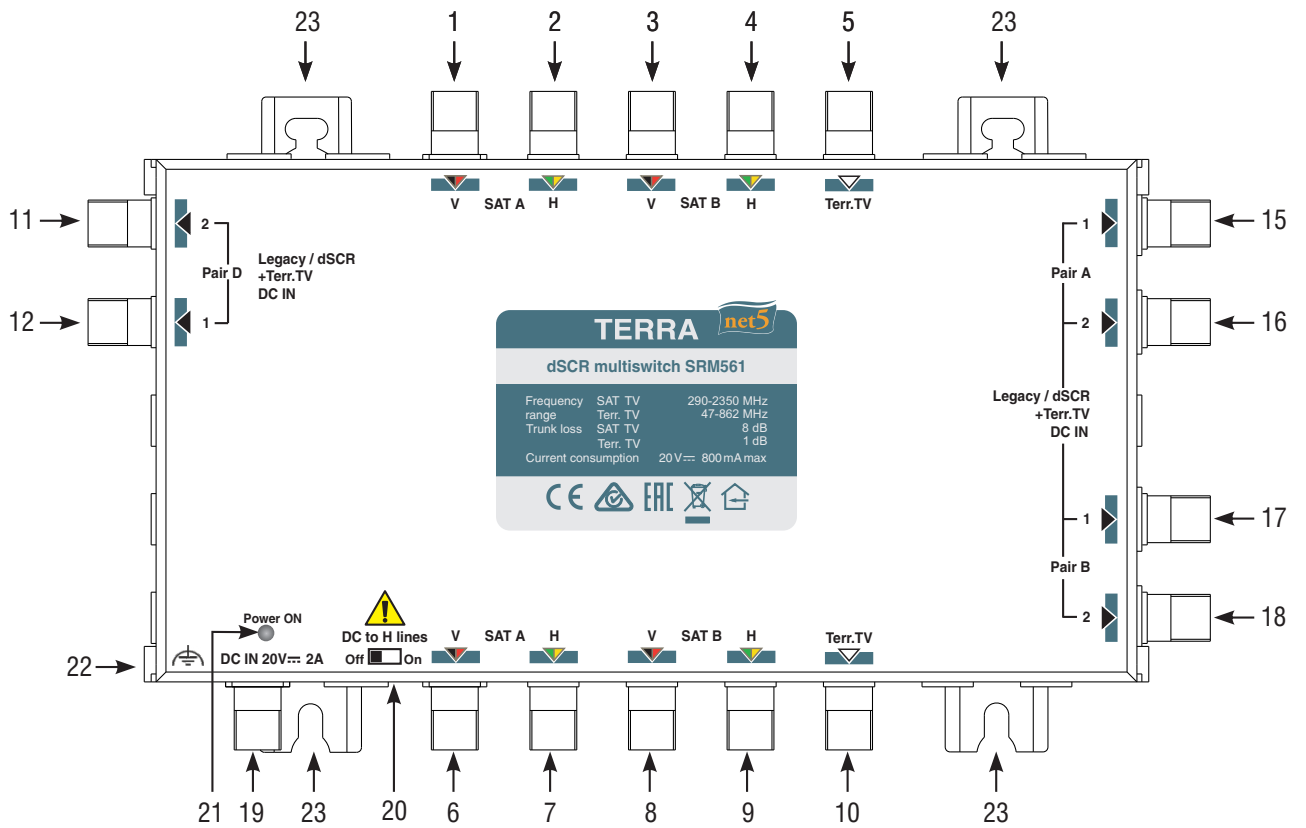


Figure 1. External view of the multiswitch SRM561

- 1 - V SAT A trunk input (SAT A V, Lo trunk input in Quattro LNB IF frequency range input mode)
- 2 - H SAT A trunk input (SAT A H, Lo trunk input in Quattro LNB IF frequency range input mode)
- 3 - V SAT B trunk input (SAT A V, Hi trunk input in Quattro LNB IF frequency range input mode)
- 4 - H SAT B trunk input (SAT A H, Hi trunk input in Quattro LNB IF frequency range input mode)
- 5 - Terrestrial TV trunk input
- 6 - V SAT A trunk output (SAT A V, Lo trunk output in Quattro LNB IF frequency range input mode)
- 7 - H SAT A trunk output (SAT A H, Lo trunk output in Quattro LNB IF frequency range input mode)
- 8 - V SAT B trunk output (SAT A V, Hi trunk output in Quattro LNB IF frequency range input mode)
- 9 - H SAT B trunk output (SAT A H, Hi trunk output in Quattro LNB IF frequency range input mode)

- 10 - Terrestrial TV trunk output
- 11 - dSCR output2 pair D (UB+Terr.TV)
- 12 - dSCR output1 pair D (UB+Terr.TV)
- 13 - dSCR output2 pair C (UB+Terr.TV, only SRM581)
- 14 - dSCR output1 pair C (UB+Terr.TV, only SRM581)
- 15 - dSCR output1 pair A (UB+Terr.TV)
- 16 - dSCR output2 pair A (UB+Terr.TV)
- 17 - dSCR output1 pair B (UB+Terr.TV)
- 18 - dSCR output2 pair B (UB+Terr.TV)
- 19 - DC 20V power input
- 20 - DC power to H trunk lines switch
- 21 - Power ON indication LED
- 22 - Functional grounding clamp
- 23 - Mounting supports


All sockets are "F" type.

Installation instructions

Read the safety instruction first.

Fit multiswitch on mounting place and connect it (pay attention to the multiswitch inputs and Wideband LNB or Quattro outputs marking, connect the isolated 75 Ω loads to the unused RF output F sockets), power on multiswitch using one of 4 powering modes (see Table 1).

Table 1

Powering mode	"DC power to H trunk lines switch" position (see Figure 1, pos.21)	 Warnings and notes
