Televes®

QUAD PLAY SOLUTIONS OVER OPTICAL FIBRE

2016

TELEVES COST-EFFECTIVE QUAD PLAY SOLUTIONS
OVER OPTICAL FIBRE

OLT512 Series

COMPACT, RELIABLE, AFFORDABLE, AND EASY TO MANAGE GPON AND RF OVERLAY PRODUCTS.

MULTIPLE-PLAY SERVICE ENABLING HIGH SPEED DATA, VOIP , 802.11AC WI-FI,
VIDEO (IPTV AND RF OVERLAY), POE, ETC.

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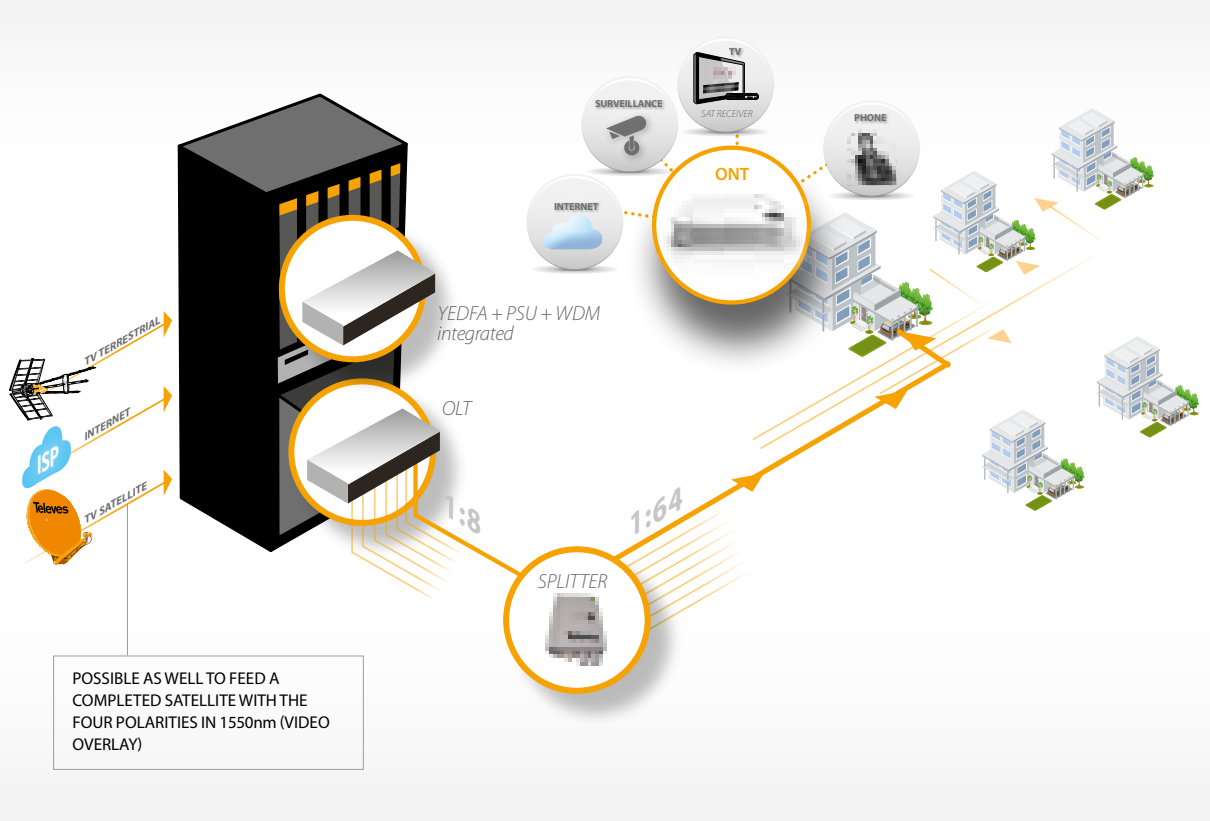
QUAD PLAY SOLUTIONS OVER OPTICAL FIBRE

There is an increasing need for designing high-speed broadband networks to accommodate usage of vanguard services that demand extensive bandwidth, such as the Internet of Things (IoT), Smart Cities, Telecare, Over the Top TV (OTT), Ultra High Definition, and others. When the demand for broadband access is so high, only an network architecture based on fibre optics can guarantee the required quality of service.

