



NEW PRODUCT 2015

Televes



A FULL RANGE OF MULTISWITCHES

100% MANUFACTURED AND VERIFIED IN OUR ROBOTIZED LINES

Nevo switch®

A FULL RANGE AVAILABLE

5x, 9x, 13x & 17x: UP TO 4 SATELLITES

FROM 4 TO 32 USER OUTPUTS

QUAD COMPATIBLE VERSION FOR THE 5x RANGE

MSW can be used to power a setback/mast amplifier or a BOSS Tech antenna



Versatile

The same MSW can be configured as cascade or stand-alone with the flick of a switch

Chassis made of ZAMAK

Improved screening attenuation

ECO Mode

The consumption decreases as the number of users is reduced.

Multiple powering options (Vertical/Low polarity):

In-line (cascade) from any point in the system

From the Set-top-box (no PSU required in the MSW)

From an external PSU

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Generate your own DTT content in High Definition

- High quality output (MER>40dB).
- Compatible with many formats, resolutions and TV screen dimensions.
- Fully configurable modulation and codification parameters.
- Compatible with multiple input signals: HDMI, CVBS, YPbPr, SPDIF audio (Ref. 563832), ...
- HDCP (High-Bandwidth Digital Content Protection) incorporated, can be disabled in case of having authorization from the TV provider.



REF.	DESCRIPTION
563822	T.OX ENCODER QUAD COMPUEST.-COFDM/QAM
563832	T.OX ENCODER TWIN HDMI/COMP.-COFDM/QAM
567401	STANDALONE/WALL ENCODER T.OX SUPPORT

HIGHLIGHTS

- User friendly configuration using **an embedded web server**.
- **Remote control** through the Internet.
- **High output gain** with no need of extra amplification.
- Configurable **COFDM or QAM output**.
- Energy efficient due to its **low power consumption**.



HDTV



REMOTE
MANAGEMENT

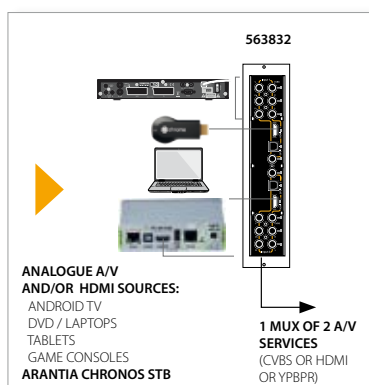


LOW
CONSUMPTION

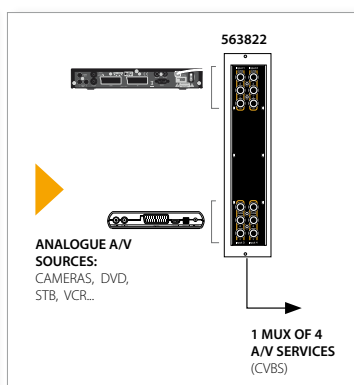


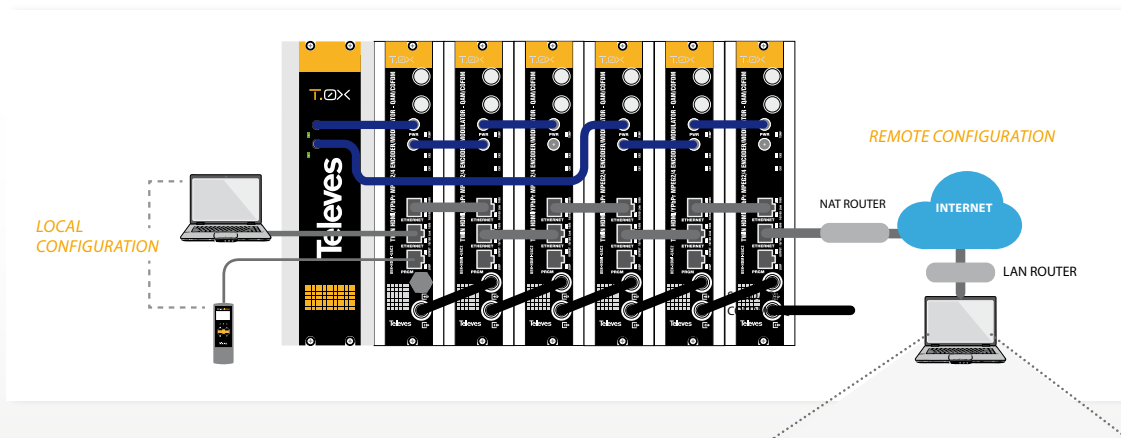
H.264
MPEG-4 AVC

GENERATION OF A DIGITAL MULTIPLEX FROM
DIGITAL AND/OR ANALOGUE INPUTS



GENERATION OF A DIGITAL MULTIPLEX FROM
ANALOGUE INPUTS





HEADEND PERFORMANCE SCREEN

#	Model	Temp.	CH1	CH2	CH3	CH4	OUT	RFLoop	Output Table	Output Channel	Watermarking ID	STATUS
1	563832 - Dual Component/HDMI - web connected	NORMAL	LOCK	LOCK	n/a	n/a	NORMAL	ON	CCIR N.Z.Ind	C21	DISABLED	OK
2	563832 - Dual Component/HDMI	NORMAL	LOCK	LOCK	n/a	n/a	NORMAL	ON	CCIR N.Z.Ind	C22	DISABLED	OK
3	563832 - Dual Component/HDMI	NORMAL	LOCK	LOCK	n/a	n/a	NORMAL	ON	CCIR N.Z.Ind	C23	DISABLED	OK
4	563832 - Dual Component/HDMI	NORMAL	LOCK	LOCK	n/a	n/a	NORMAL	ON	CCIR N.Z.Ind	C24	DISABLED	OK
5	563832 - Dual Component/HDMI	NORMAL	LOCK	LOCK	n/a	n/a	NORMAL	ON	CCIR N.Z.Ind	C25	DISABLED	OK
6	563832 - Dual Component/HDMI	NORMAL	LOCK	LOCK	n/a	n/a	NORMAL	ON	CCIR N.Z.Ind	C26	DISABLED	OK
7	563832 - Dual Component/HDMI	NORMAL	LOCK	LOCK	n/a	n/a	NORMAL	ON	CCIR N.Z.Ind	C27	DISABLED	OK

OUTPUT CONFIGURATION SCREEN

#	Model	Table	Channel	Freq. Adj.	Level	Mode	BW	Guard Interval	FEC	Cell ID	Baudrate	Output	RF Loop	Select
1	563832 - Dual Component/HDMI - web connected	CCIR N.Z.Ind	C21	n/a	99	COFDM(64QAM)	8 MHz	1/32	7/8	0	n/a	NORMAL	☒	☐
2	563832 - Dual Component/HDMI	CCIR N.Z.Ind	C22	n/a	99	COFDM(64QAM)	8 MHz	1/32	7/8	0	n/a	NORMAL	☒	☐
3	563832 - Dual Component/HDMI	CCIR N.Z.Ind	C23	n/a	99	COFDM(64QAM)	8 MHz	1/32	7/8	0	n/a	NORMAL	☒	☐
4	563832 - Dual Component/HDMI	CCIR N.Z.Ind	C24	n/a	99	COFDM(64QAM)	8 MHz	1/32	7/8	0	n/a	NORMAL	☒	☐
5	563832 - Dual Component/HDMI	CCIR N.Z.Ind	C25	n/a	99	COFDM(64QAM)	8 MHz	1/32	7/8	0	n/a	NORMAL	☒	☐
6	563832 - Dual Component/HDMI	CCIR N.Z.Ind	C26	n/a	99	COFDM(64QAM)	8 MHz	1/32	7/8	0	n/a	NORMAL	☒	☐
7	563832 - Dual Component/HDMI	CCIR N.Z.Ind	C27	n/a	99	COFDM(64QAM)	8 MHz	1/32	7/8	0	n/a	NORMAL	☒	☐
Set Configuration for all Units (7):		Select	Select	Select	Select	Select	Select	Select	Select	Select	Select	Select	☒	☐

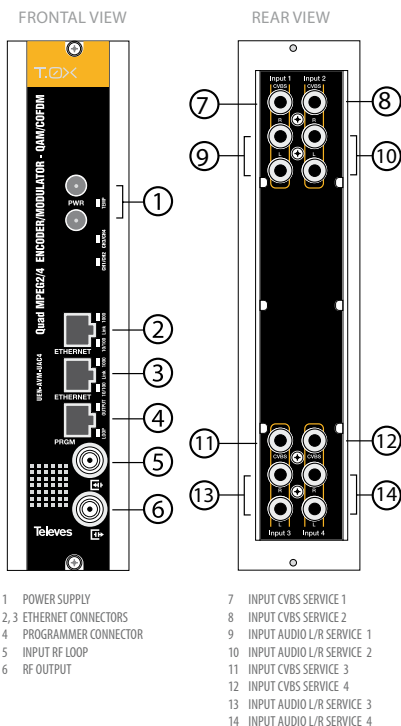
INPUT CONFIGURATION SCREEN

#	Model	Enabled	Video Input	Video Codec	Video Bitrate (Mbps)	Aspect Ratio	GOP	Audio Input	Audio Bitrate (Kbps)	Audio Level	Select
1	563832 - Dual Component/HDMI - web connected	☒	HDMI	H264	12,00	PASS	15	HDMI	384	14	☒
2	563832 - Dual Component/HDMI	☒	HDMI	H264	12,00	PASS	15	HDMI	384	14	☒
3	563832 - Dual Component/HDMI	☒	HDMI	H264	12,00	PASS	15	HDMI	384	14	☒
4	563832 - Dual Component/HDMI	☒	HDMI	H264	12,00	PASS	15	HDMI	384	14	☒
5	563832 - Dual Component/HDMI	☒	HDMI	H264	12,00	PASS	15	HDMI	384	14	☒
6	563832 - Dual Component/HDMI	☒	HDMI	H264	12,00	PASS	15	HDMI	384	14	☒
7	563832 - Dual Component/HDMI	☒	HDMI	H264	12,00	PASS	15	HDMI	384	14	☒
Set Configuration for all Units (7):		Select	Select	Select	Select	Select	Select	HDMI	Select	Select	☐