1. Multiswitch powered from local PSU (20 V) via DC input (see Figure 1, pos. 19) . (Recommended for use is PS202F 20 V PSU). H trunk lines are DC isolated from it.	OFF	Recommended as first choice. WARNING: BEFORE CONNECTION ALWAYS CHECK DC POWER TO H TRUNK LINES SWITCH (see Figure 1, pos.20). IT MUST BE IN POSITION "OFF"! Note: All trunk lines preserve DC bypassing.
2.Multiswitch is powered from local PSU (20 V) via DC input and with DC passing to H trunk lines. In this mode H trunk lines can power in cascade other multiswitches (without PSU, with "DC to H trunk lines" switch ON)	ON	WARNING: Don't overload PSU via H trunk lines – check total system power consumption of multiswitch and from H trunk lines (including all other equipment connected). Check all other system equipment connected to H lines if it can accept 20 V. SERIOUS DAMAGE OF IT CAN OCCUR!
3. Multiswitch is powered from H trunk lines: - building new SCR/dSCR system (18 V - 20 V) - upgrading systems (15 V - 18 V)	ON	WARNING: Don't exceed the current capability of system power supply. SERIOUS DAMAGE CAN OCCUR IF OVERLOADED!
4. Multiswitch is powered from subscriber outputs (see Figure 1, pos. 11-18). Each dSCR output circuit is individually powered directly from STB's or from dSCR power inserter (with 22 kHz bypass).	OFF	WARNING: MULTISWITCH WILL DRAW CURRENT AND POWER FROM PAIR OUTPUT WITH HIGHER VOLTAGE! If STB's connected to subscriber outputs can't supply sufficient power for it's own output – dSCR power inserter with 20 V PSU should be used (one per output of pair A, B, C or D). Note: Terr. TV amplifier can be powered from H trunk lines (15-20 V) to minimize current consumption from STB and keep Terr. TV operation when all STBs are OFF.

Power ON indication LED (see Figure 1, pos. 21) glow **Green** at any of the 4 powering modes.

