

# **Commercial MATV Catalogue**





established 1982

# **Company Profile**

Established in 1982, NAS Australia is a Queensland family owned and operated wholesaler of cutting edge TV reception and custom installation products. We pride ourselves on our ability to deliver the right products at the right price, backed by exceptional pre- & post-sale services. With three decades of industry experience, NAS are the fully qualified experts in the TV reception industry.

Among the pioneers of products and tecniques for reception of analog and subsequently digital satellite television in Australia, NAS has continued to provide leading equipment solutions to the installation trades throughout Australia and the South Pacific region.

NAS remains at the forefront of technologies that deliver digital television and AV services across traditional and new transmission media, including fiber, wireless and IP over coax solutions.





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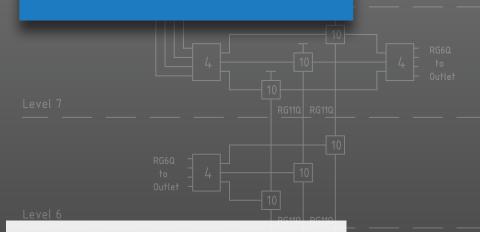
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# **TV Antennas**



# www.signalmax.com.au

It is imperative that the antenna selected for MATV installations is of superior quality and performance. If the signal quality and level received at the 'head' is inadequate, any active redistribution will add noise and subsequently adversely affect picture quality.

When in doubt, select a slightly larger antenna than what you think is required. Antenna performance will deteriorate over the years due to rain, UV, wind and corrosion. Choosing a higher gain antenna will provide your client with reception for a longer period of time.

In addition to gain, always consider antenna directivity. Directivity is the ability of an antenna to intercept signals from only one direction and reject those from other directions. Generally, the higher the directivity, the better the rejection of signals from the sides and rear.

The front-to-back ratio specification of an antenna is helpful when attempting to determine directivity. This ratio indicates an antennas ability to reject signals coming in the rear of the antenna. For example, a front-to-back ratio of 25dB equates to the antenna receiving about 18 times more signal from the front of the antenna instead of through the rear.

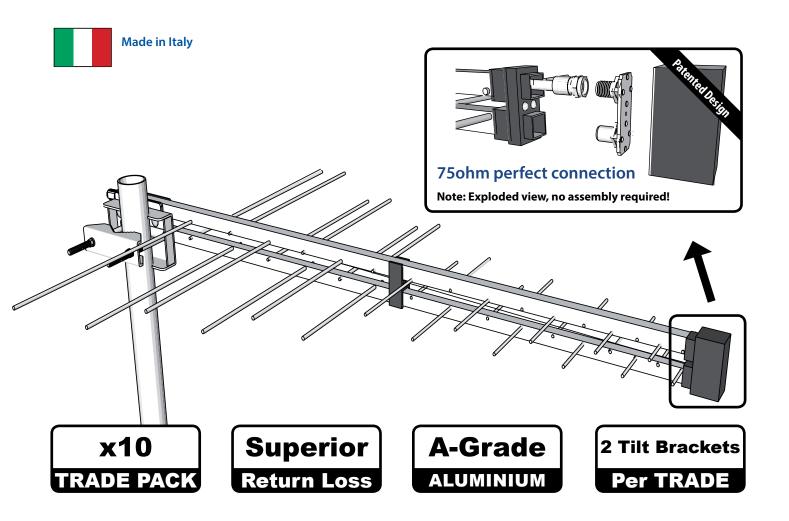
When you choose an antenna for your MATV system, insist on SignalMAX.







ANTLP345SM



#### Key Features

- » 32 element log periodic design
- » 2 x tilt brackets included
- » Horizontal and vertical mounting
- » Flat signal response for Australian channels
- » High efficiency construction and design
- » Machine constructed in Italy
- » A-grade aluminium alloy
- » Dual internal F-terminations

#### Product description

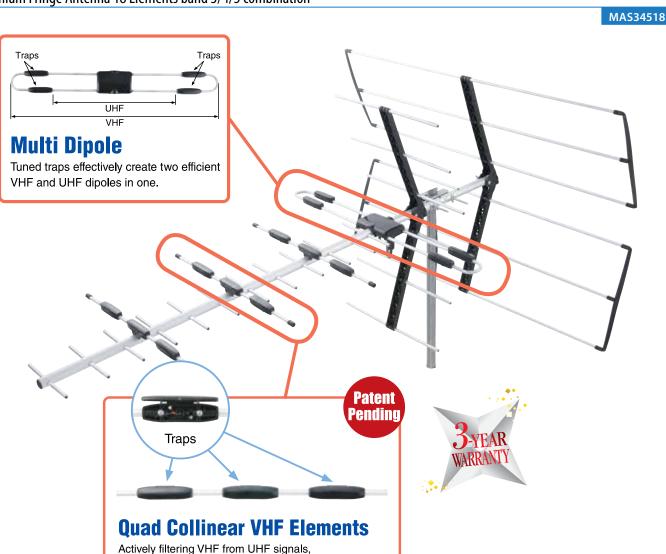
The SignalMAX Professional ANTLP345SM log periodic antenna is the perfect multiband antenna. Made in Italy, using premium grade non-recycled aluminium, on a computer controlled machine with 0.1mm tolerances, SignalMAX delivers the perfect log periodic antenna. High gain and high return loss ensures excellent performance between channels 6 and 69.

The ANTLP345SM features a patented connection system using 75ohm F connections at both ends of the termination, ensuring best-in-class impedance matching and highest return loss, for optimum signal transmission.

Description	Specification
Gain	8 ~ 12dB
F/B Ratio	25dB
Elements	32
Package Dimensions (10 per Carton)	99cm x 112cm x 17cm
Package Contents	Package Contents



# Premium Fringe Antenna 18 Elements band 3/4/5 combination



## Key Features

- » Patented tuned collinear elements for superior performance
- » PCB F-type balun
- » Frequency Range: VHF 174~230MHz | UHF 526~820MHz
- » Gain: VHF 9dBi | UHF 13dBi
- » VSWR: VHF 3 or less | UHF 4.5 or less
- » Impedance: 75ohm
- » F-B Ratio: VHF 20dB | UHF 25dB
- » Half Power Beam Width: VHF 50deg | UHF 25deg
- » Weight: 1.7kg Approx.

## Product description

enhancing antenna efficiency and band separation.

NAS is proud to introduce the Maspro MAS34518, a premium band 3/4~5 antenna, tailor-made for excellent fringe area reception around Australia's capital cities.

The Maspro features VHF and UHF Yagi antennas co-located on the boom using patented coil-tuned collinear elements that behave as perfect VHF and UHF elements simultaneously. This collinear element array, which includes the dipole, intensifies in-band signals and rejects out-of-band signals, while producing no inherent noise of its own.

The MAS34518 also features two corner reflectors (one for UHF and one for Band 3) that help to maximise forward gain and minimise unwanted reflections separately for each band. Gain and front-to-back ratios are impressively flat across the Australian TV bands. The weather boot produces an excellent weather seal without cutting, even with a connector already attached, making head replacements a breeze. And installation is simple, neat and tidy, with the peace of mind of a 3 year warranty against all defects.

# Rhombus shaped antenna

#### **ANTFAGORDIANA**

Rhombus shape antenna that provides superior response in the UHF band. Of rugged construction, this outstanding performer is the ideal signal collector for MATV installations large and small.

#### Application

Specifically designed for Digital and Analogue Band IV & V Terrestrial TV installations.

#### Characteristics

- » Pre-assembled for easy installation
- » The reflector and dipole have been designed for higher front-to-back ratio
- Long-life heavy-duty antenna constructed of aluminium and high-grade "luran" plastic
- » Ergonomic design for a tool-free installation
- Suitable for horizontal or vertical polarised channels, maintaining its water-resistance in any position
- » Accurate matching by 75 0hm PCB "F" type balun with protection cover and weatherboot







Reference	Description
Channels	21 ~ 69
Gain	16 dB
Impedance	75 Ω
Return Losses	15 dB
Front-to-back ratio	25 dB
Horizontal opening angle	33°
Length	1.126 mm
Windload	71 N @ 130 km/h 98 N @ 150 km/h
Units per package	1 set of 6 units
Packing dimensions	760 x 640 x 650 mm
Weight	12 Kg

# V D₩

# ....

RG110

# Mini Phased Array Antenna

# ANTPA1MINI



#### Features

- » F-Type High Performance Balun
- » Stainless Steel screws on connection points
- » Designed and tested for digital/analogue reception
- » Unique compact folding phased array
- » Heavy Duty construction on all components
- » Can be vertically or horizontally mounted
- » UV stabilised plastics

Construction		
Elements	Phased Array	
Performance Characteristics		
Channels	21 ~ 69	
Forward Gain	8-11 dB	
Front-to-Back Ratio	13-16dB	



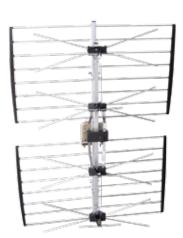




BANDS IV/V

# **Phased Array Antenna**

## ANTPA2GB



#### Features

- » F-Type High Performance Balun
- » Anti-ghosting antenna for outer areas
- » Stainless Steel screws on connection points
- » Designed and tested for digital/analogue reception
- » Unique compact folding phased array
- » Heavy Duty construction on all components
- » Can be vertically or horizontally mounted
- » UV stabilised plastics

Construction	
Elements	Phased Array
Performance Characteristics	
Channels	21 ~ 69
Forward Gain	12 ~ 13.5 dB
Front-to-Back Ratio	16-21dB









BANDS IV/V

# 12 element band 4/5 UHF with "F" PCB balun

#### ANTSMUW12

- » Features
- » ANTSMUW12
- » Band IV /V premium antenna. Includes High performance F-type PCB balun. Snap out reflectors. Elevation/tilt bracket included. Mounted horiz. or vert.

Construction	
Elements	12
Performance Characteristics	
Channels	21 ~ 69
Forward Gain	12.5 dB
Front-to-Back Ratio	>14dB



# 16 element band 4/5 UHF with "F" PCB Balun

# ANTSMX16



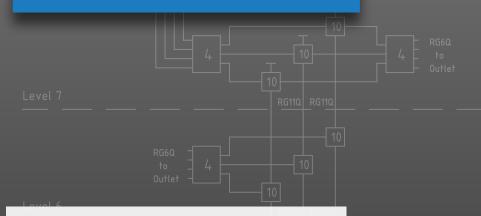
- » ANTSMX16
- » Band IV /V premium antenna. Includes High performance F-type PCB balun. Snap out reflectors. Elevation/tilt bracket included. Mounted horiz. or vert.
- » UHF Forward Gain: 7.5dB F-B Ratio: >20dB

Construction	
Elements	16
Performance Characteristics	
Channels	21 ~ 69
Forward Gain	7.5 dB
Front-to-Back Ratio	>20dB





# **Coaxial Cable**



# www.signalmax.com.au

Coaxial cable is the backbone of any television or satellite reception system. Signal is precious. Don't throw it away! Signal lost from the antenna or dish can only be replaced by amplification, adding noise and reducing signal quality. Poor quality coaxial cable always results in poorer reception.

For digital television signals, cable quality is of even greater importance. RF noise, generated by amplifiers or by external sources like power lines, is the enemy of digital reception. Digital receivers need quality signal. Australian Standards has revised its minimum performance criteria to meet the new digital television requirements. Coaxial cables with air-spaced dielectrics, multi-strand conductors and single or dual-shields no longer meet the minimum requirements of AS1367:2000.

Digital terrestrial signals are susceptible to impulse noise interference. Electrical interference that may result in annoying sparkle patterns in analogue TV may cause even more annoying picture break-up in digital. Single braid or foil and braid are not sufficient to adequately prevent interference.

Always ensure that the cable you choose is right for the job. If the task requires Foxtel approval, ensure that your cable is on the Foxtel Approved List.

SignalMAX quad-shield cable was built to meet high Foxtel specifications. Like many other cables, SignalMAX was not selected to remain on the Foxtel APL. Unlike other cables removed from the list, SignalMAX Professional coaxial cable







# RG6 / RG11 Quad Shield Coaxial Cable

#### SignalMAX RG6 & RG11 Quad Shield Coaxial Cable

NAS Australia is proud to announce the arrival of our SignalMAX professional cable series. The cable is still our dependable, premium quality, Austar approved cable but in a new "professional grade" quality packaging. The packaging consists of plastic coated, double thickness cardboard for water resistance and high durability.

#### Product Description

The reel in box system is a revelation. Reinforced plastic cable exit points on both sides double as study handles. Bound together with strong strapping, these boxes will survive to the last metre of the cable.

On the inside, things are different too. A simplified cable spooling system ensures that cable reels off smoothly, without over-running or tangling. The reel is fully plastic construction secured with steel booker rods, ensuring that it goes the full distance.

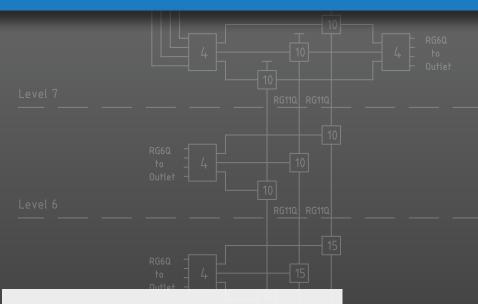
If you prefer to use your own reeler and use wooden reels, SignalMAX Professional has got you covered too. The 305m timber spools are robust and also held together with steel booker rods.

