dSCR (Digital satellite cable router) multiswitches SRM564, SRM584, SRM564T, SRM584T

Product description

Cascadable single cable wideband multiswitches SRM564, SRM584 and SRM564T, SRM584T are intended for the distribution of satellite and terrestrial signals for up to 32 satellite tuners or receivers on each outputs pair.

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

The multiswitches have 2 DC input ports for expanded SAT IF distribution system feeding options and dedicated control/configuration port (see Figure 1 and chapter „Installation instructions").

The multiswitches may be simply switched to Quattro SAT IF range input mode by dedicated switch.

SRM564, **SRM564T** is are cascadable single cable multiswitches with 3 pairs subscribers outputs (6 outputs total).

SRM584, **SRM584T** is are cascadable single cable multiswitches with 4 pairs subscribers outputs (8 outputs total).

SRM564 and **SRM584** have active Automatic gain control (AGC) Digital terrestrial television (DTT) path to subscribers outputs (see Table „Technical characteristics").

SRM564T and **SRM584T** have passive DTT path to subscribers outputs (see Table „Technical characteristics").

The multiswitches are intended for the distribution of satellite and DTT signals for up to 32 satellite tuners or receivers on each outputs pair and have 7 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 and DTT trunk line.

These multiswitches automatically detect Legacy/SCR/dSCR commands from the receiver. The dSCR switches also feature fully automatic level control for SAT IF and DTT (SRM564, SRM584) signals, 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 EN 303 354 V.1.1.1, TERR TV band amplifier of multiswitch type is Launch, selectivity clasification 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 nonflamable surface.

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

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.

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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 SRM564, SRM584 and SRM564T, SRM584T 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.

LNBs and other system equipment connected to the multiswitch SAT trunks inputs/outputs can be powered from the same power supply as the multiswitch (see chapter „Installation instructions").

> ⚠️ 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 or V TRUNK LINES SWITCHES** (see Figure 1, pos. 21, 23) unless you totally understand the power demands of the system and confirmed they are 3.2 A total or less per H or V lines. **ALWAYS LEAVE THE DC POWER TO H or V TRUNK LINES SWITCHES IN THE "OFF" POSITION** when inserting the SRM564, SRM584 and SRM564T, SRM584T into an existing multiswitches installation.
> Damage caused by current overload is not covered by the manufacturer's warranty.
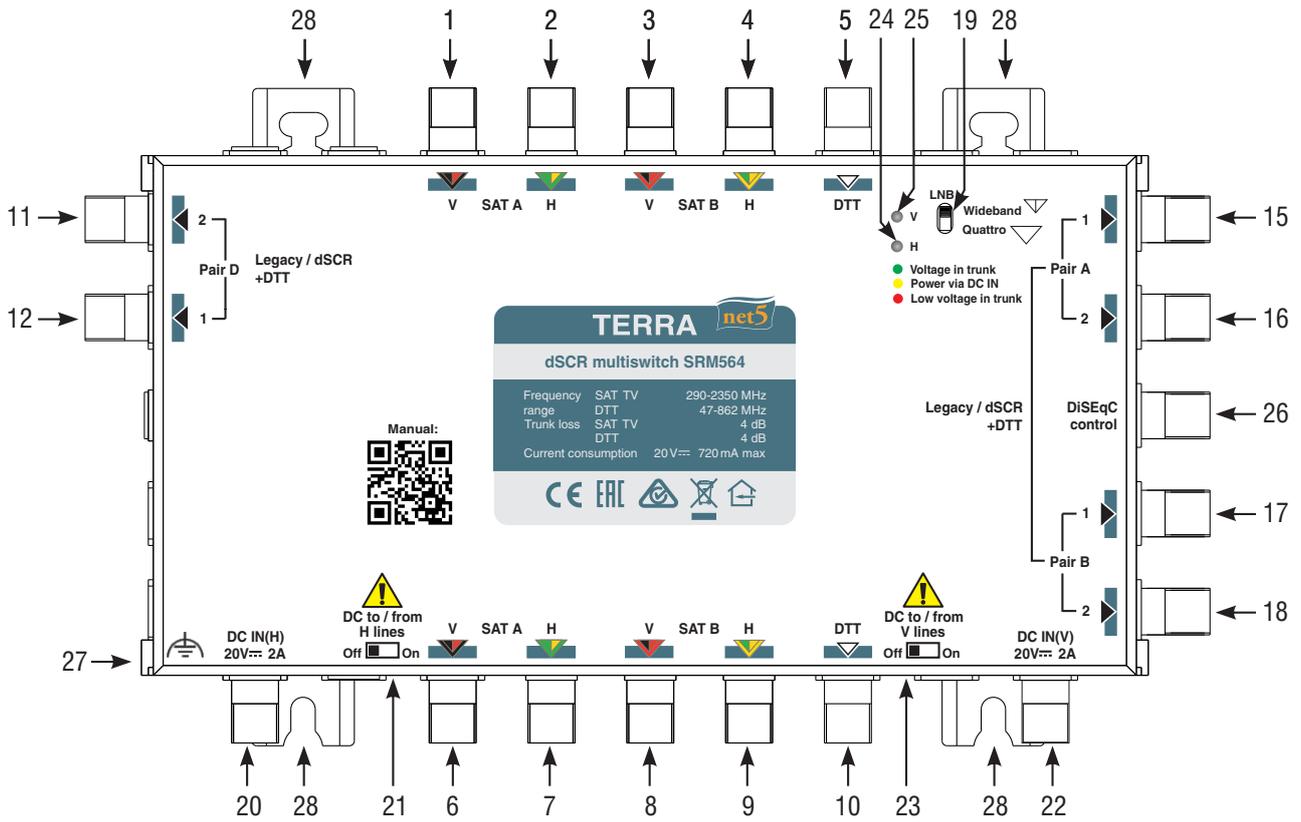
External view

