

FYSF- SFP-100BASE-Tx

100BASE-T Copper SFP Transceiver

Ordering information

Product Code	Part Number	Product Description
	FYSF-T103-M1B	Only Support 100BASE-T Operation in Host Systems

Product Features

- Support 100base-Tx
- Hot-pluggable SFP footprint
- Compact RJ-45 connector assembly
- RoHS compliant and lead-free
- Single +3.3V power supply
- 100base-Tx Fast Ethernet over Cat 5 cable



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Ambient Operating temperature: 0°C to +70°C

Product Description

Flyin's FYSF-T103-M1B -100BASE-Tx Copper Small Form Pluggable (SFP) transceivers are based on the SFP Multi Source Agreement (MSA) . They are compatible with the 100base-Tx standards as specified in IEEE Std 802.3 . SFP-100BASE-T uses the SFP's RX_LOS pin for link indication. If pull up SFP's TX_DISABLE pin, SWITCH IC be reset.

Cable Length

Line Side	Cable	Reach	Host Interface
100base-Tx	CAT5	100m	100base-FX

SFP to Host Connector Pin Out

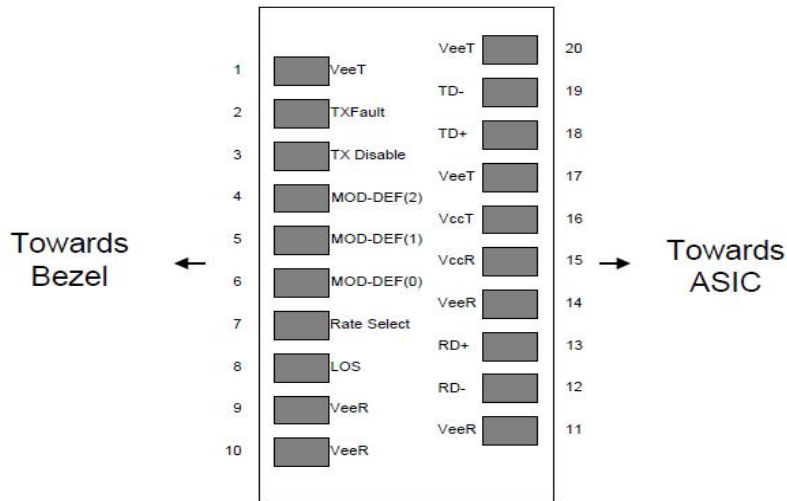


Figure 1. Diagram of host board connector block pin numbers and names

Pin	Symbol	Name/Description	NOTE
1	VEET	Transmitter Ground (Common with Receiver Ground)	
2	TFAULT	Transmitter Fault. Not supported.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	1
4	MOD_DEF (2)	Module Definition 2. Data line for Serial ID.	2
5	MOD_DEF (1)	Module Definition 1. Clock line for Serial ID.	2
6	MOD_DEF (0)	Module Definition 0. Grounded within the module.	2
7	Rate Select	No connection required	
8	LOS	High indicates no linked. low indicates linked.	
9	VEER	Receiver Ground (Common with Transmitter Ground)	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VEER	Receiver Ground (Common with Transmitter Ground)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	

Notes

1. PHY disabled on TDIS > 2.0V or open, enabled on TDIS < 0.8V, used to reset the module.

2. Should be pulled up with 4.7k – 10k Ohm on host board to a voltage between 2.0 V and 3.6 V. MOD_DEF(0) pullup

low to indicate module is plugged in

+3.3V Volt Electrical Power Interface

The FYSF-T103-M1B has an input voltage range of 3.3 V +/- 5%. The 4V maximum voltage is not allowed for continuous operation.

+3.3 Volt Electrical Power Interface						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
Supply Current	Is			300	mA	
Input Voltage	Vcc	3.13	3.3	3.47	V	Referenced to GND
Maximum Voltage	Vmax			4	V	
Surge Current	Isurge		TBD		mA	Hot plug above steady state current. See caution note below

Caution: Power consumption and surge current are higher than the specified values in the SFP MSA

Low-Speed Signals

MOD_DEF(1) (SCL) and MOD_DEF(2) (SDA), are open drain CMOS signals (see section VII, "Serial Communication Protocol"). Both MOD_DEF (1) and MOD_DEF (2) must be pulled up to host_Vcc

Low-Speed Signals, Electronic Characteristics					
Parameter	Symbol	Min	Max	unit	Notes/Conditions
SFP Output LOW	VOL	0	0.5	V	4.7k to 10k pull-up to host_Vcc, Measured at host side of connector
SFP Output HIGH	VOH	host_Vcc -0.5	host_Vcc + 0.3	V	4.7k to 10k pull-up to host_Vcc, measured at host side of connector
SFP Input LOW	VIL	0	0.8	V	4.7k to 10k pull-up to Vcc, measured at SFP side of connector
SFP Input HIGH	VIH	2	Vcc + 0.3	V	4.7k to 10k pull-up to Vcc, measured at SFP side of connector

High-Speed Electrical Interface

All high-speed signals are AC-coupled internally.

