



# Triax IRS Solutions

Complete Range from 1 to 4  
Satellite Positions plus accessories



Your ultimate connection

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# We've got multiswitches for all your needs

## What exactly do you need a multiswitch for?

From a technical point of view, it enables many set-top box users to share a single dish/LNB installation and cabling.

All users will enjoy a full digital signal quality - from satellite to set-top box. And from an aesthetical and practical point of view, multiswitches can help you avoid many dishes on a building.

In addition, you get the following features with set-top box and multiswitch installations: Full DVD-picture quality, full DVD/CD-sound quality, real 16:9 picture format, high definition capability and surround sound.

## When should you use a multiswitch?

- Whenever more than four users have their own individual set-top box – and need a shared dish.
- When many channels are required.
- When users live within a relatively short distance of the dish – and each other.

The number of satellite positions and polarities, along with user/subscriber outputs, determine the right choice of multiswitch for you.

People often ask us if it's possible to receive signals from more than one satellite position. The answer is yes. Solutions exist for one to four individual satellite positions. If you want more than one position, please look for the multiswitch solutions that include a DiSEqC-switch.

Another frequently asked question concerns the distribution of different signals. Can terrestrial signals be distributed via a multiswitch that already provides satellite signals? Yes they can. Most of the time both co-exist on the same cable.

If you need to expand or change an installation in the future, you can generally apply new products to existing systems – saving you both time and money. And despite their advanced and complex technical qualities, all Triax products are designed to be easy to install and use.



## TD / DAP Dish and Quattro LNB

The most important part of an installation is the quality of the incoming signals.

We recommend a TD78 or TD88 satellite dish for optimum signal levels. (Larger dishes may require planning permission before installation). For extreme environmental conditions we recommend a DAP 90cm fibreglass dish. Multiswitch systems require a Quattro LNB to be installed (304449).



### TD Dishes

- High quality design
- Pre-mounted feedarm
- LNB holder with clip-on bracket
- Simple installation and adjustment
- LNB cable can be routed through the feedarm
- Stable, non-slip mast bracket
- Galvanised steel
- Polyester powder coat

| Part No. (single box) | 121789             | 121889             |
|-----------------------|--------------------|--------------------|
| Model                 | TD78               | TD88               |
| Dimensions (cm)       | 70x78              | 85x95              |
| Frequency Range (GHz) | 10.7-12.5          | 10.7-12.75         |
| Gain (@11.7GHz)       | 37.1dBi            | 38.8dBi            |
| G/T (NF LNB 0.7dB)    | 17.3dB/K           | 19.2dB/K           |
| Offset Angle          | 26°                | 26°                |
| Elevation Range       | 10°-50°<br>45°-80° | 10°-50°<br>45°-80° |
| Beamwidth             | 2.6°               | 2.0°               |
| Windload (@42m/s)     | 619N               | 902N               |
| Mast Dimensions (mm)  | Ø32-50             | Ø32-50             |

### Quattro LNB

- Mini LNB - Compact housing for a neat installation
- High specification
- Colour coded outputs
- Fits 40mm LNB holder
- High cross polarity isolation
- Built in slope
- Low power consumption
- For use with multiswitches



| Part No. | Description                                                |
|----------|------------------------------------------------------------|
| 304449   | Triax Quattro, Universal LNB (for use with multi-switches) |

### DAP Dishes

- Fibreglass reflector
- High quality design
- Simple installation and adjustment
- LNB cable can be routed through the feedarm
- Stable, non-slip mast bracket



| Part No. (single box)  | 362911  |
|------------------------|---------|
| Model                  | DAP911  |
| Dimensions (cm)        | 86x94   |
| Noise Temperature (°K) | <30     |
| Gain (@12.625GHz)      | 39.7dBi |
| Efficiency (%)         | 70      |
| Plastic LNB Holder     | Ø40     |
| Elevation Range        | 10°-55° |
| Windload (@42m/s)      | 846N    |
| Mast Dimensions (mm)   | Ø50-60  |



## LTE TMP 5 Series

### Mains Powered Multiswitches

Design integrated reception systems (IRS) with the TMP 5 input series.

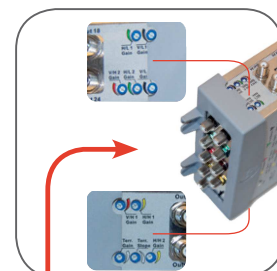
These are mains powered, stand alone multiswitches for one satellite position plus terrestrial. This range is compact and easy to install.

**This series is your preferred choice when you want to:**

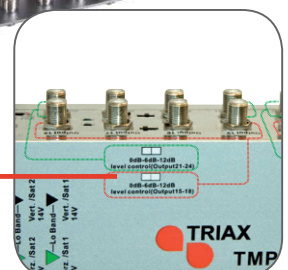
- Supply 1 satellite position plus terrestrial
- Supply many users with consistent output levels
- Use the same switch, no matter how close or far away you are from the headend

### Features:

- LTE Protected
- Compact design with 8, 12, 16, 24 and 32 Outputs
- Signal level controls on all inputs
- Colour coded connections
- Switched output attenuators on TMP 5 x 24 and TMP 5 x 32 units
- Switch Mode Power Supply for optimum performance
- Supplied with input and output earth bond bars



Individual attenuators on each input



L-M-S switches (0-6-12 dB) for long, medium and short subscriber lines in banks of 4 outputs



LTE is a trademark of ETSI



## LTE TMP 5 Series

Mains Powered Multiswitches



| TRIAX LTE TMP RANGE - 5 INPUT |                         | TMP 5 x 8                          | TMP 5 x 12     | TMP 5 x 16 | TMP 5 x 24     | TMP 5 x 32 |
|-------------------------------|-------------------------|------------------------------------|----------------|------------|----------------|------------|
| Part Number                   |                         | 305371                             | 305373         | 305375     | 305377         | 305379     |
| Frequency Range (MHz)         | Terrestrial             | 47 - 790                           | 47 - 790       | 47 - 790   | 47 - 790       | 47 - 790   |
| Satellite                     |                         | 950 - 2150                         | 950 - 2150     | 950 - 2150 | 950 - 2150     | 950 - 2150 |
| Inputs                        |                         | 5                                  | 5              | 5          | 5              | 5          |
| Outputs                       |                         | 8                                  | 12             | 16         | 24             | 32         |
| Insertion Loss (dB)           | Terrestrial             | 0                                  | 3              | 3          | 0              | 0          |
|                               | Satellite               | 0                                  | 3              | 3          | 3              | 3          |
| LTE Rejection (dB)            | 766-790 MHz             | -3dB                               | -3dB           | -3dB       | -3dB           | -3dB       |
|                               | 790-821 MHz             | -25dB                              | -25dB          | -25dB      | -25dB          | -25dB      |
|                               | 821-862 MHz             | 0dB                                | 0dB            | 0dB        | 0dB            | 0dB        |
| Input Level Control (dB)      | Terrestrial             | 15                                 | 15             | 15         | 15             | 15         |
|                               | Satellite               | 10                                 | 10             | 10         | 10             | 10         |
| Slope Control (dB)            | Terrestrial             | 10                                 | 10             | 10         | 10             | 10         |
| Output Level Control (dB)     | Long Cable              | /                                  | /              | /          | 0              | 0          |
|                               | Medium Cable            | /                                  | /              | /          | 6              | 6          |
|                               | Short Cable             | /                                  | /              | /          | 12             | 12         |
| Isolation (dB)                | Horiz / Vert            | 30                                 | 30             | 30         | 30             | 30         |
|                               | Terr - Sat              | 30                                 | 30             | 30         | 30             | 30         |
|                               | Sat - Terr              | 30                                 | 30             | 30         | 30             | 30         |
|                               | Out / Out - Terrestrial | 30                                 | 30             | 30         | 30             | 30         |
|                               | Out / Out - Satellite   | 30                                 | 30             | 30         | 30             | 30         |
| Input Return Loss (dB)        | Terrestrial             | 10                                 | 10             | 10         | 10             | 10         |
|                               | Satellite               | 10                                 | 10             | 10         | 10             | 10         |
| Output Return Loss (dB)       | Terrestrial             | 8                                  | 8              | 8          | 8              | 8          |
|                               | Satellite               | 8                                  | 8              | 8          | 8              | 8          |
| Max. Output Level (dBuV)      | Terrestrial (IMA3-60dB) | 90                                 | 88             | 88         | 85             | 85         |
|                               | Satellite (IMA3-35dB)   | 100                                | 100            | 100        | 100            | 100        |
| Line Power Voltage (V)        | (Switched Terrestrial)  | 12                                 | 12             | 12         | 12             | 12         |
| Line Power Current (mA)       | (Switched Terrestrial)  | 50                                 | 50             | 50         | 50             | 50         |
| Switching Commands            |                         | 13V, 18V, 13V 22kHz, 18V 22kHz     |                |            |                |            |
| Switched Mode Power Supply    |                         | 180-264 Vac, 47-63Hz / 18VDC, 1.5A |                |            |                |            |
| LNB Current, Max (mA)         |                         | 1000                               |                |            |                |            |
| Dimensions (mm)               | (L x W x H)             | 232 x 170 x 56                     | 282 x 170 x 56 |            | 382 x 170 x 56 |            |



## TMP 7x10 Active Splitter

Combines FM, DAB, UHF and 4 x IF Polarities

Part No. 307303

The TMP Active Splitter is designed to distribute to two riser locations delivering FM, DAB, UHF and 4 x IF Polarities to TMP 5 Series Switches.

### Features:

- Internal Amplifiers are powered via the H/L Satellite Input of TMP 5 Series Multiswitches
- Switchable Masthead line powering
- Input earth bond bar supplied
- Level control on all inputs



## TMP 10-30 Tap

Variable Tap for TMP or TMM Series Switches

Part No. 307302

The TMP Variable TAP enables the signals to be tapped into two TMP Multiswitches for a well balanced system.

### Features:

- 4 x SAT / 1 x Terrestrial Inputs
- 4 x SAT / 1 x Terrestrial Tapped Outputs x 2
- 4 x SAT / 1 x Terrestrial Outputs
- 75 Ohm Impedance

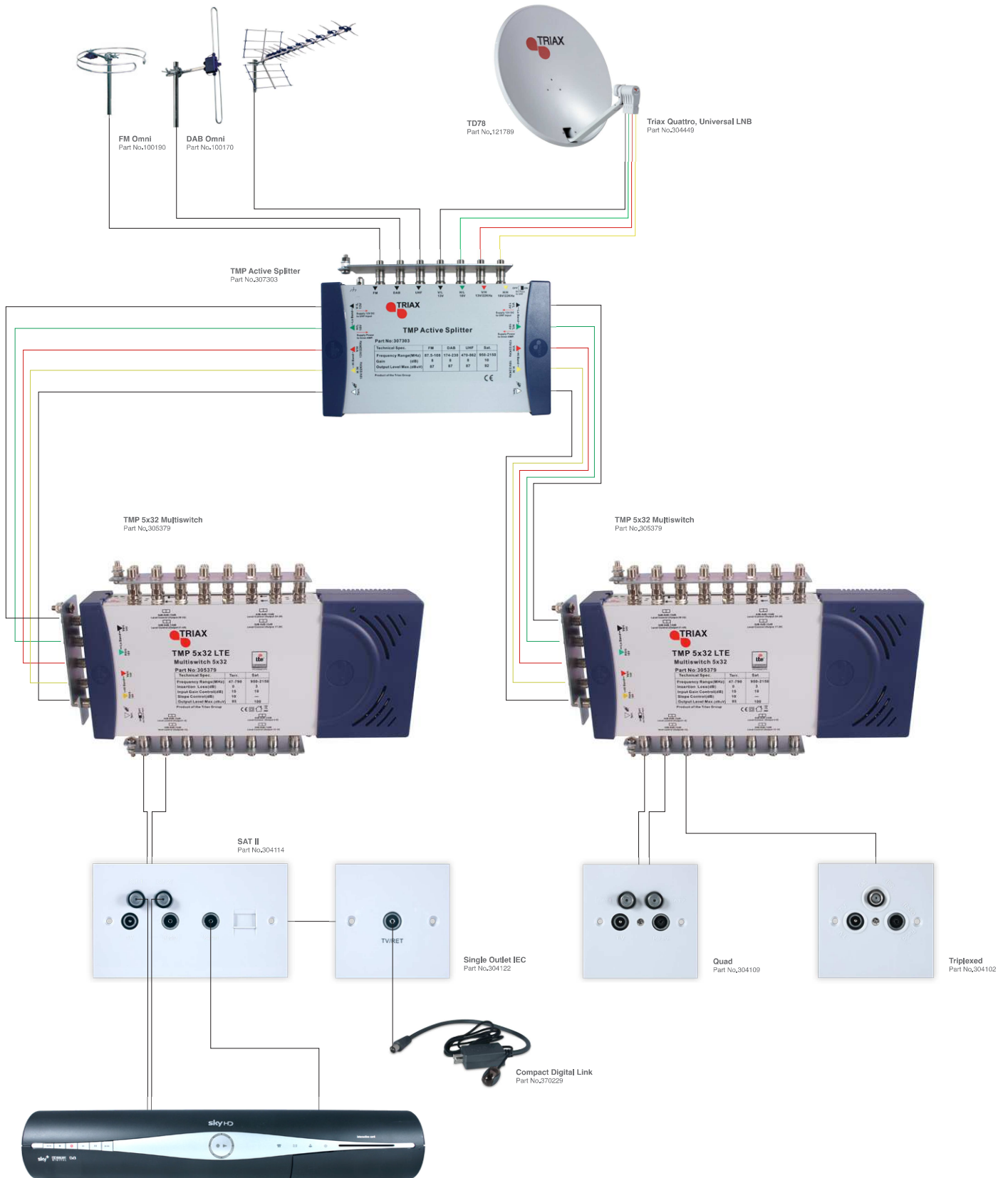
### TMP 7x10 Active Splitter

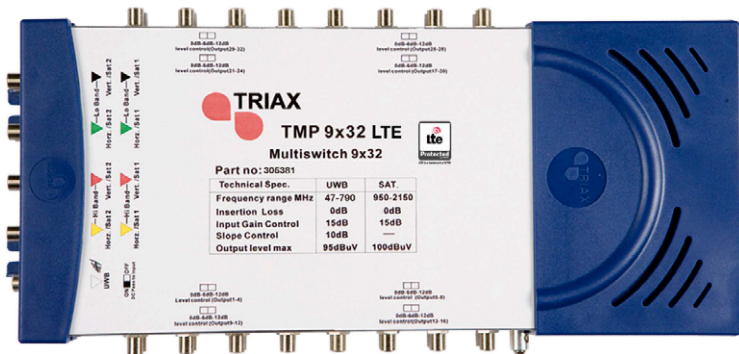
|                              |                                  |             |
|------------------------------|----------------------------------|-------------|
| Frequency Range (MHz)        | FM                               | 87.5 - 108  |
|                              | DAB                              | 174 - 230   |
|                              | UHF                              | 470 - 862   |
|                              | SAT                              | 950 - 2150  |
| Inputs                       | FM, DAB, UHF, 4 x SAT            | 7           |
| Outputs                      | (Combined Terr and 4 x IF) x 2   | 10          |
| Gain (dB)                    | Terrestrial                      | 7           |
|                              | Satellite                        | 8           |
| Input Level Control (dB)     | On each input                    | 20          |
| Rejection                    | FM ( $f \leq 65, f \geq 174$ )   | 30          |
|                              | DAB ( $f \leq 108, f \geq 470$ ) | 30          |
|                              | UHF ( $f \leq 230, f \geq 950$ ) | 30          |
|                              | SAT ( $f \leq 862$ )             | 30          |
| Isolation (dB)               | IN-IN                            | SAT 35      |
|                              | OUT-OUT                          | SAT 20      |
|                              | OUT-OUT                          | TERR 20     |
| Return Loss (dB)             | Inputs                           | SAT 10      |
|                              | Inputs                           | TERR 10     |
|                              | Outputs                          | SAT 10      |
|                              | Outputs                          | TERR 10     |
| Input Level (dB $\mu$ V)     | FM                               | 100         |
|                              | DAB                              | 100         |
|                              | UHF                              | 100         |
|                              | SAT                              | 104         |
| Output Level (dB $\mu$ V)    | FM (IMA <sub>3</sub> -60dB)      | 87          |
|                              | DAB (IMA <sub>3</sub> -60dB)     | 87          |
|                              | UHF (IMA <sub>3</sub> -60dB)     | 87          |
|                              | SAT (IMA <sub>3</sub> -35dB)     | 92          |
| Supply to Masthead Amplifier | Switchable                       | 12V / 100mA |
| Dimensions (mm)              |                                  | 297x165x57  |

### TMP 10 - 30 TAP

|                            |                                      |                          |
|----------------------------|--------------------------------------|--------------------------|
| Frequency Range (MHz)      |                                      | 47 - 2150                |
| Inputs                     |                                      | 4 x SAT / 1 x TERR       |
| Tapped Outputs             |                                      | (4 x SAT / 1 x TERR) x 2 |
| Outputs                    |                                      | 4 x SAT / 1 x TERR       |
| Insertion Loss In-Out (dB) | TERR 47-862 MHz                      | 3                        |
|                            | SAT 950-2150 MHz                     | 4                        |
| Tap Loss (dB)              | In (TERR) - TAP (TERR)               | 10                       |
|                            | In (SAT) - TAP (SAT)                 | 10                       |
| Level Adjust Range (dB)    | TERR                                 | 0 - 20                   |
|                            | SAT                                  | 0 - 20                   |
| Isolation (dB)             | TERR (47-862) - SAT (950-2150) MHz   | 37                       |
|                            | Cross Polar H/V (SAT - SAT)          | 32                       |
|                            | Out (TERR) - TAP (TERR) 47 - 862 MHz | 32                       |
|                            | Out (SAT) - TAP (SAT) 950-2150 MHz   | 20                       |
| Return Loss (dB)           | TERR (IN/OUT/TAP) 47-862 MHz         | 14                       |
|                            | SAT (IN/OUT/TAP) 950-2150 MHz        | 12                       |
| Connectors                 |                                      | F - Female               |
| Dimensions (mm)            |                                      | 197 x 170 x 56           |

## TMP 5 Wire IRS Small to Medium System





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## LTE TMP 9 Series

### Mains Powered Multiswitches

Design integrated reception systems (IRS) with the TMP 9 input series.

