



## TN-SFP-10G-xx and TN-CWDM-10G-xxx Series Cisco Compatible 10G Small Form Factor Pluggable (SFP+) SFP Transceiver Modules

## User Guide

**Part Number 33499**  
**Revision E February 2022**

## Intellectual Property

© 2022 Lantronix, Inc. All rights reserved. No part of the contents of this publication may be transmitted or reproduced in any form or by any means without the written permission of Lantronix.

*Lantronix* is a registered trademark of Lantronix, Inc. in the United States and other countries. All other trademarks and trade names are the property of their respective holders.

Patented: <https://www.lantronix.com/legal/patents/>; additional patents pending.

## Warranty

For details on the Lantronix warranty policy, go to <http://www.lantronix.com/support/warranty>.

## Contacts

### Lantronix Corporate Headquarters

48 Discovery, Suite 250  
Irvine, CA 92618, USA  
Toll Free: 800-526-8766  
Phone: 949-453-3990  
Fax: 949-453-3995

### Technical Support

Tel: +1 (800) 526-8766, Tel: +1 (949) 453-3990, or <https://www.lantronix.com/technical-support/>

### Sales Offices

For a current list of our domestic and international sales offices, go to the Lantronix web site at [www.lantronix.com/about/contact](http://www.lantronix.com/about/contact).

## Disclaimer

All information contained herein is provided "AS IS." Lantronix undertakes no obligation to update the information in this publication. Lantronix does not make, and specifically disclaims, all warranties of any kind (express, implied or otherwise) regarding title, non-infringement, fitness, quality, accuracy, completeness, usefulness, suitability or performance of the information provided herein. Lantronix shall have no liability whatsoever to any user for any damages, losses and causes of action (whether in contract or in tort or otherwise) in connection with the user's access or usage of any of the information or content contained herein. The information and specifications contained in this document are subject to change without notice.

## Revision History

Date	Rev	Notes
9/30/13	A	Initial release.
3/29/18	B	Updated contact information and format. Added TN-SFP-10G-D-80, and TN-SFP-10G-U-80.
6/12/19	C	TN-SFP-10G-ZR-10. Added TN-CWDM-10G-1xx0-40 and -80 Series.
7/31/20	D	Add TN-SFP-10G-T. Add UL information.
2/8/22	E	Initial Lantronix re-brand.

## Table of Contents

Product Description .....	4
Features .....	4
Specifications and Standards.....	4
Optical Specifications.....	5
TN-SFP-10G-x-xx Series .....	5
TN-SFP-10G-T .....	6
Verified Host Devices (TN-SFP-10G-T).....	6
TN-CWDM-10G-1xx0-40 Series .....	7
TN-CWDM-10G-1xx0-80 Series .....	8
TN-SFP-10G-xx and TN-CWDM-10G-xxx Series.....	8
Application: Fiber Connections with SFPs .....	9
Safety Instructions .....	9
SFP Unpacking .....	10
SFP Installation .....	10
Cautions.....	10
Installing an SFP Module.....	11
Fiber Cable Physical Characteristics .....	12
Recommended Cable Type for TN-SFP-10G-T .....	12
Typical TN-SFP-10G-T Power Consumption at Various Distances .....	12
TN-SFP-10G-T Power Consumption/Surge Current Caution.....	12
Connecting Fiber Cables .....	12
Removing an SFP Module.....	13
DDMI (Digital Diagnostics Monitoring Interface).....	14
SFP Information and SFP Detail Info .....	15
SFP Information .....	15
SFP Detail Info.....	17
Compliance Information .....	19

## Product Description

Lantronix TN-SFP-10G-xx and TN-CWDM-10G-xxx TN-SFP-10G-xx and TNCWDM-10G-xxx series Cisco Compatible 10G Small Form Factor Pluggable (SFP+) transceiver modules are designed to install in any SFP+ port. These SFP+ modules allow an interface to the network through the SFP+ connector, and are designed for bi-directional, serial-optical data communications, at speeds up to 10.5 Gbps.

The Lantronix TN-SFP-10G-xx series 10G SFP+ transceiver modules are designed to install in any SFP+ port allowing for 10GBase-X interfaces to the network through the SFP+ connector. The TN-SFP-10Gxx transceivers are Cisco compatible and are designed for bi-directional serial-optical data communication such as 10G Ethernet at speeds up to 10.3 Gbps. Lantronix SFP and SFP+ modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our SFP+ modules to be used in all other MSA compliant SFP+ platforms. In addition, Lantronix SFP modules are also compatible with all Cisco SFP+ based routers and switches, as well as Cisco's IOS software. Lantronix SFP and SFP+ modules ARE NOT Cisco OEM brand modules.

**TN-CWDM-10G-1xx0-40 Series:** The TN-CWDM-40G-1xx0-40 10G modules are Cisco Compliant\* and are designed for bi-directional serial-optical data communications such as 10G Ethernet. Each X2/XFP/SFP+ operates at a nominal CWDM wavelength. There are 8 wavelengths available in 20nm steps from 1470nm to 1610nm.

