

Amplificador óptico con WDM / Optical amplifier with WDM

Ref. 234228



Introducción / Introduction

El Amplificador de 8CH y alta potencia con WDM, basado en la tecnología YEDFA, está pensado para aplicaciones FTTH. En una topología de FTTH, la red se termina con un ONT que puede proporcionar varios servicios tales como datos y RF Overlay.

El Amplificador de 8CH y alta potencia con WDM es una unidad independiente diseñada para ser robusta y soportar las demandas de las próximas tecnologías PON. Dispone de 8 entradas GPON, 1 entrada RF Overlay y 8 salidas multiplexadas GPON+ RF Overlay.

Esta unidad complementa a refs. FibreData, para pequeños escenarios GPON reducidos, proporcionando con dos soluciones compactas 8 interfaces GPON, la amplificación del canal RF Overlay y su multiplexación.

Este equipo destaca por:

- Permite el multiplexado de señal de video overlay (1550 nm) con los dos anchos de onda GPON (1490 nm de bajada y 1310 nm de subida).
- Amplifica y divide la señal de video overlay(1550 nm) a través de 8 puertos con una potencia de salida típica de 20dBm.

The high power amp-8CH with WDM is focused to FTTH applications. It is based on YEDFA technology.

In a FTTH topology, the network is terminated by an ONT that can provide several services such as Data and RF Overlay.

High power amp-8CH with WDM is a standalone unit designed to be robust to fails and to support the demands of the next PON Technologies. It supports 8 GPON inputs, 1 RF Overlay input and 8 multiplexed GPON+RF Overlay outputs.

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

The high power amp-8CH with WDM stands out for:

- *It allows the multiplexing of the video overlay signal (1550 nm) with the two GPON wavelengths (1490 nm downstream and 1310 nm upstream).*
- *Amplifies and divides the video overlay signal (1550 nm) through 8 ports with a typical output power of 20 dBm.*

ES Importantes instrucciones de seguridad

Condiciones generales de instalación:

- Antes de manipular o conectar el equipo leer éste manual.
- No obstruir las ranuras de ventilación del equipo,
- Deje un espacio libre alrededor del equipo para proporcionar una ventilación adecuada.
- No situar el equipo cerca de fuentes de calor o en ambientes de humedad elevada.
- No situar el equipo donde pueda estar sometido a fuertes vibraciones o sacudidas.

Operación segura del equipo:

- Si algún líquido u objeto se cayera dentro del equipo, por favor recurra al servicio técnico especializado.
- No conectar el equipo hasta que todas las demás conexiones del equipo hayan sido efectuadas.

Instrucciones para la conexión óptica:

- Para la conexión óptica se utilizará un cable de fibra

monomodo con conector tipo SC/APC.

- Retirar la tapa protectora del conector óptico ubicado en el frontal del equipo, así como el capuchón protector del conector de la fibra óptica monomodo que se va a conectar al equipo.

- Realizar la conexión del cable al equipo teniendo cuidado de enfrentar las guías de ambos conectores, presionando el conector totalmente hasta el fondo.

Precauciones de conexionado:

- Tratar con sumo cuidado la punta desprotegida de los conectores, pequeños arañazos, rasaduras, impurezas y/o partículas de suciedad, aceites, grasas, sudor, etc.. Pueden degradar significativamente la señal.

- Para la limpieza de la punta de los conectores, frotar (sin ejercer presión) con una toallita de limpieza con base en alcohol isopropílico, específica para la limpieza de elementos ópticos. Antes de realizar la conexión dejar secar totalmente el alcohol.

- Reservar las tapas de conectores y capuchones de los cables para futuras operaciones de extracción/

protección de los mismos.

- Colocar siempre las tapas protectoras a los conectores de los equipos que no estén conectados a cables para evitar que el haz láser pueda alcanzar los ojos.

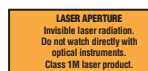
- Evite en lo posible el encendido del transmisor sin tener la fibra conectada a dicho transmisor.

Precauciones de Seguridad

Aviso.-

Este producto emite un rayo de luz invisible láser.

Evite exponerse a la radiación láser. El uso de aparatos de ayuda visual (por ejemplo binoculares, lupas, etc.) puede aumentar el peligro a los ojos.



Acorde a EN60825-1_2007



Precaución

- El uso de controles o ajustes, así como procedimientos diferentes a los especificados en éste manual puede provocar la exposición de partes del cuerpo a radiaciones nocivas.

- Lea y siga las instrucciones en este manual cuidadosamente, retenga éste manual para referencia futura.

- No utilice los equipos de forma no conforme con estas instrucciones de operación ni bajo cualquier condición que exceda las especificaciones ambientales estipuladas.

