

7. Quadruple Reverse Optical Receiver Module WOS-WR-2004-4K

1. Product Overview

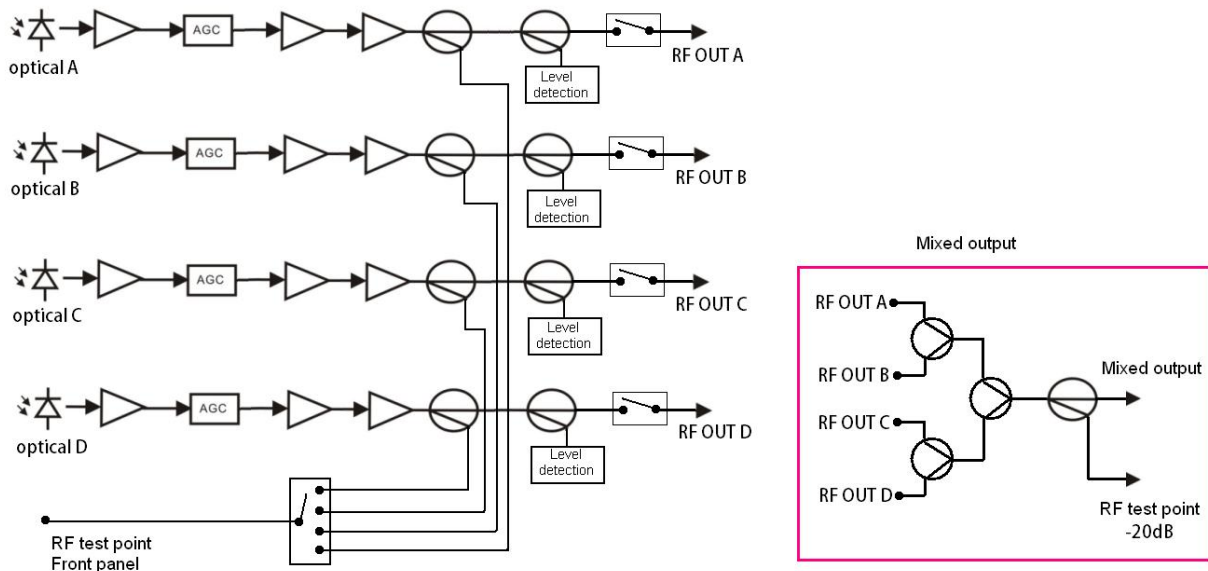
The return path optical receiver module is designed with a high-density 4-way return path receiving circuit to provide 4 independent outputs or mixed output. High output type or low output type is optional. Optical input power is as low as -21dBm. It has output level detection on the front panel and 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.



2. Performance Characteristics

- Support hot swap.
- 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.
- Each RF output has an independent shutdown function.
- Internal temperature detection and monitoring functions.

3. Block Diagram



Note: The red box is a 4-in-1 mixed output form.

4. Technique Parameters

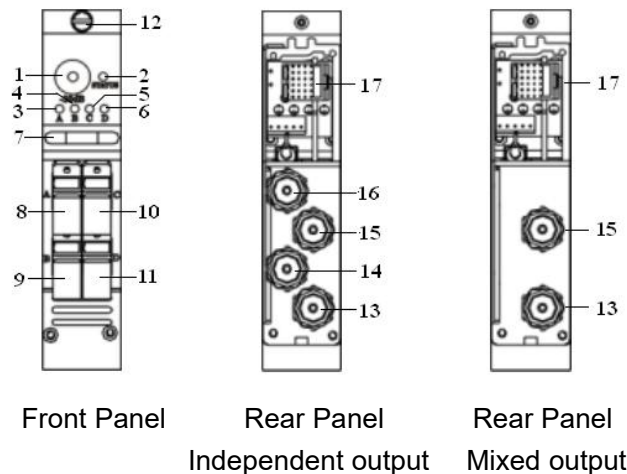
Item	Unit	Parameter
Optical Part		
Optical return loss	dB	>45
Input optical wavelength	nm	1100 ~ 1600
Optical connector type		SC/APC
Fiber type		Single mode
RF Part		
Input optical power range	dBm	-21 ~ +1
Optical AGC range	dBm	-10 ~ 0
Frequency range	MHz	5 ~ 204
Flatness in band	dB	±0.75
Output return loss	dB	≥16
Maximum output level (in optical AGC range)	dBμV	≥ 112: High level independent output
		≥ 104: High level mixed output
		≥ 100: Low level independent output
		≥ 92: Low level mixed output
Output shutdown isolation	dB	>60
Adjustable attenuation range	dB	0~10: OptAGCEn: Enable 0~30: OptAGCEn: Disable
NPR dynamic range	dB	≥20 (NPR≥30)
Test point	dB	-20±1
Others		
Operating temperature	°C	-5 ~ + 55
Storage temperature	°C	-30 ~ + 70
Maximum power consumption	W	≤7
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 submenu, the following parameters can be seen:

ARecvPower	-xx.xdBm	Optical input power of A, B, C, D channels, can set high and low alarm value.
BRecvPower	-xx.xdBm	Press "Enter" to enter the next menu "Set RecvPower"
C RecvPower	-xx.xdBm	Alarm-LO: Low optical power alarm threshold, can be set: -30dBm~3dBm
D RecvPower	-xx.xdBm	Alarm-HI: Optical power high alarm threshold, can be set: -30dBm~5dBm
A OutRFLevel	xx.xdBuV	Output level of A, B, C, D channels, can set high and low alarm value.
B OutRFLevel	xx.xdBuV	Press "Enter" to enter the next menu "Set Out RF Level"
C OutRFLevel	xx.xdBuV	Alarm-LO: Output level low alarm threshold, can be set to range: 60dBuV~120dBuV
D OutRFLevel	xx.xdBuV	Alarm-HI: Output level high alarm threshold, can be set to range: 75dBuV~130dBuV
AOptAGCEn	Enable	Optical AGC settings of A, B, C, D channels:
B OptAGCEn	Enable	Enable: Optical AGC is on
C OptAGCEn	Enable	Disable: Optical AGC is off
D OptAGCEn	Enable	
ARFSwMode	Auto	RF shutdown mode settings of A, B, C, D channels:
B RFSwMode	Auto	Auto: Auto mode, Manual: Manual mode.
C RFSwMode	Auto	In the Auto mode, the optical receiving power low threshold and output low threshold are the conditions for shutdown, and the RF output will be automatically turned off if any condition is satisfied.
D RFSwMode	Auto	
ARFSwStaus	ON	RF Output switch status of A, B, C, D channels
B RFSwStaus	ON	ON: output is on, OFF: output is off
C RFSwStaus	ON	When RFSwMode is in Auto, it cannot be manually switched.
D RFSwStaus	ON	When RFSwMode is in Manual, press "Enter" to enter the next setting menu.
A ATT	xdB	RF attenuation of A, B, C, D channels
B ATT	xdB	OptAGCEn: In the Enable mode, the attenuation range is 0~10dB.
C ATT	xdB	OptAGCEn: In the Disable mode, the attenuation range is 0~30dB.
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



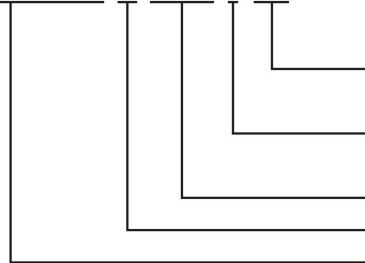
	Independent output	Mixed output	Note
1	RF output test port (on the front panel)	RF output test port (on the front panel)	-20dB
2	Select button for RF output detection	Select button for RF output detection	Cycle, the indicator of the selected channel flashes
3	Optical input indicator of A channel	Optical input indicator of A channel	Indicator on: Input optical power \geq -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 panel of rack
15	C channel RF signal output	Mixed signal test point (-20dB)	Correspond to the F connector of C channel on the rear panel of rack
16	D channel RF signal output		Correspond to the F connector of D channel on the rear panel of rack
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.

8. Naming Specification

WOS-WR-2004-JI-4D-H-S-4K



4K: matched with WOS-4000 optical communication platform

Fiber connector type

S: SC/APC; F: FC/APC

Product specification (note 1)

Product specification (note 2)

Quadruple reverse optical receiver (module)

Note 1: 4D-H: Four-way independent outputs, high level type.

4D-L: Four-way independent outputs, low level type.

4M-H: Four-way mixed output, high level type.

4M-L: Four-way mixed output, low level type.

Note 2: JI: Optical receiving power range: +1~-21dBm, AGC control range: 0 ~ -10dBm, support RF shutdown function.