**TN-SFP-10G-xR Series:** The TN-SFP-10G-xR series 10G SFP+ transceiver modules are designed to install in any SFP+ port allowing for 10GBase-X interfaces to the network through the SFP+ connector. The TN-SFP-10G-xR transceivers are Cisco Compliant\* and are designed for bi-directional serial optical data communication such as 10G Ethernet at speeds up to 10.3 Gbps.

## Features

- SFP+ Optical Transceiver with LC connector
- 10G small Form-Factor Pluggable (SFP+) MSA compatible
- Compliant with IEEE 802.3ae 10GBASE-SR/LR/LW
- SFF-8472 Digital Diagnostic Function (DMI)
- Single +3.3 V Power Supply
- RoHS Compliant (all models)
- Class 1 Laser International Safety Standard IEC 60825 Compliant

## Specifications and Standards

The TN-SFP-10G-xxx and TN-CWDM-10G-xxx are designed to meet these standards and specifications:

<b>Standards</b>	IEEE 802.3z, IEEE 802.3ae, 10GBASE-SR/LR/LW, 10GBase-ER/EW, SFF-8472 Digital Diagnostic function (DMI). IEEE 802.3az (TN-SFP-10G-T)
<b>Compliance</b>	RoHS Compliant (all models) Class 1 Laser International Safety Standard IEC 60825 Compliant FDA 21; CFR 1040.10 and 1040.11
<b>Dimensions</b>	Width: 0.52" [13 mm] x Depth: 2.18" [55 mm] x Height: 0.33" [8 mm]
<b>Power Input</b>	3.3V
<b>Output Wavelength</b>	-5.5nm < $\lambda_c$ < +7.5nm
<b>Shipping Weight</b>	1 lb (16 oz) approximately
<b>Voltage</b>	3.3V
<b>Operating Temp</b>	0°C to +70°C (32°F to 158° F)
<b>Storage Temp</b>	-40°C to +85°C (-40° to 185°F)
<b>Humidity</b>	5% to 95%, non-condensing
<b>Warranty</b>	Lifetime

## Optical Specifications

The Optical Specs for all Lantronix SFPs are listed on the [SFP Specifications](#) page.

### TN-SFP-10G-x-xx Series

Cisco Compatible 10GBase SFP+ Modules; 10GBase-X, SFP+ With DMI (LC).

#	SKU	Description
1	TN-SFP-10G-D-10	10GBase-BX, SFP+ w/ DMI 1330 TX/1270 RXnm (LC) [10 km/6.2 mi.] Link Budget: 5.9 dB
2	TN-SFP-10G-D-20	10GBase-BX, SFP+ w/ DMI 1330 TX/1270 RXnm (LC) [20 km/12.4 mi.] Link Budget: 12.1 dB
3	TN-SFP-10G-D-40	10GBase-BX, SFP+ w/ DMI 1330 TX/1270 RXnm (LC) [40 km/24.9 mi.] Link Budget: 16.0 dB
4	TN-SFP-10G-D-60	10GBase-BX, SFP+ w/ DMI 1330 TX/1270 RXnm (LC) [60 km/27.3 mi.]
5	TN-SFP-10G-D-80	10GBase-BX, SFP+ with DMI 1550nm TX/1490nm RX single mode (LC) [80 km/49.7 mi.] Link Budget: 22.0 dB
6	TN-SFP-10G-ER	10GBase-ER, SFP+ w/ DMI 1550nm (LC) [40 km/24.9 mi.] Link Budget: 15.8 dB
7	TN-SFP-10G-LR	10GBase-LR, SFP+ w/ DMI 1310nm (LC) [10 km/6.2 mi.] Link Budget: 9.0 dB
8	TN-SFP-10G-LRM	10GBase-LRM, SFP+ w/ DMI 1310nm (LC) [220m; 722 ft.] Link Budget: 1.5 dB
9	TN-SFP-10G-SR	10GBase-SR, SFP+ w/ DMI 850nm (LC) [300/82/33 m; 985/269/108 ft.] Link Budget: 4.0 dB
10	TN-SFP-10G-U-10	10GBase-BX, SFP+ w/ DMI 1270 TX/1330 RXnm (LC) [10 km/6.2 mi.] Link Budget: 5.9 dB
11	TN-SFP-10G-U-20	10GBase-BX, SFP+ w/ DMI 1270 TX/1330 RXnm (LC) [20 km/12.4 mi.] Link Budget: 12.1 dB
12	TN-SFP-10G-U-40	10GBase-BX, SFP+ w/ DMI 1270 TX/1330 RXnm (LC) [40 km/24.9 mi.] Link Budget: 16.0 dB
13	TN-SFP-10G-U-60	10GBase-BX, SFP+ w/ DMI 1270 TX/1330 RXnm (LC) [60 km/37.3 mi.]
14	TN-SFP-10G-U-80	10GBase-BX, SFP+ with DMI 1490nm TX/1550nm RX single mode (LC) [80 km/49.7 mi.] Link Budget: 23.0 dB
15	TN-SFP-10G-ZR	10GBase-ZR, SFP+ w/ DMI 1550nm (LC) [80 km/49.7 mi.] Link Budget: 24.0 dB
16	TN-SFP-10G-ZR-10	10GBase-ZR, SFP+ with DMI 1550nm single mode (LC) [100 km/62.1 mi.] Link Budget: 26.0 dB
17	TN-SFP-10G-T	Cisco compatible Copper SFP+, designed for 10 Gigabit Ethernet bidirectional communication. Supports 100M/1G/10G. maximum 30m reach over Cat6a/Cat 7 cable. Maximum 3.0W power consumption needed; 0 – 70 C temperature range. Auto- negotiates with other 10G-Base-T Phys. Auto-sense MDI/MDIX.

