

Technical Specification

For

10 / 25 Gbps SFP28 Checker

Contents

1. General Description.....	1
2. Features.....	1
3. Applications	2
4. Specification	2
5. Elements & Operating Instructions	3
6. Command List.....	5
7. Maintenance.....	15
8. Warranty	15
9. Ordering Information.....	16
10. Service Contacts	17
11. Record of Revisions.....	17

1. General Description

The 10 /25 Gbps SFP28 Checker is an instrument which combines the Serial Pattern Generator, Bit Error Rate Analyzer, and Optical Power Meter within a compact size for both optical telecommunication and data communication. It provides common transmission rate **for 10G Ethernet, 25G Ethernet, and 32G Fiber Channel**. The optical power can be measured by plugging in an optional optical sensor module.



The 10 /25 Gbps SFP28 Checker can be a help you to read the internal memory EEPROM of the SFP and displays details contents registered into such as the Part Number, Vendor Name , wavelength, description, and range.

With a SFP+ / SFP28 that is with digital diagnostics, the SFP Checker can be used to monitor the all DDM information. With Meter Module, you can measure the real output power of SFP+ / SFP28.

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

2. Features

- Pocket size design.
- No warm up time required.
- Connects to a standard PC / laptop with Windows OS via USB connection
- 2 port for duplex LC SFP or AOC.
- SFP Plug-In Module with SC female connector for optical power measurement.
- Full function GUI
- Popular USB connection.