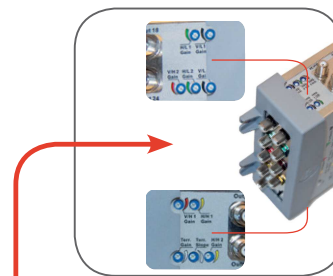
These are mains powered, stand alone multiswitches for one or two satellite positions plus terrestrial. This range is compact and easy to install.

**This series is your preferred choice when you want to:**

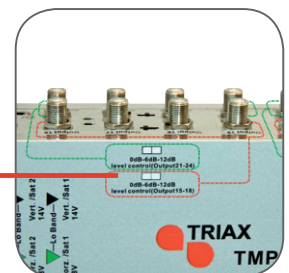
- Supply 2 satellite positions plus terrestrial
- Supply many users with consistent output levels
- Use the same switch, no matter how close or far away you are from the headend

### Features:

- Compact design with 8, 12, 16, 24 and 32 Outputs
- Signal level controls on all inputs
- Colour coded connections
- Switched output attenuators on TMP 9 x 24 and TMP 9 x 32 units
- DiSEqC 2.0 Control
- Switch Mode Power Supply for optimum performance
- Supplied with input and output earth bond bars



Individual attenuators on each input



L-M-S switches (0-6-12 dB) for long, medium and short subscriber lines in banks of 4 outputs



# LTE TMP 9 Series

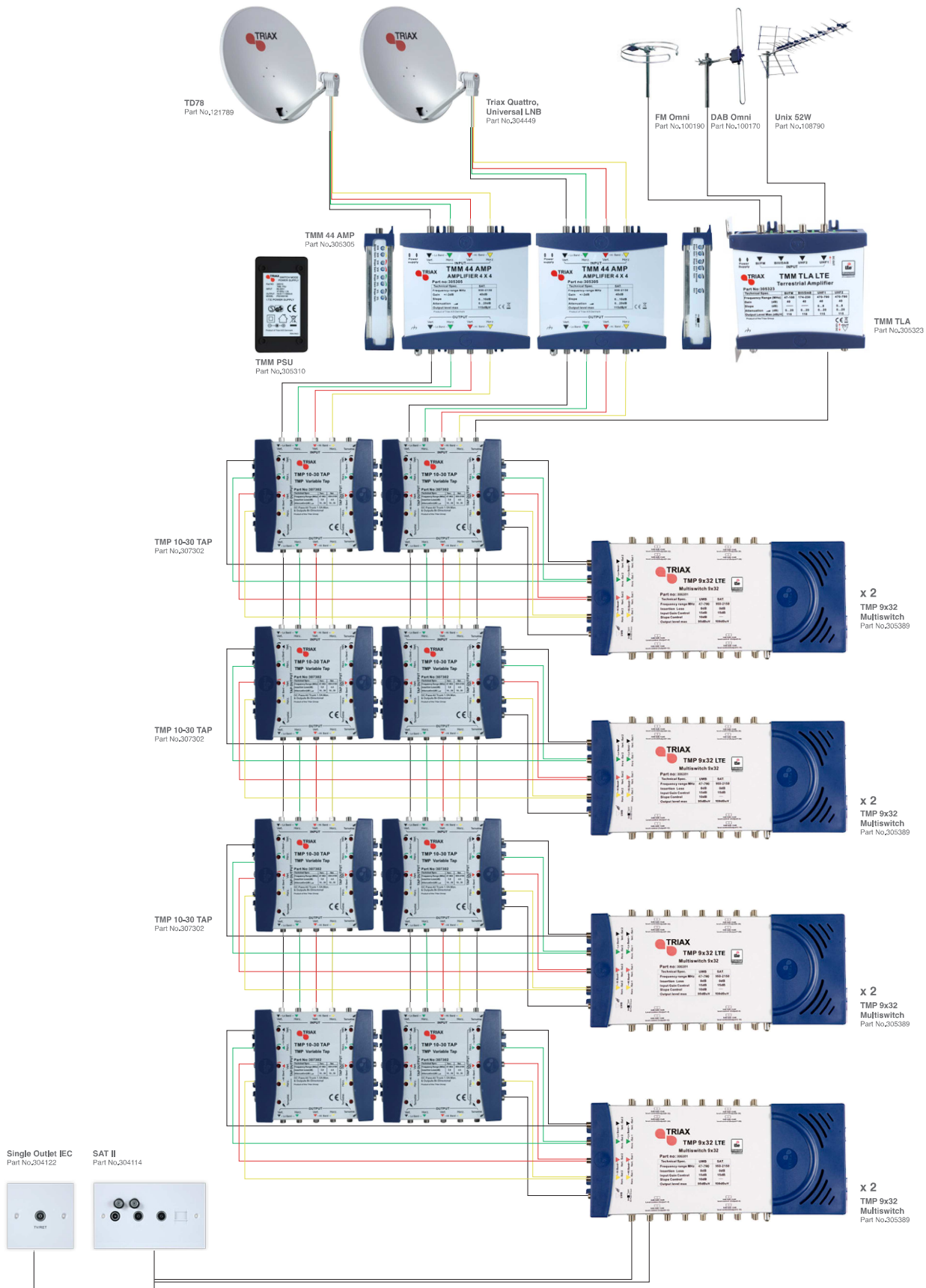
Mains Powered Multiswitches

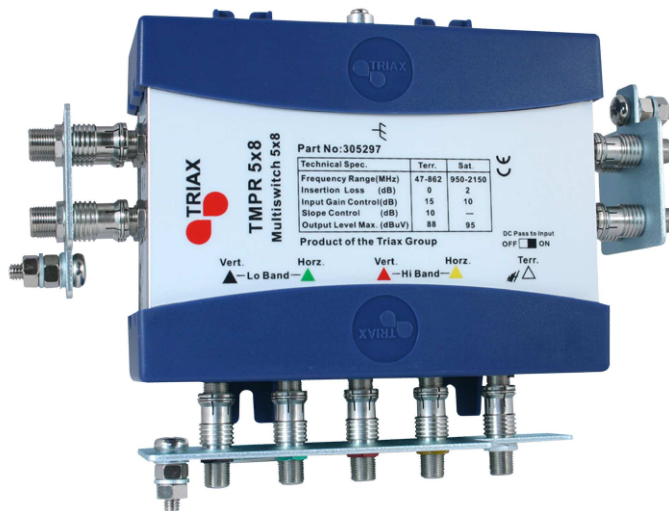


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| TRIAX LTE TMP RANGE - 9 INPUT |                         | TMP 9 x 8                                  | TMP 9 x 12 | TMP 9 x 16 | TMP 9 x 24     | TMP 9 x 32 |
|-------------------------------|-------------------------|--------------------------------------------|------------|------------|----------------|------------|
| Part Number                   |                         | 305381                                     | 305383     | 305385     | 305387         | 305389     |
| Frequency Range (MHz)         | Terrestrial             | 47 - 790                                   | 47 - 790   | 47 - 790   | 47 - 790       | 47 - 790   |
|                               | Satellite               | 950 - 2150                                 | 950 - 2150 | 950 - 2150 | 950 - 2150     | 950 - 2150 |
| Inputs                        |                         | 9                                          | 9          | 9          | 9              | 9          |
| Outputs                       |                         | 8                                          | 12         | 16         | 24             | 32         |
| Insertion Loss (dB) (Typ)     | Terrestrial             | 3                                          | 3          | 3          | 3              | 3          |
|                               | Satellite               | 3                                          | 3          | 3          | 3              | 3          |
| LTE Rejection (dB)            | 766-790 MHz             | -3dB                                       | -3dB       | -3dB       | -3dB           | -3dB       |
|                               | 790-821 MHz             | -25dB                                      | -25dB      | -25dB      | -25dB          | -25dB      |
|                               | 821-862 MHz             | 0dB                                        | 0dB        | 0dB        | 0dB            | 0dB        |
| Input Level Control (dB)      | Terrestrial             | 15                                         | 15         | 15         | 15             | 15         |
|                               | Satellite               | 10                                         | 10         | 10         | 10             | 10         |
| Slope Control (dB)            |                         | 10                                         | 10         | 10         | 10             | 10         |
| Output Level Control (dB)     | Long Cable              | /                                          | /          | /          | 0              | 0          |
|                               | Medium Cable            | /                                          | /          | /          | 6              | 6          |
|                               | Short Cable             | /                                          | /          | /          | 12             | 12         |
| Isolation (dB)                | Horiz / Vert            | 30                                         | 30         | 30         | 30             | 30         |
|                               | Terr - Sat              | 30                                         | 30         | 30         | 30             | 30         |
|                               | Sat -Terr               | 30                                         | 30         | 30         | 30             | 30         |
| Out / Out -                   | Terrestrial             | 30                                         | 30         | 30         | 30             | 30         |
|                               | Satellite               | 30                                         | 30         | 30         | 30             | 30         |
| Input Return Loss (dB)        | Terrestrial             | 10                                         | 10         | 10         | 10             | 10         |
|                               | Satellite               | 10                                         | 10         | 10         | 10             | 10         |
| Output Return Loss (dB)       | Terrestrial             | 8                                          | 8          | 8          | 8              | 8          |
|                               | Satellite               | 8                                          | 8          | 8          | 8              | 8          |
| Max. Output Level (dBuV)      | Terrestrial (IMA3-60dB) | 88                                         | 88         | 88         | 85             | 85         |
|                               | Satellite (IMA3-35dB)   | 100                                        | 100        | 100        | 95             | 95         |
| Line Power Voltage (V)        |                         | (Switched Terrestrial)                     | 12         | 12         | 12             | 12         |
| Line Power Current (mA)       |                         | (Switched Terrestrial)                     | 50         | 50         | 50             | 50         |
| Switching Commands            |                         | 13V, 18V, 13V 22kHz, 18V 22kHz, DiSEqC 2.0 |            |            |                |            |
| Switched Mode Power Supply    |                         | 180-264 Vac, 47-63Hz / 18VDC, 1.5A         |            |            |                |            |
| LNB Current, Max (mA)         |                         | 1000                                       |            |            |                |            |
| Dimensions (mm)               |                         | (L x W x H)                                | 232x170x56 | 282x170x56 | 382 x 170 x 56 |            |

# TMP 9 Wire IRS System





## TMPR Series

### Mains Powered or Receiver Powered Multiswitches

The Ultimate Integrated Reception System (IRS) for small blocks of apartments.

These remote powered, stand alone multiswitches are designed to be installed where no landlord supply exists.

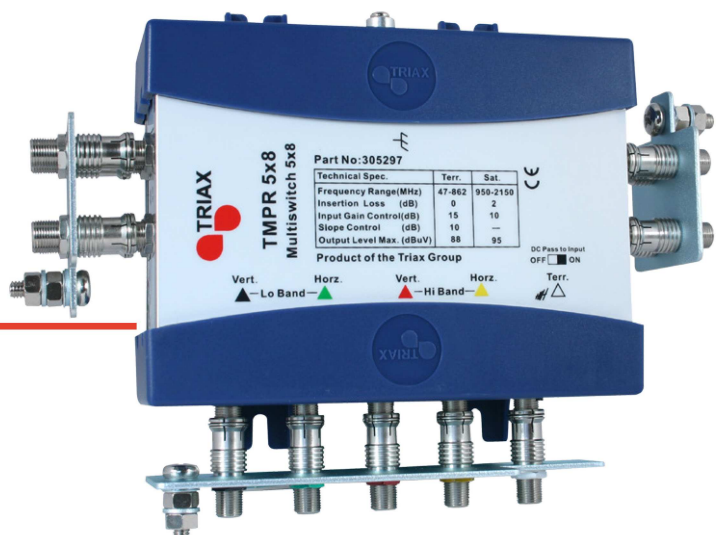
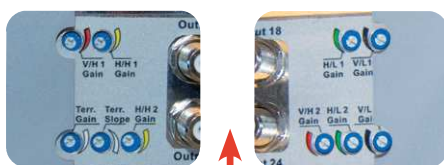
**This series is your preferred choice when you want:**

- A quick, professional installation
- 4, 6 or 8 points with Sky+
- 8, 12 or 16 points with Sky only

### Features:

- Range of 8, 12 and 16 output multiswitches
- Remote powered from satellite receiver or external power supply
- Adjustable inputs
- Slope control on terrestrial
- Colour coded inputs
- Compact and easy to install
- Supplied with input and output earth bond bars
- Provides line power for TFMV 22W-DAB-FM Masthead Amplifier (370666)

*Individual attenuators on each input*





| TRIAX TMPR RANGE                      |                         | TMPR 5 x 8                     | TMPR 5 x 12    | TMPR 5 x 16 | TMPR 9 x 16                               |
|---------------------------------------|-------------------------|--------------------------------|----------------|-------------|-------------------------------------------|
| Part Number                           |                         | 305297                         | 305298         | 305299      | 301676                                    |
| Frequency Range (MHz)                 | Terrestrial             | 47 - 862                       | 47 - 862       | 47 - 862    | 47 - 862                                  |
|                                       | Satellite               | 950 - 2150                     | 950 - 2150     | 950 - 2150  | 950 - 2150                                |
| Inputs                                |                         | 5                              | 5              | 5           | 9                                         |
| Outputs                               |                         | 8                              | 12             | 16          | 16                                        |
| Insertion Loss (dB)                   | Terrestrial             | 0                              | 0              | 0           | 3                                         |
|                                       | Satellite               | 2                              | 2              | 2           | 3                                         |
| Input Level Control (dB)              | Terrestrial             | 10                             | 10             | 10          | 10                                        |
|                                       | Satellite               | 15                             | 15             | 15          | 15                                        |
| Slope Control (dB)                    | Terrestrial             | 10                             | 10             | 10          | 10                                        |
| Isolation (dB)                        | Horiz / Vert            | 30                             | 30             | 30          | 30                                        |
|                                       | Terr - Sat              | 30                             | 30             | 30          | 30                                        |
|                                       | Sat -Terr               | 30                             | 30             | 30          | 30                                        |
|                                       | Out / Out - Terrestrial | 30                             | 30             | 30          | 30                                        |
|                                       | Out / Out - Satellite   | 30                             | 30             | 30          | 30                                        |
| Input Return Loss (dB)                | Terrestrial             | 10                             | 10             | 10          | 10                                        |
|                                       | Satellite               | 10                             | 10             | 10          | 10                                        |
| Output Return Loss (dB)               | Terrestrial             | 8                              | 8              | 8           | 8                                         |
|                                       | Satellite               | 8                              | 8              | 8           | 8                                         |
| Max. Output Level (dBuV)              | Terrestrial (IMA3-60dB) | 88                             | 88             | 88          | 88                                        |
|                                       | Satellite (IMA3-35dB)   | 95                             | 95             | 95          | 95                                        |
| Switching Commands                    |                         | 13V, 18V, 13V 22kHz, 18V 22kHz |                |             | 13V, 18V, 13V 22kHz, 18V 22kHz DiSeqC 2.0 |
| LNB Current, Max (mA)                 |                         | 180                            |                |             |                                           |
| Max (mA) Current to TERR Masthead Amp |                         | 50                             |                |             |                                           |
| Dimensions (mm)                       |                         | 147 x 170 x 56                 | 197 x 170 x 56 |             |                                           |

| TMPR PSU                 |                     |
|--------------------------|---------------------|
| Part Number              | 305289              |
| Input Voltage            | 230V                |
| Frequency                | 50Hz                |
| Input Current            | 60mA Max at 230V    |
| DC Resistance            | 450 Ohms at 25°C    |
| Output Voltage DC        | 12V                 |
| Max Current              | 500mA               |
| Thermal Fuse             | Yes                 |
| Short Circuit Protection | Yes                 |
| Connector                | F-Type IEC 60169(m) |



# TMM Cascade Multiswitches

Integrated Reception Systems (IRS) with the TMM 5 input and TMM 9 input series of cascadable multiswitches

Fully modular and cascadable, the TMM series can be used for systems with 1 (TMM 5 input) or 2 (TMM 9 input) satellite positions plus terrestrial. Both series are compact and simple to install.

