TRIAX

connecting the future

TRIAX® Headends

a strong range of flexible solutions for CATV network, hotels and multi-dwelling units

triax.com

Reliability is our business. It's what we stand for.

For nearly 70 years, TRIAX has strived to be your preferred partner for all your connectivity needs. We're proud to provide reliable solutions for the present, while connecting our customers to the future.

At the forefront of technological trends and developments, we're with you each step of the way, from installing home connections and business critical hospitality solutions, to realising complex, large scale integrations.

Ready for any job at hand, our products are available individually or as part of tailor-made solutions. From aerials and dishes, to headends, outlets, cables and beyond – we make connectivity easy, ensuring you live up to your own customer promises.

Rest assured that at TRIAX, reliability and innovation run through the core of everything we do, from product development to our friendly, efficient service and support.

So enjoy browsing through this catalogue for an overview of our full product range. And of course, we're always just a phone call away for more inspiration towards your next solution.

Contact TRIAX

To place an order or consult one of our experts, contact us via:

Phone: +45 76 82 22 00
e-mail: triax@triax.com

Or pay us a visit online at www.triax.com, where you'll find a wealth of further material about our products and solutions.

TRIAX® Headend Solutions
find the right headend for your needs

TRIAX® headends
overview of our headend system

TDX BLACK EDITION

...a strong headend for medium sized CATV networks, town districts, CATV clusters, etc. The ultimate flexible hospitality solution including DRM interface and middleware support via IPTV signals

- Multi-unit (48 frontends and 72 output channels)
- Wide range of input and output technologies
- Simultaneous output of QAM/COFDM, PAL and IP
- Multiplexing
- Remote management and monitoring
- Local Service and hotel info channel insertion
- PID Management – to adapt PIDs if required
    - to secure Service changes without retuning of the television in each room
- One-stop solution (TDX in combination with the TRIAX CAS solution)
- Encryption and re-scrambling in one unit with no insecure interfaces to the decrypted content
- Provide scrambled services on differed distribution networks and technologies. Simultaneously distribution of QAM, COFDM and/or IP.
- IP-out for IPTV and middleware solutions

TDH 800

...a modular solution for hotels, multi-dwelling units, and as an add-on programme solution

- Wide range of input and output technologies
- Simultaneous output of QAM/COFDM and PAL
- Multiplexing
- Remote management and monitoring
- PID Management: – to secure service changes without retuning of the television in each room
- Local service and hotel info channel insertion

TDX Black Edition
technology that turns everything on its head

TDX headend – quite simply a revolution

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 management of headends, making 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, they can be assigned to several output modules.

Energy friendly – long-term reliability

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

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 TRIAX support

Better and stronger performance

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

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, step-by-step configuration

A true IP headend

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

Easy installation

- Input modules are independent of output modules, resulting in 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 provide 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

TRIAX® TDX cabinet
main unit for TDX range of modules

DVB-T Terrestrial	**DVB-S** Satellite		**DVB-C** Cable	**HD** **TV**	**EASY** 👍	**ECO**	**Multi-room**	**EASY** mounting	**Warranty** **2** Years
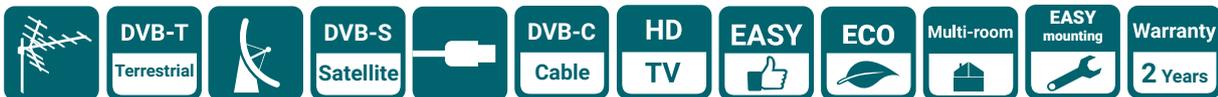
User-friendly technology

- Fully configurable: all implementation variants are possible with significantly fewer modules than a standard headend, thereby reducing costs for acquisition, service and warehousing
- Browser-based (HTML5) user interface configuration.
- Infinite variety of programmes thanks to revolutionary IP-pool technology, that makes TDX Black Edition uniquely flexible, efficient and economical

Futureproof

- IPTV offers video on demand, time-shifted television, many additional services for hoteliers, trade shows and much more

- No re-programming of the TV sets when a channel changes, thanks to PID management
- Energy-saving and durable

Perfect service for installers

- New modules are automatically recognised and configured
- No downtime for TV customers, as modules can be replaced during operation (hot swap)
- Supplied ready to fit the desired configuration
- Halved installation times due to easy programming
- Remote access for service and support

TDX Black Edition Main Unit

Art. No. 492091

EAN Number
5702664920919

x 1

TDX Black Edition
technology that turns everything on its head

Easy to install. Easy to use.

The configuration XML file from the headend system can be stored anywhere as a backup, and can be installed rapidly on a new installation.

In close collaboration with installers, TRIAX has optimised system handling: installation and commissioning is very easy, and operating the system is straightforward for both users as well as service staff.

New HTML 5 based GUI
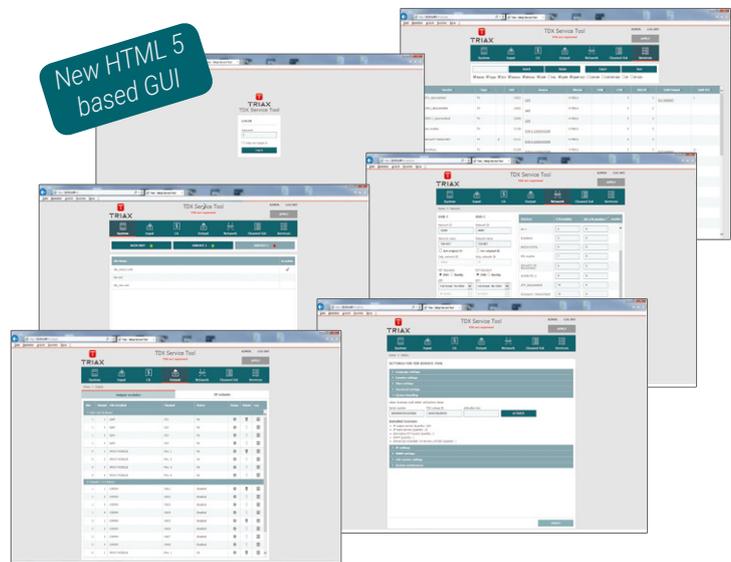
Type:	TDX Black Edition Main Unit
Art. no.	492091
CHARACTERISTICS	
Max. LNB control	4 x 305mA
Output level max. @ 60 dB IMD - 24 combined channels	103dBµV
Test point	-20dB
FREQUENCY	
Frequency range (RF OUT)	47 - 862MHz
RETURN LOSS	
Return loss (RF OUT)	> 14 dB at 47 MHz (-1,5 dB/octave; min. 10 dB)dB
ELECTRICAL	
Impedance	75Ω
OPERATIONAL	
Humidity - operating	20 ... 80%
Humidity - storage	10 ... 90%
AC Supply voltage	190 - 260 (50/60) HzVAC
Power Consumption (typ.)	280 (min. 20)W
Temperature - operating	-10 ... +50°C
Temperature - storage	-20 ... +70°C
CONNECTORS	
External RF OUT	F-connector
External test point	F-connector
PC interface	RJ 45
SFP cage	SFP Module (Cat5/Opto)
MECHANICAL	
Dimensions product (H x D x W) (HE)	290 x 240 x 440 mm / 6.5
Weight (kg)	12.0 kg
Packing QTY	1
Remarks	SNMP version : V1 & V2c

TRIAX® TDX input modules
DVB-C - DVB-S/S2 - DVB-T/T2 - HDMI & AV frontend encoder modules

| DVB-T Terrestrial | DVB-S Satellite | DVB-C Cable | HD TV | EASY 👍 | ECO | Multi-room | EASY mounting | Warranty 2 Years |

DVB-S/S2

An input module for the reception of digital satellite signals in a TDX headend system.

