LMT-GE-T

DATASHEET

RJ-45 SFP Transceiver

The LMT-GE-T RJ-45 SFP Transceiver is a hot-pluggable copper module designed for reliable Gigabit Ethernet connectivity over Cat 5 cables. It supports 10/100/1000BASE-T speeds with data rates up to 1.25Gb/s, ensuring flexible network deployment. Built with a durable metal enclosure, it offers enhanced EMI protection and stable performance. Operating on a 3.3V power supply, it is energy-efficient and easy to integrate. With a wide temperature range of -40°C to +85°C, it is suitable for both enterprise and harsh environments.



PRODUCT INTRODUCTION

Product Overview



The LMT-GE-T RJ-45 SFP Transceiver is a high-performance, hot-pluggable copper module designed to deliver reliable Gigabit Ethernet connectivity over standard Cat 5 cabling. Built in compliance with the SFP Multi-Source Agreement (MSA) and IEEE 802.3 standards, it provides seamless integration with networking equipment featuring SFP ports.

This transceiver supports 10/100/1000BASE-T operation, enabling flexible deployment across various network speeds while ensuring stable and efficient data transmission. With its compact RJ-45 interface and fully metal enclosure, the LMT-GE-T offers enhanced electromagnetic interference (EMI) protection and durability for enterprise and industrial environments.

Designed for ease of use, the module is hot-pluggable, allowing installation or replacement without interrupting system operations. It operates on a single 3.3V power supply and supports bi-directional data transmission up to 1.25Gb/s, making it suitable for modern networking demands.

The LMT-GE-T is engineered to perform in demanding conditions, with an extended operating temperature range of -40°C to +85°C, ensuring reliability in both standard and harsh environments. Additionally, it supports automatic crossover detection, eliminating the need for crossover cables and simplifying network setup.

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Key Features

- **High-Speed Performance**

  Supports data rates up to 1.25Gb/s for efficient and stable communication.

- **Multi-Speed Compatibility**

  Compatible with 10/100/1000BASE-T Ethernet standards for flexible deployment.

- **Hot-Pluggable SFP Form Factor**

  Enables easy installation and replacement without system downtime.

- **RJ-45 Copper Interface**

  Uses standard Cat 5 UTP cables with transmission distance up to 100 meters.

- **Robust Build Quality**

  Fully metal enclosure reduces EMI and enhances durability.

- **Low Power Consumption**

  Operates on a single +3.3V power supply for energy-efficient performance.

- **Wide Operating Temperature Range**

  Designed to operate reliably from -40°C to +85°C.

- **Auto MDI/MDI-X Support**

  Automatic crossover detection removes the need for special cables.

- **Standards Compliance**

  Fully compliant with IEEE 802.3 and SFP MSA specifications.

- **RoHS Compliant**

  Environmentally friendly and lead-free design.

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Product Selection

Product part Number	Link Indicator on RX_LOS Pin	Support 10/100/ 1000base-T	Support SERDES
SFP-TI-AUTOSERDES	Yes	Yes	Yes

SFP to Host Connector Pin Out

Pins	Symbol	Name / Description	Ref
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault. Not supported.	-
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD DEF(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD DEF(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required	-
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	-
9	VEER	Receiver Ground (Common with Transmitter Ground)	1

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Pins	Symbol	Name / Description	Ref
10	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	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	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)	1
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)	1

Notes:

1. Circuit ground is connected to chassis ground
2. PHY disabled on TDIS >2.0V or open, enabled on TDIS<0.8V
3. Should be pulled up with 4.7k-10k Ohms on host board to a voltage between 2.0V and 3.6
4. MOD_DEF(0) pulls line low to indicate module is plugged in.