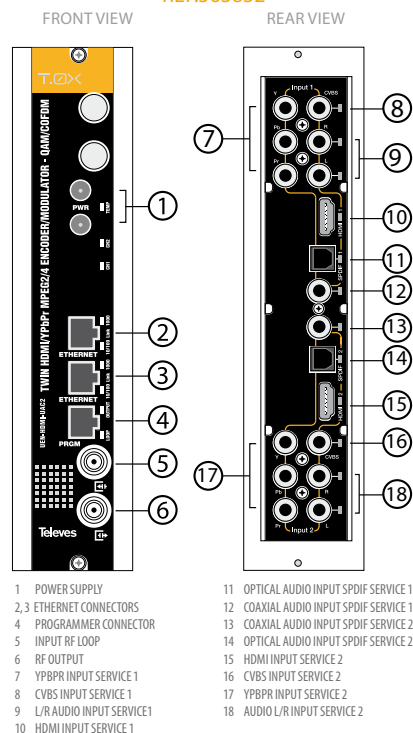
ENCODER / MODULATOR HDTV

		563822	563832	
INPUT				
Video		4 sets 1 x RCA (CVBS)	2 sets 3 x RCA (Y, Pb, Pr) 2 sets 1 x RCA (CVBS)	
Audio		4 sets 2 x RCA (L, R)	2 sets 2 x RCA (L, R) 2 sets 1 x RCA (Digital) 2 sets 1 x Toslink (Optical)	
Video + Audio		-	2 sets 1 x HDMI	
VIDEO ENCODER				
Output format		MPEG-2 / H264		
Resolution		480i & 576i Auto-scan of input resolution	480i, 480p, 576i, 576p, 720p, 1080i & 1080p Auto-scan of input resolution	
Aspect ratio		4:3, 16:9 and pass through		
GOP		10, 12, 15, 16, 18, 20, 24 ó 30		
AUDIO ENCODER				
Output format		MPEG1 Layer 2	Dolby Digital AC-3 (only Digital Loop) or MPEG1 Layer2 (analogue input or HDMI PCM)	
Sampling rate		kHz	48	
OUTPUT				
Frequency bands		MHz	46...862	
Output maximum level		dBµV	115 (103 with active loop-through)	
MER		dB	>40	
Spurious		dBc	-60	
QAM	Modulation		16, 32, 64, 128, 256	
	BaudRate	Mbaud	6,9	
	Roll-off	%	15	
	Code		Reed Solomon	
	Spectrum mode		Normal / Inverted	
	Frequency steps	kHz	250	
COFDM	Modulation		QPSK, 16QAM, 64QAM	
	Guard interval	µS	1/4, 1/8, 1/16, 1/32	
	FEC		1/2, 2/3, 3/4, 5/6, 7/8	
	Bandwidth	MHz	6, 7, 8	
	Cell_id		Configurable	
PSI	Frequency steps	kHz	125 / 166	
	Transport Stream ID		Configurable	
	Original Network ID		Configurable	
	Network ID		Configurable	
	LCN		Configurable	
	NIT		Manual / Automatic	
	SDT		Manual / Automatic	
	LCN mode		Generic / UK / NorDig V1 / NorDig V2	
	Network Name		Configurable	
	Service PID		Configurable	
	Service Name		Configurable	
	Service ID		Configurable	
	GENERAL			
	Power supply		Vdc	24
Consumption		W	<16 <20,4	
Ingress Protection		IP	20	
Dimensions (W x H x D)		mm	50 x 216 x 180	

REF.563822



REF.563832



Headend remote control

The adjust and programming of T.OX headends can be performed remotely using a Web application. This system provides the platform for IP services for multidevice distribution headend management.

TSuite automatically adapts to any device and display type. It is available as APP in Google market for Android devices and in Apple market for IOS devices.



TSuite



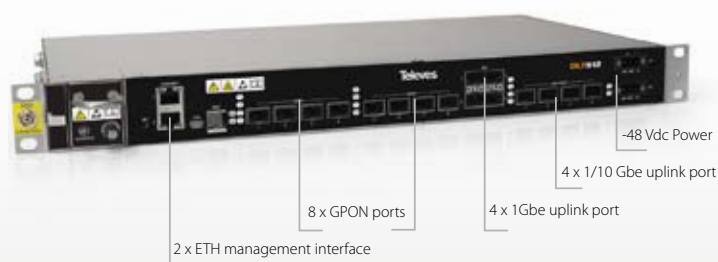
GPON Solutions

OLT512

OLT512 is the service provider compact end point for customers willing to deploy an FTTX infrastructure using GPON technology.

Specially designed for medium/small residential environments and compatible with ITU-T G.984X, OLT512 is a cost-effective solution that enables triple play services (Data, TV, telephone) for up to 512 subscribers with 2,5Gbps/1,24Gbps downstream/upstream bandwidth.

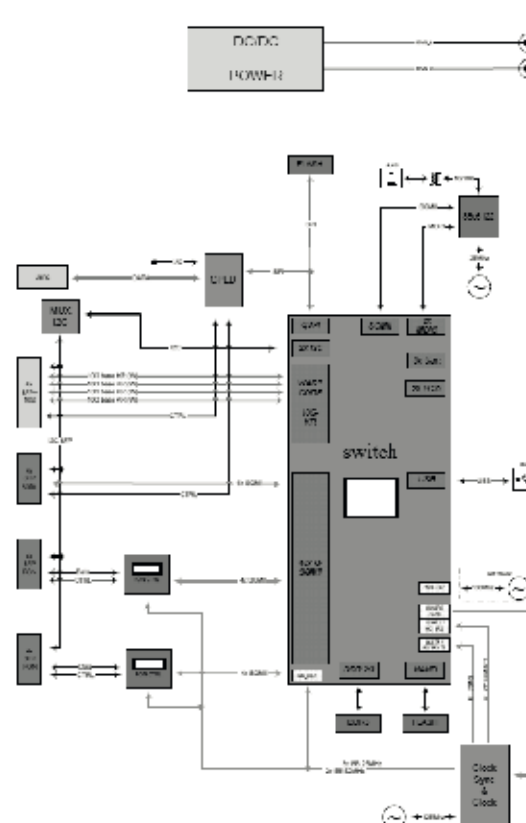
- Range up to 60Km.
- Standard Gigabit Ethernet Uplinks 4x1GbE / 4x10GbE
- Equipped with test output.
- Remote operation and monitoring.



REF.	DESCRIPTION
769401	OLT512
769410	SFP GPON
769411	SFP Gbe



Art.number		769401
GPON		
Downstream / Upstream bit rate	Gbps	2.488 / 1.244
AES Encryption		
ONT per PON (512 subscribers)		>64
Logical Range	Km	60
Maximun Differential Distance	Km	20
GPON Type B redundancy		
L2 layer		
IEEE 802.1Q VLAN tagging and Q-in-Q VLAN stacking		
VLAN-ID conversion to GEM port-ID		
Load balancing		
Priority management		
Full wire speed GPON Performance		
IPTV Features		
IGMP v2 / v3		
Multicast		
IPTV streams		>1024
Management		
Local management by CLI and HTTP/HTTPS browser		
Remote management using SSH, Telnet and SNMP protocols		
General		
Temperature conditions	°C	5 to +45
Relative Humidity Range	%	95
Power supply	VDC	-40,5 to -57,0



ONT

Televes ONT solutions are the right choice for those who implement a GPON optical network at the subscriber's home.



Compliant with recommendation ITUG.984.x, supports **multiple-play service** enabling data High Speed Internet (HSI), VoIP, WiFi, TV (IPTV and RF Overlay).

- Broadband data rates 2.5Gbps/1.25Gbps (downstream/upstream)
- Legacy nx64 Kbps and E1 business services support
- Mass remote management / full remote control without user intervention
- Reliable and long live equipment solution with several Indoor/Outdoor mount options.

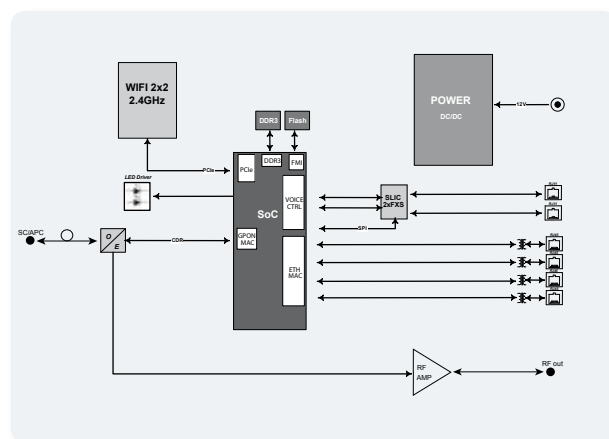
Art.number		769501	769502	769503
RF-Overlay			✓	✓
WiFi (802.11 b/g/n)	GHz	2,4 (2x2)	2,4 (2x2)	
USB		1	2xHost	
FXS Ports		2	2	
ETH Ports 10/100/1000BASE-T		4	4	1
NAT/NAPT		✓	✓	
Firewall		✓	✓	
VPN pass-through		✓	✓	
PPPoE termination		✓	✓	
OMCI		✓	✓	✓
TR-069		✓	✓	
CLI		✓	✓	
WebGUI			✓	
General				
Temperature conditions	°C	-5... 65		
Relative Humidity Range	%	0...95		
Power supply	W	15	19	7

REF.	DESCRIPTION
769501	GPON ONT OFFICE (4xGbE, 2xFXS, 2xUSB, WLAN)
769502	GPON ONT HOME (4xGbE, 2xFXS, 2xUSB, WLAN, RF)
769503	GPON ONT STANDARD (1xGbE, RF)

CONNECTIONS

- 1 RJ45 Gbe port
- 2 RJ11 phone port
- 3 F RF connector
- 4 Power

BLOCK DIAGRAM



High power 1550nm Optical Amplifier 8 CH with WDM

Based on **YEDFA technology**, High power amp-8CH with WDM is a stand alone unit designed to support the demands of the next PON Technologies.

The high power amp-8CH with WDM is a unit that complements FiberData OLT512, 769401, for the reduced GPON scenarios, providing with two compact solutions 8 GPON interfaces, amplification of the RF Overlay channel and its multiplexing.



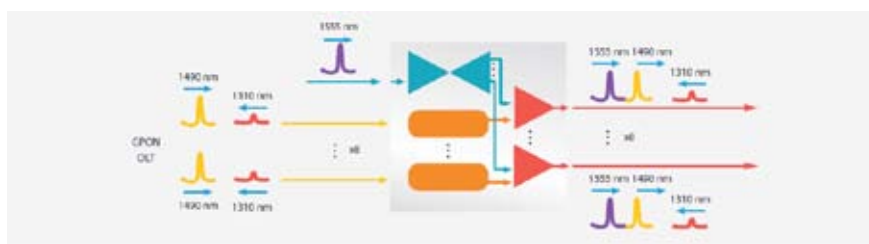
- Video Overlay multiplexing with GPON signals.
- Amplification of the Video Overlay.
- Typical output power of 20 dBm.

CONNECTIONS

- 1 1550 nm Video Overlay Input
- 2 8 x 1310nm/1490nm GPON Input
- 3 24Vdc Power connectors
- 4 Status and error Leds
- 5 8 x 1310nm/1490nm/1550nm PON Output

REF.	DESCRIPTION
234228	High Power 1550nm Optical Amplifier 8CH with WDM

OPERATION METHOD



Reference			234228
OPTICAL Video Overlay INPUT	Input optical power range	dBm	-5...+10
	Input connector	type	1 x SC/APC
	Operating wavelength	nm	1543...1565
OPTICAL GPON INPUT	Insertion Loss (1310nm & 1490nm)	dB	<1
	Input connector	type	8 x SC/APC
	Operating wavelength	nm	1270...1310 / 1480...1550/ 1543...1565
OPTICAL OUTPUT	Output optical power per port (1550nm)	dBm	20 ± 0,8
	Output connector	type	8 x SC/APC
	Noise figure	dB	≤7 (0 dBm@1550nm)
	Optical return losses	dB	≥ 50
GENERAL	Powering	Vdc	24
	Consumption @ 24 Vdc	mA	
	Ingress protection level	IP	20
	Dimensions (WxHxD)	mm	

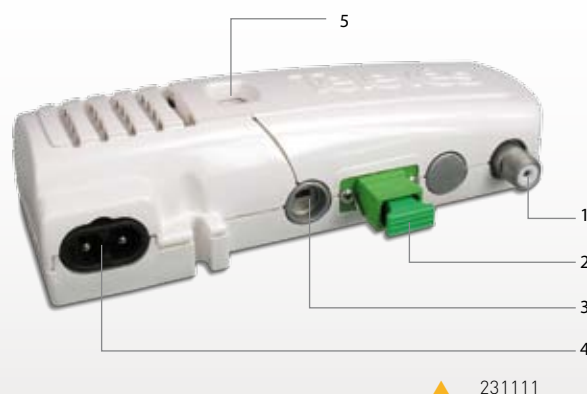
Optical TV receiver with automatic output level

Designed for FTTH applications, provides a stable RF output signal level no matter of input signal variations.