Your preferred choice when you want to:

- Balance signal levels throughout a system
- Expand your system at a later date
- Power from anywhere on the system
- Power from a remote location

## Key Features

- Multiswitch satellite functions powered from satellite receiver
- Multiswitch terrestrial amplifier powered from terrestrial trunk cable
- Level adjustment for each input
- External power supply for powering headend amplifiers, distribution amplifiers, LNB(s) and multiswitch terrestrial amplifiers
- Power from anywhere on the system, simply inject the DC into an amplifier or use the TMM power inserter
- Wall or plate mountable - allows assembly on or off site
- Colour coded connectors throughout range
- Supplied with output earth bond bars
- Full range of accessories available





# TMM Amplifier Range

## Multiswitch Amplifiers

### LTE TMM 55-30 AMP

- 4 x Satellite Amplifiers plus 1 x Terrestrial Amplifier
- Gain and slope control on all inputs
- Line powered or powered from external power supply
- Power on LED's
- Colour coded inputs and outputs
- 30dB Gain

### LTE TMM 99-30 AMP

- Amplifier for 8 satellite and 1 terrestrial TV, 1 x 5 way and 1 x 4 way amplifier housed together
- Gain control 0-20 dB
- LED indication on all inputs
- Switch DC path to terrestrial input, output 'On' permanently
- External power supply (305310)

### LTE TMM Terrestrial Distribution Amplifier (TDA)

- Single Wideband Input, Single Output
- High Gain and Output
- Gain and slope controls
- Line powered via Input or Output, or powered from external power supply
- Directional DC switch (Power Up, Power Down or Power Up + Down)

### LTE TMM Terrestrial Launch Amplifier (TLA)

- Splitband Inputs, Single Output
- Band I/II (FM), Band III/DAB plus two UHF Inputs.
- High Gain
- Gain control on all inputs, Slope controls on UHF Inputs
- Line powered via Output or powered from external power supply
- Switchable Masthead Amplifier supply on UHF 1 Input

### TMM 44 AMP

- 4 x Satellite Amplifiers
- High Gain and Output
- Gain and slope control on all inputs
- Line powered or powered from external power supply
- Power on LED's
- Colour coded inputs and outputs



# TMM Amplifier Range

## Multiswitch Amplifiers

| TMM Amplifier Range                   |                                  |                     |                                  |                                |                                              |                              |
|---------------------------------------|----------------------------------|---------------------|----------------------------------|--------------------------------|----------------------------------------------|------------------------------|
| PRODUCT TYPE                          |                                  | LTE TMM 55-30AMP    | TMM 44AMP                        | LTE TMM TLA<br>Terr Launch Amp | LTE TMM 99-30AMP                             | LTE TMM TDA<br>Terr Dist Amp |
| PART NUMBER                           |                                  | 307314              | 305305                           | 305323                         | 307316                                       | 305284                       |
| FREQUENCY RANGE (MHz)                 |                                  | 47 - 2150           | 950 - 2150                       | 47 - 790                       | 47 - 2150                                    | 47 - 790                     |
| INPUTS                                |                                  | 4 SAT / 1 TERR      | 4 SAT                            | FM : DAB<br>UHF 1 : UHF 2      | 8 SAT + 1 TERR<br>F-TYPE<br>IEC 60169-24 (f) | 1                            |
| OUTPUTS                               |                                  | 4 SAT / 1 TERR      | 4 SAT                            | 1                              | 9 x F-TYPE IEC<br>60169-24 (f)               | 1                            |
| GAIN(dB)                              | TERR W/B (47-790 MHz)            | 30                  |                                  |                                | 30                                           | 40                           |
|                                       | TERR BI/FM (47 -108 MHz)         |                     |                                  | 40                             |                                              |                              |
|                                       | TERR BI/DAB (174-230 MHz)        |                     |                                  | 40                             |                                              |                              |
|                                       | TERR UHF 1 (470-790 MHz)         |                     |                                  | 40                             |                                              |                              |
|                                       | TERR UHF 2 (470-790 MHz)         |                     |                                  | 40                             |                                              |                              |
| GAIN CONTROL (dB)                     | SAT 950-2150                     | 30                  | 40                               |                                | 30                                           |                              |
|                                       | TERR W/B (47-790 MHz)            | 20                  |                                  |                                | 0 - 20                                       | 0 - 20                       |
|                                       | TERR BI/FM (47 -108 MHz)         |                     |                                  | 0 - 20                         |                                              |                              |
|                                       | TERR BI/DAB (174-230 MHz)        |                     |                                  | 0 - 20                         |                                              |                              |
|                                       | TERR UHF 1 (470-790 MHz)         |                     |                                  | 0 - 20                         |                                              |                              |
| SLOPE CONTROL (dB)                    | TERR UHF 2 (470-790 MHz)         |                     |                                  | 0 - 20                         |                                              |                              |
|                                       | SAT 950-2150                     | 20                  | 0 - 20                           |                                | 0 - 20                                       |                              |
|                                       | TERR W/B (47-790 MHz)            | 0 - 7               |                                  |                                | 0 - 7                                        | 0 - 18                       |
|                                       | TERR BI/FM (47 -108 MHz)         |                     |                                  |                                |                                              |                              |
|                                       | TERR BI/DAB (174-230 MHz)        |                     |                                  |                                |                                              |                              |
| OUTPUT LEVEL (dBuV)                   | TERR UHF 1 (470-790 MHz)         |                     |                                  | 0 - 8                          |                                              |                              |
|                                       | TERR UHF 2 (470-790 MHz)         |                     |                                  | 0 - 8                          |                                              |                              |
|                                       | SAT 950-2150                     | 0 - 10              | 0 - 10                           |                                | 0 - 10                                       |                              |
|                                       | SAT (IMA3, 35dB) EN50083-3       | 110                 | 115                              |                                | 110                                          |                              |
|                                       | TERR (IMA3, 60dB) EN50083-5      |                     |                                  |                                | 115                                          |                              |
| ISOLATION (dB)                        | W/B (47-790 MHz)                 | 115                 |                                  |                                |                                              | 118                          |
|                                       | BI/FM (47 -108 MHz)              |                     |                                  | 118                            |                                              |                              |
|                                       | BI/DAB (174-230 MHz)             |                     |                                  | 118                            |                                              |                              |
|                                       | UHF 1 (470-790 MHz)              |                     |                                  | 115                            |                                              |                              |
|                                       | UHF 2 (470-790 MHz)              |                     |                                  | 115                            |                                              |                              |
| RETURN LOSS (dB)<br>TYPICAL           | TRUNK - TRUNK                    | 32                  | 35                               |                                | 32                                           |                              |
| LTE REJECTION                         | TERR W/B (47-790 MHz)            | 10                  | 10                               | 10                             | 10                                           | 10                           |
|                                       | 766-790 MHz                      | -3dB                | n/a                              | -3dB                           | -3dB                                         | -3dB                         |
|                                       | 790-821 MHz                      | -25dB               | n/a                              | -25dB                          | -25dB                                        | -25dB                        |
| LNB POWER SUPPLY                      | 821-862 MHz                      | 0dB                 | n/a                              | 0dB                            | 0dB                                          | 0dB                          |
|                                       | 2 X 14VDC / 2 X 18VDC, 400mA MAX |                     | 2 X 14VDC / 2 X 18VDC, 400mA MAX |                                | 4 x 14 + 4 x 18 VDC, Max 400mA               |                              |
|                                       | 18VDC IN VIA 3.5mm DC JACK       |                     | 18VDC IN VIA 3.5mm DC JACK       | 18VDC IN VIA 3.5mm DC JACK     | 18VDC IN VIA 3.5mm DC JACK                   | 18VDC IN VIA 3.5mm DC JACK   |
| EXTERNAL SWITCH MODE POWER SUPPLY     | H: 18V+/-0.5V, V: 13V+/-0.5V     |                     | H: 18V+/-0.5V, V: 13V+/-0.5V     |                                | H: 18 ± 0.5V ; V:13 ± 0.5V                   |                              |
| LINE POWER SUPPLY VOLTAGE             | 12VDC +/-0.5V, 1.5A MAX          |                     |                                  | 12VDC ± 0.5V, 1.5A MAX         |                                              |                              |
| TERRESTRIAL THROUGH VOLTAGE / CURRENT | 460                              | 390                 | 320                              | 800                            | 230                                          |                              |
| CURRENT CONSUMPTION (mA)              | 'F' (FEMALE)                     | 'F' (FEMALE)        | 'F' (FEMALE)                     | 'F' (FEMALE)                   | 'F' (FEMALE)                                 | 'F' (FEMALE)                 |
| CONNECTOR TYPE                        | VIA INPUT OR OUTPUT              | VIA INPUT OR OUTPUT | VIA OUTPUT                       | VIA INPUT OR OUTPUT            | VIA INPUT OR OUTPUT                          | VIA INPUT OR OUTPUT          |
| LINE POWERING                         | SWITCHABLE TO TERR INPUT         |                     | 12 +/-0.5 (SWITCHABLE)           | SWITCHABLE TO TERR INPUT       | SWITCHABLE -UP/ DOWN/ UP+DOWN                |                              |
| DC SWITCH (FOR USE WHEN INJECTING DC) | 181 x 162 x 35.4                 |                     | 181 x 162 x 35.4                 | 362 x 324 x 70.8               | 181 X 162 X 35.4                             |                              |
| DIMENSIONS (mm)                       |                                  |                     |                                  |                                |                                              |                              |



## TMM 5 Series

### Cascade Multiswitches

- 4 Satellite IF and 1 Terrestrial TV inputs and subscriber outputs from 8-32
- 4 Satellite IF+1 Terrestrial with Adjustable level control
- Cable Loss compensation by built-in amplification
- LED power Indication on each Trunk line
- Earth Bonding Bars supplied

| TMM 5 Series Cascade Multiswitches                  |                              |                                                            |                  |                  |                  |                  |
|-----------------------------------------------------|------------------------------|------------------------------------------------------------|------------------|------------------|------------------|------------------|
| Model Number                                        |                              | TMM 5x8                                                    | TMM 5x12         | TMM 5x12T        | TMM 5x16         | TMM 5x16T        |
| Part Number                                         |                              | 305394                                                     | 305395           | 305397           | 305396           | 307304           |
| Frequency Range                                     | Terrestrial (Terr.)          | 47-862 MHz                                                 |                  |                  |                  |                  |
|                                                     | Satellite                    | 950-2150 MHz                                               |                  |                  |                  |                  |
| Inputs                                              |                              | 4 SAT x 1 Terr                                             |                  |                  |                  |                  |
| Through Outputs (Trunk)                             |                              | 4 x SAT, 1 Ter.                                            | 4 x SAT, 1 Ter.  | Terminated       | 4 x SAT, 1 Ter.  | Terminated       |
| Subscriber Outputs                                  |                              | 8                                                          | 12               | 12               | 16               | 16               |
| Connectors                                          |                              | F-Type (f)                                                 | F-Type (f)       | F-Type (f)       | F-Type (f)       | F-Type (f)       |
| Trunk Loss                                          | Ter. 47-862 MHz              | 2.5                                                        | 3                | Terminated       | 3                | Terminated       |
|                                                     | SAT. 950-2150 MHz            | 2.5                                                        | 2.5              | Terminated       | 2.5              | Terminated       |
| TAP Loss (dB)                                       | Ter. 47-862 MHz              | 10                                                         | 12               | 0                | 12               | 0                |
|                                                     | SAT. 950-2150 MHz            | 10                                                         | 12               | 0                | 12               | 0                |
| Level Adjust Range (dB)                             | Ter. 47-862 MHz              | 0-12                                                       | 0-12             | 0-12             | 0-12             | 0-12             |
|                                                     | SAT. 950-2150 MHz            | 0-12                                                       | 0-12             | 0-12             | 0-12             | 0-12             |
| Isolation (dB)                                      | Ter to SAT                   | 35                                                         | 30               | 30               | 30               | 30               |
|                                                     | SAT to Ter                   | 35                                                         | 30               | 30               | 30               | 30               |
|                                                     | Cross Polar H/V dB           | 30                                                         | 28               | 30               | 28               | 30               |
|                                                     | OUT-OUT Ter (dB)             | 30                                                         | 30               | 30               | 30               | 30               |
|                                                     | OUT-OUT SAT (dB)             | 30                                                         | 30               | 30               | 30               | 30               |
| Return Loss (dB)                                    | Ter. Input 47-862 MHz        | 12                                                         | 12               | 12               | 12               | 12               |
|                                                     | Ter output 47-862 MHz        | 12                                                         | 12               | N/A              | 12               | N/A              |
|                                                     | SAT input 950-2150 MHz       | 12                                                         | 12               | 12               | 12               | 12               |
|                                                     | SAT output 950-2150 MHz      | 12                                                         | 12               | N/A              | 12               | N/A              |
|                                                     | Tap Outputs 47-862MHz        | 10                                                         | 10               | 10               | 10               | 10               |
|                                                     | Tap Outputs 950-2150MHz      | 10                                                         | 10               | 10               | 10               | 10               |
| Output Level (dBμV)                                 | SAT( IMA3, 35dB) EN 50083-3  | 95                                                         | 95               | 95               | 95               | 95               |
|                                                     | Ter.( IMA3, 60dB) EN 50083-5 | 85                                                         | 85               | 88               | 85               | 88               |
| Input Level (dBμV)                                  | SAT( IMA3, 35dB) EN 50083-3  | 117                                                        | 119              | 107              | 119              | 107              |
|                                                     | Ter.( IMA3, 60dB) EN 50083-5 | 107                                                        | 109              | 100              | 109              | 100              |
| Switching commands                                  |                              | 13V, 18V, 13V 22KHz, 18V 2KHz                              |                  |                  |                  |                  |
| Switching Voltage                                   |                              | 15V ± 1V                                                   |                  |                  |                  |                  |
| Ter Current (mA), (supplied from Ter Trunk Line)    |                              | 50                                                         | 105              | 105              | 105              | 105              |
| Max. Current of Each Port (supplied by Receiver) mA |                              | <200                                                       | <250             | <250             | <250             | <250             |
| Colour Coded Inputs                                 |                              | V/L: Black, H/L: Green, V/H: RED, H/H: Yellow, Ter.: White |                  |                  |                  |                  |
| External Power supply                               |                              | 18V / 3.5mm DC Jack 2100mA (305310)                        |                  |                  |                  |                  |
| Dimensions (mm)                                     |                              | 270 x 170 x 35.4                                           | 270 x 170 x 73.4 | 270 x 170 x 73.4 | 270 x 170 x 73.4 | 270 x 170 x 73.4 |



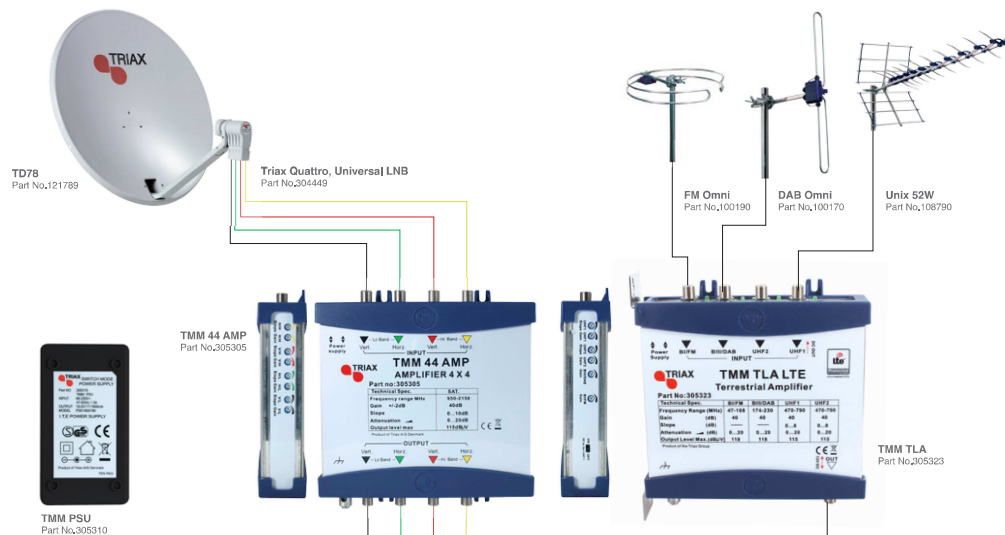
## TMM 5 Series

### Cascade Multiswitches

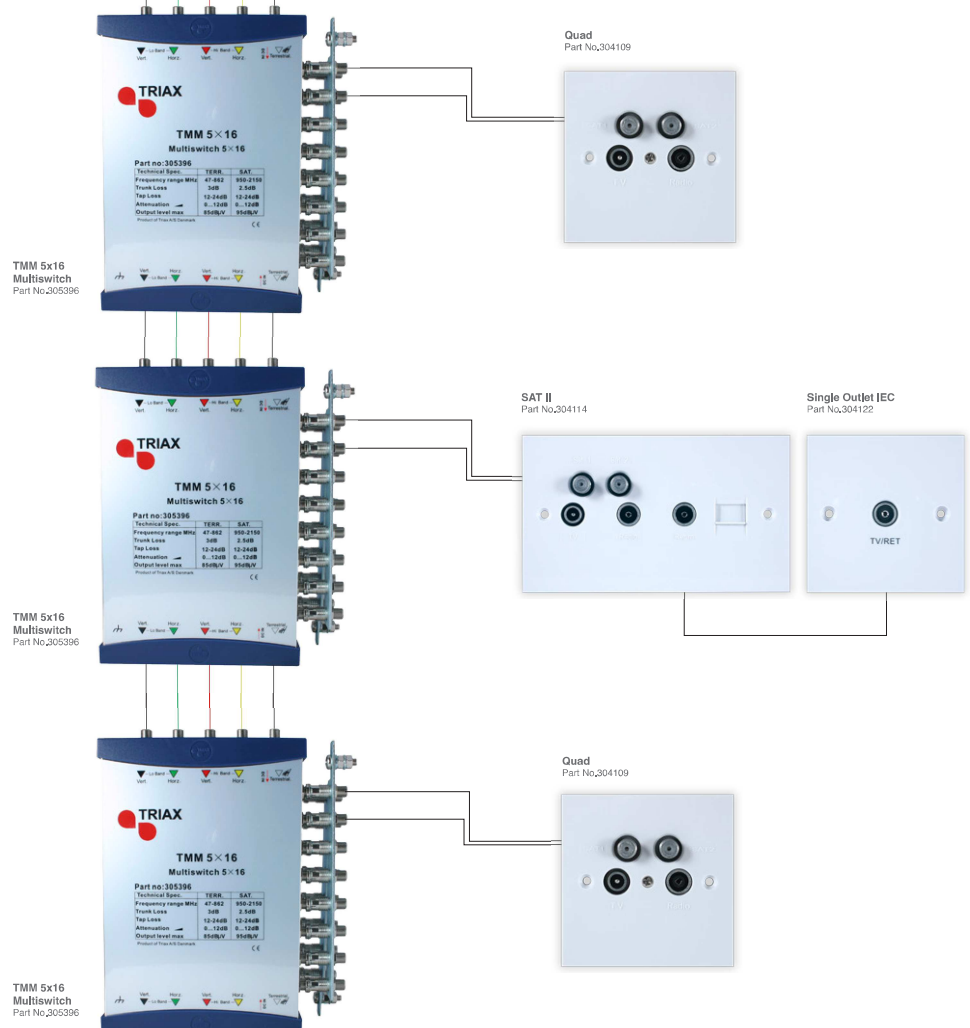
- DC on all 5 inputs provided via external power inserter, Amplifier or Direct DC In from External PSU
- Internal Terrestrial amplifier in Multiswitch is powered from Ter. Input port, receiver or direct DC In from External PSU.
- The satellite switching and amplifiers within the switches are powered by the Satellite receivers