Models	
RG6 305m Super-feed Box	CABRG6QSBP
RG6 305m Timber Spool	CABRG6QS
Dual RG6 152m Timber Spool	CABRG6QSD
RG11 305m Timber Spool	CABRG11QS

For FOXTEL Approved Cable, refer to page 37



# **Single Channel Amplifier Solutions**



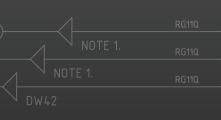


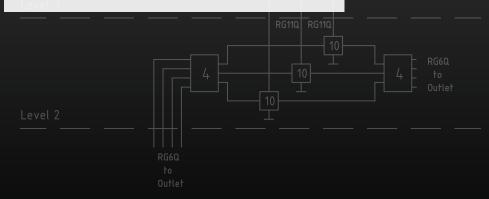
Fagor's Nexum Single Channel Amplifier series has always offered best value for money MATV head end systems. Now Fagor's new Nexum 645 series has gone one better. Nexum 645 modules are fully restack ready, feature AGC and are adjacent channel friendly.

Single Channel Amplifier modules have always provided the most economical means of targeted amplification. Innovative configuration methods mean that Fagor SCA systems are professional quality performers with a "tradie" price tag.

The new Nexum 645 modules are backwards compatible with older Nexum housings, chassis and power supplies and may be used in conjunction with older modules if required.

Combat the coming LTE wireless broadband signals once and for all.







# **Nexum System Single Channel Amplifier**



Reference Channels 06...51 Max. output level 118 IMD3 -35 dBμV Max. COFDM power 115 dBµV Gain 53 dB Manual output 20 dB regulation Automatic input > 30 @ IN > 68 dBuV COFDM regulation Operative input 65...95 dBμV @ OUT max COFDM range 45 @ OUT 75 dBµV; COFDM MER 30 dB Min. input power 7 MHz Bandwith 30 fc N ± 8 MHz / 60 fc N ± 16 MHz / 70 Selectivity fc N  $\pm$  24 MHz Noise figure 9 dB Consumption 125 mA

NEXUM DVB-T/H topology is able to reject LTE services transmitted in adjacent channels to the TV broadcasts; it keeps interference free from the TV channel.

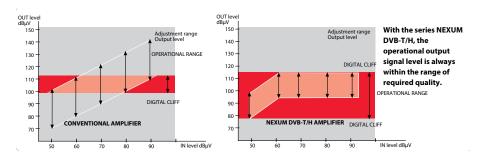
As far as the new LTE services networks are deployed, more transmitters will be operational on the field and the interference level will increase exponentially, especially in the urban areas. (The down link of the LTE services is placed adjacent to the TV

It's in these locations, where the Nexum DVB-T/H gives the optimal performances allowing a high quality of service in a long term scenario.

FGRSCACNEX645

These amplifiers include an internal circuit for evaluating the input power of the channel to achieve an internal energy balance of the system ensuring:

- > The optimal operational Noise Figure for to the incoming antenna level on the reception site.
- > Output signal quality independent of the output level.





Single channel amplifier, suitable for amplifying and filtering of TV signals in MATV headend systems. These amplifiers are perfect for working in adjacent channels.

Medium to large sized community digital and analogue TV installations located in poor reception areas with large differences in levels between channels.

#### Features:

- » Metal chassis integrating the input/output connectors to give the unit greater strength.
- » High shielding degree
- » High reliability and screening factor due to "F" connectors.
- » Modular design that allows channel configuration according to installation needs.
- The use of filters with high "Q" factor inductive lines guarantees a high channel selectivity.
- » Easy to set up due to its system of splitting at input and combining at output.

Reference	NEX 401	NEX 402	NEX 403	NEX 445
Channels	0 ~ 2	FM 87 / 108	6 ~ 12	20 ~ 69
Max. output level (DIN 45004K)	123 dBµV	120 dBμV (DIN B -35dB)	123 dBμV	117 dBμV
Gain	40 dB	38 dB	40 dB	40 dB
Gain adjustment	30 dB	30 dB	30 dB	30 dB
Bandwidth	7 MHz	21 MHz	7 MHz	7 MHz
Selectivity PVN-PAN-1 PAN-PVN+1 PV+20 MHz Return Losses	15 dB 15 dB >70 dB	35 dB @ -14MHz 30 dB @ +14MHz 9 dB	14 dB 14 dB 70 dB 9 dB	20 dB 20 dB >70 dB 9 dB
Noise Figures	11 dB	4 dB	11 dB	11 dB
Current Down (24 VDC)	90 mA	65 mA	105 mA	65 mA
Input-Output impedance	75 Ω	75 Ω	75 Ω	75 Ω
Input-Output connectors	F	F	F	F
Packing dimensions	195 x 70 x 32 mm	195 x 70 x 32 mm	195 x 70 x 32 mm	195 x 70 x 32 mm
Weight	.45 Kg	.45 Kg	.45 Kg	.45 Kg

## Power supply for Nexum single channel amplifier series



#### Characteristics

- » Designed using switching techniques that achieves high performance and minimal losses
- » Zamak chassis with metal covers
- » High shielding degree
- Overload protection
- Complies with the UNE EN 50083-1; UNE EN 50083-2 standard.

#### FGRSCASPS523

Reference	SPS523
Input Voltage	198 ~ 264 V AC
Output Voltage	24 ± 5% V AC
Consumption (55W output)	70 VA
Max. current output	2.3 A
Operating temperature range	0 - 50 °C
Packing dimensions	205 x 70 x 80 mm
Weight	.75 Kg

**FGRSCACAPITAL** 

# **Nexum Series Single Channel Amplifiers**

# Capital city single channel amplifier system

Capital City single channel amplifier system, suitable for amplifying and filtering TV signals in MATV headend systems. These amplifiers are an ideal adjacent channel solution.

## Application

Medium to large MATV digital and analogue installations where there are large differences in the level of channels received.





#### Technical Specifications

Reference	Specification
Input Voltage	198 ~ 264 V AC
Output Voltage	24 ± 5% V AC
Consumption (55W output)	70 A
Max. current output	2.3 A
Operating temperature range	0 - 50 ℃
Packing dimensions	205 x 70 x 80 mm
Weight	.75 Kg

## 6 / 12 / 18 Module Housings



Housing designed for the installation and protection of the Nexum series single channel amplifiers. This housing is lockable and fits the 18 module frame.

Models	Specification
FGRACCCFRN56V	12 mod. + power supply or 8 modules SCM 6000
FGRSCAACCCFRN06	Housing for 1x6 Nexum
FGRSCAACCCFRN12	Housing for 1x12 Nexum
FGRSCAACCCFRN118	Housing for 1x 18 Nexum

# **Coaxial Bridge**

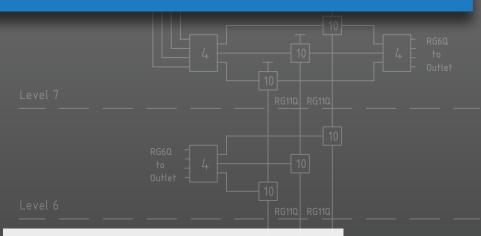


75 Ohm F-F Coaxial Bridge

Rigid 75 Ohm coaxial bridge for splitting or combining RF signals.

FGRSCAACCPMDFF

# **Signal Processing Solutions**



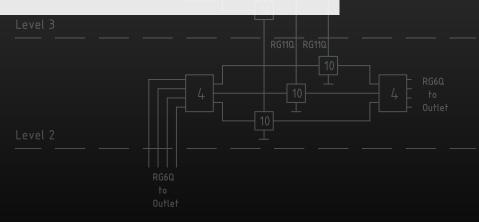




Large MATV installations are a challenge to get right. Long cable runs and cascades of active and passive components always threaten to compromise your signal quality. So it a crucial to start with the highest possible Carrier/Noise ratios at the head end. Signal Processing head end systems filter signals using programmable double-sawtooth filtering methods, ensuring the highest possible SNR and MER outputs. Signal Processors feature Automatic Gain Control (AGC) for output level stability. Signal Processors move the channel from its input frequency and process it at an intermediate frequency, allowing noise to be removed from the output channel slot, whether it's the original or new channel position.

Signal Processors allow for complete flexibility in programming, also allowing setups to be saved remotely. Most allow programming via PC as well as a local control interface. Some signal processors may even rebuild digital signals to regain quality lost by poor reception or degradation from a complex cable system.





Level

# Kingray



Kingray TV signal distribution products have been the unwavering choice of the TV installation industry virtually from the advent of Television services in Australia. For over 50 years Kingray amplifiers, converters and modulators have consistently delivered crystal clear, interference free TV reception across the country and more recently across the Asia Pacific region.

Today as we witness a growing convergence of 'Free to Air' television, subscription services, 'pay per view' and Internet delivery techniques; Kingray remains at the forefront of this technological evolution with cost effective, pragmatic solutions to both terrestrial and satellite based signal distribution methodologies.

The new Kingray Professional Series sets a new standard in Headend equipment, engineered from the ground up to meet the exacting demands of system designers, carriers and regulators in both Australia and around the world.

At the heart of a Kingray Professional Series installation lies the KR-110 19" rack with its KLA-110 40 dB Launch Amplifier and low noise power supply; to ensure total system flexibility, up to 10 KCC-110 Channel Converters/Processors, 10 KVM-110 Stereo Vestigial Modulators or a combination of either maybe mounted.

Ease of Installation, commissioning, and functionality were prime considerations during the development phase of the

Kingray Professional Series, practical solutions like the simple daisy chain signal couplers, LED status indicators, upgradeable firmware and PC based calibration reflect the no-nonsense innovation incorporated in this remarkable product range.

To add further to the Kingray Professional Series flexibility particularly in smaller systems where a 'stand alone' processor or modulator, individual modules may be powered with a standard Kingray PSK24 power supply.

The Kingray Professional Series is proudly manufactured in Australiaand is accompanied by a comprehensive 3 year warranty.

# **Kingray Professional Series Processors**

#### KCC-110 Channel Converter/Processor



it is capable of adjacent channel operation on both input and output.

#### KCC-110 Features

- » Superior adjacent channel performance due to double saw filtering.
- » Very high MER level, up to 36 dB\*
- » Input AGC circuitry
- » High linearity and low phase noise
- Adjustable output power level control
- Resolution 125 kHz steps
- Adjustable bandwidth
- » Stand Alone or 19" rack mountable
- Programmable via any computer with an Ethernet
- Programmable via USB when using as a 'stand alone' module.
- » Remote control capability via KLA-110 with in a VPN
- » Precision engineered die-cast housing

#### KCC-110

KVM-110

Reference  Input frequency range 44 – 862 MHz  Output frequency range 44 – 862 MHz  Frequency resolution 0.125 MHz  Input / output channel and selectable)  Channel bandwidth 7/8 MHz  Output S/N and spurious >55 dB  65 – 95 dBµV  Input level range 80 dBµV optimum analogue 60 dBµV optimum digital  AGC range 30 dB Min. automatic  Output level adjustment 60-80 dBµV  Phase noise <a href="#">-85 dBC/Hz at 10 kHz, &lt; -103 dBC/Hz at 100 kHz</a> Monitor output -30 dB  Green - Within range, Amber - Low level, Red - Excessive level		
Output frequency range 44 – 862 MHz  Frequency resolution 0.125 MHz Input / output channel selectable) Channel bandwidth 7/8 MHz  Output S/N and spurious >55 dB 65 – 95 dBµV Input level range 80 dBµV optimum analogue 60 dBµV optimum digital  AGC range 30 dB Min. automatic  Output level adjustment 60-80 dBµV Phase noise <80 dBc/Hz at 10 kHz, <103 dBc/Hz at 100 kHz Monitor output 30 dB Min. automatic  Green - Within range, Amber - Low level, Red - Excessive	Reference	
Frequency resolution 0.125 MHz Input / output channel by frequency (software selectable) Channel bandwidth 7/8 MHz Output S/N and spurious >55 dB 65 – 95 dBµV Input level range 80 dBµV optimum analogue 60 dBµV optimum digital AGC range 30 dB Min. automatic Output level adjustment 60-80 dBµV Phase noise <80 dBc/Hz at 10 kHz, <103 dBC/Hz at 100 kHz Monitor output -30 dB Green - Within range, Amber - Low level, Red - Excessive	Input frequency range	44 – 862 MHz
Input / output channel naming   By frequency (software selectable)	Output frequency range	44 – 862 MHz
naming         sélectable)           Channel bandwidth         7/8 MHz           Output S/N and spurious         >55 dB           65 – 95 dBµV           Input level range         80 dBµV optimum analogue 60 dBµV optimum digital           AGC range         30 dB Min. automatic           Output level adjustment         60-80 dBµV           Phase noise         <-85 dBC/Hz at 10 kHz, <-103 dBC/Hz at 100 kHz	Frequency resolution	0.125 MHz
Output S/N and spurious         >55 dB           65 - 95 dBµV         80 dBµV optimum analogue 60 dBµV optimum digital           AGC range         30 dB Min. automatic           Output level adjustment         60-80 dBµV           Phase noise         <85 dBC/Hz at 10 kHz, < 103 dBC/Hz at 100 kHz		
65 - 95 dBμV	Channel bandwidth	7/8 MHz
Input level range 80 dBµV optimum analogue 60 dBµV optimum digital AGC range 30 dB Min. automatic  Output level adjustment 60-80 dBµV  Phase noise <85 dBC/Hz at 10 kHz, <103 dBC/Hz at 100 kHz  Monitor output -30 dB  Green - Within range, Amber - Low level, Red - Excessive	Output S/N and spurious	>55 dB
Output level adjustment         60-80 dBµV           Phase noise         <-85 dBC/Hz at 10 kHz,	Input level range	80 dBμV optimum analogue
Phase noise         <-85 dBC/Hz at 10 kHz,	AGC range	30 dB Min. automatic
Phase noise         <-103 dBC/Hz at 100 kHz	Output level adjustment	60-80 dBμV
Green - Within range, Amber - Low level, Red - Excessive	Phase noise	
AGC LED - Low level, Red - Excessive	Monitor output	-30 dB
	AGC LED	- Low level, Red - Excessive
Supply voltage 24 V DC	Supply voltage	24 V DC
Power consumption 12 W MAX	Power consumption	12 W MAX
Operating temperature range 0 to 55° C	Operating temperature range	0 to 55° C
RF shielding >70 dB	RF shielding	>70 dB

#### Stereo VSB Modulator



The KVM-110 is an agile Vestigial Side Band A2 Stereo Television PAL B/G Modulator capable of producing an analogue television channel between 44 - 862 MHz. The KVM-110 accepts a composite video signal (AV) at the input via RCA connectors. Being Vestigial Sideband, the KVM-110 maintains spectrum efficiency by allowing

Harmonic filtering is used to remove unwanted signals that are produced when modulating. When you select a frequency to modulate on to, e.g. channel 0 (46.25 MHz), the first harmonic appears at 92.5 MHz and the second harmonic will appear

adjacent channel operation.

at 185 MHz. These harmonics can interfere with other frequencies that are already in these bands, such as FM and band 3 when combined with the modulator if there is no filtering present.