DOMESTIC F.O. RECEIVER WITH OLC

The domestic fibre optic receiver can **convert into its original RF format the TV signals** which were previously converted into optical for their transmission through an optical network.

Due to the OLC (Optical Level Control), it will balance the output signal regardless of the number of channels.



▲ 231111

REF.	DESCRIPTION
231111	Optical receiver with automatic output level

Reference			231111
OPTICAL INPUT	Optical device	type	InGaAs pin photodiode
	Wavelength	nm	1550
	Detection bandwidth	MHz	1...3000
	Optical input power range	dBm	-10 ~ +3
	Optical return losses	dB	> 60
RF OUTPUT	Frequency range	MHz	87... 860
	Impedance	ohm	75
	Output return losses	dB	≥ 11
	Optical AGC operating range	dB	0 ...18
	Max. output level ⁽¹⁾ (2 tone, IMD ≥ 60 dB)	dBμV	110/tone
GENERAL	Mains voltage	Vac	230 ± 30%
	Current consumption	mA	35 max.
	Power consumption	W	3 max.
	Output RF connector	type	F female
	Input optical connector		SC/APC
	Operating temperature	°C	0 ...45
	Weight	gr	230
	Ingress protection level	IP	20
	Dimensions (WxHxD)	mm	145 × 60 × 35

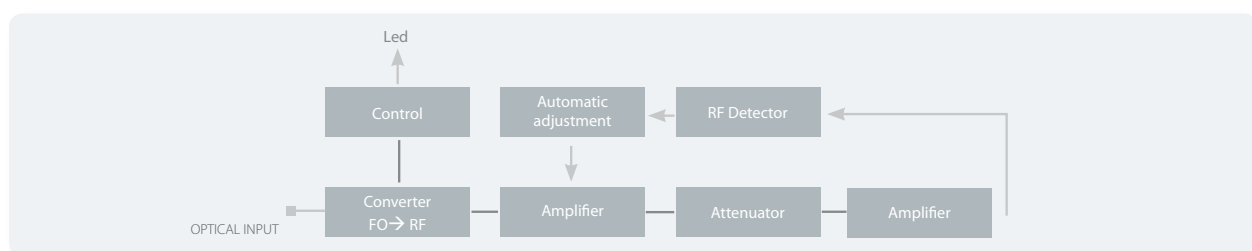
1. Max. output level for CSO and CTB ≥ 60dB.

1. The LED indicator for received optical power, will glow red when the incident optical power exceeds the specified maximum value; it will glow green whenever the optical power is between -10 to +3 dBm; and will glow amber when the incident power is less than -10 dBm.

CONNECTIONS

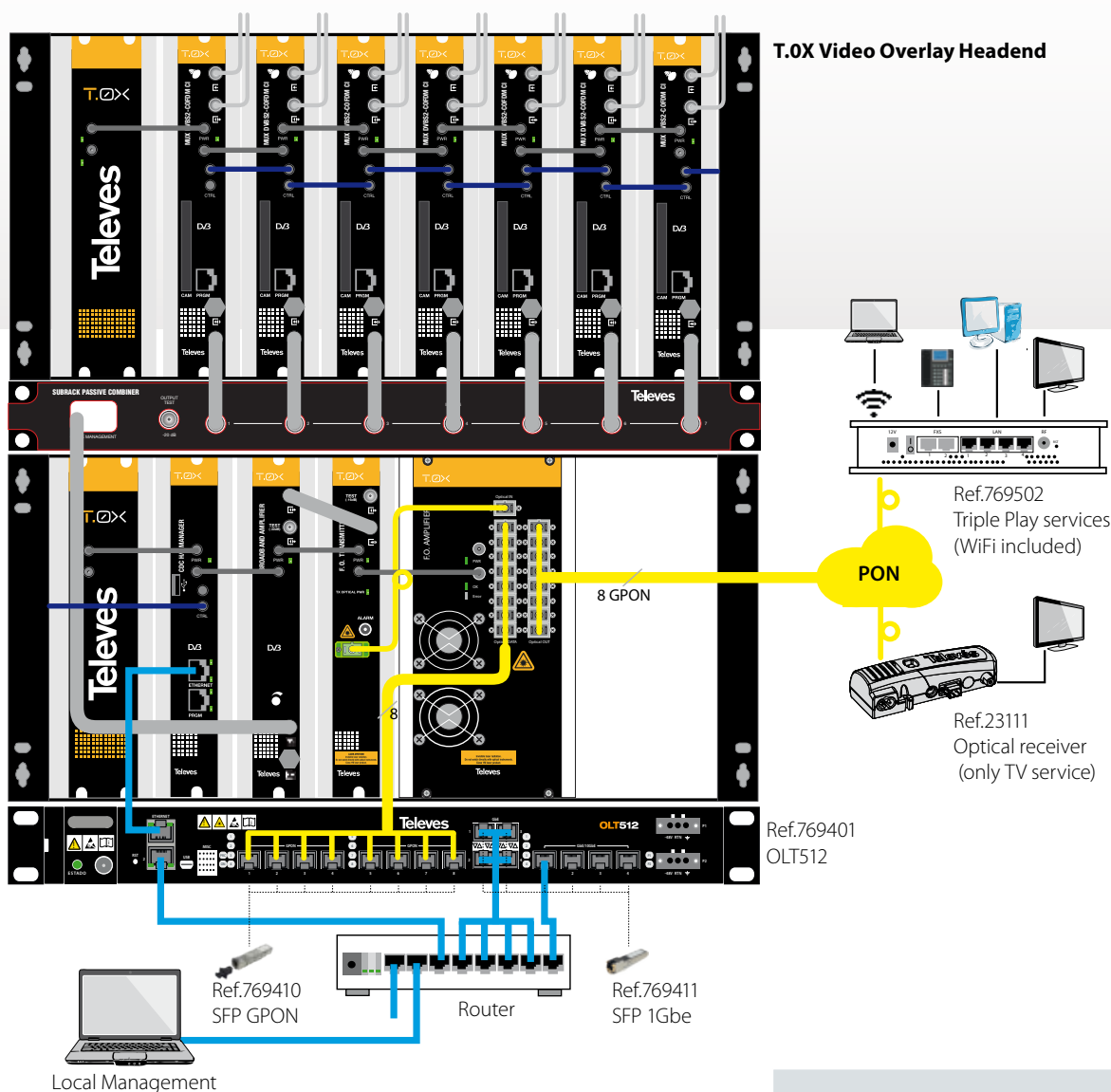
- 1 RF output
- 2 SC/APC optical connector
- 3 Input optical power LED
- 4 Mains socket
- 5 ON/OFF power LED

BLOCK DIAGRAM



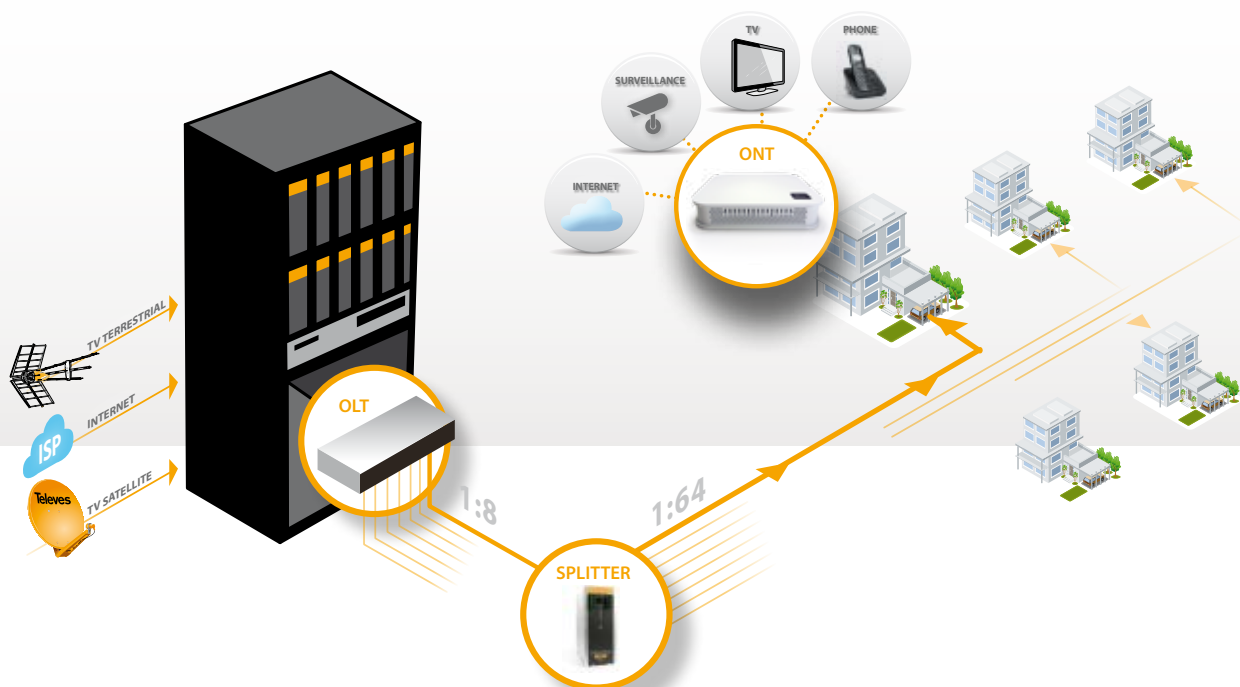
DATA TECHNOLOGY

GPON Solutions

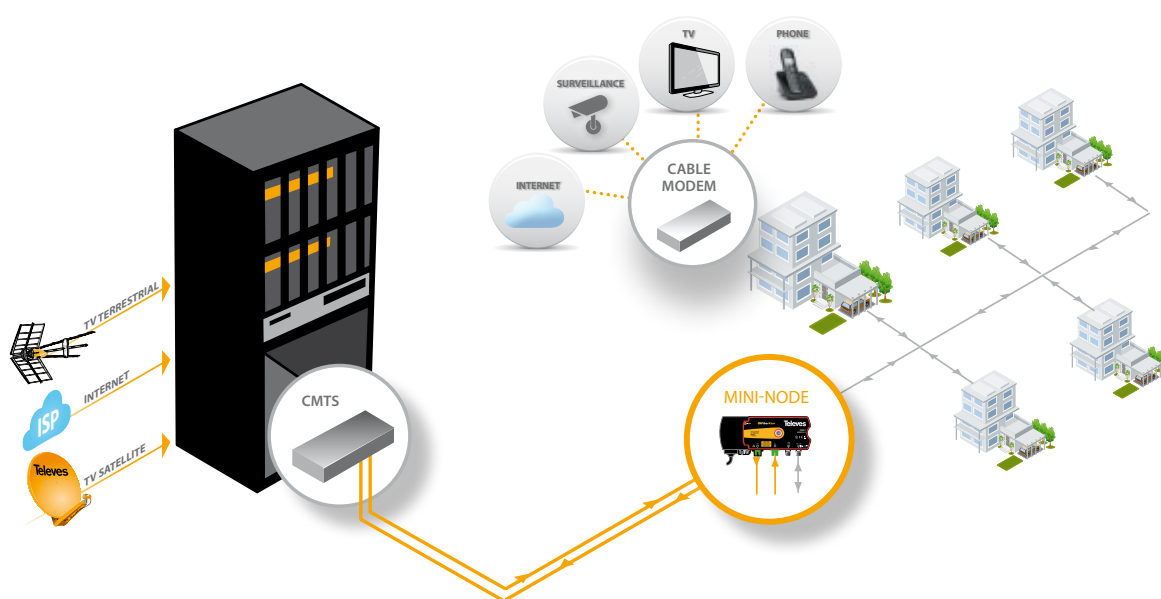


Data services VLAN (factory default)
 -VLAN100_GbE1: HSI
 -VLAN200_GbE2: VoIP
 -VLAN500_GbE3: Remote Management