The module can receive a complete transponder and all services on the chosen frequency can be transferred to the TDX pool. The DVB-S/S2 frontend module includes an IF tuner and a QPSK/8PSK demodulator with serial transport stream input to the TDX headend system.

DVB-T/T2

A frontend input module for the reception of both T and T2 digital terrestrial signals.

The module can receive a complete terrestrial mux and send all services in the mux to the TDX pool.

DVB-C

An input QAM demodulator module for the reception of a complete cable mux, sending all services in the mux to the TDX pool. The DVB-C frontend module includes a tuner, with integrated gain control and channel filtering, and a QAM demodulator with serial transport stream input to the TDX system.

TDX Frontend - DVB-S/S2 [QPSK/8PSK]

Art. No. 492020	
EAN Number 5702664920209	x 1

TDX Frontend - DVB-T/T2 [COFDM]

Art. No. 492023	
EAN Number 5702664920230	x 1

TDX Frontend - HDMI [Encoder module]

Art. No. 492030	
EAN Number 5702664920308	x 1

TDX Frontend - DVB-C [QAM]

Art. No. 492024	
EAN Number 5702664920247	x 1

TDX Frontend - AV [Encoder module]

Art. No. 492080	
EAN Number 5702664920803	x 1

TRIAX® TDX input modules
DVB-C - DVB-S/S2 - DVB-T/T2 - HDMI & AV frontend encoder modules

HDMI & AV

The AV encoder module converts analogue video (CVBS) and the HDMI encoder module converts digital signals from a set top box, a DVD player, a camera or other sources, into a MPEG2 or MPEG4 data stream.

This data stream is then available in the TDX pool and can be sent out on all TDX output modules.
A 15 pol Sub-D or HDMI cable can be used to connect the source to the AV or HDMI module is also available.

Type:	TDX Frontend DVB-S/S2 [QPSK/8PSK]	TDX Frontend DVB-T/T2 [COFDM]	TDX Frontend DVB-C [QAM]	TDX Frontend HDMI [Encoder modul]	TDX Frontend AV [Encoder module]
Art. no.	492020	492023	492024	492030	492080
CHARACTERISTICS					
Audio embedded				AAC, 48 kHz/ MPEG-2(L1)	AAC, 48 kHz/ MPEG-2(L1), Stereo
Code rates DVB-T		1/2, 2/3, 3/4, 5/6, 7/8			
Code rates DVB-T2		1/2, 2/3, 3/4, 5/6			
Constellations DVB-T		QPSK, 16QAM, 64QAM			
Constellations DVB-T2		QPSK, 16QAM, 64QAM, 256QAM			
Demodulator		QPSK, 16QAM, 64QAM, 256QAM/ 1k, 2k, 8k, 16k, 32k	16 QAM, 64 QAM, 128 QAM, 256 QAM		
Demodulator Symbolrate			1.8 ...7.2Msym/s		
Demodulator Type	QPSK/8PSK	COFDM	QAM		
DiSEqC level	1.1				
FFT mode DVB-T		2K, 8K			
FFT mode DVB-T2		1K, 2K, 8K, 16K, 32K			
Guard Interval DVB-T		1/4, 1/8, 1/16, 1/32			
Guard interval DVB-T2		1/4, 1/8, 1/16, 1/32, 1/128			
Input Aspect Ratio					4:3 or 16:9
Input audio level					2.4Vpp
Input level	55...75dBµV	45...75dBµV	45...75dBµV		
Input Video S/N Ratio					> 52dB
Input video standards				480i30; 480p30 576i25; 576p50; 720p50/60; 1080p/i25/30	PAL, Secam
LNB LO/HI programmable	0/22kHz				
LNB V/H programmable	0..13..18/300V/mA				
FREQUENCY					
Input Audio Freq. Linearity					± 0.75dB
Input frequency range	950-2150MHz	177.5-226.5/474 - 858MHz	114 - 858MHz		
GAIN					
Input noise figure		< 7.0dB	< 7.0dB		
RETURN LOSS					
Input return loss	>10dB	> 6.0dB	> 7.0dB		> 26dB
ELECTRICAL					
Harmonic Distortion Max.					< 1%
Impedance	75Ω	75Ω	75Ω	75Ω	75Ω
Input Audio Impedance					10 ± 1kΩ
Physical Interface					CVBS
OPERATIONAL					
DC Operating voltage	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC
DC Current cons.(typ.)	OFF 150/ON 450mA	275mA	120mA	< 320mA	mA
Humidity - operating	20...80%	20...80%	20...80%	20...80%	20...80%
Temperature - operating	-10...+50°C	-10...+50°C	-10...+50°C	-10...+50°C	-10...+50°C
CONNECTORS					
Connector Type					
Connector IN	F-female	F-female	F-female	HDMI female (A)	15pol Sub-D
Number of inputs	1	1	1	1	1 x AV-signal
MECHANICAL					
Dimensions (H x D x W)	29 x 132 x 50mm	29 x 132 x 50mm	29 x 132 x 50mm	29 x 126 x 53mm	29 x 126 x 53mm
Packing QTY	1	1	1	1	1

TRIAX® TDX backend modules
quad QAM backend module DVB-C in FTA or with 2 x CI slot

| DVB-T Terrestrial	DVB-S Satellite	DVB-C Cable	HD TV	EASY	ECO	Multi-room	EASY mounting	Warranty 2 Years
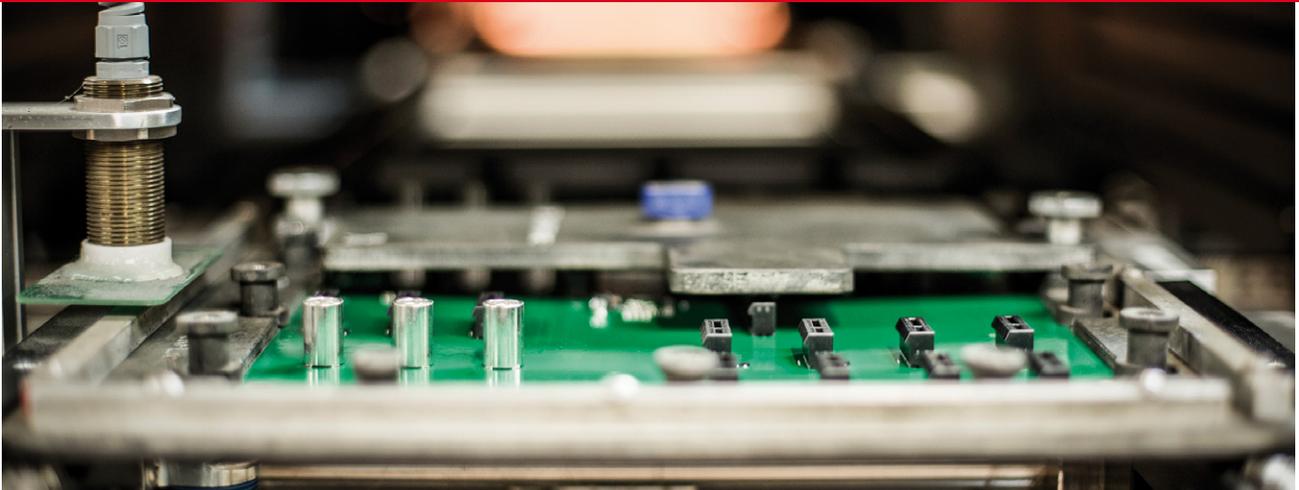
TDX quad QAM