- » One model covers 44 MHz to 862 MHz
- » Resolution 125 kHz steps
- » Adjustable output level
- » Vestigial sideband (7 MHz bandwidth)
- » Adjacent channel capability
- » Rack mountable
- 'Stand alone' or 19" rack mount
- » Programmable via any computer withan Ethernet
- Programmable via USB when using as a 'stand alone' module.
- **Group Delay Correction**
- Remote control capability via KLA-110
- » Stereo sound
- » Harmonic filtering
- » Precision engineered die-cast housing
- » Harmonic Filtering

The Group Delay correction circuitry ensures the Chrominance and Luminance are synchronised. With the ever increasing size of flat panel televisions, Group Delay is of paramount importance to maintain a crisp sharp picture.

The KVM-110 has the ability to automatically adjust the video signal level to maximise picture quality independently of the input video level.

Reference	
Output frequency range	44 – 862 MHz
Frequency resolution	0.125 MHz
Input/output channel naming	By frequency (software selectable)
RF output level	60-80 dBµV
Spurious output level	<-55 dBC
Video system	PAL B/G
Audio system	Stereo A2
Audio carrier level	Adjustable -10 to -20 dB relative to video carrier.
Video input level	0.5-2 V p-p, AGC controlled
Video input connector	RCA 75Ω
Audio input level	0.2 - 2  V p-p (impedance >10K) Factory set to 1 V p-p
Audio connector	RCA
Audio frequency response	30 Hz – 14.5 kHz each channel @ -3 dB
Supply voltage	24 V DC
Power consumption	8 W MAX
RF shielding	>70 dB

# **Kingray Professional Series Processors**

# **Launch Amplifier and Power Supply**

KLA-110



The unique design of the KLA-110 incorporates a Launch Amplifier, Power Supply and Programming Interface. Designed to be mounted in the middle of the KR-110. The power supply is designed to power 10 modules, it can also provide external power to a masthead or preamp if required.

#### KCC-110 Features

- » High output
- » Low noise figure
- » Low insertion loss, input separator / output combiner
- » Adjustable output level
- » Adjustable gain
- » -30 dB test point
- » Wide bandwidth 44 MHz to 862 MHz
- » Embedded web based program
- » Efficient low noise switch mode power supply

#### Specifications - Distribution Amplifier

Reference	
Input frequency range	44 – 862 MHz
Output frequency range	44 – 862 MHz
Output S/N and spurious	>55 dB
Maximum input level	95 dBµV
Maximum output level	118 dBμV* @ -60 dB IMR (DIN45004B)
Noise figure	<2 dB (After combiner)
Monitor output	-30 dB
RF Input / output level monitor	Via USB on power supply unit
Supply voltage	24 V DC
Power consumption	5 W MAX
Operating temperature range	0 to 55° C
RF shielding	>70 dB
* 2 channel input non adjacent	

#### Specifications - Power Supply

Reference	
Operating voltage	110 to 240 V AC, 50/60 Hz
Supply voltage	24 V DC
Stability	+/- 100 mV
Power capability	150 W MAX
Operating temperature range	0 to 55° C
RF shielding	>70 dB
Power lead Standard 3 pin IEC power cable	

## **Accessories and Spares**



Description	Stockcode
KLA-110 power cord 240V	KLE02
RF links for modules	KLE03
KR-110 Rack screw pack	SCREWPK
Power/data bus cable	KLE04
RF link support bracket	KSB01
USB connector label	KSB01



Grundig Sat Systems (GSS) design and manufacture their digital television processing systems at their headquarters in Nuremberg, Germany. NAS Australia proudly distributes GSS digital RF processing and modulating equipment in Australasia. All GSS (standard and professional range) modules are designed along standardised principles.

Modules (or cassettes) slip into single RU housings (PST19-1) or 9RU multi-cassette stations (STC19-8) that house 8 modules. Each module is designed around a dual chip architechture allowing most modules to run two inputs and two outputs independently. Control is via an RS-232 based controller or optionally via an ethernet to RS-232 adaptor.

# Module 19" Rack/Wall/Shelf system

#### GSSSTC816



Product is chassis only, modules not included

#### Features

- » Slots for 8 cassettes.
- » Output level max. 100 dB $\mu$ V.
- » Suitable for all digital, analogue and radio cassettes.
- » Simple software adaptation for control unit (BE-REMOTE) possible via RS-232 socket.
- » Electronical level adjustment via BE-REMOTE.
- » Suitable for wall mounting and mounting in 19" rack.

Reference	
No. of slots for cassettes	8
Delivery status	unloaded
Fit for adjacent channels	yes
Input/output impedance/Programming	75 Ω/Integrated Control Unit/ BE-REMOTE
S/N weighted	55 dB
Input data	
Input frequency range	47 - 862 MHz, 950 - 2150 MHz
Input distributor/Input level	2 pieces with 4 and 6 outputs each
Power feed for LNB	18 V/1000 mA
Output data	
RF output level/RF attenuation	max. 100 dBμV / - 31 dB (electronic)
Output frequency range dependent upon cassettes	47 - 862 MHz
Power supply	
Mains voltage / Frequency	195 - 260 V AC / 50/60 Hz
Power consumption	
equipped with 8 x HDM 2380 P CI	97 W
equipped with 8 x HDTV 1000 ASI LAN	90 W
Weight (fully loaded)	approx. 20 kg
Dimensions (W x H x D)	approx. 48.3 (19") x 39.7 (9 HU) x 30.2 cm

# GSSPST19-1



Reference	
No. of slots for cassettes	1
Fit for adjacent channels	yes
Input/output impedance	75 Ω
Programming	GSSBE-REMOTE (not included)
S/N weighted	55 dB
Input frequency range	47 – 862 MHz, 950 – 2150 MHz
RF output level	max. 80 dBμV
Output frequency range	42 - 860 MHz
dependent upon cassettes	47 – 862 MHz
Mains voltage/Frequency 50/60 Hz	12 V DC via wall power supply unit
Power consumption max.	approx. 20 W
Weight (fully loaded)	approx. 3.3 kg
Dimensions (W x H x D)	approx. 48.2 (19") x 35.5 (8 HU) x 25.4 cm

# COFDM to CODFM Digital Processing module

# GSSHDMT1290

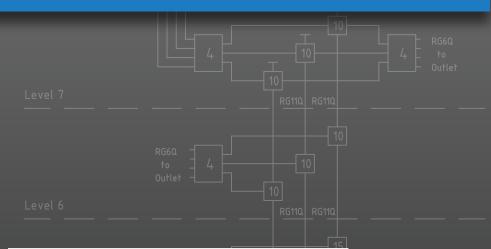


Conversion from Digital Terrestrial to Digital Terrestrial (COFDM – COFDM)

Terrestrial cassette for conversion of two terrestrial digital signals into two freely selectable channels in the frequency range 42 - 860 MHz.

Reference	
No. of inputs	2
No. of converted multiplexes	2
Input frequency range	177.5 ~ 226.5 MHz (VHF) 467 ~ 858 MHz (UHF)
Input symbol rate	acc. to EN 300 744
Modulation scheme	QPSK, 16-QAM and 64-QAM
No. of carriers	2k, 4k and 8k
Guard Interval	1/4, 1/8, 1/16 and 1/32
Output frequency range	42 - 860 MHz

# **Digital Modulation Solutions**





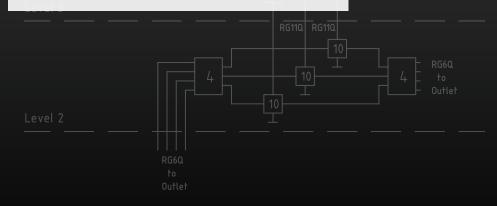
Grundig SAT Systems

As analog broadcast television signals go the way of the dinosaurs, it is becoming more common to replace analog in-house video channels with digital versions. Soon TVs won't have analog tuners at all. Digital modulators can replace analog modulators and provide better quality using less channel space.

Modulators can be part of a system or stand alone. They can have separate encoder and modulator sections or be fully integrated. They can be full digital processing systems that turn all inputs into digital transport streams and then output to any or many different outputs. Some are capable of outputting IPTV transport streams. Some can take digital video inputs and convert them and others take analog video inputs and convert them.

Make sure to encode and modulate in the highest quality possible and then choose your output needs subsequently.





Level

## Module 19" Rack/Wall/Shelf system - see page 20

Refer to page 20 for details of 19" Chassis

GSSSTC816

## VB-S2/ASI to IP (SPTS) Transmodulator



Converts two digital HDTV satellite signals (DVB-S2) to 16 x SPTS in Unicast or Multicast modulated data streams. ASI input and an ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

Common Interface (CI) allows encrypted signals to be decoded. Up to 12 channels can be decoded with the smartcard of the provider depending on the Conditional Access Module (CAM). The integrated TPS module serves for data processing of the demodulated transport stream: This allows service information to be changed (NIT – Network Information Table) data rates increased (stuffing) and individual programs to be deleted from the transport stream, whereby the remaining channels can then be transmitted with bandwidth optimization. Moreover, the Operator ID can be set.

#### GSSHDTV1000SPTS

Reference	
No. of inputs	2
No. of converted transponders	2
Input frequency range	950 – 2150 MHz
DVB-S Modes (QPSK)	1/2, 2/3, 3/4, 5/6, 7/8
DVB-S2 Modes (QPSK)	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
DVB-S2 Modes (8PSK)	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Symbol Rate DVB-S (QPSK)	1 – 45 MSymb/s
Symbol Rate DVB-S2 (QPSK)	1 – 45 MSymb/s
Symbol Rate DVB-S2 (8PSK)	1 – 45 MSymb/s
Ethernet Interface Standard Data rate Protocols	100-BASE-T ≤ 80 Mbit/s UDP (User Data Protocol) RTP (Real-Time Transport Protocol)
ASI in / ASI out interfaces	•
Common Interface	
TPS Module	
Software download	via RS-232

## DVB-S2/ASI to IP (MPTS) Transmodulator



Converts two digital HDTV satellite signals (DVB-S2) to two Multicast modulated data streams. ASI input and an ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

Common Interface (CI) allows encrypted signals to be decoded. Up to 12 channels can be decoded with the smartcard of the provider depending on the Conditional Access Module (CAM). The integrated TPS module serves for data processing of the demodulated transport stream: This allows service information to be changed (NIT – Network Information Table) data rates increased (stuffing) and individual programs to be deleted from the transport stream, whereby the remaining channels can then be transmitted with bandwidth optimization. Moreover, the Operator ID can be set.

#### **GSSHDTV1000MPTS**

Reference	
No. of inputs	2
No. of converted transponders	2
Input frequency range	950 – 2150 MHz
DVB-S Modes (QPSK)	1/2, 2/3, 3/4, 5/6, 7/8
DVB-S2 Modes (QPSK)	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
DVB-S2 Modes (8PSK)	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Symbol Rate DVB-S (QPSK)	1 – 45 MSymb/s
Symbol Rate DVB-S2 (QPSK)	1 – 45 MSymb/s
Symbol Rate DVB-S2 (8PSK)	1 – 45 MSymb/s
Ethernet Interface Standard Data rate Protocols	100-BASE-T ≤ 80 Mbit/s UDP (User Data Protocol) RTP (Real-Time Transport Protocol)
ASI in / ASI out interfaces	•
Common Interface	
TPS Module	•
Software download	via RS-232

# IP (SPTS) to COFDM Transmodulator



This cassette processes up to 8 transport streams delivered via IP (SPTS) or ASI and converts into 2 freely selectable COFDM channels. Interfaces include ASI input and ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

SPTS program streams can be derived from other modules including HSMS100 to create COFDM digital channels from IP multicast services. A Common Interface (CI) allows encrypted signals to be decoded. The integrated TPS module serves for data processing of the demodulated transport stream: This allows service information to be changed (NIT – Network Information Table) data rates increased (stuffing) and individual programs to be deleted from the transport stream, whereby the remaining channels can then be transmitted with bandwidth optimization. Moreover, the Operator ID can be set.

