



## FTTH Optical Receiver

### G9122 Series



## 1. PRODUCT DESCRIPTION

G9122NC, the operating bandwidth of 47~862MHz, is a low power, high performance, cost-effective triple play, FTTH CATV optical receiver. Products with high sensitivity optical receiver tube and special low noise matching circuit.

G9122 for Analog TV, in Pin = -10dBm when,  $V_o \geq 69\text{dB}\mu\text{V}$ ,  $\text{CNR} \geq 45\text{dB}$ .

G9122 for Digital TV, in Pin = -15dBm when,  $V_o \geq 62.7\text{dB}\mu\text{V}$ ,  $\text{MER} \geq 36.8\text{dB}$ .

G9122 for Digital TV, in Pin = -20dBm when,  $V_o \geq 53.1\text{dB}\mu\text{V}$ ,  $\text{MER} \geq 29.4\text{dB}$ .

Triple play, fiber to the home, using the G9122NC can save a lot of optical fiber amplifier power resources. For operators, can greatly reduce the cost of building the network.

G9122 optical port mode of the following three selection:

G9122NC: operating wavelength 1260~1620nm. A - Type

G9122WD: Built-in CWDM, suitable for single-fiber triple wavelength system, CATV operating Wavelength 1550nm, passwavelength 1310/1490nm, can conveniently connect the ONU of EPON, GPON. B - Type & C - Type

G9122WF: built-in 1310/1490nm filter, suitable for single-fiber triple wavelength system, CATV operating wavelength 1550nm. A - Type

## 2. PRODUCT FEATURE

1. Extra-low noise (3.8% modulate, -10dBm receive,  $\text{CNR} \geq 45\text{dB}$ )
2. Wide dynamic receiving optical power range: within Pin = -15,  $\text{MER} \geq 36.8\text{dB}$
3. Applicable GPON, EPON, compatible with any FTTx PON technology
4. Can save a large number of optical power resource, greatly reduce the Network configuration cost
5. In the range of 47~862MHz, all have good flatness ( $\text{FL} \leq \pm 0.75\text{dB}$ )
6. Metal shell, supply safeguards to opto-electrical sensing device
7. High output level can supply for many users
8. Low power consumption, high cost performance

### 3. MAIN APPLICATION

1. CATV FTTH
2. Integration of three network
3. FTTH PON

### 4. STATUS INDICATION

1. RED: >+2dBm
2. GREEN: +2~-16dBm
3. ORANGE: -16~-20dBm
4. RED: <-20dBm

### 5. TEST DATA(Pin=+2.0dBm~-20dBm)

Pin (dBm)	Vo (dBμV)	MER	BER		Pin (dBm)	Vo (dBμV)	MER	BER	
			POST	PER				POST	PER
+2.0	97	39.0	<1.0E-9	<1.0E-9	-10.0	72.9	38.8	<1.0E-9	<1.0E-9
+1.0	94.9	39.0	<1.0E-9	<1.0E-9	-11.0	70.5	38.7	<1.0E-9	<1.0E-9
+0.0	92.7	39.0	<1.0E-9	<1.0E-9	-12.0	68.4	38.2	<1.0E-9	<1.0E-9
-1.0	90.1	39.0	<1.0E-9	<1.0E-9	-13.0	67.2	37.6	<1.0E-9	<1.0E-9
-2.0	88.8	39.0	<1.0E-9	<1.0E-9	-14.0	64.9	37.4	<1.0E-9	<1.0E-9
-3.0	86.8	39.0	<1.0E-9	<1.0E-9	-15.0	62.7	36.8	<1.0E-9	<1.0E-9
-4.0	84.6	39.0	<1.0E-9	<1.0E-9	-16.0	60.7	35.7	<1.0E-9	<1.0E-9
-5.0	82.2	39.0	<1.0E-9	<1.0E-9	-17.0	59.1	34.5	<1.0E-9	<1.0E-9
-6.0	80.2	39.0	<1.0E-9	<1.0E-9	-18.0	57.1	33.3	<1.0E-9	<1.0E-9
-7.0	78.9	39.0	<1.0E-9	<1.0E-9	-19.0	55.1	31.2	<1.0E-9	<1.0E-9
-8.0	76.0	39.0	<1.0E-9	<1.0E-9	-20.0	53.1	29.4	<1.0E-9	<1.0E-9
-9.0	75.1	38.9	<1.0E-9	<1.0E-9					

Remark: 1. Test Signal: MER: 39.0 (dB), BER: <1.0E-9, QAM64 4CH;  
 2. Tx Input level: 87 dBμV;  
 3. The Test Frequency: 47~862MHz.