FTTH APPLICATION



FTTB/FTTC APPLICATION WITH TWO FIBRES



RFOG SOLUTION FOR DOCSIS SYSTEMS OPERATORS

OPTICAL MININODES WITH OLC (OPTICAL LEVEL CONTROL)



Nowadays, cable operators are adapting their installations to distribute services using fibre optics.

These installations use DOCSIS protocols to provide bidirectional distribution of the data, and DVB-C to transmit television signals.

Televes' optical mininodes operate as a bridge between the former coaxial and the new optical networks, translating the optical signals from the backbone to RF signals to be transmitted over coaxial up to the user's modem and the other way around.



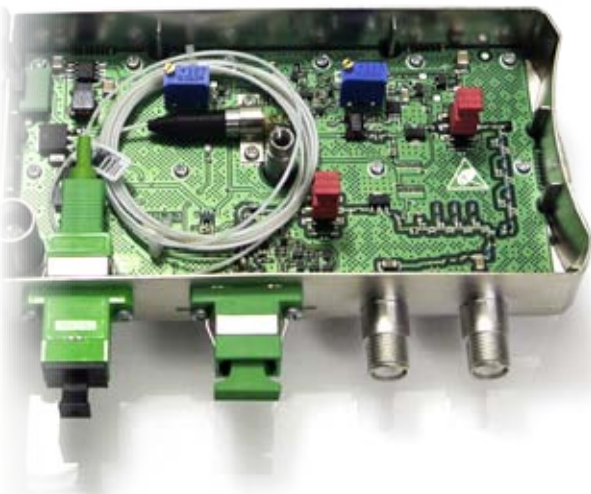
Serie **FiberKom**

Our range of FiberKom includes units which operate in different return channel bands and/or modules that comprise one or two fibres: the choice of the unit will depend on the operator's requirements.



- **Incorporate an Optical Level Control (OLC)** that automatically regulates all the settings to achieve a consistent output signal level, regardless the channel load.
- Remote-powered RF output.
- **93dBμV signal level**, 42 CENELEC channels (CSO, CTB>60dB)
- **Low consumption (4W)**

REF.	DESCRIPCIÓN
238001	MININODE F.O. FIBERKOM CATV OLC (2 FIBRES)
238003	MININODE F.O. FIBERKOM CATV OLC (1 FIBRE)
238004	MININODE F.O. FIBERKOM CATV OLC (1 FIBRE) D3.0



Ideal for **FTTB/FTTH** applications.

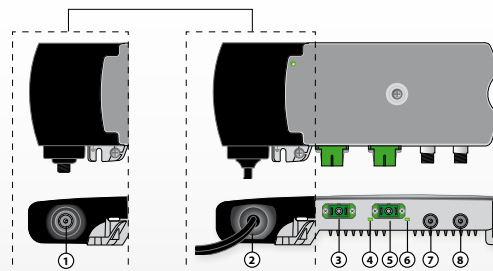
Ref. 238003 and 238004 use a **single fibre** for both the forward path channel (1240...1560nm) and the return channel (1610nm).

High quality DBF laser (Class 1M) in both channels.

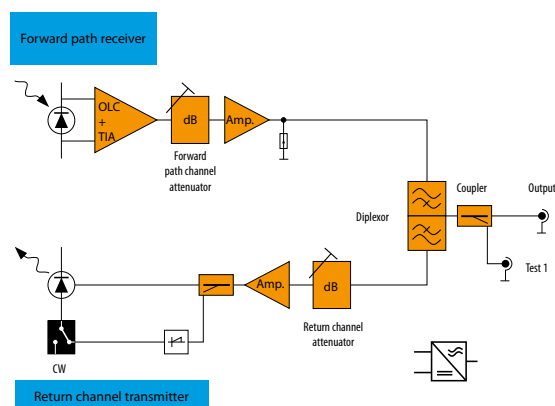
Two operating modes:

- 1. CW** (Continuous Wave). The laser is transmitting continuously. Useful in those applications where the return channel suffer high attenuation (FTTB).
- 2. RFoG** (RF over Glass), where the laser only operates when there are packets to be transmitted. Useful in applications where it's hardly any attenuation (FTTH).

They feature different ways of powering: 238001 and 238003 can be powered through the mains with its own embedded PSU. Ref 238003 can be remotely powered through its "F" output connector. Ref. 238004 can be powered either through mains and an external PSU or remotely through its "F" connector.



		238001	238003	238004
Forward path channel				
Bandwidth	MHz	87 ... 1006		105...1006
OLC input level	dBm	-8 ... +1		
Flatness	dB	± 1		
Outputs		1		
Output level 42ch CENELEC	dBμV	93		
CNR/CSO/CTB	dB	>52/>60/>60		
Selectable attenuator	dB	6/12		
Preattenuator	dB	3		
Equalizer (Forward Slope)	dB	4/9		
Wavelength	nm	1200 - 1600	1540 - 1560	
Input maximum level	dBm	2		
Return channel				
Selectable bandwidth	MHz	5 - 65		5 - 85
Optical output level	dBm	3		
Flatness	dB	± 1		
Output RF level	dBμV	75 ... 100		
Wavelength	nm	1310 ±20	1610 ±10	
Laser type		DFB (Class 1M)		
Switching time ON/OFF	μs	1		
General				
Mains power	V~/mA	99 - 253/75		--
Alternate current consumption	W	4		--
Dimensions	mm	185 x 80 x 35		
Power through F connector (remote)	Vdc/mA	--	11/270 ...24/140	
Weight	g	400		
Ingress Protection	IP	30		
EMC Compatibility		EN 50083-2		
Security		EN 60825-1 2007		



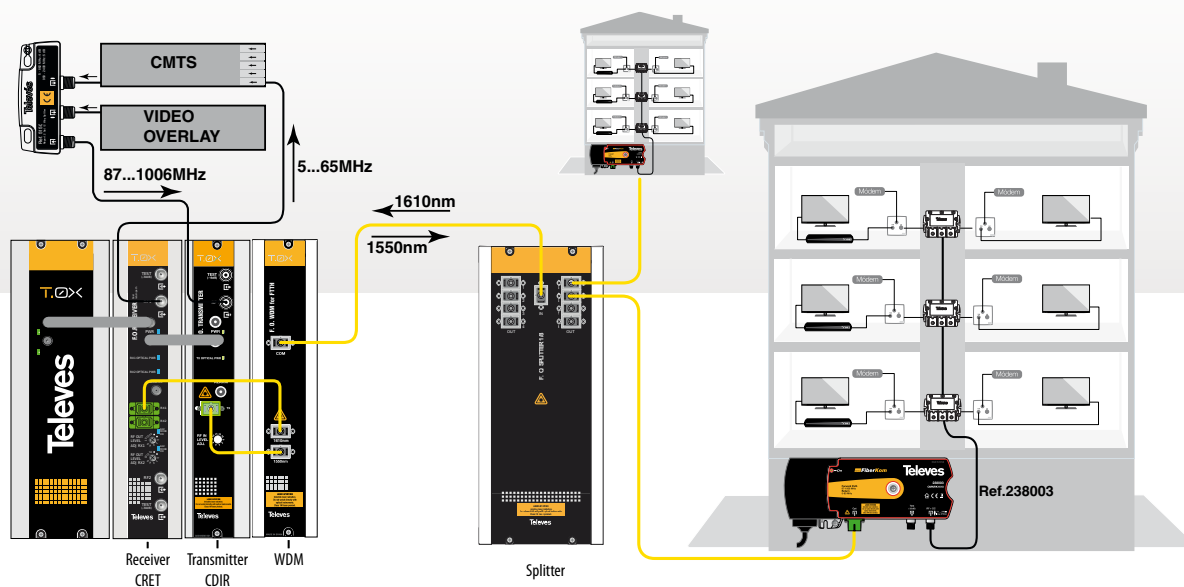
Ref.	238001	238003	238004
1	--		Powering (11...24Vdc)
2	Mains power		--
3	Optical output 1310nm	Optical output 1610nm/ Optical input 1540...1560nm	
4	Laser indicator ON		
5	Optical input 1200...1600nm		--
6	Indicador Nivel óptico (OLC)		
7	TEST RF (-30dB) output		
8	RF Input/Output	RF Input/Output + Powering (11...24Vdc)	

RFOG SOLUTION FOR DOCSIS SYSTEMS OPERATORS

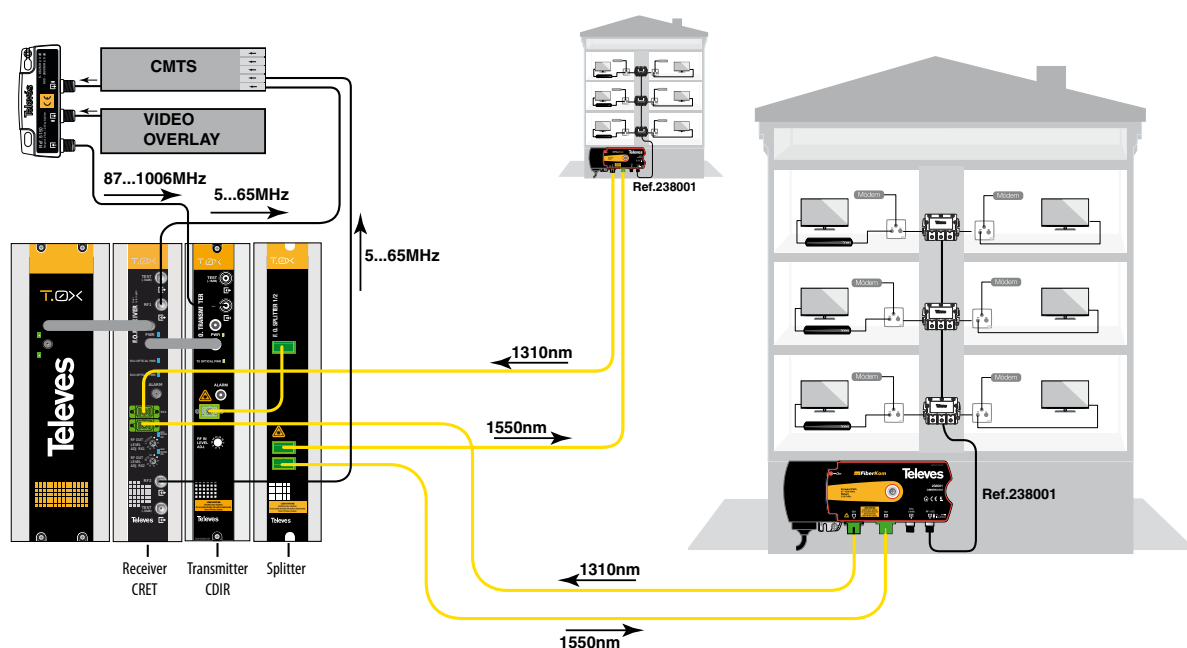
OPTICAL MININODES WITH OLC (OPTICAL LEVEL CONTROL)

Models, usage and operation of the mininodes depend on the operator system's characteristics. Layouts below are examples of application for specific scenarios.