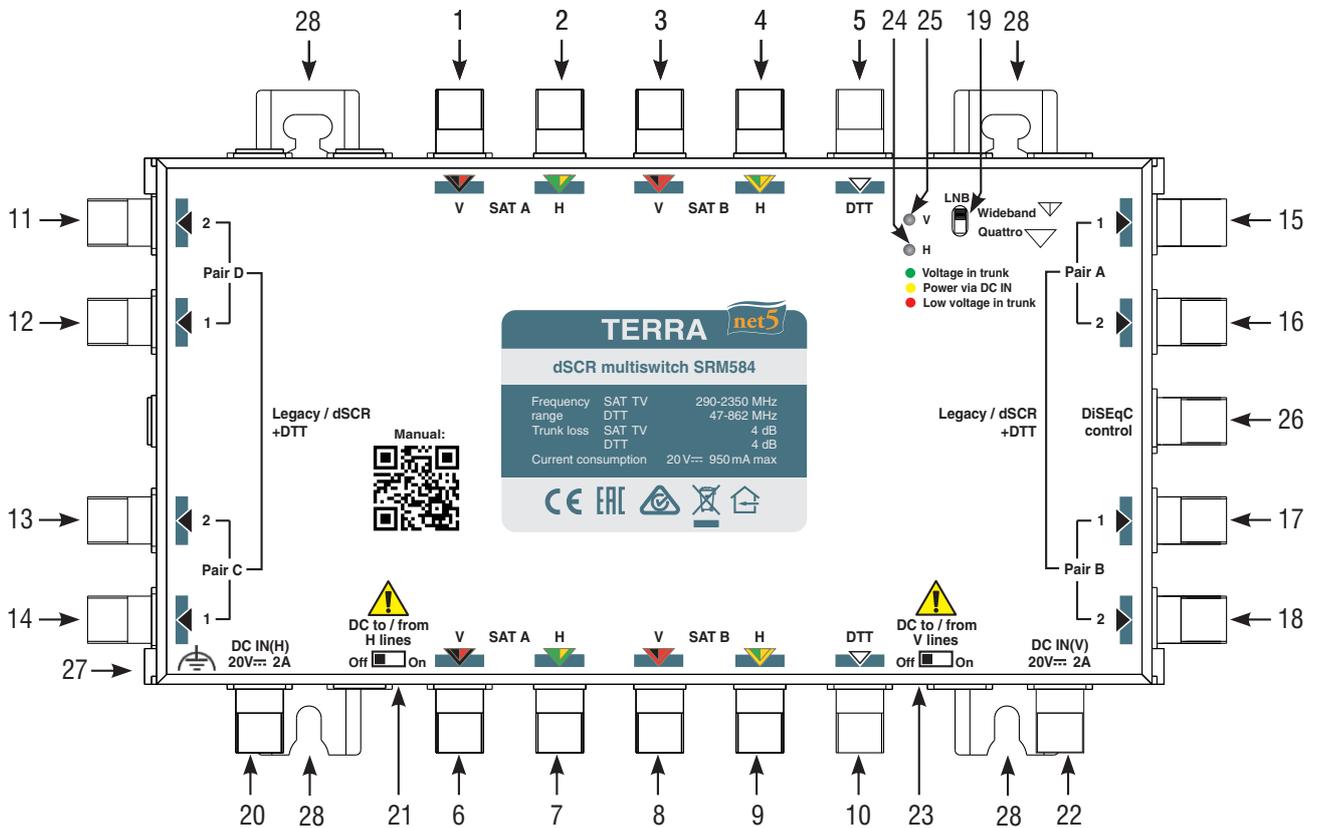## SRM564

Figure 1. External view of the multiswitch SRM564

SRM584

Figure 2. External view of the multiswitch SRM584

1 - SAT A V trunk input (SAT A VLo trunk input in Quattro LNB IF range input mode)

2 - SAT A H trunk input (SAT A HLo trunk input in Quattro LNB IF range input mode)

3 - SAT B V trunk input (SAT A VHi trunk input in Quattro LNB IF range input mode)

4 - SAT B H trunk input (SAT A HHi trunk input in Quattro LNB IF range input mode)

5 - DTT trunk input

6 - SAT A V trunk output (SAT A VLo trunk output in Quattro LNB IF range input mode)

7 - SAT A H trunk output (SAT A HLo trunk output in Quattro LNB IF range input mode)

8 - SAT B V trunk output (SAT A VHi trunk output in Quattro LNB IF range input mode)

9 - SAT B H trunk output (SAT A HHi trunk output in Quattro LNB IF range input mode)

10 - DTT trunk output

11 - dSCR output2 pair D (UB+DTT)

12 - dSCR output1 pair D (UB+DTT)

13 - dSCR output2 pair C (UB+DTT, SRM584, SRM584T only)

14 - dSCR output1 pair C (UB+DTT, SRM584, SRM584T only)

15 - dSCR output1 pair A (UB+DTT)

16 - dSCR output2 pair A (UB+DTT)

17 - dSCR output1 pair B (UB+DTT)

18 - dSCR output2 pair B (UB+DTT)

19 - Wideband / Quattro switch

20 - DC IN(H) 20 V power input, switchable to H lines by switch pos. 21 (see „Installation instructions")

21 - DC power to/from H trunk lines switch (see „Installation instructions")

22 - DC IN(V) 20 V power input, switchable to V lines by switch pos. 23 (see „Installation instructions")

23 - DC power to/from V trunk lines switch (see „Installation instructions")

24 - DC IN(H) and DC in V trunk lines LED indicator (see „Installation instructions")

25 - DC IN(V) and DC in H trunk lines LED indicator (see „Installation instructions")

