



HDTV **ENCODER / MODULATORS**

OPERATOR APPROVED



Unlimited HD Video Distribution Over Coax

High density, professional HD video encoding solution for new or existing coax infrastructure, for better quality in less bandwidth. **Compatible with any HDTV, use your existing coax cabling to distribute pristine high definition to an unlimited number of flat screen TVs!**

HDMI, COMPONENT, OR COMPOSITE TO QAM

DESCRIPTION

This family of HDTV encoder/modulator products offers MPEG-2 or H.264 encoding at rates up to 1080p, with either 2 HDMI and component, 2 component, or 4 composite inputs with a single QAM RF channel out for broadcast over new or existing single-wire coax cable infrastructure to an unlimited number of HDTVs.

It supports Dolby® Digital audio encoding ensuring quality and compatibility with any HDTV, Closed Captioning, and an optional EAS interface with ASI input and output for convenient signal management, and a watermarking option that enables forensic analysis of the content in support of content owners and licensing.

The units are also equipped with the innovative Televes integrated RF combiner and a built-in ethernet switch for integration and control of an entire system without needing additional accessories. Its high density, with up to 28 encoded channels per chassis, is optimum for large channel count environments where modularity and flexibility are critical.

All this with the same form factor and comprehensive local and web based remote monitoring, control, and update capability of the T.OX family of products for easy integration and operation of a unified video headend.

INPUT OPTIONS

- **Two HDMI or HD component** video channels multiplexed into one RF QAM channel
- **Two HD component** video channels multiplexed into one RF QAM channel
- **Four composite** video channels multiplexed into one RF QAM channel

Dual HDMI /
Component to QAM



Dual
Component to QAM



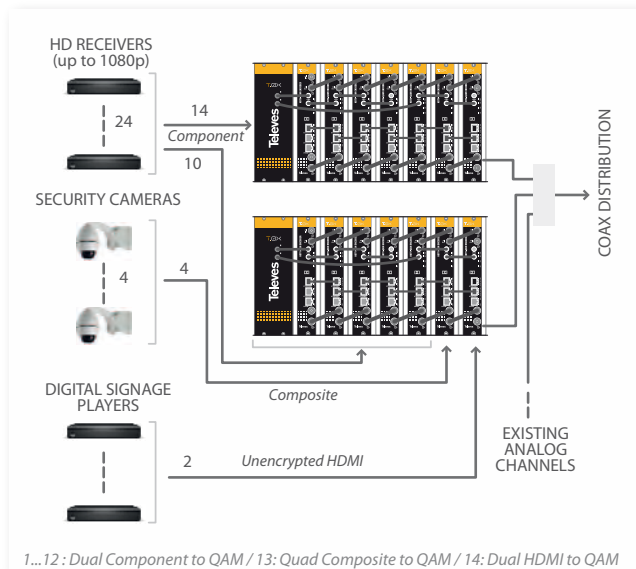
Quad
Composite to QAM



✓ Features

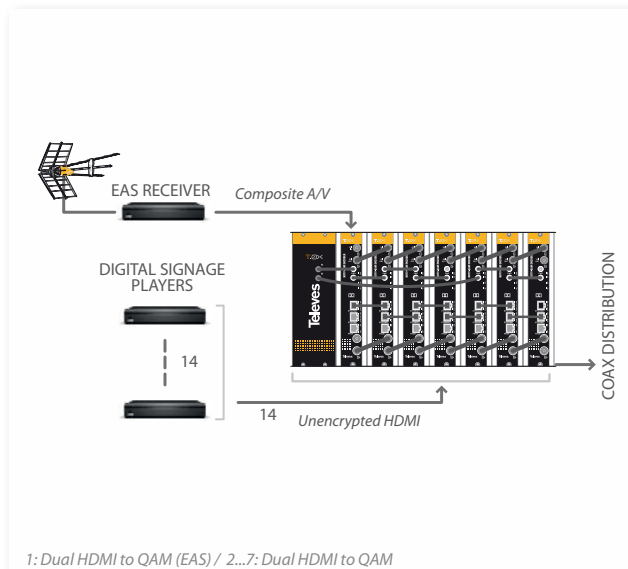
- Up to 1080p MPEG-2 and H.264 encoding with auto-detection of input type and format
- Real-time Dolby® Digital audio encoding
- PSIP tables (VCT) allow users to configure 3 types of virtual channel maps for each channel
- High power with +55 dBmV fully agile RF output from 5 to 1002MHz and >40dB MER
- Optional EAS interface with composite video and L/R audio
- Integrated ASI I/O provides easy EAS signal management
- Same form factor and interface as the other T.OX family members
- Easy-to-use and comprehensive remote control/monitoring/alarm from any web browser
- Local configuration with hand-held programmer
- Integrated RF Combiner and Ethernet switch for rapid deployment
- Automatic remote firmware upgradeability for new future-proof features
- Invisible watermarking for forensic content analysis