FTTB APPLICATION WITH A SINGLE FIBRE



FTTB APPLICATION WITH TWO FIBRES



DATA TECHNOLOGY

CoaxData System

WIRELESS ROUTER WITH LOW POWER WIFI MODE



The CoaxData system enables the use of coaxial, PLC or fibre optics networks to distribute Internet services to a certain number of points, providing a non-invasive distribution system that preserves the quality of the transmission.



769301



USE YOUR TV DISTRIBUTION SYSTEM TO PROVIDE A LOCAL NETWORK, NOW WITH WIRELESS ACCESS

The CoaxData system enables the use of coaxial, PLC or fibre optics networks to distribute Internet services to a certain number of points, providing a non-invasive distribution system that preserves the quality of the transmission.

CoaxData Home WiFi (ref. 769301) transforms the data signal distributed by the coaxial system in a wireless signal through an Ethernet interface gateway or "Low Power WiFi". Also it can be configured as a router and/or Access Point.

GIGABIT: 1Gbps (Homeplug AV IEEE1901)



769201



769203



769202

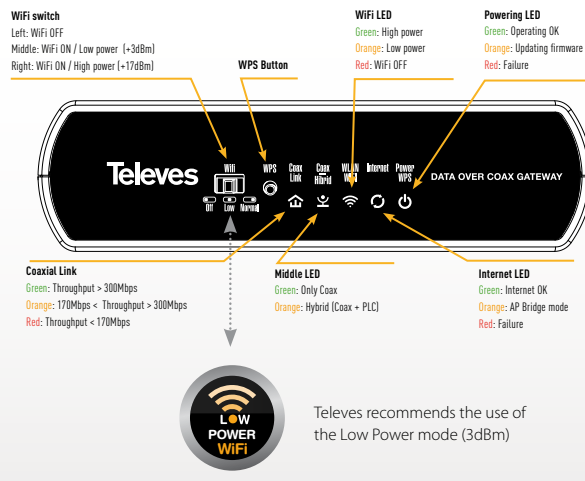
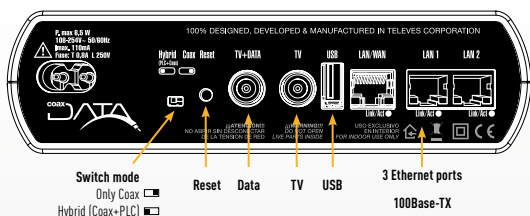
- **Low Power WiFi.** The low power signal mode (**3dBm**) can be activated/deactivated using the frontal switch.
- **Guaranteed coverage** even with high coaxial attenuation (>85 dB).
- Data transference up to **700Mbps** coaxial and 500Mbps over PLC.
- Avoid entering passwords using the **WPS** functionality (available through a press key on the front panel).
- Fully compatible with all the CoaxData Gigabit range.
- Use up to **253 slaves** in a single network. All data is secured with encryption systems.

- WiFi 802.11bgn with MIMO 2x2 that supports up to **300 Mbps** in the 2,4GHz band.
- **3dBm** power emission when using the Low Power WiFi mode.
- **5 frontal status** LEDs.

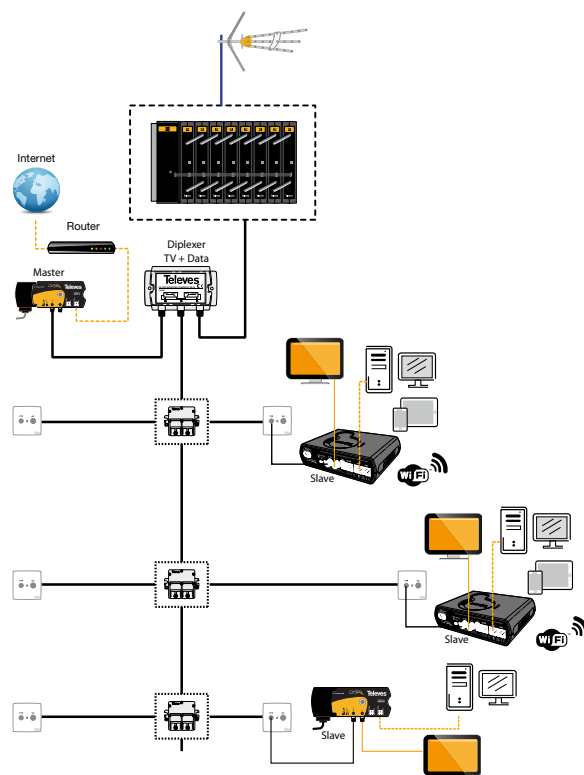
REF.	DESCRIPTION
769301	COAXDATA GATEWAY 1Gbps
769201	COAXDATA 1Gbps COAX+PLC 2xETH.
769202	COAXDATA 1Gbps COAX+PLC 1ETH+1SFP
769203	COAXDATA 1Gbps COAXIAL 1xETH.

DATA TECHNOLOGY

CoaxData System

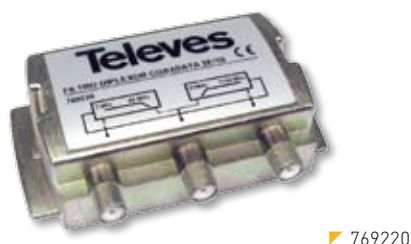
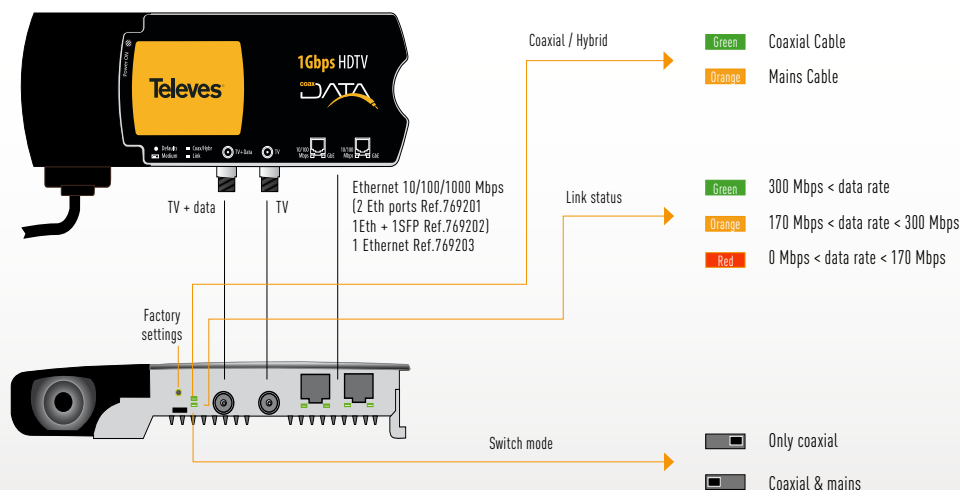


References		769301
Coaxial/Ethernet interface		
Connectors		2xF
Frequency range - Data	MHz	2...67,5
Frequency range - TV	MHz	87...2150
Max. attenuation	dB	85
Output level	dBμV	130
Spectral power density	dBm/Hz	-50
Coverage	km	0,3 PLC / 1,2 Coax
Data		
Ethernet connectors		3xRJ45 100/10Mbps. Auto MDI/MDIX
QoS		IGMP snooping, MLDv2, IGMPv3, IGMPv2 Priorización VLAN IEEE802.1p
Standards		IEEE 802.11b/g/n IEE 802.3 10/100/1000BASE-T HomePlugAV IEEE P 1901
Devices per master		253
General		
Powering	Vac	108...254
Power (low consumption mode)	W	1,8
Dimensions (Wid x Hei x Dep)	mm	160 x 43 x 130
Protection Index	IP	20

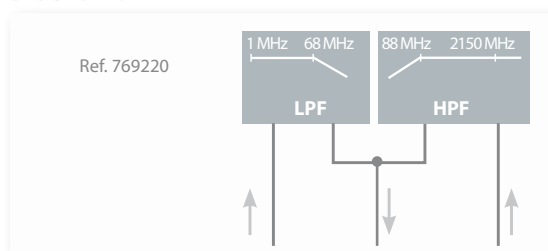


DATA TECHNOLOGY

CoaxData 1Gbps



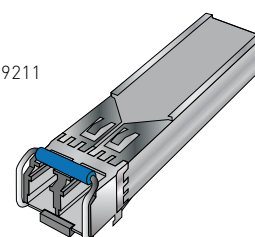
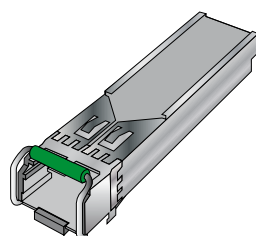
BLOCK DIAGRAM



Reference		769201	769202	769203
Model		Gigabit (HomePlug AV IEEE1901)		
Connectors				
Data interface		2xRJ45	1xRJ45 + 1xSFP	1xRJ45
Ethernet ports	Mbps	10 / 100 / 1000		
Coaxial interface		2 × F (TV + data)		
Interfaz coaxial de datos				
Bandwidth	MHz	2 - 67,5		
Output level	dBμV	130		
Output impedance	Ω	75		
Maximum attenuation	dB	85		
TV coaxial interface				
Bandwidth	MHz	87 ... 2150		
Insertion losses	dB	2		
Return losses		> 10		
Output impedance	Ω	75		
Powering/Temperature				
Mains (50/60 Hz)	Vac	108 -254		
Max. consumption	W	6 (1.8 in Low Power Mode)		
Working temperature	°C	-10 a +45		
Firmware				
Max. No. of slaves	nº	253 (1012 using 4 masters)		
Max. long coaxial cable run	m	1200		

Diplexer filter and accessories

REF.	DESCRIPTION
769220	DIPLEX.FILTER 2I/1O "F" 2..68- 87..2150MHz
769211	SFP EPON 1F.O.
769210	SFP 1000 Base-X 2 F.O.