26 - DiSEqC control/configuration port

27 - Functional grounding clamp

28 - 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 or Quattro LNB outputs marking, connect the isolated 75 Ω loads to the unused RF output F sockets), power on multiswitch using one of 7 powering modes (see Table 1).
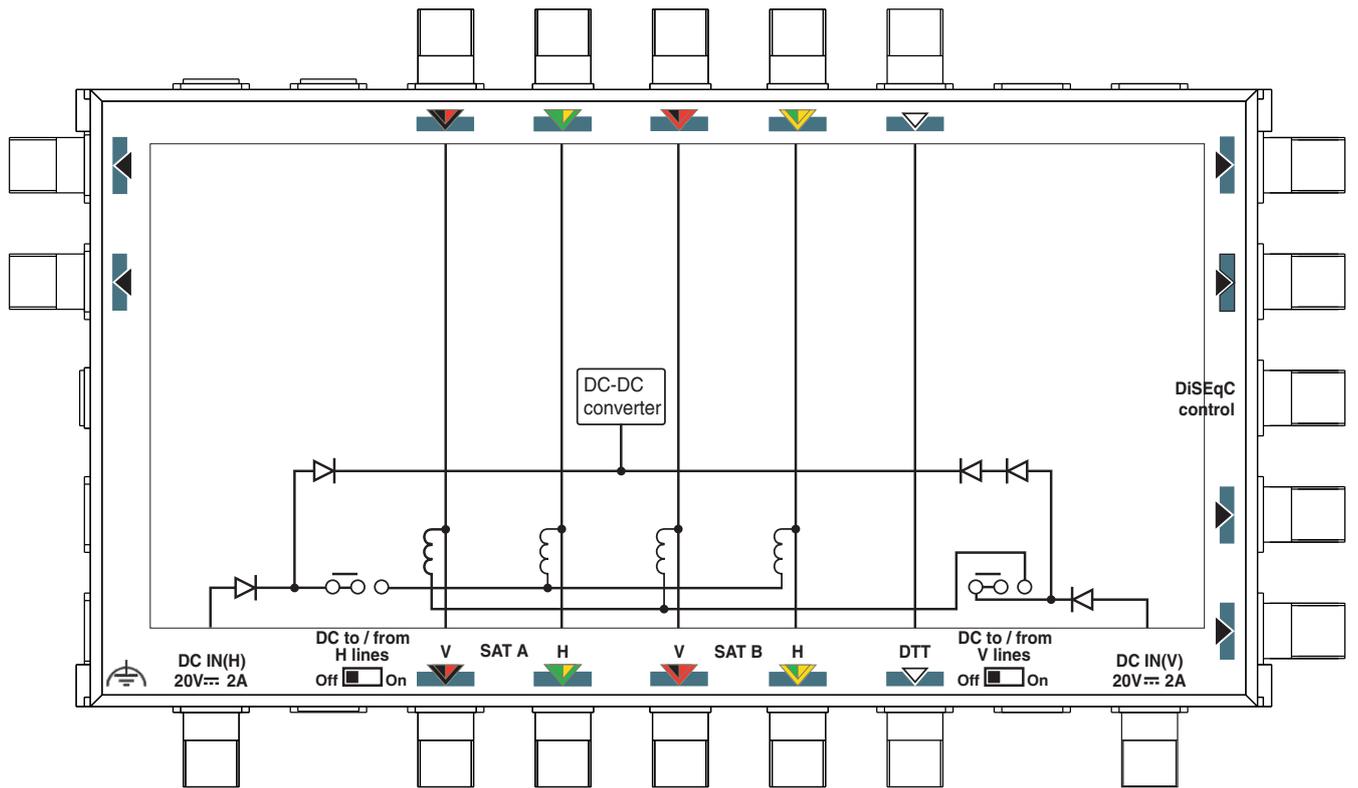
Diagram of DC paths

Figure 3. Diagram of DC paths

Table 1

Powering mode	"DC to / from H trunk lines" switch position (see Figure 1, pos.21)	"DC to / from V trunk lines" switch position (see Figure 1, pos.23)	⚠ Warnings and notes*
1. Multiswitch powered from local PSU (20 V) via DC IN (H) input (see Figure 1, pos. 20) . (Recommended for use is PS202F PSU). H trunk lines are DC isolated from it.	OFF	OFF	**Recommended as first choice.** **WARNING: BEFORE CONNECTION ALWAYS CHECK DC TO / FROM H / V TRUNK LINES SWITCHES** (see Figure 1, pos. 21, 23). **ITs MUST BE IN POSITION "OFF"!** *Note*: All trunk lines preserve DC bypassing. See "**Diagram of DC paths**".
2.Multiswitch is powered from local PSU (20 V) via DC IN (H) 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 / from H lines" switch ON) and other equipment connected to H trunk lines.	