#### GSSHSPT1000T

Reference	
No. of inputs	100-BASE-T, ≤ 80 Mbit/s
No. of converted multiplexes	2
Output frequency range	42 ~ 860 MHz
Input symbol rate	acc. to EN 300 744
Modulation scheme	QPSK, 16-QAM and 64-QAM
No. of carriers	2k, 4k and 8k
Code Rate	1/2, 2/3, 3/4, 5/6 and 7/8
Guard Interval	1/4, 1/8, 1/16 and 1/32
Software download	via RS-232

# PTV Multicast Stream Server





#### Features

- » 2x GbE-interfaces, selectable
- » 2x USB 2.0 interfaces
- » VGA monitor port
- » UDP / RTP protocol for multicast services
- » Swappable drive bay for 2x SSD (SATA-2) HDD
- » Up to 8x SD or 4x HD streams simultaneously

# **GSS Digital Modulation**

#### DVB-S2/ASI to COFDM Transmodulator



Cassette has ASI input and ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

A Common Interface (CI) allows encrypted signals to be decoded. Up to 12 channels can be decoded with the smartcard of the provider depending on the Conditional Access Module (CAM). The integrated TPS module serves for data processing of the demodulated transport stream: This allows service information to be changed (NIT - Network Information Table) data rates increased (stuffing) and individual programs to be deleted from the transport stream, whereby the remaining channels can then be transmitted with bandwidth optimization. Moreover, the Operator ID can be set.

#### **GSSHDTV1000T**

Reference		
No. of inputs	2 Satellite + 1 ASI (serial digital)	
IF (Sat) Input frequency range	950 – 2150 MHz	
DVB-T Modes	2k, 4k and 8k	
Modulation Scheme	QPSK, 16-QAM or 64-QAM	
Guard Interval	1/4, 1/8, 1/16 and 1/32	
ASI in / ASI out interfaces	In + Out	
Ethernet interface	Yes	
Common Interface	1 CI Cam Slot	
Software download	via RS-232	
Output frequency range	42 - 860 MHz	

# V/S-Video to ASI/IP MPEG2 Dual Channel Encoder



Converts two analogue video and audio signals into two MPEG2 data streams. These data streams are outputted at the ASI interface or LAN (IPTV) interface.

Stream generated to ISO/IEC 13818-2 at an 8-bit wide TS interface with clock and frame sync signal with data rates between 2 MBit/s and 15 Mbit/s. The data rate of the audio channel is between 192 kbit/s and 384 kbit/s and supports the following sound modes: stereo, joint stereo, mono and dual.

Transport stream can be SPTS or MPTS in UDP (User Data Protocol) format or RTP (Real-Time Data Protocol).

The transport stream (ASI/SPTS/MPTS) contains all service IDs necessary for reception with a DVB receiver unit (e.g. set-top box).

# GSSHDE210

Reference	
No. of inputs	2 x CVBS / 2 x S-Video
Transport Stream	MPEG-2 (ISO/IEC 13818-1)
ASI Input / Output	BNC 75 ohm / BNC 75 ohm
ASI Maximum Data Rate	108 Mb/s
Available Data Rate	2 ~ 90 Mb/s
LAN	10/100/1000 Mb/s
IP Transport Stream	SPTS/MPTS
IP Protocols	UDP / RTP
Control Interface	RS232
Output frequency range	42 - 860 MHz

## COFDM/ASI to CODFM Digital Re-coding module



Converts two digital terrestrial signals (COFDM) to two freely selectable channels in the frequency range 42 - 860 MHz. ASI input and ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

Common Interface (CI). allows encrypted signals to be decoded. Up to 12 channels can be decoded with the smartcard of the provider depending on the Conditional Access Module (CAM). The integrated TPS module serves for data processing of the demodulated transport stream: This allows service information to be changed (NIT – Network Information Table) data rates increased (stuffing) and individual programs to be deleted from the transport stream, whereby the remaining channels can then be transmitted with bandwidth optimization. Moreover, the Operator ID can be set.

#### GSSHDMT1000T

Specifications	
No. of inputs	2
No. of loop-through outputs	2
No. of converted multiplexes	2
Input frequency range	177.5 - 226.5 MHz (VHF) 474 - 858 MHz (UHF)
Input symbol rate	acc. to EN 300 744
Modulation scheme	QPSK, 16-QAM and 64-QAM
No. of carriers	2 k, 4 k and 8 k
Guard interval	1/4, 1/8, 1/16 and 1/32
ASI in / ASI out interfaces	
Ethernet interface	
Common Interface	
TPS Module	
Output frequency range	42 - 860 MHz

## COFDM (SD) to PAL Transmodulator



Stereo Terrestrial or Cable Double Reception Cassette from Digital Terrestrial or Digital Cable to PAL in CCIR standard (COFDM or QAM - PAL)

This double cassette transcodes two COFDM or QAM signals into two selectable PAL channels in the frequency range 45 - 862 MHz. Encrypted TV channels can also be converted with the appropriate CA module via the common interface. The WSS setting allows 16:9 channels to be viewed with the correct picture format. VPS and PDC signals and teletext information are also converted. DVB and teletext subtitles can be displayed. When radio stations are converted, the name of the radio station as well as the now and next information are displayed on the screen.

## GSSHDMT2180PCI

Reference	
2	2 x CVBS / 2 x S-Video
2	MPEG-2 (ISO/IEC 13818-1)
177.5 ~ 226.5 MHz (VHF) 467 ~ 858 MHz (UHF)	BNC 75 ohm / BNC 75 ohm
acc. to EN 300 744	108 Mb/s
2k, 8k	2 ~ 90 Mb/s
via RS-232	10/100/1000 Mb/s
C 02 ~ C04, C05 ~ C12, S 03 ~ S41, C 21 ~ C69	SPTS/MPTS 42 - 860 MHz

#### **ASI Multiplexer**



Multiplexing from 5 ASI transport streams to 1 ASI transport stream

This cassette is a 5 to 1 multiplexer. It converts 5 ASI / SPTS / MPTS input channels to 1 ASI / MPTS output channel. Every input channel is equipped (selectable) with an ASI input and a LAN interface (1 input (IPTV) address).

# GSSHADA5100

The inputed data streams are individually edited and are combined to one data stream with the TPS module. The output of this data stream is at the ASI or LAN interface (1 output (IPTV) address).

This cassette can be allocated an own hardware IP address for the operation in a LAN network. Software update can be done via the RS-232 interface.



The GSSRCU1 unit is a standard RS-232 controller for German head end MATV equipment. The controller is built in to GSSSTR19-8 and GSSSTC316. It is available separately to control individual cassettes

loaded into the GSSPST19-1. All functions are accessible. It is also controllable itself by a local or remote RS-232 software controller.

# **Ethernet to Serial Controller**





SNMP capable management interface (LAN); connection with a LAN router via DSL as standard

Enquiry and controlling of the most important parameters and device data via remote control with the GUI of the head-end station software PSW 1000

Non volatile storage of the configuration data (back-up storage) of every channel with the remote PC

Software update via ftp connection

Failure signalling and transferring of error messages

Error messages via email

Graphical user interface / simulation of the control unit optimised for PDAs

Time-controlled switching on and off of the cassettes

Automatic monitoring of level-, bit error rate-, RDS- and line synchronous pulse with HSCU 6000

# COFDM/ASI to IP (SPTS) Transmodulator

# GSSHDMT1000SPTS



Converts two digital terrestrial signals (DVB-T) to 16 x SPTS in Unicast or Multicast modulated data streams. ASI input and an ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

Common Interface (CI). allows encrypted signals to be decoded. Up to 12 channels can be decoded with the smartcard of the provider depending on the Conditional Access Module (CAM). The integrated TPS module serves for data processing of the demodulated transport stream: This allows service information to be changed (NIT – Network Information Table) data rates increased (stuffing) and individual programs to be deleted from the transport stream, whereby the remaining channels can then be transmitted with bandwidth optimization. Moreover, the Operator ID can be set.

Reference	
finputs	2
No. of converted multiplexes	2
Input frequency range	177.5 - 226.5 MHz & 474 - 858 MHz
No. of carriers of input	2 k and 8 k
Input Symbol Rate	according to EN 300 744
Ethernet Interface	100-BASE-T, ≤ 80 Mbit/s, UDP (User Data Protocol), RTP (Real-Time Transport Protocol)
ASI in / ASI out interfaces	
Common Interface	
TPS Module	
Software download	via RS-232





Forget everything you know about headends. With TRIAX TDX you move into a completely new world. TRIAX's revolutionary IP Pool technology simplifies the setting up and handling of headends. This technology makes the input and output modules mutually independent. All input signals, regardless of whether they are received via satellite, terrestrial, cable, audio/video or via the Internet, can be flexibly and independently distributed from a "pool" to each and every output module. Each of these input signals can be converted to any output signal: PAL, QAM, COFDM or IP, and because the input signals are not fixed to any particular outputs, an input signal can be assigned to several output modules. It's that simple.



## TDX

The IP-based headend solution made for the future.

Invest in technology that meets the requirements of tomorrow, and still makes it possible to take any type of input signals received from satellite, terrestrial, cable, AV, HDMI or via the Internet, and convert them to any type of output signal - so put your money in a system that merges the highest level of efficiency with reliability, and benefit from the advantages provided by one of Europe's largest manufacturers of headends. With TRIAX you can always rely on fast customised assistance and consultancy for tendering, planning, installation, configuration and maintenance.

## TRIAX TDX IP-Pool technology:

Immerse yourself in tomorrow's technology In close collaboration with planners, installers and operators, TRIAX has developed a new headend technology that is orientated towards the needs of users. The new TRIAX TDX IP-Pool technology allows the customers to assign the input and output signals freely. The classical module assignment of input demodulator and output modulator is no longer given. All incoming signals initially enter the IP-Pool. As a result, this technology allows an unlimited possibility to multiplex the services for each output modulation and to use simultaneously one service for different modulation types. All assignments between input to output signals can be readily changed at any time. This makes TDX uniquely flexible, efficient and economical.

# **Kingray TRIAX Digital Modulation**

#### Energy friendly - long-term reliability

- » 16 tuners full loaded 280 W power consumption
- » Intelligent cooling system with integrated fans increases the life of the equipment - and allows installation in 19" cabinets

#### A true IP headend

- » Muxing technology
- » IP in to any output
- » IP out from any input
- » Future proof with full compatibility with CAS systems, middleware, PMS, VOD services, EPG server, etc.

#### Better and stronger performance

- » Up to three headends can be combined in a multi unit system
- » Up to 72 PAL, QAM or COFDM channels



#### Easy installation

- » Input modules are independent of output modules which gives fewer modules in total
- » Faster installation
- » DiSEqC 1.1 functionality
- » The housing is designed to accommodate up to 16 input and 6 quad output modules, the output modules provides the possibility to support 12 CAM modules
- » Can easily be installed on a wall or a 19" cabinet
- » All inputs and outputs as well as all modules and cables can be accessed and operated easily from the front
- » The 22 modules are numbered so their respective allocations are always immediately clear
- » Cabinet lock system
- » Cable management on top, left and right

#### Easy setup and configuration

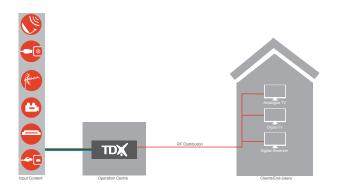
- » HTML based user interface means no special software for managing the system
- » Mux bandwidth monitor to ensure that the mux is not overloaded
- » The respective four adjacent output channels can be freely selected across the full frequency range
- » LED to indicate operation and errors on each module
- » Intuitive and easy configuration where you are led through the configuration step by step

#### Easier service handling

- » HOT SWAP service
- » Fewer modules allows easy spare part handling
- » Log file on all TDX activity
- » Remote access to the TDX for the installer and/or the Triax support

# **Kingray TRIAX Digital Modulation**

# Analogue / digital mirror



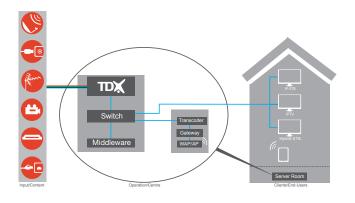
The TDX IP pool technology enables output of the existing services in the pool with different output modulation forms. As a result, the hardware can be minimized because each transponder is received only once. This provides the TDX as an optimal solution for the simultaneous transmission of analogue and digital services in a CATV network

The high signal-to-noise ratio allows support of large networks with multiple amplifiers in cascade.

#### Your benefits

- » Only one receiver (tuner) per transponder
- » All services of a transponder can be fed into the IP pool
- » Encrypted services must be decrypted only once and can be used for simultaneous digital (QAM/COFDM) and analog (PAL) transmission
- » The headend can be easily changed from analog to digital by changing the output module

## IPTV as a distribution technology



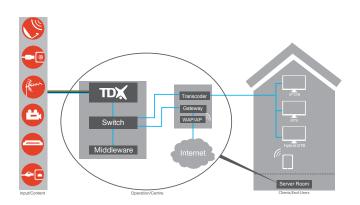
In closed buildings, there is a growing requirement for distribution of TV signals over CAT 5 cables. This requires a headend to receive the signals and transform them into IP services and also a middleware to administrate the IP receivers. In addition the used network structure must be designed to the requirements for IPTV transmission.

This relates specifically to the used routers and switches which must support layer 3 and IGMP standard.

#### Your benefits

- » Only one type of cabling in the building necessary
- » WIFI transfer to the end-user device
- » With the use of transcoder server it is possible to support different end-user devices

# Full middleware solution



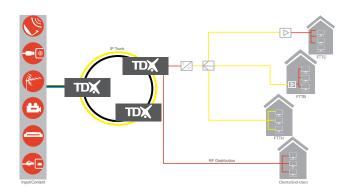
The combination of an IP headend and middleware addresses the fundamental needs of IPTV and Internet access for hotels, hospitals, cruise ships etc. To increase the revenue per guest a vast range of options for the multi-media promotion of different products and services are readily available. In cooperation with our partners we offer a wide range of IPTV solutions in this area.