These backend output modules that enable you to create up to 4 muxes of services / TV programmes available from the TDX pool. The services are distributed in a QAM data stream and can be combined so that the bandwidth of each output mux is optimised. The mux bandwidth monitor function in the TDX service tool ensures that you don't overload the bandwidth and cause problems with the transmission.

TDX quad COFDM

These backend output modules enable you to create up to 4 muxes of services / TV programmes available from the TDX pool. The services are distributed in a COFDM data stream and can be combined so that the bandwidth of each output mux is optimised. The mux bandwidth monitor function in the TDX service tool ensure that you don't overload the bandwidth and cause problems with the transmission.

TDX Backend - QAM
Art. No. 492055

EAN Number
5702664920551 x 1

TDX Backend - COFDM
Art. No. 492060

EAN Number
5702664920605 x 1

TDX Backend - QAM - 2CI
Art. No. 492056

EAN Number
5702664920568 x 1

TDX Backend - COFDM - 2CI
Art. No. 492061

EAN Number
5702664920612 x 1

TRIAX® TDX backend modules
quad COFDM backend module DVB-T in FTA or with 2 x CI

Multi-Unit for more power

- Up to three TDX headends can be combined as one system.
- Up to 72 PAL, QAM or COFDM channels are possible (around 280 HD programmes or 570 SD programmes).
- High output level at 103 dBµV for interference free reception.
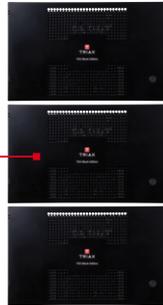
Type:	TDX Backend QAM	TDX Backend QAM - 2CI	TDX Backend - COFDM	TDX Backend - COFDM - 2CI
Art. no.	492055	492056	492060	492061
CHARACTERISTICS				
Carrier supported			2K	2K
Deinterleaver	I =12	I =12		
FEC block code	RS 204, 188	RS 204, 188		
Guard Interval			1/32, 1/16, 1/8, 1/4	1/32, 1/16, 1/8, 1/4
MER	≥ 41.0 (typ. 42)dB	≥ 41.0 (typ. 42)dB	≥ 36 (typ. 38)dB	≥ 36 (typ. 38)dB
Output level adjustment	+3...-17dB	+3...-17dB	+3...-17dB	+3...-17dB
Output Level System	100dBµV	100dBµV	100dBµV	100dBµV
Output QAM Modes	16 QAM, 32 QAM, 64 QAM,128 QAM, 256 QAM	16 QAM, 32 QAM, 64 QAM, 128 QAM, 256 QAM	16 QAM, 64 QAM, QPSK	16 QAM, 64 QAM, QPSK
Output symbol rate	3.15 - 7.2Mbit/s	3.15 - 7.2Mbit/s	Mbit/s	Mbit/s
Reed Solomon decoder	204, 188, t=8	204, 188, t=8	204 byte mode	204 byte mode
Roll-Off Factor	15%	15%		
Spurious Signals	> 60dB	> 60dB	> 60dB	> 60dB
FREQUENCY				
Bandwidth	7, 8MHz	7, 8MHz	6, 7, 8MHz	6, 7, 8MHz
Channel Raster	7, 8, 8.5MHz	7, 8, 8.5MHz	7, 8, 8.5MHz	7, 8, 8.5MHz
Frequency step	250kHz	250kHz	250kHz	250kHz
Output frequency range	50.5 - 858MHz	50.5 - 858MHz	50.5 - 858MHz	50.5 - 858MHz
RETURN LOSS				
Output Return Loss	> 10dB	> 10dB	> 10dB	> 10dB
OPERATIONAL				
CI slots	0	2	0	2
DC Operating voltage	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC
DC Current consumption (typ.)	700mA	900mA	1000mA	1200mA
Humidity - operating	20 ... 80%	20 ... 80%	20 ... 80%	20 ... 80%
Humidity - storage	10 ... 90%	10 ... 90%	10 ... 90%	10 ... 90%
Temperature - operating	-10 ... +50°C	-10 ... +50°C	-10 ... +50°C	-10 ... +50°C
Temperature - storage	-20 ... +70°C	-20 ... +70°C	-20 ... +70°C	-20 ... +70°C
MECHANICAL				
Dimensions product (H x D x W)	17 x 162 x 185mm	24 x 162 x 185mm	17 x 162 x 185mm	24 x 162 x 185mm
Packing QTY	1	1	1	1
Weight (kg)	0.41kg	0.44kg	0.43kg	0.46kg

TRIAX® TDX backend modules
PAL HD downscale - 2 x CI slot and IP backend modules

DVB-T Terrestrial	DVB-S Satellite		DVB-C Cable	HD TV	EASY	ECO	Multi-room	EASY mounting	Warranty 2 Years

TDX quad PAL HD downscale

These modules take any HD service from the TDX pool, scale the service down to SD format, modulate it to a PAL signal and distribute it in a PAL network. You can distribute 4 PAL services / TV programmes from each module, equal to 24 PAL services from one cabinet.

The PAL HD downscale module comes in 2 versions: a Free-to-Air version and a CI version with 2 CI slots for decrypting content or services. AC3 support is possible with the addition of an AC3 activation licence.

Triax IP backend

This is an output module for the transmission of digital video, audio and miscellaneous data, encapsulated within one or more MPEG2/DVB single programme transport streams. Besides the backend module the package consists of a AUX-TS-Loop module and an SFP RJ45 (small form factor pluggable) module. IP licences are required.