Televes presents FibreData solutions to small cable operator and ISPs. FibreData is the comprehensive range of equipment that allow the implementation and commercialization of services over a passive optical network (PON).

Televes' FibreData range not only provides high-speed broadband, but also allows the management of Triple or Quad Play services so as to offer tailor-made service packages adapted to the customers needs.

FTTH APPLICATION



OPTICAL TRANSMITTER

Transmitter that generates an optical output of 1550 nm, modulated by the incoming RF signal.
Refs. 234811 and 234826 generate an optimal output signal quality without requiring high input levels (between 75 and 90dBµV / 15 and 60dBmV), delivering both analog and digital signals.

- Variable modulation depth (RF drive level) and precise optical power levels enables superior link optimization.
- Simple plug-and-play operation. OMI test point.
- User selectable Automatic Gain Control (AGC).
- Laser temperature control system.

Moreover, ref. 234826 is able to keep intermodulation features for distances above of 30Km.

Ref. 234305 has an input margin of 2,1GHz, ideal for TVSAT signals distribution (by IF).

▲ 234811

REF.	DESCRIPTION
234811	Optical Tx 1550nm 10dBm + AGC
234826	Optical Tx 1550nm 6dBm (w/external modulation) + AGC
234305	Optical Tx 1550nm 4dBm

	CONNECTIONS
1	OMI Test point
2	RF input
3	Power BUS
4	On power led
5	Optical power led: green laser active, red laser alarm.
6	Laser temperature led: green laser temp OK, red laser temp ALARM.
7	Alarm connector
8	Optical Output (Laser aperture, class 1M laser)
9	RF control attenuation
10	AGC led: white AGC mode selected

Reference			234811	234826	234305
RF	RF frecuency range	MHz	47 - 1100	47 - 1200	54 - 2150
	RF input level	dBµV/dbmV	90 /30	90 /30	85/25
	RF gain adjust	dB	0...14	0...14	0...18
	CAG control	dB	15	15	-
	Flatness	dB	±1	±1	±1,5
	CSO (CENELEC 42)	dB	60(1)	60(2)	60(1)
	CTB (CENELEC 42)	dB	60(1)	60(2)	60(1)
OPTICAL	Laser	type	MQW-DFB cooled	DBR-SOA, Mach-Zender	MQW-DFB
	Wavelenght	nm	1550 ±20	1550 ±20	1550 ±20
	Output power	dBm	10	6	4
GENERAL	Powering	Vdc	12-24	12 - 24	12-24
	Power consumption	mA	360-220	400-250	265-140
	Dimensions (WxHxD)	mm inch	50 x 217 x 175 1.96 x 8.54 x 6.88	50 x 217 x 175 1.96 x 8.54 x 6.88	50 x 217 x 175 1.96 x 8.54 x 6.88

(1) 42 CENELEC channels plan. 1km of standar fiber followed by a 8 output splitter. Input power into reference receiver (M2Optics-FOS -FOS 1000A- equipment) is -1dBm.
(2)42 CENELEC channels plan. 30km of standar fiber followed by a 8 output splitter. Input power into reference receiver (M2Optics-FOS -FOS 1000A- equipment) is -1dBm.

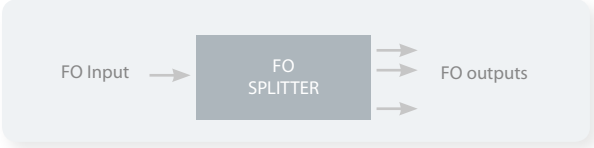
OPTICAL SPLITTERS

Passive optical splitters: 2, 4, 8, 16 and 32 outputs, to be used in optical fibre star networks.