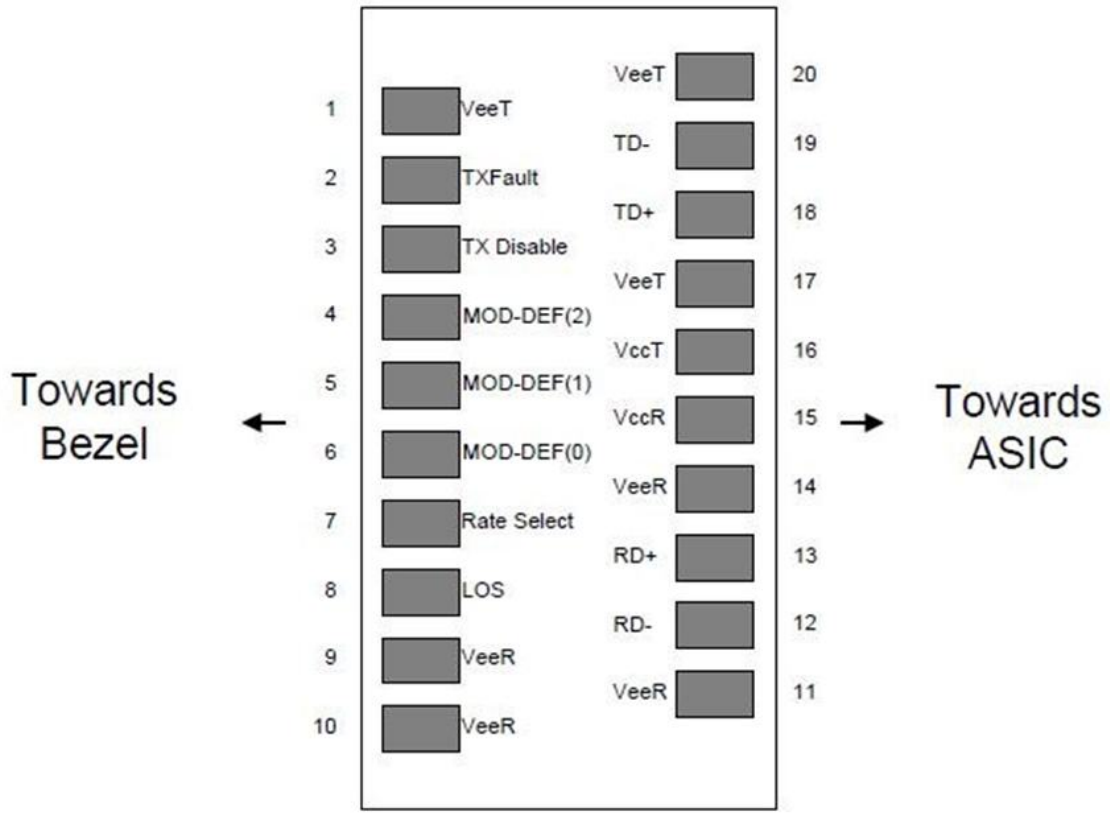


Figure 1. *Diagram of host board connector block pin numbers and names*

+3.3V Volt Electrical Power Interface

The SFP-TI-AUTO has an input voltage range of 3.3V +/- 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**
Is	Is	-	170	300	mA	-
Input Voltage	Vcc	3.13	3.3	3.47	V	Referenced to GND

Parameter	Symbol	Min	Typ	Max	Unit	Notes/Conditions
Maximum Voltage	Vmax	-	-	4	V	-

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 Outpu 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.

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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 OutpTut Impedance	Zout, TX	-	100	-	Ohm	Differential, for all frequencies between 1MHz and 125MHz
Rx Input Impedance	fL	-	125	-	MHz	Differential, for all frequencies between 1MHz and 125MHz

High-Speed Electrical Interface, Transmission Line-SFP						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
Single ended data input swing	Zin, TX	-	100	-	Ohm	Single ended
Single ended data input swing	Voutsing	350	-	800	mV	Single ended
Rise/Fall Time	Tr, Tf	-	175	-	psec	20%-80%
Tx Input Impedance	Zin	-	50	-	Ohm	Single ended

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Parameter	Symbol	Min	Typ	Max	Unit	Notes/Conditions
Rx Output Impedance	Zout	-	50	-	Ohm	Single ended

General Specifications

General						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
Data Rate	BR	10	-	1000	Mb/sec	IEEE 802.3 compatible. See Notes 2 through 4 below
Cable Length	L	-	-	100	m	Category 5 UTP. BER

Notes:

1. Clock tolerance is +/- 50 pp
2. By default, the SFP-TI-AUTO-SERDES is a full duplex device in preferred master mode
3. Automatic crossover detection is enabled. External crossover cable is not required

Environmental Specifications

General						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
Operating Temperature	Top	-40	-	85	°C	IEEE 802.3 compatible. See Notes 2 through 4 below

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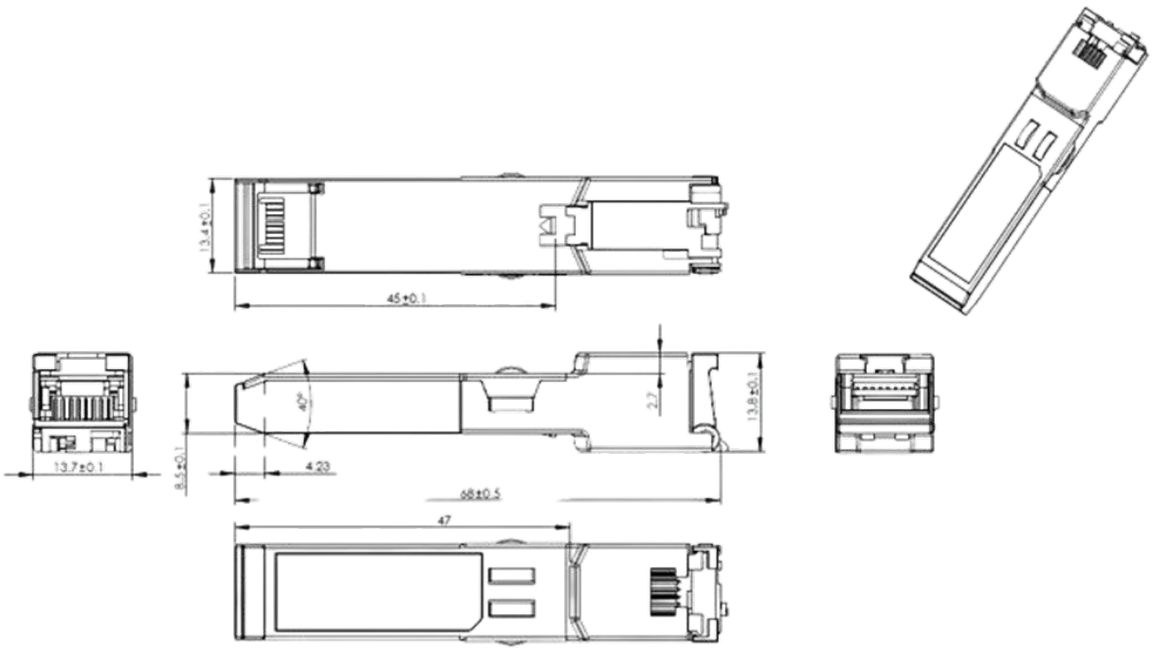
Parameter	Symbol	Min	Typ	Max	Unit	Notes/Conditions
Storage Temperature	Tsto	-40	-	85	°C	Ambient temperature