## TN-SFP-10G-T

#	SKU	Description
1	TN-SFP-10G-T	Cisco compatible 10GBase-T SFP+ transceiver; maximum 30m; operating temp 0-70° C; SFF-8431 and SFF-8432 compliant (except power consumption 2.5 - 3W). Only transmit on Cat6a/Cat7 cable, only work on verified devices. Verified Host devices: Cisco Catalyst 9300/9500/4500/3750/2960x, Nexus 3064/5020/93180, ASR9001. Lantronix: SISPM1040-3xxx-L, SM24DP4xA, SM12DP2xA, SM48TAT4XA-RP, SM24TAT4xB.

### Verified Host Devices (TN-SFP-10G-T)

Lantronix SKU	Max # of TN-SFP-10G-T supported on 10G SFP+ Slots	Support
SISPM1040-3248-L	4	Each 10G SFP+ port can support a 2.5W copper SFP+ module. Each of 4 SFP+ ports can support 2.5W copper SFP+ modules at the same time.
SISPM1040-3166-L	2	Each 10G SFP+ port can support a 2.5W copper SFP+ module. Each of 2 SFP+ ports can support 2.5W copper SFP+ modules at the same time.
SM24DP4XA	4	Each 10G SFP+ port can support a 2.5W copper SFP+ module. Each of 4 SFP+ ports can support 2.5W copper SFP+ modules at the same time.
SM12DP2XA	2	Each 10G SFP+ port can support a 2.5W copper SFP+ module. Each of 2 SFP+ ports can support 2.5W copper SFP+ module at the same time.
SM24TAT4XB	1	Each 10G SFP+ port can support a 2.5W copper SFP+ module. With 4 SFP+ ports, only 1 SFP+ port can use a 2.5W copper SFP+ module.
SM48TAT4XA-RP	1	Each 10G SFP+ port can support a 2.5W copper SFP+ module. With 4 SFP+ ports, only 1 SFP+ port can use a 2.5W copper SFP+ module.
SM24TAT4XA	1	Each 10G SFP+ port can support 2.5W copper SFP+ module. With 4 SFP+ ports, only 1 SFP+ port can use a 2.5W copper SFP+ module.

## TN-CWDM-10G-1xx0-40 Series

Cisco Compatible CWDM SFP+ Modules; 10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI Single Mode (LC). See the series [online datasheet](#).

#	SKU	Description
1	TN-CWDM-10G-1270-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1270nm [40 km/24.9 mi.] Link Budget: 14.1 dB
2	TN-CWDM-10G-1290-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1290nm [40 km/24.9 mi.] Link Budget: 14.1 dB
3	TN-CWDM-10G-1310-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1310nm [40 km/24.9 mi.] Link Budget: 14.1 dB
4	TN-CWDM-10G-1330-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1330nm [40 km/24.9 mi.] Link Budget: 14.1 dB
5	TN-CWDM-10G-1350-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1350nm [40 km/24.9 mi.] Link Budget: 14.1 dB
6	TN-CWDM-10G-1370-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1370nm [40 km/24.9 mi.] Link Budget: 14.1 dB
7	TN-CWDM-10G-1470-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1470nm [40 km/24.9 mi.] Link Budget: 14.1 dB
8	TN-CWDM-10G-1490-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1490nm [40 km/24.9 mi.] Link Budget: 14.1 dB
9	TN-CWDM-10G-1510-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1510nm [40 km/24.9 mi.] Link Budget: 14.1 dB
10	TN-CWDM-10G-1530-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1530nm [40 km/24.9 mi.] Link Budget: 14.1 dB
11	TN-CWDM-10G-1550-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1550nm [40 km/24.9 mi.] Link Budget: 14.1 dB
12	TN-CWDM-10G-1570-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1570nm [40 km/24.9 mi.] Link Budget: 14.1 dB
13	TN-CWDM-10G-1590-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1590nm [40 km/24.9 mi.] Link Budget: 14.1 dB
14	TN-CWDM-10G-1610-40	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1610nm [40 km/24.9 mi.] Link Budget: 14.1 dB

## TN-CWDM-10G-1xx0-80 Series

Cisco Compatible CWDM SFP+ Modules; 10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI Single Mode (LC). See the series [online datasheet](#).