#### Your benefits

- » Tablet solution for remote control and live TV streaming
- » Meeting / Conference room solution: Connect, present, browse, control!
- » Hotel Info-Channel
- » Time shift
- » PVR Personal Video Recorder
- » Internet on TV

# **Kingray TRIAX Digital Modulation**

# TDX as part of a fibre distribution



Increasingly, the existing optical CATV fibre networks (maybe in the past distributing analog modulated TV signals) are more and more used to transmit IP TV Services between the central headend and sub headend. Also the distribution cells in new system architectures are planned smaller. One reason for this is the feed-in of Internet services and providing bandwidth for Internet services to the end customer.

These distribution cells can be built up as an RF distribution network or as an optical distribution network. There are different technologies for building up the system in terms of optical distribution. FTTC (Fibre to the curb), the optical distribution ends at the street cabinet. FTTB (Fibre to the block), the fibre reaches the boundary of the building. FTTH (Fibre to the Home), the fibre reaches the living room.

#### Your benefits

- » Easy signal handling and management
- » Independent RF distribution per cell possible
- » Smaller RF-distribution cells
- » Redundancy systems with lower investments possible

#### Input Modules (Front end)

	Model	Туре	Description
The same of the sa	492020	DVBS/S2 QPSK and 8PSK de- modulator	SD and HD Satellite receiver module. Multiplex transmission and routing of all programs into the TDX Pool.
The same of the sa	492022	DVB-T module	SD or HD Terrestrial receiver module. Multiplex transmission and routing of all programs into the TDX Pool.
The same of the sa	492023	DVB-T/T2	SD or HD Terrestrial receiver module. Multiplex transmission and routing of all programs into the TDX Pool.
The same of the sa	492024	DVB-C	SD and HD cable receiver module. Multiplex transmission and routing of all programs into the TDX Pool
	492080	AV encoder Video / Audio stereo modulator	Converting analogue audio/video signal in an MPEG4 stream and forwarding to the TDX Pool.
	492030	HDMI module	Converting analogue audio/video signal in an MPEG4 stream and forwarding to the TDX Pool.

#### Output Modules (Back end)

	Model	Туре	Description
	492055 (FTA) 492056 (CI)	QAM module	Quad-QAM modulator, adjacent channel operation, automatic multiplexing, available as FTA or CI variant.
The same of	492060 (FTA) 492061 (CI)	COFDM module	Quad-COFDM modulator, adjacent channel operation, automatic multiplexing, available as FTA or CI variant.
	492070	2xCI slots module	The s x CI backend module enables you to take several services depending on CAM module from the TDX pool, decrypt them and loop them back in decrypted form to the pool.
	492050 (FTA) 492051 (CI)	PAL FTA modu- lator / PAL CI modulator	Quad-PAL modulator, adjacent channels, available as FTA or Cl variant PAL with HD downscale function. For programs received only in HD, or processed as digital HD and analog SD signal.
	492052 (FTA) 492053 (CI)	PAL HD FTA modulator / PAL HD CI modulator	Quad-PAL modulator, adjacent channels, available as FTA or Cl variant PAL with HD downscale function. For programs received only in HD, or processed as digital HD and analog SD signal.
	492030	HDMI module	Converting analogue audio/video signal in an MPEG4 stream and forwarding to the TDX Pool.

#### SFP modules (small form factor pluggable)

	EOLT - C12 - 02 (copper - SFP) 492086	EOLT - 8512 MXX (fibre - SFP)492087	EOLT - 1324 - 02xx (fibre - SFP) 492088
Туре	Copper SFP(RJ45)	Fibre LC - 850 nm	Fibre LC - 1310 nm
Data rate	1000 MBps	1000 MBps	1000 MBps
Reach	100m	upto 550 m with 50/125 μm MMF	2 km
Packing size Pcs	1	1	1
Application	Gigabit Ethernet over cat 5 cable	Gigabit Ethernet over fibre	Gigabit Ethernet over fibre
Transport stream payload max.	720 MBps	e	-
Protocols	UDP with RTP optional	-	-

## Professional MPEG2/H.264 HDMI 19" Rack Modulator



The Professional HDMI Digital Modulator for any application. All-in-one HDTV. Here today. Legacy friendly. Future Proof.

#### Front Panel Configuration

- » Simple presets for easy installation
- » Fool-proof LCNs/PIDs/Channel Names
- » Australian channel presets

#### Web Browser Configuration

- » Remote configuration via ethernet
- » Backup/Restore saved configurations
- » Remote monitoring

#### Features

- » 1920x1080 HD support
- » MPEG2 or H.264 encoding (switchable)
- » Fully configurable bitrates (up to 19Mbps)
- » Powerful multiplex configuration
- » IPTV multicast compatible
- » VLC compatible IPTV (MPTS) stream
- » ASI bus, IPTV (RJ45), RF outputs
- » RF input/output combiner
- » Simple Logical Channel Numbers
- » Excellent modulation quality MER  $\geq$  30dB
- » RF Frequency range 174Mhz~820Mhz
- $\ \ \, \hbox{$\sim$ LCD display \& local configuration}\\$
- » 19" 1RU rack mounted chassis
- » Full metal chassis
- » IEC 240V AC input

	MODHD1M24	MODHD2M24	MODHD4M24
Video Encoding			
Encoding	MPEG 2 (MP@ML) H.264/AVC (MP@HL)	MPEG 2 (MP@ML) H.264/AVC (MP@HL)	MPEG 2 (MP@ML) H.264/AVC (MP@HL)
Input	HDMI x 2 (1 active/switchable)	HDMI x 4 (2 active/switchable)	HDMI x 4
Resolution	1920x1080_50i 1920x1080_60i 1280x720_50P 1280x720_60P	1920x1080_50i 1920x1080_60i 1280x720_50P 1280x720_60P	1920x1080_50i 1920x1080_60i 1280x720_50P 1280x720_60P
Audio Encoding			
Encoding		MPEG1 Layer II	
Sample rate		48KHz	
Bit rate	64	kbps, 96kbps,128kbps, 192kbps, 256kbps, 320kb	ps
Modulation			
Standard		EN300744	
FFT mode	2K, <b>8K</b>		
Bandwidth	6M, <b>7M,</b> 8M		
Constellation	QPSK, 16QAM, <b>64QAM</b>		
Guard Interval	1/4, 1/8, 1/16, <b>1/32</b>		
FEC		1/2, 2/3, 3/4, 5/6, <b>7/8</b>	
MER		>= 32dB (Australian COFDM configurations)	
RF frequency		174~820MHz (Australian Ch. 6 ~ 69)	
RF output level		79~99 dbμV, 0.1db step	
Configuration			
Local interface		Complete Front Panel Control + LCD	
Remote management		Web NMS	
Language	English		
Physical Characteristics		1.5.10.11.0.11	
Power supply	AC 100V~240V		
Chassis Type	19" Rack Mount		
Dimensions	482x455x44mm		
Weight	3.2kgs		
Operation temperature		0~45 degrees C	



Video Encoding	
Encoding	MPEG 2 (MP@ML)
Input	CVBS x 4 (R/L audio), S-Video x4, YPbPr x 4
Resolution	720*576_50i
Audio Encoding	
Encoding	MPEG1 Layer II
Sample rate	48KHz
Bit rate	64kbps, 96kbps, 128kbps, 192kbps, 256kbps, 320kbps
Modulation	
Standard	EN300744
FFT mode	2K, 8K
Bandwidth	6M, 7M, 8M
Constellation	QPSK, 16QAM, 64QAM
Guard Interval	1/4, 1/8, 1/16, 1/32
FEC	1/2, 2/3, 3/4, 5/6, 7/8
MER	>= 32dB (Australian COFDM configurations)
RF frequency	174~820MHz (Australian Ch. 6 ~ 69)
RF output level	79~99 dbμV, 0.1db step
Configuration	
Local interface	LCD + control buttons
Remote management	Web NMS
Language	English
Physical Characteristics	
Power supply	AC 100V~240V
Chassis Type	19" Rack Mount
Dimensions	482x455x44mm
Weight	3.2kgs
Operation temperature	0~45 degrees C

#### Features

- » Component 576i YPbPr Inputs
- » S-video and Composite Inputs
- » Fully configurable bitrates
- » Powerful multiplex configuration
- » RF input/output combiner
- » ASI bus, IPTV (RJ45), RF outputs
- » Interchangeable input modules
- » Logical Channel Numbers
- » Excellent modulation quality MER  $\geq$  32dB
- » LCD display & local configuration
- » 19"1RU rack mounted chassis
- » Well ventillated, pressed metal chassis
- » IEC 240V AC power input

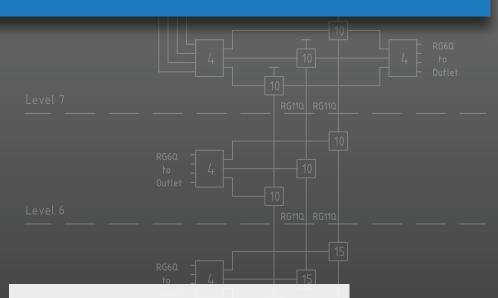
#### Web Browser Configuration

- » Remote configuration via ethernet
- » Backup/Restore saved configurations
- » Simplified Australian presets
- » Activate/deactivate channels
- » Deactivate front panel controls

#### IPTV

- » IPTV unicast/multicast streams
- » VLC compatible IPTV (MPTS) stream
- » Simultaneous IP output

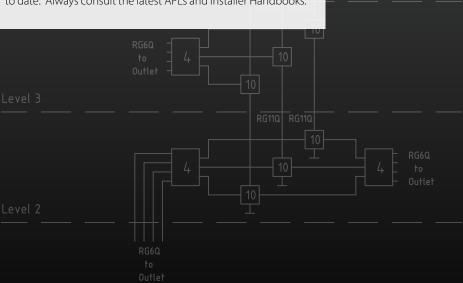
# **Foxtel Distribution Solutions**



Foxtel has recently acquired Austar to harmonise PayTV delivery across Australia. The preferred method of cable distribution for large strata-title multi-dwelling unit (MDU) facilities is the 5-wire distributed method that integrates Free to Air and Pay TV signals into the same backbone and delivers Foxtel and FTA signals to every point.

Foxtel have quietly worked on a method of transmodulating satellite signals (DVB-S/S2) into cable TV QAM-64/256 modes for distribution in a single cable. This method is highly preferred in large accomodation facilities such as mining camps. It allows users to use a Foxtel cable box or recorder just as if they were connected to metropolitan cable systems.

Ensure that Foxtel design and equipment specifications are up to date. Always consult the latest APLs and Installer Handbooks.



#### Compact Headend 8 / 16 x DVB-S(2) into QAM BluBox16

DS/BLUBOX16



#### Features

- »  $8/16 \times DVB-S(2)$  (QPSK/8PSK) into DVB-C (QAM)
- » For the reception of up to 60 / 120 TV programs SD/HD and up to 30 / 60 Radio programs
- » Compact dimensions and high energy efficiency
- » LNB control with  $14/18\,\mathrm{V} + 22\,\mathrm{kHz}$  or DiSEqC
- Configuration via LAN/IP
- Complete processing of the transport streams possible
- » All 8 / 16 output channels can be placed individually in the spectrum
- » Two individual input ports
- Redundant power supply

Converts two digital terrestrial signals (DVB-T) to 16 x SPTS in Unicast or Multicast modulated data streams. ASI input and an ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

Reference	
Frequency range:	950 2150 MHz
AFC range:	1 MHz
AGC level range:	64 94 dBμV
Through loss:	≤ 2,5 dB
LNB supply voltage:	14 / 18 V (400 mA), DiSEqC 1.0
Modulation:	QPSK (EN 300 421)
Symbol rate:	1 45 MSps
Code rate (Viterbi):	1/2, 2/3, 3/4, 5/6, 7/8
Signal processing:	ETS 300 421 (DVB-S)
Modulation:	QPSK, 8PSK (EN 302 307)
Symbol rate:	2 47 MSps (QPSK); 2 31,5 MSps (8PSK)
Code rate (LDPC):	QPSK = 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	8 PSK = 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Signal processing:	ETS 302 307 (DVB-S2)

Reference	
Symbol rate:	1,0 7,2 MSps
QAM Constellation:	16, 32, 64, 128, 256 QAM (EN 300 429)
Output level max.:	85 dBμV
Sum level setting:	1 dB (+ 3dB)
Individual level setting:	0,5 dB (+ 3dB)
Channel allocation:	adjacent channel compatible (IEDGE)
Connectors:	F-Jack, 75 Ω (IEC 60169-2)
Through Loss:	1 dB
Output frequency range:	47 862 MHz
Mains power supply V~:	100 240 V / 47 63 Hz
Power consumption max.:	85 W + LNB
DC output voltage:	12 V
Current drain max.:	8A
Ambient temperature:	-10 +55°C

# Professional Headend 32 x DVB-S(2) into QAM BluBox32

DS/BLUBOX32



#### Features

- » 32 x DVB-S(2) (QPSK/8PSK) into DVB-C (QAM)
- » For the reception of SD/HD TV and Radio programs
- » Compact dimensions and high energy efficiency
- » LNB control with  $14/18\,\mathrm{V} + 22\,\mathrm{kHz}$  or DiSEqC
- Configuration via LAN/IP
- Complete processing of the transport streams possible
- All 32 output channels can be placed individually in the spectrum
- Two individual input ports
- Redundant power supply

Converts two digital terrestrial signals (DVB-T) to 16 x SPTS in Unicast or Multicast modulated data streams. ASI input and an ASI output (ASI = Asynchronous Serial Interface acc. EN 50083-9) as well as a 100 MBit LAN interface (Ethernet).