| TMM 5 Series Cascade Multiswitches Cont.            |                              |                                                            |                 |                 |                 |
|-----------------------------------------------------|------------------------------|------------------------------------------------------------|-----------------|-----------------|-----------------|
| Model Number                                        |                              | TMM 5x24                                                   | TMM 5x24T       | TMM 5x32        | TMM 5x32T       |
| Part Number                                         |                              | 307310                                                     | 307309          | 307311          | 307312          |
| Frequency Range                                     | Terrestrial (Terr.)          | 47-862 MHz                                                 |                 |                 |                 |
|                                                     | Satellite                    | 950-2150 MHz                                               |                 |                 |                 |
| Inputs                                              |                              | 4 SAT x 1 Terr                                             |                 |                 |                 |
| Through Outputs (Trunk)                             |                              | 4 x SAT, 1 Ter.                                            | Terminated      | 4 x SAT, 1 Ter. | Terminated      |
| Subscriber Outputs                                  |                              | 24                                                         | 24              | 32              | 32              |
| Connectors                                          |                              | F-Type (f)                                                 | F-Type (f)      | F-Type (f)      | F-Type (f)      |
| Trunk Loss                                          | Ter. 47-862 MHz              | 4                                                          | Terminated      | 4               | Terminated      |
|                                                     | SAT. 950-2150 MHz            | 4                                                          | Terminated      | 4               | Terminated      |
| TAP Loss (dB)                                       | Ter. 47-862 MHz              | 16                                                         | 8               | 16              | 8               |
|                                                     | SAT. 950-2150 MHz            | 14                                                         | 7               | 14              | 7               |
| Level Adjust Range (dB)                             | Ter. 47-862 MHz              | 0-12                                                       | 0-12            | 0-12            | 0-12            |
|                                                     | SAT. 950-2150 MHz            | 0-12                                                       | 0-12            | 0-12            | 0-12            |
| Isolation (dB)                                      | Ter to SAT                   | 30                                                         | 30              | 30              | 30              |
|                                                     | SAT to Ter                   | 30                                                         | 30              | 30              | 30              |
|                                                     | Cross Polar H/V (dB)         | 28                                                         | 28              | 28              | 28              |
|                                                     | OUT-OUT Ter (dB)             | 30                                                         | 30              | 30              | 30              |
|                                                     | OUT-OUT SAT (dB)             | 30                                                         | 30              | 30              | 30              |
| Return Loss (dB)                                    | Ter. Input 47-862 MHz        | 12                                                         | 12              | 12              | 12              |
|                                                     | Ter output 47-862 MHz        | 12                                                         | N/A             | 12              | N/A             |
|                                                     | SAT input 950-2150 MHz       | 12                                                         | 12              | 12              | 12              |
|                                                     | SAT output 950-2150 MHz      | 12                                                         | N/A             | 12              | N/A             |
|                                                     | Tap Outputs 47-862MHz        | 10                                                         | 10              | 10              | 10              |
|                                                     | Tap Outputs 950-2150MHz      | 10                                                         | 10              | 10              | 10              |
| Output Level (dBμV)                                 | SAT( IMA3, 35dB) EN 50083-3  | 95                                                         | 95              | 95              | 95              |
|                                                     | Ter.( IMA3, 60dB) EN 50083-5 | 85                                                         | 85              | 85              | 85              |
| Input Level (dBμV)                                  | SAT( IMA3, 35dB) EN 50083-3  | 121                                                        | 114             | 121             | 114             |
|                                                     | Ter.( IMA3, 60dB) EN 50083-5 | 113                                                        | 105             | 113             | 105             |
| Switching commands                                  |                              | 13V, 18V, 13V 22kHz, 18V 2KHz                              |                 |                 |                 |
| Switching Voltage                                   |                              | 15V ± 1V                                                   |                 |                 |                 |
| Ter Current (mA), (supplied from Ter Trunk Line)    |                              | <150                                                       | <150            | <150            | <150            |
| Max. Current of Each Port (supplied by Receiver) mA |                              | <250                                                       | <250            | <250            | <250            |
| Colour Coded Inputs                                 |                              | V/L: Black, H/L: Green, V/H: RED, H/H: Yellow, Ter.: White |                 |                 |                 |
| External Power supply                               |                              | 18V / 3.5mm DC Jack 2100mA (305310)                        |                 |                 |                 |
| Dimensions (mm)                                     |                              | 270 x 170 x 111                                            | 270 x 170 x 111 | 270 x 170 x 111 | 270 x 170 x 111 |

## TMM 5 Wire Cascade System



- 5 and 9 Input Cascadable Multiswitches
- Modular construction for simple and flexible installation
- Includes Multiswitches, Amplifiers, Splitters and Power Inserter
- Multiswitches with 8,12,16, 24 and 32 Outputs
- Level control on each Multiswitch Input
- Satellite and Terrestrial launch and distribution amplifiers
- Gain and Slope control on Amplifiers
- Power Inserter allows powering from anywhere on the system
- Switch mode Power supply for efficient operation
- Colour coded connectors
- Rack or surface mounted
- Supplied with output earth bond bars
- This system is designed to be used with earth bonding





## TMM 9 Series

### Cascade Multiswitches

- 8 Satellite IF and 1 Terrestrial TV inputs and subscriber outputs from 8-32
- 8 Satellite IF 1 Terrestrial with Adjustable level control
- Cable Loss compensation by built-in amplification
- LED power Indication on each Trunk line
- Earth Bonding Bars supplied

| TMM 9 Series Cascade Multiswitches               |                              |                                                            |                 |                 |
|--------------------------------------------------|------------------------------|------------------------------------------------------------|-----------------|-----------------|
| Model Number                                     |                              | TMM 9x8                                                    | TMM 9x12        | TMM 9x 16       |
| Part Number                                      |                              | 305294                                                     | 305295          | 305296          |
| Frequency Range                                  | Terrestrial (Terr.)          | 47-862 MHz                                                 |                 |                 |
|                                                  | Satellite                    | 950-2150 MHz                                               |                 |                 |
| Inputs                                           |                              | 8 SAT x1Terr                                               |                 |                 |
| Through Outputs (Trunk)                          |                              | 8 x SAT, 1 Ter.                                            | 8 x SAT, 1 Ter. | 8 x SAT, 1 Ter. |
| Subscriber Outputs                               |                              | 8                                                          | 12              | 16              |
| Connectors                                       |                              | F-Type (f)                                                 | F-Type (f)      | F-Type (f)      |
| Trunk Loss                                       | Ter. 47-862 MHz              | 3                                                          | 3.5             | 3.5             |
|                                                  | SAT. 950-2150 MHz            | 3                                                          | 3               | 3               |
| TAP Loss (dB)                                    | Ter. 47-862 MHz              | 12                                                         | 12              | 12              |
|                                                  | SAT. 950-2150 MHz            | 12                                                         | 12              | 12              |
| Level Adjust Range (dB)                          | Ter. 47-862 MHz              | 0-12                                                       | 0-12            | 0-12            |
|                                                  | SAT. 950-2150 MHz            | 0-12                                                       | 0-12            | 0-12            |
| Isolation (dB)                                   | Ter to SAT                   | 30                                                         | 30              | 30              |
|                                                  | SAT to Ter                   | 30                                                         | 30              | 30              |
|                                                  | Cross Polar H/V dB           | 30                                                         | 28              | 28              |
|                                                  | OUT-OUT Ter (dB)             | 30                                                         | 30              | 30              |
|                                                  | OUT-OUT SAT (dB)             | 30                                                         | 30              | 30              |
| Return Loss (dB)                                 | Ter. Input 47-862 MHz        | 12                                                         | 12              | 12              |
|                                                  | Ter output 47-862 MHz        | 12                                                         | 12              | 12              |
|                                                  | SAT input 950-2150 MHz       | 12                                                         | 12              | 12              |
|                                                  | SAT output 950-2150 MHz      | 12                                                         | 12              | 12              |
|                                                  | Tap Outputs 47-862MHz        | 10                                                         | 10              | 10              |
| Output Level (dBμV)                              | SAT( IMA3, 35dB) EN 50083-3  | 95                                                         | 95              | 95              |
|                                                  | Ter.( IMA3, 60dB) EN 50083-5 | 85                                                         | 85              | 85              |
| Input Level (dBμV)                               | SAT( IMA3, 35dB) EN 50083-3  | 119                                                        | 119             | 119             |
|                                                  | Ter.( IMA3, 60dB) EN 50083-5 | 109                                                        | 109             | 109             |
| Switching commands                               |                              | 13V, 18V, 13V 22kHz, 18V 22KHz DiSEqC 2.0                  |                 |                 |
| Switching Voltage                                |                              | 15V ± 1V                                                   |                 |                 |
| Ter Current (mA), (supplied from Ter Trunk Line) |                              | 70                                                         | 140             | 140             |
| Max. Current of Each Port (supplied by Receiver) |                              | <200                                                       | <250            | <250            |
| Colour Coded Inputs                              |                              | V/L: Black, H/L: Green, V/H: RED, H/H: Yellow, Ter.: White |                 |                 |
| External Power supply                            |                              | No                                                         | No              | No              |
| Dimensions (mm)                                  |                              | 270 x 170 x 74                                             | 270 x 170 x 74  | 270 x 170 x 74  |



- DC on all 9 inputs provided via external power inserter, Amplifier or Direct DC In from External PSU
- Internal Terrestrial amplifier in Multiswitch is powered from Ter. Input port, receiver or direct DC In from External PSU.
- The satellite switching and amplifiers within the switches are powered by the Satellite receivers

| TMM 9 Series Cascade Multiswitches               |                              |                                                            |                 |                 |                 |
|--------------------------------------------------|------------------------------|------------------------------------------------------------|-----------------|-----------------|-----------------|
| Model Number                                     |                              | TMM 9x24                                                   | TMM 9x24T       | TMM 9x32        | TMM 9x32T       |
| Part Number                                      |                              | 301671                                                     | 301673          | 301672          | 301674          |
| Frequency Range                                  | Terrestrial (Terr.)          | 47-862 MHz                                                 |                 |                 |                 |
|                                                  | Satellite                    | 950-2150 MHz                                               |                 |                 |                 |
| Inputs                                           |                              | 8 SAT x1Terr                                               |                 |                 |                 |
| Through Outputs (Trunk)                          |                              | 8 x SAT, 1 Ter.                                            | Terminated      | 8 x SAT, 1 Ter. | Terminated      |
| Subscriber Outputs                               |                              | 24                                                         | 24              | 32              | 32              |
| Connectors                                       |                              | F-Type (f)                                                 | F-Type (f)      | F-Type (f)      | F-Type (f)      |
| Trunk Loss                                       | Ter. 47-862 MHz              | 4                                                          | Terminated      | 4               | Terminated      |
|                                                  | SAT. 950-2150 MHz            | 5.5                                                        | Teminated       | 5.5             | Terminated      |
| TAP Loss (dB)                                    | Ter. 47-862 MHz              | 17                                                         | 10              | 17              | 10              |
|                                                  | SAT. 950-2150 MHz            | 17                                                         | 10              | 17              | 10              |
| Level Adjust Range (dB)                          | Ter. 47-862 MHz              | 0-12                                                       | 0-12            | 0-12            | 0-12            |
|                                                  | SAT. 950-2150 MHz            | 0-12                                                       | 0-12            | 0-12            | 0-12            |
| Isolation (dB)                                   | Ter to SAT                   | 30                                                         | 30              | 30              | 30              |
|                                                  | SAT to Ter                   | 30                                                         | 30              | 30              | 30              |
|                                                  | Cross Polar H/V dB           | 25                                                         | 25              | 25              | 25              |
|                                                  | OUT-OUT Ter (dB)             | 25                                                         | 25              | 25              | 25              |
|                                                  | OUT-OUT SAT (dB)             | 30                                                         | 30              | 30              | 30              |
| Return Loss (dB)                                 | Ter. Input 47-862 MHZ        | 10                                                         | 10              | 10              | 10              |
|                                                  | Ter output 47-862 MHz        | 10                                                         | N/A             | 10              | N/A             |
|                                                  | SAT input 950-2150 MHz       | 10                                                         | 10              | 10              | 10              |
|                                                  | SAT output 950-2150 MHz      | 10                                                         | N/A             | 10              | N/A             |
|                                                  | Tap Outputs 47-862MHz        | 8                                                          | 8               | 8               | 8               |
|                                                  | Tap Outputs 950-2150MHz      | 8                                                          | 8               | 8               | 8               |
| Output Level (dBμV)                              | SAT( IMA3, 35dB) EN 50083-3  | 95                                                         | 95              | 95              | 95              |
|                                                  | Ter.( IMA3, 60dB) EN 50083-5 | 85                                                         | 85              | 85              | 85              |
| Input Level (dBμV)                               | SAT( IMA3, 35dB) EN 50083-3  | 124                                                        | 117             | 124             | 117             |
|                                                  | Ter.( IMA3, 60dB) EN 50083-5 | 114                                                        | 107             | 114             | 107             |
| Switching commands                               |                              | 13V, 18V, 13V 22kHz, 18V 22Khz DiSEqC 2.0                  |                 |                 |                 |
| Switching Voltage                                |                              | 15V ± 1V                                                   |                 |                 |                 |
| Ter Current (mA), (supplied from Ter Trunk Line) |                              | 180                                                        | 180             | 180             | 180             |
| Max. Current of Each Port (supplied by Receiver) |                              | <250                                                       | <250            | <250            | <250            |
| Colour Coded Inputs                              |                              | V/L: Black, H/L: Green, V/H: RED, H/H: Yellow, Ter.: White |                 |                 |                 |
| External Power supply                            |                              | 18V / 3.5mm DC Jack 2100mA (305310)                        |                 |                 |                 |
| Dimensions (mm)                                  |                              | 294 x 210 x 111                                            | 294 x 210 x 111 | 294 x 210 x 111 | 294 x 210 x 111 |

# TMM Splitter Range

## Multiswitch Splitters



### TMM 5 SPLIT

- 5 Inputs, 10 Outputs
- 4 x Satellite Inputs plus 1 x Terrestrial Input
- 5 In - line inputs
- Power Pass all ports
- Colour coded connectors



### TMM 4+1 SPLIT

- 5 Inputs, 10 Outputs
- 4 x Satellite Inputs plus 1 x Terrestrial Input
- 4 In - line Satellite inputs plus 1 offset Terrestrial Input
- Power Pass all ports
- Colour coded connectors



### TMM 5/20 SPLIT

- 5 Inputs, 20 Outputs
- 4 x Satellite Inputs plus 1 x Terrestrial Input
- 5 In - line inputs
- Power Pass all ports
- Colour coded connectors



### TMM 4+1/20 SPLIT

- 5 Inputs, 20 Outputs
- 4 x Satellite Inputs plus 1 x Terrestrial Input
- 4 In - line Satellite inputs plus 1 offset Terrestrial Input
- Power Pass all ports
- Colour coded connectors



### TMM 4+5 SPLIT

- 8 x Satellite, 1 x Terrestrial Inputs
- 16 x Satellite, 2 x Terrestrial Outputs
- 75  $\Omega$  Impedance
- Power Pass bi-directional all ports
- SAT IN-OUT: 30V 1A
- TERR IN-OUT: 30V 1.5A



### TMM 4+4+1 SPLIT

- 8 x Satellite, 1 x Terrestrial Inputs
- 16 x Satellite, 2 x Terrestrial Outputs
- 75  $\Omega$  Impedance
- Power Pass bi-directional all ports
- SAT IN-OUT: 30V 1A
- TERR IN-OUT: 30V 1.5A

| TMM Splitter Range         |                       |                 |                 |                |                  |                 |
|----------------------------|-----------------------|-----------------|-----------------|----------------|------------------|-----------------|
| Product Name               | TMM 5 SPLIT           | TMM 5/20 SPLIT  | TMM 4+5 SPLIT   | TMM 4+1 SPLIT  | TMM 4+1/20 SPLIT | TMM 4+4+1 SPLIT |
| Part number                | 305319                | 305321          | 307306          | 305320         | 305313           | 307307          |
| Frequency range (MHz)      | 47 - 2150             | 47 - 2150       | 47 - 2150       | 47 - 2150      | 47 - 2150        | 47 - 2150       |
| Inputs                     | 4 Sat / 1 terr        | 4 Sat / 1 terr  | 9               | 4 Sat / 1 terr | 4 Sat / 1 terr   | 9               |
| Outputs                    | 8 Sat / 2 terr        | 16 Sat / 4 terr | 16 Sat / 2 terr | 8 Sat / 2 terr | 16 Sat / 4 terr  | 16 Sat / 2 terr |
| Insertion loss in-out (dB) | Terr 47 - 862         | 4,3             | 8,0             | 4,3            | 8,0              | 4,3             |
|                            | Sat 950 - 2150        | 4,5             | 8,5             | 4,5            | 8,5              | 4,5             |
| Isolation out-out (dB)     | Terr 47 - 862         | 22              | 24              | 22             | 24               | 22              |
|                            | Sat 950 - 2150        | 20              | 22              | 20             | 22               | 20              |
| Return loss (dB)           | Terr input 47 - 862   | 15              | 15              | 15             | 15               | 15              |
|                            | Sat input 950 - 2150  | 13              | 13              | 13             | 13               | 13              |
|                            | Terr output 47 - 862  | 15              | 15              | 15             | 15               | 15              |
|                            | Sat output 950 - 2150 | 13              | 13              | 13             | 13               | 13              |
| Connectors                 | 'F' (female)          |                 |                 |                |                  |                 |
| Dimensions (mm)            | 85 X 162 x 73         | 85 X 162 x 146  |                 | 85 X 162 x 73  | 85 X 162 x 146   |                 |

# TMM Power Supply / Inserter



## TMM PSI

TMM Power Inserter

Part No. 305311

### Features:

- DC Power Inserter
- 5 Inputs, 5 Outputs,  
(4 x Satellite plus 1 x Terrestrial)
- DC switch on Terrestrial Leg to  
select direction of power
- 'Power On' LED on each trunk line
- Colour coded connectors

| TMM Power Inserter    |                                 |
|-----------------------|---------------------------------|
| Model                 | TMM PSI                         |
| No. Inputs            | 5-(4xSat+1xTerr)                |
| No. Outputs           | 5-(4xSat+1xTerr)                |
| Frequency Range (MHz) | 47-2150                         |
| Insertion Loss        |                                 |
| • TERR (dB)           | 1.5                             |
| • SAT (dB)            | 2.5                             |
| Power Input           | 18VDC via 3.5mm DC Jack         |
| Terrestrial Supply    | Up/Down/Up+Down<br>(Switchable) |
| Dimensions (mm)       | 181x162x35.4                    |