ON	OFF	**WARNING**: Don't overload PSU via H trunk lines and don't exceed the current capability of H trunk lines – check total system power consumption of Multiswitch and from H trunk lines (including all other equipment connected). See "**Technical characteristics**". 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	OFF	**WARNING**: Don't exceed the current capability of system power supply and H trunk lines. See "**Technical characteristics**". **SERIOUS DAMAGE CAN OCCUR IF OVERLOADED!**
4. Multiswitch is powered from local PSU (20 V) via DC IN (V) input (see Figure 1, pos.23). (Recommended for use is PS202F PSU). V trunk lines are DC isolated from it.	OFF	OFF	**WARNING**: **BEFORE CONNECTION ALWAYS CHECK DC TO / FROM H / V TRUNK LINES SWITCHES** (see Figure 1, pos. 21, 23). **ITs MUST BE IN POSITION "OFF"!** *Note*: All trunk lines preserve DC bypassing. See "**Diagram of DC paths**".
5. and 6.	OFF	ON	Similar to **Powering modes** 2 and 3, but in relation to V trunk lines.
7. Multiswitches in large systems are powered from one mains point. In this mode V and H trunk lines can power in cascade other multiswitches.	ON / OFF	ON / OFF	**WARNING: Before power "ON", select the optimal combination of DC to / from H / V line switches** (see Figure 1, pos. 21, 23). *Note*: All trunk lines preserve DC bypassing. See **"Diagram of DC paths".**