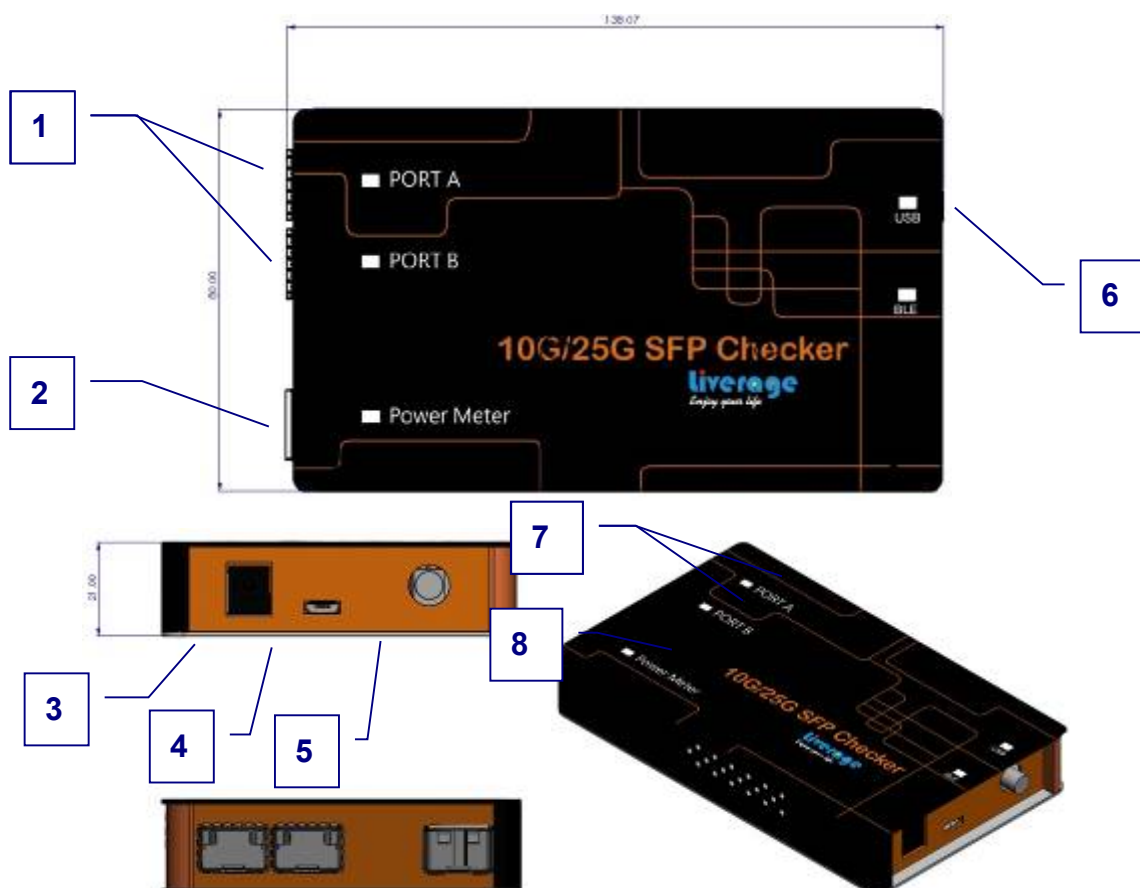
3. Applications

- SFP transceiver or AOC qualification to verify correct SFP
- To confirm proper transmit and receive signal levels
- Optical transmitting power measurement.
- Optical reference signal.
- Bit error rate test.
- To verify proper encoding during the manufacturing

4. Specification

Main Frame	
SFP ports	Standard SFP 20pin with Cage
Operating Temp.	0°C ~ 50°C
Storage Temp.	-10°C ~ 70°C
Transmission rate	10 Gbps \ 25 Gbps \ 28 Gbps
Pattern	PRBS7 、 PRBS23 、 PRBS31
Power Supply	5V / 5A
Weight	0.5 Kg
Optical Power Meter	
Input Wavelength	850 nm, 1270nm~1610nm
Optical Power Range	-50 dBm ~ +5 dBm
Resolution	0.01 dB
Accuracy	±0.3dB under calibrated condition

5. Elements & Operating Instructions



■ Elements :

1. SFP Plug-In Cage (port A & B) : SFP Plug-In port, for bit error rate test.
2. Power Meter Cage : Optical power measurement.
3. Power Input : DC power input 5V / 5A.
4. Micro USB : USB port. Connect to host via a standard USB cable.
5. Clock Output : Clock output for Eye Diagram Scope's trigger.
6. LED Status for USB : LED Status for USB Connection to Computer.
7. LED Status for SFP : LED Status for Plug in SFP module, RX LOS or Bit error rate.
8. LED Status for Meter : LED Status for Plug in Power Meter module.

■ Operating Instructions :

1. Connect the SFP Checker to the PC by connecting the USB interface.
2. Plug in the SFP Transceiver Module.
3. Select "Data Rate" and "Pattern".
4. Click "STAR" to start bit error rate test function.
5. Click "STOP" to stop the bit error rate test.
6. Plug a Power Meter to measure optical power. Click "POWER METER" the optical power measurement.
7. Click "ID" to show A0h table information.
8. Click "File" to save the data path.
9. Click "Save Report" to save the report.
10. Click "Clear" to Clear the command interface

6. Command List

Item	Command	Remark	Note
Read Data Rate	?DATA_RATE	Respond aa aa : 00 = Not Set 01 = 10GBe 02 = 25GBe 03 = 32GFC	
Set Data Rate	DATA_RATE_AA	AA : 01 = 10GBe 02 = 25GBe 03 = 32GFC Respond aa aa : 00 = Not Set 01 = 10GBe 02 = 25GBe 03 = 32GFC	

Read PRBS Pattern	?PATTERN	Respond aa aa : 00 = Not Set 01 = PRBS7 02 = PRBS9 03 = PRBS15 04 = PRBS23 05 = PRBS31	
Set PRBS Pattern	PATTERN_AA	AA : 01 = PRBS7 02 = PRBS9 03 = PRBS15 04 = PRBS23 05 = PRBS31 Respond aa aa : 00 = Not Set 01 = PRBS7 02 = PRBS9 03 = PRBS15 04 = PRBS23 05 = PRBS31	

