

10G SFP+ AOC Checker

Features

- 8.5G, 9.95~11.1Gbps BERT
- Optical Power Meter:1270~1610nm
- SFP+ status checker
- Friendly graphic user interface (GUI)
- 2 SFP+ ports
- 5V DC power supply
- Small form & full metal case
- Mini-USB connection

Applications

- Bit error rate test
- SFP+ AOC test
- Optical transmitting power measurement
- Module power measurement
- GUI Operating environment: Win XP , Win 7, Win8 and Win10 64BIT

Description

The 10G SFP+ AOC Checker is an instrument which can help you to test SFP+ module and SFP+ AOC.

It can help you to read the internal memory EEPROM of the SFP+ module and display details of the EEPROM (such as the Part Number, Vendor Name, description and range.), monitor all DDM information. You can change the EEPROM if you know the module password .The optical power can be measured by FC connector optical sensor. In addition it can measure the power of the module.

The 10G SFP+ AOC Checker combines the Serial Pattern Generator, Bit Error Rate Analyzer. It provides common transmission rate for 8x Fiber Channel, OC-192 and 10G Ethernet. Two SFP+ modules can be tested at the same time .It support SFP+ AOC too.

The friendly graphic user interface (GUI) provides clear monitoring for bit error rate, bit error counter, timer, status, optical power from the sensor, power of the module, selection of data rate and PRBS pattern.





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Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	6	V
Storage Temperature	Ts	-10	+70	°C

Technical Specifications

Parameter		Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard	Тс	0		+50	°C
Operating Humidity	,	-	5		85 non-condensing	%
Power Supply Voltag	le	Vcc	4.5	5	5.5	V
Physical Dimension	S		1	00(W)x70(D)	x21(H)	mm

* Excluding SFP Transceivers.

Optical and Electrical Characteristics

Main Frame				
SFP ports	Standard SFP 20pin with Cage			
Transmission rate	10GbE: 10.3125Gbps G709: 10.709Gbps 8GFibre Channel: 8.5Gbps 10GFibre Channel: 10.51875Gbps 10GbE FEC: 11.1Gbps OC192: 9.95328Gbps			
Pattern Generator	PRBS7, PRBS9, PRBS21, PRBS23, PRBS31			
Optical Sensor				
Input Wavelength	1270nm~1610nm (830~870 nm Optional)			
Input Optical Power Range	-40dBm ~ +8dBm			
Accuracy	±1dB			
SFP supply current measured				
supply current	0~60 0mA			
Accuracy	$\pm 5\%$			



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Hardware Configuration



Front Panel



Front Panel Description

LED	Display	Description
<u></u>	Off	No power
0	Green	Power OK
	Off	pass
Err	Red	Bit Error
	Flash	No SYNC

Rear Panel Description





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Mechanical Dimensions



Ordering information

Part Number	Product Description
10G SFP+ CHECK(AOC)	The SFP Checker is an test instrument which combines 8.5Gbps,9.95~11.3Gbps Bit error rate test, Optical power meter, DDM Checking, EEPROM coding function, etc.



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User Guide

Front panel

Hardware configure



(TX, RX)

SFP2 (TX only)

Front Panel	Description
1	

LED	Display	Description
ф.	Off	No power
0	Green	Power OK
Eve	Off	pass
EII	Red	Bit Error

Rear panel





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1.1 Device Connection Single Port Double Loopbacks Test connection



Doube Ports Single Loopback Test Connection



1.2 Open the software



Software Operation

Device Configuration

Dev Select has four options: SFP-4G-Checker, SFP-10G-Checker, SFP-Checker (Double fiber) and SFP Checker (BD $\$ AOC).

Default bus type is USB (presently only support USB communication).

Single Port Double Loopbacks Configure:



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Device Cor	figuratio	on
Device Sel:	1	
Bus Type:	SFP-4G SFP-10	i-Checker G-Checker
	SFP-Ch SFP-Ch	ecker(Two BERT) ecker(BD/AOC Test)
Conne	ect	Disconnect

Double Ports Single Loopback Configure:

Device Cor	figuratio	on
Device Sel:		
Bus Type:	SFP-40 SFP-10 SFP-Ch	à-Checker IG-Checker necker(Two BERT)
Conne	SFP-Ch	Disconnect

Connect and Disconnect

Connect button--after clicking it is gray, then disconnect button turns optional; USB connected, monitoring begin.