FULL RANGE OF MULTISWITCHES

Nevo switch: A new range of multiswitches



Nevo switch®

With the **New Evolution** range, NEVO for short, Televes launches a new series of high quality multiswitches of 5, 9, 13 and 17 wires, enabling in this way TV distribution for different scenarios: from single dwelling units to large collective installations.

26 products complete the range to get 4, 8, 12 and 16 different satellite polarities up to 32 users per switch and allowing the expansion of the system just by cascading new units.

Return-path compatible, QUAD compatible, and receiver-powered compatible units are some of the highlights of this range, but all stand out due to its technical features and its zamak-made chassis that offer an optimum shielding and its compact design to save space or install them in narrow locations.

All the range feature a switch to operate in cascade or as a terminal unit.

The 5 wire range also presents a QUAD compatible variant with a 22kHz generator and PSU, and a variant that feature variable attenuators for each output user.

9, 13 and 17 wires can operate in the return path (5-65MHz), and feature a High Level switch to gain up to 10 dB more for the satellite feeds. Televes also provides 5, 9, 13 and 17 wires amplifiers, with 27-30 dB gain ■

REF.	DESCRIPTION
5 INPUTS (1 Satellite + Terrestrial)	
714501	Multiswitch 5x5x4 "F" Terminal/Cascade
714502	Multiswitch 5x5x6 "F" Terminal/Cascade
714503	Multiswitch 5x5x8 "F" Terminal/Cascade
714504	Multiswitch 5x5x12 "F" Terminal/Cascade
714505	Multiswitch 5x5x16 "F" Terminal/Cascade
714507	Multiswitch 5x5x32 "F" Terminal/Cascade
714509	Amplifier 5x5 "F" MATV/BIS G 27/25dB Vo 115dBμV

REF.	DESCRIPTION
9 INPUTS (2 Satellites + Terrestrial)	
714601	Multiswitch 9x9x8 "F" Terminal/Cascade
714602	Multiswitch 9x9x12 "F" Terminal/Cascade
714603	Multiswitch 9x9x16 "F" Terminal/Cascade
714604	Multiswitch 9x9x24 "F" Terminal/Cascade
714605	Multiswitch 9x9x32 "F" Terminal/Cascade
714609	Amplifier 9x9 "F" C.Ret/MATV/FI G -/27/25dB Vs 115dBμV

13 INPUTS (3 Satellites + Terrestrial)	
714701	Multiswitch 13x13x8 "F" Terminal/Cascade
714702	Multiswitch 13x13x12 "F" Terminal/Cascade
714703	Multiswitch 13x13x16 "F" Terminal/Cascade
714704	Multiswitch 13x13x24 "F" Terminal/Cascade
714705	Multiswitch 13x13x32 "F" Terminal/Cascade
714709	Amplifier 13x13 "F" C.Ret/MATV/FI G -/27/25dB Vs 115dBμV

REF.	DESCRIPTION
17 INPUTS (3 Satellites + Terrestrial)	
714801	Multiswitch 17x17x8 "F" Terminal/Cascade
714802	Multiswitch 17x17x12 "F" Terminal/Cascade
714803	Multiswitch 17x17x16 "F" Terminal/Cascade
714804	Multiswitch 17x17x24 "F" Terminal/Cascade
714805	Multiswitch 17x17x32 "F" Terminal/Cascade
714809	Amplifier 17x17 "F" C.Ret/MATV/FI G -/27/25dB Vs 115dBμV

POWER SUPPLY UNITS	
732101	Power Supply 12V-0,8A
732801	Power Supply 12V-3A

100% Manufactured and Verified in our **robotized lines**

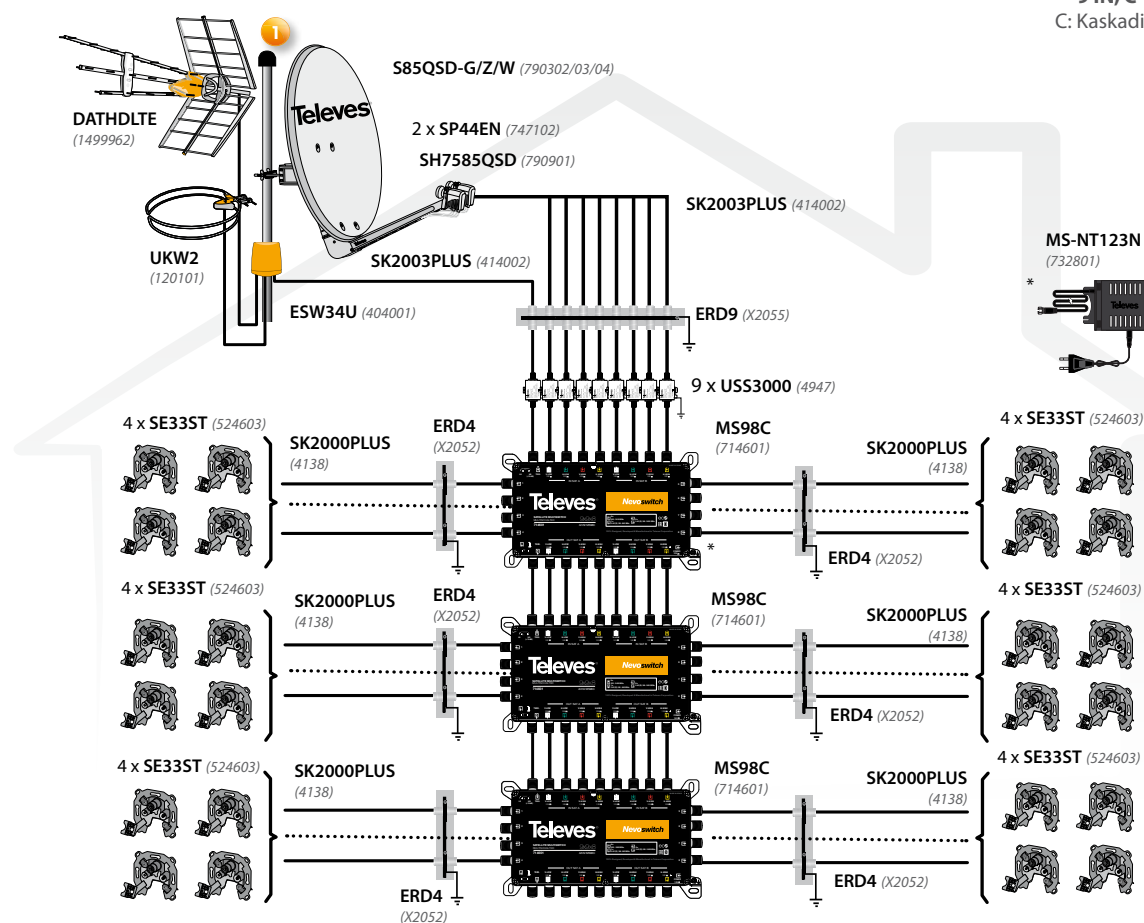
European technology **Made in EU** ^{***}_{***} ^{***}_{***} ^{***}_{***}

- ✓ 4, 8, 12, 16, 24 and 32 user output. 5, 9, 13 and 17 inputs.
- ✓ Multiple powering options and Low consumption.
- ✓ Independent amplification of every feed.
- ✓ Mechanical strength and electrical reliability
- ✓ Radiation immune thanks to its zamak made case.
- ✓ **ECO mode:** the overall consumption is reduced as the number of users decreases.
- ✓ 5 wire range QUAD compatible.
- ✓ All in one: stand alone and cascade in a switch.
- ✓ Gain in the FI band can be selected individually for each group of 8 users to provide a balanced output



Nevo switch®
Nevo switch®

9 IN, C-Serie
C: Kaskadierbar



H30D³

Big features, small package

H30 Handheld Meter is designed for the operator. The meter has all the functions necessary to make easier the installation and maintenance of TV networks with QAM signals and/or NTSC analog signals.

DOCSIS 3.0 measures are available in the new 593103.

NOW WITH
JETZT MIT
DOCSIS 3.0



REF.	DESCRIPTION
593102	H30 (DVB-C + REMOTE CONTROL)
593103	H30 (CATV + REMOTE CTRL + DOCSIS 3.0)
593201	H30 WEATHERPROOF BAG
593202	H30 SPARE BATTERY
593203	H30 12V-2A POWER SUPPLY
593210	H30 INFO MPEG SERVICE OPTION
593211	H30 IP SPEED TEST OPTION
593214	H30 LONG TERM MONITORING
593212	H30 REMOTE MANAGEMENT API
593213	BLUETOOTH

MAIN FEATURES

- ✓ Easy to use.
- ✓ Remote control.
- ✓ Complete set of Analog/Digital measures with *Quality Check Marks* ("Pass/fail" indicators) easy to understand.
- ✓ Simple and intuitive user interface with functions like: Measurements in channel, Scanning, TILT Function, Constellation display, Spectrum analyzer, Voltmeter, HUM, Service identification, DataLogger, etc.
- ✓ Rugged, light weight, automatic, quick and precise.
- ✓ Automatic software upgrade.
- ✓ Automatic ITU-T J.83 Annex A/B/C parameter detection without a previous setup.
- ✓ Spectrum of 1 GHz of band with channel selection or frequency.
- ✓ Technology of digital processing in real time.



NEW FUNCTIONS & OPTIONS

- ✓ Online Activation.
- ✓ MPEG services (option ref.593210)

Channel full rate and service rate.

TSID, NIT, etc.

Services name.

Encrypted channels information.

- ✓ IP TEST (option ref.593211)

Ethernet connectivity status.

ICMP (PING) statistics.

Uplink and Downlink rate.

- ✓ DOCSIS 3.0 (ref.593103)

D3.0 connection status.

Graphical measurements of Upstream / Downstream.

Speed test.

- ✓ LONG TERM MONITORING (ref.593214)

Automatic measure and log.

Web browser management.

- ✓ REMOTE MANAGEMENT API (ref.593212)

Full advanced configuration suite.

User integration.

- ✓ BLUETOOTH (ref.593213)

Enables remote configuration.

User integration.



CHANNEL MEASUREMENTS



CONSTELLATION DISPLAY



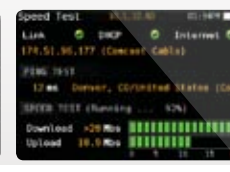
SPECTRUM ANALYZER



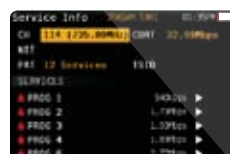
QUALITY PROFILES



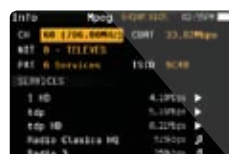
INTUITIVE USER INTERFACE



IP TEST



SERVICE INFO



SERVICE INFO (2)



PASS/FAIL INDICATORS



DOCSIS 3.0 STATUS



DOCSIS 3.0 GRAPH



TILT FUNCTION



H60

With DVB-T2 signals, the range of meters incorporates up to three references that include the analysis of these signals. For the measurement of LTE/4G signals, H60 has three different tools.