Features:

- IP transmission of up to 80 MPEG2/DVB SPTS
- Configurable ratio of 3-7 TS packets / MTU
- Configurable output priority for each output SPTS
- RTP option
- 2 x CI slots complying to EN 50 221
- Hotswappable

TDX Backend - PAL HD FTA downscale

Art. No. 492052

EAN Number
5702664920520

x 1

TDX Backend - 2CI

Art. No. 492070

EAN Number
5702664920704

x 1

TDX Backend - PAL HD downscale - 2CI

Art. No. 492053

EAN Number
5702664920537

x 1

TDX Backend - IP - 2CI

Art. No. 492072

EAN Number
5702664920728

x 1

TRIAX® TDX backend modules
PAL HD downscale - 2 x CI slot and IP backend modules

TDX – IP backend

Type:	TDX Backend PAL HD FTA downscale	TDX Backend PAL HD downscale - 2CI	TDX Backend 2CI	TDX Backend IP - 2CI
Art. no.	492052	492053	492070	492072
CHARACTERISTICS				
Crominance/luminance delay	< 80ns/m	< 80ns/m		
EIT				No EIT - must be obtained via native IP OUT
Differential Gain	< 8%	< 8%		
Differential Phase	< 8°	< 8°		
Output Audio S/N Ratio	50dB	50dB		
Output level adjustment	+3...-17dB	+3...-17dB		
Output Level System	103dBµV	103dBµV		
Output Video S/N Ratio	≥ 57dB	≥ 57dB		
Output format				MPEG-2/DVB compliant SPTS UDP/IP multicast via GbE
Picture carrier stability	< ±30kHz	< ±30kHz		
Sound sub carrier	5.5/5.74/6.0/6.5MHz	5.5/5.74/6.0/6.5MHz		
Spurious Signals	> 60dB	> 60dB		
FREQUENCY				
Channel Raster	7, 8MHz	7, 8MHz		
Frequency step	250kHz	250kHz		
Output frequency range	47 - 862MHz	47 - 862MHz		
RETURN LOSS				
Output Return Loss	> 10dB	> 10dB		
ELECTRICAL				
Luminance non-linearity	< 8%	< 8%		
Impedance			75Ω	75Ω
OPERATIONAL				
CI slots	0	2	2	2
DC Operating voltage	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC
DC Current consumption (typ.)	1600mA	1800mA	600mA	< 600mA
Humidity - operating	20 ... 80%	20 ... 80%	20 ... 80%	20 ... 80%
TV-norm	Pal(B/G, I, L, D/K), Secam			
Humidity - storage	10 ... 90%	10 ... 90%	10 ... 90%	10 ... 90%
Output protocol				3-7:1 TS / IP packet ratio (configurable via GUI), RTP (optional via GUI)
Temperature - operating	-10 ... +50°C	-10 ... +50°C	-10 ... +50°C	-10 ... +50°C
Temperature - storage	-20 ... +70°C	-20 ... +70°C	-20 ... +70°C	-20 ... +70°C
MECHANICAL				
Dimensions product (H x D x W)	17 x 162 x 185mm	24 x 162 x 185mm	24 x 162 x 185mm	24 x 162 x 185mm
Packing QTY	1	1	1	1
Weight (kg)	0.43kg	0.46kg	0.22kg	0.22kg

TRIAX® TDX
fibre modules & software

| DVB-T Terrestrial | DVB-S Satellite | DVB-C Cable | HD TV | EASY 👍 | ECO | Multi-room | EASY mounting | Warranty 2 Years |
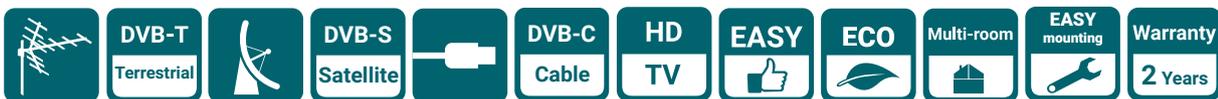
TDX Software
IP input/output functionality

Create your own array of services / TV programmes from the TDX pool, distribute them on an IP data stream and define them in the TDX tool. No output module is needed, so long as more than 1 TS package per UDP package or RTP protocol is required – otherwise, an IP backend is required and you will need a licence key

containing the rights to the number of services needed. The licence keys are available in packages of 4 and 12 (96 IP out) IP services in each package. When the services are distributed in IP format, you will also need an SFP transceiver and a corresponding fibre or RJ45 cable.

TDX SFP Module Copper RJ45 - EOLT - C12-02 plug

| Art. No. 492086 | |
| EAN Number 5702664920865 | x 1 |

TDX SFP Module - Fibre LC 850nm EOLT - 8512 MXX plug

| Art. No. 492087 | |
| EAN Number 5702664920872 | x 1 |

TDX SFP Module Fibre LC 1310nm [EOLT - 1324-02XX plug]

| Art. No. 492088 | |
| EAN Number 5702664920889 | x 1 |

Type:	TDX SFP Module - Copper RJ45 - EOLT - C12-02 plug	TDX SFP Module - Fibre LC 850nm EOLT - 8512 MXX plug	TDX SFP Module - Fibre LC 1310nm [EOLT - 1324-02XX plug]
Art. no.	492086	492087	492088
OPERATIONAL			
Data rate	1000	1000	1000
Reaching area	100m	550m	2.000m
MECHANICAL			
Packing QTY	1	1	1
Remarks	Copper SFP (RJ45)	Fibre LC - 850 nm	Fibre LC - 1310 nm

TDX – IP-in and IP-out

TDX IPTV-in 4 service - Start
Art. No. 418047

EAN Number
5702664180474

x 1

TDX IPTV-in 12 service - Start
Art. No. 418045

EAN Number
5702664180450

x 1

TDX IPTV-in 12 service - Expand
Art. No. 418046

EAN Number
5702664180467

x 1

TDX IPTV-out 12 service - Start
Art. No. 418040

EAN Number
5702664180405

x 1

TDX IPTV-out 12 service - Expand
Art. No. 418041

EAN Number
5702664180412

x 1

TDX Samsung DRM backend license
Art. No. 418073

EAN Number
5702664180733

x 1

TDX – IP-in and IP-out

TDX Alternative EIT source
Art. No. 418050

EAN Number
5702664180504

x 1

TDX PAL AC3 activation license
Art. No. 418051

EAN Number
5702664180511

x 1

TDX SimulCrypt 24 service
Art. No. 418072

EAN Number
5702664180726

x 1

TDX SNMP License
Art. No. 418062

EAN Number
5702664180627

x 1

TDX PID Management
Art. No. 418063

EAN Number
5702664180634

x 1

TRIAX® TDX
accessories & spare parts

| | DVB-T Terrestrial | | DVB-S Satellite | | DVB-C Cable | HD TV | EASY 👍 | ECO | Multi-room | EASY mounting | Warranty 2 Years |

TDX IPTV EPG Server

The EPG Server extracts data from DVB-S, DVB-C and DVB-T front end modules, generating different XML formats to support IP set-top boxes, IP TVs and middleware solutions.

TDX Redundant Power Supply

The TDX redundant power supply provides you with a high degree of power assurance in connection with your TDX headend system.
The redundant power supply uses two identical TDX Power supplies mounted in a mechanical frame. This means only one power supply in stock to support TDX and redundant power supply installations. If one power supply unit breaks down the other unit instantly takes over and thereby prevents an interruption of the supply of power. The damaged power supply can be changed without disconnecting the working unit from the power.