Disconnect button-disconnect the checker with computer. The button's color turns gray when clicking it.

Device Co	nfiguratio	n
Device Sel	SFP-Ch	ecker(BD/AOC Test
Bus Type:	USB	*
Conn	ert	Disconnect



Status

As for status indicator, green is for normal and red for unnormal. SYNC Shows synchronization status. FAIL shows BIT EEROR status.



Note: Status1 means the transceiver is connecting to SFP1 port.

DDM

After installing the driver software, connecting USB cable and plugging the transceiver module, please click the Connect button on the program, so it begins to read the parameter like temperature, voltage, current, Tx and Rx power. The red fonts means High Alarm, yellow means High Warning; black means Low Alarm, blue means Low Warning, green means Normal.

DDM1			DDM2	Į.	
Temp	32.9414	°C	Temp	35.8398	°C
Vcc	3.1740	V	Vcc	3.1692	V
Bias	24.074	mA	Bias	24.462	mA
TXPW	0.550	dBm	TXPW	0.550	dBm
RXPW	-40.000	dBm	RXPW	-40.000	dBm

Note:

- 1) DDM1 shows the DDM information from the transceiver connecting to SFP1 port.
- 2) Only 4G Checker has fonts of different colors, 10G Checker has one of the same color.

Debugging Message

Message--debugging message.

About—brief introduction about the software.

Save Log-click it to save the debugging message to program catalog.

Clear--click it to erase the debugging message.



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[INFO]Device has been [INFO]Open the device [INFO]Close device. [INFO]Start looking for t [INFO]Device has been	found! successfully(Read). the device found!	^
[INFO]Close device. [INFO]Close device. [INFO]Start looking for t [INFO]Device has been [INFO]Open the device	the device found! successfully(Read).	v
<		>
About	Save Log	Clear

Function Zone

This section shows message only when clicking Connect button and communication between the checker and Computer is normal by USB cable.

levice Co	onfiguration			Status1 SYNC F	FAIL	t Error SFP1 Module	SFP2 Modele Power Meter 1	Funable Module	2	
us Type: Coni	USB -	Disconner	at	Status2 SYNC SYNC	FAIL	BER:	FP2			Start BE
DM1 Temp	32.9414	°C	DDM2 Temp	35.8398	•c	Time:			CTRL Work Mode	-
/cc	3.1740	V	Vcc	3.1692	V	BE Param Configure			Test Time Sett	ing
lias	24.074	mA	Bias	24.462	mA	Rate SEL	PATGEN SEL		0	Min Set Timer
XPW	0.550	dBm	TXPW	0.550	dBm _					
lessage	-40.000	abm	RAPW	-40.000	dBm	BER:				Start BE
INFOIS	tart looking for th evice has been f	e device. ound!	 			BEC:				Stop BE
	pen the device s lose device. tart looking for th evice has been f pen the device s	ie device. iound! uccessful	lly(Read). Ily(Read).		Ŧ	BE Param Configure Rate SEL	* PATGEN SEL		CTRL Work Mode Test Time Sett	ing Min Set Timer
INFOJO INFOJO INFOJCI INFOJO INFOJO	pen the device s lose device. tart looking for th evice has been f pen the device s ""	ie device. iound! uccessful	Ily(Read). Ily(Read).	×g Ch	• ear	E Param Configure Rate SEL	PATGEN SEL CTRL Rate SEL	v Wo	CTRL Work Mode Test Time Sett	Min Set Timer



Bit Error Test

When the Bit Error Test starts, it will show instantaneous BER (Bit Error Rate), instantaneous error bits number, accumulated BER, accumulated error bits number and testing time.

