DATA SHEET

UNIVISO : UMDC10MP-x

SFP10 Passive Direct Attach Copper Cable Assembly

UMDC10MP-x Overview

UNIVISO's 10G SFP+ passive cable uses shielded high-speed differential cables,compliant with 10 Gigabit Ethernet standards and SFP Multi-Source Agreement (MSA) standards, supports 10G transmission rates, and is backward compatible with 1G rates.SFP+ passive cable is the preferred solution for short-distance applications. It is widely used for data transmission between data centers and cabinets or adjacent cabinets. Its biggest feature is low cost, ultra-low power consumption (less than 0.1 watt) and high reliability.

Product Features

- Up to 10 Gb/s bi-directional data links
- Compliant with 10GFC
- Compliant with SFF-8431
- AC coupled inputs and outputs
- 100 Ohm differential impedance
- Enhanced EMI design
- Single power supply 3.3V
- RoHS Compliant
- Operating temperature range: 0°C to 70°C

Applications

- 10G Ethernet
- 10G Fiber Channel
- Serial Data Transmission

Ordering Information

Part ID	Description	Gauge	Length
DAC-SFP10-P-30AWG-aa.aaM	SFP+ Passive Direct Attach Copper Black Cable Assembly, without MCU, aa.aa≤3	30AWG	≤3m
DAC-SFP10-P-28AWG-aa.aaM	SFP+ Passive Direct Attach Copper Black Cable Assembly, without MCU, aa.aa<5	28AWG	<5m
DAC-SFP10-P-24AWG-aa.aaM	SFP+ Passive Direct Attach Copper Black Cable Assembly, without MCU, aa.aa≤10	24AWG	≤10m
DAC-SFP10-P-30AWG-aa.aaM	SFP+ Passive Direct Attach Copper Red Cable Assembly, without MCU, aa.aa≤3	30AWG	≤3m
DAC-SFP10-P-24AWG-aa.aaM	SFP+ Passive Direct Attach Copper Red Cable Assembly, without MCU, aa.aa≤10	24AWG	≤10m
DAC-SFP10-P-30AWG-aa.aaM	SFP+ Passive Direct Attach Copper Blue Cable Assembly, without MCU, aa.aa≤3	30AWG	≤3m
DAC-SFP10-P-24AWG-aa.aaM	SFP+ Passive Direct Attach Copper Blue Cable Assembly, without MCU, aa.aa≤10	24AWG	≤10m
DAC-SFP10-P-30AWG-aa.aaM	SFP+ Passive Direct Attach Copper Green Cable Assembly, without MCU, aa.aa≤3	30AWG	≤3m
DAC-SFP10-P-24AWG-aa.aaM	SFP+ Passive Direct Attach Copper Green Cable Assembly, without MCU, aa.aa≤10	24AWG	≤10m

Note:
1. ”P” indicates passive cable.
2. ”aa.aa” indicates the cable length in meters.
3. The product does not have write protection.
4. The wire diameter of the products in the above list is the default value under different lengths. We can also provide other wire products to customers with special requirements.
5. Product ID is the short order number of our product standard model.

General Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Data Rate	DR		10.3125		Gb/s	1
Bit Error Rate	BER			10^{-12}		
Operating Temperature	T_C	0		70	°C	2
Storage Temperature	T_{STO}	-40		85	°C	3
Input Voltage	V_{CC}	3.14	3.30	3.46	V	4

Notes:
1.IEEE 802.3ae
2.Case temperature
3.Ambient temperature
4.For electrical power interface

I2C Memory Map

Address A0					
IIC Addr	**Size**	**Name**	**Description**	**Values (HEX)**	**Remarks**
0	1	Identifier	SFP or SFP+	03	
1	1	Ext. Identifier	GBIC/SFP function is defined by two-wire interface ID only	04	
2	1	Connector	Copper pigtail	21	
3-10	8	Transceiver	Passive Cable	00 00 00 00 00 04 00 00	
11	1	Encoding	Code for high speed serial encoding algorithm	00	
12	1	BR, Nominal	Nominal Bit Rate 10.3Gb/s	67	
13	1	Rate Identifier	Type of rate select functionality	00	
14	1	Length(SMF,km)	Link length supported for single mode fiber, units of km	00	
15	1	Length (SMF)	Link length supported for single mode fiber, units of 100 m	00	
16	1	Length (50um)	Link length supported for 50 um OM2 fiber, units of 10 m	00	
17	1	Length (62.5um)	Link length supported for 62.5 um OM1 fiber, units of 10 m	00	