## TMM PSU

TMM Switch Mode Power Supply

Part No. 305310

### Features:

- External Switch Mode Power Supply
- Rack Mounted
- DC Output fly lead
- Supplied with DC Link Lead

| TMM Switch Mode Power Supply |                          |
|------------------------------|--------------------------|
| Model                        | TMM PSU                  |
| Input Voltage (Vac)          | 180-250                  |
| Input Frequency Range (Hz)   | 47-63                    |
| Output Voltage (VDC)         | 18                       |
| Output Current (A)           | 2                        |
| DC Output                    | Fly Lead with 3.5mm Plug |



## TMM Accessories

| TMM Accessories |                         |                                                                                                           |
|-----------------|-------------------------|-----------------------------------------------------------------------------------------------------------|
| Part No. 305309 | TMM Connecting Lead Kit | Kit of 5 Colour Coded Leads for connecting TMM Modules                                                    |
| Part No. 305350 | TMM Remote Power Kit    | Allows a TMM System to be powered via a Coax Cable from a remote TMM PSU (Kit of 2 F to DC Adapter Leads) |
| Part No. 370009 | TMM F-Type Coupler      | Quick Fit F Male to F Male Connector (5 per Bag)                                                          |
| Part No. 305349 | TMM Terminator          | F Type (Male), DC Blocked, 75ohm, Terminator (5 per Bag)                                                  |
| Part No. 370414 | TMM RLK Lead            | 5 x Leads fitted with right angle F-F Connector                                                           |
| Part No. 370010 | Push-On Connector       | FF Male Quick Type Connector                                                                              |

## IRS Accessories

| IRS Accessories |                                           |
|-----------------|-------------------------------------------|
| Part No. 300401 | In Line Terrestrial / Satellite Amplifier |
| Part No. 370706 | In Line DC Block                          |
| Part No. 370650 | Satellite Slope Amplifier                 |
| Part No. 153571 | Galvanic Isolator                         |



## TMM Bond Bars

For use with TMM Amplifiers

| TMM Earth Bond Bars |                   |                                                                  |
|---------------------|-------------------|------------------------------------------------------------------|
| Part No. 305344     | TMM 4 In Bond Bar | Earth Bond Bar for Amplifier 4 x 4 Input                         |
| Part No. 305345     | TMM 5 In Bond Bar | Earth Bond Bar for 5 Input Multiswitch and Amplifier 5 x 5 Input |





## TMS 13 Cascade Multiswitches

TMS 13 input series is an active and cascable SAT-IF multiswitch for 3 SAT positions (12 SAT polarities + terrestrial) from 8 to 24 subscriber outputs.

**Your preferred choice when you want to:**

- Receive signals from 3 different satellite positions and terrestrial

**Key features:**

- Multiswitch satellite functions powered from satellite receiver
- External power supply for powering LNB and distribution amplifiers
- Colour coded connectors throughout the range
- TMS switch mode universal power supply available (Part No. 300374)

| TMS 13 Series                        |                |        |                                               |           |           |           |
|--------------------------------------|----------------|--------|-----------------------------------------------|-----------|-----------|-----------|
|                                      |                | Unit   | TMS13x8C                                      | TMS13x12C | TMS13x16C | TMS13x24C |
|                                      |                |        | 307409                                        | 307413    | 307418    | 307425    |
| Subscriber Output Lines              |                |        | 8                                             | 12        | 16        | 24        |
| Connectors                           |                |        | F-connector, female                           |           |           |           |
| Frequency range                      | TER            | MHz    | 5 to 862 (85 to 862 with passive return path) |           |           |           |
|                                      | SAT            | MHz    | 950 to 2150                                   |           |           |           |
| Return path                          | TER            | MHz    | 5 to 65 (switchable on/off)                   |           |           |           |
| Trunk insertion loss                 | TER            | dB     | -7 Max.                                       | -7 Max.   | -7 Max.   | -8 Max.   |
|                                      | SAT            | dB     | -2.7 Max.                                     | -3.5 Max. | -4.3 Max. | -6.5 Max. |
| Gain / Loss (Subscriber TAP outputs) | TER            | dB     | 0 Max.                                        | -2 Max.   | -2 Max.   | -3 Max.   |
|                                      | SAT            | dB     | -2 Max.                                       | -3 Max.   | -4 Max.   | -5 Max.   |
| Isolation                            | Cross pol H/V  | dB     | ≥28                                           |           |           |           |
|                                      | Out-out SAT    | dB     | ≥30                                           |           |           |           |
| Return Loss                          | All ports      | dB     | ≥10                                           |           |           |           |
| Attenuation                          | TER            | dB     | NA                                            |           |           |           |
|                                      | SAT            | dB     | NA                                            |           |           |           |
| Equalizer                            | TER            | dB     | NA                                            |           |           |           |
|                                      | SAT            | dB     | NA                                            |           |           |           |
| Max. output level                    | SAT(IMA3 35dB) | dB     | 95                                            |           |           |           |
|                                      | TER(IMA3 60dB) | dB     | 85                                            |           |           |           |
| External Power Supply                |                | VDC/mA | 18vdc / 1600mA max. F-connector Port for PSU  |           |           |           |
| Vertical Voltage Switching           |                | VDC    | 13.0±1                                        |           |           |           |
| Horizontal Voltage Switching         |                | VDC    | 17.0±1                                        |           |           |           |
| Noise Figure                         | TER            | dB     | NA                                            |           |           |           |
|                                      | SAT            | dB     | NA                                            |           |           |           |
| Input/output line impedance          |                | Ω      | 75                                            |           |           |           |



## TMS 17 Cascade Multiswitches

TMS 17 input series is a cascadable multiswitch for 4 SAT positions. A terrestrial input is available to allow both terrestrial and satellite signals to be available on all subscriber outputs. The 17x series has an active satellite signal path and passive terrestrial signal path allowing a terrestrial return path if needed.

Satellite position switching is done via DiSEqC signals from the subscriber set-top box.

TMS 17xT series multiswitches are also available for termination of the system, while the TMS 17AMP can be used to compensate for any cable losses.

### Key features:

- All switch functions are powered and controlled by your set-top box
- Select 8, 12 and 16 outputs to meet user requirements
- Includes a DiSEqC switch for position switching
- Colour coded connections throughout the range
- TMS switch mode universal power supply available (Part No. 300374)

### Your preferred choice when you want to:

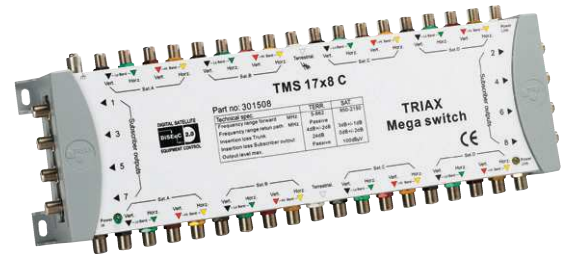
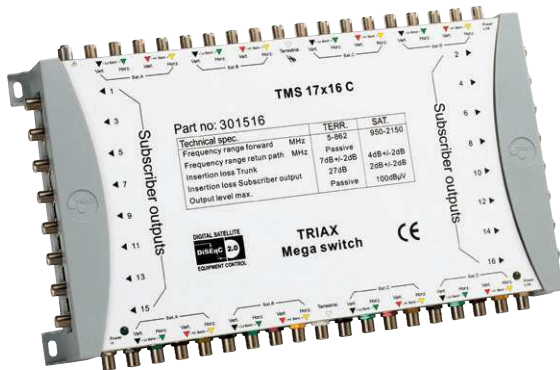
- Receive signals from 4 different satellite positions and terrestrial
- Reduce the number of products on an installation
- Terminate a large cascaded system that already uses TMS 17xC switches

## TMS Universal PSU

Part No. 300374

- Switch mode power supply
- Output 18V / 2.0A
- Input 100 - 240V ~ 50/60Hz 1.0A
- F-Connector  
(supplied with F-F 1800mm power lead)





| Type:                               |         | TMS 17x8C<br>Cascadable                                  | TMS 17x12C<br>Cascadable                                 | TMS 17x16C<br>Cascadable                                 |
|-------------------------------------|---------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| Part. No:                           |         | 301508                                                   | 301512                                                   | 301516                                                   |
| Number of inputs                    | pcs.    | 16 SAT, 1 TER                                            | 16 SAT, 1 TER                                            | 16 SAT, 1 TER                                            |
| Insertion loss - trunkline TER      | dB      | 4.0                                                      | 4.0                                                      | 4.0                                                      |
| Insertion loss - trunkline SAT      | dB      | 3.0                                                      | 4.0                                                      | 4.0                                                      |
| Number of outputs                   | pcs.    | 16 SAT, 1 TER                                            | 16 SAT, 1 TER                                            | 16 SAT, 1 TER                                            |
| Subscriber outputs                  | pcs.    | 8                                                        | 12                                                       | 16                                                       |
| Frequency range SAT                 | MHz     | 950-2150 (active)                                        | 950-2150 (active)                                        | 950-2150 (active)                                        |
| Frequency range TER                 | MHz     | 5-862 (passive)                                          | 5-862 (passive)                                          | 5-862 (passive)                                          |
| Gain - SAT [950-2150 MHz]           | dB      | 0.0                                                      | - 2.0                                                    | - 2.0                                                    |
| Gain - TER [47-862 MHz]             | dB      | - 24.0                                                   | - 27.0                                                   | - 27.0                                                   |
| Isolation LNB to LNB                | dB      | 30.0                                                     | 35.0                                                     | 35.0                                                     |
| Isolation SAT to TER                | dB      | 30.0                                                     | 30.0                                                     | 30.0                                                     |
| Isolation TER to SAT                | dB      | 20.0                                                     | 20.0                                                     | 20.0                                                     |
| Isolation cross polarisation H/V    | dB      | 28.0                                                     | 28.0                                                     | 28.0                                                     |
| Isolation out-out SAT               | dB      | 30.0                                                     | 30.0                                                     | 30.0                                                     |
| Isolation out-out TER               | dB      | 25.0                                                     | 25.0                                                     | 25.0                                                     |
| Return loss SAT inputs              | dB      | 12.0                                                     | 12.0                                                     | 12.0                                                     |
| Return loss SAT outputs             | dB      | 12.0                                                     | 12.0                                                     | 12.0                                                     |
| Return loss TER inputs              | dB      | 8.0                                                      | 8.0                                                      | 8.0                                                      |
| Return loss TER outputs             | dB      | 8.0                                                      | 8.0                                                      | 8.0                                                      |
| Output level SAT @ -35 dB IMD3      | dBμV    | 100                                                      | 100                                                      | 100                                                      |
| LNB power supply max.               | A       | 1.3                                                      | 1.3                                                      | 1.3                                                      |
| Impedance input/output              | Ohm     | 75                                                       | 75                                                       | 75                                                       |
| Switching voltage                   |         | 13V-18V - 13V/22kHz 18V/22kHz<br>DiSEqC 2.0<br>Toneburst | 13V-18V - 13V/22kHz 18V/22kHz<br>DiSEqC 2.0<br>Toneburst | 13V-18V - 13V/22kHz 18V/22kHz<br>DiSEqC 2.0<br>Toneburst |
| Supply voltage                      | V/DC    | 15.0 (± 0.5)                                             | 15.0 (± 0.5)                                             | 15.0 (± 0.5)                                             |
| Power supply                        |         | External                                                 | External                                                 | External                                                 |
| Power link (for amplifiers in line) |         | Yes                                                      | Yes                                                      | Yes                                                      |
| Connectors                          |         | F-female                                                 | F-female                                                 | F-female                                                 |
| Control LEDs                        |         | Green for power,<br>Yellow for power link                | Green for power,<br>Yellow for power link                | Green for power,<br>Yellow for power link                |
| Colourcoding - IF and TER inputs    |         | Yes                                                      | Yes                                                      | Yes                                                      |
| Temperature range                   | degrees | 0...+55                                                  | 0...+55                                                  | 0...+55                                                  |
| Dimensions (H x D x W)              |         | 125 x 55 x 355                                           | 215 x 55 x 355                                           | 215 x 55 x 355                                           |



## TMS 17 Cascade Multiswitches

| Type:                               |         | TMS 17x8T Terminated                               | TMS 17x12T Terminated                              | TMS 17x16T Terminated                              |
|-------------------------------------|---------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| Art. No:                            |         | 301608                                             | 301612                                             | 301616                                             |
| Number of inputs                    | pcs.    | 16 SAT, 1 TER                                      | 16 SAT, 1 TER                                      | 16 SAT, 1 TER                                      |
| Number of outputs                   | pcs.    | 16 SAT, 1 TER                                      | 16 SAT, 1 TER                                      | 16 SAT, 1 TER                                      |
| Subscriber outputs                  | pcs.    | 8                                                  | 12                                                 | 16                                                 |
| Frequency range SAT                 | MHz     | 950-2150 (active)                                  | 950-2150 (active)                                  | 950-2150 (active)                                  |
| Frequency range TER                 | MHz     | 5-862 (passive)                                    | 5-862 (passive)                                    | 5-862 (passive)                                    |
| Gain - SAT [950-2150 MHz]           | dB      | 0,0                                                | - 2,0                                              | 0,0                                                |
| Gain - TER [47-862 MHz]             | dB      | - 22,0                                             | - 24,0                                             | - 24,0                                             |
| Isolation LNB to LNB                | dB      | 35,0                                               | 35,0                                               | 35,0                                               |
| Isolation SAT to TER                | dB      | 30,0                                               | 30,0                                               | 30,0                                               |
| Isolation TER to SAT                | dB      | 20,0                                               | 20,0                                               | 20,0                                               |
| Isolation cross polarisation H/V    | dB      | 28,0                                               | 28,0                                               | 28,0                                               |
| Isolation out-out SAT               | dB      | 30,0                                               | 30,0                                               | 30,0                                               |
| Isolation out-out TER               | dB      | 25,0                                               | 25,0                                               | 25,0                                               |
| Return loss SAT inputs              | dB      | 12,0                                               | 12,0                                               | 12,0                                               |
| Return loss SAT outputs             | dB      | 12,0                                               | 12,0                                               | 12,0                                               |
| Return loss TER inputs              | dB      | 8,0                                                | 8,0                                                | 8,0                                                |
| Return loss TER outputs             | dB      | 8,0                                                | 8,0                                                | 8,0                                                |
| Output level SAT @ -35 dB IMD3      | dBμV    | 100                                                | 100                                                | 100                                                |
| LNB power supply max.               | A       | 1,3                                                | 1,3                                                | 1,3                                                |
| Impedance input/output              | Ohm     | 75                                                 | 75                                                 | 75                                                 |
| Switching voltage                   |         | 13V-18V - 13V/22kHz 18V/22kHz DiSEqC 2.0 Toneburst | 13V-18V - 13V/22kHz 18V/22kHz DiSEqC 2.0 Toneburst | 13V-18V - 13V/22kHz 18V/22kHz DiSEqC 2.0 Toneburst |
| Supply voltage                      | V/DC    | 15,0 (± 0,5)                                       | 15,0 (± 0,5)                                       | 15,0 (± 0,5)                                       |
| Power supply                        |         | External                                           | External                                           | External                                           |
| Power link (for amplifiers in line) |         | Yes                                                | Yes                                                | Yes                                                |
| Connectors                          |         | F-female                                           | F-female                                           | F-female                                           |
| Control LEDs                        |         | Green for power, Yellow for power link             | Green for power, Yellow for power link             | Green for power, Yellow for power link             |
| Colourcoding - IF and TER inputs    |         | Yes                                                | Yes                                                | Yes                                                |
| Temperature range                   | degrees | 0...+55                                            | 0...+55                                            | 0...+55                                            |
| Dimensions (H x D x W)              |         | 125 x 55 x 355                                     | 215 x 55 x 355                                     | 215 x 55 x 355                                     |

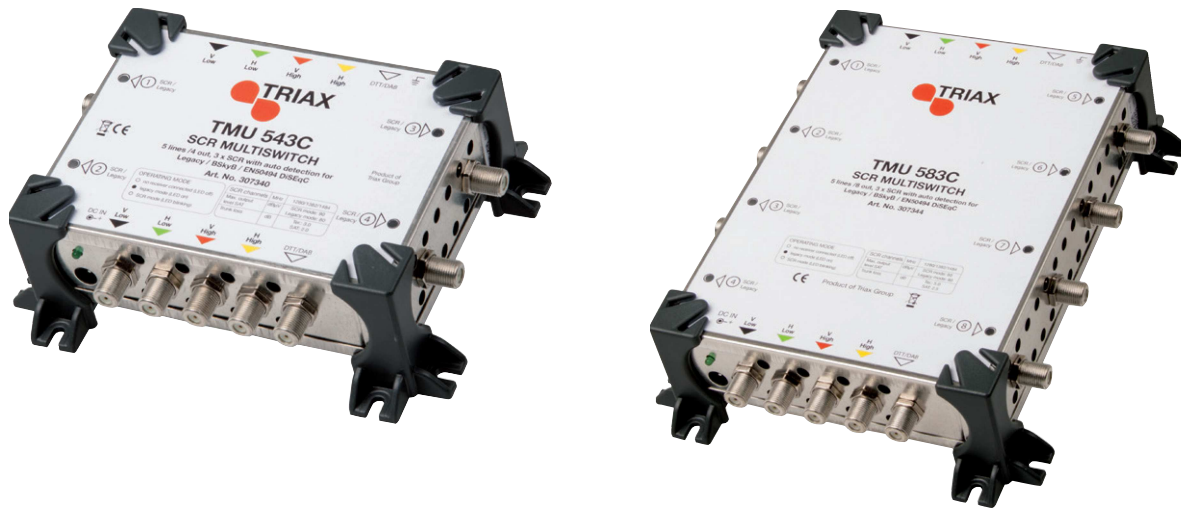


| Type:                             |         | TMS 17<br>IF-amplifier     |
|-----------------------------------|---------|----------------------------|
| Part. No:                         |         | 301501                     |
| Number of inputs                  | pcs.    | 16 SAT, 1 TER + power link |
| Number of outputs                 | pcs.    | 16 SAT, 1 TER + power link |
| Frequency range SAT               | MHz     | 950-2150                   |
| Frequency range TER               | MHz     | 5-862                      |
| Return path TER                   | MHz     | 5-65 (passive)             |
| Gain - SAT [950-2150 MHz]         | dB      | 18-24 (± 2)                |
| Gain - TER [47-862 MHz]           | dB      | 17                         |
| Attenuation SAT                   |         |                            |
| Attenuation TER                   |         |                            |
| Adjustable attenuator SAT         | dB      | 0-10                       |
| Adjustable attenuator TER         | dB      | 0-10                       |
| Equalization SAT                  | dB      | 0 or 6.0 (switchable)      |
| Equalization TER                  | dB      | 0-15.0 (adjustable)        |
| Noise figure SAT                  |         | < 8.0                      |
| Noise figure TER                  |         | < 7.0                      |
| Isolation SAT to SAT              |         | 30.0                       |
| Isolation TER to SAT              |         | 22.0                       |
| Isolation cross polarisation H/V  |         |                            |
| Isolation out-out SAT             |         |                            |
| Return loss                       |         |                            |
| Return loss SAT                   | dB      | 10.0                       |
| Output level SAT @ -35 dB IMD3    | dBμV    | 110                        |
| Output level TER @ 60dB IMD3      |         |                            |
| Output level TER - 47-862 MHz     | dBμV    | 105                        |
| Impedance input/output            | Ohm     | 75                         |
| Switching voltage                 |         |                            |
| Supply voltage                    | V/DC    | 18 (via power link)        |
| Power supply                      |         | External power adaptor     |
| Power supply current              |         |                            |
| Connectors                        |         | F-female                   |
| Colourcoding of IF and TER inputs |         | Yes                        |
| Temperature range                 | degrees | 0...+55                    |
| Dimensions (H x D x W)            |         | 152 x 51 x 355             |

A launch amplifier is the first amplifier in a multi switch installation, typically near the LNB and dish installation. It is designed to boost your signal to get more mileage in a long cascaded installation.