#	SKU	Description
1	TN-CWDM-10G-1470-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1470nm [80 km/49.8 mi.] Link Budget: 24.0 dB
2	TN-CWDM-10G-1490-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1490nm [80 km/49.8 mi.] Link Budget: 24.0 dB
3	TN-CWDM-10G-1510-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1510nm [80 km/49.8 mi.] Link Budget: 24.0 dB
4	TN-CWDM-10G-1530-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1530nm [80 km/49.8 mi.] Link Budget: 24.0 dB
5	TN-CWDM-10G-1550-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1550nm [80 km/49.8 mi.] Link Budget: 24.0 dB
6	TN-CWDM-10G-1570-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1570nm [80 km/49.8 mi.] Link Budget: 24.0 dB
7	TN-CWDM-10G-1590-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1590nm [80 km/49.8 mi.] Link Budget: 24.0 dB
8	TN-CWDM-10G-1610-80	10GBase-LR/LW/10G Fiber Channel, SFP+ with DMI single mode (LC) 1610nm [80 km/49.8 mi.] Link Budget: 24.0 dB

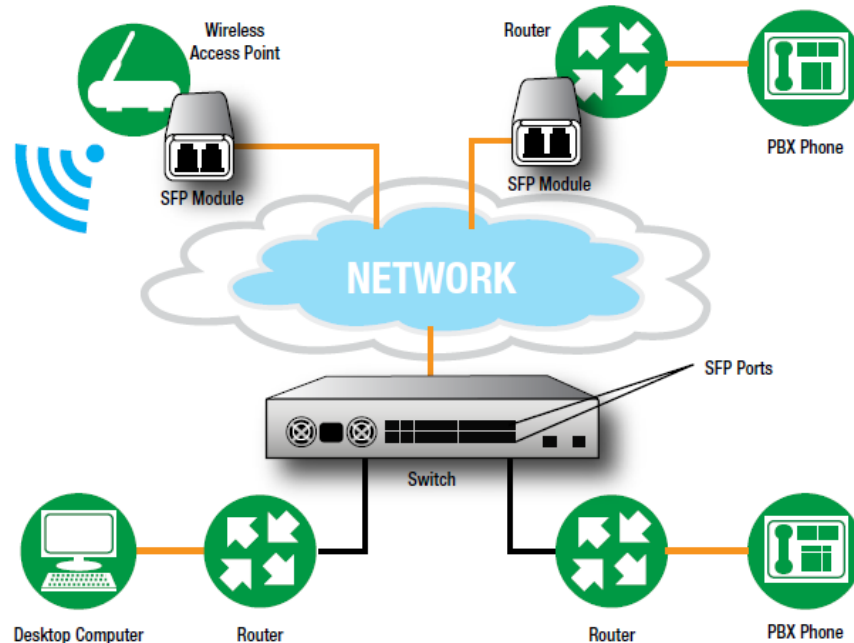
## TN-SFP-10G-xx and TN-CWDM-10G-xxx Series





## Application: Fiber Connections with SFPs

SFPs are used with 10G Ethernet Switches and Routers, Metro Edge Switching, etc.



## Safety Instructions

When a connector is removed during installation, testing, or servicing, or when an energized fiber is broken, a risk of ocular exposure to optical energy that may be potentially hazardous occurs, depending on the laser output power. The primary hazards of exposure to laser radiation from an optical-fiber system are:

- Damage to the eye by accidental exposure to a beam emitted by a laser source.
- Damage to the eye from viewing a connector attached to a broken fiber or an energized fiber.

**Danger:** Never attempt to view optical connectors that might be emitting laser energy.

Do not power up the laser product without connecting the laser to the optical fiber and putting the cover in position, as laser outputs will emit infrared laser light at this point.

See the Lantronix [SFP page](#) for our full line of SFP transceivers. See the [FOA webpage](#) for additional information.

## High Risk Activities Disclaimer

Components, units, or third-party products used in the product described herein are NOT fault-tolerant and are NOT designed, manufactured, or intended for use as on-line control equipment in the following hazardous environments requiring fail-safe controls: the operation of Nuclear Facilities, Aircraft Navigation or Aircraft Communication Systems, Air Traffic Control, Life Support, or Weapons Systems ("High Risk Activities"). Lantronix and its supplier(s) specifically disclaim any expressed or implied warranty of fitness for such High Risk Activities.

## SFP Unpacking

SFPs can be packaged and shipped in a Single package or in a Pack (e.g., TN-SFP-10G-LR-PK is a Pack of 20 TN-SFP-10G-LR SFPs). Before you start installing the TN-SFP-xxx, verify that the package contains the following items:

- One TN-SFP-xxx device
- One printed Insert Card
- One printed Caution statement

Please notify your sales representative immediately if any of the above items is missing or damaged. Save the packaging for possible future use.



