

Enhanced CATV Optical Receiver

(TVR-B-WDM-PE-10)

Features

- Wide bandwidth of 47 to 870MHz to support CATV analog channels or a combination of analog and digital channels
- An optical Wavelength-division Multiplexer (WDM) integrated inside
- High CNR, and a low CSO, CTB.
- Automatic gain control
- RF Output up to +32dBmV
- Monitor pins available
- Especially designed for FTTB, FTTH application



Description

The Accelink's TVR Series products is a Fiber Optic Receiver which is designed to be used in HFC systems. The TVR-B-WDM-PE-10 module provides an RF output of +32 dBmV, allowing multiple RF splits without the need of an external RF amplifier. With automatic gain control, the RF output level maintains almost consistent over a wide optical input range of -10 to +2dBm. The WDM PIN receives the 1550 nm video optical signal, converts it to RF signal, and passes the 1310/1490 nm digital signal to ONU. TVR series can be used in multi-dwelling units (MDU's) such as apartment buildings, college dormitories, etc. Figure1 illustrates its block diagram.

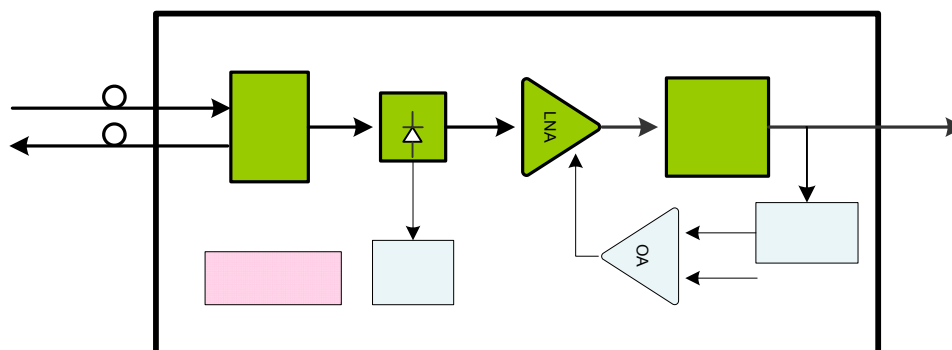


Figure 1. TVR Block Diagram

Absolute Maximum Ratings

Parameter	Min	Max	Unit
Storage temperature	-40	85	°C
Supply voltage	0	25	V

Recommended Operating Conditions

Parameter	Min	Typical	Max	Unit
Power supply	12VDC@10mA, 5VDC@370mA			
Operating temperature	-20		70	°C
Ambient humidity	5		95	%

Optical Specifications

Parameter	Min.	Typ.	Max.	Unit	Note
Receiver wavelength	1540	1550	1560	nm	
Reflection wavelength			1520	nm	
Optical return loss	35			dB	
Reflection port intertion loss			0.8	dB	
Received average optical power	-10		+2	dBm	1
OVERLOAD assert	2.0	3.1	4.0	dB	
LOSS assert	-13.5	-12.0	-10.5	dB	
Photodetector responsivity	0.8			mA/mW	
Equivalent input noise current			8	pA/	
Back reflection @1550nm	45			dB	
Optical connector (common port)	SC/APC				2
Optical connector (rfect port)	SC/APC				
Fiber type	SMF28e - Φ0.9mm				
Fiber Length	0.5±0.1			m	

Note 1: Operating below -10dBm or above +2dBm optical input is not recommended. It will not cause damage to the unit, but either the CNR may degrade rapidly or the video out may be severely distorted, exhibiting poor CTB and CSO.

Note 2: The optical connector type can be customized.

RF Specifications

Parameter	Min.	Typ.	Max.	Unit	Note
Frequency range	47		870	MHz	
RF output level	30	32	40	dBmv/ch	1
Flatness (Ripple)	±1			dB	
CNR	46			dB	2
CSO			-55	dBc	3
CTB			-55		

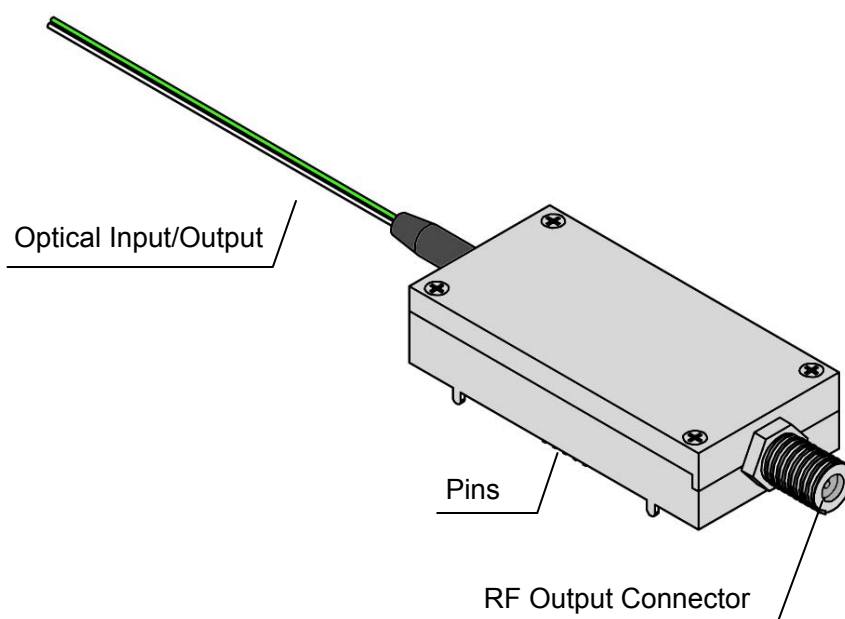
RF output impedance		75		Ω	
RF output return loss	12			dB	
RF connector	F/female				