Reference	
-10 +55°C	950 2150 MHz
AFC range:	1 MHz
AGC level range:	64 94 dBμV
Through loss:	≤ 2,5 dB
LNB supply voltage:	14 / 18 V (400 mA), DiSEqC 1.0
Modulation:	QPSK (EN 300 421)
Symbol rate:	1 45 MSps
Code rate (Viterbi):	1/2, 2/3, 3/4, 5/6, 7/8
Signal processing:	ETS 300 421 (DVB-S)
Modulation:	QPSK, 8PSK (EN 302 307)
Symbol rate:	2 47 MSps (QPSK); 2 31,5 MSps (8PSK)
Code rate (LDPC):	QPSK = 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	8 PSK = 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Signal processing:	ETS 302 307 (DVB-S2)

Reference	
Symbol rate:	1,0 7,2 MSps
QAM Constellation:	16, 32, 64, 128, 256 QAM (EN 300 429)
Output level max.:	85 dBμV
Sum level setting:	1 dB (+ 3dB)
Individual level setting:	0,5 dB (+ 3dB)
Channel allocation:	adjacent channel compatible (IEDGE)
Connectors:	F-Jack, 75 Ω (IEC 60169-2)
Through Loss:	1 dB
Output frequency range:	47 862 MHz
Mains power supply V~:	100 240 V / 47 63 Hz
Power consumption max.:	138 W + LNB
DC output voltage:	12 V
Current drain max.:	16A
Ambient temperature:	-10 +55°C

# **FOXTEL 5-Wire Products**

# **FOXTEL 5-Wire Multiswitches**

## SAT5WIREMS08 / SAT5WIREMS16



	SAT5WIREMS08	SAT5WIREMS16	
Inputs	4 x SAT, 1 X TERR		
Frequency Range	SAT: 950 ~ 2050 MHz, TERR: 47 ~ 862 MHz		
Gain	SAT: 0dB ~ 10dB, TERR: -5dB ~ 10dB		
SAT O/P Level Terr O/P Level	90dBuV @25dB IM notch test 82dBuV @30dB IM	90dBuV @25dB IM notch test 80dBuV @30dB IM	
Isolation TERR ~ SAT	>25dB		
Output Isolation	>25dB		
Return Loss	SAT: > 10 dB, TERR: > 10 dB		
Supply Current (Max)	200mA		
Power for Terr	18V / 140mA		
FOXTEL Approval Number.	F30499	F30425	

# **FOXTEL 5-Wire Splitters**

## SAT5WIRESP4 / SAT5WIRESP2



	SAT5WIRESP4	SAT5WIRESP2		
Frequency Range		Sat: 950 ~ 2050 MHz Terr: 5 ~ 862 MHz		
Inputs IF	4.9	4 Sat + 1 Terr		
Outputs (4-Way Splitter)	4 x (4 Sat + 1 Terr)	2 x (4 Sat + 1 Terr)		
Insertion Loss	Sat: <10.0dB Terr: <8.5dB	Sat: <5.0dB Terr: <4.5dB		
Trunk Isolation	-	Sat: <30dB Terr: <35dB		
Mutual Isolation	Sat: <20dB Terr: <18dB	Sat: <20dB Terr: <22dB		
Power Pass (max 2A)	Switchable DO	Switchable DC pass to tap H outlets		
FOXTEL Approval No.	F30427	F30426		

# **FOXTEL 5-Wire Amplifier**

# SAT5WIREAMP



Inputs/Outputs	4 x SAT, 1 X TERR
Frequency Range	Sat: 950 ~ 2150 MHz Terr: 5 ~ 862 MHz
Frequency Range	950-2050MHz
Gain	Sat: 22dB +/- 2dB Terr: 10dB
Isolation	Sat - Sat: >45dB Sat - Terr: >34dB
I/O Return Loss	>10dB
Variable Attenuation	0 ~ 18dB 0 ~ 20dB
Output Level	105dBuV @ -25dB IM Level 101dBuV @ -30dB IM Level
Power	18VDC
Max Total Feed Through	2A Switchable
FOXTEL Approval No.	F30538

# **FOXTEL 5-Wire Taps**

#### SAT5WTAP10 / SAT5WTAP15 / SAT5WTAP20



	SAT5WTAP10	SAT5WTAP15	SAT5WTAP20
Inputs/Outputs	4 x SAT, 1 X TERR		
Frequency Range	Sat: 950 ~ 2150 MHz, Terr: 5 ~ 862 MHz		
Tap Loss	Sat: 7.5 ~ 12dB Fixed Slope Terr: 10dB +/- 2dB	Sat: 12.5 ~ 17.5dB Fixed Slope Terr: 15dB +/- 2dB	Sat: 22 ~ 19dB Fixed Slope Terr: 20dB +/- 2dB
Trunk Loss	Sat: 2dB Terr: 1.2dB	Sat: 1dB Terr: 1dB	Sat: 1dB Terr: 0.5 ~ 1dB
Directivity	Sat: >10dB Terr: >21dB	Sat: >10dB Terr: >20dB	Sat: >10dB Terr: >32dB
TERR Rejection	-13dB	-18dB	-22dB
Isolation (SAT)	>35dB		
Return Loss	Sat: > -10dB Terr: > -17dB	Sat: > -10dB Terr: > -18dB	Sat: > -10dB Terr: > -20dB
DC pass on Sat paths	2A Max		
DC pass on H paths	0.5A Max		
FOXTEL App No.	F30524	F30425	F30427

## **FOXTEL Approved Quad Shield Coaxial Cable**



Specifications	
Centre Conductor	Copper Clad Steel Wire
Diameter	1.02 + - 1% (AWG 18)
DC Resistance	80.3 /km
Dielectric	Foamed HD Polyethylene
Diameter Diameter	4.57mm
Inner Laminated Shielding Tape	Bonded Laminated Alu- minium Foil
Thickness	60 microns
Core Diameter (LST & Dielectric)	4.78 + - 0.13mm
Inner Braid	Aluminium Alloy Wires
Minimum braiding coverage	60%
Outer Laminating Shielding Tape	Laminated Aluminium Foil

Thickness	60 microns
Outer Braid	Aluminium Alloy Wires
Minimum braiding coverage	40%
Sheath (Jacket)	Material PVC
Thickness	0.84mm
Overall Diameter	7.54 +- 0.2mm
Nominal Characteristic Impedance	75
Minimum Structural Return Loss	20dB (5Mhz to 3000Mhz)
Operating Temperature	- 40°C to +75°C
Velocity of propagation	82%
DC Loop Resistance	121.1 /km

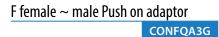
CABRG6QFOX

Attenuation																						
Frequency (MHz)	5	55	211	250	270	300	330	350	400	450	500	550	600	750	870	1000	1450	1750	250	2600	2832	3000
Loss (dB)	1.9	5.25	10	10.82	11.04	11.64	12.26	12.63	13.61	14.43	15.29	16.08	16.73	18.54	20.04	21.49	25.25	28.67	31.04	35.3	37.74	38.84

RG6 / RG11 Compression Tool

ТООСМРСТ

# RG6 / RG11 F Compression Connectors CONF6PCT-TRS & CONF11QPCT









3GHz F Grounding Block

CONGRB3G

3GHz Right Angle adaptor

CONFCRA3G

3GHz F-F Joiner

CONF813G

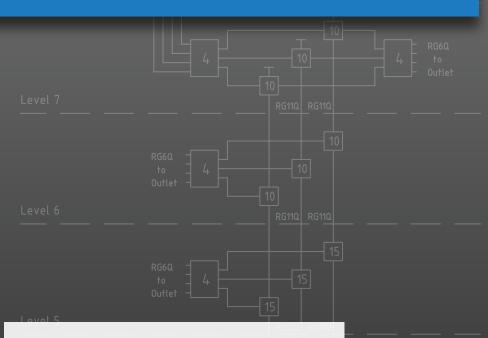






Reference	CONF6PCT-TRS	CONFCRA3G	CONFQA3G	CONGRB3G	CONF813G	CONF11QPCT
Description	RG6 Compression Connector	Right Angle adptor	F female to male push on adaptor	3GHz F type grounding block	F type 3GHz Joiner	RG11 Compression Connector
Insertion losses	< 0.1dB @ 1GHz	< 0.2dB @ 1GHz	< 0.05dB @ 1GHz	< 0.05dB @ 1GHz	< 0.03dB @ 1GHz	< 0.1dB @ 1GHz
	< 0.2dB @ 3 GHz	< 0.4dB @ 3 GHz	< 0.1dB @ 3 GHz	< 0.1dB @ 3 GHz	< 0.05dB @ 3 GHz	< 0.2dB @ 3 GHz
Return Losses	> 25dB @ 1 GHz	> 30dB @ 1 GHz	> 30dB @ 1 GHz	> 26dB @ 1 GHz	> 32dB @ 1 GHz	> 25dB @ 1 GHz
	> 20dB @ 3 GHz	> 20dB @ 3 GHz	> 20dB @ 3 GHz	> 24dB @ 3 GHz	> 24dB @ 3 GHz	> 20dB @ 3 GHz

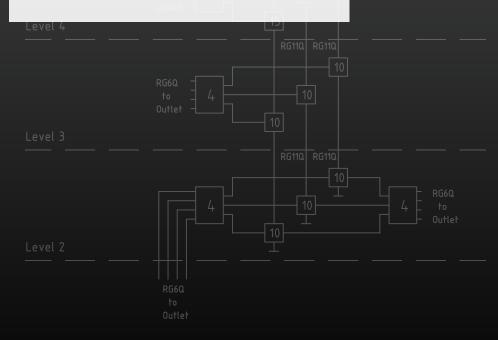
## **MATV Distribution Solutions**



When designing and building MATV systems make sure every component you use is practical and reliable. Never go with second rate.

Kingray masthead and distribution amplifiers and filters always deliver on their promises. Trust SignalMAX splitters and installation accessories. Remember not to compromise on the small stuff.





## **Edge Series MastHead Amplifiers**



The NEW Kingray Edge series of masthead amplifiers has been engineered to provide a future proof solution with switchable LTE/4G filtering to maximise interference rejection.

The Edge series features links allowing the amplifier to be configured to best suit the installation now and in the future. The range includes both wideband and UHF only models used to amplify the whole UHF band or alternatively by re-positioning the links, all services above 694 MHz are filtered, blocking future LTE transmissions.

In addition to LTE filtering some wideband models in the Edge series include user selectable low band filtering to eliminate all services below 174 MHz. The Edge series is designed to meet the needs of the television reception industry now and into the future

Model	No. Inputs	Termination	Band	Max. Gain	Gain Controls	Pager Filter	FM Filter	Band 1 Filter	LTE Filter
AMPMHW25F	2	F	VHF/UHF	25	2	*	*	*	*
AMPMHW35F	2	F	VHF/UHF	35	2	*	*	*	*
AMPMHU25F	2	F	UHF	25	1				*
AMPMHU35F	2	F	UHF	35	1				*

## Kingray Digital/Analgoue band selector M/H (masthead style filter)

FILFL3BPMH

The FILFL3BPMH is a special filter and diagnostic tool that has been designed specifically to suit Australian conditions. It consists of three 'all-in-one' tight bandpass filters to pass our standard television bands which have low insertion loss. This eliminates all unwanted signals that can interfere with both analogue and digital signals.

#### Characteristics:

- » Can be mounted inside or outside.
- » Passive band pass filter/combiner.
- » 1, 2 and or 3 inputs.
- » 1 combined output.
- » High Isolation between stages.
- » >15dB Return Loss.
- » Can be used backwards as a band separator.
- » Low Insertion Loss < 2dB</p>
- » Rejected paging, CB, mobile phone, AM radio and Police Radio Signals.
- » Switchable FM trap reduced FM by 30dB
- » Low band attenuator adjustable 0-12dB



Reference	FL3BPMH
Frequency Range	VLF 44 ~ 108 MHz VHF 174 ~ 230 MHz UHF 520 ~ 820 MHZ
Insertion Loss	<2 dB
AM + 27MHz	-40 dB
Low band attenuator	0 ~ 12 dB max (44 ~ 108 MHz)
FM filter switchable	-30 dB @ 88 ~ 108 MHz
Pager Filter	-30 dB @ 148 MHz -20 dB @ 158 MHz
477MHz CB	-40 dB
Mobile phones	-20dB @ 860 MHz -30 dB @ 940 MHz

## Kingray in-line LTE Filter

FILLPJTE25



Standard Communications are proud to announce the release of the LP-LTE25 NEW low pass filter designed to protect against future LTE transmissions. The filter passes all frequencies between 5-694MHz and all frequencies above 694MHz (Aust channel 51 / NZ channel 48) the filters attenuation is 25dB @ 750MHz.

This unique indoor filter is designed to be installed after the antenna and before any amplifier or splitter in the system. In the case of only one TV in the system it can be installed directly behind the TV. If the filter is required to be installed outdoors it is recommended it be installed inside either a Kingray MHB or MHB001 weatherproof housing.

#### Technical Specifications

- » Insertion loss < 2dB
- » Stop Band attenuation > 25dB@750MHz.

## Tuneable notch filters

#### FILNOTCHBI / FILNOTCHBIII / FILNOTCHUHF



Tuneable notch filters to attenuate specific channels by 20dB. These filters can be used in series.