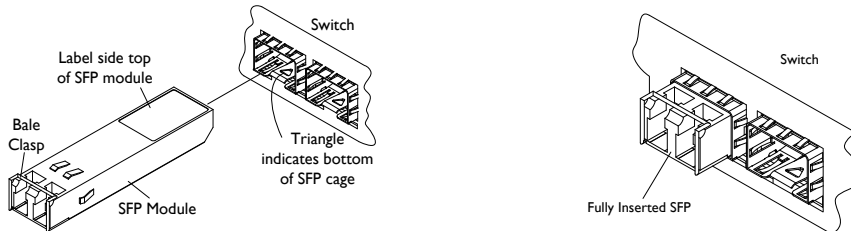
## SFP Installation

### Cautions

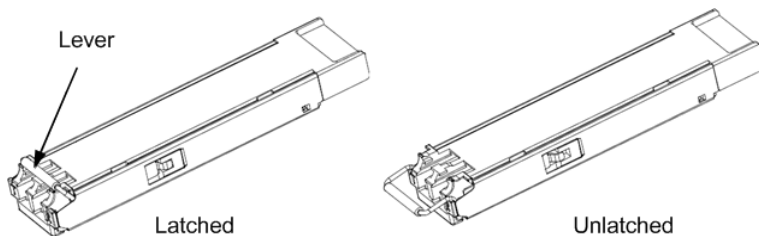
- The SFP module is keyed to only be installed one way. If forced the wrong way, damage may occur.
- Avoid getting dust or other contaminants into the fiber bore of the SFP transceiver module, as this will cause the optics to not operate properly.
- Clean the optic surfaces of the optical fiber before you plug them back in to the optical bores of another SFP module. See Fiber Optic Association [Cleaning Fiber Optic Connections](#) page.
- Each port must match the wavelength specifications on the other end of the cable, and the cable must not exceed the specified cable length for reliable communications.
- TN-SFP distances, TX power, RX power, and link budgets can be found on the Lantronix [website](#). The fiber optic transmitters on this device meet Class I Laser safety requirements per IEC-825/CDRH standards and comply with 21 CFR1040.10 and 21CFR1040.11. **WARNING:** Visible and invisible laser radiation when open. Do not stare into the beam or view the beam directly with optical instruments. Failure to observe this warning could result in an eye injury or blindness. **IMPORTANT:** Copper based media ports such as Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to intra-building (inside plant) link segments that are not subject to lightning transients or power faults. Copper-based media ports such as Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are NOT to be connected to inter-building (outside plant) link segments that are subject to lightning transients or power faults.

### Installing an SFP Module

1. Attach an ESD-preventive wrist strap to your wrist and to the ESD ground connector or a bare metal surface on your chassis.
2. Remove the SFP transceiver module from its protective packaging. Note: Do not remove the optical bore dust plugs until directed to do so in a later procedure.
3. Check the slot orientation. Note that for some devices (e.g., S4224) some slots are “upside down” compared to other slots.
4. Position the SFP device at the desired installation slot, with the label facing correctly.
5. Carefully slide the SFP device into the slot, aligning it with the internal installation guides.



6. Ensure that the SFP device is firmly seated against the internal mating connector. To verify that the SFP is seated and latched properly. **a)** Grasp the SFP by the sides and try to remove it without releasing the latch. **b)** If the SFP can not be removed, it is installed and seated properly. If the SFP can be removed, reinsert it and press harder with your thumb; repeat if necessary until it is latched securely into the socket.



7. Connect the fiber cable to the fiber port connector of the SFP device. Make sure the SFP release latch is in the up (closed) position when you insert the cable connector into the SFP.
8. Remove the dust plug from the connector. Save the dust plug for future use.
9. Attach an appropriate cable into the SFP module port.
10. Attach the other end of the cable into the other device.
11. Observe the status LED(s). See the related manual for details.

### Fiber Cable Physical Characteristics

The fiber cable physical characteristics must meet or exceed IEEE 802.3ae specifications:

- Single mode fiber (recommended): 9  $\mu\text{m}$
- Multimode fiber (recommended): 62.5/125  $\mu\text{m}$
- Multimode fiber (optional): 100/140, 85/140, 50/125  $\mu\text{m}$

**Warning:** Visible and invisible laser radiation when open. DO NOT stare into laser beam or view directly with optical instruments. Failure to observe this warning could result in damage to your eyes or blindness.

### Recommended Cable Type for TN-SFP-10G-T

- Common Industry Acronym: FFTP (not SSTP or SFTP)
- ISO/IEC 11801 Name: F/FTP
- Cable Shielding Type: Foil
- Twisted Pair Shielding Type: Foil



### Typical TN-SFP-10G-T Power Consumption at Various Distances

- 10m :2.4W
- 20m : 2.5W
- 30m : 2.6W

### TN-SFP-10G-T Power Consumption/Surge Current Caution

**CAUTION:** Power consumption and surge current are higher than the specified values in the SFP MSA. Contact host device manufacturer before plugging TN-SFP-10G-T into the SFP+ slot.