IPTV EPG Server

Art. No. 492095

EAN Number
5702664920957

TDX redundant power supply

Art. No. 492006

EAN Number
5702664920063

ACCESSORIES

TDX Controller

Art. No. 492000

EAN Number
5702664920001

TDX SD card

Art. No. 492084

EAN Number
5702664920841

TDX Double fan kit

Art. No. 775365

EAN Number
5702667753651

TDX power supply

Art. No. 492005

EAN Number
5702664920056

TRIAX® TDH800 cabinet
the all-rounder with innovative pool technology

| | DVB-T Terrestrial | | DVB-S Satellite | HD TV | EASY 👍 | ECO | Multi-room | EASY mounting | Warranty 2 Years |

TDH 800

The TDH 800 headend is ideal for those looking for a flexible, compact and reliable solution, with a range of input and output modules for all popular TV distribution formats.

If you need additional features such as multi unit or IP-in/out, then please select the TDX headend.

Perfect for

■ Hotels
■ Large multi-family houses
■ Small settlements

Key features

■ Fully configurable thanks to pool technology
■ More programme channels by multiplexing
■ Configuration via web interface

TDH 800 Cabinet - Main Unit

Art. No. 692890

EAN Number
5702666928906

IP-Pool

TRIAX® TDH800 cabinet
main unit for TDH range of modules

Energy-saving and long-term reliability

IP Pool and Multiplex technology

Easier service handling

Easy configuration

Easy installation
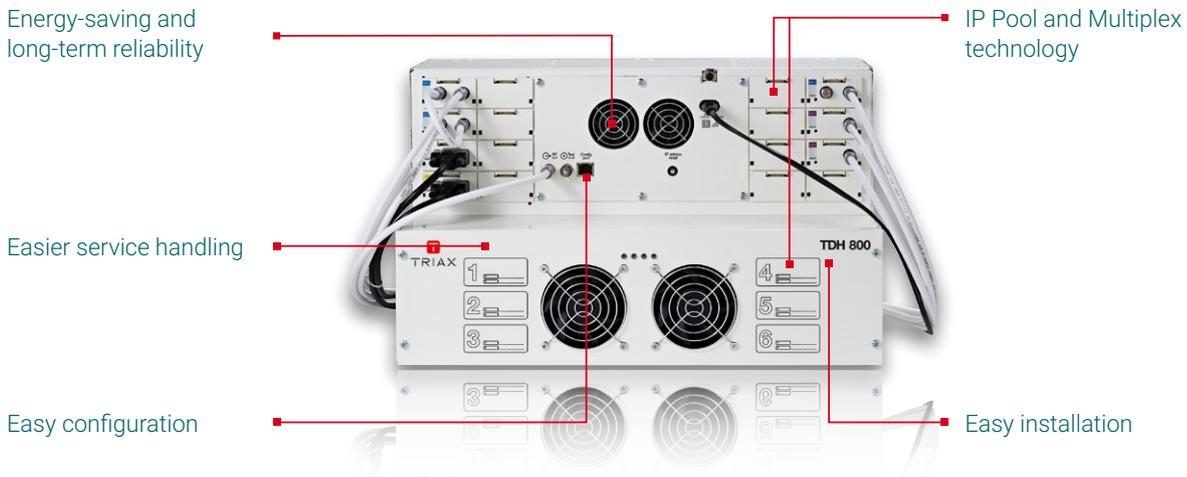
TDH 800

Type:	TDH 800 Cabinet Main Unit
Art. no.	692890
CHARACTERISTICS	
External test point	F-connector
Max. LNB control	4 x 305mA
Output level max. @ 60 dB IMD - 24 combined channels	93dBµV
Test point	- 20dB
DiSEqC level	1
FREQUENCY	
Frequency range (RF OUT)	47-862MHz
RETURN LOSS	
Return loss (RF OUT)	> 10dB
ELECTRICAL	
Impedance	75Ω
OPERATIONAL	
Humidity - operating	20 to 80%
Humidity - storage	10 to 90%
AC Supply voltage	190-260 (50/60 HZ IEC320 1.8m cable)VAC
Power Consumption (typ.)	280 (min 20)W
Temperature - operating	-10 to +50°C
Temperature - storage	-20 to +70°C
CONNECTORS	
External RF OUT	F-connector
PC interface	RJ 45
MECHANICAL	
Dimensions product (H x D x W)	265 x 240 x 440 mm
Packing QTY	1pcs
Remarks	

TRIAX® TDH800 input modules
DVB-S/S2 - DVB-T/T2 - HDMI and AV frontend encoder module

DVB-T Terrestrial		DVB-S Satellite	HD TV	EASY	ECO	Multi-room	EASY mounting	Warranty 2 Years

DVB-S/S2
This frontend module is an input module for the reception of digital satellite signals in a TDH 800 headend system. The module can receive a complete transponder, and all services on the chosen frequency can be transferred to the IP-pool.
The DVB-S/S2 frontend module includes an IF tuner with antenna loop through and a QPSK/8PSK demodulator with serial transport stream input to the TDH 800 headend system.

DVB-T/T2
This frontend module is an input module for the reception of both T and T2 digital terrestrial signals.
The module can receive a complete terrestrial mux and send all services in the mux to the IP-pool.

TDH 811 Frontend DVB-S/S2 [QPSK/8PSK]
Art. No. 692820

EAN Number
5702666928203

x 1

TDH 814 Frontend - AV encoder module
Art. No. 692880

EAN Number
5702666928807

x 1

TDH 813 Frontend DVB-T/T2 [COFDM]
Art. No. 692823

EAN Number
5702666928234

x 1

TDH 815 Frontend HDMI module
Art. No. 692830

EAN Number
5702666928302

x 1

TRIAX® TDH800 input modules
DVB-S/S2 - DVB-T/T2 - HDMI and AV frontend encoder module

HDMI & AV

The AV encoder module converts analogue video (CVBS) and the HDMI encoder module converts digital signals from a set top box, a DVD player, a camera or other sources, into a MPEG2 or MPEG4 data stream.

This data stream is then available in the IP-pool and can be sent out on all TDX output modules.
A 15 pol Sub-D or HDMI cable can be used to connect the source to the AV- or HDMI module is also available.