MULTIPLE DWELLING UNITS



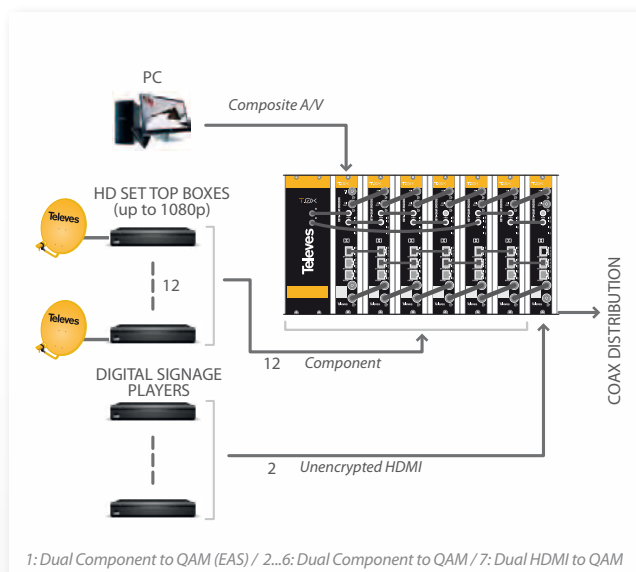
This example shows various inputs including up to **1080p HD programming**, **security camera content**, and **locally generated digital signage announcement channels**, delivered over the building's single wire coax infrastructure without set top boxes to every existing and future HDTV in the property.

DIGITAL SIGNAGE (WITH EAS)



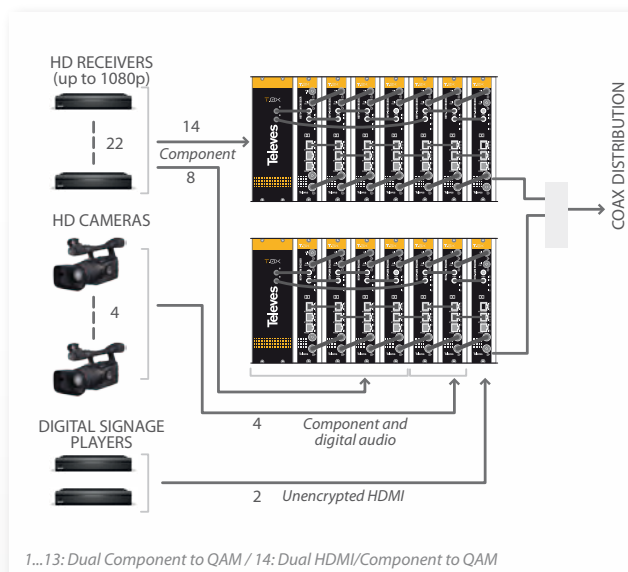
Broadcast an easily scalable number of digital signage channels to a potentially **unlimited number of displays without using any additional devices at the HDTVs**. Adding a single EAS module to the system provides plant-wide alert announcement capability, with built-in EAS signal distribution and RF combination.