18	1	Length (OM4 or copper cable)	Link length supported for 50um OM4 fiber, units of 10m. Alternatively copper or direct attach cable, units of m	01	
19	1	Length (OM3)	Link length supported for 50 um OM3 fiber, units of 10 m	00	
20-35	16	Vendor name	UNIVISO	4D 4F 44 55 4C 45 54 45 4B 20 20 20 20 20 20 20	
36	1	Transceiver	Code for electro nic or optical compatibility	0D	
37-39	3	Vendor OUI	SFP vendor IEEE company ID	00 00 00	
40-55	16	Vendor PN	Part number in Order information	-	
56-59	4	Vendor rev	Revision level for part number provided by vendor (ASCII)	-	
60-61	2	Wavelength	Laser wavelength (Passive/Active Cable Specification Compliance)	00 00	
62	1	Unallocated		00	
63	1	CC BASE	Check code for Base ID Fields (addresses 0 to 62)	-	
64-65	2	Options	Indicates which optional transceiver signals are implemented	00 00	
66	1	BR, max	Upper bit rate margin	64	
67	1	BR, min	Lower bit rate margin	00	
68-83	16	Vendor SN	Serial number provided by vendor	Programme d by	
84-91	8	Date code	Year,Month,Day	Programme d by	
92	1	Diagnostic Monitoring Type	Indicates which type of diagnostic monitoring is implemented (if any) in the transceiver	00	
93	1	Enhanced Options	Indicates which optional enhanced features are implemented (if any) in the transceiver	00	
94	1	SFF-8472 Compliance	Indicates which revision of SFF-8472 the transceiver complies with.	00	

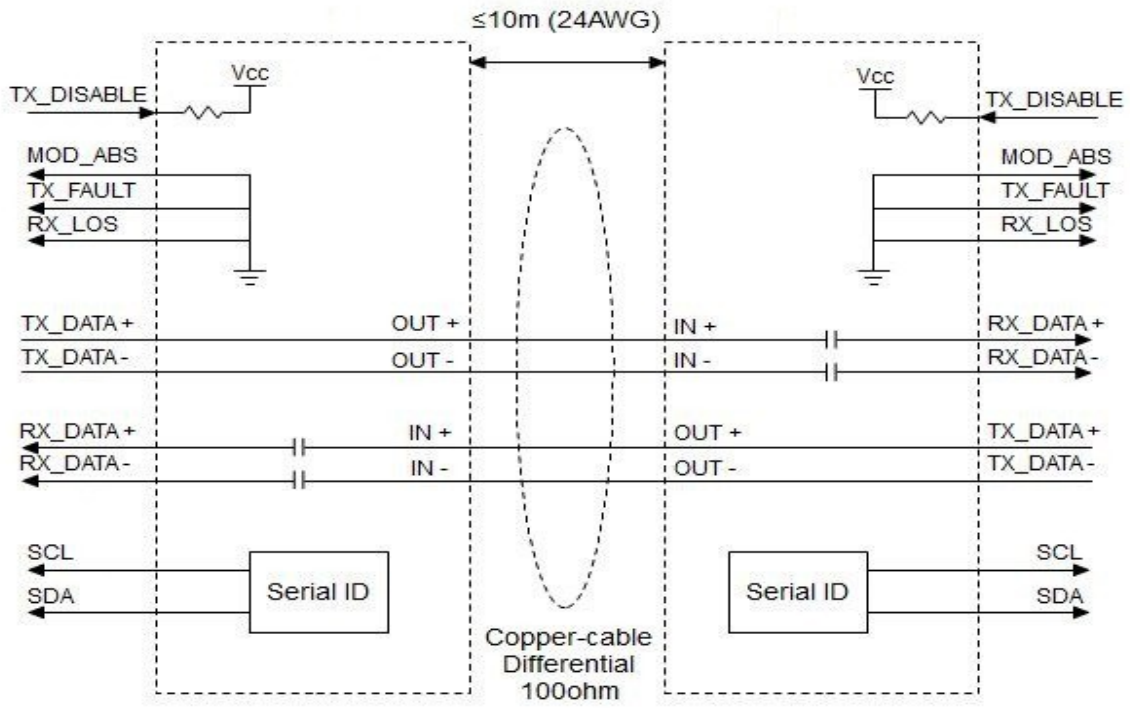
95	1	CC EXT	Check code for the Extended ID Fields (addresses 64 to 94)	-	
96-127	32	Vendor Specific	Vendor Specific EEPROM	-	
128-255	128	Vendor Specific	Vendor Specific EEPROM	-	