Using a line amplifier you can compensate for the cable losses further down the trunk lines of your satellite distribution system.





## TMU SCR Multiswitches

Designed for Single Cable IRS Installations

The TMU Single Cable Multiswitch provides the latest switching technology for both Legacy and SCR satellite receivers. The capability of each attached satellite receiver is automatically detected and compatible 'Legacy mode' or 'SCR mode' signals are transmitted.

Uniform signal level distribution to each attached satellite receiver is ensured through built-in automatic gain control

### Your preferred choice when you want to:

- Overcome restrictions of a single cable installation
- Install up to 3 satellite receivers in an apartment when only one input cable is available (when used in conjunction with the Triax 3 Way Smart Splitter)
  - 1 x PVR and 1 x Legacy receiver
  - 3 x Legacy receivers
 Legacy receiver must be SCR compatible

### Key features:

- Easy to install. Use existing cable.
- Automatically detects the capability of the attached satellite receiver and provides the correct protocol accordingly. All set-up via the satellite receiver only.
- Fast installation – up to 3 satellite receivers can be connected via 3 Way Smart Splitter.
- Compact design fits neatly into small spaces.
- LEDs on multiswitch outputs provide verification of correct functionality.
- 1 x passive terrestrial input.
- 4 or 8 subscriber outputs.
- High output power – controlled via automatic gain control
- Supports satellite receivers with auto tuning
- DC input for LNB powering (TMU SCR is powered via STBs)
- Low investment for the building owner while enhancing the viewing experience within apartments.



| TYPE                          |       | TMU 543C                                      | TMU 583C       |
|-------------------------------|-------|-----------------------------------------------|----------------|
| Art. No.                      |       | 307340                                        | 307344         |
| Number of SAT inputs          |       | 4                                             | 4              |
| Number of TER inputs          |       | 1                                             | 1              |
| Number of SAT positions       |       | 1                                             | 1              |
| Number of trunkline outputs   |       | 5                                             | 5              |
| Subscriber outputs            |       | 4                                             | 8              |
| No. of SCR STB per output     |       | 3                                             | 3              |
| Frequency range SAT           | MHz   | 950-2150                                      | 950-2150       |
| Frequency range TER           | MHz   | 5-862                                         | 5-862          |
| Insertion loss trunkline SAT  | dB    | 2.0                                           | 2.5            |
| Insertion loss trunkline TER  | dB    | 3.0                                           | 5.0            |
| Tap loss - passive TER (typ.) | dB    | 24.0                                          | 24.0           |
| Max. input level SAT          | dBμV  | 60-91                                         | 60-91          |
| Max. output level SAT Legacy  | dBμV  | 80                                            | 80             |
| Max. output level SAT SCR     | dBμV  | 90                                            | 90             |
| Return loss inputs            | dB    | > 10                                          | > 10           |
| SCR channels                  |       | 1280 / 1382 / 1484                            |                |
| SKY channels                  |       | 9 / 11 / 14                                   |                |
| Connectors                    | F-con | female                                        | female         |
| Impedance input/output        | Ohm   | 75                                            | 75             |
| LNB current supply            | mA    | 500                                           | 500            |
| STB current load              | mA    | 85                                            | 85             |
| DC input                      | VDC   | 15                                            | 15             |
| DC power jack                 | mm    | 2.1                                           | 2.1            |
| Colourcoding on inputs        |       | Yes                                           | Yes            |
| Temperature range             | °C    | -20...+50                                     | -20...+50      |
| Dimensions (H x D x W)        | mm    | 122 x 51 x 158                                | 202 x 51 x 158 |
| Supported standards           |       | Legacy / BSKyB / EN 50494 / EN 50607 / DiSEqC |                |
| Automatic Gain Control        |       | Yes                                           | Yes            |



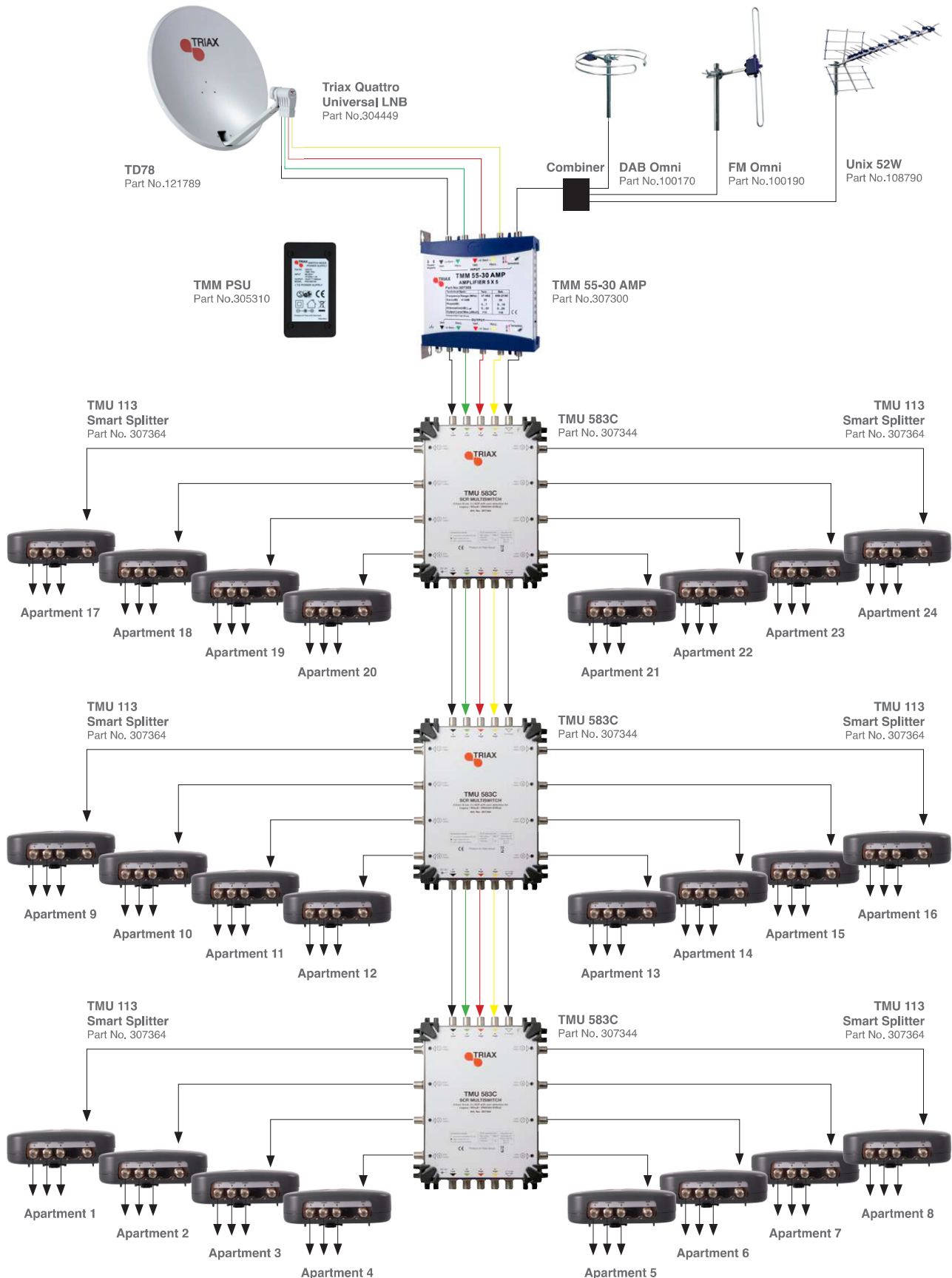
## TMU 113 Smart Splitter

Part No. 307364

- Connect upto 3 SCR Satellite Receivers
- Line powered
- Indoor housing
- Buffers and controls anti-collision of signal data
- F-Connectors

| TMU 113 Smart Splitter |     |                                    |
|------------------------|-----|------------------------------------|
| Frequency Range        | MHz | 5-2150                             |
| Insertion Loss         | dB  | 9                                  |
| Return Loss In/Out     | dB  | ≥10                                |
| DC Power Pass          | mA  | 500                                |
| Input Voltage          | VDC | 10~20V max.                        |
| Message Buffer         |     | Max 3 receivers<br>SCR or 1 legacy |
| Dimensions             | mm  | 140 x 68 x 40                      |

## SCR Installation Example





## SAT Optics

Triax offer a complete range of solutions for your fibre IRS installation.

### Your preferred choice when you want:

- One discreet headend - distribute satellite, digital terrestrial and radio signals from a single location
- Design a system over a large area without jeopardising signal and quality
- Install a single fibre cable only rather than multiple coaxial cables

### Key features:

- Reduced cabling
- Negligible cable loss
- High quality signal levels
- Excellent C/N
- Scalable and expandable
- No earth bonding required
- Low power consumption
- A passive fibre optic network (with no active components) means there is little chance of failure when installed



## Optical transmission - the sophisticated SAT/Terr TV distribution for everybody

Television at the speed of light - the transmission choice for the future

SAT-IF and Terr distribution over Fibre provides reception in large developments over long distances from a central headend with multiple splits.

- Less insertion loss of approx. 0,3 dB/km for light modulated SAT, DVB-T and DAB signals
- All of the 4 satellite bands over one fibre by frequency stacking in the transmitter and de-stacking in the optic re-converter.
- Fibre cables are galvanic isolated. Provides better protection against lightning and avoids disturbances caused by grounding loops.
- Saves space by using a single fibre cable for each satellite position (diameter 3mm 5 coaxial cables 5x7 mm)
- Easy installation by using pre-assembled fibre cables from TRIAX

| System                                           |                                                             |  | Opto-IES 1 1 x SAT + Terr. Optical Integrated Reception system                  |
|--------------------------------------------------|-------------------------------------------------------------|--|---------------------------------------------------------------------------------|
| Transmission capabilities                        | SAT<br>Terrestrial                                          |  | 1 SAT position with 4 polarities<br>FM, DVB-T, DAB                              |
| Technical concept                                |                                                             |  | Stacking-LNB with<br>external optical transmitter 1310 nm                       |
| System components                                | Stacking LNB<br>Optical transmitter<br>Optical re-converter |  | TWL 01 with N connector<br>TOU 232 SA with 2 x opt. output<br>TVC 05/TVQ 05     |
| Components for extension                         |                                                             |  | TAS 04 coaxial splitter to 4 opt. transmitters<br>N-cables TUC xx<br>TOU 232 SA |
| Optical budget (max.)                            |                                                             |  | 2 x 19 dB                                                                       |
| LWL (max. Splitting = connectable re-converters) |                                                             |  | 2x32=64                                                                         |
| with extension TAS 04                            |                                                             |  | 8x32=256                                                                        |

# Integrated Reception System 1 x SAT + Terr.

Opto IRS 1 Integrated Reception System for 1 Sat-Position + Terrestrial. 2x32 fibre splits, 1310 nm.

The TOU 232 kit consists of the stacking LNB TWL 01, Optical Transmitter TOU 232 SA (SAT + Terrestrial), N-cable TUC 02 (2m), PSU 20 V, Mast clamping plate, FC/PC-terminator.



- The 4 SAT bands are stacked in the full-band LNB TWL 1. The SAT IF signal 950...5450 MHz is connected via the high performance coaxial N-cable TUC to the optical transmitter TOU 232 SA.
- The terrestrial signals are connected to the optical transmitter directly.
- The optical transmitter converts the SAT and Terr signal into 2 optical output signals with 1310 nm wavelength
- Each optical output can be split upto 32 ways with each output feeding a TVC 05 or TVQ 05 converter.
- The optical signal can be split upto 8 x 32 ways by using the active coaxial splitter TAS 04 that can drive upto 4 optical transmitters
- External PSU 20 V (included)

| Type                                          |        | TWL 01                            | TOU 232 SA                                          | TOU 232 Kit                                                      |
|-----------------------------------------------|--------|-----------------------------------|-----------------------------------------------------|------------------------------------------------------------------|
| Part No.                                      |        | 307612                            | 307615                                              | 307614                                                           |
| Design                                        |        | Full stacking LNB, coaxial output | Opt. transmitter for 1xSAT + terr, splitting 2 x 32 | Kit, consisting of TWL 01, TOU 232 SA, N-cable, PSU, accessories |
| SAT range                                     |        |                                   |                                                     |                                                                  |
| Input frequency range                         | GHz    | 10,7 – 12,75                      |                                                     |                                                                  |
| Output frequency range LNB                    | GHz    | 0,95...5,450                      | 0,95...5,450                                        |                                                                  |
| frequency range vertical, stacked, VL+VH      | GHz    | 0,950 – 3,0                       |                                                     |                                                                  |
| frequency range horizontal, stacked, HL+HH    | GHz    | 3,4 – 5,45                        |                                                     |                                                                  |
| Polarisation                                  | Linear | horizontal and vertical           |                                                     |                                                                  |
| Terrestrial range                             |        |                                   |                                                     |                                                                  |
| Terrestrial input frequency range DVB-T       | MHz    |                                   | 470...854                                           |                                                                  |
| Terrestrial input frequency range DAB         | MHz    |                                   | 213...230                                           |                                                                  |
| Terrestrial input frequency range DTT (FM)    | MHz    |                                   | 87...108                                            |                                                                  |
| Technical data                                |        |                                   |                                                     |                                                                  |
| Wavelength                                    | nm     |                                   | 1310                                                |                                                                  |
| Optical output level (nom. @25 °C)            | dBm    |                                   | 2 x 3.5                                             |                                                                  |
| Optical budget for PON (with TVQ/TVCO5)       | dB     |                                   |                                                     | 19                                                               |
| Noise figure (typ. @25°C)                     | dB     | 0,5                               |                                                     |                                                                  |
| Gain                                          | dB     | 62...72                           |                                                     |                                                                  |
| L.O frequency, vertical                       | GHz    | 9,75                              |                                                     |                                                                  |
| L.O frequency, horizontal                     | GHz    | 7,3                               |                                                     |                                                                  |
| Image frequency rejection (min.)              | dB     | 40                                |                                                     |                                                                  |
| Isolation (typ.)                              | dB     | 30                                |                                                     |                                                                  |
| Spurious output (950MHz-3GHz, 3.4GHz-5.45GHz) | dBc    | -25                               |                                                     |                                                                  |
| LNB                                           |        |                                   |                                                     |                                                                  |
| Connector RF output, DC                       |        | N female                          |                                                     |                                                                  |
| Diameter feed                                 | mm     | 40                                |                                                     |                                                                  |
| Operating temperature range                   | °C     | -30 - +60                         |                                                     |                                                                  |
| Power supply                                  |        | via power inserter                |                                                     |                                                                  |
| Optical transmitter                           |        |                                   |                                                     |                                                                  |
| Port SAT in                                   |        |                                   | N female                                            |                                                                  |
| Port DTT/DAB in                               |        |                                   | F female                                            |                                                                  |
| Port Opt out1 and Opt out 2                   |        |                                   | 2 x FC/PC                                           |                                                                  |
| Operating temperature range                   |        |                                   | -30 - +60                                           |                                                                  |
| Power supply (via opt. receiver)              |        |                                   |                                                     |                                                                  |
| Power supply, nominal                         | VDC    |                                   | 20                                                  |                                                                  |
| Power consumption                             | mA     |                                   | < 450                                               |                                                                  |

# Optical Re-Converters

## Optical Re-Converters 1 x SAT + DTT/DAB/FM for Optical LNB and TOU 232 Kit



The TVC 05 and TVQ 05 Virtual Optical Receiver Nodes are optical-to-coax converters which convert frequency stacked optical signals from a TOL32 LNB or a TOL232-Kit (IRS 1) Sidecar unit into a traditional universal single coax signal. The converters also provide a coax DTT/DAB/FM signal diplexed onto each output (TVC 05), or onto a separate output (TVQ 05) when inserted into the optical transmitter TOL 232 SA.