Then switch on receiver(s). The multiswitch will begin the process of auto-detecting which type(s) of receiver connected.

All subscriber outputs are configured to connect legacy STB (supports +13V/+18V/22 kHz signals), but it switches to dynamic mode SCR/dSCR if receives a DiSEqC command according EN50494/EN50607.

Disconnect RF cable or STB from necessary output to reset to Legacy / Start mode.

PIN code

All User Bands (UB) are protected by PIN Code to prevent the set of UB from being used/disturbed by another user (see Table 2).

Default settings

1. SAT IF inputs are configured to use 2 Ku-band Wideband LNBs (SAT A/B LNB LO=10400 / 10410 MHz, see label on multiswitch rear side and package).
2. All outputs are configured to connect legacy STB (supports +13V/+18V/22 kHz signals), but it switches to dynamic mode SCR/dSCR if receives a DiSEqC command according EN50494/EN50607. Output User Bands (UB) are the same in all subscriber outputs (see Table 2).
3. PIN Codes (see Table 2 and see chapter "**Configuration**").
4. Only one UB plan is set depended of delivery region, if you need another plan see chapter "**Configuration**" or contact TERRA UAB.
5. DC power to H trunk lines switch (see Figure 1, pos. 20) in position "**OFF**".

Table 2

User Band (UB)	PIN Code	Marking: v.0			Marking: v.1			Marking: v.2		
		Bandwidth, MHz	Central frequency, MHz		Bandwidth, MHz	Central frequency, MHz		Bandwidth, MHz	Central frequency, MHz	
			EN50494	EN50607		EN50494	EN50607		EN50494	EN50607
UB0								46	1210	1210
UB1	1	40	1210	1210	40	1210	no	46	1420	1420
UB2	2	40	1420	1420	40	1420	no	46	1680	1680
UB3	3	40	1680	1680	40	1680	no	46	2040	2040
UB4	4	40	2040	2040	40	2040	no	46	1006	1006
UB5	5	40	1284	1284	40	no	985	46	1057	1057
UB6	6	40	1516	1516	40	no	1050	46	1108	1108
UB7	7	40	1632	1632	40	no	1115	46	1159	1159
UB8	8	40	1748	1748	40	no	1275	46	no	1261
UB9	9	40	no	970	40	no	1340	46	no	1312
UB10	10	40	no	1010	40	no	1485	46	no	1363
UB11	11	40	no	1050	40	no	1550	46	no	1471
UB12	12	40	no	1090	40	no	1615	46	no	1522
UB13	13	40	no	1130	40	no	1745	46	no	1573
UB14	14	40	no	1170	40	no	1810	46	no	1624
UB15	15	40	no	1330	40	no	1875	46	no	1731
UB16	16	40	no	1370	40	no	1940			

Configuration

The default setting of the device can be changed using dedicated programmer and software.

These multiswitches can be configured:

1. Up to 32 User Bands (UB) per pair outputs (SRM561- total 96 UB, SRM581- total 128 UB) for use with STBs supporting DiSEqC commands according to standards EN50494/EN50607 (SCR/dSCR).

2. Default settings **Dynamic mode** can be changed to **Static mode**.

3. Default setting Satellite A/B can be changed to C/D (see [Application diagrams](#) for installation 4 wideband LNBS (SAT B in the case Quattro LNB IF frequency range input mode). PC Windows software can be free downloaded from www.terraelectronics.com.

Output configuration must be the same per pair of outputs, but can be different in others pairs. Each pair of outputs is configured separately. Pay attention to the numbering of outputs.

Some possible outputs pair configurations shown in Table 3.