Type: Art. no.	TDH 800 Frontend DVB-S/S2 [QPSK/8PSK] 692820	TDH 800 Frontend DVB-T/T2 [COFDM] 692823	TDH 800 Frontend AV encoder module 692880	TDH 815 Frontend HDMI module 692830
CHARACTERISTICS				
Audio embedded			AAC, 48 kHz/ MPEG-2(L1), Stereo	AAC, 48 kHz/ MPEG-2(L1), Stereo or AC3 pass through
Code rates DVB-T		1/2, 2/3, 3/4, 5/6, 7/8		
Code rates DVB-T2		1/2, 2/3, 3/4, 5/6		
Constallations DVB-T		QPSK, 16QAM, 64QAM		
Constallations DVB-T2		QPSK, 16 QAM, 64 QAM, 256 QAM		
DiSEqC level	1.1			
FFT mode DVB-T		2K, 8K		
FFT mode DVB-T2		1K,2K,4K,8K,16K,32K		
Input audio level			2.4Vpp	
Input level	55...75dBμV	45...75dBμV		
Input video level			1.0Vpp	
Input Video S/N Ratio			> 52dB	
Input video standards			PAL, Secam	480i30; 480p60; 576i25; 576p50; 720p50/60; 1080p25/30; 1080i25/30
LNB LO/HI programmable	0/22kHz			
Output Type				MPEG (Serial) transport stream (LVDS)
Output Video Codec			MPEG-2, MPEG-4	MPEG-2, MPEG-4
Output Video Codec Settings (CBR)			1, 2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10 MbpsMbps	3...11 á 1Mbps
Scan Resolution			525, 625 Pixel	
FREQUENCY				
Bandwidth		7/8MHz		
Audio frequency response			50 - 20.000Hz	
Input frequency range	950...2150MHz	VHF 177.5-226.5 MHz UHF 474 - 858MHz		
GAIN				
Input noise figure		< 7.0dB		
RETURN LOSS				
Input return loss	> 10dB	> 6dB	> 26dB	
ELECTRICAL				
Harmonic Distortion Max.			< 1.0%	
Impedance	75Ω	75Ω	75Ω	
Input Audio Impedance			10 ± 1kΩ	
Physical Interface			CVBS	
OPERATIONAL				
DC Operating voltage	12VDC	12VDC		12 ± 1VDC
DC Current consumption (typ.)	OFF 150/ ON 450mA	200mA		< 320mA
Humidity - operating	20...80%	20 to 80%	20 to 80%	20...80%
Temperature - operating	-10...+50°C	-10 to +50°C	-10 to +50°C	-10...+50°C
CONNECTORS				
Connector Type	F-female	F-female	15pol Sub-D	HDMI female (A)
Number of inputs	1	1	1 x AV-signal	1x HDMI
MECHANICAL				
Dimensions product (H x D x W)	32 x 132 x 50mm	29 x 132 x 50mm	29 x 126 x 53mm	29 x 126 x 53mm
Packing QTY	1	1	1	1

TRIAX® TDH800 backend modules
quad PAL HD downscale - FTA or with 2 x CI slot

	DVB-T Terrestrial		DVB-S Satellite	HD TV	EASY 👍	ECO	Multi-room	EASY mounting	Warranty 2 Years

TDH800 quad PAL HD downscale

These modules take any HD service from the IP-pool, scale it down to SD format, modulate it to a PAL signal and distribute it in a PAL network. You can distribute 4 PAL services / TV programmes from each module, equal to 24 PAL services from one cabinet.

The PAL HD downscale module comes in 2 versions: a Free-to-Air version and a CI version with 2 CI slots for decrypting content or services. AC3 support is possible with the addition of an AC3 activation licence.

TDH 848 Backend - PAL-HD Downscale FTA

Art. No. 692852	
EAN Number 5702666928524	x 1

TDH 849 Backend - PAL-HD Downscale CI

Art. No. 692853	
EAN Number 5702666928531	x 1

TDH 847 Backend 2CI

Art. No. 692870	
EAN Number 5702666928708	x 1
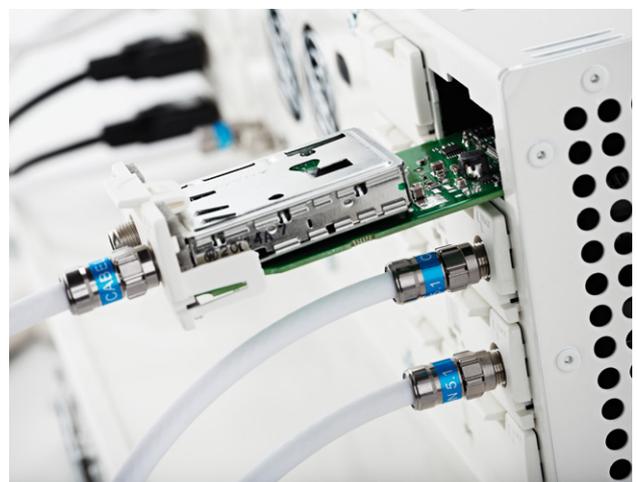
TRIAX® TDH800 backend modules
CI only

Type:	TDH 848 Backend PAL-HD Downscale FTA	TDH 849 Backend PAL-HD Downscale CI
Art. no.	692852	692853
CHARACTERISTICS		
Output Audio S/N Ratio	50dB	50dB
Output Level System	103dBµV	103dBµV
Output Video S/N Ratio	≥ 57dB	≥ 57dB
Sound sub carrier	5.5/5.74/6.0/6.5MHz	5.5/5.74/6.0/6.5MHz
Spurious Signals	> 60dB	> 60dB
FREQUENCY		
Channel Raster	7, 8MHz	7, 8MHz
Frequency step	250kHz	250kHz
Output frequency range	47 - 862MHz	47 - 862MHz
RETURN LOSS		
Output Return Loss	> 10dB	> 10dB
ELECTRICAL		
Impedance	75Ω	75Ω
OPERATIONAL		
CI slots	0	2
DC Operating voltage	12 ± 1VDC	12 ± 1VDC
DC Current consumption (typ.)	1600mA	1800mA
Humidity - operating	20 ... 80%	20 ... 80%
Humidity - storage	10 ... 90%	10 ... 90%
Temperature - operating	-10 ... +50°C	-10 ... +50°C
Temperature - storage	-20 ... +70°C	-20 ... +70°C
CONNECTORS		
Connector Type	F-female	F-female
MECHANICAL		
Dimensions product (H x D x W)	17 x 162 x 185mm	24 x 162 x 185mm
Packing QTY	1	1

Triax 2 x CI backend

The 2 x CI backend module enables you to take several services depending on CAM module from the IP pool, decrypt them and loop them back in decrypted form to the pool.

Type:	TDH 847 2CI Backend
Art. no.	692870
ELECTRICAL	
Impedance	75Ω
OPERATIONAL	
CI slots	2
DC Operating voltage	12 ± 1VDC
DC Current consumption (typ.)	600mA
Humidity - operating	20 ... 80%
Humidity - storage	10 ... 90%
Output protocol	
Temperature - operating	-10 ... +50°C
Temperature - storage	-20 ... +70°C
CONNECTORS	
Connector Type	F-female
MECHANICAL	
Dimensions product (H x D x W)	24 x 162 x 185 mmmm
Packing QTY	1

TRIAX® TDH800 backend modules
quad QAM backend module DVB-C in FTA or with 2 x CI slot

| DVB-T Terrestrial | | DVB-S Satellite | HD TV | EASY 👍 | ECO | Multi-room | EASY mounting | Warranty 2 Years |

TDH800 quad COFDM

These backend modules are output modules that enable you to create up to 4 muxes of services / TV programmes which are available from the IP-pool. The services are distributed in a COFDM data stream. The services can be combined so that the bandwidth of each output mux is used in an optimal way. The mux bandwidth monitor function in the service tool ensures that you don't overload the bandwidth and cause problems with the transmission.