Error SFP1 Module SFP2 Modele Power Meter Tunable	e Module
Bit Error test SEP1 -> SEP2	
BER:	Start BE
BEC:	Stop BE
Time:	CTRL Work Mode
DE Dana a Conferma	Test Time Setting
Rate SEL PATGEN SEL	O Min Set Timer
Bit Error test SFP2 -> SFP1	
BER:	Start BE
BEC:	Stop BE
Time [.]	CTRL Work Mode
rinno.	T. 17. 0.1
BE Param Configure	Test Time Setting
Rate SEL PATGEN SEL	
Start BE(ALL) CTRL	Work Mode
Rate SEL	Test Time Setting

BE Parameters Configure

Rate SEL option includes various data rate: 11.318G, 11G, 10.51875G, 8.5G, 10.709G, 10.3125G, 9.958G. PATGEN SEL option contains several modes: PRBS7, PRBS9, PRBS23, and PRBS31.



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BE Param Co	nfigure		BE Param Co	onfigure	
Rate SEL	Ľ	~	Rate SEL		~
PATGEN SEL	11.1G		PATGEN SEL		~
	8.5G			PRBS7	
	10.3125G 9.958G			PRBS23 PRBS31	

Controlling configure

Work Mode has two options--Free mode and Timer mode. When choosing Timer mode, the Test time Setting turns configurable status. Click Start BE Button to star Bit Error test and Stop BE Button to stop the test.

Work Mod	e	~
Test Time	Setting Fre	e Mode er Mode
D	Min	Set Timer
		Stee DE



EEPROM Writing and Reading



Data Buffer

Data is on the left and ASCII code on the right, as below:

00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 0000 00																		
0000 0		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	OF	ĺ
0010 00 <	0000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	I
0020 00 <	0010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
0030 00 <	0020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
0040 0	0030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
0050 00 <	0040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
0060 0	0050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
0070 0	0060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
0080 00 <	0070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
0090 0	0800	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
OOA0 OO O	0090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00B0 0	00A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00C0 0	00B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00D0 0	0000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
OOEC OO O	OODO	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00F0 00 00 00 00 00 00 00 00 00 00 00 00	00E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
terre da de la companya de	00F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	



Transceiver Code Operating



Password Setting

Input the correct address and password before proper operation on the transceiver.

Password Set		
IIC Add:	Ux	
Password Add:	0x	
Password:	0x	

Factory Information

Read—read and show transceiver's supplier and serial number. Write—write supplier and serial number into the transceiver.

Part Number:			
Serial Number			



Threshold

Read--read out threshold settings of high alarm, low alarm, high warning and low warning about the transceiver's temperature, voltage, current, Tx & Rx power.

Temp(?)	Vcc(V)	Bias(mA)	TxPW(dBm)	RxPW(dBm)	
A 80.00	3.60	70.00	6.00	0.00	
A -10.00	3.00	2.00	-2.00	-28.86	READ
W 70.00	3.50	60.00	4.00	-3.00	L
.W 0.00	3.10	4.00	0.00	-26.02	

Power Meter

This section shows power meter's wavelength, power (-47db~8db), and transceiver VC current. Open Meter-open or close power meter chip.

Wave Choice--select power meter's wavelength from 1310, 1490 and 1550 nm.

Bit Error	SFP1 Module	SFP2 Modele	Power Meter	Tunable Module
SFP	1			
	Power Meter			
	Wave Choice	•		
	SFP1 Current	mA	W	
	SFP2 Current	mA	W	

Notes (1) The software supports Windows XP/7/8/10, 32/64bit system (4G Checker only



supports Win XP system).

- (2) Plug and play--the checker does not need extra driver software (4G Checker needs to Install one).
- (3) Make sure the files in the software package are complete before operation.

(4) Interruption of monitoring is equivalent to wrong communication between the checker and computer. If this happens, just click Connect button to start again.

(5) If DDM data becomes stable during monitoring, please disconnect the checker with the computer and then click Connect button again--re-charge the device is an option.

(6) Re-plug the USB cable when the checker has problem in connecting to computer, the same operation for clicking Connect button without respondence.

More information please click http://www.gigalight.com/products_detail/&productId=173.html