REF.	DESCRIPTION
2337	Optical Splitter 1310/1550nm "SC/APC" 2D 4dB
2339	Optical Splitter 1310/1550nm "SC/APC" 4D 7dB
234401	Optical Splitter 1310/1550nm "SC/APC" 8D 10dB
234501	Optical Splitter 1310/1550nm "SC/APC" 16D 14dB
234601	Optical Splitter 1310/1550nm "SC/APC" 32D 17dB

▲ 2339

BLOCK DIAGRAM



CONNECTIONS

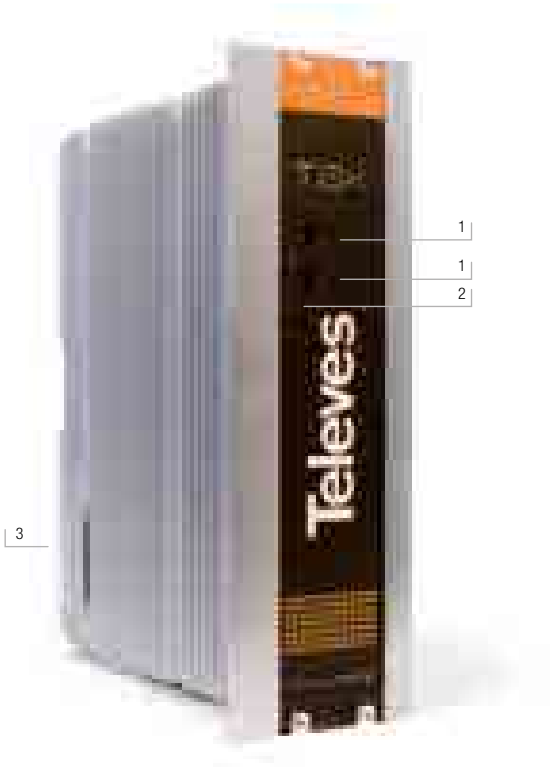
1 Input
2 Outputs

Reference			2337	2339	234401	234501	234601
No. of outputs			2	4	8	16	32
INPUT / OUTPUT	Wavelength	nm	1310 - 1550				
	Optical connector		SC/APC				
	Insertion losses 1310/1550 nm	dB	≤ 4,1	≤ 7,5	≤ 11	≤ 13,7	≤ 17,5
	Uniformity	dB	≤ 0,6	≤ 0,8	≤ 0,8	≤ 1,2	≤ 2
	Directivity	dB	≥55				
	Return losses	dB	≥55				
GENERAL	Ingress protection level	IP	20				
	Dimensions (WxHxD)	mm inch	50 x 216 x 175 1.96 X 8.50 X 6.88		73 x 216 x 175 2.86 X 8.50 X 6.88		

POWER SUPPLY UNIT

High power switched-mode PSU, flyback type and **high efficiency** (> 85%).
Capable of delivering 5A at 24V (120W).

- Equipped with two outputs monitored by LEDs to indicate the status of the voltage delivered.
- Detects either overload or short-circuit.
- 4A maximum current per output.
- It offers protection against output voltage variation.

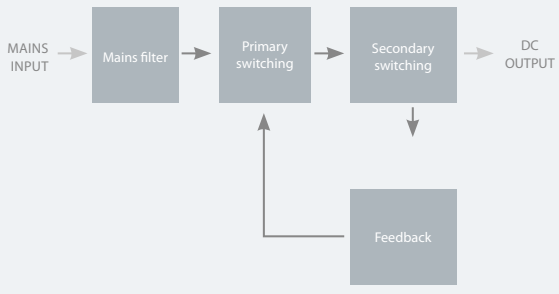


REF.	DESCRIPTION
5629	T0X Switched-mode Power Supply Unit 120W 24V-5A
563901	Switched-mode Power Supply Unit 120W 24V-5A 110Vac UL

CONNECTIONS	
1	DC outputs
2	Status LED
3	Mains socket

Reference				5629	563901
MAINS	AC	Voltage	VAC	196...264	108...132
		Frequency	Hz	50 / 60	
OUTPUT	DC	Voltage	Vdc	24	
		Max. current	A	5 (4 max. per output)	
		Max. power	W	120	
		Efficiency	%	> 85	
GENERAL		Consumption	W	140 max.	
		Ingress protection	IP	20	
		Dimensions (WxHxD)	mm inch	75 x 216 x 175 2.94 X 8.50 X 6.88	