* Current consumption from DC IN (V) and V lines is slightly higher compared to power from DC IN (H) or H lines (see "**Diagram of DC paths**" and "**Technical characteristics**").

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**.

DC voltages diagnostic LEDs meanings described in Table 2.

Table 2.

LED "V"	LED "H"	Voltage at DC IN(V)	Voltage at DC IN(H)	DC to / from V lines switch	DC to / from H lines switch	Voltage in V line	Voltage in H line	⚠ Warnings and notes
blank	Yellow	0 V	15…20 V	OFF	OFF	0 V	0 V	Normal operation. Multiswitch powered from DC IN(H) port.
blank	Green	0 V	0 V	OFF	ON	0 V	15…20 V	Normal operation. Multiswitch powered from H line.
blank	Blinking Yellow / Green	0 V	1. 15…20 V	OFF	ON	0 V	15…20 V	Normal operation. Multiswitch powered from DC IN(H) port and power pass from DC IN(H) to H lines
		0 V	2. 15…20 V	OFF	OFF	0 V	15…20 V	Normal operation. Multiswitch powered from DC IN(H) port. Voltage in H line from another system power point.
blank	Red	0 V	1. < 14 V	OFF	OFF	0 V	0 V	**Low voltage at DC IN(H)**. Multiswitch powered from DC IN(H) port. **Attention! increased current consumption**.
		0 V	2. 0 V	OFF	ON	0 V	< 14 V	**Low voltage in H line**. Multiswitch powered from H line. Voltage in H line from another system power point. **Attention! increased current consumption**.
Yellow	blank	15…20 V	0 V	OFF	OFF	0 V	0 V	Normal operation. Multiswitch powered from DC IN(V) port.
Green	blank	0 V	0 V	ON	OFF	15…20 V	0 V	Normal operation. Multiswitch powered from V line.
Blinking Yellow / Green	blank	1. 15…20 V	0 V	ON	OFF	15…20 V	0 V	Normal operation. Multiswitch powered from DC IN(V) port and power pass from DC IN(V) to V lines.
		2. 15…20 V	0 V	OFF	OFF	15…20 V	0 V	Normal operation. Multiswitch powered from DC IN(V) port. Voltage in V line from another system power point
Red	blank	1. < 14 V	0 V	OFF	OFF	0 V	0 V	**Low voltage at DC IN(V)**. Multiswitch powered from DC IN(V) port. **Attention! increased current consumption**
		2. 0 V	0 V	ON	OFF	< 14 V	0 V	**Low voltage in V line**. Multiswitch powered from V line. Voltage in V line from another system power point. **Attention! increased current consumption**.

Continued of Table 2.

LED "V"	LED "H"	Voltage at DC IN(V)	Voltage at DC IN(H)	DC to / from V lines switch	DC to / from H lines switch	Voltage in V line	Voltage in H line	⚠ Warnings and notes
Yellow	Yellow	15…20 V	15…20 V	OFF	OFF	0 V	0 V	Normal operation. Multiswitch powered from DC IN(H) port and additional PSU connected to DC IN(V) port.
Blinking Yellow / Green	Yellow	15…20 V	15…20 V	ON	OFF	15...20 V	0 V	Normal operation. Multiswitch powered from DC IN(H) port. Additional PSU connected to DC IN(V) port feeding DC to V trunk lines.
Green	Green	0 V	0 V	One of switches is ON		15...20 V	15...20 V	Normal operation. Multiswitch powered from V or H line (depending on which switch is ON).

