



# User Guide

## TMS 5XX SE/CE Euro Line Multiswitch Series

### Series

TMS 5XX SE AQ-EU	Single, w/PSU and EU Mains plug, 6-32 out, active TER, QUAD LNB
TMS 5XX SE A-EU	Single, w/PSU and EU Mains plug, 6-32 out, active TER
TMS 5XX SE P-EU	Single, w/PSU and EU Mains plug, 6-32 out, passive TER
TMS 5XX SE P-R	Single, no PSU, for SAT receiver DC sourcing, 6-32 out, passive TER
TMS 5XX CE A-EU	Cascade, for external PSU, 8-32 out, active TER
TMS 5XX CE P-EU	Cascade, for external PSU, 8-32 out, passive TER

Language EN

Version: 9.2016.A

[triax.com](http://triax.com)

## Triax Euro Line TMS 5XX SE/CE Multiswitch

The Triax Euro Line Multiswitch Range is a very high quality range of Multiswitches for single or cascade SAT-IF (satellite) distribution networks with a need for RF loop-through. Available in both active and passive variants for RF loop-through the range offers a perfect selection to use for either terrestrial aerial reception signals (A-active), or a full CATV signal including DOCSIS support (P-passive)

The Euro Line Series is Made in Europe, and fully meets the EN 50083-3 Class A shielding requirements.

The purpose of this guide is to enable the successful installation and use of the TMS 5XX Multiswitch series.

### The TMS 5XX Series (One satellite position):

- **TMS 5XX SE P-EU** = Stand-alone unit, terrestrial passive, built-in PSU with EU Mains plug.
- **TMS 5XX SE A-EU** = Stand-alone unit, terrestrial active, built-in PSU with EU Mains plug.
- **TMS 5XX SE AQ-EU** = Stand-alone unit, terrestrial active, built-in PSU with EU Mains plug (QUAD LNB)
- **TMS 5XX SE P-R** = Stand-alone unit, terrestrial passive. No PSU.
  - Power is sourced from the SAT-Receivers. Optionally an external PSU can be added. *This Version has no T-Active option to avoid too much power consumption from connected SAT-receiver(s).*
- **TMS 5XX CE P** = Cascaded output unit, terrestrial passive, for external PSU.
- **TMS 5XX CE A** = Cascaded output unit, terrestrial active, for external PSU.
- **NOTE:** The TMS 5XX Range uses one Quattro LNBs receiving from one orbital Satellite position.
- **XX** are placeholder for individual units with 06, 08, 12, 16, 24 or 32 user/subscriber outputs.
- **Please refer to Triax.com for Euro Series Multiswitch products for reception of 2, 3 and 4 SAT positions**

### Security

- During installation please observe the requirements set forth in EU safety standards e.g. EN 60065 and 50083-1 as well as any local requirements and standards for SAT-IF and RF SMATV-installations.
- Exercise care and good practise when mounting coaxial connectors (F-connectors) on the cables to avoid short circuits and unnecessary emission of noise and disturbance of neighbouring installations.
- Only perform multi switch installation jobs while mains plug of all power supplies are disconnected.
- Make sure no short circuits are present on the distribution cables before applying mains power to the multi switch installation and Satellite Receivers. Short circuits may overload, overheat and harm Power Supplies and Satellite Receivers that are attempting to supply an excessive amount of current caused by a short circuit.
- Damages to your multiswitch products are not covered by the product warranty should you cause them to be subject to excessive current surges due to short circuits.
- Check the rating labels of any attached power supply and make sure the local Mains Voltage you connect it to never exceeds those ratings. Failure to observe this and act accordingly may compromise the security and safety of the whole system and expose you and everyone attached to the installation to damage, fire and electric shock.
- Make sure the ambient temperature at the installation site never exceeds the temperature limits for the product installed. If required, you must arrange for suitable temperature conditioning. Failure to observe this and act accordingly may compromise the performance, security and safety of the whole system and expose you and everyone attached to the installation to damage, fire and electric shock.
- A multi switch installation should be earthed. An earth screw is available on the multi switch unit.
- TRIAX cannot be held responsible for damage or system failures caused by Installers ignoring the above safety measures.