Note 1: 2dB tilt from 47 to 870MHz; 32dBmV at 552MHz; optical modulation index (OMI) of 3.5%, optical input range of -6~+2dBm

Note 2: CNR@-6dBm optical input, OMI=3.5%, 59 PAL-D channels;

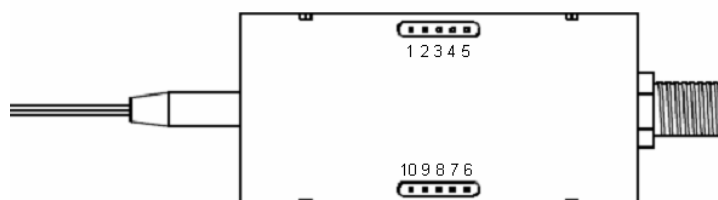
Note 3: OMI=3.5%, -1dBm input optical power, 59 PAL-D channels;

Interface Definitions



Pinout Definitions

The unit's pins are found at the bottom of the TVR series, which are numbered as follows:

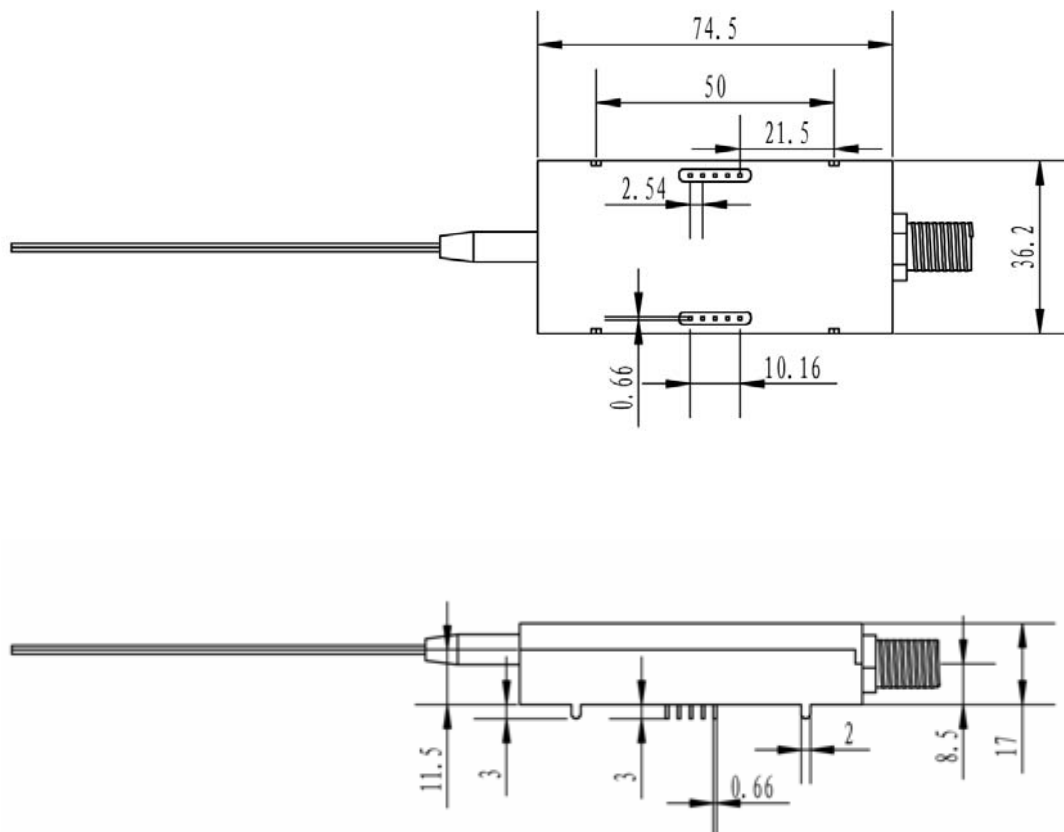


Pin	Function	Description
-----	----------	-------------

1	Overload Alarm	Low TTL indicates the input optical power is higher than +2dBm, otherwise high TTL.
2	Normal Alarm	Low TTL indicates the input optical power is out of range of -10dBm~+2dBm, otherwise high TTL.
3	Loss Alarm	Low TTL indicates the input optical power is lower than -10dBm, otherwise high TTL.
4~7	NC	Not Used
8	+5V	+5V power supply
9	GND	Module GND
10	+12V	+12V power supply

Mechanical Drawing

Parameter	Description	Unit	Notes
Mechanical Dimensions	74.5×36.2×20	mm	



Part No.	Product Description
TVR-B-WDM-PE-10	enhanced CATV optical receiver, WDM, AGC
Note: The optical connector type and electrical interface definition can be customized.	