### 6. TECHNICAL INDEX

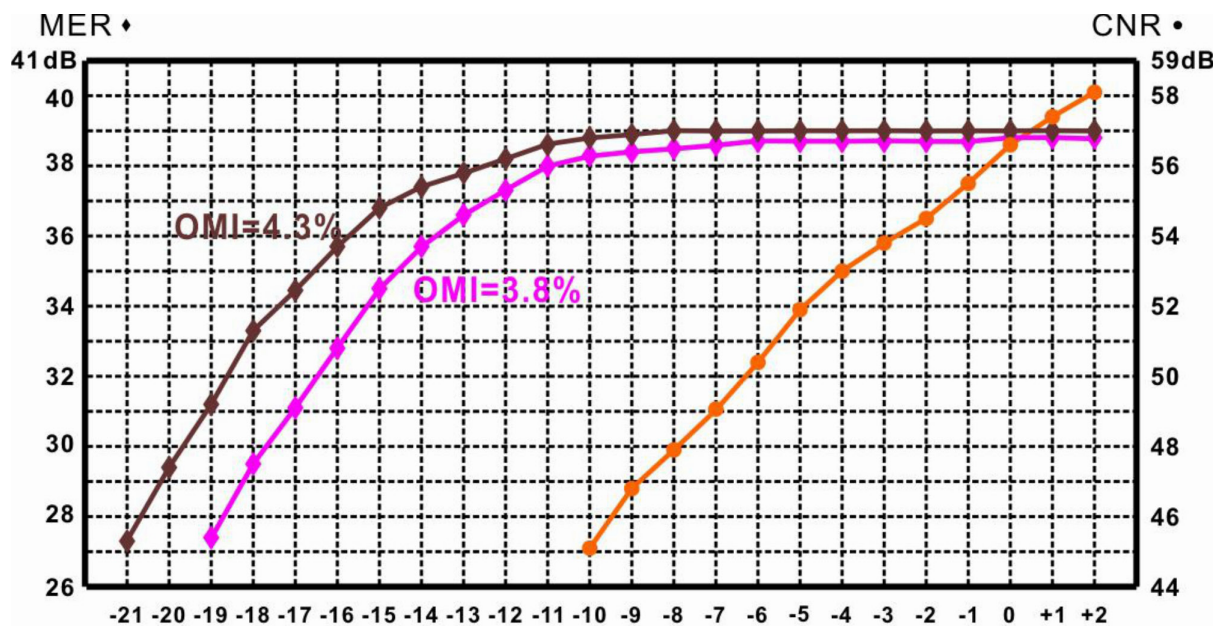
	Performance		Index	Supplement
Optic Feature	CATV Work wavelength	(nm)	1260~1620	G9122NC (A-Type)
			1540~1563	G9122WF, G9122WD (A & B & C-Type)
	Pass wavelength	(nm)	1310~1490	G9122WD (B & C-Type)
	Channel Isolation	(dB)	≥40	1550nm & 1490nm
	Responsivity	(A/W)	≥0.85	1310nm
			≥0.9	1550nm
	Receiving power	(dBm)	+2~-10	Analog TV(CNR>45dB)
			+2~-20	Digital TV(MER>29dB)
	Optical return loss	(dB)	≥55	
	Optical fiber connector		SC/APC	G9122NC, G9122WF
LC/APC			G9122WD	
RF Feature	Work bandwidth	(MHz)	47~862	
	Flatness	(dB)	≤±0.75	47~862MHz
	Output level	(dBμV)	>82	AnalogTV (Pin=-3dBm)
			>82	Digital TV (Pin=-5dBm)
	Output level adjust	(dB)	0~18	MGC
	Return loss	(dB)	≥14	47~862MHz
	Output impedance	(Ω)	75	
	Output port number		1	
RF tie-in			F-Female	

	Performance		Index	Supplement
Analog TV Link Feature	Test channel	(CH)	59CH(PAL-D)	
	OMI	(%)	3.8	
	CNR <sub>1</sub>	(dB)	54.6	Pin=-2dBm
	CNR <sub>2</sub>	(dB)	45.1	Pin=-10dBm
	CTB	(dB)	≤-65	Pin: 0~-10dBm
Digital-TV Link Feature	CSO	(dB)	≤-65	Pin: 0~-10dBm
	OMI	(%)	4.3	
	MER	(dB)	≥36	Pin=-15dBm
General feature	BER	(dB)	≥30	Pin=-19dBm
	BER	(dB)	<1.0E-9	Pin:+2~-20dBm
	Power supply	(V)	DC+12V	±1.0V
	Power Consume	(W)	≤3	+12VDC,210mA
	Work temp	(°C)	-20 ~ 55	
	Storage temp	(°C)	-40 ~ 85	
Size	(mm)		38×80×20	A -Type
			50×88×22	B -Type
			59.5×98×24	C -Type

## 7. PRODUCT SERIES

Model	Input wavelength	CATV Operating wavelength	Data pass wavelength	Fiber connector	From
G9122NC	1310 or 1550nm	1260~1620nm	-	SC/APC	A -Type
G9122WF	1310, 1490/1550nm	1540~1563nm	-	SC/APC	
G9122WD	1310, 1490/1550nm	1540~1563nm	1310/1490nm	LC/APC	B & C -Type

## 8. CNR, MER DEGRADATION TABLE



Note: 1. CNR Test conditions: 59CH PAL-D, OMI = 3.8%

2. MER test conditions: The Original Signal: MER = 39.0dB, BER <1.0E-9,

Test Frequency: 47 ~ 862MHz Full Channel, (The Curve is: 858.00MHz).