Notes：
1.Module without write protection

Cable Specifications

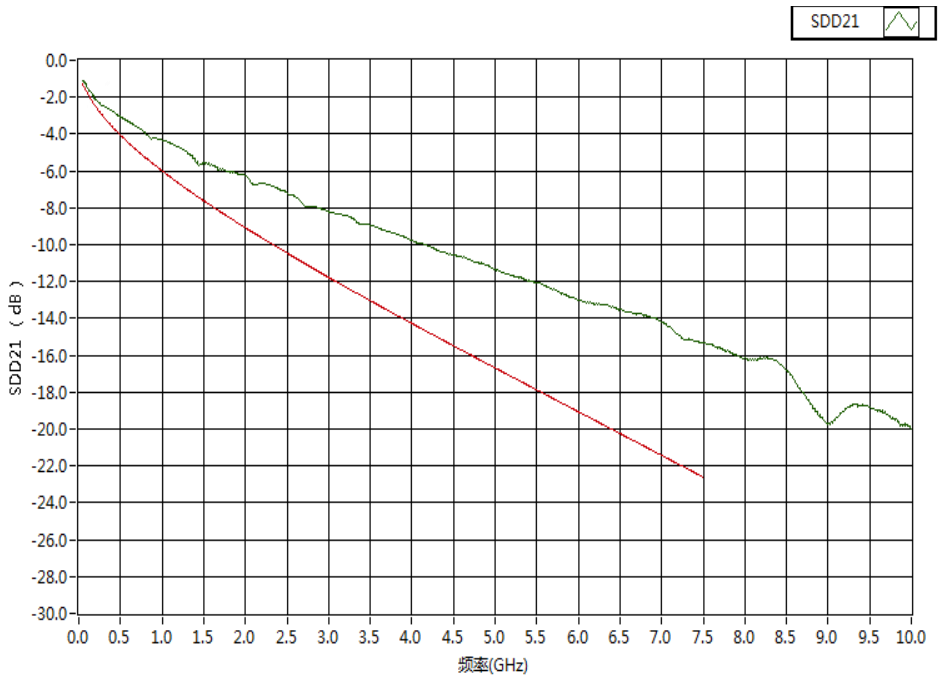
Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Wire Gauge		30AWG		24AWG	AWG	
Cable Impedance	Z	90	100	110	Ohm	

