Quadruple Reverse Optical Receiver Module WOS-WR-2004-TD-S-4K

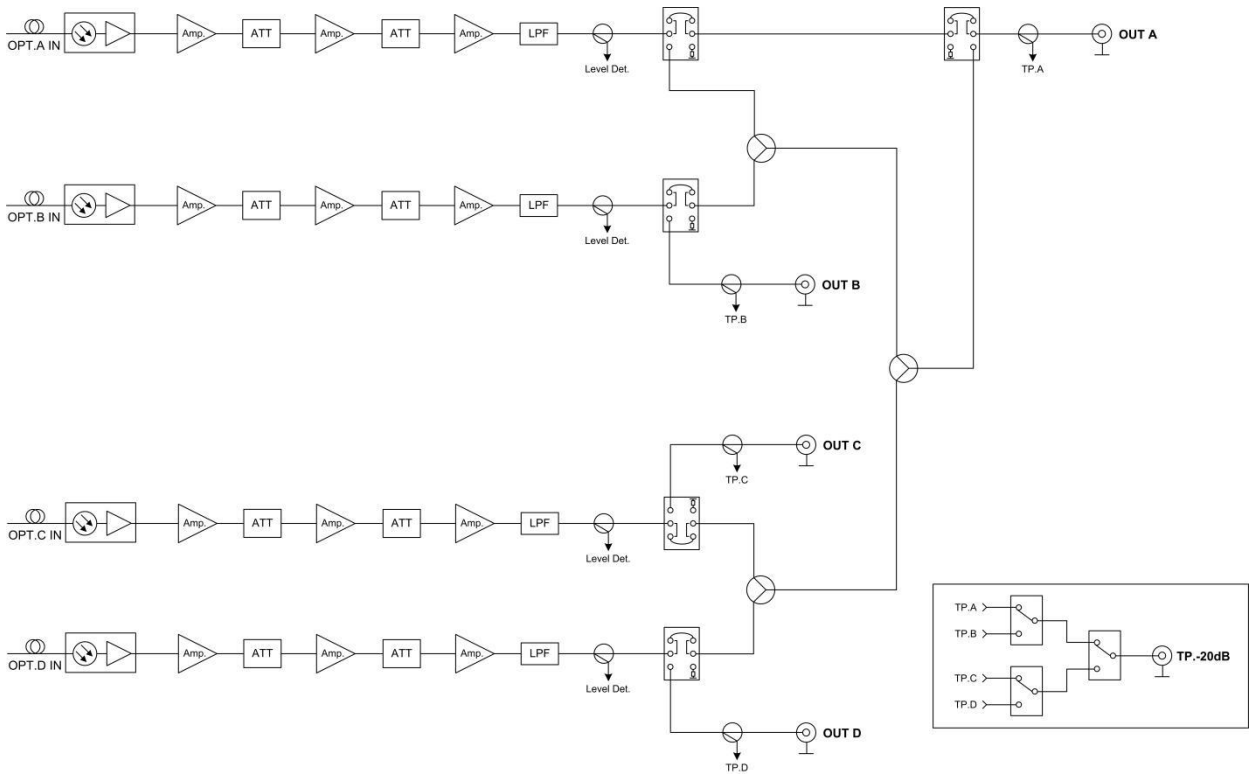
1 Product Overview

The return path optical receiver module is designed with a high-density 4-way return path receiving circuit to provide 4 independent outputs or mixed output. High output type or low output type is optional. Optical input power is as low as -21dBm. It has output level detection on the front panel and RF output independent shutdown for each channel. AGC or MGC level control mode is available. 204MHZ bandwidth is fully compatible with Docsis3.1 standard and can be used to form HFC bidirectional network, especially for fiber transmission of CMTS return path signals. ; The parameters can be set and displayed through SNMP, Web Interface and CMM management unit

2 Performance Characteristics

- Support hot swap.
- Electromagnetic compatibility.
- Four independent output, four mixed output and two mixed output are optional.
- The 5-204MHZ band supports the Docsis 3.1 standard
- The optical AGC and MGC gain control modes are optional
- -21dBm ultra low power reception
- Normal mode and RFOG mode can be switch.
- Internal temperature detection and monitoring functions.

3 Block Diagram



4 Technique Parameters

Item	Unit	Parameter	
		4x4 RX(HFC)	**4x4 RX(RFOG)**
Optical Part			
Input optical wavelength	nm	1260 ~ 1620	1260 ~ 1620
Input optical power range	dBm	-15~ -1	-25~ -10
Optical connector type		SC/APC，LC/APC veya E2000	
Optical return loss	dB	≥40	
Responsivity		≥ 0.8 A/W	
Fiber type		Single mode	
RF Part			
RF output (F-female)	port	4	
Frequency range	MHz	5~204	
Flatness in band	dB	±1	
Output return loss	dB	≥16	
Maximum output level (in optical AGC range)	dBμV	＞90 @Pin= -15dBm, OMI=15%	＞80 @Pin= -25dBm, OMI=15%
Output shutdown isolation	dB	≥50	