RESTAURANTS & BARS (WITH EAS)



Use the existing coax wiring to distribute full HD programming in restaurants and bars without rewiring or using HDMI or component matrix switchers. Easily add high definition in-house content using HDMI digital signage players, and take advantage of a simple PC connected to an EAS encoder to display special promotion announcements on every screen at the same time.

BALLPARKS, ARENAS & STADIUMS



Hundreds of inexpensive HDTV displays installed across the stadium can be operated from a rack of HDTV Encoder/Modulators providing live HD video content from other games via cable or satellite receivers, live TV game action from the field HD cameras, and even additional digital signage channels displaying trivia, statistics or special announcements, all of it **using the already existing cable distribution**.

References				QUAD COMPOSITE TO QAM		DUAL COMPONENT TO QAM		DUAL HDMI/ COMPONENT TO QAM	
				563802	563821	563801	563811	563803	563831
INPUTS	VIDEO	Connectors		4 sets – 1x RCA for video (CVBS)		2 sets – 3x RCA for video (Y, Pb, Pr)		2 sets – 3x RCA for video (Y, Pb, Pr) 2 sets – 2x HDMI (unencrypted)	
	AUDIO	Connectors		4 sets – 2x RCA for analog audio (L, R)		2 sets – 2x RCA for analog audio (L, R)			
						2 sets – 1x RCA for digital audio (PCM)			
						2 sets – 1x toslink for digital audio (Optical)			
	CLOSED CAPTIONING	Connectors		4 sets – 1x RCA (CVBS in)		2 sets – 1x RCA (CC in)			
	EAS*	Connectors		n/a	3xRCA (CVBS, L,R)	n/a	3xRCA (CVBS, L, R)	n/a	3xRCA (CVBS, L,R)
		Trigger	Vdc	n/a	5-12 (Dry contact closure)	n/a	5-12 (Dry contact closure)	n/a	5-12 (Dry contact closure)
	ASI	Connectors		1x BNC					
Format		DVB-ASI							
Standard		ETSI EN 50083-9							
QAM	Connectors		1x "F" female (loop-through mix input)						
ENCODING PROFILE	VIDEO	Output Format		MPEG-2, H.264					
		Resolution		480i & 576i	480i, 480p, 576i, 576p, 720p, 1080i (MPEG-2/H.264) & 1080p (H.264)				
		Aspect Ratio		Supports auto-scan for input resolution					
		GOP Structure		4:3, 16:9, and pass-through					
		Transport rate		I & P					
		Video bit rate		Variable					
	AUDIO	Output format		Dolby® Digital AC-3 or MPEG-1 Layer 2					
		Sampling rate	kHz	48					
		Output bitrate		Variable					
CLOSED CAPTIONING	Format		EIA-608		EIA-608, EIA-708				
OUTPUT	QAM	Connectors		1x "F" female					
		Modulation standards		ITU-A: 16, 32, 64, 128, 256, 512, 1024 QAM					
				ITU-B: 64, 256 QAM					
		Frequency Range	MHz	5 – 1002 MHz (supports return path applications)					
		Channel plans		CATV STD, HRC, IRC, Broadcast, Frequency					
		Max output level	dBmV	55 (43 with loop-through)					
		MER	dB	>40 (Typ)					
		Spurious	dBc	-60					
		Impedance	Ω	75					
		I/Q Phase Error	°	<1					
	I/Q Amplitude Imbalance	%	<1						
	ASI	Connectors		1x BNC					
		Format		DVB-ASI					
ALARMS / MONITORING / CONTROL		Local control		Full configuration with LCD handheld programmer					
		Local monitoring		EAS status LED					
				LOOP status LED					
				QAM status LED					
				TEMP status LED					
				CH1/2 – CH3/4 status LEDS	CH1/2 status LED				
				Ethernet status LEDS					
		Remote monitoring		Centralized web based remote control, management, alarms, and software upgrades					
Control		Daisy-chain built-in ethernet switch							
GENERAL		Power supply	Vdc	24					
		Power disipation	W	<19.2 (@1080p)					
		Operating Temperature	°F/ °C	32 to 122 / 0 to 50					
		Storage Temperature		-13 to158 / -25 to 70					