- El usuario no puede dar servicio técnico a estos equipos. Para asistencia técnica contacte con nuestro departamento de asistencia técnica.

- El rayo láser no debe ser apuntado a las personas y/o animales intencionadamente.

EN Important Safety Instructions

Caution Statements

- **Product inspection** - Inspect the equipment for shipping damage. Should any damage be discovered, immediately file a claim with the carrier.
- **Important Safety Instructions** - To ensure proper installation and operation, take a moment to read this guide before proceeding with the installation. If you have any questions or comments about the T.OX Series Optical Fiber Receivers please contact your dealer.

WARNING: TO PREVENT FIRE OR ELECTRICAL SHOCK DO NOT EXPOSE TO RAIN OR MOISTURE.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

	A product and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the product and cart combination to overturn.
	The lightning flash with arrow head symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Important Safety Instructions

- 1. Read and Follow All Instructions** - All the safety and operating instructions should be read prior to and followed while operating this product.
- 2. Retain Instructions** - The safety and operating instructions should be retained for future reference.
- 3. Heed Warnings** - All warnings on the product and in the operating instructions should be adhered to
- 4. Cleaning** - Disconnect this product from any electrical source before cleaning. Use a damp cloth; do not use liquid or aerosol cleaners.
- 5. Attachments** - Do not use attachments that are not recommended by the product manufacturer as they may cause hazards.
- 6. Water and Moisture** - Do not use this product near any source of water.
- 7. Mounting** - Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to persons or nearby objects, and serious damage to this product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
- 8. Ventilation** - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product. These openings should never be blocked or covered in any way. This product should not be placed in any case, cabinet, or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.
- 9. Power Sources** - This product should be operated only from the type of power source indicated on the marking label.
- 10. Grounding or Polarization** - Do not bypass or defeat electrical plug polarization or grounding. Doing so will violate the warranty and may pose a risk of fire or electrocution.
- 11. Wire Protection** - Ensure all connected wiring is routed correctly to avoid damage including pinching, excessive bends, or compression.

12. Electrical Supply, Grounding, and Surge Protection - Ensure that all local or national electrical codes are followed. Seek the advice of a licensed electrician, professional engineer, or other licensed expert. See example wiring figure.

13. Power Lines - Always use caution and avoid operating this or any connected equipment near uninsulated power line or any other hazards.

14. Object and Liquid Entry - Never allow objects or liquid of any kind into this product through openings. Doing so could result in fire or electric shock.

15. Servicing - There are no user serviceable parts. Do not attempt to service this product or remove covers. Doing so may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel. Examples of damage requiring service include but are not limited to:

- Damage to power-supply wiring.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or physically damaged.
- When the product exhibits a distinct change in performance.

16. Replacement Parts - Ensure that repairs are performed by qualified technicians and that only manufacturer supplied or authorized parts are used.

17. Safety Check - Upon completion of any service or repairs to this product, ensure safety checks to determine that the product is functioning per manufacturer specifications are performed.

18. Heat - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat. Ensure that ambient temperature is maintained

in the manufacturer specified operating range.

Optical connection instructions:

- An SC/APC single mode fiber cable must be used. Remove the protective cover from the optical connector on the unit and the cap on the cable connector.
- Carefully align the guides on both connectors when plugging a cable to the device, then push the connector all the way in.
- Take special care to avoid damaging the unprotected ends of the connectors, as small scratches, impurities and/or particles of dirt, oil, grease, sweat, etc. may significantly affect the quality of the signal.
- To clean the ends of the connectors, gently rub with a lint-free lens cleaning cloth, dampened using additive-free isopropyl alcohol. Make sure the alcohol evaporates fully before connecting. Keep the connector covers and cable caps in a safe place in case they are needed in the future. Always fit the covers on the connectors of devices that are not connected to cables to prevent the laser beam from damaging the eyes.
- Do not turn the transmitter on without a fiber optic cable connected to it.

Safety measures

Warning.-

This product emits an invisible laser beam. Avoid contact with laser radiation. The use of equipment such as binoculars or magnifying glasses may increase damage caused to the eyes.



According to EN60825-1_2007

- The use of the equipment in any other way than the specified in this manual may lead to exposure to harmful radiation.
- Do not use the equipment in any way that does not comply with the operating instructions or in any conditions that exceed the stipulated atmospheric specifications.
- Never point the laser beam at people or animals.

Televes Limited Warranty

Televes S.A guarantees this product as per legislation applicable for this type of product at the time and in the country of purchase.