BLOCK DIAGRAM



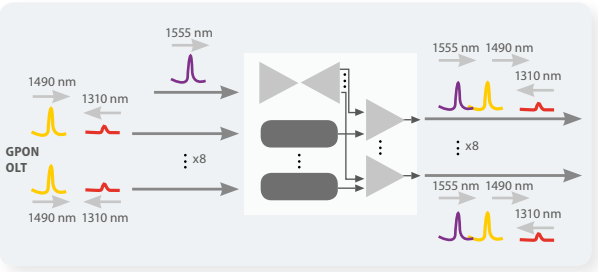
HIGH POWER 1550nm OPTICAL AMPLIFIER 8 CH WITH WDM

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 FibreData 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.

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

OPERATION METHOD



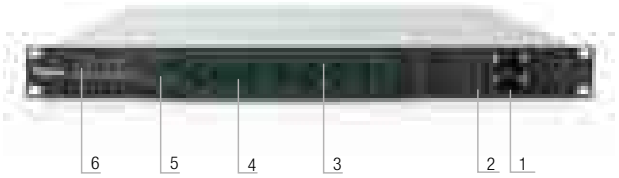
	CONNECTIONS
1	Led optical input alarm
2	Power led
3	Leds status OK
4	Led system error indication
5	Power, 24Vdc
6	1550nm input RF overlay
7	1310/1490/1550nm input/output to PON network
8	1310nm/1490nm input/output to/from OLT

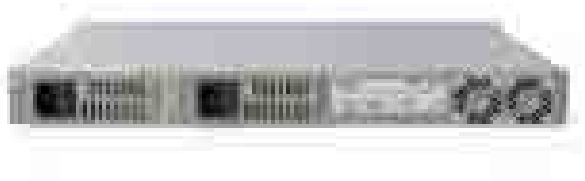
Reference			234228
OPTICAL Video Overlay INPUT	Input optical power range	dBm	-10...+10
	Input connector	type	1 x SC/APC
	Operating wavelenght	nm	1543...1565
OPTICAL GPON INPUT	Insertion Loss (1310nm & 1490nm)	dB	<1
	Input connector	type	8 x SC/APC
	Operating GPON wavelenght	nm	1310±20 - 1490±20
OPTICAL OUTPUT	Output optical power per port (1550nm)	dBm	20 ± 0,5
	Output connector	type	8 x SC/APC
	Noise figure	dB	Typ 5 (Pin=0dBm 1550nm). Max 7.
	Optical return losses	dB	≥ 40
GENERAL	Powering	Vdc	24
	Máx. Consumption @ 24 Vdc	mA	700
	Ingress protection level	IP	20
	Dimensions (WxHxD)	mm inch	111 x 218 x 194 4,37 x 8,58 x7,64

HIGH POWER 1550nm OPTICAL AMPLIFIER ON 1U RACK, WITH 8 CH WDM AND DOUBLE PSU

High power amplifier with a double power supply unit, hot-swappable, for powering the OLT ref.769401.

- Video Overlay multiplexing with GPON signals
- Video Overlay service amplification
- 20 dBm for output power
- "Hot swappable" double PSU of -48Vdc
- In conformity with EN61000-4-2,4,5,6,8,11, EN55024, EN6100-6-2 (EMC immunity)
- In conformity with EN55022 (EMC emissions)





REF.	DESCRIPTION
769610	High power optical amplifier of 1550nm with 8CH WDM and double PSU, for 1U rack mounting.