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 3).

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 3).

3. PIN Codes (see **Table 3** 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 / V trunk lines switches set (see Figure 1, pos. 21, 23) in position **"OFF"**.

Table 3

User Band (UB)	PIN Code	**v.0** Bandwidth, MHz	**v.0** Central frequency, MHz EN50494	**v.0** Central frequency, MHz EN50607	**v.1** Bandwidth, MHz	**v.1** Central frequency, MHz EN50494	**v.1** Central frequency, MHz EN50607	**v.2** Bandwidth, MHz	**v.2** Central frequency, MHz EN50494	**v.2** Central frequency, MHz EN50607
UB0								46	1210	1210
UB1	1	40	1210	1210	40	1210	1210	46	1420	1420
UB2	2	40	1420	1420	40	1420	1420	46	1680	1680
UB3	3	40	1680	1680	40	1680	1680	46	2040	2040
UB4	4	40	2040	2040	40	2040	2040	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 (SRM564 and SRM564T- total 96 UB, SRM584, SRM584T- total 128 UB) for use with STBs supporting DiSEqC commands according to standard EN50607 (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/C/D in the case Quattro LNB IF 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 are configured separately. Pay attention to the numbering of outputs.

Some possible outputs pair configurations shown in Table 4.

Table 4

Input mode	Output 1	Output 2
Wideband LNB	SAT A: LO=10410 MHz. SAT B: LO=10400 MHz. Other settings default.	SAT A: LO=10410 MHz. SAT B: LO=10400 MHz. Other settings default.
Wideband LNB	8 SCR/dSCR UB + up to 24 dSCR UB	Up to 24 dSCR UB
Quattro LNB	8 SCR/dSCR UB + 24 dSCR UB, PIN protected	Legacy
Wideband LNB	Static mode (up to 32 converted transponders)	Static mode (up to 32 converted transponders
Wideband LNB	8 SCR/dSCR UB + Static mode (up to 24 converted transponders)	Up to 24 dSCR UB

See programmer user manual for more information.

Recommended accessories

1. Power supply PS202F

2. Power inserter PI012

3. Multiswitch programmer PC102W

Technical characteristics

Type			SRM564	SRM584	SRM564T	SRM584T
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			
	DTT		47-862 MHz		5-862 MHz	
Number of trunk inputs & outputs	SAT IF		4			
	DTT		1			
Number of tap outputs			6 (3 pairs)	8 (4 pairs)	6 (3 pairs)	8 (4 pairs)
Trunk output loss	SAT IF		< 4 dB			
	DTT		< 4 dB			
Return loss / impedance			> 10 dB / 75 Ω			
Input level per channel	SAT IF		65-105 dBµV			
	DTT		55-85 dBµV (8 DTT channels)		-	
Terr.TV noise figure			< 8 dB		-	
Tap output with combined DTT	user bands (dSCR mode)		32 max. per pair outputs, configurable			
	user band bandwidth (dSCR mode)		20-60 MHz, adjustable			
	dSCR mode output level, AGC controlled		84 dBµV adjustable			
	legacy mode output level AGC controlled, typical		78 dBµV			
	DTT output level, AGC controlled		82 dBµV max. (8 DTT channels), adjustable		-	
	DTT loss		-		18 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		3.2 A max., 1.6 A max. through one line			
	DTT		200 mA max.			
Current consumption	from DC IN(H) input (Uin=20 V)**		720 mA max.	950 mA max.	680 mA max.	910 mA max.
	from DC IN(V) input (Uin=20 V)**		740 mA max.	970 mA max.	700 mA max.	930 mA max.
	from H / V trunk lines	20 V on the line	680 mA max.	910 mA	640 mA max.	870 mA max.
		18 V on the line	770 mA max.	1 A	730 mA max.	960 mA max.
		15 V on the line	990 mA max.	1.22 A	950 mA max.	1.18 A max.
	from STB		18 V 20 mA max.			
Current pass from DC IN(H) input to H trunk lines (Uin=20 V), switchable			1.28 A max.	1.05 A max.	1.32 A max.	1.09 A max.
Current pass from DC IN(V) input to V trunk lines (Uin=20 V), switchable			1.26 A max.	1.03 A max.	1.3 A max.	1.07 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