### CAUTION

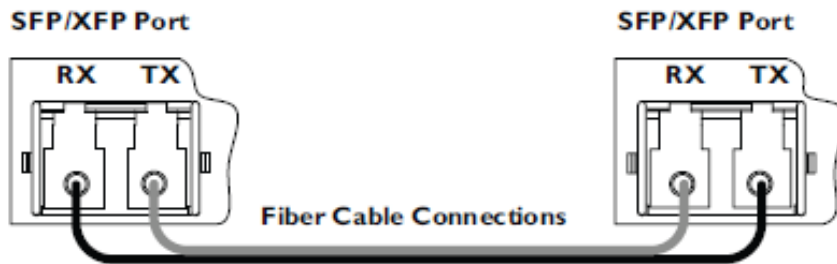
Power consumption and surge current are higher than the specified values in the SFP MSA.

Contact host device manufacturer before plugging TN-SFP-10G-T into the SFP+ slot

### Connecting Fiber Cables

To install the fiber cable, do the following:

1. Locate the appropriate fiber cable.
2. Install the cable as shown below.



### **Removing an SFP Module**

**Caution:** Be careful when removing the SFP or SFP+ from a device. Some SFP transceiver module temperatures may exceed 160°F (70°C) and be too hot to touch with bare hands. **Note:** Do not remove and replace the SFP modules more often than necessary; excessive SFP removing and replacing can shorten the SFPs useful life.

1. Attach an ESD-preventive wrist strap to your wrist and to the ESD ground connector or a bare metal surface on your chassis.
2. For future reattachment of fiber-optic cables, note which connector plug is send (TX) and which is receive (RX).
3. Remove the SFP transceiver module:
  - a. If the SFP transceiver module has an **actuator button latch**, gently press the actuator button on the front of the SFP transceiver module until it clicks, and the latch mechanism releases the SFP transceiver module from the socket connector. Grasp the actuator button between your thumb and index finger, and carefully pull the SFP transceiver module straight out of the module slot.
  - b. If the SFP transceiver module has a **bail clasp latch**, pull the latch out and down to eject the SFP transceiver module from the socket connector. If the bail clasp latch is obstructed and you cannot use your index finger to open it, use a small, flat-blade screwdriver or other long, narrow instrument to open the bail clasp latch. Grasp the SFP transceiver module between your thumb and index finger, and carefully remove it from the socket.
4. Replace the Dust Plug.
5. Place the removed SFP/SFP+ transceiver module in an antistatic bag or other protective package.

## DDMI (Digital Diagnostics Monitoring Interface)

DDMI (Digital Diagnostics Monitoring Interface) provides enhanced digital DMI for optical transceivers which allows real time access to device operating parameters.

The following DMI port screen and explanation table contains brief definitions of the DDMI support offered on some Small Form Factor Pluggable (SFP) Transceiver Modules. For further information, see the help option or User Guide for the relate product4. **Note:** This feature is not available on all devices and may vary between products. See the related manual for more information.

The screenshot displays a web interface for monitoring a transceiver. On the left is a navigation menu with categories like System, Ports, Link OAM, DHCP, Security, LACP, Loop Protection, Spanning Tree, MVR, IPMC, LLDIP, Ethernet Services, Performance Monitor, PTP, MAC Table, VLANs, DDMI (Overview, Detailed), UOLD, and Diagnostics. The main content area is titled 'Transceiver Information' and includes a dropdown for 'Port 27', an 'Auto-refresh' checkbox, and a 'Refresh' button. Below this is a table of transceiver details:

Vendor	Transion
Part Number	TN-10GSFP-LR1
Serial Number	8800022
Revision	0001
Date Code	2011-08-09
Transceiver	10G

Below the transceiver info is the 'DDMI Information' section, which contains a table with columns for Type, Current, High Alarm Threshold, High Warn Threshold, Low Warn Threshold, and Low Alarm Threshold:

Type	Current	High Alarm Threshold	High Warn Threshold	Low Warn Threshold	Low Alarm Threshold
Temperature(C)	52.875	85.000	80.000	0.000	-5.000
Voltage(V)	3.2600	3.6000	3.5000	3.1000	3.0000
Tx Bias(mA)	38.896	90.000	80.000	4.000	2.000
Tx Power(mW)	0.5624	1.4125	1.1220	0.1585	0.1259
Rx Power(mW)	0.0000 --	1.4125	1.1220	0.0363	0.0229
Tx Power(dBm)	-2.50	1.50	0.50	-8.00	-9.00
Rx Power(dBm)	-inf	1.50	0.50	-14.40	-16.40

The Transceiver Information and DDMI Information sections are described below.

DDMI Parameter	Description
<b>DDMI</b>	Rx Power (uW) Intrusion Threshold; a level for Rx Power on the Fiber port. If the DMI read value falls below the preset value, an intrusion is detected, and a trap is generated. The default is 0 uW. The range is 0 - 65,535 uW.
<b>Port</b>	The device's port number.
<b>Vendor</b>	The SFP vendor's name.
<b>Part Number</b>	The SFP vendor Part number provided by the SFP vendor ( <i>TN-10GSFP-SR</i> ).
<b>Serial Number</b>	The SFP Vendor Serial number provided by the SFP vendor (e.g., <i>8672105</i> ).
<b>Revision</b>	The SFP vendor Revision level for part number provided by the SFP vendor.
<b>Date Code</b>	The vendor's manufacturing date code (e.g., <i>2011-08-09</i> ).
<b>Transeiver</b>	The Transceiver compatibility (e.g., <i>1000BASE_SX</i> or <i>10G</i> ).
<b>Current</b>	The current value of temperature, voltage, TX bias, TX power, and RX power.
<b>High Alarm Threshold</b>	The high alarm threshold value - temperature, voltage, TX bias, TX power, - RX power.
<b>High Warn Threshold</b>	The high warn threshold value of temperature, voltage, TX bias, TX power, RX power.
<b>Low Warn Threshold</b>	The low warn threshold value of temperature, voltage, TX bias, TX power, RX power.
<b>Low Alarm Threshold</b>	The low alarm threshold value - temperature, voltage, TX bias, TX power, RX power.

