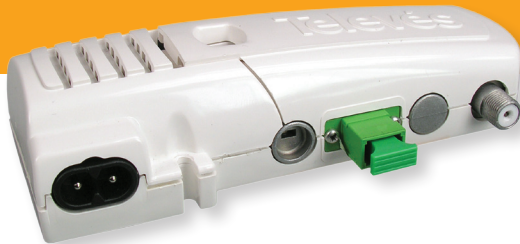


# Televes®



Ref. 231180

EN FTTx Mini Optical Receiver

User manual

Purchase from Multicom

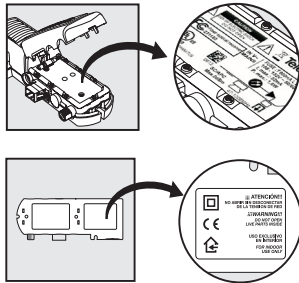


[www.multicominc.com](http://www.multicominc.com) | 800-423-2594

## SECURITY

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with a dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

### Location of important safety instructions



## 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 apparatus, 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 apparatus 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.



- The use of controls or adjustments or any other procedures other than those specified in this manual may lead to exposure to harmful radiation.
- Carefully read and observe the instructions given in this manual, and keep it for future reference.
- 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.
- This equipment is not user-serviceable. Should you require assistance, contact our technical service department.
- Never point the laser beam intentionally at people or animals.

## SIMBOLOGY

**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN

To avoid the risk of electric shock, do not open the equipment.



This symbol indicates that the product displays “dangerous voltage” with a risk of electric shock or personal harm.



This symbol indicates that this product possesses important instructions for use.



This symbol indicates that the equipment complies with the safety requirements for Class II equipment.



This symbol indicates full compliance with the FCC Standards.



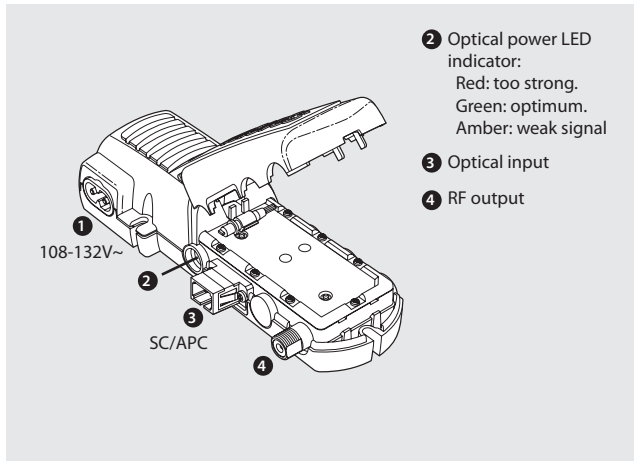
Indoor use only.



This symbol indicates this product has been safety tested and meets UL requirements.  
The cULus Listed Mark indicates compliance with Canadian and U.S. safety standards.

Televes' FTTx Mini Optical Receiver offers maximum operation flexibility and optimum performance at an industry leading price point in a very convenient and easy-to-install miniature housing. Low distortion and low input levels allow for deployment where the use of conventional nodes is non-practical. In addition, its extremely low energy consumption provides long-term trouble free operation.

Its unique in its class OLC (Optical Level Control) technology ensures stable RF output power levels are delivered regardless the fiber optics network distribution optical attenuation. A front optical power LED indicates the operator at all times if the incoming signal is too strong, too weak or in range.



## TECHNICAL SPECIFICATIONS

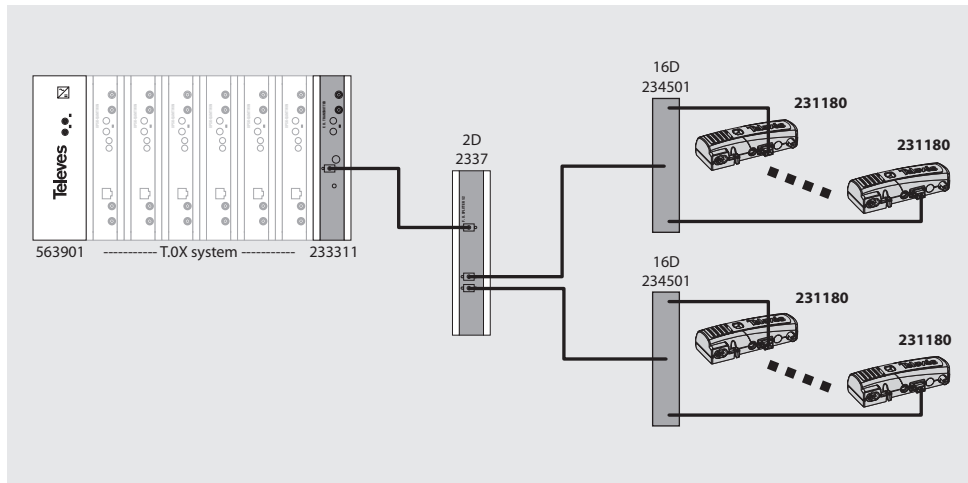
RF output		
Connector	type	F
Bandwidth	MHz	47- 1006
Impedance	Ohm	75
Return losses	dB	> 11
Flatness	dB	± 1.5
Typical regulated level <sup>(1)</sup>	dBmV	20
CNR <sup>(2)</sup>	dB	> 51
CSO <sup>(1)</sup>	dBc	< -60
CTB <sup>(1)</sup>	dBc	< -60
Optical input		
Wavelength	nm	1200 - 1600
Detection bandwidth	MHz	1 - 3000
OLC range	dBm	-8 .... +1
Max. optical input power	dBm	2
Min. input optical power recommended <sup>(2)</sup>	dBm	-10
Return losses	dB	> 40
Connector	type	SC/APC
Optical device	type	InGaAs pin photodiode

General		
Mains voltage	V~	108 - 132
Max. current	mA	32
Max. power	W	1.6
Operating temperature	°F	23 .... 113
Dimensions (LxHxW)	inches	4.7 x 2.36 x 1.38
Weight	lbs	0.51
Protection index		IP 20

(1) Using a 6dBm transmitter (Ref. 233306) with 27dBmV average input .

(2) It can be lower depending on the optical transmitter RF input level.





# WARRANTY

## Televes Limited Warranty

- (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.

# DECLARATION OF CONFORMITY

## DECLARATION OF CONFORMITY N° 130619083619

Per FCC Part 2 Section 2.1077(a)



Responsible Party Name: Televes S.A.  
Address: Rua Benéfica de Conxo, 17  
15706 - Santiago de Compostela  
Spain  
Phone / Fax N°: 981522200 / 981522262

Hereby declares that the product

Product Name: Domestic F.O. RX OLC USA  
Model Number: 231180

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:

A handwritten signature in black ink, appearing to read 'Jose L. Fernandez Carnero', enclosed within a circular stamp.

Date: 19/6/2013



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