- (A) Televes warrants, only to the original Purchaser, all Products be free from any defect in materials or workmanship for a period of two (2) years from the date of original purchase, unless otherwise specified.
- (B) Televes shall, free of charge and in its sole discretion, either repair, replace with a new or factory reconditioned equivalent, or refund the purchase price of the Product(s), that has been determined by Televes to be defective in material or workmanship, subject to the limits of this warranty.
- (C) This warranty excludes any damage or inoperability resulting from:

- (I) use or installation that is not in strict compliance with the written instructions and specifications;
- (II) any modification or alteration performed by any third party not authorized in writing by Televes;
- (III) service or repair performed by any third party not authorized in writing by Televes;
- (IV) misuse, abuse, intentional harm, or lack of reasonable care;
- (V) fire, ice, snow, rain, wind, water, volcano, excessive heat or cold, lightning, flood, power surge, earthquake, or any other acts of God;
- (VI) war, crime, strike, riot, electro-magnetic pulse, or any other acts beyond the control of Televes;
- (VII) shipping.
- (D) All claims under the terms of this warranty must be made in writing, by the original Purchaser, within fourteen (14) days of the defect being known to the Purchaser. Such claims shall be accompanied by a description of any material facts related to

the claimed defect and the invoice or other proof of original purchase date and price. If Televes so requests, the Purchaser shall, at Purchaser's expense, deliver the claimed Product(s) to Televes, within 14 days of the date of the return authorization. Under no circumstances shall the Product(s) be returned to Televes without a return authorization.

(E) Any refund to the Purchaser, shall be limited to the purchase price of the Product(s), excluding any applicable taxes, duties, freight costs, removal costs, installation costs, or any other charges incident to the purchase of the product.

(F) Any damage caused by shipper shall be claimed with the shipper in accordance with the shipper's policies and procedures.

(G) Televes shall in no event and under no circumstances be liable or responsible for any consequential, indirect, incidental, punitive, direct or special damages

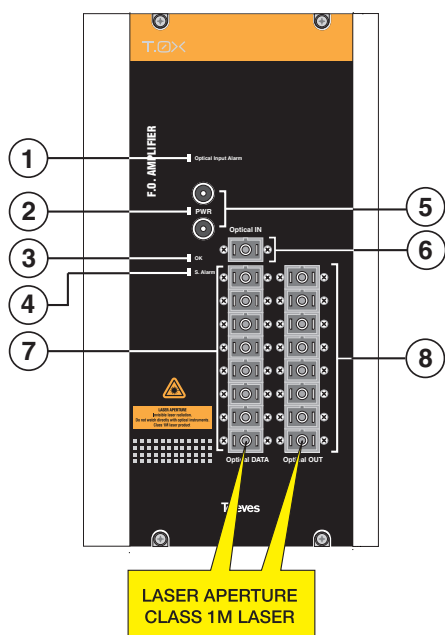
based upon breach of warranty, breach of contract, negligence, strict tort liability or otherwise or any other legal theory, arising directly or indirectly from the sale, use, installation or failure of any product acquired by Purchaser from Televes.

(H) This limited warranty extends to the original Purchaser and cannot be assigned or transferred to any other party without the prior express written permission of Televes, which permission Televes may withhold for any reason or for no reason at all.

(I) Televes will not assume any liabilities for any other warranties, whether statutory, express or implied, made by any other person.

(J) Televes reserves the right to modify or discontinue this warranty at Televes' sole discretion without notification. No other warranties are expressed or implied.

Descripción de producto/ Mechanical overview:



1 Optical input alarm	3 OK	4 System alarm	Resultado / Result
RED	OFF	RED	No hay potencia óptica de entrada RF/ No RF input optical power
OFF	OFF	RED	Hay potencia óptica de entrada RF y fallo en el sistema/ RF optical input power and system failure
OFF	GREEN	OFF	Funcionamiento correcto/ Correct operation