- Compatible with the TOL 232 kit (and the optical LNB TOL 32)
- Built in AGC which allows a wide dynamic range of optical signals without impact to output level and quality.
- Two LED indicators display operation status.
- Easy mounting via a wall baseplate
- Power supply via RF output by SAT receiver (TVC 05) or by multiswitch (TVQ 05).
- Optional external power supply for continuous operation available: TPS 323 PSU
- Attention: Please insert an attenuator TFA (5/10/15) dB in if the optical attenuation of the passive optical network (PON) is less than 10 dB

|                                                    |      | TVC 05                                                 | TVQ 05                                           |
|----------------------------------------------------|------|--------------------------------------------------------|--------------------------------------------------|
| Part No.                                           |      | 307627                                                 | 307629                                           |
| Design                                             |      | Quad + terrestrial                                     | Quattro + terrestrial for use with multiswitches |
| Optical Input                                      |      |                                                        |                                                  |
| Input Power                                        | dBm  | 0...-15                                                |                                                  |
| Wavelength                                         | nm   | 1310/1550                                              |                                                  |
| Input frequency range, vertical                    | GHz  | 0,95 – 3,0                                             |                                                  |
| Input frequency range, horizontal                  | GHz  | 3,4 – 5,45                                             |                                                  |
| Terrestrial frequency range, DVB-T                 | MHz  | 470...854                                              |                                                  |
| Terrestrial frequency range, DAB                   | MHz  | 174...241                                              |                                                  |
| Terrestrial frequency range, DTT                   | MHz  | 88...108                                               |                                                  |
| Input connector                                    |      | FC/PC                                                  |                                                  |
| Outputs SAT                                        |      |                                                        |                                                  |
| Horizontal High Band (4.4 to 5.45 GHz)             | MHz  | 1100-2150, > 15,5 V 22 kHz                             | fix                                              |
| Vertical High Band (1.95 to 3.0 GHz)               | MHz  | 1100-2150, < 14,5 V 22 kHz                             | fix                                              |
| Horizontal Low Band (3.4 to 4.4 GHz)               | MHz  | 950-1950, > 15,5 V                                     | fix                                              |
| Vertical Low Band (0.95 to 1.95 GHz)               | MHz  | 950-1950, < 14,5 V                                     | fix                                              |
| Impedance, nominal                                 | Ohm  | 75                                                     | 75                                               |
| Return loss (min.)                                 | dB   | 10                                                     | 10                                               |
| Automatic Gain Control (AGC)                       | dB   | 30                                                     | 30                                               |
| Output Level SAT                                   | dBμV | ca. 75                                                 | ca. 79                                           |
| Outputs Terrestrial                                |      |                                                        |                                                  |
| Terrestrial frequency range, DVB-T                 | MHz  | 470...854                                              | 470...854                                        |
| Terrestrial frequency range, DAB                   | MHz  | 174...240                                              | 174...240                                        |
| Terrestrial frequency range, DTT                   | MHz  | 87...108                                               | 87...108                                         |
| Output Level                                       | dBμV | ca. 68                                                 | ca. 68                                           |
| Common Data                                        |      |                                                        |                                                  |
| Output connectors                                  |      | 4 x F (4 x SAT/terr.)                                  | 5 x F (4xSAT+1xterr.)                            |
| Current consumption                                | mA   | <220 @ 10 V                                            | <220 @ 10 V                                      |
| Input Voltage                                      | V    | 10...20                                                | 10...20 V                                        |
|                                                    |      | from receiver                                          | from multiswitch                                 |
| Operating temperature                              | °C   | -15...+60                                              | -15...+60                                        |
| Weight                                             | kg   | 0,8                                                    | 0,8                                              |
| Dimensions                                         | mm   | 110 x 136 x 50                                         | 110 x 136 x 50                                   |
| Accessories                                        |      |                                                        |                                                  |
| Power supply TPS 323 PSU (please order separately) |      | TPS 323 PSU (100-240 VAC +20VDC/1,2A), Part No. 307657 |                                                  |

# Optical Splitters / Couplers

- For singlemode fibre systems
- Excellent mechanical stability
- Low insertion loss
- TOS 02D...08D: symmetrical splitter with FC/PC-ports at input and outputs
- Wavelength 1310 and 1550 nm



| Type                  |    | TOS 02 D  | TOS 03 D    | TOS 04 D    | TOS 08 D  |
|-----------------------|----|-----------|-------------|-------------|-----------|
| Part No.              |    | 307636    | 307637      | 307635      | 307639    |
| No. of inputs         |    | 1         | 1           | 1           | 1         |
| No. of outputs        |    | 2         | 3           | 4           | 8         |
| Connection            |    | FC/PC     | FC/PC       | FC/PC       | FC/PC     |
| Coupling ratio        | %  | 50/50     | 33/33/33/33 | 25/25/25/25 | 8x12,5    |
| Insertion Loss        | dB | 4,0       | 5,5         | 7,0         | 10,1      |
| Wavelength            | nm | 1310/1550 | 1310/1550   | 1310/1550   | 1310/1550 |
| Wavelength band width | nm | ± 40      | ± 40        | ± 40        | ± 40      |

# Fibre Cable

## Optical Cables, Assembled

Pre-assembled with optical connectors on both sides for easy and reliable installation.

- FC/PC connectors on both ends of the cable
- Monomode-Faser 9/125
- Low attenuation 0,3 dB per km
- Max. bending radius: 5 mm
- UV resistant for outdoor use
- Steel re-inforced jacket for protection and tension
- LSZH jacket in grey colour

| Type               |    | TFC 01 | TFC 03 | TFC 05 | TFC 10 | TFC 15 |
|--------------------|----|--------|--------|--------|--------|--------|
| Part No.           |    | 307661 | 307662 | 307663 | 307664 | 307665 |
| Assembled with     |    | FC/PC  | FC/PC  | FC/PC  | FC/PC  | FC/PC  |
| Diameter cable     | mm | 3      |        |        |        |        |
| Diameter connector | mm | 10     |        |        |        |        |
| Cable length       | m  | 1      | 3      | 5      | 10     | 15     |

| Type               |    | TFC 20 | TFC 30 | TFC 40 | TFC 50 | TFC 75 |
|--------------------|----|--------|--------|--------|--------|--------|
| Part No.           |    | 307666 | 307667 | 307668 | 307669 | 307670 |
| Assembled with     |    | FC/PC  | FC/PC  | FC/PC  | FC/PC  | FC/PC  |
| Diameter cable     | mm | 3      |        |        |        |        |
| Diameter connector | mm | 10     |        |        |        |        |
| Cable length       | m  | 20     | 30     | 40     | 50     | 75     |

| Type               |    | TFC 100 | TFC 200 |
|--------------------|----|---------|---------|
| Part No.           |    | 307671  | 307672  |
| Assembled with     |    | FC/PC   | FC/PC   |
| Diameter cable     | mm | 3       |         |
| Diameter connector | mm | 10      |         |
| Cable length       | m  | 100     | 200     |



# Fibre Cables, Connectors, Attenuators and Terminators

- Pigtails for assembling of monomode fibre cables by fuse splicing
- Adaptors to connect fibre lines with equal or different connectors
- Fibre patch cable FC/PC, SC/APC
- Optical attenuators for limiting the optical input level of optical receivers



## Non-assembled cable

| Type        | TFC 500          | FC/PC-Pigtail |
|-------------|------------------|---------------|
| Part No.    | 307675           | 307581        |
| Description | 500m Fibre cable | Pigtail-Cable |
| Connection  | -                | FC/PC         |
| Length      | 500 m            | 1 m           |

## Optical patch cords

| Type       | SC/APC-SC/APC fibre patch cord | FC/PC-SC/APC fibre patch cord |
|------------|--------------------------------|-------------------------------|
| Part No.   | 307580                         | 307582                        |
| Connection | SC/APC - SC/APC                | FC/PC - SC/APC                |
| Length     | 2 m                            | 2 m                           |

## Optical adaptors

| Type        | TFB 001     | TFB 002     |
|-------------|-------------|-------------|
| Part No.    | 307684      | 307686      |
| Connection  | FC/PC-FC/PC | FC/PC-SC/PC |
| Description | Adaptor     | Adaptor     |

## Optical attenuators

| Type        | TFA 05 FC/PC | TFA 10 FC/PC | TFA 15 FC/PC |
|-------------|--------------|--------------|--------------|
| Part No.    | 307688       | 307690       | 307692       |
| Attenuation | 5 dB         | 10 dB        | 15 dB        |

## Optical terminator

| Type      | TOT 02 |
|-----------|--------|
| Part No.  | 307644 |
| Connector | FC/PC  |



## Accessories

### Active coaxial splitter with N connector

TAS 04 is an active coaxial splitter to drive up to 4 optical transmitters TOU 232 SA via N-cable TUC xx

- Active splitter without insertion loss
- Increase the network up to 264 splits/optical receivers by using the 4-way splitter TAS 04 and 4 x TOU 232 SA.
- Fit RF cable with N-connectors TUC xx

| Type            |     | TAS 04      |
|-----------------|-----|-------------|
| Part No.        |     | 307616      |
| No. of inputs   |     | 1           |
| No. of outputs  |     | 4           |
| Connection      |     | N           |
| Coupling ratio  | %   | 25/25/25/25 |
| Frequency range | GHz | 0,95...5,5  |

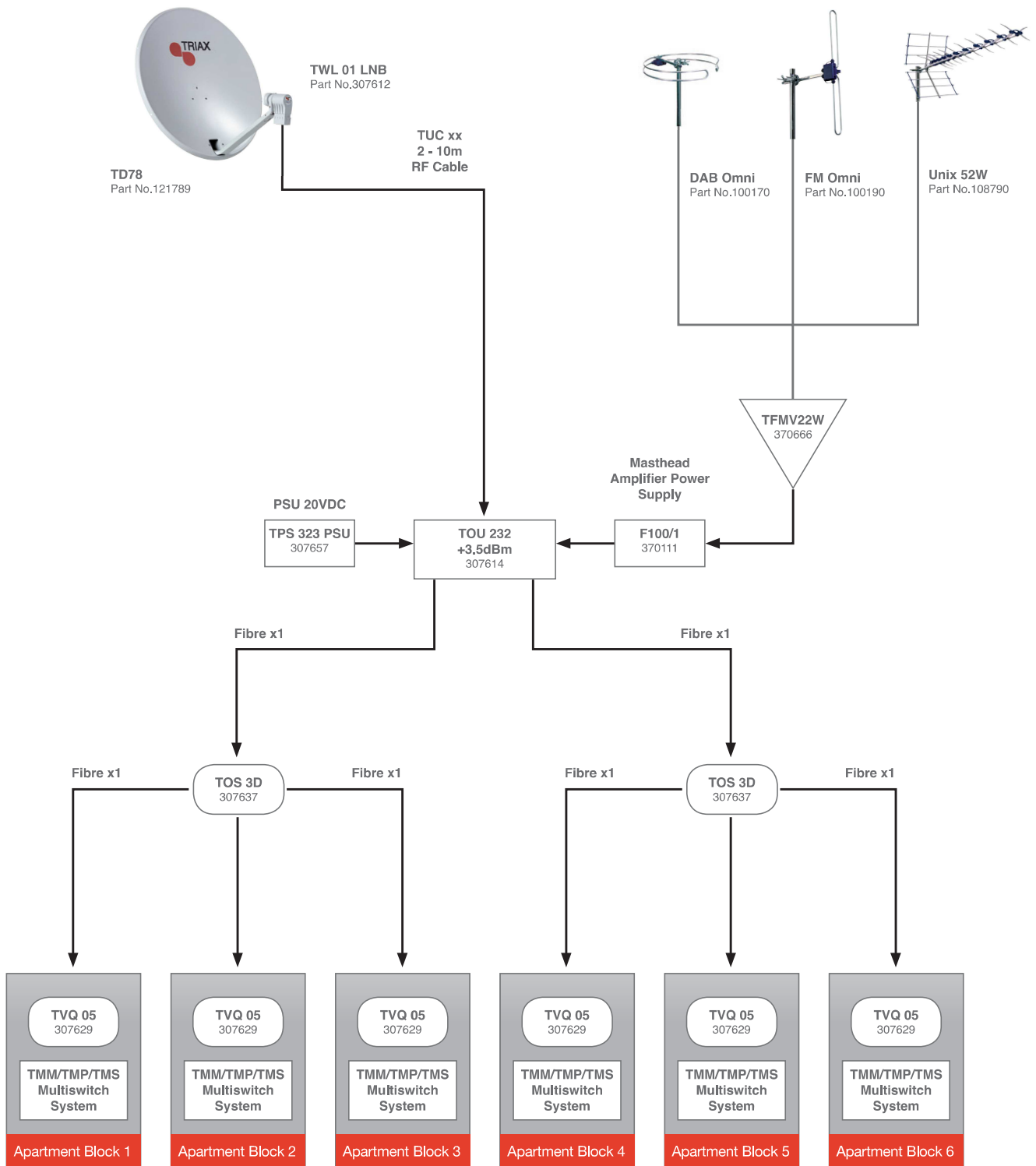
### Coaxial cable with N connector

Coaxial link between

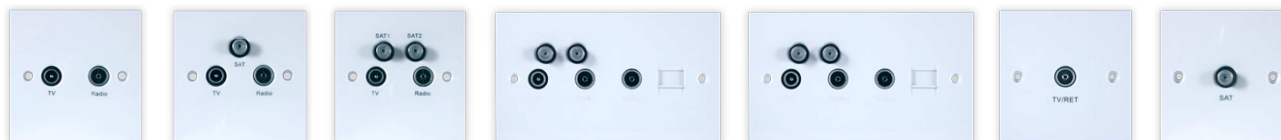
- Stacking LNB TWL 01 and optical transmitter TOU 232 SA
- Stacking LNB TWL 01 and coaxial splitter TAS 04
- TAS 04 and optical transmitter TOU 232 SA

| Type       |   | TUC 002  | TUC 003  | TUC 005  | TUC 010  |
|------------|---|----------|----------|----------|----------|
| Part No.   |   | 307601   | 307603   | 307604   | 307605   |
| Length     | m | 2        | 3        | 5        | 10       |
| Connection |   | N female | N female | N female | N female |

## SAT Optics Installation Example



## Screened Outlet Range



Diplexed  
Part No.304118

Triplexed  
Part No.304102

Quad  
Part No.304109

SAT II  
Part No.304114

DDU  
Part No.304115

Single Outlet IEC  
Part No.304122

Single Outlet F  
Part No.304123

## Grid Outlet Range



304250

304251

304252

304253

304254

304255

304246

304247

304256

304257

304292

304293

304296

304297

304258

304259

304260



304259

304260

304261

304262

304263

304264

304265

304244

304245

304294 (W)  
304295 (B)

## Audio Inserts



304278

304279

304280

304281

304290

304291

304242

304243

## Telephone / Data Inserts

| Insert Colour  | White  | Black  |
|----------------|--------|--------|
| BT Tel. Master | 304268 | 304269 |
| BT Tel. Slave  | 304270 | 304271 |
| RJ 11 Modem    | 304272 | 304273 |
| CAT 5E         | 304274 | 304275 |
| CAT 6          | 304288 | 304289 |



## Euro Grid Polycarbonate Range



304200

304201

304230

304232

304231

304233

304241

304202

304234

304235

304240



## Outlet Link (304139)

- Provides a neat and simple solution for connecting the TV and return outputs of an outlet where a Sky receiver is not installed
- Designed for use with the Triax outlets 304109, 304114, 304264, 304265, 304286 and 304287



## Fli Link (370707)

- 200mm high quality F-type (m) to IEC (m)
- Designed to save time on initial installation of TV services allowing viewing in other locations when no Sky Receiver is installed

# Triax TX Cable for Optimum Performance

High quality, metre marked, shielded cables for TV distribution.

TX100 cable meets the requirements of the Confederation of Aerial Industries (CAI) bench marking specifications and are RoHS compliant.

## Quality is important.

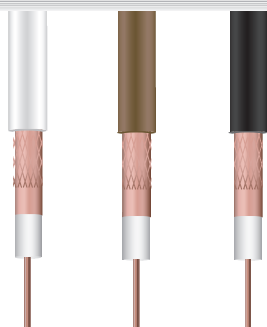
The choice of cables affects network performance. Almost any cable can transmit the signals, but a quality cable ensures:

- Long lasting stability of attenuation
- Efficiently shields the signal from distortion of electromagnetic signals
- Resists the mechanical stress, for example, the bending cables are exposed to especially during installation.