Read Port A BERT Status	?PA_BERT_ENA	Respond : aa aa :	
Read Port B BERT Status	?PB_BERT_ENA	00 = Disable BERT 01 = Enable BERT	
Set BERT Status for Port A	PA_BERT_ENA_AA	AA : 00 = Disable BERT 01 = Enable BERT	
Set BERT Status for Port B	PB_BERT_ENA_AA	Respond : aa aa : 00 = Disable BERT 01 = Enable BERT	
Read Port A BER Status and Error Count	?PA_BERT	Respond : aa_bbbbbbbb aa : 00 = BER not locked , Error exceeds threshold	
Read Port B BER Status and Error Count	?PB_BERT	01 = BER locked bbbbbbbb : Error Count (HEX)	

Read AOC BERT Status	?AOC_BERT_ENA	Respond : aa_bb aa : 00 = Port A BERT Disabled 01 = Port A BERT Enabled bb : 00 = Port B BERT Disabled 01 = Port B BERT Enabled	
Set BERT Status for AOC	AOC_BERT_ENA_AA	AA 00 = AOC BERT Disabled 01 = AOC BERT Enabled Respond : aa_bb aa : 00 = Port A BERT Disabled 01 = Port A BERT Enabled bb : 00 = Port B BERT Disabled 01 = Port B BERT Enabled	

Read AOC BER Status and Error Count	?AOC_BERT	Respond : aa_bbbbbbbb_ccdddddd aa : 00 = Port A BER not locked , Error exceeds threshold 01 = Port A BER locked bbbbbbbb : Port A Error Count (HEX) cc : 00 = Port B BER not locked , Error exceeds threshold 01 = Port B BER locked dddddddd : Port B Error Count (HEX)	
Read Port A SFP I/O Status	?PA_SFP_IO	Respond : aa_bb_cc_dd aa : ABS = 00 or 01 bb : Tx Fault = 00 or 01 cc : Tx Disable = 00 or 01 dd : Rx Los = 00 or 01	
Read Port B SFP I/O Status	?PB_SFP_IO		

10 / 25 Gbps SFP28 Checker

Set Port A Tx Disable Status	PA_SFP_DIS_AA	AA : Tx Disable = 00 or 01 Respond : aa aa : Tx Disable = 00 or 01	
Set Port B Tx Disable Status	PB_SFP_DIS_AA		
Read Port A SFP RS0 / RS1 Status	?PA_SFP_RS	Respond : aa_bb aa : RS0 = 00 or 01 bb : RS1 = 00 or 01	
Read Port B SFP RS0 / RS1 Status	?PB_SFP_RS		
Set Port A SFP RS0 / RS1 Status	PA_SFP_RS_AA_BB	AA : RS0 = 00 or 01 BB : RS1 = 00 or 01 Respond : aa_bb aa : RS0 = 00 or 01 bb : RS1 = 00 or 01	
Set Port B SFP RS0 / RS1 Status	PB_SFP_RS_AA_BB		

10 / 25 Gbps SFP28 Checker

Read Port A SFP A0h Data	?PA_SFP_A0	Respond : aa_aa_aa_.....aa (Data Address 0x00 ~ 0xFF) aa : Data (HEX)	
Read Port B SFP A0h Data	?PB_SFP_A0		
Read Port A SFP A2h Data	?PA_SFP_A2		
Read Port B SFP A2h Data	?PB_SFP_A2		
Read Power Meter Status, Wavelength, and MeasurementValue	?METER	Respond aa_bbbb_ccccc aa : Power Meter Module Presence 00 = No Power Meter module inserted 01 = Power Meter module inserted bbbb : 0850 / 1310 /1490 / 1550 etc. ccccc : +99.99 (HI) / -99.99 (LO) / +05.00 ~ -40.00	

Set Port A SFP A0h Data	Mode 1. PA_SFP_A0_AA_BB Mode 2. PA_SFP_A0_AA_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_	AA : Data Address (Start address in HEX) BB : Data(HEX) — from start address to end address, up to 16 bytes Respond : aa_aa_aa_.....aa (Data Address 0x00 ~ 0xFF) aa : Data (HEX)	
Set Port B SFP A0h Data	Mode 1. PB_SFP_A0_AA_BB Mode 2. PB_SFP_A0_AA_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_		