- **LTE Check:** this function assesses the need to insert a filter LTE and recommends the most appropriate Televes filter.
- **LTE vs TV:** it is possible to simultaneously display the LTE/4G signal spectrum (Downlink & Uplink) and the spectrum of any TV channel.
- **Downlink - Uplink:** it allows to display spectrums of the LTE/4G signal, and provides power measures of the channels they contain.



The field strength meter
with the best spectrum analyzer

Spectrum analyser extended to 3,3 GHz

Tilt function

Measures network attenuation in channel and frequency

MPEG4 with common interface video in HD

HDMI output

Selective optical interface

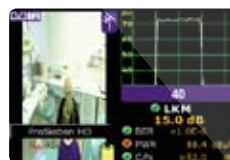
DVB-T2 demodulation

High resolution, high contrast screen

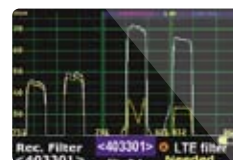
Digital Processing enhanced

REF.	DESCRIPTION
5960	H60 ADVANCE FULL HD + CI + FO + 5..3300MHz
596003	H60 ADVANCE FULL HD + CI + 5..3300MHz
596004	H60 ADVANCE FULL HD+CI+FO+3,3GHz+DVBT2
596005	H60 ADVANCE (FULL HD+CI+3,3GHz)+FO SELEC.
596070	H60 ADVANCE MPEG4+CI+FO+DVBT2+3,3GHz
596071	H60 MPEG4+CI+FO+DVBT2+3,3GHz+ETH
596072	H60 AVANCE FULL HD +CI+ FO +DVBT2+ETH +GPS
596075	H60 MPEG4+CI+CWDM+DVBT2+3,3GHz+ETH

*More features in the most complete meter
in the market*



DVB - T2 COMBO



LTE CHECK



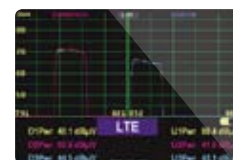
DVB - T2 PARAMETERS



DVB - T2 PARAMETERS



LTE VS TV



DOWNLINK-UPLINK



DVB - T2 CONSTELLATION

Remote control of your H60 meter

**Ideal for extended signal tests of head-end and
broadband distribution networks.**

Leave your H60 connected to any distribution network and manage the unit remotely. Once finished, export the results to any PC using the **HSuite** software (included)

DISTRIBUTION

Coaxial cable



TRISHIELD COAXIAL CABLE

- Several Coaxial cable Class A+
- Compatible with the Televes coax dispenser
- Vollkupferinnenleiter
- Low attenuation
- Dielectric PE as humidity protection
- Optimal for the Televes-compression-connectors 3802



SCREENING

>125dB
125dB
120dB
115dB
110dB
105dB
100dB
95dB
90dB
85dB

TRISHIELD

QUALITY

PROTECTION AGAINST INTERFERENCE SIGNAL

>100dB

>110dB

>125dB

SK6F PLUS

SK100 PLUS

SK110 PLUS

SK2000 PLUS

StoCu / Alu

Cu / Alu

Cu / Cu

Cu / Cu

A+



	SK6FPLUS	SK100PLUS	SK110PLUS	SK2000PLUS
				
	100/250m	100/250/500m	100/250/500m	100/250/500m
Ref. Nr.	414801 / 414802	413601 / 413602 / 413603	413705 / 413706 / 413704	4138 / 413802 / 413801
Compatible with the Televes coax dispenser	✓	✓	✓	✓
Class A+	✓	✓	✓	✓
Inner conductor	CCS (Copper Clad Steel)	Copper	Copper	Copper
Screening	thishield	thishield	thishield	thishield
Shielding typ. (dB)	>100	>100	>110	>125
Overlapping ALU foil	✓	✓	✓	✓
Transfer impedance (mOhm/m)	<2.5	<2.5	<2.5	<2.5
Material	Alu.	Alu.	Copper	Copper
Braid				
Carriers x strands	96	96	96	168
Coverage (%)	60	>55	>55	82
Impedance (Ohm/Km)	30	30	15	10.5
Ø (mm)	6,8	6,8	6,7	6,7
Sheath				
Colour / Material	white / PVC	white / PVC	white / PVC	white / PVC
Attenuation (dB/100m)				
50 MHz	4,8	4,8	4,6	4,6
200 MHz	9,5	8,9	8,9	8,9
500 MHz	15	14	14	14
800 MHz	19,2	18,5	18,5	18,5
1000 MHz	21,5	21	21	21
1350 MHz	25	24,5	24,5	24,5
1750 MHz	28,65	28	28	27
2150 MHz	32	31,5	31	30
2400 MHz	33	33,5	33,3	33,2

DISTRIBUTION

easyF

✓ EASY AND QUICK INSTALLATION:

- One single bolt
- Always visible connection
- No screw parts

✓ SECURE FITTING:

- Save time and money with its installation
- Reliable connection with no future checks needed

✓ ELECTRICALLY PERFECT:

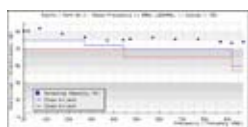
- Entirely robotized manufacture
- Fully shielded to prevent undesired effects on the TV signal reception
- Perfect adjustment to any distribution network element



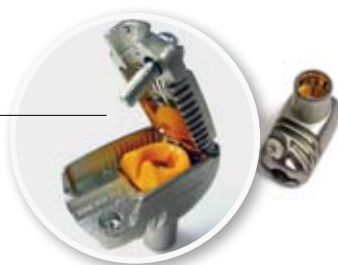
easyF

SCREENING IMMUNITY

CONNECTORS EASYF SERIES



A+



CLASS A+ PRO EASYF CONNECTORS



The coaxial cable, despite being a decisive factor in a facility, can not be considered as the great responsible for its effective functioning.

The quality of the connectors is essential and is defined by aspects such as shielding, robustness in central connector contacts and reliability of the grid connection.

The new "ProEasyF" connectors provide a A+ shielding and facilitate assembly by a single screw that ensures a pressure on the central conductor more effective than using compression connectors.

Made of Zamak-5 with zinc, these connectors provide an extraordinary durability, supported by countless facilities with PRO connectors installed on previous generations.



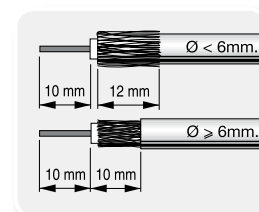
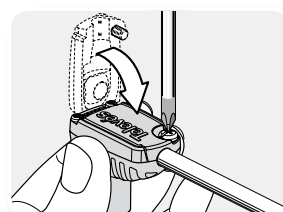
Ref.413210



Ref.413310



Ref.413410

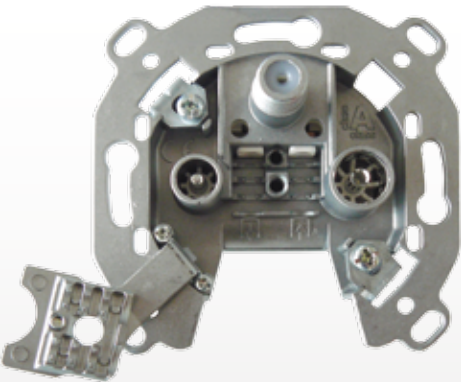


DISTRIBUTION

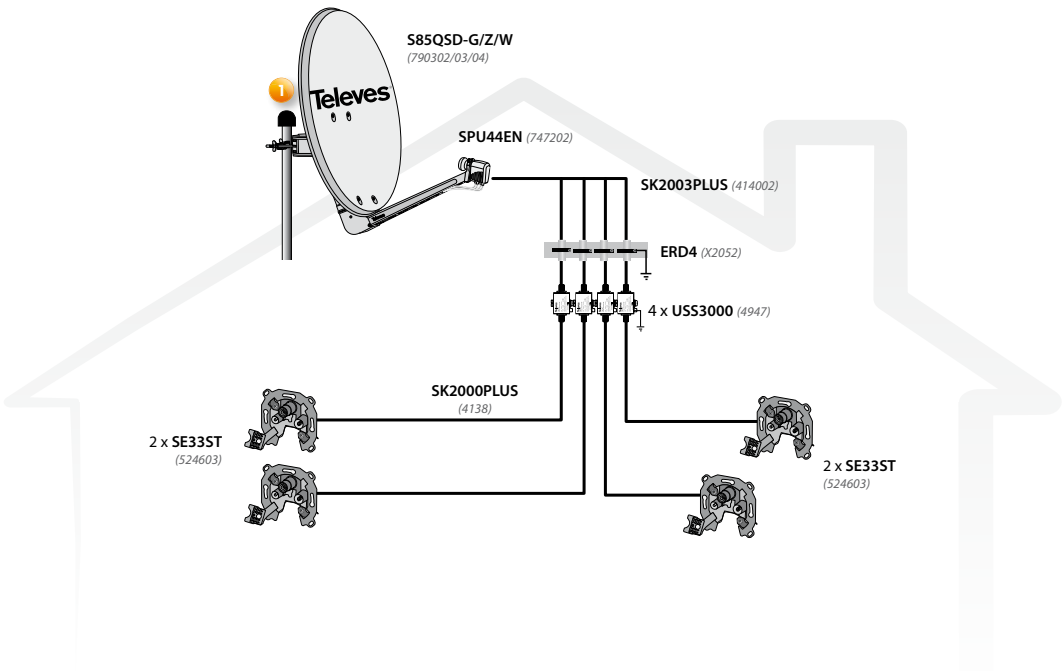
TYPICAL “F” INSTALLATION

BIG RANGE OF GROUNDING BRACKETS AND GALVANIC ISOLATION

- ✓ Compact design
- ✓ High quality connectors
- ✓ Reflection losses > 30dB
- ✓ Return channel compatibe
- ✓ Big distance between connectors for a friendly montage
- ✓ Possibility of a big cross section of the cable



BIG RANGE OF SPLITTERS, TAPS AND ALL KIND OF CONNECTORS



UNIVERSAL OUTLETS		
MULTIMEDIA OUTLETS 3 OUTPUTS		HIGHLIGHT
END OUTLET	THROUGH OUTLET	
KME04ST		
	KMD12ST	
	KMD17ST	
	KMD22ST	
OUTLETS 3 OUTPUTS		
SE33ST		
	SD33ST-DC	
OUTLETS 2 OUTPUTS		
UE2400ST		
	UD2410ST	
	UD2415ST	
	UD2420ST	

- Inner conductor pluggable, multiple removable, no screws needed
- Very long F-connector
- Montage-indications in the outlet
- Special claws to simplify the montage
- Three keyholes for a better fixation
- Clean rounded edges
- 180° opening lateral clamp
- Remote power supply possible
- Fully automated manufacturing

EMITTER/RECEIVER ANTENNA FOR LTE/4G

4GNova: Antenna for extended 4G coverage



4GNova

YOUR 4G DEVICES WILL WORK MORE EFFICIENTLY IN TERMS OF POWER AND CONSUMPTION

The emitter/receiver antenna for LTE/4G signals extends the antenna coverage in difficult areas or those with complex propagation. In the latter case, the devices will be able to

get a better 4G coverage without emitting with higher power performance, saving battery and preventing the user from an exposure to excessive radiation.