	CONNECTIONS
1	-48Vdc outputs
2	Powering LED
3	1310/1490nm inputs/outputs for OLT
4	1310/1490/1550nm inputs/outputs to PON network
5	1550nm RF Overlay input
6	Control LEDs and 24Vdc output

Reference			769610
OPTICAL INPUT Vídeo Overlay	Input optical power	dBm	-10...+10
	Input connector	tipo	1 x SC/APC
	Wavelength	nm	1543...1565
OPTICAL INPUT GPON	Insertion loss (1310nm & 1490nm)	dB	<1
	Input connector	tipo	8 x SC/APC
	GPON wavelength	nm	1310±20 - 1490±20
OPTICAL OUTPUT	Output optical power (1550nm)	dBm	20 ± 0,5
	Output connector	tipo	8 x SC/APC
	Noise figure	dB	Tip 5 (Pin=0dBm 1550nm). Max 7
	Return loss	dB	≥ 40
POWER SUPPLY UNIT	AC voltage	VAC	80 - 264
	Frequency	Hz	47 - 63
	DC voltage	Vdc	-48
	Max. output current	A	9
	Max. output power	W	432
	Efficiency	%	>89
	Protection Index	IP	20
	Dimensions (WxHxD)	mm inch	483 x 44,45 x 390 19 X 1,75 X 15,35

OLT512

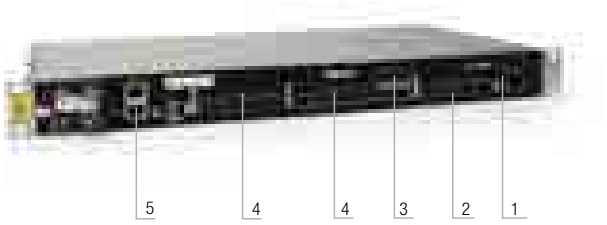
The Optical Line Terminal **OLT512** is the service provider compact end point for customers willing to deploy an FTTX infrastructure using GPON technology.

Specially designed for medium/small residential environments and compatible with ITU-T G.984X , **OLT512** is a cost-effective solution that enables Quad 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
769412	SFP 10Gbe

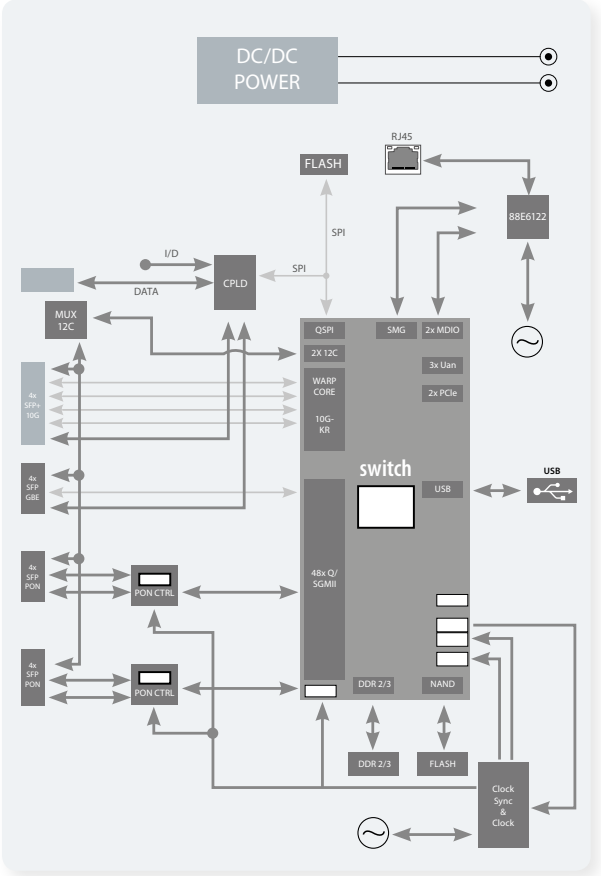
▲ 769410 ▲ 769411 ▲ 769412



	CONNECTIONS
1	-48 Vdc Power
2	4 x 1/10 Gbe uplink port
3	4 x 1Gbe uplink port
4	8 x GPON ports
5	2 x ETH management interface

Reference		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 SNMTP protocols		
General		
Temperature conditions	ºC/ºF	5 to +45/41 to 113
Relative Humidity Range	%	95
Power supply	Vdc	-40,5 to -57,0
Power consumption	W	<110
Ventilation noise level	dB	<60
Dimensions (WxHxD)	mm inch	483 x 44.45 x 248 18.93 X 1.75 X 9.75