Block Diagram of Transceiver

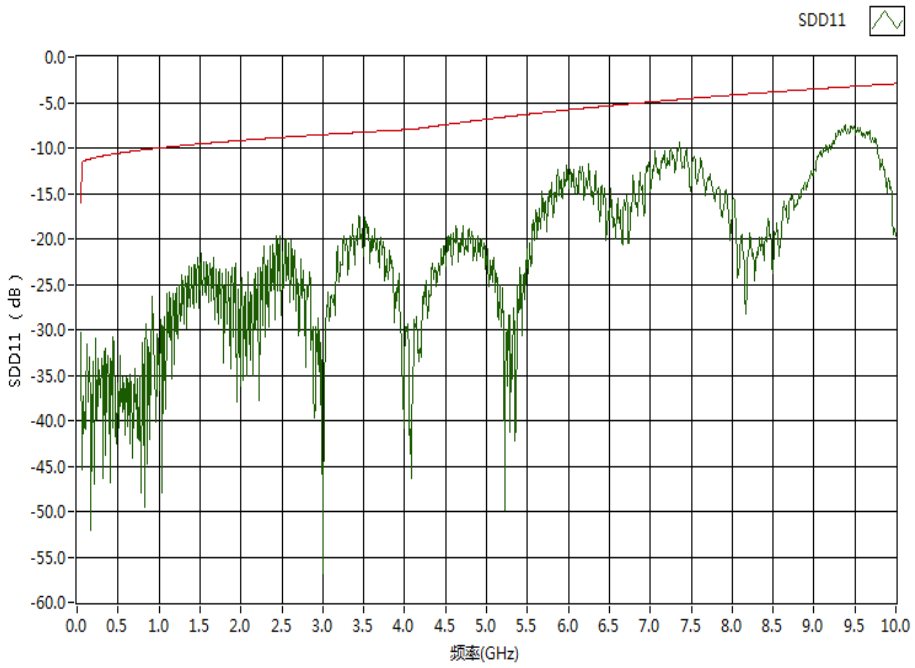


Typical S parameter

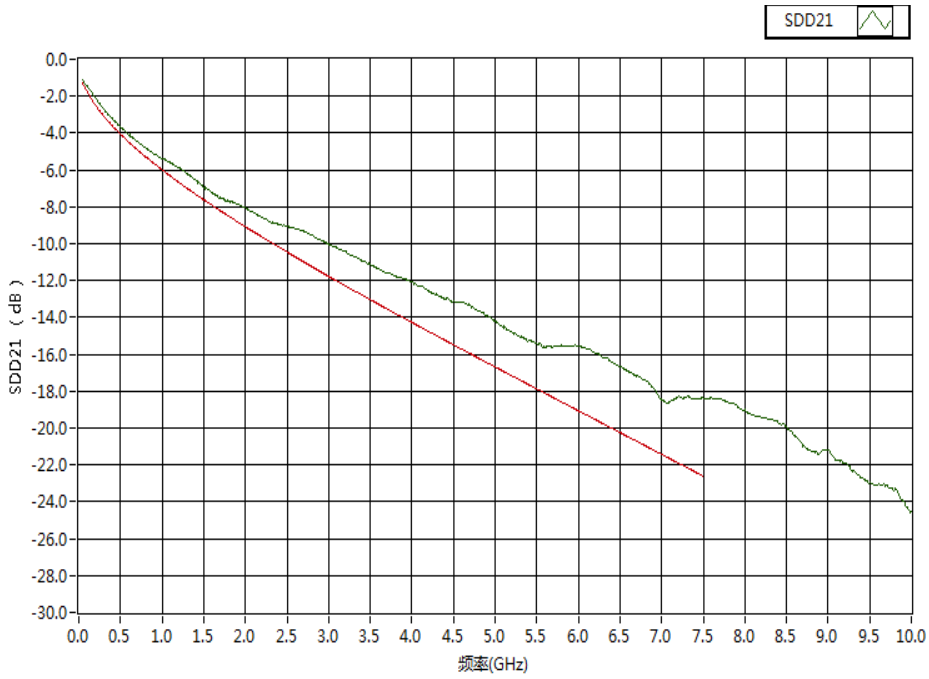
3m 30AWG typical insertion loss curve



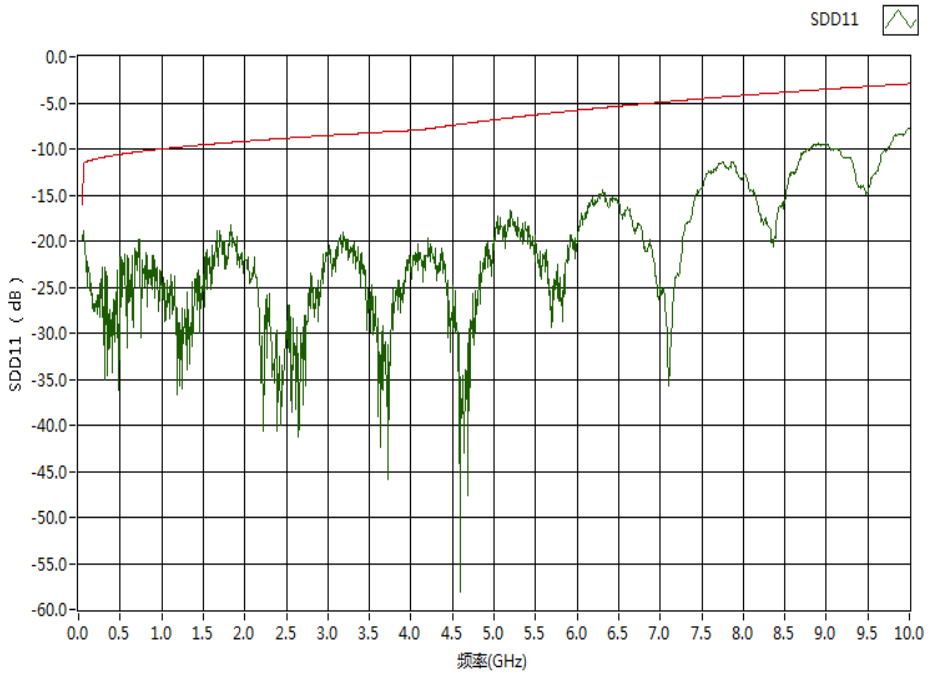
3m 30AWG typical reflection curve



5m 24AWG typical insertion loss curve



5m 24AWG typical reflection curve



Note:

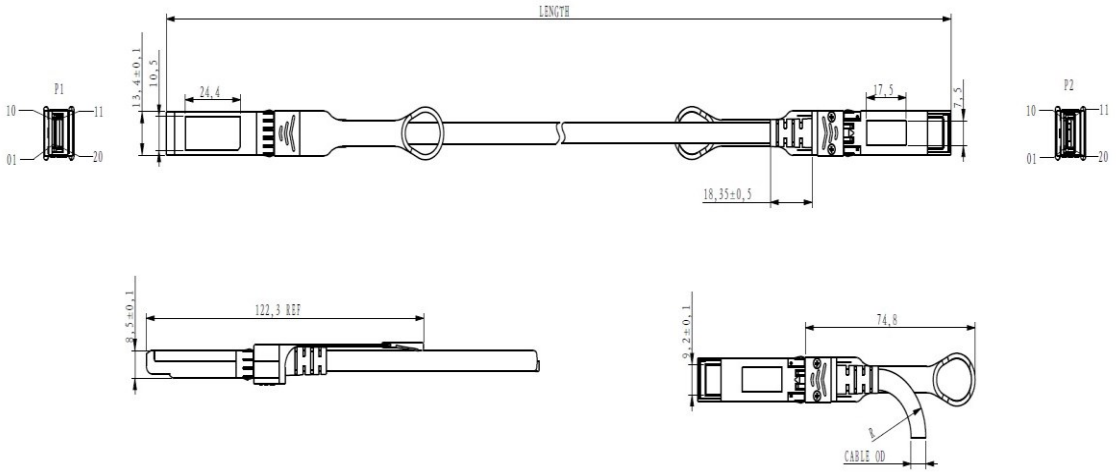
1. Insertion loss standard reference IEEE802.3ba 85.10.2：IL<17.04dB@5.15625 GHz
2. Reflection curve standard reference IEEE802.3ba 85.10.4：SDDxx(dB)=12 - 2 × SQRT(f), 0.05≤f<4.1GHz.
3. Reflection curve standard reference IEEE802.3ba 85.10.4：SDDxx(dB)=6.3 - 13 × log10(f/5.5), 4.1≤f≤10GHz.

Weight

Parameter	Symbol	Typ	Unit	Remarks
30AWG Product Weight	G_{D30}	72	g/PCS	1
28AWG Product Weight	G_{D28}	88	g/PCS	1
24AWG Product Weight	G_{D28}	96	g/PCS	1
30AWG Cable Weight	G_{C30}	26	g/M	
28AWG Cable Weight	G_{C28}	42	g/M	
24AWG Cable Weight	G_{C26}	50	g/M	
Dust Cap Weight	G_S	0.80	g/PCS	

Notes：
1.The weight of DAC-SFP10-P-xxAWG-1M-C0C0By.For example:the weight of DAC-SFP10-P-24AWG-6M-C0C0B0 is:96+50*(6-1)+0.80*2=347.6g

