1. Summary

1000BASE-LX SFP Module(i) is SFP (Small-Factor Pluggable) module to be connected to a Panasonic Ethernet Switch's SFP/SFP+ extension slot.

2. Rated/Environmental Conditions

2-1. Operating Voltage	DC 3.3V	
2-2. Power consumption	0.9W max.	
2-3. Operating environment	Temperature: 0 – 60℃ Humidity:　20 – 80%RH（no condensation）	
2-4. Storage environment	Temperature: −20 – 70℃ Humidity:　10 – 90%RH（no condensation）	
2-5. Standards	IEEE802.3z 1000BASE-LX INF-8074i Specification for SFP (Small Form factor Pluggable) Transceiver SFF-8472 Diagnostic Monitoring Interface Class 1 Laser Product (EN 60825-1, EN 60825-2) EN 60950-1	

3. Form

3-1. External Dimensions	9mm（Height）×14mm（Width）×57mm（Depth） （Excluding protruding sections）
3-2. Mass（Weight）	17g

4. Hardware Specifications

4-1. Interface	Fiber port　　　　　:LC connector（Duplex），1port 　　Transmitting and receiving network system: 　　　　　　　　　　　　　　　IEEE802.3z　　　1000BASE-LX 　　Transmission speed　　　:1000Mbps 　　Compatible cable　　　　:Single Mode Fiber cable ITU-T G.652 　　　　　　　　　　　　　　Multi Mode Fiber cable　50/125μm, 　　　　　　　　　　　　　　　　　　　　　　62.5/125μm 　　Maximum transmission distance　　:10km (Single Mode Fiber cable) 　　　　　　　　　　　　550m (50/125μm/500MHz・km MMF cable) 　　　　　　　　　　　　550m (50/125μm/400MHz・km MMF cable) 　　　　　　　　　　　　550m (62.5/125μm/500MHz・km MMF cable) 　　　　　　　　　　　　MMF: Multi Mode Fiber ＊1 If performing IEEE802.3z 1000BASE-LX connecting via the Multi Mode Fiber, 　　the MCP (mode conditioning patch code) is separately required.
4-2. Optical wavelength	1310nm
4-3. Output Optical Power	−9dBm min. – −3dBm max.
4-4. Optical Input Power minimum (Sensitivity)	−21dBm
4-5. Diagnostic Monitoring Interface	SFF-8472 Diagnostic Monitoring Interface for Optical Transceivers (DMI) Ethernet Switch that the device has been installed must have a DMI function too. ＊1 Refer 6-1. Supported Products.

5. Accessories

5-1. Accessories	(1) Installation Guide　　　　　　　　　　　　　　　　　　　　:1 (2) Protection cap of the fiver optic port (Attached to the module)　　:1

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6. Supported Products

6-1. Supported Products	Please use in Panasonic Ethernet Switchs listed below.
	Supported Product Name Supported Product Number
	Switch-M24eGi PN28240i-ID (*1 Supported DMI function)
	Switch-M16eGi PN28160i-ID (*1 Supported DMI function)
	Switch-M8eGi PN28080i-ID (*1 Supported DMI function)
	GA-MLi8TPoE+ PN260893H-ID (*1 Supported DMI function)
	GA-MLi4TPoE+ PN260493H-ID (*1 Supported DMI function)
	GA-ML24TPoE+ PN262493-ID (*1 Supported DMI function)
	GA-ML16TPoE+ PN261693-ID (*1 Supported DMI function)
	GA-ML8TPoE+ PN260893-ID (*1 Supported DMI function)
	GA-ML4TPoE+ PN260493N-ID (*1 Supported DMI function)
	GA-ML24TCPoE+ PN262492-ID (*1 Supported DMI function)
	For the latest information about supported product, check our website.
	*1 DMI: Diagnostic Monitoring Interface

7. Prohibitions when Using the Product to Guarantee Safety

Denotes that "Death or serious injuries might be sustained".
The manufacturer assumes no responsibility for any problems occurring when the following conditions are not satisfied.
Observe the following items when using the product.

(1) Do not handle this SFP Module and connection cables during a thunderstorm.
Deviation could lead to electric shock.

(2) Do not disassemble and/or modify this SFP Module.
Deviation could lead to fire, electric shock, and/or equipment failure.

(3) Do not connect or disconnect this SFP Module from the SFP/SFP+ extension slots with wet hands.
Deviation could lead to electric shock, or malfunctions.

(4) Do not insert, nor drop foreign objects such as metal or combustible things into the inside from the openings.
Deviation could lead to fire, electric shock, and/or equipment failure.

(5) Do not store or use the SFP Module in places where it might get splashed with liquids such as water, in places with a lot of humidity, in places with conductive dust, or in places where there are corrosive and combustible gases.
Deviation could lead to fire, electric shock, and/or equipment failure.