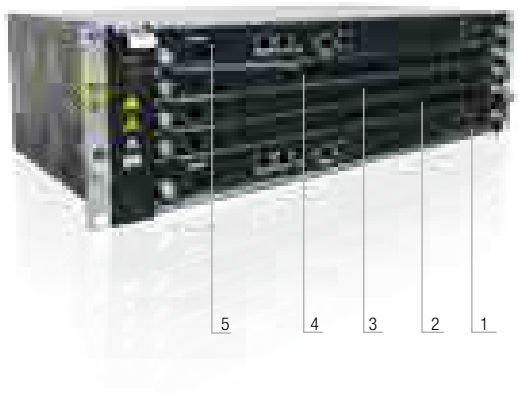
BLOCK DIAGRAM



OLT3072

The Optical Line Terminal **OLT3072** is the solution to provide multiple services on mid-size netwroks, compatible to ITU-T G.984X . It supports services as GPON and Ethernet.

- **Range up to** 60Km.
- Standard Gigabit Ethernet Uplinks 2x10Gbe
- **Equipped with test output.**
- Remote operation and monitoring.



REF.	DESCRIPTION
769420	OLT3072 PSU
769421	Back Plane Switch 2x10Gbps
769422	16PON card
769423	48 ports 1Gbps ethernet card

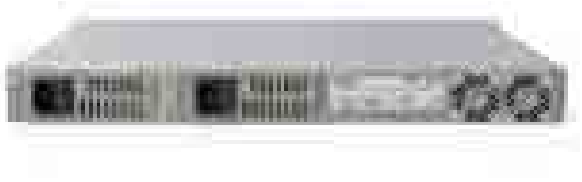
CONEXIONES	
1, 5	Back Plane Switch 2x10 Gbps
2, 3, 4	16PON card

CONFIGURATION INTERFACE

“HOT-SWAPPED” DOUBLE PSU, ON 1U RACK

Double power supply unit, hot-swappable, for OLT ref.769401 powering.

- High efficiency
- “Hot swappable” double PSU of -48Vdc
- In conformity with EN61000-4-2,4,5,6,8,11, EN55024, EN6100-6-2 (EMC immunity)
- In conformity with EN55022 (EMC emissions)



REF.	DESCRIPTION
769601	double PSU in 1U rack

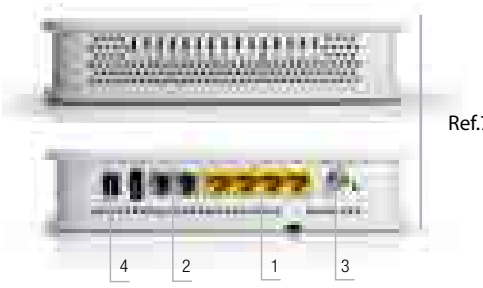
CONNECTIONS	
1	-48Vdc outputs
2	Powering LED

Reference				769601
MAINS	AC	AC voltage	VAC	80 - 264
		Frequency	Hz	47 - 63
OUTPUT	DC	DC voltage	Vdc	-48
		Max. current	A	9
		Max. power	W	432
		Efficiency	%	>89
GENERAL		Protection index	IP	20
		Dimensions (WxHxD)	mm inch	483 x 44,45 x 390 19 X 1,75 X 15,35

ONT

The Optical Network Terminal solutions from Televes 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.



Ref.769502

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

REF.	DESCRIPTION
769501	GPON ONT OFFICE (4xGbE, 2xFXS, 2xUSB, WLAN)
769502	GPON ONT HOME (4xGbE, 2xFXS, 2xUSB, RF, WLAN)
769504	GPON ONT HOME AC (4xGbE, 2xFXS, 2xUSB, RF, WLAN ac)
769506	GPON ONT OFFICE AC (4xGbE, 2xFXS, 2xUSB, WLAN ac)
769507	GPON ONU BASIC (1xGbE)
769508	GPON ONU STANDARD (1xGbE, RF)