TDH800 quad QAM

These backend modules are output modules that enable you to create up to 4 muxes of services / TV programmes which are available from the IP-pool. The services are distributed in a QAM data stream. The services can be combined so that the bandwidth of each output mux is used in an optimal way. The mux bandwidth monitor function in the service tool ensures that you don't overload the bandwidth and cause problems with the transmission.

TDH 845 Backend QAM

Art. No. 692855

EAN Number
5702666928555

x 1

TDH 843 Backend COFDM

Art. No. 692860

EAN Number
5702666928609

x 1

TDH 846 Backend QAM - 2CI

Art. No. 692856

EAN Number
5702666928562

x 1

TDH 844 Backend COFDM -2CI

Art. No. 692861

EAN Number
5702666928616

x 1

TRIAX® TDH800 backend modules
quad COFDM backend module DVB-T in FTA or with 2 x CI

Type:	TDH 800 Backend - COFDM	TDH 800 Backend - COFDM -2CI	TDH 800 Backend - QAM	TDH 800 Backend - QAM - 2CI
Art. no.	692860	692861	692855	692856
CHARACTERISTICS				
Carrier supported	2K	2K		
Guard Interval	1/32, 1/16, 1/8, 1/4	1/32, 1/16, 1/8, 1/4		
Deinterleaver			I =12	I =12
Reed Solomon decoder	204 byte mode	204 byte mode	204, 188, t=8	204, 188, t=8
MER	≥ 35.0dB	≥ 35.0dB	≥ 38.0dB	≥ 38.0dB
Output Level System	90.0 ± 1.5dBµV	90.0 ± 1.5dBµV	90.0dBµV	90.0dBµV
Output QAM Modes	16 QAM, 64 QAM, QPSK	16 QAM, 64 QAM, QPSK	16 QAM, 32 QAM, 64 QAM, 128 QAM, 256 QAM	16 QAM, 32 QAM, 64 QAM, 128 QAM, 256 QAM
Output symbol rate			3.15...7.2Mbit/s	3.15...7.2Mbit/s
Spurious Signals	> 60dB	> 60dB	> 60dB	> 60dB
Roll-Off Factor			15%	15%
TER - FEC rate	1/2, 2/3, 3/4, 5/6, 7/8	1/2, 2/3, 3/4, 5/6, 7/8		
FREQUENCY				
Channel Raster	7, 8, 8.5MHz	7, 8, 8.5MHz	7, 8, 8.5MHz	7, 8, 8.5MHz
Frequency step	250kHz	250kHz	250kHz	250kHz
Output frequency range	50.5 - 858MHz	50.5 - 858MHz	50.5 - 858MHz	50.5 - 858MHz
RETURN LOSS				
Output Return Loss	> 10dB	> 10dB	> 10dB	> 10dB
ELECTRICAL				
Impedance	75Ω	75Ω	75Ω	75Ω
OPERATIONAL				
CI slots	0	2	0	2
DC Operating voltage	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC	12 ± 1VDC
DC Current consumption (typ.)	1000mA	1200mA	700mA	900mA
Humidity - operating	20...80%	20...80%	20...80%	20...80%
Humidity - storage	10...90%	10...90%	10...90%	10...90%
Temperature - operating	-10...+50°C	-10...+50°C	-10...+50°C	-10...+50°C
Temperature - storage	-20...+70°C	-20...+70°C	-20...+70°C	-20...+70°C
CONNECTORS				
Connector Type	F-female	F-female	F-female	F-female
MECHANICAL				
Dimensions product (H x D x W)	17 x 162 x 182mm	24 x 162 x 182mm	17 x 162 x 185mm	24 x 162 x 185mm
Packing QTY	1	1	1	1

CAS – Conditional Access Systems
for hospitality and CATV Solutions

| DVB-C Cable | HD TV | EASY | ECO | Multi-room | EASY mounting | Warranty 2 Years |

Conditional Access Turn-Key Solutions

TRIAX is your reliable partner for turn-key solutions, supporting headend operators with everything they need for digital TV projects.

Plug & Play Hardware

All our CAS hardware is plug & play and can be easily installed with little prior knowledge. Configuration is downloaded from our central server and a continuous backup ensures data integrity at all times. Faulty hardware simply needs to be exchanged – its replacement will automatically receive the same configuration with no additional steps required.

Security

We're committed to keeping content secure, and we've developed a set of countermeasures and standby technologies to allow continuity. Control words to protect broadcast content generated by scramblers in the headend are secured along the whole signal chain. Unique keys branded into secure chipsets together with watermarking technology effectively prevent control word sharing on all scales. Copy protection is a must for a Conditional Access System.

CAS Hospitality

This solution has been specifically designed for the needs of the hospitality sector. Each guest house, clinic or hotel needs to offer value-added TV services and whether in limited budgets or green field deployment of state-of-the-art TV services, TRIAX is the key component for successful access control. Hospitality operators are able to offer linear TV services and Video-On-Demand to their guests while retaining full control over guests' demands and guarding against piracy.

Content in any network infrastructure can be secured and controlled with one single chassis CAS Server in

the headend. Using any type of cabling (coaxial, twisted pair or even wireless), and any type of transport (DVB-C/T or IP-based), the headend controls both one-way (broadcast) and two-way transport networks. Existing TV sets can be used by adding a Common Interface module. More functionality will be available with a set top box. Every employee has their unique interface: a receptionist handles the payment and controls the guest subscription accordingly, a technician or caretaker maintains and manages the respective smartcards / devices of the rooms. A manager has full control and observes all actions, including those executed in the past. Easy and effortless management of the overall system without the need for specialists is therefore possible.

Features:

- Supports room management for up to 500 rooms
- Room messaging (On-screen messages)
- High-end conditional access system (CAS)
- Compatible with QAM, COFDM and IP
- Data stored at a secure TRIAX database (no backup necessary)
- Controlled by CAS Management Software or network based interface
- Pay per channel, TV client, provisioning, etc.
- Any client device: TV with CI interface or set-top box
- Smartcard or cradles licenses possible
- Hospitality & hotel chains management (on request): Master account for managing thousands of hotels uniformly
- Easy to use reception mode
- Easy integration into your PMS system (on request)

CAS – Conditional Access Systems
for hospitality and small CATV Solutions

CAS Hospitality
Art. No. 305528

CAS Operator
Art. No. 305537

CAS Operator

The Operator CAS System for digital headends is optimised to run with a TDX. Installation, operation and maintenance are very easy and do not need expert intervention. Every headend becomes a secure and state-of-the-art digital TV platform with high-end Digital Rights Management and access restriction.

Features:
- Support subscriber or room management.
- Up to 250,000 subscribers
- Compatible with QAM, COFDM and IP
- Data stored at a secure TRIAX database (No backup necessary)
- Controlled by CAS Management Software or network based interface
- Pay per channel, TV client, provisioning, etc.
- On-screen messages
- Any client device: TV with CI interface or set-top box
- Smartcard or cradles licenses possible
- High-end conditional access system (CAS)

CAS Smartcard
Art. No. 305502

The CAS smartcard chip is based on an NXP crypto controller. A set of cryptographic features makes this platform highly flexible and secure. Should a compromise take place, pre-included standby algorithms can be activated.