(6) Do not place this SFP Module under direct sunlight and/or high temperature.
Deviation could lead to high internal temperature and fire.

(7) Do not store nor use the SFP Module in unstable places where there are lots of vibrations, or impacts.
Deviation could lead to falling, injury and/or equipment failure.

(8) Do not put the SFP Module into fire.
Deviation could lead to explosion and/or fire.

(9) If the Product is going to be used in high temperature environments, do not perform the following operations with bare hands.
− Moving the product from the installation area, or transporting it
− Connecting and disconnecting the product, or plugging in or unplugging the fiber optic cables
Deviation could lead to injuries or burns, etc. because of high temperatures.

(10) Do not connect any instruments other than those which conform to the standards for fiber optic ports.
Deviation could lead to fire, electric shock, or malfunctions.

(11) Do not look at the laser light.
Deviation could lead to visual impairment. (Class 1 Laser Product)

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8. Cautions when Using the Product to Guarantee Safety

Denotes that "Minor injuries might be sustained, or property damage might occur".
The manufacturer assumes no responsibility for any problems occurring when the following conditions are not satisfied.
Observe the following items when using the product.

(1) If fiber optic cables are going to be connected to this product, check that the fiber optic cable connectors are not contaminated with dust, etc.
If they are contaminated, the optical signals will not be properly transmitted, which might cause misoperations, or malfunctions. If they are contaminated, be sure to clean them, then connect them to the fiber optic ports.

(2) Be careful in handling the product's levers and metal terminals, etc. so that you do not cut your hands.

(3) This SFP Module is to be periodically serviced in order to maintain its performance.
Please choose a product administrator, and have them be sure to implement periodic maintenance.

(4) When using this SFP Module for applications which require extremely high reliability, be careful to expend all possible means to ensure safety and reliability.
This SFP Module was not designed nor manufactured with the intention that it be used for applications (in use with railways, aviation, and medical care, etc. whereas the influence rate due to communications failures is extremely high in regard to systems that directly affect systems and human lives) which require extremely high reliability.

(5) Be aware of glitches which are caused in the usage environments such as age-related degradation, etc.
This may vary depending upon conditions such as utilization rates and usage environments, but performance might decrease due to the age-related degradation, etc. of components. It is recommended that this SFP Module be replaced about five years after it has been installed.

(6) Be careful in regards to environmental restrictions whereby the SFP Module can be used.
Please isolate the business power lines and communications lines. Isolate distribution lines and other distribution lines, and low current power lines, fiber optic cables, metallic water conduits, and gas conduits, etc. Noise may be generated in the communications lines which might cause communications glitches.

(7) Be careful when performing the following operations since the device will be at high temperatures immediately after it has been energized or the power has been shut off.
- Moving the product from the installation area, or transporting it
- Connecting and disconnecting the product, or plugging in or unplugging the fiber optic cables
Deviation could lead to injuries or burns, etc. because of high temperatures.

9. Basic Instructions for the Use of This Product

(1) For inspection and/or diagnosis, consult the retailer.

(2) Please properly and firmly connect the devices into the Panasonic Ethernet Switch's SFP/SFP+ extension slots which are compatible with the SFP Module. If the SFP Module is connected to Ethernet Switches other than Panasonic Ethernet Switches which are compatible with the SFP Module, please note that operations are not guaranteed. Check our website for the latest information on the Panasonic Ethernet Switches which are compatible with the SFP Module.

(3) If the SFP Module is going to be disconnected from the SFP/SFP+ extension slots, first unlock the cable latches then disconnect the fiber optic cables, lower the SFP Module's levers forward, then with the SFP Module's latches unlocked, pull out the SFP Module.

(4) Remove the SFP Module from the SFP extension slot before cleaning the SFP Module.

(5) If fiber optic cables are going to be connected to this product, check that the fiber optic cable connectors are not contaminated with dust, etc. and if they are contaminated, be sure to clean them, then connect them to the fiber optic ports.

(6) Do not touch the SFP Module's metal terminals, nor allow charged objects to get close to them. Deviation could lead to malfunctions due to static electricity.

(7) Do not put a strong shock, including dropping, to this SFP Module. Deviation could lead to equipment failure.

(8) Do not store and/or use this SFP Module in the environment with the characteristics listed below.
(Store and/or use this SFP Module in the environment in accordance with the specification.)
- High humidity. Possible spilled liquid (water).
- Dusty. Possible static charge (such as carpet).
- Under direct sunlight.
- Possible condensation. High/low temperature exceeding the specifications environment.
- Strong vibration and/or strong shock.

(9) Do not use the SFP Module in any condition where the specification limits are exceeded.
Deviation could lead to malfunctions.