- High quality antenna, made from **highly resistant** materials.
- Made with printed circuits to prevent feature alterations and ensure **mechanical quality**.
- **Easy installation** in balconies and facades. **It does not require any maintenance.**
- No consumption.
- **More efficient** mobile 4G **devices**.
- Wide frequency range.
- Non invasive, **aesthetic design**.
- **Optimized response** in both up/down links.

REF.	DESCRIPTION
650101	4GNova Antenna 4G/LTE 698...960/1700...2700MHz G 7dBi

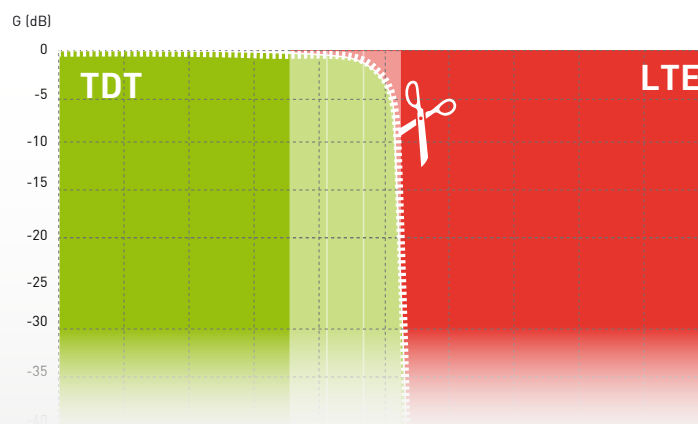
Reference		650101	
Connectors		N female	
Frequency range	Mhz	698...960	1700...2700
Gain	dBi	7,5	7
Front-to-back ratio	dB	>18	>20
Impedance	Ω	50	
Wind load	N	69,6 (@130Km/h) 95,7(@150Km/h)	
Dimensions (Wid x Hei x Dep)	mm	420 x 315 x 75	
Protection Index	IP	53	
Weight	g	1.500	

LTE FILTERS

Televes' LTE filters offer a whole range of possibilities: variable rejection at channels 58, 59 or 60. From high stability microcavities filters to LC filter for those less exigent scenarios.

Mobile operators, both national and overseas and current LTE deployment trials identify two different conditions which may cause interferences:

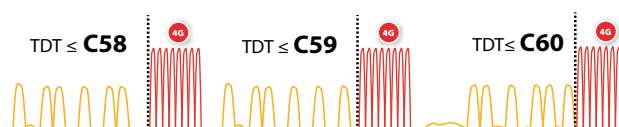
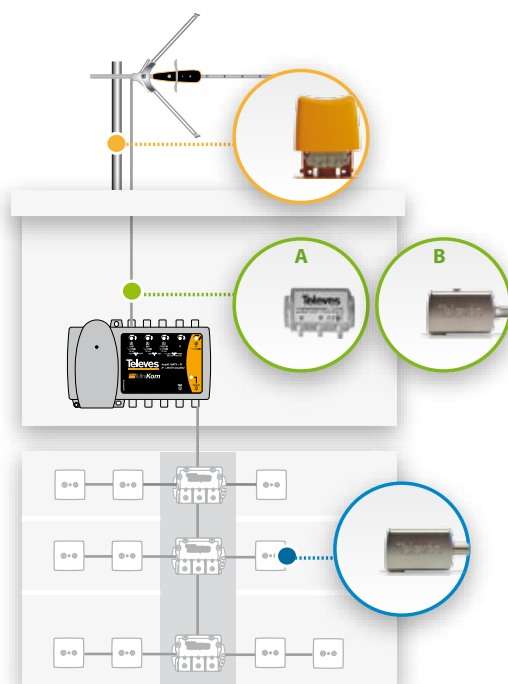
- Headend equipment affected by mobile transmitters (BTS) (Or being affected by the downlink)
- Interferences on DVB-T equipment cause by mobile terminals (Or being affected by the uplink)



Filters are the main characters in this Digital Dividend, whether if it's the headend that is being affected or not. In fact, one usual applications of these filters is to adapt the coaxial network to the new operational frequencies.

When choosing a filter, we need to evaluate up to 3 different criteria: location, DTT frequencies and degree of affection due to present LTE signals.

GENERAL GUIDE



In MAST

MR	405101		
HR		405402	405401
VHR			

In HEADEND

MR	403101(B)		
HR		403402(B)	403401(B)
VHR		403302(A)	403301(A)
UHR		403304(A)	

In OUTLET

MR	404411		
HR		404401	404412
VHR			

LTE FILTERS



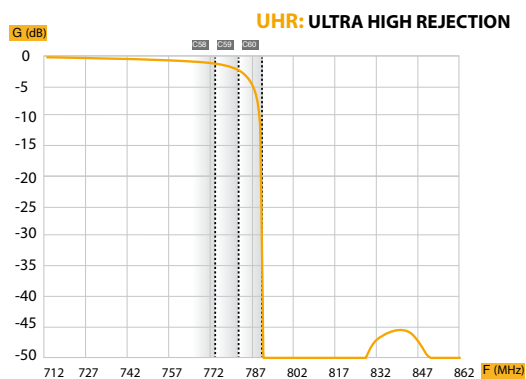
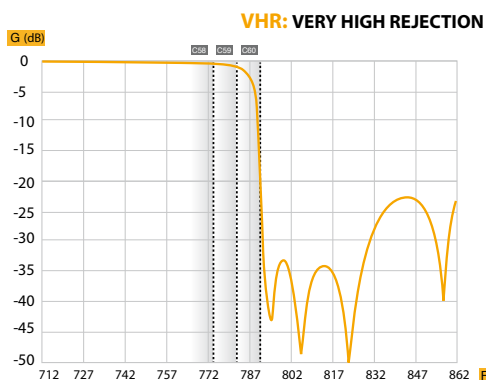
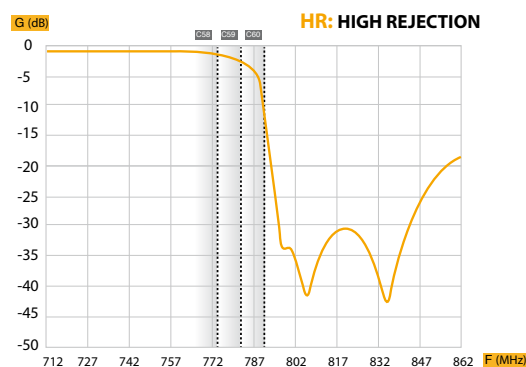
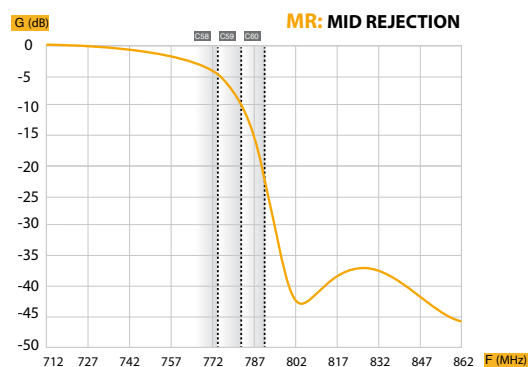
Depending on your location and device to be protected, Televes offers a wide range of filters.

Location: depending on the type of H/E used, the filter shall be installed in the mast, at the amplifier or in every user outlet. The installer shall identify which elements need to be protected against LTE.

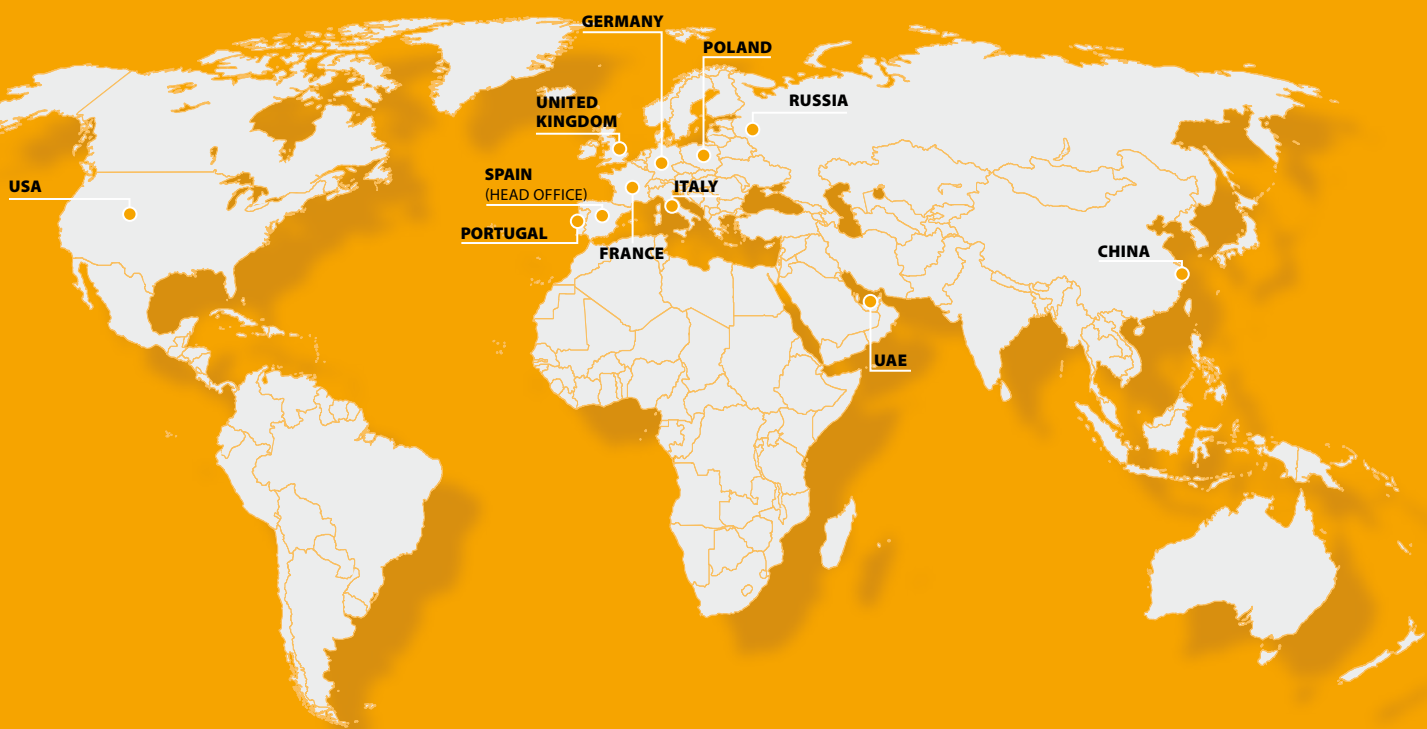
Frequency bands: When possible, it is recommended to use filter with the lowest frequency cut off to maintain LTE interferences away.

Degree of affectation: the important key here is the signal strength different between DTT and LTE signals. The more similar they are, the more rejection we will need. If the difference is bigger than 10dB, rejection shouldn't be as determinant.

CHOOSING THE FILTER DEPENDING ON DEGREE AFFECTATION AND FREQUENCY BAND



Televes® in the world



PASSION for QUALITY

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