High-Speed Electrical Interface, Transmission Line-SFP						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
Line Frequency	fL		125		MHz	5-level encoding, per IEEE 802.3
Tx Output Impedance	Zout,TX		100		Ohm	Differential, for all frequencies between 1MHz and 125MHz
Rx Input Impedance	Zin,RX		100		Ohm	Differential, for all frequencies between 1MHz and 125MHz
High-Speed Electrical Interface, Host-SFP						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions

Single ended data input swing	Vinsing	250		1200	mV	Single ended
Single ended data output swing	Voutsing	350		800	mV	Single ended
Rise/Fall Time	Tr,Tf		175		psec	20%-80%
Tx Input Impedance	Zin		50		Ohm	Single ended
Rx Output Impedance	Zout		50		Ohm	Single ended

General Specifications

General						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
Data Rate	BR		100		Mb/sec	
Cable Length	L			100	m	Cat 5/5e/6

Environmental Specifications

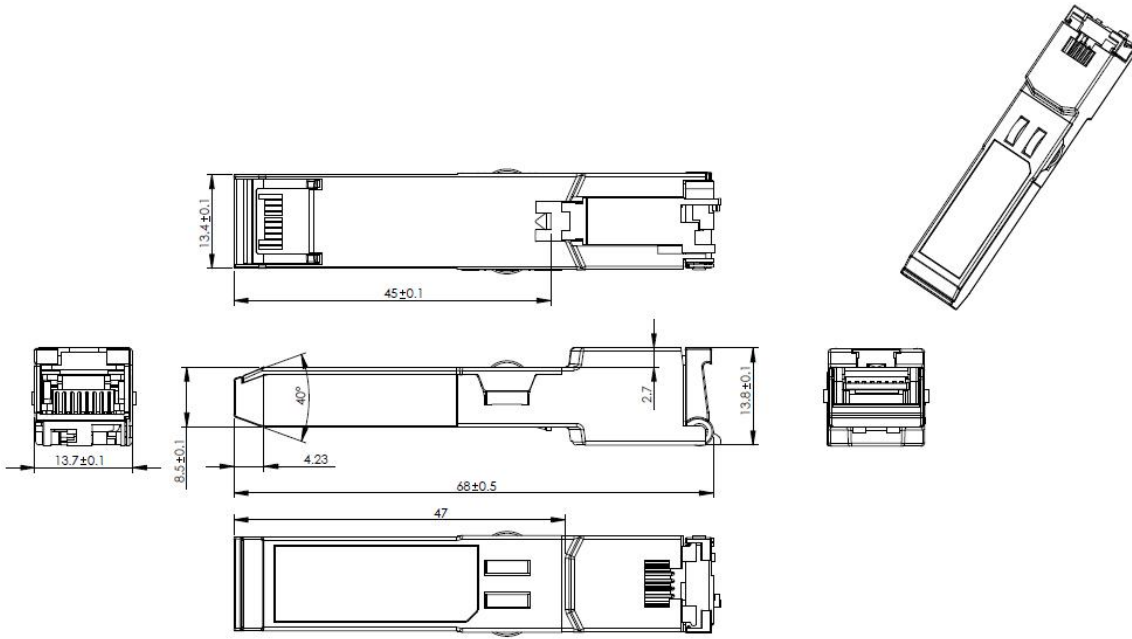
Environmental Specifications						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
Operating Temperature	Tcase	0		70	°C	FYSF-T112-M1B
		-10		80	°C	FYSF-T112-M1E
		-40		85	°C	FYSF-T112-M1I
Storage Temperature	Tsto	-40		85	°C	Ambient temperature

Serial Communication Protocol

FYSF-T103-M1B support the 2-wire serial communication protocol outlined in the SFP MSA. It uses an Atmel AT24C02B 256 byte EEPROM with an address of A0h.

Serial Bus Timing, Requirements						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
I 2C Clock Rate		0		200,000	Hz	

Mechanical Specifications (Unit:mm)



文件分发/ File Distribution

分发部门	光模块	OQC
份数	1	1

版本记录/Revision History

Revision	Notes	Authors	Checked	Approval	Date
Rev A0	original version	LIANGJian	JiYundong	LIANGGuangzhi	2022.02.18