## SFP Information and SFP Detail Info

**Note:** This feature is not available on all devices and may vary between products. See the related manual for more information.

### SFP Information

This page displays general SFP information and monitoring information as shown and described below.

Port	Tx Central Wavelength	Bit Rate	Temperature	Vcc	Mon1 (Bias)	Mon2 (TxPwr)	Mon3 (RxPwr)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10	1310	10 Gbps	27.07 C	3.35 V	0 mA	0.00 dBm	none

#### Parameter descriptions:

Parameter	Description
<b>Port</b>	The logical port for the settings contained in the same row.
<b>Tx Central Wavelength</b>	Displays the nominal transmitter output wavelength in nm.
<b>Bit rate</b>	Displays the nominal bit rate of the transceiver.
<b>Temperature</b>	Displays the internally measured transceiver temperature. Temperature accuracy is vendor specific but must be better than 3 degrees Celsius over specified operating temperature and voltage.
<b>Vcc</b>	Displays the internally measured transceiver supply voltage. Accuracy is vendor specific but must be better than 3 percent of the manufacturer's nominal value over specified operating temperature and voltage. Note that in some transceivers, transmitter supply voltage and receiver supply voltage are isolated. In that case, only one supply is monitored. Refer to the device specification for more detail.
<b>Mon1 (Bias)</b>	Displays the measured TX bias current in uA. Accuracy is vendor specific but must be better than 10 percent of the manufacturer's nominal value over specified operating temperature and voltage.
<b>Mon2 (TX PWR)</b>	Displays the measured coupled TX output power in mW. Accuracy is vendor specific but must be better than 3dB over specified operating temperature and voltage. Data is assumed to be based on measurement of a laser monitor photodiode current. Data is not valid when the transmitter is disabled.

<b>Mon3 (RX PWR)</b>	Displays the measured received optical power in mW. Absolute accuracy is dependent upon the exact optical wavelength. For the vendor specified wavelength, accuracy should be better than 3dB over specified temperature and voltage. This accuracy should be maintained for input power levels up to the lesser of maximum transmitted or maximum received optical power per the appropriate standard. It should be maintained down to the minimum transmitted power minus cable plant loss (insertion loss or passive loss) per the appropriate standard. Absolute accuracy beyond this minimum required received input optical power range is vendor specific.
----------------------	---



**SFP Detail Info**

This page displays detailed SFP information and monitoring information as shown and described below.

The screenshot shows the 'SFP Information for Port 10' page. The interface includes a navigation menu on the left with options like Configuration, Monitor, System, Green Ethernet, Ports, Traffic Overview, QoS Statistics, QCL Status, Detailed Statistics, SFP Information, SFP Detail Info, Link OAM, DHCP, Security, Aggregation, Loop Protection, Spanning Tree, MVR, and IPMC. The main content area displays a table of SFP parameters for Port 10, with an 'Auto-refresh' checkbox and a refresh button. The table lists the following parameters and values:

Parameter	Description
Connector Type	SFP or SFP Plus - LC
Fiber Type	Reserved
Tx Central Wavelength	1310
Bit Rate	10 Gbps
Vendor OUI	00-c0-f2
Vendor Name	Transition
Vendor P/N	TN-SFP-25G-ER
Vendor Revision	1.0
Vendor Serial Number	TLSPH007
Date Code	200820
Temperature	27.07 C
Vcc	3.35 V
Mon1 (Bias)	0 mA
Mon2 (TX PWR)	0.00 dBm
Mon3 (RX PWR)	none

**Parameter descriptions:**

Parameter	Description
<b>Connector Type</b>	Displays the external optical or electrical cable connector provided as the media interface.
<b>Fiber Type</b>	Displays the fiber channel transmission media.
<b>Tx Central Wavelength</b>	Displays the nominal transmitter output wavelength in nm.
<b>Bit rate</b>	Displays the nominal bit rate of the transceiver.
<b>Vendor OUI</b>	Displays the vendor IEEE company ID (Organizationally Unique Identifier).
<b>Vendor Name</b>	Displays the vendor name.
<b>Vendor P/N</b>	Displays the vendor part number or product name (e.g., TN-SFP-25G-ER).
<b>Vendor Revision</b>	Displays the vendor product revision.
<b>Vendor Serial Number</b>	Displays the vendor serial number for the transceiver.
<b>Date Code :</b>	Displays the vendor's manufacturing date code.
<b>Temperature</b>	Displays the internally measured transceiver temperature. Temperature accuracy is vendor specific but must be better than 3 degrees Celsius over specified operating temperature and voltage.
<b>Vcc</b>	Displays the internally measured transceiver supply voltage. Accuracy is vendor specific but must be better than 3 percent of the manufacturer's nominal value over specified operating temperature and voltage. Note that in some transceivers,