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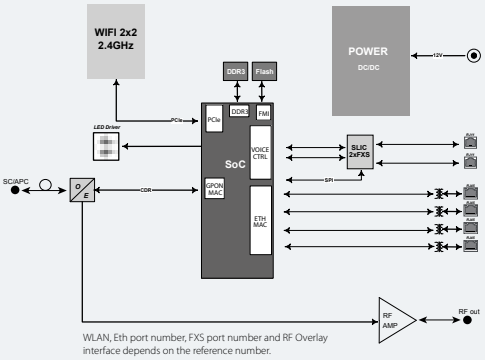

Referencia		769501	769502	769504	769506	769507	769508
RF-Overlay		-	✓	✓	-	-	✓
WiFi (802.11 b/g/n)	GHz	✓	✓	✓	✓	-	-
USB		-	-	✓	✓	-	-
FXS Ports		2	2	2	2	-	-
ETH Ports 10/100/1000BASE-T		2	2	2	2	-	-
NAT/NAPT		4	4	4	4	1	1
Firewall		✓	✓	✓	✓	-	-
VPN pass-through		✓	✓	✓	✓	-	-
PPPoE termination		✓	✓	✓	✓	-	-
OMCI		✓	✓	✓	✓	-	-
TR-069		✓	✓	✓	✓	-	-
CLI		✓	✓	✓	✓	-	-
WebGUI		✓	✓	✓	✓	-	-
WebGUI		✓	✓	✓	✓	-	-
General							
Temperature conditions	ºC/ºF	-5... 65/23...149					
Relative Humidity Range	%	0...95					
Power supply	W	19	19	19	19	7	7
Dimensions (WxHxD)	mm inch	210 x 40 x 210 8.25 x 1.57 x 8.25					

OPTICAL TV RECEIVER WITH AUTOMATIC OUTPUT LEVEL

Designed for FTTH applications, it provides a stable RF output regardless of input signal variations.

▲ 231111

REF.	DESCRIPTION
231111	Optical receiver with OLC 1550nm
231181	Optical receiver with OLC 1550nm 110Vac