Reference	FILNOTCHBUHF	FILNOTCHBIII	FILNOTCHBI
Insertion Losses	<1 dB	<1 dB	<1 dB
Attenuation	20 dB (470 MHz) 15 dB (862 MHz)	20 dB	20 dB
Outband attenuation	≤ 1dB	≤ 1dB	N/A
Selectivity	3 dB (±12 MHz)	2 dB (±12 MHz)	3 dB (±12 MHz)
Thermal drift	50 KHz / °C	20 KHz / °C	20 KHz / °C
Thermal drift	50 KHz / °C		

## **Equalisers**

#### FGRECU06 / FGRECU09 / FGRECU12 / FGRECU15 / FGRECU18



A family of passive components that operate in broadband allowing optimum flatness to be obtained in the signal response of a distribution network.

#### Application

These devices compensate the attenuation tilt caused by the coaxial cable used in the installation, which is proportional to

frequency and cable length.

Considering the complete band of frequencies used for the TV service, between 47 \_ 862MHz, the attenuation tilt produced by the installation is influenced by type abd length of cable used, making it necessary to select the appropriate ECU model for each tilt (see chart).

Reference	FGRECU06	FGRECU09	FGRECU12	FGRECU15	FGRECU18
Tilt	6dB	9dB	12dB	15dB	18dB
Attenuation	1dB	1dB	1dB	1dB	1dB
Input/Output impedance	75 ohm				
Input/Output return loss	12 dB				
Connectors Input Output	F (female) F (male)				
Packing Dimensions	155 x 110 x 48				
Weight	0.3kg	0.3kg	0.3kg	0.3kg	0.3kg

#### Model Selection

860 MHz / 100 m	30 m	40 m			70 m	80 m			110 m	120 m	130 m					
22 dB	5.06	6.74	8.43	10.11	11.80	13.49	15.17	16.86	18.54	20.23	21.91	23.60	25.29	26.97	28.66	30.34
20 dB	4.60	6.13	7.6	69.19	10.73	12.26	13.79	15.32	16.86	18.39	19.92	21.45	22.99	24.52	26.05	27.58
18 dB	4.14	5.52	6.90	8.28	9.65	11.03	12.41	13.79	15.17	16.55	17.93	19.31	20.69	22.07	23.45	24.83
16 dB	3.68	4.90	6.13	7.36	8.58	9.81	11.03	12.26	13.49	14.71	15.94	17.16	17.39	19.62	20.84	22.07
14 dB	3.22	4.29	5.36	6.44	7.51	8.58	9.65	10.73		12.87	13.95	15.02	16.09	17.16	18.24	9.31
Recom. ECU Model			ECU 06			ECU 09		ECU 1	2		EC	U 15		ECU :	18	



DC110

חעוים

## SignalMAX 2 way satellite splitter



#### Characteristics

- » Zinc diecast housing, nickel-plated
- » Frequency range 5 2400 MHz
- Power pass all legs
- » Gold plated inner conductors
- > Double grounding screw
- » Extremely high screening efficiency

#### SPLSS2PPSM

Frequency Range (MHz)	5 ~ 40	40- 1000	1000-1750	1750-2050	2050-2400
Insertion Loss dB (in out min.)	4.2	4.8	5.5	6.2	6.5
Isolation dB (out out max.)	20	20	20	20	20
Return Loss dB (in & out max.)	10	10	10	10	10

## SignalMAX 3 way satellite splitter



#### Characteristics

- » Zinc diecast housing, nickel-plated
- » Frequency range 5 2400 MHz
- » Power pass all legs
- » Gold plated inner conductors
- » Double grounding screw
- » Extremely high screening efficiency

#### SPLSS3PPSM

Frequency Range (MHz)	5 ~ 40	40-1000	1000-1750	1750-2050	2050-2400
Insertion Loss dB (in out min.)	7.5	8.5	10	11	11.5
Isolation dB (out out max.)	20	20	20	20	20
Return Loss dB (in & out max.)	8.0	10	10	10	10

## SignalMAX 4 way satellite splitter



#### Characteristics

- » Zinc diecast housing, nickel-plated
- » Frequency range 5 2400 MHz
- » Power pass all legs
- » Gold plated inner conductors
- » Double grounding screw
- » Extremely high screening efficiency

## SPLSS4PPSM

Frequency Range (MHz)	5 ~ 40	40- 1000	1000-1750	1750-2050	2050-2400
Insertion Loss dB (in out min.)	8.5	9.0	10	11.5	12
Isolation dB (out out max.)	20	20	20	20	20
Return Loss dB (in & out max.)	8.0	10	10	10	10

## SignalMAX 6 way satellite splitter



#### SPLSS6PPSM

SPLSS8PPSM

#### Characteristics

- » Zinc diecast housing, nickel-plated
- » Frequency range 5 2400 MHz
- » Power pass all legs
- » Gold plated inner conductors
- » Double grounding screw
- » Extremely high screening efficiency

## SignalMAX 8 way satellite splitter



#### Characteristics

- » Zinc diecast housing, nickel-plated
- » Frequency range 5 2400 MHz
- » Power pass all legs
- » Gold plated inner conductors
- » Double grounding screw
- » Extremely high screening efficiency

#### Frequency (MHz) Description 15 12 15 5 - 40 18 40 - 1000 1000 - 1750 Insertion Loss 13 16 IN - OUT 2050 - 2400 18.5 20 5 - 40 25 25 Isolation 40 - 1000 1000 - 1750 20 17 15 20 17 15 10 (Max. dB) OUT - OUT 1750 - 2050 2050 - 2400 10 5 - 40 4.5 3.5 40 - 1000 1000 - 1750 Return Loss 12 12 10 10 (Max. dB) 1750 - 2050 2050 - 2400 IN 12 7 10 7 5 - 40 40 - 1000 3.5 10 3 12 Return Loss 1000 - 1750 10 (Max. dB) OUT 1750 - 2050 10 2050 - 2400

## Broadband amp separate VHF/UHF processing FGRAMPSAB402

Band amplification system with separate VHF and UHF signal processing, to reduce IM2 products.

#### SAB402

The SAB402 can be used as a broadband distribution amplifier or in-line amplifier in MATV systems.



## Reverse Path Broadband amplifier

FGRAMPSAB301

#### SAB301

The SAB301 can be used as a broadband distribution amplifier or in-line amplifier in MATV systems and covers the return path band 5-30 MHz.

#### Separate input amplifier

FGRAMPSAB304

#### SAB304

The SAB304 is suitable for use as a band amplifer for communities.

#### Characteristics

- » Circuit housed in single part metal case which includes all the input-output connectors.
- » It has shielding at the top and bottom
- » High level of mechanical rigidity with complete protection against electrical interference

Reference	FGRAMPSAB402	FGRAMPSAB301	FGRAMPSAB304
Number of Inputs	1	1	4
Band Coverage	BII, FM, BIII, UHF	47 ~ 862 MHz	BII, FM, BIII, UHF
Output Level DIN 45004B (-60 dB)	117 dBμV	116 dBμV	109 dBμV
Gain	40, 33, 40, 40 dB	28 ~ 35 dB	30 dB
Input and output impedance	75Ω	75Ω	75Ω
Noise figure	7, 7, 7, 6 dB	128 dB	5 dB
Regulation	20 dB	20 dB	20 dB
Tilt regulation	-	0 ~ 11 dB	-
Return path coverage		5 ~ 30 MHz	-
Return path insertion losses	=	-3.5dB	-
Packing dimensions	250 x 125 x 62 mm		
Weight	.8 KG		

## MATV Reverse Path Broadband amplifier



#### Application

Designed to work under adverse weather conditions, where a robust amplifier is needed.

## Characteristics

- » Fully shielded amplifier
- » Covers the return path band 5-30 MHz

FGRAMPDA354

- » Slope control
- » Built in switch mode power supply

Reference	FGRAMPDA354	
Number of Inputs	1	
Band Covered	5 ~ 30 MHz	47 ~ 862 MHz
Max. output level	117 dBμV	115 dBμV
Input/output impedance	75Ω	
Return Losses	15 dB	10 dB
Gain	15 dB	35 dB
Level regulation	20 dB	20 dB
Equalisation		
- variable	-	20 dB
- switchable	1 IN - 1 OUT	-
TEST output		
TEST output attenuation	30 dB	
Noise figure	9 dB	6 dB
Input/output connectors	F	
Weather protection	IP63	
Packing dimensions	280 x 175 x 60 mm	
Weight	3.1 Kg	

## Distribution amplifier for small to mid-sized MATV installations

AMPDW32



#### Application

"F" type distribution amplifier designed for separate VHF or UHF antennas or a combined antenna at the input. Can be remotely powered.

#### Characteristics

- » Fully shielded amplifier
- » 10dB gain control
- » 15dB equalisation
- » Comes with power supply

Reference	AMPDW32		
Reference	VHF	UHF	
Frequency Range	44 ~ 230 MHZ	520 ~ 860 MHZ	
Maximum Gain	27 ~ 32 dB (Sloped)		
Inputs	1		
Noise Figure	< 5 dB		
Gain Control	10 dB	10 dB	
Power Supply	AMPPSK06S (supplied)		
Current	140 mA		
Output Figure DIN 45004B	112 dB		
Weight	144g		

## Distribution amplifier for small to mid-sized MATV installations

AMPDW42



Distribution amplifier for small to mid-sized MATV installations that has more gain than the DW32.

## Application

"F" type distribution amplifier designed for separate VHF or UHF antennas or a combined antenna at the input. Can be remotely powered.

## Characteristics

- » Fully shielded amplifier
- » 3 x 20dB gain control
- » Not packed with power supply

#### Pleast Note:

Use AMPPSK18S power supply.

Reference	AMPDW42		
Reference	VHF	UHF	
Frequency Range	44 ~ 144 MHZ 176 ~ 300MHz	470 ~ 860 MHZ	
Maximum Gain	35 ~ 37 dB	40 dB	
Inputs	1, 2 or comb		
Noise Figure	< 6 dB		
Gain Control	20 dB	20 dB	
Power Supply	AMPPSK18 or AMPPSK18KR		
Current	300 mA		
Equalisation	3x 20 dB Gain Control		
Output Figure DIN 45004B	118 dB		
Packing dimensions			
Weight			



Distribution amplifier for small to mid-sized MATV installations that is similar to the DW42 with a single gain and switchable slope control.

#### Characteristics

- » Fully shielded amplifier
- » 20dB gain control
- » Slope control
- » Not packed with power supply

#### Pleast Note:

Use AMPPSK18S power supply.

Reference	AMPDA43
Frequency Range	40 ~ 860 MHZ
Maximum Gain	40 dB
Inputs	1
Noise Figure	< 6 dB
Gain Control	20 dB
Power Supply	AMPPSK18 or AMPPSK18KR
Current	300 mA
Equalisation	15-0 dB
Output Figure DIN 45004B	118 dB
TEST POINT	-30 dB
Weight	

## Satellite Distribution amplifier for small to mid-sized SMATV





#### Application

"F" type satellite distribution amplifier with unique diplexing on the input and output for terrestrial signals. The amplifier is built into a fully shielded die-cast housing with power through options to the LNB and terrestrial output diplexer for powering a separate terrestrial amplifier, such as a DW42 or DA43.

## AMPSAT29D & AMPSAT42D

#### Characteristics

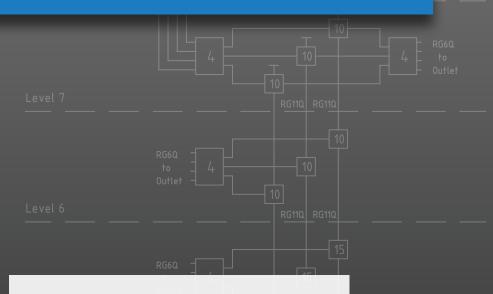
- » Fully shielded amplifier
- » 10 or 20dB gain control (depending on model)
- » Not packed with power supply

#### Pleast Note:

Use AMPPSK18S power supply.

Reference	AMPSAT42D	AMPSAT29D
Frequency Range	950~3000 MHz	
Maximum Gain	40 dB (Nominal)	29 dB (Nominal)
Flatness	+/- 2 dB	
Noise Flgure	< 10dB	
Return Loss	> 10 dB	
Gain Control Range	0~20 dB	0~10 dB
Equalisation Range	15 dB	
Output Level	122 dB	112 dB
Supply Voltage	18 VDC	
Current	250 ~ 450 mA	180 ~ 490 mA
Weight	250 g	

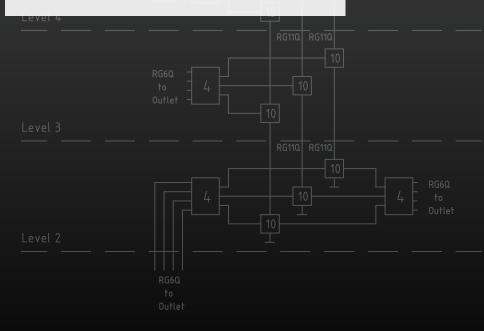
# **Field Strength Meters**





Sefram is a respected French manufacturer of field strength meters for digital and analogue television for satellite, terrestrial and cable applications. With decades of experience making test meters for the electrical trades around the world, Sefram has turned to digital signal meters in recent years, setting new benchmarks for the established manufacturers to reach. NAS is the authorised agent for all Sefram signal level meters.