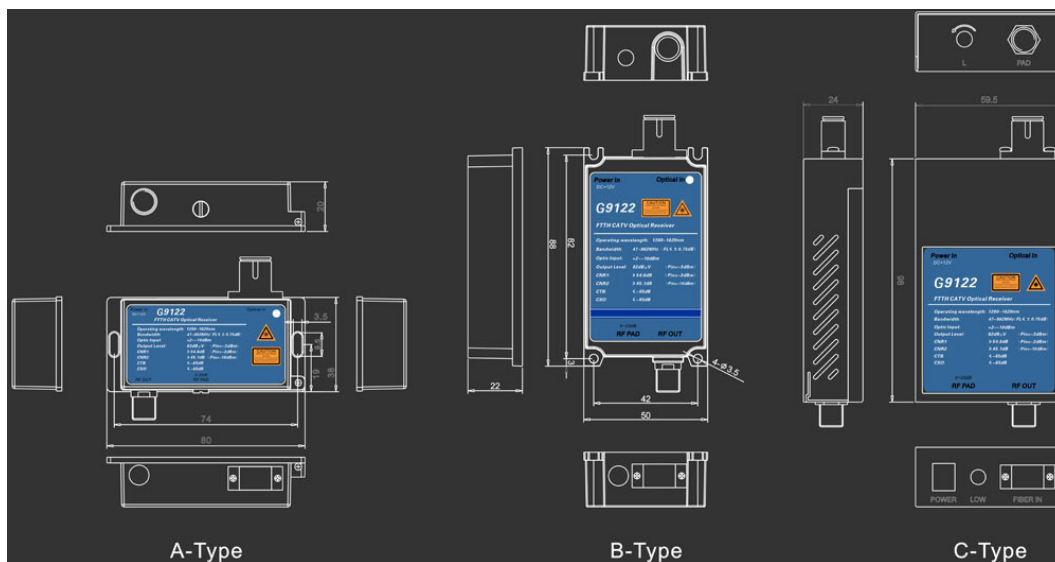
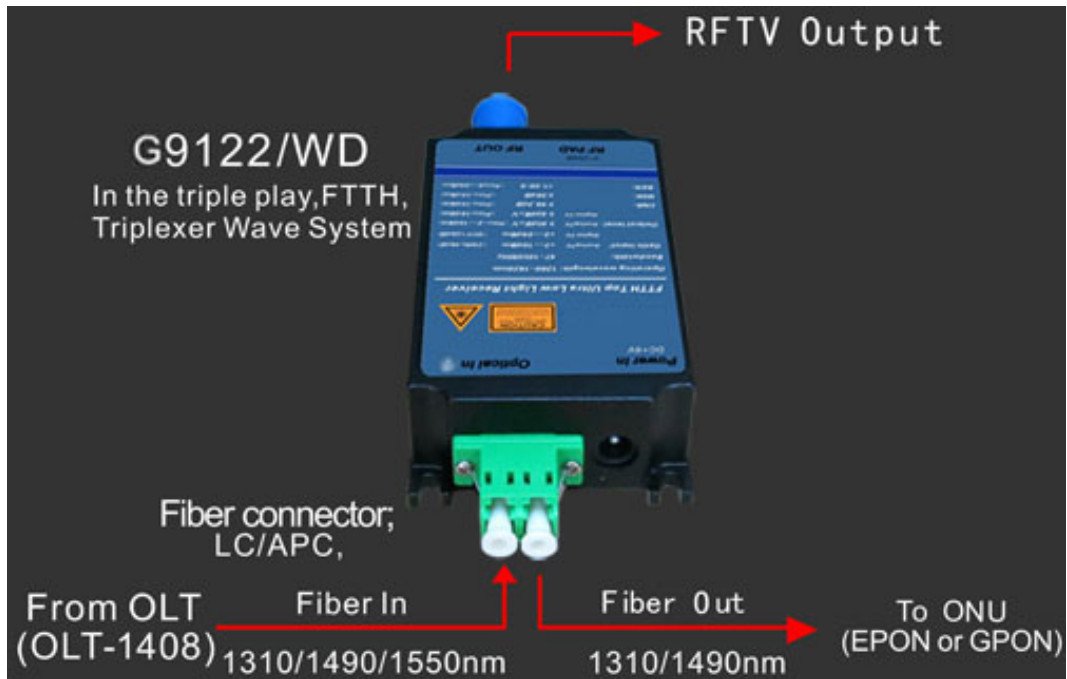
Red curve: OMI=3.8%

Brown curve: OMI=4.3%

3. Digital television Receiving Low Light, appropriate to increase the system modulation (OMI), can greatly improve the MER degradation.

## 10 . NOTE

1. The power adapter for this equipment: Input 220V, output DC 12V(0.6A)
2. Keep the optical connector clean, the bad link will cause too low RF output level
3. The built-in RF adjustable attenuator(PAD) of equipment can debug suitable level for system users. User Should not adjust by themselves, to avoid the device damage.



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