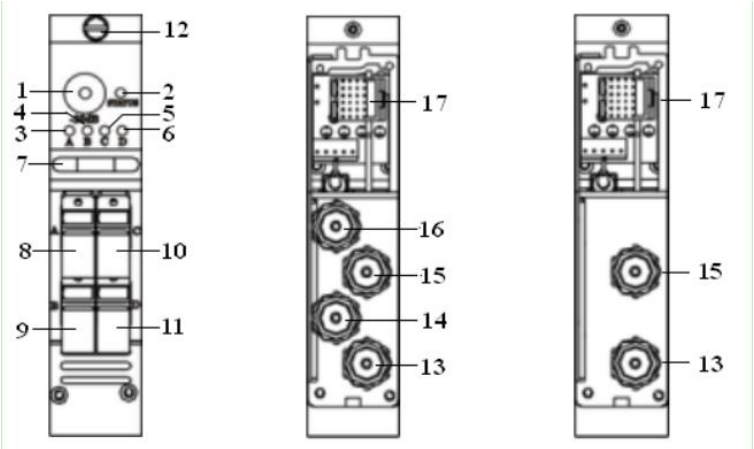
Equivalent noise current	pA/rt(Hz)	< 4,5		≤ 1,5	
NPR Dynamic Range	dB	≥14(NPR≥36) @Pin= -15dBm	15-85 MHz	≥19(NPR≥36) @Pin= -10dBm ≥14(NPR≥36) @Pin= -15dBm ≥18(NPR≥36) @Pin= -20dBm	15-85 MHz
MER	dB	40	@-1dBm		
		40	@-10dBm	44	@-10dBm
		39	@-15dBm	42	@-15dBm
				40	@-20dBm
				38	@-24dBm
BER	-	10-9 post-FEC	@-1dBm		
		10-9 post-FEC	@-10dBm	10-9 post-FEC	@-10dBm
		10-9 post-FEC	@-15dBm	10-9 post-FEC	@-15dBm
				10-9 post-FEC	@-20dBm
				10-9 post-FEC	@-24dBm
RFconnector type		F type			
Others					
Operating temperature	□	-5 ~ + 55			
Storage temperature	□	-30 ~ + 70			
EMC		EN 50083-2			
Maximum power consumption	W	< 12			
Weight	Kg	1			

5 Operation instructions of the display menu

Once the module is installed, the corresponding slot in the display menu will highlight the module which is online. After entering the sub menu, the following parameters can be seen:

A RecvPower	**-xx.xdBm**	A, B, C, D channels receive optical power
B RecvPower	**-xx.xdBm**	
C RecvPower	**-xx.xdBm**	
D RecvPower	**-xx.xdBm**	
A Out RFLevel	**xx.xdBuV**	A, B, C, D output levels
B Out RFLevel	**xx.xdBuV**	
C Out RFLevel	**xx.xdBuV**	
D Out RFLevel	**xx.xdBuV**	
A OptAGCEn	**Enable**	Optical AGC settings of A, B, C, D channels: Enable: Optical AGC is on Disable: Optical AGC is off
B OptAGCEn	**Enable**	
C OptAGCEn	**Enable**	
D OptAGCEn	**Enable**	
RF OutPutMode		RF output mode: mixed / independent
RF WorkMode		Module working mode: HFC/RFOG
A ATT	**xdB**	A, B, C, D RF attenuation Attenuation range: 0~30 decibels.
B ATT	**xdB**	
C ATT	**xdB**	
D ATT	**xdB**	
ChanNum	**xx**	Channel numbers, range 0~100
DevTemp	**xx.x□**	Module temperature
SN	**xxxxxx**	Serial number
Version	**x.xx**	Software version number
WorkTime	**x.xHour**	Total operating hours of the equipment

6 Structure Description



Front Panel　　Rear Panel　　Rear Panel

Independent output　　Mixed output

	Independent output	Mixed output	Note
1	RF output test port (on the front panel)	RF output test port (on the front panel)	-20dB
2	Select button for RF output detection	Select button for RF output detection	Cycle, the indicator of the selected channel flashes
3	**Optical input indicator of A channel**	**Optical input indicator of A channel**	Indicator on: Input optical power ≥ -26dBm Indicator off: Input optical power <-26dBm Flashing: used for RF test
4	**Optical input indicator of B channel**	**Optical input indicator of B channel**	
5	**Optical input indicator of C channel**	**Optical input indicator of C channel**	
6	**Optical input indicator of D channel**	**Optical input indicator of D channel**	
7	Module handle	Module handle	Used to plug the module
8	Optical power input A	Optical power input A	
9	Optical power input B	Optical power input B	
10	Optical power input C	Optical power input C	
11	Optical power input D	Optical power input D	
12	Module fixing screw	Module fixing screw	Used to fix the module
13	A channel RF signal output	Mixed signal output	Correspond to the F connector of A channel on the rear panel of rack
14	B channel RF signal output		Correspond to the F connector of B channel on the rear
15	C channel RF signal output	Mixed signal test point （-20dB）	Correspond to the F connector of C channel on the rear
16	D channel RF signal output		Correspond to the F connector of D channel on the rear
17	Module socket	Module socket	

7 Installation

- This module can be installed in slots 1-16 and can be fully configured.
- Check whether the pins on the rear of the module are bent.
- Install the module in place along the guide and tighten the screws.