#### Sefram 7872 / 7875 / 7876 DVB-S2 / DVB-T MPEG2 & MPEG4 Satellite & Terrestrial FSM

#### FSMSEF7872 / FSMSEF7875 / FSMSEF7876

#### Description

TV Meter for cable (DVB-C), terrestrial (DVB-T/T2) and satellite (DVB-S/S2), with MPEG2 and MPEG4 (H264) decoding, ASI TS I/O, GPS, multistream capability, touch screen

Time is money! With its fast and expert spectrum analysis, the checksat mode with electronic compass and NIT, the Cell ID function, real time echoes and pre-echoes, the MER per carrier, the constellation diagram, the fast Autoset, the LTE function to help the diagnostic of spurious filtering, no doubt that you can setup a TV receiving system in record time.

To protect your TV meter, we have design a very robust aluminium housing with a protective pouch. For your safety, we supplied an ingenious system of belts and clip and a light transportation bag.

With the largest and brightest LCD of the market, using the new TV meter is possible in all conditions of light, including in sunny environment. With the 10" touch screen, you will use your new TV meter like a smartphone or a tablet: no need to worry where and which button to push, everything is displayed on the large screen in a clear and easy way. Incredibly user firendly!



#### Features

- » Panoramic LCD touch screen: 10 inches (16:9)
- » Display free to air programs for digital terrestrial, cable and satellite
- » Display High Definition TV programs MPEG4-H264
- » All measurements for DVB-T/T2, DVB-C, DVB-S and DVB-S2
- » All measurements for MPEG-2 and MPEG-4
- » Ultra fast spectrum analysis and expert spectrum analysis
- » Checksat mode with NIT (satellite recognition)
- » LTE function to help the diagnostic of filter
- » Real time echoes and pre-echoes measurement with zoom
- » Constellation diagram with zoom

- » Three in one display: measurement, TV picture, mini spectrum
- » Graphical display of measurements
- » ASI TS input and output and HDMI interface
- » Electronic compass for dish alignement
- » GPS
- » Multistream capability
- » Memorize and export/import data with USB memory stick
- » Battery with 1 hour charging time and 4 hours autonomy
- » Supplied with carrying bag and protection pouch
- » Weight: 2,9kg

	7872	7875	7876
Frequency range	5-2200MHz	5-2200MHz	5-2200MHz
DVB-T/T2	•	•	•
DVB-S/S2	•	•	•
DVB-C	-	•	•
MPEG2 TV decoding	•	•	•
MPEG4 - H264 TV decoding	-	•	•
Fast spectrum analysis	•	•	•
Expert spectrum analysis	-	•	•
Checksat mode with NIT	•	•	•
LTE function	-	•	•
HDMI interface	-	•	•
TS-ASI input and output	-	•	•
PVR (1) function	-	•	•
GPS and Multistream capability	-	-	•
Optical power measurement	•	•	•
Wifi network measurement	•	•	•

RG6Q to

## Sefram 7846 DVB-S2 / DVB-T MPEG2 & MPEG4 Satellite & Terrestrial FSM

#### Description

The 7846 provides all measurements in DVB-T, DVB-S and DVB-S2. You will get: BER, MER, lost packets and noise margin/ link margin. When the remote supply is needed for external amplifiers and LNB, the 7846 will offer the following voltages 5V, 13V,18V and 24V. The TV meter provides DiSEqC 1.2 and SatCR compatibility.

#### Features

- » TV Meter for Digital Satellite TV (DVB-S and DVB-S2) / TV Meter for Digital Terrestrial TV (DVB-T) / 45 to 865MHz and Satellite (DVB-S/S2) 950 to 2150MHz
- » Display free to air programs SD and HD (MPEG2 and MPEG4)
- » Full digital measurements for DVB-T, DVB-S and DVB-S2: BER, MER, PER, Link Margin
- » CELL ID display
- » Checksat mode for fast alignment of dishes (with NIT)
- » Network table display
- » Echoes measurement with graphical display of the guard interval (DVB-T)
- » Display constellation pattern
- » Fast spectrum analysis
- » Remote supply: 5V/13V/18V/24V
- » DiSeqC 1.2 and SatCR
- » 4.3 inches LCD TFT coloured screen
- » Easy to use: sensitive wheel and direct access to functions
- » Shockproof housing for extensive field use
- » 3 hours autonomy and 1h charging time
- » Free and easy upgrade of internal firmware with a USB memory stick
- » USB interface
- » Light weight: 1,5 kg



Specifications:	
Description	Specification
Frequency Range:	45 ~ 865 MHz
Dynamic Range:	$20 \sim 120 \text{ dB}\mu\text{V}$
Max. input Voltage:	80 VDC, 80 Vrms, 50 Hz
Measurement Filter:	100 KHz
Measurement Accuracy:	+/- 2 dB
COFDM:	According to EN 300-744
Remote supply:	24V 250mA (optional)
Number of setups:	100
Memory Size:	64kb (1,000 files max.)
Input Connector:	$75\Omega$ female BNC input.
Weight:	1.1kg (including batteries)
Dimensions (mm):	170 x 160 x 95
Power Supply:	8 rechargeable batteries, NiMh, 1700 mA/h, size AA, Standard autonomy of 3 hours, low speed charging of 16 hours.
External supply adaptor:	8 ~ 15V max.
EMC:	EN 61326 edition 1997 Al, A1. EN 55022 class B edition 1998 A2.
Accessories supplied with:	Operating Instructions, External supply adaptor, carrying belt, car charger.
Optional Accessories:	TR7836 transfer software for windows (CD-ROM) (P/N: 978369000 Version >6.2), RS232 adapter MiniDIN/SubD9c (P/N: 245050609), in car charger, quick charger

## **FSM Calibration Service**



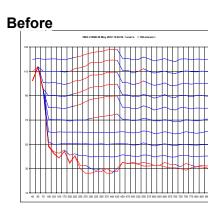


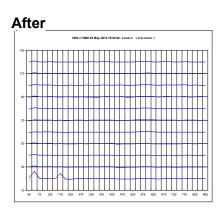
NAS now offers a great value calibration service for Sefram Field Strength Meters, with our Rhode & Schwarz signal generator.

Typically meters should have their signal levels calibrated annually to ensure accuracy. However, the high cost of calibration and lengthy downtime has meant they rarely are.

Terrestrial and Satellite bands can be tested/calibrated.

Book in your meter in advance for a while you wait service. Otherwise, expect a next day turnaround.





## Free Calibration for two years after purchase (3 years total)

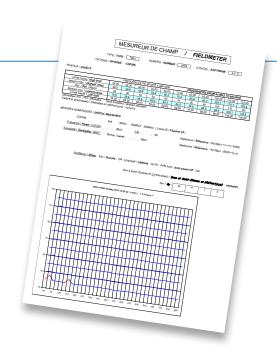
Your Sefram meter is calibrated several times during manufacture and prior to being shipped from the factory.

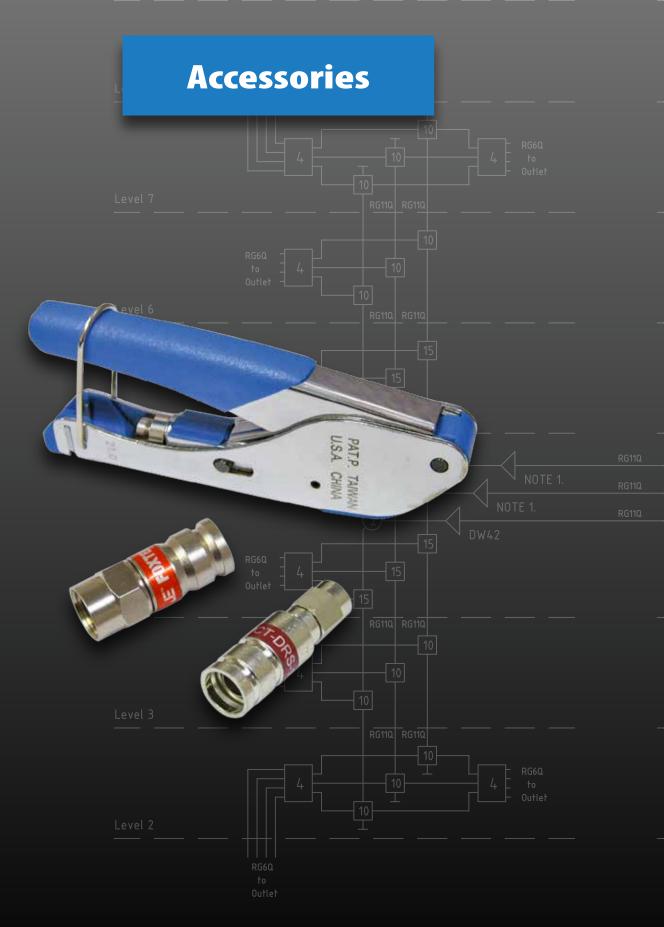
Additionally NAS will calibrate your FSM prior to shipping it to you after sale. This means that your two free calibrations allow a total period of 3 years of assured accuracy from your FSM.

#### You receive:

Before and after reports

Certificate provided to log calibration





# Connectors Attenuators & Tools

#### Wideband Isolator



Wideband isolator for cable TV systems.

## ATTIS2G

Reference	Specification
Frequency Range	5-2150MHz
Insertion Loss	0.5dB Max.
Isolation	400V DC / 800V DC Peak
Return Loss	> 12dB

## Fixed Attenuators - F type



F type attenuators have a frequency range from 100KHz ~ 860MHz and have an input/output impedance of 75ohm.

#### ATTF3/6/12/15/20/24

Model	Attenuation level
ATTF3	3dB
ATTF6	6dB
ATTF12	12dB
ATTF18	18dB
ATTF20	20dB
ATTF24	24dB

## Fixed Attenuators - Belling Lee



BL type attenuators have a frequency range from 100KHz ~ 860MHz and have an input/output impedance of 75ohm. They are available in 3dB, 6dB, 12dB, 18dB and 24dB attenuation levels.

#### ATTBL/6/12/18/24

Model	Attenuation level
ATTBL6	6dB
ATTBL12	12dB
ATTBL18	18dB
ATTBL24	24dB

#### Handy RG6 Compression Tool





- Handy Compression tool Suits RG6 cable
- Fits F-type compression connectors.

## RG11 Compression Tool

## TOOCRIMPRG11QC



• Compression tool • Suits RG11 cable • Adjustable reach • Fits F-typecompression connectors.

## **Heavy Duty Hex Crimp Tools**

#### TOOCRIMP106H / TOOCRIMP106M



• Crimp Tool Hex 9" For RG11, RG6 & RG59 Cable .

## **Compression Connector Toolkit**

#### TOOLKIT3004



Compression Toolkit with wire cutter.

## 2 Blade Rotary Cable Stripper

#### TOOSTRIPPER/ROT



This small stripping tool rotates around the cable, giving it an easy cutting action. Strips RG59 and RG6 cable. Adjust blade depth with set screws.

## 3 Blade Rotary Cable Stripper

#### TOOSTRIP/ROT3BL



This sleek 3 blade stripping tool rotates around the cable, giving it an easy cutting action. Strips RG59 and RG6 cable. Adjust blade depth with set screws. This tool is perfect for stripping cable for compression connectors

## NAS is the one-stop-shop for all your AV and television reception needs.



## **Complete Trade Catalogue**

Combination Antennas UHF Band Antennas UHF Phased Array Antennas UHF Rhombus Antennas UHF Butterfly Antennas VHF Antennas VHF Antennas Indoor Antennas Marine & Caravan Antennas

Wall & Roof Mounts Facia Mounts Masts Tripod Roof Mounts Masting Accessories Staying Hardware Guying Hardware Fixing Hardware

RG59 Coaxial Cable RG6 Coaxial Cable RG11 Coaxial Cable Home Theatre Cable FAGOR Single Channel Amplifiers FAGOR Signal Processing Series FAGOR Programmable Selective Amplifier Terrestrial Distribution Amplifiers Satellite Distribution Amplifiers Wideband Modulators

IR Modulators
IR via CAT5 Modulators
CAT5 Baluns
IR / Wireless AV Extenders
AV Distrion
Kingray Masthead Amplifiers
Kingray power Supplies
Power Supplies
UHF Radio & Accessories

**FSM Hire Services** 

Field Strength Meters

Daluma

Wallplates
Filters
Attenuators
SignalMAX Premium Splitters
Splitters
A/V Switches
Converters
Separators
Satellite Taps
SignalMAX Satellite Splitters
Satellite Splitters
Flyleads
Tools
Power Boards
Batteries

**Connectors & Adaptors** 

Flatline Acoustics U.S.A. Custom Install Speakers & Accessories Structured Wiring Hub Home Theatre Interconnects Portable Media Products LCD & Plasma brackets
VICK Component Video Products

NextWave Digital HDTV PVRs HDTV Digital Terrestrial Set Tops NextWave Digital SDTV PVRs SDTV Digital Terrestrial Set Tops Digital Satellite Receivers

SignalMAX Satellite Dishes
Solid Dishes
Panel Dishes
Roof Mounts
Caravan Mounts
Actuators & Controllers
Feedhorns
LNB
LNBF
Satellite Switches
Signal Converters
Satellite Tools



## **AV Catalogue**

Our AV Catalogue contains a subset of the products from the Complete Trade Catalogue that are ideally suited to Custom Home Installers. From NextWave Digital Set Top Boxes, to SignalMAX home automation products and RF and LAN cable NAS is the one-stop-shop for your retail TV reception needs.



## **MATV Catalogue**

A myriad of developments including hotels, motels, gated communities, sporting stadiums, retirement villages and caravan parks utilise structured cable systems to distribute programmes and information services to end-users.

These structured cable systems usually incorporate some form of MATV (Master Antenna TeleVision) system designed to meet customer requirements. NAS provides a complete array of MATV and structured cabling products and offers consultancy services for the design of MATV systems.