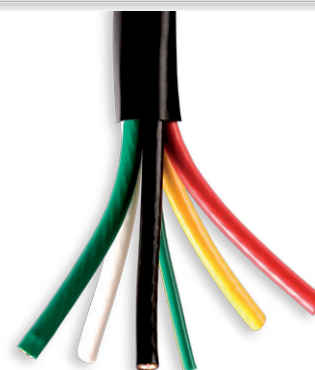
| Part No. | Model                             | Product Description |            |
|----------|-----------------------------------|---------------------|------------|
| 370750   | TX100 Black 100m                  | CAI Benchmarked     | PVC Sheath |
| 370751   | TX100 Black 250m                  | CAI Benchmarked     | PVC Sheath |
| 370752   | TX100 Brown 100m                  | CAI Benchmarked     | PVC Sheath |
| 370753   | TX100 Brown 250m                  | CAI Benchmarked     | PVC Sheath |
| 370754   | TX100 White 100m                  | CAI Benchmarked     | PVC Sheath |
| 370755   | TX100 White 250m                  | CAI Benchmarked     | PVC Sheath |
| 370756   | TX100 x 5 Core + Earth Black 50m  | CAI Benchmarked     | PVC Sheath |
| 370759   | TX100 x 5 Core + Earth Black 100m | CAI Benchmarked     | PVC Sheath |





## TX 100 Double Shielded Cable

| TX100 Coax Cable                    |                 |
|-------------------------------------|-----------------|
| TX100 BLACK 100m                    | Part No. 370750 |
| TX100 BLACK 250m                    | Part No. 370751 |
| TX100 BROWN 100m                    | Part No. 370752 |
| TX100 BROWN 250m                    | Part No. 370753 |
| TX100 WHITE 100m                    | Part No. 370754 |
| TX100 WHITE 250m                    | Part No. 370755 |
|                                     |                 |
| Inner conductor                     | Cu              |
| Inner conductor (mm)                | 1.0 +/- 0.02    |
| Screen                              | Cu foil         |
| Outer conductor                     | Braid           |
| Dielectric                          | Foam PE         |
| Dia over dielectric (mm)            | 4.6             |
| Sheath                              | PVC             |
| Dia over sheath (mm)                | 6.55 +/- 0.3    |
| Total weight (G/m)                  | 50              |
| Bending radius (mm)                 | 40              |
| Flexing radius (mm)                 | 75              |
| Electrical data                     |                 |
| Nominal impedance (Ohm)             | 75              |
| Velocity ratio (%)                  | 83              |
| Inner dc resistance (20°C (ohms/km) | <26             |
| Outer dc resistance (20°C (ohms/km) | <15             |
| Capacitance pf/m                    | 53              |
| Attenuation (Db/100m +/-5%)         |                 |
| Frequency MHz                       |                 |
| 5                                   | 1.6             |
| 50                                  | 4.6             |
| 100                                 | 6.5             |
| 200                                 | 9.5             |
| 460                                 | 15.0            |
| 850                                 | 19.5            |
| 1000                                | 21.5            |
| 1750                                | 29.0            |
| 2150                                | 32.5            |
| Screening attenuation (Db/100m)     |                 |
| Frequency MHz                       |                 |
| 30-470                              | >75             |
| 470-862                             | >75             |
| 862-2150                            | >65             |
| Return loss (dB)                    |                 |
| Frequency MHz                       |                 |
| 5-30                                | >23             |
| 30-470                              | >23             |
| 470-862                             | >20             |
| 862-2150                            | >18             |



## TX 100 x5 Core + Earth coax cable

| TX100 x 5 Core + Earth Coax Cable   |                 |       |              |
|-------------------------------------|-----------------|-------|--------------|
| TX100 x 5 Core + Earth BLACK 50m    | Part No. 370756 |       |              |
| TX100 x 5 Core + Earth BLACK 100m   | Part No. 370759 |       |              |
|                                     |                 |       |              |
|                                     | COAX CORE       | EARTH | OUTER        |
| Inner conductor                     | Cu              |       |              |
| Inner conductor (mm)                | 1.0 +/- 0.02    |       |              |
| Screen                              | Cu foil         |       |              |
| Outer conductor                     | Braid           |       |              |
| Dielectric                          | Foam pe         |       |              |
| Dia over dielectric (mm)            | 4.6             | 4.0   |              |
| Sheath                              | PVC             | PVC   | PVC          |
| Dia over sheath (mm)                | 6.55 +/- 0.3    |       | 21.5 +/- 1.0 |
| Total weight (G/m)                  | 440             |       |              |
| Bending radius (mm)                 | 265             |       |              |
| Electrical data                     |                 |       |              |
| Nominal impedance (Ohm)             | 75              |       |              |
| Velocity ratio (%)                  | 83              |       |              |
| Inner dc resistance (20°C (ohms/km) | <26             |       |              |
| Outer dc resistance (20°C (ohms/km) | <15             |       |              |
| Capacitance pf/m                    | 53              |       |              |
| Attenuation (Db/100m +/-5%)         |                 |       |              |
| Frequency MHz                       |                 |       |              |
| 5                                   | 1.6             |       |              |
| 50                                  | 4.6             |       |              |
| 100                                 | 6.5             |       |              |
| 200                                 | 9.5             |       |              |
| 460                                 | 15.0            |       |              |
| 850                                 | 19.5            |       |              |
| 1000                                | 21.5            |       |              |
| 1750                                | 29.0            |       |              |
| 2150                                | 32.5            |       |              |
| Screening attenuation (Db/100m)     |                 |       |              |
| Frequency MHz                       |                 |       |              |
| 30-470                              | >75             |       |              |
| 470-862                             | >75             |       |              |
| 862-2150                            | >65             |       |              |
| Return loss (dB)                    |                 |       |              |
| Frequency MHz                       |                 |       |              |
| 5-30                                | >23             |       |              |
| 30-470                              | >23             |       |              |
| 470-862                             | >20             |       |              |
| 862-2150                            | >18             |       |              |

# The do's and don'ts of multiswitch installations

Often the main reason people install a multiswitch system is to get access to an extensive range of TV channels.

Triax offers you a professional range of multiswitches to meet your needs – ranging from large cascadable systems for up to 16 polarities and many users to single position multiswitches with a small number of users.

Below we've put together a short list to assist in your installations.

## Don't make compromises at the dish/antenna

Always use a dish size as large as possible. Signal level gained here is basically free compared to what you may need to amplify later. Go for maximum performance, signal level and quality from the dish and LNB.

## Aim for symmetrical designs

When you design large installations, keep the distribution network balanced and symmetrical by starting with the dish, go half way down the building, then split upwards and downwards.

## Always use thickest possible cable in the trunk and thinner on drops

The only way you can minimise large signal losses along a cable is to use a better, often thicker, cable. Avoid amplifiers as far as possible – and keep cascading amplifiers to a minimum.

## Keep long cable runs in the trunk, not in subscriber cables

Remember, if you have long subscriber cables, the cable loss itself may force you to use a very high-level signal in the multiswitch – just to compensate.

## Always carefully adjust the output level of line amplifiers

Whatever you do, NEVER just set line amplifiers for maximum output. Remember – the more transponders you use, the lower output level you have from the amplifier to avoid intermodulation distortion.



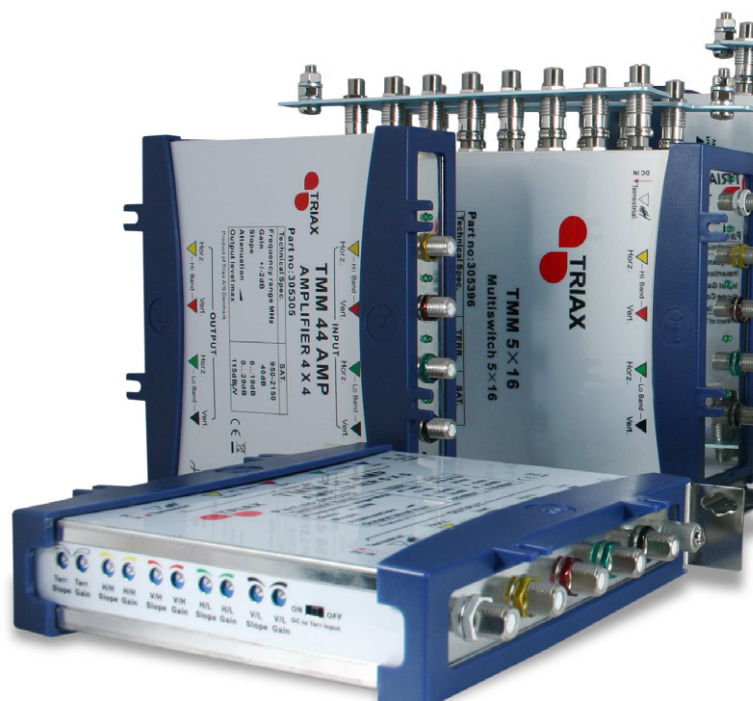
## Keep subscriber drops as short as possible

If using one single multiswitch unit forces you to run excessively long subscriber cables – then you should break it up into more, smaller units and let the trunk take care of the distances.

## Be part of the decision-making team from an early stage

All too often, important decisions are made before the installer is contacted to install a complex multiswitch system.

If you can influence these decisions you are improving your chances of a successful installation.



# "What we mean by..."

## **Azimuth – see (Satellite) Position**

### **13 VDC – selects vertical polarity.**

Your set-top box usually powers your LNB – and when you select a direct current of approximately 13 volts to reach the LNB it automatically receives vertical polarity signals only.

### **18 VDC – selects horizontal polarity.**

Your set-top box usually powers your LNB – and when you select a direct current of approximately 18 volts to reach the LNB it automatically receives horizontal polarity signals only.

### **22 kHz – switches between High or Low Band.**

Lets your set-top box tell your LNB to pick the High Band frequency range whenever 22 kHz is present as switching tone/indicator – and the Low Band when it isn't. For more on this, please see DiSEqC below.

## **Backbone – see Trunk or Cascade**

### **Cascade – a chain of multiswitches.**

You build a cascade when you link two or more multi switches together in a chain – with the first serving as signal source for the next in line. Cables connecting cascaded multiswitches are often called the trunk or backbone.

### **DiSEqC – lets you switch between satellite positions.**

The Digital Sequence Equipment Control, or simply DiSEqC switch, makes it possible for you to receive signals from more than one satellite position. Dependent on how exactly the 22 kHz tone/indicator is transmitted, this switch determines from which satellite position you'll be picking up signals.

### **Dish – collects and focuses satellite signals.**

Transponders on a satellite send out electromagnetic radiation which is then picked up by a satellite dish on Earth. The signal collected by the dish is then reflected to a focal point where the LNB is positioned.

### **Elevation – viewing the satellite at the right angle.**

Specifies the angle of the satellite to the horizon. At the Equator this gives you an elevation of 90 degrees. In Central Germany it's 32. In Denmark 26 – and in Central Sweden 15 and the UK 2 degrees.

### **Footprint – ground area covered by signal.**

The shape and size of an area on Earth where one specific transponder can be received. Footprints vary from simple, circular shapes to highly complex outlines – following geographical shapes on the Earth's surface.

**Headend** - The equipment which follows the dish and aerial array enabling all signals to be processed and launched into the distribution system at the required levels.

**High Band** - Frequencies from a European satellite transponder range between 11.7 and 12.75 GHz.

### **IRS Integrated Reception System**

A TV distribution system which distributes satellite and terrestrial signals to all points.

**Low Band** - Frequencies from a European satellite transponder range between 10.7 and 11.7 GHz.

### **LNB – converting and amplifying high frequencies.**

Satellites transmit signals at high frequencies.

When a band of satellite signals get reflected by a dish they merge in a focal point where the antenna, or Low Noise Block Converter (called LNB or LNC), is placed. The LNB then down-converts and amplifies the signals, effectively placing them in the useful and convenient 950-2150 MHz Satellite IF range.

### **Polarity – using the same frequency twice.**

Most satellite transponders transmit frequencies in both horizontal and vertical directions. The 90 degree difference in radiation angle – called horizontal and vertical polarity – isolates the frequencies from each other and prevents interference. Benefit? You can use the same frequency twice – ultimately doubling the number of TV channels available.

In Europe, High and Low Band frequencies are used. And since both come with horizontal and vertical polarity this means that, in total, a satellite transmits four polarities. In the United States and the Pacific, usually only two-polarity satellites are used.

**(Satellite) Position** – plotting the orbit also known as Azimuth, this is the geostationary position of the satellite orbit relative to Greenwich; which is designated the 'zero position'. Now, counting from zero, you can relate satellites to either a specific east or west position – e.g. Astra 19.2 degrees east or Thor 0.8-1 degrees west.

**Terrestrial** – TV and Radio signals in the frequency range 88-862 MHz transmitted from land based transmitters.

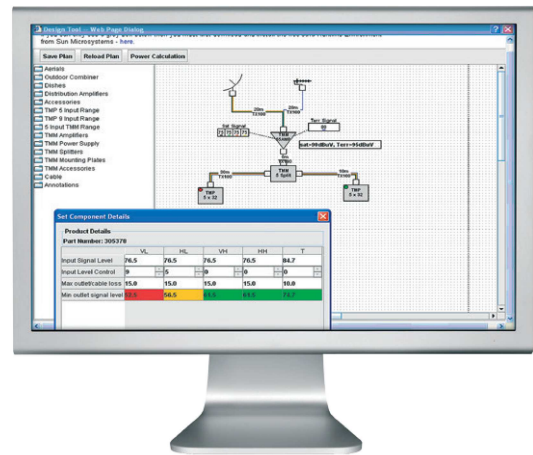
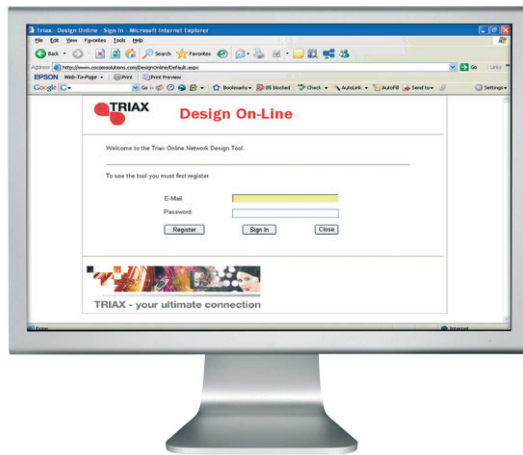
### **Transponder – transmitting electromagnetic radiation.**

Another name for the transmitter antennas on a satellite. Each satellite can have more than fifty transponders – transmitting on individual frequencies.

**Trunk** – cables in a cascade also known as the backbone, the trunk refers to cables running between multiswitches in cascade.

### **Quattro LNB**

Used exclusively with multiswitches, this type of LNB gives you four outputs that are fixed individually to each of the four polarities – i.e. Low Band, horizontal polarity; Low Band, vertical polarity; High Band, horizontal polarity; and High Band, vertical polarity. A Quattro LNB needs four cables, one for each polarity.

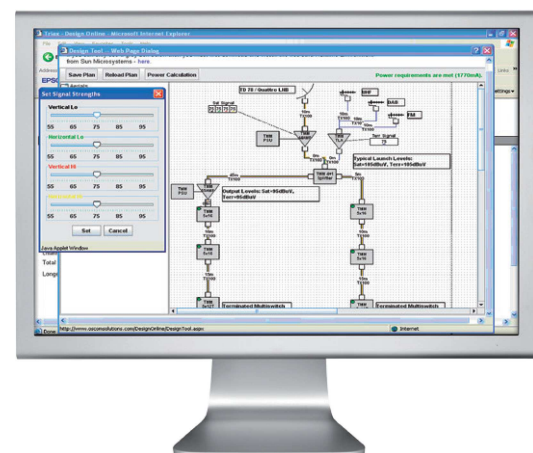


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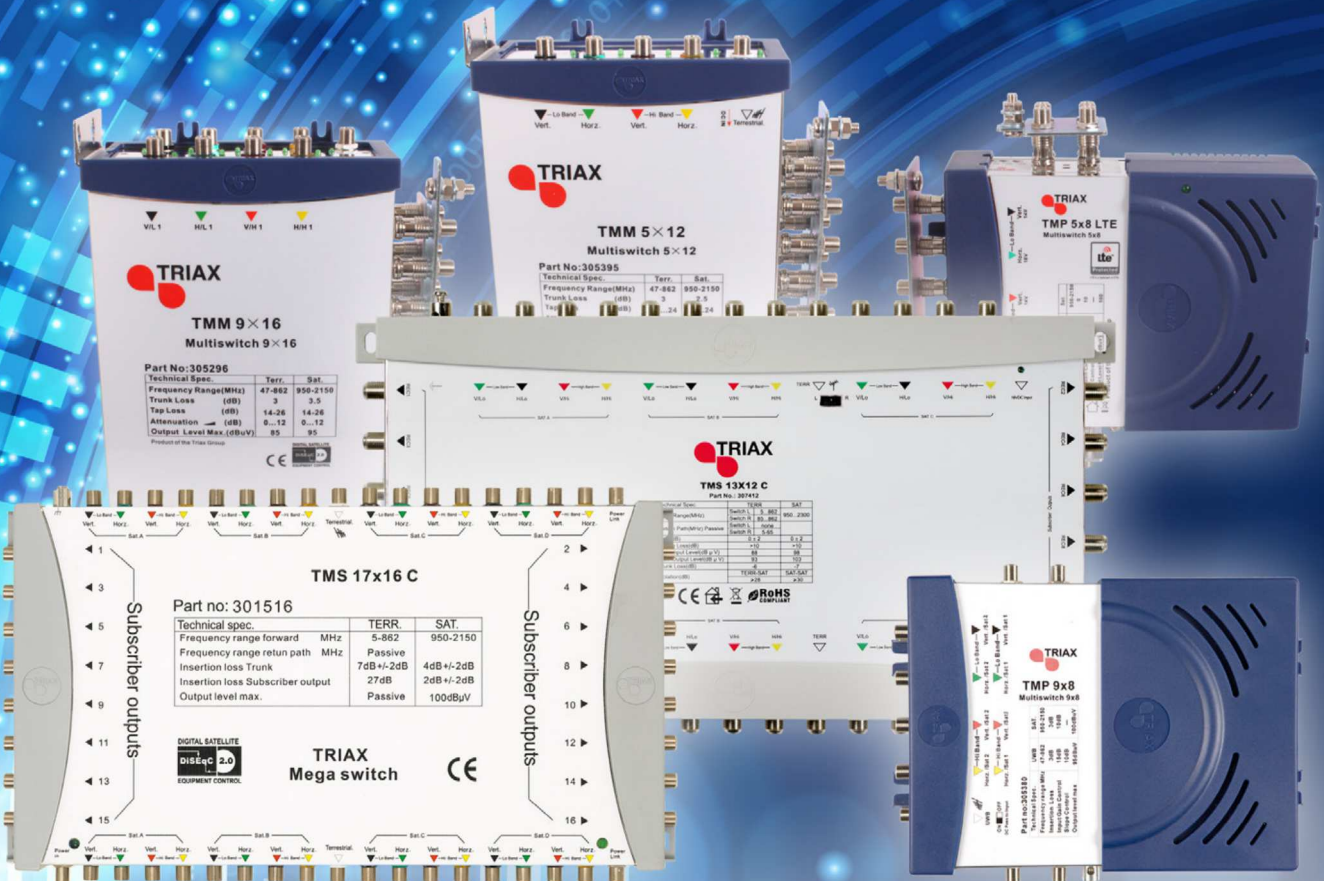
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