Dimensions



ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

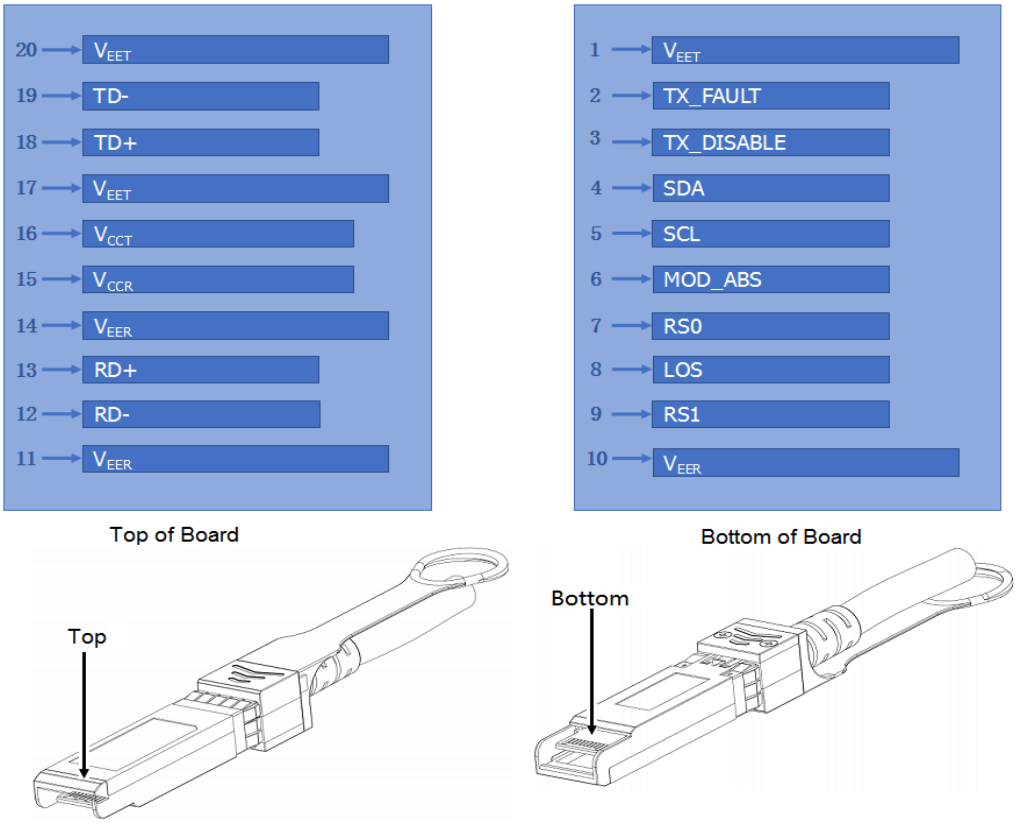
Cable dimension

serial number	Standard Wire Gauge AWG	Cable diameter OD (mm)	Minimum bending radius R (mm)
1	30	4.2	25
2	28	4.7	26
3	24	6.0	28

Length tolerance

Serial number	Nominal length (m)	Tolerance range ±(cm)
1	Length≤3	2
2	3<Length≤4	4
3	4<Length≤6	6
4	6<Length	8

Electrical Pad Layout



Pin Assignment

PIN #	Symbol	Description	Remarks
1	V_{EET}	Transmitter ground (common with receiver ground)	1
2	TX_FAULT	Transmitter failure alarm, not used	
3	TX_DISABLE	The signal turns off the module transmitter when it is high or open, not used.	
4	SDA	Data line for serial ID	2
5	SCL	Clock line for serial ID	2
6	MOD_ABS	Module Absent. Grounded within the module	2
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	
9	RS1	No connection required	
10	V_{EER}	Receiver ground (common with transmitter ground)	1
11	V_{EER}	Receiver ground (common with transmitter ground)	1
12	RD-	Receiver Inverted DATA out. AC coupled	
13	RD+	Receiver Non-inverted DATA out. AC coupled	
14	V_{EER}	Receiver ground (common with transmitter ground)	1
15	V_{CCR}	Receiver power supply	
16	V_{CCT}	Transmitter power supply	
17	V_{EET}	Transmitter ground (common with receiver ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	
19	TD-	Transmitter Inverted DATA in. AC coupled	
20	V_{EET}	Transmitter ground (common with receiver ground)	1

Notes:
1. Circuit ground is isolated from chassis ground
2. Should Be pulled up with 4.7k - 10k ohm on host board to a voltage between 2V and 3.6V

References

1. IEEE standard 802.3ae. IEEE Standard Department, 2005.
2. IEEE standard 802.3ba. IEEE Standard Department.