### Installation:

- First rule in any Multiswitch installation are: **NEVER** use a too small size satellite Dish, and
- **NEVER** use the compromise of a dual mount LNB for a multi satellite position reception on one Dish.
- Correct Dish size for each position ensures sufficient reserves in bad weather conditions and the best possible C/N for the rest of the installation. Making compromises here **CANNOT** be fixed later in the network by adding Amplifiers!
- A High Gain LNB only gives more Signal Level, but not Signal Quality. That only comes from Dish Size!
- Mount the multi switch only indoor on a vertical dry surface using the available screw holes and 'feets'.
- Make sure that no supply voltage is available on the connection cables during installation. (Temporarily turn off satellite receivers and/or their LNB supply).
- Mount suitable F-connectors on the coax cable going to the satellite receivers and connect them individually to a multi switch subscriber output (6, 8 to 32 outputs dependent on type). Recommended maximum cable length from switch to receiver is typically 25-35 meters (6-7mm Ø) depending upon cable type and quality and satellite receiver.
- Mount suitable F-connectors on the coax cable coming from the LNB units (or another cascaded Multiswitch unit). Connect them to the correct inputs of the multi switch. Observe correct colour coding.
- Double-check that correct SAT polarities are connected to correct multiswitch inputs.
- Preferably use a suitable outlet socket in the apartment at the satellite receiver to separate the terrestrial RF and satellite SAT-IF signals (e.g.: TOU 01S, EDA 302 F). NOTE: The SAT outlet must have DC a pass.
- Outputs not in use on the multiswitch should be terminated with DC-blocked 75 ohm terminators.
- DC supply for LNBs and/or Line Amplifier(s) can be done via the built-in PSU (P-EU and A-EU versions) and can be done by attaching an external power supply to any of the TMS 5XX CE cascade units.
- Cascade switches can also take DC Supply from the trunk lines if a PSU is connected elsewhere in the trunk. DC is only needed for an active TER path, the SAT path is always DC sourced by the STB.
- Please consider and calculate total system power consumption requirements and add Power supplies as needed. DC-blockers may need to be inserted to avoid power supply conflicts.
- REMEMBER: if you mount two or more power supplies in parallel to the same lines, in different positions throughout the building, the one that delivers just 0,1VDC more than the other, WILL SUPPLY ALL current, the other nothing! Therefor mounting DC blockers between them is necessary and critical.
- ONLY apply mains power to the installation power supply(es) when all connections are done and you are sure there are no short circuits present on the coax cables (use a multi-meter to check and verify that).
- Satellite receivers can now be connected, turned on and set up. System is ready for use.
- **BEWARE:** A high Signal Level does not guarantee the digital quality of your signal! Make sure to use a suitable quality Field Strength Measurement Instrument that lets you keep track of, and ensure suitable Signal Level, C/N, BER and MER Levels throughout the network.
- If additional signals are required in the distribution network, you need to make sure that no signals (such as MoCA or DOCSIS) are using the 950-2150Mhz SAT-IF range, which must be kept free for satellite.

### Multiswitch colour coding layout for LNB inputs and outputs:

Type	BAND	Polarity	Switch voltage	Switch freq.	Colour coding
SAT	High Band	Horisontal	18 V DC	22 kHz	Yellow
		Vertical	13 V DC	22 kHz	Red
	Low Band	Horisontal	18 V DC	0 kHz	Green
		Vertical	13 V DC	0 kHz	Black
TER	NA				White

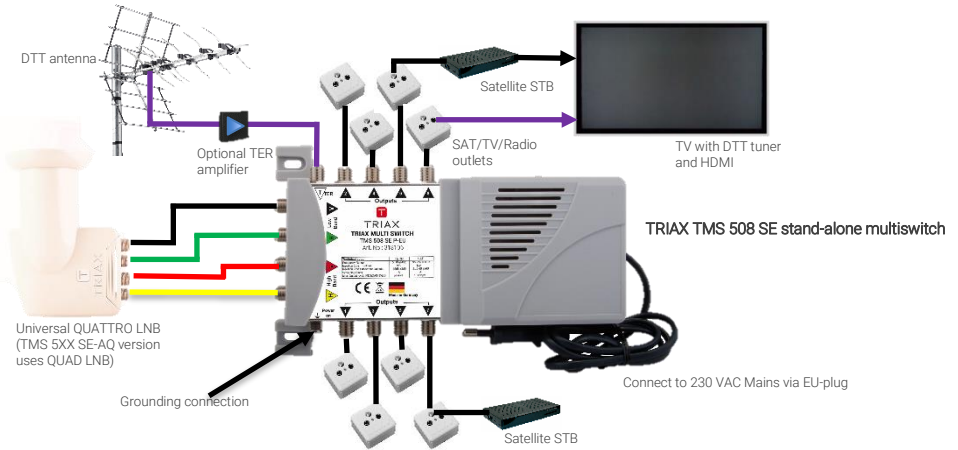


Fig. 1: A typical stand-alone installation for 8 satellite receivers and TV.