CAS Cardless licence DVB
Art. No. 305503

TRIAX offers a CA kernel running on a secure chipset. Depending on the device's chipset every level of security can be reached: from basic kernel for cost-effective devices up to a sophisticated kernel, secured by a high-end, advanced security chipset.
All CA kernel flavours include standby algorithms that can be activated in case of compromise. In this way you have the tamper- proof security of a smartcard integrated directly into your box, eliminating the possibility of attacks on the communication between the smartcard and the box hardware.

CAS Management Software

This web-based application is the user interface for all TRIAX CAS products, with an ever-growing feature set. It is the central component that enables plug & play and easy control of the overall system. CAS Management Software is also multilingual. Translators maintain 9 languages currently and CAS Management Software itself can easily talk with any other software such as subscriber management systems, billing, etc.

CAS Hybrid STB DVB-C/T/IP slim
Art. No. 305232

HD DVB-C set top box compliant with MPEG2 and MPEG4 H.264. TRIAX has a full range of CAS compatible set-top boxes and will find and offer the right solutions needs during a project evaluation.

TRIAX® CM 01
1 channel modulators

| DVB-T Terrestrial	DVB-S Satellite	DVB-C Cable	HD TV	EASY 👍	ECO	Multi-room	EASY mounting	Warranty 2 Years

TRIAX modulators

CM series:

TRIAX CM modulators modulate AV signals from a camera, video or set top box to a VHF channel (CM 01V), UHF channel (CM 01U) or UHF channel with integrated amplifier (CM 01UA).

- Multi-standard
- Easy programming
- PLL – locked frequency
- Built-in power supply

TFM01

The TRIAX Fullband Modulator TFM01 allows you to mix the output from any normal VCR/DVD-Player, camera, etc. with a composite output signal and enjoy it on any standard PAL TV-set in your household. Due to the full VHF/UHF coverage of this modulator you can be sure always to find a TV channel in your home system that is free for use and interference.

MOD 101

The MOD 101 is a digital modulator with one high definition HDMI input (1080P, MEPG4) and a full range COFDM modulator (MOD 101T) or full range QAM modulator (MOD 101C).

CM 01U [UHF] modulator

Art. No. 300102
EAN Number 5702663001022

MOD 101C HDMI-QAM

Art. No. 300126
EAN Number 5702663001268

CM 01UA [UHF] modulator with amplifier

Art. No. 300116
EAN Number 5702663001169

MOD 101T HDMI-COFDM

Art. No. 300125
EAN Number 5702663001251

CM 01V [VHF] modulator

Art. No. 300101
EAN Number 5702663001015

Triax Fullband Modulator TFM01

Art. No. 300112
EAN Number 5702663001121

TRIAX® CM 01
1 channel modulators with amplifier

Type:	CM 01V [VHF] modulator	CM 01U [UHF] modulator	CM 01UA [UHF] modulator with amplifier	MOD 101C HDMI-QAM	MOD 101T HDMI-COFDM	TFM01 Fullband Modulator
Art. no.	300101	300102	300116	300126	300125	300112
CHARACTERISTICS						
Audio Compression				MPEG-1 Audio Layer II (ISO/IEC 11172-3)	MPEG-1 Audio Layer II (ISO/IEC 11172-3)	
Audio Input	0.5 V RMS	0.5 V RMS	0.5...1.0 V RMS	Stereo, HDMI	Stereo, HDMI	
Code rate					1/2, 2/3, 3/4, 5/6, 7/8	
COFDM					DVB-T	
Constellation					QPSK/16 QAM/ 64 QAM	
Guard Interval					1/4, 1/8, 1/16, 1/32	
MER				>36dB	>36dB	
Number of carriers					2K / 8K	
Input level			max. 70 dBµV	75 - 90dBµV	90dBµV	
Output level @ 60 dB IMD	max. 80 dBµV	max. 80 dBµV	72...82 dBµV	75 - 90dBµV	90dBµV	72 - 82 dBµV
Video Compression				H.264/AV	H.264/AC	
Video Input . CVBS	1.0	1.0	0.8...1.0	HDMI	HDMI	0.8...1.0Vpp
Video resolution	Pal-B	Pal-G	Pal-G	Up to 1080p @30HzPixel	Up to 1080p @30HzPixel	
Modulator type			Double side band			
FREQUENCY						
Gain from out 1/out 2			2 @ Out1 10 @ Out2 dB			2 @ Out1 10 @ Out2 dB
Bandwidth				6/7/8MHz	6-8MHz	
Frequency range	175...335MHz	470...860MHz	470...860MHz	100 - 860MHz	100-860MHz	MHz
Output attenuation	0...10 dB	0...10 dB	0...10 dB			0...10 dB
RETURN LOSS						
LCN				Up to 1023	Up to 1023	
PID settings				PMT/Video & Audio / PCR	PMT/Video & Audio / PCR	
PSI				HID/ONID/ P.D.S/TS ID	HID/ONID/ P.D.S./TS ID	
Screen Resolution				800x600 / 1024x768 / 1280X600 / 1280x/720 / 1280x768 / 1360x768 / 1366x768		
Through loss	4.0dB	4.0dB				
ELECTRICAL						
Impedance	75Ω	75Ω	75Ω	75Ω	75Ω	75Ω
OPERATIONAL						
DC Operating voltage				12VDC	12VDC	
External PSU				Included		
AC Supply voltage	230VAC	230VAC	230VAC			230VAC
Power Consumption (typ.)	3.0W	3.0W	3.5W	8W	8W	3.5W
CONNECTORS						
Connector IN	1 x F-female	1 x F-female	1 x F-female	HDMI female	HDMI female	1 x F-female
Connector OUT	1 x F-female	1 x F-female	2 x F-female	F-female	F-female	1 x F-female
Input connector				HDMI, F-terrestrial loop through	Video/Audio: HDMI Type A	
MECHANICAL						
Product Depth	54mm	54mm	54mm	150mm	150mm	
Product Width	174mm	174mm	174mm	150mm	150mm	
Product Height	75mm	75mm	75mm	36.5mm	36.5mm	
Weight (kg)				0.48kg	0.48kg	0.5kg
Display	L			LCD panel and buttons	LCD panel and buttons	Buttons
Packing QTY	1	1	1	1	1	
Remarks		Use SCART cable art. no. 300743				Use SCART cable art. no. 300743

TRIAX

connecting the future

Contact

triax.com / contact

TRIAX is a global supplier of reliable, innovative products and solutions for the reception and distribution of video, audio and data signals.

Our Products are used in homes, businesses and operator networks by broadcasters, satellite, cable and telecom operators.

Our Solutions combine our hardware and software expertise to deliver value to hospitality and related markets, through a partner network of system integrators, large installers and operators.

TRIAX's headquarters, production and R&D base is in Denmark. With 9 international sales subsidiaries we operate in more than 60 distributor countries.

The TRIAX team consists of 300 employees and is owned by Polaris Private Equity.

See www.triax.com for further info.

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