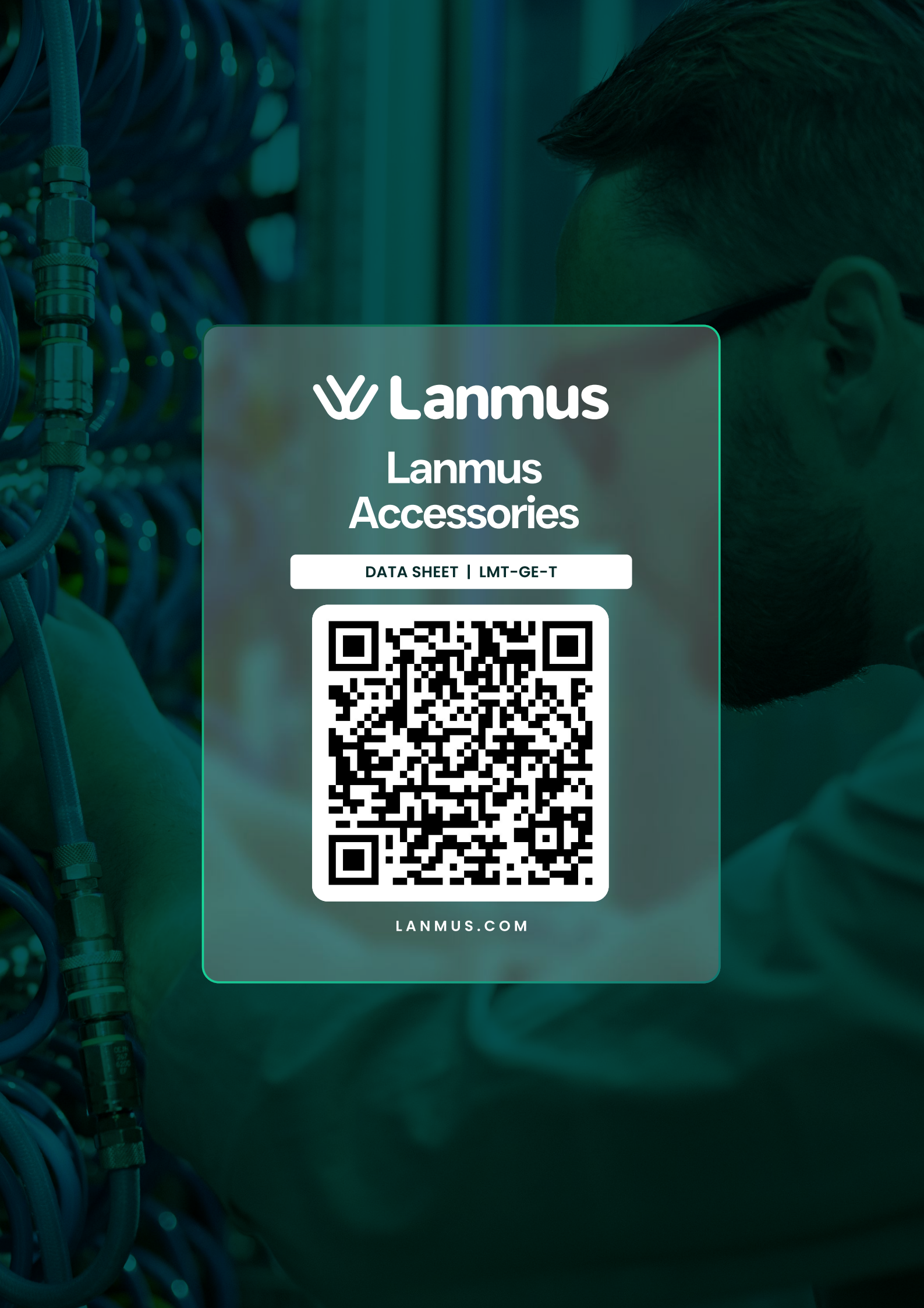
Serial Communication Protocol

All WINTOP SFPs support the 2-wire serial communication protocol outlined in the SFP MSA. These SFPs use an MCU, can be accessed with address of A0h.

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

Outline Dimensions (mm)




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