1. LED de alarma de entrada óptica
Led optical input alarm

2. LED de alimentación
Power led

3. Led de estado OK
Led status OK

4. Indicación de errores por sistema LED
Led system error indication

5. Entrada de alimentación del módulo, 24V_{DC}
Module power input, 24V_{DC}

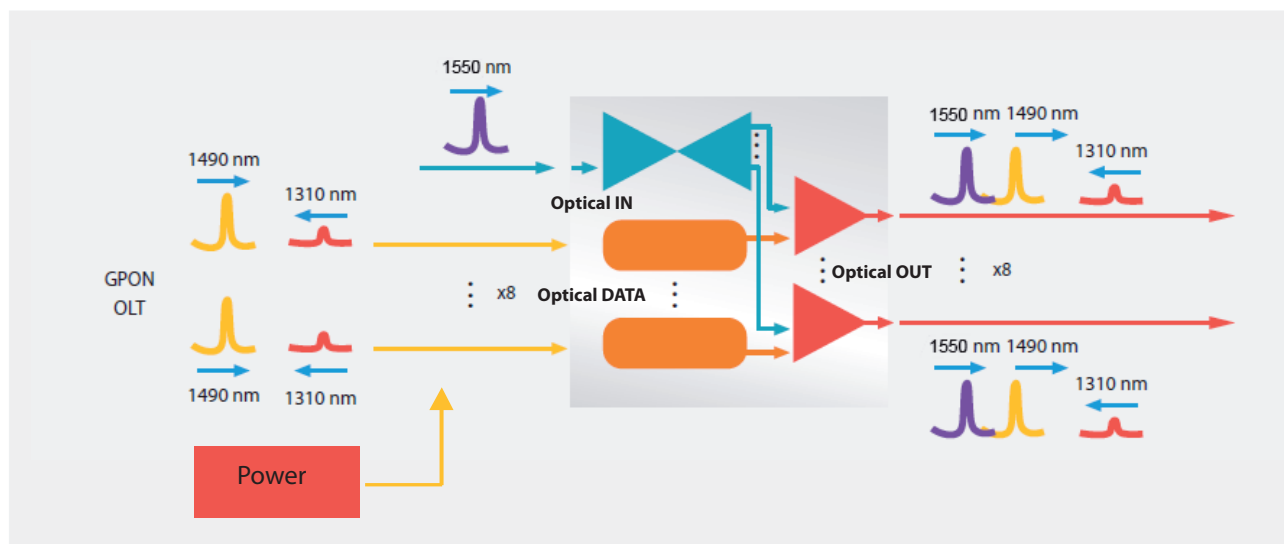


6. Entrada RF overlay
Input RF overlay

7. Puertos conexión OLT
OLT connection ports



8. Puertos conexión red GPON
GPON network connection ports

Diagrama de bloques / Blocks diagram



Especificaciones técnicas / Technical specifications

Ópticas Optical	Número de puertos / Ports number		1 RF Overlay @ optical IN 8 GPON @ Optical DATA 8 (GPON + RF Overlay) @ Optical OUT
	Longitud de onda de trabajo / Operating wave length	nm	1310 ± 20 @ Upstream 1490 ± 20 @ Downstream 1548 ...1565 @ RF Overlay
	Entrada RF Overlay / Input RF overlay	dBm	-10 ...+10
	Potencia de salida RF overlay / Output power RF overlay	dBm	20 @1550 nm
	Uniformidad / Uniformity	dB	0,5
	Figura de ruido / Noise figure	dB	5 (Pin= 0d Bm @1550 nm).
	Pérdida de inserción (1310 &1490nm) / Insertion loss (1310 &1490nm)	dB	<1
	Conectores entrada - salida / Optical conector		SC / APC
Pérdidas de retorno / Return loss	dB	> 40	
Eléctricas Electrical	Alimentación / Powering	V _{DC}	24
	Consumo máx. de corriente / Max current consumption	A _{DC}	0,7
	Temperatura de funcionamiento / Operating temperature	°C / °F	-5 ... +45 / +23 ... +113
General	Dimensiones / Dimensions	mm / in	111 x 218 x 194 / 4,37" x 8,58" x 7,64"
	Peso / weight	g / lb	2.706 / 5,97
	Índice de protección / Protection Index	IP	20


DECLARATION OF CONFORMITY
No. DC160311150159


Per FCC Part 2 Section 2.1077(a)

The manufacturer:

Responsible Party Name: Televes S.A.
Address: Rúa Benéfica de Conxo, 17
15706 - Santiago de Compostela
Spain
Phone / Fax Nº: 981522200 / 981522262

Hereby declares that the product:


Trademark: Televes
Model Number: 234228
Product Name: T.OX F.O. AMPLIF. 80 1550nm SC/APC 20dBm

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(e) and section 15.109(g)

Supplementary Information:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name: José L. Fernández Carnero
Signature: 

Date: 11/3/2016

DECLARACIÓN DE CONFORMIDAD ▪ DECLARATION OF CONFORMITY ▪ DECLARAÇÃO DE CONFORMIDADE ▪ DECLARATION DE CONFORMITE ▪ DICHIARAZIONE DI CONFORMITÀ ▪ DEKLARACJA ZGODNOŚCI ▪ KONFORMITÄTSEKRLÄRUNG ▪ ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΣΥΜΜΟΡΦΩΣΗΣ ▪ FÖRSÄKRAN OM ÖVERENSSTÄMMELSE ▪ ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ ▪ 01030578-001