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

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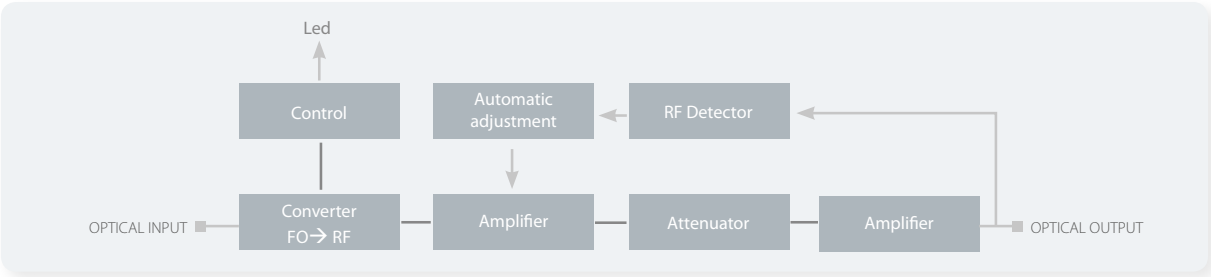
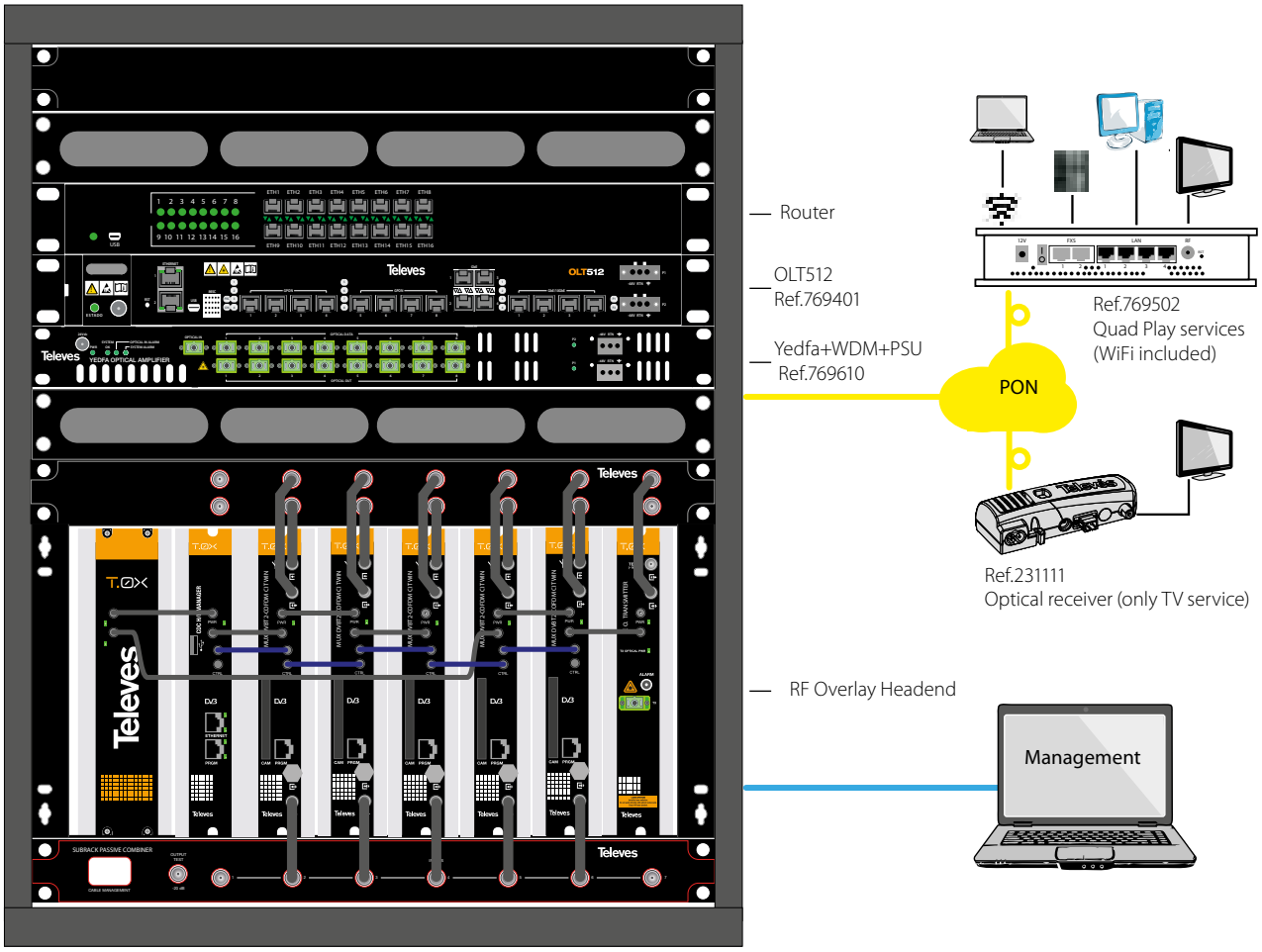


Reference			231111	231181
OPTICAL INPUT	Optical device	type	InGaAs pin photodiode	InGaAs pin photodiode
	Wavelength	nm	1550	1550
	Detection bandwidth	MHz	1...3000	1...3000
	Optical input power range	dBm	-10 ~ +3	-10 ~ +3
	Optical return losses	dB	> 40	>40
RF OUTPUT	Frequency range	MHz	47... 1006	47...1006
	Impedance	ohm	75	75
	Output return losses	dB	≥ 11	≥ 11
	Optical AGC operating range	dB	0 ...18	0 ...18
	Max. output level	dBµV/dBm	80 / 20	80 / 20
GENERAL	Mains voltage	Vac	196...264	108...132
	Current consumption	mA	19 max.	32 máx.
	Power consumption	W	1,7 max.	1,6 máx.
	Output RF connector	type	F female	F female
	Input optical connector	type	SC/APC	SC/APC
	Operating temperature	ºC/ºF	-5...+45 / 23...113	-5...+45 / 23...113
	Weight	gr/lb	230 / 0,51	230 / 0,51
	Ingress protection level	IP	20	20
	Dimensions (WxHxD)	mm inch	145 × 60 × 35 5.68 × 2.36 × 1.38	145 × 60 × 35 5.68 × 2.36 × 1.38

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.

TYPICAL APPLICATION



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