Set Port A SFP A2h Data	Mode 1. PA_SFP_A2_AA_BB Mode 2. PA_SFP_A2_AA_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_	AA : Data Address (Start address in HEX)) BB : Data(HEX) — from start address to end address,up to 16bytes	
Set Port B SFP A2h Data	Mode 1. PB_SFP_A2_AA_BB Mode 2. PB_SFP_A2_AA_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_ BB_BB_BB_BB_BB_		Respond : aa_aa_aa_.....aa (Data Address 0x00 ~ 0xFF) aa : Data (HEX)

Set Power Meter Wavelength	METER_WAVE_AA	AA : 0850nm = 01 / 1270nm = 02 / 1290nm = 03 1310nm = 04 / 1330nm = 05 / 1350nm = 06 1370nm = 07 / 1390nm = 08 / 1410nm = 09 1430nm = 10 / 1450nm = 11 / 1470nm = 12 1490nm = 13 / 1510nm = 14 / 1530nm = 15 1550nm = 16 / 1570nm = 17 / 1590nm = 18 1610nm = 19 Respond : aa aa : 0850nm = 01 / 1270nm = 02 / 1290nm = 03 1310nm = 04 / 1330nm = 05 / 1350nm = 06 1370nm = 07 / 1390nm = 08 / 1410nm = 09 1430nm = 10 / 1450nm = 11 / 1470nm = 12 1490nm = 13 / 1510nm = 14 / 1530nm = 15 1550nm = 16 / 1570nm = 17 / 1590nm = 18 1610nm = 19	
Read Part Number (PN) and Serial Number (SN)	?PN_SN	Respond : aaaaaaaaaa_bbbbbbbbbb aaaaaaaaaaaa : PN bbbbbbbbbbb : SN	

7. Maintenance

Like any other type of electronic equipment, this SFP checker should be kept away from water, high humidity, dust, electricity, and environments of extreme temperatures. Do not drop this tool on any hard surface. Internal modification of any of the SFP checker components can cause a malfunction and will invalidate the manufacturer's warranty.

8. Warranty

The manufacturer warrants this product to be free of defects in workmanship and materials for a period of 1 year after purchase. This warranty is solely limited to the repair or replacement of the original parts. All other costs are the sole responsibility of the owner. This warranty does not cover any defects, damage, or deterioration due to misuse, alteration, or negligence.

9. Ordering Information

Part Number	Media	Description
S2007100999P	10G / 25G SFP Checker Main Frame	10Gbps / 25Gbps / 28Gbps With 100~220VAC to 5VDC adaptor

SFP Checker Optical Sensor Module				
Part Number	Connector	Wavelength	Range	Accuracy
S20125328	SM/MM SC	850 / 1310 / 1490 / 1550 nm	-50 ~ +5 dBm	SM :+/- 0.3 dB MM :+/- 0.5 dB
S20125329	SM/MM SC	850 / CWDM 1270~1610 nm	-50 ~ +5 dBm	SM :+/- 0.3 dB MM :+/- 0.5 dB
S20125126	SM SC	CWDM 1270~1610 nm	-50 ~ +5 dBm	+/- 0.3 dB

10. Service Contacts

Please contact us :

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11. Record of Revisions

Record of Revisions		
Rev.	Date	Description of Change
VER A	2019-11-26	Primary
VER B	2020-07-17	Modify Optical Meter Range 1. -60 ~ +5 dBm → -50 ~ +5 dBm Modify Optical Meter Module P/N 1. S20125238 → S20125328 2. AddS20125329
VER C	2020-09-11	Delete LED Status for Bluetooth
VER D	2021-07-23	
VER E	2022-05-26	Add “Save Report”
VER F	2025-06-18	Add “Command List”