Table 3


Input mode	Output 1	Output 2
Wideband LNB	LO=10410 MHz. Other settings default.	LO=10410 MHz. Other settings default.
Wideband LNB	8 SCR/dSCR UB + up to 24 dSCR UB + Terrestrial TV	Up to 24 dSCR UB + Terrestrial TV
Quattro LNB*	8 SCR/dSCR UB + up to 24 dSCR UB, PIN protected + Terrestrial TV	Legacy + Terrestrial TV
Wideband LNB	Static mode (up to 32 converted transponders) + Terrestrial TV	Up to 32 converted transponders + Terrestrial TV
Wideband LNB	8 SCR/dSCR UB + Static mode (up to 24 converted transponders) + Terrestrial TV	Up to 24 dSCR UB + Terrestrial TV

* Input frequency range 950- 2150 MHz. Inputs V SAT A→V,Lo, H SAT A→H,Lo, V SAT B→V,Hi, H SAT B→H,Hi.

Legacy mode output level 78 dBμV (typical).


Recommended accessories

1. Power supply PS202F
2. Power inserter PI012
3. Multiswitch programmer PC102W

 This product complies with the relevant clauses of the European Directive 2002/96/EC. The unit must be recycled or discarded according to applicable local and national regulations.

 Equipment intended for indoor usage only.

 Functional grounding. Connect to the main potential equalization.

 This product is in accordance to following norms of EU: EMC norm EN50083-2, safety norm EN62368-1, RoHS norm EN50581.

 This product is in accordance with Custom Union Technical Regulations: "Electromagnetic compatibility of technical equipment" CU TR 020/2011, "On safety of low-voltage equipment" CU TR 004/2011.

 This product is in accordance with safety standard AS/NZS 60065 and EMC standards of Australia.

Technical characteristics

Type			SRM561	SRM581
Frequency range	SAT IF input	wideband LNB LO=10400 MHz*	300-2350 MHz	
		wideband LNB LO=10410 MHz*	290-2340 MHz	
		Quattro LNB LOlow=9750 MHz / LOhigh=10600 MHz	950-2150 MHz	
	SAT IF output		950-2150 MHz	
	Terr. TV		47-862 MHz	
Number of inputs & trunk outputs	SAT IF		4	
	Terr. TV		1	
Number of tap outputs			6 (3 pairs)	8 (4 pairs)
Trunk loss	SAT IF		< 8 dB	
	Terr. TV		< 1 dB	
Return loss / impedance			> 10 dB / 75 Ω	
Input level per channel	SAT IF		65-95 dBμV	
	Terr. TV		IMD3=60 dB 88 dBμV max.	
Terr. TV noise figure			6 dB	
Tap output with combined DTT	user bands (dSCR mode)		32 max. per pair outputs, configurable	
	user band bandwidth (dSCR mode)		20-60 MHz, configurable	
	dSCR mode output level, AGC controlled		84 dBμV configurable	
	legacy mode output level AGC controlled, typical		78 dBμV	
	Terr. TV output level		IMD3=60 dB 96 dBμV max.	
	Terr. TV gain		8 dB	
Decoupling	SAT IF inputs/SAT IF inputs		> 30 dB	
	SAT IF inputs/tap outputs		> 30 dB	
	SAT IF/ Terr. TV		> 25 dB	
DC pass through trunk lines	SAT IF		2 A max., 1 A max. through one line	
	Terr. TV		250 mA max.	
Current consumption	from DC input**		20 V 800 mA max.	20 V 1 A max.
	from H trunk lines		15 V 1.1 A	15 V 1.4 A
			18 V 900 mA	18 V 1.2 A
			20 V 800 mA	20 V 1 A
			Terr. TV amplifier	
from STB	legacy mode	13 V 300 mA max.; 18 V 260 mA max.		
	dSCR mode	13 V 420 mA max.		
	legacy+dSCR mode	13 V 460 mA max.; 18 V 340 mA max.		
Current pass from DC input to H trunk lines, switchable			20 V 1.2 A max.	20 V 1 A max.
Operating temperature range			-20° ÷ + 50° C	
Dimensions/Weight (packed)			226.6x133.6x30 mm/0.80 kg	

* see label on multiswitch rear side and package

** without external DC feeding