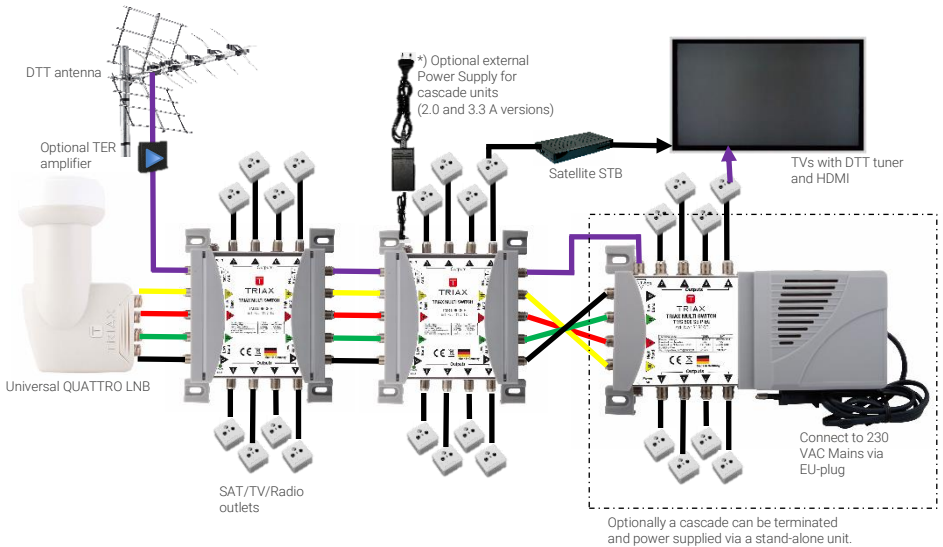


Fig. 2: A combined cascade and stand-alone installation for a total of 24 satellite receivers and TV.

Please note that connector-position and -use may be different on other size units.

The cascade is shown terminated and power supplied via a TMS 5XX SE stand-alone multiswitch. This is optionally.

\*) In a cascade, the last cascade multiswitch may also be terminated at the end trunk and DC sourced via an external power supply.

## Technical Specifications:

Range		Single 6 or 8 outputs	Single 12 or 16 outputs	Single 24 or 32 outputs	Cascade 6 or 8 outputs	Cascade 12 or 16 outputs	Cascade 24 or 32 outputs
Functionality		1 x SAT position Multiswitch, single (stand-alone) or cascade versions					
LNB type		1 x Universal QUATTRO LNB (AQ version uses QUAD LNB)					
LNB Inputs (SAT polarities)		4	4	4	4	4	4
TER Input		1	1	1	1	1	1
Trunk outputs (cascade)		NA	NA	NA	5	5	5
Connectors	Type	F-connectors, IEC 60169-24, (female)					
Impedance	$\Omega$	75					
Frequency Range SAT	MHz	950-2400					
Frequency Range TER	MHz	40-862 (active) / 5-862 (passive)					
TAP Loss SAT	dB	-2...+3 $\pm$ 2	-2...+3 $\pm$ 2	-6...0 $\pm$ 2	-4...0 $\pm$ 2	-4...0 $\pm$ 2	-4...0 $\pm$ 2
TAP Loss TER (active)	dB	-2 $\pm$ 2	-2 $\pm$ 2	-2 $\pm$ 2	-3 $\pm$ 3	-3 $\pm$ 3	-3 $\pm$ 3
TAP Loss TER (passive)	dB	-24 $\pm$ 3	-24 $\pm$ 3	-24 $\pm$ 3	-33 $\pm$ 3	-33 $\pm$ 3	-33 $\pm$ 3
THROUGH Loss SAT	dB	NA	NA	NA	-2...-4 $\pm$ 2	-3...-4 $\pm$ 2	-2...-6 $\pm$ 2
THROUGH Loss TER	dB	NA	NA	NA	-3 $\pm$ 2	-2 $\pm$ 2(12) -3 $\pm$ 2(24)	-2...-6 $\pm$ 2
Isolation T/S (typ.)	dB	30	30	30	30	30	30
Isolation H/V (typ.)	dB	30	30	30	30	30	30
In/Out Return Loss SAT	dB	>10	>10	>10	>10	>10	>10
In/Out Return Loss TER	dB	>10	>10	>10	>10	>10	>10
Max. Output Level SAT (IMD3 @ 35 dB)	dB $\mu$ V	101	101	101	101	101	101
Max. Output Level TER (IMD3 @ 60 dB) - active	dB $\mu$ V	90	88	88	84	84	84
LNB Supply Voltage	VDC	18	18	18	18	18	18
LNB Supply Current (Max.)	mA	500	500	500	900	900	900
Current cons. (from STB)	mA	27	29...38	29...38	35	27...35	27...35
Current Cons. (from PSU)	mA	120	10...250	10...250	7 / 100	10 / 100...350	10 / 100...350
Mains Voltage	VAC/Hz	90...264 / 50-60	90...264 / 50-60	90...264 / 50-60	NA	NA	NA
DC connector	Type	None, -R types: RCA/cinch/phono female Cascade types: 5.5mm/2.1mm DC plug *)					
Switch Commands	VDC/kHz	13/18 VDC, 0/22kHz, DiSEqC 1.0					
Power Supply	Type	Fixed/ Included R-Type: none	Fixed/ Included R-Type: none	Fixed/ Included R-Type: none	*) For external PSU w/EU-Mains plug: 318150, TMS 1520-55, 2,0A, or 318152, TMS 1533-55, 3,3A R-types can use: 318154, TMS 1520-RCA		

Please visit [www.triax.com](http://www.triax.com) for details on individual weight, dimensions and part numbers

For further information  
and updated manuals go to

[triax.com/support](https://triax.com/support)