	transmitter supply voltage and receiver supply voltage are isolated. In that case, only one supply is monitored. Refer to the device specification for more detail.
<b>Mon1 (Bias)</b>	Displays the measured TX bias current in uA. Accuracy is vendor specific but must be better than 10 percent of the manufacturer's nominal value over specified operating temperature and voltage.
<b>Mon2 (TX PWR)</b>	Displays the measured coupled TX output power in mW. Accuracy is vendor specific but must be better than 3dB over specified operating temperature and voltage. Data is assumed to be based on measurement of a laser monitor photodiode current. Data is not valid when the transmitter is disabled.
<b>Mon3 (RX PWR)</b>	Displays the measured received optical power in mW. Absolute accuracy is dependent upon the exact optical wavelength. For the vendor specified wavelength, accuracy should be better than 3dB over specified temperature and voltage. This accuracy should be maintained for input power levels up to the lesser of maximum transmitted or maximum received optical power per the appropriate standard. It should be maintained down to the minimum transmitted power minus cable plant loss (insertion loss or passive loss) per the appropriate standard. Absolute accuracy beyond this minimum required received input optical power range is vendor specific.

## Compliance Information

### Class I Laser Compliance

This product has been tested and found to comply with the limits for FDA Class I laser for IEC60825, EN60825, and 21CFR1040 specifications.

### Declaration of Conformity

Manufacture's Name: Lantronics, Inc.  
 Manufacture's Address: 48 Discovery, Suite 250, Irvine, California 92618 USA

Declares that the product(s): TN-SFP-10G-xx and TN-CWDM-10G

Conform(s) to the following Product Regulations:  
 FCC Part 15 Class A, EN 55032:2012, EN 55024:2010  
 Directive 2014/30/EU, Directive 2015/863/EU  
 Low-Voltage Directive 2014/35/EU  
 IEC /EN 60950-1:2006+A2:2013  
 2011/65/EU EN 50581:2012

With the technical construction on file at the above address, this product carries the CE Mark

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Place: Irvine, California

Date: April 27, 2022

Signature: *Fathi Hakam*

Full Name: Fathi Hakam

Position: Vice President of Engineering

### Translated Safety Warnings

**Warning** Class I laser product.

**Waarschuwing** Klasse-I laser produkt.

**Varoitus** Luokan I lasertuote.

**Attention** Produit laser de classe I

**Warnung** Laserprodukt der Klasse I.

**Avvertenza** Prodotto laser di Classe I.

**Advarsel** Laserprodukt av klasse I.

**Aviso** Produto laser de classe I.

**¡Advertencia!** Producto láser Clase I.

**Varning!** Laserprodukt av klass I.

**Aviso** Produto a laser de classe I.

**Advarsel** Klasse I laserprodukt.

### FCC Regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

## Canadian Regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

## European Regulations

**Warning :** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

**Achtung ! :** Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fall ist der Benutzer für Gegenmaßnahmen verantwortlich.

### Attention ! :

Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.



In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Lantronix will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.

Der Anschluss dieses Gerätes an ein öffentliches Telekommunikationsnetz in den EGMitgliedstaaten verstösst gegen die jeweiligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.



CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentliches Telekommunikationsnetz in den EGMitgliedstaaten verstösst gegen die jeweiligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

## UL Recognized

TN-SFP-10G-SR	TN-GLC-SX-MM-RGD	TN-GLC-FE-100FX	TN-SFP-OC3S
TN-SFP-10G-LR	TN-GLC-BX-U	TN-GLC-BX-U-20	TN-SFP-SX
TN-GLC-T-MG	TN-GLC-BX-D	TN-GLC-BX-D-20	TN-SFP-LX1
TN-GLC-LH-SM	TN-GLC-LHX-SM	TN-GLC-LH-SMD	TN-SFP-LXB11
TN-GLC-LX-SM-RGD	TN-SFP-GE-L	TN-GLC-T	TN-SFP-LXB12
TN-GLC-SX-MM	TN-SFP-GE-S	TN-GLC-FE-100LX	
		TN-SFP-OC3M	



**Lantronix Corporate Headquarters**

48 Discovery, Suite 250

Irvine, CA 92618, USA

Toll Free: 800-526-8766

Phone: 949-453-3990

Fax: 949-453-3995

**Technical Support**

Tel: +1 (800) 526-8766, Tel: +1 (949) 453-3990, or <https://www.lantronix.com/technical-support/>

**Sales Offices**

For a current list of our domestic and international sales offices, go to the Lantronix web site at [www.lantronix.com/about/contact](http://www.lantronix.com/about/contact).